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Vol. 1214 Number 1

OFFICIAL GAZETTE

of the
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

September 1, 1998



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

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OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
September 1, 1998 Volume 1214 Number 1

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee.....	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a).....	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a).....	450.00
— Supplemental search fee, per additional invention (payable only upon invitation).....	210.00
European Patent Office as ISA.....	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30).....	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated.....	105.00
— For each designation in excess of 11 offices.....	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee.....	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	

USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I.....	490.00
— Additional examination fee, per additional invention (payable only upon invitation).....	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees		Small Entity	Regular
Basic National fee			
USPTO was IPEA			
— All claims presented satisfied provisions of PCT Article 33(2) to (4).....	49.00	98.00	
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00	
USPTO was ISA but not IPEA.....	395.00	790.00	
USPTO was neither ISA nor IPEA			
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00	
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00	
Other National fees			
— For each independent claim in excess of 3.....	41.00	82.00	
— For each claim in excess of 20.....	11.00	22.00	
— For each application containing a multiple dependent claim.....	135.00	270.00	
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(l)	65.00	130.00	
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(l).....	130.00	130.00	

Nov. 10, 1997
BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on August 29, 1995 for which maintenance fees due at 3 years

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and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,444,870 through 5,446,924
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on August 27, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,042,087 through 5,044,010
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on August 25, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,688,269 through 4,689,827
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f))\$525.00
By other than a small entity\$1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,050.00
By other than a small entity\$2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,580.00
By other than a small entity\$3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f))\$65.00
By other than a small entity\$130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable\$700.00
(2) unintentional\$1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED June 24, 1998 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,596,060	06/634,980	06/24/86
4,596,065	06/730,541	06/24/86
4,596,069	06/630,485	06/24/86
4,596,070	06/630,486	06/24/86
4,596,082	06/726,188	06/24/86
4,596,083	06/689,600	06/24/86
4,596,090	06/605,463	06/24/86
4,596,092	06/666,314	06/24/86
4,596,103	06/659,407	06/24/86
4,596,104	06/784,222	06/24/86
4,596,107	06/666,331	06/24/86
4,596,108	06/695,735	06/24/86
4,596,112	06/647,500	06/24/86
4,596,113	06/720,260	06/24/86
4,596,115	06/629,324	06/24/86
4,596,118	06/678,002	06/24/86
4,596,120	06/676,822	06/24/86
4,596,126	06/619,127	06/24/86
4,596,127	06/531,092	06/24/86
4,596,130	06/708,055	06/24/86
4,596,134	06/740,162	06/24/86
4,596,139	06/695,811	06/24/86
4,596,140	06/652,717	06/24/86
4,596,143	06/565,865	06/24/86
4,596,159	06/543,454	06/24/86
4,596,169	06/476,963	06/24/86
4,596,173	06/655,035	06/24/86
4,596,176	06/505,207	06/24/86
4,596,177	06/441,309	06/24/86
4,596,181	06/771,641	06/24/86
4,596,182	06/577,784	06/24/86
4,596,190	06/624,225	06/24/86
4,596,194	06/699,740	06/24/86
4,596,201	06/608,021	06/24/86
4,596,202	06/587,512	06/24/86
4,596,207	06/664,098	06/24/86
4,596,208	06/667,989	06/24/86
4,596,209	06/701,115	06/24/86
4,596,210	06/605,030	06/24/86
4,596,214	06/692,738	06/24/86
4,596,216	06/383,462	06/24/86
4,596,219	06/572,921	06/24/86
4,596,223	06/590,626	06/24/86
4,596,224	06/490,086	06/24/86
4,596,237	06/589,347	06/24/86
4,596,239	06/721,562	06/24/86
4,596,244	06/581,457	06/24/86
4,596,250	06/671,410	06/24/86
4,596,258	06/611,941	06/24/86
4,596,262	06/585,880	06/24/86
4,596,263	06/557,839	06/24/86
4,596,270	06/736,287	06/24/86
4,596,285	06/717,033	06/24/86
4,596,290	06/630,041	06/24/86
4,596,292	06/724,453	06/24/86
4,596,293	06/632,435	06/24/86
4,596,294	06/368,993	06/24/86
4,596,304	06/660,888	06/24/86
4,596,310	06/599,160	06/24/86
4,596,319	06/551,350	06/24/86
4,596,321	06/703,346	06/24/86

Patent Number	Serial Number	Issue Date	4,596,744	06/696,238	06/24/86
4,596,322	06/459,099	06/24/86	4,596,748	06/599,130	06/24/86
4,596,326	06/691,315	06/24/86	4,596,758	06/710,374	06/24/86
4,596,336	06/634,878	06/24/86	4,596,778	06/511,127	06/24/86
4,596,337	06/498,960	06/24/86	4,596,788	06/617,959	06/24/86
4,596,345	06/536,932	06/24/86	4,596,792	06/595,636	06/24/86
4,596,359	06/738,954	06/24/86	4,596,794	06/686,670	06/24/86
4,596,361	06/710,469	06/24/86	4,596,797	06/733,436	06/24/86
4,596,368	06/544,261	06/24/86	4,596,804	06/625,000	06/24/86
4,596,374	06/676,131	06/24/86	4,596,806	06/622,596	06/24/86
4,596,376	06/725,132	06/24/86	4,596,808	06/556,869	06/24/86
4,596,378	06/793,232	06/24/86	4,596,810	06/670,970	06/24/86
4,596,379	06/393,426	06/24/86	4,596,820	06/680,059	06/24/86
4,596,380	06/697,558	06/24/86	4,596,842	06/723,586	06/24/86
4,596,405	06/654,242	06/24/86	4,596,844	06/740,837	06/24/86
4,596,416	06/770,964	06/24/86	4,596,846	06/523,726	06/24/86
4,596,422	06/648,582	06/24/86	4,596,850	06/682,650	06/24/86
4,596,429	06/725,075	06/24/86	4,596,852	06/675,210	06/24/86
4,596,433	06/761,292	06/24/86	4,596,855	06/678,015	06/24/86
4,596,436	06/715,432	06/24/86	4,596,857	06/674,261	06/24/86
4,596,448	06/559,536	06/24/86	4,596,859	06/711,928	06/24/86
4,596,455	06/650,507	06/24/86	4,596,861	06/736,915	06/24/86
4,596,456	06/652,054	06/24/86	4,596,869	06/777,867	06/24/86
4,596,467	06/590,135	06/24/86	4,596,875	06/723,430	06/24/86
4,596,470	06/686,341	06/24/86	4,596,876	06/532,118	06/24/86
4,596,474	06/743,256	06/24/86	4,596,883	06/628,088	06/24/86
4,596,476	06/613,971	06/24/86	4,596,889	06/704,152	06/24/86
4,596,477	06/696,436	06/24/86	4,596,895	06/785,159	06/24/86
4,596,479	06/734,746	06/24/86	4,596,909	06/692,152	06/24/86
4,596,485	06/740,810	06/24/86	4,596,916	06/592,113	06/24/86
4,596,495	06/704,558	06/24/86	4,596,919	06/644,311	06/24/86
4,596,496	06/643,042	06/24/86	4,596,924	06/502,652	06/24/86
4,596,500	06/575,829	06/24/86	4,596,925	06/437,091	06/24/86
4,596,508	06/503,688	06/24/86	4,596,929	06/553,533	06/24/86
4,596,510	06/364,631	06/24/86	4,596,930	06/487,025	06/24/86
4,596,512	06/644,002	06/24/86	4,596,932	06/495,371	06/24/86
4,596,513	06/690,331	06/24/86	4,596,935	06/601,646	06/24/86
4,596,514	06/541,729	06/24/86	4,596,940	06/601,840	06/24/86
4,596,516	06/631,156	06/24/86	4,596,952	06/487,354	06/24/86
4,596,517	06/696,331	06/24/86	4,596,963	06/630,406	06/24/86
4,596,526	06/708,068	06/24/86	4,596,966	06/708,640	06/24/86
4,596,539	06/731,275	06/24/86	4,596,967	06/566,761	06/24/86
4,596,544	06/645,230	06/24/86	4,596,970	06/685,034	06/24/86
4,596,550	06/574,791	06/24/86	4,596,971	06/755,264	06/24/86
4,596,558	06/775,997	06/24/86	4,596,974	06/720,913	06/24/86
4,596,559	06/667,638	06/24/86	4,596,985	06/555,471	06/24/86
4,596,561	06/688,028	06/24/86	4,596,987	06/620,042	06/24/86
4,596,571	06/734,363	06/24/86	4,596,991	06/685,714	06/24/86
4,596,576	06/782,433	06/24/86	4,596,993	06/487,502	06/24/86
4,596,586	06/318,160	06/24/86	4,596,999	06/592,280	06/24/86
4,596,587	06/645,756	06/24/86	4,597,003	06/556,832	06/24/86
4,596,592	06/729,844	06/24/86	4,597,010	06/765,556	06/24/86
4,596,608	06/723,462	06/24/86	4,597,012	06/673,618	06/24/86
4,596,609	06/589,520	06/24/86	4,597,015	06/604,976	06/24/86
4,596,617	06/647,590	06/24/86	4,597,019	06/590,783	06/24/86
4,596,618	06/580,984	06/24/86	4,597,022	06/564,425	06/24/86
4,596,624	06/606,214	06/24/86	4,597,023	06/705,768	06/24/86
4,596,644	06/752,287	06/24/86	4,597,030	06/697,216	06/24/86
4,596,647	06/688,669	06/24/86	4,597,033	06/687,588	06/24/86
4,596,649	06/712,355	06/24/86	4,597,035	06/599,209	06/24/86
4,596,650	06/590,175	06/24/86	4,597,038	06/634,731	06/24/86
4,596,655	06/524,176	06/24/86	4,597,041	06/441,839	06/24/86
4,596,659	06/570,322	06/24/86	4,597,044	06/434,345	06/24/86
4,596,664	06/691,986	06/24/86	4,597,047	06/724,059	06/24/86
4,596,675	06/780,116	06/24/86	4,597,048	06/530,164	06/24/86
4,596,677	06/597,765	06/24/86	4,597,051	06/550,664	06/24/86
4,596,684	06/525,613	06/24/86	4,597,064	06/518,239	06/24/86
4,596,686	06/309,522	06/24/86	4,597,075	06/744,129	06/24/86
4,596,691	06/652,557	06/24/86	4,597,082	06/586,863	06/24/86
4,596,693	06/776,629	06/24/86	4,597,086	06/631,173	06/24/86
4,596,697	06/646,536	06/24/86	4,597,104	06/660,212	06/24/86
4,596,701	06/716,725	06/24/86	4,933,996	06/256,468	06/19/90
4,596,702	06/683,392	06/24/86	4,933,998	07/227,734	06/19/90
4,596,706	06/722,875	06/24/86	4,933,999	07/281,751	06/19/90
4,596,715	06/653,401	06/24/86	4,934,000	07/388,677	06/19/90
4,596,728	06/697,175	06/24/86	4,934,018	07/234,321	06/19/90
4,596,730	06/682,284	06/24/86	4,934,023	07/431,960	06/19/90
4,596,736	06/616,871	06/24/86	4,934,025	07/266,619	06/19/90
			4,934,027	07/308,265	06/19/90

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Patent Number	Serial Number	Issue Date	4,934,310	07/027,106	06/19/90
4,934,028	07/335,091	06/19/90	4,934,312	07/232,141	06/19/90
4,934,040	06/884,000	06/19/90	4,934,313	07/208,077	06/19/90
4,934,041	07/225,088	06/19/90	4,934,317	07/305,754	06/19/90
4,934,053	07/349,597	06/19/90	4,934,318	07/308,053	06/19/90
4,934,054	07/280,449	06/19/90	4,934,319	07/334,466	06/19/90
4,934,059	07/312,227	06/19/90	4,934,320	07/271,996	06/19/90
4,934,063	07/398,233	06/19/90	4,934,324	07/294,418	06/19/90
4,934,066	07/280,161	06/19/90	4,934,327	07/237,039	06/19/90
4,934,068	07/350,297	06/19/90	4,934,334	07/293,376	06/19/90
4,934,069	07/269,956	06/19/90	4,934,336	07/358,396	06/19/90
4,934,078	07/272,224	06/19/90	4,934,339	07/356,996	06/19/90
4,934,079	07/241,203	06/19/90	4,934,346	07/377,109	06/19/90
4,934,083	07/392,608	06/19/90	4,934,348	07/366,139	06/19/90
4,934,085	07/453,884	06/19/90	4,934,353	07/415,613	06/19/90
4,934,088	06/699,549	06/19/90	4,934,359	07/251,044	06/19/90
4,934,091	07/344,908	06/19/90	4,934,360	07/294,052	06/19/90
4,934,092	07/339,993	06/19/90	4,934,365	07/213,736	06/19/90
4,934,093	07/308,050	06/19/90	4,934,367	07/184,903	06/19/90
4,934,096	07/248,040	06/19/90	4,934,368	07/146,454	06/19/90
4,934,097	07/294,565	06/19/90	4,934,384	07/419,898	06/19/90
4,934,103	07/255,449	06/19/90	4,934,390	07/286,103	06/19/90
4,934,118	07/261,509	06/19/90	4,934,393	07/213,322	06/19/90
4,934,120	07/386,209	06/19/90	4,934,400	07/298,373	06/19/90
4,934,124	07/311,957	06/19/90	4,934,404	07/398,970	06/19/90
4,934,125	07/324,975	06/19/90	4,934,408	07/318,342	06/19/90
4,934,128	07/312,915	06/19/90	4,934,409	07/459,847	06/19/90
4,934,129	07/254,190	06/19/90	4,934,413	07/340,601	06/19/90
4,934,133	07/288,415	06/19/90	4,934,415	07/255,647	06/19/90
4,934,137	07/284,214	06/19/90	4,934,416	07/277,325	06/19/90
4,934,141	07/305,651	06/19/90	4,934,418	07/201,920	06/19/90
4,934,149	07/294,015	06/19/90	4,934,419	07/277,805	06/19/90
4,934,150	07/282,536	06/19/90	4,934,421	07/387,763	06/19/90
4,934,154	07/304,048	06/19/90	4,934,438	07/208,723	06/19/90
4,934,158	07/344,959	06/19/90	4,934,439	07/361,553	06/19/90
4,934,164	07/364,390	06/19/90	4,934,444	07/267,012	06/19/90
4,934,168	07/354,293	06/19/90	4,934,446	06/660,189	06/19/90
4,934,169	07/192,819	06/19/90	4,934,448	07/305,773	06/19/90
4,934,176	07/250,920	06/19/90	4,934,466	07/314,556	06/19/90
4,934,177	07/213,440	06/19/90	4,934,470	07/358,302	06/19/90
4,934,181	07/330,527	06/19/90	4,934,471	07/131,741	06/19/90
4,934,188	07/315,747	06/19/90	4,934,484	07/390,114	06/19/90
4,934,189	07/430,689	06/19/90	4,934,486	07/342,308	06/19/90
4,934,193	07/356,997	06/19/90	4,934,495	07/330,003	06/19/90
4,934,200	07/293,291	06/19/90	4,934,506	07/407,504	06/19/90
4,934,203	07/294,172	06/19/90	4,934,509	07/269,909	06/19/90
4,934,205	07/284,407	06/19/90	4,934,514	07/342,592	06/19/90
4,934,209	07/324,126	06/19/90	4,934,516	07/240,742	06/19/90
4,934,211	07/244,975	06/19/90	4,934,521	07/397,657	06/19/90
4,934,218	07/293,396	06/19/90	4,934,522	07/419,023	06/19/90
4,934,221	07/264,339	06/19/90	4,934,526	07/343,864	06/19/90
4,934,225	07/148,656	06/19/90	4,934,527	07/323,889	06/19/90
4,934,228	07/297,603	06/19/90	4,934,532	07/241,333	06/19/90
4,934,230	07/235,957	06/19/90	4,934,533	07/241,743	06/19/90
4,934,232	07/188,862	06/19/90	4,934,553	07/332,537	06/19/90
4,934,237	07/148,792	06/19/90	4,934,554	07/244,118	06/19/90
4,934,241	07/119,375	06/19/90	4,934,558	07/402,630	06/19/90
4,934,243	07/339,620	06/19/90	4,934,586	07/399,059	06/19/90
4,934,244	07/405,869	06/19/90	4,934,588	07/260,235	06/19/90
4,934,246	07/251,271	06/19/90	4,934,606	07/118,329	06/19/90
4,934,247	07/347,512	06/19/90	4,934,608	07/360,978	06/19/90
4,934,250	07/293,774	06/19/90	4,934,609	06/662,681	06/19/90
4,934,259	07/391,180	06/19/90	4,934,625	07/358,586	06/19/90
4,934,265	07/147,168	06/19/90	4,934,626	07/361,924	06/19/90
4,934,266	07/301,649	06/19/90	4,934,631	07/294,214	06/19/90
4,934,268	07/305,337	06/19/90	4,934,643	07/334,614	06/19/90
4,934,273	07/368,603	06/19/90	4,934,646	07/284,900	06/19/90
4,934,276	06/842,756	06/19/90	4,934,649	07/277,657	06/19/90
4,934,281	07/265,340	06/19/90	4,934,651	07/429,320	06/19/90
4,934,283	07/404,790	06/19/90	4,934,655	07/320,692	06/19/90
4,934,291	07/353,741	06/19/90	4,934,659	07/322,167	06/19/90
4,934,292	07/235,147	06/19/90	4,934,665	07/344,324	06/19/90
4,934,294	07/349,750	06/19/90	4,934,669	07/376,587	06/19/90
4,934,296	07/347,347	06/19/90	4,934,670	07/393,224	06/19/90
4,934,301	07/287,827	06/19/90	4,934,674	07/327,517	06/19/90
4,934,302	07/307,351	06/19/90	4,934,675	07/342,126	06/19/90
4,934,304	07/331,188	06/19/90	4,934,678	07/382,103	06/19/90
4,934,309	07/407,163	06/19/90	4,934,679	07/236,888	06/19/90
			4,934,687	07/142,736	06/19/90

Patent Number	Serial Number	Issue Date	4,935,040	07/330,246	06/19/90
			4,935,052	07/077,055	06/19/90
4,934,688	07/468,056	06/19/90	4,935,060	07/436,978	06/19/90
4,934,690	07/351,846	06/19/90	4,935,066	07/157,974	06/19/90
4,934,691	07/255,333	06/19/90	4,935,076	07/347,481	06/19/90
4,934,694	07/166,031	06/19/90	4,935,077	07/138,214	06/19/90
4,934,695	07/336,662	06/19/90	4,935,082	07/284,130	06/19/90
4,934,696	07/268,045	06/19/90	4,935,084	07/260,340	06/19/90
4,934,702	07/279,564	06/19/90	4,935,096	07/280,371	06/19/90
4,934,704	07/345,459	06/19/90	4,935,100	07/357,892	06/19/90
4,934,705	07/332,585	06/19/90	4,935,103	07/419,541	06/19/90
4,934,706	07/448,784	06/19/90	4,935,106	06/798,791	06/19/90
4,934,708	07/387,838	06/19/90	4,935,110	07/276,732	06/19/90
4,934,713	07/351,574	06/19/90	4,935,112	07/178,593	06/19/90
4,934,719	07/420,738	06/19/90	4,935,113	07/276,685	06/19/90
4,934,725	07/319,337	06/19/90	4,935,114	07/244,779	06/19/90
4,934,728	07/397,668	06/19/90	4,935,117	07/370,449	06/19/90
4,934,730	07/304,077	06/19/90	4,935,120	07/282,359	06/19/90
4,934,750	07/302,385	06/19/90	4,935,128	07/202,466	06/19/90
4,934,752	07/325,182	06/19/90	4,935,130	07/121,835	06/19/90
4,934,753	07/253,660	06/19/90	4,935,132	07/313,527	06/19/90
4,934,754	07/352,762	06/19/90	4,935,137	07/343,218	06/19/90
4,934,755	07/317,736	06/19/90	4,935,148	07/066,050	06/19/90
4,934,757	07/322,951	06/19/90	4,935,157	07/361,182	06/19/90
4,934,761	07/316,423	06/19/90	4,935,163	07/226,484	06/19/90
4,934,778	07/265,386	06/19/90	4,935,167	07/215,373	06/19/90
4,934,787	07/386,880	06/19/90	4,935,168	07/356,579	06/19/90
4,934,795	07/283,115	06/19/90	4,935,169	07/301,141	06/19/90
4,934,801	06/676,295	06/19/90	4,935,178	06/878,068	06/19/90
4,934,805	07/262,312	06/19/90	4,935,186	07/292,289	06/19/90
4,934,813	07/369,772	06/19/90	4,935,192	07/272,274	06/19/90
4,934,814	07/209,645	06/19/90	4,935,196	07/103,863	06/19/90
4,934,815	07/217,775	06/19/90	4,935,198	07/188,335	06/19/90
4,934,827	07/219,973	06/19/90	4,935,199	07/380,066	06/19/90
4,934,832	07/354,207	06/19/90	4,935,201	07/345,350	06/19/90
4,934,837	07/408,009	06/19/90	4,935,205	07/206,154	06/19/90
4,934,838	07/425,036	06/19/90	4,935,208	07/239,791	06/19/90
4,934,839	07/372,551	06/19/90	4,935,212	07/353,951	06/19/90
4,934,843	07/377,727	06/19/90	4,935,213	07/387,210	06/19/90
4,934,857	07/255,676	06/19/90	4,935,223	07/229,069	06/19/90
4,934,858	07/353,901	06/19/90	4,935,226	07/233,697	06/19/90
4,934,862	07/268,155	06/19/90	4,935,227	07/233,696	06/19/90
4,934,882	07/426,416	06/19/90	4,935,231	07/140,354	06/19/90
4,934,889	07/382,352	06/19/90	4,935,239	07/325,975	06/19/90
4,934,891	07/149,799	06/19/90	4,935,240	07/191,183	06/19/90
4,934,901	07/342,002	06/19/90	4,935,244	07/272,706	06/19/90
4,934,907	07/241,502	06/19/90	4,935,247	07/191,190	06/19/90
4,934,909	07/281,246	06/19/90	4,935,251	07/168,861	06/19/90
4,934,918	07/319,065	06/19/90	4,935,261	07/258,601	06/19/90
4,934,922	07/294,816	06/19/90	4,935,263	07/285,554	06/19/90
4,934,925	07/399,320	06/19/90	4,935,265	07/285,999	06/19/90
4,934,927	07/374,205	06/19/90	4,935,266	07/213,711	06/19/90
4,934,929	07/302,939	06/19/90	4,935,271	07/240,994	06/19/90
4,934,932	07/282,453	06/19/90	4,935,272	07/266,880	06/19/90
4,934,938	07/179,513	06/19/90	4,935,273	07/305,476	06/19/90
4,934,940	07/351,217	06/19/90	4,935,276	07/285,511	06/19/90
4,934,943	07/350,995	06/19/90	4,935,282	07/346,653	06/19/90
4,934,945	07/362,985	06/19/90	4,935,287	07/400,516	06/19/90
4,934,947	07/415,409	06/19/90	4,935,289	07/260,759	06/19/90
4,934,950	07/400,857	06/19/90	4,935,305	07/284,697	06/19/90
4,934,954	07/385,254	06/19/90	4,935,316	07/384,604	06/19/90
4,934,959	07/383,699	06/19/90	4,935,320	07/231,323	06/19/90
4,934,964	07/225,350	06/19/90	4,935,323	07/361,660	06/19/90
4,934,967	07/302,065	06/19/90	4,935,324	07/380,367	06/19/90
4,934,968	07/331,707	06/19/90	4,935,328	07/178,962	06/19/90
4,934,971	07/265,398	06/19/90	4,935,334	07/292,086	06/19/90
4,934,976	07/288,582	06/19/90	4,935,348	06/796,919	06/19/90
4,934,989	07/329,522	06/19/90	4,935,351	06/756,522	06/19/90
4,934,992	07/283,063	06/19/90	4,935,355	06/852,784	06/19/90
4,934,994	07/274,853	06/19/90	4,935,358	07/314,277	06/19/90
4,934,999	07/225,172	06/19/90	4,935,362	07/031,955	06/19/90
4,935,006	07/119,807	06/19/90	4,935,372	06/865,151	06/19/90
4,935,011	07/221,875	06/19/90	4,935,374	07/346,206	06/19/90
4,935,012	07/205,309	06/19/90	4,935,383	07/248,019	06/19/90
4,935,013	07/200,361	06/19/90	4,935,384	07/284,222	06/19/90
4,935,015	07/284,195	06/19/90	4,935,392	07/330,335	06/19/90
4,935,028	07/291,289	06/19/90	4,935,393	07/104,064	06/19/90
4,935,032	06/750,273	06/19/90	4,935,404	07/270,085	06/19/90
4,935,035	07/268,898	06/19/90	4,935,405	07/277,614	06/19/90

Patent Number	Serial Number	Issue Date	4,935,651	07/278,513	06/19/90
4,935,406	07/246,755	06/19/90	4,935,658	07/218,282	06/19/90
4,935,407	07/099,865	06/19/90	4,935,660	07/310,524	06/19/90
4,935,408	07/191,058	06/19/90	4,935,666	07/236,884	06/19/90
4,935,417	07/313,656	06/19/90	4,935,673	07/154,882	06/19/90
4,935,422	07/285,008	06/19/90	4,935,677	07/308,047	06/19/90
4,935,431	07/314,617	06/19/90	4,935,679	07/226,803	06/19/90
4,935,440	07/313,658	06/19/90	4,935,681	07/335,666	06/19/90
4,935,450	07/234,036	06/19/90	4,935,685	07/084,563	06/19/90
4,935,451	07/405,684	06/19/90	4,935,686	07/395,629	06/19/90
4,935,466	07/196,906	06/19/90	4,935,687	07/242,800	06/19/90
4,935,467	07/166,954	06/19/90	4,935,699	07/351,496	06/19/90
4,935,468	07/242,997	06/19/90	4,935,707	07/346,446	06/19/90
4,935,476	07/400,529	06/19/90	4,935,711	07/291,255	06/19/90
4,935,479	07/073,025	06/19/90	4,935,713	07/364,418	06/19/90
4,935,481	07/266,513	06/19/90	4,935,716	07/344,796	06/19/90
4,935,482	07/292,974	06/19/90	4,935,723	07/396,401	06/19/90
4,935,483	07/229,039	06/19/90	4,935,735	06/824,909	06/19/90
4,935,497	07/241,055	06/19/90	4,935,738	07/148,521	06/19/90
4,935,501	07/168,629	06/19/90	4,935,740	07/270,159	06/19/90
4,935,506	07/365,980	06/19/90	4,935,742	07/340,380	06/19/90
4,935,508	07/235,133	06/19/90	4,935,746	07/357,187	06/19/90
4,935,510	07/362,866	06/19/90	4,935,756	07/216,372	06/19/90
4,935,511	07/412,768	06/19/90	4,935,770	07/302,120	06/19/90
4,935,512	07/273,853	06/19/90	4,935,774	07/342,087	06/19/90
4,935,519	07/406,659	06/19/90	4,935,793	07/303,964	06/19/90
4,935,524	07/430,438	06/19/90	4,935,795	07/391,649	06/19/90
4,935,536	07/316,570	06/19/90	4,935,797	07/264,428	06/19/90
4,935,542	07/274,565	06/19/90	4,935,799	07/285,328	06/19/90
4,935,545	07/231,751	06/19/90	4,935,811	07/387,516	06/19/90
4,935,547	07/234,270	06/19/90	4,935,812	07/269,606	06/19/90
4,935,548	07/262,240	06/19/90	4,935,815	07/372,754	06/19/90
4,935,558	07/301,380	06/19/90	4,935,823	07/164,841	06/19/90
4,935,562	07/281,037	06/19/90	4,935,840	07/353,255	06/19/90
4,935,565	07/235,579	06/19/90	4,935,849	07/194,458	06/19/90
4,935,572	07/274,415	06/19/90	4,935,852	07/330,426	06/19/90
4,935,579	07/278,549	06/19/90	4,935,853	07/307,306	06/19/90
4,935,584	07/198,017	06/19/90	4,935,859	07/421,451	06/19/90
4,935,586	07/389,422	06/19/90	4,935,860	07/421,222	06/19/90
4,935,588	07/273,857	06/19/90	4,935,861	07/366,098	06/19/90
4,935,592	07/279,746	06/19/90	4,935,863	07/146,024	06/19/90
4,935,593	07/432,031	06/19/90	4,935,872	07/188,020	06/19/90
4,935,597	07/105,174	06/19/90	4,935,884	07/187,328	06/19/90
4,935,600	07/269,807	06/19/90	4,935,885	07/190,107	06/19/90
4,935,619	07/338,255	06/19/90	4,935,895	07/236,986	06/19/90
4,935,621	07/319,995	06/19/90	4,935,907	07/158,555	06/19/90
4,935,623	07/363,229	06/19/90	4,935,909	06/940,251	06/19/90
4,935,629	07/261,354	06/19/90	4,935,912	07/197,240	06/19/90
4,935,630	07/315,278	06/19/90	4,935,918	06/908,362	06/19/90
4,935,631	07/230,373	06/19/90	4,935,920	07/238,046	06/19/90
4,935,639	07/236,613	06/19/90	4,935,924	07/296,461	06/19/90
4,935,640	07/317,592	06/19/90	4,935,931	07/317,206	06/19/90
4,935,643	07/260,821	06/19/90	4,935,934	07/334,073	06/19/90
4,935,650	07/412,236	06/19/90	4,935,946	07/246,685	06/19/90
			4,935,948	07/282,783	06/19/90

Patents Reinstated Due to the Acceptance of a
Late Maintenance Fee From 06/26/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,734,674	06/720,709	04/08/85	03/29/88	07/02/98
4,739,930	06/885,774	07/15/86	04/26/88	07/02/98
4,824,132	07/145,105	01/19/88	04/25/89	06/30/98
4,832,437	07/048,142	05/11/87	05/23/89	06/29/98
4,832,461	07/086,803	08/19/87	05/23/89	06/29/98
4,853,161	07/219,879	07/11/88	08/01/89	06/30/98
4,894,529	07/267,205	11/03/88	01/16/90	07/02/98
4,921,715	07/292,832	01/03/89	05/01/90	07/01/98
5,068,765	07/476,338	02/06/90	11/26/91	06/30/98
5,103,658	07/646,821	01/28/91	04/14/92	06/29/98
5,154,441	07/826,795	01/28/92	10/13/92	06/30/98
5,217,688	07/824,560	01/23/92	06/08/93	07/01/98
5,231,668	07/736,451	07/26/91	07/27/93	06/29/98
5,283,949	07/971,079	11/03/92	02/08/94	07/02/98
5,291,863	07/979,101	11/20/92	03/08/94	06/26/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
5,292,873	07/442,947	11/29/89	03/08/94	06/30/98
5,303,563	07/911,186	07/09/92	04/19/94	07/02/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

4,646,283, Re. S.N. 09/120,799, Jul. 23, 1998, Cl. 369/256, OBJECTIVE LENS DRIVING APPARATUS FOR OPTICAL DISC PLAYER, Masashi Ito, et. al., Owner of Record: *Matsushita Electrical Industrial Co., Ltd., Osaka, Japan*, Attorney or Agent: James E. Ledbetter, Ex. Gp.: 2876

4,843,280, Re. S.N. 09/120,591, Jul. 22, 1998, Cl. 313/500, A MODULAR SURFACE MOUNT COMPONENT FOR AN ELECTRICAL DEVICE OR LED'S, Marvin Lombard, et. al., Owner of Record: *Siemens Microelectronics, Inc., Cupertino, Calif.*, Attorney or Agent: Heather S. Vance, Ex. Gp.: 2712

5,160,316, Re. S.N. 09/119,200, Apr. 20, 1998, Cl. 604/20, IONTOPHORETIC DRUG DELIVERY APPARATUS, Julian L. Henley, Owner of Record: *APS-Organization, South Hamilton, Mass.*, Attorney or Agent: Michael G. Petit, Ex. Gp.: 3305

5,245,590, Re. S.N. 08/634,130, May 9, 1994, Cl. 368/18, DISPLAY OF CHANGING MOON ON WATCH FACE, William A. Galison, Owner of Record: *Inventor*, Attorney or Agent: Andrew S. Langsam, Ex. Gp.: 2856

5,455,272, Re. S.N. 08/924,494, Oct. 2, 1997, Cl. 514/579, SPIN TRAP NITRONYL HINDERED PHENOLS, Edward G. Janzen, et. al., Owner of Record: *Oklahoma Medical Research Foundation, Oklahoma City, Okla.*, Attorney or Agent: James W. Hellwege, Ex. Gp.: 1209

5,537,720, Re. S.N. 09/120,344, Jul. 22, 1998, Cl. 24/452, MOLDED SURFACE FASTENER, Toshiaki Takizawa, et. al., Owner of Record: *YKK Corp., Tokyo, Japan*, Attorney or Agent: Lewis T. Steadman, Ex. Gp.: 3507

5,587,789, Re. S.N. 09/118,824, Jul. 20, 1998, Cl. 358/335, APPARATUS AND METHOD FOR CONTROLLING RECORDING AND REPRODUCTION IN DIGITAL VIDEO CASSETTE TAPE RECORDER, Je H. Lee, et. al., Owner of Record: *Goldstar Co. Ltd., Seoul, Korea*, Attorney or Agent: Terry L. Clark, Ex. Gp.: 2615

5,628,531, Re. S.N. 09/120,560, Jul. 22, 1998, Cl. 285/81, QUICK CONNECTOR WITH SECONDARY LATCH, Andrew Rosenberg, et. al., Owner of Record: *Bundy Corp., Warren, Mich.*, Attorney or Agent: Li-Chung Daniel Ho, Ex. Gp.: 3501

5,686,429, Re. S.N. 09/112,916, Jul. 9, 1998, Cl. 514/052, METHOD FOR PROVIDING NUTRITION TO ELDERLY PATIENTS, Paul M. Lin, et. al., Owner of Record: *Nestec Ltd., Vevey, Switzerland*, Attorney or Agent: Robert M. Barrett, Ex. Gp.: 1711

5,728,241, Re. S.N. 09/113,619, Jul. 10, 1998, Cl. 148/694, HEAT TREATMENT PROCESS FOR ALUMINUM ALLOY SHEET, Alok Kumar Gupta, et. al., Owner of Record: *Alcan International Ltd., Montreal, Canada*, Attorney or Agent: Robert D. Katz, Ex. Gp.: 1742

5,752,187, Re. S.N. 09/121,604, Jul. 6, 1998, Cl. 455/428, METHOD AND APPARATUS FOR OPTIMAL HAND-OFFS IN A SATELLITE CELLULAR COMMUNICATION SYSTEM, Mark Steven Frank, et. al., Owner of Record:

Motorola Inc., Schaumburg, Ill., Attorney or Agent: Gregory J. Gorrie, Ex. Gp.: 2733

Requests for Reexaminations Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,963,862, Re. S.N. 90/005,031, Jul. 1, 1998, Cl. 340/825.52, TERMINAL EQUIPMENT IDENTIFIER CONTROL CIRCUIT, Takeo Nakabayashi, et. al., Owner of Record: *Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan*, Attorney or Agent: Kevin T. Lemond, Townsend and Townsend and Crew, San Francisco, Calif., Ex. Gp.: 2735, Requester: Owner

5,101,163, Re. S.N. 90/005,032, Jul. 2, 1998, Cl. 324/639, OIL/WATER MEASUREMENT, Joram Agar, Owner of Record: *Agar Corp. Inc., Houston, Tex.*, Attorney or Agent: Richard T. Redano, Rosenblatt and Redano, Houston, Tex., Ex. Gp.: 2858, Requester: Owner

5,163,368, Re. S.N. 90/005,033, Jul. 2, 1998, Cl. 101/136, PRINTING APPARATUS WITH IMAGE ERROR CORRECTION AND INK REGULATION CONTROL, Frank G. Pensavacqua, et. al., Owner of Record: *Presstek Inc., Hudson, N.H.*, Attorney or Agent: Cesari and McKenna, Boston, Mass., Ex. Gp.: 2854, Requester: Creo Products, Inc., Burnaby, B.C., Canada, c/o Hall Priddy and Myers, Potomac, Md.

5,383,829, Re. S.N. 90/005,030, Apr. 17, 1998, Cl. 482/057, STATIONARY EXERCISE DEVICE, Larry Miller, Owner of Record: *Inventor*, Attorney or Agent: Ronald W. Citkowski, Gifford Krass Groh Sprinkle Patmore Anderson and Citkowski, Birmingham, Mich., Ex. Gp.: 3733, Requester: Norditrac Inc., Chesna, Minn.; c/o James W. Miller, Minneapolis, Minn.

5,716,436, Re. S.N. 90/005,035, Jul. 7, 1998, Cl. 106/031.87, INK JETS CONTAINING POLYESTER IONOMERS, Louis Joseph Sorriero, et. al., Owner of Record: *Eastman Kodak Co., Rochester, N.Y.*, Attorney or Agent: John R. Everett, Eastman Kodak Co., Rochester, N.Y., Ex. Gp.: 1755, Requester: Owner

5,760,682, Re. S.N. 90/005,034, Jul. 6, 1998, Cl. 514/560, DIETETIC FOODS CONTAINING CONJUGATED LINOLEIC ACIDS, Mark E. Cook, et. al., Owner of Record: *Wisconsin Alumni Research Foundation, Madison, Wis.*, Attorney or Agent: Bennett J. Berson, Quarles and Brady, Madison, Wis., Ex. Gp.: 1614, Requester: Owner

Notice of Expiration of Trademark Registrations
Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

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According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED
July 13, 1998
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
118,860	71/104,691	10/09/1917
118,869	71/102,557	10/09/1917
118,881	71/103,694	10/09/1917
118,882	71/104,322	10/09/1917
350,674	71/388,334	10/05/1937
350,717	71/392,101	10/05/1937
350,734	71/392,459	10/05/1937
350,740	71/392,611	10/05/1937
350,780	71/393,855	10/05/1937
350,798	71/388,931	10/05/1937
350,800	71/390,540	10/05/1937
350,818	71/393,495	10/05/1937
350,827	71/393,566	10/05/1937
350,837	71/393,672	10/05/1937
652,548	72/022,378	10/08/1957
652,549	72/023,181	10/08/1957
652,554	72/021,315	10/08/1957
652,560	71/670,281	10/08/1957
652,570	72/009,958	10/08/1957
652,573	72/015,992	10/08/1957
652,576	72/018,623	10/08/1957
652,578	72/021,222	10/08/1957
652,581	72/023,160	10/08/1957
652,582	72/023,424	10/08/1957
652,611	72/024,532	10/08/1957
652,615	72/023,354	10/08/1957
652,616	72/023,575	10/08/1957
652,630	72/023,015	10/08/1957
652,634	72/012,131	10/08/1957
652,635	72/012,178	10/08/1957
652,639	72/019,171	10/08/1957
652,641	72/020,422	10/08/1957
652,642	72/020,423	10/08/1957
652,644	72/021,266	10/08/1957
652,646	72/021,812	10/08/1957
652,647	72/022,726	10/08/1957
652,650	72/024,272	10/08/1957
652,652	72/024,491	10/08/1957
652,655	72/024,755	10/08/1957
652,657	72/015,399	10/08/1957
652,660	72/024,955	10/08/1957
652,661	72/024,956	10/08/1957
652,664	72/024,496	10/08/1957
652,668	72/005,513	10/08/1957
652,682	72/009,474	10/08/1957
652,694	72/012,754	10/08/1957
652,696	72/015,476	10/08/1957
652,704	72/023,326	10/08/1957
652,713	71/695,892	10/08/1957
652,718	72/010,390	10/08/1957
652,720	72/012,672	10/08/1957
652,722	72/015,298	10/08/1957
652,726	72/018,943	10/08/1957
652,745	72/009,832	10/08/1957
652,758	72/025,483	10/08/1957
652,762	72/021,678	10/08/1957
652,763	72/022,366	10/08/1957
652,765	72/023,134	10/08/1957
652,771	72/018,827	10/08/1957
652,789	72/022,671	10/08/1957
652,797	72/023,683	10/08/1957
652,801	72/010,322	10/08/1957
652,802	72/021,102	10/08/1957
652,806	71/658,035	10/08/1957
652,808	71/695,045	10/08/1957
652,809	72/000,053	10/08/1957
652,810	72/001,944	10/08/1957
652,811	72/005,103	10/08/1957

652,821	72/018,012	10/08/1957
652,822	72/018,138	10/08/1957
652,823	72/018,189	10/08/1957
652,825	72/019,304	10/08/1957
652,841	71/689,916	10/08/1957
652,856	72/020,509	10/08/1957
652,857	72/005,607	10/08/1957
652,858	72/020,684	10/08/1957
652,866	72/028,222	10/08/1957
1,004,880	73/008,436	02/18/1975

Notice Regarding Technical Center
Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998

NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Public User Identification Passes
USPTO Public Search Facilities

The USPTO Public Search Services Division, responsible for the public search facilities in the Patent Search Room and the Trademark Search Library, is installing the new User Identification Pass system announced in the *Official Gazette* dated January 6, 1998. This system will replace the current passes used in the facilities with a new user number and a laminated identification badge. Later reissues of the badge are expected to add a photo of the user. Badges will be reissued every January upon validating and updating identification information. Information will be digitally stored so that validation and reissue will be speedy. There is a \$15 fee for replacement of lost or forgotten badges; first issue and annual reissues are without fee. Badges must be visible at all times within the Patent Office building complex. The new user numbers will be used by the File Information Unit for public users requesting and checking out files.

Patrons using the Patent and Trademark Public Search Facilities as well as office areas must obtain a new badge before entering the Patent and Trademark Office complex. The process takes five to ten minutes for a first time issue. Effective immediately, equipment is available to issue the new badges for both patent and trademark public users at the Patent Search Room Reception Desk in Crystal Plaza 3, Lobby. The Patent Search Room is open Monday through Friday from 8 AM to 8 PM. The new User Passes will be required after August 15, 1998; old passes will not be valid after this date.

August 3, 1998

WESLEY H. GEWEHR
Administrator
for Information Dissemination

Admissibility of Electronic Records in Interferences

Pursuant to 37 CFR § 1.671, electronic records are admissible as evidence in interferences before the Board of Patent Appeals and Interferences to the same extent that electronic records are admissible under the Federal Rules of Evidence. The weight to be given any particular record necessarily must be determined on a case-by-case basis.

January 12, 1998

BRUCE H. STONER, Jr.
Chief Administrative Patent Judge

Errata

"All reference to Patent No. 5,773,302 to David P. Matzinger, et al., of Menlo Park, Calif., for FLUID CONDUCTING TEST STRIP WITH TRANSPORT MEDIUM appearing in the Official Gazette of June 30, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,777,440 to Joseph C. Borowiec, et al., of N.Y. For COMPACT ELECTRODELESS FLUORESCENT A-LINE LAMP appearing in the Official Gazette of July 7, 1998, should be deleted since no patent was granted."

Status of Certification Services

On November 28, 1995, the Office published an Official Gazette Notice entitled "Temporary Suspension of At Cost Services for Orders for Certified Copies" (1180 OG 121) to advise practitioners and the public of delays in filling orders for certified copies of PTO documents. This is an update of actual days to mail for orders filled during the month of July 1998:

Certified Product	Goal	Actual Calendar Days to Mail
Patent Application-As-Filed, Expedited	7	6
Patent Application-As-Filed, Regular	17	17
Patent Related File Wrapper	25	48*
Patent Copy	10	7
Patent Assignments	10	7
Trademark Application-As-Filed, Expedited	7	7
Trademark Application-As-Filed, Regular	17	11
Trademark Related File Wrapper	25	21
Trademark Assignments	10	9
Trademark Registration, Expedited	5	8
Trademark Registration, Regular	14	8

* Includes turnaround times for files on official search and file reconstruction.

The backlog of orders resulting from the relocation of the Office of Public Records in late March and early April has been worked down. During the month of July 1998, a total of 14,175 orders (26,945 copies) were filled and closed, or 5,651 orders (9,637 copies) more than the FY-98 planning number of 8,524 orders (17,308 copies) to be closed per month. The average turnaround times for products is returning to expected ranges as older orders are filled and closed.

Due to varying availability of media, customers will not be advised when orders are not delivered within the published goal periods. However, customers will be advised if any unexpected delay in their order has been identified. Customers should use the above actual days to mail for each product as a guide as to when they can expect their orders. In determining expected delivery times, the day an order is received in the Office is calculated as "day zero." The next business day is "day one."

Delivery of any specific copy will vary based on the availability of scanned images, microfilm products, and/or file accessibility. On June 10, 1997, the Office published an Official Gazette Notice entitled "Changes in Practice in Supplying Certified Copies and Filing Receipts" (1199 OG 39) which advised customers who place orders for certified copies of patent applications-as-filed not to request them until the official filing receipt is received; images and related bibliographic data are not avail-

able to Certification Division until the filing receipt is generated by the Office of Initial Patent Examination.

Customers are encouraged to fax orders for copies directly to Certification Division at (703) 308-9759 and to pay by PTO Deposit Account, MasterCard, Visa, or Discover. Information on the status of pending orders may be obtained by calling (703) 308-9726 or 1 (800) 972-6382 (outside the Washington, DC Metro area), or via E-mail: certdiv@uspto.gov.

August 5, 1998

WESLEY H. GEWEHR
Administrator for Information
Dissemination

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Quantum Seminars, Placitas, N. Mex., Reg. No. 1,758,888, for the mark "QUANTUM PSYCHOLOGY INSTITUTE", Canc. No. 27,557.

Quantum Seminars, Placitas, N. Mex., Reg. No. 1,779,252, for the mark "QUANTUM PSYCHOLOGY", Canc. No. 27,507.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Certificates of Correction
for September 1, 1998

B1-5,583,937	5,591,971	5,663,060	5,691,543
D. 389,241	5,593,759	5,663,089	5,691,545
D. 393,702	5,593,841	5,663,097	5,693,876
D. 394,230	5,595,726	5,663,724	5,694,167
Re. 35,732	5,597,845	5,663,779	5,695,239
4,808,389	5,604,221	5,665,656	5,696,748
4,889,675	5,604,358	5,666,025	5,696,891
5,198,533	5,605,703	5,666,784	5,698,354
5,250,411	5,605,915	5,668,126	5,698,780
5,262,529	5,616,079	5,669,720	5,698,948
5,278,304	5,622,670	5,670,457	5,699,179
5,304,680	5,623,458	5,670,521	5,699,343
5,329,037	5,626,128	5,671,679	5,699,509
5,360,903	5,628,010	5,672,710	5,700,967
5,388,281	5,631,334	5,672,717	5,701,481
5,473,963	5,633,352	5,673,476	5,701,957
5,495,727	5,639,880	5,673,995	5,702,573
5,496,719	5,640,472	5,674,708	5,702,787
5,505,947	5,647,860	5,675,081	5,703,614
5,508,306	5,648,947	5,677,337	5,703,630
5,512,029	5,649,165	5,680,264	5,703,635
5,543,332	5,650,820	5,681,589	5,704,307
5,552,628	5,651,789	5,682,427	5,704,424
5,552,823	5,654,469	5,683,540	5,705,315
5,557,376	5,656,747	5,684,196	5,705,659
5,572,526	5,657,531	5,686,951	5,705,734
5,581,509	5,659,060	5,687,036	5,706,157
5,581,631	5,659,087	5,687,239	5,706,321
5,583,178	5,659,782	5,688,357	5,706,811
5,583,937	5,661,800	5,689,990	5,707,459
5,588,759	5,662,247	5,690,064	5,707,811
5,591,124	5,662,727	5,690,794	5,708,200

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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

5,708,512	5,723,475	5,732,310	5,742,425	5,750,687	5,756,194	5,761,434	5,766,841
5,708,650	5,723,489	5,733,151	5,742,442	5,750,813	5,756,318	5,761,621	5,767,327
5,709,978	5,723,500	5,733,458	5,742,753	5,750,952	5,756,353	5,761,625	5,767,747
5,710,346	5,723,726	5,735,129	5,743,127	5,751,134	5,756,374	5,761,654	5,767,910
5,711,283	5,724,394	5,735,530	5,743,488	5,751,218	5,756,487	5,762,007	5,768,271
5,712,126	5,724,441	5,735,893	5,743,944	5,751,647	5,756,586	5,762,200	5,768,273
5,712,419	5,724,623	5,736,026	5,743,985	5,752,068	5,756,725	5,762,309	5,768,331
5,713,026	5,724,647	5,736,346	5,744,149	5,752,513	5,756,861	5,762,696	5,768,862
5,714,288	5,724,778	5,737,478	5,744,742	5,752,575	5,757,048	5,763,172	5,769,070
5,714,306	5,725,206	5,737,582	5,745,002	5,752,583	5,757,099	5,763,242	5,769,338
5,714,869	5,725,814	5,737,599	5,745,159	5,752,810	5,757,174	5,763,450	5,769,694
5,714,881	5,726,025	5,737,615	5,745,503	5,753,005	5,757,234	5,763,811	5,769,940
5,714,907	5,726,669	5,737,663	5,745,544	5,753,137	5,757,382	5,763,932	5,770,202
5,715,897	5,727,006	5,737,819	5,745,757	5,753,228	5,757,566	5,764,184	5,770,360
5,716,586	5,727,134	5,738,869	5,745,836	5,753,325	5,757,927	5,764,316	5,771,181
5,716,742	5,727,311	5,738,915	5,746,120	5,753,343	5,757,972	5,764,481	5,771,627
5,717,108	5,727,463	5,739,893	5,747,067	5,753,558	5,758,357	5,764,554	5,771,662
5,717,492	5,728,034	5,740,396	5,747,075	5,753,587	5,758,836	5,764,895	5,772,095
5,717,675	5,728,352	5,741,087	5,747,190	5,753,675	5,759,493	5,765,136	5,772,187
5,719,786	5,729,681	5,741,120	5,747,821	5,753,707	5,759,586	5,765,148	5,773,306
5,720,373	5,729,780	5,741,180	5,748,079	5,753,880	5,759,590	5,765,376	5,773,350
5,720,541	5,730,263	5,741,305	5,748,185	5,755,229	5,759,598	5,765,578	5,774,084
5,721,589	5,731,095	5,741,370	5,748,480	5,755,576	5,760,035	5,765,631	5,774,350
5,722,555	5,731,320	5,741,446	5,748,833	5,756,038	5,760,075	5,765,734	5,774,794
5,722,650	5,731,925	5,741,454	5,749,000	5,756,083	5,760,102	5,765,797	5,775,596
5,723,316	5,731,988	5,742,092	5,749,956	5,756,119	5,760,462	5,766,179	5,776,581

SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1214 OG 13

Summary of Final Decisions Issued by the Trademark Trial and Appeal Board

July 13-17, 1998

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
7-13	EX	74/708,137	Jon P. File	Whether the asserted mark is inherently distinctive as a mark for entertainment services	Refusal affirmed		Tubular lights running lengthwise down bowling lanes projecting over the gutters [entertainment services in the nature of a bowling alley]		Yes
7-13	CANC	23,554	George Garcia v. George K. Setka	Whether respondent is the owner of the mark	Petition granted	DUDA MAN [men's and women's clothing, namely, T-shirts]	DUDA MAN [men's and women's clothing, namely, T-shirts]		No
7-15	CANC	25,012	Craig Martin v. Tusk Enterprises Inc.	Fraud and 2(d) (ownership)	Petition denied	CAFE 50's VENICE CALIFORNIA and design [restaurant services]	CAFE 50's and design [restaurant services]		No
7-15	EX	74/254,945	Controls Corp. of America	Whether configuration of a seat and filter assembly for gas regulators is functional	Request for reconsideration denied				No

(1) EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (S)=SUMMARY JUDGMENT; (R)=REQ FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Date Issued	Type of Case	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney TTAB	Citable as Precedent of TTAB
7-17	EX	74/687,944	SeaChange Technology, Inc.	2(e)(1)	Refusal affirmed		VIDEO CLUSTER [computer video server network comprising a cluster of video servers for use in the cable television and telephone industries; computer operating software for use in connection with computer video server networks for use in the cable television and telephone industries]		No

(1) EX=EX PARTE APPEAL; OPP=OPPOSITION; CANCELLATION; CU=CONCURRENT USE; (S)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
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Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
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Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
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PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100— THEODORE MORRIS, Director.....	308-0661	01/11/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director.....	308-1235	06/25/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director.....	308-0651	07/29/96
HIGH-POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director.....	308-2351	05/27/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director.....	308-0196	11/23/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director.....	308-1782	11/13/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director.....	308-0511	04/26/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300— JOSEPH J. ROLLA, Director.....	305-3900	04/26/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director.....	305-3900	12/21/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500— JANICE A. HOWELL, Director.....	308-0956	11/12/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director.....	305-3900	09/14/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director.....	305-3293	06/28/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director.....	308-1113	12/14/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director.....	308-1148	03/11/97
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director.....	308-0858	02/07/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director.....	308-0861	02/13/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director.....	308-2168	02/04/97

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:

- (1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
- (2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
- (3) All design patents are granted for a term of 14 years from the date of the grant. However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

SEPTEMBER 1, 1998

Maner enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,479,083 (3616th)
DC POWER SYSTEM HAVING BATTERY VOLTAGE
EQUALIZER CIRCUIT
James D. Sullivan, Grove City, Ohio, assignor to Vanner Wel-
don Incorporated, Hilliard, Ohio
Reexamination Request No. 90/004,343, Aug. 27, 1996.
Reexamination Certificate for Patent 4,479,083, issued Oct.
23, 1984, Ser. No. 428,579, Sep. 30, 1982.
Int. Cl.⁶ H02J 7/00

1. An improved DC power network comprising:

- (a) a series connected pair of batteries;
- (b) an electrical generator connected across said series pair;
- (c) an equalizer circuit for equalizing the voltages of said batteries and comprising a [regulated] DC/DC converter *having a regulator circuit* for converting electrical energy to the voltage of a first one of said batteries from the sum of the voltages of said batteries, said converter having its input connected across said pair of batteries and its output connected to said first battery, and *further comprising an autotransformer having a tap connected to a node intermediate said series connected pair of batteries*, the regulator circuit of said converter including a voltage dividing circuit connected across said pair of batteries to provide the regulator *circuit* with its reference voltage equal to the product of the ratio of the desired voltage of said first battery to the sum of the desired voltages of each of said batteries multiplied by the sum of the actual voltages of said batteries;

Gary J. Lesmeister, Sunnyvale, Calif., assignor to Credence Systems Corporation, Fremont, Calif.
Reexamination Request No. 90/004,845, Nov. 13, 1997.
Reexamination Certificate for Patent 4,902,986, issued Feb. 20, 1990, Ser. No. 303,927, Jan. 30, 1989.
Int. Cl.⁶ H03L 7/00

- a. generating a calibration oscillation signal using a first plurality of gates within the integrated circuit, *said first plurality of gates being arranged in the shape of a ring oscillator*;
- b. varying the voltage of a power signal supplying power to said first plurality of gates in order to match the frequency of oscillation of said calibration oscillating signal to the frequency of oscillation of said external reference oscillating signal; **[and]**
- c. using said power signal in other portions of the integrated circuit which are critical data paths;
- d. *tapping an output of each of said first plurality of gates to produce a first plurality of signals; and*
- e. *multiplexing said first plurality of signals to produce an output signal.*

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

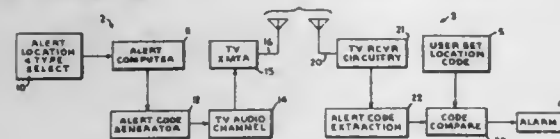
B1 5,121,430 (3618th)

STORM ALERT FOR EMERGENCIES

Larry R. Ganzer, Overland Park, Kans.; Michael A. Fessler, Grandview, Mo., and Daric G. Laughlin, Overland Park, Kans., assignors to Quad Dimension, Inc., Kansas City, Mo. Reexamination Request No. 90/004,669, Jul. 15, 1997.

Reexamination Certificate for Patent 5,121,430, issued Jun. 9, 1992, Ser. No. 657,502, Feb. 19, 1991.

Int. Cl.⁶ H04L 9/00; H04N 7/08; G08B 5/22; H04B 7/00
U.S. Cl. 380—48



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1, 4, 8, 9, 11, 18, 20, 21, 22 and 23 are determined to be patentable as amended.

Claims 2, 3, 5, 6, 7, 10, 12-17 and 19, dependent on an amended claim, are determined to be patentable.

New claims 24, 25 and 26 are added and determined to be patentable.

1. A geographically specific signal communication system comprising:

- location encoding means operable to select at least one of a plurality of geographic areas and to generate a location code signal component;
- communication signal means operable to generate [a] an alert communication signal component;
- television broadcast and/or FM radio broadcast and/or AM radio broadcast [means] media having said location encoding means and said communication signal means coupled thereto and generating a broadcast signal [including] on an existing broadcast frequency upon which is broadcast information which is unrelated to the location code signal component and the alert communication signal component, which broadcast signal is modified to include said location code signal component and said alert communication signal component;
- receiver means positioned in one of said geographic areas and configured to receive said modified broadcast signal and extract said location code signal component and said alert communication signal component therefrom;
- alert communication signal processor means coupled to said receiver means and operable, when activated, to process said alert communication signal component;
- location code set means coupled to said receiver means and enabling user entry of a location code corresponding to one of said geographic areas; and
- location decode means coupled to said receiver means and cooperating with said code set means to process said location code signal component to determine if it corresponds to the user entered location code and, if so, activating said communication processor means to process said alert communication signal component.

B1 5,305,356 (3619th)

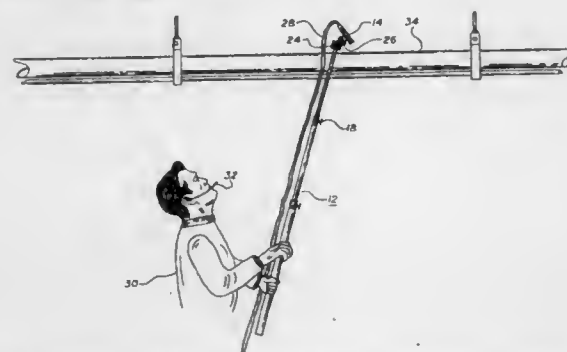
INSPECTION DEVICE

Raymond J. Brooks, Ontario; John M. Gay, Pittsford; Bruce A. Weir, Ontario; Paul E. McEntee, Rochester, and Lauren Blood, Livonia Center, all of N.Y., assignors to Brooks Support Systems, Inc., Williamson, N.Y.

Reexamination Request No. 90/004,168, Mar. 5, 1996.

Reexamination Certificate for Patent 5,305,356, issued Apr. 19, 1994, Ser. No. 882,847, May 14, 1992.

Int. Cl.⁶ G21C 17/00
U.S. Cl. 376—249



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim 11 is confirmed.

Claims 1-10 are cancelled.

11. A method for inspecting difficult to reach portions of a nuclear power station comprising:

- extending a telescoping hand-held boom to a difficult to reach position to be inspected within a nuclear power station, said boom having a CCD camera attached to an end thereof for permitting the visual inspection of said difficult to reach position to be inspected.

B1 5,383,044 (3620th)

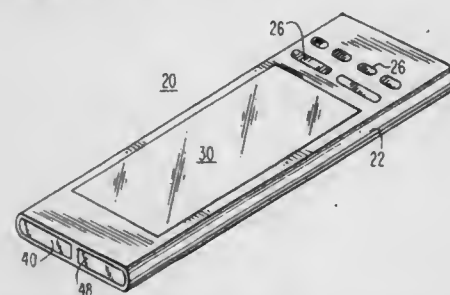
SYSTEMS, METHODS AND APPARATUS FOR TRANSMITTING RADIO FREQUENCY REMOTE CONTROL SIGNALS

Robert L. Borchardt, New York; William T. McGreevy, Babylon, and Efrain Rodriguez, Brooklyn, all of N.Y., assignors to Recoton Corporation, Long Island City, N.Y.

Reexamination Request No. 90/004,601, Apr. 9, 1997.

Reexamination Certificate for Patent 5,383,044, issued Jan. 17, 1995, Ser. No. 947,705, Sep. 18, 1992.

Int. Cl.⁶ H04B 10/00
U.S. Cl. 359—145



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 10-41 is confirmed.

Claims 1 and 4 are determined to be patentable as amended.

Claims 2-3 and 5-9, dependent on an amended claim, are determined to be patentable.

1. A method of remotely transmitting a control command to a device having a light sensor for receiving the control command in the form of a light energy signal, comprising the steps of:

- providing a remote control unit having a user operable control signal input on an enclosure thereof for receiving a control signal from a user representing a control command for the device, the remote control unit including a radio frequency generator within its enclosure coupled electrically with the user operable control signal input;
- actuating the user operable control signal input to input a control signal to the remote control unit representing the control command;

producing a corresponding radio frequency remote control signal within said enclosure with the use of the radio frequency generator in response to the input control signal, said step of producing a corresponding radio frequency remote control signal including producing a remote control modulation signal within said enclosure corresponding with the light energy signal;

- radiating the radio frequency remote control signal from the remote control unit;
- receiving the radiated radio frequency remote control signal; and
- transmitting the control command in the form of a light energy signal to the light sensor of the device in response to the received radio frequency remote control signal to provide the command thereto.

B1 5,488,276 (3621st)

APPARATUS FOR DRIVING AND CONTROLLING MOTOR

Yasushi Nishibe, Niwa, Japan, assignor to Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho, Aichi-Ken, Japan

Reexamination Request No. 90/004,335, Aug. 19, 1996.

Reexamination Certificate for Patent 5,488,276, issued Jan. 30, 1996, Ser. No. 170,817, Dec. 21, 1993.

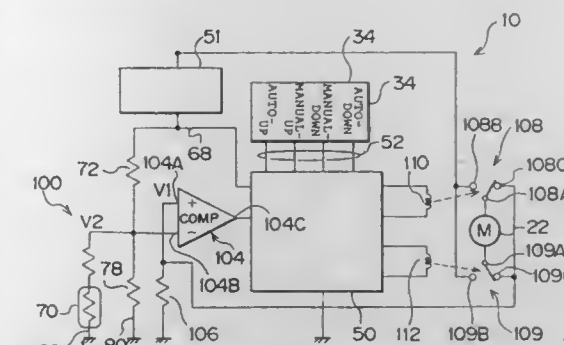
Claims priority, application Japan, Dec. 25, 1992, 4-346987
Int. Cl.⁶ G05B 5/00

U.S. Cl. 318—473

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 6 is cancelled.

Claims 1 and 3 are determined to be patentable as amended.



Claims 2, 4, 5 and 7-9 dependent on an amended claim, are determined to be patentable.

New claims 10-17 are added and determined to be patentable.

1. An apparatus for controlling a motor that moves a movable window portion of a vehicle, the apparatus comprising: current detection means for detecting a present value of current flowing through said motor when said motor is moving said movable portion;

control means for comparing the current value detected by said current detection means with a comparison current value, and for controlling said motor based on the comparison of the detected current value with said comparison current value;

temperature sensing means for sensing a temperature of an environment of said movable portion, wherein the temperature sensing means includes a thermistor connected to a voltage dividing circuit having at least three resistors each connected to a common node, one of the resistors connected in series between the common node and the thermistor; and comparison current varying means for varying said comparison current value based on the temperature sensed by said temperature sensing means, wherein an ordinary drive current value corresponds to a predetermined value of current flowing in the motor when the movable portion is moving, the ordinary drive current value varies based on the temperature of the environment, and wherein said comparison current varying means varies said comparison current value based on a temperature change of the environment of said movable portion and such that an amount of variation of said comparison current value is substantially equal to an amount of a variation of said ordinary drive current value caused by the temperature change of the environment.

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STATUTORY INVENTION REGISTRATIONS

PUBLISHED SEPTEMBER 1, 1998

A statutory invention registration is not a patent. It has the defensive attributes of a patent but does not have the enforceable attributes of a patent. No article or advertisement or the like may use the term patent, or any term suggestive of a patent, when referring to a statutory invention registration. For more specific information on the rights associated with a statutory invention registration see 35 U.S.C. 157.

H1747

OBJECT LOADING DEVICE

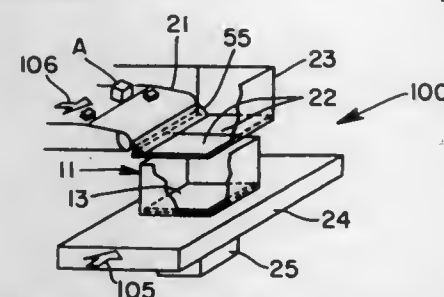
Yutaka Saeki, Kakogawa, and Hiroki Sawada, Hyogo, both of Japan, assignors to Okura Yusoki Kabushiki Kaisha, Kakogawa, Japan

Filed Dec. 12, 1996, Ser. No. 699,986

Int. Cl.⁶ B65B 35/30

U.S. Cl. 53—443

22 Claims



1. An object loading device for loading objects into containers with an open top, comprising:
 - an object conveyor;
 - a hopper at an end of said object conveyor;
 - said hopper receiving objects conveyed by said object conveyor;
 - at least one flap movably mounted on a bottom portion of said hopper;
 - said flap being moveable between a closed position and an open position to selectively hold and release said objects in said hopper, respectively; and
 - means for positioning a container below said hopper to receive said objects.

H1748

PACKAGE FOR PACKS, FOR EXAMPLE, PACKS OF SANITARY PRODUCTS

Luigi Marinelli, Via Ravenna, 36-65122 Pescara, Italy, and Gianfranco Palumbo, Procter & Gamble GmbH, Sulzbacher Strasse 40-50, Schwalbach am Taunus, Germany

PCT No. PCT/US93/05897, § 371 Date Feb. 17, 1995, § 102(e) Date Feb. 17, 1995, PCT Pub. No. WO94/00362, PCT Pub. Date Jan. 6, 1994

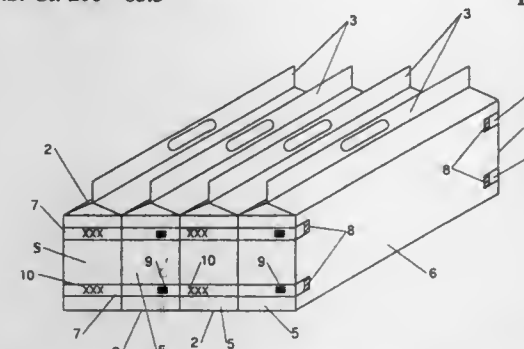
PCT Filed Jun. 16, 1993, Ser. No. 356,191

Claims priority, application Italy, Jun. 19, 1992, TO92A0526

Int. Cl.⁶ B65D 71/00

U.S. Cl. 206—83.5

1 Claim



1. A package comprising two packs, each of said packs having a contact surface, a lateral side face extending generally parallel to said contact surface, and a pair of transverse side faces extending generally transversely to said contact surface, said packs being placed with their contact surfaces in facing relationship and being mutually connected by at least one piece of adhesive tape extend-

ing across at least one of said transverse side faces of each of said packs which holds said packs in a relatively fixed position with respect to one another so they can be transported as a unit, said transverse side faces of said packs generally extending in the same plane.

H1749

METHOD FOR INHIBITING HYDRATE FORMATION

Karla Schall Colle, Houston, Tex.; Christine Ann Costello, Easton, Pa.; Russell Harlan Oelfke, Houston, Tex.; Dennis George Peiffer, Annandale; Manese Rabeony, Piscataway, both of N.J.; Larry D. Talley, Friendswood, Tex., and Pamela Jean Wright, Easton, Pa., assignors to Exxon Production Research Company, Houston, Tex.

Filed Sep. 15, 1994, Ser. No. 306,568

Int. Cl.⁶ C07C 9/00

U.S. Cl. 585—15

8 Claims

1. A method for inhibiting the formation of clathrate hydrates in a fluid having water and other hydrate forming constituents, said method comprising treating said fluid with a first additive and a second additive, said first additive comprising a substantially water soluble polymer and having a first independent effect on the formation of clathrate hydrates in said fluid, said second additive comprising a substantially polar part and a substantially nonpolar part, wherein said nonpolar part is an alkyl, alkenyl, or alkynyl group with 12 or fewer carbon atoms and having a second independent effect on the formation of clathrate hydrates in said fluid, thereby producing a total inhibition effect for said fluid which is greater than the combination of said first and second independent effects for said fluid.

H1750

ABSORBENT ARTICLE HAVING A BREATHABLE BACKSHEET

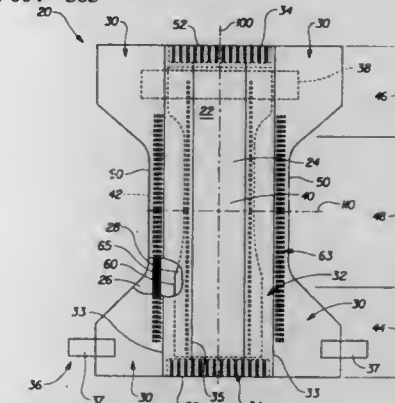
George Christopher Dobrin, The Procter & Gamble Company, Winton Hill Technical Center, 6100 Center Hill Ave., Cincinnati, Ohio 45224

Filed Mar. 6, 1997, Ser. No. 812,225

Int. Cl.⁶ A61F 13/00

U.S. Cl. 604—383

1 Claim



1. A disposable absorbent article having a front waist region having a transverse width, a rear waist region having a transverse width, a crotch region having a transverse width positioned between the front waist region and the rear waist region, a pair of opposed side edges, a first end edge located in said front waist region and a second end edge located in said rear waist region, said absorbent article comprising:

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an absorbent core having a pair of opposing longitudinal edges, a garment-facing side and a body-facing side; and a breathable laminate disposed adjacent said garment-facing side of said absorbent core, said breathable laminate comprising an inner layer and an outer layer joined to one another, said inner layer being positioned between said absorbent core and said outer layer, said outer layer being relatively vapor pervious, said inner layer being substantially liquid impermeable and

substantially vapor pervious, said inner layer being longitudinally coterminous with said absorbent article and of a smaller transverse width than the transverse width of said front waist region, said rear waist region, and said crotch region so as to form a breathable zone which is longitudinally coterminous with said absorbent article and adjacent to each of said side edges.

REISSUES

SEPTEMBER 1, 1998

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,882

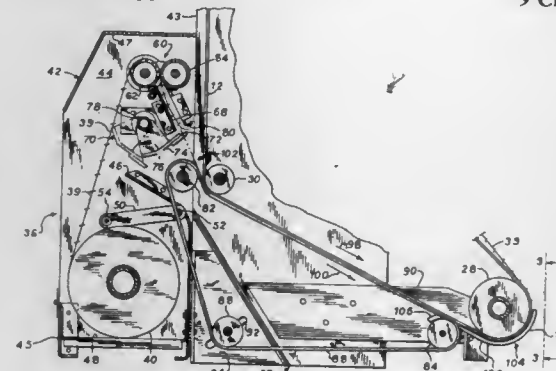
NET WRAP FEEDING SYSTEM FOR A ROUND BALER
Marvin W. Butler, Milwaukee, Wis., assignor to Gehl Company, West Bend, Wis.

Original No. 5,129,207, dated Jul. 14, 1992, Ser. No. 590,299, Sep. 28, 1990. Application for reissue Jul. 13, 1994, Ser. No. 274,314

Int. Cl.⁶ B65B 11/04

U.S. Cl. 53—118

9 Claims



a connector end; and
an intermediate lead portion and an anode lead electrically connecting the anode and the connector end; and
at least one flexible electrode circuit for positionment in operative relationship with the bias electrodes including an electrode end and an electrode thereat;
a connector end; and
an intermediate lead portion and an electrode lead electrically connecting the electrode and the connector end.

Re. 35,885

PHOTOGRAPHING MODE SWITCHING DEVICE OF A CAMERA

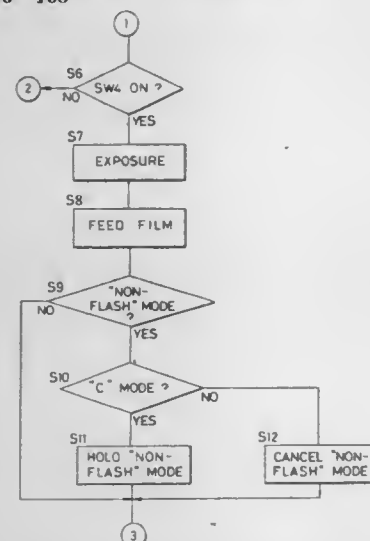
Kazuyuki Kazami; Toshiyuki Nakamura, and Hiroshi Wakabayashi, all of Tokyo, Japan, assignors to Nikon Corporation, Tokyo, Japan

Original No. 4,984,005, dated Jan. 8, 1991, Ser. No. 513,027, Apr. 25, 1990. Continuation of Ser. No. 1,505, Jan. 6, 1993, abandoned. Application for reissue May 22, 1996, Ser. No. 666,090

Claims priority, application Japan, Jun. 3, 1987, 62-139584
Int. Cl.⁶ G03B 7/087

U.S. Cl. 396—168

10 Claims



10. A camera comprising:
operation means for executing a control operation of a micro-computer; and
selection means for selecting any one of a plurality of selectable control modes, including a first control mode which is automatically changed to another of said control modes in response to said control operation executed by said operation means and a second control mode which is continued after said control operation executed by said operation means.

Re. 35,886

PHOSPHONIC ACID DERIVATIVES AND USE THEREOF
Mitsuhiko Wakimasu, Osaka; Masaaki Mori, and Akira Kawada, both of Tsukuba, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Original No. 5,330,978, dated Jul. 19, 1994, Ser. No. 892,768, Jun. 3, 1992. Application for reissue Jul. 12, 1996, Ser. No. 680,295

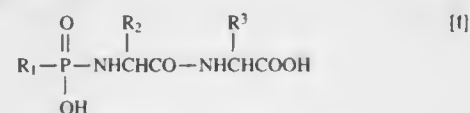
Claims priority, application Japan, Apr. 9, 1992, 4-89111; Jun. 13, 1992, 3-142099

Int. Cl.⁶ C07F 9/22; A61K 33/42

U.S. Cl. 514—80

36 Claims

1. A compound represented by formula [I] or a pharmaceutically acceptable salt thereof:



wherein

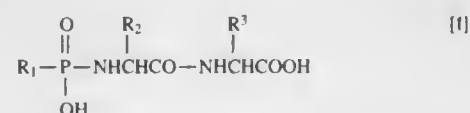
R₁ is (i) a C₁₋₁₂ alkyl group which may be substituted by C₃₋₈ cycloalkyl, halogen, hydroxy which may be protected, C₁₋₂ alkoxy, ketone or amino which may be protected, (ii) a 5 to 7 member cycloalkyl group which may be substituted by lower alkyl having 1 to 3 carbon atoms, halogen, hydroxy which may be protected, C₁₋₂ alkoxy, keto, or amino which may be protected or (iii) an aralkyl group which may be substituted by lower alkyl having 1 to 3 carbon atoms, C₃₋₆ cycloalkyl, halogen, hydroxy which may be protected, or C₁₋₂ alkoxy;

R₂ is (i) a C₁₋₈ alkyl group (ii) a cyclohexylmethylene group or (iii) a benzyl group; and

R₃ is [an indolylmethyl group or] a benzyl group,

except compounds in which (i) R₂ is a methyl group and (ii) R₁ is benzyloxycarbonylaminomethyl, R₂ is isobutyl and R₃ is benzyl.

37. A method for bringing about endothelin-converting enzyme inhibiting activity in a warm-blooded animal, which comprises administering to the animal an effective amount of a compound represented by the formula [I] or a pharmaceutically acceptable salt thereof:



wherein:

R₁ is (i) a C₁₋₈ alkyl group which may be substituted by C₃₋₈ cycloalkyl, halogen, hydroxy which may be protected, C₁₋₂ alkoxy, keto or amino which may be protected, (ii) a 5 to 7 member cycloalkyl group which may be substituted by lower alkyl having 1 to 3 carbon atoms, halogen, hydroxy which may be protected or (iii) an aralkyl group which may be substituted by lower alkyl having 1 to 3 carbon atoms, C₃₋₆ cycloalkyl, halogen, hydroxy which may be protected, or C₁₋₂ alkoxy;

R₂ is (i) a C₁₋₈ alkyl group (ii) a cyclohexylmethyl group or (iii) a benzyl group; and

R₃ is an indolylmethyl group or a benzyl group;

except compounds in which (i) R₂ is a methyl group and (ii) R₁ is benzyloxycarbonylaminomethyl, R₂ is isobutyl and R₃ is benzyl.

PLANT PATENTS

GRANTED SEPTEMBER 1, 1998

(Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.)

10,577

FLORIBUNDA ROSE PLANT NAMED 'JACHART'
Keith W. Zary, Thousand Oaks, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Feb. 14, 1997, Ser. No. 800,660

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—24

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of strong clustering ability; vigorous upright growth; long stems; fairly large flowers for a spray cut rose; and medium to light yellow flower color.

10,582

HIBISCUS PLANT NAMED 'BIMINI BREEZE'
Wendy R. Bergman, Lehigh Acres, Fla., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1997, Ser. No. 807,403

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—67.8

1 Claim

1. A new and distinct Hibiscus plant named 'Bimini Breeze', as illustrated and described.

10,583

HIBISCUS PLANT NAMED 'GULF WIND'
Wendy R. Bergman, Lehigh Acres, Fla., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1997, Ser. No. 807,404

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—67.8

1 Claim

1. A new and distinct Hibiscus plant named 'Gulf Wind', as illustrated and described.

10,584

SCAEVOLA PLANT NAMED 'NEWON'
Garry Henry Grueber, Mainz, Germany, assignor to Innova-plant GmbH & Co. KG, Gensingen, Germany

Filed Sep. 18, 1996, Ser. No. 715,504

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct Scaevola plant named 'Newon', as illustrated and described.

10,585

VARIETY OF GERANIUM NAMED 'GLOBAL BRIGHT PURPLE'

Christa Hofmann, Grossdittmannsdorf, Germany, assignor to Elsner Pac Jungpflanzen, Germany

Filed Nov. 8, 1996, Ser. No. 744,433

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—87.12

1 Claim

1. A new and distinct variety of geranium plant substantially as shown and described.

10,586

VARIETY OF GERANIUM NAMED 'MELODY RED'

Christa Hofmann, Grossdittmannsdorf, Germany, assignor to Elsner Pac Jungpflanzen, Germany

Filed Nov. 8, 1996, Ser. No. 746,399

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—87.12

1 Claim

1. A new and distinct variety of geranium plant substantially as shown and described.

10,581

AZALEA HYBRID VARIETY NAMED 'CONLEB'
Robert Edward Lee, 52063 Ridge Crest Rd., Independence, La. 70443, assignor to Robert Edward Lee, and Plant Development Services Inc., both of Loxley, Ala.

Filed Apr. 8, 1997, Ser. No. 841,946

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—57

1 Claim

1. A new and unique variety Azalea hybrid plant named 'Conleb' as herein shown and described.

10,580

AZALEA HYBRID 'CONLEC'
Robert Edward Lee, 52063 Ridge Crest Rd., Independence, La. 70443, assignor to Robert Edward Lee, and Plant Development Services Inc., both of Loxley, Ala.

Filed Apr. 8, 1997, Ser. No. 841,945

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—56

1 Claim

1. A new and unique variety of azalea Hybrid plant named 'Conlec', as herein shown and described.

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10,587 VARIETY OF GERANIUM NAMED 'VALENTINE' Wilhelm Elsner, Dresden, Germany, assignor to Elsner Pac Jungpflanzen, Germany Filed Nov. 8, 1996, Ser. No. 746,424 Int. Cl. ⁶ A01H 5/00 U.S. Cl. Plt.—87.12	10,588 BEGONIA PLANT NAMED 'SOLENIA ROT' Konrad Wagner, Münden, Germany, assignor to Gebr. Man C.V., Aalsmeer, Netherlands Filed May 9, 1997, Ser. No. 853,794 Int. Cl. ⁶ A01H 5/00 U.S. Cl. Plt.—87.18	1 Claim
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1. A new and distinct variety of geranium plant substantially shown and described.	1. A new and distinct cultivar of Begonia plant named 'Solenia Rot', as illustrated and described.
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PATENTS

GRANTED September 1, 1998

ERRATA

For CLASS	Patents	See PATENT NO.
523—523		5,799,344
607—17		5,799,350
056—14.9		5,799,483
184—6.14		5,799,751
188—1.11		5,799,754
198—499		5,799,776
198—642		5,799,777
198—750.5		5,799,778
198—803.15		5,799,779
198—823		5,799,780
112—112		5,799,856
238—8		5,799,868
383—104		5,800,067
401—139		5,800,144
408—204		5,800,148
604—27		5,800,425
426—450		5,800,833
429—174		5,800,865
530—317		5,801,222
564—415		5,801,280
564—82		5,801,281
313—309		5,801,477
313—532		5,801,511
332—170		5,801,595
375—340		5,801,695
455—502		5,801,783
257—487		5,801,836
395—2.79		5,802,100
386—53		5,802,226
359—364		5,802,335
711—158		5,802,343
399—327		5,802,440
399—262		5,802,441
399—308		5,802,442
399—333		5,802,443
399—384		5,802,444
704—230		5,802,487
704—231		5,802,488

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PATENTS

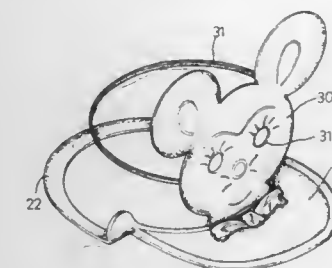
GRANTED SEPTEMBER 1, 1998

GENERAL AND MECHANICAL

5,799,326
SUN-VISORSKuei-Sen Liao Chang, No. 231, Ta Yeh Rd., Taichung, Taiwan
Filed Nov. 12, 1997, Ser. No. 968,624
Int. Cl.⁶ A61F 9/00

U.S. Cl. 2—12

2 Claims



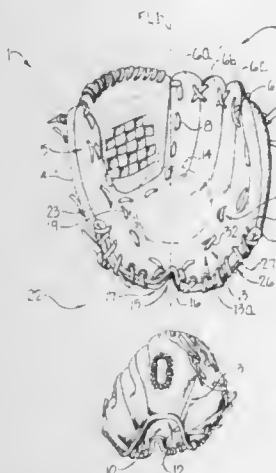
1. A sun-visor comprising:
 a first plate having a curved inner side and a curved slit defined therethrough near an outer side thereof so as to form a curved fastening member foldably connected to two ends of said first plate;
 a second plate extending from said curved inner side of said first plate, and
 a belt connected to two sides of said second plate.

5,799,327

BASEBALL OR SOFTBALL GLOVE CONSTRUCTED TO
 MAINTAIN BALL-CATCHING POCKET
 Robert L. Clevenhagen, Ava, Mo., assignor to Rawlings Sport-
 ing Goods Company, Inc., St. Louis, Mo.
 Filed Nov. 7, 1996, Ser. No. 745,161
 Int. Cl.⁶ A41D 13/08

U.S. Cl. 2—19

16 Claims



1. A baseball or softball glove having top, bottom and opposing sides, wherein said glove comprises:
 (a) a front panel forming the front wall of the glove;
 (b) a back panel forming the back wall of the glove, wherein the front and back panels are secured together along peripheral edges to form an enclosed glove shell having a thumb stall for receiving the thumb of a user, at least one finger shall for receiving one or more fingers of a user and a hand receiving opening formed between a bottom edge of the front and back panels to enable a user to insert his/her hand into the glove;

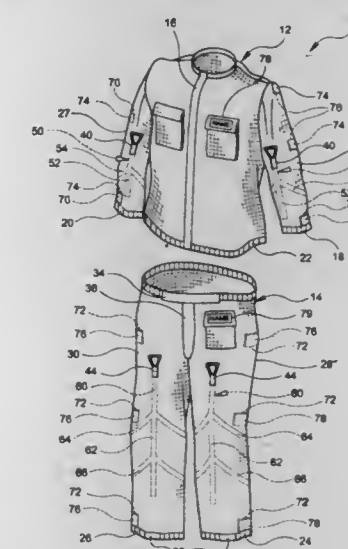
- (c) a web located between the thumb stall and said finger stall;
 (d) a heel extending along a bottom of said front panel between opposing sides of the glove and adjacent the hand receiving opening in the glove;
 (k) a ball-catching pocket located between said heel and said web of the glove;
 (l) an inverted V-shaped notch in said front panel positioned at the center of said heel and extending from a bottom edge of the front panel adjacent to said hand receiving opening upward toward the ball-catching pocket.

5,799,328

REHABILITATIVE GARMENT FOR PERSONS
 AFFLICTED WITH BRAIN DAMAGE
 Steven H. Harlem, and Davida P. Harlem, both of 3564 Chim-
 ney Swift Dr., Huntington Valley, Pa. 19006
 Continuation of Ser. No. 562,097, Nov. 22, 1995, abandoned.
 This application May 5, 1997, Ser. No. 850,441
 Int. Cl.⁶ A41B 1/08; A41D 1/06

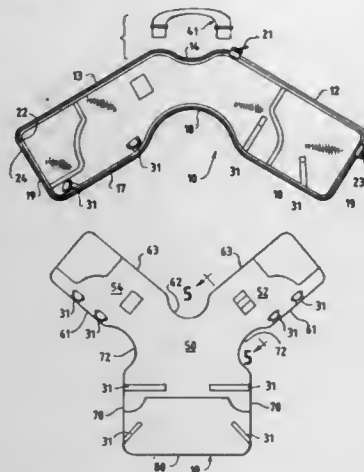
U.S. Cl. 2—69

13 Claims



1. A garment comprising:
 a body section for covering a portion of the torso of a person's body;
 a limb section that defines a generally cylindrical shaped opening adapted to be worn around the limb of a person, wherein said limb section has a first end coupled to said body section, a second end and a center region disposed in between said first end and said second end;
 at least one fabric reinforcement structure having a predetermined length, wherein said at least one fabric reinforcement structure is sewn to said limb section along its predetermined length, said at least one fabric reinforcement structure including at least one fabric element that substantially circumvents said generally cylindrical shaped opening in said center region of said limb section, thereby producing a reinforced region within said limb section;
 at least one graspable element coupled at a fixed position to an exterior surface of said limb section in said reinforced region, wherein said at least one graspable element has a hoop configuration through which at least one finger can be passed, whereby a pulling force applied to said at least one graspable element is directly transferred to said reinforced region, thereby distributing said pulling force to said limb section proximate said reinforced region.

5,799,329
SPORT UTILITY CASE CONVERTIBLE VEST
Alan D. Hauschild, 24908 W. Fox Trail, Lake Villa, Ill. 60046
Filed Jan. 11, 1996, Ser. No. 584,407
Int. Cl.⁶ A41D 1/04
U.S. Cl. 2—102 13 Claims

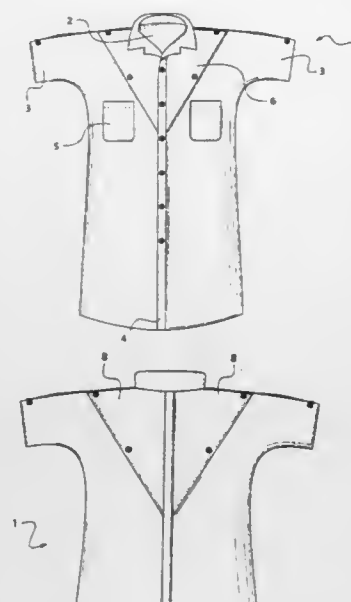


1. A sports utility case convertible to a vest comprising:
an outer shell having one square panel, and a first and second rectangular panel, said first and second rectangular panels having opposing outer and inner peripheral edges and being interconnected through a concave juncture such that they form the branches of a "Y" and extend away from each other, said square panel corresponding to the stem of the "Y" and having two opposing parallel sides and a bottom, each of the opposing parallel sides having a top and bottom wherein the bottom of each parallel opposing side terminates at a juncture with the bottom of the square panel, the top of each parallel opposing side terminating in a concave juncture attachably joining one of each of said rectangular panels;
releasable means, extending along at least part of the outer and inner peripheral edges of the first and second rectangular panels, the concave junctures joining each rectangular panel and the square panel, and the parallel sides and bottom of the square panel, for securing the outer shell in a folded position to define a compartment for an elongated object; and
securing means attached adjacent the opposing sides of the square panel and adjacent the outer peripheral edges of the rectangular panels for positioning each one of the opposing sides of the square panel adjacent one of the outer peripheral edges of the rectangular panels so as to define a vest conforming to the body of a wearer.

5,799,330
MEDICAL TREATMENT GARMENT
Christine O'Donoghue-Kitt, 275 Nassau Ave., Manhasset, N.Y. 11030
Filed Mar. 27, 1997, Ser. No. 826,491
Int. Cl.⁶ A41D 13/00

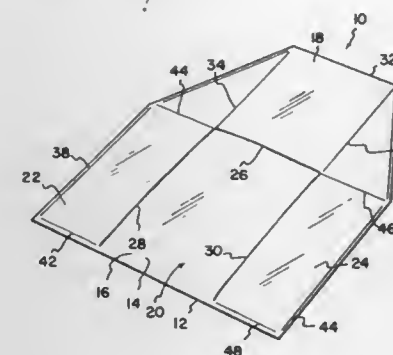
U.S. Cl. 2—114 5 Claims

1. A medical treatment garment, comprising:
a front side having a left side and a right side, said left and right sides being releasably attached to each other down a center of the front side to allow the garment to open and a patient to put on the garment;
a back side having a right side and a left side, said back left side being attached to the front left side and the back right side being attached to the front right side, to create a garment having a neck opening, a bottom opening and two arm openings,



wherein said front side and said back side each have left and right triangular openings, so that the patient's chest area and back are accessible through said triangular openings, and wherein each triangular opening is bordered by a top edge, a proximal edge and a distal edge;
a left sleeve section and a right sleeve section, each of said right and left sleeve sections having a front side and a back side;
a left shoulder strap and a right shoulder strap, each strap having a first end connected to the garment at the neck opening and a second end connected to a sleeve section, wherein said left and right shoulder straps form top edges of the triangular openings on the front and back sides;
a left front triangular panel and a right front triangular panel, the left front triangular panel attached to the left front side of the garment along the proximal edge of the left front opening, said left front triangular panel covering the left front triangular opening and being releasably connected to the left shoulder strap near the second end and to the distal edge of the right front triangular opening, and the right front triangular panel being attached to the right front side along the proximal edge of the right front triangular opening, said right front triangular panel covering the right front triangular opening and being releasably connected to the right shoulder strap near the second end and to the right front side at the distal edge of the right front triangular opening;
a left back triangular panel and a right back triangular panel, the left back triangular panel being attached to the left back side along the proximal edge of the left back triangular opening, said left back triangular panel covering the left back triangular opening and being releasably connected to the left shoulder strap near the second end and to the left back side along the distal edge of the left back triangular opening, and the right back triangular panel being attached to the right back side along the proximal edge of the right back triangular opening, said right back triangular panel covering the right back triangular opening and being releasably connected to the right shoulder strap near the second end and to the right back side at the distal edge of the right back triangular opening,
such that two sides of one or more of the triangular panels can be detached from the garment to allow access to portions of a patient's body without affecting the structure of the garment.

5,799,331
HAND PROTECTOR
Gloria J. Stewart, 1331 W. Central Ave., No. 35, Santa Ana, Calif. 92704
Continuation-in-part of Ser. No. 516,349, Aug. 18, 1995, abandoned. This application Aug. 22, 1996, Ser. No. 701,496
Int. Cl.⁶ A41D 19/00
U.S. Cl. 2—159 15 Claims



2. A low cost, disposable hand-covering protector engageable by either a left or a right hand that shields an item to be handled from direct contact with the hand while allowing free manipulation of the item through the protector, comprising:
(a) a contact panel of thin, pliant material having an item contact side and a hand contact side having a hand palm portion; and
(b) a group of thin pliant overlayer elements coupled to the contact panel on the hand contact side and defining ingress openings arrayed in a general U-shape about the hand palm portion for receiving a right thumb, a number of fingers as a group and a left thumb, the overlayer elements confining the inserted digits such that the protector conforms to digital movements of the thumb and the fingers whichever hand is used on the hand contact side.

5,799,332
HAND COVERINGS
Brent I. Goodwin, Elkton, Md., assignor to W. L. Gore & Associates, Inc., Newark, Del.
Filed Apr. 22, 1997, Ser. No. 837,833
Int. Cl.⁶ A41D 25/00
U.S. Cl. 2—159 2 Claims



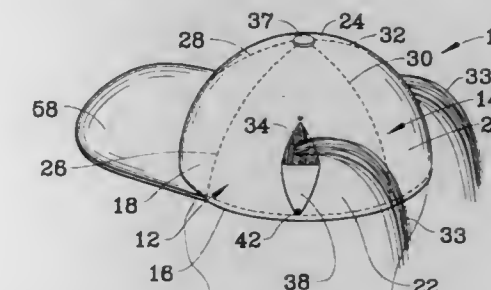
1. A hand covering that has a thumb and a portion for the first index finger and that has a crotch area between said thumb and said portion in which the geometry of the crotch area is formed by two arcs separated by a short substantially straight portion and in which the radii loci of the two arcs is centered in the space between the thumb and said portion.

5,799,333
GLOVE LINER HAVING AN AMBIDEXTREOUS AND UNIVERSAL SIZE
Joseph D. McGarry, and Tilak M. Shah, both of Cary, N.C., assignors to Polygenex International, Inc., Cary, N.C.
Continuation-in-part of Ser. No. 228,907, Apr. 18, 1994, abandoned, which is a continuation of Ser. No. 765,979, Sep. 26, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 477,606
Int. Cl.⁶ A41D 19/00
U.S. Cl. 2—161.6 22 Claims



1. A seamless knitted glove with a cuff having an ambidextrous shape and stretchable up to at least about 300%, of a crimped and textured stretchable continuous filament nylon yarn of about 300 denier or less, said yarn comprising a twisted yarn of at least two plies wherein at least one ply is formed in a S twist, at least a second ply is formed in a Z twist and said plies are co-twisted together.

5,799,334
BASEBALL CAP FOR PIGTAIL HAIRSTYLES
Dianne E. Griffith, 7710 Westlake Dr., West Palm Beach, Fla. 33406, and Glenn C. Griffith, 4945 Castays Dr., Pensacola, Fla. 32504
Filed Apr. 17, 1997, Ser. No. 839,871
Int. Cl.⁶ A42B 1/00
U.S. Cl. 2—195.1 8 Claims



1. A baseball cap to accommodate hair worn in a pigtail style, said cap comprising:
a head covering portion having a substantially continuous side-wall sized and shaped to accommodate the upper portion of an individual's head, a lower edge of said sidewall being bounded by a rim portion, said sidewall further defined by a front panel spaced apart from a back panel by a plurality of side panels, each of said panels being substantially-triangular; a first opening disposed in a first side panel;

a second opening disposed in a second side panel, each of said openings sized to accept a bundle of hair for placement therethrough;
a first flap sized and positioned to selectively cover said first opening;
a second flap sized and positioned to selectively cover said second opening; and
a brim portion extending orthogonally from said front panel.

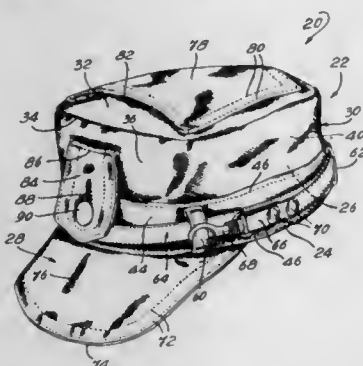
5,799,335

CONVERTIBLE HAT

Robert Ethier, Saint-Philippe, Canada, assignor to Les Industries Robo-Cap Ltee, Saint-Philippe, Canada
Filed Jun. 3, 1997, Ser. No. 868,281
Int. Cl.⁶ A42B 1/20

U.S. Cl. 2—209.11

29 Claims



1. A convertible hat comprising a crown formed of flexible material and having a peripheral edge defining a head-receiving opening, a visor flexibly attached to said crown along a section of said peripheral edge and projecting forwardly from said crown, a removable strap extending about and exteriorly of said crown adjacent said peripheral edge, guide means for guiding and retaining said strap adjacent said peripheral edge, first releasable fastening means for releasably attaching free ends of said strap to said crown at predetermined locations on opposite sides thereof, and second releasable fastening means for releasably attaching said visor to a rear portion of said crown, said strap being arranged about said crown and attached thereto so that when said strap is pulled away from said crown in a forward or rearward direction, said opening is contracted and said crown forms a bag with said strap defining a handle for carrying said bag and said visor defining a closure flap for closing the contracted opening, said second fastening means being operative to releasably retain said closure flap in a closed position, whereby said hat is converted into a handbag.

5,799,336

PROTECTIVE GARMENT WITH DETACHABLE FLEXIBLE POUCH

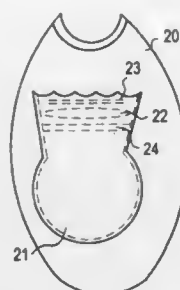
Meredith K. Cooper, 4500 Four Mile Run Dr. #429, Arlington, Va. 22204

Filed Nov. 6, 1996, Ser. No. 744,665
Int. Cl.⁶ A41D 27/20:3/00

U.S. Cl. 2—247

6 Claims

1. A protective garment comprising:
a wearable shroud, said wearable shroud being adaptable for wear as an outer layer over another garment to protect said another garment from spills, dirt, and other debris, and
a flexible pouch;
said flexible pouch comprised of:
a container portion, and
a neck portion, said neck portion being integrally connected to said container portion;
said container portion being comprised of



a flexible material, thereby rendering said container portion expandable to accommodate the insertion and storage of cleaning articles therein;
said neck portion comprised of flexible material and including an opening at the upper end of a sufficient size to allow the insertion and extraction of cleaning articles from said container portion;
said flexible material of said neck portion and said container portion being comprised of two panels of equal size and shape which are securely and cooperatively affixed to one another in parallel orientation about their circumferential edges;
said wearable shroud comprised of a flexible material;
said wearable shroud having a longitudinally-extending horizontal opening in the flexible material;
closure means attached to said wearable shroud for covering said longitudinal horizontal opening and for covering the opening in said neck portion;
cooperative attachment/detachment means for attachably/detachably affixing said flexible pouch to the interior of said longitudinal horizontal opening in said wearable shroud so that the contents of said flexible pouch can be accessed from the exterior of said wearable shroud during use; and
a flap is affixed to the protective garment which overlays said longitudinal horizontal opening and wherein said closure means comprises cooperative hook and loop strips affixed to said protective garment and said flap such that said hook and loop strips cooperate to close said horizontal opening of said protective garment.

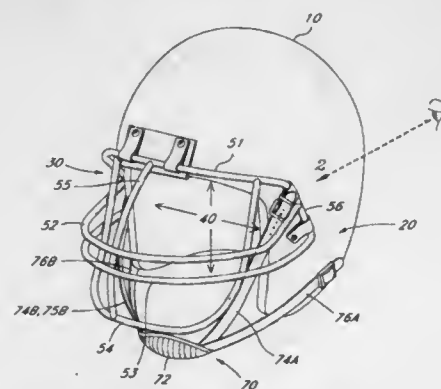
5,799,337

FACE GUARD ATTACHED CHINSTRAP FOR AN ATHLETIC HELMET

Lowell Brown, 82 Kincardine Dr., Bella Vista, Ark. 72715
Filed Nov. 13, 1997, Ser. No. 969,985
Int. Cl.⁶ A42B 3/08:3/18

U.S. Cl. 2—421

4 Claims



1. A protective headgear device comprising:
a helmet for receiving a wearer's head, and having opposed sides, and a front portion defining a face opening;
a face guard comprising a mutually joined plurality of rigid wires attached to the helmet and extending in front of, and around the face opening, the rigid wires including a pair of

laterally placed, upwardly angled, side wires, each of the side wires held adjacent to one of the opposed sides of the helmet, and a forwardly positioned front wire positioned in front of the face opening and joining the side wires at a position generally above the wearer's eyes;

a chinstrap assembly including a chin cup positioned over the wearer's chin, and extending from the chin cup, a pair of upper lateral straps, each directed to and joined with one of the side wires just above the front wire, and a pair of lower lateral straps, each directed to and joined with one of the opposed sides of the helmet such that the force of a blow to the face guard is transferred directly through the upper lateral straps to the chin cup.

5,799,338

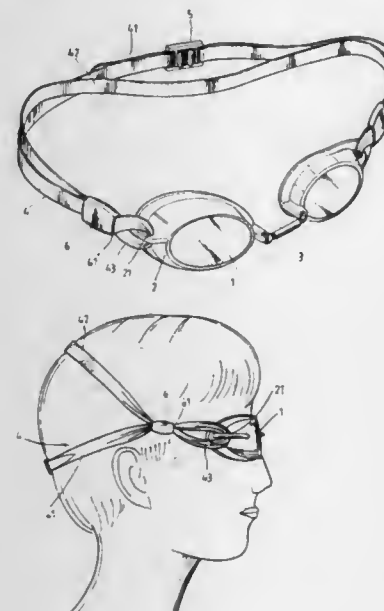
SWIMMING GOGGLES

Ann Huang, No. 398, Chian Ping 8th St., An Ping District, Tainan City, Taiwan

Filed Nov. 13, 1996, Ser. No. 748,537
Int. Cl.⁶ A61F 9/02

U.S. Cl. 2—428

4 Claims



1. A pair of swimming goggles, comprising:
two frames of plastic material interconnected by a connecting member therebetween, two rigid lenses respectively received in the frames, a strap, two clamping blocks each having a bore, and a buckle, each said frame including a slot defined in an outer side thereof, the strap including a first end, a second end, and a mediate section, each of the first end and the second end of the strap being extended through the associated clamping block, wound through the associated slot, and then again extended through the associated clamping block, thereby forming an upper strap section and a lower strap section, the first end and the second end of the strap being securely attached to the buckle, thereby allowing adjustment of the length of the strap in response to the shape of the head of the user, said bore of each said clamping block allowing the mediate section of the strap to be extended twice and thus tightly clamped therein, each said clamping block retaining the upper strap section and the lower strap section adjacent to the wound portion at a position above the ears of a user.

5,799,339

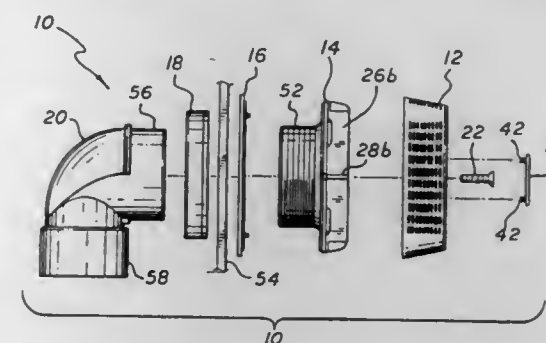
SAFETY COVER FOR SPA SUCTION DRAIN

Loren Perry, Fountain Valley, and Darrin Swanson, Simi Valley, both of Calif., assignors to American Products, Moorpark, Calif.

Filed Oct. 17, 1996, Ser. No. 731,659
Int. Cl.⁶ A47K 1/14

U.S. Cl. 4—286

13 Claims



1. A safety cover for a suction drain in a jetted spa or tub intended to reduce the risk that an occupant's hair could become entangled within a water stream entering the drain, comprising:
a base mountable to an interior surface of the tub or spa, the base having a central opening which communicates with the suction drain, said base extending generally parallel to the underlying spa surface and having a peripheral edge;
a cover having a face wall spaced from the base and a sidewall extending from the face wall and having a free peripheral edge contacting said base in the region of its periphery to define a closed chamber enclosing said opening, said face wall and sidewall being perforated to act as a screen in the way of entry of hair into the chamber;
a fastener connecting said face wall to said base to draw said cover into secure contact against said base;
an interior wall mounted within said chamber and shaped to act as a flow directing vane with respect to water entering the chamber and passing through the opening to the suction drain to resist the development of a water vortex within said chamber, wherein the perforated character of said walls and the water flow across said interior wall within said chamber resist entrapment of the occupant's hair within the water stream entering the suction drain; and
a second interior wall forming another vane extending from the face wall of said cover toward said base, wherein said second interior wall intersecting with said first interior wall to divide said cover into four portions, the total area of the holes in each portion of said cover equaling the total area of the holes in each other portion of said cover.

5,799,340

WATER-CONSERVING URINAL

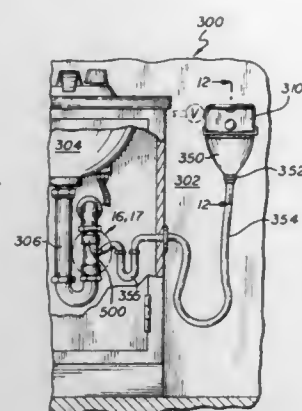
Sylvan E. Hubrig, 10734 Hutton Dr., Sun City, Ariz. 85351, and Roy K. Fischer, 12646 N. 56th Pl., Scottsdale, Ariz. 85254
Continuation-in-part of Ser. No. 390,103, Feb. 17, 1995, Pat. No. 5,575,020. This application Nov. 18, 1996, Ser. No. 751,857

Int. Cl.⁶ E03D 1/22

U.S. Cl. 4—342

8 Claims

1. A urinal for use in connection with a sewer line, said urinal comprising:
(a) a urinal bowl, said bowl having an open top with a peripheral edge and a discharge at a lower end;
(b) a flexible waste line extending from the discharge of the urinal bowl and communicating with the sewer line;
(c) a hanger housing mountable on a fixture, said hanger having a side wall and a bottom wall defining a water reservoir and having hanger means for engaging the said urinal bowl whereby the urinal bowl may be maintained in a stored



position with said bowl in a generally horizontal position below the reservoir and may be manually moved from the hanger to a position of use;

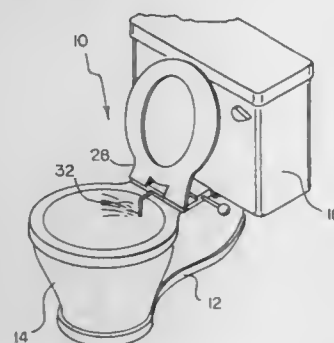
(d) means for flushing said bowl including a valve operable to direct discharge water from the said reservoir to the interior of said bowl; and

(e) a foraminous distribution plate disposed below said bottom wall which is positioned above said urinal bowl when the bowl is in a stored position and valve means operable to discharge water from said reservoir onto said distributor plate.

5,799,341
COMBINATION TOILET AND BIDET SYSTEM
Jaime E. Rodas, 8635 SW. 20th Ter., Miami, Fla. 33155
Filed Feb. 18, 1997, Ser. No. 801,435
Int. Cl.⁶ A47K 3/20

U.S. Cl. 4—420.4

2 Claims



1. A combination toilet and bidet system for incorporating a bidet into a toilet for cleaning a user's private parts comprising, in combination:

said toilet comprised of a seat portion, the seat portion having a rear portion extending rearwardly therefrom, the toilet having a tank portion secured to the rear portion of the seat portion, the tank portion having a plurality of components therein, one of the components including a water supply tube, the tank portion having a lid removably disposed over an open upper end thereof;

a compact bidet assembly comprised of a housing, the housing having a generally rectangular configuration, the housing secured to the rear portion of the seat portion disposed between the seat portion and the tank portion, the housing having an L-shaped outlet tube rotatably coupled with respect thereto, the L-shaped outlet tube including a horizontal tube and a vertical tube, the horizontal tube extending outwardly of a front wall of the housing, the horizontal tube extending along the rear portion of the seat portion of the toilet, the vertical tube integral with and extending downwardly from the horizontal tube into the seat portion of the toilet, a lower end of the vertical tube having a dispensing aperture therein,

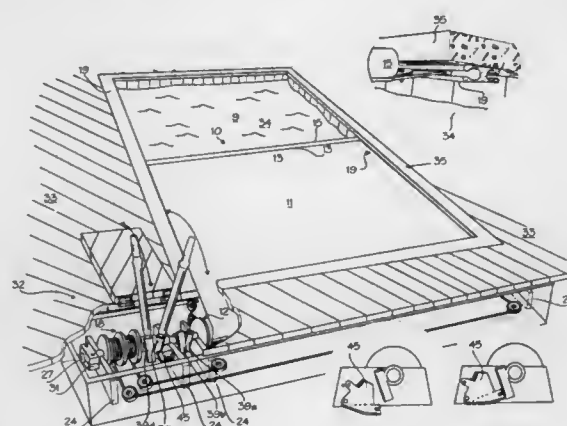
the bidet assembly including rear tubing, the rear tubing including a first segment having an interior portion disposed within the housing and coupled with a rearward end of the horizontal tube within an interior housing and an inner portion extending outwardly of a side wall of the housing and extending around a rear of the housing, a second segment of the rear tubing integral with a free end of the first segment and extending beneath a bottom of the tank portion of the toilet, a third segment of the rear tubing integral with a free end of the second segment and extending upwardly along a rear wall of the tank portion of the toilet, a fourth segment of rear tubing integral with a free end of the third segment, the fourth segment extending under the lid of the tank portion of the toilet to couple with the water supply tube therein; and

a handle assembly comprised of an elongated slidable rod extending inwardly of a side of the housing, an outer end of the slidable rod having a round handle disposed thereon, an inner end of the slidable rod having a bracket pivotally coupled thereto, a middle portion of the bracket having downwardly extending teeth thereon, a free end of the bracket pivotally coupled with the interior housing, the handle assembly including a gear having an axle extending within the interior housing and secured to the horizontal tube, the gear positioned outwardly of the interior housing and disposed below and engaged to the teeth of the bracket.

5,799,342
MANUAL COVER DRIVE FOR SWIMMING POOLS
Harry J. Last, 122 Duncroft Ave., Monterey, Calif. 93940
Filed Aug. 29, 1995, Ser. No. 520,406
Int. Cl.⁶ E04H 4/10

U.S. Cl. 4—502

15 Claims



1. A manual cover drive for winding a cover around a cover drum for retracting an extended cover comprising, in combination:

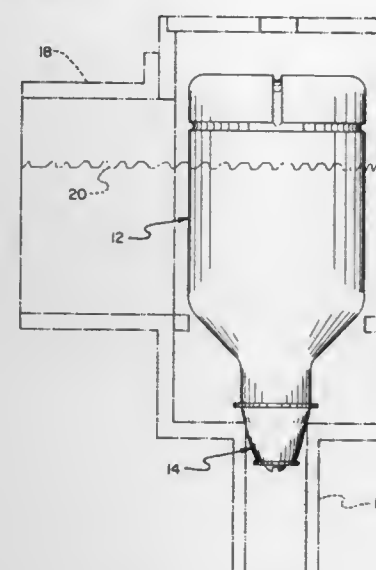
a) a drive shaft coupled for rotating the cover drum in a winding direction to wind the cover around the cover drum, the cover drum being supported for rotation relative to a deck surface, b) a pair of overrunning, one way clutch mechanism overrunning around and engaging the drive shaft, oriented to engage the drive shaft when rotated in a winding direction,

c) means for releasably coupling each overrunning, one way clutch mechanism to one end of a long lever handle, each long handle coupled to an overrunning, one way clutch mechanism journaled around the drive shaft having a length extending from the drive shaft providing sufficient mechanical advantage for winding the cover around the cover drum upon being reciprocated back and forth in a power and a return stroke responsive to human limb movement for rotating the drive shaft and the cover drum winding the cover around the cover drum retracting the extended cover.

5,799,343
UNIVERSAL SKIMMER ICE PROTECTOR
Stanley A. Semco, and Joseph J. Tedona, both of 8-22 Melvin Pl., Fair Lawn, N.J. 07410
Filed Oct. 26, 1994, Ser. No. 329,286
Int. Cl.⁶ E04H 4/06

U.S. Cl. 4—504

2 Claims



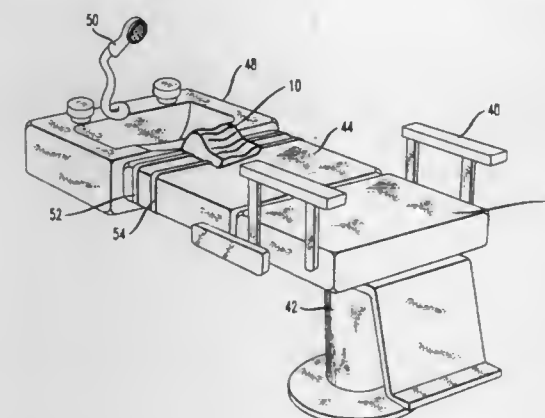
1. A universal skimmer ice protector comprising: an expansion compensator means for projecting above a water-line of a pool skimmer such that freezing of water within said skimmer will compress said expansion compensator means to preclude expansion and fracturing of said pool skimmer during freezing conditions;

a plug means secured to said expansion compensator means for engaging and sealing a fluid conduit of said pool skimmer and supporting said expansion compensator means in a substantially vertical orientation; and, an extension cap means attachable to said container for increasing a height of said container.

5,799,344
NECK SUPPORT CUSHION FOR UTILIZATION IN CONJUNCTION WITH HAIR TREATMENT
Michael Najjar, 2552 Summit Rd., Manasquan, N.J. 08736
Filed Feb. 20, 1996, Ser. No. 603,169
Int. Cl.⁶ A45D 44/10

U.S. Cl. 4—523

3 Claims



1. Neck support for individuals for use during hair treatment and shampooing comprising:

a salon chair for the support of said individual having a back, positionable from an upright position to a reclining position, said reclining position cooperable with a sink;

a resilient cushion removably positioned on said back of said salon chair in said upright and said reclined position, said resilient cushion having a planar base in communication with said back of said salon chair proximate the top of said back of said salon chair, said resilient cushion having opposing side-walls, a front edge and a rear edge, an upper surface extending from said front edge to said rear edge, said upper surface preformed to the cervical lordotic curve of said individual's upper spine and neck, said preformed upper surface being double curved, having a first arcuate surface preformed to said cervical lordotic curve of said spine, said first arcuate surface extending from said front edge of said resilient cushion to said rear edge, said upper surface having a second arcuate surface extending transverse between said opposing side-walls, said second arcuate surface being complementary to the rear circumference of the individual's neck;

a protective covering means;

means for removably securing said cushion to said salon chair.

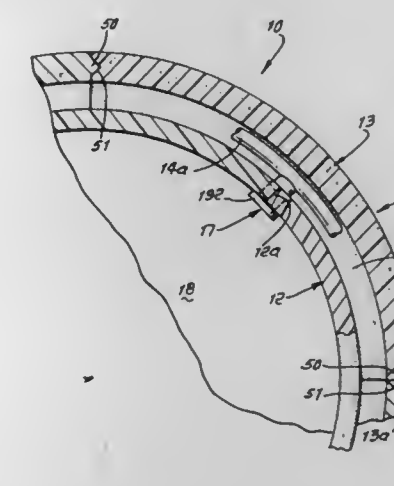
5,799,345
SPA APPARATUS WITH MULTIPLE SECTIONS
Borg Hansen, Calabasas; Rafael Gonzalez, Palmdale, and Roc V. Fleishman, Venice, all of Calif., assignors to Softub, Inc., Chatsworth, Calif.

Filed Jun. 10, 1996, Ser. No. 661,067

Int. Cl.⁶ E04H 4/00

U.S. Cl. 4—584

37 Claims



1. In the method of providing a spa tub, the steps comprising

a) providing a load-bearing tub side wall having an inner side and an outer side, the tub having an interior to receive liquid, b) the tub side wall provided to include at least two wall sections, spaced about said interior, said sections assembled end-to-end to form said side wall to extend in a loop, said sections consisting of foamed synthetic resin,

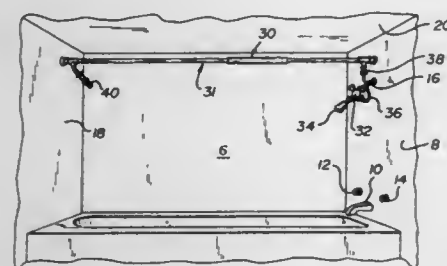
c) each section having inner and outer panels, each panel having opposite ends, whereby adjacent inner panels have opposed opposite ends and adjacent outer panels have opposed opposite ends, the opposed ends of the outer panels offset loopwise from the opposed ends of the inner panels, inner panels connected to outer panels along adjacent sides.

5,799,346

DUAL SHOWER HEAD DEVICE

Mark R. Tiernan, 6970 Jackson Ct., Merrillville, Ind. 46410
 Filed Jan. 30, 1997, Ser. No. 791,366
 Int. Cl.⁶ A47K 3/22

U.S. Cl. 4—601



1. In a dual shower head device of the elongated type that includes a unit that extends between opposite walls of a tub or shower enclosure and has a shower head at or near each longitudinal end, the improvement comprising:

the unit being made of telescoping tubing which can longitudinally expand or contract over a range to accommodate different distances between the opposite walls of a tub or shower enclosure;

means for seating against a wall at both longitudinal ends of said device;

an elongated helical spring compressed within said telescoping tubing so as to urge the tubing to telescopically expand longitudinally outward against the walls, but which can also be telescopically compressed to less than that distance for ease in installing and positioning said unit in the enclosure, said telescoping tubing serving as the water pathway for feeding water to at least one of the shower heads.

5,799,347

METHOD OF REAR LOADING A WHEELCHAIR

James Brian McCarthy, 1375 Rainbow, Saginaw, Mich. 48603
 Division of Ser. No. 304,777, Sep. 12, 1994. This application
 Dec. 23, 1996, Ser. No. 772,998
 Int. Cl.⁶ A61G 7/10

U.S. Cl. 5—81.1 R

14 Claims

1. A method of rear loading a bedridden person to a wheeled frame having front and rear ends adapted to traverse a support surface comprising the step of:

placing a seat on a bed rearward of said wheeled frame;

rolling a person on said bed onto said seat in a sitting position facing the rear end of said wheeled frame;

rearwardly moving and cantileverly supporting a seat support frame on said wheeled frame to a position adjacent said seat on said bed and detachably coupling said seat to said seat support frame;

raising said seat support frame, said seat, and said person to an elevated position removed from said bed; and

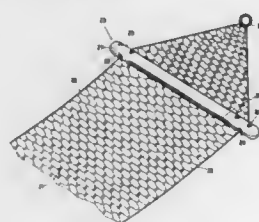
forwardly moving said seat support frame relative to said wheeled frame and to said bed to move said seat and a person supported thereon forwardly away from said bed through said rear end of said wheeled frame to be supported thereby for transport.

5,799,348

HAMMOCK

Ker-Shin Hsu, 55-1, Ting Hsin Road, Ting Hsin Village, Sun Kang Hsiang, Chan Hua Hsien, Taiwan
 Filed Oct. 27, 1997, Ser. No. 958,079
 Int. Cl.⁶ A45F 3/22

8 Claims U.S. Cl. 5—123



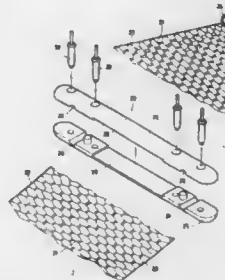
1. A hammock comprising:

a net;

two side ropes fastened to two longitudinal sides of said net; two support rods fastened with said net such that said two support rods are separated from each other by a distance; and two suspension hooks fastened to both longitudinal ends of said net;

wherein each of said two support rods comprises an upper rod piece and a lower rod piece, said upper rod piece provided in an underside thereof with two arcuate recesses separated from each other by a distance, said upper rod piece further provided in the underside thereof with a flat recess located between said two arcuate recesses, said upper rod piece still further provided with a plurality of fastening through holes engaged with a plurality of fastening nails, said lower rod piece provided in an upper side thereof with two arcuate recesses corresponding in location to said arcuate recesses of said upper rod piece, said lower rod piece further provided in the upper side thereof with a flat recess corresponding in location to said flat recess of said upper rod piece, said lower rod piece still further provided with a plurality of fastening through holes corresponding in location to said fastening through holes of said upper rod piece and engaged with said fastening nails, whereby when said two arcuate recess of said upper rod piece and said two arcuate recesses of said lower rod piece are joined together, they form two rope holes adapted to accommodate said side ropes.

3 Claims



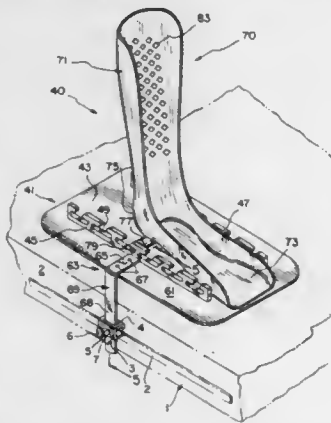
5,799,349

SURGICAL KNEE HOLDER

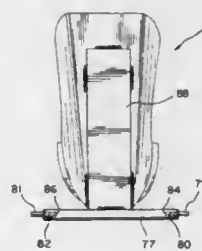
Thomas D. Petersen, 9680 Alto Dr., La Mesa, Calif. 91941
 Filed Nov. 7, 1997, Ser. No. 966,231
 Int. Cl.⁶ A61G 13/12; 13/10

U.S. Cl. 5—624

20 Claims



1. An improved surgical knee holder, comprising:



5,799,351

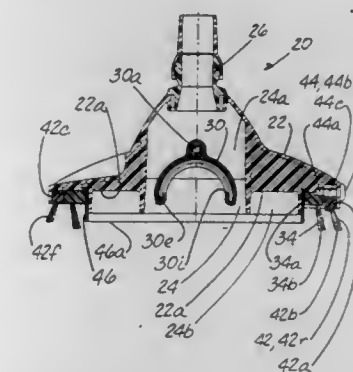
SWIMMING POOL CLEANER WITH VIBRATORY POWER

Dieter J. Rief, 2780 Bardy Rd., Santa Rosa, Calif. 95404;
 Herman E. Frentzel, 424 Bee St., Sausalito, Calif. 94965, and
 Pavel Sebor, 45 Highcliff Way, Northcliff Extension 12,
 Johannesburg, Transvaal, South Africa
 Continuation of Ser. No. 147,993, Nov. 3, 1993, abandoned,
 which is a continuation of Ser. No. 145,807, Nov. 1, 1993, Pat.
 No. 5,379,473, which is a continuation-in-part of Ser. No.
 52,699, Apr. 27, 1993, Pat. No. 5,293,659, which is a continuation
 of Ser. No. 771,787, Oct. 4, 1991, abandoned, which is a
 continuation of Ser. No. 758,005, Sep. 12, 1991, abandoned,
 which is a continuation-in-part of Ser. No. 586,425, Sep. 21,
 1990, abandoned. This application Apr. 1, 1994, Ser. No.
 221,709

Int. Cl.⁶ E04H 4/16

U.S. Cl. 15—1.7

32 Claims



1. In a pool cleaner having a housing open at a lower side thereof, a hose connection on the housing allowing water to be drawn therethrough thereby defining a flow, and a vibratory power source, the power source improvement comprising:

a power-source flow chamber secured with respect to the housing between an upstream chamber inlet and downstream hose connection, having an open upstream inlet end configured such that flow into and through the chamber is not restricted by the upstream inlet end configuration alone; and

a vibrator having a pivot mount thereon by which it is pivotally mounted in the chamber for oscillation between end vibrator positions determined by the power source chamber, the vibrator having a pair of opposite surfaces positioned to be alternately reactive to fluid dynamic forces, and the vibrator being mounted and sized such that total cross-sectional flow area past the vibrator is substantially unchanged in all vibrator positions and flow is substantially unrestricted in all vibrator positions.

5,799,352

Patent Not Issued For This Number

5,799,353

TOOTHBRUSH

Kazumi Oishi, Kusatsu, and Atsushi Yamamoto, Takatsuki,
 both of Japan, assignors to Sunstar Inc., Osaka, Japan
 Filed Nov. 27, 1996, Ser. No. 757,237

Claims priority, application Japan, Dec. 1, 1995, 7-313890

Int. Cl.⁶ A46B 9/04

U.S. Cl. 15—167.1

6 Claims

1. A toothbrush, comprising:

a handle portion;

a head portion connected to an end of said handle portion, said head portion constituting an elongated tufting base; and

5,799,350

BLOOD FLOW VELOCITY MEASUREMENT DEVICE

Bozidar Ferek-Petric, and Branko Breyer, both of Zagreb,
 Croatia, assignors to Pacesetter AB, Solna, Sweden
 PCT No. PCT/EP95/01171, § 371 Date Feb. 27, 1997, § 102(e)
 Date Feb. 27, 1997, PCT Pub. No. WO95/26677, PCT Pub.
 Date Oct. 12, 1995

PCT Filed Mar. 29, 1995, Ser. No. 718,406

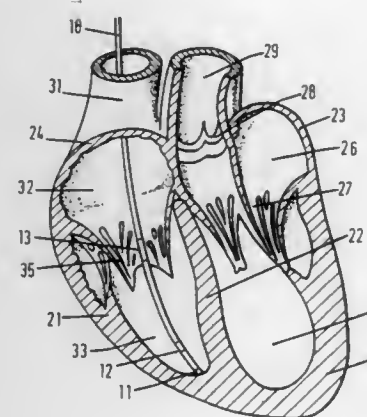
Claims priority, application Croatia, Mar. 30, 1994, 940206

A: May 16, 1994, 940303 A; Aug. 1, 1994, 940034 A

Int. Cl.⁶ A61N 1/365

U.S. Cl. 607—17

22 Claims



1. An intracardiac blood flow velocity measurement system comprising:

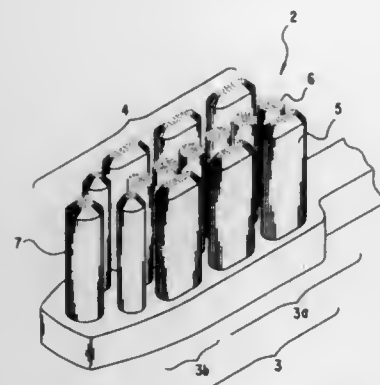
a catheter adapted for insertion into a heart through a blood vessel;

at least one blood flow velocity detecting means, mounted on said catheter, for detecting blood flow velocity at a detecting position in a selected detecting area when said catheter is inserted into said heart;

a plurality of electrical conductors contained in said catheter, each conductor having a distal end electrically connected to said blood flow velocity detecting means and each conductor having a proximal end;

electronic circuitry means, connected to the respective proximal ends of said electrical conductors, for receiving and processing blood flow velocity data generated by said blood flow velocity detecting means; and

said blood flow velocity detecting means comprising at least two electrodes respectively consisting of two different biocompatible materials, and at least a first of said at least two electrodes comprising a polarizable electrode and being disposed in said detecting position and a second of said at least two electrodes being disposed on said catheter axially spaced from said first electrode.



a plurality of tufts formed on said elongated tufting base, each tuft consisting of filaments vertically disposed on said elongated tufting base,

wherein at least one of said plurality of tufts constituting a tufting area has a major axis extending along a longitudinal direction of said elongated tufting base and a minor axis perpendicular to said major axis, and a tip portion of said at least one of said plurality of tufts is converged toward a tip end of said tip portion to form a converged tip portion, said tip end has a shape selected from the group consisting of a dot, a line and a plane,

wherein a size of said tip end of said converged tip portion is larger than 0 mm and not larger than 8 mm in said major axis (w) and larger than 0 mm and not larger than 3 mm in said minor axis (d),

wherein a size of a basal end of said converged tip portion is from 3 to 10 mm in said major axis (W) and from 1 to 3 mm in said minor axis (D), and

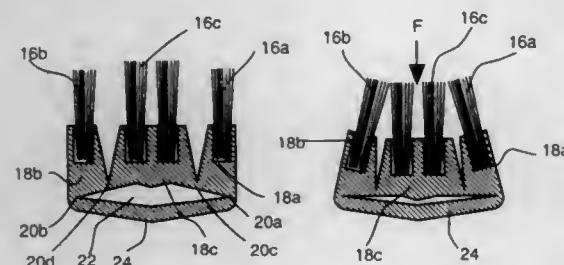
wherein a height (h) of said converged tip portion is from 0.5 to 4 mm.

5,799,354 TOOTHBRUSH

Ehud Amir, 18 Lylienblum Street, Tel Aviv, Israel
Filed Feb. 27, 1997, Ser. No. 806,718
Int. Cl.⁶ A46B 9/04

U.S. Cl. 15—167.1

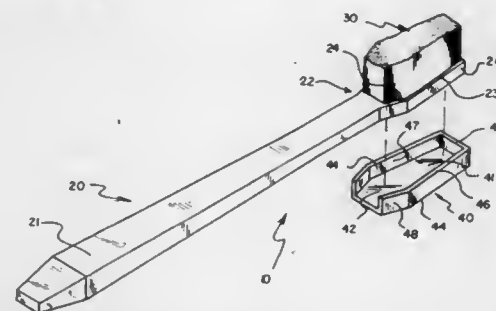
4 Claims



1. A toothbrush having a handle and a brush head, the brush head comprising two side, and one central bristle tuft bundles, each mounted to a respective separate base, each of the side bases being mounted to the brush head by an elongated, flexible hinge extending in the axial direction of the handle, and the central base being hingedly connected to the bases of the side bundles, so that under a force applied against the central bristles tuft, the bases of the side bundles pivot one in the direction of the other, and resume their initial position when the central bundle is relieved from said force.

5,799,355
PADDED TOOTHBRUSH
Aileen Burch, R.D. 2 Box 2092, and Cynthia M. Newport, R.D. 2 Box 2087F, both of Stroudsburg, Pa. 18360
Filed Feb. 28, 1997, Ser. No. 808,800
Int. Cl.⁶ A46B 9/04; 17/08
U.S. Cl. 15—167.1

1 Claim



1. A padded toothbrush comprising:
an elongated member including a handle at one end, a head at an opposite end and a neck between said handle and said head, said head having a top surface, a bottom surface, a pair of lateral surfaces, and an end surface, said head and said neck having a uniform thickness, said head further having a broad portion proximate said neck and tapering to a narrower portion at a head distal end;

a plurality of bristles protruding upward from said top surface of said head, said bristles being positioned proximate each other within an outer perimeter of said top surface of said head, said outer perimeter having a substantially uniform thickness; and
a protective pad having a substantially smooth outer surface, said protective pad fixedly attached to and extending outwardly from a full length of said pair of lateral surfaces of said head, said end surface of said head, and said bottom surface of said head, said protective pad protecting a user's teeth, gums, and inner mouth from contact with said head while brushing;

wherein said protective pad comprises:
a planar base portion having a top surface and a bottom surface,

a pair of lateral portions extending upward from said top surface of said planar base portion along opposite sides thereof, and

an end portion extending upward from said top surface of said planar base portion at one end thereof,

said pair of lateral portions and said end portion forming a partial-perimeter wall along three sides of said planar base portion, said partial-perimeter wall having an inner surface and an outer surface,

said inner surface of said partial-perimeter wall abutting said pair of lateral surfaces of said head and said end surface of said head,

said top surface of said planar base portion abutting said bottom surface of said head;

wherein said protective pad is formed of a compressible material; and

wherein said compressible material is soft and flexible.

5,799,356 TOOTH BRUSH

Yonesaburo Kawashima, Tochigi-ken, Japan, assignor to
Tochigi Seiko Co., Ltd., Tochigi-ken, Japan
Filed Mar. 13, 1997, Ser. No. 815,938
Claims priority, application Japan, Mar. 13, 1996, 8-002602
Int. Cl.⁶ A46B 9/04

U.S. Cl. 15—167.1

5 Claims

1. A tooth brush comprising:
a handle having opposite first and second sides and a plurality of holes extending through said handle from said first side to said second side;



bristles fixed to and extending from said first side thereof;
a plurality of magnetic projections extending through respective said holes from said second side of said handle to and beyond said first side thereof, said magnetic projections projecting from said first side of said handle by a distance equal to approximately one-half the height of said bristles;
each said magnetic projection including a rod shaped resin projection having at a tip end thereof a permanent magnet member, each said permanent magnet member having a diameter substantially equal to a diameter of the respective said resin projection; and
a base plate secured to said second side of said handle and securing said magnetic projections in said handle.

5,799,357 CLEANING UTENSIL

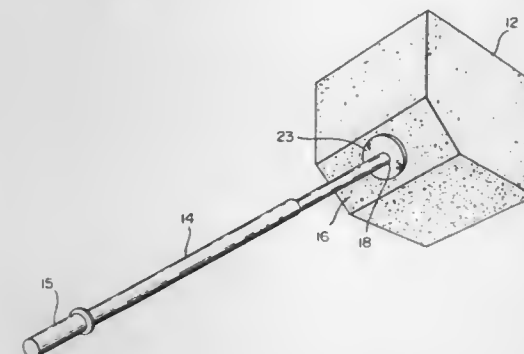
Lilian A. Taylor, 4136 E. Pender Street, British Columbia, Canada, V5C 2M2

Continuation-in-part of Ser. No. 591,279, Jan. 25, 1996, abandoned. This application May 21, 1997, Ser. No. 859,930

Int. Cl.⁶ A47L 13/16

U.S. Cl. 15—244.1

8 Claims



1. A cleaning utensil comprising:
a handle defining at one end a substantially rigid portion;
a cube-shaped sponge having a chamfered corner, said corner providing a central opening extending within the sponge which forms a hollow channel, said channel being adapted to receive the portion of the handle substantially within the body of the sponge.

5,799,358 CANOPY WIPER SYSTEM

Clifford D. Unverrich, 241 NE. 125, Portland, Oreg. 97230

Filed May 30, 1996, Ser. No. 655,614

Int. Cl.⁶ B60S 1/46; 1/58; B60P 3/345

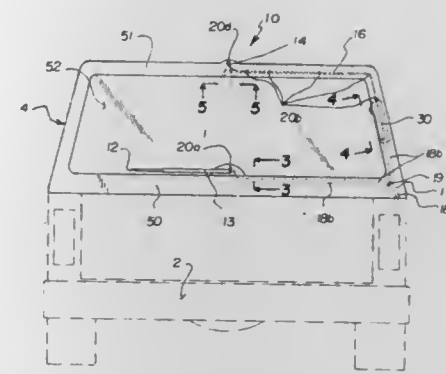
U.S. Cl. 15—250.01

3 Claims

1. A canopy and wiper system for use with a pickup truck of the type having a power source outlet, the canopy and wiper system comprising:

a removable canopy adapted to removably attach to the truck, the canopy having an interior, a rear window and a power transference means removably connectable to the power source outlet of the truck;

a pivoting wiper arm mounted to the canopy such that the wiper arm remains attached to the canopy when the canopy is removed from the truck;



a wiper attached to said wiper arm, said wiper positioned to contact the rear window;

a motor attachable to said pivoting wiper arm through the rear window of said canopy such that the motor is mounted to the canopy such that the motor remains attached to the canopy when the canopy is removed from the truck, the motor being mounted to the canopy by an attachment means including a first support member being engaged to an output shaft of said motor, said output shaft further engaging said wiper arm such that said motor urges said wiper arm back and forth across the rear window;

said motor further having motor lead screws;
canopy harness wires connected to said motor lead screws at a proximal end of said canopy harness wires, said canopy harness wires attached to the canopy by a number of harness wire clips such that the canopy harness wires remain attached to the canopy when the canopy is removed from the truck, said canopy harness wires further having a coupling means for coupling to the power transference means of the canopy, the coupling means attached to the canopy harness wires at a distal end;

a fluid container having a fill cap, fill spout and a fluid outlet, said fluid container mounted to the interior of the canopy such that the fluid container remains attached to the canopy when the canopy is removed from the truck;

a sprayer hose in fluid communication with the fluid outlet, said sprayer hose attached to the interior of the canopy by a number of sprayer hose clips such that the sprayer hose remains attached to the canopy when the canopy is removed from the truck, said sprayer hose having a distal hose end; and
a sprayer adapted for attachment to the sprayer hose distal end through the canopy such that the sprayer remains attached to the canopy when the canopy is removed from the truck, the sprayer in fluid communication with the spray hose such that fluid within the fluid container can be dispensed through the sprayer.

5,799,359
WINDSHIELD WASHER AND WIPER ASSEMBLY
Daryl Dockery, and Denzel Dockery, both of P.O. Box 168, Ponce de Leon, Fla. 32455

Filed Oct. 15, 1997, Ser. No. 950,830

Int. Cl.⁶ B60S 1/46; 1/52; 1/78

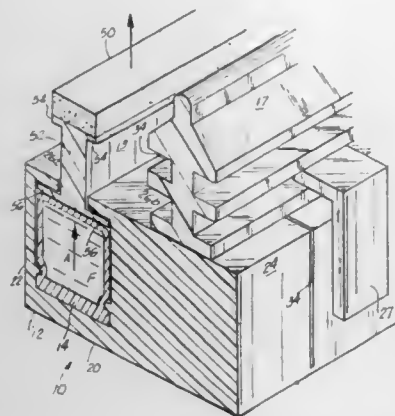
U.S. Cl. 15—250.04

20 Claims

1. A windshield washing and wiping assembly for cleaning a windshield of an automobile, the automobile having a windshield wiper arm affixed to motor means for moving the wiper arm in an oscillating motion, the assembly comprising:

(a) an elongated housing with a top, bottom, front, rear, and a pair of ends, one of said ends having a hole, and a slot running the length of said bottom;

(1) said housing having first mounting means for slidably mounting said housing to the wiper arm of the automobile, said first mounting means mounted on said top of said housing; and

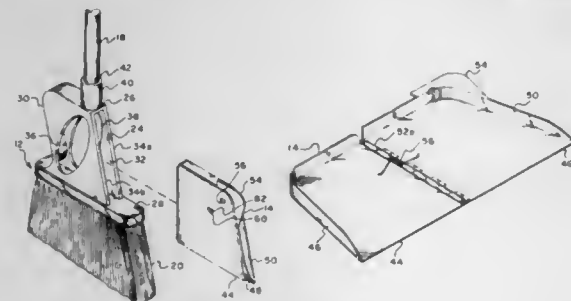


- (2) said housing having a series of grooves spaced intermittently along the length of said housing, said grooves running through said front, top and rear and being perpendicular to said slot;
- (b) a source of windshield washer fluid under pressure;
- (c) a bladder located inside said housing, said bladder having an outlet which extends through said hole in said end of said housing and couples said washer fluid source to said bladder and a series of perforations running the length of said bladder, said bladder normally being deflated;
- (d) means for washing the windshield of the automobile mounted through said slot in said housing and in contact with said bladder, said washing means not in contact with the windshield when said bladder is deflated;
- (e) a wiper blade mounted on said bottom of said housing and in contact with the windshield when said bladder is deflated;
- (f) said housing having second mounting means for slidably mounting said wiper blade to said bottom of said housing, said second mounting means being mounted on said rear and said bottom of said housing to the rear of said slot;
- (g) upon actuation of said source of windshield washer fluid under pressure, said washer fluid source supplies washer fluid under pressure to said bladder, inflating said bladder with washer fluid, urging said washing means against the windshield, disengaging said wiper blade from the windshield and leaking washer fluid onto said washing means and the windshield; and
- (h) means for deflating said bladder such that when said washer fluid source stops supplying washer fluid to said bladder, said deflating means deflates said bladder, retracting and disengaging said washing means from the windshield and reengaging said wiper blade to the windshield.

5,799,360
COMBINED BROOM AND DUSTPAN
John Vosbikian, Medford, N.J., assignor to Big Ideas, L.L.C., Moorestown, N.J.
Filed Aug. 27, 1997, Ser. No. 921,226
Int. Cl.⁶ A47L 13/52

U.S. Cl. 15—257.2

8 Claims



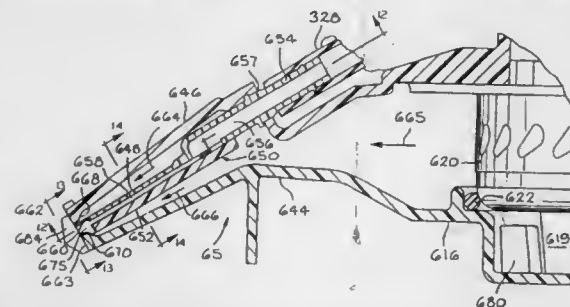
1. A broom and dustpan combination comprising:
a foldable dustpan and

a broom having an elongated handle, a body of straw-like members, and
means for holding said dustpan wherein said means for holding includes a housing with an opening into which said dustpan fits when folded.

5,799,361
CLEANING SOLUTION APPLICATOR
Gary A. Reed, Massillon, and Kenneth L. Symensma, Canton, both of Ohio, assignors to The Hoover Company, North Canton, Ohio
Continuation of Ser. No. 183,287, Jan. 14, 1994, Pat. No. 5,548,866. This application Aug. 26, 1996, Ser. No. 703,397
Int. Cl.⁶ A47L 11/30

U.S. Cl. 15—320

26 Claims



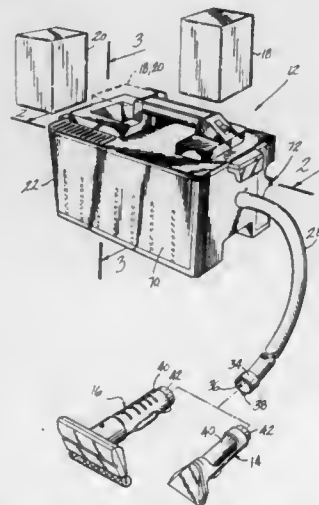
1. In a carpet extractor having apparatus for applying cleaning fluid to the carpet surface; said apparatus comprising:
an air discharge nozzle having an elongate exhaust port through which a pressurized stream of air flows and is directed toward said carpet surface; and cleaning fluid distribution means, located within said nozzle, whereby cleaning fluid may be introduced into said stream of said flowing air and thereby transported to said carpet surface, said cleaning fluid distribution means comprising a body positioned within said nozzle such that a portion of said air stream flows over the top of said body and a portion flows underneath said body.

5,799,362
MULTI-USE WATER EXTRACTION CLEANING SYSTEM AND METHOD FOR USING THE SAME
Eric C. Huffman, Lowell, Mich., assignor to Bissell Inc., Grand Rapids, Mich.

Filed Aug. 7, 1996, Ser. No. 693,406
Int. Cl.⁶ A47L 7/00

U.S. Cl. 15—321

7 Claims



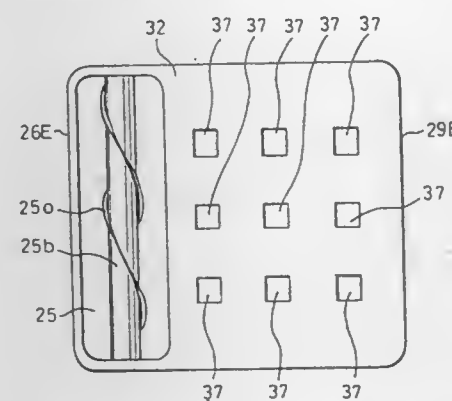
1. A multi-use water extraction cleaner system comprising:

- at least two cleaning solution supply reservoirs, each having a unique cleaning solution contained therein;
- a water extraction cleaning machine comprising:
- a housing;
- a solution pump provided in the housing for generating a supply of pressurized cleaning solution;
- a solution conduit fluidly connected to the solution pump, the conduit having proximal and distal ends;
- a vacuum motor provided in the housing for generating working air flow;
- an accessory hose fluidly connected to the vacuum motor and having proximal and distal ends;
- a dirty water reservoir provided in the housing adapted to receive from the accessory hose, the working air flow generated by the vacuum motor; and
- a cleaning solution reservoir mounting provided in the housing; and
- at least one cleaning tool adapted to be fluidly connected to both the accessory hose and the solution conduit, wherein the water extraction cleaning machine can be quickly converted between a first application using a first of said at least two cleaning solution supply reservoirs to a second application using a second of said at least two cleaning solution supply reservoirs by removing said first supply reservoir from the reservoir mounting and substituting the second therefor.

5,799,363
UPRIGHT VACUUM CLEANER
Takayuki Inoue, Kawanishi; Masami Fukumoto, Ikeda, and Izumi Yamaura, Kawanishi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan
Division of Ser. No. 388,734, Feb. 14, 1995, abandoned. This application Jan. 9, 1997, Ser. No. 781,113
Claims priority, application Japan, Feb. 16, 1994, 6-019336
Int. Cl.⁶ A47L 7/04

U.S. Cl. 15—327.3

3 Claims

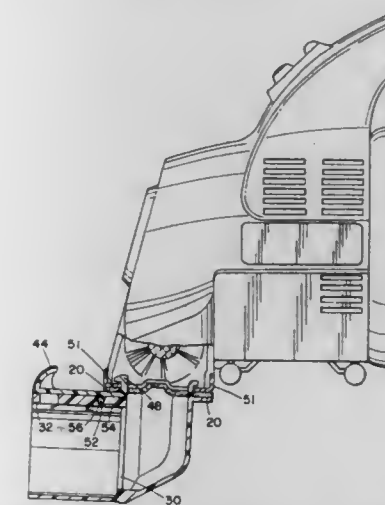


1. An upright vacuum cleaner comprising:
- a main body having a motor fan for generating a suction force, and a dust-collection chamber for collecting dust, the motor fan providing the suction force to the dust collection chamber,
- a floor nozzle unit, which is disposed under said main body, and has an inlet port connected to said dust-collection chamber for attracting dust on a floor into said dust-collection chamber by the suction force of said motor fan,
- a grip handle for moving said upright vacuum cleaner, and
- a float plate, disposed on a lower face of said floor nozzle unit, including a floor opposing face where a plurality of outlet ports are formed for spouting discharge air to said floor from said motor fan, and a float face is located around said outlet ports to receive a lifting force produced by pressure of the discharge air between said float face and the floor to be cleaned.

5,799,364
NOZZLE ADAPTER
Paul K. Foisy, Cleveland, and Michael F. Wright, Cuyahoga Falls, both of Ohio, assignors to Royal Appliance Mfg. Co., Cleveland, Ohio
Filed Dec. 20, 1995, Ser. No. 575,471
Int. Cl.⁶ A47L 5/32

U.S. Cl. 15—338

13 Claims

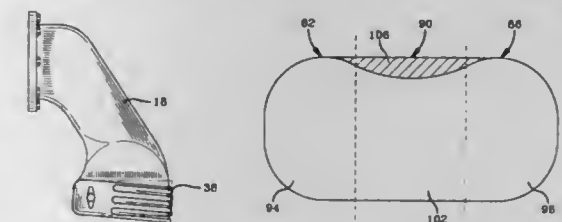


1. A nozzle adapter for a vacuum cleaner, comprising:
- a body comprising a plenum chamber housing adapted for engaging receipt on a vacuum cleaner nozzle, and an inlet housing extending from the plenum chamber housing adapted for receiving vacuum cleaner accessory tools;
- a slide surface situated on said inlet housing; and
- a slide member received on said slide surface, the slide member including a locking tab and laterally extending biasing means for cooperating with an exterior wall of the plenum chamber housing to bias the locking tab against the vacuum cleaner housing.

5,799,365
ADJUSTABLE NOZZLE FOR CHIPPER-SHREDDER VACUUM
Usman Firdaus, Strongsville, Ohio, assignor to MTD Products Inc., Cleveland, Ohio
Filed Sep. 5, 1996, Ser. No. 708,371
Int. Cl.⁶ A47L 9/02

U.S. Cl. 15—418

9 Claims



1. A vacuum for vacuuming debris from an outdoor surface having a nozzle, an impeller assembly, and a bag, said nozzle comprising:
- an inlet for directing debris into said nozzle, said inlet having a first side, a middle section, a second side, and a non-inlet area, said first side having a first nozzle inlet, said middle section having a middle nozzle inlet, said second side having a second nozzle inlet, said first nozzle inlet, said middle nozzle inlet, and said second nozzle inlet each having a cross-sectional area, said cross-sectional area of said first nozzle inlet being greater than said cross-sectional area of said middle nozzle inlet, said cross-sectional area of said second

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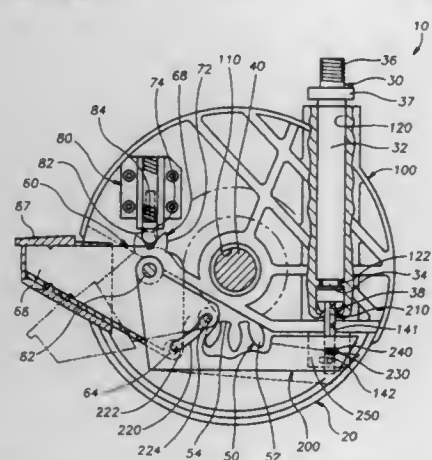
nozzle inlet being greater than said cross-sectional area of said middle nozzle inlet; and,
an outlet, said outlet being connected to said impeller assembly.

5,799,366
LOCKING SWIVEL CASTER APPARATUS AND METHOD

Jay A. Zocco, 24 Croydon Ct., Wallingford, Conn. 06492, and Robert F. Karas, 80 Charter Oak Dr., Cheshire, Conn. 06410
Filed Oct. 29, 1996, Ser. No. 740,436
Int. Cl.⁶ B60B 33/00

U.S. Cl. 16—35 R

10 Claims



8. A method for locking a swivel caster apparatus having at least one wheel rotatably coupled to a housing and a mounting stem pivotally coupled about a pivoting axis to the housing, the method comprising steps of:

- pivoting a brake lever bracket pivotally coupled to the housing; engaging a pin of the brake lever bracket with a toothed cog disposed on an inner side of the wheel to prevent wheel rotation relative to the housing;
- pivoting a swivel lever bracket, pivotally coupled to the housing, by engaging the brake pin with the swivel lever bracket when the brake pin is engaged with the toothed cog; and
- engaging a keyed shaft with a keyed aperture of the mounting stem to prevent mounting stem movement relative to the housing when the brake pin is engaged with the toothed cog.

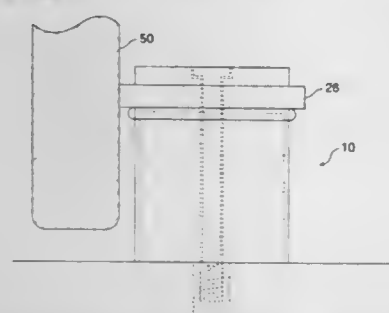
5,799,367
FLOOR MOUNTED DOORSTOP HAVING ADJUSTABLE RIGIDITY

Martin S. Simon, and Ira J. Simon, both of Long Beach, Calif., assignors to Triangle Brass Manufacturing Company, Los Angeles, Calif.

Filed Oct. 5, 1995, Ser. No. 539,416
Int. Cl.⁶ E05F 5/06

U.S. Cl. 16—86 A

13 Claims



2. A door stop for mounting on a surface in proximity to a door, said door stop comprising:

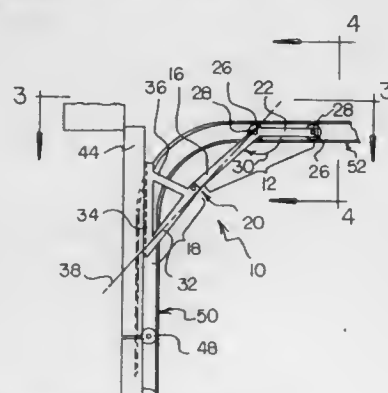
an inner spacer having a first end and a second end, said first end disposed over the surface;
an outer spacer having a first end and a second end, said first end disposed over the surface, said outer spacer disposed around said inner spacer;
a first rigid washer disposed over said second ends of said inner and outer spacers;
a disk of a first height formed of a compressible material and having a first aperture formed therein disposed over said first rigid washer;
a bushing of said first height disposed in said first aperture;
a second rigid washer disposed over said disk; and
fastening means for fastening said inner spacer, said outer spacer, said first rigid washer, said disk and said second rigid washer to said surface, said fastening means including means for compressing said outer spacer to a selected compression.

5,799,368
ROLLER BRACKET APPARATUS FOR AN OVERHEAD DOOR

James Richard Young, 3881 Amador Way, Reno, Nev. 89502
Filed Jun. 3, 1996, Ser. No. 656,926
Int. Cl.⁶ E05D 15/38

U.S. Cl. 16—92

3 Claims



1. A roller bracket apparatus comprising:
an overhead door including adjacent panels and panel rollers mounted between the adjacent panels, the adjacent panels including a top panel;

a track including a vertical track portion and a horizontal track portion, the panel rollers of the overhead door being positioned in the vertical track portion of the track;

a roller assembly including a rigid wheel-support portion having a first end and a second end, a first axle/wheel assembly rotatably mounted to the first end of the wheel-support portion, a second axle/wheel assembly rotatably mounted to the second end of the wheel-support portion, and a link portion fixedly secured to the first end of the wheel-support portion and projecting at a first oblique angle therefrom, the axle/wheel assemblies of the roller assembly being positioned within only the horizontal track portion of the track such that the roller assembly moves in a horizontal direction only and such that the link portion is at all times movably supported at the first oblique angle relative to the horizontal track portion of the track;

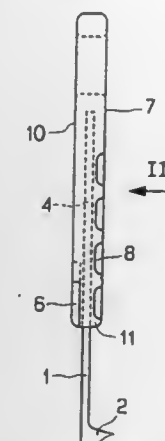
a push/pull assembly including a second member fixedly secured to the top panel of the overhead door, a first member fixedly secured to the second member and projecting at a second oblique angle therefrom, the second member supporting the first member at the second oblique angle relative to an interior surface of the top panel, a distal end of the link portion being pivotally mounted to a distal end of the first member;

whereby a horizontal movement of the roller assembly, per se, within the horizontal track portion of the track causes only pivoting of the top panel about one of the panel rollers mounted between the adjacent panels without causing any correspondingly upward movement of the top panel.

5,799,369
UTENSIL HANDLE
Rolf Günter Schüle, Singhofen, Germany, assignor to Leifheit AG, Nassau, Germany
Filed Apr. 5, 1996, Ser. No. 628,056
Claims priority, application Germany, Apr. 7, 1995, 195 13 245.9

Int. Cl.⁶ B25G 3/00; A47J 45/06
U.S. Cl. 16—110 R

5 Claims



1. A bacterial contamination resistant kitchen tool handle adapted to be in contact with food substances, comprising a core region (4), which is operatively coupled to a functional part (2);
a handle part (5) defining two opposed longitudinal sides coupled to the core region (4); and
finger rests (6, 8) on the handle part,
wherein

the handle part (5) has a Shore hardness of at least 70;
the finger rests (6, 8) have a Shore hardness of no more than 60,

said finger rests are formed as concave depressions which include a thumb rest (6) formed on one side of the handle and a plurality of opposed finger rests (8) formed on the opposite side of the handle; and

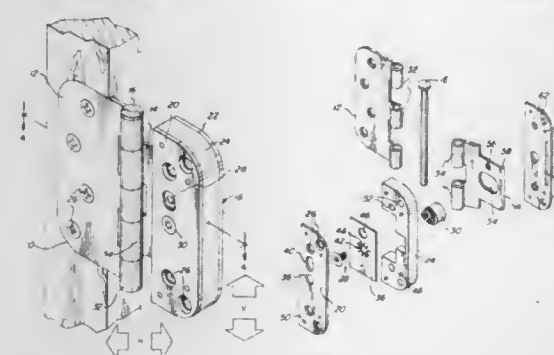
wherein the handle part (5) and the finger rests (6, 8) comprise plastic materials which are molecularly bonded in a two-component molding process.

5,799,370
ADJUSTABLE HINGE
Richard M. Davidian, Avon, and Kevin C. Brielmann, Cheshire, both of Conn., assignors to The Stanley Works, New Britain, Conn.

Filed Jun. 12, 1996, Ser. No. 662,036
Int. Cl.⁶ E05D 7/04

U.S. Cl. 16—236

19 Claims



1. An adjustable hinge for pivotally mounting a door to a frame, comprising:

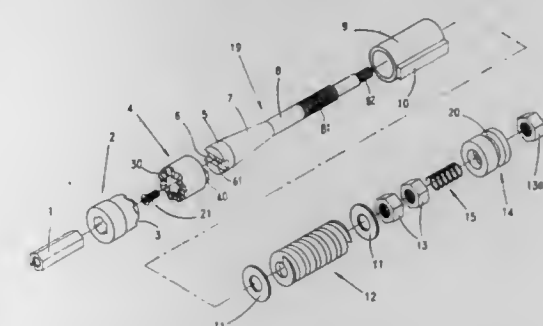
- (a) a first leaf adapted to be mounted on one of a frame and a door;
- (b) an adjustable leaf mounting assembly adapted to be mounted on the other of the frame and door and including
 - (i) a bracket;
 - (ii) a second leaf mounted on said bracket and having one end extending beyond said bracket and pivotally engaged with said first leaf;
 - (iii) a cam rotatably mounted on said bracket and cooperating with a cam follower surface on said second leaf; and
 - (iv) an adjusting screw having a shank threadably engaged in said second leaf intermediate the ends thereof and having its free end abutting said bracket, whereby the rotation of said adjusting screw pivots said one end of said second leaf relative to said bracket and the rotation of said cam moves said second leaf vertically relative to said bracket.

5,799,371
PIVOTING JOINT
Jim Lin, Taipei, Taiwan, assignor to Tamarack Technologies Inc., Taipei, Taiwan

Filed May 20, 1997, Ser. No. 859,412
Int. Cl.⁶ E05D 11/10

U.S. Cl. 16—330

1 Claim



1. A joint connected between a first part and a second part of an instrument, permitting said first part to be turned relative to said second part and retained at one of a series of angular positions, comprising:

- a mounting rod fixedly mounted on the first part of said instrument;
- a first coupling member mounted on said mounting rod and prohibited from rotary motion relative to said mounting rod, said first coupling member having a ratchet at one end;
- a shaft inserted into an axle hole in said second part of said instrument, said shaft comprising a tapered base, a shaft body at one end of said tapered base, and a mounting block at an opposite end of said tapered base, said shaft body having a first threaded section at one end remote from said tapered base, and a second threaded section in a middle between said first threaded section and said tapered base;
- a second coupling member fixedly fastened to said mounting block of said shaft, having a ratchet at one end adapted to mesh with said ratchet of said first coupling member;
- a sleeve sleeved onto said shaft body of said shaft within said axle hole of the second part of said instrument and stopped at said tapered base of said shaft, having a longitudinal coupling flange engaged with a longitudinal groove in said axle hole of said second part of said instrument;
- two first nuts respectively threaded onto said second threaded section of said shaft body of said shaft;
- a first spring mounted around said shaft body of said shaft and stopped between said first nuts and said sleeve, said first spring imparting a forward pressure to said sleeve, causing said sleeve to engage said tapered base of said shaft;
- a spring holder mounted around said shaft body of said shaft and stopped from axial movement relative to said shaft;

a second spring mounted around said shaft body of said shaft within said spring holder and stopped between said spring holder and said first nuts; and
a second nut threaded onto said first threaded section of said shaft body of said shaft.

5,799,372

SYSTEM FOR SUPPORTING A MONITOR

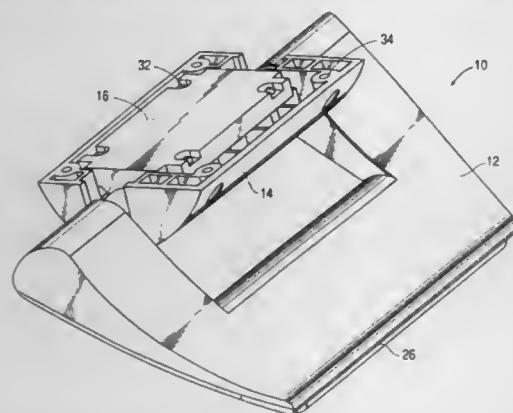
Robert D. Brunner, Los Gatos, and Sung Kim, Palo Alto, both of Calif., assignors to Toshiba America Information Systems, Inc., Irvine, Calif.

Filed Aug. 21, 1996, Ser. No. 700,309

Int. Cl.⁶ E05C 17/64

U.S. Cl. 16—342

14 Claims



1. A support system for varying the rotational angle of a first member relative to a support surface, said support system comprising:

- a base member;
- a hinge assembly for rotatably coupling the first member to the base member, said base member having a lower surface for contacting said support surface;
- a spring assembly coupled to said hinge assembly; and
- an adapter for connecting said hinge assembly and spring assembly to said base member;

wherein:

said hinge assembly and said spring assembly provide angular positional control of the first member with respect to said base member;

said hinge assembly includes a hinge housing having disposed therein at least one friction element having an internal surface defining a generally cylindrical cavity and at least one general cylindrical pintle having an external surface and first and second portions, said first portion of said pintle being positioned within said cavity such that said external surface of said pintle is in facing frictional engagement with said internal surface of said friction element;

said spring assembly includes at least one torsional spring closely wound about said second portion of said pintle, said at least one torsional spring having first and second terminal ends;

said housing has a recess for receiving said first terminal end of said torsional spring; and

said adapter includes a projecting channel for receiving said second terminal end of said torsional spring.

5,799,373
PIVOT HINGE

Ingolf Dickeduisberg, Soest, Germany, assignor to Eva Lahrmann, Soest, Germany

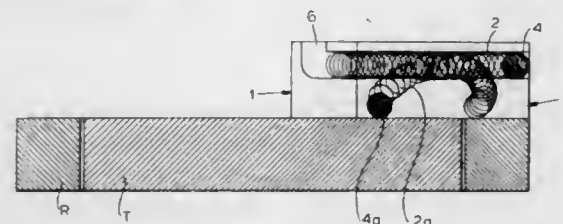
Filed Jan. 3, 1996, Ser. No. 582,256

Claims priority, application Germany, Jan. 4, 1995, 195 00 139.7

Int. Cl.⁶ E05D 7/081

U.S. Cl. 16—358

10 Claims



1. A pivot hinge usable to support a swingable generally planar panel relative to a stationary frame coplanar with the panel in a closed position of the panel, the hinge comprising:

- a panel plate mounted on the panel offset from a plane thereof, provided with a panel pin projecting along an axis away from the panel, and formed with a groove open axially away from the panel and elongated transversely of the axis; and
- a stationary support plate mounted on the frame offset from the plane of the door in the closed position thereof, provided with a stationary support pin projecting along an axis parallel to the panel-pin axis toward the panel plate and engaged in the panel-plate groove, and formed with a groove open axially toward the panel plate, elongated transversely of the axes, and receiving the panel pin, both pins moving continuously without substantially stopping along the respective grooves between outer and inner ends thereof on swinging of the panel between the closed position and an open position with the panel outside the frame, the support pin lying generally between the support-plate groove and the plane, the grooves being shaped and positioned relative to the pins such that the panel swings on movement between the open and closed positions relative to the frame about a virtual axis offset from the plane with movement of the panel plate through an arc.

5,799,374

SPINNING MACHINE FOR THE DOUBLING OR STRETCHING OF FIBER BANDS

Michael-Maria Strobel, Eichstätt; Wolfgang Göhler, Lenting, and Manfred Wagner, Ingolstadt, all of Germany, assignors to Rieter Ingolstadt Spinnereimaschinenbau AG, Ingolstadt, Germany

Filed Dec. 18, 1996, Ser. No. 768,041

Claims priority, application Germany, Dec. 27, 1995, 195 48 840.7

Int. Cl.⁶ D04H 5/46

U.S. Cl. 19—274

21 Claims

1. A textile spinning machine for doubling or stretching fiber bands, comprising:

- a rolling section having pairs of upper and lower rolls, said lower rolls held in journal blocks, wherein said fiber band is conveyed between said upper and lower rolls in a conveying direction, said pairs of rolls including an entering pair of rolls and an exit pair of rolls in said conveying direction;
- pressure mechanisms disposed to load said upper rolls toward said lower rolls;
- a pivotally mounted pressure arm, said pressure mechanisms mounted on said pressure arm, said pressure arm pivotable between a closed position wherein said pressure mechanisms

5,799,376
TIE STRIPS

Andrew John Harsley, 41 Staines Hill, Strurry, Canterbury, Kent GT2 0ER, Great Britain
PCT No. PCT/GB95/01487, § 371 Date Mar. 3, 1997, § 102(e)
Date Mar. 3, 1997, PCT Pub. No. WO96/00176, PCT Pub. Date Jan. 4, 1996

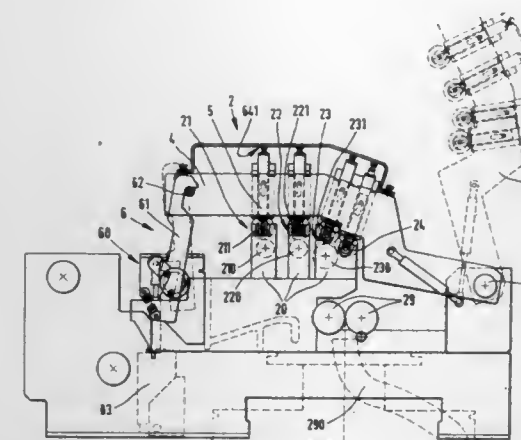
PCT Filed Jun. 23, 1995, Ser. No. 765,560

Claims priority, application United Kingdom, Jun. 24, 1994, 9412759

Int. Cl.⁶ B65D 63/10; A01G 17/08

U.S. Cl. 24—16 PB

10 Claims



load said upper rolls against said lower rollers, and an open position wherein said upper rolls are unloaded relative to said lower rolls; and

- a pivot axis for said pressure arm which is disposed behind said rolling section in said conveying direction and below a horizontal plane through a rotational axis of said lower roll of said exit rolls.

5,799,375

FASTENER ASSEMBLY

Shoichi Fukami, Tokyo, Japan, assignor to J.E. Co., Ltd., Tokyo, Japan, and Ben Clements and Sons, Hackensack, N.J.

Filed May 17, 1996, Ser. No. 649,094

Int. Cl.⁶ B65D 55/00; 63/00; A44B 21/00; B21F 9/02

U.S. Cl. 24—16 PB

9 Claims



1. A fastener assembly, comprising:

- a plurality of fasteners, each fastener including a receiving portion having an aperture, a flexible fiber member extending from said receiving portion, and an inserting portion extending from said fiber member said inserting portion and said receiving portion being adapted so that said inserting portion may be inserted into receiving portion in locking engagement therewith; and

at least one runner, said plurality of fasteners being disposed in a predetermined direction and substantially coplanar with one another to form a plane, and each of said fasteners being attached to said at least one runner, said at least one runner being spaced apart from said plane so that said plurality of fasteners are not coplanar with said at least one runner.

5,799,377

BALLOON NECK CLOSURE AND DECORATION APPARATUS

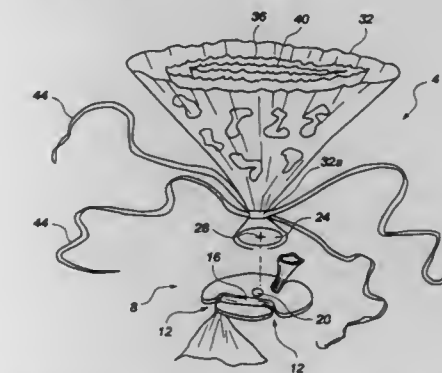
William G. Carroll, and James R. Cook, both of Salt Lake City, Utah, assignors to Maxim, Inc., Salt Lake City, Utah

Filed Nov. 12, 1996, Ser. No. 747,598

Int. Cl.⁶ B65D 77/10

U.S. Cl. 24—30.5 R

12 Claims



1. A balloon neck closure and decoration securing device comprising

disk means having a perimeter formed with two or more spaced-apart slots extending inwardly from the perimeter, for holding the neck of a balloon threaded upwardly through one slot, across a portion of the disk means, and downwardly through another slot to close off the neck and prevent the escape of gas therefrom,

button means, attachable to the top of the disk means, and

a resilient sheet of material disposable about the button means to extend upwardly and outwardly therefrom for decorative display when the button means is attached to the disk means, closing off the neck of a balloon.

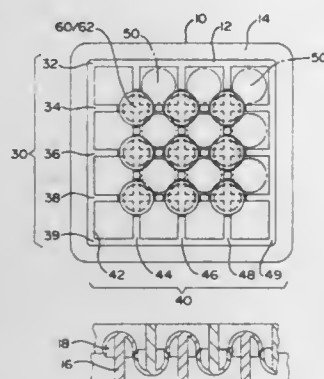
5,799,378

FASTENING SYSTEM

Bruce Gershenson, 26645 Irving, Franklin, Mich. 48025, and William Gallmeyer, 580 Central Ave., Holland, Mich. 49423
Filed Jan. 24, 1997, Ser. No. 788,132
Int. Cl.⁶ A44B 18/00

U.S. Cl. 24—452

7 Claims



1. A fastener system comprising at least two interdigitatable plates, each plate comprising:

- a first set of walls comprising a plurality of walls of a substantially equal length, any two walls of the first set of walls being spaced apart by a first predetermined distance;
 - a second set of walls comprising a plurality of walls of a substantially equal length, any two walls of the second set of walls being spaced apart by a second predetermined distance, the second set of walls being substantially perpendicular to the first set, each wall of the first set cooperating with each wall of the second set to define an intersection point, the walls further cooperating to define a receiving space therebetween;
 - a plurality of stems, each stem projecting from the plate one intersection point; and
 - a plurality of heads, each head being formed to a corresponding stem, each head being a spheroid having a curvilinear surface, and
- wherein the plates are interdigitated by the pressing of the heads of each plate into the receiving spaces of one corresponding plate, and further wherein the curvilinear surface of one head of one plate abuts against the curvilinear surface of one head of the corresponding plate when the plates are interdigitated.

5,799,379

METHOD OF MANUFACTURING A DECOUPLING CAPACITOR STRUCTURE

John Galvagni, Myrtle Beach, S.C.; Richard Gerald Murphy, Binghamton, and George John Saxenmeyer, Apalachin, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 277,791, Jul. 20, 1994, Pat. No. 5,517,385, which is a continuation of Ser. No. 978,794, Nov. 19, 1992, abandoned. This application May 22, 1995, Ser. No. 446,247

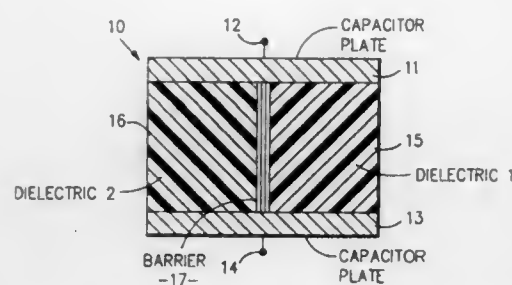
Int. Cl.⁶ H01G 4/20

U.S. Cl. 29—25.42

5 Claims

1. A method of manufacturing an electrical capacitor for operating effectively as a decoupling capacitor at two different and spaced apart temperatures, comprising the steps of:

calculating a total capacitance value for a decoupling capacitor;



calculating an electrode area to be represented by a first capacitor plate;
calculating an electrode area to be represented by a second capacitor plate;
calculating the desired thickness of a first dielectric member comprising a first material with a capacitance value at a first temperature;
calculating the desired thickness of a second dielectric member comprising a second material with a capacitance value at a second temperature different from said first temperature;
locating said first dielectric member of said first value between said first and second capacitor plates so that said first dielectric member is in electrical contact with both of said capacitor plates;
locating said second dielectric member of said second value between said first and second capacitor plates so that said second dielectric member is also in electrical contact with both of said capacitor plates; and
locating a barrier having predetermined characteristics between said first and said second dielectric members;
whereby said first material and said second material are prevented from intermingling to create a third material of unknown dielectric characteristics.

5,799,380

DEVICE FOR ASSEMBLING A SERVO VALVE

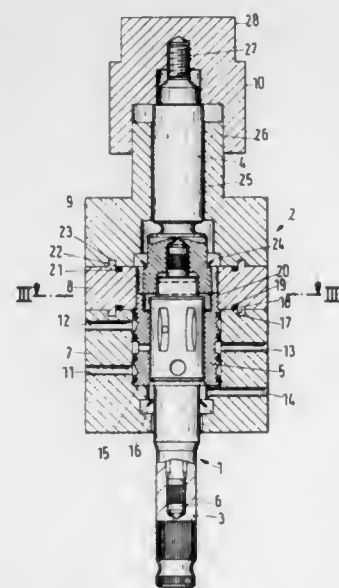
Arnd Pfeifer, Willich, Germany, assignor to TRW Fahrwerkssysteme GmbH & Co. KG, Düsseldorf, Germany

Filed Jun. 29, 1995, Ser. No. 496,766

Int. Cl.⁶ B23P 19/04

U.S. Cl. 29—252

15 Claims



1. Device for assembling a servo valve comprising an output shaft, an input shaft, a torque rod connected to the input and output shafts, and a valve sleeve, said device comprising:

- means for clamping the valve sleeve in a position in which the valve sleeve is fixed in the axial direction and rotatable about its axis, said clamping means including a holding bushing (7) for accommodating the valve sleeve (5) and an adjusting ring (8) that is placed on the holding bushing (7) and serves to turn the valve sleeve (5);
- means for supporting a preassembled unit of the output shaft, the torque rod, and the input shaft axially in the valve sleeve so that the valve sleeve and the output shaft adjoin one another and can rotate relative to one another, said supporting means including a cover bushing (9) that is placed on the adjusting ring (8) and serves to guide the output shaft (4);
- means for charging the valve sleeve with hydraulic pressure;
- means for centering the valve sleeve by turning the valve sleeve relative to the input shaft; and
- means for pressing the output shaft axially further into the valve sleeve to fixedly connect, after centering of the valve sleeve, the output shaft and the valve sleeve together, said pressing means including a plunger (10) that cannot be turned relative to the cover bushing (9), but is placed on the cover bushing such that it can be moved in the axial direction and is connected with the output shaft (4).

5,799,381

STUD NAIL PLIERS APPARATUS

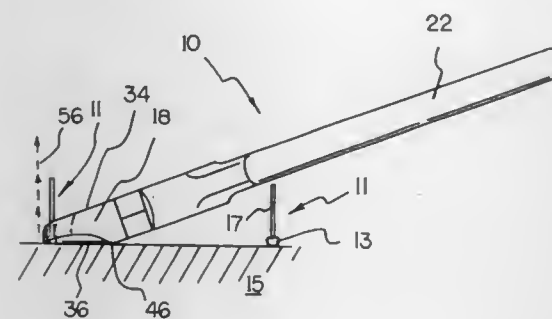
Todd Edward Gannon, 424 32 Rd., #7, Clifton, Colo. 81520, and Troy Dan Russell, 2854 Texas Dr., Grand Jct., Colo. 81501

Filed Jan. 16, 1996, Ser. No. 587,307

Int. Cl.⁶ B23P 19/04; B25B 7/02

U.S. Cl. 29—268

2 Claims



1. A stud nail pliers apparatus for removing a stud nail having a hemispherical head welded to a body panel, comprising:

- a pliers assembly including first and second handle portions pivotally connected together, and first and second jaw portions, with the first and second jaw portions each including top and bottom sides, the first and second jaw portions each further including an upwardly and outwardly flaring half-well portion which includes a half-notch portion located at a respective bottom side of the respective jaw portion, and wherein each half-well portion flares upwardly and outwardly from a respective half-notch portion toward a respective top side of a respective jaw portion;

wherein the half-notch portions cooperate to define an aperture extending completely through the jaw portions when the jaw portions are abuttingly positioned together about a hemispherical head of a stud nail, whereby the stud nail can project completely through the aperture and beyond the jaw portions, wherein the first and second handle portions reside within a plane and the bottom side of the jaw portions extend at an angle relative to the plane, with the aperture formed by the half-notch portions extending substantially orthogonally from the bottom sides of the jaw portions and at an angle relative to the plane, whereby a stud nail orthogonally projecting from a surface can be grasped by the jaw portions with the handles extending at an angle relative to the surface when the bottom sides are abuttingly positioned against the surface,

and further in combination with a surface, and a stud nail having a hemispherical head, the hemispherical head being coupled to the surface such that the stud nail orthogonally projects from the surface;

wherein the jaw portions are positioned about and engaged against opposed sides of the hemispherical head such that the stud nail projects completely through the aperture and beyond the jaw portions, with the bottom sides of the jaw portions being abuttingly positioned against the surface such that a manual biasing of the handle portions towards the surface will cause a distal end of the jaw portions to pivot away from the surface to de-couple the hemispherical head from the surface and allow removal of the stud nail.

5,799,382

MINIATURE LAMP HOLDER EXTRACTION DEVICE

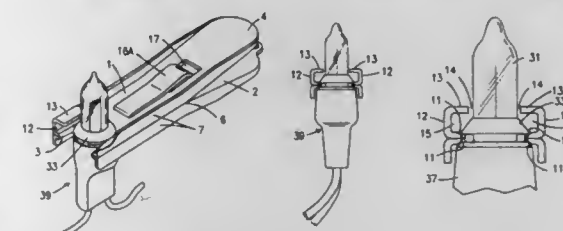
Richard K. Brameyer, 2531 W. Tennessee Ave., Tampa, Fla. 33629

Filed Mar. 27, 1996, Ser. No. 622,823

Int. Cl.⁶ B25B 9/00; H01K 3/32

U.S. Cl. 29—268

2 Claims



1. A device for extracting a lamp holder from a socket of a lamp assembly, said device comprising:

- upper and lower elongate members, each elongate member having a proximal end for grasping by the hand and a distal end for engaging the lamp assembly, said upper and lower elongate members joined to pivot relative to each other between a rest position and an operating position, wherein said distal ends are in contact and said proximal ends are spaced apart when said device is in said rest position and said distal ends are spaced when said device is in the operating position;
- wherein said distal ends of said upper and lower elongate members form a concave edge;
- wherein the device is formed of a sheet of material having a thickness in the range of from 0.01 to 0.1 inches;
- wherein at least one of elongate members is provided with longitudinal strengthening members;
- wherein said elongate members are generally planar, and wherein said strengthening members are formed by bending the longitudinal edges of said elongate members away from said plane of said elongate member; and
- wherein said strengthening member is perpendicular to said plane of said elongate member.

5,799,383

SELF ADJUSTING HOSE CONNECTOR CRIMPING APPARATUS AND METHOD OF USE

Arden E. Baldwin, East Peoria; William G. Clelland, III, Brimfield, and John Styfhoorn, Dunlap, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Jul. 1, 1997, Ser. No. 886,858

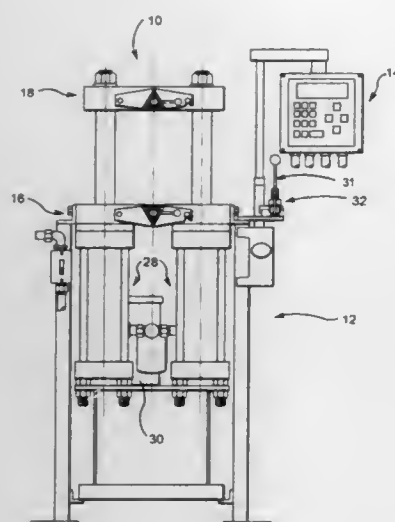
Int. Cl.⁶ B23Q 17/00

U.S. Cl. 29—407.05

10 Claims

9. A method for crimping a connector onto a hose end whereby the crimped connector diameter is maintained within acceptable limits, comprising the steps of:

- inputting a controller of a hose connector crimping apparatus with a relative limit distance between first and second portions of a clamping machine;



assembling a connector and a hose end in a conical-shaped die supported on one of the first and second portions in preparation for crimping the connector upon the hose end; and operating the clamping machine so that said first and second portions move towards each other thereby compressing the conical-shaped die, the compressing action being stopped in response to a signal from a first measuring device operatively connected to the controller.

5,799,384

INTRAVASCULAR RADially EXPANDABLE STENT

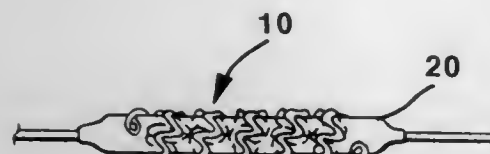
Robert S. Schwartz; John Bresnahan, both of Rochester; Rebecca M. Bergman, North Oaks; Arthur J. Coury, St. Paul; Elaine Lindell, Blaine; Vincent W. Hull, Fridley, and Michael Dror, Edina, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation of Ser. No. 429,451, Apr. 27, 1995, Pat. No. 5,651,174, which is a division of Ser. No. 853,682, Mar. 19, 1992, Pat. No. 5,282,823. This application Oct. 23, 1996, Ser. No. 736,001

Int. Cl.⁶ B23P 11/00

U.S. Cl. 29—458

6 Claims



1. A method for making an intravascular device comprising the steps of:

- providing a generally cylindrical stent body with a longitudinal axis and open proximal and distal ends, the cylindrical body having a plurality of expansion elements with open spaces therebetween which permit the stent to be radially expanded and compressed, the expansion elements joined together from the proximal to the distal end of the cylindrical body;
- applying a flexible polymeric film to the expansion elements of the stent at a first, expanded diameter of the stent such that the film is secured to the expansion elements and extends between the expansion elements;
- providing a delivery catheter having a proximal end and a distal end;
- compressing the stent and film to a second, reduced diameter; and

(e) securing the compressed stent and film to the delivery catheter at the distal end of the delivery catheter.

5,799,385

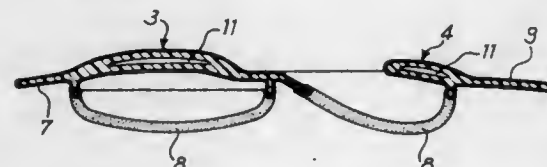
PROCESS FOR THE MANUFACTURE OF TRIM PANELS FOR MOTORVEHICLES

Luigi Vecchiario, Vaprio D'Adda, and Dante Siano, Cologno Monzese, both of Italy, assignors to Commer S.p.A., Italy
Continuation-in-part of Ser. No. 971,290, Nov. 4, 1992, abandoned. This application Dec. 16, 1993, Ser. No. 168,535
Claims priority, application Italy, Dec. 10, 1991, MI91A3301

Int. Cl.⁶ B29C 45/16

U.S. Cl. 29—469

9 Claims



1. A process for manufacturing trim panels for motor vehicles, comprising the following steps:

- coinjection molding a first panel base portion having an integral handle or pocket wherein missing portions are located adjacent to said handle or pocket, by coinjecting an external surface material and an inner core material into a mold provided with a cavity corresponding to said first panel base portion, said coinjection molding being carried out by separately heating and plasticizing the external surface material and the inner core material, feeding said materials to independently heated ducts extending into the wall of said mold, feeding said materials through independent ducts within the wall of said mold to at least one injection nozzle positioned inside said mold, adjacent to or spaced from the cavity of the mold, and simultaneously or successively injecting said surface material and said inner core material in a fluid state into said cavity, said surface material and said inner core material being forced through said cavity of said mold until said injected surface and inner core materials meet in a fluid condition to form said panel base portion.

5,799,386

PROCESS OF MAKING METAL CASTINGS

Clyde E. Ingersoll, Tonawanda, N.Y.; Bernt-Roger Gustafsson, Rosersberg, Sweden, and Donald B. Kelley, Cleveland, Tenn., assignors to Ivoclar AG, Liechtenstein

Filed Jun. 7, 1995, Ser. No. 480,695

Claims priority, application European Pat. Off., Oct. 24, 1994, 94250262

Int. Cl.⁶ B21B 1/46

U.S. Cl. 29—527.5

17 Claims

- A process for making metal castings, comprising the steps of:
 - preparing an alloy from at least two different metals;
 - forming the alloy into a powder;
 - optionally combining the powder with a substance which acts as a lubricant and/or a flux;
 - pressing the powder into pellets;
 - melting one or more of the pellets to produce a molten alloy;
 - casting the molten alloy into a mold; and
 - cooling the metal casting.

5,799,387

LAMINA STACK HAVING A PLURALITY OF OUTER PERIMETER CONFIGURATIONS AND AN APPARATUS AND METHOD FOR MANUFACTURING SAID STACK

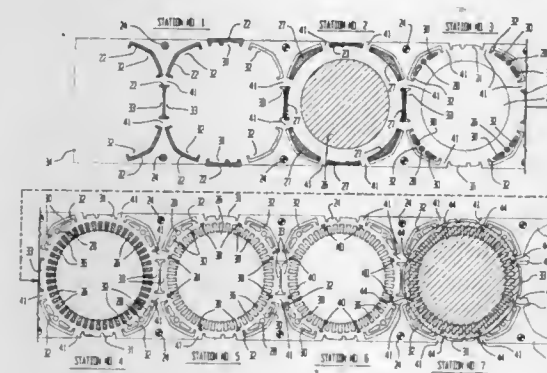
Thomas R. Neuenschwander; Rick O. Habegger, and Delno C. Abnet, all of Fort Wayne, Ind., assignors to L.H. Carbide Corporation, Fort Wayne, Ind.

Filed Jun. 5, 1996, Ser. No. 658,595

Int. Cl.⁶ H02K 15/02

U.S. Cl. 29—598

32 Claims



1. A method of manufacturing a stack of laminas in a die assembly having a selectively actuated punch and a choke barrel; said method comprising:

- a first step of guiding sheet stock material through the die assembly;
- a second step of stamping a plurality of generally planar laminas from said sheet stock material with said selectively actuated punch, each of said laminas having an axis and an outer perimeter surface which are disposed substantially perpendicular to the plane of the lamina; each of said lamina outer perimeter surfaces defining one of a plurality of distinguishable predetermined outer perimeter configurations, a portion of each of said outer perimeter surfaces comprising a common choke surface for contacting the choke barrel;
- a third step of coaxially stacking said laminas in the choke barrel by aligning said common choke surfaces to thereby form a stack of laminas having a plurality of outer perimeter configurations.

5,799,388

MANUFACTURE OF MAGNETIC HEADS HAVING ASYMMETRIC AIR BEARING SURFACES

Shigeru Shouji, Hamamatsu, Japan, assignor to Yamaha Corporation, Shizuoka, Japan

Division of Ser. No. 409,733, Mar. 23, 1995, abandoned. This application Nov. 18, 1996, Ser. No. 746,850

Claims priority, application Japan, Mar. 24, 1994, 6-078216

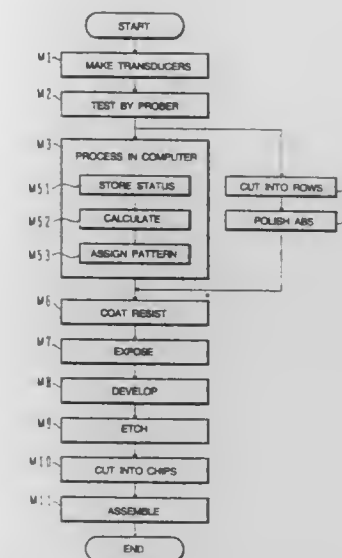
Int. Cl.⁶ G11B 5/127

U.S. Cl. 29—603.09

17 Claims

1. A method of manufacturing magnetic heads comprising the steps of:

- forming plural sets of magnetic transducers on a common plate, each of said sets of magnetic transducers including a plurality of magnetic transducers to be provided in one magnetic head;
- testing each of said magnetic transducers and discriminating between good and failed, wherein the results of the testing are stored in a memory;
- after step (b), forming a photo-sensitive film on said common plate;



(d) determining rail patterns or regions of the photo-sensitive film based on the stored results of the testing, and projecting such determined rail patterns on the photo-sensitive film.

5,799,389

METHOD FOR PRODUCING MAGNETIC HEAD

Ritoshi Kimura, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 502,454, Jul. 14, 1995, abandoned.

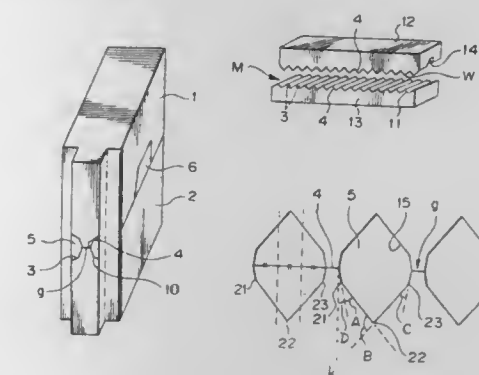
This application Jul. 23, 1997, Ser. No. 898,777

Claims priority, application Japan, Jul. 15, 1994, 6-164362

Int. Cl.⁶ G11B 5/187; 5/235

U.S. Cl. 29—603.21

3 Claims



1. A method for producing a metal-in-gap magnetic head, comprising the steps of:

- providing first and second core half members, each core half member having a facing surface and at least one core half, each core half having an abutting facing surface which when abutted and mated with another core half abutting facing surface defines a magnetic gap;
- forming a magnetic metal thin film on at least one of the core half abutting facing surfaces;
- forming track width delimiting grooves on opposite sides of each core half and each core half abutting surface to define between a gap width of the magnetic gap, each track width delimiting groove extending in a direction parallel to the abutting facing surface of its respective core half, each track width delimiting groove having at least four distinct side walls with at least three distinct bends between them, each track width delimiting groove having two of its side walls positioned to extend obliquely from the facing surface of their respective core half member and to extend in a converging

- manner toward each other, each of the bends of each track width delimiting groove being of an angle of not less 8°;
- (d) abutting said first and second core members together to form a magnetic head block out of their respective core halves with the abutting facing surfaces thereof in registry to form a magnetic gap, and with the track width delimiting grooves on opposite sides of each core half in registry to form channels on opposite sides of the magnetic gap;
- (e) providing molten glass material into said channels on opposite sides of said magnetic gap; and
- (f) cutting said metal-in-gap magnetic head out from said abutted magnetic core half member by slicing through said magnetic core half member through said channels.

5,799,390

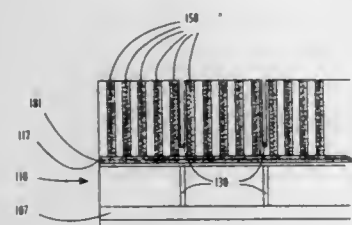
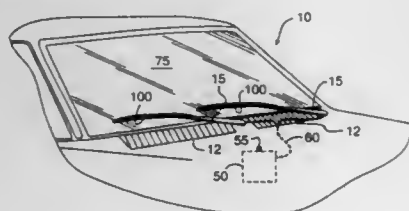
METHOD OF INSTALLING A WINDSHIELD WIPER ASSEMBLY HAVING AN ELECTRIC HEATING CIRCUIT
 Frank Dileo, P.O. Box 1668, Bridgehampton, N.Y. 11932, and Peter Michalos, 137 Hampton Rd., South Hampton, N.Y. 11968

Division of Ser. No. 488,197, Jun. 7, 1995, Pat. No. 5,655,251.
 This application May 21, 1997, Ser. No. 861,046

Int. Cl.⁶ H05B 3/00

U.S. Cl. 29—611

17 Claims



1. A method of installing a windshield wiper assembly on an arm for oscillating, the method comprising:
- forming a base defining a longitudinal dimension, the base including a heating circuit extending along most of the longitudinal dimension of the base, the heating circuit having a first electrical terminal for receiving a first voltage and a second electrical terminal for receiving a voltage different from the first voltage;
- dividing the base to produce a shortened base having a shortened heating circuit, the shortened heating circuit having the first and second electrical terminals; and
- attaching the shortened base to the arm.

5,799,391

APPARATUS FOR SIGNIFICANTLY ADVANCING A CARRIER STRIP AND CRIMPING VARIOUS TERMINAL CONFIGURATIONS

John Tillotson, Scottsdale, Ariz., assignor to Spring Air . . . Works, Inc., Scottsdale, Ariz.

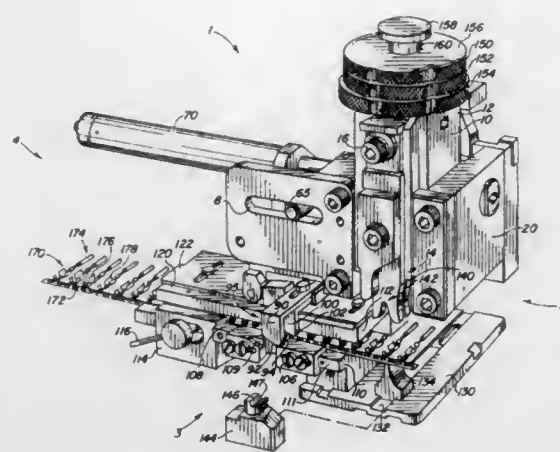
Filed Sep. 25, 1996, Ser. No. 721,587

Int. Cl.⁶ H01R 43/042; B23P 19/00

U.S. Cl. 29—753

8 Claims

1. A crimping applicator for crimping a wide variety of terminal configurations to a wire including:
- a ram including at least one crimping punch;



- a cam lever pivotally attached to, and external to, said ram;
- a feed roller positioned to be translated by said cam lever, said feed roller configured to translate parallel to a spring assembly;
- said spring assembly subject to compression by said ram, and at least one internal feed pawl for variably advancing a carrier strip and at least one external feed pawl connected to said internal feed pawl, said external feed pawl adjustably attached to said spring assembly.

5,799,392

METHOD OF MANUFACTURING A CONNECTING STRUCTURE OF PRINTED WIRING BOARDS
 Kinuko Mishiro, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed May 24, 1996, Ser. No. 653,401

Claims priority, application Japan, Nov. 17, 1995, 7-299861

Int. Cl.⁶ H05K 3/36

U.S. Cl. 29—830

15 Claims



1. A method of manufacturing a connecting structure for interconnecting first and second printed wiring boards at a connecting area formed between respective surfaces of the first and second printed wiring boards facing each other, electrodes being provided on the surfaces of the first and second printed wiring boards for conductively connecting the first and second printed wiring boards to each other, said method comprising the steps of:
- coating the connecting surface of the first printed wiring board, excluding the connecting area, with a resist film;
- bonding the resist film to a portion on the connecting surface of the second printed wiring board adjacent to the connecting area; and
- forming a conductive film in the connecting area so as to interconnect the first and second printed wiring boards.

5,799,393

METHOD FOR PRODUCING A PLATED-THROUGH HOLE ON A PRINTED-CIRCUIT BOARD

Wolf Backasch, Hildesheim, and Rolf Hohmann, Salzdettfurth, both of Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Germany

PCT No. PCT/DE95/01497, § 371 Date Sep. 23, 1996, § 102(e)
 Date Sep. 23, 1996, PCT Pub. No. WO96/15651, PCT Pub. Date May 23, 1996

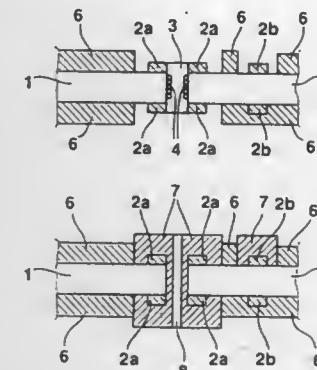
PCT Filed Oct. 27, 1995, Ser. No. 669,330

Claims priority, application Germany, Nov. 9, 1994, 44 39 948

Int. Cl.⁶ H04K 3/10

U.S. Cl. 29—852

9 Claims



1. A method for producing a plated-through hole on a printed-circuit board having an upper copper-plated surface on an upper side of the board and a lower copper-plated surface on a lower side of the board for forming annular copper surfaces and interconnect traces and bores positioned at predetermined locations, each of the bores having an inner wall, the method comprising the steps, in the order recited, of:

- applying an adhesive promoter to the inner wall of each of the bores using an electrochemical deposition process;
- applying an annularly shaped etch resist layer to the upper copper-plated surface and the lower copper-plated surface surrounding each of the bores, the etch resist layer at least partially covering each of the bores and the interconnect traces;
- etching away uncovered portions of the upper copper-plated surface and the lower copper-plated surface to form the annular copper surfaces and the interconnect traces;
- removing the etch resist layer from at least the annular copper surfaces and the bores; and
- electroconductively coupling the annular copper surfaces to the inner wall of each of the bores with the adhesive promoter using an electrochemical plating.

5,799,394

METHOD OF MAKING A MARINE SPEED NOZZLE
 José Luis Rice, Alejandro Rios Espinoza #88 Col. Benito Juárez, P.O. Box 43-A, Mazatlán, Sinaloa 82180, Mexico

Filed Feb. 5, 1996, Ser. No. 596,518

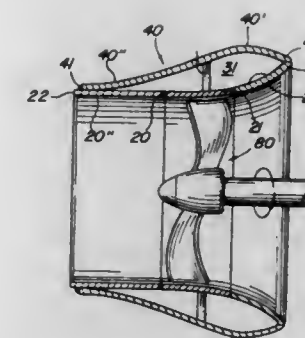
Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—889.22

8 Claims

1. A method of manufacturing an improved marine speed nozzle comprising the steps of:

- (a) press forming a plurality of interior bow end members to a desired longitudinal profile and a desired camber such that a predetermined number of the interior bow end members at least partially define a precise, circular interior shell portion bow end of a desired interior diameter;
- (b) press forming a plurality of stainless steel ring members to a desired longitudinal profile and a desired camber such that a predetermined number of the stainless steel ring members define a precise, circular stainless steel ring having a front



- edge interior diameter corresponding a rear edge interior diameter of said interior shell portion bow end,
- (c) press forming a plurality of interior aft end members to a desired longitudinal profile and a desired camber such that a predetermined number of the interior aft end members define a precise, circular interior shell portion aft end having a front edge interior diameter corresponding a rear edge interior diameter of said stainless steel ring,
- (d) positioning said predetermined number of interior aft end members in adjacent, abutting engagement with one another about a specifically sized ring template,
- (e) securing said predetermined number of interior aft end members to one another, so as to form said interior shell portion aft end,
- (f) positioning said predetermined number of stainless steel ring members in adjacent, abutting engagement with one another about the specifically sized ring template and atop said front edge of said interior shell portion aft end,
- (g) securing said predetermined number of stainless steel members to one another, so as to form said stainless steel ring and at least partially form said interior shell portion bow end, and to said interior shell portion aft end,
- (h) positioning said predetermined number of interior bow end members in adjacent, abutting engagement with one another about the specifically sized ring template and atop said front edge of said stainless steel ring,
- (i) securing said predetermined number of interior bow end members to one another, so as to further form said interior shell portion bow end, and to said stainless steel ring, thereby defining an interior shell portion,
- (j) securing at least one longitudinal upper strut, in a generally perpendicular orientation, to an exterior surface of said interior shell portion,
- (k) securing at least one longitudinal lower strut, in a generally perpendicular orientation, to said exterior surface of said interior shell portion at a point substantially opposite said upper strut portion,
- (l) securing a plurality of longitudinal separators, in a generally perpendicular orientation, to said exterior surface of said interior shell portion a spaced apart distance from one another between said upper and said lower struts,
- (m) securing at least one transverse rib, in a generally perpendicular orientation, to said stainless steel ring, about an exterior circumference thereof and between said upper and lower struts and said longitudinal separators,
- (n) press forming a plurality of exterior shell members to a desired longitudinal profile and a desired camber such that a predetermined number of the exterior shell members define a precise, circular exterior shell portion of a desired interior diameter,
- (o) positioning said predetermined number of exterior shell members in adjacent, abutting engagement with one another and said upper and lower struts, and about said interior shell portion, and
- (p) securing said predetermined number of exterior shell members to one another and said upper and lower struts, so as to form said exterior shell portion, and to said interior shell portion at a bow edge and an aft edge thereof.

5,799,395

PROCESS FOR MANUFACTURING AN AIR GAP-INSULATED EXHAUST PIPE

Thomas Nording, Esslingen, and Alfred Utter, Waldmohr, both of Germany, assignors to J. Eberspächer GmbH & Co., Esslingen, Germany

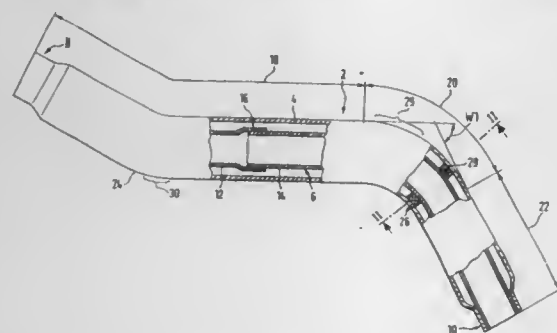
Division of Ser. No. 368,417, Jan. 4, 1995. This application Jul. 30, 1996, Ser. No. 692,814

Claims priority, application Germany, Jan. 7, 1994, P4400313.7; Oct. 19, 1994, P4437380.5

Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—890.08

20 Claims



1. A process for manufacturing an air gap-insulated, double-walled exhaust pipe, as part of an air gap-insulated exhaust pipe assembly, the process comprising the steps of:
 - providing an outer pipe;
 - providing a gas-carrying inner pipe, which has a first inner pipe section and a second inner pipe section;
 - connecting said first inner pipe section and said second inner pipe section to one another via a sliding fit; and
 - maintaining a space between said two inner pipe sections to preserve said sliding fit during subsequent formation of said air gap-insulated exhaust pipe assembly.

5,799,396

METHOD OF INSTALLING A BAFFLE IN A HEADER IN A HEAT EXCHANGER

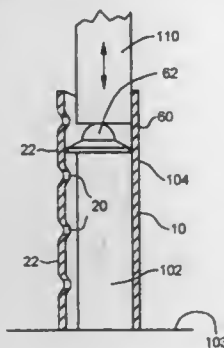
Daniel J. Bosch, Racine; Hal W. Cousins, Sturtevant; Ed L. Hendricks; Donald R. Johnson, both of Racine; Thomas F. Mitchell, Waterford, and James L. Wehrman, Kenosha, all of Wis., assignors to Modine Manufacturing Company, Racine, Wis.

Filed Jul. 19, 1995, Ser. No. 503,989

Int. Cl.⁶ B23P 15/26

U.S. Cl. 29—890.052

14 Claims



1. A method of installing a baffle in a tubular header for a heat exchanger comprising the steps of:
 - a) providing a baffle with a concave side surrounded by a periphery smaller than the internal periphery of the header;
 - b) locating the baffle at a desired location within the header; and
 - c) applying a compressive force to the baffle across said concave side to compress the baffle toward a planar shape.

5,799,397

PIPE WITH CLOSURE PORTION, HEAT EXCHANGER HEADER AND METHOD OF PRODUCING THEREFOR

Ryuji Yasuda, Kanagawa; Michito Saito, and Hiroyuki Inaba, both of Tokyo, all of Japan, assignors to Calsonic Corporation, Tokyo, and Caltec Corporation, Kanagawa, both of Japan

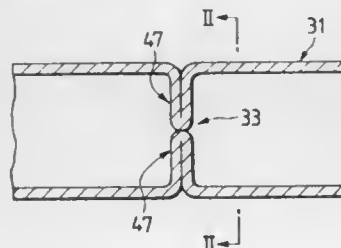
Continuation-in-part of Ser. No. 412,454, Mar. 29, 1995, abandoned. This application Sep. 6, 1996, Ser. No. 708,935

Claims priority, application Japan, Mar. 29, 1994, 6-059176; Sep. 7, 1995, 7-229927

Int. Cl.⁶ B23P 15/26

U.S. Cl. 29—890.052

27 Claims



1. A method of producing a pipe with a partition, comprising the steps of:
 - shaping a flat sheet into such a configuration that said sheet has a pair of half-cylindrical portions arranged in juxtaposed relation to each other and interconnected by a connecting portion disposed between said pair of half-cylindrical portions, and that a partition-forming portion of a U-shaped cross-section is formed on each of said pair of half-cylindrical portions, and is projected from an inner surface thereof;
 - removing at least that portion of said connecting portion lying between said partition-forming portions of said pair of half-cylindrical portions;
 - compressing each of said partition-forming portions from opposite sides thereof to form a half partition portion;
 - bending said connecting portion to bring said pair of half-cylindrical portions into opposed relation to each other;
 - mating said pair of opposed half-cylindrical portions with each other; and
 - bonding said pair of mated half-cylindrical portions together.

5,799,398

METHOD FOR PRECISION GEAR FINISHING BY CONTROLLED DEFORMATION

Maurice F. Amateau, and Nagesh Sonti, both of State College, Pa., assignors to The Penn State Research Foundation, University Park, Pa.

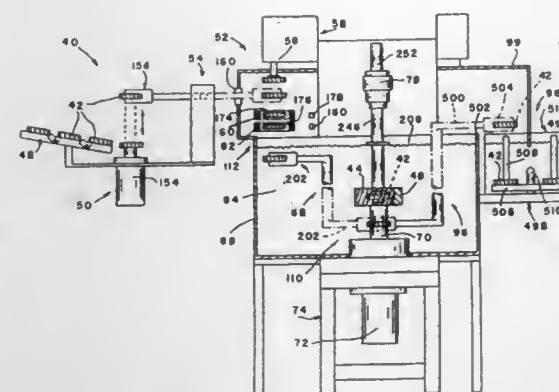
Division of Ser. No. 285,883, Aug. 4, 1994, Pat. No. 5,451,275, which is a continuation of Ser. No. 932,206, Aug. 19, 1992, abandoned. This application Sep. 18, 1995, Ser. No. 529,774

Int. Cl.⁶ B21D 53/28

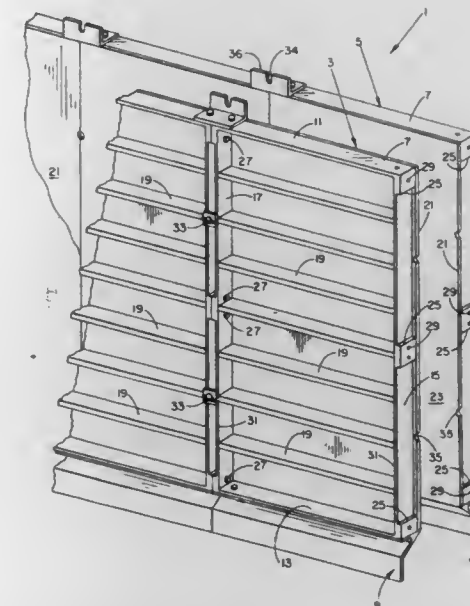
U.S. Cl. 29—893.32

25 Claims

1. A method of net shaping gear teeth of a high performance gear comprising the steps of:
 - (a) in a controlled metastable austenitic environment, rotating respectively on first and second generally parallel spaced axes, first and second rolling gear dies, each having an outer peripheral profiled surface extending between spaced lateral surfaces;
 - (b) rotatably supporting on a third axis generally parallel to the first and second axes within the controlled metastable austenitic environment a workpiece in the form of a near net shaped gear blank having an outer peripheral profiled surface extending between spaced lateral surfaces;
 - (c) advancing the workpiece along the third axis in a through-feed direction such that the outer peripheral surface of the workpiece slidably engages the first and second rolling gear



- dies and continues to advance until the workpiece is positioned substantially coextensive with the first and second rolling gear dies in the through-feed direction; and
 - (d) simultaneously with step (c), after the workpiece and the first and second rolling gear dies are substantially enmeshed, advancing the first and second rolling gear dies, within a common plane generally containing the first, second, and third axes, in respectively opposite in-feed directions substantially perpendicular to the third axis until the outer peripheral surfaces, respectively, of the first and second rolling gear dies engage the workpiece at diametrically opposed locations and at near net shaped center distances establishing initial center distances between the first and third axes and between the second and third axes, respectively, when the workpiece and the rolling gear dies are initially engaged; and
 - (e) continuing to advance the first and second rolling gear dies in the in-feed direction each by an additional increment of center distance thereby deforming the profile surfaces of each gear tooth resulting in final net shape of the gear teeth.
8. A method of net shaping gear teeth of a high performance gear comprising the steps of:
 - (a) in a controlled metastable austenitic environment, rotatably supporting on a die axis a rolling gear die having an outer peripheral profiled surface extending between spaced lateral surfaces;
 - (b) rotatably supporting on a workpiece axis generally parallel to the die axis within the controlled metastable austenitic environment a workpiece in the form of a near net shaped gear blank having an outer peripheral profiled surface extending between spaced lateral surfaces such that the outer peripheral profiled surface of the workpiece is capable of meshing engagement with the outer peripheral profiled surface of the rolling gear die; and
 - including at least one of the steps of:
 - (c) selectively adjusting the rolling gear die along the die axis to assume a desired orientation relative to the workpiece;
 - (d) selectively adjusting the rolling die within a common plane containing the die and workpiece axes to assume a desired orientation relative to the workpiece; and
 - (e) selectively adjusting the rolling gear die out of the common plane to assume a desired orientation relative to the workpiece.



- side peripheral frame sections, a front planar surface, and an opposing rear surface, each of said panels having a footing forming member attached to and depending from said lower peripheral frame section said footing forming member being positionally adjustable relative to said lower peripheral frame section;
- (b) placing said plurality of panels with attached footing forming members in side-by-side relation on a substantially flat surface and abutting together adjacent said side frame sections of adjacent said panels to define adjacent pairs of abutting panels;
- (c) rigidly connecting abutting adjacent side frame sections of said adjacent pairs of abutting panels to form a pre-assembled integral footing and wall forming unit from said plurality of abutting panels;
- (d) completing steps (a)-(c) prior to placement of said pre-assembled footing and wall forming unit at a desired wall forming position;
- (e) hoisting said integral footing and wall forming unit from said flat surface and moving said unit into desired wall forming position such that said footing forming members engage a ground surface and said panels extend upright therefrom;
- (f) supporting said integral footing and wall forming unit in said wall forming position;
- (g) repeat steps (a)-(e), interconnecting each integral footing and wall forming unit which is constructed, until a complete form defining the outer confines of the building foundation is formed.

5,799,400

FOLDING KNIFE WITH APERTURE TO RECEIVE A LANYARD

Louis S. Glesser, Golden, Colo., assignor to Spyderco, Inc., Golden, Colo.

Filed Jan. 29, 1997, Ser. No. 790,526

Int. Cl.⁶ B26B 1/02

U.S. Cl. 30—298.4

17 Claims

1. A folding knife, comprising:
 - (a) handle means having a first end, a second distal end and opposed elongated side portions defining a cavity therebetween;
 - (b) blade means having a cutting end and a pivot end, said pivot end pivotally interconnected to said first end of said handle means and movable between a first extended position and a second closed position, wherein in said first extended position said blade is substantially an extension of said handle means

5,799,399

METHOD OF FORMING MONOLITHIC FOOTINGS AND FOUNDATION WALLS

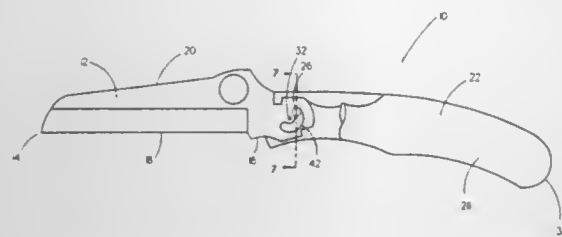
Allan A. Schultz, Rte. 2, Box 79, New Richland, Minn. 56072 Division of Ser. No. 191,071, Feb. 3, 1994, Pat. No. 5,511,761. This application Feb. 9, 1996, Ser. No. 599,377

Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—897.3

11 Claims

7. A method of constructing a wall forming apparatus prior to making a pouring of concrete to monolithically form footings and walls of a building foundation; comprising:
 - (a) selecting a plurality of relatively light-weight prefabricated wall forming panels having elongated metal upper, lower and



- and in said second closed position said blade means is at least partially enclosed within said cavity; and
- (c) an aperture extending through said first end of said handle means proximate to or at a pivoting point of said blade pivot end, said aperture operatively sized to receive attachment means for removable attachment to an object; and
- (d) a removed portion in said blade means proximate to said pivot end of said blade, said removed portion operatively sized to engage said aperture, wherein said blade means can travel between said first extended position and said second closed position without obstruction from said aperture.

5,799,401

BAGEL DOUGH EXTRACTOR

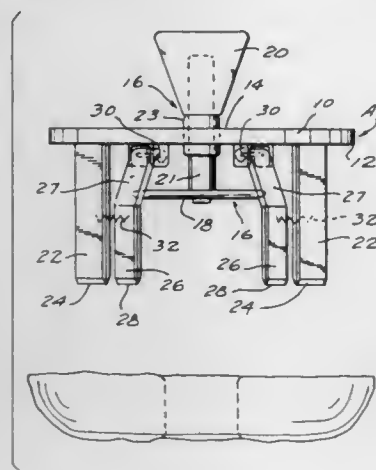
George Gering, 8 Robins La., Short Hills, N.J. 07078

Filed May 2, 1997, Ser. No. 850,491

Int. Cl.⁶ B26D 3/06

U.S. Cl. 30—300

29 Claims



1. Apparatus for extracting dough from a bagel half comprising a base, fixed blade means mounted on said base, moveable blade means mounted on said base for movement in a substantially radial direction, between a position relatively remote from said fixed blade means and a position proximate said fixed blade means and manually operable means, moveable relative to said base, for moving said moveable blade means between said positions, said fixed blade means comprising a set of fixed blades and said moveable blade means comprising a set of moveable blades and where each of moveable blades is radially aligned with a different one of said fixed blades to form a blade pair.

5,799,402
PORTABLE DEVICE FOR REMOVABLY POSITIONING
AND RESETTING VANISHING POINTS OF
PERSPECTIVE DRAWINGS

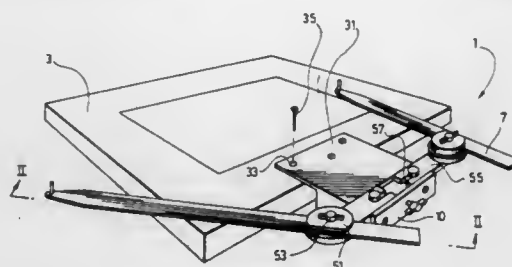
Jacques De Blois, 30, du Pommier, St-Ferréol-les-Neiges, Quebec, Canada, G0A 3R0

Continuation-in-part of Ser. No. 243,691, May 17, 1994, abandoned. This application Jun. 21, 1996, Ser. No. 667,385

Int. Cl.⁶ B43L 13/14

U.S. Cl. 33—1 K

6 Claims



1. A portable and removable device for positioning and resetting a vanishing point of a perspective drawing which is to be construed on a support, said device comprising:
- at least one stick of a given length and having opposite ends, one of these ends being provided with a transversal pin; and
- a supporting member having in combination:
- means for removably fastening said member on the supports, said means having lateral sides; and
- means for releasably positioning and locking the stick to the member, the pin at the one end of said stick being positioned at a given distance from the member and used to locate the vanishing point, said means for releasably positioning and locking said stick comprising an adjustable abutment adapted to position said stick in a given direction, said abutment being able to remain in such an orientation after removal of the stick and the means for releasably positioning and locking so as to reset the given direction of the stick; and
- spacing means for modifying the distance of the stick from the support where the drawing is construed.

5,799,403

STANDOFF CROWN MEASUREMENT DEVICE

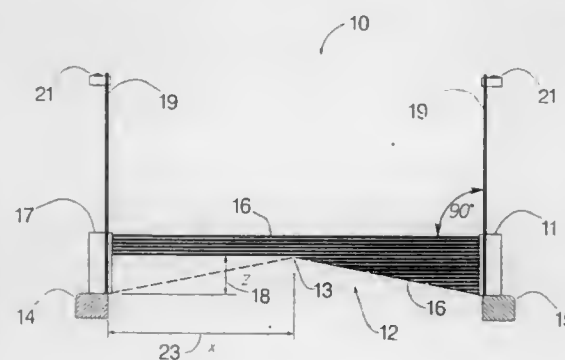
Paul T. Schrum, P.O. Box 28726, Raleigh, N.C. 27611

Continuation of Ser. No. 492,790, Jun. 20, 1995, Pat. No. 5,631,732. This application Dec. 20, 1996, Ser. No. 771,180

Int. Cl.⁶ G01C 5/00

U.S. Cl. 33—290

28 Claims



1. A method for surveying a roadway comprising:
- a) projecting a laser beam across the roadway from one side thereof so that the laser beam intersects a crown in the roadway; and

- b) determining the elevation of the laser beam at the point where the laser beam intersects the crown to obtain the elevation of the crown.

5,799,404

LEVEL CLAMP

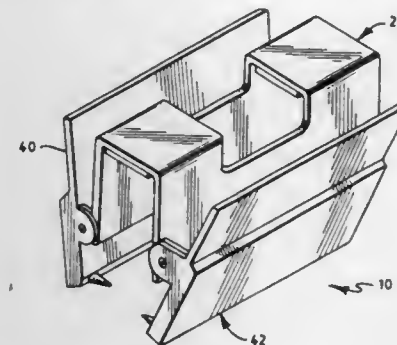
Douglas Payne, P.O. Box 130, Ashland, Mass. 01721

Continuation-in-part of Ser. No. 453,647, May 30, 1995, Pat. No. 5,581,900. This application Oct. 3, 1996, Ser. No. 725,232

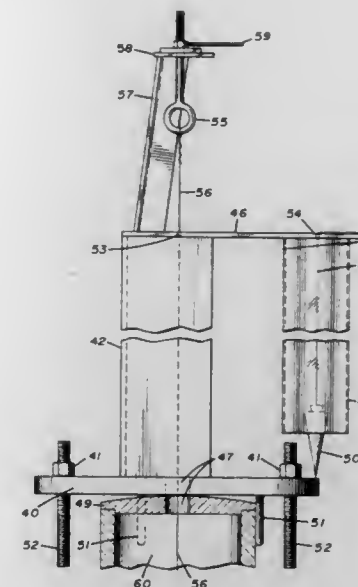
Int. Cl.⁶ G01C 9/28; F16M 13/02

U.S. Cl. 33—370

12 Claims



1. A clamp for temporarily holding a level against an elongated construction element having a straight edge to be predeterminedly oriented, said level including at least a straight edge and at least a bubble geometrically related thereto, said clamp comprising:
- (a) a body having at least a cross wall and a pair of opposed side walls integrated with said cross wall, said cross wall having an inner surface and an outer surface and each of said sides walls having an inner surface, an outer surface and a remote edge distant from said cross wall;
- (b) a connector for joining said body with said level during operative engagement of said level with said construction element;
- (c) a pair of opposed jaws pivotally attached to said opposed side walls, each of said jaws having an upper portion adapted to be manually gripped and a lower portion with a lower edge having a plurality of pins projecting inwardly therefrom, said pivotal attachment including at least one spring for biasing said lower edges toward each other;
- (d) said jaws clamping said construction element therebetween when said level and said construction element are in said operative engagement; and
- (e) said body having an opening for display of said bubble when said body and said level are joined by said connector.



- firmly bolt said second plate against the top edges of said system, and further containing one centered hole for a plumb line, wherein said structural member positions said second plate parallel to said first plate with the distance between the two plates a minimum of two feet; an eye bolt mechanism firmly attached on the upper side of said first plate by an appropriate supporting brace wherein said eye bolt is centered over a plumb line hole in said first plate which is vertically above said centered hole for a plumb line in said second plate; a plumb line made of wire attached internally to the center bottom of the said system and running upwards through the central portion of said system, passing through the centered hole on said second plate, continuing up through said plumb line hole in said first plate, and attaching to said eye bolt mechanism, wherein adjusting of said second plate bolts allows centering of said plumb line through said centered hole of said second plate, and wherein adjusting said eye bolt mechanism insures a taut plumb line;
- a plumb bob whose string attaches about one inch from the edge of said first plate passing through a line hole in said first plate and extending vertically downward until said plumb bob intersects the edge of said second plate, wherein alignment of said plumb bob is performed by adjusting said channel iron set screws; and
- a vertical isolation housing attached to said first plate serving to isolate said plumb bob from environmental influence.

5,799,406

COORDINATE MEASURING MACHINE
CERTIFICATION APPARATUS

Howard G. Truran, 47875 Five Mile Rd., Plymouth, Mich. 48170

Filed Aug. 23, 1996, Ser. No. 701,886

Int. Cl.⁶ G01B 3/30

U.S. Cl. 33—502

14 Claims

1. An apparatus for certifying or calibrating a coordinate measuring machine comprising: a plurality of elongated linear gage blocks, each of said gage blocks having a pair of end faces spaced apart a distance which has been certified as conforming in accuracy to a specified accuracy grade by a qualified measuring laboratory; and a positioning device for selectively rotating said gage blocks about a vertical axis within a measurement volume of a coordinate measuring machine and selectively rotating said linear gage blocks about a horizontal axis within said measurement volume, said positioning device having a base for supporting said apparatus in said measurement, an upward extending column mounted on said base for rotating said gage blocks about said vertical axis; a holding device mounted on an upper portion of said column for

5,799,405

VERTICAL ALIGNMENT TOOL FOR UNDERGROUND
INSTALLATION

Jack V. Christensen, and Erwin D. Kanne, both of Castle Rock, Colo., assignors to C.M.F. Corporation, Denver, Colo.

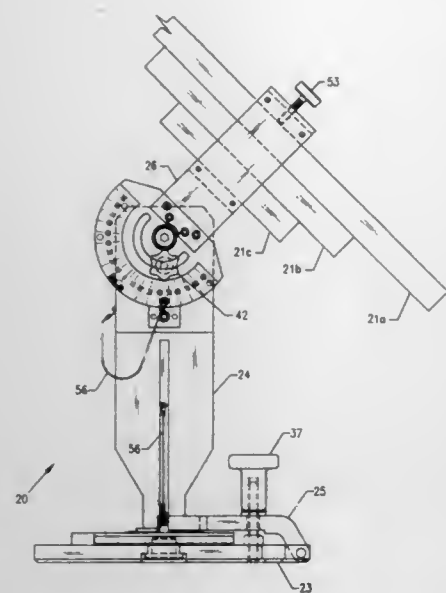
Continuation-in-part of Ser. No. 381,593, Jan. 31, 1995, Pat. No. 5,577,862. This application Nov. 25, 1996, Ser. No. 755,670

Int. Cl.⁶ G01C 15/10

U.S. Cl. 33—392

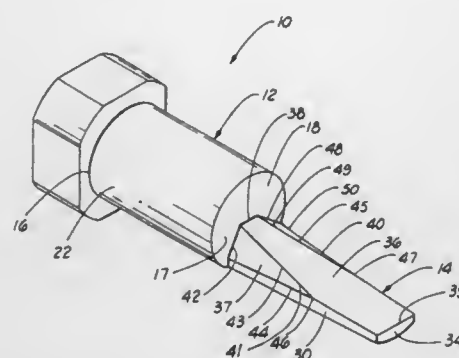
6 Claims

1. A tool for vertical alignment of an underground system positioned over an oversized hole by load-supporting channel irons in an overlapping pattern with adjustable set screws allowing a slight change in vertical alignment of said system comprising:
- a first horizontal support plate containing two plumb line holes;
- a second horizontal round support plate, attached off-center below said first plate by a structural member thereby a portion of said first plate extends beyond the edge of said second plate, containing a plurality of symmetrical bolt holes to



5,799,408
STRUCTURAL MEMBER ALIGNMENT TOOL AND METHOD OF USING SAME
Michael C. Sprayberry, 3311 Pevehouse Rd., Van Buren, Ark. 72956

Filed Nov. 8, 1996, Ser. No. 745,887
Int. Cl.⁶ G01B 5/25; B23P 19/04
U.S. Cl. 33—645 18 Claims

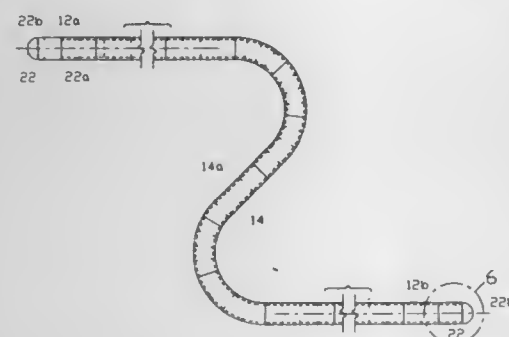


mounting said gage blocks in said positioning device and for rotating said gage blocks about said horizontal axis; a means for indicating a position of said gage block with respect to said vertical; a means for indicating a position of said gage block with respect to said horizontal axis; and separate means for fixing said gage blocks with respect to each of said axes.

5,799,407
FLEXIBLE MEASURING DEVICE
Gary T. Powell, Belin Village, Avoca, Pa. 18641
Filed Jun. 24, 1996, Ser. No. 669,107
Int. Cl.⁶ G01B 3/10

U.S. Cl. 33—555.4

8 Claims



1. A flexible measuring device, which comprises:
- (a) a generally tubular, flexible, longitudinal body with opposite ends;
 - (b) measuring indicia means located at predetermined, evenly-spaced intervals along said body;
 - (c) an end cap mounted on a respective body end and adding a predetermined length to said body to provide an overall predetermined length of said measuring device;
 - (d) said body being flexible throughout substantially its entire length with respect to its longitudinal axis;
 - and
 - (e) centering means for generally centering said body within a bore being measured.

5,799,409
DEVICE FOR DRYING A MATERIAL WEB WITH HEATED AND COOLED CYLINDERS
Tri Chau-Huu; Albrecht Meinecke, both of Heidenheim, and Markus Oechsle, Bartholomä, all of Germany, assignors to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany

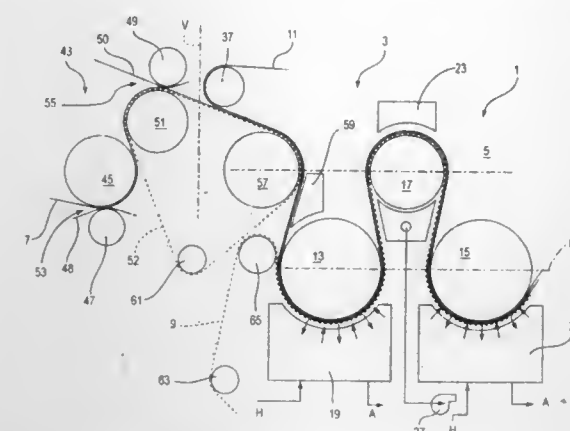
Filed May 14, 1997, Ser. No. 856,185
Claims priority, application Germany, May 15, 1996, 196 19 530.6; Oct. 15, 1996, 296 17 881 U

Int. Cl.⁶ D21F 5/00

U.S. Cl. 34—117

35 Claims

23. A dryer section for a material web producing machine comprising:
- a plurality of cylinders including heated cylinders and cooled cylinders;
 - a dryer screen;
 - a metal belt;
 - at least one of the metal belt and the dryer screen exerting a predetermined force on the plurality of cylinders;
 - at least one heating installation associated with the cooled cylinders; and
 - at least one cooling installation associated with the heated cylinders.



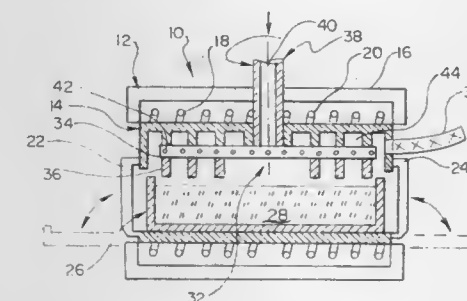
wherein the dryer screen and the metal belt are alternately guided in a meandering path around the heated and cooled cylinders.

5,799,410
METHOD AND APPARATUS FOR SEPARATING VOLATILE COMPONENTS FROM A BASE MATERIAL
Claus Gronholz, Norderstedt, Germany, assignor to Umwelt-Technics-Nord GmbH, Norderstedt, Germany
Division of Ser. No. 248,815, May 25, 1994, Pat. No. 5,592,753. This application Jan. 13, 1997, Ser. No. 782,065
Claims priority, application Germany, May 25, 1993, 43 17 291.1

U.S. Cl. 34—247

Int. Cl.⁶ F26B 3/34

11 Claims



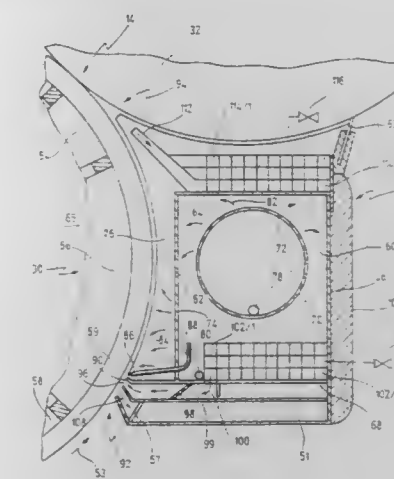
1. A method for separating volatile components from a solid object by induction heating, which method comprises:
- a) positioning the solid object within an internal volume of an induction vessel of a gas-tight induction heating reactor, so that area around the object which does not contain the object is filled by metal filings;
 - b) heating said object surrounded by said metal filings by induction heating while generating a vacuum within the internal volume of the induction vessel of the reactor;
 - c) injecting an inert gas into said metal filings;
 - d) evacuating volatile components from within said reactor; and
 - e) removing metal filings from the object.

5,799,411
STEAM BLAST BOX METHOD FOR THE ZONE-WISE TEMPERATURE CONTROL OF A TRAVELING PAPER WEB
Christian Schiel, Heidenheim, Germany, assignor to Voith Sulzer Papiermaschinen, Heidenheim, Germany
Division of Ser. No. 714,849, Sep. 17, 1996, Pat. No. 5,689,897.
This application Jul. 21, 1997, Ser. No. 897,281
Claims priority, application Germany, Sep. 18, 1995, 195 34 573.8

U.S. Cl. 34—446

Int. Cl.⁶ D21F 5/00

5 Claims



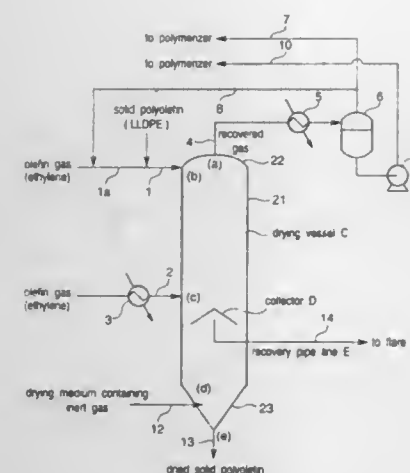
1. A method for zone-wise control of the temperature of a travelling web of paper travelling through a steam propagation space on the surface of a roll, the method comprising:
- moving the web of paper on the surface of a roll through a steam propagation space;
 - feeding steam into the upstream end of the steam propagation space across the width of the web;
 - cooling the web of paper zone-wise across the web by feeding air toward the web at the inlet side of the steam propagation space in selected zones of air feed across the web, which may differ in their air feeds for zone-wise control of web temperature.

5,799,412
DRYING SOLID POLYMER APPARATUS
Ryoichi Yamamoto; Satoru Ohtani; Toshimi Hachimori; Teruhisa Kojima, and Takahiro Mamyoda, all of Kuga-gun, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan
Filed Apr. 3, 1997, Ser. No. 832,505
Claims priority, application Japan, Apr. 11, 1996, 8-089793
Int. Cl.⁶ F26B 17/00

U.S. Cl. 34—582

11 Claims

1. An apparatus for drying a solid polymer which comprises:
- a drying vessel,
 - a solid polymer supply port (b) disposed in the vicinity of a top of the drying vessel,
 - a first drying gas supply port (c) disposed in a position below the solid polymer supply port (b) for supplying a first gas containing a gaseous polymerization feed materials,
 - a first drying gas-discharging port (a) disposed at the top of the drying vessel for discharging the first drying gas which has been countercurrently contacted with the solid polymer,
 - a second drying gas supply port (d) disposed in the vicinity of a bottom of the drying vessel for supplying a second drying gas containing an inert gas,
 - a second drying gas collector D arranged within the drying vessel in a position between the first drying gas supply port (c) and the second drying gas supply port (d) for collecting



the second drying gas which has been countercurrently contacted with the solid polymer,

a recovery pipe line E extending from the second drying gas collector D to outside the drying vessel for leading the second drying gas which has been collected by the second drying gas collector D outside the drying vessel, and

a solid polymer discharge port (e) disposed at the bottom of the drying vessel for recovering the solid polymer which has been dried by the countercurrent contacts with the first drying gas and the second drying gas,

wherein the second drying gas collector D separate inside of the drying vessel so that a zone for contacting the solid polymer with the first drying gas is defined above the second drying gas collector D and that a zone for contacting the solid polymer with the second drying gas is defined below the second drying gas collector D.

5,799,413
INNERSOLE FOR A SHOE AND METHOD OF MAKING THE SAME
Art Argyris, 1415 Montezuma Way, West Covina, Calif. 91791
Filed May 8, 1997, Ser. No. 852,963
Int. Cl.⁶ A43B 13/38; 7/08
U.S. Cl. 36—43 8 Claims



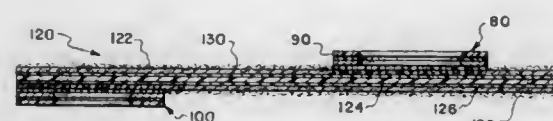
1. An innersole for insertion into a shoe comprising:

a base having an elongated central longitudinal axis of a flexible material having an upper surface and a lower surface with a plurality of spaced rows of lugs of substantially identically configured lugs extending upwardly from said upper surface, each of said lugs having a base portion and a rounded top portion;

a cover disposed over the upper surface of said base covering said lugs forming an undulating surface on said base and fixedly secured to said lugs and said upper surface of said base, the spacing between said cover, said lugs and the upper surface of said base being completely filled with an adhesive material; and

a plurality of perforations, each extending through said cover, said lugs, and through said base.

5,799,414
SHOE INSERT WITH NON-COMPRESSIBLE DEFORMABLE BASE ATTACHED TO RESILIENT PADS
David Kellerman, 1509 Shoreline Dr., Santa Barbara, Calif. 93109
Continuation-in-part of Ser. No. 957,984, Oct. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 690,661, Apr. 24, 1991, Pat. No. 5,154,682, which is a continuation-in-part of Ser. No. 407,145, Sep. 14, 1989, abandoned. This application Nov. 24, 1993, Ser. No. 157,709
Claims priority, application Japan, Oct. 12, 1992, 4-273197; Australia, Oct. 13, 1992, 26384/92; Canada, Oct. 13, 1992, 2080416; European Pat. Off., Oct. 13, 1992, 92309319; Israel, Oct. 13, 1992, 103451
The portion of the term of this patent subsequent to Oct. 13, 2009, has been disclaimed.
Int. Cl.⁶ A43B 23/00
U.S. Cl. 36—44 13 Claims



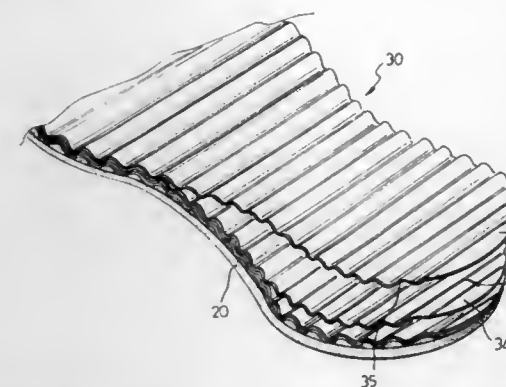
1. A shoe insert for placement on an inside surface of a shoe comprising in combination:

a shoe insole formed of a non-compressible sheet of deformable synthetic organic thermoplastic resin having a thickness of at least 10 mils up to 50 mils and being shaped to fit over said inside surface of a shoe, said sheet having memory to permanently retain a deformed shape and said sheet having a continuous, smooth, seamless upper surface and having a bottom surface; and

the bottom surface of said sheet including a layer of first fastening material selected from loop fabric or hook fabric and a plurality of cushion pad elements, each containing a layer of resilient compressible, cushioning material and each having a top surface including a layer of second fastening material releasably engageable with said first fastening material selected from loop fabric or hook fabric, said elements being attached to said layer of first fastening material and at least one of said elements containing a thicker layer of cushioning material whereby when the insert is placed on the inside surface of a shoe, said elements compress under the weight of the user, the sheet deforms in the space between the elements and at locations where adjacent pad elements differ in thickness and retains a deformed shape when the force from the user's weight is removed to selectively modify the elevation or pitch of said insert relative to said inside surface of said shoe.

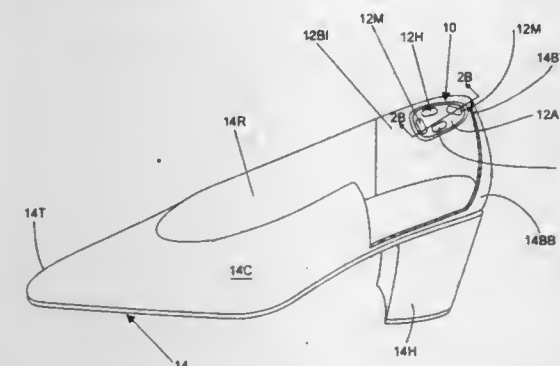
5,799,415
INSOLE
Nishimura Kenji, No. 2-27, Chu Shui 3 Ting Mu, Hsiung Pen City, Hsiung Pen County; Nagase Isao, No. 13-2, Chu Shi 4 Ting Mu, Hsiung Pen City, Huiung Pen County, both of Japan, and Sen Pn Lin, 2nd Floor, No. 35, Lane 14, Sec. 7, Chung Shan N. Rd., Taipei, Taiwan
Filed Aug. 6, 1996, Ser. No. 692,629
Int. Cl.⁶ A43B 13/38; 1/02
U.S. Cl. 36—44 2 Claims

1. An insole comprising an absorptive flat paper base panel, and a plurality of stacked corrugated paper cover panels mounted on said absorptive flat paper base panel and defining with said absorptive flat paper base panel a plurality of ventilation spaces, each of said corrugated paper cover panels having a plurality of alternating folds and furrows and a tongue at one end, said stack of corrugated paper cover panels being detachably connected together such that



uppermost corrugated paper cover panels can be successively removed from the insole, all corrugated paper cover panels in the stack having equal lateral dimensions.

5,799,416
ANTI-BLISTER SHOE GRIPS
Gregory Prober, P.O. Box 68, South Huntington, N.Y. 11746
Filed Sep. 25, 1996, Ser. No. 719,470
Int. Cl.⁶ A43B 23/28
U.S. Cl. 36—58.6 11 Claims



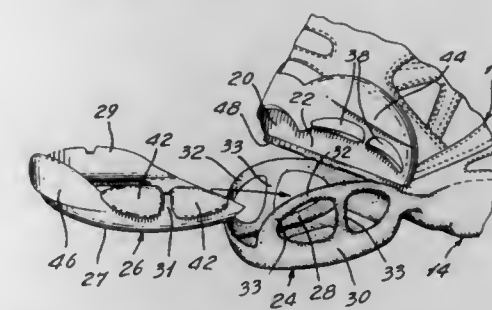
1. An anti-blister shoe grip (10) positioned on shoe back top (14BT) of a shoe back inside (14BI) of a shoe (14), the anti-blister shoe grip (10) comprising:

A) at least two first grips (12H) securely attached to the shoe back inside (14BI) positioned on the shoe back top (14BT), the at least two first grips (12H) protrude inward from the shoe back inside a first distance, and

B) at least two second grips (12M) securely attached to the shoe back inside (14BI) positioned on the shoe back top (14BT), the at least two second grips (12M) protrude inward from the shoe back inside a second distance which is less than the first distance, thereby the first grips have a thickness greater than the second grips the at least two second grips (12M) are positioned between the at least two first grips (12H), the at least two first grips (12H) are positioned in a substantial vertical alignment to each other, the at least two second grips (12M) are positioned in vertical alignment to each other, the at least two first grips (12H) comprise a first grip inner member (12HA) connected to a first grip outer member (12HB) by a first grip middle member (12HC), the first grip outer member (12HB) is positioned between the shoe back inside (14BI) and a shoe back outside (14BO), the first grip middle member (12HC) is positioned within an opening in the shoe back inside (14BI), the at least two second grips (12M) comprise a second grip inner member (12MA) connected to a medium grip outer member (12MB) by a medium grip middle member (12MC), the medium grip outer member (12MB) is positioned between the shoe back inside (14BI) and a shoe back outside (14BO), the medium grip middle member (12MC) is positioned within an opening in the shoe back

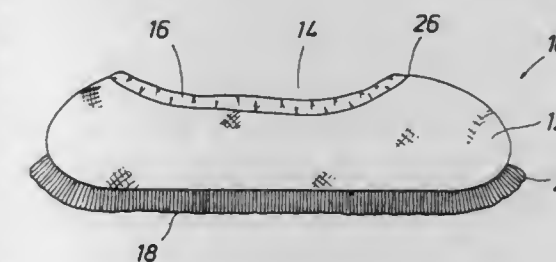
inside (14BI), the at least two first grips (12H) and the at least two second grips (12M) function to allow the shoe (14) to be manufactured with a comfortable straight non-pinched shoe back top (14BT) retaining non-slip functionality.

5,799,417
SHOE SOLE WITH REMOVAL INSERT
Robert Burke, Barrie; James Russell, Markham; Gad Shaanan, Montreal; Walter Francovich, Pierrefonds, and Ivan Brousseau, Montreal, all of Canada, assignors to Bata Limited, Toronto, Canada
Filed Jan. 13, 1997, Ser. No. 783,830
Int. Cl.⁶ A43B 13/12; 13/18
U.S. Cl. 36—105 25 Claims



14. A sport shoe having an upper and a sole, the shoe comprising a toe portion, a metatarsal portion and a heel portion, the sole having at least one mobile portion at least at the heel portion of the sole, the mobile portion being hinged about a lateral axis forward of the heel portion for movement between closed and open positions, an interchangeable sole insert insertable between the mobile portion and the upper when the mobile portion is in the open position, a first location being on both the insert and the upper and a second location being on the mobile portion, a plurality of projections being provided on one of the first and second locations with a mating hole being defined in the other location of the first and second locations, the projections being insertable into the mating hole to thereby hold the mobile portion in the closed position.

5,799,418
FOOTWEAR DEVICE FOR REDUCING WALKING RELATED NOISE
Richard P. Davis, 6942 FM 1960 E. #157, Humble, Tex. 77346
Filed Jul. 24, 1996, Ser. No. 685,521
Int. Cl.⁶ A43B 5/18; 3/16
U.S. Cl. 36—116 16 Claims



1. A device for reducing noise caused by outdoorsmen stepping on ground objects when stalking animals, comprising:

a flexible upper body portion adapted to cover a shoe comprising a cloth material having a camouflage pattern to conceal the device in an outdoor environment,

the flexible upper body portion having an opening adapted to receive the shoe inside the upper body portion,

the flexible upper body portion including a means for securing the device tightly in place about the shoe, and a bottom sole section attached to the flexible upper body portion, the bottom sole section comprising a synthetic fur material for absorbing sound and reducing walking related noise.

5,799,419 METHOD FOR CONTROLLING THE OPERATION OF POWER EXCAVATOR

Jeong Yong Seo, and Myung Hoon Song, both of Changwon, Rep. of Korea, assignors to Samsung Heavy Industries Co., Ltd., Kyung Nam, Rep. of Korea

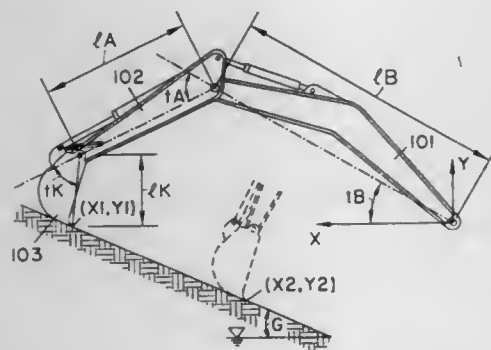
Filed Nov. 1, 1996, Ser. No. 742,650

Claims priority, application Rep. of Korea, Oct. 31, 1995, 95 38599

Int. Cl.⁶ E02F 3/43

U.S. Cl. 37—348

5 Claims



1. A method for automatically controlling the operation of a working implement of a power excavator during a land finishing work, said working implement comprising a boom, an arm, a bucket and a swing unit, and said power excavator further comprising handling signal input means handled by an operator; a plurality of sensing means for detecting angular displacement of said boom, arm and bucket; and a controller for controlling said boom, arm, bucket and swing unit by a predetermined operation based on handling signals output from said handling signal input means and positional signals output from said sensing means; wherein said method comprises the following steps of:

- detecting a change in a motional direction of said arm, said change being made by an arm handling signal output from said handling signal input means;
- computing an object operational angle of said bucket by performing a predetermined geometrical calculation based on said positional signals detected at a plurality of points where the motional direction of said arm is changed;
- controlling said boom in accordance with either one of the following manners, wherein:
 - when an operator controls said boom, said boom is controlled in response to a boom handling signal output from said handling signal input means; and
 - when the operator controls said arm and does not control said boom, said boom is automatically controlled so that an end of said bucket moves at said object operational angle in response to said arm handling signal output from said handling signal input means.

5,799,420 STEAM IRON WATER TANK WITH AIR TRAP AND GEAR MOUNTS

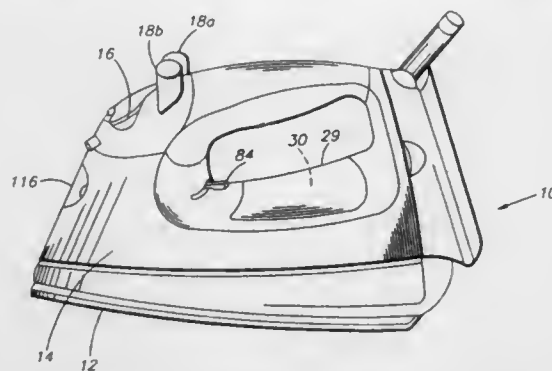
Edward M. Kubicz, Torrington, and Michael J. Marchetti, Bridgeport, both of Conn., assignors to Black & Decker Inc., Newark, Del.

Filed Jan. 10, 1997, Ser. No. 781,875

Int. Cl.⁶ D06F 75/18; 75/24

U.S. Cl. 38—77.7

19 Claims



1. In a steam iron having a soleplate, means for heating the soleplate, and a water tank for holding water to be delivered onto the soleplate, wherein the improvement comprises: the water tank having a water fill inlet, the inlet being connected to a water fill spout of the iron, a portion of a water holding volume of the water tank being located above a portion of the water fill spout when the iron is in a horizontal position, and the water tank further comprising an air trap that holds a volume of air when the iron is in a vertical position and being filled with water, wherein the air trap receives water when the iron is moved to a horizontal position to prevent water from spilling out the fill spout.

5,799,421 PRESSING IRON AND PROCESS FOR ASSEMBLING SUCH AN IRON

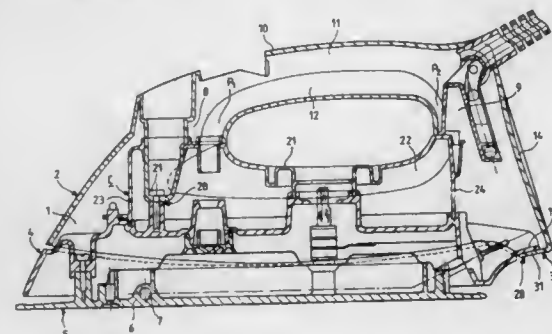
Jean-Paul Bouleau, Champfleuf, France, assignor to Moulinex S.A., Paris, France

Filed Apr. 11, 1997, Ser. No. 833,973

Int. Cl.⁶ D06F 75/30

U.S. Cl. 38—88

8 Claims



1. In a pressing iron comprising a housing of plastic material formed of a hollow body (2) having a base (3) whose upper portion has an opening closed by a first cover of plastic material and whose outlet is closed by a pressing block comprising an upper portion (4) and a lower portion (5) comprising at least one pressing sole (6) provided with heating means (7) and surmounted in respective front and rear portions with two hollow projections (8 and 9) connected at their upper portion by a cross member (10) forming a handle and constituted by a trough (11) closed by a second cover (12), said rear projection (9) having a wide opening closed by a third cover (14) forming a heel; the improvement wherein the

hollow body (2) and the third cover (14) are formed by a shell (1) molded in one piece and having a transverse cross section of generally inverted V shape, the trough (11) of the handle (10) and the internal surfaces (8' and 9') of the projections (8 and 9) opening inwardly; the upper portion (4) of the pressing block having an upper surface which carries the first cover which supports, in front and rear regions, cover portions (P1 and P2) for each of the internal surfaces (8' and 9') of the two projections (8 and 9), and said internal surfaces being attached to the second cover (12).

5,799,422 STEAM IRON SOLE-PLATE WITH DEPRESSIONS AND RECESS

Ulrich Demuth, Erbach; Norbert Voss, Offenbach, and Harald Walther, Würzburg, all of Germany, assignors to Rowenta-Werke GmbH, Offenbach, Germany

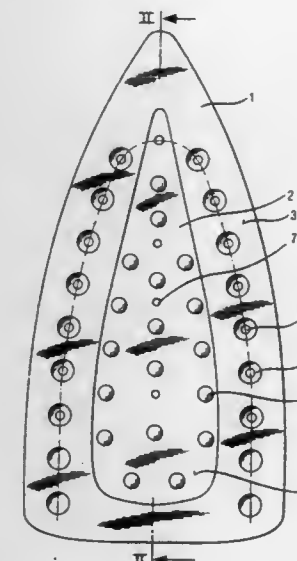
Filed Aug. 22, 1997, Ser. No. 920,271

Claims priority, application Germany, Aug. 29, 1996, 196 34 870.6

Int. Cl.⁶ D06F 75/38

U.S. Cl. 38—93

4 Claims



1. A steam iron, comprising an electrically heated sole-plate, which has an ironing surface with ball-like depressions and a plurality of steam holes arranged in the ball-like depressions, an open recess being formed in the ironing surface of the sole-plate so that the recess is surrounded by the ironing surface, the recess having a bottom, a further plurality of steam holes being arranged in the bottom of the recess.

5,799,423 MAGNETIC CALENDAR

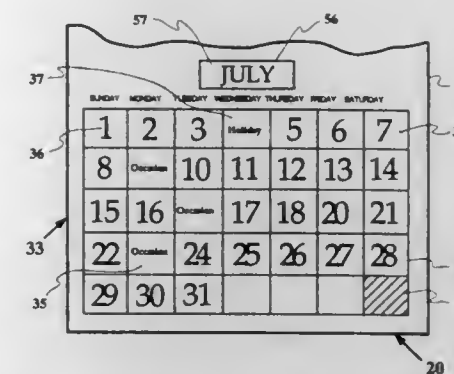
Mary Slicer Malino, 48 W. Ridgeway Dr., Centerville, Ohio 45459, assignor to Mary Slicer Malino, Centerville, Ohio
Continuation of Ser. No. 332,098, Oct. 31, 1994, abandoned.
This application Jul. 2, 1996, Ser. No. 674,657

Int. Cl.⁶ G09D 3/00

U.S. Cl. 40—107

7 Claims

1. A perpetual magnetic calendar to be used adjacent to a metal surface, comprising:
(a) a slender non-ferromagnetic body portion of said magnetic calendar having a front surface and a back surface and being formed from a single sheet of color copied paper which is laminated with a transparent lamina, and said front surface of said slender non-ferromagnetic body portion having an upper bordered portion including a pictorial and a lower portion



which is subdivided by vertical and horizontal printed lines into a plurality of segments forming a printed grid-like section,

(b) a plurality of strip magnetic pieces each having an indicia feature affixed thereto, where said indicia feature is at least one selected from a group consisting of:

- i) a day of the month,
- ii) an occasion, and
- iii) a holiday, said plurality of magnetic pieces each constructed from a strip magnet upon which a laminated paper sheet segment is adhered, and said plurality of magnetic pieces are adapted for attachment to said front surface, each of said plurality of strip magnetic pieces producing a magnetic field and are placed adjacent to, and cover, several of said plurality of segments of said printed grid-like section, said magnetic field of said plurality of strip magnetic pieces causing a magnetic attractive force through said slender non-ferromagnetic body portion so as to adhere said plurality of strip magnetic pieces to said front surface and wherein said magnetic calendar is perpetual in that said plurality of strip magnetic pieces may be arranged in such a way that said magnetic calendar can be used for multiple months and years.

5,799,424 ITEM HAVING THREE-DIMENSIONAL DISPLAY

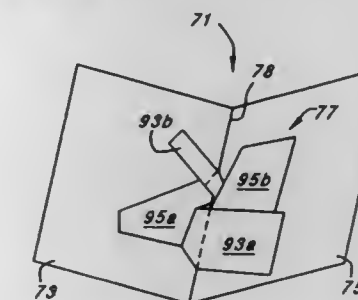
Carolyn K. Volkert, Northfield, Ill., and Andrew M. Volkert, Cardiff by the Sea, Calif., assignors to Volkert, Inc., Northfield, Ill.

Division of Ser. No. 440,717, May 15, 1995, Pat. No. 5,626,232. This application Feb. 10, 1997, Ser. No. 796,455

Int. Cl.⁶ G09F 1/10

U.S. Cl. 40—124.08

20 Claims



1. A sheet material item which comprises front and rear cover panels which are interconnected so as to be hinged together along a straight hinge line, a flat intermediate sheet material structure disposed between said cover panels when said cover panels are superimposed in closed condition and affixed thereto so as to form a three-dimensional structure when said cover panels are opened by pivoting along said straight hinge line, said intermediate structure having a pair of complementary halves which are interconnected to each other by spaced-apart

connecting means and which are respectively affixed to an interior surface of one of said cover panels, said intermediate structure having a plurality of leaf structures which are formed as a part of said complementary halves and which upon opening of said cover panels arise in three-dimensional orientation by sliding in interengagement with each other.

5,799,425

CLOTHING TAG

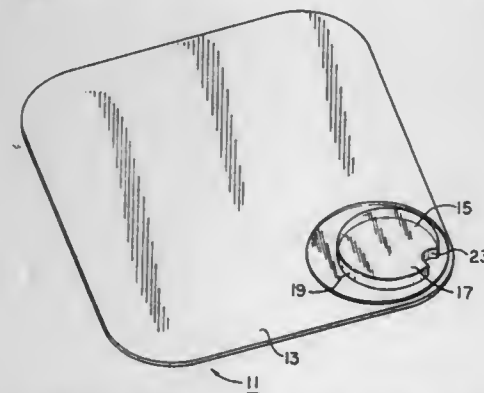
F. Gerard Merser, Round Pond, Me., and Richard J. Madigan, Jr., Mansfield, Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Feb. 21, 1995, Ser. No. 391,681

Int. Cl.⁶ G09F 3/08

U.S. Cl. 40—299

8 Claims



1. A clothing tag for use with a plastic fastener, the plastic fastener comprising a filament member having a cross-bar at one end and adapted to be dispensed through a fastener gun, the clothing tag comprising:

- a. a backing sheet, and
- b. a continuous sheet of plastic material heat sealed to said backing sheet and shaped to define along with said backing sheet a pocket into which said cross-bar may be inserted, said continuous sheet of plastic material including a sidewall and a first guide notch to assist in positioning said fastener gun in place for dispensing said fastener into said pocket said first guide notch being in said sidewall.

5,799,426

UNIFORM THICKNESS ADHESIVE CLOSURE IDENTIFICATION BRACELET FORMED FROM RELATIVELY PERMANENTLY BONDED LAMINATES, AND RELATED METHOD OF IDENTIFICATION

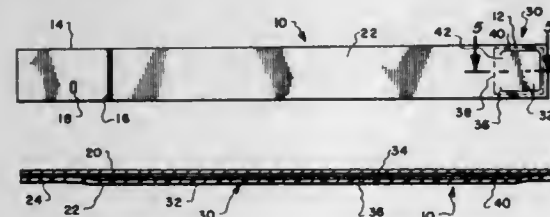
Dean D. Peterson, Canoga Park, Calif., assignor to Precision Dynamics Corporation, San Fernando, Calif.

Filed Jan. 28, 1994, Ser. No. 187,838

Int. Cl.⁶ A44C 5/00

U.S. Cl. 40—633

18 Claims



1. An identification bracelet having a body portion formed from a plurality of coextensive laminates that are relatively permanently bonded to each other over a majority of said body portion, said

body portion having a first end and a second end; said bracelet having a substantially uniform thickness along the length thereof and including identifying indicia on at least one of said laminates; said bracelet further having adhesive closure means for attaching said first end to said second end in an operative relationship with a person or an object to be identified; said adhesive closure means including moveable cover means integrally formed from, and constituting a portion of, one or more of said laminates; said adhesive closure means further including adhesive means between said laminates confronting said cover means prior to movement of said cover means and exposable by movement of said cover means.

5,799,427

OVERLAPPING MERCHANDISE INFORMATION DISPLAY MODULE

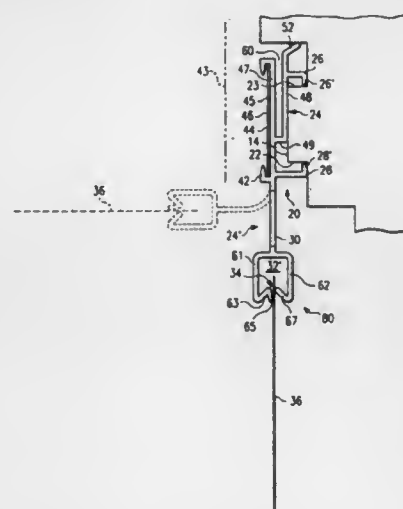
Patrick B. Abramson, Brampton, Canada, and Peter B. Stewart, Dallas, Tex., assignors to Vidpro International, Inc., Dallas, Tex.

Filed Feb. 15, 1996, Ser. No. 599,561

Int. Cl.⁶ G09F 3/18

U.S. Cl. 40—642.02

5 Claims



1. A merchandise display system for displaying a plurality of overlapping display items, comprising:

- a base;
- a plurality of steps connected to the base;
- a plurality of hanger support ledges running along a top surface of each of the steps;
- means for supporting lower edges of the plurality of overlapping display items; and
- a plurality of display card hangers, each comprising:
 - a first portion of relatively rigid material having means therein for mounting the display card hanger to the hanger support ledges;
 - a second portion comprising a flexible web; and
 - attaching means connected to a lower edge of the flexible web for attaching a display item thereto in a depending relationship therefrom so that one side of the display item is visible to a customer, the attaching means further including means for preventing the display item from being pulled out therefrom in a predetermined direction, and wherein the means for preventing the attaching means includes first and second sides, each having an upwardly and inwardly directed edge, the upwardly and inwardly directed edge of the first side further including an outwardly extending alignment lip to maintain the display item in a predetermined orientation.

5,799,428

SIGN DISPLAY ATTACHMENT

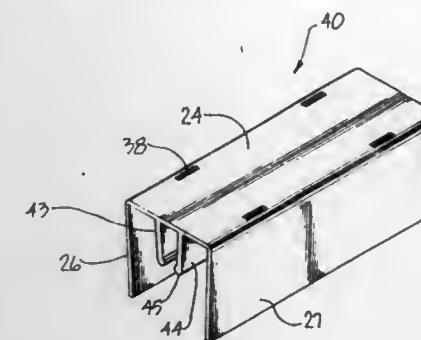
Gary S. Poindexter, Kansas City, Mo., assignor to Kansas City Poster Display Company, Kansas City, Mo.

Filed May 1, 1996, Ser. No. 640,673

Int. Cl.⁶ G09F 3/20

U.S. Cl. 40—658

1 Claim



1. A signage display device comprising an elongate bracket formed of a top web and spaced outer legs to form a U-shaped arrangement to straddle a display bar member, the bracket having spring means formed of opposing inner legs depending from said top web and inwardly biased to resiliently grip a display bar member and removably affix said bracket thereto, said bracket having slots through said web adjacent said outer legs to receive sign clips for attaching a secondary sign to said display bar member so as to conceal said bracket.

5,799,429

CORNER FRAMES FOR PROTECTING AND ENHANCING FOAMBOARD AND OTHER SIMILAR MATERIALS

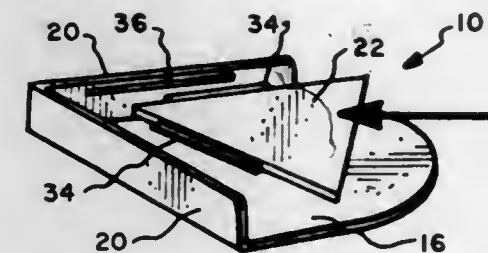
Michael F. Speshyock, 487 Vereda Del Ceirvo, Goleta, Calif. 93117

Continuation-in-part of Ser. No. 490,097, Jun. 9, 1995, abandoned. This application Oct. 28, 1996, Ser. No. 738,812

Int. Cl.⁶ A47F 7/14

U.S. Cl. 40—778

21 Claims



1. A corner frame for use with planar materials of a given thickness which have front and back sides and corners to protect the corners of said planar materials and to enhance the appearance of a decorative material on said planar material and provide a decorative finished look for said planar materials comprising:

- a base having two adjoining edges to form a corner and to coincide with the corners of said and adapted to engage the back side of said materials,
- a pair of sidewalls each having four side edges, with one sidewall of said pair connected to the adjoining edges of said base and a second side edge connected to one another, and two other edges of said sidewalls spaced from the sidewalls which are connected to the adjoining edges of said base thus

defining the width of each said sidewall so as to coincide with the thickness of said planar materials to be used with said corner frame,

a top having two edges engaging said sidewalls and adapted to engage the front side of said planar materials and wherein said top is separate from said base and sidewalls and having means for slidelocking said top with said sidewalls so that a corner of said planar materials is receivable between said top and said base.

5,799,430

UNIFIED APPARATUS FOR FORMING A FRAME CORNER

Greg Fremstad, 5120 Franklin Blvd. #5, Eugene, Oreg. 97403

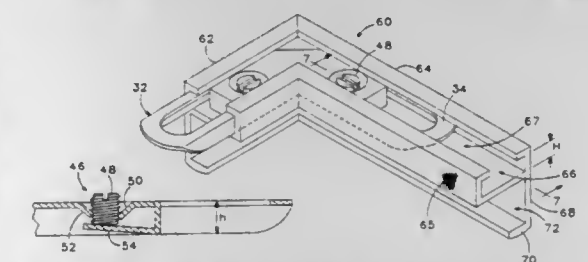
Continuation of Ser. No. 300,382, Sep. 2, 1994, abandoned.

This application Oct. 2, 1996, Ser. No. 724,225

Int. Cl.⁶ G09F 1/12

U.S. Cl. 40—785

11 Claims



8. An apparatus for joining two frame members of a type having channels formed therein at a predetermined angle to form a frame corner, said apparatus comprising:

- a first leg receivable in such a frame member channel;
- a second leg receivable in such a frame member channel; and
- means for disposing the first and second legs at the predetermined angle relative to each other, said legs having longitudinal axes which intersect at the predetermined angle and each including:
 - a tab portion of the first leg connected to the first leg by a fold line, said fold line being transverse to the longitudinal axis of the first leg;
 - a tab portion of the second leg connected to the second leg by a fold line, said fold line being transverse to the longitudinal axis of the second leg;
 - means for expanding the tab portion thereof to be frictionally engageable with an associated frame member channel when the leg is received therein; and
 - a strip of the leg forming a tab, the tab being bent back over the leg such that the tab is spaced apart from the leg and extends at a slightly inclined angle relative to the longitudinal axis of the leg.

5,799,431

PICTURE/POSTER FRAME ASSEMBLY AND RETAINER FOR HOLDING COMPONENTS IN THE FRAME OF THE ASSEMBLY

Daniel E. Vilims, Downers Grove, Ill., assignor to Terry Rozdolsky, Elk Grove Village, Ill.

Continuation of Ser. No. 174,876, Dec. 28, 1993, abandoned.

This application Mar. 29, 1996, Ser. No. 622,895

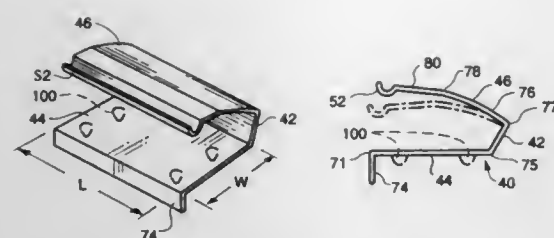
Int. Cl.⁶ A47G 1/06

U.S. Cl. 40—792

12 Claims

12. A frame assembly for receiving an object to be displayed comprising:

- a frame which has a front side and a back side, which is adapted to extend around the object to be displayed, and which includes an outer side wall, a turned in front flange connected to said outer side wall, and a turned in back flange connected

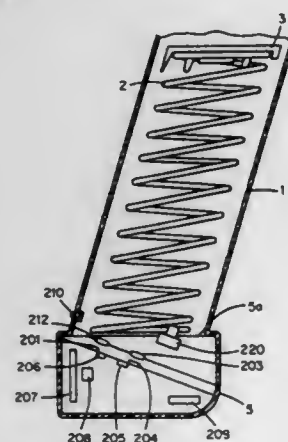


to said outer side wall opposite said front flange and having an inner edge facing said front flange;
a backing material located within said frame behind the object adapted to be displayed in said frame at said back side of said frame; and a retainer clip which is adapted to be positioned between said backing material and said inner edge of said back flange of said frame comprising:
a resilient body including:
a first portion having means for engaging said inner edge of said back flange; and
a second portion that faces said backing material for engaging said backing material;
said second portion of said body for engaging said backing material including at least one pointed prong that extends outwardly from said second portion of said body to engage said backing material.

5,799,432
SELF-CONTAINED MAGAZINE AND WEAPON SYSTEM
INCORPORATING SAME

Barry M. Wright, Sr., Box 202, W. River Rd. N., Fulton, N.Y. 13069; Barry M. Wright, Jr., 995 66th Rd., Hannibal, N.Y. 13074, and Mitchell S. Burko, Syracuse, N.Y., assignors to Barry M. Wright, Sr., and Barry M. Wright, Jr., both of N.Y.
Filed Feb. 12, 1997, Ser. No. 798,806
Int. Cl.⁶ F41A 9/62

U.S. Cl. 42—1.02



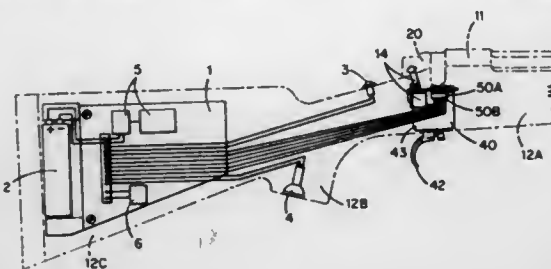
1. A self-contained magazine for a firearm, comprising:
a housing for receiving a plurality of rounds therein, said housing including an open end through which rounds are loaded and unloaded;
a follower provided in said housing, said follower being slidable along a longitudinal axial direction of the magazine;
a spring biasing the follower toward said open end, to bias rounds toward said open end;
an electronic counter means integrated in the magazine for calculating the number of rounds contained in the magazine upon loading rounds into and unloading rounds from the magazine, said electronic counter means including a back-up power source; and
display means for displaying the number of rounds in the magazine.

5,799,433
ROUND SENSING MECHANISM
Dale R. Danner, Glendale, and David S. Wolterman, Elizabethtown, both of Ky., assignors to Remington Arms Company, Inc., Madison, N.C.

Continuation-in-part of Ser. No. 680,490, Jul. 15, 1996. This application Oct. 24, 1996, Ser. No. 736,188
Int. Cl.⁶ F41A 9/53

U.S. Cl. 42—1.05

13 Claims

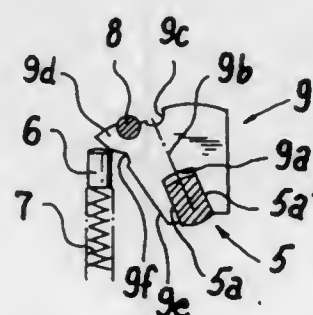


1. In a firearm comprising a barrel attached to a receiver, a chamber formed in the barrel adjacent to the receiver, the receiver being adapted to receive at least one round of ammunition, means for conveying the ammunition from the receiver into the chamber, a trigger assembly and a firing mechanism, the improvement comprising a mechanism for determining the presence of a round of ammunition within the firearm, the mechanism comprising at least one pair of electrodes positioned to contact electrically conductive portions of a round of ammunition within the firearm; means for supplying a predetermined current to at least one of the electrodes; means for measuring the resistance between the electrodes, and means for comparing the measured resistance with at least one reference.

5,799,434
FIREARM WITH INTERCHANGEABLE MODE CAM
Hubert Krieger, Schramberg-Waldmössingen, and Norbert Fluhr, Oberndorf, both of Germany, assignors to Heckler and Koch, Oberndorf am Neckar, Germany
Continuation of Ser. No. 595,909, Feb. 6, 1993, abandoned, which is a continuation of Ser. No. 199,183, Jul. 6, 1994, Pat. No. 5,635,663. This application Sep. 10, 1997, Ser. No. 926,630
Claims priority, application Germany, Jun. 25, 1992, 42 20 922.6

Int. Cl.⁶ F41A 19/15; 19/46
U.S. Cl. 42—69.03

20 Claims



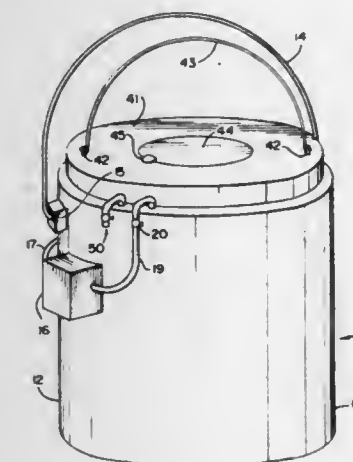
6. A kit for changing the mode of operation of a firearm having a rotatable shaft, a hammer mounted on the shaft, a grip, a removable slide, and a pin disposed in the grip and movable in a mode-selection procedure when the removable slide is removed from the grip, whereby rotation of the shaft rotates the hammer, the kit comprising:
a plurality of mode cams, each mode cam being adapted to be disposed in the grip below the pin, each mode cam including:
an engagement slot for engaging the shaft to removably mount the respective mode cam onto the shaft; and

a cam surface for contacting the pin, wherein the contact between the cam surface and the pin provides a selectable choice of at least two operational modes of the firearm, with the contact between the cam surface and the pin determining the rotation of the respective mode cam to control the rotation of the shaft and thereby the hammer corresponding to a selected choice of the at least two operational modes; and
wherein each of the plurality of mode cams is adapted to replace any other mode cam.

5,799,435
LIVE BAIT BUCKET
H. Wayne Stafford, 558 Highway 468, Brandon, Miss. 39042
Filed Sep. 8, 1997, Ser. No. 925,936
Int. Cl.⁶ A01K 97/05

U.S. Cl. 43—57

13 Claims

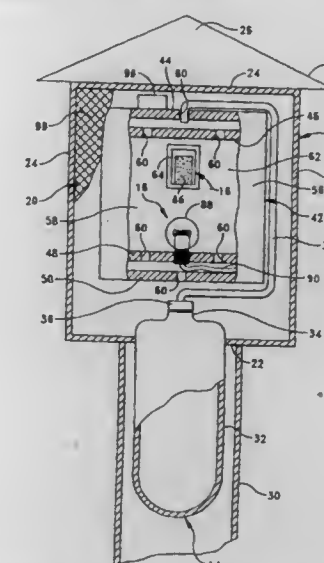


1. A live bait bucket, comprising:
(a) an outer bucket having an inside, an outside, and a bottom;
(b) an inner bucket residing within the outer bucket, having a side, and a bottom, the space between the inner bucket side and the outer bucket inside forming an annular oxygen chamber, and further having water outlet, and a water inlet passage in the bottom of the inner bucket;
(c) a removable bait container located within the inner bucket, having a side, a bottom and a lid, the removable bait container side and bottom being provided with a plurality of water passages therein, and a water diverter flange being attached to the bottom of the removable bait container;
(d) a pump mounted on the outside of the outer bucket;
(e) water cascade baffles mounted on the inside of the outer bucket;
(f) suction piping routed from the water outlet in the inner bucket to the outside of the bait bucket, and connected to the pump, and return piping connected to the pump and routed into the annular oxygen chamber, a U-tube seal being formed in the return piping, the U-tube seal having a bottom and an outlet, with the bottom of the U-tube seal located near the bottom of the inner bucket, and the outlet of the U-tube seal being located above the water cascade baffles.

5,799,436
APPARATUS FOR ATTRACTING AND DESTROYING INSECTS
James A. Nolen, West Greenwich, R.I., and William Mallow, Helotes, Tex., assignors to Biosensory Insect Control Corporation, Groton, Conn.
Filed Apr. 17, 1996, Ser. No. 633,887
Int. Cl.⁶ A01M 1/22

U.S. Cl. 43—112

2 Claims



1. An apparatus for attracting and destroying insects comprising:
a housing;
a canister secured to the housing and containing carbon dioxide; means for discharging the carbon dioxide from the canister and into the housing;
a source of octenol, separate from the canister containing carbon dioxide, provided in the housing;
means for introducing and forming a mixture of the octenol and the carbon dioxide within the housing, said mixture of octenol and carbon dioxide being released from the housing to attract insects, said introducing and mixture forming means comprising a wax medium containing octenol, said medium having a porous exterior for allowing gaseous octenol to escape and mix with discharged carbon dioxide in the housing;
a heat source for further attracting insects; and
an electric grid secured to and substantially surrounding said housing, for destroying insects upon their contacting the grid.

5,799,437
CUT PLANT WATERING APPARATUS
Gary Evans, 909 Pike Ave., Attleboro, Mass. 02703, and John O'Hearn, 85 Burlington Ave., Wilmington, Mass. 01887
Filed Jul. 18, 1996, Ser. No. 683,234
Int. Cl.⁶ A47G 7/02

U.S. Cl. 47—40.5

13 Claims

1. A cut plant watering apparatus comprising:
a conduit having a fill end and a discharge end for carrying water from a remote location to a container for receiving the cut end of a plant for submersion within the water;
a funnel having a first open end and a second open end, said first open end being wider than said second open end, said second open end terminating in an open neck portion for sealable engagement with said fill end of said conduit;
a fastener for retaining said discharge end so that water discharging from said discharge end is directed into the container;
an electrical indicator circuit having an electrical power source electrically connected to a fill level detector responsive to the water's reaching a predetermined level in the container during filling and a fill level indicator electrically connected to said

5,799,444

SLIDING VEHICLE WINDOW

Corey A. Frelmark, 3144 Wallace Ave. SW., Grandville, Mich. 49418, and Daniel J. Fisher, 6051 Butternut, Holland, Mich. 49424

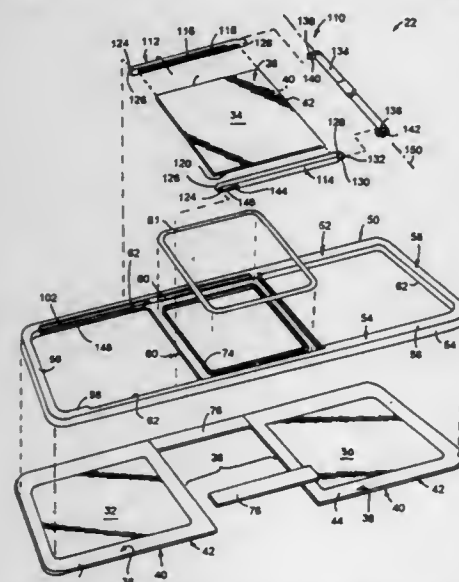
Continuation of Ser. No. 498,587, Jul. 6, 1995, abandoned.

This application Feb. 26, 1997, Ser. No. 806,648

Int. Cl.⁶ E05D 15/06

U.S. Cl. 49—413

49 Claims



1. A sliding vehicle window assembly, comprising in combination:

a pair of window panels spaced from each other and defining an opening therebetween;

upper and lower frame members bonded to one side of said pair of window panels to interconnect said pair of window panels in spaced relationship, said upper and lower frame members oriented substantially parallel to each other and spaced opposite from each other, each frame member having an inwardly facing wall containing a pair of channels oriented generally along a common longitudinal axis;

a sliding window panel assembly having opposite edges, each opposite edge configured to slide along said pair of channels;

a seal extending from one of said sliding window panel assembly, said frame members, and pair of window panels; and
a latching mechanism interconnecting said opposite edges of said sliding window panel assembly, said latching mechanism having a cam defined on at least one end of said latching mechanism and configured to slide within one of said pair of channels, said cam forcing said sliding window panel assembly in and out of sealing engagement with said seal, and a handle interconnecting opposite edges of said sliding window panel assembly and rotating said cam within a terminal end of said channel.

5,799,445

ROOF GUTTER OVERFLOW PROTECTION METHOD AND APPARATUS

Ronald W. Kock, 577 Abilene Trail, Wyoming, Ohio 45215
Filed May 19, 1997, Ser. No. 858,676

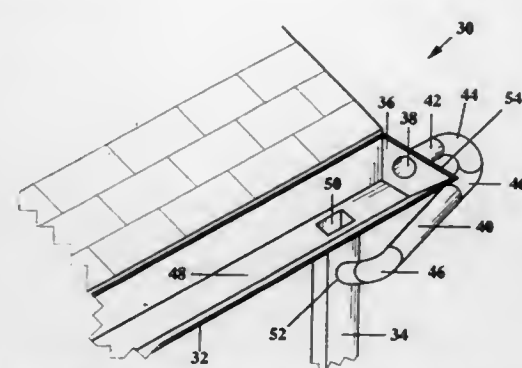
Int. Cl.⁶ E04D 13/08

U.S. Cl. 52—16

12 Claims

1. A method for providing rainwater overflow protection for a roof gutter, said method comprising the steps of:

a) removing rainwater from said gutter via a conduit connected to said gutter at a substantially vertical wall of said gutter, said substantially vertical wall having an opening therein providing fluid communication between said gutter and said conduit; and



b) directing said rainwater from said opening in said gutter through said conduit such that a substantially horizontal rainwater flow direction is gradually converted to a downward flow direction within said conduit.

5,799,446

SOFFIT CONSTRUCTION FOR IMPROVED EAVE CONSTRUCTION

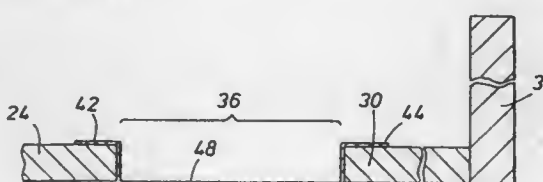
John Thomas Tamlyn, 10406 Cash Rd., Stafford, Tex. 77477-4492

Filed May 7, 1997, Ser. No. 852,632

Int. Cl.⁶ E04B 7/00

U.S. Cl. 52—94

24 Claims



1. A soffit assembly under an eave of a roof overhang on a building comprising:

(a) an elongate inside soffit board formed of two or more boards serially affixed along an outside wall of the building;

(b) an outside soffit board parallel to the inside soffit board and comprised of two or more boards parallel to and spaced from the inside board;

(c) wherein said inside and outside soffit boards define a gap therebetween having a specified length corresponding to the length of the outside wall; and

(d) a vent strip extending the full length of said inside and outside soffit boards wherein said vent strip

(i) has board engaging means along parallel edges of said vent strip enabling engagement with said inside and outside soffit boards,

(ii) enables air circulation therethrough into a space above said vent strip, and

(iii) is temporarily bowed for engagement with said inside and outside soffit boards.

5,799,447

APPARATUS FOR MOVING A WALL FORM ASSEMBLY

Kou-An Lee, No. 851, Chung-Shan Rd., Nan-Shing Tsun, Kui-Jen Hsiang, Tainan Hsien, Taiwan

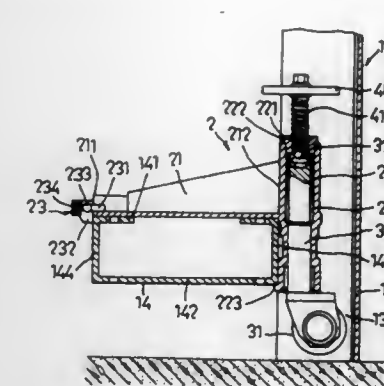
Filed Jul. 11, 1997, Ser. No. 890,777

Int. Cl.⁶ E04G 11/20

U.S. Cl. 52—127.1

2 Claims

1. An apparatus for moving a wall form assembly on a floor of a concrete structure, the wall form assembly including a plurality of vertical channel pieces coupled detachably side by side to one another, each of the channel pieces including two opposing vertical webs and an intermediate form wall which interconnects the vertical webs, the wall form assembly further including a plurality of



horizontal reinforcement members, each of the reinforcement members having opposite top and bottom sides, a mounting side which is mounted detachably on the vertical webs opposite to the form walls, and a free side opposite to the mounting side, said apparatus comprising:

an upright tubular seat adapted to be disposed between the vertical webs of one of the channel pieces and between the mounting side of one of the reinforcement members and the form wall of said one of the channel pieces, said tubular seat having upper and lower portions and confining an axial hole through said upper and lower portions, said upper portion having an internally threaded top section, said lower portion being provided with a radial support projection which is adapted to support the bottom side of said one of the reinforcement members adjacent to the mounting side thereof;

a horizontal beam having a front end and a rear end mounted on said upper portion of said tubular seat, said horizontal beam being adapted to straddle across the top side of said one of the reinforcement members in a direction from the mounting side to the free side, said horizontal beam and said support projection being adapted to clamp cooperatively said one of the reinforcement members at the mounting side thereof;

a hook member mounted on said front end of said horizontal beam and adapted to press against the top side and the free side of said one of the reinforcement members;

a rotary shaft disposed rotatably in said axial hole of said tubular seat, said shaft having an upper end and a lower end that extends out of said tubular seat and that has a roller mounted thereon, said roller being adapted to be in rolling contact with the floor of the concrete structure; and

an operating member including a threaded shank which has a lower section that extends threadedly into said axial hole of said tubular seat via said internally threaded top section of said upper portion and that is coupled to said upper end of said shaft;

whereby, said tubular seat is movable upward or downward relative to said shaft upon rotation of said threaded shank so as to permit raising or lowering of the wall form assembly relative to the floor of the concrete structure to facilitate adjustment of a position of the wall form assembly on the floor.

5,799,448

ADJUSTABLE CLOSED-RISER METAL STAIRCASE SYSTEM

Robert Dunk, Brentwood, Tenn., assignor to Harsco Corporation, Camp Hill, Pa.

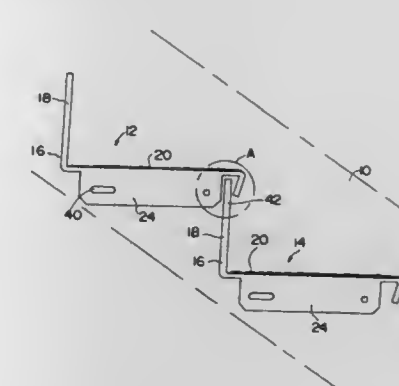
Filed Sep. 13, 1996, Ser. No. 713,371

Int. Cl.⁶ E04F 11/09

U.S. Cl. 52—188

5 Claims

1. A closed riser metal staircase installed to match a predetermined rise height distance said rise height distance having a range between a predetermined minimum rise height distance and a predetermined maximum rise height distance said range of distances defining a predetermined rise height adjustment distance substantially equal to one inch, said staircase comprising:



at least one upper stair tread member having a coated slip-resistant walking surface and being bent from a single piece of metallic material to form a slanted nose piece extending downwardly from a front edge of the walking surface and having first and a second attachment brackets extending downwardly from a left and a right side of said walking surface, said first and second brackets having an elongated opening and an aperture for receiving an attachment means for fixing said upper stair tread to a frame, said bracket allowing for horizontal adjustment of said stair tread on said frame and,

at least one lower stair tread member having a coated slip-resistant walking surface and being bent from a single piece of metallic material to form a riser portion extending upwardly along a rear edge of said walking surface and having a first and a second attachment bracket extending downwardly from a left and a right side of said walking surface, said brackets having an elongated opening and an aperture for receiving an attachment means for fixing said lower stair tread to a frame, said elongated opening allowing for horizontal adjustment of said stair tread on said frame;

said at least one upper and at least one lower stair tread members being arranged so that said upwardly extending riser is fitted underneath and is adjustable vertically, without affecting the horizontal orientation between the nose piece of the upper stair tread and the walking surface of the lower stair tread, relative to said downwardly extending nose piece so that said at least one upper and lower stair tread members form a lower stair and an upper stair;

wherein said nose piece extends from said at least one upper stair tread member a distance which exceeds said predetermined rise height adjustment distance and said riser portion extends upwardly from said at least one lower stair tread member a distance which exceeds the predetermined maximum rise height distance less the distance said nose piece extends from said upper stair tread member, and wherein said riser portion of said lower stair tread member extends upwardly from said walking surface of said lower stair tread a height no greater than said predetermined minimum rise height distance.

5,799,449

SNAP-FIT SLIDING WINDOW ASSEMBLY

David P. Lyons, Troy, and Jeff R. Wittbrodt, Pinckney, both of Mich., assignors to Excel Industries, Inc., Elkhart, Ind.

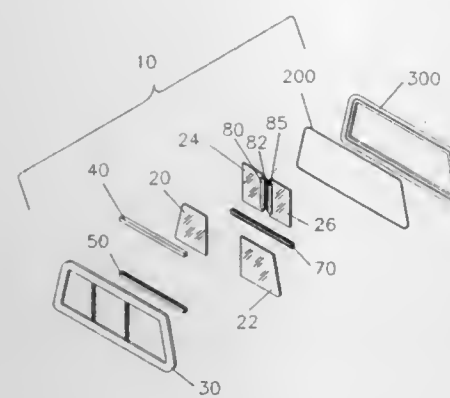
Filed Sep. 26, 1996, Ser. No. 721,126

Int. Cl.⁶ E06B 3/32

U.S. Cl. 52—204.51

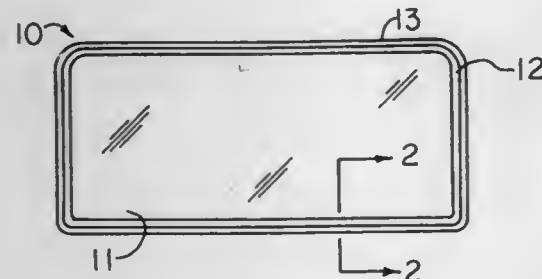
24 Claims

1. A modular window assembly comprising, in combination: a frame subassembly defining at least a primary aperture and comprising at least one fixed pane having a perimeter, a pair of substantially parallel, spaced, elongate appliques, and



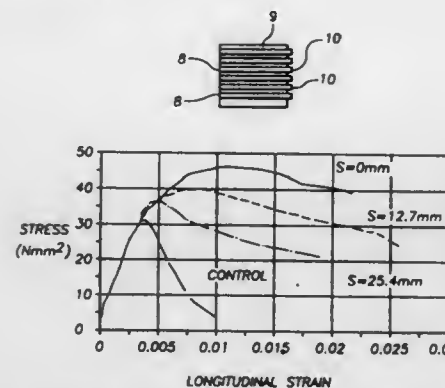
a circumferentially extending molded plastic cover integrating the appliques and the fixed pane at least in part by surface bonding; and
a sliding pane subassembly comprising
a sliding pane having a peripheral edge, and
a generally horizontal run channel member forming a generally U-shaped run channel slidably receiving the sliding pane;
wherein the sliding pane subassembly has a snap-fit with the frame subassembly and the sliding pane is slidable from a closed position to an open position in which at least a portion of the primary aperture is open.

5,799,450
VEHICLE WINDOW AND A PROCESS FOR THE PREPARATION THEREOF
Terence P. Sammon, Walled Lake; Henry W. Griffin, Bloomfield Hills, and Andrew R. Kneisel, Clarkston, all of Mich., assignors to Essex Specialty Products, Clifton, N.J.
Filed Jun. 9, 1997, Ser. No. 871,058
Int. Cl.⁶ E06B 3/00; 7/00
U.S. Cl. 52—208 18 Claims



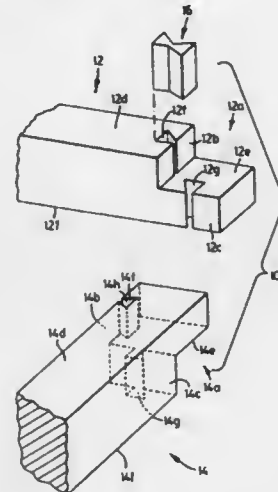
1. A prefabricated vehicle window comprising
(a) a vehicle window;
(b) a substantially uncured, deformable bead of a moisture-curable adhesive material deposited along a periphery of the vehicle window; and
(c) a peelable, moisture-impermeable coating covering the bead of moisture-curable adhesive material.

5,799,451
REPAIR AND REINFORCEMENT OF LOAD BEARING MEMBERS
Kypros Pilakoutas, Sheffield, United Kingdom, assignor to The University of Sheffield, United Kingdom
PCT No. PCT/EP94/01222, § 371 Date Dec. 14, 1995, § 102(e) Date Dec. 14, 1995, PCT Pub. No. WO94/24391, PCT Pub. Date Oct. 27, 1994
PCT Filed Apr. 15, 1994, Ser. No. 535,041
Claims priority, application United Kingdom, Apr. 17, 1993, 9307979.6
Int. Cl.⁶ E04C 3/34 29 Claims
U.S. Cl. 52—223.4



1. A structural member having an elongate strip positioned therearound, the strip having applied thereto a tension sufficient to put the material of the structural member into lateral compression such that an increase in the internal compressive stresses in the structural member causes yielding of the strip before compressive, bending, or shear failure of the structural member.

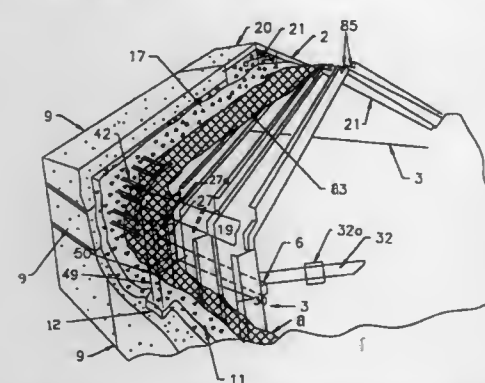
5,799,452
LOG CONSTRUCTION
Kenneth G. Moore, RR#6 Lindsay, Ontario, Canada, K9V 4R6
Filed Jun. 11, 1997, Ser. No. 872,966
Int. Cl.⁶ E04B 1/10 17 Claims
U.S. Cl. 52—233



1. A log construction comprising:
a pair of logs, each having an end region with a surface portion thereon, wherein the surface portions are arranged to engage one another at a boundary therebetween, said boundary having a length,
at least one barrier extending across said boundary and along the length thereof to couple said end regions together, said barrier having a pair of projections.

each of said logs further comprising a passage open to and adjacent said boundary for receiving a corresponding one of said projections,
each of said projections having a pair of outer surfaces and said passage having a pair of inner surfaces, said outer and inner surfaces being further arranged to generate residual compressive forces toward said boundary as a result of shrinkage between said barrier and said end regions.

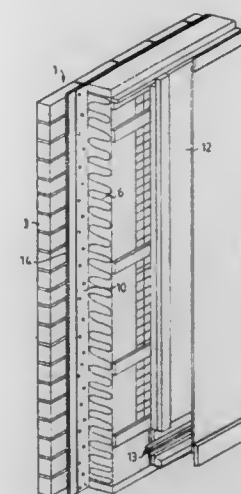
5,799,453
STRUCTURE AND METHOD OF FABRICATION
Robert E. Westerlund, 125 Elizabeths Ct., Antioch, Tenn. 37013-1762
Filed Jul. 12, 1996, Ser. No. 678,914
Int. Cl.⁶ E04B 1/00 27 Claims
U.S. Cl. 52—259



1. The method of constructing a residential building including at least one exterior sidewall constructed in the following steps comprising, forming an inner wall frame consisting of a plurality of vertical spaced studs having an interior side and exterior side, securing an open mesh structure to the exterior side of said studs, securing an outer thermal insulating wall of plastic insulating panels to said studs in outwardly spaced relation to said open mesh structure, said outer thermal insulating wall creating a high thermal insulating "R" factor within said exterior sidewall, said mesh and said plastic insulating panels defining a concrete receiving space, and depositing wet concrete into said space to fill said space and said wet concrete flowing into said mesh and into firm abutting engagement with said outer thermal insulating wall to form a self-supporting concrete exterior sidewall, said plastic insulating panels of said insulating wall being of sufficient strength to support the wet concrete.

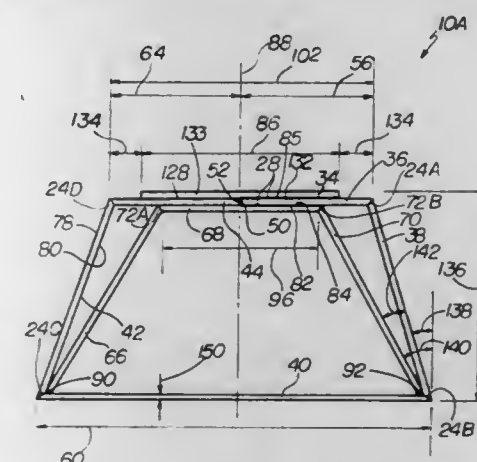
5,799,454
HEAT INSULATING OUTER WALL FOR A BUILDING
Kurt Allan Andersson, Oxe, and Tage Carlsson, Kristianstad, both of Sweden, assignors to Skanska Teknik AB, Malmö, Sweden
PCT No. PCT/SE94/00640, § 371 Date Jan. 30, 1997, § 102(e) Date Jan. 30, 1997, PCT Pub. No. WO96/00823, PCT Pub. Date Jan. 11, 1996
PCT Filed Jun. 28, 1994, Ser. No. 765,305
Int. Cl.⁶ E04B 1/70 15 Claims
U.S. Cl. 52—302.3

1. A heat insulating outer wall (1) for a building, in which the wall comprises an outer cladding layer (3), an outer air gap (5), which is in communication with outside air through at least one inlet opening (4) in the outer cladding layer (3), an insulating layer (6) made of a material which is air-permeable and which filters particles out of the passing outside air, (5), an inner air gap (7), and an inner cladding layer (8), with at least one outlet opening (11) at its top for forming a connection between the inner air gap (7) and an interior (9) of the building, wherein the inner air gap (7)



comprises a partitioning wall (12), which divides the inner air gap (7) into a first part (7a), which is positioned nearest to the insulating layer (6) and is closed at its top, and a second part (7b), which is placed nearest the inner cladding layer (8) and at its base is in communication with a base of the first part (7a), a top of said second part (7b) being equipped with the outlet opening (11), wherein the second part (7b) of the inner air gap (7) is equipped at its base with a heating means (13).

5,799,455
COLLAPSIBLE CORRUGATED PAPER FORM VOID
Robert C. Gates, Lakewood, and Michael L. Turner, Englewood, both of Colo., assignors to Surevoid Products, Inc., Englewood, Colo.
Filed Oct. 9, 1996, Ser. No. 723,477
Int. Cl.⁶ E04B 5/00 22 Claims
U.S. Cl. 52—323



1. A collapsible void form for establishing a space in or adjacent to a concrete structure, comprising a substantially hollow structure having top, bottom, sides and interior support panels formed from sheets of planar corrugated paper material, said hollow structure comprising:
a first sheet comprising,
a first panel forming a portion of the top;
a second panel joined to said first panel and comprising a first side portion;
a third panel joined to said second panel and comprising a base portion;
a fourth panel joined to said third panel and comprising a second side portion;
a fifth panel joined to said fourth panel;

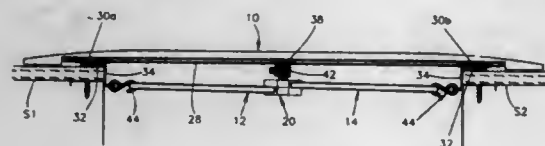
a second sheet folded along parallel fold lines to form a center panel and two interior support panels extending from said top to said third panel, said center panel comprising a portion of said top;
a third sheet comprising a portion of said top;
wherein said first panel, center panel and third sheet are serially joined with adhesive to create an elongate groove to receive a portion of said fifth panel therein.

5,799,456
EXPANSION JOINT COVER INSTALLATION
Thomas A. Shreiner, Picture Rocks, and Roger W. Barr, Williamsport, both of Pa., assignors to Construction Specialties, Inc., Cranford, N.J.

Filed Jun. 2, 1997, Ser. No. 867,476
Int. Cl.⁶ E04B 1/68

U.S. Cl. 52—396.04

29 Claims

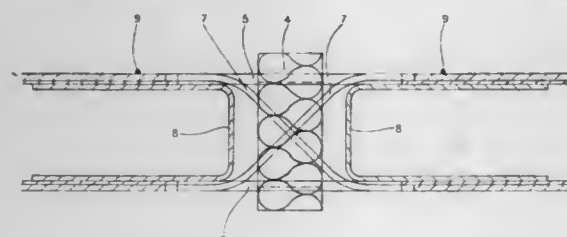


1. An expansion joint cover installation comprising:
first and second building members defining an expansion gap between them, the expansion gap having a central axis and being of variable width due to movements of the building members;
a cover member spanning and covering the expansion gap and coupled to the building members, the cover member having parallel side edges and a rear surface; and
resilient centering means coupled between the building members and the rear surface of the cover member for retaining the cover member centered in the gap with its side edges substantially equidistant from the axis of the expansion gap for all widths of the expansion gap, the resilient centering means including a plurality of first tensioned flexible segments connected obliquely between the first building member and the cover member, and a plurality of second tensioned flexible segments connected obliquely between the second building member and the cover member.

5,799,457
STRUCTURAL ELEMENT FOR THERMAL INSULATION
Armin Schumacher, Rastatt, and Gerhard Trunz, Bühlertal, both of Germany, assignors to Schoeck Bauteile GmbH, Baden-Baden, Germany
Continuation of Ser. No. 353,479, Dec. 9, 1994, abandoned.
This application Feb. 18, 1997, Ser. No. 801,289
Claims priority, application Germany, Dec. 15, 1993, 43 43 673.5

Int. Cl.⁶ E04B 1/78; 1/41
U.S. Cl. 52—405.3

17 Claims



13. A structural element for use in providing thermal insulation between two prefabricated concrete hollow body plates (1, 2) having hollow spaces (1a) extending perpendicular to the structural element (3), the hollow spaces being separated by intermediate

webs (1b), the structural element (3) comprising an insulating body (4) having upper and lower regions and first and second opposite sides, the insulating body being adapted for location between the concrete body plates and having tensile, compression, and transverse-force rods (5, 6, 7) which extend transverse to the insulating body (4) and are adapted to be positioned in the two concrete hollow body plates (1, 2), the transverse-force rods (7) being provided in a first group and a second group, each transverse-force rod in the first group including first and second parallel portions which are parallel to and offset from each other, the first parallel portion of each of the transverse-force rods in the first group extending outwardly from the upper region on the first side of the insulating body and the second parallel portion of each of the transverse-force rods in the first group extending outwardly from the lower region on the second side of the insulating body, the first and second parallel portions being connected by a diagonal portion which extends through the insulating body (4), each transverse-force rod in the second group including first and second parallel portions which are parallel to and offset from each other, the first parallel portion of each of the transverse-force rods in the second group extending outwardly from the upper region on the second side of the insulating body, the first and second parallel portions of each of the transverse-force rods in the second group being connected by a diagonal portion which extends through the insulating body (4), such that the second group of the transverse-force rods is arranged in a mirror-inverted manner to the transverse-force rods in the first group, the tension rods being arranged in the upper region of the insulating body and having an anchoring length, the compression rods (6) being arranged in the lower region of the insulating body (4) and have an anchoring length which is sufficient to make the compression rods function as tension rods as well, the tension, compression, and transverse-force rods (5, 6, 7) in the insulating body (4) being located at a selected spacing, the selected spacing being adapted to correspond with a position of the intermediate webs (1b), the insulating body (4) having recesses (4a) that are adapted to be located in complementary positions to the hollow spaces (1a) of adjacent hollow body concrete plates, and insertable form parts (10, 110, 112) being located in the recesses (4a) in the insulating body.

5,799,458
BACK-BLOCKING DEVICE AND METHOD FOR DRYWALL JOINT ATTACHMENT
Myron R. Ferguson, 984 Ridge Rd., Broadalbin, N.Y. 12025
Filed May 13, 1997, Ser. No. 854,896
Int. Cl.⁶ E04B 2/56

U.S. Cl. 52—417

18 Claims



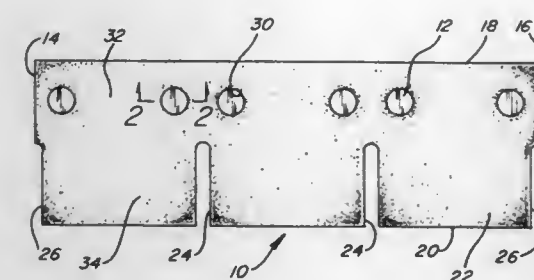
1. A drywall back-blocking device, comprising:
a substantially-rectangular, continuous strip of given length and width; and
a concave bend of a given bend angle between 160 and 175 degrees, substantially centered in the middle of the strip width and running parallel to the length of the strip, thereby defining first and second strip halves of said strip on each side of, and meeting at, said concave bend; and raised outside edges running parallel to the strip; wherein
each of said first and second strip halves is substantially flat; and
wherein
only said first and second strip halves of said device meet along said concave bend.

5,799,459
ROOFING SHINGLES AND SHINGLING METHOD
Roger C. Covert, 6042 Westknoll, Apt. 549, Grand Blanc, Mich. 48439

Filed Mar. 6, 1997, Ser. No. 813,383
Int. Cl.⁶ E04D 1/12; B32B 7/10

U.S. Cl. 52—518

15 Claims U.S. Cl. 52—588.1



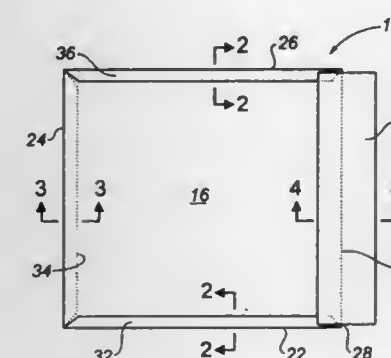
1. A roofing shingle comprising a generally flat sheet having a left edge, a right edge, an upper edge, a lower edge, a top surface, a back surface, a lower portion extending from the left edge to the right edge and from the lower edge toward the upper edge, an upper portion extending from the left edge to the right edge and from the upper edge to the lower portion about mid way between the upper edge and the lower edge, and a plurality of apertures passing through the upper portion from the top surface to the back surface; and an adhesive container containing a liquid adhesive mounted in each of said plurality of apertures and having a container portion that will rupture upon the pressure of liquid in the adhesive container reaching a predetermined pressure.

5,799,460
METHOD OF SHINGLING A ROOF AND INTERLOCKING ROOFING SYSTEM
Dan Velling Jensen, St. Albert, Canada, assignor to Brian Dary, Onoway, Canada

Filed Feb. 27, 1997, Ser. No. 810,341
Int. Cl.⁶ E04D 1/18

U.S. Cl. 52—530

7 Claims



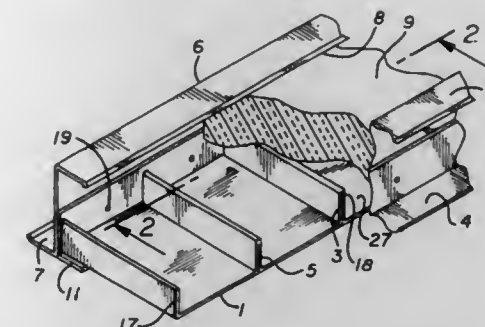
1. A shingle, comprising:
a planar rectangular body having a first face, a second face, a first side, a second side, a third side and fourth side;
the first side including a double zigzag reentrant edge which projects outwardly from the body adjacent and substantially parallel to the first face;
each of the second side and the fourth side including a single zigzag reentrant edge which projects inwardly adjacent and substantially parallel to the first face; and
the third side including a single zigzag reentrant edge which projects inwardly adjacent and substantially parallel to the second face.

5,799,461
METHOD AND APPARATUS FOR INSULATING BUILDING

David Dittmore, 5488 Shadow La., Alta Loma, Calif. 91737
Filed Oct. 23, 1995, Ser. No. 553,781
Int. Cl.⁶ F04B 1/76; 9/04

U.S. Cl. 52—588.1

8 Claims



6. A method of insulating a metal building comprising the steps of:
interconnecting tray segments of a uniform width to form an insulative tray of a desired length and the uniform width, the tray having a plurality of ribs integrally formed therewith and disposed along the length, each rib running the width of the tray;
coupling an adapter to a first purlin of the metal building such that the adapter faces a lower lip of a second purlin of the metal building; and
placing the tray such that the tray is supported on opposing sides by the lower lip of the second purlin and the adapter coupled to the first purlin.

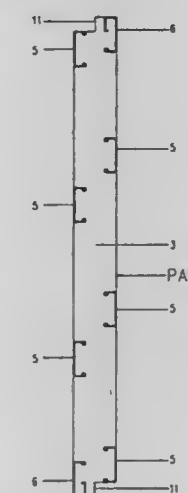
5,799,462
METHOD AND APPARATUS FOR LIGHTWEIGHT, INSULATED, STRUCTURAL BUILDING PANEL SYSTEMS

Craig B. McKinney, Glendora, Calif., assignor to Craig McKinney, Glendora, Calif.

Filed Jul. 2, 1996, Ser. No. 675,243
Int. Cl.⁶ E04C 2/26

U.S. Cl. 52—742.13

5 Claims



1. A method of making a composite structural building panel comprising:
a. placing at least one J-shaped structural channel member within a mold to receive and temporarily hold added structural strut members;

- b. placing at least one structural strut member from the group comprising, a G-shaped structural strut member, a C-shaped structural strut member, and an H-shaped structural strut member, within said mold generally perpendicular to and fitted to the inside surfaces of said J-shaped structural channel member; and
- c. injecting an in-fill core material into said mold that surrounds the majority of surfaces of all said structural strut members and all said structural channel members thereby permanently interlocking all said structural members into one composite structural panel.

5,799,463

METHOD FOR PRESERVATION OF ARTICLE

Takashi Kashiba, Kanagawa-ken, Japan, assignor to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed May 19, 1997, Ser. No. 858,581

Claims priority, application Japan, May 28, 1996, 8-133537

Int. Cl.⁶ B65B 31/00; 29/00

U.S. Cl. 53—400

19 Claims

1. A method for the preservation of an article which comprises preserving an article in a substantially oxygen-free state by the absorption of oxygen in the presence of carbon dioxide gas by housing the article in a packaging vessel or bag and hermetically sealing the packaging vessel or bag, which is at least in part thereof formed from a multi-layer film or sheet comprising (a) an innermost layer containing an oxygen-permeable protective layer, (b) at least one intermediate layer containing an oxygen absorbing resin layer wherein a deoxidizing agent comprising an iron powder and a halogenated metal is kneaded with and dispersed in a thermoplastic resin so that oxygen is absorbed in said oxygen absorbing resin layer, and (c) an outermost layer containing an oxygen barrier layer.

5,799,464

ASEPTIC TRANSFER

Bert Åke Olsson, Strängnäs, Sweden, assignor to Astra Aktiebolag, Sodertälje, Sweden

PCT No. PCT/SE96/01109, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO97/09026, PCT Pub. Date Mar. 13, 1997

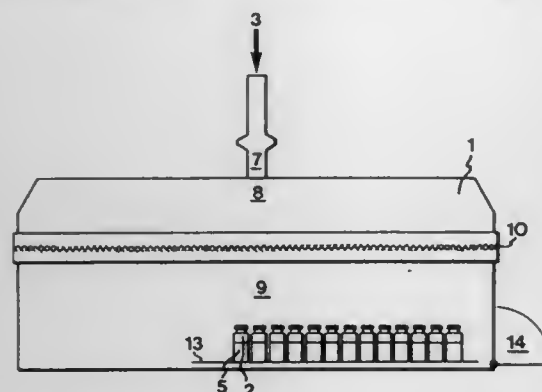
PCT Filed Sep. 6, 1996, Ser. No. 718,307

Claims priority, application Sweden, Sep. 8, 1995, 9503102

Int. Cl.⁶ B65B 31/02

U.S. Cl. 53—425

6 Claims



1. Method for aseptic and automatic transfer of unsealed pharmaceutical containers (2), which have been aseptically filled with a pharmaceutical preparation (5), from a filling device (6) to a subsequent unit (4), characterized by the steps of:

- a) introducing a sterile inert protective gas (3) into a transportable chamber (1),
- b) inserting the chamber (1) into the filling device (6).

- c) introducing the pharmaceutical containers (2) into the chamber (1) and closing the chamber (1), and
- d) transporting the chamber (1) to the subsequent unit (4), in which the pharmaceutical containers (2) are removed from the chamber (1), said protective gas (3) being continuously and evenly distributed in steps b)-d) over the unsealed pharmaceutical containers (2).

5,799,465

BAG FILLING STATION

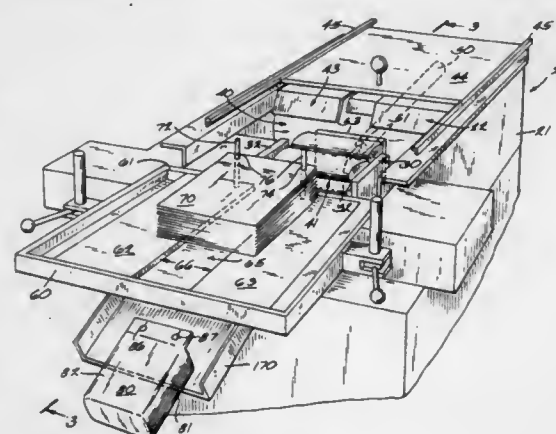
Gerald Leo Townsend, Wausaukee, Wis., assignor to Optima Corporation, Green Bay, Wis.

Filed Jul. 12, 1996, Ser. No. 679,531

Int. Cl.⁶ B65B 5/00

U.S. Cl. 53—258

21 Claims



1. A bag filling device comprising:

- a main body;
- a loading bay positioned within the main body and having a bottom, two sides, a rear, and a front;
- a loading actuator coupled to the main body, positioned adjacent to the rear of the loading bay, and having a pusher arm movable between a first, retracted position at the rear of the loading bay and a second, extended position near the front of the loading bay;
- a platform for supporting a plurality of bags, positioned forward of and above the loading bay and having an opening therein;
- a pair of spreader plates coupled to the main body, positioned at the front of the loading bay, each spreader plate movable between a first, open position near the side of the loading bay and a second, closed position near the center of the front of the loading bay and between a first, rearward position adjacent to the platform and a second, forward position partially under the platform;
- a finger coupled to the main body movable between a first, lower position level with the loading bay and a second, upper position level with the platform and between a first, rearward position adjacent to the platform and a second, forward position under the platform;
- and means for moving said finger to pull one side of a single bag of the plurality of bags on the platform through the opening in the platform from said upper position to said lower position.

5,799,466

UNIVERSAL BALE WRAPPER AND ACCUMULATOR

Kenneth R. Underhill, 219 Miller St., Strasburg, Pa. 17579

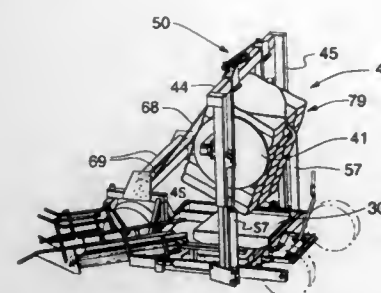
Filed Dec. 16, 1996, Ser. No. 766,067

Int. Cl.⁶ B65B 53/00; 11/58; 13/04

U.S. Cl. 53—399

24 Claims

15. A method of wrapping a package of crop material with wrapping material on a machine having a receiving table comprising the steps of:



acquiring said package of crop material on said receiving table; clamping said package of crop material by clamping members and elevating said clamped package of crop material above said receiving table;

introducing said wrapping material to said package of crop material;

rotating said package of crop material about a first axis of rotation for at least one revolution while said package of crop material is elevated to wrap said wrapping material circumferentially around said package of crop material as said package of crop material is rotated about said axis of rotation to provide a wrapped surface on said package of crop material; releasing said package of crop material onto said receiving table; turning said package of crop material approximately 90 degrees such that said wrapped surface is adjacent said clamping members;

re-clamping said package of crop material by said clamping members engaging said wrapped surface and re-elevating said package of crop material above said receiving table; and rotating said package of crop material a second time for at least one revolution to wrap said wrapping material circumferentially around said package of crop material, whereby said wrapping material extends substantially around the entire outer surface of said package of crop material to form a wrapped package of crop material, and discharging said wrapped package of crop material from said machine.

5,799,467

BREATHABLE GIRTH UNIT FOR A TUBE FORMER IN A PACKAGING APPARATUS AND METHOD

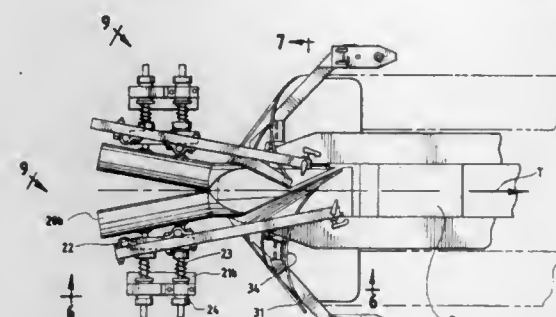
Wayne T. Nankervis, Hortonville; Gary L. Dufek, Green Bay, and David S. Pantel, Sheboygan, all of Wis., assignors to Paper Converting Machine Company, Green Bay, Wis.

Filed May 19, 1997, Ser. No. 859,811

Int. Cl.⁶ B65B 9/06

U.S. Cl. 53—450

19 Claims



15. A breathable girth unit for a product wrapping machine comprising, a funnel provided by two flared funnel pieces which are engageable by a paper product having varying dimensions, means for resiliently mounting said funnel pieces on a frame means defining a longitudinally extending linear path of travel for said products for movement toward and away from each other, whereby entrance of an oversized product into and in contact with

said funnel solely causes said funnel-providing pieces to move laterally outward from said linear path, a two-piece generally uniform cross section girth former, and connecting means for rigidly coupling the funnel and the girth former pieces for conjoint movement upon engagement of the funnel by an oversized product whereby lateral displacement of said funnel-providing pieces by an oversized product laterally displaces said girth former pieces, said girth former pieces having an entering end arranged and constructed to have an enveloping film slide thereon for forming a tube about said product.

5,799,468

FILLING BLISTER-PACK STRIPS

Werner Eck; Detlev Gertischke; Richard Mertens, all of Laupheim; Günther Bochtler, Möttingen; Reinhold Kopf, Schemmerberg; Andreas Weiss, Biberach, and Rudolf Arb, Laupheim, all of Germany, assignors to Uhlmann Pac-Systeme GmbH & Co. KG, Laupheim, Germany

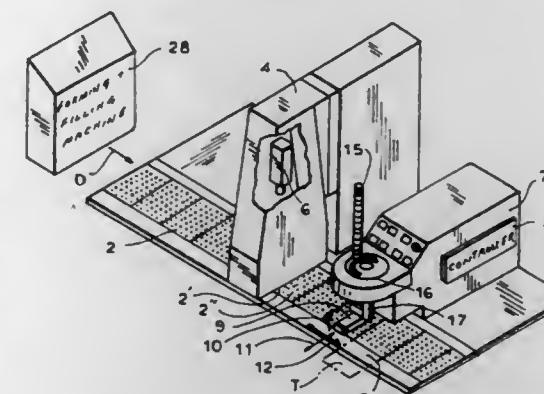
Filed Apr. 28, 1997, Ser. No. 847,847

Claims priority, application Germany, Apr. 27, 1996, 196 17 014.1

Int. Cl.⁶ B65B 47/00

U.S. Cl. 53—453

19 Claims



1. A method of making blister-pack packages, the method comprising the steps of:

- forming a strip with a plurality of fields of upwardly open pockets and filling the pockets with respective objects while leaving at least one pocket empty;
- scanning the fields and determining an address of the empty pocket in the respective field;
- loading into a refilling head at a stationary location at least one of the objects;
- positioning the loaded refilling head above the empty pocket in accordance with the determined address; and
- dropping the object from the loaded and positioned head into the empty pocket.

5,799,469

METHOD FOR THE MANUFACTURE AND/OR FILLING OF A TWO-CHAMBER PRESSURE PACK

Gerhard Obrist, Kaiseraugst, Switzerland, assignor to Lechner GmbH, Rielasingen/Worblingen, Germany

Filed Apr. 30, 1996, Ser. No. 641,280

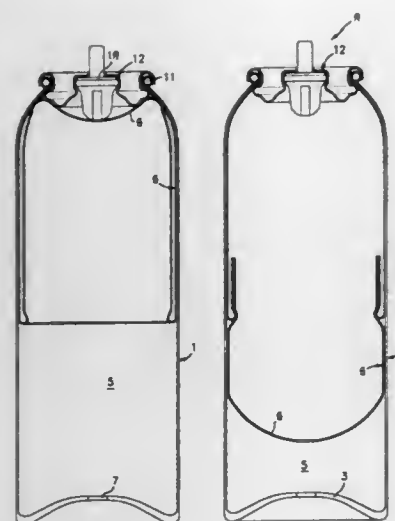
Int. Cl.⁶ B65B 7/00

U.S. Cl. 53—470

9 Claims

1. A method for the manufacture and filling of a two chamber pressure pack, comprising the steps of:

- providing an outer container having a sidewall and a bottom which together define a first space and a valve opening communicating with said first space;
- positioning a bag within said first space;



securing the bag to said sidewall wherein said bag and at least a portion of said bottom of said outer container define a second space;
providing means for feeding gas to said second space; and
introducing gas to said second space for biasing a portion of the bag defining said second space toward said valve opening.

5,799,470

PACKING MACHINE

Manfred Sautter, Dettingen; Hannes Neumüller, Frickenhausen, and Jens Kallfass, Nürtingen, all of Germany, assignors to Kallfass Verpackungsmaschinen GmbH & Co., Nürtingen, Germany

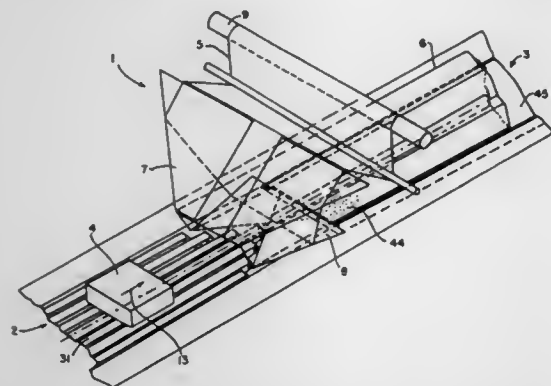
Filed May 7, 1997, Ser. No. 852,526

Claims priority, application Germany, Sep. 5, 1996, 196 18 559.8

Int. Cl.⁶ B65B 9/06; 59/00

U.S. Cl. 53—550

19 Claims

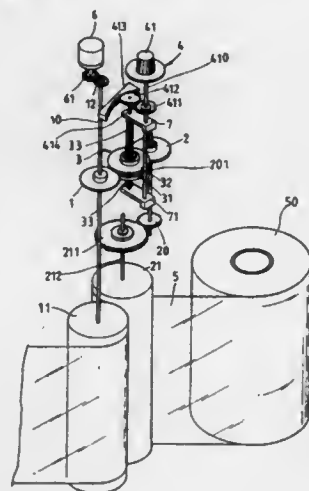


1. Packing machine for packing articles into a film having a pair of borders and a central area between said borders, said packing machine comprising a tube shaping device for shaping a tube from the film substantially flat prior to tube shaping, and a transporting device for transporting the articles into the tube, the tube shaping device having several pairs of shaping edges for deflecting the film travelling over said shaping edges, wherein the shaping edges are so positioned relative to one another that a path over the shaping edges along lines parallel to the borders of the film from an entrance of the film into the tube shaping device up to an exit from said tube shaping device is shorter in the vicinity of the film borders than in the central area of the film.

5,799,471
STEPLESSLY ADJUSTABLE PRE-STRETCHED FILM WRAPPING APPARATUS
Tsung-Yen Chen, 2F, No. 4, Alley 3, Lane 423, Sec. 5, Chung-Hsiao E. Road, Taipei, Taiwan
Filed Sep. 26, 1996, Ser. No. 721,322
Int. Cl.⁶ B65B 53/00

U.S. Cl. 53—556

8 Claims



1. A steplessly adjustable pre-stretched film wrapping apparatus comprising:
a downstream film roller driven by a motor via an input shaft with a first rotational speed;
an upstream film roller driven by an output shaft with a second rotational speed with a film web unwound from a film roll extending therebetween and partially wrapping around the upstream and downstream film rollers to be stretched thereby; and
an adjustable mechanical coupling system being provided to couple the output shaft to the input shaft, the adjustable mechanical coupling system including
an input disk fixed on and rotated by the input shaft,
an output disk fixed on the output shaft,
each of the input and output disks having a circumferential edge,
a floating shaft having two cramp disks rotatably supported thereon to define therebetween a nip space for receiving and engaging therein the circumferential edges of the input and output disks with an input disk center distance present between the input shaft and the floating shaft and an output disk center distance between the floating shaft and the output shaft for transmitting the first rotational speed of the input shaft to the cramp disks which in turn apply the second rotational speed to the output disk,
biasing means being provided on the floating shaft to bias the cramp disks toward each other for securely engaging and cramping the circumferential edges of the input and output disks between the cramp disks, and
manual adjusting means for moving the floating shaft with respect to the input and output shafts to change the input disk center distance and the output disk center distance.

5,799,472
BAG PAN FOR AN AGRICULTURAL FEED BAGGING MACHINE
Steven R. Cullen, Astoria, Oreg., assignor to Versa Corp., Astoria, Oreg.

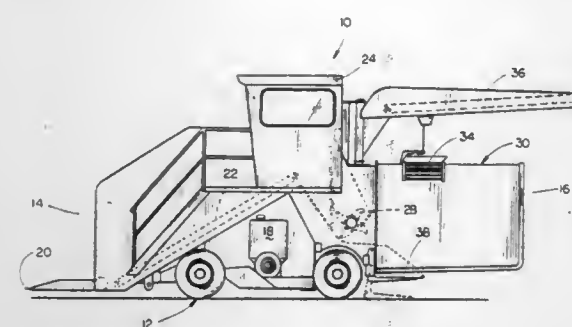
Filed Jun. 13, 1997, Ser. No. 874,308

Int. Cl.⁶ B65B 63/02

U.S. Cl. 53—567

10 Claims

1. An agricultural feed bagging machine for bagging agricultural feed material into agricultural bags having a closed end and an open mouth comprising:



a wheeled frame having rearward and forward ends;
a tunnel on said wheeled frame having an intake end for receiving the material to be bagged and an output end adapted to receive the open mouth of the agricultural bag;
said tunnel having a top wall, opposite side walls and a floor;
material receiving means on said wheeled frame forwardly of said tunnel for receiving the material to be bagged;
means at the intake end of said tunnel for forcing the material to be bagged from said material receiving means into said tunnel and into said bag;
a bag pan means positioned beneath said tunnel for supporting the lower portion of a folded bag positioned on said tunnel;
said bag pan means having rearward and forward ends and opposite sides;
said bag pan means being selectively vertically movable between an upper bag supporting position and a lower bag loading position;
and means operatively connected to said bag pan means for vertically moving said bag pan means between its said bag loading and bag supporting positions said means operatively connected to said bag pan means for vertically moving said bag pan means including a first flexible cable operatively connected to one side of said bag pan means a second flexible cable operatively connected to the other side of said bag pan means and a power cylinder operatively connected to said first and second cables.

5,799,473

SADDLE FOR HORSES

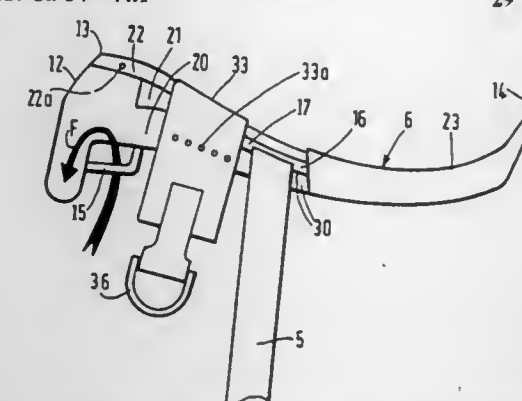
Laurent Goblet, Paris, France, assignor to Hermes S.A., Paris, France
PCT No. PCT/FR95/00917, § 371 Date Mar. 13, 1996, § 102(e) Date Mar. 13, 1996, PCT Pub. No. WO96/02460, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 7, 1995, Ser. No. 617,845

Claims priority, application France, Jul. 13, 1994, 94 08761
Int. Cl.⁶ B68C 1/02

U.S. Cl. 54—44.1

29 Claims



1. A saddle for a horse comprising a seat (7) which has an upper outer face (18), longitudinal straps (22), longitudinal strips (20), a

saddle-bow (6), a pommel (13), and a cantle (14), characterized by at least one support passage (16), provided below an upper outer face (18) of a seat (7) totally built into the saddle, whose functions are the guided transversal passage from one side to another, on the one hand and, the vertical downwards support, on the other hand, of at least one girth (3) or overgirth (5) which is slidable relative to said saddle.

5,799,474

BABY GREENS HARVESTER

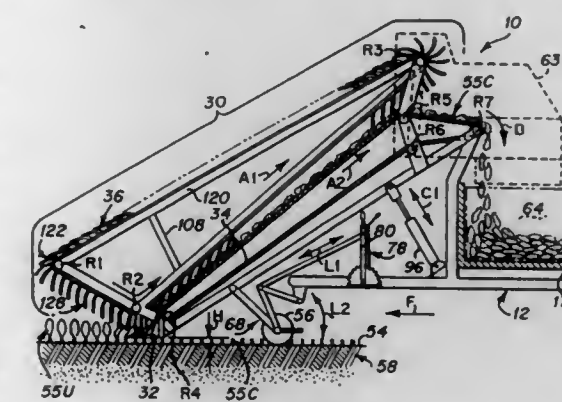
Lawrence L. Ingram, Salinas, Calif., assignor to Tanimura & Antle, Inc., Spreckles, Calif.

Filed Aug. 7, 1996, Ser. No. 694,047

Int. Cl.⁶ A01D 34/04

U.S. Cl. 56—14.5

32 Claims



1. A harvester for harvesting greens, comprising:
(a) a reciprocating blade type cutter bar mounted in a position which cuts the greens above the ground surface during harvesting;
(b) a first, bottom belt for conveying cut greens upwardly from said cutter bar to an elevated packaging station;
(c) a second, top belt generally opposed to said bottom belt, said top belt includes means for guiding uncut greens to said cutter bar and thereafter to guide cut greens onto said bottom belt and to loosely hold said cut greens on said bottom belt during a portion of its conveying of said cut greens upwardly toward said packaging station; and
(d) said cutter bar is disposed between a forward most portion of said bottom belt and said top belt.

5,799,475

REAR SUSPENSION FOR RIDING MOWER

Al Borling, Valley City, and Axel Schaedler, N. Royalton, both of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Sep. 5, 1996, Ser. No. 709,461

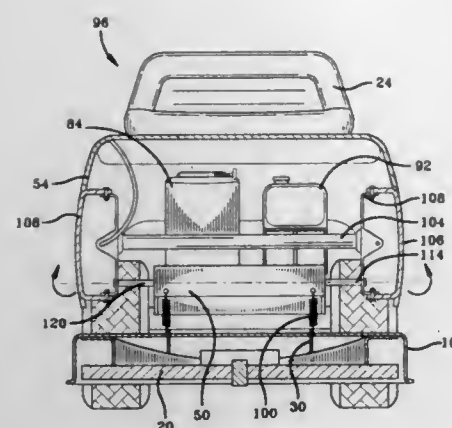
Int. Cl.⁶ A01D 34/64

U.S. Cl. 56—14.7

22 Claims

21. A grass cutting apparatus having front and rear portions carried on front and rear wheels and having a rotating blade acting in a generally horizontal plane and located between said front and rear wheels, and an operator's seat vertically spaced from said blade, the apparatus comprising:

a first frame element being substantially located in said rear portion;
a second frame element having opposite side walls;
first connecting means for pivotally connecting said first frame element to said second frame element, said first connecting means including a pivot rod transversely extending from a forward end of said first frame element and being pivotally received at each end at said opposite side walls of said second frame element; and



first spring means vertically disposed between said first frame element and said second frame element at a rearward end of said first frame element.

5,799,476 SPINNING STATION ERROR SIGNALLING AND QUALIFYING DEVICE

Bernd Bahlmann, Schrobenehausen, Germany, assignor to Rieter Ingolstadt Spinnereimaschinenbau AG, Ingolstadt, Germany

Continuation of Ser. No. 319,499, Oct. 7, 1994, abandoned.

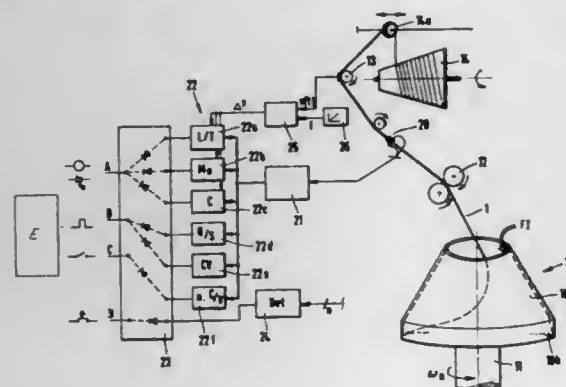
This application Dec. 17, 1996, Ser. No. 768,341

Claims priority, application Germany, Oct. 18, 1993, 43 35 459.9

Int. Cl.⁶ D01H 7/46; 7/92

U.S. Cl. 57—264

17 Claims



1. A device for qualifying errors at a spinning station of a textile machine, said device comprising:

at least one measuring device disposed and configured to measure at least one physical parameter of a moving yarn at said spinning station;

an evaluation section in communication with said measuring device, said evaluation section continuously evaluating said measured parameter of the moving yarn with respect to a plurality of predetermined yarn quality parameter criteria to produce a plurality of yarn quality error message signals based on the evaluation of the measured parameter with respect to the predetermined yarn quality parameter criteria; and

an attribution section in communication with said evaluation section, said attribution section configured to receive said plurality of yarn quality error message signals in parallel and to attribute said error message signals to predetermined error groups for subsequent corrective action assigned to each respective said error group to correct said yarn quality error message signals.

5,799,477

DEVICE FOR MAKING A WIRE STRAND WITH CHANGING TWIST DIRECTION

Gerhard Seibert, Baden, Austria, assignor to Bergsmann Ludwig, Konstanz, Germany

PCT No. PCT/AT95/00137, § 371 Date Mar. 17, 1997, § 102(e)

Date Mar. 17, 1997, PCT Pub. No. WO96/00970, PCT Pub.

Date Jan. 11, 1996

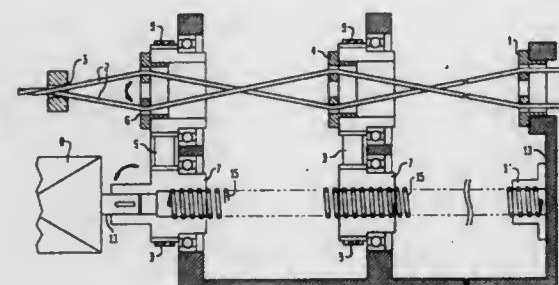
PCT Filed Jun. 28, 1995, Ser. No. 750,685

Claims priority, application Austria, Jun. 28, 1994, A1272/94

Int. Cl.⁶ D01H 5/00

U.S. Cl. 57—293

8 Claims



1. A device for making a wire strand with changing twist direction (SZ-stranding) from individual wires, comprising:

a fixed guide provided with bores for passage of individual wires;

a plurality of storing disks trailing the fixed guide and arranged in spaced-apart disposition, said storing disks having bores for passage of the individual wires to be stranded;

a laying disk trailing the plurality of storing disks; and

drive means for operating the storage disks and the laying disk in changing directions, said drive means including a plurality of drive disks and a like plurality of transmission members, said drive disks and said transmission members being so positioned that each of the storage disks and the laying disk are operatively connected to a different one of the drive disks via a different one of the intermediate transmission members, said drive means further including a motor operatively connected to at least some of the drive disks, and a torsionally elastic shaft having a random cross-section and extending between the motor and the drive disks.

5,799,478

SUPPORTING RING WITH REFLECTORS

Friedrich Legrom, Hauenstrasse 6, D-71540 Murrhardt-Fornsbach, Germany

Filed May 9, 1997, Ser. No. 853,894

Claims priority, application Germany, May 21, 1996, 196 20 377.5

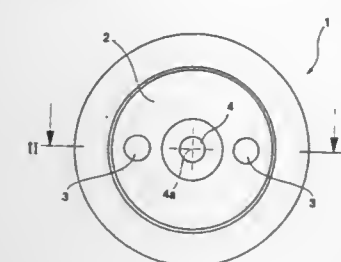
Int. Cl.⁶ D01H 4/12

U.S. Cl. 57—406

18 Claims

1. An optical control device for a rotor of an open-ended rotor spinning machine to control a joining carriage in cooperation with a light source, an interruption of a rotation motion of the optical control device about a rotational axis being optically recognized by the joining carriage to initiate a joining carriage execution procedure, the optical control device comprising:

a support ring for a supporting ring bearing supporting the rotor having a substantially non-reflecting surface facing the light source, said support ring having a cupped receptacle having a depth; and



a reflector seated in said cupped receptacle, said reflector having a thickness less than said depth.

5,799,479

WEAR-RESISTING LOW NOISE CHAIN

Koji Tanaka, Osaka, Japan, assignor to Tsubakimoto Chain Co., Osaka, Japan

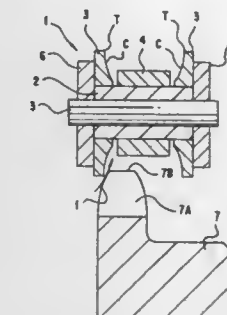
Filed Feb. 11, 1997, Ser. No. 798,988

Claims priority, application Japan, Feb. 13, 1996, 8-025358

Int. Cl.⁶ F16G 13/02; B21L 9/02

U.S. Cl. 59—4

2 Claims



1. A sprocket and chain assembly, comprising: a sprocket having a tooth top decreasing in width in a radially outward direction at both side faces thereof; and an endless chain, engageable with said sprocket, including a pair of inner plates each having an inner surface, a bushing secured to said inner plates at both ends thereof, a pair of outer plates disposed outside said inner plates, and a chain pin extending through said bushing and being fixedly connected to said outer plate at both ends thereof, wherein said inner surface of said inner plate has a chamfered portion with a contour conforming to a contour of a side face of said tooth top of said sprocket.

5,799,480

ORNAMENTAL CHAIN

Silverio Cerato, Mussolente, Italy, assignor to Silmar S.p.A., Romano D'Ezzelino, Italy

Continuation-in-part of Ser. No. 443,417, May 22, 1995, abandoned. This application Aug. 15, 1996, Ser. No. 698,429

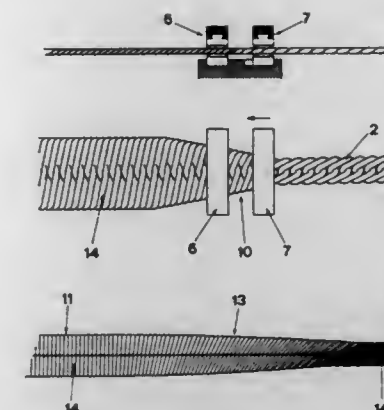
Claims priority, application Italy, May 31, 1994, V194A0085

Int. Cl.⁶ B21L 17/00

U.S. Cl. 59—30

12 Claims

1. A process for manufacturing an ornamental chain from a chain initially comprised of a series of individual links having the



same shape, the same dimensions, and produced from the same diameter of wire, said ornamental chain having in a longitudinal direction thereof a first segment of uniform width, a second segment of uniform width greater than the width of said first segment, and a third segment interconnecting said first and second segments having a width gradually increasing linearly from the width of said first segment to the width of said second segment, said process comprising the steps of:

(a) forming the first segment of said ornamental chain by a compression action of constant value on the links of said first segment in the longitudinal direction of said chain so as to deform the profiles of said links uniformly and form said first segment with uniform width;

(b) forming the second segment of said ornamental chain by a compression action of constant value on the links of said second segment in the longitudinal direction of said chain greater than the compression action value used to form said first segment so as to deform the profiles of said links uniformly and form said second segment with uniform width greater than the width of said first segment; and

(c) forming the third segment of said ornamental chain by a compression action in the longitudinal direction of said chain on discrete sections of said chain in succession with a compression action value on each discrete section being slightly greater than on the preceding discrete section and slightly less than on the succeeding discrete section so that the width of said each discrete section is intermediate the width of the two adjacent discrete sections whereby the width of said third segment gradually increases linearly from the width of said first segment to the width of said second segment of said ornamental chain.

5,799,481

METHOD OF OPERATING A GAS-TURBINE GROUP COMBINED WITH A WASTE-HEAT STEAM GENERATOR AND A STEAM CONSUMER

Mircea Fetescu, Ennetbaden, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Dec. 6, 1996, Ser. No. 761,390

Claims priority, application Germany, Dec. 7, 1995, 195 45 668.8

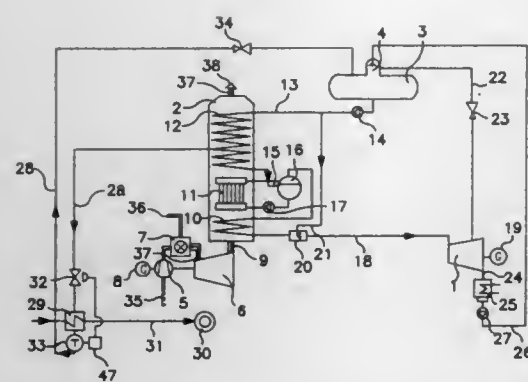
Int. Cl.⁶ F02C 6/18

U.S. Cl. 60—39.02

7 Claims

1. A method of operating a combined gas-turbine group and a downstream water/steam cycle apparatus having at least a waste-heat steam generator and a steam consumer for heat/power cogeneration, the gas-turbine group including at least one compressor, a gas turbine, a combustion chamber and a generator, and the waste-heat steam generator being connected to a feedwater tank having a feedwater preheater/deaerator, the method comprising the steps of:

a) directing feedwater for the water/steam cycle apparatus and additional heating water for an external heat consumer to a low temperature region of the waste-heat steam generator, and



- b) supplying heated feedwater and heating water to both the external heat consumer and to the water/steam cycle apparatus, wherein, the method further comprises the steps of:
- c) supplying the additional heating water to the waste-heat steam generator in a quantity sufficient for a maximum heating-water quantity required for the external heat consumer,
- d) determining a current demand for heating water for the external heat consumer,
- e) responsive to the determination of current demand, diverting the additional heating water as heated heating water from the water/steam cycle apparatus if there is a high to maximum demand for heating water, and retaining the additional heating water in the water/steam cycle apparatus if there is a low demand or no demand for heating water, the retained heating water being used for generating additional steam, and
- f) if the additional heating water is diverted, supplying the diverted heated heating water to the external consumer and thereafter, directing the diverted heating water to the feedwater tank to recover residual heat from the diverted heating water.

5,799,482
PROCESS FOR IMPROVED HEAT INTEGRATION OF AN OXIDANT-SUPPLEMENTED AUTOETHERMAL REFORMER AND COGENERATION POWER PLANT
David Owen Marler, and Clinton Robert Kennedy, both of West Chester, Pa., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Aug. 28, 1997, Ser. No. 919,661
Int. Cl.⁶ F02C 13/10

U.S. Cl. 60—39.02

20 Claims

1. A process for heat integration of an oxidant-supplemented autothermal reformer and a cogeneration power plant in which: said cogeneration power plant comprises a gas turbine equipped with an air compressor and a combustor; said autothermal reformer comprises two communicating fluid beds; a first fluid bed comprising a reformer reactor containing inorganic metal oxide capable of undergoing reduction-oxidation reaction cycles and which, with a source of supplemental oxidant gas, oxidizes hydrocarbons at conditions sufficient to produce a mixture comprising synthesis gas hydrogen, carbon monoxide, or carbon dioxide or mixtures thereof, a second fluid bed comprising a combustor-regenerator which receives reduced inorganic metal oxide from the first fluid bed and which provides heat to heat the inorganic metal oxide by combusting fuel gas in direct contact with the inorganic metal oxide, also producing hot flue gas, wherein the inorganic metal oxide circulates between said first-fluid bed and said second fluid bed, the inorganic metal oxide oxidizes hydrocarbon and forms reduced inorganic metal oxide in said first fluid bed in said reformer reactor and the reduced inorganic metal oxide is regenerated, reoxidized and heated in said second fluid bed in said combustor-regenerator and regenerated, oxidized heated inorganic metal oxide is returned to said first fluid bed;

and wherein a portion of compressed air is drawn off from a compressed air stream from the air compressor of the power plant gas turbine air compressor; the drawn off compressed air is introduced to the combustor-regenerator; the hot flue gas from the combustor-regenerator is mixed with the remainder of the power plant compressed air stream to produce a recombined gas stream and this recombined gas stream is fed to the combustor of the cogeneration gas turbine power plant; said process comprising introducing supplemental oxidant gas into said first fluid bed.

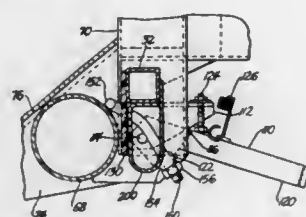
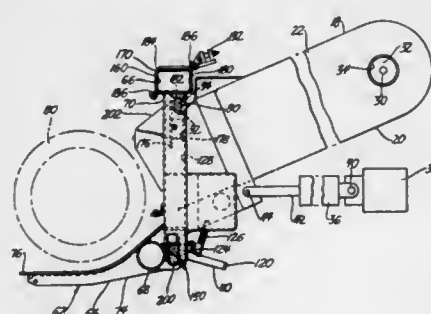
5,799,483
COMBINE HARVESTER HEADER LATERAL LEVELLING

Douglas A. Voss, 64 Scotia Avenue, Brantford, Ontario N3R 6X5, Canada, and David G. Link, R. R. #2, Cayuga, Ontario, N0A 1E0, Canada

Filed Aug. 29, 1996, Ser. No. 705,345
Int. Cl.⁶ A01D 57/00

U.S. Cl. 56—14.9

7 Claims

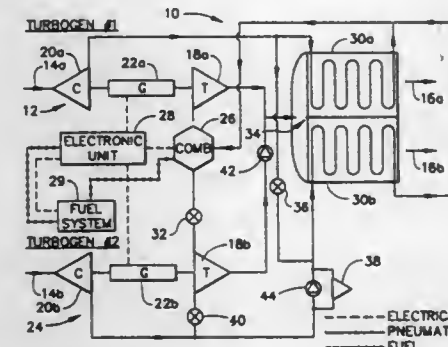


1. A combine harvester comprising a frame supported by wheels, a threshing and separating housing attached to the frame, an elevator assembly pivotally attached to the threshing and separating housing and including an elevator housing with a forward inlet opening, an elevator conveyor mounted in the elevator housing and at least one actuator attached to the frame and the elevator housing for pivoting the elevator housing relative to the threshing and separating housing to raise and lower the forward inlet opening; a combine header with a header frame, a header discharge opening and a header conveyor for conveying crop material through the discharge opening; and a quick coupler for attaching the combine header to the elevator housing including a first right arcuate section attached to the header frame and engageable with the first right arcuate section only, a first left arcuate section attached to the header frame and engageable with the first left arcuate section only and wherein at least one of the first and second right arcuate sections and at least one of the first and second left arcuate sections includes an arcuate member with a surface that is an arc about an axis that is laterally centered relative to the forward inlet of the elevator housing, below the forward inlet and generally horizontal; a clamp assembly for clamping the header to the elevator housing adjacent to said axis; and an actuator connected to the elevator housing and to the header frame that is operable to pivot the header frame about said axis relative to the elevator housing.

5,799,484
DUAL TURBOGENERATOR AUXILIARY POWER SYSTEM
Robert A. Nims, Rancho Palos Verdes, Calif., assignor to Allied Signal Inc., Morris Township, N.J.
Filed Apr. 15, 1997, Ser. No. 839,746
Int. Cl.⁶ F02C 6/00

U.S. Cl. 60—39.15

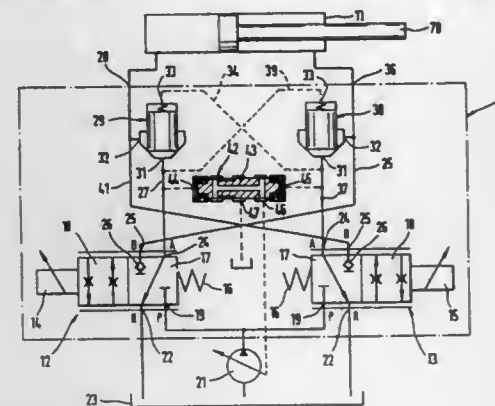
11 Claims



1. An auxiliary power system comprising:
- a first turbogenerator having an associated first turbine, first compressor and first generator mounted on a first high-speed shaft;
- a second turbogenerator having an associated second turbine, second compressor and second generator mounted on a second high-speed shaft;
- a single electronic unit for conditioning externally supplied electrical power for startup/motoring of the first and second turbogenerators;
- a single combustor for delivery of elevated pressure and temperature gas to both the first and second turbogenerators;
- a single fuel system for safely supplying elevated pressure fuel to the single combustor; and
- first and second recuperator means operating in association with the first and second turbogenerators for transferring heat from turbine exhaust to air entering the single combustor.

5,799,485
ELECTROHYDRAULIC CONTROL DEVICE FOR DOUBLE-ACTING CONSUMER
Hartmut Sandau, deceased, late of Schwieberdingen, Germany, by Rosatha Sandau and Christine Sandau, legal representatives, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Feb. 6, 1997, Ser. No. 796,921
Int. Cl.⁶ F16D 31/02; F15B 13/04
U.S. Cl. 60—452

20 Claims



1. An electrohydraulic control device for a double-acting consumer, said electrohydraulic control device comprising
- a first consumer connection (28) to the double-acting consumer (11), a second consumer connection (36) to the double-acting

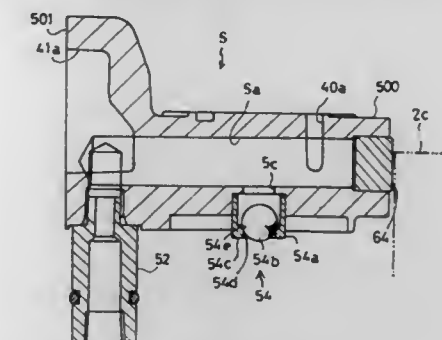
consumer (11), a first work conduit (27) communicating with the first consumer connection (28) and including a first blocking valve (29) for blocking the first consumer connection (28), a second work conduit (37) communicating with the second consumer connection (36) and including a second blocking valve (38) for blocking said second consumer connection (36), a first lowering conduit (35) communicating with the second consumer connection (36) and a second lowering conduit (41) communicating with the first consumer connection (28), each of said lowering conduits by-passing the blocking valves (29,38); and

electromagnetically actuatable control means for blocking or connecting at least one of the consumer connections, said control means comprising a first four-way, two-position proportional magnet valve (12; 120) and a second four-way, two-position proportional magnet valve (13; 120) identical to said first four-way, two position proportional magnet valve, wherein each of said magnet valves includes a slidable valve control member provided with control edges (67,71), an inlet connection (19), a return connection (22), a first motor connection (24) alternatively connected to the inlet connection (19) or the return connection (22) by operation of the slidable valve member with the control edges (67,71), a second motor connection (25) and seat valve means (26) for controlling the second motor connection; and

wherein the first motor connection (24) of the first magnet valve (12; 120) communicates with the first work conduit (27), the first motor connection (24) of the second magnet valve (13; 120) communicates with the second work conduit (37), the second motor connection (25) of the first magnet valve (12; 120) is connected with the first lowering conduit (35), the second motor connection (25) of the second magnet valve (13; 120) is connected with the second lowering conduit (41), and each of said magnet valves has an initial position (17) in which said work conduit connected thereto is relieved.

5,799,486
AXLE DRIVING APPARATUS
Kenichi Takada; Ryota Ohashi; Hironori Sumomozawa, and Hiroaki Shimizu, all of Amagasaki, Japan, assignors to Kan-zaki Kokyukoki Mfg. Co., Ltd., Japan
Filed Jan. 9, 1997, Ser. No. 781,513
Claims priority, application Japan, Jan. 9, 1996, 8-001391
Int. Cl.⁶ F16H 57/02; 39/16; F16D 39/00
U.S. Cl. 60—464

8 Claims



1. An axle driving apparatus comprising:
- a housing;
- an axle disposed in said housing;
- an oil pump formed in said housing;
- a substantially L-like shaped center section having a horizontal portion and a vertical portion disposed in said housing;
- a hydraulic pump disposed on said horizontal portion of said center section;
- a hydraulic motor disposed on said vertical portion of said center section for driving said axle;
- a pair of oil passages provided in said center section;

a first pair of arcuate ports formed on said vertical portion of said center section and communicating with said pair of oil passages; and
a second pair of arcuate ports formed on said horizontal portion of said center section, wherein each of said second pair of ports has a length and a depth, wherein said length and depth are substantially perpendicular to each other, and wherein said length of each of said second pair of ports is disposed substantially perpendicular to a direction in which said oil passages extend;
wherein one end of one of said second pair of arcuate ports is made deep to communicate with one of said pair of oil passages and one end of the other of said second pair of arcuate ports is made deep to communicate with the other of said pair of oil passages.

5,799,487

AUTOMATIC INERTIAL CONTINUOUSLY VARIABLE HYDROSTATIC TRANSMISSION

Dimosthenis Valsamis, 3, Aristippou Str., Athens, 10676, Greece

PCT No. PCT/GR95/00012, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO96/00865, PCT Pub. Date Jan. 11, 1996

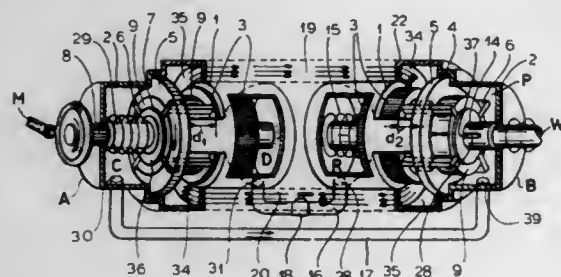
PCT Filed Jun. 27, 1995, Ser. No. 596,317

Claims priority, application Greece, Jun. 29, 1994, 940100323

Int. Cl. F16D 39/00

U.S. Cl. 60—487

11 Claims



1. A hydrostatic transmission for a vehicle having an engine fly wheel and at least one driven wheel, the transmission comprising:
a first pump and at least one second pump interconnected in series and forming a closed hydrostatic circuit provided with a constant quantity of a fluid, one of said pumps being connected with the wheel and the other of said pumps being connected with the fly wheel to said first pump, each of the first and second pumps extending along a respective axis and being formed with:
an eccentric rotor formed with a plurality of angularly spaced axially extending vanes, said rotor being axially shiftable;
a respective diaphragm between opposite ends of the respective rotor and axially traversed by said vanes, said diaphragm forming a fixed side of a pump chamber;
a respective moving side set spaced from said diaphragm and movable toward and away from said diaphragm and bounding said rotor one end thereof to vary a volume of the pump chamber upon axial movement of said set toward and away from said diaphragm;
a respective volume adjusting means for axially reciprocating said rotor and said set; and
automatic inertial means for achieving a kinematic balance between the volume adjusting means of the pumps and including:
threaded means centered on the axis and mounted on a central opening formed in the rotor of the first pump and having a wide pitch;
a rotatable screw received in the opening and having a pitch matching the pitch of the threaded means, so that the rotor and drum of the first pump is displaceable on the screw

toward and away from the respective diaphragm between minimum and maximum volume positions,
a first helical spring braced against and biasing the volume displacing means of the first pump away from the respective diaphragm to the maximum volume position, so that the volume adjusting means of the first pump is displaceable in response to pressure differential between the vanes of the pumps,
an axial keyway formed in the rotor of the second pump,
a key received in the keyway, so that the volume displacing means of the second pump is axially slidable toward and away from the respective diaphragm along the wedge between respective maximum and minimum volume positions, and
a second helical spring braced against and biasing the volume displacing means of the second pump toward the diaphragm to the minimum volume position of the second pump.

5,799,488

NURTURING TREELETS

Mac Truong, 325 Broadway, New York, N.Y. 10007

Continuation of Ser. No. 461,760, Jan. 8, 1990, abandoned.

This application Jul. 21, 1995, Ser. No. 505,446

Int. Cl. A01G 13/00

U.S. Cl. 47—101

3 Claims



1. The method of preparing a grove characterized by more than one tree, substantially each tree having been grown in a nutrient composition comprising the remains of a particular human, a significant portion of such trees having identifications associating a particular tree with a particular deceased human, each such tree having been prepared by a method which comprises the steps of:
(a) producing isolated dirt-like material from the remains of said one particular deceased human;
(b) preparing a nutrient composition characterized by the incorporation therein of said dirt-like material derived from the remains of said particular deceased human, the concentration of the dirt-like material derived from the remains of said particular deceased human constituting from 1% to 99% of the nutrient composition;
(c) planting a precursor of a tree in said nutrient composition;
(d) nurturing said precursor rooted in said nutrient composition for growth transformation into a tree, whereby whatever growth is attributable to the remains of deceased humans is significantly attributable only to said particular deceased human; and
(e) providing a plaque identifying such tree as an embodiment of the ongoing life of said particular deceased human.

5,799,489

TORQUE COMPENSATING APPARATUS AND METHOD FOR A TURBO-CHARGER

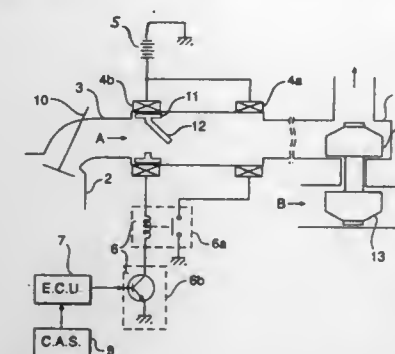
Jun Yeop Lee, Ulsan, Rep. of Korea, assignor to Hyundai Motor Company, Ltd., Seoul, Rep. of Korea

Filed Jun. 28, 1996, Ser. No. 672,568

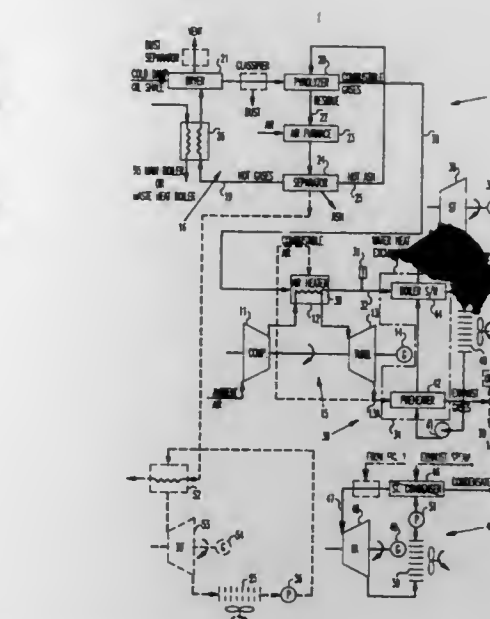
Int. Cl. F02B 37/00

U.S. Cl. 60—597

20 Claims



1. A torque compensating apparatus for an internal combustion engine including a crank, a turbine and an exhaust manifold, comprising:
sensor means for detecting a crank angle of the crank;
control means for generating a control signal according to the detection;
compression means for selectively generating pressure toward the turbine; and
switch means for selectively operating the compression means according to the control signal generated by the control means so as to continuously rotate the turbine even during an intake stroke of the engine, wherein the compression means includes:
a first solenoid and a second solenoid connected to each other for selectively being activated by the switch means, and
a piston controlled by the first and second solenoids.



h) apparatus for producing said combustion products, said apparatus including:
(1) an air compressor for compressing ambient air and producing compressed air;
(2) a combustor within which fuel is burned for heating said compressed air and producing combustion products;
(3) a gas turbine coupled to said air compressor for expanding the combustion products and driving said air compressor and producing expanded combustion products; and
(4) means for supplying said expanded combustion products to said steam vaporizer.

5,799,491

ARRANGEMENT OF HEAT RESISTANT TILES FOR A GAS TURBINE ENGINE COMBUSTOR

Lance P. Bell, Bristol; Neil Gater, Derby; Anthony Pidcock, Derby; Desmond Close, Derby; and Simon Cross, Meopham, all of Great Britain, assignors to Rolls-Royce PLC, London, Great Britain

Continuation of Ser. No. 597,991, Feb. 7, 1996, abandoned.

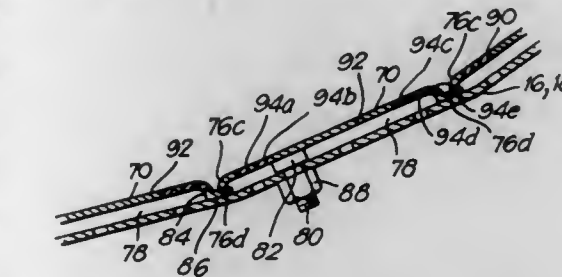
This application Jul. 22, 1997, Ser. No. 898,278

Claims priority, application United Kingdom, Feb. 23, 1995, 9503581

Int. Cl. F23R 3/60

U.S. Cl. 60—752

15 Claims



1. An arrangement of heat resistant tiles forming an internal liner of a gas turbine combustor, comprising a plurality of tiles mounted in a contiguous manner on an inner surface of the combustor, each of the plurality of tiles being mounted on a wall of the combustor by attachment means on a back surface of each of the plurality of tiles and at least one edge of each of the plurality of tiles being provided with one of a lip and an overlapping portion, a first one of the plurality of tiles having a lip being contactably clamped to the wall by an overlapping portion of a neighbouring one of the

5,799,490

EXTERNALLY FIRED COMBINED CYCLE GAS TURBINE

Lucien Y. Bronicki, Yavne; Daniel Goldman, Raanana, and Joseph Sinia, Ramat Gan, all of Israel, assignors to Ormat Industries Ltd., Yavne, Israel

Continuation of Ser. No. 205,260, Mar. 3, 1994, abandoned.

This application Jan. 31, 1996, Ser. No. 594,475

Int. Cl. F01R 23/04

U.S. Cl. 60—655

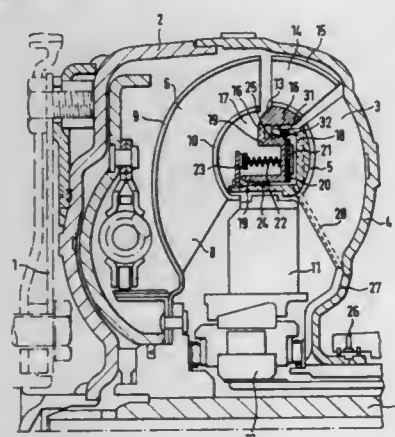
17 Claims

1. A power plant comprising:
a) a steam vaporizer for producing steam only by the indirect contact of combustion products with water in said steam vaporizer;
b) a steam turbine coupled to a generator and responsive to said steam for producing expanded steam and driving the generator which produces electricity;
c) means including a steam condenser containing organic fluid and responsive to said expanded steam for producing vaporized organic fluid and steam condensate;
d) means for returning said steam condensate to said steam vaporizer;
e) a primary organic fluid turbine coupled to a generator and responsive to said vaporized organic fluid for producing expanded organic fluid vapor and driving the generator which produces electricity;
f) an organic fluid condenser for extracting heat from and condensing said expanded organic fluid vapor and producing organic fluid condensate;
g) means for returning said organic fluid condensate to said steam condenser; and

plurality of tiles, and an enclosed chamber being provided between each of the plurality of tiles and the wall of the combustor.

5,799,492
HYDRODYNAMIC UNIT, PARTICULARLY FOR THE TRANSMISSION LINE OF A MOTOR VEHICLE
Klaus Peterreins, Poecking, Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany
Filed Aug. 9, 1996, Ser. No. 695,346
Claims priority, application Germany, Aug. 12, 1995, 195 29 739.3

Int. Cl.⁶ F16D 33/00
U.S. Cl. 60—343 20 Claims

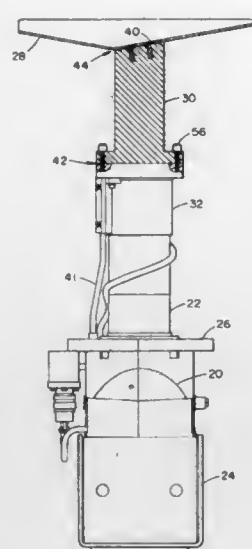


1. A hydrodynamic unit for a transmission of a motor vehicle, comprising:
a main pump wheel connected with an input shaft and having a blading;
a turbine wheel connected with an output shaft and having a blading;
an auxiliary pump wheel having a blading;
a core being defined by a respective inside torus of each of the main pump wheel blading, the turbine wheel blading, and the auxiliary pump wheel blading, said core containing a working fluid at a pressure; and
at least one coupling arranged in said core in communication with said working fluid, said pressure of the working fluid biasing said at least one coupling toward a coupled position in which said main pump wheel is coupled with said auxiliary pump wheel, said at least one coupling being selectively communicable with a main transmission pressure which is higher than said pressure of the working fluid to bias said at least one coupling toward an uncoupled position in which said main pump wheel is uncoupled from said auxiliary pump wheel.

5,799,493
CORROSION RESISTANT CRYOPUMP
Ronald N. Morris, North Falmouth; Doreen J. Ball-DiFazio, Hopkinton; Stephen R. Matté, Norfolk, and Ernest D. Quintanilha, Norton, all of Mass., assignors to Helix Technology Corporation, Mansfield, Mass.
Filed Sep. 5, 1996, Ser. No. 708,451

Int. Cl.⁶ B01D 8/00
U.S. Cl. 62—55.5 25 Claims

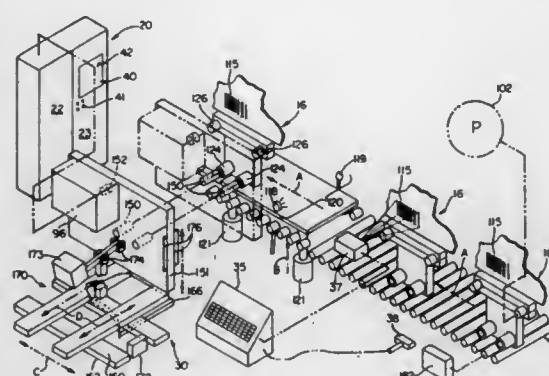
1. A cryopump comprising:
a cryogenic refrigerator; and
a cryopanel of high conductivity material cooled by the cryogenic refrigerator, the cryopanel having a corrosion resistant polymer coating, wherein said corrosion resistant polymer coating is a halogenated or perhalogenated alkenyl or alkoxy polymer or a copolymer thereof having c_1 to c_4 repeat units,



wherein said repeat units are substantially halogenated with fluorine, chlorine or combinations thereof.

5,799,494
REFRIGERANT METERING CHARGE BOARD AND METHOD OF ITS OPERATION
Stephen W. Wilson, Fort Smith, Ark., assignor to Whirlpool Corporation, Harbor-Benton, Mich.
Division of Ser. No. 505,549, Jul. 21, 1995, Pat. No. 5,694,778.
This application Mar. 18, 1997, Ser. No. 819,275

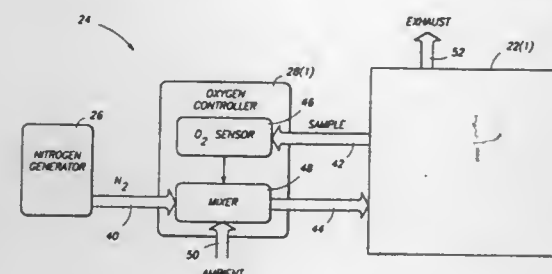
Int. Cl.⁶ F25B 45/00
U.S. Cl. 62—77 8 Claims



6. A method of dispensing a metered charge of refrigerant and oil from a supply of refrigerant and a supply of oil into a refrigerating appliance, the method comprising the steps of:
connecting a hydraulic cylinder having a shaft to a servo motor via a ball screw and a ball screw nut;
driving the ball screw with the servo motor to advance the ball screw nut, thereby advancing the shaft of the hydraulic cylinder to meter out a proper amount of refrigerant and oil.

5,799,495
CONTAINER OXYGEN CONTROL SYSTEM FOR TRANSPORTING AND RIPENING PERISHABLE GOODS
William A. Gast, Jr., Mead, Wash.; Robert W. Herdeman, Loveland, and Jorge E. Saenz, Cincinnati, both of Ohio, assignors to Nitec, Inc., Spokane, Wash., and Chiquita Brands, Inc., Cincinnati, Ohio
Filed Oct. 30, 1996, Ser. No. 741,263

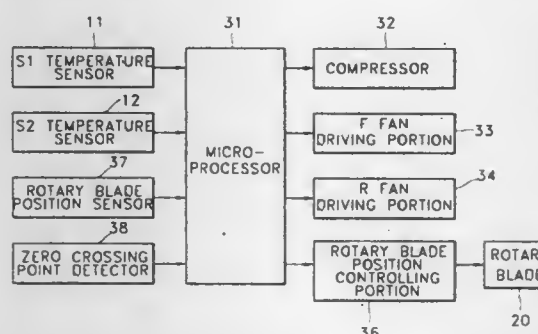
Int. Cl.⁶ F24F 3/16
U.S. Cl. 62—78 25 Claims



1. A system for controlling a ripening atmosphere composed primarily of nitrogen and oxygen, comprising:
a nitrogen generator to generate a nitrogen enriched stream;
at least one oxygen controller connected to receive the nitrogen enriched stream from the nitrogen generator, the oxygen controller continuously injecting the nitrogen enriched stream into the ripening atmosphere at an approximately constant rate; and
the oxygen controller sensing an oxygen content of the ripening atmosphere and selectively mixing the nitrogen enriched stream with ambient air before injection into the ripening atmosphere to controllably adjust the oxygen content in the ripening atmosphere.

5,799,496
TEMPERATURE CONTROLLING METHOD AND APPARATUS FOR REFRIGERATOR USING VELOCITY CONTROL OF VENTILATION FAN AND DIRECTION CONTROL OF ROTARY BLADE
Hae-jin Park, and Yun-seok Kang, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Apr. 23, 1997, Ser. No. 839,098
Claims priority, application Rep. of Korea, Apr. 29, 1996, 1996-13554

Int. Cl.⁶ F25D 17/06
U.S. Cl. 62—89 15 Claims

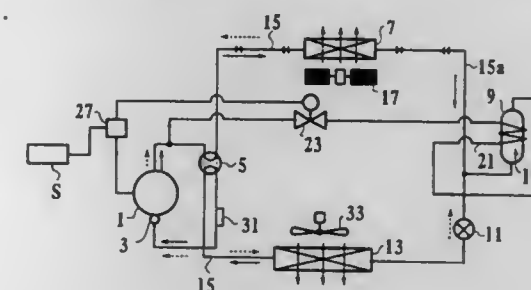


1. A temperature controlling method for a refrigerator comprising the steps of:
(a) detecting a temperature-equilibrating position as the highest temperature position within a refrigeration compartment;

(b) controlling the rotation velocity of a ventilation fan to a temperature-equilibrating velocity required for ventilating cool air from a rotary blade to the temperature-equilibrating position; and
(c) controlling a stop angle of the rotary blade to orientate the cool air toward the temperature-equilibrating position.

5,799,497
REFRIGERATING APPARATUS
Tetsuo Sano, Shizuoka-ken; Yasuhiro Arai; Tetsuji Yamashita, both of Kanagawa-ken; Takaki Iwanaga, Tokyo, and Kolchi Goto, Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 219,797, Mar. 29, 1994, abandoned.
This application Jan. 22, 1996, Ser. No. 589,211
Claims priority, application Japan, Mar. 29, 1993, 5-069667

Int. Cl.⁶ F25B 1/00
U.S. Cl. 62—149 22 Claims



1. A refrigerating apparatus comprising:
a main passage for circulating a coolant;
a pressure reducer for reducing coolant pressure;
an outdoor heat exchanger;
an indoor heat exchanger connected to said outdoor heat exchanger through said main passage and said pressure reducer;
a compressor connected to said outdoor heat exchanger and said indoor heat exchanger through said main passage for compressing the coolant, which is composed of a mixture of a high boiling coolant and a low boiling coolant, from said indoor heat exchanger or from said outdoor heat exchanger;
a tank connected to said main passage for storing the mixed coolant and for supplying the high boiling coolant and the low boiling coolant therefrom to the coolant circulating through said compressor, said outdoor heat exchanger, and said indoor heat exchanger through said main passage; and
a heating line connected to said compressor and wound around said tank to heat said tank with the compressed mixed coolant from said compressor, wherein the heating line has a valve for controlling flow of the compressed mixed coolant through said heating line in accordance with an applied load, wherein said heating line is separate from and bypasses said main passage to adjust the amount of the compressed mixed coolant functioning to heat said tank.

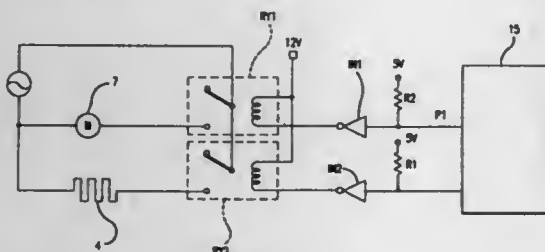
5,799,498
DEFROSTER FOR INDIRECT-FREEZING REFRIGERATOR
Jun Bae Park, Changwan, Rep. of Korea, assignor to Electronics Inc., Rep. of Korea

Filed Sep. 14, 1995, Ser. No. 528,418
Claims priority, application Rep. of Korea, Sep. 15, 1994, 1994-23419

Int. Cl.⁶ F25D 21/02

U.S. Cl. 62—154

2 Claims



1. A defroster for an indirect-freezing refrigerator comprising:
a fan motor for circulating freezing air;
rotation number measuring means for measuring the rotation number of said fan motor;
a defrosting heater for removing frost formed; and
a microcomputer for receiving a signal varying with the variation of rotation number from said rotation number measuring means, thereby controlling said defrosting heater.

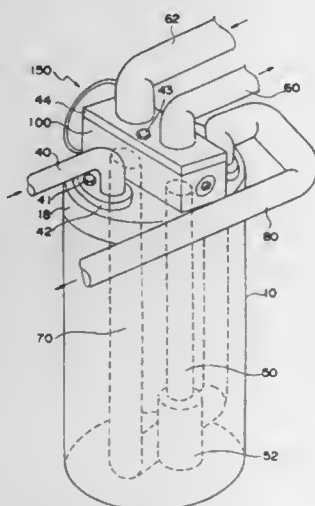
5,799,499
COMBINED UNIT OF EXPANSION VALVE AND RESERVOIR TANK
Masamichi Yano, and Takuji Furuta, both of Tokyo, Japan, assignors to Fujikoki Corporation, Tokyo, Japan

Filed May 22, 1996, Ser. No. 651,538
Claims priority, application Japan, Sep. 27, 1995, 7-249278

Int. Cl.⁶ F25B 41/04

U.S. Cl. 62—225

9 Claims



1. A single structure unit for a refrigerating cycle including a compressor and an evaporator, said unit comprising:
an expansion valve; and
a reservoir tank having a refrigerant supply pathway in which a gaseous refrigerant introduced from said expansion valve flows toward the compressor in said refrigerating cycle while exchanging heat with a liquid refrigerant stored in said reservoir tank, wherein said expansion valve is united with said reservoir tank.

5,799,500
REFRIGERATOR WITH AN AIR GUIDE FOR A COOL AIR DISPENSING DEVICE
Tae Gil Kang, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

PCT No. PCT/KR96/00137, § 371 Date May 30, 1997, § 102(e) Date May 30, 1997, PCT Pub. No. WO97/07372, PCT Pub. Date Feb. 27, 1997

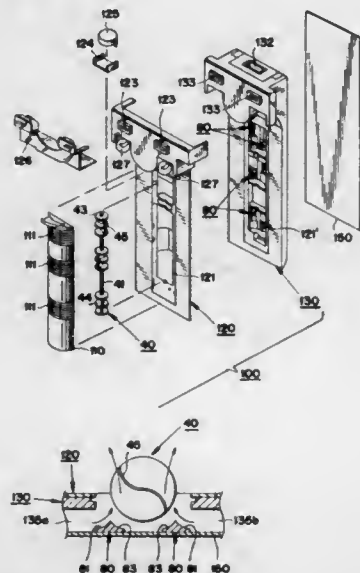
PCT Filed Aug. 19, 1996, Ser. No. 809,822

Claims priority, application Rep. of Korea, Aug. 19, 1995, 1995/25556

U.S. Cl. 62—408

Int. Cl.⁶ F25D 17/04

2 Claims



1. A refrigerator comprising:
a main body forming a fresh food compartment;
an evaporator in the main body for generating cool air;
a cool air duct housing disposed on a wall of the compartment and having cool air discharge openings communicating with the compartment to supply cool air into the compartment;
each of the discharge openings communicating with first and second cool air paths for supplying the discharge outlet with cool air from the evaporator, the first and second paths conducting respective flows of cool air toward one another;
a cool air dispensing device mounted for rotation in the duct housing and including air dispersing wings arranged in respective discharge openings, each wing situated at a location where the first and second paths come together;
a driving device for rotating the dispersing device; and
first and second cool air guide elements disposed in the first and second paths, respectively, adjacent the associated air dispersing wing, each guide element including a generally curved guide surface, the guide surfaces facing away from one another and arranged for preventing the first and second air flows from colliding with one another by diverting the respective air flows by generally ninety degrees toward the respective air dispersing wing.

5,799,501
BEVERAGE COOLING DEVICE
Richard T. Leonard, 446 Conradi St. B202, and Steven B. Tucker, 410 Chapel Dr. Apt #4, both of Tallahassee, Fla. 32304

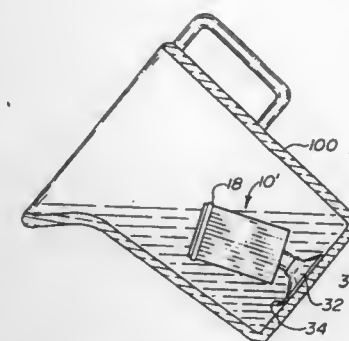
Filed Jul. 8, 1994, Ser. No. 272,048

Int. Cl.⁶ F25D 3/08

U.S. Cl. 62—457.3

8 Claims

1. A beverage cooling apparatus comprising:
a body having a hollow interior and being completely and permanently sealed;



a freezable material disposed within the hollow interior and being completely sealed within the body;
a suction cup threadably attached to the body; and
a first ring, constructed of insulating material, encompassing the top of the body.

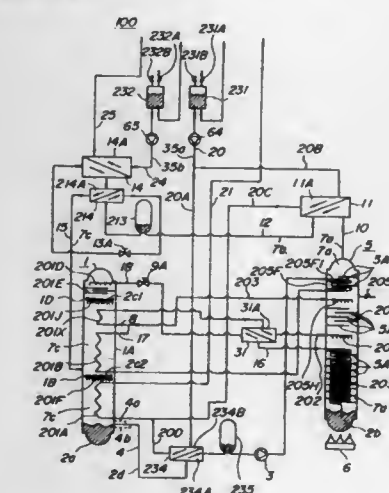
5,799,502
ABSORPTION TYPE REFRIGERATING APPARATUS
Kazuo Nomura; Tomohiko Kato; Tomonori Tamura, and Shigeru Murayama, all of Ohra-gun, Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

Filed Jul. 31, 1996, Ser. No. 688,711
Claims priority, application Japan, Aug. 1, 1995, 7-216755; Aug. 1, 1995, 7-216756

Int. Cl.⁶ F25B 37/00; 15/02

U.S. Cl. 62—476

3 Claims



1. An absorption type refrigerating apparatus for facilitating energy exchange for adjusting temperature in a desired heat operation object by means of a second heat operation fluid for heat exchange with an evaporation function portion while cooling an absorption function portion and a condensation function portion by means of a first heat operation fluid by providing an absorption solutions circulation system for circulating absorption solution through the absorption function portion for causing refrigerant vapor to be absorbed into an absorption solution and a refrigerant circulation system for circulating a refrigerant through a generation function portion for generating the refrigerant vapor from the absorption solution, the condensation function portion for obtaining a condensed refrigerant by condensing the generated refrigerant vapor, and the evaporation function portion for obtaining the refrigerant vapor by evaporating the condensed refrigerant, the apparatus comprising:
a plurality of absorption function means for dividing a cooling function portion for cooling the absorption function portion by means of the first heat operation fluid into a plurality of cooling function sub-portions; and

cooling flow passage means for connecting the flow passages of the first heat operation fluid to the plurality of cooling function sub-portions, wherein said flow passages of the first heat operation fluid to the plurality of cooling function sub-portions are connected in series, and wherein a plurality of said cooling function sub-portions are a cooling function sub-portion arranged inside the absorption function portion and a cooling function sub-portion arranged outside the absorption function portion.

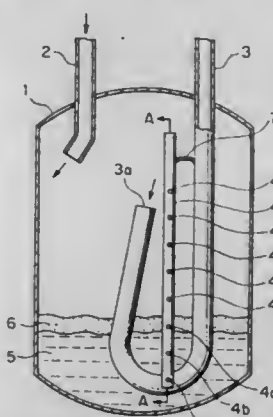
5,799,503
ACCUMULATOR
Toshihide Koda; Mihoko Shimoji; Masahiro Sugihara; Naoki Tanaka; Hitoshi Iijima; Takeshi Izawa, and Masaki Toyoshima, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 1, 1997, Ser. No. 831,525
Claims priority, application Japan, Apr. 26, 1996, 8-107359

Int. Cl.⁶ F15B 1/02

U.S. Cl. 62—503

15 Claims



1. An accumulator, comprising:
a sealed vessel for temporarily storing refrigerant circulating in a refrigerating/air conditioning circuit;
a suction pipe for introducing the refrigerant into said sealed vessel;
a discharge pipe for discharging the refrigerant in said sealed vessel; and
an oil collecting pipe held in said sealed vessel with the lower end thereof closed and having a plurality of oil collecting apertures spaced in a vertical direction and a communication port for communicating with said discharge pipe, said communication port being disposed in the vicinity of the lowermost oil collecting aperture of said oil collecting pipe or to the downstream side of the aperture.

5,799,504
REFRIGERATOR SYSTEM WITH FLOAT VALVE FLOW CONTROL
William G. Nelson, St. Cloud, Minn., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

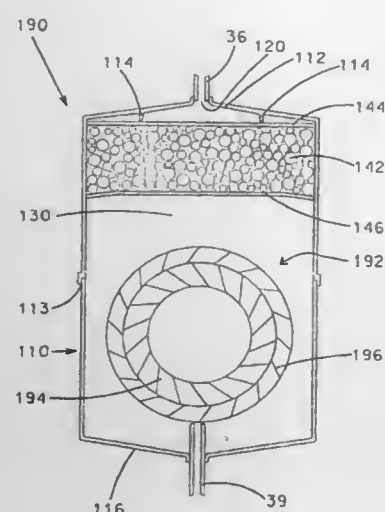
Filed Dec. 4, 1996, Ser. No. 760,048

Int. Cl.⁶ F25B 43/00

U.S. Cl. 62—509

32 Claims

29. A refrigeration system comprising:
an evaporator for vaporizing refrigerant to provide cooling;
a compressor for drawing refrigerant from the evaporator;
a condenser for condensing refrigerant from the compressor;
a flow control device for maintaining a pressure drop between the condenser and the evaporator, said flow control device having an inlet portion and an outlet portion, said outlet portion being connected to the evaporator;
a regulating device comprising:



- a housing defining an inner chamber for receiving refrigerant from the condenser, said housing having a top wall, a side wall and a bottom wall, said top wall defining an inlet passage connected to the condenser, and said bottom wall defining an outlet passage;
- an outlet line connected to the inlet portion of the flow control device and extending through the outlet passage, said outlet line including a valve seat disposed within the chamber; and
- a float disposed within the chamber, said float having a resilient surface and being movable in response to changes in level of refrigerant in the chamber, said float moving downward and into sealing engagement with the valve seat to thereby prevent refrigerant flow into the outlet line when refrigerant in the chamber drops below a minimum level, and moving upward and out of sealing engagement with the valve seat to thereby permit refrigerant to flow into the outlet line when refrigerant in the chamber rises above the minimum level.

5,799,505

SYSTEM FOR PRODUCING CRYOGENIC LIQUEFIED INDUSTRIAL GAS

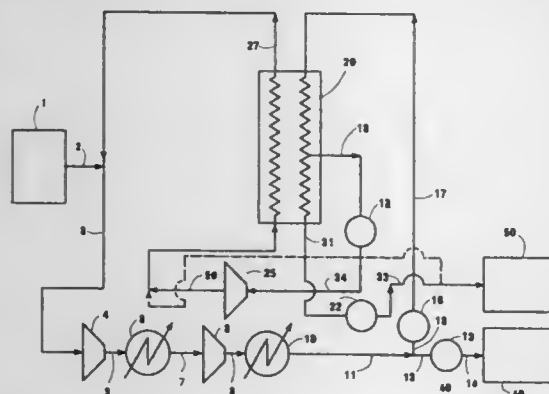
Dante Patrick Bonaquist, Grand Island; Nancy Rose Cribbin, Buffalo; Joseph Alfred Weber, Cheektowaga; John Fredric Billingham, Getzville, and Neno Todorov Nenov, Williams-ville, all of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

Filed Jul. 28, 1997, Ser. No. 901,350

Int. Cl.⁶ F25J 3/00

U.S. Cl. 62—613

8 Claims



1. A method for producing cryogenic liquefied industrial gas comprising:

- (A) passing industrial gas feed to compression means, compressing the industrial gas feed to produce elevated pressure industrial gas, and passing a first portion of the elevated pressure industrial gas to a use point;
- (B) cooling a second portion of the elevated pressure industrial gas to produce cooled industrial gas, and condensing a third portion of the elevated pressure industrial gas to produce cryogenic liquefied industrial gas;
- (C) turboexpanding the cooled industrial gas to produce turboexpanded industrial gas, and warming the turboexpanded industrial gas by indirect heat exchange with the second and third portions of the elevated pressure industrial gas to produce warmed turboexpanded industrial gas and said cooled industrial gas and said cryogenic liquefied industrial gas; and
- (D) passing the warmed turboexpanded industrial gas to said compression means as part of said industrial gas feed.

5,799,506

METHOD AND APPARATUS FOR COOLING A PRODUCT USING A CONDENSED GAS

Sven-Ake Johansson, Enskede, Sweden, assignor to AGA AB, Lidingo, Sweden

PCT No. PCT/SE95/00228, § 371 Date Sep. 6, 1996, § 102(e) Date Sep. 6, 1996, PCT Pub. No. WO95/24585, PCT Pub. Date Sep. 14, 1995

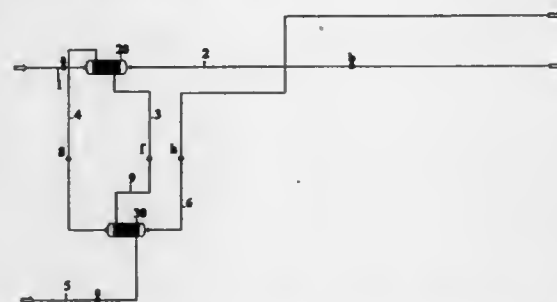
PCT Filed Mar. 3, 1995, Ser. No. 714,040

Claims priority, application Sweden, Mar. 7, 1994, 9400755

Int. Cl.⁶ F25J 5/00

U.S. Cl. 62—616

16 Claims



1. A method of cooling a product using a condensed gas, said method comprising the steps of: passing the product through a first product-cooling heat-exchanger; vaporizing the condensed gas in a first evaporation heat exchanger; delivering the vapourized gas to the first product-cooling heat-exchanger so as to cool the product therein; and returning the gas that is heated by the product in the product-cooling heat-exchanger back to the first evaporation heat-exchanger for vapourization of the condensed gas therein.

5,799,507

HYDROCARBON GAS PROCESSING

John D. Wilkinson; Hank M. Hudson, and Kyle T. Cuellar, all of Midland, Tex., assignors to Elcor Corporation, Dallas, Tex.

Filed Oct. 25, 1996, Ser. No. 738,321

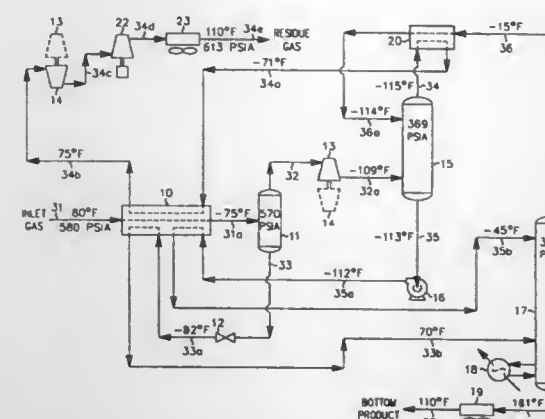
Int. Cl.⁶ F25J 3/06

U.S. Cl. 62—621

8 Claims

1. In a process for the separation of a gas stream containing methane, C₂ components, C₃ components and heavier hydrocarbon components into a volatile residue gas fraction containing a major portion of said methane and C₂ components and a relatively less volatile fraction containing a major portion of said C₃ components and heavier hydrocarbon components, in which process

- (a) said gas stream is treated in one or more heat exchange and/or expansion steps to partially condense at least a portion thereof and provide thereby at least a first vapor stream and at



- least one C₃-containing liquid stream which also contains lighter hydrocarbons; and

- (b) at least one of said C₃-containing liquid streams is directed into a distillation column wherein said liquid is separated into a second vapor stream containing predominantly methane and C₂ components and said relatively less volatile fraction containing the major portion of said C₃ components and heavier hydrocarbon components;

the improvement wherein

- (1) at least a portion of said first vapor stream is directed into a mid-column feed position on said distillation column as a second feed thereto;
- (2) a vapor distillation stream is withdrawn from a region of said distillation column below said first vapor stream and cooled sufficiently to condense at least a part of it, thereby forming a third vapor stream and a condensed stream;
- (3) at least a portion of said condensed stream is supplied to said distillation column at a top feed position;
- (4) at least a portion of said second vapor stream is directed into heat exchange relation with said vapor distillation stream, thereby to supply at least a portion of the cooling of step (2) and thereafter discharging at least a portion of said second vapor stream and said third vapor stream as said volatile residue gas fraction; and
- (5) the quantities and temperatures of said feed streams to said distillation column are effective to maintain the overhead temperature of said distillation column at a temperature whereby the major portion of said C₃ components and heavier hydrocarbon components is recovered in said relatively less volatile fraction.

5,799,508

CRYOGENIC AIR SEPARATION SYSTEM WITH SPLIT KETTLE LIQUID

Dante Patrick Bonaquist, Grand Island, and Kevin John Potempa, Amherst, both of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

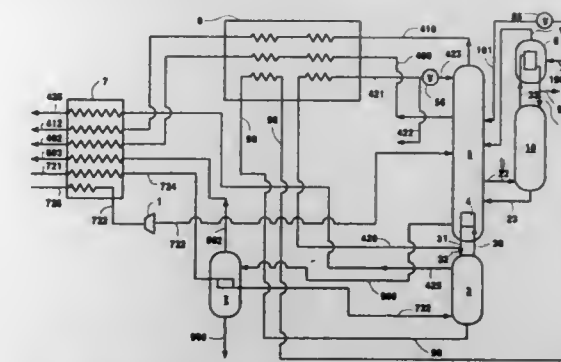
Continuation-in-part of Ser. No. 619,383, Mar. 21, 1996, abandoned. This application Dec. 13, 1996, Ser. No. 764,937

Int. Cl.⁶ F25J 3/04

U.S. Cl. 62—646

4 Claims

1. A method for producing elevated pressure oxygen comprising:
- (A) condensing feed air, passing condensed feed air into a higher pressure column, and separating feed air within the higher pressure column into nitrogen-enriched fluid and oxygen-enriched liquid;
- (B) passing nitrogen-enriched fluid into a lower pressure column, passing a first portion of the oxygen-enriched liquid from the higher pressure column into the lower pressure column and producing oxygen-rich liquid within the lower pressure column;
- (C) passing argon-containing fluid from the lower pressure column into an argon column and producing argon-rich vapor within the argon column;



- (D) condensing the argon-rich vapor by indirect heat exchange with a second portion of the oxygen-enriched liquid from the higher pressure column which is substantially completely vaporized to produce oxygen-enriched vapor, and passing oxygen-enriched vapor into the lower pressure column below where the oxygen-enriched liquid is passed into the lower pressure column;

- (E) withdrawing oxygen-rich liquid from the lower pressure column, increasing the pressure of the withdrawn oxygen-rich liquid, and vaporizing the pressurized oxygen-rich liquid to condense said feed air and to produce elevated pressure oxygen; and

- (F) recovering elevated pressure oxygen product.

5,799,509

MULTI-COMPONENT RECOVERY APPARATUS AND METHOD

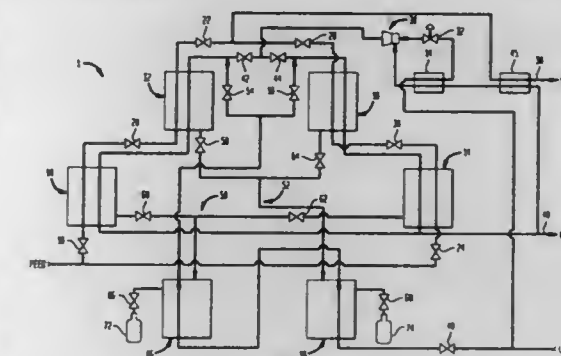
Steven J. Finley, Wayne; Piotr J. Sadkowski, Bridgewater, and Atul M. Athalye, Chatham, all of N.J., assignors to The BOC Group, Inc., New Providence, N.J.

Filed Aug. 22, 1997, Ser. No. 916,454

Int. Cl.⁶ F25J 1/00

U.S. Cl. 62—638

8 Claims



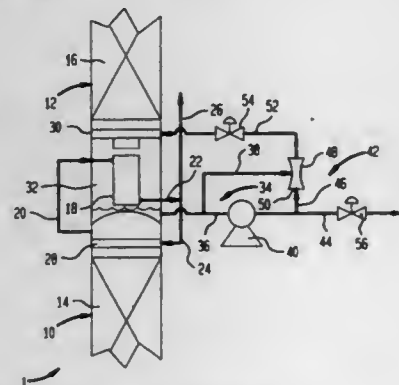
1. An apparatus for recovering at least one component from a vapor feed, said apparatus comprising:
- at least a lower and a higher pressure cold trap in communication with one another and each having on-line and defrost modes of operation to solidify and vaporize said at least one component, respectively;
- a feed flow circuit passing through said lower pressure cold trap for passage of said vapor feed therethrough and having a first set of isolation valves positioned to isolate said lower pressure cold trap within said feed flow circuit during vaporization of said at least one component; and
- a recovery flow circuit communicating between said lower pressure and higher pressure cold traps for passage of vapor, produced from vaporization of said at least one component, from said lower pressure to said higher pressure cold trap when said lower pressure cold trap is in the defrost mode and said higher pressure cold trap is in the on-line mode, thereby to re-solidify said vapor in said higher pressure cold trap;

said recovery flow circuit having a second set of isolation valves positioned to isolate said higher pressure cold trap from said lower pressure cold trap during the defrost mode of operation of said higher pressure cold trap, thereby to create a vapor pressure therein and to allow subsequent flow of said at least one vaporized component therefrom under impetus of said vapor pressure.

5,799,510
MULTI-COLUMN SYSTEM AND METHOD FOR PRODUCING PRESSURIZED LIQUID PRODUCT
Robert A. Mostello, Somerville, N.J., assignor to The BOC Group, Inc., New Providence, N.J.
Filed Jul. 30, 1997, Ser. No. 902,887
Int. Cl.⁶ F25J 1/00

U.S. Cl. 62—653

5 Claims



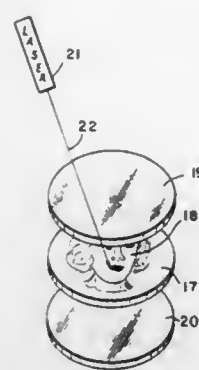
1. A multi-column system comprising:
 - at least higher and lower pressure columns operatively associated with one another by a condenser-reboiler to condense tower overhead in the higher pressure column against vaporizing a portion of liquid descending within the lower pressure column, the condenser-reboiler comprising a falling film type of heat exchanger;
 - a liquid collector to collect said liquid for transfer to said condenser-reboiler;
 - a sump to collect a remaining portion of the liquid not vaporized;
 - a first branched flow circuit connected to said sump and having first and second branches;
 - a pump connected to the first branch of the branched flow circuit to pressurize a stream of the remaining portion of the liquid;
 - a second branched flow circuit connect to said pump and having an outlet branch and a return branch;
 - an ejector having a high pressure inlet connected to said return branch, a low pressure inlet connected to said second branch, and an outlet;
 - and a conduct communicating between said high pressure outlet and said liquid collector.

5,799,511
DECORATIVE ARTICLE WITH ENGRAVED HIGH VISIBILITY IMAGE
David Benderly, New York, N.Y., assignor to NFB of New York, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 511,558, Aug. 4, 1995, Pat. No. 5,609,043. This application Nov. 14, 1996, Ser. No. 749,023
Int. Cl.⁶ A44C 25/00

U.S. Cl. 63—23

15 Claims

1. A decorative article comprising:
 - a) a frame; and
 - b) a sandwich mounted on said frame and including a transparent protective element having an index of refraction, a pre-

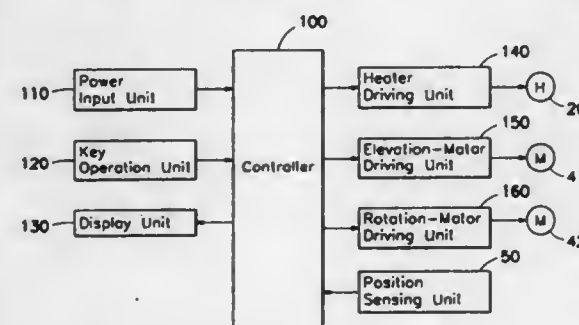


cious metal substrate carrying an etched image on a major surface thereof that faces said protective element, and an optically clear bonding agent between said protective element and said substrate, and having an index of refraction matching that of said protective element for improving the clarity of the etched image visible through said protective element.

5,799,512
BALANCING DEVICE FOR DRUM WASHING MACHINE
Hyun-Moo Lee, Suwon, and Geum-Chan Lee, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed May 14, 1997, Ser. No. 856,085
Claims priority, application Rep. of Korea, May 30, 1996, 96-13840; May 23, 1996, 96-17746
Int. Cl.⁶ D06F 37/22

U.S. Cl. 68—23.2

4 Claims

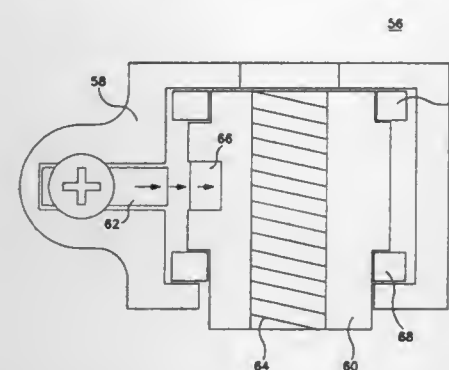


1. A drum washing machine, comprising:
 - a housing;
 - a tub suspended in the housing; and
 - a spin basket mounted in the tub for rotation about a horizontal axis, the spin basket including a plurality of annular balancing races arranged coaxially with respect to the axis, each race containing oil and having balls movably mounted therein, each race including an oil supply hole and an air vent hole spaced angularly from the oil supply hole for venting air during an introduction of oil through the oil supply hole, the oil supply hole and air vent adapted to be sealed.
4. In a method of fabricating a drum washing machine including a housing, a tub suspended in the housing, and a spin basket mounted in the tub for rotation about a horizontal axis, the spin basket including a plurality of annular balancing races arranged coaxially with respect to the axis, balls movably mounted in the races, and oil contained in the races, the oil being provided by the steps of:
 - introducing the oil into each race through an oil supply hole formed therein while ejecting air through an air vent formed in the race at an angular spacing from the oil supply hole, and thereafter;
 - sealing the oil supply hole and air vent.

5,799,513
PERSONAL WATER CRAFT SECURITY DEVICE
Simeon Nathan, III, Mesa, Ariz., and Mark S. Brown, Fullerton, Calif., assignors to PWC Lock, L.L.C., Mesa, Ariz.
Filed Sep. 10, 1996, Ser. No. 711,608
Int. Cl.⁶ E05B 73/00

U.S. Cl. 70—14

8 Claims



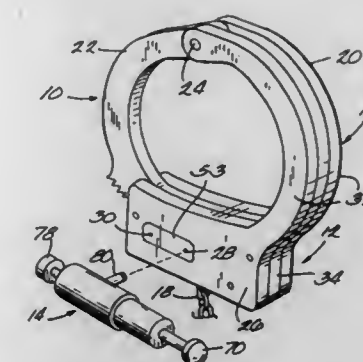
1. An apparatus for securing a personal water craft (PWC) to a trailer configured to support said PWC, said apparatus comprising:
 - a first member comprising a crossbar, wherein said crossbar comprises a central portion and first and second opposing end portions coupled to said central portion, each of said first and second end portions forming an angle with said central portion;
 - a second member comprising a securing arm having a first portion for removably coupling to a PWC component and a second portion for coupling to said first member, wherein each of said first and second end portions of said first member are angled toward said first portion when said second portion is coupled to said first member;
 - means for locking said second member to said first member such that translational displacement of said second member relative to said first member is restricted in at least one direction; wherein
 - said securing arm further comprises a threaded portion;
 - said means for locking is configured to threadably engage said threaded portion of said securing arm to thereby urge said crossbar toward said first portion of said securing arm;
 - said means for locking comprises an outer housing, an inner collar located within said outer housing and having internal threads formed therein to engage said threaded portion of said securing arm, and means for releasably coupling said outer housing to said inner collar;
 - said inner collar rotates with said outer housing to facilitate threadable engagement of said means for locking with said threaded portion of said securing arm when said outer housing is coupled to said inner collar;
 - and said outer housing rotates independent of said inner collar when said outer housing is not coupled to said inner collar.

5,799,514
FLUID ACTUATED HANDCUFF
Thomas H. Tobin, Jr., Fond Du Lac, and Norbert J. Kot, Brookfield, both of Wis., assignors to American Handcuff Co., Fond Du Lac, Wis.
Filed Mar. 25, 1997, Ser. No. 827,033
Int. Cl.⁶ E05B 75/00

U.S. Cl. 70—16

22 Claims

1. A handcuff comprising:
 - a cuff assembly shaped and dimensioned to encircle a human wrist and movable between an open position and a variable closed position, and



a fluid-actuated locking mechanism operatively associated with the cuff assembly operable to lock the cuff assembly in the closed position and to unlock the cuff assembly for movement to the open position.

5,799,515
AUTO COLUMN PIVOT LOCK
Herbert R. Floyd, 420 E. 105th St., Apt. 3E, East River Houses, c/o Bell One, New York, N.Y. 10029
Continuation-in-part of Ser. No. 390,484, Feb. 17, 1995, abandoned. This application Nov. 15, 1996, Ser. No. 749,784
Int. Cl.⁶ B60R 25/06

U.S. Cl. 70—18

12 Claims

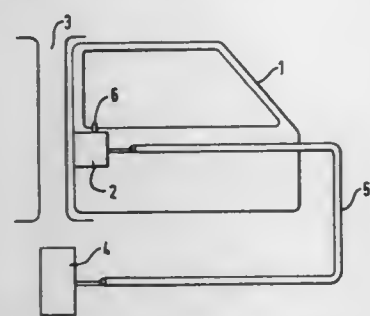


1. An auto column pivot lock therefore preventing unauthorized access to a swivel model auto pivotal column, or a typical auto pivotal column and adjacent gears, comprising:
 - a housing (1Y) embodying two divided integral walls (14Y and 15Y), and characterized by two laterally separated dovetail grooves (3Y and 4Y), such said housing (1Y) so defines two divided flat surfaces (22Y), and adjacent two divided pocket portions (C0) on said divided integral walls (14Y and 15Y) to fit on a steering column (40), which comprises a mounted ignition lock (154);
 - a lock-housing (SL), including a pair of dovetail figurations (Q1 and Q2);
 - means for attaching said two divided integral walls (14Y and 15Y) upon said steering column (40) such as to allow said two flat surfaces (22Y) and said pocket portions (C0) to mate;
 - means for rotating a releasably unmovable rod (26Y) into a lower hole assembly (HA) in said housing (1Y); and
 - a pin element (E) having a pivot lock axis pin (AX) to enter an axis pin enclosure (PL1) as said axis pin enclosure (PL1) is to fit firmly on a pivotal enclosure (D11), which is so sized to fit tightly upon a pivotal column (63) and to forbid unlawful access to gears of said pivotal column (63), wherein said housing (1Y) has a gap assembly (GA) sized to fit a close extended part assembly (PA), wherein said housing (1Y) having a rut (38Y), and wherein said housing (1Y) having a composition of music wire (57Y) so sized to befit said rut (38Y) interiorly, whereby being so outwardly about said steer-

ing column (40) so as to fit a hole (27Y) in a threaded end (28Y) of said unmovable rod (26Y).

5,799,516
APPARATUS FOR UNLOCKING DOORS OF A MOTOR VEHICLE
Albert Zintler, Gross-Gerau, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany
Filed Dec. 2, 1996, Ser. No. 757,098
Claims priority, application Germany, Dec. 23, 1995, 195 48 562.9

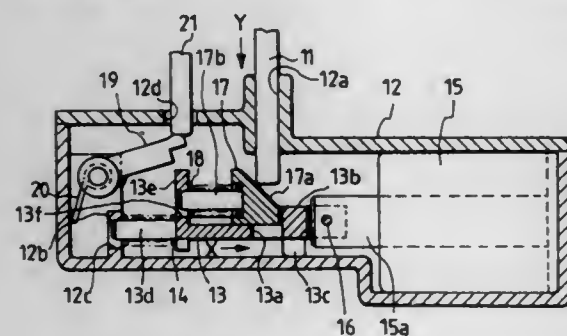
Int. Cl.⁶ E05B 63/14
U.S. Cl. 70—92 12 Claims



1. In combination with a motor vehicle having a seat-belt tensioning device and a door wherein said door has a lock comprising an unlocking mechanism, an apparatus for activating said unlocking mechanism, comprising:
an operative connection between said unlocking mechanism and said tensioning device for activating said unlocking mechanism in the event of an accident.

5,799,517
VEHICLE LOCKING DEVICE
Masaichi Hattori, and Osamu Shoji, both of Aichi, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan
Filed Aug. 16, 1995, Ser. No. 515,618
Claims priority, application Japan, Aug. 30, 1994, 6-205383
Int. Cl.⁶ B60R 25/06

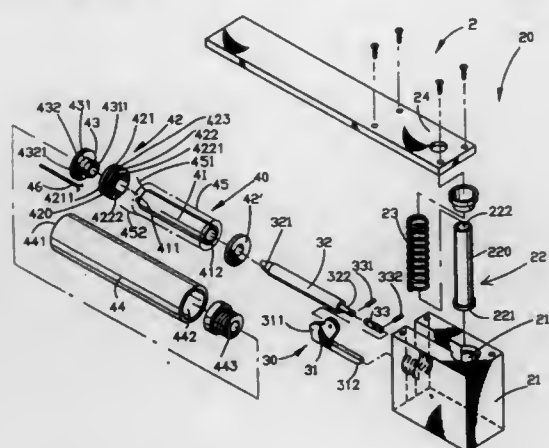
U.S. Cl. 70—247 3 Claims



1. A vehicle locking device comprising:
an interlocking member moving in a predetermined operational direction in conjunction with operation of an operational member;
a stopper member movable back and forth between a lock position where, when said interlocking member is moved in the operational direction, said stopper member abuts said interlocking member for inhibiting said interlocking member from moving and an unlock position where said stopper member retracts from a move path of said interlocking member for allowing said interlocking member to move;

an electromagnetic solenoid, having a plunger coupled to said stopper member for holding said stopper member in the unlock position when said electromagnetic solenoid is energized;
first spring means for energizing said stopper member in a direction parallel to the movement of the solenoid plunger and in a direction of the unlock position; and
a driven member being coupled to said stopper member via second spring means having a spring force larger than said first spring means for giving a move force in a direction of the lock position to said stopper member through said second spring means in response to a move of said interlocking member in the operational direction.

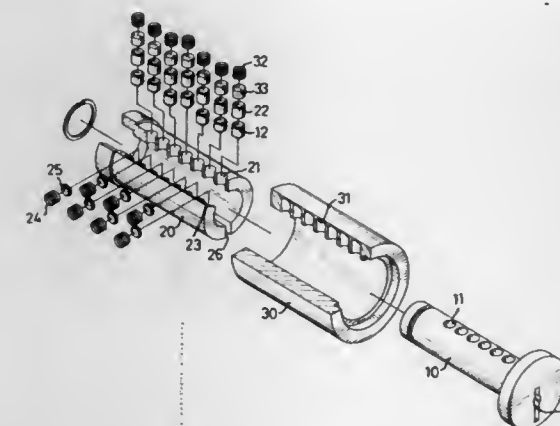
5,799,518
DOOR LOCK ASSEMBLY
Ku Ni Du, Taipei, Taiwan, assignor to Suetech Industries Co., Ltd., Taipei, Taiwan
Filed Jan. 22, 1997, Ser. No. 785,951
Int. Cl.⁶ E05B 47/00
U.S. Cl. 70—281 5 Claims



1. A door lock assembly comprising:
a lock body;
a latching unit mounted slidably in said lock body and having a locking pin and a spring member associated with said locking pin in order to urge said locking pin to an unlocked position;
an electromagnetic driving device including:
an insulating inner tube having first and second open ends;
an insulating outer tube having an internal wall face, a first open end and a second open end which is connected to said lock body; and
first and second insulating ring members connected respectively to said first and second open ends of said inner tube and received in said first and second open ends of said outer tube, each of said first and second ring members engaging fittingly said internal wall face of said outer tube so that said inner tube is concentrically fixed in said outer tube, a plug member having a disc portion which engages fittingly said first open end of said outer tube and a cylindrical portion which extends axially from a center of said disc portion through said first ring member and into said first open end of said inner tube, a coil-receiving space being confined between said inner and outer tubes and between said first and second ring members, an electric wire having a first end connected to a power supply and a second end, and an electric coil with two end wires mounted around said inner tube within said coil-receiving space, said disc portion of said plug member having a notch formed in a periphery thereof, said first ring member having a cylindrical body, first and second annular projections formed adjacent to two ends of said cylindrical body thereof, and an annular groove formed between said first and second annular projections, said first annular projection

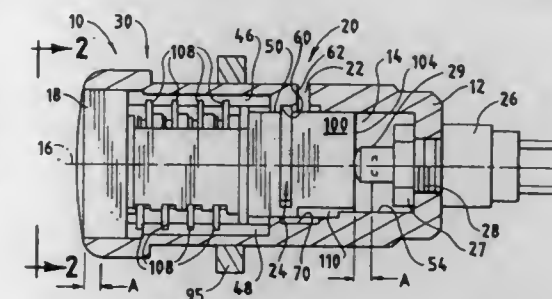
having a notch formed in a periphery thereof, said second annular projection having an axial hole formed there-through and an axial notch formed in a peripheral face thereof so that said end wires of said electric coil are extendible respectively into said annular groove through said axial hole and said axial notch of said second annular projection, said second end of said electric wire extending into said annular groove through said notches of said plug member and said first annular projection and being connected electrically to said end wires of said electric coil; and
a linkage mechanism having a first end portion which is received in said inner tube and a second end portion which abuts against a lower end of said locking pin of said latching unit so that said linkage mechanism is moved to push said locking pin to a locked position against a biasing force of said spring member when said electric coil is energized.

5,799,519
REPEATABLE CODING LOCK
Yao-shiung Hsiao, No. 1-3, Ting Liao, Shuishang Hsiang, Chiayi Hsien, Taiwan
Filed Oct. 22, 1996, Ser. No. 735,129
Int. Cl.⁶ E05B 27/06
U.S. Cl. 70—358 13 Claims



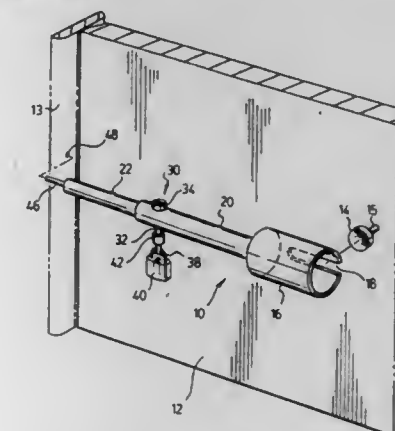
1. A repeatable coding lock comprising:
a) a first elastic element;
b) a second elastic element;
c) a first locking element;
d) a second locking element;
e) a third locking element;
f) a fourth locking element;
g) a tube having a first slot for receiving therein the first elastic element and the first locking element;
h) a first driver having
i) a locking through strip and
ii) a peripheral hole for receiving therein the second locking element;
j) a second driver having
i) a through hole for receiving therein the third locking element so as to
A) externally and correspondingly position said third locking element at said first locking element of said tube and
B) internally axially contain said first driver and said second driver and
ii) a positioning hole for receiving therein the second elastic element and the fourth locking element; and
j) a driving means, in correspondence with said locking through strip, for simultaneously driving said first driver and said second driver.

5,799,520
COMBINED LOCK AND LINEAR ACTUATOR
Timothy P. Laabs, Palatine; Brian M. Ott, Streamwood, and John J. Crocco, Gurnee, all of Ill., assignors to The Eastern Company, Naugatuck, Conn.
Filed Mar. 7, 1996, Ser. No. 612,086
Int. Cl.⁶ E05B 29/04
U.S. Cl. 70—360 20 Claims



1. A combined lock/actuator for providing linear actuation, said lock/actuator comprising:
a lock barrel having an opening extending along a longitudinal axis;
a lock plug operably mounted directly in said opening, said plug rotatable within said opening over a fixed angular displacement between an actuation position and a released position relative to said barrel while operably mounted in said opening,
said plug translatable within said opening over a fixed axial displacement along the longitudinal axis between a first position and a second position relative to said barrel while operably mounted in said opening; and
means for preventing rotation of said plug when said plug is in said actuation position and said first position, when said plug is in said actuation position and said second position, and when said plug is in said actuation position and translated between the first and second positions.

5,799,521
SECURITY BAR WITH INDICATOR
Samuel Kennedy, 540 Timothy Street, Apt. 302, Newmarket, Ontario, Canada, L3Y 5N9, assignor to Gerardus J. Brouwer, Keswick, and Samuel Kennedy, Newmarket, both of Canada
Filed Feb. 18, 1997, Ser. No. 802,024
Int. Cl.⁶ E05B 13/00
U.S. Cl. 70—416 17 Claims



1. A security holder for a door to a room, said door having an inside surface located in said room and an outside surface opposite said inside surface, a door jamb, and a handle on said outside surface, said security holder comprising:

- (a) a bar having first and second bar portions,
 (b) said first bar portion including engaging means movable to a position in which said engaging means covers at least a portion of said door handle to prevent operation of said door handle,
 (c) means for connecting said second bar portion to said door or door jamb so that said bar extends over said outside surface of said door,
 (d) a locking device comprising a combination lock or a key lock for locking said bar portions to each other in fixed relationship in which said first bar portion prevents operation of said door handle,
 (e) said security holder having a readily frangible portion which can be broken to allow removal of said bar portions from said door with said lock still in place, so that said door can be opened,

so that said security holder normally prevents entry into said room and so that said frangible portion provides a visible indication from the outside surface of said door when entry has occurred.

5,799,522 KEY HOLDER

Selya Ohta, Eybens, France, assignor to Hewlett-Packard Company, Palo Alto, Calif.

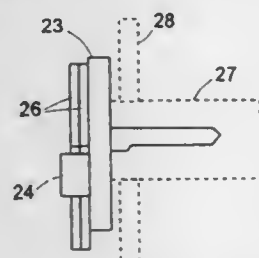
Filed Jul. 1, 1996, Ser. No. 674,053

Claims priority, application European Pat. Off., Jul. 31, 1995, 95410078

Int. Cl.⁶ A44B 15/00

U.S. Cl. 70—456 R

8 Claims



1. In combination, an article provided with a lock, at least one key insertable into said lock to operate said lock and a key holder for holding said at least one key, the key holder comprising a shank portion configured to permit insertion into and engagement with an aperture in said lock, and a key-carrier portion connected to said shank portion at one end thereof, said key-carrier portion adapted to carry said at least one key held fixed in a plane transverse to a direction of extent of said shank portion.

5,799,523 DEVICE FOR INFLUENCING THE PROFILE OF ROLLED STRIP

Jürgen Seidel, Kreuztal; Rüdiger Holz, Neunkirchen; Klaus Klamma, Hilchenbach, and Hans-Joachim Pölking, Kreuztal, all of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany

Filed Nov. 19, 1996, Ser. No. 754,587

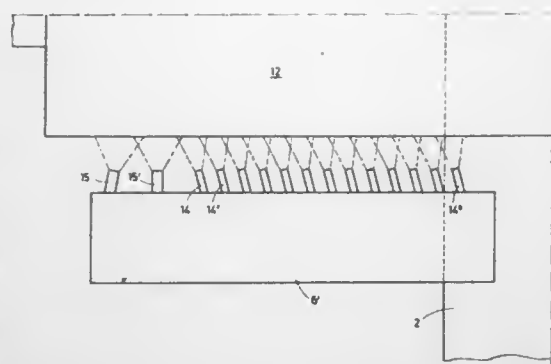
Claims priority, application Germany, Nov. 20, 1995, 195 43 168.5

Int. Cl.⁶ B21B 27/10

U.S. Cl. 72—9.3

13 Claims

1. A device for influencing a strip profile of a strip rolled in at least one roll stand having rolls, each roll having a roll body with two ends and end portions adjacent each end, the device comprising at least one of adjusting units, bending units and displacement units for the rolls of the at least one roll stand and spray beams including spray means for spraying at least one of cooling medium



and lubricating medium onto the rolls, the device further comprising additional spray beams including spray means, the additional spray beams being arranged adjacent the two end portions of the body of each roll, wherein each additional spray beam has an effective range extending between one of the ends of the body of the roll and an area of a strip edge facing said end of the body of the roll.

5,799,524

PRESSURE FORMING AND PIERCING A HOLLOW BODY

August Wilhelm Schäfer, Drolshagen; Hans Werner Scholz, Wolfsburg, and Adolf Handel, Braunschweig, all of Germany, assignors to Schafer Hydroforming GmbH & Co., Wilnsdorf, Germany

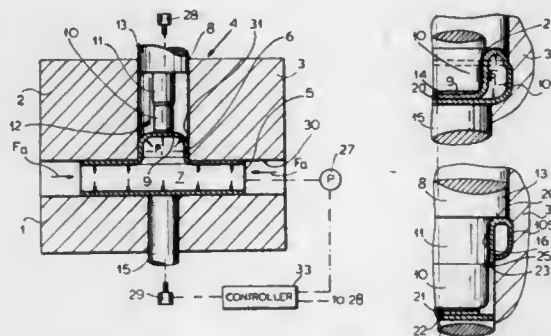
Filed Aug. 16, 1996, Ser. No. 698,994

Claims priority, application Germany, Aug. 16, 1995, 195 30 055.6

Int. Cl.⁶ B21D 28/28

U.S. Cl. 72—55

12 Claims



1. A method of making a shaped and pierced hollow workpiece, the method comprising the steps of sequentially:

- confining a hollow metal blank in a cavity of a die, the cavity having an inner surface and being formed with a lateral compartment;
- internally pressurizing the blank and thereby pressing it outward against the inner surface of the cavity while forming at the compartment an outwardly projecting bulge;
- pressing a tool against an outer surface of the bulge and pressing the bulge inward so as to at least partially invert the bulge and press a central portion of the bulge against an opposite inside wall of the blank; and
- forming a hole through the blank where the central portion of the bulge engages the opposite inside wall.

5,799,525

TOOLING AND METHOD FOR THE EMBOSING OF A CONTAINER AND THE RESULTING CONTAINER

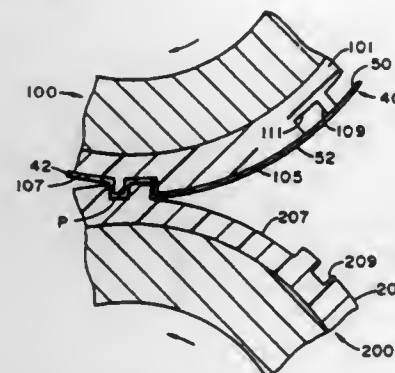
Brian D. Johnson, Sinclairville, and Randall E. Carr, Elllicottville, both of N.Y., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jul. 19, 1996, Ser. No. 694,710

Int. Cl.⁶ B21D 51/26

U.S. Cl. 72—105

7 Claims



1. A method of embossing a cylindrical side wall of a can body, said side wall having a product side that defines the inside diameter of said can body and a consumer side opposite thereto, said method comprising:

- providing a first tooling member having a first cylindrical surface, said first cylindrical surface having an outside diameter that is slightly less than the inside diameter of said can body, said first cylindrical surface defining one or more recessed portions therein;
- providing a second tooling member having a second cylindrical surface, said second cylindrical surface defining one or more protuberances extending therefrom, said protuberances adapted to correspond with said recessed portions, such that each individual said protuberance has a corresponding recessed portion;
- inserting said first tooling member into the can body proximate said product side;
- engaging the consumer side of the can body with a said second tooling member;
- conveying the continuous side wall of the can body between the first and second tooling members by the synchronized rotation of said first and second tooling members with respect to each other, wherein the tooling members define a pinch point therebetween that embosses the cylindrical side wall of the can body between said recessed portions and said protuberances such that when said can body is received on the tooling member, one complete revolution of the tooling member conveys substantially the entire cylindrical side wall of the can body through the pinch point.

5,799,526

PROCESS AND PLANT FOR COLD ROLLING WITH COMPENSATION FOR OVALIZATION OF THE ROLLING ROLLS

Régis Mieze, Grand Fort Philippe; Gérard Robert, Bollezele; Daniel Piquet, Rumingham; Christophe Silvy Leligois, Metz, and Michel Abikaram, Courbevoie, all of France, assignors to Clecim, Cergy Pontoise Cedex, France

Filed Jun. 10, 1996, Ser. No. 661,156

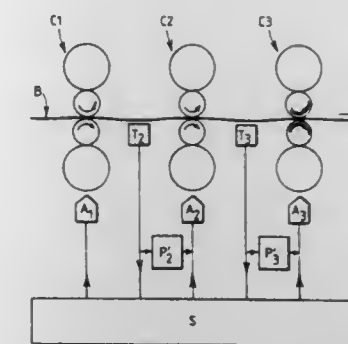
Claims priority, application France, Jun. 8, 1995, 95 06747

Int. Cl.⁶ B21B 31/07; 31/24; 37/00; 37/12

U.S. Cl. 72—248

6 Claims

1. A process for the cold rolling of a metal strip, comprising: providing two or more rolling stands arranged sequentially, each of said rolling stands comprising a pair of rollers arranged such that a metal strip passes between said pair of rollers,



providing continuously during the cold rolling of the strip, a means for compensating for out-of-roundness defects in a pair of rollers of a stand, coupled to a clamping means of said rolling stand, with a signal of measurement of a tension in the strip immediately upstream of the said stand,

extracting from said signal, periodic variations having a frequency corresponding to the speed of rotation of the said rollers of the said stand,

elaborating from said periodic variations a compensation signal having a frequency which corresponds to the speed of rotation of the said rollers and in phase opposition to the periodic variations,

compensating in real time for said out-of-roundness defects in said rollers of said rolling stand by adjusting said clamping means of said rollers in accordance with the compensation signal.

5,799,527

METHOD OF PRODUCING A STAINLESS STEEL SHEET HAVING EXCELLENT SURFACE BRIGHTNESS

Kazuhito Kenmochi; Osamu Sonobe; Eisuke Kawazumi; Yoshikazu Seino; Takashi Akazawa, and Kazusito Okada, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Jul. 24, 1995, Ser. No. 505,949

Claims priority, application Japan, Jul. 27, 1994, 6-193770

Int. Cl.⁶ B21B 39/20

U.S. Cl. 72—252.5

16 Claims

1. A method of producing a stainless steel sheet having excellent brightness comprising: cold rolling a stainless steel sheet in a tandem mill including a plurality of stands, wherein said plurality of stands includes a second stand and a final stand and a surface roughness of work rolls from the second stand to the final stand is successively reduced; and wherein a work roll at the final stand has a roughness Ra between 0.05 and 0.15 μm; and wherein at least one work roll in at least one stand has a Young's modulus of 25,000 to 70,000 kg/mm².

5,799,528

MANUALLY OPERATED TOOL FOR UPSETTING A STEEL REINFORCEMENT BAR

Michael J. Camping, Cumbia, England, assignor to Headed Reinforcement Corporation, Fountain Valley, Calif.

Filed Oct. 18, 1996, Ser. No. 733,511

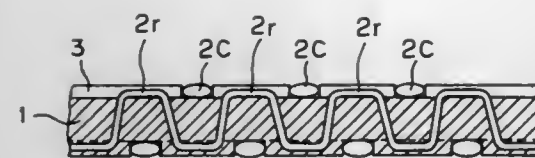
Int. Cl.⁶ B21J 7/18

U.S. Cl. 72—318

12 Claims

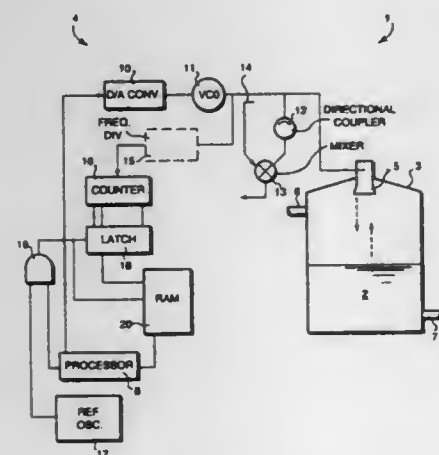
1. An upsetting tool to upset a pre-heated end of a reinforcement bar, said upsetting tool comprising: a hollow collar; an open mouth connected to said hollow collar to receive the pre-heated end of the reinforcement bar therewithin;

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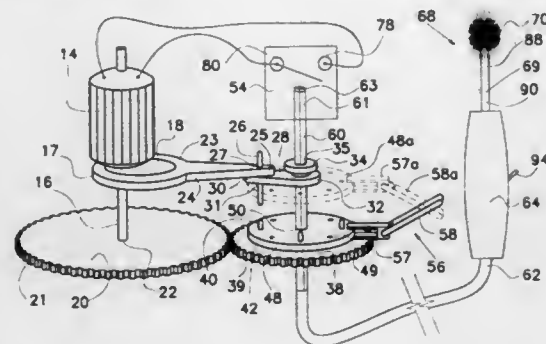
a first electrode member provided on said substrate, said first electrode member being linear and appearing reciprocating and alternately on opposite surfaces of said substrate at a predetermined interval;
a second electrode member provided on said substrate, said second electrode member being linear and appearing reciprocating and alternately on said opposite surfaces of said substrate at a predetermined interval at right angles to said first electrode member;
said first and second electrode members intersecting each other in an imaginary projected plan view;
wherein a portion of said first electrode member and a portion of said second electrode member sandwiching said substrate at each intersection in said imaginary projected plan view between said first and second electrode members to define intersection portions.

5,799,534
PROCEDURE FOR MEASURING THE LEVEL OF A LIQUID IN A TANK ACCORDING TO THE RADAR PRINCIPLE
Ronald van der Pol, Venlo, Netherlands, assignor to Krohne Messtechnik GmbH & Co. KG, Germany
Filed Aug. 26, 1996, Ser. No. 703,225
Claims priority, application Germany, Aug. 25, 1995, 195 31 540.5
Int. Cl.⁶ G01F 23/00
U.S. Cl. 73—290 V 10 Claims



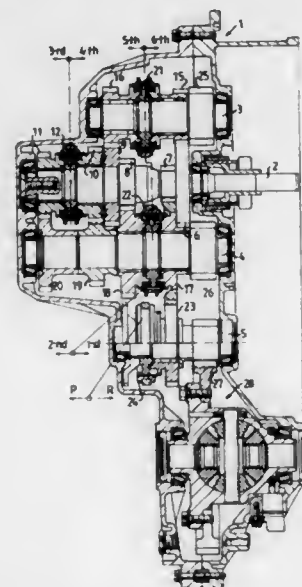
1. A process for measuring the level of a liquid in a tank according to the radar principle, by means of a voltage-controlled oscillator having a frequency sweep with a duration and with a frequency fluctuation and determining the radar frequency and by means of a voltage source controlling the voltage-controlled oscillator, in the case of which the radar frequencies are modulated according to a Frequency Modulated Continuous Wave (FMCW) process through a corresponding control of the voltage source, where the frequency of the voltage-controlled oscillator is measured at least regularly during the frequency sweep to produced measured frequencies characterized by the fact that a non-linear frequency characteristic is corrected during the frequency sweep through a corresponding control of the voltage source.

5,799,535
KITCHEN APPLIANCE WITH A FLEXIBLE DRIVE
Russell Terry, Rte. 3, Box 107-B, LaFollette, Tenn. 37766
Filed Jun. 28, 1996, Ser. No. 673,381
Int. Cl.⁶ B01F 11/00; F16D 21/02; F16H 21/18
U.S. Cl. 74—16 11 Claims



1. A kitchen appliance with a flexible drive comprising:
a flexible cable defining a first end, a second end and a longitudinal axis, said second end being received by a first end of a handle, a second end of said handle for receiving a shaft of an attachment, said shaft being securable to said second end of said flexible cable; and
a motor and gear assembly for receiving said first end of said flexible cable and for pivoting said flexible cable with respect to said longitudinal axis thereby pivoting said attachment, said motor and gear assembly includes a motor and gear assembly switch which when closed completes a circuit for activating said motor and gear assembly, said motor and gear assembly switch being remote from said handle.

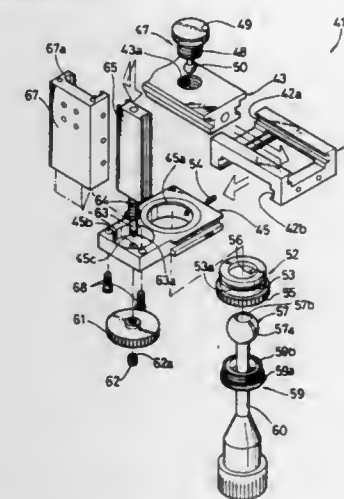
5,799,536
MOTOR VEHICLE GEARBOX
Grzegorz Janiszewski, Angered, and Lars Jansson, Onsala, both of Sweden, assignors to AB Volvo, Gothenburg, Sweden
Filed Feb. 25, 1997, Ser. No. 805,558
Claims priority, application Sweden, Feb. 28, 1996, 9600775
Int. Cl.⁶ F16H 57/00
U.S. Cl. 74—331 9 Claims



1. Motor vehicle gearbox, comprising a housing (1) with an input shaft (2) and at least one intermediate shaft (4), which is disposed to transmit torque to a final drive and has gears (17-20) which mesh with gears (7, 8, 10, 11) on the input shaft, at least one of which is a sliding gear.

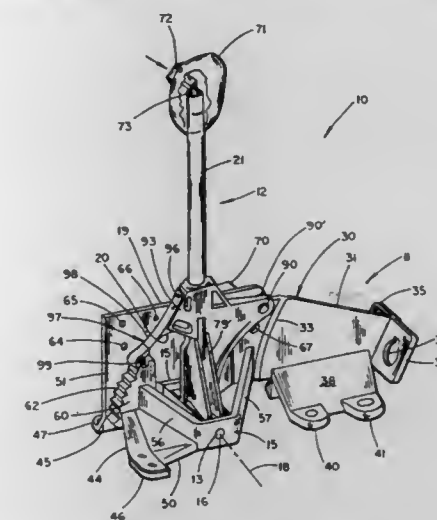
gear in each pair of intermeshing gears on said shafts being releasable on its shaft, a reverse gear shaft (5) with a releasable gear (23) which is disposed in its engaged position to transmit reverse torque to the final drive (28), and locking means (30, 33) acting between the housing and one of said shafts, said means being disposed in one locking position to lock the associated shaft against rotation relative to the housing, characterized in that the releasable gear (23) on the reverse gear shaft (5) is engageable to the shaft and meshes with a gear (17) on the intermediate shaft (4) and that the locking means (30, 33) act between the housing (1) and the reverse gear shaft (5).

5,799,537
ADJUSTING MECHANISM FOR FINE CONTROL RATIO IN FINE CONTROL JOYSTICK
Shinji Yoneyama, Tokyo, Japan, assignor to Nanishige Co. Ltd., Tokyo, Japan
Filed Aug. 15, 1996, Ser. No. 698,403
Claims priority, application Japan, Aug. 17, 1995, 7-209693
Int. Cl.⁶ B25J 13/02; G05G 9/00
U.S. Cl. 74—471 XY 3 Claims



1. An adjusting mechanism of fine control ratio in fine controlling joystick comprising:
an adjusting member movably supported in vertical direction on one displacement board in two coordinate directions in a horizontal plane suspending a fixed ball through a neck of the adjusting member,
a movable ball, a cylindrical inner wall of which is formed inside and the cylindrical inner wall is contacted with the outer surface of the fixed ball and the movable ball being provided with a long groove excavated on outer surface thereof in vertical direction,
a movable ball holder protruding an engagement pin to engage with the long groove of the movable ball, the movable ball holder rotatively supporting the movable ball in a through hole of the cylinder, said movable ball holder being rotatively supported in a hole of larger diameter formed in vertical direction on another displacement board of said two coordinate directions,
a transmitting means to convert and transmit rotation of the movable ball holder into vertical fine movement on a displacement board of vertical direction, are provided and each of said boards of two coordinate directions is finely moved by operation of an operation handle,
the fixed ball is moved upward and downward along said cylindrical inner wall of said movable ball by operation of adjusting member,
said adjusting fine control movement ratio by varying center distance between the fixed ball and the movable ball, rotating the movable ball holder by rotation of the operation handle and finely control displacement boards of vertical direction by rotation of the operation handle.

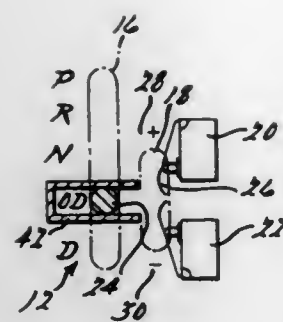
5,799,538
SHIFTER WITH BOTTOM MOUNTED LEVER
Robert A. DeJonge, West Olive, and Richard G. Holtzclaw, Grand Haven, both of Mich., assignors to Grand Haven Stamped Products Co. Div of JSJ Corporation, Grand Haven, Mich.
Continuation of Ser. No. 420,124, Apr. 11, 1995, abandoned.
This application Nov. 27, 1996, Ser. No. 757,447
Int. Cl.⁶ B60K 20/04; F16H 59/04
U.S. Cl. 74—473.3 19 Claims



1. An automatic transmission shifter for a vehicle comprising:
a support configured for attachment to a vehicle, said support including a longitudinally extending center flange forming a detent plate structure defining a plurality of gear positions and further including spaced apart opposing pivot flanges and webs connecting opposite ends of each of said pivot flanges to said center flange in spaced relationship therefrom, said pivot flanges defining a space therebetween generally below said detent plate structure and defining a downwardly-facing access opening and an upwardly facing access opening to said space;
a shift lever for shifting between the plurality of gear shift positions on said support, said shift lever including a post and a pivot structure at one end of the post, the shift lever being configured to fit through said downwardly facing access opening of said support during assembly to an operative position wherein said post is positioned adjacent said detent plate structure and said pivot structure is positioned between said opposing pivot flanges; and
at least one pivot pin engaging said pivot structure and said opposing pivot flanges for pivotally mounting said shift lever to said support, upper edges of said pivot flanges terminating below an upper edge of said center flange to provide an open, accessible structure whereby manual manipulation and positioning of said pivot structure on said pivot flanges is facilitated thereby simplifying assembly of said shifter.

5,799,539
MANUALLY SHIFTED AUTOMATIC TRANSMISSION LEVER
Robert Cary Haase, Southfield, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Jan. 21, 1997, Ser. No. 781,367
Int. Cl.⁶ F16H 59/02
U.S. Cl. 74—473.18 6 Claims

1. A shift control lever assembly for an automatic transmission which includes an automatic shift mode and a manual shift mode, comprising:
a first shift lane having a plurality of positions for automatic operation of the transmission;



a second shift lane adjacent the first lane for manual operation of the transmission, the second shift lane including a first position at a first end of the second lane for selecting an up shift and a second position at a second end of the second lane for selecting a down shift;

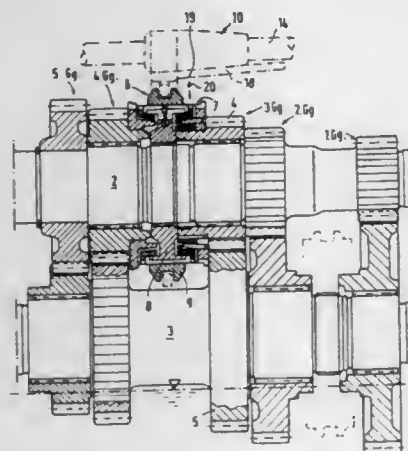
a shift lever moveable in the first and second shift lanes; first and second switches adapted to be contacted by the shift lever concurrently upon moving of the shift lever from the first shift lane into the second shift lane to command a manual operating mode, the first switch released by the lever when the lever is moved to the first position in the second shift lane while maintaining contact with the second switch and the second switch released when the lever is moved to the second position in the second shift lane while maintaining contact with the first switch.

5,799,540

SELECTOR FORK FOR A CHANGE-SPEED GEARBOX
Axel Diehl, Korschbroich; Ralf Fritzsche, Cologne, and Klaus Groth, Bergisch Gladbach, all of Germany, assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Dec. 5, 1996, Ser. No. 761,053

Claims priority, application Germany, Jan. 20, 1996, 196 02 041.7

Int. Cl.⁶ F16H 57/04; F01M 9/06; F16D 13/74
U.S. Cl. 74—473.37 5 Claims



5. A selector fork lubricator in a change-speed gearbox including a first shaft rotatably supported by the gearbox, second shaft rotatably supported by the gearbox substantially parallel the first shaft, a pinion and gear pair supported by the first and second shafts respectively, a synchronizer supported by one of the group consisting of the first and second shafts adjacent a first gear selected from the group consisting of the pinion and gear pair, a selector rod having a longitudinal axis, the selector rod supported by the gearbox, and a selector fork slidably supported by the selector rod, the lubricator comprising:
an oil reservoir provided in the gearbox;

a member selected from the group consisting of said pinion and gear pair, said member rotating through said reservoir to splash oil therefrom; and
a baffle plate provided on the selector fork extending in the direction of the longitudinal axis of the selector rod, said plate provided adjacent said member which rotates through the oil, said plate having a rolled-up collecting channel adjacent said member to collect oil splashed therefrom, and a drain provided in said baffle plate adjacent the synchronizer to direct oil thereto.

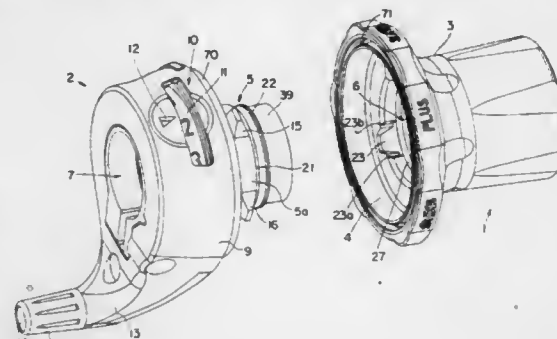
5,799,541

TWIST-GRIP SHIFTER FOR BICYCLES AND A BICYCLE HAVING A TWIST-GRIP SHIFTER

Markus Arbelter, Würzburg, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany
Continuation-in-part of Ser. No. 566,284, Dec. 1, 1995, Pat. No. 5,666,859, and a continuation-in-part of Ser. No. 563,996, Nov. 29, 1995, Pat. No. 5,588,925. This application Mar. 4, 1996, Ser. No. 610,657

Claims priority, application Germany, Dec. 2, 1994, 44 42 953.3; Dec. 2, 1994, 44 42 952.5

Int. Cl.⁶ B62M 25/04
U.S. Cl. 74—489 4 Claims



1. A bicycle, said bicycle comprising:

a frame;
at least two wheels, said at least two wheels comprising at least a front wheel and a rear wheel;
said at least two wheels being disposed on said frame;
a device to propel at least one of said front wheel and said rear wheel;
said device to propel comprising:
a chain;
at least two sprockets to engage said chain;
at least two pedals, said at least two pedals being connected to one of said at least two sprockets;
a seat, said seat being disposed on said frame;
a handlebar for steering said bicycle;
a bicycle gearing system, said bicycle gearing system comprising:
a device to shift gearing associated with at least one of: said front wheel and said rear wheel of said bicycle;
a shift actuator mounted on said handlebar, generally coaxially with said handlebar;
at least one control cable having a first end and a second end; said first end of said at least one control cable being operatively associated with said shift actuator;
said second end of said at least one control cable being operatively associated with said device to shift gearing;
said shift actuator comprising:
an interior portion and an exterior portion;
a first part being rotatable in a first direction and a second direction;
said first part being operatively connected to said device to shift gearing;
said first part comprising a rotatable grip part, said rotatable grip part having an axis of rotation;

a second part, said second part comprising a device to actuate said first end of said at least one control cable;
a device to connect said first part and said second part to one another and to rotate said first part and said second part along with one another;
a housing, said housing defining at least a portion of said interior portion of said shift actuator;
at least a portion of said second part being disposed within said housing;
a device to seal said interior portion of said shift actuator, said device to seal being disposed between said housing and said first part;

said device to seal comprising:
a groove, said groove being circular and extending about the axis of rotation;
a tongue, said tongue being circular and extending about the axis of rotation; and
said tongue being disposed to extend a substantial distance into said groove;
said groove having a depth defined along the axis of rotation;
said tongue having a length defined along the axis of rotation, said length of said tongue extending a substantial distance into said depth of said groove;

said first part comprising said groove and said housing comprising said tongue;
said tongue extending into said groove with a clearance to form a frictionless seal between said first part and said housing;
said tongue comprising a first side and a second side extending substantially along the axis of rotation and a third side adjoining said first side and said second side;
said groove comprising a first side and a second side extending substantially along the axis of rotation and a third side adjoining said first side of said groove and said second side of said groove;
said first side of said tongue and said first side of said groove being disposed adjacent one another and defining a clearance therebetween;
said second side of said tongue and said second side of said groove being disposed adjacent one another and defining a clearance therebetween;
said third side of said tongue and said third side of said groove being disposed adjacent one another and defining a clearance therebetween;
said housing comprising a first tubular extension disposed about said handlebar and immediately adjacent said handlebar;
said first part and said second part both being rotatable with respect to said first tubular extension and said housing;
said second part comprising a cable-winding mechanism, said cable-winding mechanism comprising:

a second tubular extension rotatably disposed about said first tubular extension, said second tubular extension having a first end disposed adjacent said first part and a second end disposed a substantial distance from said first end of said second tubular extension;
a disc-shaped member extending from said second end of said second tubular extension and extending generally radially with respect to the axis of rotation;
said disc-shaped member comprising said device to actuate said first end of said at least one control cable, said device to actuate comprising a guide member disposed on said disc-shaped member for guiding said at least one control cable along a portion of said disc-shaped member;
said device to connect comprising a plurality of claws disposed circumferentially about said first end of said second tubular extension, said plurality of claws extending generally radially with respect to the axis of rotation;
one of said plurality of claws having a different configuration than the other ones of said plurality of claws;
said first part comprising:
a substantially cylindrical part and a frusto-conical part disposed immediately adjacent one another and being integral with one another;
said cylindrical part having a hole disposed therethrough, said hole being disposed substantially concentrically about the

axis of rotation, a portion of said handlebar being disposed immediately adjacent and within said hole;
said device to connect further comprising a plurality of recesses disposed in said frusto-conical part and extending in a direction generally radially with respect to the axis of rotation;
one of said plurality of recesses having a different configuration than the other ones of said plurality of recesses, said different one of said plurality of recesses being adapted to receive said different one of said plurality of claws;
said different one of said claws being engaged with said different one of said recesses, the remaining ones of said plurality of claws being engaged in corresponding ones of said plurality of recesses; and
said frusto-conical part comprising said groove.

5,799,542

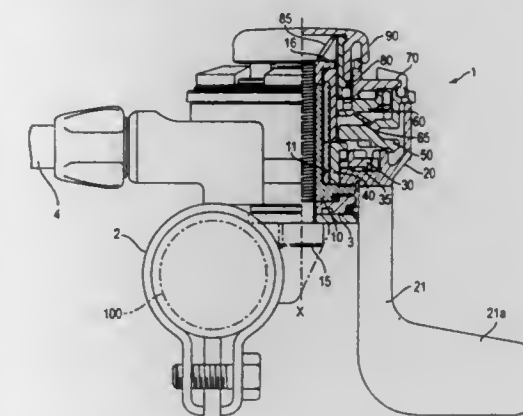
BICYCLE SHIFT CONTROL DEVICE

Takuro Yamane, Shimonoseki, Japan, assignor to Shimano, Inc., Osaka, Japan

Filed Sep. 4, 1996, Ser. No. 706,649

Claims priority, application Japan, Oct. 11, 1995, 7-262654; Feb. 26, 1996, 8-037841; Feb. 26, 1996, 8-037842; Feb. 26, 1996, 8-037843

Int. Cl.⁶ B62M 25/04; B62K 23/02
U.S. Cl. 74—489 40 Claims



1. A bicycle shift control device for controlling a gear shifter via a gear shift cable comprising:
a winding member (50,110) supported for rotation around an axis (X) for winding the gear shift cable;
a first control member (20,105) for rotating the winding member (50,110) in a first direction;
a second control member (80,120) mounted concentrically with the axis (X) for causing rotation of the winding member (50,110) in a second direction opposite the first direction in response to movement of the second control member (80,120) in the direction of the axis (X);
wherein at least one of the first control member (20) and the second control member (80,120) is movable between a control member start position and a control member end position; and
a winding member controller member (30,60,130) for controlling the rotation of the winding member (50,110), wherein the winding member controller member (30,60,130) is adapted to rotate about the axis (X) and to move in the direction of the axis (X) from a first position when the at least one of the first control member (20) and the second control member (80,120) is located in the control member start position to a second position as the at least one of the first control member (20) and the second control member (80,120) moves toward the control member end position.

5,799,543

ACTUATOR STRUCTURAL BODY

Shigekazu Nagai; Koji Sugano; Akio Saitoh, and Masahiko Suzuki, all of Ibaraki-ken, Japan, assignors to SMC Kabushiki Kaisha, Tokyo, Japan

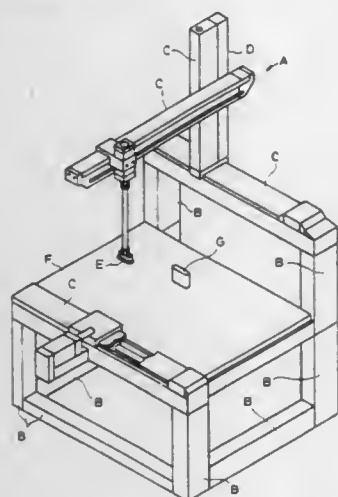
PCT No. PCT/JP93/01242, § 371 Date Mar. 4, 1996, § 102(e) Date Mar. 4, 1996, PCT Pub. No. WO95/06545, PCT Pub. Date Mar. 9, 1995

PCT Filed Sep. 2, 1993, Ser. No. 602,795

Int. Cl.⁶ B25J 9/02

U.S. Cl. 74—490.09

23 Claims



1. An actuator structural body for moving a workpiece, comprising:

- a plurality of columnar bodies, wherein one of said columnar bodies comprises an actuator having T-shaped grooves defined along respective outer side surfaces thereof;
- another of said columnar bodies comprising a columnar member having a plurality of T-shaped grooves defined along respective outer side surfaces thereof, and further comprising a through hole defined inside said columnar member; and
- joint means for joining said actuator and said columnar member together by fitting a head portion of said joint means within at least one of the T-shaped grooves of said actuator and securing another end of said joint means inside said through hole of said columnar member.

5,799,544

APPARATUS FOR SEALING A BICYCLE CONTROL CABLE

Hiromi Oda, Sakai, Japan, assignor to Shimano Inc., Osaka, Japan

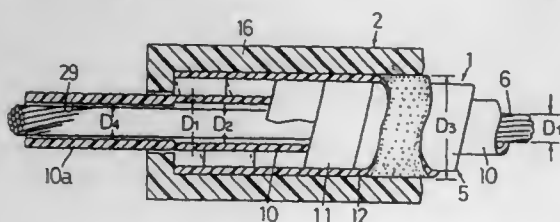
Division of Ser. No. 559,908, Nov. 17, 1995. This application Apr. 11, 1997, Ser. No. 837,288

Claims priority, application Japan, Nov. 18, 1994, 6-309496; Jan. 24, 1995, 7-2704

Int. Cl.⁶ F16C 1/26; 1/10

U.S. Cl. 74—502.4

1 Claim



1. In a bicycle control cable wherein an inner cable (6) is slidably disposed within an outer casing (5), an apparatus for sealing an exposed section of the inner cable (6) located between a

first segment of the outer casing (5) and a second segment of the outer casing (5) comprising:

- a first cap including:
 - a first portion having a first inner surface defining a first inner hole through which the inner cable (6) passes;
 - a second portion having a second inner surface defining a second inner hole, the second inner hole having a diameter capable of receiving an end of the first segment of the casing (5);
- a second cap including:
 - a first portion having a first inner surface defining a first inner hole through which the inner cable (6) passes;
 - a second portion having a second inner surface defining a second inner hole, the second inner hole having a diameter capable of receiving an end of the second segment of the casing (5); and
- a first cable cover sealably connected to the first portion of the first cap and extending over the exposed section of the inner cable (6) toward the second cap;
- a second cable cover sealably connected to the first portion of the second cap and extending over the exposed section of the inner cable (6) toward the first cap; and
- a third cable cover (48) sealably connected to the first cable cover and to the second cable cover around outer surfaces of the first cable cover and the second cable cover.

5,799,545

ERGONOMIC HAND WHEEL FOR RAILWAY CAR HAND BRAKE

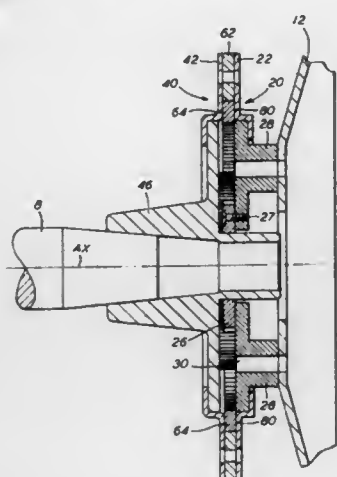
Rudi E. George, Peotone, Ill., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Feb. 20, 1996, Ser. No. 602,492

Int. Cl.⁶ B62D 1/04

U.S. Cl. 74—552

18 Claims



1. An ergonomic hand wheel assembly for use on a hand brake system disposed on a railway car, said ergonomic hand wheel assembly comprising:

- (a) a front housing assembly including:
 - (i) a generally concave front housing disk having a peripheral flange,
 - (ii) a rotatable sun gear adjacent a concave inside surface of said generally concave front housing disk, and
 - (iii) a hand manipulation member adjacent an outer surface of said generally concave front housing disk rigidly connected to said sun gear such that rotation of said hand manipulation member relative to said front housing disk will cause an equal rotation of said sun gear about an axis of rotation;
- (b) a back housing assembly including:
 - (i) a generally concave back housing disk having a peripheral flange,
 - (ii) a rotatable hub member adjacent a concave inside surface of said generally concave back housing disk having an axis

of rotation aligned with said axis of rotation of said sun gear and said hand manipulation member, and such that said rotatable hub member is independently rotatable relative to said hand manipulation member and said sun gear about said axis of rotation, said hub member having a means extending through said generally concave back housing disk disposed at said axis of rotation for attaching said hub member to a rotatable hand brake drive shaft of such hand brake system disposed on such railway car; and

(iii) a plurality of planetary gears, one each of said plurality of planetary gears rotatably mounted onto one of a plurality of gear axles, said gear axles attached to said hub member and aligned, parallel and substantially equally spaced from said axis of rotation such that said planetary gears lie in a single plane and are substantially uniformly spaced around said sun gear, and adapted to mesh with and engage said sun gear such that rotation of said sun gear will cause rotation of said planetary gears on said gear axles;

(c) a stationary and generally flat internal housing disk including:

- (i) a ring gear rigidly and axially secured therein, said ring gear having a circular race on an inside surface thereof adapted to encircle, engage and mesh with said plurality of planetary gears, and
 - (ii) means extending from a periphery of said internal housing disk for attaching said internal housing disk to a structural element independent of said hand manipulation member and said hub member, such that said hand manipulation member and said hub member are independently rotatable relative to said internal housing disk; and
- (d) means for rigidly joining said generally concave front housing disk to said generally concave back housing disk at their peripheral flanges such that said generally flat internal housing disk is sandwiched therebetween.

5,799,546

COMPACT ROLLER FOLLOWER

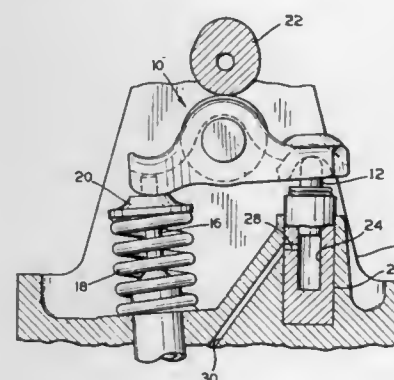
Stanley J. Pryba, Toledo, Ohio, assignor to Henley Manufacturing Holding Company, Inc., Hampton, N.H.

Filed Jul. 19, 1995, Ser. No. 504,238

Int. Cl.⁶ F16H 53/06

U.S. Cl. 74—569

12 Claims



1. A compact roller follower comprising a one-piece, cold-formed, elongate metal body having an intermediate portion, a first end portion, and a second end portion, said intermediate portion having two substantially parallel side walls and a large elongate upper opening, said first end portion having a top wall and two side walls extending downwardly therefrom and being spaced closer together than said parallel side walls of said intermediate portion, said first end portion forming a generally inverted U-shaped recess to receive an end of a valve stem, said second end portion having a second top wall and side walls extending downwardly therefrom, an outer end of said second top wall having a tongue which is doubled back underneath said second top wall, an upper surface of said tongue being in contiguous relationship with a lower surface

of said second top wall and forming a recess to receive an upper end of a lifter post above a lifter post body, said second end portion of said compact roller follower being above said lifter post body for all positions of said compact roller follower.

5,799,547

OIL DISTRIBUTION IN A COMBUSTION ENGINE CRANK SHAFT

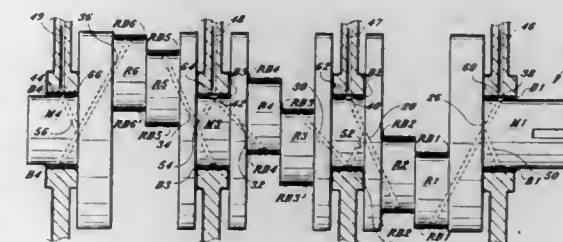
Stanley A. Agarrat, 3660 NW 17th St., Fort Lauderdale, Fla. 33311

Filed Apr. 10, 1996, Ser. No. 631,840

Int. Cl.⁶ F16C 3/04

U.S. Cl. 74—605

3 Claims



1. An oil supply system for an internal combustion engine crank shaft, comprising:

- a plurality of main journals and a plurality of rod journals, at least one each of said plurality of rod journals adjacent one each of said plurality of main journals;
- a plurality of first passageways one each connected between one each of said plurality of main journals and one each of said adjacent rod journals for distributing oil under pressure between said main journals and said rod journals;
- a plurality of main bearings, one each mounted circumferentially around one each of said plurality of main journals, each of said plurality of main bearings having a grooved portion disposed on an inner surface and extending approximately 180 degrees around each of said plurality of main journals;
- a plurality of rod bearings one each mounted circumferentially on one each of said plurality of rod journals;
- a plurality of second passageways one each connected between one each of said plurality of main journals and one each of said plurality of first passageways, each of said plurality of main journals having one each of said plurality of first passageways and one each of said plurality of second passageways being disposed directly adjacent one each of said circumferentially mounted main bearings and approximately 180 degrees apart from each other, wherein oil is supplyable continuously to all of said rod journals and rod bearings through said plurality of first and said plurality of second passageways.

5,799,548

FRAME WITH MOLDED FEATURES

Henry Marshall Brooks; Daniel George Mlejnek, both of Lexington; Harald Portig, Versailles, and Richard Andrew Seman, Jr., Lexington, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

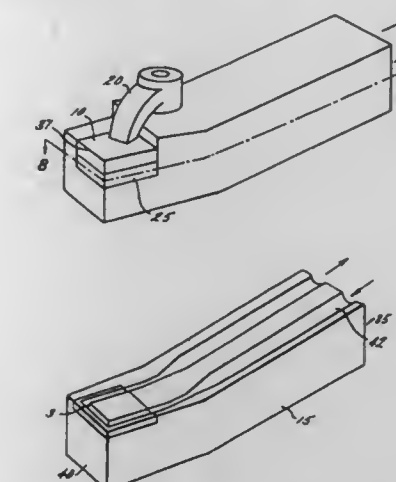
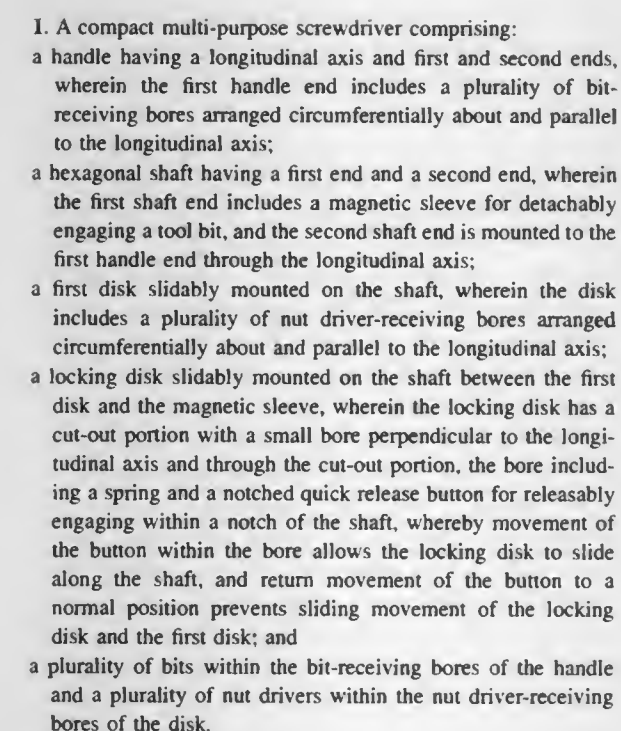
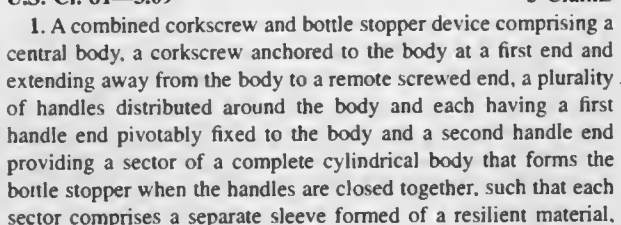
Filed Jul. 22, 1996, Ser. No. 684,778

Int. Cl.⁶ G05G 1/00

U.S. Cl. 74—606 R

15 Claims

1. Mechanical apparatus comprising a first plate having separate parts each anchored to a plurality of locations on said first plate by enclosing said first plate through at least three holes in said first plate, a second plate having separate parts each anchored to a plurality of locations on said second plate by enclosing said second plate through at least three holes in said second plate, said first

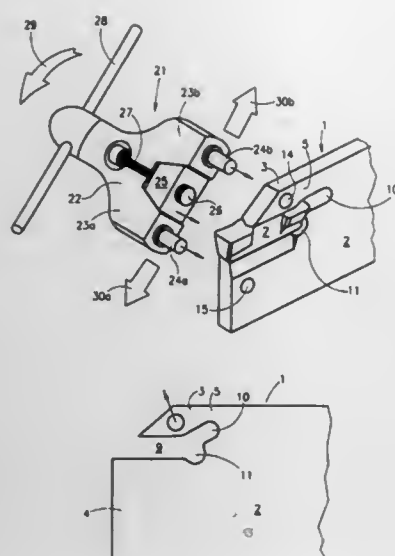


- a) a solid cutting tool having a cutting edge;
- b) a tool holder adapted to receive and hold said tool; and
- c) a cooling element mounted to said holder, said element comprising a conduit having a restricted diameter region and at least one relatively larger diameter region on at least an inlet side of the conduit, said restricted diameter region being located conductively nearest said cutting edge of said cutting tool and being a closed circuit near said cutting tool such that the cutting tool remains unexposed to an environmentally benign cooling fluid flowing through said conduit, said conduit being constructed to create a condition such that when said cooling fluid passes therethrough, the fluid shall exhibit a lower temperature in the restricted diameter region than the temperature of the fluid prior to entering the restricted diameter region of the conduit, said at least one relatively larger region of the conduit being connected to a fluid supplier and supply, whereby said fluid supply being supplied to said conduit reduces the temperature of the restricted conduit and cools the cutting tool.

CLAMPING DEVICE FOR A CUTTING INSERT
Jacob Friedman, Kfar Vradim, and Gideon Barazani, Kiryat Bialik, both of Israel, assignors to Iscar Ltd., Migdal Tefen, Israel
Continuation of Ser. No. 342,277, Nov. 18, 1994, Pat. No. 5,697,271. This application Aug. 6, 1997, Ser. No. 907,084
Claims priority, application Isreal, Nov. 19, 1993, 107675
Int. Cl.⁶ B23B 27/04

15 Claims

1. A cutting tool assembly comprising:
a) a rigid holder blade, said rigid holder blade comprising:
 a body portion,
 a base jaw integrally formed with said body portion,
 a clamping jaw having a leading portion, said clamping jaw
 being integrally formed with said body portion and being
 resiliently and pivotally displaceable relative to said base
 jaw,
 an insert receiving slot having a leading portion and a trailing
 portion, said slot being defined between said clamping jaw



a unit rotating about a first axis;
a cutting blade on said unit, said cutting blade rotating at a substantially constant speed about a second axis, said cutting blade being rotated by a drive;
a driving device which moves said cutting blade in a forward and backward motion;
a log feeder for feeding a log to be cut in a forward direction; wherein said log feeder moves said log at a lower speed during cutting and at a higher speed between each of two sequential cuttings performed on said log, said lower speed being equal to a speed of axial motion of said cutting blade in a forward direction parallel to an axis of rotation of said cutting blade during a cutting operation of said cutting blade;
and wherein a synchronizer is present for maintaining synchronism between reciprocating axial motion of the cutting blade and motion of the log feeder.

5,799,556

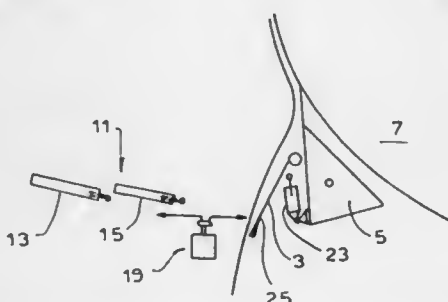
STRIP SEVERING DEVICE FOR PAPER WEB
Karlheinz Straub, Heldenheim, Germany, assignor to Volth Sulzer Papiermaschinen GmbH, Heldenheim, Germany
Filed Sep. 4, 1996, Ser. No. 706,271

Claims priority, application Germany, Oct. 6, 1995, 195 37 173.9

Int. Cl.⁶ B26D 1/00

U.S. Cl. 83—82

16 Claims



1. A strip severing device for a feed strip that is to be threaded in a machine for producing or processing a paper web, the strip severing device including a web separating device adapted for separating the web, the separating device including a flexible separating element sufficiently strong to cut the web and sufficiently flexible to deflect upon contacting an obstructing body, and means moving the separating element against the web to cut the web.

5,799,557

VENETIAN BLIND CUTTING MACHINE
Cherng-Fa Wang, SF-23, No. 70, Fu Hsing Road, Tao Yuan, Taiwan

Filed Mar. 19, 1997, Ser. No. 820,543

Int. Cl.⁶ B23D 23/00

U.S. Cl. 83—639.5

2 Claims

1. A venetian blind cutting machine, comprising a cutter module, a first and a second air cylinders, a blind supporter, and a blind locating assembly;

said cutter module being mounted on a support framework of said cutting machine and including a cutter seat into which an upper rail cutter holder for receiving an upper rail cutter and two push links, a strip cutter holder for receiving a strip cutter, and a lower rail cutter holder for receiving a lower rail cutter are mounted by screws; said upper rail cutter holder, said strip cutter holder, and said lower rail cutter holder being respectively formed with a cutting slot having a shape the same as a cross section of an upper rail, a strip, and a lower rail of a venetian blind to be cut; said upper rail cutter having an inward curved cutting blade extending through an oblong hole

5,799,555

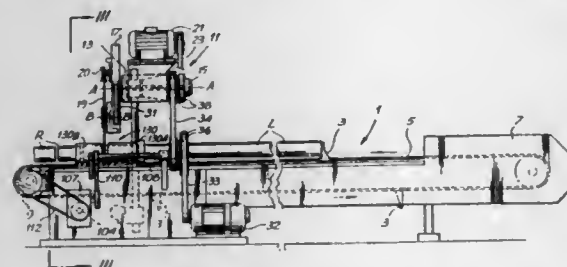
MACHINE FOR CUTTING LOGS OF WEB MATERIAL
Guglielmo Biagiotti, Lucca, Italy, assignor to Fabio Perini S.p.A., Lucca, Italy

Continuation of Ser. No. 198,964, Feb. 22, 1994, Pat. No. 5,522,292, which is a continuation of Ser. No. 856,449, Mar. 24, 1992, Pat. No. 5,315,907. This application May 31, 1996, Ser. No. 656,637

Claims priority, application Italy, Apr. 3, 1991, FI/91/A 71
Int. Cl.⁶ B26D 1/60

U.S. Cl. 83—38

14 Claims



1. A machine for cutting a log of web material into a plurality of rolls, said machine comprising:

and said base jaw and being adapted to receive an exchangeable cutting insert.

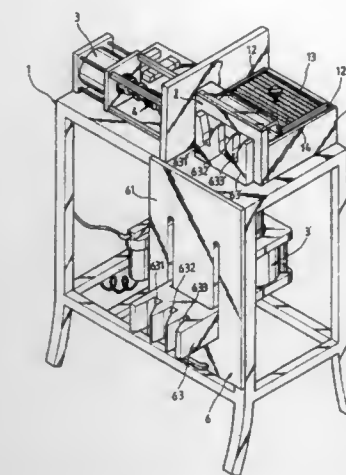
a displacement surface formed in said clamping jaw, said displacement surface being spaced apart from said insert receiving slot and located substantially on said clamping jaw leading portion, and

a supporting surface provided on said body portion, said supporting surface being spaced apart from said displacement surface,

the arrangement being such that a displacing force applied between the supporting and displacement surfaces to move said surfaces relative to each other results in a outwardly directed resilient pivotal displacement of said clamping jaw relative to said base jaw;

b) an insert receiving slot opening key having a pair of spaced apart prongs, a first prong of said key adapted to engage said supporting surface and a second prong of said key adapted to engage said displacement surface for applying said displacing force; and

c) means to force apart said first and second prongs, said means including a wedge-like spacer.



on a side wall of said cutter seat and into said upper rail cutter holder with another end opposite to said cutting blade formed with a retaining hole and projected from said cutter seat; said push link each having a first end connected to said strip cutter which slides in said strip cutter holder and a second end extended through said upper cutter holder and projected out of said cutter seat, said second end of said push link being formed with a stop end and reduced-diameter section behind said stop end; said lower rail cutter having a pointed cutting blade extended through a bottom oblong hole formed on said cutter seat and into said lower rail cutter holder, and another end opposite to said pointed cutting blade being formed with a retaining hole and projected from said cutter seat;

said first air cylinder being located at a left side of said cutter module and having a shaft for connecting with a first quick coupling, said first quick coupling being formed at a bottom side with a retaining recess which has a profile corresponding to a shape of a retaining head of said shaft for quickly connecting to said first air cylinder, and at an end facing said cutter seat with a receiving recess, said receiving recess having an insertion hole extended there across and two retaining wings extended along two sides of an opening of said receiving recess to define a narrow groove between said two wings for receiving said projected end of said upper rail cutter in said receiving recess and said stop ends of said push links behind said retaining wings, whereby, when an insertion pin is inserted into said insertion hole on said first quick coupling and through said retaining hole on said upper rail cutter, said upper rail cutter is connected to said first quick coupling, and when said push links are retained by said retaining wings with said reduced-diameter sections located in said narrow groove between said retaining wings, said strip cutter connected to said push links is also connected to said first quick coupling, whereby both of said upper rail cutter and said strip cutter are quickly but indirectly connected to and driven by said shaft of said first air cylinder to slide in said cutter seat; said second air cylinder being located at a bottom of said cutter module and having a shaft connected to a second quick coupling, said second quick coupling having an end facing said cutter seat being formed with a receiving recess for receiving said projected end of said lower rail cutter therein, said receiving recess of said second quick coupling having a quick locating assembly screwed to one side thereof, said quick locating assembly including a retaining rod movably extending across said receiving recess to insert into said retaining hole formed on said lower rail cutter to connect said lower rail cutter to said second quick coupling and accordingly to said second air cylinder, and a spring disposed inside said retaining rod, whereby said lower rail cutter is quickly connected to and driven by said second air cylinder to slide in said cutter seat; said blind supporter including a platform pivotally connected at one edge to the top of said support framework and driven by a hydraulic cylinder to pivotally turn away from said support framework into an operation position; a first blind holder being movably mounted on said platform and formed at a top

with grooves corresponding to said cutting slots in said upper rail cutter, said strip cutter, and said lower rail cutter, whereby an upper rail, strips, and a lower rail of said venetian blind to be cut can be stably supported on said first blind holders; and said blind locating assembly being located behind said cutter module and being mounted in a lying U-shaped frame fixed to said support framework, said blind locating assembly including a fixed base, a sliding plate, a locating plate, a third air cylinder, a stop plate, a protective cover, and a dust cover; said fixed base having an upward-facing top sliding recess for positioning said sliding plate, said sliding plate having two lateral sides bent downward and inward to define a sliding channel into which said locating plate is disposed, such that said sliding plate slidably moves over said locating plate; said blind locating assembly also including an adjusting threaded stem screwed down into said sliding plate to press against a recess formed on said locating plate, whereby when said adjusting threaded stem is loosened, said sliding plate is allowed to slide on said locating plate to a desired position indicating a length to be cut from said venetian blind; said third air cylinder being connected to a bottom side of said locating plate with shafts thereof fixedly connected to said lying U-shaped frame, so that said locating plate and said sliding plate locked to said locating plate by said adjusting threaded stem are carried by said third air cylinder to move back and forth; said stop plate being fixed to a top of said sliding plate and having two forward projected stop blocks to press against a cutting edge of said venetian blind to be cut extended through said cutter module and into said blind locating assembly; said third air cylinder being actuated to carry said locating, said sliding, and said stop plates to move backward when said venetian blind is cut, allowing cut scraps to fall into a collector; said protective cover being connected to a top of said stop plate as a security means in cutting operation, and said dust cover being covered on top of said blind locating assembly to prevent dust from coming into said assembly.

5,799,558

ARBOR AND CIRCULAR SAW WITH ASYMMETRIC SPLINE HAVING GENERALLY RADIAL FORCE-TRANSMITTING FACE

Keith H. Hewitt, Sandy, Oreg.; Douglas Darrell Miller, Shreveport, and Steve Bryant Wilson, Vivian, both of La., assignors to Pacific Saw and Knife Company, Portland, Oreg., and Precision Tool & Die Corporation Of Shreveport, Inc., Shreveport, La.

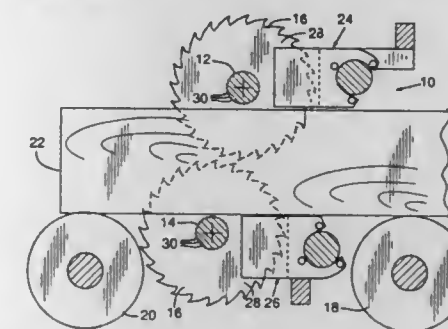
Continuation of Ser. No. 614,198, Mar. 6, 1996, abandoned.

This application Jul. 23, 1997, Ser. No. 899,395

Int. Cl.⁶ B26D 1/12

U.S. Cl. 183—665

2 Claims



1. In combination, an arbor (12) and a circular saw blade (16) mounted for rotation on the arbor (12) in a selected direction (37), the arbor (12) comprising an exterior surface (13) and at least one longitudinally-oriented spline (30) disposed on the exterior surface (13) of the arbor (12), the spline (30) comprising: an exterior surface (31) extending generally co-axially with the arbor (12).

a leading force-transmitting face (36) intersecting the exterior surface (31) of the spline (30) at an angle of about ninety-seven degrees, the leading force-transmitting face (36) facing in the selected direction (37), and

a trailing face (42) intersecting the exterior surface (31) of the spline (30) at an angle of about one hundred thirty-five degrees;

the circular saw blade (16) comprising:

- a plurality of cutting teeth (17) having cutting edges (17a) facing in the selected direction (37), and
- a central opening (34) comprising at least one longitudinally-oriented recess (32) having a shape complementary to the spline (30) of the arbor (12) and closely fitting therewith, the recess (32) comprising a leading force-receiving side (44) disposed in the selected direction,

the saw blade (16) being mounted on the arbor (12) with the force-transmitting face (36) of the spline (30) in contact with the force-receiving side (44) of the recess (32) to transmit torque to the force-receiving side (44) of the recess (32) and drive the saw blade (16) in the selected direction (37),

whereby the saw blade (16) can be mounted on the arbor (12) only for rotation in the selected direction.

5,799,559

BOOSTER WITH SIMPLIFIED COMPENSATION VOLUME

Jean Pierre Gautier; Ulysse Verbo, both of Aul Nay-Sous-Bois, and Jean Jacques Carre, Le Raincy, all of France, assignors to Bosch Systems De Freinage, Drancy, France

PCT No. PCT/FR96/00614, § 371 Date May 21, 1996, § 102(e) Date May 21, 1996, PCT Pub. No. WO96/41738, PCT Pub. Date Dec. 27, 1996

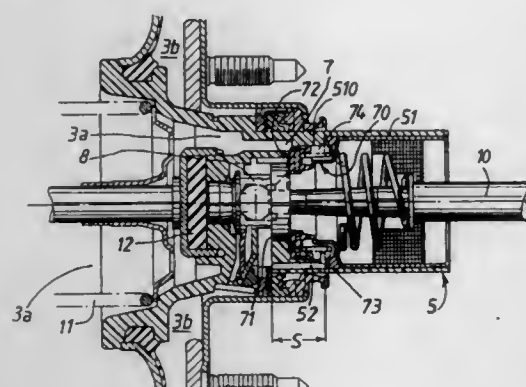
PCT Filed Apr. 23, 1996, Ser. No. 648,114

Claims priority, application France, Jun. 8, 1995, 95 06743

Int. Cl.⁶ F15B 9/10

U.S. Cl. 91—376 DR

2 Claims



1. Pneumatic brake booster using first and second sources of air pressure delivering first and second respective and different pressures, said booster comprising:

- a rigid casing;
- at least one moving partition dividing said rigid casing into at least first and second chambers in leaktight fashion, said first chambers being connected to said first source of air pressure;
- a pneumatic piston connected to said moving partition and having a cylindrical wall which slides in said casing in a leaktight fashion;
- a plunger mounted for sliding inside of said pneumatic piston;
- a three-way valve operated by said plunger in order selectively to connect said second chamber to either one of the two sources and for selectively subjecting said moving partition to a pressure difference, said valve comprising a tubular shut-off member and first and second annular seats, said first seat being connected to said plunger and said second seat being located outside of said first seat and connected to said piston,

said shut-off member exhibiting an active face which can move axially when acted upon by said plunger and which is capable of interacting with each of said first and second seats; and

- a compensation volume delimited in leaktight fashion between an internal face of said wall of said piston and said shut-off member, said compensation volume being permanently in communication with said second chamber through a passage made in said pneumatic piston and isolated from said first chamber by said active face of said shut-off member being applied against said second seat, characterized in that said active face of said valve, facing said first and second seats, exhibits a continuous and leaktight surface and in that said passage between said compensation volume and said second chamber is pierced directly in said cylindrical wall of said pneumatic piston.

5,799,560

CHECK VALVE FOR CONTROLLING THE EXTRACTING MOVEMENT OF A PNEUMATIC THREADED FASTENER-SETTING TOOL

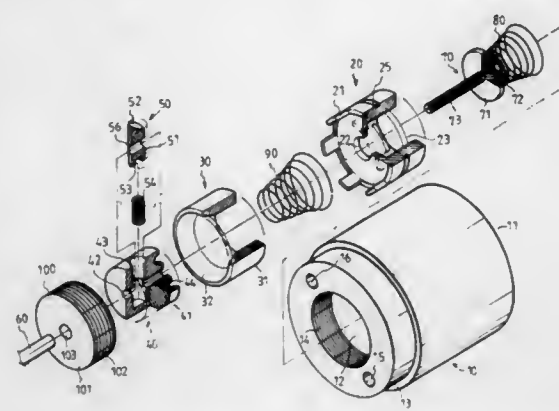
Tien-Ju Meng, Suite 2, 7F, No. 95-8 Chang Ping Road, Sec. 1, Taichung, Taiwan

Filed May 28, 1996, Ser. No. 654,154

Int. Cl.⁶ F15B 13/042

U.S. Cl. 91—404

1 Claim



1. A check valve for controlling a pneumatic threaded fastener-setting tool comprising:

- a hollow cylinder housing for engaging with said tool and a pneumatic source respectively, said housing having a bottom at one end, an opening at the other end, a neck abutting said opening including thread on inner periphery, a first air duct extended from a rim of said neck through a peripheral wall and ended at an outer surface of said bottom, a second air duct extended from an opposite rim of said neck through an opposite peripheral wall and ended at a medial portion of an inner wall thereof, and a third air duct formed through said bottom thereof;
- an annular retaining ring fixedly disposed into said housing abutting said bottom thereof, said retaining ring having a closed end so as to define a cylindrical chamber with said bottom therebetween, a central bore on said closed end, a plurality of extensions projected spaced apart from a circumference of said closed end and an annular groove formed around an outer periphery thereof for securing a sealing ring therein;
- a guider member disposed inside said housing and stopped at one end against said extensions, said guider member having a generally annular body and a tapered guide of camming surface formed on an inner periphery at the other end thereof;
- a slide disposed into said guider member from said tapered guide thereof, said slide having a cylinder body, a central bore through said body and along the axis thereof, a radial recess extended from an outer periphery across said central bore and

ended at an opposite periphery therein and an annular groove formed in an inward end thereof for biasing a spring means therein;

- a detent means slidably disposed into said radial recess of said slide, said detent means having a cylinder body sizably equal to said radial recess, a wedge surface at an upper end for engaging with said camming surface of said tapered guide, a circular recess at a lower end for biasing a spring means therein and a transverse aperture through a medial portion of said body which aligns with said central bore of said slide and normally biases each other by said third spring;

- a circular cover fastened into said opening of said housing, said cover having thread on outer periphery made in registry with the thread on the inner periphery of said neck and a central bore through the axis thereof for sliding an actuator rod therethrough, said actuator rod having a first end inserted into said threaded fastener-setting tool in a predetermined length thereof and a second end stopped against a forward end of said slide;

- a stopper member disposed inside said chamber between said retaining ring and the bottom of said housing, said stopper having a circular body, a neck centrally projected from a side thereof for biasing a first spring means thereon and a stem means in predetermined length centrally projected from a second side thereof, said stem mean having a free end inserted sequentially through the central bore of said retaining ring, said second spring means, said guider member and the central bore of said slide, and then stopping against an outer periphery of said detent means;

whereby said actuator rod moves to push said slide moving inward toward said guider member and said detent means moving downward by the camming surface of said tapered guide so as to permit the free end of said stem means engaged into the transverse aperture of said detent means for facilitating the circular body of said stopper member closing the central bore of said retaining ring in order to interrupt the air fluid from going through for stopping a shank of said tool from further extracting movement.

5,799,561

CONTROL DEVICE

Uwe Wetzel, Stockholm, and Nils Svensson, Vagnhärad, both of Sweden, assignors to Ross Operating Valve Company, Troy, Mich.

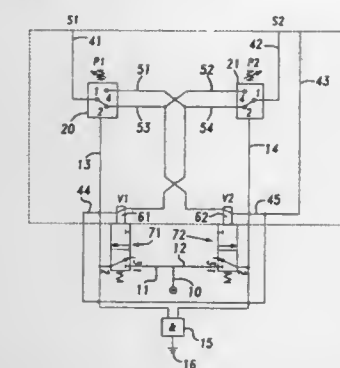
Filed Dec. 3, 1996, Ser. No. 760,009

Claims priority, application Sweden, Jul. 15, 1996, 9602782

Int. Cl.⁶ F15B 13/04

U.S. Cl. 91—424

9 Claims



1. A control system for controlling and monitoring a pair of first and second pneumatic valves, said first and second valves including respective first and second drive means each activated by a control signal, said first and second valves further including respective first and second movable valve elements each of which is biased toward a first valve position permitting fluid flow through its respective one of said first and second valve, said drive means of each valve driving each of the respective first and second

movable valve elements of said respective first and second valves toward a second valve position preventing fluid flow through the respective valve;

said control system including first and second switches each of which is biased toward a first position, said first switch being actuatable to a second switch position by movement of the movable valve element of said first valve to its second valve position, and said second switch being actuatable to a second switch position by movement of the movable valve element of said second valve to its second valve position;

said control system further including control means interconnected with said switches for preventing a first control signal from being applied to said first valve when said first valve element is in its first valve position and a first predetermined time period has elapsed after said second valve element is moved to its second valve position, said control means further preventing a second control signal from being applied to said second valve when said second valve element is in its first valve position and a second predetermined time period has elapsed after said first valve element is moved to its second valve position;

said control means further being interconnected with said switches to permit said first and second control signals to be applied to said respective first and second drive means when both of said switches are simultaneously in their first positions and when both of said switches are simultaneously in their second positions;

the first switch being interconnected to conduct the first control signal to the second valve when the first switch is in its first switch position and therewith permit said valve to take its second valve position and to switch the second switch to its second switch position; the second switch being interconnected to conduct the second control signal to the first valve when the second switch is in its first switch position so as to permit said first valve to take its second valve position and to switch the first switch to its second switch position; the first switch being interconnected to conduct the first control signal to the first valve when the first switch is in its second switch position; and the second switch being interconnected to conduct the second control signal to the second valve when the second switch is in its second switch position; and

each of said switches changing between said respective first and second switch positions every time said first and second valve elements move between said respective first and second valve positions.

5,799,562

REGENERATIVE BRAKING METHOD AND APPARATUS THEREFOR

Morgan W. Weinberg, 602 N. Jordan St. #104, Alexandria, Va. 22304

Filed Mar. 13, 1996, Ser. No. 614,544

Int. Cl.⁶ F01B 3/02

U.S. Cl. 92—12.2

37 Claims

- 23. An axial piston pump comprising:
- a pump housing having an inlet port and an outlet port;
- a chamber barrel, having a central axis, a first face, defining a first plane, a second face defined opposite said first face and a plurality of first chambers radially diverged about said central axis in said first plane, rotatable mounted on said pump housing, said chamber barrel including an output shaft drivingly connected to the rotating element;
- a first piston received through said first face in each said first chamber;
- a swash plate, having a third face, defining a third plane, a fourth face defined opposite said third face and a central axis, rotatably and pivotally mounted about a pivot axis on said housing;
- a valve plate, mounted on said housing, sealingly and slidably contacting said second face of said chamber barrel, said valve plate including passages for conducting fluid between said inlet port and said first chambers being rotated away from said

5,799,567

FOOD PROCESSOR WITH A MIXING VESSEL AND A DRIVE MECHANISM FOR AN AGITATOR IN THE MIXING VESSEL

Stefan Dörner, Solingen, Germany, assignor to Vorwerk & Co. Interholding GmbH, Wuppertal, Germany
 PCT No. PCT/EP95/01635, § 371 Date Mar. 14, 1997, § 102(e) Date Mar. 14, 1997, PCT Pub. No. WO95/29617, PCT Pub. Date Nov. 9, 1995

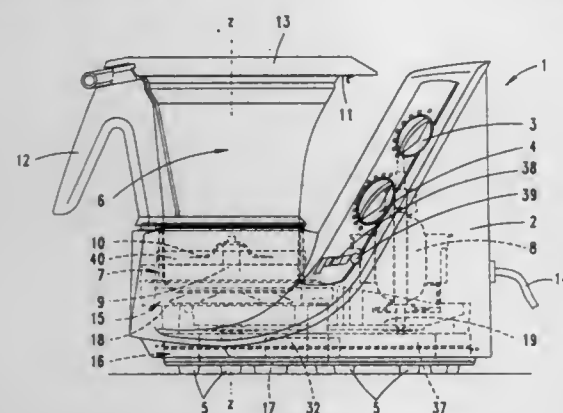
PCT Filed Apr. 28, 1995, Ser. No. 737,102

Claims priority, application Germany, Apr. 28, 1994, 44 14 824.0

Int. Cl.⁶ A47J 43/04; 43/07; G01G 19/00

U.S. Cl. 99—348

17 Claims



1. A food processor comprising
 a mixing vessel and a drive mechanism for an agitator in the mixing vessel, the mixing vessel being heatable in its lower region, and
 a weighing device, and wherein the weighing device senses the weight of a mixing bowl support, including a heater unit.

5,799,568

APPARATUS FOR PRODUCING FOOD GRADE POULTRY OIL AND MEAL

Eugene Warren, Morton; John M. Rogers, Sr., Brandon; Scott Cooper, Pelahatchie, and Greg Butler, Morton, all of Miss., assignors to B.C. Rogers Poultry, Inc., Morton, Miss.

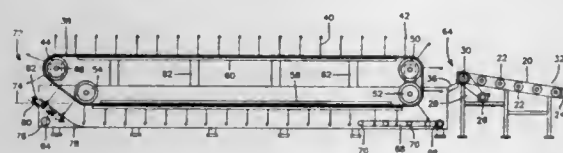
Division of Ser. No. 628,110, Apr. 9, 1996. This application

Apr. 9, 1997, Ser. No. 835,413

Int. Cl.⁶ A47J 37/12; 37/00

U.S. Cl. 99—404

16 Claims



1. An apparatus for removing fat and moisture from poultry parts, said apparatus comprising:
 an elongated vat having an inlet end and an outlet end, a predetermined volume of cooking oil located in said vat, a conveyor for moving poultry parts through said cooking oil from said inlet end to said outlet end of said vat, a pump assembly for removing said cooking oil from said outlet end of said vat, heating said cooking oil and returning said cooking oil to said inlet end of said vat, and
 a press for removing poultry oil from solid product removed from said outlet end of said vat, and
 a mill for grinding the solid product removed from said press to chicken meal.

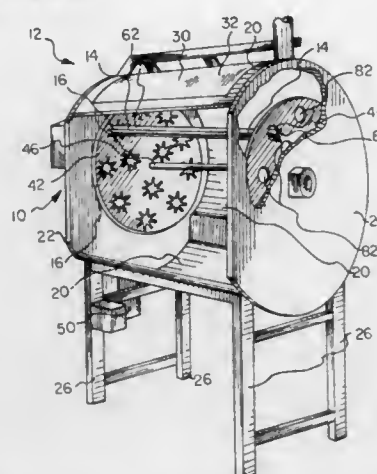
5,799,569

ROASTING OVEN SPIT AND MOUNTING STRUCTURE

R. Edward Moreth, 3000 Seaview Pl., Ft. Lauderdale, Fla. 33305
 Filed Jun. 4, 1996, Ser. No. 659,005
 Int. Cl.⁶ A47J 37/04

U.S. Cl. 99—421 H

12 Claims



1. A spit and a roasting oven assembly, comprising:
 an oven housing for receiving food items and retaining heat;
 a heating element mounted to radiate heat within said housing;
 a first spit mounting plate;
 a second spit mounting plate substantially parallel to and spaced apart from said first spit mounting plate;
 a spit assembly shaft extending through and attached to said first and second mounting plates and rotatably mounted within said housing;
 drive means for rotating said spit assembly shaft;
 wherein said first spit mounting plate comprises at least one first spit mounting port spaced radially outward from said spit assembly shaft, said first spit mounting port having a star shape including a substantially circular port middle portion and nine equally spaced apart, elongate port finger portions opening and extending radially from said port middle portion;
 a spit including a spit first end sized for insertion into said first spit mounting port and configured in cross-section to include three radial flanges, substantially 120 degrees apart and of substantially equal radial length, said flanges being sized relative to said port finger portions such that said spit first end fits into said first spit mounting port in either of a first and second way, said first way being where said three radial flanges enter every third finger portion to lock said spit against rotation relative to said first spit mounting port and said second way being where one said flange slides completely into an initial said finger portion and then slides out of the initial said finger portion as said first spit mounting port rotates, such that said spit end rotates within and relative to said first spit mounting port until another said flange enters another said finger portion, in a repeating cycle.

5,799,570

APPARATUS FOR THE EXTRACTION OF OIL FROM FRIED FOOD PRODUCTS

Priscilla Albisser, Mutschellen; Guido Bohler, Zurich; Alfred Meister, Eglisau, all of Switzerland, and Manfred Wockel, Bad Sackingen, Germany, assignors to Zweifel Pomy Chips AG, Switzerland

Filed Feb. 25, 1997, Ser. No. 805,563

Claims priority, application Germany, Feb. 26, 1996, 196 07 140.2

Int. Cl.⁶ A23B 5/00; A23N 1/00; A47J 43/14

U.S. Cl. 99—495

11 Claims

1. An apparatus for the continuous extraction of oil from fried food products, sequentially comprising an extractor (3), a basic

5,799,572

TREATMENT OF CROPS AND FIBROUS MATERIALS

Kim Antony Campbell, Five Dock, and Paul Thomas McCardell, Arncliffe, both of Australia, assignors to Riyate Pty Limited, Sydney, Australia

PCT No. PCT/AU94/00236, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO94/26091, PCT Pub. Date Nov. 24, 1994

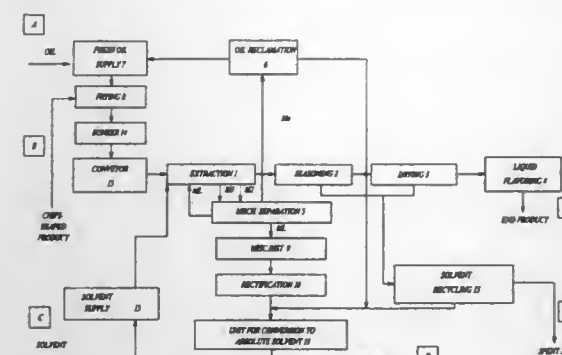
Continuation of Ser. No. 549,691, Feb. 9, 1996, abandoned.

This PCT application May 6, 1994, Ser. No. 918,576

Claims priority, application Australia, May 6, 1993, PL8681 Int. Cl.⁶ B30B 15/34; A23N 17/00

U.S. Cl. 100—38

22 Claims



seasoning unit (7), and a drying unit (9) wherein said fried food products are passed from said extractor to said seasoning unit and subsequently to said drying unit during processing.

5,799,571

POSITIONING DEVICE FOR AN EXTENTABLE TABLE

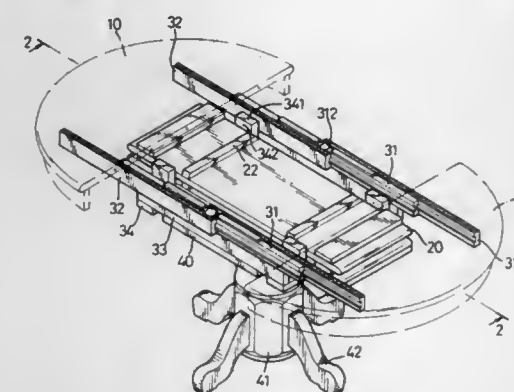
Hsi-lun Lee, and Tseng-jung Lee, both of 6th Fl., No. 303, Tzuli 1st Rd., Sanmin Dist., Kaohsiung, Taiwan

Filed Nov. 1, 1996, Ser. No. 742,763

Int. Cl.⁶ A47B 1/00

U.S. Cl. 108—86

4 Claims



1. A positioning device for an extendable table having a plurality of legs, a central column securely connected with said plurality of legs, a base securely connected to an upper face of said central column an extending plate securely attached to a top of said base, two connecting plates spaced apart and securely attached to a bottom face of said extending plate, two guiding tracks securely connected to an upper face of the extending plate, two gears mounted at a central portion of each of said guiding tracks, two pairs of racks, one rack of each of the two pairs mated with one of the two gears, two side leaves each of which are connected to one part of said two pairs of racks, such that a storage space is defined by said base, said connecting plates and said extending plates, the improvements comprising:

- a) a central plate removably located between said two side leaves so as to be substantially co-planar therewith, the central plate having a plurality of bosses extending from at least one side thereof so as to engage corresponding holes in at least one of said side leaves when said central plate is located between the side leaves; and,
 b) a plurality of stops connected to said connecting plates, each stop having at least one hole therein to accept a boss of said central plate to mount said central plate in said storage space beneath said side leaves when removed from between the side leaves.

5,799,573

PRESS WITH HYDRAULICALLY OPERATED LINKAGE MECHANISM WITH ROLLERS FOR PROVIDING FOUR POINT ROLLER CONTACT

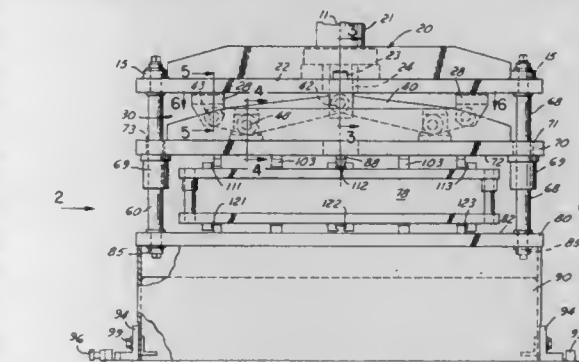
Roger Levy, Bloomfield Hills, Mich., assignor to Tishken Products, Inc., Detroit, Mich.

Filed Sep. 16, 1996, Ser. No. 710,368

Int. Cl.⁶ B30B 1/08

U.S. Cl. 100—271

9 Claims



1. A press having a vertically extending longitudinal axis comprising:

a stationary lower die head;
 spaced upright guide posts having upper and lower ends mounted upon said stationary lower die head at said lower ends and secured thereto;
 an apertured movable ram member guidably receiving and reciprocally mounted from said guide posts;
 said lower die head and said ram member being spaced apart to define therebetween a die set area;
 said ram member having an upper surface and a lower surface;
 a top plate secured over the upper ends of said guide posts and spaced above the upper surface of said movable ram member;
 said top plate having upper and lower surfaces, with said lower surface being spaced from the upper surface of said moveable ram member to provide a space therebetween;
 pivot brackets connected to and depending from said top plate into the space between said top plate and said moveable ram member;
 an opening in said top plate surrounding said longitudinal axis;
 a linkage mechanism interposed in the space between said top plate and said movable ram member;
 said linkage mechanism comprising first and second levers having inner and outer ends;
 pivot means for connecting the outer ends of said first and second levers respectively to said pivot brackets;
 the inner ends of said first and second levers being spaced apart along a transverse axis which is perpendicular to said longitudinal axis;
 a fluid cylinder mounted on said top plate and having a piston rod extending through said opening along said longitudinal axis;
 said piston rod having an I-shaped cross-section to provide a bottom flange which is located below said transverse axis;
 cam followers mounted on the inner ends of said first and second levers in the space provided between said inner ends and having rolling contact with said bottom flange of said piston rod; and
 said first and second levers including intermediate portions engaging the upper surface of said movable ram member;
 the energization of said fluid cylinder being effective to extend said piston rod and thereby apply a force to said cam followers and the inner ends of said first and second levers causing said first and second levers to pivot about the pivot means of said pivot brackets thereby vertically moving said movable ram member as a result of the engagement of said intermediate portions of said first and second levers with said movable ram member.

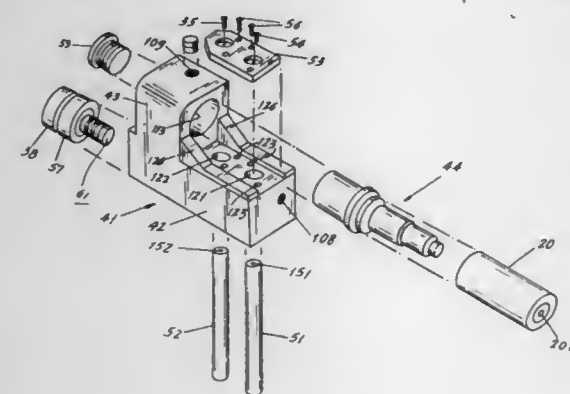
5,799,574

SPINDLE DISC FOR HIGH SPEED CAN DECORATORS
 Robert Williams, Randolph; Chester Chrobocinski, Carteret, and Andre Christopher Rodums, West Milford, all of N.J., assignors to Sequa Corporation, Hackensack, N.J.

Filed Jun. 16, 1997, Ser. No. 876,409
 Int. Cl.⁶ B41F 17/08

U.S. Cl. 101—40

20 Claims



1. Continuous motion apparatus for decorating cylindrical containers, said apparatus comprising a decorating section and a

transport section that carries containers through a decorating zone where decorations are applied to the containers, said transport section including:

a carrier continuously rotating on a carrier axis, a plurality of spindle subassemblies mounted on said carrier along its periphery with equal angular spacings between adjacent ones of said subassemblies, said subassemblies being mounted to reciprocate radially relative to said carrier axis as a center;
 each of said subassemblies including an L-shaped base, a spindle mounted on said base for rotation about a spindle axis that is parallel to said carrier axis, said base including a main section parallel to said spindle axis and an arm extending radially outward from said main section at its rear end, said spindle being on a cantilevered support that projects forward from said arm and overlies said main section, at least one guide rod extending radially inward from said main section with each guide rod of said at least one guide rod being received in a radially extending bearing passage of an individual bushing that is fixedly mounted to said carrier, with said bearing passage being open at said periphery of said carrier;
 an associated washer-like retaining cap for each of said bushings, each of said retaining caps containing a grease sealing ring and being secured to said carrier at said periphery in operative position to block radially outward movement of said associated bushing;
 each of said bushings having a radially outward end that extends into an undercut portion in said cap whereby said cap is piloted on said bushing that is associated with said cap.

5,799,575

PRINTING MACHINE WITH TURNTABLE

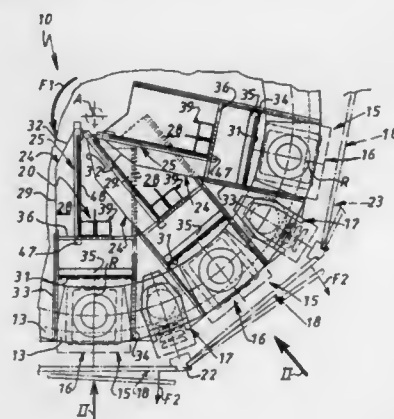
Frederic Alroldi, Servon, France, assignor to Societe d'Exploitation des Machines Dubuit, Noisy Le Grand, France

Filed May 5, 1997, Ser. No. 851,340

Claims priority, application France, May 3, 1996, 96 05577
 Int. Cl.⁶ B41F 33/00; 17/00

U.S. Cl. 101—41

27 Claims



1. Printing machine comprising a frame, a turntable for holding a series of object supports, each of the object supports being adapted to hold an object to be printed, a turntable control device for controlling the rotation of said turntable, at least one printing station having a print head, the said object supports being displaceable to said at least one printing station, a guard mounted mobile in a radial direction relative to said at least one printing station and disposed above and in the vicinity of said turntable, said guard being movable between a retracted position for ready access around said print head and an extended position for locally covering said turntable proximate to said print head, a guard control device for controlling said mobile guard, an operator accessible control unit for controlling said guard control device, said at least one printing station also including a gate mounted for movement with respect to the frame and for controlling access to said at least one printing station, a protection circuit for controlling said turntable control device, said protection circuit being interlocked with

said gate, and interconnection means for disabling said protection circuit when said guard moves from the retracted position to the extended position.

5,799,576

ROTARY STAMP

Hiroyuki Kolke, 24-32, Nishitoriishi 1-chome, Takaishi-shi, Osaka 592, and Toshinori Sugiyama, 5-26, Takaminosato 1-chome, Matsubara-shi, Osaka 580, both of Japan

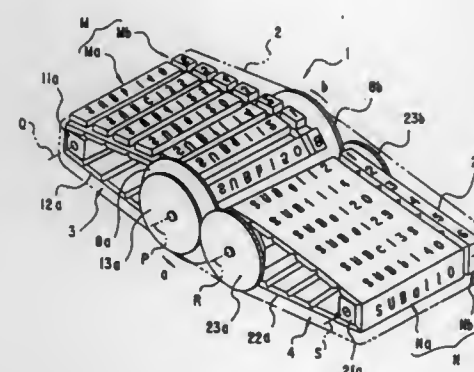
Filed Jan. 21, 1997, Ser. No. 786,311

Claims priority, application Japan, Jan. 25, 1996, 8-032919;
 Nov. 29, 1996, 8-318387

Int. Cl.⁶ B41J 1/60

U.S. Cl. 101—111

18 Claims



1. A rotary stamp having endless printing belts with plural types of printing areas arranged on outer surfaces thereof, the printing belts being rotatable to set printing surfaces of selected printing areas to a printing position, said rotary stamp comprising:

at least one printing rotation member;
 at least one printing support shaft;
 a printing rotation unit including at least one set of said at least one printing rotation member opposed to said at least one printing support shaft, and an endless printing belt wound around said printing support shaft and said printing rotation member, said endless printing belt having plural types of printing areas arranged on an outer surface thereof;
 a display rotation unit including at least one display rotation mechanism having, arranged on an outer surface thereof, display characters corresponding to printing characters in said printing areas arranged on said outer surface of said printing belt, wherein said display rotation mechanism includes a display rotation member;
 a display support shaft opposed to said display rotation member; and
 an endless display belt wound around said display rotation member and said display support shaft and having, arranged on an outer surface thereof, said display characters corresponding to said printing characters in said printing areas;

at least one control member for applying torque to said printing rotation member or said display rotation mechanism; and
 at least one synchronous rotation means for synchronously rotating said printing rotation member and said display rotation mechanism with said torque applied by said control member, such that said printing rotation member is rotated to set said printing surfaces of said printing areas successively to said printing position adjacent said printing support shaft, and said display rotation mechanism is rotated to set, to a display position, display characters corresponding to said printing characters in said printing areas set to said printing position.

5,799,577

STENCIL AND STENCIL PERFORATING DEVICE

Mituru Takahashi, Shibata-machi, Japan, assignor to Tohoku Ricoh Co., Ltd., Miyagi, Japan

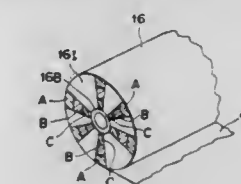
PCT No. PCT/JP96/01713, § 371 Date Mar. 28, 1997, § 102(e)
 Date Mar. 28, 1997, PCT Pub. No. WO97/04967, PCT Pub. Date Feb. 13, 1997

PCT Filed Jun. 20, 1996, Ser. No. 809,364

Claims priority, application Japan, Jul. 31, 1995, 7-195309
 Int. Cl.⁶ B05C 17/06

U.S. Cl. 101—127

17 Claims



1. A stencil roll comprising:
 a wound stencil having side surfaces,
 wherein at least one side surface of said side surfaces of said wound stencil is pasted with adhesive so as to keep said stencil roll in a wound state without use of any other elements.

5,799,578

PRINTING PRESS AND LIQUID SUPPLY

Rudi Jungmans, Wilhelmsfeld, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

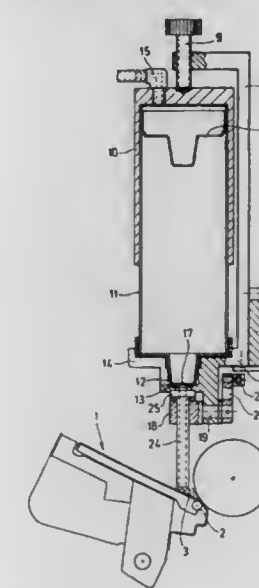
Filed Apr. 13, 1995, Ser. No. 421,303

Claims priority, application Germany, Apr. 15, 1994, 94 06 347.8 U

Int. Cl.⁶ B41F 1/46

U.S. Cl. 101—348

20 Claims



1. Device for feeding a fluid to a rotary printing press comprising:
 apparatus for supplying a liquid;
 said liquid supplying apparatus comprising:

a reservoir for holding a supply of liquid;
 an arrangement for transferring liquid from said holding reservoir in said printing press;
 an arrangement for delivering liquid to said holding reservoir;
 a device for curtailing the supply of liquid to said holding reservoir from said delivering arrangement upon a predetermined volume of liquid being present in said holding reservoir;
 said curtailing device comprising at least one portion having an arrangement for being mechanically altered upon the predetermined volume of liquid being present in said holding reservoir; and
 said arrangement for being mechanically altered being mechanically connected to said delivering arrangement, to curtail the supply of liquid to said holding reservoir from said delivering arrangement upon the predetermined volume of liquid being present in said holding reservoir;
 a device for displaceably mounting said delivering arrangement with respect to said holding reservoir, said delivering arrangement being displaceable with respect to said holding reservoir to distribute liquid to portions of said holding reservoir;
 said arrangement for being mechanically altered being stationary with respect to said delivering arrangement with the volume of liquid present in said holding reservoir being less than the predetermined volume and with said delivering arrangement being displaced with respect to said holding reservoir; and
 said arrangement for being mechanically altered being configured for being displaced with respect to said delivering arrangement upon the predetermined volume of liquid being present in said holding reservoir and with said delivering arrangement being displaced with respect to said holding reservoir.

5,799,579

METHOD FOR POSITIONING AN ACTUATOR OF A PRINTING MACHINE

Christian Schlegel, Dietzenbach, Germany, assignor to MAN Roland Druckmaschinen AG, Germany

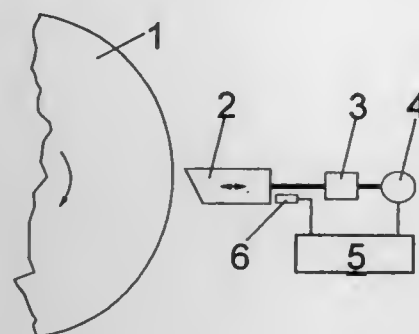
Filed Nov. 25, 1996, Ser. No. 758,157

Claims priority, application Germany, Nov. 25, 1995, 195 43 964.3

Int. Cl.⁶ B41F 31/05; 7/24

U.S. Cl. 101—365

3 Claims



1. In a printing apparatus having a stepper motor that moves a metering element from a starting position relative to a surface in units of a motor step (M), a method for positioning the metering element contiguously to the surface comprising: applying a number of motor steps associated with a point of intersection to the stepper motor thereby positioning the metering element contiguously to the surface and with minimal force applied to the metering element from the surface; calculating the point of intersection from the intersection of a contact line and a non-contact line in a position-motor step plane; defining the contact line as a locus of points in the position-motor step plane associated with the metering element when the metering element repeatedly contacts the surface; repre-

sending the position of the metering element relative to the starting position by a point corresponding to the number of motor steps required to move the metering element into contact with the surface; defining the non-contact line as a locus of points in the position-motor step plane associated with the metering element when the metering element repeatedly moves away from the surface; representing the position of the metering element relative to the starting position by a point corresponding to the number of motor steps required to move the metering element away from the surface.

5,799,580

DEVICE FOR PRINTING FABRICS MADE OF VEGETABLE FIBERS FROM A WEB OF TRANSFER PAPER

Gilbert Delebassee, Peronne-en-Melantois, France, assignor to Sublatic International, Henin-Beaumont, France

PCT No. PCT/FR95/00336, § 371 Date Nov. 27, 1996, § 102(e)

Date Nov. 27, 1996, PCT Pub. No. WO95/25635, PCT Pub. Date Sep. 28, 1995

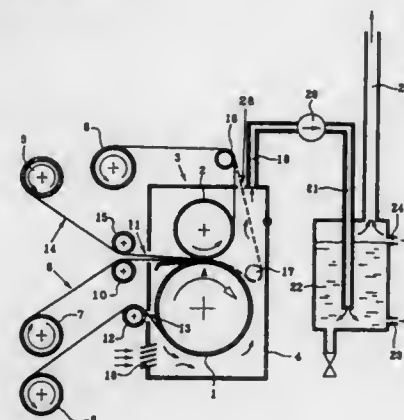
PCT Filed Mar. 20, 1995, Ser. No. 714,101

Claims priority, application France, Mar. 24, 1994, 94 03459

Int. Cl.⁶ B41L 35/14

U.S. Cl. 101—488

5 Claims



1. A device for printing on a fabric made of vegetable fibers from a web of transfer paper bearing coloring agents and a transport agent, comprising a heating calendering drum and a pressing roll between which a web of fabric and a web of transfer paper come into contact with one another, an independent payout roll for each of said webs, the web of printed fabric (9) remaining in contact with the heating drum (1) over at least half of its circumference, a closed housing, said heating calendering drum and said pressing roll (2) being received inside said closed housing (3), an air supply means and a tank of cold water, said air supply means directing air to sweep through said closed housing over the web of printed fabric, become laden with vapors and be sent into said tank of cold water.

5,799,581

ARTICULATING SUSPENSION SYSTEM FOR A BRIDGE OF AN OVERHEAD BRIDGE CRANE

Michael K. Taylor, Farmington, N.Y., assignor to Gorbil, Inc., Fishers, N.Y.

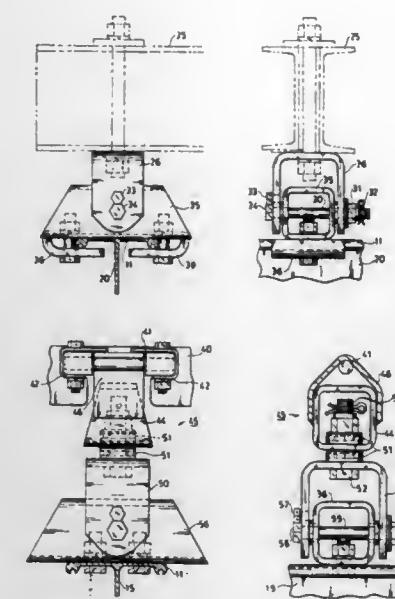
Filed Sep. 13, 1996, Ser. No. 713,617

Int. Cl.⁶ E01B 25/00

U.S. Cl. 104—111

19 Claims

1. An articulating suspension of a bridge from a pair of parallel runs of an overhead bridge crane, the suspension comprising:
 a. end regions of the bridge being connected to respective bridge hangers by bridge pivot pins;



b. the bridge pivot pins being arranged on a common axis above and parallel with the bridge so that the bridge is dependent from the bridge pivot pins;
 c. each of the bridge pivot pins being supported by a hanger clevis that is rotationally mounted on a thrust bearing, giving the bridge freedom to move to positions departing from perpendicular to the runs;
 d. the hanger thrust bearings being dependently supported from end truck pivot pins arranged on axes parallel with the runs and carried by end trucks that are movable along the runs; and
 e. each of the runs being dependently supported from run pivot pins arranged on a common axis parallel with the run and mounted above the run.

5,799,582

BEARING ADAPTER AND ADAPTER PAD FOR RAILWAY TRUCKS

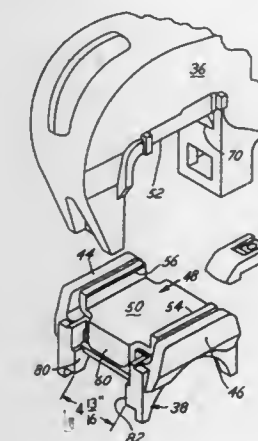
John W. Rudibaugh, West Chester, and Charles L. Van Auken, Dillsburg, both of Pa., assignors to Pennsy Corporation, West Chester, Pa.

Filed Dec. 19, 1996, Ser. No. 769,941

Int. Cl.⁶ B61F 5/26

U.S. Cl. 105—222

12 Claims



1. In a railway car truck assembly including a wheel set, a pair of axles, a pair of side frames, and a truck bolster, each side frame having a pedestal opening at each end thereof, a pair of opposed thrust lugs located on pedestal walls which define each said pedestal opening in positions proximate a roof of said pedestal open-

ing, and a bearing assembly on each end of each axle positioned in a corresponding side frame pedestal opening for mounting said side frame on an end of a corresponding axle, the improvement comprising, in combination, an adapter pad to be fixedly secured to said roof of said pedestal opening to underlie said roof and be fixed relative to said side frame, and an adapter to be positioned on top of said bearing assembly, said adapter pad being slidably positioned on top of said adapter, first stop means on said adapter pad for limiting lateral sliding movement thereof relative to said adapter, and second stop means on said adapter for engagement with said first stop means to limit said relative lateral sliding movement between said adapter pad and said adapter, said first and second stop means being spaced apart a predetermined distance to permit predetermined relative lateral sliding movement between said adapter pad and said adapter, and said thrust lugs being positioned between opposed shoulders on said adapter and said shoulders being spaced sufficiently so said thrust lugs do not engage said shoulders during said lateral sliding movement between said adapter pad and said adapter.

5,799,583

RAIL VEHICLE WITH OSCILLATION DAMPING SIDE WALL CONSTRUCTION

Guido Bieker, Kirchhunden, Germany, assignor to ABB Henschel Aktiengesellschaft, Mannheim, Germany

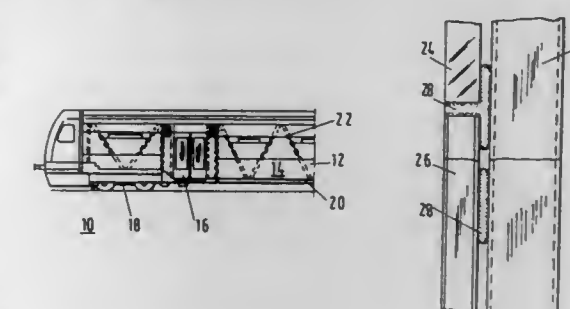
Filed Dec. 5, 1996, Ser. No. 760,822

Claims priority, application Germany, Apr. 5, 1995, 195 12 629.7

Int. Cl.⁶ B61D 17/04

U.S. Cl. 105—401

12 Claims



1. A rail vehicle, comprising:
 a self-supporting car body having a floor, a roof and side walls; said side walls having windows, entrance regions, a framework flexurally rigidly connected to said floor, and rigid side-wall elements; and
 an adhesive connection non-load-bearingly fastening said side-wall elements to said framework, said adhesive connection dampening oscillations occurring during operation of the rail vehicle.

5,799,584

SKID RUNNERS

Gilles Campbell, 1300 Grenade Street, Chambly, Québec, Canada, J3L 3C1

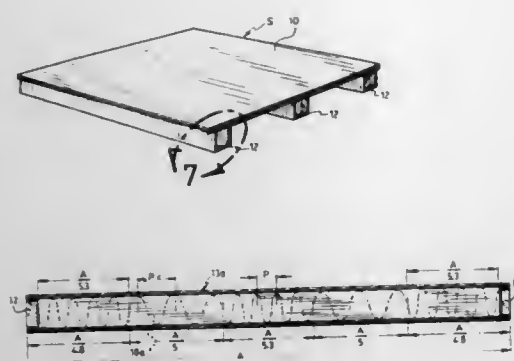
Filed Nov. 27, 1995, Ser. No. 563,037

Int. Cl.⁶ B65D 19/00

U.S. Cl. 108—513

8 Claims

1. A runner made of corrugated cardboard and for skids and the like load bearing platforms comprising an elongated hollow member which includes a base web and two side walls spaced from each other and normal to said base web, said side walls having coplanar top edges, a reinforcement strip located in said member and only partially filling the same, said strip having a sinusoidal shape with rounded crests and a straight cross-section substantially parallel to said side walls, said strip having parallel top and bottom



edges, said bottom edge bearing on said base web, said top edge of said strip being substantially coplanar with said top edges of said side walls, said reinforcing strip built-up of several laminations of single face corrugated cardboard glued together with the corrugations normal to said base web, said rounded crests in alternate contact with said side walls and secured to said side walls spacedly from one another longitudinally of said member.

5,799,585

STACKABLE PALLET

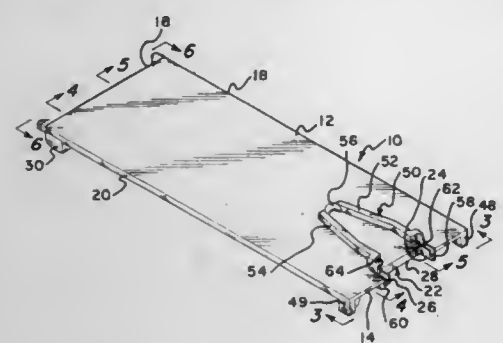
James F. Brennan, Jr., Moorestown, and Martin Clive-Smith, East Riverton, both of N.J., assignors to Lock Nest, L.L.C., East Riverton, N.J.

Filed Apr. 7, 1997, Ser. No. 835,320

Int. Cl.⁶ B65D 19/38

U.S. Cl. 108—53.1

17 Claims



1. A stackable pallet comprising: a rectangular planar base member having a first end, a second end, and two opposing sides; friction reducing means extending downwardly from said base member adjacent said second end thereof; a pair of spaced apart elongated beams extending downwardly from said base member between said first and second ends thereof, said base member being supported on said elongated beams, and a handle member pivotally secured to said base member adjacent said first end, said handle member being adapted to be pivoted from an inoperative position, wherein said handle member is folded on top of said base member, to an operative position, wherein said handle member extends upwardly from said base member, said handle member having a width which is less than the distance between said beams whereby when said handle member is in its inoperative position it can fit between the beams of a similarly constructed pallet stacked thereon.

5,799,586
LOADING PLATFORM WITH DISMOUNTABLE LEGS
AND METHOD FOR MANUFACTURING LOADING
PLATFORMS WITH DISMOUNT LEGS

Jaime Telxidor Casanovas, Esparreguera, and Leopoldo Amaya Mele, Granollers, both of Spain, assignors to Videcart S.A., Ibiricu de Eguies, Spain
PCT No. PCT/ES96/00100, § 371 Date Mar. 31, 1997, § 102(e)
Date Mar. 31, 1997, PCT Pub. No. WO96/35620, PCT Pub. Date Nov. 14, 1996

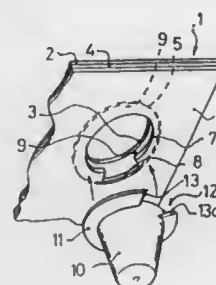
PCT Filed May 9, 1996, Ser. No. 776,181

Claims priority, applicant Spain, May 10, 1995, 9500892; Nov. 8, 1995, 9502178

Int. Cl.⁶ B65D 19/12

U.S. Cl. 108—56.3

20 Claims



1. Loading platform with dismantable legs, comprising a first layer of material having openings therein, a second layer of material having openings therein aligning with said openings in said first layer, said second layer being arranged under said first layer, a third layer of material having openings therein aligning with said openings in said first and second layers, said third layer being arranged under said second layer, each of said openings in said second layer being larger than the aligned one of said openings in said first layer and the aligned one of said openings in said third layer such that internal spaces are formed between said first and third layers, said third layer including at least one notch directed outward from each of said openings and underlying a portion of the respective one of said internal spaces, and dismantable legs, each having a radial fin arranged on an outer surface thereof which has an incut such that edges of said fin are opposite one another, said fin of each of said legs being structured and arranged to be passed through said at least one notch of a respective one of said openings in said third layer into a respective one of said internal spaces such that when said fin is situated in said respective internal space, lateral sides of said fin abut against a portion of said first and third layers defining said respective internal space and said fin is thereby retained in said respective internal space between said first and third layers.

5,799,587

PORTABLE DISPLAY CENTER

Jesse A. Branch, P.O. Box 1602, Greenville, N.C. 27835

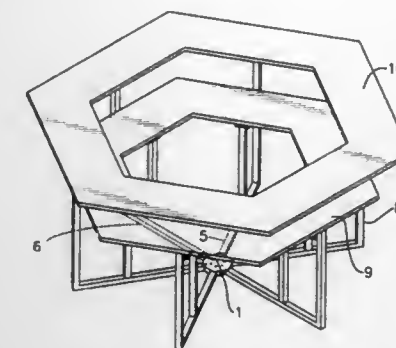
Filed Mar. 3, 1997, Ser. No. 810,528

Int. Cl.⁶ A47B 1/00

U.S. Cl. 108—66

19 Claims

1. A portable, collapsible display structure comprising a central hub with a plurality of horizontal extending elongated arms each attached at one end thereof to one of a plurality of spaced points on said hub radially and positioned with respect to the center thereof; each of said arms extending radially from said hub and being provided with an upright support structure having a plurality of stacked horizontal support surfaces each for supporting the end of a horizontal shelf; a plurality of said horizontal shelves extending



between and in engagement with adjacent pairs of said support surfaces to form a plurality of continuous shelf surfaces disposed circumferentially about the perimeter of said display structure.

5,799,588

SHELF SYSTEM

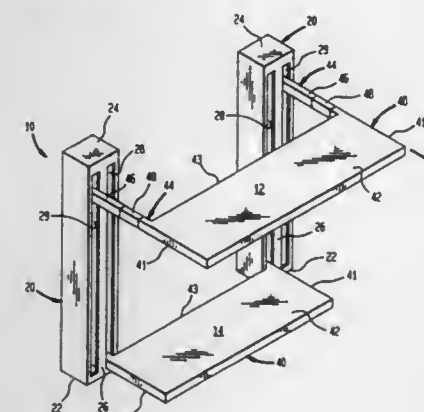
Zecharya Engel, 173-58 Croydon Rd., Jamaica Estates, N.Y. 11432

Filed Mar. 15, 1996, Ser. No. 617,475

Int. Cl.⁶ A47B 9/00

U.S. Cl. 108—108

18 Claims



1. A shelf system apparatus having vertically movable shelves comprising: a stack of shelves comprising a plurality of shelves supported one above the other; shelf support means interconnected at each end of each shelf for supporting each shelf; a pair of upright means interconnected with the shelf support means for supporting the shelves in the stack; an upper shelf means supported by an upper shelf support means, the upper shelf support means vertically movable with respect to the stack of shelves; means for moving the upper shelf means horizontally out from the upright means; bypass means for moving the upper shelf means to bypass a lower shelf of the stack without detaching the shelf from the shelf support member, the upper shelf support means positioned outboard of the lower shelf support means; and means for moving the upper shelf means horizontally back to the upright means.

5,799,589

UNITARY COUNTERTOP AND DEAL TRAY ASSEMBLY

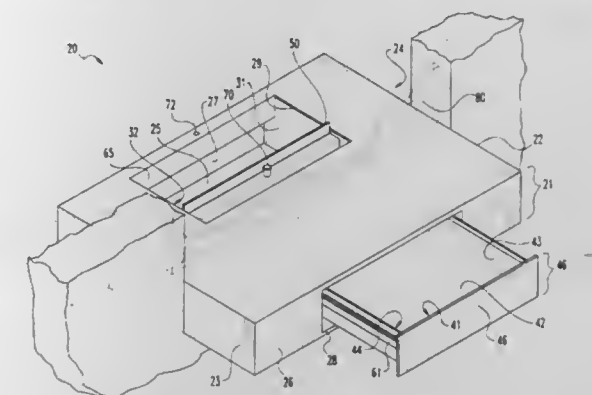
Larry G. Clark, 6215 Red Alder Dr., Plainfield, Ind. 46168

Filed Jan. 15, 1997, Ser. No. 784,032

Int. Cl.⁶ E06B 7/32

U.S. Cl. 109—19

16 Claims



5. A deal tray assembly for transactions between a location in front of a barrier and a location behind a barrier, comprising: a countertop having a top face and a front face and further having an external opening in the front, an internal opening, and an interior, said countertop adapted to be received in a barrier, whereby said countertop provides a work space above said external opening, on said top face, between the barrier and the external opening; and a drawer having a front end, said drawer being movably mounted within said interior of said countertop between a first position where said drawer is open to the internal opening of said countertop and the front end of said drawer is adjacent the front face of said countertop and a second position where said front end projects beyond the front face of said countertop.

5,799,590

AIR SUPPLY SYSTEM FOR INCINERATOR APPARATUS

Takuya Noguchi, Kumamoto-ken, Japan, assignor to Sunny Industry Company, Limited, Kumamoto-ken, Japan

Continuation-in-part of Ser. No. 421,433, Apr. 12, 1995, abandoned. This application Nov. 19, 1996, Ser. No. 746,971

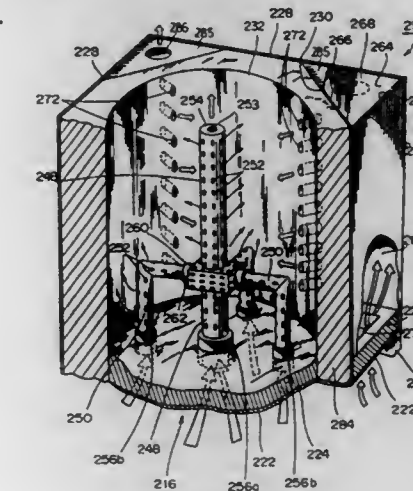
Claims priority, application Japan, Apr. 13, 1994, 6-5209;

May 23, 1994, 6-133692; Aug. 12, 1994, 6-212013

Int. Cl.⁶ F23J 3/00

U.S. Cl. 110—216

7 Claims



1. Incinerator apparatus comprising:

a furnace having a peripheral wall and a bottom section supported horizontal with a space formed between said bottom section and a floor on which said furnace is installed, said peripheral wall and said bottom section forming a furnace chamber, said bottom section being capable of carrying thereon matters to be burnt and ash resulting from burning matters;

a chimney communicating with said furnace chamber at a location in an upper portion thereof;

an air supply hole extending through said bottom section to communicate with said space; and

an air supply pipe extending upward within said furnace chamber, with the lower end of said air supply pipe being connected to communicate with said air supply hole in said bottom section, said air supply pipe having a bore having a given transverse cross-sectional area over substantially the entire length thereof;

wherein:

said air supply pipe has a plurality of air holes extending through the peripheral wall thereof, said air holes being distributed over substantially the entirety of said peripheral wall; said bore having a reduced transverse cross-sectional area at the top end of said air supply pipe to form a top air hole, the ratio of said reduced transverse cross-sectional area of said top air hole to the area of said given transverse cross-sectional area of said bore being from about 2% to about 10%; said top air hole having a larger cross-sectional area than said air holes; the upper portion of said furnace chamber above said top air hole in said air supply pipe including substantially no obstacles to the flow of air flowing out through said top air hole.

5,799,591

INCINERATOR FOR MEDICAL WASTE

Berris M. Anderson, 330 Gates Ave., Brooklyn, N.Y. 11216
Filed Feb. 14, 1997, Ser. No. 800,355

Int. Cl.⁶ F23J 15/00

U.S. Cl. 110—215

16 Claims

272	236A	202	22C	22	488	50F	82
							226
216							
200							
242		24					30
							32A
228		32					28
		32C					82
		12					34
		14					
		16					

1. An incinerator for incinerating medical waste, comprising: a self-contained unit including a hopper and a fire chamber supported on a conveying mechanism; said fire chamber having an opening and a chute coupling said hopper and said fire chamber for supplying material placed into said hopper to said fire chamber;

a scrubber tank including a rotatable scrubber, a conveyor conduit and a vacuum pump including a suction mechanism to suck up ash from said fire chamber and convey it through said conveyor conduit to said scrubber tank;

a water tank juxtaposed to said scrubber tank, and means coupling the interiors of said water tank and said scrubber tank together for supplying water to said scrubber tank while said scrubber is rotated for condensing the ash into a slurry which drops to the bottom of said scrubber tank and thereby eliminates the ash content supplied to the scrubber;

a pump coupled to said scrubber tank through an extraction conduit for extracting the slurry with the bottom of said scrubber tank and conveying the slurry to a slurry water pipe; a jet spray mechanism including a deluge and a water spray for spraying water into said deluge to supply clean water to said slurry water pipe; and

a waste water storage tank coupled to said slurry water pipe including a filter coupled with said slurry water pipe to filter onto additional particles for further recirculation of the water.

5,799,592

INLET GUIDE VANES FOR PULVERIZER EXHAUSTERS

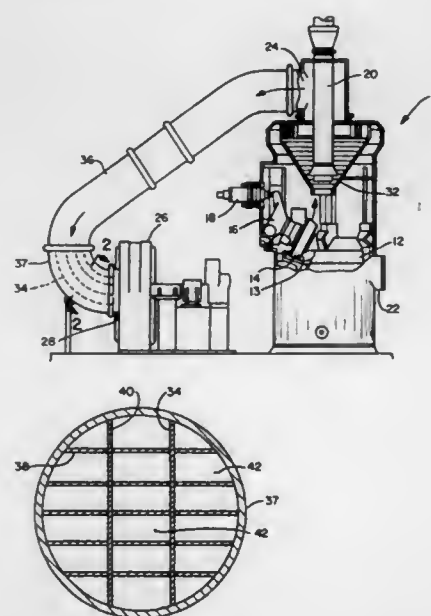
Stanley E. Kmiotek, Tolland, and Gregory R. Strich, Enfield, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 26, 1996, Ser. No. 774,153

Int. Cl.⁶ F23K 1/00

U.S. Cl. 110—232

11 Claims



1. Apparatus for providing a supply of pulverized solid fuel comprising:

an exhauster assembly having an exhauster housing defining an inlet opening and a fan rotatably mounted in said exhauster housing, said fan providing an air stream;

a duct for defining an air stream flow path, said duct having first and second end portions, said first end portion being in fluid connection with said inlet opening;

a pulverizer for supplying the pulverized solid fuel, said pulverizer being in fluid communication with said second end portion of said duct, whereby the pulverized solid fuel is entrained in said air stream; and

an inlet guide vane assembly disposed in said first end portion of said duct, said inlet guide vane assembly having a plurality of vanes defining a plurality of flow channels generally parallel to said air stream flow path for guiding said air stream and said entrained pulverized solid fuel into said exhauster assembly.

5,799,593

DRAINABLE DISCHARGE PAN FOR IMPACT TYPE PARTICLE SEPARATOR

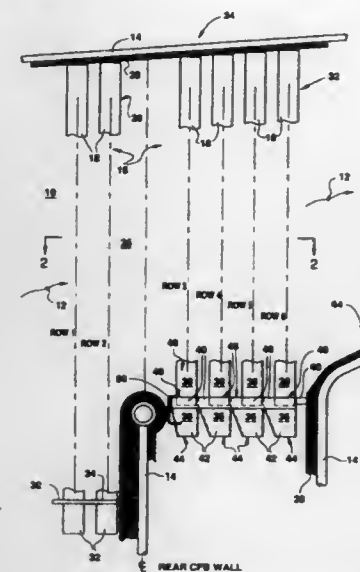
Felix Belin, Brecksville, and David J. Walker, Wadsworth, both of Ohio, assignors to McDermott Technology, Inc., New Orleans, La.

Filed Jun. 17, 1996, Ser. No. 664,755

Int. Cl.⁶ F23G 5/00; B01D 45/00

U.S. Cl. 110—245

29 Claims



1. An apparatus for an impact type particle separator used to collect particles from particle-laden flue gas in a circulating fluidized bed (CFB) boiler which provides for drainage of particles from spaces in between adjacent impingement members of the particle separator as well as from inside of the impingement member and which minimizes gas bypassing around a lower end of the particle separator, comprising:

a funnel shaped discharge pan which essentially eliminates horizontal surfaces at the discharge pan, having an inlet portion for receiving the lower end of an impingement member and an outlet portion for discharging particles therefrom, the outlet portion having an outlet flow area approximately equal to an open flow area defined within sides of the impingement member, the inlet portion having an inlet flow area greater than the outlet flow area of the outlet portion; and securing means for securing the discharge pan to the lower end of the impingement member.

5,799,594

METHOD AND APPARATUS FOR REDUCING NITROGEN OXIDE EMISSIONS FROM BURNING PULVERIZED FUEL

Pauli Darnjatin, Kati Savolainen, both of Helsinki, and Juha Lepikko, Vantaa, all of Finland, assignors to IVO International Oy, Vantaa, Finland

PCT No. PCT/FI93/00461, § 371 Date May 2, 1996, § 102(e) Date May 2, 1996, PCT Pub. No. WO95/13502, PCT Pub. Date May 18, 1995

PCT Filed Nov. 8, 1993, Ser. No. 637,777

Int. Cl.⁶ F23D 1/00

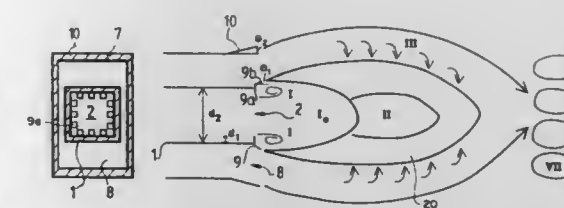
U.S. Cl. 110—265

20 Claims

1. A method for combusting a pulverized fuel in a tangentially fired boiler, thereby reducing emission of nitrogen oxides, comprising the steps of:

feeding a substantially air-deficient mixture of pulverized fuel and primary air as a stream through a fuel feeding pipe tangentially into a furnace of the tangentially fired boiler in order to feed a reducing flame, and

directing at least one stream of combustion air into the furnace,



wherein the stream of primary air and fuel is caused to recirculate and turbulate at an open end of the fuel feeding pipe by passing it through a flame holder extending into the fuel feeding pipe,

wherein the at least one stream of combustion air is directed axially in relation to the primary air/fuel stream and away from the primary air/fuel stream in order to delay the mixing of the at least one stream of combustion air and the reducing flame.

5,799,595

WET ASH REMOVER INSTALLATION

Bernhard Michelbrink, and Karl Bleckmann, both of Wesel, Germany, assignors to Babcock Lentjes Kratwerkstechnik GmbH, Oberhausen, Germany

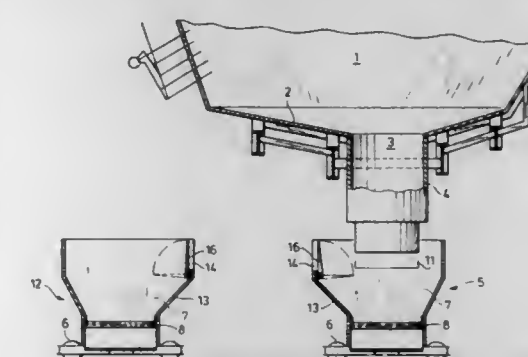
Filed Sep. 11, 1996, Ser. No. 712,361

Claims priority, application Germany, Sep. 20, 1995, 195 34 822.2

Int. Cl.⁶ F23D 1/00

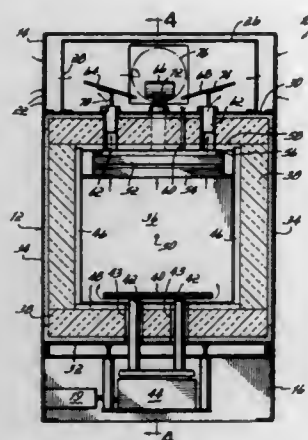
U.S. Cl. 110—266

7 Claims



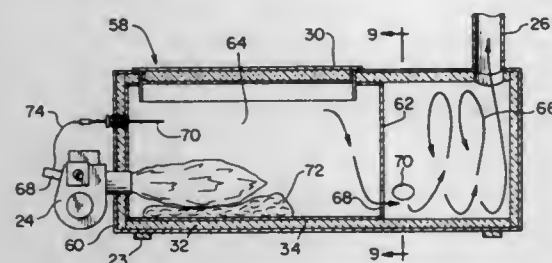
1. A wet ash remover installation comprising: a first wet ash remover; a boiler with an ash funnel, said first wet ash remover being placed in an operating position below said ash funnel; a second movable wet ash remover similar to said first wet ash remover and placed in a reserve position; said first and second wet ash removers respectively comprising a water-filled trough with side walls housing a conveying appliance; a dip member connected with said ash funnel immersed into said trough; each said trough having an opening at the same height in one of said side walls, said opening extending to a top edge of said one of said side walls and having a width corresponding to the width of said dip member and having a height corresponding to at least to a maximum immersion depth of said dip member in the wet ash remover; a compressible seal surrounding each said opening and received in a frame and closeable by a movable wall portion; said movable wall portion being a rotatable gate engaging said opening from the inside; opposing side walls of the respective wet ash removers, the openings being positioned in said opposing side walls; said wet ash removers having coupling elements.

5,799,596
ASHING FURNACE AND METHOD
 Steven C. Peake, Dubuque, Iowa, assignor to Barnstead/Thermolyne Corporation, Dubuque, Iowa
 Continuation of Ser. No. 355,914, Dec. 14, 1994, Pat. No. 5,558,029. This application Jul. 31, 1996, Ser. No. 688,813
 Int. Cl.⁶ F23J 11/00
 U.S. Cl. 110—345 21 Claims



1. A furnace for performing content analysis on a sample of material comprising:
 an enclosure;
 a support within said enclosure for supporting a sample including combustible and uncombustible material;
 a first heater element in operable heat transfer association with said support for initial combustion of the combustible material of the sample;
 a filter spaced downstream from said support for filtering uncombusted products of combustion of the combustible material of the sample; and
 a second heater element in operable heat transfer association with said filter for secondary combustion of the uncombusted products of combustion filtered by said filter.

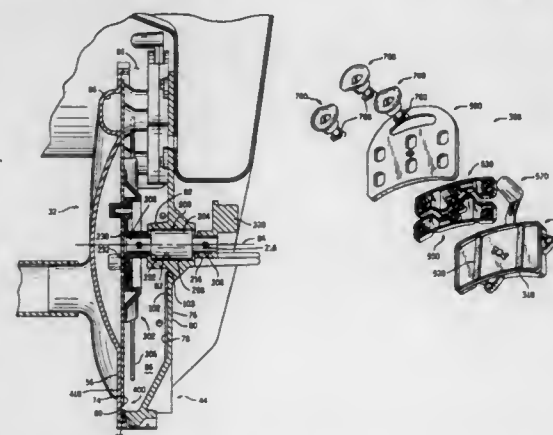
5,799,597
ANIMAL CARCASS INCINERATOR
 Mark A. Kaehr, Decatur, Ind., assignor to R & K Incinerator, Inc., Decatur, Ind.
 Division of Ser. No. 373,584, Jan. 17, 1995, Pat. No. 5,699,745.
 This application Jun. 20, 1997, Ser. No. 879,692
 Int. Cl.⁶ F23G 5/00
 U.S. Cl. 110—346 16 Claims



1. A method of incinerating an animal carcass comprising:
 providing an incinerator having a combustion chamber and a burner;
 placing the animal carcass in the combustion chamber;
 supplying fuel to the combustion chamber and producing a flame in the combustion chamber with the burner;
 monitoring the combustion chamber with a temperature sensing device;

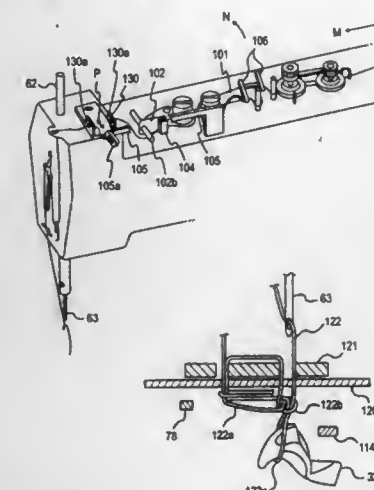
terminating the supply of fuel to the burner upon detecting a first predetermined temperature in the combustion chamber;
 introducing air into the combustion chamber after detecting the first predetermined temperature and while the supply of fuel is terminated to promote burning of the animal carcass; and
 supplying fuel to the combustion chamber and producing a flame in the combustion chamber with the burner subsequent to terminating the supply of fuel and prior to completing the incineration of the animal carcass.

5,799,598
APPARATUS FOR SEALING A VACUUM CHAMBER OF A SEED METERING APPARATUS
 John F. Stufflebeam, Romeoville; Thomas A. Olson, Bollingbrook, and Lisle J. Dunham, Downers Grove, all of Ill., assignors to Case Corporation, Racine, Wis.
 Filed Aug. 20, 1996, Ser. No. 700,222
 Int. Cl.⁶ A01C 7/04
 U.S. Cl. 111—185 24 Claims



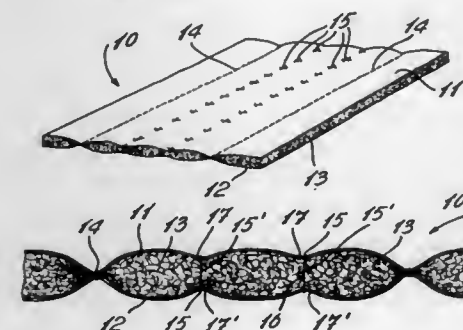
1. A sealing arrangement for a seed metering mechanism, comprising:
 a disc having a plurality of openings extending therethrough and arranged in a circular array proximate the periphery of said disc for receiving and holding seeds thereto as a function of pressure differentials applied thereto, said disc having two major and generally parallel and flat side surfaces;
 a split housing including a body having a seed reservoir chamber wherein seeds are received and held, said reservoir chamber being defined by an annular rim extending about the periphery of said body, and wherein said body further defines a seed discharge zone arranged separate and remote from said reservoir and from whence seeds are deposited into a furrow, said split housing further including a cover that releasably attaches to said body, said cover including inner and outer surfaces, wherein the inner surface of said cover defines a recess which serves as a vacuum chamber during operation of said seed metering mechanism, said recess extending through said seed reservoir chamber and terminating proximate said seed discharge zone, said vacuum chamber being partially defined by a continuous annular flat sealing face defined on the inner surface of said cover and arranged in radially and inwardly spaced generally concentric relationship relative to the circular array of openings in said disc, said vacuum chamber further being defined by a second annular flat sealing surface defined on the inner surface of said cover and arranged in radially and outwardly spaced relationship relative to the circular array of openings in said disc, said sealing surfaces being arranged in confronting relation relative to a first side surface of said disc; and
 spring structure to resiliently urge the first side of said disc toward and into continuous contact with said sealing surfaces of said cover to maintain a sealing relationship between said disc and said cover throughout operation of said seed metering mechanism.

5,799,599
CHAIN-STITCH SEWING MACHINE WITH YARN FEED ADJUSTING
 Takashi Tsukioka; Takayuki Shiina; Tadayoshi Minagawa, and Yoh Oda, all of Tokyo, Japan, assignors to Juki Corporation, Tokyo, Japan
 Division of Ser. No. 728,123, Oct. 9, 1996. This application Aug. 8, 1997, Ser. No. 907,488
 Claims priority, application Japan, Oct. 9, 1995, 7-261883; Feb. 26, 1996, 8-38130
 Int. Cl.⁶ D05B 3/06; 47/00
 U.S. Cl. 112—65 3 Claims



1. A chain stitch sewing machine for forming chain stitches in cooperation between a vertically movable single needle and a rotary looper, comprising:
 a yarn feed adjusting means for adjusting a degree of feed of a yarn to said single needle,
 wherein the yarn feed adjusting means sets a feed volume of the yarn during formation of a second yarn loop formed at a needle position one stitch ahead of a final stitch to a value which is larger than that during formation of a yarn loop formed at a needle position of the final stitch and that during formation of a first yarn loop which is formed at a needle position two stitches ahead of the final stitch.

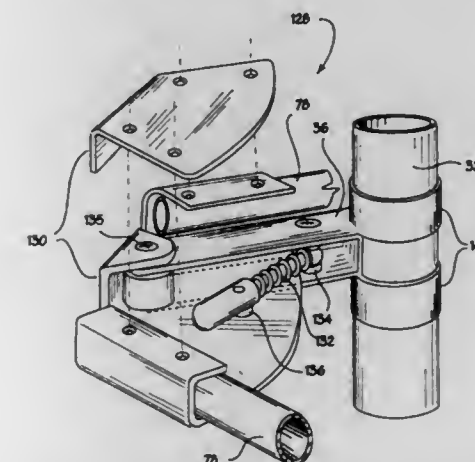
5,799,600
DOWN-FILL QUILTED FABRIC WITH COMBINATION STITCHED LINES AND TACK STITCHES
 Ronnie Reuben, 8355 Labarre, Montreal, Quebec, Canada, H4P 2S5
 Filed Nov. 25, 1996, Ser. No. 756,326
 Int. Cl.⁶ A47G 9/02; A41D 27/02
 U.S. Cl. 112—420 9 Claims



1. A quilted fabric comprising a pair of opposed fabric sheets secured together by spaced-apart stitch lines disposed in a pattern

form, a down-fill material having a normal loft disposed between said fabric sheets in a layer, said stitched lines maintaining said down-fill material substantially immovable between said fabric sheets and a plurality of tack stitches disposed between said stitch lines to compress said down-fill material to reduce said thickness of said fabric and therefore the thickness of said down-fill fabric while maintaining pliability of said fabric, said tack stitches each being comprised of a thread portion interconnecting opposed stitch areas of said pair of fabric sheets close to one another while maintaining said fabric sheets spaced-apart throughout the entire region between said spaced apart stitch lines, said thread portion forming an internal gap defined between the opposed stitch areas at each of said tack stitches and in which said down-fill is compressed to reduce said loft of said down-fill material and the thickness of said quilted fabric to at least half said normal loft of said down-fill material.

5,799,601
CAMBER INDUCER FOR WING-SAIL
 Michael B. Peay, 650 N. 80 West, No. 4, Logan, Utah 84321
 Filed Jun. 21, 1996, Ser. No. 667,860
 Int. Cl.⁶ B63H 9/08 11 Claims



1. A batten retaining device for a wing sail, the wing sail having a first sail surface and a second sail surface; the batten retaining device comprising:
 (a) a first means for receiving a first elongated batten;
 (b) a second means for receiving a second elongated batten;
 (c) a body means for providing coupling structure from said first means for receiving to said second means for receiving, said body means positioned substantially between said first and second means for receiving, the body means being fabricated from relatively rigid material having sufficient strength to resist collapse or deformation caused by the sail pressing on said first and second elongated battens;
 (d) said first means for receiving positioned on said body means at a predetermined angle in relation to said second means for receiving, whereby battens placed in each of the first and second means for receiving diverge from each other at said predetermined angle to hold the first surface of the wing sail substantially apart from the second surface of the wing sail; and
 (e) a pair of arms, each arm having a proximal end and a distal end, the proximal end being connected to the body and the distal end terminating adjacent to a mast whereby said pair of arms provide a means for transferring rotational movement of said mast to the arms to impart a rotational movement to said

body, and whereby said body rotates substantially in synchronization with said mast.

9. A boom to mast connection for rotatably connecting a mast to a boom, the boom being attached at approximately a right angle to said mast, the mast having a longitudinal axis, the mast being able to rotate about said longitudinal axis while fully rigged for use in sailing, said connection comprising:

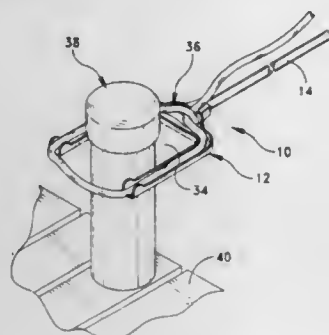
- (a) a body structure;
- (b) a means for attaching to a boom, the means for attaching positioned on said body structure;
- (c) a means for attaching to a mast, said means connected to said body structure wherein the means for attaching to a mast includes a secure coupling means, whereby said mast is held without allowing slippage between said mast and said coupling means; and
- (d) a means for mast rotation, whereby said mast is able to rotate about the axis of said mast in relation to said boom while maintaining substantially a right angle with said boom, wherein the means for mast rotation comprises an arm connected to said secure coupling means for applying rotational force to said mast, said arm being able to assume a first rotational position or a second rotational position, and said arm being able to pivot between said first and second rotational position, whereby a mechanical advantage is used to impart a rotational force to said mast.

5,799,602

DOCKING FORK

Joseph Trillo, 643 East Ave., Warwick, R.I. 02886
Filed Oct. 1, 1997, Ser. No. 942,098
Int. Cl.⁶ B63B 9/00

U.S. Cl. 114—221 R



1. A docking fork for assisting in the securing of a docking line to a structure to be captured, comprising:
a substantially U-shaped fork member having an inner perimeter edge, an outer perimeter edge and an upper surface disposed therebetween; said substantially U-shaped fork member including two substantially parallel arm portions, each having free ends, and a bight portion;

an inner upstanding wall connected to and emanating upwardly from said inner perimeter edge; an outer upstanding wall connected to and emanating upwardly from said outer perimeter edge; said inner upstanding wall, said outer upstanding wall and said upper surface of said U-shaped fork member defining a substantially U-shaped tray member with a floor with a distance being between said inner upstanding wall and said outer upstanding wall;

said U-shaped tray member being positioned to a receive and support a line loop, having a knot region, opposing sides and closed end, on its floor; said line loop residing in said U-shaped tray member with said opposing sides of said line loop residing on said parallel arm portions and said knot

region residing over said bight portion of said U-shaped fork member; said opposing sides of said line loop and said knot region being bounded by said inner upstanding wall and said outer upstanding wall; said closed end of said line loop spanning from respective free ends of said two substantially parallel arm portions to maintain said loop line in an open position; and

whereby said loop line is placeable about said structure to be captured for securement upon introduction of a said structure to be captured inside said loop line and pulling away of said U-shaped tray member from fixed structure to thereby release said loop line from said U-shaped tray member.

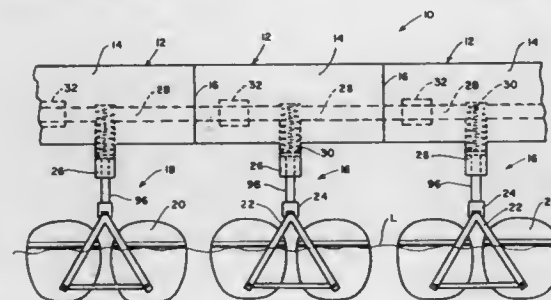
5,799,603

SHOCK-ABSORBING SYSTEM FOR FLOATING PLATFORM

Wentworth J. Tellington, P.O. Box 68291, Tucson, Ariz. 85737
Continuation-in-part of Ser. No. 404,049, Mar. 14, 1995, Pat. No. 5,588,387, which is a continuation-in-part of Ser. No. 154,119, Nov. 18, 1993, Pat. No. 5,398,635. This application Dec. 23, 1996, Ser. No. 771,486
Int. Cl.⁶ B63B 35/50

U.S. Cl. 114—261

20 Claims



1. A buoyant hull assembly for a floating structure comprising:
a walking beam; and
a pair of buoyant hulls, each hull being pivotally connected to the beam through a pivot axis such that a center of gravity of the hull is located above said pivot axis when the hull is floating.

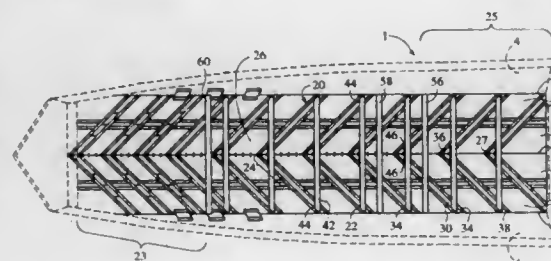
5,799,604

TRIANGULATED CHEVRON RIB STRUCTURE FOR A BOAT HULL

Charles C. Long, Rte. 16, Box 1236, Lebanon, Mo. 65536
Division of Ser. No. 283,043, Jul. 29, 1994, Pat. No. 5,640,923.
This application Nov. 12, 1996, Ser. No. 756,661
Int. Cl.⁶ B63B 3/00

U.S. Cl. 114—359

20 Claims



1. A chevron rib structure for providing support in a boat hull, said boat having a fore, said structure comprising:
a hull, having fore and aft sections, including opposite side sections extending along a length of said hull, said side

sections combining at a keel line extending along a longitudinal center axis of said hull;
a plurality of triangulated structures pointing to said fore of the boat and being formed by a plurality of V-shaped ribs and a plurality of cross beams connected thereto;
each said V-shaped rib being secured to an inner surface of said hull and aligned with respect to other said V-shaped ribs in a chevron configuration,
each of said ribs including legs which join to form said V-shape, each of said ribs having a summit section proximate an apex thereof and a valley section between adjoining legs,
said ribs being positioned proximate one another such that said summit section of each rib extends into said valley section of a preceding rib located fore thereof,
said legs having lower surfaces secured to said hull;
each of said cross beams being secured to at least one corresponding V-shaped rib,
each of said cross beams traversing said boat hull.



5,799,605

EXPANDABLE BOAT SEAT

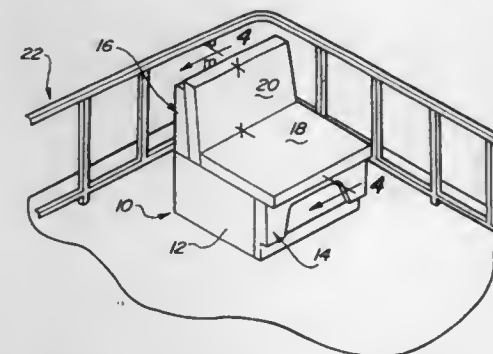
O. C. Huse, Arlington, Tex., assignor to Moeller Marine Products, Goodlettsville, Tenn.

Filed Aug. 28, 1996, Ser. No. 704,370

Int. Cl.⁶ B63B 17/00

U.S. Cl. 114—363

20 Claims



1. An expandable seat and storage unit comprising:
a base and a removable back cushion;
said base defining a storage area which can be opened;
a frame member slidably mounted within said base;
said frame member being slidable with respect to said base to expand the length of said base;
a locking means for locking said frame member within said base, said locking means being operatively engaged by said removable back cushion to lock and unlock said frame member.

5,799,606

POP-UP TEMPERATURE INDICATING DEVICE
Steven John Volk, and Gary Myrle Thompson, both of Turlock, Calif., assignors to Volk Enterprises, Inc., Turlock, Calif.
Continuation of Ser. No. 359,299, Dec. 19, 1994, abandoned.

This application Nov. 7, 1996, Ser. No. 743,754

Int. Cl.⁶ G01K 11/06; 1/02

U.S. Cl. 116—218

17 Claims

9. A pop-up temperature indicating device comprising:
an elongate housing formed with a longitudinally extending bore having an open end and a closed end, said housing having an internal cylindrical neck region and an outward extending

shoulder extending outwardly from said neck region, said neck region having a lesser cross sectional opening than the remainder of said bore, and an internal cavity defined by said neck region and said closed end;

an indicator rod removably positioned in said bore having a front end portion, a first stem stretch extending from said front end portion including a first surface extending inwardly from a peripheral edge of said front end portion, a raised portion proximate said first stem stretch, a second stem stretch extending from said raised portion including a second surface extending inwardly from a peripheral edge of said raised portion, and a rear end portion spaced from said front end portion, said front end portion, said first stem stretch, said raised portion and said second stem stretch being positioned in said internal cavity with said raised portion spaced axially from said neck region by an axial distance, said first stem stretch having a lesser cross sectional area than said front end portion and said raised portion and said second stem stretch having a lesser cross sectional area than said raised portion;

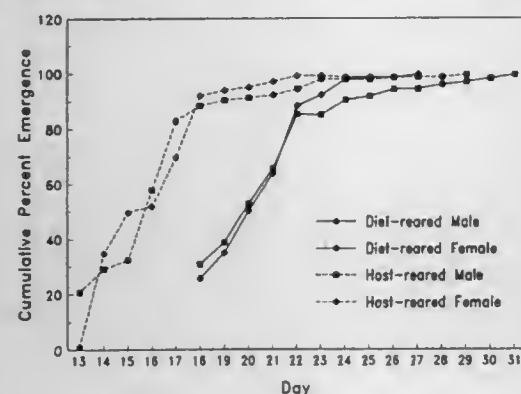
means engaging said rod for urging said rod outwardly from said housing through said open end of said housing; and

a fusible material disposed in said internal cavity around said rod such that said front end portion, said first stem stretch, said raised portion and at least a portion of said second stem stretch are embedded in said fusible material, said fusible material being in solid form under normal conditions to engage said front end portion, said first stem stretch, said raised portion and said second stem stretch of said rod and said shoulder extending outwardly from said neck region to retain said front end portion in said internal cavity, said material softening at a predetermined elevated temperature for removal of said front end portion from said internal cavity and movement of said rod outwardly through said open end of said housing.

said second stem stretch being spaced from the wall of said internal cavity by a radial distance less than said axial distance between said second surface and said neck region such that when said fusible material is in solid form, said outward extending shoulder exerts a substantially downward directed force on said second surface to substantially resist upward movement of said indicator rod until said fusible material softens at said predetermined temperature.

5,799,607
CULTURE MEDIUM FOR PARASITIC AND PREDACEOUS INSECTS
 Patrick D. Greany, Gainesville, Fla., and James E. Carpenter, Tifton, Ga., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

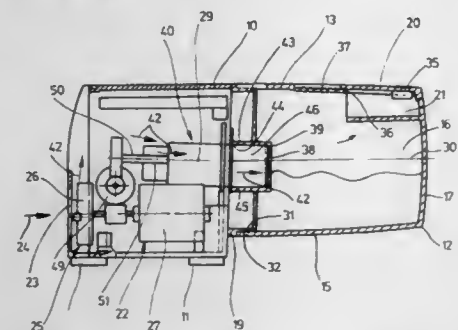
Filed Aug. 6, 1996, Ser. No. 692,565
 Int. Cl.⁶ A01K 67/00
 U.S. Cl. 119—6.5 8 Claims



1. A medium suitable for the culture of beneficial insects comprising a supplement containing ground liver, poultry egg yolk and glutamine.

5,799,608
AUTOMATIC FEEDING APPARATUS, PARTICULARLY FOR AN AQUARIUM
 Bernhard Beck, Esslingen, Germany, assignor to Eheim GmbH & Co. KG., Deizisau, Germany
 Filed Sep. 20, 1995, Ser. No. 531,251
 Claims priority, application Germany, Nov. 24, 1994, 44 41 809.4

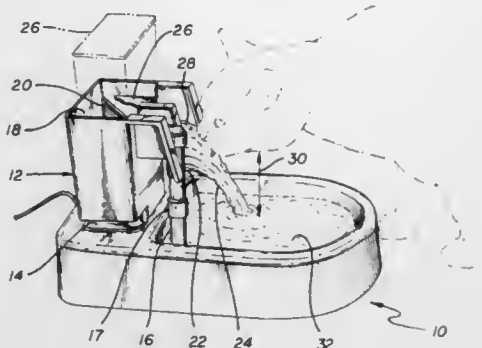
Int. Cl.⁶ A01K 61/02
 U.S. Cl. 119—51.04 32 Claims



1. An automatic feeding apparatus for an aquarium, comprising a housing; a supply drum rotatably supported in said housing and provided with a food discharge opening; a drive device arranged in said housing for driving said supply drum, said housing having an opening which is spaced from said food discharge opening and through which outer air is supplied, said drive device having a blower and operating so that the outer air is supplied into an interior of said housing and then into said supply drum and through said supply drum to said food discharge opening so that when said blower is immovable moist air rising in a region of said supply drum near said food discharge opening produces an underpressure in a region of said food discharge opening so that the outer air is aspirated into the housing, through said supply drum and out said food discharge opening, while when said blower is actuated the outer air is blown by an inner overpressure produced by said blower in the same direction through said supply drum out of said food discharge opening to operate as a blocking air stream.

5,799,609
ANIMAL WATERER
 Mary V. Burns, 844 Bell St., Reno, Nev. 89503, and Don L. Evans, 1405 Huntington Cir., Reno, Nev. 89509
 Filed May 7, 1996, Ser. No. 643,985
 Int. Cl.⁶ A01K 7/02

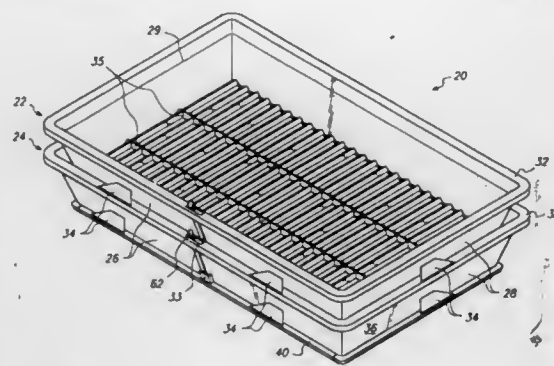
U.S. Cl. 119—74 22 Claims



1. A watering device for watering animals, comprising:
 a) a container for holding water, said container having an exterior wall defining an open top for allowing animals to drink water from said container;
 b) a tube for transporting water, said tube having a first and second end, said first end being in said container wherein said tube may remove water from said container when water is in said container;
 c) a pump connected to said tube for pumping water from said container;
 d) a reservoir located above said container for holding water, said second end of said tube being positioned to deposit water in said reservoir when said pump pumps water from said container; and
 e) a lip attached to said reservoir which releases water into said container from a predetermined height above said container, wherein water is made to substantially free fall into said container through said open top.

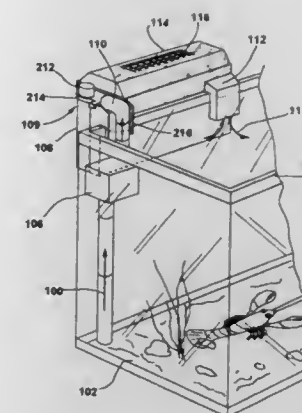
5,799,610
SELF-FILTERING LITTER BOX FOR PETS
 Louis Poulos, 441 Apricot La., Mountain View, Calif. 94040
 Filed Mar. 4, 1996, Ser. No. 610,272
 Int. Cl.⁶ A01K 1/01

U.S. Cl. 119—166 8 Claims



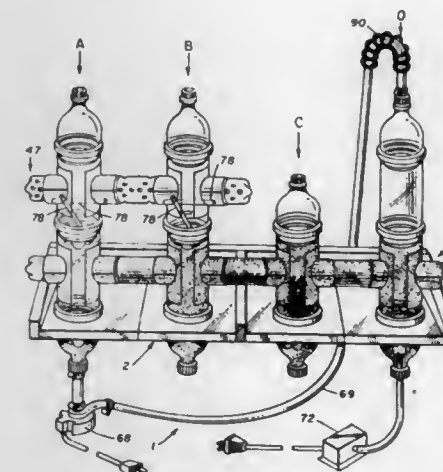
1. A litter box for use with clumping varieties of cat litter comprising:
 at least one container defining a planar bottom wall having at least one side wall connected thereto and extending outwardly and upwardly therefrom, the planar bottom wall defining a plurality of openings therethrough and a plurality of projecting members extending outwardly therefrom;
 track means defining a recess and extending around at least a portion of the at least one side wall;

grid means mounted within the recess and below the planar bottom wall, the grid means having an open and closed position within the recess, the open position aligning openings in the grid means with the openings in the bottom wall; and actuation means connected to the grid means for moving the grid means to the open and closed positions.



5,799,611
MODULAR ANIMAL HABITAT
 Hong Ku Park, 203 Southcrest Dr., Huntsville, Ala. 35802
 Filed Mar. 3, 1997, Ser. No. 805,884
 Int. Cl.⁶ A01K 1/00

U.S. Cl. 119—248 23 Claims



1. A modular habitat for housing animals, said habitat comprising:
 a plurality of horizontally and adjacently disposed animal housings, each said animal housing including a cylindrical body having a chamber therein for receiving animals;
 passage means respectively connected between said chambers of said animal housing, said passage means including an arcuate shaped member secured to each said cylindrical body, a first tubular member secured to and extending away from said arcuate shaped member, and a second tubular member secured between adjacent said first tubular members to form a passageway between said adjacent chambers; and
 support means for supporting said animal housings.

5,799,612
COMPACT AND EFFICIENT PHOTOSYNTHETIC WATER FILTERS

Darren L. Page, 461 W. Holmes #368, Mesa, Ariz. 85210
 Filed Apr. 4, 1997, Ser. No. 826,745
 Int. Cl.⁶ A01K 63/04

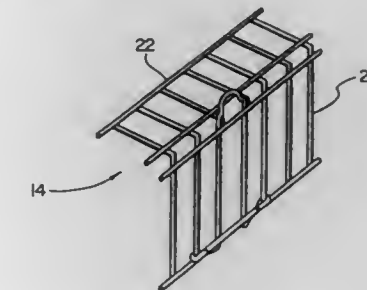
U.S. Cl. 119—260 24 Claims

1. A photosynthetic filter for purifying and adding oxygen to water including:
 a. a receptacle containing a volume of said water;
 b. a growth element mounted within said receptacle and having a growth surface of sufficient texture to accommodate adhesion of photosynthetic organisms;
 c. a non-continuous illumination means providing photosynthetic-sufficient illumination of said photosynthetic organisms; said non-continuous illumination having:
 i. predetermined intervals of substantially high intensity illumination; and
 ii. predetermined intervals of substantially low intensity illumination;

whereby said photosynthetic filter is miniaturized or its energy consumption reduced.

5,799,613
GALVANIZED ANIMAL CAGE FRONT AND RELATED METHOD
 Robert A. Greenhaw, Decatur, and Harold Seib, Hartselle, both of Ala., assignors to CTB, Inc., Milford, Ind.
 Filed Oct. 4, 1996, Ser. No. 725,857
 Int. Cl.⁶ A01K 1/00

U.S. Cl. 119—452 19 Claims

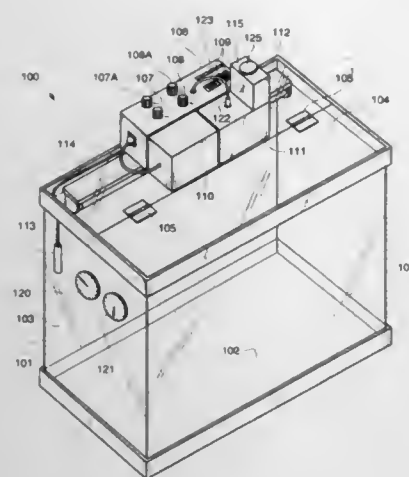


1. A cage front forming part of an animal confinement cage, said animal confinement cage also including a cage body, said cage front and said cage body each including a plurality of metal wires welded together to form a mesh capable of preventing animals from escaping the confinement cage, the plurality of metal wires forming said cage front being of heavier gauge metal than the plurality of metal wires forming said cage body, and a metal coating applied to said wires forming said cage front, after said wires have been welded together to form the mesh cage front.

5,799,614
COMPREHENSIVE REPTILIAN ENVIRONMENT CONTROL SYSTEM
 Jon Brady Greenwood, Arvada, Colo., assignor to FCT, Inc., Arvada, Colo.
 Filed Nov. 12, 1996, Ser. No. 747,543
 Int. Cl.⁶ A01K 67/00

U.S. Cl. 119—452 14 Claims

1. An environment control system for maintaining a suitable reptile or amphibian environment within an enclosure, comprising:
 means for measuring a sensible temperature within said enclosure;
 control means responsive to measuring said sensible temperature for maintaining said sensible temperature between a low setpoint temperature and high setpoint temperature;
 means for measuring a wet-bulb temperature within said enclosure; and



control means responsive to measuring said wet-bulb temperature for maintaining said wet-bulb temperature between a low setpoint wet-bulb temperature and a high setpoint wet-bulb temperature.

5,799,615

ROLL-UP CROWD GATE

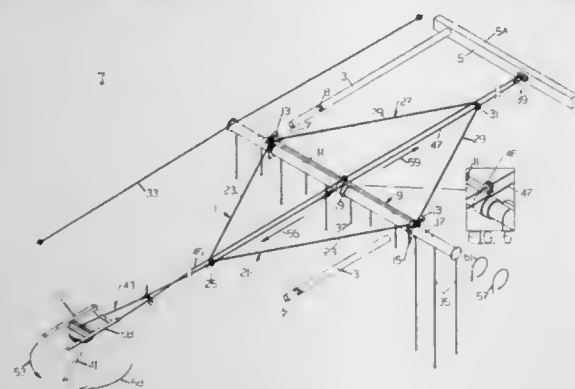
David P. Hoppman; Chris Hoppman, both of Fond du Lac; Eric Klein, Campbellsport, and Kevin L. Daleiden, Van Dyne, all of Wis., assignors to A. F. Klinzing Company, Inc., Fond du Lac, Wis.

Filed Jul. 9, 1997, Ser. No. 890,078

Int. Cl.⁶ A01K 29/00; 3/00

U.S. Cl. 119—510

28 Claims



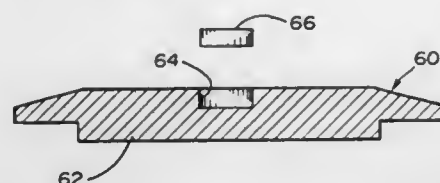
16. Apparatus for guiding the movements of cows between upstream and downstream locations comprising:

- a track extending between the upstream and downstream locations;
- carriage means supported by the track for translating between the upstream and downstream locations;
- cable means supported on the carriage means for selectively rolling up above the cows and for unrolling upstream of the cows; and
- rope means for selectively translating the carriage means and the cable means together between the upstream and downstream locations, and for rolling up the cable means when the carriage means is at the downstream location, and for unrolling the cable means when the carriage means is at the upstream location.

5,799,616
ANIMAL INTERACTION METHOD
Guy L. McClung, III, Spring, Tex., assignor to Charlie Van Natter, Pasadena, Tex.
Continuation of Ser. No. 338,675, Nov. 14, 1994, Pat. No. 5,553,570. This application Sep. 9, 1996, Ser. No. 711,259
Int. Cl.⁶ A01K 29/00

U.S. Cl. 119—709

19 Claims



I. A method for a person to interact with an animal, the method comprising
a person throwing a plate on which at least one item is releasably mounted,
retrieving the plate by the animal for the person,
releasing of the at least one item from the plate by the person,
and
giving the at least one item to the animal.

5,799,617

ANIMAL HEAD SUPPORT DEVICE AND METHOD OF USE

Raymond D. Long, and Scott Greene, both of Sparks, Nev., assignors to Rena Pimpl, Reno, Nev.

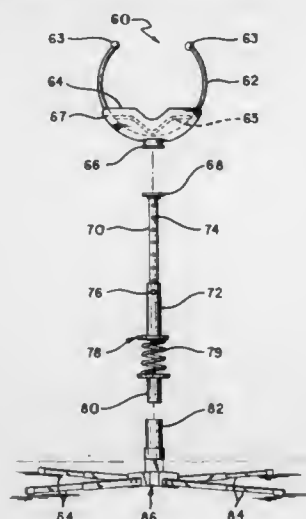
Continuation of Ser. No. 534,715, Sep. 27, 1995, abandoned.

This application Dec. 17, 1995, Ser. No. 768,234

Int. Cl.⁶ A01K 15/04

U.S. Cl. 119—712

13 Claims



I. A ground-mounted animal head support device comprising:
(A) a head support for receiving and supporting an animal's head, said head support being of a size and shape to freely receive the animal's head,
(B) a support shaft attached to said head support for supporting said head support, and
(C) a base removably attachable to said support shaft for supporting said support shaft and said head support from the ground, said base having a sleeve for receiving said shaft and having a plurality of outwardly extending legs for supporting said base from the ground,
(D) wherein a sedated animal's head may be supported from the ground and vertically positioned to perform veterinary procedures.

5,799,618
COMBINATION CONFINEMENT SYSTEM AND BARK INHIBITOR

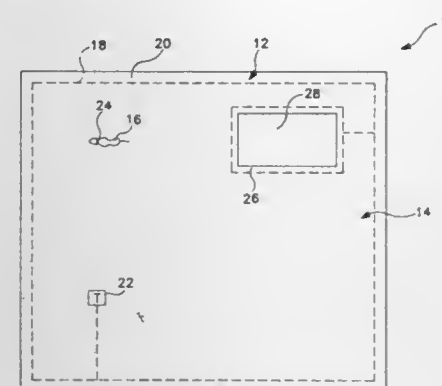
Greg Van Curen, Fremont, and Michael D. Westrick, Fort Wayne, both of Ind., assignors to Innotek, Inc., Garrett, Ind.

Filed Aug. 12, 1996, Ser. No. 695,883

Int. Cl.⁶ A01K 15/04

U.S. Cl. 119—721

17 Claims



1. A combined animal confinement and bark inhibitor system, comprising:
a confinement circuit tuned to receive a confinement transmitter signal and output a confinement control signal in response to receipt of the confinement transmitter signal;
a sensor for detecting vibration of vocal cords of an animal, and for outputting a sensor control signal in response to the vibration of the vocal cords of an animal;
a stimulation device for administering a stimulus to an animal; and
a controller associated with the confinement circuit, sensor, and stimulation device, the controller being configured to selectively enable the stimulation device to administer the stimulus to an animal in response to one of only the confinement control signal, only the sensor control signal, and both the confinement control signal and the sensor control signal;
the system being configured so that one of the confinement control signal and the sensor control signal overrides the other of the confinement control signal and the sensor control signal during substantially simultaneous occurrence of the confinement control signal and the sensor control signal.

5,799,619

VISCOUS FLUID HEATER

Tatsuyuki Hoshino; Takashi Ban; Takahiro Moroi, and Kiyoshi Yagi, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Jun. 6, 1997, Ser. No. 870,254

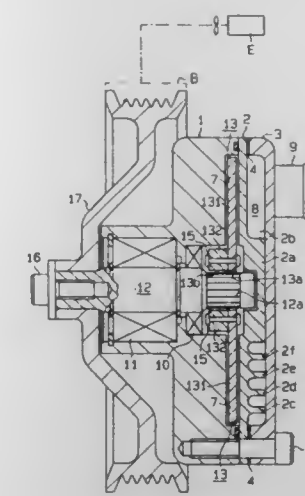
Claims priority, application Japan, Jun. 7, 1996, 8-145771; Jun. 18, 1996, 8-157167

Int. Cl.⁶ F22B 3/06; F02N 17/04

U.S. Cl. 122—26

19 Claims

I. A heater comprising a drive shaft, a heating chamber for accommodating viscous fluid, a rotor operably coupled to the drive shaft and located in the heating chamber, said rotor being arranged to be rotated with the drive shaft to shear the viscous fluid and generate heat in the heating chamber,
said rotor including a flat rotor body and a boss defining an opening therethrough, said drive shaft being received within said opening, said boss having an axial length greater than that of the rotor body; and



means for mounting the rotor on the drive shaft for transmitting torque of the drive shaft to the rotor, said mounting means including at least said boss.

5,799,620

DIRECT CONTACT FLUID HEATING DEVICE

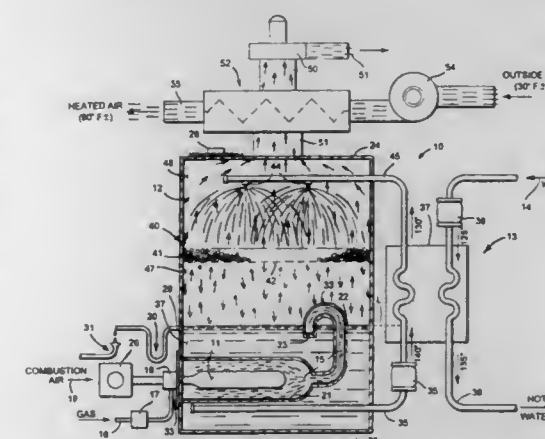
Clarence W. Cleer, Jr., 98 S. Fraley St.; Brett Allen Cleer, 505 Tionesta Ave.; Mark Cleer, Star Rte., all of Kane, Pa. 16735, and Patrick I. Branch, 461 Goldsmith Rd., Pittsburgh, Pa. 15237

Filed Jun. 17, 1996, Ser. No. 665,311

Int. Cl.⁶ F22B 1/18

U.S. Cl. 122—31.2

26 Claims



I. A method of transforming the heat of combustion from a burner into useful heat comprising the steps of:
(a) effecting combustion of fuel and oxygen in a burner to produce hot gases;
(b) directing the hot gases into direct contact with a pool of liquid so as to effect heat exchange between the hot gases and the liquid in the pool;
(c) causing the hot gases to flow in a turbulent manner into contact with a solid material heat transfer surface wet with liquid, so that heat from the turbulent flow of hot gases is transferred directly to the liquid wetting the solid material heat transfer surface, the solid material heat transfer surface being separate from a burner casing;
(d) ultimately passing the gases, after steps (b) and (c), to exhaust; and
(e) passing the liquid heated during the practice of steps (b) and (c) into heat exchange relationship with a heat exchange fluid which recovers usable heat from the liquid.

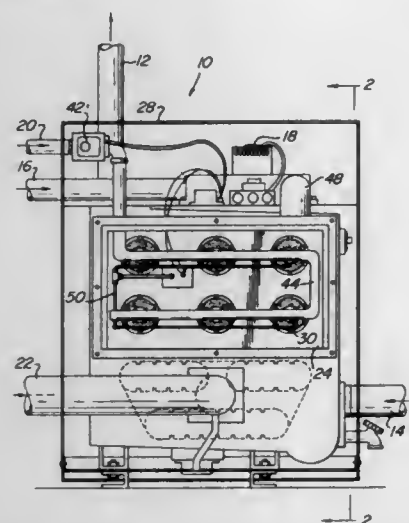
5,799,621

BOILER ASSEMBLY

Michael W. Gordon, Manheim; Robert Young, Millersville;
Michael Zlatkin, Lancaster, and Kurt D. Oswald, Hellam, all
of Pa., assignors to Burnham Corporation, Lancaster, Pa.
Filed Nov. 26, 1996, Ser. No. 757,021
Int. Cl.⁶ F22B 23/06

U.S. Cl. 122—367.1

21 Claims



1. A boiler assembly for heating a fluid which circulates through a sealed radiator/convector heating system, comprising:
a plurality of burners, said burners being located in a path of flowing air such that air flows from an upstream direction through, alongside and past said burners, said burners being directed in a downstream direction;
means for supplying gaseous fuel to said burners;
a primary diffuser located across said path of air upstream from said burners for evenly distributing the flow of air through and alongside said burners such that a primary fuel-air mixture is created inside each said burner; and
a secondary diffuser located across said path of air downstream from said burners for evenly mixing said primary fuel-air mixture exiting said burners with the air which flowed alongside said burners to create a secondary fuel-air mixture;
whereby quiet, stable combustion of said secondary fuel-air mixture can be sustained downstream from said burners providing combustion gases to heat the fluid.

5,799,622

FURNACE HEAT EXCHANGER TUBE CLEANING SYSTEM

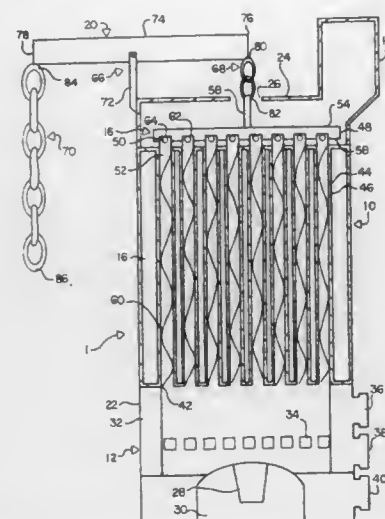
Clarence Waldner, Decker, Canada, assignor to Decker Manufacturing, Decker, Canada

Filed Jun. 30, 1997, Ser. No. 885,172
Int. Cl.⁶ F22B 37/48; F28G 1/00; 9/00

U.S. Cl. 122—387

8 Claims

1. A boiler apparatus comprising:
a boiler housing;
a combustion chamber in the boiler housing for generating heated gases including combustion products;
a flue connected to the boiler housing for discharge of the combustion products;
a container in the boiler housing for receiving a liquid material to be heated;
a plurality of vertical tubes passing through the container and extending from the combustion chamber to the flue for receiving the heated gases and combustion products and communicating heat from the heated gases to the liquid material, said tubes each having an inner surface over which the heated gases and combustion products pass and an outer surface in communication with the liquid material;



each tube having therein a flight arranged to create turbulence in the flow of the heated gases, thereby increasing heat transfer from the heated gases inner surface of the tube, the flight consisting of a strip of rigid material which extends across the tube and which is helically twisted to define outside flight edges;
said helically twisted flight and said outside flight edges thereof being arranged such that the outside flight edges define a sliding fit with the inner surface of the respective tube and thus forming a contact with the inner surface of the tube;
a first lifting frame structure attached to a first plurality of the flights and a second lifting frame structure attached to a second plurality of the flights, the first lifting frame being arranged for simultaneously causing longitudinal vertical sliding movement of each of the first plurality of flights relative to the respective tube from an operating position to a raised position and back to the operating position and the second lifting frames being arranged for simultaneously causing longitudinal vertical sliding movement of each of the second plurality of flights relative to the respective tube from an operating position to a raised position and back to the operating position, the contact of the outside edges of the strip and the movement thereof effecting a scraping of the inner surface to remove combustion products deposited on the inner surface by the heated gases; and
a first lift actuating assembly for lifting the first lifting frame structure;
and a second lift actuating assembly for lifting the second lifting frame structure independently of the first.

5,799,623

SUPPORT SYSTEM FOR FEEDSTOCK COIL WITHIN A PYROLYSIS FURNACE

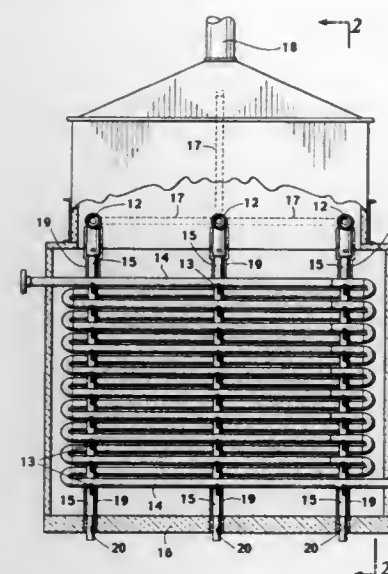
Sidney L. Born, 4241 S. Victor Ave., Tulsa, Okla. 74105, and
James M. Masters, Bristow, Okla., assignors to Sidney L. Born, Tulsa, Okla.

Filed Nov. 18, 1996, Ser. No. 746,851
Int. Cl.⁶ F22B 37/24

U.S. Cl. 122—510

7 Claims

1. A support system for feedstock coils within pyrolysis furnaces comprising:
a plurality of vertically positioned hollow pipes or conduits spaced at intervals along the horizontal length of a serpentine feedstock coil, said hollow pipes or conduits having support arms attached to said pipe or conduit outer surface and extending outward in opposite directions to support said serpentine feedstock coil;
said plurality of vertically positioned hollow pipes or conduits having an open end at the bottom thereof to allow for coolant to enter and having an open end at the top thereof for the exit of said coolant;



said support system being suspended from a hollow T section which is allowed to pivot about its supports at opposite ends of said top of said T section.

5,799,624

ELECTROLYTIC FUELING SYSTEM FOR ENGINE

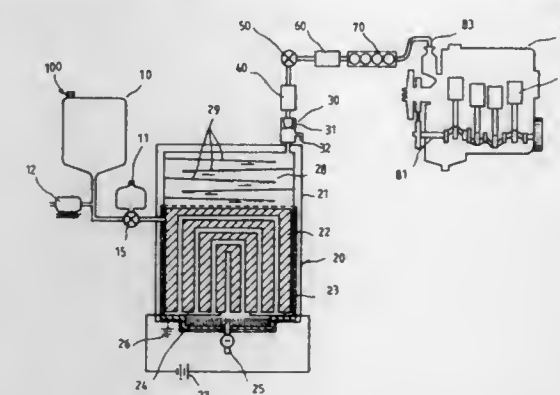
Wen-Chan Hsieh, Suite 1, 11F, 95-8 Chang Ping Road Sec.1, Taichung, Taiwan

Continuation of Ser. No. 85,617, Jul. 2, 1993, abandoned. This application Jan. 31, 1995, Ser. No. 381,276

Int. Cl.⁶ F02B 43/08

U.S. Cl. 123—3

9 Claims



1. An electrolytic fueling system for an engine comprising:
a recruiting unit, said unit comprising a fresh water tank, a KOH tank, an automatic pump and a three-port valve located at predetermined positions and connected by a plurality of conduits therebetween;
an electrolyzer connected to said three-port valve of said recruiting unit, said electrolyzer comprising a cylindrical housing having an electrolytic sink enclosed in a lower portion, said sink being reinforced with an insulator on an inner periphery thereof and contained therein a predetermined amount of electrolyte and a plurality of water absorbing sintered alloy blocks which are sequentially and spacedly nested and alternately interlocked with a series of anodes and cathodes of an external power source and a grounding member, an air cell located at the upper portion of said housing above said electrolyzer and an impurity trough having an egress thereon integrated with the bottom of said electrolytic sink;
a segregator connected to the top of said electrolyzer by a passage therebetween, said segregator comprising a cylinder

5,799,625

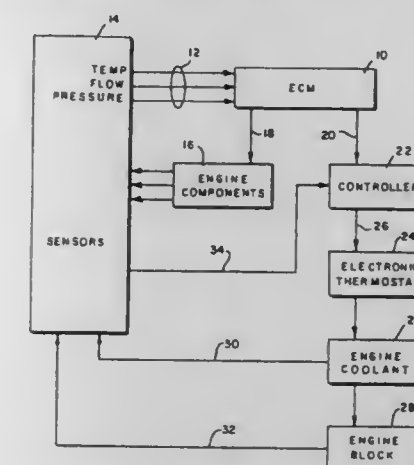
ELECTRONICALLY CONTROLLED ENGINE COOLING APPARATUS

Leszek Ziolk, Nashua, N.H.; David J. Nenno, Eliot, Me., and
Wayne R. Duprez, Waltham, Mass., assignors to Standard-Thomson Corporation, Waltham, Mass.
Continuation of Ser. No. 405,970, Mar. 17, 1995, Pat. No. 5,582,138. This application Dec. 9, 1996, Ser. No. 762,541

Int. Cl.⁶ F01P 7/16

U.S. Cl. 123—41.1

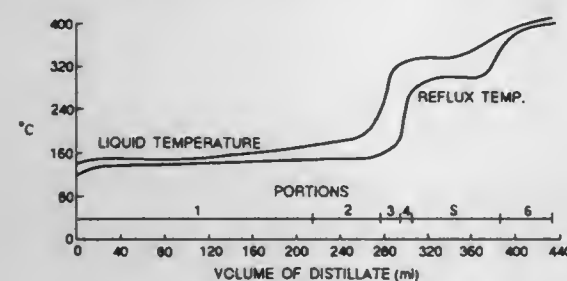
11 Claims



1. An apparatus for actively changing the temperature of an engine based on a variable temperature control signal generated by an electronic control module of the engine, the electronic control module being coupled to a plurality of sensors configured to detect a plurality of engine component parameters and being configured to generate the variable temperature control signal related to an optimum engine temperature which varies based on changes in said engine component parameters, the optimum engine temperature being calculated using at least one output signal from at least one of the plurality of sensors, the apparatus comprising:
a controller coupled to the electronic control module and to an engine temperature sensor, the controller being configured to generate a continuous and variable output signal based on the variable temperature control signal received from the electronic control module and on a signal proportional to the actual engine temperature received from the engine temperature sensor; and
an electronically actuated thermostat including a valve located within a coolant flow passageway of the engine and a motor electrically coupled to the controller, the motor being configured to adjust the valve to control flow of a coolant fluid in the coolant flow passageway in response to the continuous

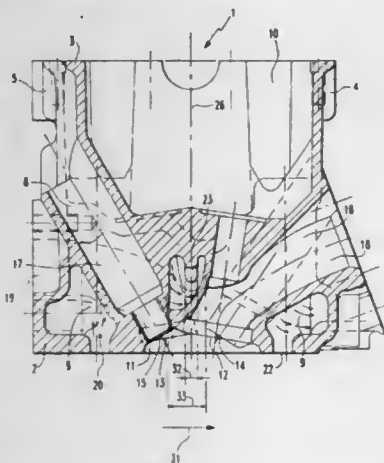
and variable output signal from the controller, thereby actively changing the temperature of the coolant fluid to the optimum engine temperature calculated by the electronic control module by incrementally adjusting the valve position.

5,799,626
METHODS FOR USING STYRENE OIL (AS HEAT TRANSFER FLUID, HYDRAULIC FLUID, LUBRICANT)
Thomas E. Ponsford, and Henry T. Ponsford, both of 14112 Durhullen Dr., Poway, Calif. 92064
Continuation-in-part of Ser. No. 10,350, Jan. 28, 1993, Pat. No. 5,406,010. This application Apr. 11, 1995, Ser. No. 420,236
Int. Cl.⁶ F01P 3/00; C07C 4/04
U.S. Cl. 123—41.42 46 Claims



33. In a composition comprising heat transfer fluids containing organic compounds the improvement comprising styrene oil admixed with said fluids.

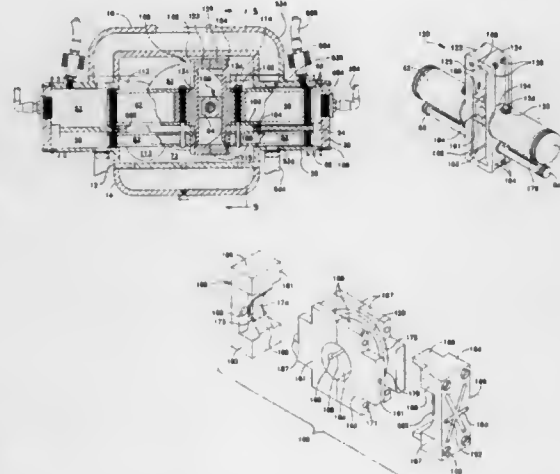
5,799,627
LIQUID COOLED CYLINDER HEAD FOR A MULTICYLINDER INTERNAL COMBUSTION ENGINE
Michael Dohn, Sersheim, and Erhard Rau, Weilheim, both of Germany, assignors to Mercedes Benz AG, Stuttgart, Germany
Filed Nov. 5, 1996, Ser. No. 744,011
Claims priority, application Germany, Nov. 15, 1995, 195 42 494.8
Int. Cl.⁶ F02F 1/36
U.S. Cl. 123—41.82 R 5 Claims



1. A liquid cooled cylinder head for a multicylinder internal combustion engine having a longitudinal center plane and including a cylinder head bottom, a cylinder head top spaced from the cylinder head bottom and spaced front and rear and longitudinal side walls defining therebetween a cooling water space divided into cooling water space sections, a combustion chamber formed in the cylinder head bottom adjacent each cooling water space section, and a trapezoid-shaped flow control rib projecting from said

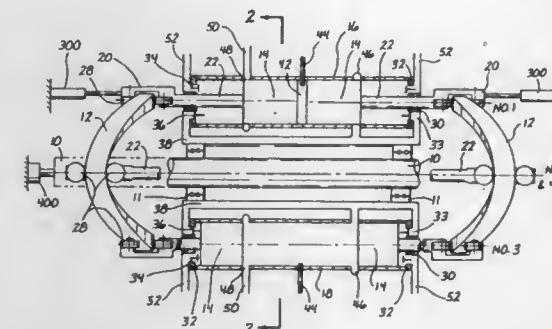
cylinder head top toward at least one of said combustion chambers and extending in the direction of said longitudinal center plane and essentially transverse to the flow direction of the cooling water such that the cooling water is deflected thereby onto the cylinder head bottom above the respective combustion chamber, said rib having a longer edge disposed at the cylinderhead top and a short edge at the projecting end of said rib adjacent a respective combustion chamber.

5,799,628
INTERNAL COMBUSTION ENGINE WITH RAIL SPARK PLUGS AND RAIL FUEL INJECTORS
Carlos Bettencourt Lacerda, 47 Taylor Dr., Rumford, R.I. 02916-1016
Filed Feb. 5, 1997, Ser. No. 795,768
Int. Cl.⁶ F02B 53/00
U.S. Cl. 123—52.3 11 Claims



1. A two stroke cycle reciprocating piston internal combustion engine that has a main cylinder for slideably receiving a corresponding main mating piston therein, and a secondary cylinder which is smaller in diameter but equal in length to said main cylinder, below said main cylinder and axially aligned parallel to said main cylinder's axis and is in communication with said main cylinder, for slideably receiving a corresponding secondary mating piston therein, both said pistons moving in synchronous reciprocation relative to the rotation of a crankshaft, and said main piston and said secondary piston have compression rings, and said secondary cylinder has an exhaust port and said secondary piston acts as an exhaust valve that opens said exhaust port for scavenging said main cylinder and said secondary cylinder, and said main piston is generally cylindrically shaped its entire length with a constant diameter and said secondary piston is also generally cylindrically shaped its entire length with a constant diameter, and said main piston is rigidly affixed via said main piston wall to a shuttle and said secondary piston is affixed via said secondary piston wall to said shuttle which connects said main piston and said secondary piston to said crankshaft, said shuttle comprised of generally two similar shuttle sections with bearing surfaces, said shuttle sections are bolted together, forming an aperture therein, said aperture receives a crankpin of said crankshaft; and said crankshaft has a sliding block rotatably mounted upon said crankpin, said sliding block is rotatable through 360 degrees and has a bearing surface in contact with said crankpin, and bearing surfaces in contact with said shuttle bearing surfaces, and slides within said aperture of said shuttle for converting the reciprocating motion of said pistons to rotary motion of said crankshaft, and said shuttle is maintained in perpendicular alignment to said crankshaft axis by said main piston's mating in said main cylinder and said secondary piston's mating in said secondary cylinder.

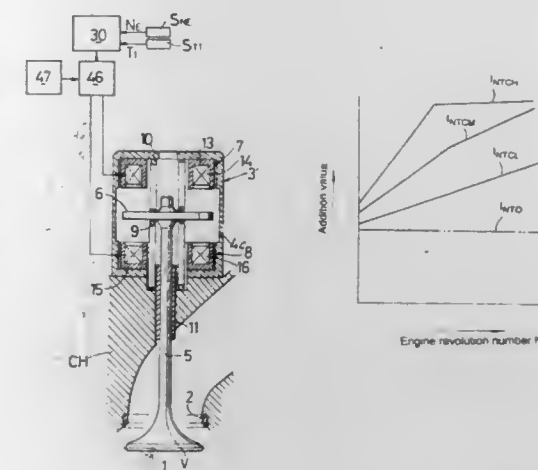
5,799,629
ADIABATIC, TWO-STROKE CYCLE ENGINE HAVING EXTERNAL PISTON ROD ALIGNMENT
Alvin Lowi, Jr., 2146 Toscanini Dr., Rancho Palos Verde, Calif. 90275
Continuation-in-part of Ser. No. 311,348, Sep. 23, 1994, Pat. No. 5,507,253, which is a continuation-in-part of Ser. No. 112,887, Aug. 27, 1993, Pat. No. 5,375,567. This application Apr. 15, 1996, Ser. No. 632,657
Int. Cl.⁶ F02B 75/26
U.S. Cl. 123—56.8 9 Claims



1. A reciprocating internal combustion engine comprising:
at least one cylinder having at least one piston in said cylinder, said piston comprising a piston rod having a first end and a second end and a piston head rigidly attached to said first end of said piston rod;
a cam housing;
at least one barrel cam mounted within said cam housing on a cam shaft parallel with said cylinder and connected to said second end of said piston rod to impart reciprocating axial motion thereto;
a crosshead at a first cylinder end, said crosshead having a bearing adapted to guide said piston rod;
a cam follower assembly attached to said second end of said piston rod, said cam follower assembly comprising a follower body having guide grooves therewithin and a pair of cylindrical needle roller guide bearings affixed to said cam housing, each of said needle roller guide bearings having an outer race conforming to one of said guide grooves and riding there-within.

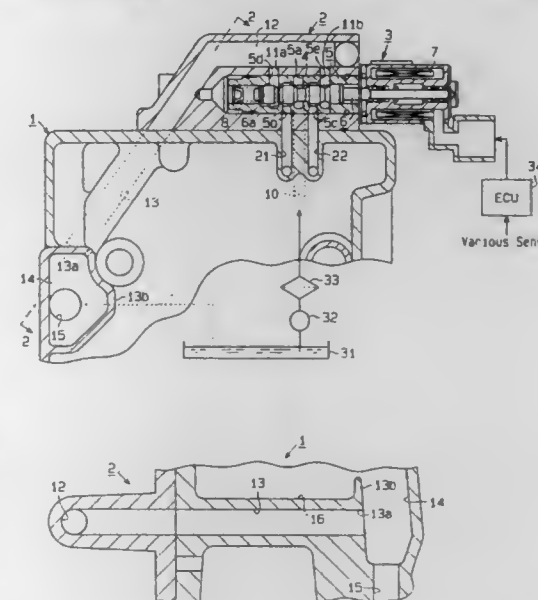
5,799,630
ENERGIZATION CONTROL METHOD, AND ELECTROMAGNETIC CONTROL SYSTEM IN ELECTROMAGNETIC DRIVING DEVICE
Takashi Moriya, Yasuyuki Komatsu, Hiroshi Sono, and Takashi Sugai, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 485,705, Jun. 7, 1995, Pat. No. 5,636,601.
This application Jan. 24, 1997, Ser. No. 788,741
Claims priority, application Japan, Jun. 15, 1994, 6-133423; Jun. 15, 1994, 6-133425; Jul. 8, 1994, 6-157106
Int. Cl.⁶ F01L 9/04
U.S. Cl. 123—90.11 4 Claims

1. An electromagnetic driving device for an engine valve in an internal combustion engine, comprising: an armature operatively connected to said engine valve; a valve-closing electromagnet for exhibiting an electromagnetic force for attracting said armature to close said engine valve; a valve-opening electromagnet for exhibiting an electromagnetic force for attracting said armature to open said engine valve; a valve-closing return spring for biasing said armature in a direction to close said engine valve; and a valve-opening return spring for biasing said armature in a direction to open said engine valve, wherein
an operating force in the valve-closing direction, which force is a sum total of said electromagnetic force of said valve-closing electromagnet and a spring force of said valve-closing spring,



is set larger than an operating force in the valve-opening direction, which valve-opening operating force is a sum total of said electromagnetic force of said valve-opening electromagnet and a spring force of said valve-opening return spring; said electromagnetic force of said valve-closing electromagnet is set larger than said electromagnetic force of said valve-opening electromagnet; and
the electromagnetic force of said valve-closing electromagnet is varied depending upon a number of revolutions per unit of time of the engine by changing an energizing quantity to said valve-closing electromagnet.

5,799,631
APPARATUS FOR CONTROLLING ENGINE VALVE PERFORMANCE
Hideo Nakamura, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Oct. 9, 1997, Ser. No. 948,338
Claims priority, application Japan, Oct. 15, 1996, 8-272230
Int. Cl.⁶ F02D 13/02; F01L 1/344
U.S. Cl. 123—90.17 15 Claims



1. An apparatus for adjusting the valve performance of an internal combustion engine, the apparatus comprising:
a reservoir for reserving oil;
a cylinder head having a drainage pan, wherein the drainage pan receives the oil drained from operating components of the engine;

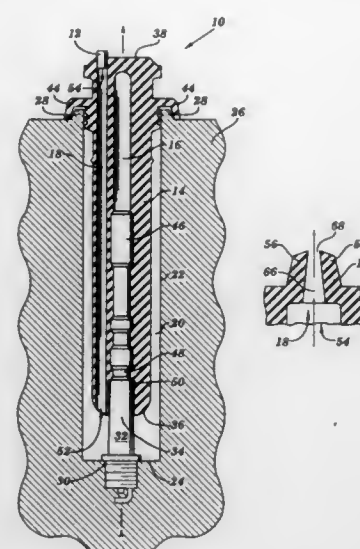
a mechanism for changing the valve performance, wherein the mechanism is hydraulically driven by oil pressure;

a control valve for controlling the oil flow to and from the mechanism;

a control valve drain passage for draining the oil from the control valve;

a drain well located between the control valve drain passage and the reservoir, the drain well having an upper opening in the cylinder head, wherein the control valve drain passage has an outlet connected to the drain well, and wherein oil in the control valve drain passage and in the drainage pan is led to the reservoir through the drain well; and

a barrier positioned between the opening of the drain well and the drainage pan for restricting the oil flow from the drainage pan to the drain well.



between the walls, the walls normally remain in contact with each other at the slit until a cracking pressure is reached where the walls at the slit begin to separate.

5,799,632
HEAT EXCHANGER FOR A HYDROCARBON FUELLED MOTOR VEHICLE

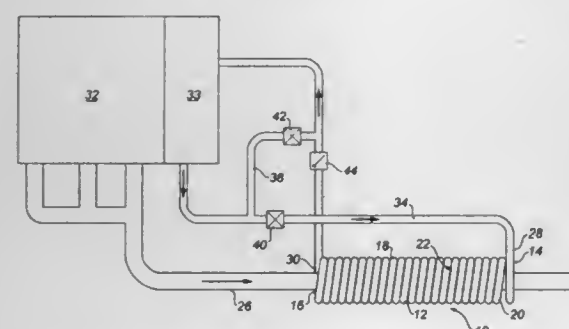
Easton Bennett, P.O. Box 72036, Ottewell P.O., Edmonton, Alberta, Canada, T6B 3A7

Filed Jan. 17, 1997, Ser. No. 784,071

Claims priority, application Canada, Sep. 9, 1996, 2185076
Int. Cl.⁶ F02N 17/02

U.S. Cl. 123—142.5 R

5 Claims



1. A heat exchanger for a hydrocarbon fuelled motor vehicle, comprising:

a fluid impervious unitary tubular body having a first end, a second end, and fluid impervious sidewalls formed out of a single length of conduit wound in a spiral coil;

means for coupling with an exhaust pipe positioned at each of the first end and the second end of the tubular body.

5,799,633
ELECTRICAL INSULATOR WITH A DUCKBILL-SHAPED VALVE

John Miller, Canton, Ohio, assignor to Lexington Insulators, Jasper, Ga.

Filed Aug. 8, 1997, Ser. No. 908,894

Int. Cl.⁶ H01R 13/52

U.S. Cl. 123—143 C

20 Claims

1. A spark plug boot comprising:

a body;

a ventilation passage which extends between a first opening and a second opening in the body; and

a one-way valve which comprises at least two walls, the walls being connected on opposing sides of the second opening and at an angle with respect to body and each other so that the walls engage each other and define a sealed space above the second opening and below the walls and a slit formed

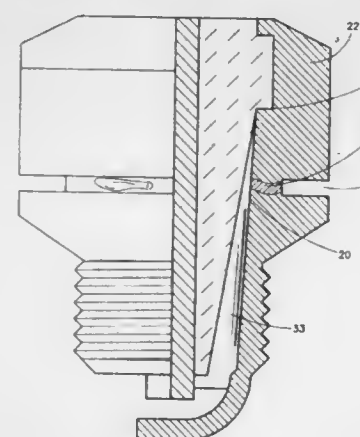
5,799,634
SPARK PLUG FOR VENTING EXCESSIVE PRESSURE
J. Michael Shifflette, 5900 SW. 196th La., Fort Lauderdale, Fla. 33332

Filed Mar. 3, 1997, Ser. No. 810,267

Int. Cl.⁶ F02P 1/00; F02M 57/00

U.S. Cl. 123—169 R

16 Claims



1. A deformable spark plug for attachment to a cylinder of an internal combustion engine comprising:

a housing and a central portion;

said housing including a housing wall having an outer surface and an inner surface;

said outer surface including means for securing said housing to said engine cylinder;

said inner surface of said housing wall extending around and contacting said central portion to form an airtight seal between said inner surface and said central portion;

said inner surface and said central portion forming an airspace around said central portion below said airtight seal;

said airspace being in fluid communication with said engine cylinder to experience pressure substantially equal to pressure in said cylinder;

said housing wall including one or more selectively weakened areas above said securing means; and,

said selectively weakened areas becoming permanently deformed to create an air passage through said housing above

said securing means upon the introduction of a predetermined higher than normal operating pressure into said airspace whereby said predetermined higher than normal operating pressure is released to an area of relatively lower pressure, said predetermined higher than normal operating pressure falling within a range that is greater than normal operating pressure and lower than the pressure at which engine failure will occur.

5,799,635
TWO CYCLE ENGINE HAVING A DECOMPRESSION SLOT

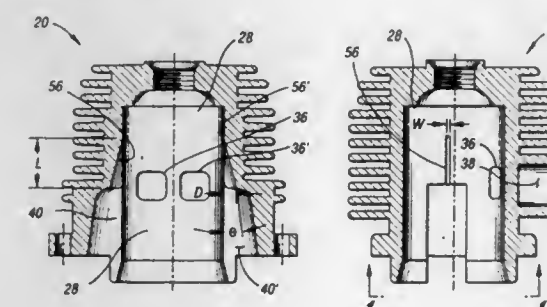
Samer Aljabari, Virginia Beach, Va., assignor to Ryobi North America, Anderson, S.C.

Filed Jul. 22, 1997, Ser. No. 898,049

Int. Cl.⁶ F02B 33/12

U.S. Cl. 123—182.1

8 Claims



1. A two-cycle internal combustion engine comprising:

a cylindrically shaped piston reciprocal along a cylinder axis, the piston having a top and a circumferential wall;

an enclosed crankcase assembly having a housing defining an internal crankcase chamber, a crankshaft pivotally supported relative to the housing for rotation about a crankshaft axis generally perpendicular to the cylinder axis, the crankshaft including a crankpin which is radially offset from the crankshaft axis, and a connecting rod pivotally connected to and extending between the crankpin and the piston;

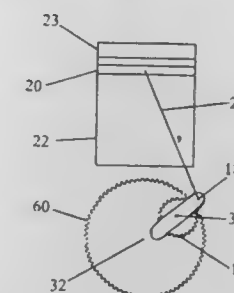
a cylinder assembly, mounted upon the enclosed crankcase assembly, having an internal cylindrical cavity aligned with the cylinder axis with an enclosed end containing a spark plug and a cylinder wall sized to sealingly cooperate with the piston as it reciprocates relative thereto, the cylindrical cavity and the top of the piston collectively defining a combustion chamber which varies in volume as the piston reciprocates between top dead center (TDC) and bottom dead center (BDC), the cylinder assembly being provided with an exhaust port extending through the cylinder wall and opening into the cylinder cavity a distance X from the top of the piston at BDC, a pair of generally diametrically opposed recessed transfer ports each formed in the cylinder wall extending between the enclosed crankcase and an upper most location spaced from the top of the piston at BDC, a distance less than X;

wherein the cylinder assembly is provided with a pair of decompression slots each formed in the cylinder wall in communication with one of the opposed transfer ports and extending from the uppermost end of the transfer port toward the enclosed end of the cylindrical cavity and terminating at a point spaced from the top of the cylindrical cavity, the decompression slots each having circumferential width W which is substantially constant and a radially measured depth D which varies generally linearly from a maximum depth at the intersection of the decompression slot and the transfer port to a minimum depth at the uppermost end of the decompression slot.

5,799,636
SPLIT CYCLE ENGINES
Robert D. Fish, 3000 S. Augusta Ct., La Habra, Calif. 90631
Filed Mar. 16, 1996, Ser. No. 613,676
Int. Cl.⁶ F02B 75/32

U.S. Cl. 123—197.4

12 Claims

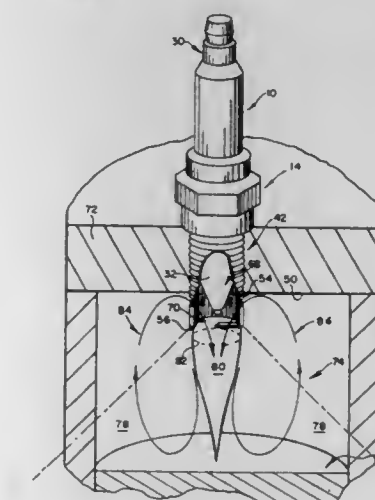


1. An internal combustion engine comprising a piston reciprocating in a cylinder, said piston having a compression stroke and a power stroke having fixed lengths, wherein the length of the compression stroke is less than the length of the power stroke.

5,799,637
ROCKET EFFECT SPARKING PLUG
Charles G. Cifuni, 19 Greenleaf St., Malden, Mass. 02148
Filed May 1, 1996, Ser. No. 640,498
Int. Cl.⁶ F02B 19/18; H01T 13/54

U.S. Cl. 123—266

27 Claims



1. A spark plug for the controlled burning of a fuel/air mixture at a defined burn zone within the combustion chamber in the cylinder of an internal combustion engine comprising:

(a) an elongated electrically nonconductive body member having a top end and a bottom end, an opening being provided in said body member and extending from said top end to said bottom end;

(b) an elongated electrode defined by a top and bottom end being provided in the opening of said nonconductive body member and extending the length of said opening and beyond the top end and bottom end of said elongated nonconductive body member a predetermined length;

(c) an elongated conductive body being provided in surrounding relationship with the elongated nonconductive body member, said conductive body member being defined by a top end and a bottom end, said top end of the conductive body member being located between the top end and the bottom end of the nonconductive body member, said bottom end of the elongated conductive body member terminating at a predetermined distance below the bottom end of the elongated non-

conductive body member and an inner and outer peripheral surface defining the bottom end of the conductive body member;

- (d) an external thread pattern being provided on the outer peripheral surface of the elongated conductive body member, said thread pattern being defined by a top end and a bottom end, the bottom end of the thread pattern terminating at the bottom end of the elongated conductive body member;
- (e) an elongated annular-shaped member defined by a top end and an open bottom end, and by inner and outer peripheral surfaces, the top end of said annular-shaped member being provided at the bottom end of the elongated conductive body member, a plurality of openings being provided in the annular-shaped member at the top end; and
- (f) a ground electrode being provided at the bottom end of the annular-shaped member, said ground electrode being horizontally disposed and extending inwardly from said inner peripheral surface toward the center of the annular-shaped member and providing a sparking gap with the bottom end of said elongated electrode.

5,799,638

DIRECTION INJECTION SYSTEM FOR MULTI-VALVE ENGINE

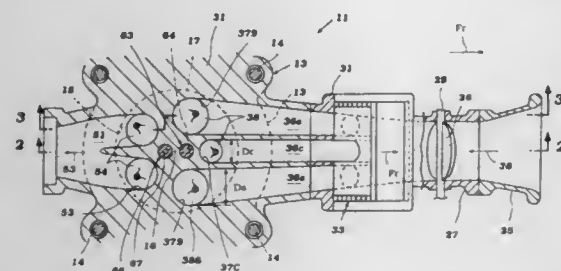
Naoki Tsuchida; Hiroyuki Tsuzuku; Masahisa Kuranishi, and Takeshi Ito, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Jun. 18, 1997, Ser. No. 878,285

Claims priority, application Japan, Jun. 19, 1996, 8-180011
Int. Cl.⁶ F02B 3/00

U.S. Cl. 123—302

21 Claims



1. A cylinder head assembly for a multi-valve internal combustion engine comprised of a cylinder head having a recessed surface adapted to cooperate with a cylinder bore of an associated cylinder block and a piston to form a combustion chamber, an intake passage arrangement extending to at least three intake valve seats formed in said cylinder head recess, an exhaust passage arrangement extending from a pair of exhaust valve seats formed in said cylinder head recess to an outlet formed in an outer surface of said cylinder head for delivering exhaust gases from said combustion chamber to the an associated exhaust system, said intake and exhaust valve seats having their centers arranged substantially on a circle, a spark plug mounted in said cylinder head and having its spark gap disposed in said recess, and a fuel injector nozzle mounted in said cylinder head and having its discharge port disposed in said recess, said spark plug and said fuel injector having respective axes lying in a common plane and disposed in nonparallel relationship to each other.

5,799,639

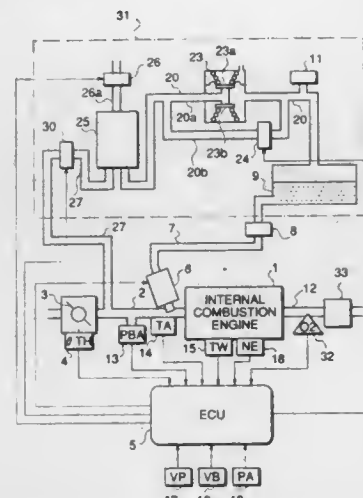
EVAPORATIVE FUEL-PROCESSING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Takashi Isobe, and Fumio Hara, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed May 21, 1997, Ser. No. 859,705

Claims priority, application Japan, May 22, 1996, 8-149728
Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—520

10 Claims



1. In an evaporative fuel-processing system for an internal combustion engine having a fuel tank, and an intake system, including a canister for adsorbing evaporative fuel generated in said fuel tank, a charging passage extending between said canister and said fuel tank, a pressure-regulating valve arranged across said charging passage, for regulating pressure within said fuel tank to a predetermined value, a bypass passage bypassing said pressure-regulating valve, a bypass valve arranged across said bypass passage, for opening and closing said bypass passage, a purging passage extending between said canister and said intake system, an open-to-atmosphere passage for relieving an interior of said canister to atmosphere, a tank system formed by a part of said charging passage on one side of said bypass valve closer to said fuel tank, inclusive of said fuel tank, and a pressure sensor for detecting pressure within said tank system,

the improvement comprising:

valve-opening means for opening said bypass valve at cold starting of said engine;

comparing means for comparing a difference between an output value from said pressure sensor obtained before opening of said bypass valve and an output value from said pressure sensor obtained after said opening of said bypass valve with a predetermined value; and

leakage-checking means for checking presence of leakage from said tank system, based on a result of the comparison by said comparing means.

5,799,640

FUEL FEED DEVICE FOR GAS ENGINES AND GAS-ENGINE-POWERED WORKING MACHINE

Yasuhiro Sugimoto; Nobuo Suzuki; Akihito Kasai, and Takahiro Ideguchi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 21, 1997, Ser. No. 955,248

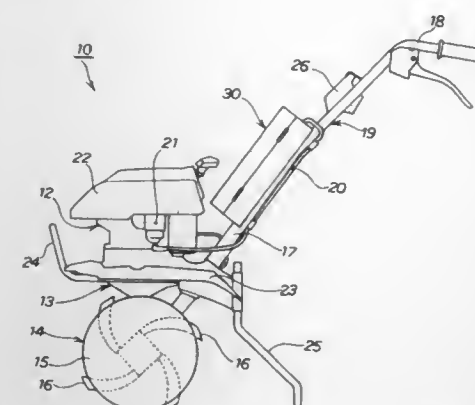
Claims priority, application Japan, Oct. 30, 1996, 8-288795
Int. Cl.⁶ F02M 31/125

U.S. Cl. 123—527

8 Claims

1. A fuel feed device for feeding a fuel gas from a gas cartridge to a gas engine, comprising:

a thermally insulated cartridge case capable of being opened and closed for removably receiving therein the gas cartridge;



a temperature sensor disposed inside said thermally insulated cartridge case for detecting a temperature of the gas cartridge; and

an electric heater built in said thermally insulated cartridge case for heating the gas cartridge on the basis of the temperature detected by said temperature sensor so that the temperature detected by said temperature sensor is kept within a predetermined temperature range.

5,799,641

PRESSURE-WAVE SUPERCHARGER

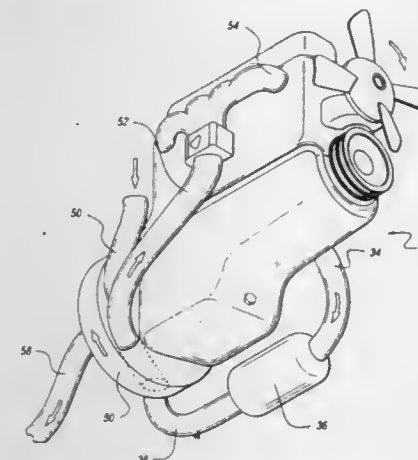
Larry Van Reatherford, Clarkston, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 17, 1996, Ser. No. 732,955

Int. Cl.⁶ F02B 33/42

U.S. Cl. 123—559.2

8 Claims



1. A pressure-wave supercharger for an engine having an intake manifold, an exhaust manifold, and a crankshaft, comprising:

a flywheel integrally connected with the crankshaft, the flywheel including a plurality of channels formed therein extending across the flywheel and having first and second ends;

a first exhaust tube having a first end in fluid communication with the exhaust manifold and a second end positioned adjacent said flywheel;

a first air inlet tube having a first end positioned adjacent said flywheel and a second end in fluid communication with the intake manifold;

a second exhaust tube having an end positioned adjacent said flywheel;

a second air inlet tube having an end positioned adjacent said flywheel; and

wherein each said channel is configured to receive high pressure exhaust gas from said second end of said first exhaust tube in the first end of the channel, to receive ambient pressure inlet air in the second end of the channel, to deliver the inlet air to

the first inlet tube through the second end of the channel after the inlet air is pressurized by the high pressure exhaust gas, and to deliver the exhaust gas to the second exhaust tube through the first end of the channel after the exhaust gas has pressurized the inlet air, as the flywheel rotates with the crankshaft.

5,799,642

Patent Not Issued For This Number

5,799,643

SLURRY MANAGING SYSTEM AND SLURRY MANAGING METHOD FOR WIRE SAWS

Kensho Miyata; Kazutomo Kinutani; Noboru Katsumata; Kensho Kuroda; Toyotaka Wada, all of c/o Nippei Toyama Corporation Gijutsu-Center 1, Shinmei-cho, Yokosuka, Kanagawa, 239; Akihiro Nakayama; Katsumasa Takahashi, both of c/o Nippei Toyama Corporation Yokohama-Factory 120, Horiguchi, Kanazawa-ku, Yokohama, Kanagawa-ken 236; Takaharu Nishida, c/o Toyobo Co., Ltd., 2-8, Doujima-hama 2-chome, Kita-ku, Osaka, Osaka-fu 530; Shouichi Uemura, and Tetsuo Kodama, both of c/o Toyobo Co., Ltd. General Research Center 1-1, Katada 2-chome, Ohtsu, Shiga-ken 520-02, all of Japan

Filed Oct. 1, 1996, Ser. No. 724,657

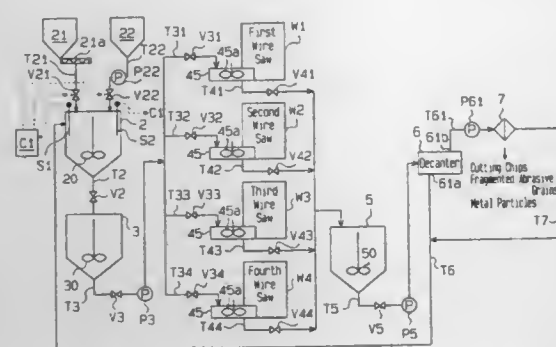
Claims priority, application Japan, Oct. 4, 1995, 7-282519; Feb. 2, 1996, 8-040780; Mar. 4, 1996, 8-073282

Int. Cl.⁶ B24D 1/08

U.S. Cl. 125—21

25 Claims

1. A slurry managing system for a wire saw including a wire that has a plurality of wire lines extending in parallel to one another, wherein said wire is supplied with slurry containing abrasive grains in dispersing liquid to cut a workpiece so as to simultaneously produce a multiplicity of wafers, said system comprising:



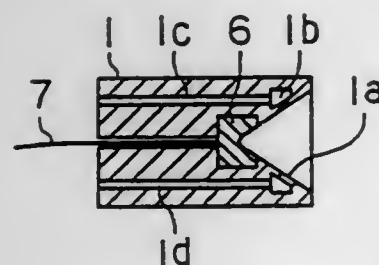
mixer means for mixing the slurry prior to supplying of the slurry to the wire saw;
first supplying means for supplying the grains to the mixer means;
second supplying means for supplying the dispersing liquid to the mixer means;
first adjusting means for adjusting the amount of the grains supplied to the mixer means from the first supplying means;
second adjusting means for adjusting the amount of the liquid supplied to the mixer means from the second supplying means;
said wire saw being arranged to discharge the slurry used to cut the workpiece, said discharged slurry including particle components smaller than the grains;
separating means for separating the particle components from the slurry to collect a mixture of the dispersing liquid and the grains from the slurry discharged from the wire saw; and
transferring means for transferring the collected mixture to the mixer means, wherein said mixer means is arranged to mix new slurry with the collected mixture.

5,799,644
SEMICONDUCTOR SINGLE CRYSTAL INGOT CUTTING JIG

Kouji Nishida, Oiso-Machi, Japan, assignor to Komatsu Electronic Metals Co., Ltd., Hiratsuka, Japan
Filed Oct. 22, 1996, Ser. No. 734,780
Int. Cl.⁶ B24B 41/06

U.S. Cl. 125—35

2 Claims



1. A semiconductor single crystal ingot holding device for holding a semiconductor single crystal ingot having a cylindrical-shaped body with a diameter and a conical-cone shaped head or tail; the device comprising a jig for holding the head or tail of the single crystal ingot, an adhesive, and means for holding the body of the single crystal ingot,
the jig having a conical recess for receiving the head or tail of the single crystal ingot, the adhesive is filed in a clearance between the head or tail and the conical recess for adhering the ingot to the jig,
wherein the jig is adapted to hold the head or tail of the single crystal ingot and the means is adapted to hold the body of the single crystal ingot, so that when the head or tail of the single

crystal ingot is cut by a saw a resulting cut head or tail of the single crystal ingot is held away from the saw and does not damage the saw, and
wherein the adhesive is thermoplastic resin, and the jig further comprises a heater provided near the conical recess to heat and soften the thermoplastic resin filled between the conical recess and the head or tail of the ingot.

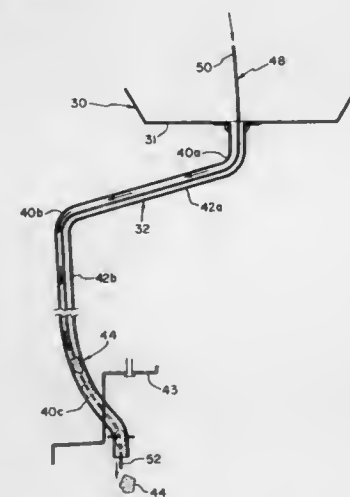
5,799,645
CLEANING METHODS AND APPARATUS FOR RANGE GRILL UNITS

Michael A. Strader, Indianapolis, and Joanne Stillman, Noblesville, both of Ind., assignors to Maytag Corporation, Newton, Iowa

Filed Jun. 10, 1996, Ser. No. 659,712
Int. Cl.⁶ F24C 3/00

U.S. Cl. 126—39 R

12 Claims



1. A cooktop including a cooking grill having at least one burner, a drip pan for collection of grease, a drain opening in said drip pan for removal of fluid grease from the drip pan, a conduit leading from said drain opening to a grease collector having a sufficient diameter that fluid grease will flow from said opening to said grease collector, and a long semi-rigid but flexible drain opener than said conduit having a greater length and a smaller diameter than said conduit for extending through substantially the entire length of said conduit as necessary to dislodge and remove collected materials including coagulated grease into said grease collector.

5,799,646
CURVED INSHOT BURNER AND METHOD FOR VENT-WITHIN-CASING FURNACE

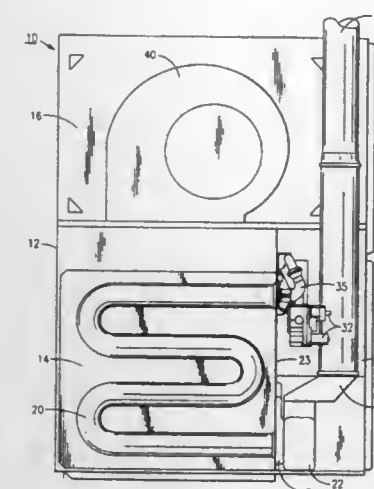
Ninev K. Zia, Indianapolis; William J. Roy, Michigan City, and Paul M. Haydock, Zionsville, all of Ind., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Sep. 9, 1996, Ser. No. 708,845
Int. Cl.⁶ F24H 3/08; F23D 14/62

U.S. Cl. 126—110 R

6 Claims

1. A heating apparatus for delivering heated air to an enclosure, said heating apparatus comprising:
a casing with at least two compartments separated by a panel;
an inshot burner located within a first compartment of said casing for burning a combustible fuel-air mixture delivered thereto, said inshot burner having an arcuate profile and producing products of combustion flowing axially therefrom;
a heat exchanger located within a second compartment of said casing and having an opposed inlet and outlet, said inlet being in fluid communication with said inshot burner through an



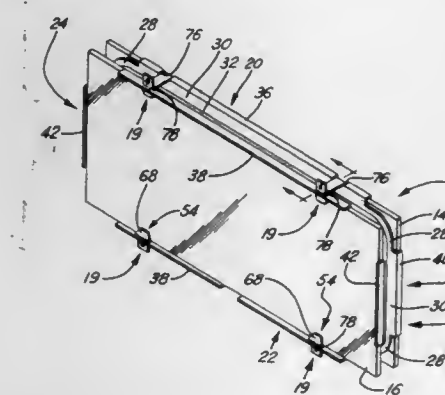
aperture in said panel, said heat exchanger receiving said products of combustion;
a blower located within said casing for directing a flow of air across said heat exchanger into the enclosure, whereby heat is transferred from said products of combustion to said air; and
exhaust means in fluid communication with said outlet, said exhaust means including a vent for exhausting the products of combustion from said casing, said vent contained within said casing;
whereby, a clear space is provided for said vent to be located between said burner and a wall of the casing.

5,799,647
OVEN DOOR WINDOW UNIT

Bob D. Mills, Brentwood, Tenn., assignor to Mills Products, Inc., Brentwood, Tenn.
Filed Sep. 12, 1997, Ser. No. 928,230
Int. Cl.⁶ F23M 7/00

U.S. Cl. 126—200

10 Claims



1. A window unit for an oven door comprising first and second substantially rectangular window panels, each of said panels having an inner face, an outer face, first and second side edges and first and second end edges, an endless, generally rectangular frame for holding said panels in laterally spaced-apart, parallel planes with the inner faces of said panels opposed to one another, the side edges of the first panel respectively parallel and opposed to the side edges of the second panel, and the end edges of the first panel respectively parallel and opposed to the end edges of the second panel,
said frame having first and second sides extending along the respective first and second side edges of the panels and first and second ends extending along the respective first and second end edges of the panels,

each of said sides and ends of said frame being generally U-shaped in cross-section having laterally spaced radially outwardly extending spacer flanges engaging the inner faces of said panels to hold said panels spaced apart,
each of the spacer flanges of the first and second sides of the frame having laterally outwardly extending side retainer flanges extending over the side edges of the panels,
each of the spacer flanges of the first and second ends of the frame having laterally outwardly extending end retainer flanges extending over the end edges of the panels,
clips for clamping the panels to the frame,
said clips each comprising a strip having first and second ends, a first abutment extending in one direction from said first end of said strip substantially perpendicular thereto,
a second abutment extending in said one direction from the second end of said strip substantially perpendicular thereto,
the strips of at least one of said clips extending across the side retainer flanges at the first side of said frame with the first and second abutments thereof extending over the outer faces of said panels to clamp the panels to the frame,
the strips of at least one other of said clips extending across the side retainer flanges at the second side of said frame with the first and second abutments thereof extending over the outer faces of said panels to clamp the panels against the frame, and
means for retaining said clips on said frame.

5,799,648
GAS POWERED HEATING DEVICE

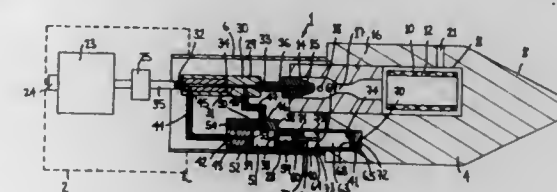
Alfred P. Oglesby, and John P. Oglesby, both of Carlow, Ireland, assignors to Oglesby & Butler Research and Development Limited, Carlow, Ireland
PCT No. PCT/IE94/00047, § 371 Date Apr. 1, 1996, § 102(e) Date Apr. 1, 1996, PCT Pub. No. WO95/09712, PCT Pub. Date Apr. 13, 1995

PCT Filed Oct. 3, 1994, Ser. No. 619,686
Claims priority, application United Kingdom, Oct. 1, 1993, S930733

Int. Cl.⁶ B23K 3/02

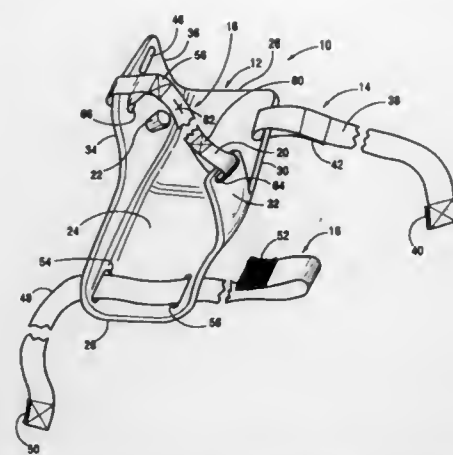
U.S. Cl. 126—414

27 Claims



1. A gas powered heating device comprising:
a main body member (4,85),
a combustion chamber (10) adjacent the main body member (4,85) within which gas is converted to heat for heating the main body member (4,85),
a jet means (15) for delivering fuel gas to the combustion chamber (10),
a fuel gas supply means (23,25) connected to the jet means (15) for supplying fuel gas to the jet means (15), and
a temperature responsive control means (28) for controlling the temperature of the main body member (4,85) around a predetermined temperature, the temperature responsive control means comprising:
a valve means (39) for controlling the supply of fuel gas from the fuel gas supply means (23,25) to the jet means (15),
a first member (70) of thermomagnetic material, the magnetic characteristic of which is a function of the temperature of the first member (70), the first member (70) being associated with the main body member (4,85) so that the temperature of the first member (70) is a function of the temperature of the main body member (4,85),
a second member (71) of magnetic material located spaced apart from the first member (70), and

a magnet means (63) operably associated with the valve means (39) for operation thereof, the magnet means (63) being moveable between the first member (70) and the second member (71) and being located in magnetic relationship with the first member (70) and the second member (71) so that the magnetic attraction between the second member (71) and the magnet means (63) is greater than the magnetic attraction between the first member (70) and the magnet means (63) for all positions of the magnet means (63) while the temperature of the first member (70) exceeds a temperature which is a function of the predetermined temperature for urging the magnet means (63) towards the second member (71) for operating the valve means (39) for controlling the flow of fuel gas to the jet means (15) for in turn controlling the temperature of the main body member (4,85) around the predetermined temperature.



position on the patient's body, and adjustable compressing means carried by said restraining means for applying and maintaining external pressure at a femoral artery or vein puncture site.

5,799,649

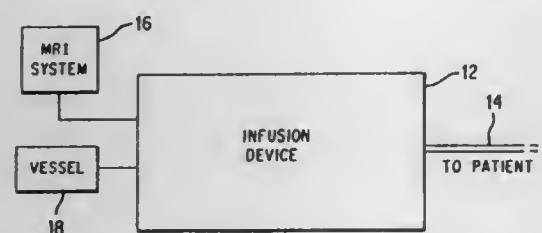
METHOD FOR IMAGING ABDOMINAL AORTA AND AORTIC ANEURYSMS

Martin R. Prince, 2022 Delafield St., Ann Arbor, Mich. 48105
Continuation of Ser. No. 420,815, Apr. 12, 1995, Pat. No. 5,579,767, which is a continuation-in-part of Ser. No. 71,970, Jun. 7, 1993, Pat. No. 5,417,213, and Ser. No. 378,384, Jan. 25, 1995, Pat. No. 5,553,619. This application Sep. 19, 1996, Ser. No. 715,736

Int. Cl.⁶ A61B 5/055

U.S. Cl. 128—653.4

54 Claims



1. A method of imaging an aorta of a patient using magnetic resonance imaging, comprising:
performing a first imaging sequence for locating the aorta;
performing a second imaging sequence to provide at least one image of the aorta, including:
administering a substantial portion of a magnetic resonance contrast agent to the patient; and
collecting image data which is representative of a substantial portion of a center of k-space while the concentration of the contrast agent in the aorta is substantially higher than a concentration of the contrast agent in veins and background tissue adjacent to the aorta.

5,799,650

FEMORAL COMPRESSION DEVICE AND METHOD

Scott M. Harris, 42 Castle Dr., Sharon, Mass. 02067

Filed Mar. 27, 1997, Ser. No. 826,222

Int. Cl.⁶ A61F 5/24

U.S. Cl. 128—96.1

26 Claims

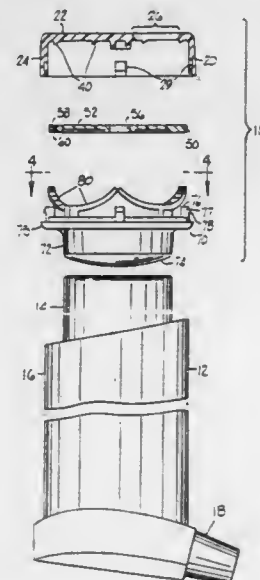
1. A femoral compression device comprising: restraining means for limiting hip flexion of a patient and including a substantially rigid restraining member and attaching means for securing said restraining member in a substantially fixed predetermined general

5,799,651
INDICATOR DEVICE RESPONSIVE TO AXIAL FORCE
Gage Garby, and Jeffrey T. Ballas, both of Boulder, Colo., assignors to Senetics, Inc., Boulder, Colo.
Continuation of Ser. No. 412,359, Mar. 29, 1995, Pat. No. 5,611,444, which is a division of Ser. No. 125,365, Sep. 22, 1993, Pat. No. 5,421,482, which is a continuation-in-part of Ser. No. 109,401, Aug. 19, 1993, Pat. No. 5,299,701, which is a continuation of Ser. No. 641,759, Jan. 17, 1991, abandoned, which is a continuation-in-part of Ser. No. 306,485, Feb. 3, 1989, Pat. No. 5,009,338. This application Jan. 6, 1997, Ser. No. 779,014

Int. Cl.⁶ A61M 15/00

U.S. Cl. 128—200.23

4 Claims



1. A device to indicate the release of aerosol medication from a canister wherein aerosol medication is released from the canister by applying a force to the canister, comprising a dispenser including a canister case for holding the canister and indicator which advances upon the application of said force to indicate a release of the aerosol medication;

the indicator including an outer cover, an indicator wheel engaged with the outer cover, and a driver engaged with the outer cover and indicator wheel to translate an aerosol releasing non-rotative force on the outer cover into a rotation of the

indicator wheel relative to the outer cover to indicate the release of the aerosol medication;
the outer cover including a top portion and a depending skirt, and the indicator wheel is nested in the outer cover depending skirt, and the indicator further including a retainer nested in the outer cover depending skirt so that the indicator wheel is disposed between the outer cover top portion and the retainer;
the dispenser and indicator including a child resistant element to resist the releasing of aerosol medication by a child including at least one protrusion on one of the outer cover depending skirts and the dispenser and a protrusion-mate on the other of the outer cover depending skirt and the dispenser to mate with the protrusion to allow a force applied on the indicator to be translated to the canister only if the protrusion and protrusion mate are aligned.

5,799,652

HYPOXIC ROOM SYSTEM AND EQUIPMENT FOR HYPOXIC TRAINING AND THERAPY AT STANDARD ATMOSPHERIC PRESSURE

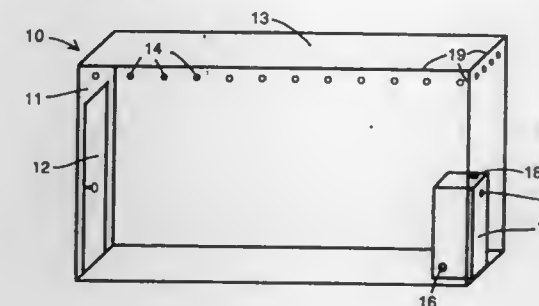
Igor K. Kotliar, New York, N.Y., assignor to Hypoxico Inc., New York, N.Y.

Continuation-in-part of Ser. No. 445,677, May 22, 1995. This application Jul. 21, 1995, Ser. No. 505,621

Int. Cl.⁶ A63B 23/18; A62B 7/00; G05B 1/00

U.S. Cl. 128—205.11

25 Claims



1. A system for use in an external atmospheric environment of air at an external ambient air pressure and having an ambient oxygen concentration for providing a reduced-oxygen atmosphere to a user, said system comprising:

a gas separation device having an inlet intaking an intake gas mixture and first and second outlets, said first outlet transmitting a first gas mixture derived from said intake gas mixture and having a higher oxygen content than the intake gas mixture and said second outlet transmitting a second gas mixture derived from said intake gas mixture and having a lower oxygen content than the intake gas mixture;

a breathing chamber having an internal space therein containing air and including an entry communicating with said internal space and through which the user can enter said internal space;

said second outlet communicating with said internal space and transmitting said second mixture to said internal space so that said second mixture mixes with the air in the internal space;

said first outlet transmitting said first gas mixture to the external atmospheric environment; and
said breathing chamber permitting the communication of air in at least one direction between the external atmospheric environment and the internal space and in combination with the gas separation device, maintaining the air in the internal space at a pressure generally equalized with the ambient air pressure of the external atmospheric environment and at a substantially constant concentration of oxygen substantially lower than said external ambient oxygen concentration.

5,799,653

MAGNETIC RESONANCE IMAGING APPARATUS WITH DECREASED PATIENT CLAUSTROPHOBIA AND INCREASED ACCESS TO PATIENT

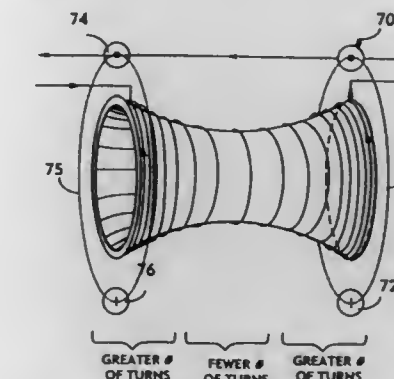
Joseph W. Carlson, Kensington, Calif., assignor to Toshiba America MRI, Inc., Tustin, Calif.

Filed Oct. 3, 1995, Ser. No. 538,611

Int. Cl.⁶ A61B 5/05

U.S. Cl. 128—653.2

22 Claims



1. A magnetic system, comprising:
a hollow, elongated magnet having a magnet bore with a first and second openings used in generating a magnetic field having a longitudinal axis extending through the center of the magnet and a substantially circular cross-section perpendicular to the longitudinal axis;
wherein from a middle region of the magnet bore on the longitudinal axis, a radius of the substantially circular cross-section of the magnet bore increases towards the first and second openings of the magnet.

5,799,654

DIAPER CHANGING AID

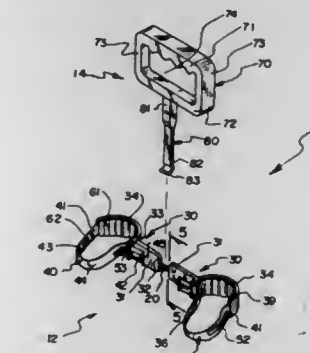
Lawrence Kassin, 46 Partridge La., Cherry Hill, N.J. 08003

Filed Mar. 20, 1997, Ser. No. 821,212

Int. Cl.⁶ A61B 19/00

U.S. Cl. 128—869

15 Claims



1. An apparatus for restraining and elevating the ankles of a child in spaced relation, comprising:

a restraining member adapted for holding the ankles of the child in a fixed spaced relation to each other; and
a handle detachably pivotally coupled to said restraining member, said restraining member and said handle enabling a user to hold and lift the ankles of the child with one hand;
wherein said restraining member comprises:

a center connecting rod,
a pair of arms extending outwardly from said center connecting rod, said arms being in a fixed position relative to said center connecting rod; and

a strap attached to each of said pair of arms, wherein the ankles of the child are securable in spaced relation to said pair of arms by said straps.

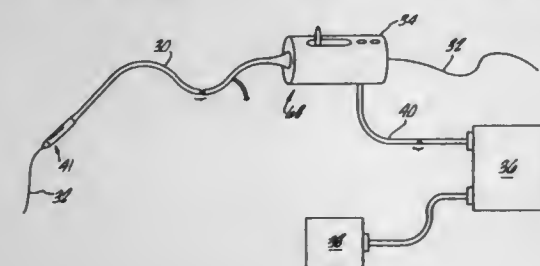
5,799,655
METHOD AND APPARATUS FOR ULTRASOUND IMAGING AND ATHERECTOMY

Yue-Teh Jang, and Axel F. Briskin, both of Fremont, Calif., assignors to Cardiovascular Imaging Systems, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 467,463, Jun. 6, 1995, Pat. No. 5,634,464, which is a continuation of Ser. No. 356,528, Dec. 15, 1994, Pat. No. 5,570,693, which is a continuation of Ser. No. 956,622, Oct. 5, 1992, Pat. No. 5,383,460. This application Dec. 5, 1996, Ser. No. 761,741

Int. Cl.⁶ A61B 8/12
U.S. Cl. 128—662.06

10 Claims



4. A catheter for ultrasonic imaging within a vessel, said catheter comprising:
- a flexible catheter body;
 - a flexible drive cable disposed within the catheter body;
 - a transducer housing mounted at the distal end of the catheter body, said transducer housing having a window;
 - a transducer mounted on a transducer support which can be longitudinally advanced and retracted and which is slidably disposed within the transducer housing during ultrasonic imaging, said transducer being operably connectable to an ultrasonic transmitter, receiver, signal processing unit, and display unit so that said transducer can ultrasonically scan the vessel to create images of the vessel; and
 - a detector for detecting longitudinal transducer position and communicating said transducer position to the signal processing unit for use in constructing an image of the vessel; wherein said transducer is held radially stationary while the drive cable is being rotated.

5,799,656
OPTICAL IMAGING OF BREAST TISSUES TO ENABLE THE DETECTION THEREIN OF CALCIFICATION REGIONS SUGGESTIVE OF CANCER

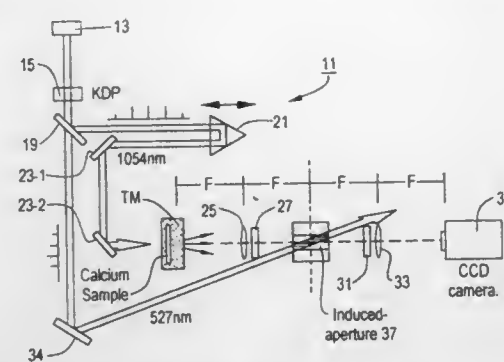
Robert R. Alfano, Bronx; Ping-Pei Ho, Great Neck; Leming Wang, Flushing; Xiangchun Liang, Bronx, and Pierre A. Galland, Queensvillage, all of N.Y., assignors to The Research Foundation of City College of New York, New York, N.Y.

Filed Oct. 21, 1996, Ser. No. 733,558
Int. Cl.⁶ A61B 6/00

U.S. Cl. 128—664

74 Claims

1. A method for imaging a turbid medium containing one or more calcifications, said method comprising the steps of:
- (a) illuminating at least a portion of the turbid medium containing at least one calcification with light, whereby light emerges from the turbid medium consisting of a ballistic component, a snake-like component and a diffuse component;



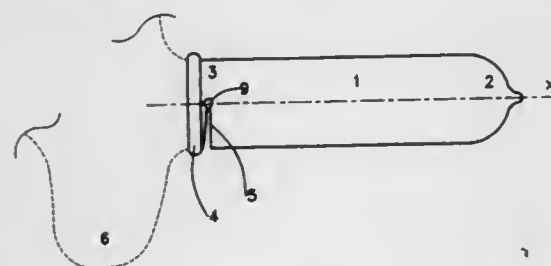
- (b) gating the emergent light to preferentially pass the ballistic and/or snake-like components; and
- (c) using the gated light to form an image of the at least one calcification within the illuminated portion of the turbid medium.

5,799,657
CONDOM WITH SAFETY RETAINING MEANS
Daniel Miguel Pasczuk, and Ana Maria Acuna, both of 2063 Juan R. Jimenez St., 1669 Del Viso, Prov. of Bs. As., Argentina

Filed Jul. 7, 1997, Ser. No. 888,652
Claims priority, application Argentina, Jul. 12, 1996, 337.449
Int. Cl.⁶ A61F 6/04

U.S. Cl. 128—844

17 Claims



1. A safety condom, comprising:
- a) a tubular body defining a longitudinal axis and having a thin wall defining a closed distal end and an open proximal end;
 - b) a peripheral resilient continuous thick ring defined by the open end; and
 - (c) wherein the thin wall includes a rectilinear cut partially extending around the longitudinal axis and closely parallel to the peripheral resilient continuous thick ring, whereby a stretching portion of the peripheral resilient continuous thick ring can be partially stretched away from the body to be arranged around testicles of a wearer and retained on the testicles of the wearer while a stationary portion of the peripheral resilient continuous thick ring is firmly fixed to the body.

5,799,658
HEARING PROTECTIVE DEVICE COMPRISING A FOAM AND A POROUS COMPONENT AND METHOD OF MANUFACTURE THEREOF

Robert N. Falco, Indianapolis, Ind., assignor to Cabot Safety Intermediate Corporation, Southbridge, Mass.

Filed Aug. 15, 1996, Ser. No. 698,398
Int. Cl.⁶ A61F 11/00

U.S. Cl. 128—864

34 Claims

1. A hearing protective device comprising a foam and at least one porous component initially discrete from the foam, the porous

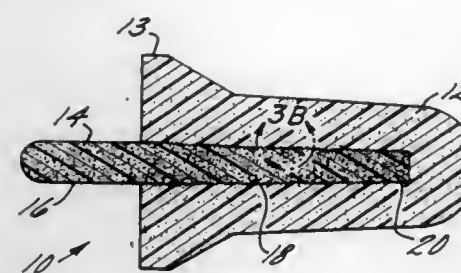
5,799,660
METHODS FOR EVALUATING EFFICACY OF ANTI-INFLAMMATORY ON DRUGS ON JOINT INFLAMMATION

Alicia L. Bertone, Columbus, Ohio, assignor to The Ohio State Research Foundation

Filed Feb. 9, 1996, Ser. No. 599,251
Int. Cl.⁶ A61B 00/19

U.S. Cl. 128—898

20 Claims



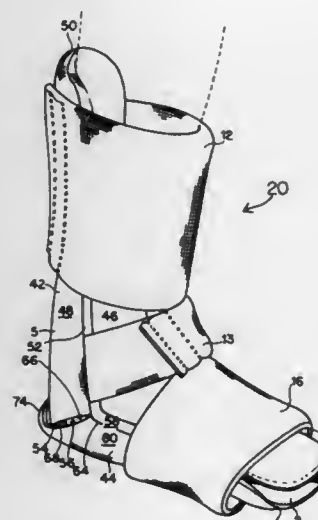
component being mechanically bonded to the foam by interpenetration of the foam into pores of the porous component.

5,799,659
ANKLE FOOT ORTHOSIS NIGHT SPLINT WITH ORTHOWEDGE

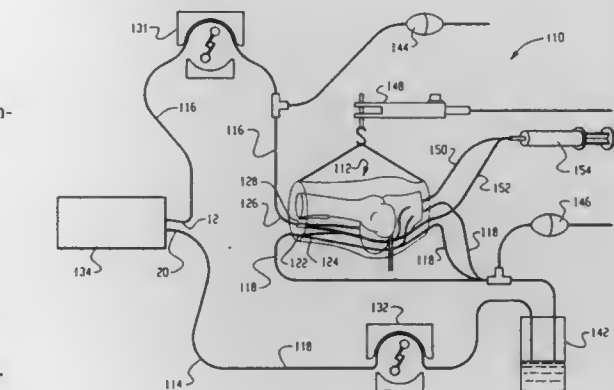
William S. Stano, 220 W. Jefferson St., Boise, Id. 82702
Continuation-in-part of Ser. No. 369,409, Jan. 5, 1996, abandoned. This application Jan. 31, 1997, Ser. No. 792,491

Int. Cl.⁶ A61F 5/37
U.S. Cl. 128—882

18 Claims



1. A device for treating plantar faciitis which comprises:
- a rigid shell member having an upper section and a lower section, both having generally U-shaped cross-sections, the lower section extending at an angle of less than 90° from the upper section and having a generally flat foot bed portion, the upper section being configured to generally conform to the lower portion of a human leg, and the lower section being configured to receive a bottom surface of a foot attached to the leg;
 - a removable wedge foot bed insert being shaped and sized to be received in the foot bed portion, the wedge being inclined from a heel portion of the foot bed to a toe portion of the foot bed to thereby form an inclined foot bed which prevents plantarflexion; and
 - a securing mechanism for securing the rigid shell to the lower posterior portion of the leg and the foot, the securing mechanism being flexible in at least an area above the foot bed to allow for adjustable degrees of dorsiflexion while preventing plantarflexion past the inclined foot bed.



1. A joint preparation free of the host animal, comprising:
- (a) an isolated joint;
 - (b) a perfusate for perfusing said isolated joint;
 - (c) an oxygenator in fluid communication with the perfusate for oxygenating the perfusate;
 - (d) an inflow conduit having a first end and a second end, the first end in communication with said isolated joint for introducing said perfusate into said isolated joint;
 - (e) an outflow conduit having a first end and a second end, the first end in fluid communication with the isolated joint for receiving perfusate from the joint, the second end in fluid communication with the second end of the inflow conduit; and
 - (f) a pump in communication with the inflow conduit or outflow conduit for pumping the perfusate through said isolated joint.

5,799,661
DEVICES AND METHODS FOR PORT-ACCESS MULTIVESSEL CORONARY ARTERY BYPASS SURGERY
Stephen W. Boyd, Redwood City; Alan R. Rapacki, San Francisco, and William S. Peters, Woodside, all of Calif., assignors to Heartport, Inc., Redwood City, Calif.

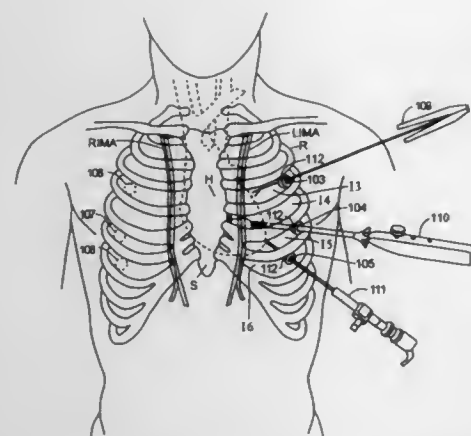
Continuation-in-part of Ser. No. 281,891, Jul. 28, 1994, which is a continuation-in-part of Ser. No. 23,778, Feb. 22, 1993, Pat. No. 5,452,733. This application Jun. 7, 1995, Ser. No. 486,941

Int. Cl.⁶ A61B 19/00

U.S. Cl. 128—898

50 Claims

1. A method of performing coronary artery bypass graft surgery at a surgical site on a heart within a chest of a patient, the chest having a sternum and a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising the steps of:
- making first and second access ports into the chest through at least one intercostal space, the surgical site being on an aspect of the heart facing away from the first access port;
 - arresting the patient's heart;
 - introducing a retraction instrument through the second access port;
 - manipulating the retraction instrument to reposition the heart within the chest into a retracted position wherein the aspect of the heart containing the surgical site is facing the first access port; and



anastomosing a vascular graft to a coronary artery at the surgical site using an anastomosing instrument introduced through the first access port; wherein the ribs and sternum remain intact during each of said steps.

5,799,662

CIGAR PUNCH AND TOBACCO EJECTOR

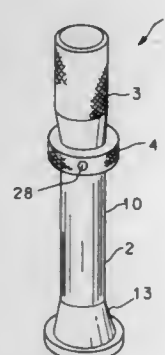
M. Joseph Conte, Charlottesville, Va., assignor to Gevena Corporation, Charlottesville, Va.

Filed Mar. 21, 1997, Ser. No. 824,021

Int. Cl.⁶ A24F 13/24

U.S. Cl. 131—255

8 Claims



1. A cigar punch and tobacco ejector apparatus comprising:
- (a) a cutter having a barrel with opposite spaced apart first and second ends, a handle removably connected to said first end, and a slot formed on said barrel adjacent to said first end, said second end having an open-mouthed edge adapted to receive a tip of a cigar, to cut a piece from said tip, to form a hole in said tip, and to hold said cut piece when said cigar is moved away from said cutter; and
- (b) a plunger assembly consisting of a plunger having a cylindrical body with opposite spaced apart third and fourth ends, a collar adapted to being placed over said barrel, and a means for connecting said collar to said plunger, said collar adapted to slide over said barrel and be connected to said plunger through said slot by said connecting means, said plunger adapted to movably travel within said barrel, said fourth end of said plunger adapted to eject said cut piece of said cigar from said barrel when said collar is movably slid along said slot in a direction toward said second end of said cutter.

5,799,663

NICOTINE ORAL DELIVERY DEVICE

Joseph Gross, and John Gerard Kelly, both of Dublin, Ireland, assignors to Elan Medical Technologies Limited, Athlone, Ireland

PCT No. PCT/IE95/00019, § 371 Date Dec. 23, 1996, § 102(e) Date Dec. 23, 1996, PCT Pub. No. WO95/24135, PCT Pub. Date Sep. 14, 1995

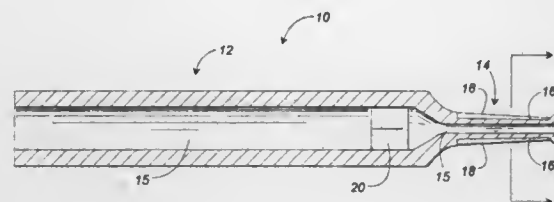
PCT Filed Feb. 17, 1995, Ser. No. 716,331

Claims priority, application Ireland, Mar. 10, 1994, 940212

Int. Cl.⁶ A24D 47/00

U.S. Cl. 131—270

14 Claims



1. A nicotine oral delivery device, comprising:
- (a) a housing, said housing including a hollow body section and a hollow mouthpiece section connected with said hollow body section; and
- (b) a nicotine-containing material located on, or in communication with, at least one of the outer surfaces of said mouthpiece section; at least one of the outside walls of said mouthpiece section being at least partially covered by a permeable membrane and said nicotine-containing material being located between said mouthpiece section and said membrane.

5,799,664

Patent Not Issued For This Number

5,799,665

PROCESS AND APPARATUS FOR IMPREGNATION AND EXPANSION OF TOBACCO

Kwang H. Cho, 2141 Carbon Hill Dr., Midlothian, Va. 23113; Thomas J. Clarke, 1726 Westhill Rd., Richmond, Va. 23226; Joseph M. Dobbs, 4538 E. Seminary Ave., Richmond, Va. 23227; Eugene B. Fischer, 12800 Nightingale Dr., Chester, Va. 23831; Diane L. Leister, 4200 Carafe Dr., Richmond, Va. 23234; Jose M. G. Nepomuceno, Rt. 2 Box 163D4, Beaverton, Va. 23015; Walter A. Nichols, 3508 Quail Hill Court, Midlothian, Va. 23112, and Ravi Prasad, 10821 Hinshaw Dr., Midlothian, Va. 23113

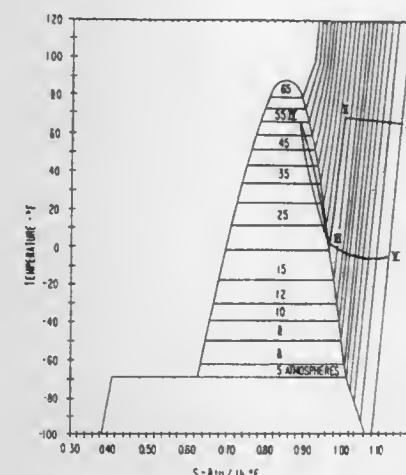
Continuation of Ser. No. 484,366, Jun. 7, 1995, Pat. No. 5,649,552, which is a continuation of Ser. No. 992,446, Dec. 17, 1992, abandoned, and a continuation-in-part of Ser. No. 717,064, Jun. 18, 1991, Pat. No. 5,251,649. This application

Dec. 19, 1996, Ser. No. 769,972

Int. Cl.⁶ A24B 3/18

U.S. Cl. 131—291

22 Claims



1. An impregnation vessel comprising:
- a tobacco receiving chamber having a first end portion and a second end portion;
- a first gas distributor assembly movable between a first position adjacent said first end portion of said chamber and a second position removed from said chamber, said first gas distributor assembly arranged to load a charge of tobacco into said chamber upon movement of said first gas distributor assembly from said second position to said first position, said first gas distributor assembly arranged to distribute the expansion agent about said first end portion of said chamber when said first gas distributor assembly is at said first position;
- a second gas distributor assembly adjacent said second end portion of said chamber;
- a gas inlet arranged to introduce the expansion agent into said impregnation vessel through said first gas distributor assembly when said first gas distributor assembly is at said first position; and
- a gas outlet arranged to release the expansion agent from about said second end portion of said chamber through said second gas distributor assembly.

5,799,666

POLISHING PLATE

Michael Wu, Taipei, Taiwan, assignor to Keen Perception Industries Inc., Taipei, Taiwan

Filed Dec. 5, 1996, Ser. No. 759,617

Int. Cl.⁶ A45D 29/18

U.S. Cl. 132—76.4

1 Claim

1. A polishing plate comprising a substrate plate, a double sided adhesive tape, and a polishing piece, said adhesive tape having one side thereof adhering to said substrate plate and the other side thereof adhering to said polishing piece, wherein said substrate

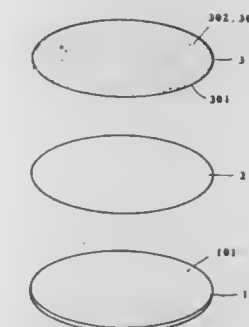


plate is made of a soft leather material and is substantially elliptical, and said substrate plate may be bent to have a curved surface when used to polish nail surfaces; and said polishing piece comprises a base which is a polyethylene film and is shaped like said substrate plate, said base being coated with silicon carbide and aluminum oxide.

5,799,667

SAMPLER APPLICATOR

Alex Szekely, Manalapan, N.J., assignor to The Plastek Group, Erie, Pa.

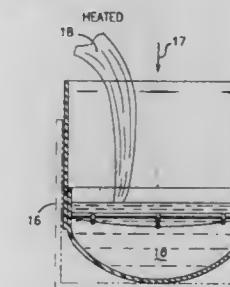
Division of Ser. No. 660,143, Jun. 7, 1996, Pat. No. 5,738,123.

This application Sep. 12, 1997, Ser. No. 928,674

Int. Cl.⁶ A45D 24/00

U.S. Cl. 132—200

5 Claims



1. A method of loading an applicator comprising the steps of: providing a barrel having a removable closure at one end and an open opposite end with a grid fixed within said barrel means, while said barrel is in a generally upright position pouring settable material into said barrel means through said open end until said grid is submerged, allowing said settable material to solidify, and, thereafter removing said closure thereby exposing said settable material in said solidified condition.

5,799,668

Patent Not Issued For This Number

5,799,669

APPARATUS AND METHOD FOR CREATING HAIR COLORING DESIGNS

Blanca Flor Briggs, 1007 E. Las Olas Blvd., Fort Lauderdale, Fla. 33301

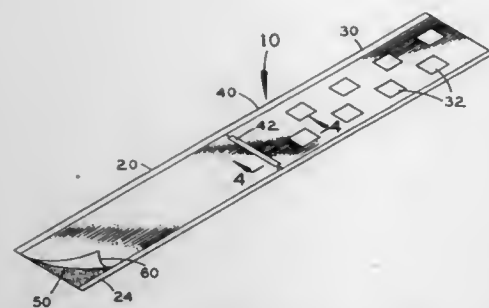
Filed Sep. 9, 1997, Ser. No. 925,995

Int. Cl.⁶ A45D 19/18

U.S. Cl. 132—208

10 Claims

9. A method for creating hair coloring designs using an apparatus having a main body with a substantially thin, foldable, sheet-



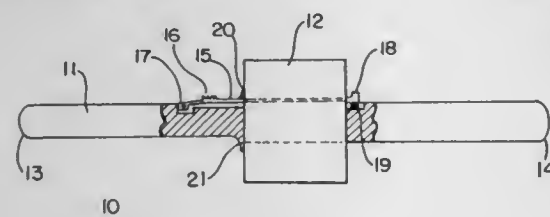
like configuration and including a base portion with an outer face and an opposite inner face having an adhesive material thereon, a pattern portion with an outer face, an opposite inner face having an adhesive material thereon and at least one hole of a desired geometric shape cut therethrough, an intermediate portion with a laterally disposed slit between said base portion and said pattern portion, and a peel-off strip of material structured and disposed to cover said adhesive material comprising the steps of:

- selecting and grasping a strand of hair to be colored;
- positioning said main body over said strand of hair so that said outer face of said base portion is in substantially direct contact with said strand of hair in overlying relation thereto and said slit is adjacent the roots of said strand of hair;
- pulling said strand of hair through said slit;
- removing said peel-off strip of material over said inner face of said base portion, thereby exposing said adhesive material thereon;
- uniformly distributing said strand of hair longitudinally across said adhesive material on said inner face of said base portion;
- removing said peel-off strip of material over said inner face of said pattern portion, thereby exposing said adhesive material thereon;
- folding said pattern portion over said base portion so that said strand of hair is secured between said adhesive material on said inner face of said base portion and said adhesive material on said inner face of said pattern portion;
- inserting a coloring agent through said at least one hole of said desired geometric shape, thereby coloring said strand of hair exposed therethrough;
- allowing said coloring agent to dry for a selected period of time;
- peeling said pattern portion off of said base portion;
- removing said strand of hair from said adhesive material;
- pulling said strand of hair through said slit;
- removing said main body; and
- repeating steps a through m for selected strands of hair.

5,799,670
ROLLER-SET STYLING HAIRBRUSH
James Rondeau, P.O. Box 50, Bartonsville, Pa. 18301
Filed Mar. 6, 1996, Ser. No. 611,562
Int. Cl.⁶ A45D 7/00

U.S. Cl. 132-210

4 Claims



1. A roller-set styling hairbrush comprising:
a wand having a first end, a second end and a recessed area positioned between said first end and said second end, said wand further having a catch mechanism partially positioned in said recessed area, said catch mechanism having a first catch mechanism end and a second catch mechanism end, said first

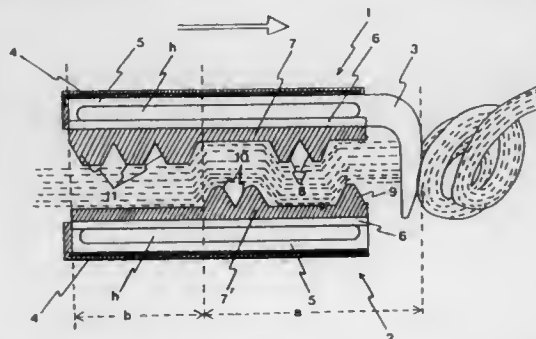
catch mechanism end being hingedly coupled to said wand and being positioned in said recessed area, said second catch mechanism end having a flange protruding from said recessed area, said wand further having a first flange stop and a second flange stop, said first flange stop and said second flange stop being positioned on opposite sides of said wand, said second flange stop being directly aligned with said first flange stop; and

a hair roller having a first hair roller end and a second hair roller end, wherein pressing down on said catch mechanism causes said second catch mechanism end to be lowered into said recessed area thereby enabling said hair roller placed onto said wand at said second end to be slidably moved along said wand towards said first flange stop and said second flange stop, and wherein releasing said catch mechanism causes said second catch mechanism end to rise from said recessed area thereby enabling said roller to be securely positioned onto said wand between said first flange stop and said second flange stop at said first hair roller end, and said second catch mechanism end at said second hair roller end.

5,799,671
CURLY HAIR CURLING IRON
Toyosaku Takimae, 12-11, Minami-Karasuyama 5-chome, Setagaya-ku, Tokyo, Japan
Filed May 6, 1997, Ser. No. 851,894
Claims priority, application Japan, May 23, 1996, 8-150412
Int. Cl.⁶ A45D 2/40; 2/42

U.S. Cl. 132-225

13 Claims

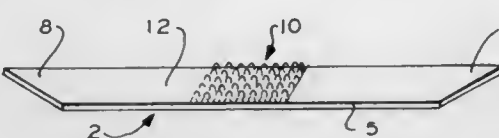


1. In a scissors type iron having rods each having a heater housed therein, a curly hair curling iron characterized in that engaging surfaces of two rods have a plurality of convex portions which are one of trapezoidal and semicircular in section and plane portions in engagement with convex portions of the other rod, both said convex portions and said plane portions are formed of an elastic material.

5,799,672
HAIR RETAINING DEVICE
Barbara J. Hansbury, 9 Hobart Ave., Summit, N.J. 07901
Filed Jul. 26, 1996, Ser. No. 687,637
Int. Cl.⁶ A45D 8/00

U.S. Cl. 132-273

16 Claims



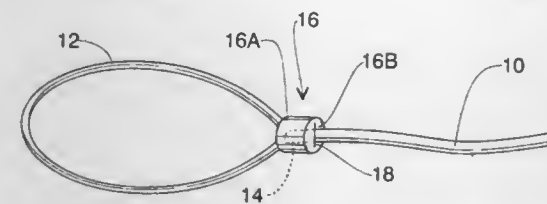
1. A hair retaining device for wrapping about and retaining a length of hair in a bundle comprising:
a length of flexible material having first and second ends and arranged to be wrapped about said hair bundle, said material

including means for releasably securing said length of material to and about the hair in said bundle, said material having a friction sufficiently low so that the material slides along said bundle length when wrapped and tied; and
hair gripping means secured to said material intermediate the ends for gripping the hair in said bundle to resist said sliding; said gripping means comprising a plurality of relatively stiff, flexible spaced discrete fibers secured to and extending from said material in an array for gripping engagement with said hair in said bundle;
said relatively stiff fibers comprising strands having an end distal said material, said distal ends comprising hook shaped portions.

5,799,673
DENTAL FLOSS WITH FINGER LOOPS AND DISPENSER
Wayne J. Amendola; Elizabeth Amendola, both of 1395 Riverside Cir., Wellington, Fla. 33414, and David L. Volk, 301 Oakwood Ct., Clairton, Pa. 15025
Continuation of Ser. No. 784,091, Jan. 15, 1997, abandoned.
This application Jan. 3, 1998, Ser. No. 4,724
Int. Cl.⁶ A61C 15/00

U.S. Cl. 132-321

4 Claims

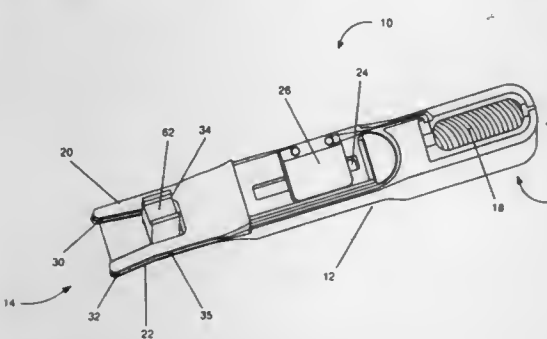


1. A tooth cleaning apparatus comprising a length of floss having two ends and a finger loop at each of the ends, wherein the finger loop is formed of polymeric material, a collar is attached to the finger loop, one of the ends of the floss is connected to the collar, the collar includes a tubular wall and a flexible wall disposed at a right angle to the tubular wall at a distal end of the collar, and the flexible wall includes a slit therein through which one of the lengths of floss is inserted.

5,799,674
DENTAL FLOSSING DEVICE
Sayel A. Ali, 1501 37th Ave. South, Fargo, N. Dak. 58104; Kassab Al-Mahareeq, and Hasan Al-Mahrouq, both of 2301 S. Beulah Ave., Indianapolis, Ind. 46241
Filed Jan. 3, 1996, Ser. No. 582,589
Int. Cl.⁶ A61C 15/04

U.S. Cl. 132-324

19 Claims



1. A dental flossing device comprising
a shaft having an operative end and a distal end, said distal end terminating in first and second fork arms, said fork arms each having a closed end connected to the shaft and an open end,

said fork arms each having a closed end connected to the shaft and an open end, said fork arms each including an aperture for receiving dental floss and for guiding a length of dental floss between said first and second fork arms; and
a stabilizing member rotatably attached to and between said first and second fork arms, said stabilizing member having a top tooth receiving surface and a bottom tooth receiving surface and operable to be engaged by teeth on both the top tooth receiving surface and the bottom tooth receiving surface to substantially prevent lateral and forward movement of the shaft during dental flossing.

5,799,675
SCREEN PRINTED PRODUCT SAMPLER IN HERMETICALLY SEALED PACKAGE
Anthony J. Gunderman, Phoenix, and Cathleen M. Fleming, Forest Hill, both of Md., assignors to Color Prelude, Inc., Baltimore, Md.
Filed Mar. 3, 1997, Ser. No. 810,370
Int. Cl.⁶ A45D 44/00

U.S. Cl. 132-333

36 Claims

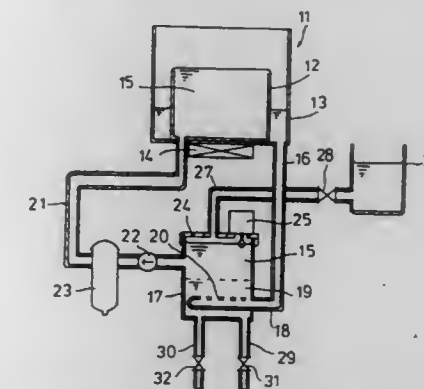


1. A product sampler, comprising:
a base formed of a barrier laminate, said base having an upper surface;
a unit dose of product screen printed onto said base; and
a cover formed of a barrier laminate, said cover hermetically sealed to the upper surface of said base over said unit dose of product to prevent loss of components from said product.

5,799,676
NONAQUEOUS SOLVENT REGENERATING APPARATUS FOR USE IN CLEANING
Mitsuo Goto, Yokohama; Kunihiko Uzawa, Machida; Masahiro Itakura, Kamiina-gun, and Masamichi Hijino, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Japan
Division of Ser. No. 436,233, May 17, 1995, Pat. No. 5,647,914. This application Feb. 6, 1997, Ser. No. 796,716
Int. Cl.⁶ B08B 3/10

U.S. Cl. 134-61

23 Claims



1. An apparatus capable of regenerating a nonaqueous solvent whose compatibility with water is so low that it is substantially immiscible with water, the apparatus is used in cleaning by sequentially subjecting a material to be cleaned to washing with an aqueous cleaning agent, rinsing off the aqueous cleaning agent with water, replacing the water adhering to the material with a

hydrophilic solvent, replacing the hydrophilic solvent adhering to the material with a nonaqueous solvent and drying, the apparatus comprising: a washing vessel accommodating the nonaqueous solvent, a separation vessel accommodating at its part below about half its height a separation fluid having low compatibility with the nonaqueous solvent and high compatibility with the hydrophilic solvent for separating the hydrophilic solvent mixed in the nonaqueous solvent from the nonaqueous solvent and accommodating at its part above about half its height the nonaqueous solvent, a pipe leading the nonaqueous solvent from the washing vessel into the part below about half the height of the separation vessel, a pipe leading the nonaqueous solvent from a part above about half the height of the separation vessel into the washing vessel, and means for circulating the nonaqueous solvent between the washing vessel and the separation vessel.

5,799,677

HERMETIC ENCLOSURE FOR TREATING A WORKPIECE WITH A SOLVENT

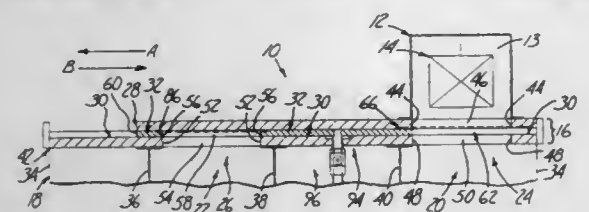
Winston E. Sabatka, Lakeville, and Gerald Melin, Stanchfield, both of Minn., assignors to Finishing Equipment, Inc., St. Paul, Minn.

Filed Feb. 23, 1996, Ser. No. 606,411

Int. Cl.⁶ B08B 15/02

U.S. Cl. 134—76

23 Claims



13. An apparatus for treating a workpiece, the apparatus comprising:

- a carriage for holding the workpiece;
- a first station for transferring the workpiece into and out of the carriage;
- a first chamber for holding treating fluid;
- a second station for transferring the workpiece between the carriage and the first chamber;
- a seal located proximate the second station;
- a positioning plate for supporting the carriage;
- a backing plate, the backing plate and the positioning plate capable of being placed in sealing contact with the seal for isolating the first chamber from atmosphere;
- a mechanism for staging the carriage, the mechanism capable of positioning the carriage at the first station and at the second station; and
- wherein the first chamber is capable of being isolated from atmosphere when the carriage is located at the second station.

5,799,678

APPARATUS FOR CLEANSING SEMICONDUCTOR WAFER

Suk-Bin Han, Choongcheongbuk-Do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Choongcheongbuk-Do, Rep. of Korea

Filed Dec. 18, 1996, Ser. No. 769,071

Claims priority, application Rep. of Korea, Dec. 19, 1995, 1995 51996

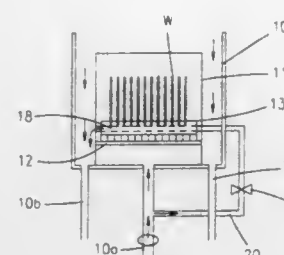
Int. Cl.⁶ B08B 3/04

U.S. Cl. 134—104.1

11 Claims

1. An apparatus for cleansing a semiconductor wafer, comprising:

- an outer tub having a first cleansing liquid supply tube for supplying a cleansing liquid therethrough and a discharge tube for discharging the cleansing liquid therethrough;



- an inner tub disposed within the outer tub;
- a baffle plate disposed within the inner tub for distributing the cleansing liquid supplied to the semiconductor wafer;
- a boat disposed on the baffle plate for mounting the semiconductor wafer;
- a particle extraction tube disposed in the boat for extracting particles formed in the inner tub and for discharging the particles;
- and
- a second cleansing liquid supply tube for supplying the cleansing liquid to the particle extraction tube.

5,799,679

DEVICE FOR WASHING THE CUPS IN A MILKING HEAD

Heinrich Bucker, Langenberg, Germany, assignor to Westfalia Separator AG, Oelde, Germany

PCT No. PCT/EP95/01353, § 371 Date Nov. 14, 1996, § 102(e) Date Nov. 14, 1996, PCT Pub. No. WO95/32615, PCT Pub. Date Dec. 7, 1995

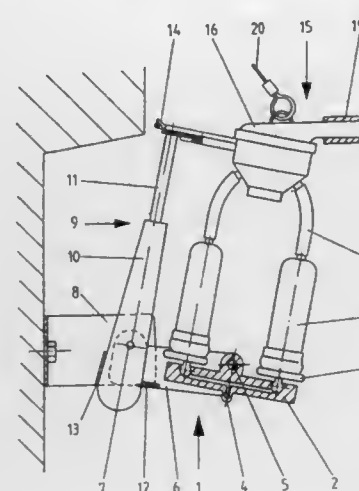
PCT Filed Apr. 12, 1995, Ser. No. 737,810

Claims priority, application Germany, May 26, 1994, 44 18 360.3

Int. Cl.⁶ B08B 9/02

U.S. Cl. 134—152

5 Claims



- 1. A device for washing teat cups in a milking head, comprising an axially displaceable milking-head holder and a fitting therefor having rinsing nipples over which teat cups fit, wherein the milking-head holder has an axis which is eccentric to an axis of the fitting, and wherein the milking-head holder has an alignment rod mounted for sliding movement back and forth axially in a guide sleeve and whereas the device operates in a specific position wherein the axes of the milking-head holder and the milking-head fitting deviate from the vertical.

5,799,680

CANOPY SYSTEM FOR OUTSIDE CONSTRUCTION

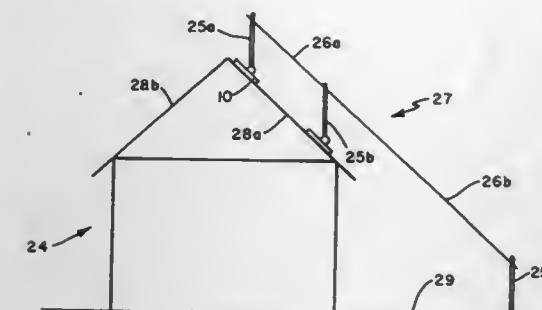
Russell C. Dorfinger, 62 Abbey Rd., East Hampton, Conn. 06424

Filed Oct. 9, 1996, Ser. No. 728,068

Int. Cl.⁶ E04G 3/00; E04H 15/00

U.S. Cl. 135—96

7 Claims



- 1. A portable collapsible canopy for a roof comprising: a plurality of brackets which brackets are secured to a roof in spaced relation to form a canopy covering area and are adapted to hold a canopy support pole in an upright position; a corresponding plurality of rigid poles secured to the brackets and disposed in a substantially upright position, each pole having a bracket engaging portion at its lower end and a canopy engaging portion at its upper end; a canopy member of flexible material extended over and secured to the upper portion of said poles to form the canopy.

5,799,681

SAFETY SHUT OFF VALVE AND METHOD OF AUTOMATIC FLOW RESTORATION

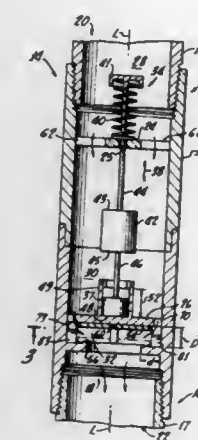
Wallace W. Velie, deceased, late of Alta Loma, and Neil Velie, executor, Thousand Oaks, both of Calif., assignors to Mallard Products, Inc., Thousand Oaks, Calif.

Filed May 14, 1997, Ser. No. 856,388

Int. Cl.⁶ G05B 27/00; E03B 1/00

U.S. Cl. 137—1

14 Claims



- 1. A safety shut off valve for a fluid delivery system, comprising: a hollow housing for defining a fluid communication path, said housing including an inlet for receiving upstream fluid and an outlet for discharging the received fluid downstream; an upstream web member mounted within said housing for helping to define an inlet chamber within said housing for receiving fluid from the fluid delivery system; and a downstream web member mounted within said housing for helping to define an outlet chamber within said housing for discharging fluid downstream in the fluid delivery system;

- said upstream web member and said downstream web member being space apart from one another for defining an interior chamber within said housing;
- a valve seat disposed within said outlet chamber for helping to facilitate the blocking of said communication path;
- a movable valve member disposed within said outlet chamber from moving in a rectilinear path of travel along a portion of said fluid communication path between a closed position at said valve seat blocking said fluid communication path and an open position at said downstream web member unlocking said fluid communication path;
- a hollow magnet housing supported from below by said downstream web member for helping to define a magnet oscillatory path extending along another portion of said fluid communication path;
- a moveable magnet disposed within said magnet housing for moving along said magnet oscillatory path between an attracting position at about said downstream web member and a disengagement position at about a top portion of said magnet housing;
- said magnet exerting a sufficient magnetic force to attract and hold said movable valve member in said open position when said magnet is disposed at about said attracting position and not a sufficient magnetic force to attract and hold said valve seat member when disposed at about said disengagement position;
- a mass coupled to said magnet for helping to produce a natural frequency of vibration of a sufficient amplitude to move said magnet between said attracting position and said disengagement position, said mass being spaced from said magnet and disposed outside of said magnet housing; and
- a spring supported from below by said upstream member and coupled to said mass for imparting oscillatory movement to said mass and said magnet in response to a lateral force being exerted against said housing, said lateral force having a predetermined magnitude and another natural frequency; wherein the movement of said magnet reaches a maximum displacement when the natural frequency of said spring and said mass in combination and the natural frequency of said lateral force are substantially the same.

5,799,682

REDUCTION OF DIFFUSIONAL DEFOCUSING IN HYDRODYNAMICALLY FOCUSED FLOWS

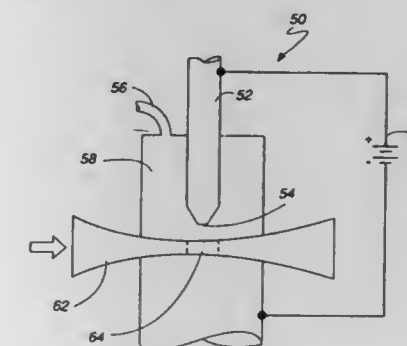
Rhett L. Affeck, Lawrenceville, N.J.; James N. Demas, Charlottesville, Va.; Peter M. Goodwin, Jemez Springs; Richard Keller, Los Alamos, both of N. Mex., and Ming Wu, Middle Island, N.Y., assignors to The Regents of the University of California, Los Alamos, N. Mex.

Filed Dec. 6, 1996, Ser. No. 758,738

Int. Cl.⁶ F15C 1/20

U.S. Cl. 137—14

9 Claims



- 1. A method for reducing the diffusion out of an analyte flow stream of first molecules having a relatively low molecular weight and corresponding high coefficient of diffusion out of said analyte flow stream, comprising the step of associating said first molecules

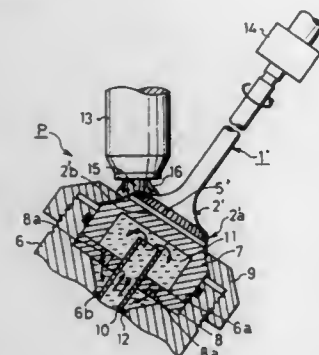
with second molecules having a relatively high molecular weight and corresponding low coefficient of diffusion.

5,799,683
POPPET VALVE AND METHOD OF MANUFACTURING IT

Akihiro Hamada, Machida; Shinichi Umino, Yugawara-cho, and Yuji Takano, Chigasaki, all of Japan, assignors to Fuji Oozx Inc., Kanagawa-Ken, Japan
Filed Mar. 18, 1996, Ser. No. 618,287
Int. Cl.⁶ F01L 3/10

U.S. Cl. 137—15

6 Claims

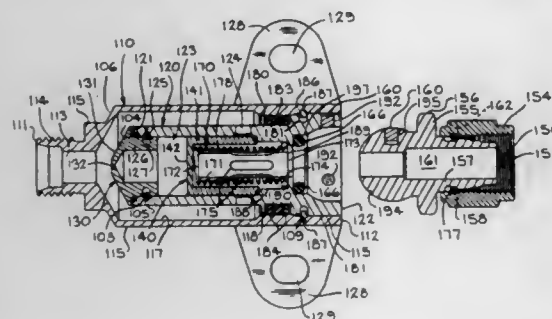


1. A method of manufacturing a poppet valve which comprises a valve head and a valve stem, the valve head having a valve face, the method comprising the steps of:
locally welding the valve face by heat at a predetermined temperature by high density energy source in inactive gas atmosphere, while a gas selected from the group consisting of N₂ and CO₂ is supplied to a heated portion of the valve face of the valve which is rotated in a predetermined direction; and cooling the valve head by forcibly passing a cooling fluid proximate to a top flat surface of the valve head immediately after the welding step.

5,799,684
FRANGIBLE HYDRAULIC FUSE
George B. Cluett, Brooklyn, Mich., assignor to Aeroquip Corporation, Maumee, Ohio
Filed May 14, 1996, Ser. No. 649,127
Int. Cl.⁶ F16K 17/40

U.S. Cl. 137—68.15

34 Claims



1. A hydraulic fuse comprising:
(a) a body member extending along an axis from an inlet end to an outlet end and having a passageway extending from said inlet end to said outlet end;
(b) a sleeve mounted in said body member passageway, said sleeve extending from a first end to an exit end in the vicinity of said outlet end and having (i) a central passage extending to an outlet at said exit end and (ii) at least one radial port

between said first end and said exit end for directing the flow of hydraulic fluid from said body member passageway to said central passage;

- (c) a poppet positioned in said sleeve for axial movement in said central passage from a first position spaced from said radial port on the opposite side of said port from said exit end to a second position overlying said radial port;
(d) a compression spring urging said poppet toward said first position;
(e) a fitting received in said sleeve, said fitting having a passageway positioned to receive hydraulic fluid from said sleeve; and
(f) frangible connector members retaining said fitting to said sleeve, rupture of said frangible connector members causing release of said fitting and an increase in flow of hydraulic fluid through radial said port, said increase in flow creating a pressure drop downstream from said radial port and a pressure differential on opposite sides of said poppet forcing said poppet to said second position.

5,799,685
TANK PROTECTIVE CONTAINER

Yoshi Tezuka; Shoichi Tanaka; Makoto Wakaki; Akibiko Osako, and Kazuhito Nakamura, all of Tokyo, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

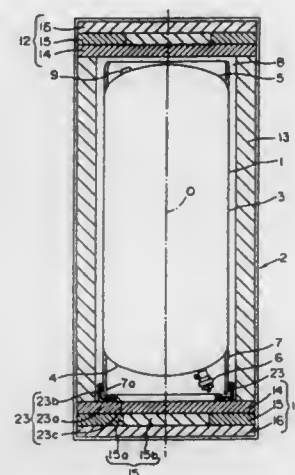
Filed Nov. 27, 1996, Ser. No. 757,167

Claims priority, application Japan, Nov. 28, 1995, 7-309587

Int. Cl.⁶ F16K 31/00

U.S. Cl. 137—375

6 Claims



1. A protective container arranged to accommodate and protect a tank, which has a valve in the head portion thereof and a substantially cylindrical head skirt portion adjacent to the head portion thereof, and provided with a support member at least in the head portion thereof, said tank protective container comprising:

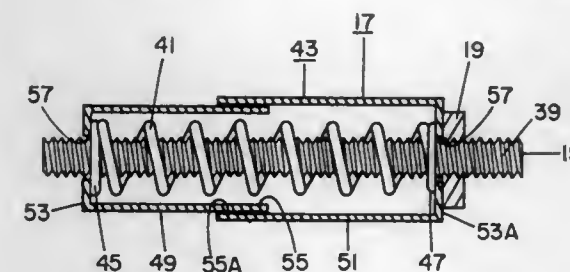
- a load receiving member disposed between said head skirt portion and said head support member, said load receiving member having a projection to which a free end of said head skirt portion is fixed, wherein said load receiving member is capable of receiving said free end of said head skirt portion, when said support member is deformed, and limiting warping of said head skirt portion.

5,799,686
APPARATUS FOR FASTENING COVER TO EXTERNAL FAUCETS

Scott D. Tuomey, 5012 Lovell Ave., Fort Worth, Tex. 76107
Filed Apr. 30, 1997, Ser. No. 846,547
Int. Cl.⁶ F16K 51/00

U.S. Cl. 137—375

9 Claims

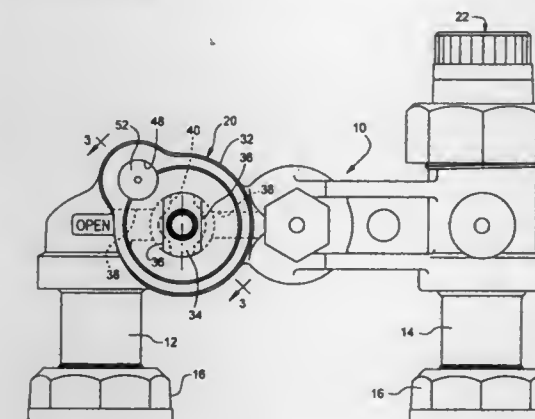


1. In a cover for use in protecting faucets, the cover being thermally insulated and having a cavity that is structured and arranged to receive a faucet, the cover having a wall, the wall having an opening therein, the wall having a first side and a second side, with the first side being located in the cavity, comprising:
a) a coupler having an anchor and a shank, the shank being received by the wall opening and extending out therefrom with the anchor located inside of the cavity;
b) a stop located on the shank at a position that is outside of the cavity; and
c) a spring located on the shank so as to be interposed between the stop and the cover wall.

5,799,687
SECURITY VALVE ASSEMBLY
John Eckel, Hazel Green, Wis., and Joseph Tilp, Dubuque, Iowa, assignors to A. Y. McDonald Mfg. Co., Dubuque, Iowa
Filed Sep. 27, 1996, Ser. No. 723,223
Int. Cl.⁶ F16K 35/00

U.S. Cl. 137—385

11 Claims



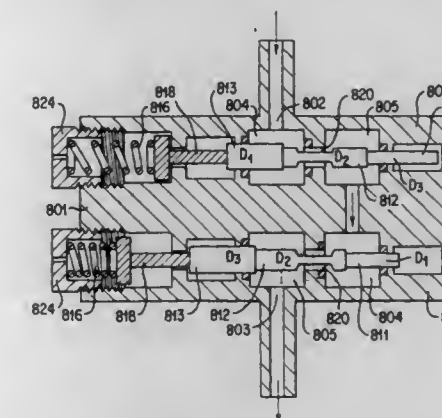
1. A security valve assembly comprising:
a valve body including a pair of spaced ports and a passage extending between said ports;
a valve receiving chamber in said body and located in intersecting relation with said passage between said ports;
a valve member in said chamber;
means journaled said valve member for rotation between a closed position blocking said passage and an open position establishing fluid communication between said ports;
an actuator for said valve rotatable about an axis and having a rotative force receiving formation exterior of said body whereby the application of a rotative force to said formation will normally cause said actuator to rotate said valve between said positions;

a lock receiving partial bore in said body and opening to the exterior thereof adjacent said force receiving formation and displaced from said axis and located to removably receive a lock in a direction generally transverse to said passage;
a lock receiving arcuate, partial bore or notch in said actuator and displaced from said axis and alignable with said lock receiving partial bore in said body when said valve is in said closed position to form a barrel lock receiving cavity in both said body and said actuator; and
a removable barrel lock substantially wholly disposable in said lock receiving cavity when said valve is in said closed position for locking said actuator against rotation to thereby prevent said valve from being opened;
whereby, whether said valve is installed with said passage vertical or horizontal or a combination thereof, said lock receiving chamber may be caused to open in a horizontal direction to be readily accessible without being positioned to collect precipitation or grime.

5,799,688
AUTOMATIC FLOW CONTROL VALVE
Gene G. Yie, Auburn, Wash., assignor to Jetec Company, Auburn, Wash.
Continuation-in-part of Ser. No. 219,801, Mar. 29, 1994, Pat. No. 5,524,821, which is a continuation-in-part of Ser. No. 22,123, Feb. 25, 1993, Pat. No. 5,297,777, which is a continuation-in-part of Ser. No. 871,895, Apr. 21, 1992, Pat. No. 5,241,986, which is a continuation-in-part of Ser. No. 794,581, Nov. 19, 1991, Pat. No. 5,186,393, which is a continuation-in-part of Ser. No. 630,560, Dec. 20, 1990, Pat. No. 5,092,362, and a continuation-in-part of Ser. No. 891,568, May 29, 1992, abandoned, which is a continuation-in-part of Ser. No. 701,534, May 16, 1991, Pat. No. 5,117,872. This application Apr. 13, 1995, Ser. No. 421,401
Int. Cl.⁶ F16K 31/363

U.S. Cl. 137—505.13

16 Claims



1. A valve comprising:
a valve body having a fluid inlet, a primary valve stem, a first chamber, a first throughbore, a first intermediate chamber, a secondary valve stem, a second intermediate chamber, a second throughbore, a second chamber and a fluid outlet;
in an open position of the valve said fluid inlet, said first chamber, said first throughbore, said first intermediate chamber, said secondary intermediate chamber, said second throughbore, said second chamber and said fluid outlet in communication with each other;
said primary valve stem and said secondary valve stem slidably mounted with respect to said valve body;
in a closed position of the valve a first primary portion of said primary valve stem and a second primary portion of said primary valve stem exposed to a first pressure condition within said first chamber, a first secondary portion of said secondary valve stem and a second secondary portion of said secondary valve stem exposed to a second pressure condition

within said second chamber, in said closed position of said valve one of said second primary portion and said second secondary portion sealably positioned within one of said first throughbore and said second throughbore, a first diameter of said first primary portion sized differently than a second diameter of said second primary portion, a first diameter of said first secondary portion sized differently than a second diameter of said second secondary portion; and bias means for urging at least one of said primary valve stem and said secondary valve stem in an axial direction toward one of said open position and said closed position.

5,799,689

TUBULAR REFRIGERANT CHECK VALVE WITH IDENTED OUTER HOUSING PORTION

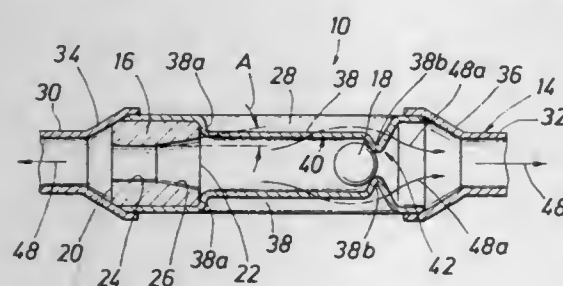
Punan Tang, Fort Smith, and Diane M. Jakobs, Alma, both of Ark., assignors to Rheem Manufacturing Company, New York, N.Y.

Filed Mar. 12, 1997, Ser. No. 814,926

Int. Cl.⁶ F16K 15/00

U.S. Cl. 137—533.13

16 Claims



1. A check valve comprising:

- an outermost tubular body;
- an annular valve seat member coaxially retained in said outermost tubular body and having a seating surface formed on an end portion thereof;
- a closure member received in said outermost tubular body in a facing relationship with said seating surface; and
- side wall indentations formed in said outermost tubular body and defining therein:
 - (1) a track structure operative to guide said closure member during axial movement thereof between a closed position in which said closure member sealably engages said seating surface, and an open position in which said closure member is spaced apart from said seating surface,
 - (2) a stop structure operative to engage said closure member in said open position thereof and preclude further axial movement of said closure member away from said seating surface, and
 - (3) fluid passages disposed between said indentations and operative, when said closure member is in said open position thereof, to permit fluid flow through said outermost tubular body away from said seating surface and then outwardly around said closure member.

5,799,690

VOLUMETRIC PUMP VALVE

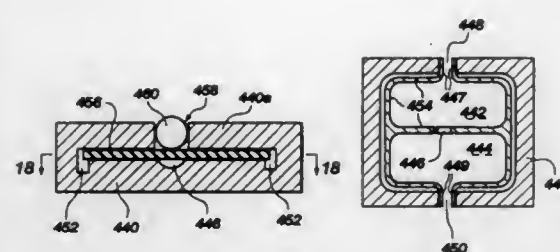
Stephen C. Jacobsen, and Clark C. Davis, both of Salt Lake City, Utah, assignors to Sarcos Group, Salt Lake City, Utah Continuation of Ser. No. 466,082, Jun. 6, 1995, abandoned, which is a division of Ser. No. 157,693, Nov. 23, 1993, Pat. No. 5,632,606. This application Aug. 5, 1996, Ser. No. 692,298

Int. Cl.⁶ F16K 15/00

U.S. Cl. 137—576

1 Claim

1. A pump valve for selectively controlling fluid flow comprising:



a housing formed with first and second cavities, said cavities being defined by walls;

an inlet conduit leading through the housing into the first cavity, said inlet conduit being defined by walls of the first cavity and a resilient wall;

an outlet conduit leading through the housing from the second cavity, said outlet conduit being defined by walls of the second cavity and a resilient wall;

a passage between the first and second cavities to allow fluid communication therebetween;

resilient sealing means disposed adjacent the inlet conduit; the outlet conduit, the first cavity, the second cavity, and the passage, said resilient sealing means forming a plurality of walls and disposed along said passage for selective sealing of the passage to prevent fluid flow between the cavities, said sealing means forming a wall of each cavity;

fluid within the first and second cavities, said fluid within the first cavity having alternating high and low pressures; and

a ball disposed on the side of the resilient sealing means opposite the passage and moveable toward the passage to cause the resilient sealing means to selectively seal the passage during periods of low fluid pressure in the first cavity and selectively open the passage during periods of high pressure in the first cavity.

5,799,691

DEVICE FOR FEEDING A GASEOUS FLUID THROUGH A BED OF BULK MATERIAL

Hans-Dieter Marsch, Dortmund, Germany, assignor to Uhde GmbH, Dortmund, Germany

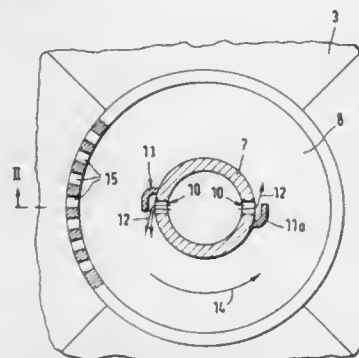
Filed Oct. 2, 1996, Ser. No. 724,807

Claims priority, application Germany, Oct. 31, 1995, 195 40 537.4

Int. Cl.⁶ E03B 7/07

U.S. Cl. 137—587 A

9 Claims



1. A device for feeding a gaseous fluid radially from a center of a vessel outwards, the device comprising:

- a central vertical gas feed tube having at least one vertical row of discharge openings;
- a catalyst bed of bulk material;
- perforated basket means for accommodating the catalyst bed, the perforated basket means comprising a perforated cylindrical surface surrounding the central vertical gas feed tube in a space relationship thereto and defining therewith a hollow cylindrical space, the perforated cylindrical surface defining an impingement surface of the catalyst bed; and

deflector means provided at the at least one row of the discharge openings to insure a substantially tangential flow of gas into the hollow cylindrical space,

wherein the deflector means comprises a plurality of substantially semi-circular elements defining a pressure equalization chamber.

5,799,692

DEVICE FOR THE TRANSFER OF FLUID BETWEEN MACHINE COMPONENTS ROTATABLE RELATIVE TO EACH OTHER

Jürgen Gobell, Brechen; Stephan Ott, Wiesbaden, and Michael Ueberle, Taunusstein, all of Germany, assignors to GAT Gesellschaft Fur Antriebstechnik mbH, Wiesbaden, Germany

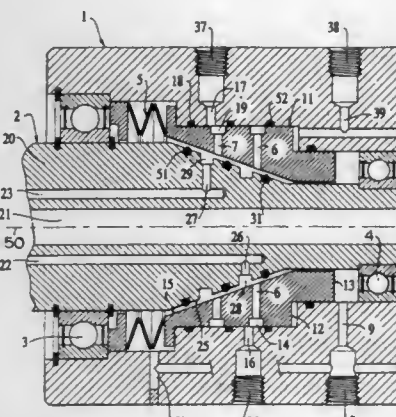
Filed Jun. 26, 1996, Ser. No. 673,167

Claims priority, application Germany, Jul. 12, 1995, 195 25 343.4

Int. Cl.⁶ F16L 27/00

U.S. Cl. 137—580

15 Claims



1. A device for the transfer of fluid from a first machine component to a second machine component which is rotatable relative to said first machine component, wherein said first machine component comprises a first contact surface rotationally symmetrical about an axis of the relative rotation and said second machine component comprises a complementary second contact surface which is rotationally symmetrical about said axis, and wherein transfer openings or channels are provided in said contact surfaces and machine components, wherein, in order to transfer a fluid from one of said first and second machine components to the other of said first and second machine components the contact surfaces engage with each other said contact surfaces being conical surfaces at least portions of the first and second machine components comprising said contact surfaces being displaceable axially relative to each other in a first axial direction at least by an amount so that the contact surfaces no longer contact each other, but are brought into contact again by an axial displacement along the opposite direction at least in a situation when at most a slow relative rotation between said machine component occurs said device further comprising means for effecting said relative axial displacement of said contact surfaces.

5,799,693

POWER STEERING CONTROL VALVE WITH NOISE REDUCTION

Daniel J. Strong, Clinton Township, Mich., assignor to TRW Inc., Lyndhurst, Ohio

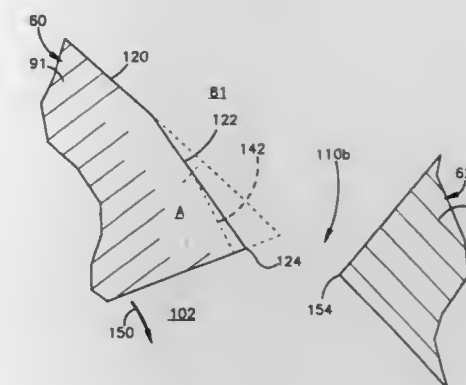
Filed Dec. 9, 1996, Ser. No. 762,597

Int. Cl.⁶ F15B 9/10; F16K 47/02

U.S. Cl. 137—625.23

9 Claims

1. Apparatus comprising:



first and second valve members rotatable relative to each other about an axis;

said valve members comprising means for defining hydraulic fluid flow orifices which are spaced apart circumferentially about said axis, said orifices being variable in size such that an orifice enlarges when an adjacent pair of orifices constrict upon relative rotation of said valve members from neutral positions;

said pair of constricting orifices initially constricting at unequal rates, and subsequently constricting at equal rates until reaching fully constricted conditions.

5,799,694

STEERING CONTROL UNIT

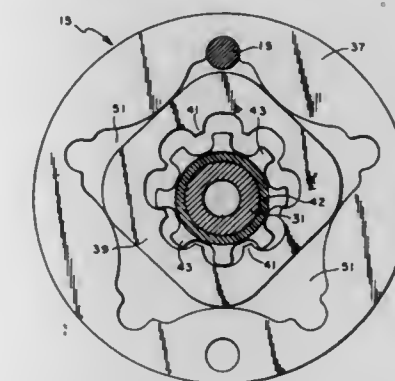
Sohan L. Uppal, Bloomington, Minn., assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 10, 1996, Ser. No. 728,229

Int. Cl.⁶ F15B 9/10; F16K 13/10

U.S. Cl. 137—625.24

10 Claims



1. A controller operable to control the flow of fluid from a source of pressurized fluid to a fluid pressure operated device; said controller being of the type including housing means defining an inlet port for connection to the source of pressurized fluid, a return port for connection to a reservoir, and first and second control fluid ports for connection to the fluid pressure operated device; valve means disposed in said housing means and comprising a primary, rotatable valve member and a cooperating, relatively rotatable follow-up valve member, said primary and follow-up valve members defining a neutral position and a rotary operating position in which said primary and follow-up valve members are relatively rotatably displaced; said housing means and said valve means cooperating to define a main fluid path communicating between said inlet port and said first control fluid port, and between said second control fluid port and said return port when said valve members are in said rotary operating position; fluid actuated means for imparting follow-up movement to said valve means proportional to the volume of fluid flow therethrough, said fluid actuated means including a stationary, internally toothed ring member, and

an externally toothed star member having rotational movement relative to said ring member; characterized by:

- (a) said follow-up valve member including a terminal portion disposed immediately adjacent said externally toothed star member; and
- (b) said star member and said terminal portion of said follow-up valve member including coupling means operable, in response to said rotational movement of said star member, to transmit a rotational follow-up movement to said follow-up valve member.

5,799,695

FLOW REGULATING VALVE OF THE BALL OR PLUG TYPE

Roger Bey, Illzach, France, assignor to Neles-Jamesbury, Inc., Worcester, Mass.

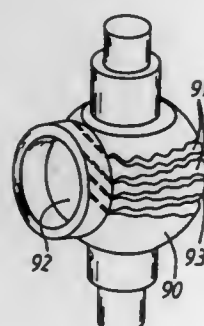
PCT No. PCT/FR93/01080, § 371 Date May 8, 1995, § 102(e) Date May 8, 1995, PCT Pub. No. WO94/11659, PCT Pub. Date May 26, 1994

PCT Filed Nov. 2, 1993, Ser. No. 424,440

Claims priority, application France, Nov. 6, 1992, 92 13577 Int. Cl.⁶ F16K 47/02

U.S. Cl. 137—625.32

25 Claims



1. A control valve comprising:

- a valve body having an inlet opening and an outlet opening, and wherein a valve axis extends in a direction from said inlet opening to said outlet opening;
- a closure element comprising one of: (a) a ball closure element, (b) a segmented ball closure element, and (c) a plug closure element; said closure element disposed in said valve body and mounted for movement between a first position and a second position, wherein said first position corresponds to a closed position at which said closure element prevents flow from said inlet opening to said outlet opening, and wherein said second position corresponds to an open position at which fluid is allowed to pass from said inlet opening to said outlet opening; and
- wherein said closure element includes at least one channel extending through said closure element and disposed such that when said closure element is in said first position, said channel extends from a downstreammost end of said closure element and in a first direction toward an upstreammost end of said closure element, and further wherein said at least one channel extends completely through said closure element in a second direction extending from an upstreammost end to a downstreammost end of said closure element when said closure element is in said second position, and wherein said at least one channel includes at least one undulation, and wherein said at least one channel includes an upstream end and a downstream end when said closure member is in said first position, and further wherein said at least one undulation is disposed between said upstream end of said channel and said downstream end of said channel.

5,799,696

SOLENOID ACTUATED TOGGLE VALVE

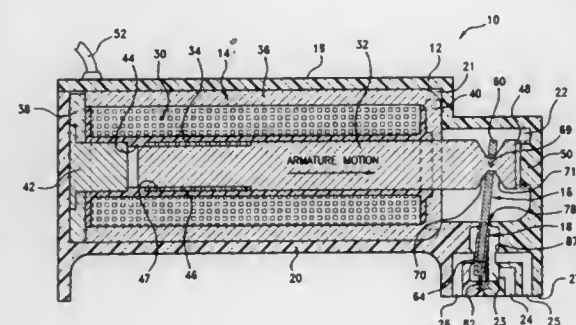
Andreas A. Weiss, Nashua, N.H., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Sep. 10, 1996, Ser. No. 709,802

Int. Cl.⁶ F16K 11/052; 31/06

U.S. Cl. 137—625.44

7 Claims



1. A solenoid actuated toggle valve, comprising:

- a valve housing enclosing a solenoid in a first chamber, a seal ring in a second chamber, and a valve arm extending through an opening between said first and second chambers, said second chamber including a pair of opposed sidewalls, a first passage opening into one of said sidewalls, and at least one other passage opening into the other of said sidewalls, said solenoid having an armature moveable in the axial direction of said solenoid in the first chamber in said housing, said valve arm having a pivotal connection in said housing between said first and second chambers which allows said valve arm to pivot about an axis perpendicular to said axial movement of said armature,
- said valve arm also having a connection means at one end in said first chamber to said armature for allowing i) movement of said valve arm in conjunction with the axial movement of said armature, and ii) movement of said valve arm relative to said armature in a direction perpendicular to the axial direction of said armature, said connection means comprising a slot which is longer than it is wide extending axially along the valve arm and a transverse cut in said valve arm connecting with said axial slot and defining an opening along a side edge of the valve arm, said armature having a tapered-down portion which can be received through said cut and located in said slot and bear against said valve arm to move said valve arm in the axial direction of said armature, said tapered down portion of said armature sliding lengthwise in said slot in a direction perpendicular to the axial direction as said armature moves in the axial direction to prevent axial displacement of said valve arm with respect to said pivot point during movement of said armature,
- said seal ring being received on another end of said valve arm, said seal ring having an outer frame defining a central cavity and an integral sleeve in said cavity surrounded by said frame, said frame providing a seal around said valve arm in said opening between said first and second chambers, said sleeve receiving said valve arm and providing a first sealing surface on a first side of said valve arm for sealing against said first passage, and a second sealing surface on a second side of said valve arm for sealing against another of said passages, said valve arm pivoting about its pivot axis as said armature moves axially within said first chamber when said solenoid is energized or deenergized such that said first or second sealing surfaces seal flush against the opening to a respective passage into said second chamber.

5,799,697

PRESSURE REGULATING VALVE

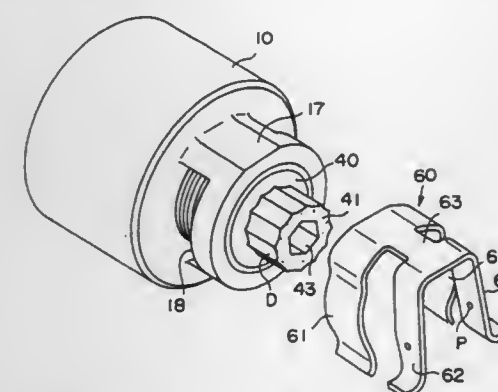
Yoshikazu Sakaguchi, Anjo; Takenori Kano, Toyota; Koichi Ichigo, Hekinan, and Takeya Oka, Nagoya, all of Japan, assignors to Aisin AW Co., Ltd., Japan

Filed Aug. 27, 1996, Ser. No. 703,678

Claims priority, application Japan, Aug. 31, 1995, 7-245099 Int. Cl.⁶ F15B 13/044

U.S. Cl. 137—625.65

8 Claims



1. A pressure regulating valve comprising:

- a valve body including an input port, an output port and a drain port;
 - a valve member slidably mounted in said valve body for controlling fluid communication among said ports and for regulating a supply pressure received at said input port and outputting the regulated pressure from said output port;
 - an electromagnetic solenoid and a spring for applying loads to said valve member; and
 - spring load setting means for positioning said valve member where loads imposed by said electromagnetic solenoid, according to an input signal, said spring and a feedback pressure are balanced, said load setting means including:
 - a threaded plug screwed into said valve body for supporting said spring in a compressed state, said threaded plug having a distal end with index means for establishing a rotational index;
 - a restraining member fixed on said valve body for restraining said threaded plug against rotation,
- wherein one of said restraining member and said index means has at least one concave recess of a first radius whereas the other has projecting means for engaging said recess with a force resisting rotation of said threaded plug, said projecting means comprising at least one rounded projection having a second radius smaller than said first radius.

5,799,698

SWITCH FOR GAS BURNER

Hsing-Chu Lin, 523, Pei Hsin Street, Chia-Yi City, Taiwan

Filed Jun. 5, 1996, Ser. No. 658,555

Int. Cl.⁶ F16K 11/14

U.S. Cl. 137—628

1 Claim

1. A switch for a gas burner, said switch comprising:

- a body including a puncture formed therein,
- a shaft rotatably engaged in said puncture of said body, said shaft including a slit formed therein,
- a rod engaged in said slit of said shaft so as to be rotated by said shaft,
- a cylindrical member secured in said housing and including a first end having two depressions formed therein for engaging with said rod and having a second end,
- a ring secured to said second end of said cylindrical member and including a bar formed therein,
- means for biasing said rod to engage with said cylindrical member,

5,799,699

BELLOWS WITH AN IMPROVED TWISTING CAPABILITY

Hank Chiang, No. 162, Chung-Chen S. Rd., Hsia-Jen Hsiang, Tainan Hsien, Taiwan

Filed Jul. 28, 1997, Ser. No. 901,549

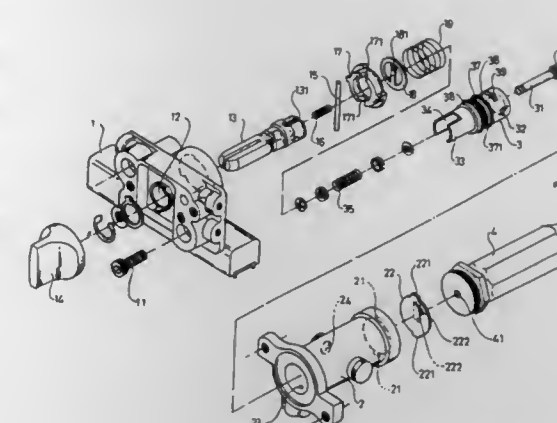
Int. Cl.⁶ F16L 11/10

U.S. Cl. 138—121

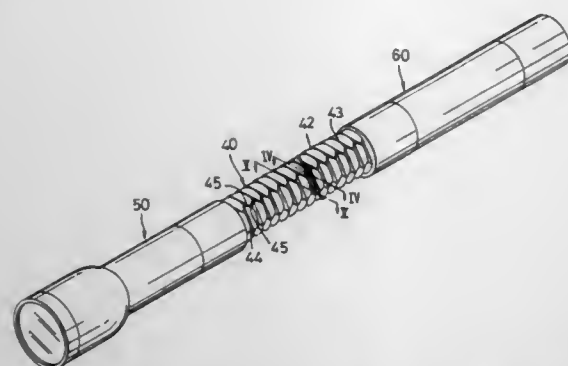
2 Claims

1. A bellows comprising:

- a flexible tube having a pleated wall of polygonal cross-section which has a plurality of sides and which has valleys and peaks extending along said sides in parallel planes orthogonal to an



- a housing including a first end secured to said body and including a second end, said housing including at least one orifice and an aperture formed therein,
 - a disc secured to said second end of said housing, said disc including a slot having a first end of smaller size and having a second end of larger size, said disc including a side portion having a recess formed therein and facing away from said housing, said first end of said slot being communicating with said recess,
 - a nozzle secured to said housing and including a hole for communicating with said recess and said slot,
 - a barrel rotatably engaged in said housing for defining a gap between said barrel and said housing, said barrel including a first end having a pair of legs and a channel formed therein for engaging through said ring and said cylindrical member, said rod being engaged in said channel so as to allow said barrel to be rotated by said shaft, said barrel including a bore formed therein, said barrel including an outer peripheral portion having an annular groove formed therein for aligning with said aperture and including an approach communicating said annular groove with said bore, said barrel including a conduit for communicating said slot to said gap, said barrel including a pathway for communicating said orifice to said bore of said barrel,
 - a stem slidably engaged in said bore of said barrel, said stem including a first end for engaging with said bar of said ring and including a second end having a plug for enclosing said bore,
 - means for biasing said plug to enclose said bore,
 - two sealing rings engaged on said barrel and arranged beside said annular groove, and
 - means for biasing said ring to engage with said cylindrical member,
- said bore of said barrel being enclosed by said plug when said rod is engaged in said depressions of said cylindrical member, and said rod being disengaged from said depressions so as to move said cylindrical member and said ring and said stem and so as to disengage said plug from said bore when said rod is rotated by said shaft, and gas from said orifice being allowed to flow into said aperture and to flow into said hole of said nozzle when said plug is disengaged from said bore and when said conduit is aligned with said slot.



axis of said flexible tube, a plurality of said valleys and a plurality of said peaks extending alternately along said sides in each of said planes, each of said valleys and said peaks in each of said planes forming a respective one of said sides, each of said valleys and peaks in a corresponding one of said planes being staggered in an axial direction with the other one of said peaks and valleys in an adjacent one of said planes, said pleated wall further having ridges, each of said ridges being in the form of a segment of a helix and interconnecting a corresponding pair of said staggered peaks, said ridges being aligned helically along a length of said flexible tube.

the open space for fluid to pass, so that the reduction of the open space will impede an increase in flow rate through said fluid exit even if the pressure from fluid entering through said fluid entrance is increased.

5,799,701

METHOD OF AND AN APPARATUS FOR LINING A PIPELINE

Naoki Kitahashi; Yasushi Kitayama, both of Shiga; Eiki Akimoto, Iruma, and Hamao Yamashiro, Sayama, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, and Adachi Construction Industry Co., Ltd., Tokyo, both of Japan

PCT No. PCT/JP95/01689, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO96/06296, PCT Pub. Date Feb. 29, 1996

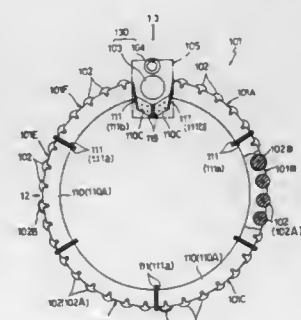
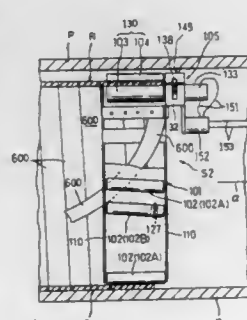
PCT Filed Aug. 25, 1995, Ser. No. 687,431

Claims priority, application Japan, Aug. 25, 1994, 6-224125; Jan. 26, 1995, 7-029937; Jul. 21, 1995, 7-206810; Aug. 18, 1995, 7-232084

Int. Cl.⁶ F16L 55/18

U.S. Cl. 138—97

20 Claims



1. A method of lining an inside of a pipeline comprising the steps of:

forming a pipe out of a long beltlike member being supplied continuously to and wound involutely within the pipeline by engaging adjoining joints formed on both edges of the beltlike members;

forming an additional length of pipe, using an additional length of beltlike member being supplied anew and ahead of the already formed pipe while leaving the already formed pipe behind;

using a jointing roller block consisting of an inner and an outer roller in such a manner that the inner roller comes into contact with the interior of the beltlike member and the outer roller comes into contact with the exterior thereof, where said jointing roller block is provided on a mounting frame and disposed at an edge of the already formed pipe, said mounting frame being a circumferentially extending frame positioned within the already formed pipe;

shaping the pipe with a plurality of guide rollers rigidly fixed to the mounting frame and where the guide rollers are disposed to contact the inner surface of the pipe;

pinching the beltlike member between the outer and inner rollers where the newly supplied beltlike member is closed with the already formed pipe; and

driving at least the outer roller by rotation.

5,799,700

AUTOMATIC INTRAVENOUS FLOW CONTROL DEVICE

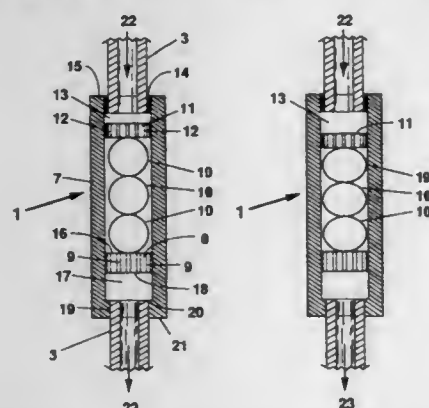
Eutiquio L. Teh, 2440 Tiebout Ave., #2, Bronx, N.Y. 10458, and William L. Teh, 134-A Kaimito Road, Kalookan City MM 1400, Philippines

Filed Jun. 27, 1996, Ser. No. 671,374

Int. Cl.⁶ F15D 1/02

U.S. Cl. 138—45

16 Claims



1. An intravenous fluid flow control device comprising: a rigid casing defining a flow passage having a fluid entrance and a fluid exit;

a rigid, previous base affixed inside said flow passage of said casing;

a flexible, resilient flow regulator disposed inside said flow passage of said casing adjacent to and upstream of said base, said flow regulator normally having a smaller transverse cross-section than does said flow passage, leaving open space for fluid to pass; and

a rigid, previous cap disposed inside said flow passage of said casing adjacent to and upstream of said flow regulator, said cap being axially movable inside said flow passage of said casing,

wherein said flow regulator biases said cap against pressure from fluid entering through said fluid entrance,

wherein increases beyond a threshold level in the pressure from fluid entering through said fluid entrance cause axial compression of said flow regulator, thereby expanding the transverse cross-section of said flow regulator, resulting in a reduction of

5,799,702

RETRACTABLE CONDUIT

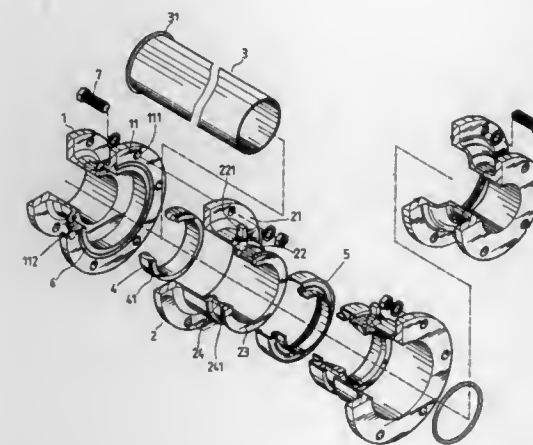
Kuo Hsien-Jen, and Hsien-Wen Kuo, both of No. 93, Sec. 4, Chin-Hwa Rd., Tainan, Taiwan

Filed Mar. 18, 1997, Ser. No. 819,771

Int. Cl.⁶ F16L 27/00

U.S. Cl. 138—120

1 Claim



1. A flexible, displaceable conduit, comprising:

a sliding pipe member having a fluid passage extending longitudinally between a pair of opposing ends thereof and a thrust collar coupled to each of said opposing ends;

a pair of adapters, each of said pair of adapters having (a) an annular wall defining a first central through bore through which said sliding pipe member passes, (b) a mounting flange formed on a first end of said annular wall and extending radially therefrom, (c) a holding portion formed on a second end of said annular wall, (d) a first annular groove formed in an inner surface of said annular wall, said first annular groove having a bottom surface and a pair of side walls, one of said pair of side walls defining an integrally formed stopping surface for blocking contact with a respective thrust collar to prevent removal of said sliding pipe member from said adapter through said first central through bore, and (e) a catching rim formed in said bottom surface of said first annular groove and extending therefrom;

a pair of retaining brackets respectively coupled to said pair of adapters, each of said retaining brackets having a second central through bore disposed in fluid communication with said first central through bore of a respective adapter, each of said retaining brackets having a flange plate formed on one end thereof for securement to said mounting flange of a respective adapter;

a pair of elastic retainers respectively disposed between said pair of adapters and said sliding pipe member for providing a fluid seal therebetween, each of said pair of elastic retainers being annularly shaped and positioned in said first annular groove of a respective adapter, each of said pair of elastic retainers being formed of a colloidal material and having a second annular groove formed in an external surface thereof for receiving said catching rim therein; and,

a pair of dust covers, each of said pair of dust covers having one end engaged on said holding portion of a respective adapter and an opposing end in contiguous contact with a portion of said sliding pipe member.

5,799,703

SYNTHETIC RESIN CORRUGATED PIPE HAVING A CONCAVE-CONVEX SURFACE

Shiro Kanao, deceased, late of Osaka; by Chizuko Kanao, heir, 9-18, Nanpeidai 4-chome, Takatsuki-shi, Osaka, and by Shigeki Kanao, heir, 2-40, Minami-machi, Jurinji, Nishinomiya-shi, Osaka, all of Japan

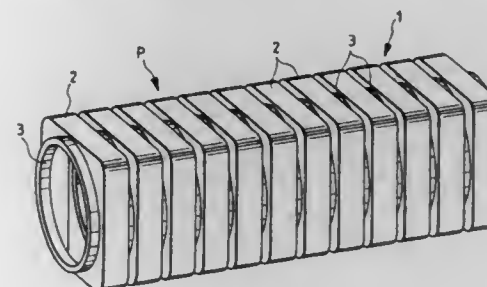
Filed Feb. 13, 1996, Ser. No. 600,595

Claims priority, application Japan, Feb. 14, 1995, 7-050602

Int. Cl.⁶ F16L 11/00

U.S. Cl. 138—121

25 Claims



2. A synthetic resin corrugated pipe comprising: a corrugated pipe wall having one of an annular shape or helical shape,

said corrugated pipe wall having a plurality of tubular convex portions having a quadrangular cross-sectional shape and a plurality of tubular concave portions having a circular cross-sectional shape,

wherein said tubular convex portions are larger than said tubular concave portions,

wherein each of said convex portions has a square cross-section shape with arc-shaped corners.

5,799,704

PIPE FOR CONVEYING FUEL

Maxime Andre, Les Râpées, 45220 Chateaufort, France

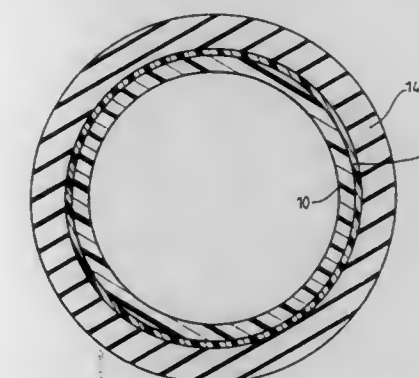
Continuation of Ser. No. 447,109, May 22, 1995, abandoned. This application Nov. 12, 1997, Ser. No. 968,276

Claims priority, application France, May 31, 1994, 94 06588

Int. Cl.⁶ F16L 11/04

U.S. Cl. 138—137

13 Claims



1. An elongate, flexible pipe for conveying fuel, comprising a thin innermost layer of thermoplastic material having good properties of impermeability and of chemical inertness relative to fuels, a flexible protective outermost layer of vulcanized elastomer, and an intermediate layer connecting the innermost layer to the outermost layer, said intermediate layer being formed of a thermoplastic material substantially identical to the innermost layer and mixed with ethylene-propylene grafted with maleic anhydride or of an elastomer substantially identical to the outermost layer and mixed with ethylene-propylene grafted with maleic anhydride, with the total wall thickness of the pipe being less than or equal to 2 mm.

5,799,705

FIRE RESISTANT PIPE

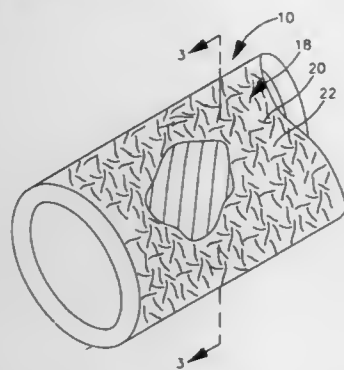
Ralph S. Friedrich, Hermosa Beach; John F. Kane, Woodland Hills, and Mark H. Fortune, Whittier, all of Calif., assignors to Ameron International Corporation, Pasadena, Calif.

Filed Oct. 25, 1995, Ser. No. 548,226

Int. Cl.⁶ F16L 9/14

U.S. Cl. 138—144

27 Claims



1. A fire resistant pipe comprising:

a structural wall comprising layers of helically wound reinforcing fiber bonded with a siloxane-modified phenolic resin; and at least one fire resistant layer overlying the structural wall, wherein the fire resistant layer includes a fibrous carrier component impregnated with a siloxane-modified phenolic resin.

5,799,706

WEAVING LOOM WITH VIBRATION DAMPER

Carlos Matas Gabaida, Granges les Valence, France, assignor to ICBT Diederichs, France

PCT No. PCT/FR95/01529, § 371 Date Jun. 18, 1997, § 102(e) Date Jun. 18, 1997, PCT Pub. No. WO96/23093, PCT Pub. Date Aug. 1, 1996

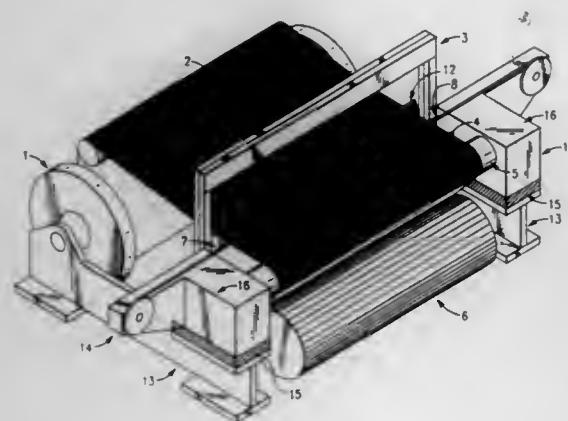
PCT Filed Nov. 21, 1995, Ser. No. 860,177

Claims priority, application France, Jan. 26, 1995, 95 01137

Int. Cl.⁶ D03D 49/02

U.S. Cl. 139—1 R

3 Claims



1. A weaving loom for manufacturing fabric that includes a pair of superposed modules that further includes, a lower module having means for ensuring unwinding of a lap of warp yarns, formation of a shed and winding up of the fabric and an upper module having means for ensuring insertion of a weft, control of a lay supporting a reed and taking up of the fabric, and a damping means interposed between the two modules.

5,799,707

SINGLE LAYER PAPERMAKERS FORMING FABRIC

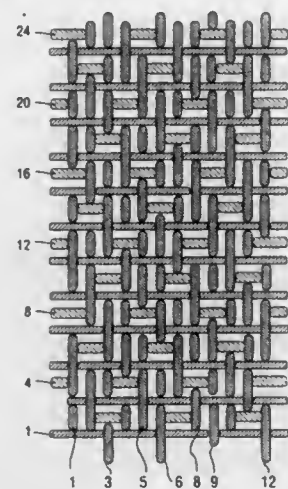
Rex Barrett, Peachtree City, Ga., and Robert A. Wilkes, Sarsfield, Canada, assignors to JWI Ltd., Kanata, Canada

Filed Mar. 24, 1997, Ser. No. 822,752

Int. Cl.⁶ D03D 13/00

U.S. Cl. 139—383 A

30 Claims



1. A single layer woven papermaker's forming fabric having a machine side and a paper side, comprising warp yarns interlacing with both primary weft yarns and secondary weft yarns in which:

- (i) the single layer fabric is woven according to a first repeating pattern in N sheds,
- (ii) the primary weft yarns are woven with the warp yarns according to a second repeating pattern in A sheds,
- (iii) a secondary weft yarn is located between any two primary weft yarns, and
- (iv) the secondary weft yarns are woven with the warp yarns according to a third repeating pattern in C sheds;

wherein:

- (a) the second pattern provides at least one machine side cross machine direction exposed primary weft float having a float length Z of at least 3, and A is at least Z+1,
- (b) the second repeat pattern repeats B times within the N sheds of the first repeat pattern,
- (c) the third repeat pattern repeats D times within the N sheds of the first repeat pattern,
- (d) the number of sheds N in the first repeat pattern is at least 10,
- (e) B and D are different,
- (f) both B and D are at least 2, and
- (g) the following relationship exists between A, B, C, D and N: $A \times B = C \times D = N$.

5,799,708

PAPERMAKER'S FABRIC HAVING PAIRED IDENTICAL MACHINE-DIRECTION YARNS WEAVING AS ONE

Michael J. Josef, Greenville, S.C., assignor to Albany International Corp., Albany, N.Y.

Filed Oct. 11, 1996, Ser. No. 729,166

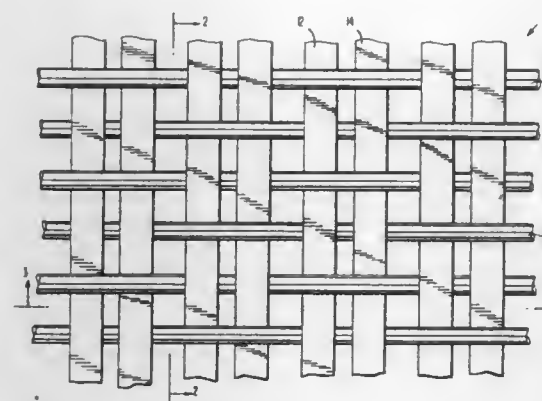
Int. Cl.⁶ D03D 13/00; 15/00

U.S. Cl. 139—383 AA

6 Claims

1. A papermaker's fabric for the forming, press and dryer sections of a papermachine comprising:

- a system of machine-direction (MD) yarns interwoven with a system of cross-machine direction (CD) yarns, said MD yarns comprising pairs of a first MD yarn and a second MD yarn, said first and second MD yarns of each said pair having a substantially rectangular cross section and weaving side-by-side as a single yarn with said CD yarns through said fabric and having identical cross-sectional geometries, said MD yarns being interwoven with said CD yarns in a tight weave to provide said papermaker's fabric with a permeability to air of



less than 150 cubic feet per minute per square foot at 0.5 inch H₂O-pressure, wherein only one of said first and second MD yarns of said pairs forms seaming loops at widthwise edges of said fabric for use in joining said fabric into endless form during installation on a papermachine.

5,799,709

PAPERMAKING FABRIC SEAM WITH SEAM FLAP ANCHOR

Gale Shipley, Mauldin, S.C., assignor to Asten, Inc., Charleston, S.C.

Filed Aug. 29, 1997, Ser. No. 920,700

Int. Cl.⁶ D03D 13/00

U.S. Cl. 139—383 AA

7 Claims



1. An improved open ended papermaker's fabric of a type woven from a longitudinal thread system and a transverse thread system and having a paper side and a machine side, a plurality of seam loops at each end of the fabric formed by the threads of the longitudinal thread system whereby a seam zone is formed at each end of said fabric between the respective seam loops and a respective end thread of said transverse thread system, the improvement characterized by:

- at least one additional transverse thread interwoven with the longitudinal thread system in at least one seam zone in a repeat pattern that passes over at least two adjacent paper side longitudinal threads and under at least one machine side longitudinal thread.

5,799,710

ARRANGEMENT IN CONNECTION WITH AN ANAESTHETIC LIQUID CONTAINER

Jukka Kankkunen, Vantaa, Finland, assignor to Instrumentarium Oy, Helsinki, Finland

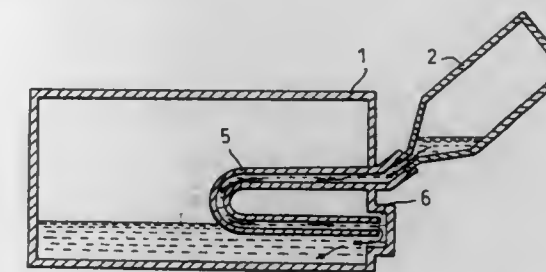
Filed Dec. 27, 1996, Ser. No. 774,211

Claims priority, application Finland, Dec. 29, 1995, 956354; Apr. 18, 1996, 961698; Dec. 11, 1996, 964867

Int. Cl.⁶ B65B 1/04

U.S. Cl. 141—18

24 Claims



1. An arrangement in connection with an anaesthetic liquid container, said arrangement comprising means for conducting anaesthetic liquid during emptying of the anaesthetic liquid container from the anaesthetic liquid container to a transport or supply container connected to a filling port of the anaesthetic liquid container, and vice versa during the filling of the anaesthetic liquid container, and means for removing a volume of gas equivalent to the volume of anaesthetic liquid during emptying of the anaesthetic liquid container from the transport or supply container, and during filling correspondingly from the anaesthetic liquid container, said arrangement further comprising an intermediate container which is provided in connection with the anaesthetic liquid container and formed from a curved tubular portion and which during the filling of the anaesthetic liquid container forms a common conduit for the anaesthetic liquid and the gas removed from the liquid container, said intermediate container being further adapted during the emptying of the anaesthetic liquid container to form a conduit at least for the anaesthetic liquid discharged from the anaesthetic liquid container.

5,799,711

ARRANGEMENT IN CONNECTION WITH AN ANAESTHETIC LIQUID CONTAINER

Erkki Heinonen, Helsinki; Antti Särelä, Espoo, and Jukka Kankkunen, Vantaa, all of Finland, assignors to Instrumentarium Oy, Helsinki, Finland

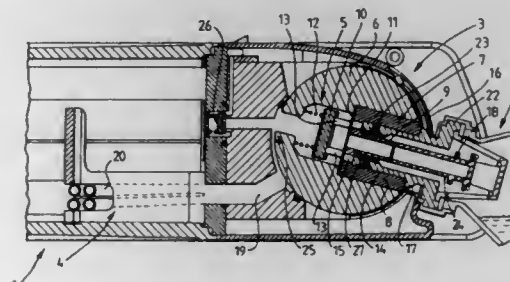
Filed Dec. 27, 1996, Ser. No. 773,431

Claims priority, application Finland, Dec. 29, 1995, 956354; Apr. 18, 1996, 961698; Dec. 11, 1996, 964966

Int. Cl.⁶ B65B 1/04

U.S. Cl. 141—18

5 Claims



1. An arrangement for connecting an anaesthetic supply container to an anaesthetic liquid container of a vaporizer for supplying a quantity of liquid anaesthetic from the anaesthetic supply container to the anaesthetic liquid container and for removing a

volume of gas from the anaesthetic liquid container to the anaesthetic supply container, said arrangement comprising: mean for establishing an anaesthetic liquid level in the anaesthetic liquid container; and

connecting means mounted in the vaporizer for connecting the anaesthetic supply container to the anaesthetic liquid container, said connecting means being movable with respect to the vaporizer to orient the anaesthetic supply container to upper and lower positions with respect to the vaporizer, the anaesthetic supply container being receivable in said connecting means only when said connecting means is in said lower position, said connecting means providing a fluid flow conduit between the anaesthetic supply container and the anaesthetic liquid container that is open in both said positions when the anaesthetic supply container is connected to the anaesthetic liquid container, said fluid flow conduit having a first end in fluid communication with the anaesthetic liquid container and a second end in fluid communication with the anaesthetic supply container, said first end of said fluid flow conduit being positioned above the anaesthetic liquid level in the anaesthetic liquid container and the second end of said fluid flow conduit being positioned above the level of liquid anaesthetic in the anaesthetic supply container when said connecting means is moved to position the anaesthetic supply container in the lower position so that initially only gas flows through said fluid flow conduit when the anaesthetic supply container is received in said connecting means to balance the gas pressures in the anaesthetic supply container and the anaesthetic liquid container, the anaesthetic supply container thereafter supplying anaesthetic to the anaesthetic liquid container through said fluid flow conduit when said connecting means is moved to position the anaesthetic supply container in said upper position.

5,799,712

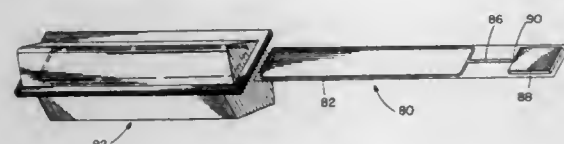
TONER CARTRIDGE TONER DAM REPLACEMENT AND METHOD THEREFOR

Gar P. Kelly; Bob Aaron, and Dennis P. Davidson, all of Boise, Id., assignors to Hewlett-Packard Company, Palo Alto, Calif. Continuation of Ser. No. 71,909, Jun. 1, 1993, abandoned. This application Feb. 28, 1995, Ser. No. 395,769

Int. Cl.⁶ G03G 15/06

U.S. Cl. 141—287

2 Claims



1. A toner dam for an elongated-dimension toner cartridge having relatively narrow ends, said toner cartridge comprising a toner bottle and bottle cover, both toner bottle and bottle cover having flanges encompassing openings therein and a gasket positioned between said flanges, said flanges and gasket adherent to each other along said elongated dimension so as to align said openings in said toner bottle and bottle cover, said relatively narrow ends each having a resilient seal positioned therein, said toner dam comprising:

a planar, rigid sheet having two major planar surfaces, said rigid sheet sized to completely cover and seal said aligned openings when inserted between said toner bottle and bottle cover, said rigid sheet including resilient means, said resilient means extending from one said major planar surface thereof and positioned to directly engage and seal against a proximate flange surface upon insertion of said planar rigid sheet therebetween, said resilient means further comprising an enclosed, flexible channel about a periphery thereof, said enclosed flexible channel communicating with a compressible fluid-filled reservoir via a passage having a breakable seal positioned therein, and further including means for compressing said fluid-filled reservoir to increase fluid pressure therein

to a point where said breakable seal is ruptured and said fluid is forced from said reservoir into said flexible channel, thereby causing an expansion thereof to create said resilient means.

5,799,713

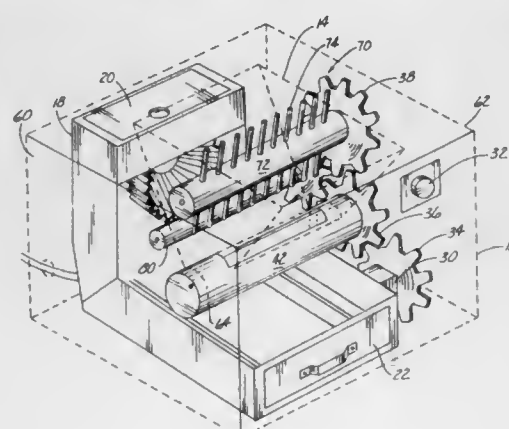
APPARATUS FOR STORING SEPARATING AND FILLING COFFEE FILTERS

Larry W. Moore, 7265 Timberwood Ct., Wilmer, Ala. 36587 Filed May 16, 1997, Ser. No. 859,832

Int. Cl.⁶ B65B 1/04

U.S. Cl. 141—358

5 Claims



1. An apparatus for storing, separating, and filling automatic drip coffee filters, comprising:

- (a) a housing;
- (a) a first receptacle situated within said housing for storing coffee;
- (b) a second receptacle situated within said housing for storing a nested stack of coffee filters;
- (d) filter delivery means for moving a single filter from said nested stack of coffee filters to a position below said first receptacle; and
- (e) coffee delivery means, in communication with said first receptacle, for transferring a portion of coffee from said first receptacle to said filter positioned below said first receptacle.

5,799,714

SPRING-ACTUATED BASKET BOTTOM PANEL FORM

Tim Teal, Mount Vernon; Robert R. Rueckert, Blue Rock, and Jack J. Hindel, Frazeyburg, all of Ohio, assignors to The Longaberger Company, Newark, Ohio

Filed Apr. 28, 1995, Ser. No. 431,090

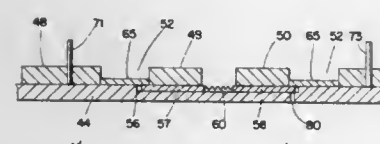
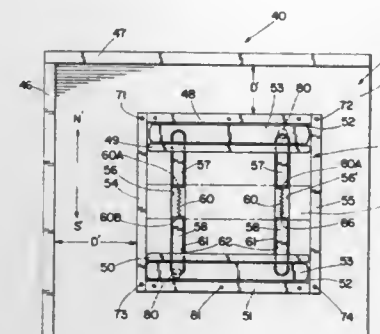
Int. Cl.⁶ B27J 1/00

U.S. Cl. 147—48

25 Claims

14. A spring-actuated basket form comprising:

- a platform having an upper planar surface and defining first and second cavities recessed below said surface, each of said cavities having an inner wall;
- first and second spacers located within said first cavity, each of said spacers having a perimeter wall movably communicating with said inner wall of said first cavity;
- a first spring having anterior and posterior ends, said anterior end coupled with said first spacer, said posterior end coupled with said second spacer, said spring facilitating tensioned movement of said first and second spacers within said first cavity;
- first and second longitudinally extending and transversely separated reinforcement guides communicating with said upper surface of said platform, said first guide connected to said first spacer and capable of retraction with respect to said second



guide, said first and second guides forming a space therebetween capable of removably receiving a reinforcement splint; a locator extending transversely from said upper platform surface, said locator capable of assisting in alignment of a weaving splint;

third and fourth spacers located within said second cavity, each of said third and fourth spacers movably communicating with said inner wall of said second cavity;

a second spring having anterior and posterior ends, said anterior end coupled with said third spacer, said posterior end coupled with said fourth spacer, said second spring facilitating tensioned movement of said third and fourth spacers within said second cavity;

third and fourth longitudinally extending and transversely separated reinforcement guides, said guides communicating with said upper surface of said platform, said third guide connected to said third spacer and capable of retraction with respect to said fourth guide, said third and fourth guides forming a space therebetween capable of releasably receiving a second reinforcement splint; and

an alignment rim in communication with said platform at a distance from said first reinforcement guide.

5,799,715

LIFTABLE WINDOW COVERING WITH MULTIPLE LIFTING CORDS AND A SINGLE PULL CORD

Michael Julius Biro, 4014 NW 24th Ter., Boca Raton, Fla. 33431, and Walter Biro, 855 Nafa Dr., Boca Raton, Fla. 33487

Filed Dec. 3, 1997, Ser. No. 984,432

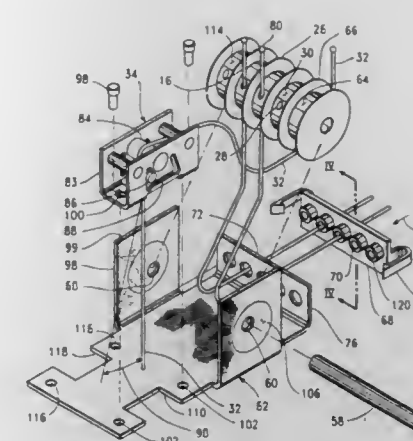
Int. Cl.⁶ E06B 9/30

U.S. Cl. 160—170 R

20 Claims

1. Apparatus comprising:

- a housing;
- a liftable window covering descending from said housing, with said housing extending across said liftable window covering;
- a spool rotatably mounted at an end of said housing;
- a plurality of lifting cords, with a proximal end of each of said lifting cords attached to said spool to wrap around a peripheral surface thereof, with each of said lifting cords extending within said housing, and with a distal end of each of said lifting cords descending from said housing in attachment with said liftable window covering for lifting said liftable window covering;
- guide means adjacent said spool for guiding said lifting cords into wrapping engagement with said spool; and
- a pull cord with a proximal end thereof attached to wrap around a peripheral surface of said spool and with a distal end descending from said housing, wherein said pull cord and said



lifting cords are arranged on said spool so that said lifting cords are wound onto said spool by rotation of said spool as said pull cord is unwound from said spool.

5,799,716

ELECTRIC-POWERED SHUTTER APPARATUS FOR A BUILDING OPENING

Kenji Yamaguchi; Tadashi Sasaki; Akira Koyano, and Kenji Hosoyama, all of Tokyo, Japan, assignors to Sanwa Shutter Corporation, Tokyo, Japan

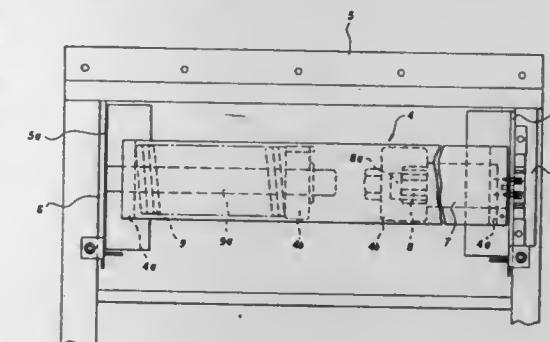
Filed Dec. 23, 1996, Ser. No. 780,009

Claims priority, application Japan, Dec. 28, 1995, 7-353065

Int. Cl.⁶ A47G 5/02

U.S. Cl. 160—310

1 Claim



1. An electric-powered shutter apparatus for mounting to a building, comprising:

- a shutter curtain which opens and closes an opening;
- a winding drum winding said shutter curtain;
- driving means for rotating said winding drum in forward and reverse directions to feed and close the shutter curtain; and
- a balance tension device which stores force in accordance with rotation of the winding drum in feeding of the shutter curtain from said winding drum;
- wherein said driving means comprises an electric motor which drives in forward and reverse directions according to driving commands from a control board, and a rotary clutch set to slip when a load of rotation in at least a direction of curtain feeding exceeds a certain feeding load,
- wherein said rotary clutch has a slip load at which said rotary clutch slips, said slip load is greater than a load for forcibly rotating said electric motor when disconnected from electric current, and
- said balance tension device has said storing force set to balance against a sum of the weight of the shutter curtain which has been fed and said load for forcibly rotating said electric motor disconnected from electric current.

5,799,717

COPPER ALLOY MOLD FOR CASTING ALUMINUM OR ALUMINUM ALLOY

Shoju Aoshima, Nagoya, and Naokuni Muramatsu, Handa, both of Japan, assignors to Techno Coat Company, Ltd., and NGK Insulators, Ltd., both of Japan

Filed Nov. 15, 1996, Ser. No. 751,100

Claims priority, application Japan, Nov. 17, 1995, 7-299717

Int. Cl.⁶ B28B 7/36

U.S. Cl. 164—271

9 Claims

1. A copper alloy mold for casting aluminum or aluminum alloy, said mold having a thermal conductivity of not less than 0.20 cal/s·cm·C., and including a mold cavity surface which is at least locally coated with a cermet layer comprising at least one element selected from the group consisting of Co, Cu, Cr and Ni.

5,799,718

DEVICE AND FRAME FOR PREHEATING A METAL CASTING CHANNEL

Jean-Louis Comarteau, Chalon-sur-Saone; Daniel Boudot, Saint-Remy; Christophe Liebaud, Mercurey, and Patrice Nykiel, Beaumont-sur-Croisne, all of France, assignors to SEVA, Chalon-sur-Saone, France

PCT No. PCT/FR95/00112, § 371 Date Aug. 7, 1996, § 102(e)

Date Aug. 7, 1996, PCT Pub. No. WO95/22240, PCT Pub.

Date Aug. 17, 1995

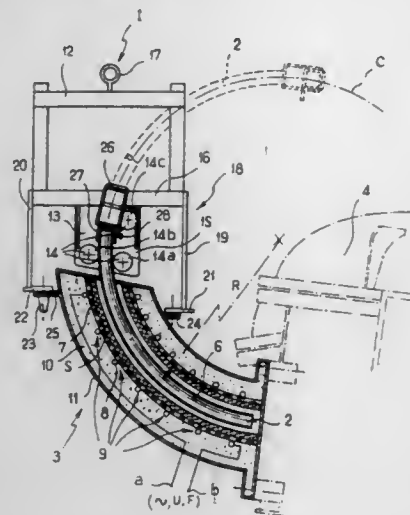
PCT Filed Feb. 1, 1995, Ser. No. 693,326

Claims priority, application France, Feb. 14, 1994, 94 01795

Int. Cl.⁶ B22D 17/06; 27/02

U.S. Cl. 164—306

9 Claims



1. A device for preheating an elongate metal-casting spout (3) comprising, over a length thereof, a hollow refractory member (5) having a closed transverse section and enclosed, in succession in a radially outward direction, by an insulating covering (7), an electrical induction coil (8), and refractory concrete (10) contained within an outer casing (11).

wherein said device for preheating comprises said induction coil, and an elongate element (2) insertable into and withdrawable from the hollow refractory member, said element being composed of a refractory, electrically conductive material subject to being heated by the induction coil to attendant radiate thermal energy uniformly over an inner surface of the spout a transverse section of said element being smaller than the transverse section of the hollow refractory member, and said element being axially centered within the hollow refractory member when inserted therein, and means for inserting said elongate element into the hollow refractory member and for withdrawing said elongate element therefrom.

5,799,719

CONTINUOUS CASTING MOLD

Franz Wimmer, Riedau, and Heinrich Thöne, Losenstein, both of Austria, assignors to Voest-Alpine Industrieanlagenbau GmbH, Linz, Austria

PCT No. PCT/AT96/00072, § 371 Date Apr. 4, 1997, § 102(e)

Date Apr. 4, 1997, PCT Pub. No. WO96/33034, PCT Pub.

Date Oct. 24, 1996

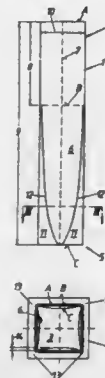
PCT Filed Apr. 15, 1996, Ser. No. 750,632

Claims priority, application Austria, Apr. 18, 1995, A 663/95

Int. Cl.⁶ B22D 11/04

U.S. Cl. 164—418

15 Claims



1. Continuous casting mold for casting a strand of polygonal cross section, comprising side walls delimiting a mold cavity of polygonal cross section, each of the side walls having a center region extending in a casting direction from an open top to an open bottom end of the casting mold and exhibiting a first taper and side regions laterally adjoining the center region and exhibiting a second taper that is less than the first taper, the improvement comprising the first taper of the center region being in excess of a third taper expected for strand shrinkage for a cross sectional dimension of the mold cavity and that the width of the side regions being designed to increase progressively in the casting direction to the bottom end of the continuous casting mold.

5,799,720

NOZZLE ASSEMBLY FOR CONTINUOUS CASTER

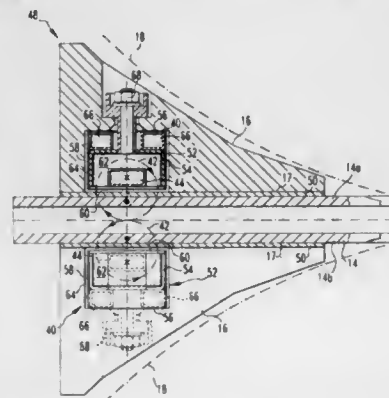
Nicholas V. Ross, Youngstown, Ohio, and C. Edward Eckert, Kensington, Pa., assignors to Ajax Magnethermic Corp., Warren, Ohio

Filed Aug. 27, 1996, Ser. No. 703,655

Int. Cl.⁶ B22D 11/10; 41/60

U.S. Cl. 164—471

32 Claims



1. An improved casting assembly for a continuous caster, the assembly designed for transferring molten metal from a molten metal reservoir to a mold for casting molten metal, the assembly comprising:

5,799,722

METHOD AND APPARATUS FOR CONTINUOUS METAL CASTING

Boris Buziashvili, 43-24 43rd St., Apt. 1B, Sunnyside, N.Y. 11104, and Zurab Buziashvili, 515 E. 86th St., New York, N.Y. 10028

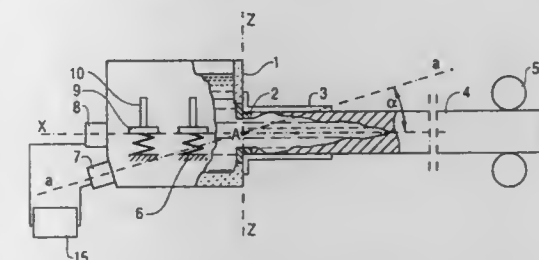
Continuation-in-part of Ser. No. 397,877, Mar. 2, 1995, abandoned. This application Jan. 16, 1996, Ser. No. 585,692

Int. Cl.⁶ B22D 11/04

U.S. Cl. 164—478

19 Claims

- (a) a casting nozzle having an electrically conductive top wall and bottom wall and two side walls joined to said top wall and said bottom wall to form a passage therebetween for flowing molten metal from said reservoir to said mold, said top wall having a first outside surface and said bottom wall having a second outside surface;
- (b) an inductive heater positioned on at least one of said first surface and said second surface, said inductive heater positioned to heat said top wall and bottom wall and having a magnetic shield partially surrounding said inductive heater, the shield positioned to direct magnetic flux into said nozzle; and
- (c) a layer of electrical insulation provided between said inductive heater and said first and second surface;
- (d) a support for supporting said top wall and said bottom wall, a layer of insulation provided between said support and said top wall and said bottom wall to minimize heating of said support and distortion of said top wall and said bottom wall, said support electrically insulated from said inductive heater, said magnetic shield positioned to substantially avoid magnetic flux entering said support.



1. An apparatus for continuous casting, said apparatus comprising an assembly for containing and shaping a material being cast, said material being fed in a feed direction along said assembly during casting, and means for simultaneously applying vibration to said assembly in both a direction at an acute angle to said feed direction and in a direction along said feed direction with the action of said vibration in both said directions combining to provide a resulting vibratory force greater than the vibratory force associated with the vibration in either one of said both directions to efficiently cause said assembly to work as a vibrofeeder for feeding a liquid material being cast.

17. A method for continuous casting, said method comprising providing an assembly for containing and shaping a material being cast such that said material can be fed in a feed direction along said assembly, feeding a material being cast along said assembly in said feed direction, and simultaneously applying vibration to said assembly in both a direction at an acute angle to said feed direction and in a direction along said feed direction with the action of said vibration in both said directions combining to provide a resulting vibratory force greater than the vibratory force associated with the vibration in either one of said both directions to efficiently cause said assembly to work as a vibrofeeder for feeding said material being cast.

5,799,721

METHOD OF REMELTING METALS TO FORM AN ELONGATE PORTION AND APPARATUS THEREFOR

Wolfgang Holzgruber, Westend, and Harald Holzgruber, Wüstenroter Strasse, both of Austria, assignors to Inteco Internationale Technische Beratung Ges.m.b.H., Bruck a.d. Mur, Austria

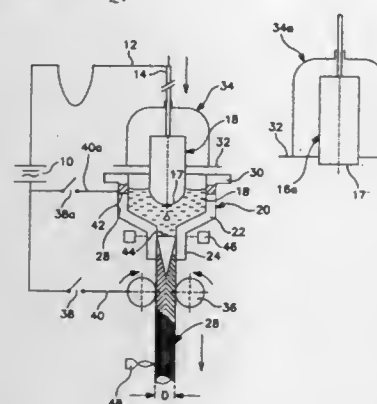
Filed Jan. 23, 1997, Ser. No. 787,687

Claims priority, application Austria, Jan. 29, 1996, A151/96

Int. Cl.⁶ C22B 9/18

U.S. Cl. 164—470

22 Claims



1. A method for remelting Ni and Co based alloys by using a remelting apparatus comprising a chill mold, an electrically conductive slag bath provided in the chill mold, at least one smelting-off electrode extending into the slag bath and an elongated casting portion emerging from the chill mold wherein the smelting-off rate of the electrode is adjustable, said method comprises the step of: adjusting the smelting-off rate X of the at least one electrode such that

$$X=(1.5 \text{ to } 30)D$$

wherein D is the diameter or equivalent diameter of the elongated casting portion in millimeters, wherein the ratio R of the cross-sectional area of the at least one electrode to the cross-sectional area of the casting portion is greater than 0.5.

5,799,723

CONTACT ELEMENT AND CEILING ELEMENT FOR A HEATING AND COOLING CEILING

Helmuth Sokolean, Uerikon, Switzerland, assignor to Barcol-Air AG, Stäfa, Switzerland

Filed Sep. 19, 1996, Ser. No. 710,555

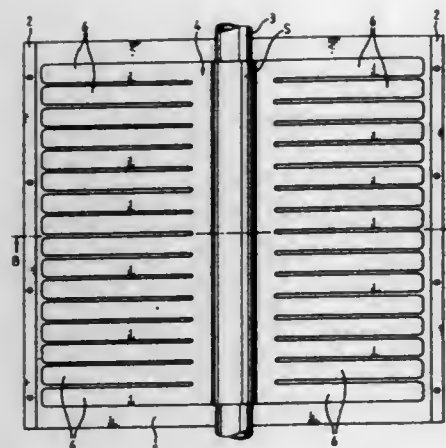
Claims priority, application Switzerland, Sep. 23, 1995, 02 684/95

Int. Cl.⁶ F24D 19/02

U.S. Cl. 165—49

19 Claims

1. A contact element for providing heat transfer from a heat transfer medium to a ceiling, said contact element comprising: a guide for holding, in heat-conducting contact, a conduit through which heat transfer medium flows; and a contact surface for making contact with a ceiling panel, at least part of said contact surface including a plurality of contact fingers for contacting the ceiling panel and moveable relative



to each other, said contact fingers comprising a deformable material and being arranged alongside one another in heat-conducting connection with the guide.

5,799,724

TRAPEZOIDAL DEFLECTORS FOR HEAT EXCHANGER TUBES

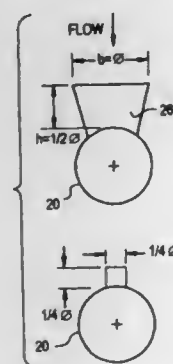
Lee Thomas Cassidy, Beloit, Ohio, and Jeffrey A. LaRose, Folsom, Calif., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Jul. 22, 1997, Ser. No. 898,607

Int. Cl.⁶ F28F 19/00

U.S. Cl. 165—134.1

6 Claims



1. A heat exchanger tube bank for removing heat from a flowing, particle-laden combustion gas produced in a fossil fuel-fired boiler, the tube bank having a plurality of heat exchange tubes arranged in a plurality of rows that extend across the path of the combustion gas, the tube bank being comprised of:

- a first row of heat exchange tubes with each tube in said row having a bar-like means for deflecting the combustion gas away from the tube, the deflecting means being rigidly attached to the outer surface of the tube and extending parallel to a central longitudinal axis of the tube and having a trapezoidal cross section, the longer of the parallel sides of which cross section is oriented squarely toward the path of the combustion gas; and
- a second row of heat exchange tubes, situated immediately downstream of the first row of tubes, with each tube in the second row having a bar-like means for reducing a draft loss, the draft loss reducing means being rigidly attached to the outer surface of the tube and extending parallel to a central longitudinal axis of the tube and having a square cross section oriented so that a first side of the cross section is tangent to the outer surface of the tube and a second side of the cross section, which is parallel to the first side, faces the first row of tubes.

5,799,725

HEAT EXCHANGER COIL ASSEMBLY

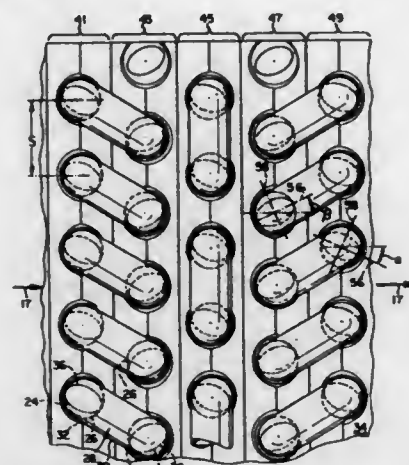
Wilson E. Bradley, Jr., Ellicott City; Richard P. Merrill, Columbia; George R. Shriver, Sykesville, and Robert S. Weinreich, Woodbine, all of Md., assignors to Evapco International, Inc., Wilmington, Del.

Continuation of Ser. No. 122,209, Sep. 17, 1993, Pat. No. 5,425,414. This application May 17, 1995, Ser. No. 442,861

Int. Cl.⁶ F28D 1/04; F28F 1/32

U.S. Cl. 165—150

12 Claims

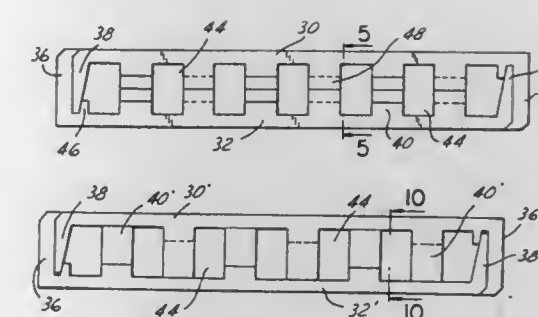


1. A coil assembly for use in a heat exchanger having air flowing in a predetermined direction, the coil assembly comprising:

- a plurality of linear tubes, each linear tube having a longitudinal axis, a central portion and two end portions, the central portion having a generally elliptical cross-section with major and minor axes, the minor axis being about 0.8 times the diameter of a tube having a circular cross-section with a circumference equal to the circumference of the central portion of the linear tube, and the two end portions each having a generally circular cross-section, each linear tube oriented to be generally parallel with respect to every other linear tube and to be generally transversely oriented with respect to a line in the direction of air flow, the air flowing across each linear tube, each linear tube also oriented such that the major axis of the elliptical cross-section resides at an oblique angle with respect to a line in the direction of air flow;
- the linear tubes being oriented in a plurality of rows, each row of linear tubes being oriented such that a plane intersects the longitudinal axes of the linear tubes in the row, the plane being generally perpendicular with respect to a line in the direction of air flow, the distance between the longitudinal axes of adjacent linear tubes in each row being about 2.25 times the diameter of a tube having a circular cross-section with a circumference equal to the circumference of the central portion of the linear tube, the plurality of rows comprising first and second alternating rows such that, when viewed along the longitudinal axes of the linear tubes, the major axis of the elliptical cross-section of each linear tube in the first alternating rows is oriented at a clockwise-rotated position, the clockwise position being at an oblique angle of about 25 degrees with respect to a line in the direction of air flow, and the major axis of the elliptical cross-section of each linear tube in the second alternating rows is oriented at a counter-clockwise-rotated position, the counter-clockwise position being at an oblique angle of about 25 degrees with respect to a line in the direction of air flow;
- the linear tubes, when viewed along their longitudinal axes, being oriented such that their longitudinal axes are in an equilateral triangular pattern with respect to at least two adjacent linear tubes, whereby end portions of a return tube are capable of interconnecting the end portions of any two adjacent linear tubes;
- a plurality of return tubes, each return tube having a body portion and two end portions, the body portion comprising a

bend of about 180 degrees and the two end portions each having a generally circular cross-section, each end portion engaging an end portion of a linear tube such that a plurality of linear tubes are interconnected with another to form at least one series of linear tubes, each series of linear tubes having first and second ends for respective connection to an inlet source of an internal heat exchange fluid and an outlet for the internal heat exchange fluid; and

- a plurality of fins adjacent one another, each fin comprising a generally planar sheet of a heat-conductive material, each fin oriented in a plane generally perpendicular with respect to the longitudinal axes of the linear tubes and generally parallel with respect to a line in the direction of air flow, the sheet having a plurality of holes, the central portion of a linear tube extending through a corresponding hole, each fin securely contacting each linear tube extending therethrough such that heat transfer therebetween is effectuated.



member a predetermined distance for receiving the second side edge of the opposing tube member therein.

5,799,726

REFRIGERATED MIXING CHAMBER AND METHOD FOR MAKING SAME

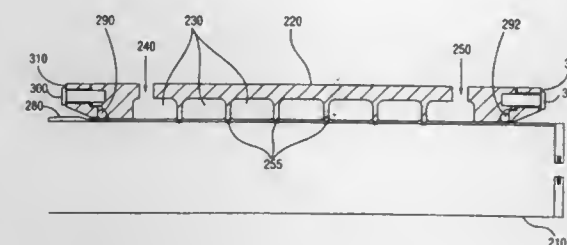
Jimmy I. Frank, 17 Woodsborough Circle, Houston, Tex. 77055

Filed Jan. 23, 1996, Ser. No. 590,117

Int. Cl.⁶ F28D 7/10

U.S. Cl. 165—156

10 Claims



1. A refrigerated chamber system, comprising:

- (a) a cylindrically-shaped seamless inner chamber having an advancing helically-shaped rib formed around its circumferential surface for strengthening said inner chamber, said inner chamber being adapted to contain a product to be cooled therein; and
- (b) a cylindrically-shaped outer sleeve axially disposed over the inner chamber, the outer sleeve having an advancing helical groove formed on its inner circumferential surface, the helical groove and the outer surface of the inner chamber forming a passageway through which a refrigerant passes which cools the product contained within the inner chamber.

5,799,727

REFRIGERANT TUBES FOR HEAT EXCHANGERS

Qun Liu, Grosse Ile, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed May 29, 1997, Ser. No. 865,452

Int. Cl.⁶ F28F 1/04; 3/14

U.S. Cl. 165—170

18 Claims

1. A refrigerant tube for a heat exchanger, comprising:

- an upper tube member and a lower tube member joined together in opposed, mirror relationship, each of the tube members including:
- a generally planar base;
- a pair of asymmetric, elongated side edges, a first side edge having a substantially constant cross-section and a second side edge having a tapering cross-section;
- a plurality of longitudinally extending, elongated walls projecting from the base of each tube member; and
- a detent wall in each of the tube members, the detent wall being spaced apart from the first side edge of one said tube

5,799,729

DEVICE FOR WORKING THE INSIDES OF PIPES, CONDUITS OR THE LIKE

Frederik Breckwoldt, Rheinstetten, and Markus Lämmerhirt, Karlsruhe, both of Germany, assignors to D.T.I.Dr. Trippe Ingenieurgesellschaft mbH, Karlsruhe, Germany
PCT No. PCT/DE96/00751, § 371 Date Feb. 28, 1997, § 102(e) Date Feb. 28, 1997, PCT Pub. No. WO96/35075, PCT Pub. Date Nov. 7, 1996

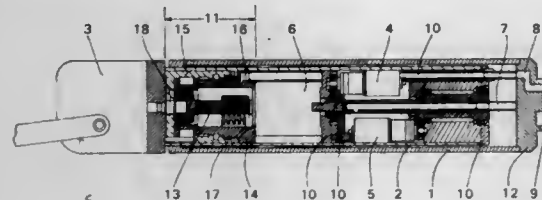
PCT Filed May 1, 1996, Ser. No. 765,721

Claims priority, application Germany, May 2, 1995, 195 15 927.6

Int. Cl.⁶ E21B 29/00; B23C 3/00

U.S. Cl. 166—55

18 Claims



1. A device for working the interior of pipes, conduits or the like, which can be moved along the pipe in the pipe interior, comprising

- a tube-shaped outer casing (1), which can be fixed at certain places in the pipe to be worked relative to its wall,
- a tube-shaped inner casing (2) accommodated in the outer casing (1), which is axially displaceable relative to the outer casing (1) and can thereby be moved in and out of the outer casing,
- a rotary head (3) carried by the inner casing (2) arranged on its end which can be moved out, and which can be rotated relative to the inner casing (2) about its longitudinal axis,
- a panel for attachment of a working apparatus carried by the rotary head (3),
- a drive for moving the panel in a direction radially to the pipe to be worked, which can be activated by means of a motor, operating between the panel on the one hand and the rotary head (3) on the other,
- at least one gearing arrangement (6, 7) each acted upon by one motor (4, 5) for executing a rotational movement of the rotary head (3) on one hand, and the out and in movement of the inner casing (2) on another hand,
- media-bearing ducts (8) for supplying the working apparatus, introduced into the outer casing (1) and continuing in the interior of the inner casing (2) and up to the region of the panel, and
- control and energy supply leads for the motors as well as for the working apparatus, wherein

- a) a first gearing arrangement (7) for implementing the out and in movement of the inner casing (2), the motor actuating said first gearing arrangement, a second gearing arrangement (6) for executing the rotational movement of the rotary head (3), as well as the motor (4) actuating said second gearing arrangement, form four preassemblable subassemblies separately from each other,
- b) at least one of said assemblies is carried respectively by a plate (10) adapted to the cross section of the inner casing (2), and
- c) said four subassemblies are accommodated in the inner casing (2), and therein the subassemblies carried by the plates (10) are braced radially against the casing wall by these plates (10).

5,799,730

WELLHEAD CASING HANGER ASSEMBLY

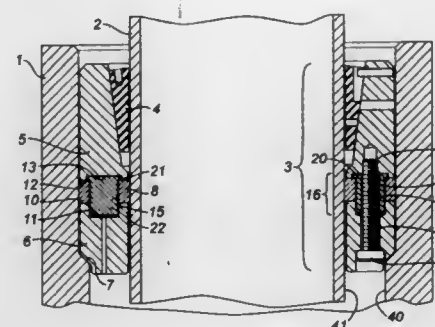
Tony M. Lam; Abram Khazanovich, both of Edmonton, and John Braben, St. Albert, all of Canada, assignors to Stream-Flo Industries Ltd., Canada

Filed Sep. 18, 1996, Ser. No. 727,872

Int. Cl.⁶ E21B 33/00

U.S. Cl. 166—75.14

4 Claims



1. In a casing hanger assembly mounted for use in a wellhead to suspend casing from an internal landing shoulder of a casing bowl, said assembly comprising a bottom ring for seating on the landing shoulder, an annular elastomeric seal element seated on the bottom ring, an annular slip housing seated on the seal element and slips, supported by the slip housing, for engaging and suspending the casing, said slip housing being operative to partly compress the seal element so that it expands radially and seals against the casing and casing bowl, the improvement comprising:

- said bottom ring having an annular top surface having a plurality of downwardly extending sockets spaced along its length;
- said slip housing having an annular bottom surface having a plurality of upwardly extending sockets positioned in opposed relation to the bottom ring sockets so that pairs of opposed sockets are provided;
- said seal element having a plurality of vertical holes corresponding with the socket pairs so that each hole and its associated pair of opposed sockets combine to form a socket chamber having side, bottom and top surfaces;
- a plurality of rigid pins, each disposed in free floating condition in a socket chamber and extending through the full extent of the seal element hole forming part of that chamber, each such pin having side clearance with the chamber side surface and end clearance at one end of the chamber;
- whereby the un-compressed seal element and pins may shift laterally to accommodate casing having oversize diameter, said pins being operative to contact the bottom ring and transfer casing load from the slip housing to the bottom ring when the seal element is partly compressed, thereby limiting seal element compression.

5,799,731

TUBING GUIDE WITH OPTIMIZED PROFILE AND OFFSET

Vladimir A. Avakov, Duncan, Okla., and William D. Taliaferro, DeSoto, Tex., assignors to Halliburton Company, Duncan, Okla.

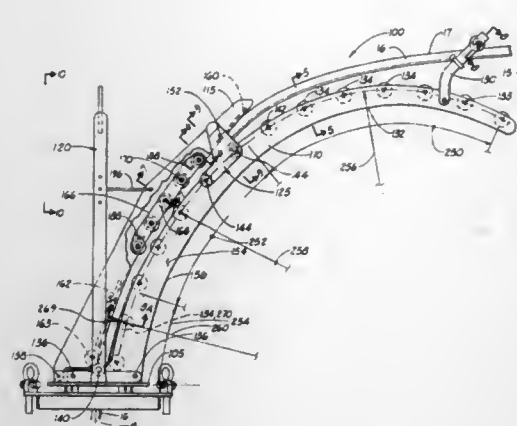
Filed Apr. 17, 1996, Ser. No. 632,788

Int. Cl.⁶ E21B 19/22

U.S. Cl. 166—77.2

21 Claims

1. A tubing guide for directing coiled tubing into a coiled tubing injector apparatus comprising:
a base positioned over said coiled tubing injector apparatus; and
a curvilinear primary carrier attached to and extending from said base capable of directing coiled tubing through said base and into said coiled tubing injector apparatus, said curvilinear



primary carrier being defined by a plurality of arcuate shaped portions, said portions being defined by more than one radius of curvature.

5,799,732

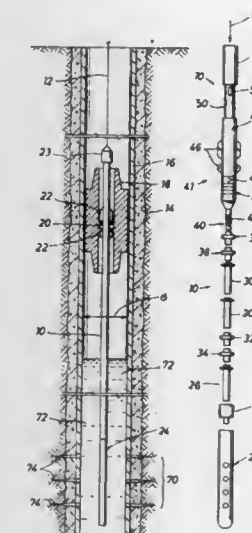
SMALL HOLE RETRIEVABLE PERFORATING SYSTEM FOR USE DURING EXTREME OVERBALANCED PERFORATING

Jose Antonio Gonzalez, and Joseph Matthew Marks, both of Laredo, Tex., assignors to Schlumberger Technology Corporation, Sugar Land, Tex.

Filed Jan. 31, 1996, Ser. No. 595,105

Int. Cl.⁶ E21B 43/263; 47/06

U.S. Cl. 166—250.07



1. A method of perforating a wellbore, comprising the steps of:
- (a) lowering a perforating apparatus into a small diameter wellbore, said small diameter wellbore having a diameter which is less than a diameter of a production tubing;
 - (b) measuring a characteristic which exists within said small diameter wellbore before the perforating step (c);
 - (c) perforating, by said perforating apparatus, a formation penetrated by said small diameter wellbore;
 - (d) measuring a characteristic which exists within said small diameter wellbore during and after the perforating step (c); and
 - (e) retrieving said perforating apparatus from said small diameter wellbore.
8. A perforating apparatus adapted to be lowered into a small diameter borehole, comprising:

5,799,733

EARLY EVALUATION SYSTEM WITH PUMP AND METHOD OF SERVICING A WELL

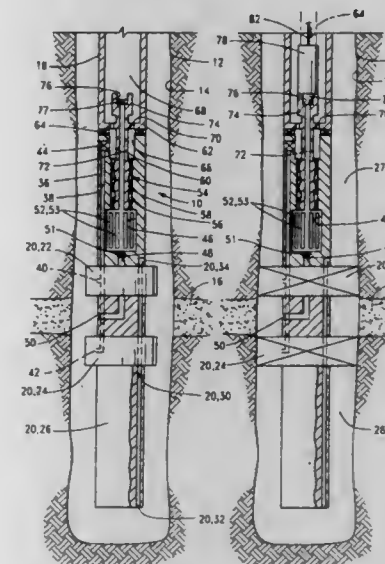
Paul David Ringgenberg, Carrollton; Neal Gregory Skinner, Lewisville; Curtis Edgar Wendler, Carrollton, all of Tex.; Roger Lynn Schultz, Stillwater, Okla.; Robert W. Srubar, Katy, and Margaret Cowser Waid, Houston, both of Tex., assignors to Halliburton Energy Services, Inc., Dallas, Tex.

Continuation of Ser. No. 578,489, Dec. 26, 1995. This application Sep. 30, 1997, Ser. No. 941,883

Int. Cl.⁶ E21B 49/08

U.S. Cl. 166—264

79 Claims



30. A method of servicing a well having an uncased borehole intersecting a subsurface zone or formation of interest, comprising:
- (a) running an evaluation tool into said well, said evaluation tool comprising:
 - an outer tubing string on which said evaluation tool is run into said well;
 - a housing adjacent to said outer tubing string and having a sampling tube therein;
 - a packer connected to said housing;
 - a communication passage communicating said sampling tube with said borehole below said packer; and
 - a formation pump in communication with said sampling tube;

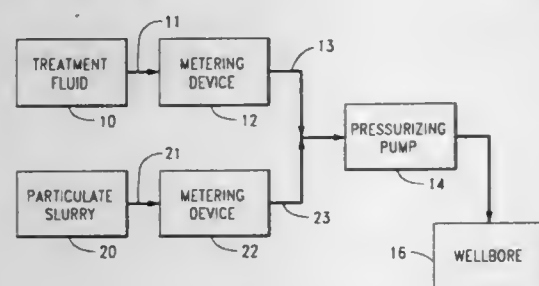
- (b) setting said packer in said borehole adjacent to said subsurface zone or formation; and
 (c) after step (b), actuating said pump so that fluid is flowed from said zone below said packer into said borehole and through said communication passage and said sampling tube.

5,799,734
METHOD OF FORMING AND USING PARTICULATE SLURRIES FOR WELL COMPLETION
 Lewis R. Norman, Duncan; Billy F. Slabaugh, Marlow; Michael A. McCabe, Duncan, and Ronnie G. Morgan, Waurika, all of Okla., assignors to Halliburton Energy Services, Inc., Duncan, Okla.

Filed Jul. 18, 1996, Ser. No. 683,481
 Int. Cl.⁶ E21B 43/04; 43/267

U.S. Cl. 166—278

11 Claims



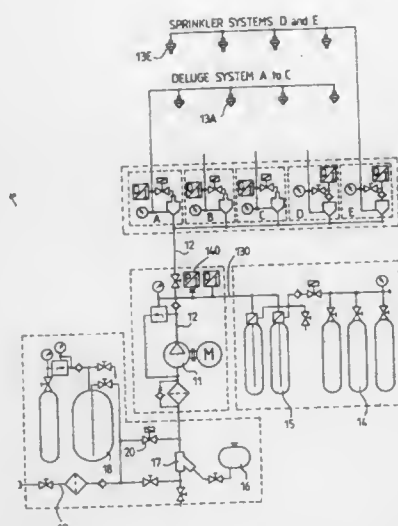
6. A method for treating a subterranean formation penetrated by a wellbore comprising:
 preparing a treatment fluid containing a gelling agent to viscosity the fluid;
 preparing a particulate slurry by admixing a particulate with a gelled aqueous fluid wherein said particulate is substantially non-settling in said gelled aqueous fluid and said particulate is present in an amount of at least about 23 pounds per gallon of fluid;
 pumping a stream of said treatment fluid at an elevated pressure and pumping a stream of said particulate slurry at an elevated pressure and admixing said streams whereby a particulate containing treatment fluid is formed; and
 introducing the particulate containing treatment fluid into a wellbore penetrating a subterranean formation.

5,799,735
FIRE FIGHTING SYSTEM FOR DISCHARGING A LIQUID-GAS FINELY DIVIDED MIST
 Göran Sundholm, Ilmari Kiannon kuja 3, Fin-04310 Tuusula, Finland
 PCT No. PCT/FI95/00216, § 371 Date Sep. 18, 1996, § 102(e) Date Sep. 18, 1996, PCT Pub. No. WO95/28205, PCT Pub. Date Oct. 26, 1995
 PCT Filed Apr. 13, 1995, Ser. No. 716,165
 Claims priority, application Finland, Apr. 14, 1994, 941738; Apr. 28, 1994, 941975
 Int. Cl.⁶ A62C 35/68

U.S. Cl. 169—9

14 Claims

1. A fire fighting system comprising:
 a liquid source (18) of a liquid;
 an outlet line (12) with spray heads (13A, 13E);
 a pump (11) connected to said liquid source for providing the liquid a high liquid pressure and a comparatively small flow;
 a gas source (14) of propellant gas connected by way of a line (130) to the outlet line (12) for mixing the propellant gas with the liquid of the pump into a flow of an extinguishing fluid delivered through the outlet line (12) to the spray heads (13A, 13E) for producing a finely divided liquid mist, an initial

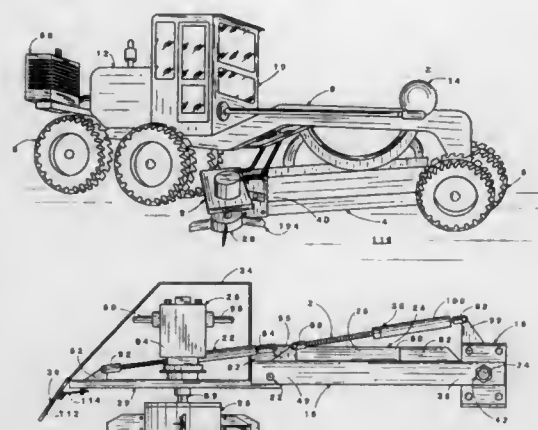


charge pressure of the gas source (14) being at least as high as the high liquid pressure provided by the pump (11); and
 at least one liquid tank (15) of the liquid between the gas source (14) and the outlet line (12), the liquid from the liquid tank being arranged to be driven out into the outlet line (12) by the propellant gas from the gas source, the initial charge pressure of the gas source and a volume of the liquid tank (15) being adapted to one another so that when the liquid tank (15) has been emptied of the liquid a pressure of the gas source (14) is at least substantially the same as the high liquid pressure of the pump (11).

5,799,736
DIRT DISTRIBUTION METHOD
 Curtis R. Waldron, Okeechobee, Fla., assignor to R&R Enterprises Inc., Okeechobee, Fla.
 Continuation-in-part of Ser. No. 320,528, Oct. 11, 1994, Pat. No. 5,695,013. This application Mar. 26, 1997, Ser. No. 824,131
 Int. Cl.⁶ A01B 49/02

U.S. Cl. 172—784

3 Claims



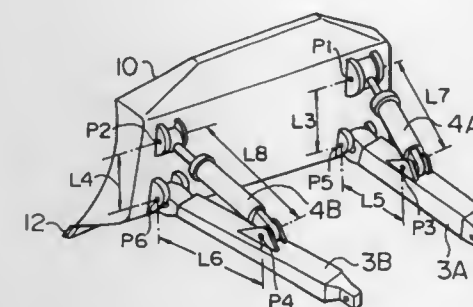
1. A method of removing an elongated mound of earth, defined by a longitudinal axis bordering the longitudinal edge of a road having an top surface above which said mound projects, without need to truck away quantities of accumulated removed earth, which comprises in combination the steps of:
 providing a bulldozer/grader machine comprising:
 an earth moving blade defined by a lengthwise bottom edge, a forward side edge, a rearward side edge and a front face upstanding from said bottom edge between said forward and rearward side edges and

having attached thereon by clamp means a dirt distribution device comprising:
 an elongated arm defined by a longitudinal axis, an inboard end section and an outboard end section, said arm being pivotally mounted by said inboard end section to said clamp means,
 a platform defined by an inboard end portion, an outboard end portion, a forward side and a rearward side,
 pivot means comprising a shaft defined by a forward segment and a rearward segment mounting said platform by said inboard end portion upon said outboard end section of said arm for pivotal movement of said platform about an axis normal to said longitudinal axis,
 prop means to brace said pivot means relative to said arm,
 motor means carried upon said platform,
 dirt sling means rotatably carried by said motor means,
 inboard adjustment means to vary the radial position of said arm relative to said clamp means, and
 outboard adjustment means to vary the radial position of said platform relative to said arm,
 positioning said earth moving blade diagonally across said longitudinal axis with said lower edge penetrating said mound to slightly above said top surface of said road,
 moving said blade forward along said longitudinal axis thereby to move portions of said mound immediately in front of said front face across said front face toward said rearward side edge as a continuous ribbon of said earth to thereby bring said ribbon of said earth into contact with said dirt sling means, and
 rotating said dirt sling means thereby to disintegrate said ribbon into small pieces of earth that are thrown away from said rearward side edge.

5,799,737
BLADE APPARATUS AND ITS CONTROL METHOD IN BULLDOZER
 Nobuhisa Kamikawa; Naomi Kobayashi, both of Hirakata; Noriaki Namiki, Kyoto, and Norihisa Matsumoto, Hirakata, all of Japan, assignors to Komatsu Ltd., Tokyo, Japan
 Division of Ser. No. 378,839, Jan. 26, 1995, Pat. No. 5,620,053. This application Dec. 31, 1996, Ser. No. 777,619
 Claims priority, application Japan, Jan. 28, 1994, 6-26136
 Int. Cl.⁶ E02F 3/76

U.S. Cl. 172—2

19 Claims



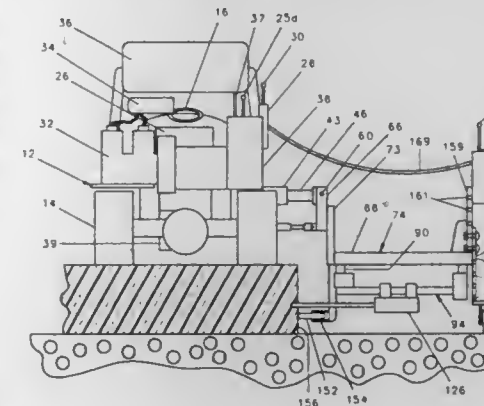
1. An apparatus comprising:
 a bulldozer body;
 first and second frame members, each of said first and second frame members having a first end and a distal end, with each said first end being pivotally attached to a respective opposite side of said bulldozer body;
 a blade pivotally attached to the distal ends of said frame members, said blade having opposite transverse ends;
 first and second hydraulic cylinders, each of said first and second hydraulic cylinders pivotally coupling between a respective transverse end of said blade and an intermediate portion of a respective one of said first and second frame members; and

a hydraulic drive system for said first and second hydraulic cylinders so that said first and second hydraulic cylinders can be extended or contracted by said hydraulic drive system so that said blade can be tilted in the right-hand or left-hand direction and inclined forwardly or rearwardly;
 wherein a thus coupled position of said first hydraulic cylinder to at least one of said blade and the frame member to which the first hydraulic cylinder is coupled and a thus coupled position of said second hydraulic cylinder to a corresponding at least one of said blade and the frame member to which the second hydraulic cylinder is coupled are in asymmetrical relation to each other.

5,799,738
DOWELING HOLE DRILLING MACHINE
 Paul Kromray, Jr., 870 Kromray Rd., Lemont, Ill. 60439
 Filed Aug. 9, 1995, Ser. No. 512,966
 Int. Cl.⁶ E21B 7/02

U.S. Cl. 173—184

13 Claims



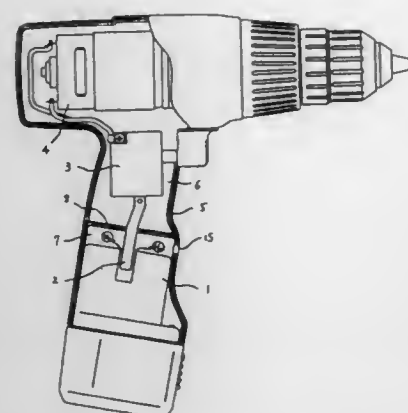
1. A doweling hole drilling machine comprising in combination:
 a vehicle having a longitudinal axis;
 a frame;
 drilling means mounted on said frame for drilling a hole the axis of which is substantially horizontal and perpendicular to said longitudinal axis of said vehicle;
 drive means on said frame for axially moving said drilling means relative to said frame; and
 adjusting means between said frame and said vehicle for moving said frame horizontally in a direction perpendicular to said longitudinal axis.

5,799,739
BATTERY-DRIVEN TOOL HAVING GAS DISCHARGING FUNCTION
 Kenichi Takaada, Hitachi; Hideki Kurosawa, Hitachinaka; Yoshiaki Adachi, Hitachinaka, and Hideki Watanabe, Hitachinaka, all of Japan, assignors to Hitachi Koki Co., Ltd., Japan
 Filed Oct. 25, 1996, Ser. No. 740,218
 Claims priority, application Japan, Nov. 2, 1995, 7-285655
 Int. Cl.⁶ B25F 5/00

U.S. Cl. 173—217

3 Claims

1. A battery-driven tool, comprising:
 a casing having a handle portion;
 a motor chamber arranged in said casing;
 a motor accommodated in said motor chamber and equipped with a fan;
 air windows provided in said casing adjacent said motor chamber for passing therethrough cooling air generated by rotation of said fan;

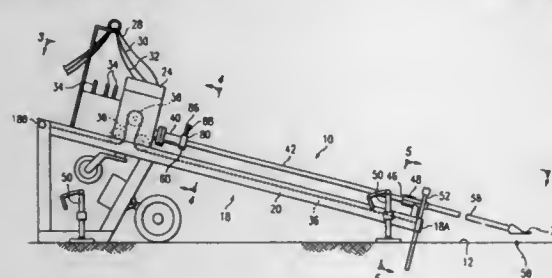


a battery chamber for removably accommodating a battery, said battery chamber comprising a portion of said handle portion; means for supplying electric power from said battery to said motor, said battery chamber and said motor chamber being separated from each other by a partition; and means for providing communication between a space in said battery chamber and a space in said motor chamber, said means for providing communication comprising in said partition a through hole for receiving a part of said means for supplying electric power and a plurality of vent holes so that a gas in said battery chamber can flow into said motor chamber.

5,799,740
DIRECTIONAL BORING HEAD WITH BLADE ASSEMBLY
Brent G. Stephenson, Stillwater; Arthur D. Deken, and Cody L. Sewell, both of Perry, all of Okla., assignors to The Charles Machine Works, Inc., Perry, Okla.
Continuation-in-part of Ser. No. 163,756, Dec. 9, 1993, Pat. No. 5,392,868, which is a continuation-in-part of Ser. No. 067,298, May 25, 1993, Pat. No. 5,341,887, which is a continuation-in-part of Ser. No. 857,167, Mar. 25, 1992, Pat. No. 5,242,026, which is a continuation-in-part of Ser. No. 780,055, Oct. 21, 1991, abandoned, which is a continuation-in-part of Ser. No. 211,889, Jun. 27, 1988, Pat. No. 4,953,638.
This application Feb. 27, 1995, Ser. No. 398,311
Int. Cl.⁶ E21B 10/00

U.S. Cl. 175—62

112 Claims

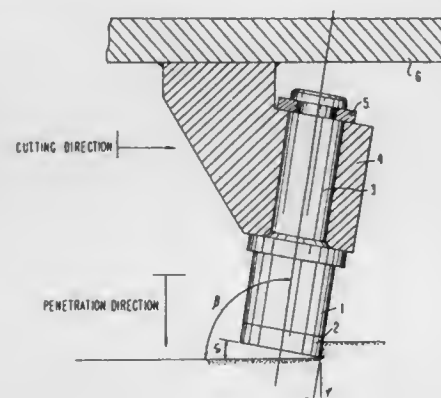


1. A directional boring machine comprising a drill string operatively connected to a rotary machine for rotating the drill string and including an assembly for axially advancing the drill string and wherein the free end of the drill string is adapted to support a bit for forming the borehole, the machine comprising:
a bit attached to the free end of the drill string, the bit comprising:
a body portion defining parallel surfaces extending parallel the axis of rotation of the bit, the body portion defining a rear end for attachment to the drill string and a front end facing the earth being bored; and
at least one angled surface formed on the body portion lying in a plane at an angle relative the axis of rotation of the bit defining a plurality of edges at the intersection of the

angled and parallel surfaces to assist cutting, the angled surface extending on the body from intermediate the rear and front ends to proximate the front end.

5,799,741
METHOD OF CUTTING AND A CUTTING ROTATIVE BIT
Yuriy Kosobrodov, Los Angeles, and Vincent Jue, Rilling Hills East, both of Calif., assignors to Champion Equipment Corp., Paramount, Calif.
Filed Feb. 26, 1996, Ser. No. 606,918
Int. Cl.⁶ E21B 10/16; E21C 35/18
U.S. Cl. 175—57

16 Claims



1. A cutting self-rotating and self-sharpening tool, comprising a rotatable cutting element; and means for holding said cutting element so that said cutting element has an attack angle exceeding 90°, and a skew angle at least 5°.

5,799,742
CORE DRILLING LATCH ASSEMBLY
Frederick J. Solnski, Grand Junction, and Donald Raymond, Loma, both of Colo., assignors to Northwest Machine Works, Inc., Grand Junction, Colo.
Filed Oct. 22, 1996, Ser. No. 734,977
Int. Cl.⁶ E21B 25/02

U.S. Cl. 175—236

22 Claims

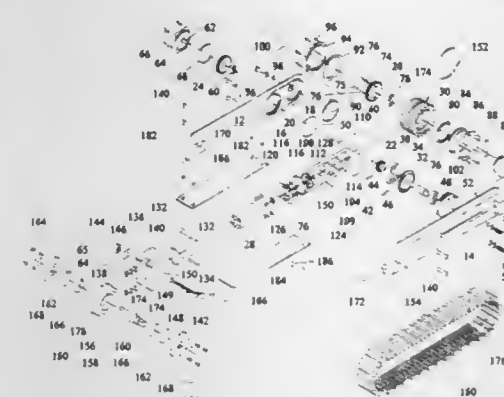


1. In a core barrel latch assembly for use in a down hole drill string, the assembly comprising:
a latch member:

means for engaging said latch member with the drill string;
means for providing an indication when said latch member engages the drill string and
means for providing an indication when the latch member is about to disengage from the drill string.

5,799,743
DRIVE SYSTEM
Allen Clifford Robinson, British Columbia, Canada, assignor to Inukturn Services Ltd., Cedar, Canada
Filed Jan. 24, 1997, Ser. No. 788,610
Int. Cl.⁶ B62D 55/00
U.S. Cl. 180—9.1

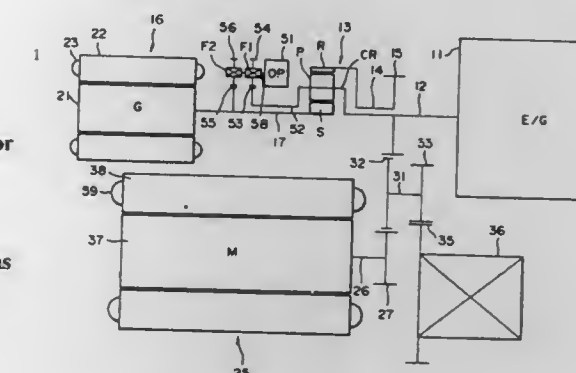
12 Claims



1. A sealed drive train system for driving a drive wheel comprising a first side plate, a second side plate opposite said first side plate, said hollow housing having a pair of opposed open ends, a first side sealing means sealing one of said opposed open ends of said housing, said first side plate having a first inside pocket, a second sealing means sealing the other opening of said housing to said first side plate around said first inside pocket a first shaft rotatably mounted in said housing with one axial end of said first shaft extending into said first inside pocket, said first shaft mounting a first driven gear and a first drive gear said first drive gear being positioned within said first inside pocket an outside pocket opening to the opposite side of said first side plate than said first inside pocket, a transfer gear, a transfer shaft substantially parallel to said first shaft, said transfer shaft mounting said transfer gear within said outside pocket for rotation about a longitudinal axis said transfer shaft, a cover plate, said cover plate sealing said outside pocket with said transfer gear therein, a second inside pocket on a side of said outside pocket remote from said first inside pocket, a second shaft extending between said first and second side plates, said second shaft being substantially parallel to said first shaft, bearing means mounting said drive wheel for rotation about a longitudinal axis of said second shaft, a second driven gear positioned within said second inside pocket, said second driven gear being fixed to and rotatable with said drive wheel, said first drive gear, said transfer gear and said second driven gear being positioned to mesh and form a portion of said drive train system for delivering power to said driven wheel, a seal means interposed between said first side panel and said drive wheel to form a sealed passage between said second inside pocket and the interior of said drive wheel and a closure seal on the side of said drive wheel adjacent to said second side plate.

5,799,744
HYBRID VEHICLE
Kozo Yamaguchi, and Yoshinori Miyaishi, both of Aichi-ken, Japan, assignors to Kabushikikaisha Equos Research, Japan
Filed Nov. 2, 1995, Ser. No. 556,071
Claims priority, application Japan, Jan. 30, 1995, 7-013092
Int. Cl.⁶ B60K 6/00
U.S. Cl. 180—65.2

7 Claims



1. A hybrid vehicle comprising:
(a) an internal combustion engine for output of engine rotation;
(b) an electric motor for output of motor rotation;
(c) a generator;
(d) an output shaft for transmitting the output engine rotation and the output motor rotation to drive wheels;
(e) a differential gear unit which is connected to said internal combustion engine, said electric motor, said generator and said output shaft;
(f) an oil pump; and
(g) rotation transmitting means for selectively transmitting to said oil pump the faster of the rotation transmitted from said internal combustion engine to said differential gear unit and the rotation transmitted from said differential gear unit to said generator.

5,799,745
DEVICE FOR STABILIZING VEHICLE ATTITUDE IN TERMINAL PORTION OF COUNTERSTEERING STATE BY REDUCING VEHICLE YAW MOMENT PRODUCED BY YAW MOMENT CONTROL MECHANISM
Katsumi Fukutani, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Jun. 7, 1996, Ser. No. 659,886
Claims priority, application Japan, Jun. 9, 1995, 7-142970
Int. Cl.⁶ B60K 26/00; B62D 6/00
U.S. Cl. 180—410

11 Claims

NORMAL STATE (MODE = 0)	COUNTERSTEERING STATE		NORMAL STATE (MODE = 0)
	FIRST PHASE (MODE = 1, -1)	SECOND PHASE (MODE = 2, -2)	
NORMAL TARGET FOLLOW-UP CONTROL MODE	COUNTERSTEERING CONTROL MODE	COUNTERSTEERING CONTROL MODE	NORMAL TARGET FOLLOW-UP CONTROL MODE
	— PROPORTIONING CONTROL	— PROPORTIONING CONTROL	
	— REAR STEERING ANGLE HOLDING CONTROL	— REAR STEERING ANGLE ZEROING CONTROL	
	— REAR STEERING ANGLE ZEROING CONTROL	— REAR STEERING ANGLE ZEROING CONTROL	
	— REAR WHEEL SLIP ANGLE ZEROING CONTROL	— REAR WHEEL SLIP ANGLE ZEROING CONTROL	

1. A vehicle attitude control device comprising a steering wheel angle sensor for detecting a rotation angle of a steering wheel which is operated by an operator of the vehicle to steer front

wheels of the vehicle, a yaw rate sensor for detecting an actual value of a yaw rate of the vehicle, a yaw moment control mechanism for giving a yaw moment to the vehicle and controlling said yaw moment, and a controller for controlling said yaw moment control mechanism in a normal target follow-up control mode so that the actual value of the yaw rate detected by said yaw rate sensor coincides with a target value of the yaw rate which is determined on the basis of the rotation angle of the steering wheel detected by said steering wheel angle sensor, wherein an improvement comprises yaw moment reducing means for reducing the yaw moment to be given to the vehicle by said yaw moment control mechanism, to a reduced value smaller than a normal value to which the yaw moment is controlled in said normal target follow-up control mode under the control of said controller, said yaw moment reducing means being operated in at least a second phase of a countersteering period following a first phase of said countersteering period, said countersteering period being initiated by countersteering manipulation of said steering wheel by said operator upon slipping of rear wheels of the vehicle during turning of the vehicle outwardly of a direction of said turning so as to countersteer the vehicle, said countersteering manipulation including a rotation of said steering wheel in said first phase so that said front wheels are oriented outwards with respect to said turning direction of the vehicle, and a rotation of said steering wheel toward a neutral position thereof in said second phase.

5,799,746

UNDERGROUND VEHICLE SAFETY CAB WITH SAFETY BAR

Antti Kortelainen; Esko Koskinen, both of Turku, and Jarkko Laine, Lieto, all of Finland, assignors to Tamrock Loaders Oy, Turku, Finland

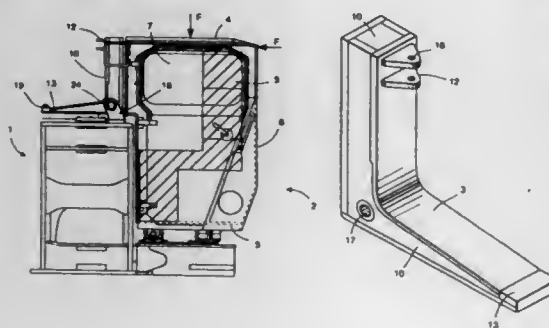
PCT No. PCT/FI94/00514, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/13939, PCT Pub. Date May 26, 1995

PCT Filed Nov. 16, 1994, Ser. No. 648,131

Claims priority, application Finland, Nov. 17, 1993, 935098
Int. Cl. B60R 21/13; B62D 33/06

U.S. Cl. 180—89.12

7 Claims



1. A safety cab for an underground mobile machine including a roof panel, a floor, side panels and at least one safety bar, said at least one safety bar comprising a substantially L-shaped girder located externally of the safety cab and having a vertical component secured at an upper end thereof to an upper portion of the safety cab substantially adjacent said roof panel and a first horizontal component secured at a free end thereof to said machine at a location between said roof panel and said floor, said at least one safety bar further secured to said machine at an interface between said vertical and horizontal components; said horizontal component extending transversely to a longitudinal axis of the machine, such that said at least one safety bar receives lateral and longitudinal forces acting on said safety cab.

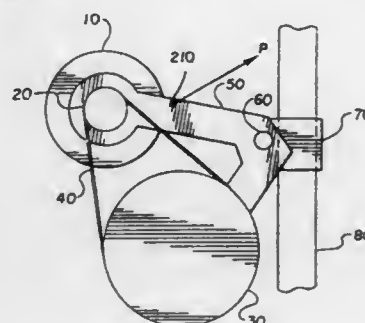
5,799,747
BICYCLE POWER ASSIST
Randall Bruce Olsen, 3025 Via de Caballo, Encinitas, Calif. 92024

Continuation of Ser. No. 679,936, Jul. 15, 1996, abandoned, which is a continuation of Ser. No. 349,909, Dec. 6, 1994, abandoned, which is a continuation of Ser. No. 29,705, Mar. 11, 1993, abandoned. This application Jan. 17, 1997, Ser. No. 785,703

Int. Cl. B62M 23/02

U.S. Cl. 180—221

7 Claims



1. A power assist system in combination with a vehicle having at least one rotatable, driven wheel mounted to a frame, said power assist system comprising:

a selectively activatable motor for providing rotary power; a drivewheel for transmitting the rotary power provided by said motor to the driven wheel of said vehicle; and support means pivotally mounted to the frame of said vehicle for supporting said motor and said drivewheel near to said driven wheel;

wherein reaction torque from said motor when activated causes said support means to pivot said drivewheel into engagement with said driven wheel and said motor is moved away from said driven wheel.

5,799,748

OPERATING STATE DETECTING SYSTEM OF FREE-WHEEL HUB MECHANISM FOR FOUR-WHEEL-DRIVE VEHICLES

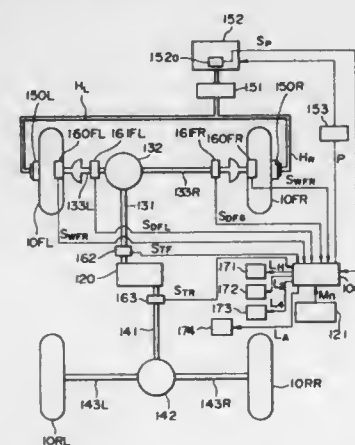
Tamotsu Origuchi, Fujisawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 15, 1996, Ser. No. 616,806

Claims priority, application Japan, Mar. 16, 1995, 7-057637
Int. Cl. B60K 17/34

U.S. Cl. 180—233

7 Claims



1. A system for detecting an operating state of an automobile free-wheel hub mechanism, which connects and disconnects an

axle driveshaft to and from a wheel hub by engaging and disengaging a first member fixed onto the axle driveshaft for rotation with the axle driveshaft with and from a second member slidably disposed in the wheel hub and rotatable with the wheel hub, said system comprising:

first sensor means for detecting a revolution speed of a road wheel having said wheel hub to generate a wheel-speed indicative signal;

second sensor means for detecting a revolution speed of said axle driveshaft to generate a driveshaft revolution-speed indicative signal; and

detection means for detecting presence of abnormality in said free-wheel hub mechanism on the basis of a deviation between a value of said wheel-speed indicative signal from said first sensor means and a value of said driveshaft revolution-speed indicative signal from said second sensor means.

5,799,749

ROTATION TRANSMISSION DEVICE FOR CONNECTING AND DISCONNECTING THE TRANSMISSION OF DRIVING FORCE

Ken Yamamoto, Iwata; Kenichiro Itoh, Shizuoka; Isao Hori, and Kohji Akiyoshi, both of Iwata, all of Japan, assignors to NTN Corporation, Osaka, Japan

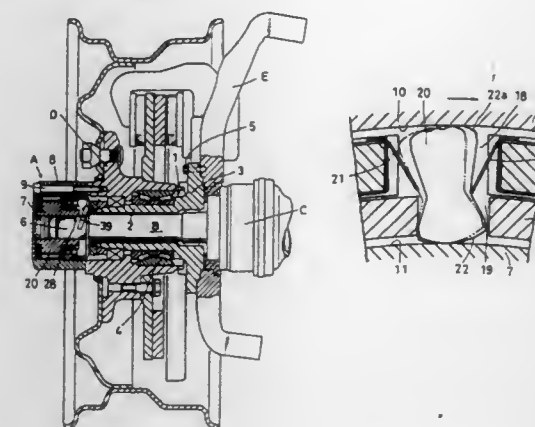
Filed Jun. 30, 1995, Ser. No. 497,402

Claims priority, application Japan, Jun. 30, 1994, 6-149431; Jul. 27, 1994, 6-175499; Nov. 29, 1994, 6-294530; Dec. 19, 1994, 6-314584; Dec. 29, 1994, 6-340200

Int. Cl. F16D 15/00; 41/08

U.S. Cl. 180—247

17 Claims



1. A rotation transmission device comprising a driving member and a driven member rotatably mounted one inside the other, a plurality of engaging elements mounted between said driving member and said driven member so as to engage with said driving member and said driven member when said driving member and said driven member rotate relative to each other in either direction, a cage mounted between said driving member and said driven member for keeping said engaging elements apart from one another by a predetermined distance, a turning force imparting mechanism coupled to said cage for moving said engaging elements to an engageable position by turning said cage in one direction relative to said driving member, and a locking mechanism provided between said cage and said driven member for detachably coupling said cage to said driven member and remote-controlled through a cable connected to said locking mechanism and extending out of said rotation transmission device; wherein said locking mechanism includes a coupling member non-rotatably coupled to one of said cage and said driven member and movable into and out of engagement with an engaging portion provided on the other of said cage and said driven member by operating said cable, said one of said cage and said driven member having a guide surface along which said coupling member is movably guided, said

5,799,750

PORTABLE SCAFFOLD

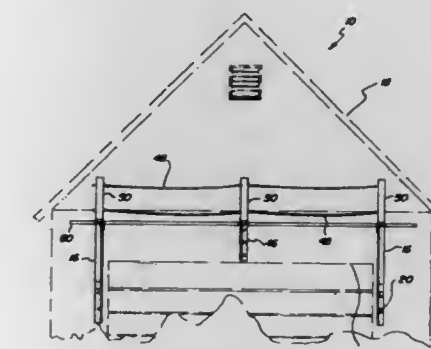
Guadalupe Garcia, 2457 W. Hatch Rd., Molsto, Calif. 95351

Filed Dec. 31, 1996, Ser. No. 775,155

Int. Cl. E04G 3/00

U.S. Cl. 182—82

1 Claim



1. A new and improved portable scaffold comprising, in combination:

a building with a vertical wall having a garage door opening situated at a lower extent thereof, the garage door opening having a top edge, a bottom edge, and a pair of side edges;

a pair of primary angle iron supports with a generally L-shaped configuration each comprising a first vertically oriented elongated side with a plurality of linearly aligned mounting holes formed therein for allowing removable coupling with a plurality of linearly aligned mounting pegs situated adjacent to the side edges of the garage door opening with each mounting hole having a circular aperture with an oval notch extending upward therefrom and each mounting peg comprising a nail with a first annular flange situated at an end thereof and a second annular flange situated adjacent to the first annular flange with a space situated therebetween for receiving the notch of the mounting hole; a second horizontally oriented side integrally coupled at an inboard end thereof to an upper end of the first side, the second side having a short rectangular post formed in an outboard end thereof and extending upwards therefrom; and a strut with an upper end connected to the second side and a lower end connected to the first side at a lower extent thereof with the strut forming a 45-degree angle with the first side in at least one orientation; wherein the second sides of the supports are situated at an equivalent height;

a secondary angle iron support with a structure similar to that of the primary supports, the secondary support having a first side with a length half of that of the first side of the primary supports, the first side of the secondary support adapted to be connected adjacent to the top edge of the garage door opening at a central extent thereof;

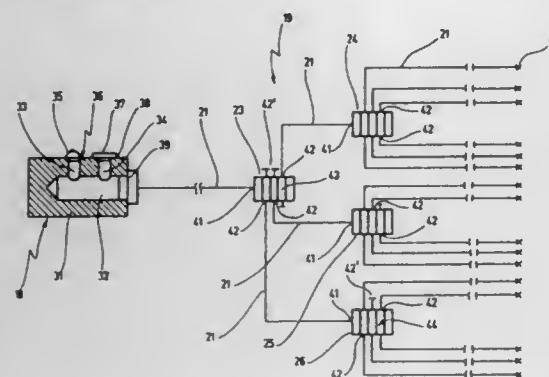
a pair of sway braces each pivotally coupled at a first end thereof to a central extent of the second horizontally oriented side of each primary angle iron support and further adapted to pivot in a horizontal plane, wherein second ends of the sway braces are adapted to be coupled to the wall in use in order to afford lateral stability, wherein the sway brace is mounted to the wall and forms a 45 degree angle therewith;

a plurality of retention cables;

a plurality of uprights each comprising of a hollow rectangular rod, each upright adapted to releasably receive one of the posts of the supports, each upright comprising a cable coupling means for removably coupling the retention cables

thereto at a fixed distance from the outboard end of the second side of the supports, wherein the retention cables extend between the uprights of the supports and the cable coupling means each includes a tubular member through which the cables may be inserted and a screw for fixing a position of the cables with respect to the associated upright; and a plurality of elongated planks adapted to be removably positioned lengthwise across the second side of each support for supporting weight thereon.

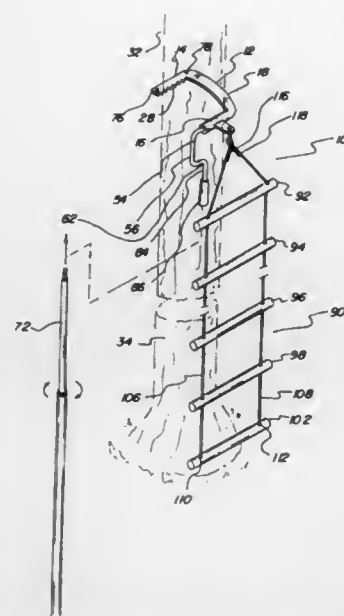
5,799,751
MACHINE TOOL WITH A PLURALITY OF LUBRICATION POINTS
Hans Henning Winkler, Tuttlingen, and Karl Deufel, Kolbingen, both of Germany, assignors to Chiron-Werke GmbH & Co. KG, Tuttlingen, Germany
Filed Feb. 21, 1997, Ser. No. 803,333
Claims priority, application Germany, Mar. 1, 1996, 196 87 783.4
Int. Cl.⁶ F16N 27/00
U.S. Cl. 184—6.14 9 Claims



1. A machine tool with a plurality of lubrication points to which lubricant must be delivered at specific maintenance intervals, wherein at least some of the lubrication points are connected, via a system of lubricant lines, to a central delivery station for lubricant, a filler block for manual lubrication is provided at the delivery station, one lubricant line proceeds from the filler block and then branches out to the lubrication points, and the filler block has one inlet for maintenance lubrication and one inlet for rapid filling of the system of lubricant lines.

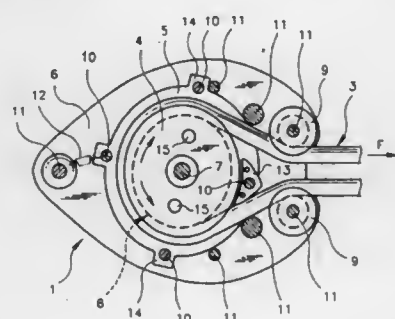
5,799,752
CLIMBING DEVICE
Ronald Perry, 8115 Atlantic St., Masury, Ohio 44438
Filed Sep. 11, 1995, Ser. No. 526,667
Int. Cl.⁶ F06C 1/36
U.S. Cl. 182—206 10 Claims

1. A new and improved Climbing device comprising, in combination:
a C-shaped clamp of rigid material having a cylindrical cavity exterior portion, a cylindrical interior portion and a convex portion therebetween, the exterior portion having a rigid member with angular projections contained therein for clutching an exterior surface of a tree trunk, the cylindrical interior portion having a front end and an exterior side, the cylindrical interior portion having projection extending from the exterior side, the projection having a support hole centrally positioned therethrough, the interior portion further having interposed within a rigid rod with a U-shaped upper portion having a first end positioned through the front end and a second end with a vertical extent, the vertical extent having a handle extending downwardly therefrom, the pole handle attachment engaging



the handle for allowing a user to position the clamp around the tree trunk at a height above the head of the user;
a vertical ladder formed of a multiplicity of rigid cylindrical horizontal support members and a pair of flexible rope members, means for securing said ladder to said clamp.

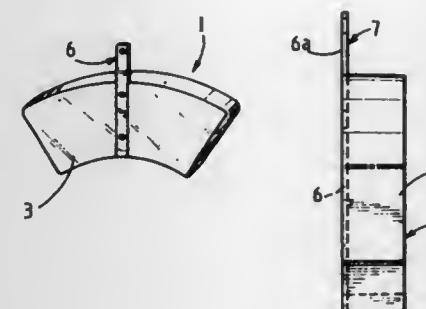
5,799,753
ANTI-FALL SECURITY APPARATUS
Marcel José Peltier, 1 allée Armande Béjart, 92190 Meudon, France
PCT No. PCT/FR95/00006, § 371 Date Jul. 3, 1996, § 102(e) Date Jul. 3, 1996, PCT Pub. No. WO95/18650, PCT Pub. Date Jul. 13, 1995
PCT Filed Jan. 4, 1995, Ser. No. 669,476
Claims priority, application France, Jan. 5, 1994, 94 00059
Int. Cl.⁶ A62B 1/10
U.S. Cl. 182—234 22 Claims



1. Anti-fall-down security apparatus comprising
a frame having at least one cover (6);
a fixed abutting device (11) fixedly attached to the cover (6);
a central axis (7) fixedly attached to an internal surface of the frame;
at least one movable wheel disc (5) having a movable abutting device (13) and pivotally supported by the central axis (7);
a ring-grooved pulley (4) for receiving a flexible rope (3) and rotatably supported by the central axis (7), wherein the flexible rope (3) runs between the fixed abutting device (11) and the movable abutting device (13), and wherein the movable wheel disc (5) has teeth (18a), and wherein the ring-grooved pulley (4) has at least two ratchets (16) pivotally attached to at least one recentered axis (15) being integrally attached to the

ring-grooved pulley (4), and wherein by exceeding a threshold value of rotation speed of the ring-grooved pulley (4) the ratchets (16) engage the teeth (18a) causing a rotation of the movable wheel disc (5) towards an active position and clamping the flexible rope (3) by the movable abutting device (13), and wherein the movable disc (5) stays in a rest position when the rotation speed of the ring-grooved pulley (4) is lower than the threshold value of the rotation speed of the pulley (4).

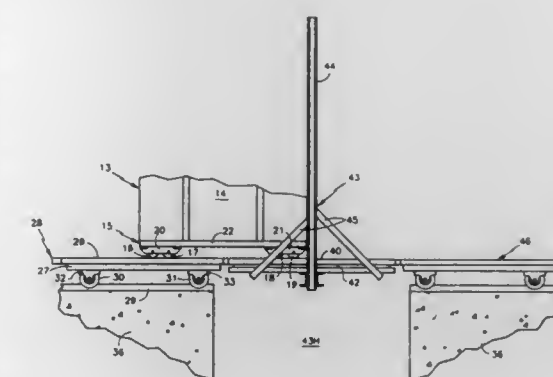
5,799,754
MARKING BRAKE LININGS
Jean M. Kazuro, Sarcelles, and Jean-Pierre N. Caron, Cuts, both of France, assignors to Ferodo Abex SA, France
PCT No. PCT/GB95/01831, § 371 Date Jan. 24, 1997, § 102(e) Date Jan. 24, 1997, PCT Pub. No. WO96/05445, PCT Pub. Date Feb. 22, 1996
PCT Filed Aug. 2, 1995, Ser. No. 776,249
Claims priority, application France, Aug. 8, 1994, 94 09800
Int. Cl.⁶ F16D 66/00
U.S. Cl. 188—1.11 W 4 Claims



1. A brake lining for a vehicle brake, adapted to cooperate with a rotary part of the brake wherein the lining includes a substantially planar friction face and an insert extending away from said friction face, said insert having an identification surface substantially parallel to said friction face, wherein said insert is not oxidizable and withstands temperatures greater than 200° C., said identification surface being externally visible when the lining is installed in the vehicle brake, said identification surface provided with indelible information identifying said lining.

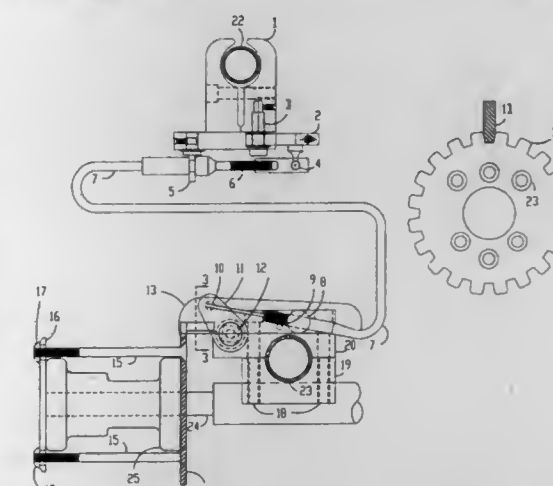
5,799,755
LINEAR MOTOR TRANSFER OF CAB HORIZONTALLY BETWEEN ELEVATOR AND BOGEY PLATFORMS
Samuel C. Wan, Simsbury, Conn.; Richard W. Calcasola, Longmeadow, Mass.; Jack M. Thompson, Mason, Ohio; Vlad Zaharia, Rocky Hill, Conn.; Anthony Cooney, Unionville, Conn.; Terry M. Robar, Farmington, Conn.; Richard J. Ericson, Southington, Conn.; Dave C. Jarvis, Manchester, Conn.; Richard R. Polacek, Simsbury, Conn., and Satish P. Patel, Newington, Conn., assignors to Otis Elevator Company, Farmington, Conn.
Filed Nov. 14, 1996, Ser. No. 749,295
Int. Cl.⁶ B66B 17/22
U.S. Cl. 187—403 4 Claims

1. An elevator system, comprising:
a vertically moveable elevator car frame disposed in a hoistway, said elevator car frame having a pair of parallel, spaced apart rails thereon, and an active primary of a linear motor disposed thereon;
a bogey having wheels disposed to roll horizontally on tracks, said bogey having a pair of parallel spaced apart rails disposed thereon so as to be mutually aligned with said rails of said car frame when said bogey is adjacent to said car frame, said bogey having an active primary of a linear motor dis-



posed thereon in coalignment with the active primary disposed on said elevator car frame;
a cab disposed on a wheeled carriage, the wheels of said carriage being spaced to ride on the rails of said car frame and the rails of said bogey and therebetween when said bogey is positioned with its rails adjacent to the rails of said car frame;
a passive linear motor secondary disposed on said carriage in coalignment with said primary on said car frame when said carriage is disposed on said car frame so as to form a linear motor therewith and in coalignment with said primary on said bogey when said carriage is on said bogey so as to form a linear motor therewith;
position transducer means for providing position signals indicative of the relative position of said carriage on said car frame when said carriage is on said car frame and for providing position signals indicative of the position of said carriage on said bogey when said carriage is on said bogey; and
motor control means responsive to said position signals to cause at least one of said linear motors to move said carriage.

5,799,756
SURELOCK WHEELCHAIR BRAKES
John Steven Roberts, 116 S. Fairview, Liberty, Mo. 64068, and Jack E. Roberts, Rte. 1, Box 28, Lewis, Kans. 67552-9541
Filed Mar. 31, 1997, Ser. No. 828,581
Int. Cl.⁶ B60T 1/00; B62M 1/14
U.S. Cl. 188—2 F 7 Claims



1. A brake system for a wheel of a wheelchair comprising:
a first mounting bracket adapted to be connected to a frame portion of a wheelchair,
a handle pivotally attached at a pivot point to the mounting bracket,
a cable having a first end connected to the handle and a second end connected to a pivot arm;
said pivot arm being pivotally attached to one end of a rod;

said rod attached to a second mounting bracket adapted to be connected to another frame portion of the wheelchair;
 a braking mechanism connected to a portion of the rod and biased into engagement with a brake element by a spring;
 said brake element adapted to be connected to a hub of the wheel chair,
 wherein:
 upon pivoting of the handle past a certain rotary position with respect to said pivot point, either in a forward or rearward direction by the wheelchair occupant, said spring forces said braking mechanism into either a positive braking engagement with said brake element, thereby locking the wheelchair against movement, or a released position in which the wheelchair is free to move.

5,799,757

BRAKE DEVICE

Osamu Akamatsu, Akashi; Yoshio Asano, Kobe, and Toshiyuki Matsuoka, Miki, all of Japan, assignors to NABCO Ltd., Kobe, Japan

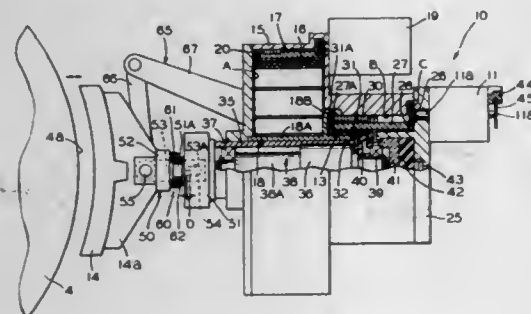
Filed Jan. 31, 1996, Ser. No. 594,517

Claims priority, application Japan, Feb. 27, 1995, 7-064857

Int. Cl.⁶ F16D 51/00

U.S. Cl. 188—76

20 Claims



1. A brake device for a railway vehicle, said brake device comprising:
 - (a) an energy production means for supplying a drive force;
 - (b) a force transmission means connected to receive said drive force of said energy production means for producing outputs by advancing and retreating;
 - (c) a clutch means disposed between said energy production means and said force transmission means for maintaining an advance and a retreat position of said force transmission means when said outputs are produced;
 - (d) a brake head in which a brake shoe which produces a braking force by being pressed against a wheel tread surface is mounted at a front end of said force transmission means;
 - (e) a guide means disposed between said force transmission means and said brake shoe for enabling said brake shoe to move in an advance and a retreat direction relative to said force transmission means; and
 - (f) a buffer means disposed in said guide structure for urging said force transmission means and said brake shoe in directions of separation and for enabling movement of said brake shoe in a withdrawal direction upon transmission of a reaction force exceeding a maximum output of said force transmission means.

5,799,758

DOUBLE-ACTING HYDRAULIC CYLINDER FOR USE IN AN EXERCISING APPARATUS

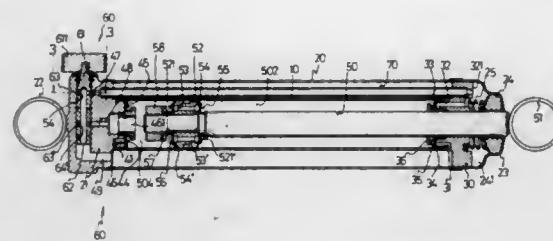
Chen-tan Huang, 3F, No. 7-2, Alley 10, Kungyuan Rd., Hsin-chuang City, Taipei Hsien, Taiwan

Filed Aug. 20, 1996, Ser. No. 697,188

Int. Cl.⁶ F16F 9/48

U.S. Cl. 188—285

14 Claims



1. A double-hydraulic cylinder for use in an exercising apparatus to provide a resistance to a user thereof, comprising:
 - a cylindrical body comprising an outer wall and an inner wall and defining a front end and a rear end;
 - a front cap hermetically mounted on the front end of the body;
 - a piston rod extending through the front cap and attached with a piston movable within the inner wall, said piston dividing a space within the inner wall into a front chamber and a rear chamber;
 - a communicating tube extending between the outer and inner walls and communicating with the front chamber;
 - a rear seat adapted to be fixedly connected with the exercise apparatus, said rear seat being hermetically mounted on the rear end of the body and defining a first bypass communicating a space defined between the outer and inner walls with the rear chamber;
 - a first blocking member provided in the rear chamber for normally closing the first bypass, said first blocking member opening the first bypass when the piston is forced to move toward the front end of the body;
 - a front seat mounted between the front cap and the body and defining a second bypass communicating the space between the outer and inner walls with the front chamber;
 - a second blocking member provided in the front chamber for normally closing the second bypass, said second blocking member opening the second bypass when the piston is forced to move toward the rear end of the body; and
 - a resistance adjusting means hermetically and rotatably mounted in the rear seat and defining a passage communicating with the communicating tube, the rear chamber and the space between the outer and inner walls to control a flow of hydraulic oil flowing from the front chamber to enter the rear chamber and the space between the outer and inner walls when the piston is forced to move toward the front end of the body and to control a flow of hydraulic oil flowing from the rear chamber to enter the front chamber and the space between the outer and inner walls when the piston is forced to move toward the rear end of the body, wherein the resistance adjusting means comprises a resistance adjusting rod rotatably extended into the rear seat and a head fixedly attached on the resistance adjusting rod, the passage communicating with the communicating tube, the rear chamber and the space between the outer and inner walls comprises a blind hole, a first recess and a second recess, wherein the blind hole is communicated with the space defined between the outer and inner walls, the first recess is defined in an outer periphery of the resistance adjusting rod, the first recess having a variable depth and communicating the communicating tube with the blind hole, the second recess is defined in the periphery of the rod, the second recess having a variable depth and communicating the rear chamber with the blind hole.

5,799,759

HYDRAULIC STRUT FOR A MOTOR VEHICLE

Klaus Koch, Dahlheim, Germany, assignor to Stabilus GmbH, Koblenz, Germany

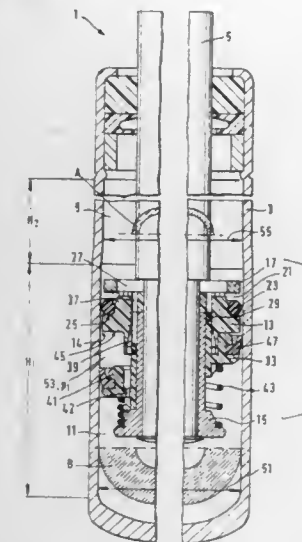
Filed Mar. 7, 1997, Ser. No. 813,688

Claims priority, application Germany, Mar. 8, 1996, 196 09 040.7

Int. Cl.⁶ F16F 9/32

U.S. Cl. 188—300

20 Claims



1. A strut for a motor vehicle for permitting moving and positioning and holding of one movable object with respect to another object, said strut comprising:
 - a cylinder having a longitudinal axis;
 - said cylinder comprising a first axial end and a second axial end;
 - means for connecting said cylinder to the one object;
 - a piston rod having a first end and a second end;
 - said first end of said piston rod being disposed within said cylinder;
 - said second end of said piston rod extending out of said first end of said cylinder;
 - means for connecting said second end of said piston rod to the another object;
 - a piston being disposed within said cylinder;
 - said piston being connected to said first end of said piston rod;
 - said piston being disposed to divide said cylinder into first and second chamber portions;
 - working fluid being disposed within said first and second chamber portions;
 - a flow passage extending between said first chamber portion and said second chamber portion;
 - said piston comprising a valve structure for opening and closing said flow passage between said first and second chamber portions;
 - said valve structure of said piston comprising a first valve portion and a second valve portion;
 - said first valve portion being disposed to be movable with respect to said second valve portion;
 - said second valve portion comprising a portion of said flow passage;
 - said portion of said flow passage being disposed within said second valve portion;
 - said first valve portion comprising a cylindrical portion configured to be disposed in said portion of said flow passage within said second valve portion to close said flow passage;
 - said cylindrical portion of said first valve portion being disposed to be movable in a first direction from said portion of said flow passage within said second valve portion to open said flow passage;
 - said cylindrical portion of said first valve portion being disposed to be movable in a second direction toward said portion of said flow passage within said second valve portion to close said flow passage;

said piston and said piston rod being disposed to be axially movable with respect to said cylinder to extend and retract said strut;
 said strut being extendable from a first position to a second position;
 said strut being further extendable from the second position to a third position;
 said strut comprising structure to permit said strut to selectively maintain a stationary position between the first position and the third position to hold an object and another object stationary with respect to one another;
 said cylinder comprising a first portion and a second portion;
 said piston being disposed within said first portion of said cylinder during an extension of said strut from the first position to the second position;
 said piston being disposed within said second portion of said cylinder during an extension of said strut from the second position to the third position;
 means for actuating said first valve portion to initiate movement of said cylindrical portion of said first valve portion in said first direction to open said flow passage;
 said means for actuating said first valve portion comprising a first surface upon said piston being disposed within said first portion of said cylinder;
 said first surface being disposed on said first valve portion;
 said first surface being disposed to transfer a force from said working fluid to said first valve portion;
 said first surface having a first cross section component;
 said first cross section component being disposed to accept a force substantially parallel to the longitudinal axis;
 said means for actuating said first valve portion comprising a second surface upon said piston being disposed within said second portion of said cylinder;
 said second surface being disposed substantially solely on said cylindrical portion of said first valve portion;
 said second surface being disposed to transfer a force from said working fluid to said first valve portion;
 said second surface having a second cross section component;
 said second cross section component being disposed to accept a force substantially parallel to the longitudinal axis;
 said first cross section component of said first surface is greater than said second cross section component of said second surface;
 said means for actuating said first valve portion being configured to hold said cylindrical portion of said first valve portion away from said portion of said flow passage in said second valve portion to keep said flow passage open until movement of said piston rod is stopped by an external force; and
 said means for actuating said first valve portion being configured to permit said cylindrical portion of said first valve portion to move towards said portion of said flow passage in said second valve portion to close said flow passage upon movement of said piston rod being stopped by an external force.

5,799,760

ENERGY ABSORBING DEVICE

Gregory E. Small, 164 Farmingdale Blvd., Winnipeg, Manitoba, Canada, R3P 2G5

PCT No. PCT/CA95/00251, § 371 Date Oct. 10, 1996, § 102(e) Date Oct. 10, 1996, PCT Pub. No. WO95/29738, PCT Pub. Date Nov. 9, 1995

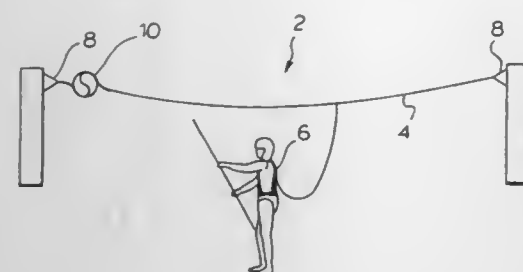
PCT Filed Apr. 27, 1995, Ser. No. 727,392

Claims priority, application Canada, Apr. 28, 1994, 2122437 Int. Cl.⁶ A62B 35/04; F16F 7/12

U.S. Cl. 188—371

26 Claims

1. An energy absorbing device deformable upon the application of kinetic energy in tension to the device, the device comprising:
 - an elongate member having two ends portions, each end portions carrying a respective attachment means for the application of tension forces, a longitudinal axis extending centrally of a cross-section along a length of the elongate member;



the elongate member formed into a convoluted configuration with the longitudinal axis lying in a common flat plane, the elongate member comprising a continuous element of ductile material extending the length of the elongate member; the device characterized in that in one side view the elongate member having a central portion of generally "S" shape with each end of the "S" shape merging into a respective clockwise curving portion which extends curving clockwise to overlie initially the other end of the "S" shape and subsequently the other clockwise curving portion; each clockwise curving portion terminating as a respective one of the two end portions of the elongate member.

5,799,761

LOCK-UP CLUTCH AND HYDROKINETIC DEVICE COMPRISING THE SAME

Rabah Arhab, Pierrefitte, France, assignor to Valeo, Paris, France

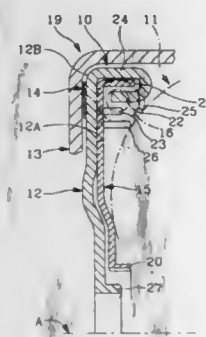
PCT No. PCT/FR95/01441, § 371 Date Jul. 8, 1996, § 102(e) Date Jul. 8, 1996, PCT Pub. No. WO96/14525, PCT Pub. Date May 17, 1996

PCT Filed Nov. 3, 1995, Ser. No. 669,458

Claims priority, application France, Nov. 8, 1994, 94 13363 Int. Cl.⁶ F16H 45/02

U.S. Cl. 192—3.29

9 Claims



1. A lock-up clutch comprising, firstly, a piston (12) which is mounted for axial movement with respect to an axially fixed driving wall (13), with friction means (14) between the piston (12) and the driving wall (13) for securing the piston (12) to the driving walls (13) for rotation therewith, and secondly, a driven wall (15) on a side of the piston (12) opposite from the driving wall (13), with resilient damping means (16) having a middle zone (23) being interposed circumferentially between the piston (12) and the driven wall (15), characterized in that the driven wall (15) extends at least radially in line with the resilient damping means (16) on the side of said resilient damping means (16) that faces axially towards the piston (12), being adjacent to the said piston (12), and in that the driven wall (15) is in contact with the piston (12) radially under the resilient means (16).

5,799,762 HYDROKINETIC TORQUE CONVERTER WITH BRIDGE COUPLING

Rüdiger Hinkel, Rötthlein, and Uwe Dehrmann, Würzburg, both of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

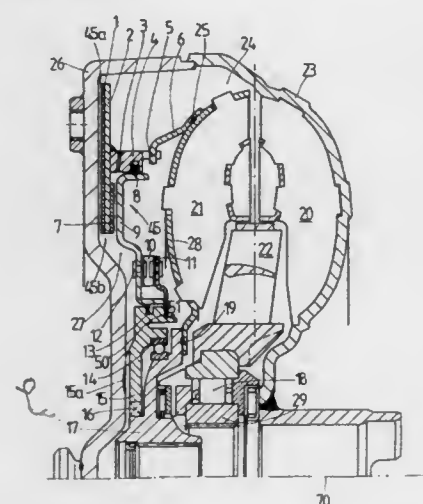
Filed Sep. 4, 1996, Ser. No. 708,404

Claims priority, application Germany, Oct. 4, 1995, 195 36 952.1

Int. Cl.⁶ F16H 45/02

U.S. Cl. 192—3.29

13 Claims



1. A hydrokinetic torque converter comprising: a housing (23, 26) for connection to an internal combustion engine and comprising a housing half (26) facing said engine; a turbine (21) rotatably disposed in said housing; a pressure medium activated bridge coupling (45) comprising a plurality of friction linings (1, 7, 31, 39, 40, 54, 57); means operable for independently and predeterminably establishing a releasable frictional connection between said housing and said turbine; and a piston (9) connected in turn-proof fashion to said housing half (26) and, a first one of said friction linings (1) being arranged for frictional interaction with said housing half (26) and said piston (9) being arranged for frictional interaction with a second one of said friction linings (7).

5,799,763

LOCK-UP CLUTCH OF A HYDRODYNAMIC TORQUE CONVERTER

Uwe Dehrmann, Würzburg, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Oct. 3, 1996, Ser. No. 725,361

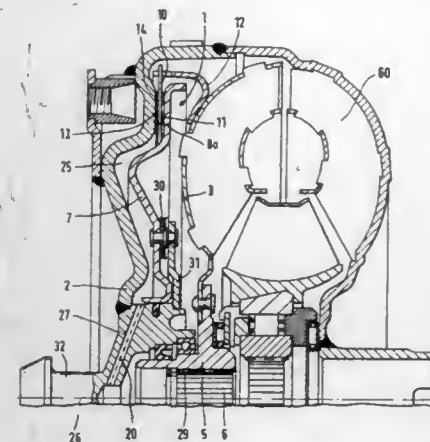
Claims priority, application Germany, Oct. 4, 1995, 195 36 954.8; Jun. 5, 1996, 196 22 593.0

Int. Cl.⁶ F16H 45/02; F16D 13/72; 25/635; 25/64

U.S. Cl. 192—3.29

24 Claims

22. A hydrodynamic torque converter having a lock-up clutch, said hydrodynamic torque converter comprising: a torque converter housing having an axis of rotation; said torque converter housing being configured to receive an input torque and to be rotatably driven about said axis of rotation; a first hydraulic chamber disposed within said torque converter housing and containing a hydraulic fluid; pump wheel disposed within said first hydraulic chamber and connected to said torque converter housing; a turbine wheel additionally disposed within said first hydraulic chamber and in opposition to said pump wheel; and a lock-up clutch for transferring at least some of said input torque from said torque converter housing to said turbine wheel, said lock-up clutch comprising:



a piston disposed within said torque converter housing and defining a second hydraulic chamber, said second hydraulic chamber being disposed between said piston and said torque converter housing; said hydraulic fluid additionally being disposed within said second hydraulic chamber; said piston being displaceable along said axis of rotation of said torque converter housing; said piston having a first side facing said first hydraulic chamber, and said piston having a second side facing said second hydraulic chamber; a clamping member disposed between said piston and said torque converter housing; an arrangement to displace said piston along said axis of rotation to thereby clamp said clamping member between said piston and said torque converter housing; said clamping member comprising: structure to frictionally engage with at least one of said piston and said torque converter housing; said frictional engagement structure comprising: a first friction lining; said first friction lining having a first elasticity; and a second friction lining; said second friction lining having a second elasticity; said first elasticity being substantially different than said second elasticity; at least one of said first friction lining and said second friction lining comprising at least one flow channel for providing a flow of said hydraulic fluid between said first chamber and said second chamber; and said at least one flow channel being elastically deformable as a function of the clamping pressure exerted on said clamping member by said piston and said torque converter housing to permit greater initial flow of said hydraulic fluid between said first chamber and said second chamber upon application of a first clamping pressure on said clamping member, and a lesser flow of said hydraulic fluid upon an increase in the clamping pressure on said clamping member.

5,799,764

CAGE HAVING A BEARING FOR USE IN A ONE-WAY CLUTCH

Kazuhiko Muramatsu, Fukuroi, and Yoshio Kinoshita, Shizuoka-ken, both of Japan, assignors to NSK-Warner Kabushiki Kaisha, Tokyo, Japan

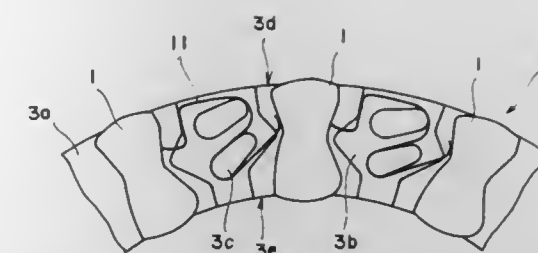
Filed Jul. 3, 1996, Ser. No. 675,023

Claims priority, application Japan, Jul. 5, 1995, 7-170022 Int. Cl.⁶ F16D 41/07

U.S. Cl. 192—41.5

8 Claims

1. A cage for use in a one-way clutch, said cage being generally in the shape of a ring and including an outer peripheral surface and an inner peripheral surface, said cage also including a plurality of



openings arranged in a circumferential direction as spaced apart from one another, each opening capable of receiving therein a corresponding sprag in a pivotally movable manner, wherein when said one-way clutch is mounted between an inner ring and an outer ring, at least part of at least said inner peripheral surface being defined as a slide contact surface against the inner ring;

wherein said cage is a combined cage including a male cage half and a female cage half which are combined together through a pair of spaced male-female fitting connection portions extending between two adjoining sprags; and a plurality of spring members, each spring member having distal ends in resilient contact with a side edge of each of two adjoining sprags and each spring member being in engagement with each of said pair of connection portions.

5,799,765

FLUID CLUTCH

Yuichi Ono, Numazu; Mitsunori Hatori, Tagata-gun, and Hiroshi Inoue, Fuji, all of Japan, assignors to Usui Kokusai Sangyo Kaisha Limited, Japan

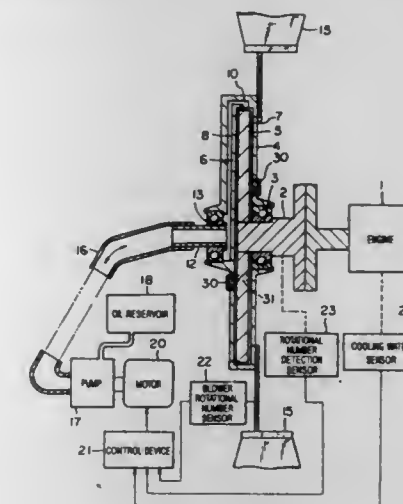
Division of Ser. No. 7,486, Jan. 22, 1993, abandoned, which is a division of Ser. No. 750,480, Aug. 27, 1991, abandoned. This application Mar. 7, 1994, Ser. No. 207,116

Claims priority, application Japan, Aug. 30, 1990, 2-229185; Nov. 6, 1990, 2-300158; Nov. 19, 1990, 2-313081

Int. Cl.⁶ F16D 35/00

U.S. Cl. 192—58.62

5 Claims



1. A fluid clutch comprising a driving section, a rotation shaft rotatably driven by said driving section, a driving disc rigidly mounted to and rotationally driven by said rotational shaft, a casing in which said driving disc is incorporated and which is rotationally disposed around said rotational shaft as a center of rotation, such that a torque transmission gap is defined between said driving disc and the casing, and an oil filled in the torque transmission gap defined between said driving disc and the casing for transmitting a driving torque from said driving disc to said casing, wherein

a non-rotatable oil supply pipe communicates from a location external of the casing into the casing and wherein an oil supply means is non-rotatably mounted to the portion of the oil supply pipe external of the casing for selectively supplying and returning said oil between the outside and the inside of said casing and for selectively increasing and decreasing the driving torque transmitted from the driving disc to the casing, said casing further including at least one breather extending through said casing between the torque transmission gap and atmospheric air for releasing gas from said torque transmission chamber when pressure in said torque transmission chamber exceeds a predetermined upper limit value and for enabling inflow of atmospheric air to said torque transmission chamber when pressure in the torque transmission chamber is less than a predetermined lower limit value.

5,799,766
ARRANGEMENT FOR THE ATTACHMENT OF A FLYWHEEL TO A CRANKSHAFT

Achim Link, Schweinfurt; Heiko Schulz-Andres, Reinfeld; Reinhold Weidinger, Unterspiesheim; Klaus Gorzitzke, Gochsheim; Günther Esly, Wasserlosen; Andreas Krause, Mainberg; Thomas Stretz, Gochsheim; Markus Wirbel, Bergheinfeld, and Reinhard Deppert, Gochsheim, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

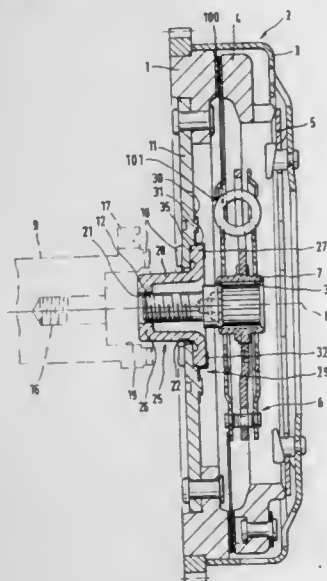
Filed May 22, 1996, Ser. No. 651,575

Claims priority, application Germany, May 22, 1995, 195 18 678.8

Int. Cl.⁶ B60K 17/02; F16F 15/315; F16D 13/58

U.S. Cl. 192—70.16

19 Claims



5. A friction clutch, for use in connection with an internal combustion engine, said friction clutch comprising:
a flywheel;
a clutch housing;
a hub;
said hub defining an axis of rotation and an axial direction parallel to the axis of rotation;
a clutch disc disposed within said clutch housing, said clutch disc coaxially surrounding said hub;
a pressure plate disposed within said clutch housing and movable in the axial direction, said pressure plate for applying an axial force to said clutch disc along the axial direction;
said flywheel being disposed substantially adjacent said clutch disc;
said clutch disc comprising at least one friction lining;
said at least one friction lining being disposed substantially between said pressure plate and said flywheel;

means for meshing said friction clutch with a crankshaft;
said means for meshing comprising:
a ring shaped surface disposed on said friction clutch, said ring shaped surface being disposed about said axis of rotation;
said ring shaped surface comprising raised and recessed portions to be disposed toward and to enmesh with a crankshaft; and
said raised and recessed portions projecting substantially axially from said ring shaped surface;
a connecting structure to connect said friction clutch to a crankshaft;
said connecting structure comprising a screw element;
said screw element being disposed to fasten said friction clutch to the crankshaft;
said connecting structure comprising a springy portion;
said springy portion being disposed to be biased by said screw element; and
said springy portion being disposed to provide an axial bias on said means for meshing and to bias said clutch toward the crankshaft.

5,799,767
CLEANING APPARATUS AND METHOD FOR A COIN COUNTER AND VOUCHER DISPENSER

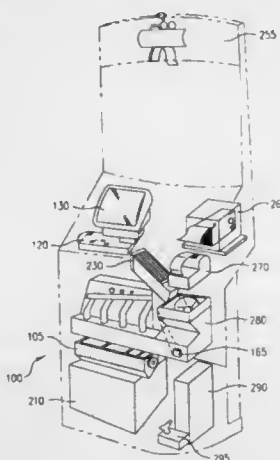
Jens H. Molbak, Bellevue, Wash., assignor to Coinstar, Inc., Bellevue, Wash.

Continuation of Ser. No. 237,486, May 3, 1994, Pat. No. 5,620,079, which is a continuation-in-part of Ser. No. 940,931, Sep. 4, 1992, abandoned. This application Apr. 7, 1997, Ser. No. 834,952

Int. Cl.⁶ G07D 3/16

U.S. Cl. 194—217

48 Claims



19. A method for untrained users to obtain a voucher for coins comprising the steps of:
providing a kiosk having first means for discriminating among coin denominations;
receiving, from said untrained user, in a first receiving location of said kiosk, a plurality of coins of arbitrary denomination;
performing a first step of cleaning said plurality of coins while said coins are in a first cleaning location;
moving at least some of said coins from said first cleaning location to a second location in said kiosk;
performing a second step of cleaning said coins, different from said first step of cleaning, while said coins are in said second location;
discriminating, in said kiosk, said denominations of coins, using said first means;
determining a total amount of said coins; and
outputting, from said kiosk, a voucher redeemable in cash or merchandise for a value related to said total amount.

5,799,768

COIN IDENTIFICATION APPARATUS

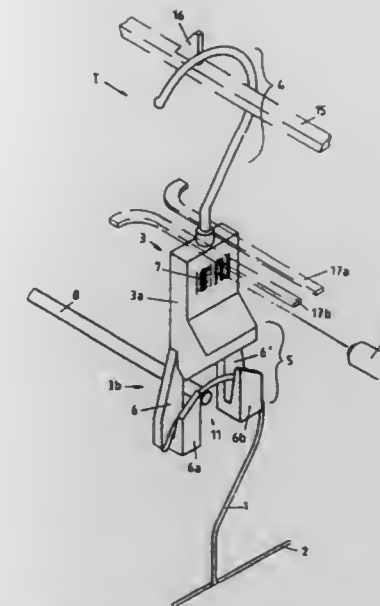
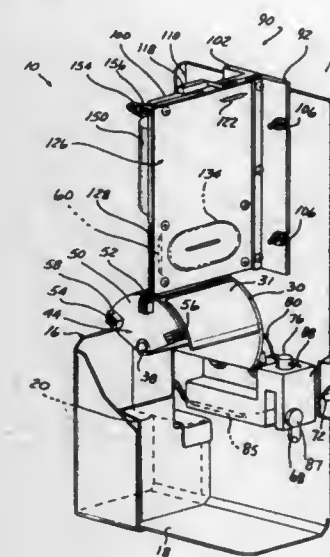
Donald R. Bernier, Rochester; Stephen G. Fraser, Troy, and Richard O. Juengel, Romeo, all of Mich., assignors to Compunetics, Inc., Troy, Mich.

Filed Jul. 17, 1996, Ser. No. 682,118

Int. Cl.⁶ G07D 5/08

U.S. Cl. 194—318

12 Claims



a receiving region connected with the head region, the receiving region being located below the head region and having at least two sections spaced apart, at least one section with a U-shaped cross section formed by an upward-extending arm for receiving the hanger hook.

9. A coin identification apparatus comprising:

a coin receiver having a coin passage with a coin entrance and coin discharge outlet;

means for detecting valid coins from invalid coins inserted into the coin entrance and passing through the coin passage in the coin receiver;

a coin receptacle disposed at the discharge outlet of the coin passage for receiving coins from the coin passage;

means for selectively moving the coin receptacle between a plurality of positions including a coin return position, a coin receiving position, and a coin storage position; and

means for detecting the coin receptacle in each distinct one of the plurality of positions.

5,799,769

CODABLE ADAPTER FOR USE WITH A HANGING CONVEYOR SYSTEM

Werner Heer, Oerlinghausen; Rainer Brannahl, Bielefeld; Thomas Zahn, Bielefeld, and Paul Janzen, Bielefeld, all of Germany, assignors to Dürkopp Adler AG, Bielefeld, Germany

Filed Jan. 11, 1996, Ser. No. 584,620

Claims priority, application Germany, Jan. 11, 1995, 195 00 612.7

Int. Cl.⁶ B65G 37/00

U.S. Cl. 198—349

33 Claims

1. An adapter for use with a hanging conveyor system in which articles hanging on hangers are transported by means of a conveyor along a transport path, the adapter being adapted, to be inserted loosely between each article hanger provided with a hanger hook and the conveyor, the adapter comprising:
a hook-shaped head region; and

5,799,770
METHOD FOR THE TRANSFER OF SEPARATED GOODS AND TRANSFER DEVICE

Klaus Radewagen, Wendlingen, Germany, assignor to LTG Lufttechnische Gesellschaft mit beschränkter, Stuttgart, Germany

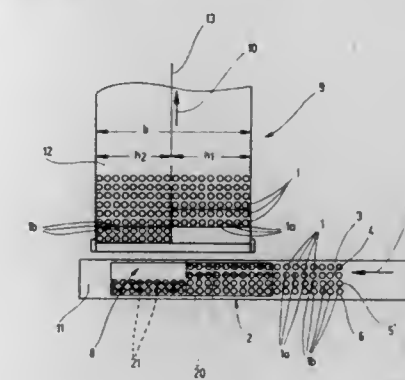
Filed Aug. 12, 1996, Ser. No. 695,392

Claims priority, application Germany, Jun. 14, 1996, 196 23 872.2

Int. Cl.⁶ B65G 47/26

U.S. Cl. 198—432

12 Claims

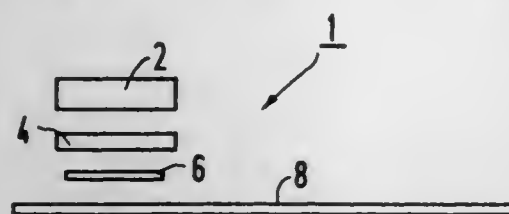


1. A cyclical method for transferring goods; said goods comprising a plurality of categories; said categories aligned in a plurality of rows, which comprises:
conveying said rows of said goods in a first direction;
picking up a subset of said goods from a first location; said subset comprising a group of said goods from each of said categories; each of said groups having no overlap between the other of said groups when viewed transversely to said first direction;
moving said subset of said goods to a second location along a closed motion path;
conveying said subset of said goods from said second location in a second direction;

whereby row-wise separation of said categories of said goods is preserved.

5,799,771
CONTACT WITH A SILVER CONTACT BASE AND PROCESS FOR MAKING THE SAME
Manfred Schnelder, Lichtenfels, and Dietmar Clauss, Altenkumbach, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Division of Ser. No. 254,128, Jun. 6, 1994, Pat. No. 5,598,629.
This application Nov. 12, 1996, Ser. No. 745,502
Claims priority, application Germany, Dec. 4, 1991, 41 39 998.6

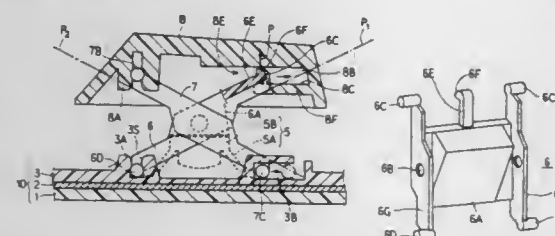
Int. Cl.⁶ H01H 1/02
U.S. Cl. 200—268 6 Claims



1. A contact, comprising:
a silver contact base having an exposed top surface;
an intermediate silver layer; and
a solder in the form of a platelet being provisionally fastened to said intermediate silver layer prior to an actual soldering operation;
said silver contact base being soldered onto a contact carrier by said intermediate silver layer and said solder platelet.

5,799,772
PANTOGRAPH TYPE KEYBOARD SWITCH
Yutaka Sanda, Kitagunma-gun; Seiki Katakami, Isesaki, and Seigo Hasunuma, Nitta-gun, all of Japan, assignors to Hosiden Corporation, Osaka, Japan
Division of Ser. No. 696,227, Aug. 13, 1996. This application Jun. 9, 1997, Ser. No. 871,776
Claims priority, application Japan, Aug. 17, 1995, 7-209683; Aug. 18, 1995, 7-210515; Aug. 21, 1995, 7-212168; Aug. 28, 1995, 7-219073; Dec. 13, 1995, 7-324765; Dec. 13, 1995, 7-324766

Int. Cl.⁶ H01H 3/12
U.S. Cl. 200—344 16 Claims

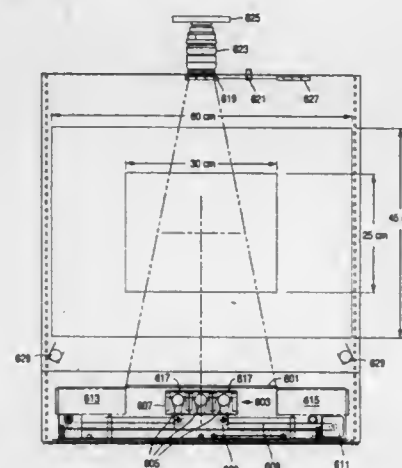


1. A keyboard switch comprising:
a board section having switches formed in a one-to-one correspondence with keys;
an elastically deformable dome-like member disposed on a top of said board section opposite one of said switches, for turning on and off said one switch;
a pair of first pivot bearing sections and a pair of first slide grooves formed on said top of said board section around said dome-like member;

a keytop disposed above said dome-like member and having a back surface and a pair of second pivot bearing sections and a pair of second slide grooves formed in said back surface, said second slide grooves being open at one end;
first and second linkage members provided between said keytop and said board section in a one-to-one correspondence with said switches, said linkage members having lower ends received in said first pivot bearing sections and said first slide grooves and having upper ends received in said second slide grooves and said second pivot bearing sections, respectively, said first and second linkage members being pivotally joined at intermediate portions thereof to form a pantograph;
a press means disposed in contact with a flat top surface of said dome-like member substantially at a middle in a direction of elongation of one of said first and second linkage members, for press-deforming and releasing said dome-like member in response to the actuation and release of said keytop; and
a plate-like spring member formed integrally with said first linkage member for elastically pressing into sliding contact with said back surface of said keytop to produce an elastic reaction force between said keytop and said first linkage member at all times.

5,799,773
METHOD AND APPARATUS FOR CORRECTING LENS AND DETECTOR NON-UNIFORMITIES
David M. Heffelfinger, San Pablo, and Craig Van Horn, Sebastopol, both of Calif., assignors to Bio-Rad Laboratories, Inc., Hercules, Calif.

Filed Mar. 10, 1997, Ser. No. 814,125
Int. Cl.⁶ G01N 27/26
U.S. Cl. 204—461 15 Claims

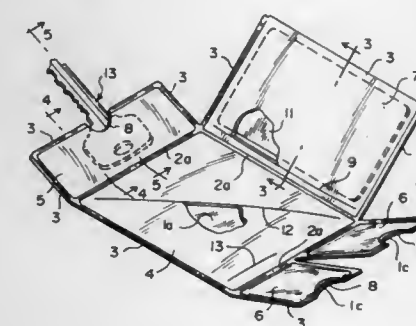


14. A method of removing lens assembly non-uniformities and detector non-uniformities from an image of an electrophoresis gel, the method comprising the steps of:
irradiating said electrophoresis gel with a light source, wherein at least one labeled region of said irradiated gel fluoresces;
imaging said irradiated electrophoresis gel onto a detector using a lens assembly;
outputting a first signal to a processor, said first signal corresponding to said image of said irradiated electrophoresis gel;
irradiating a calibration standard with a calibration standard illuminator, said calibration standard illuminator selected from the group consisting of said light source and a second source, wherein said calibration standard uniformly fluoresces when irradiated with said calibration standard illuminator, and wherein said calibration standard is located proximate an entrance aperture of said lens assembly;
imaging said calibration standard onto said detector using said lens assembly to form a calibration standard image, wherein said calibration standard image contains information corre-

sponding to said lens assembly non-uniformities and said detector non-uniformities;
outputting a second signal to said processor, said second signal corresponding to said calibration standard image;
closing a shutter leading to said detector to form a darkfield image on said detector;
outputting a third signal to said processor, said third signal corresponding to said darkfield image; and
determining a corrected image of said electrophoresis gel with said processor, wherein said corrected image has said lens assembly non-uniformities and said detector non-uniformities removed.

5,799,774
WALLET KEY HOLDER
Donald F. Dengel, 190 E. Division St., Fond Du Lac, Wis. 54935-4369

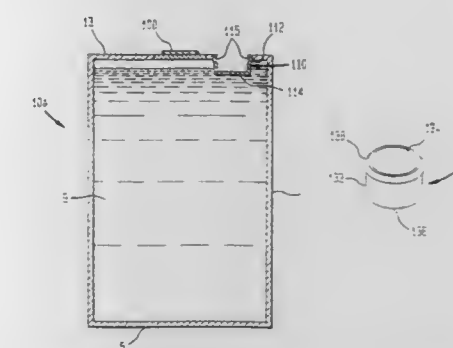
Filed Oct. 21, 1997, Ser. No. 955,120
Int. Cl.⁶ A45C 11/18; 11/32
U.S. Cl. 206—38.1 8 Claims



1. A wallet key holder comprising a substrate having a peripheral edge, superimposed layer having a peripheral edge, and configuration corresponding to said substrate, said superimposed layer being spaced from said substrate, means for securing the peripheral edge of said superimposed layer to the peripheral edge of said substrate, to thereby provide a main pocket and at least one other pocket communicating and integral with said main pocket, and adapted to receive a key having a shank, a slot provided in a peripheral edge of said other pocket, the shank of said key adapted to extend through said slot outwardly from said other pocket, an elongated slit in said superimposed layer to provide an opening to said main pocket to facilitate not only the insertion of cards into said main pocket, but also the key into said other pocket.

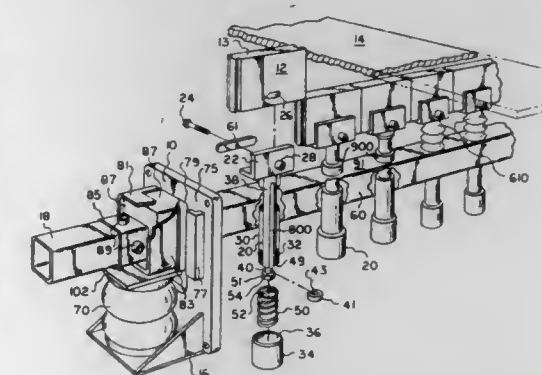
5,799,775
APPARATUS FOR DISPENSING A SUBSTANCE IN A LIQUID BEVERAGE
Robert E. Spring, New York, N.Y., assignor to Canning Concepts, Inc., Locust Valley, N.Y.
Continuation of Ser. No. 603,979, Feb. 20, 1996, Pat. No. 5,711,420. This application Aug. 28, 1997, Ser. No. 944,028
Int. Cl.⁶ B65D 25/08

U.S. Cl. 206—222 9 Claims
1. An apparatus for dispensing a substance in a liquid beverage comprising:
a container for containing a liquid beverage, the container including a body and a top defining an interior;
a well formed in the top comprising a breakable lower portion having an open top; and
a dispenser containing a substance to be dispensed including a breakable lower portion, the dispenser sized to fit in the well, wherein the dispenser is fitted in and held by the well with the lower portion facing downward, so that when pressure is applied to the top of the dispenser, the lower portion of the



dispenser and the lower portion of the well break open, thereby dispensing the substance in the beverage.

5,799,776
METHOD AND APPARATUS FOR ADJUSTING PRESSURE ON SCRAPER BLADES
Troy D. Dolan, R. R. # 3 Box 497 D, Blairsville, Pa. 15717
Filed Oct. 27, 1995, Ser. No. 549,024
Int. Cl.⁶ B65G 45/00 8 Claims



1. A conveyor belt scraper blade support assembly which comprises:
a. an elongate support bar extending transversely in excess of the width of the conveyor belt;
b. external foundation support brackets operatively arranged to engage each end of said support bar;
c. extensible/retractable means located between said brackets and said support bar arranged for controlled reciprocal movement of said support bar toward and away from said support brackets;
d. spring loaded piston/cylinder assemblies mounted spatially along the length of said support bar for urging said pistons toward the conveyor belt;
e. blade attachment means on said piston for attaching and supporting a scraper blade thereto;
f. a scraper blade mounted in said blade attachment means; and
g. shock absorbing means between said brackets and said support bar.

5,799,777

DEVICE FOR THE DISTRIBUTION OF MATERIALS IN BULK

Pierre Mailliet; Emile Lonardi, and Gilbert Bernard, all of Grand Duchy, Luxembourg, assignors to Paul Wurth S.A., Luxembourg

PCT No. PCT/EP95/00060, § 371 Date Oct. 1, 1996, § 102(e) Date Oct. 1, 1996, PCT Pub. No. WO95/21272, PCT Pub. Date Aug. 10, 1995

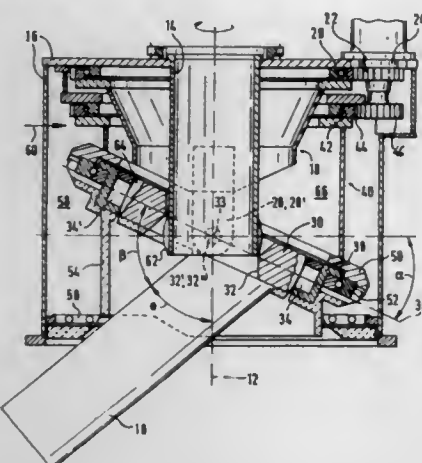
PCT Filed Jan. 9, 1995, Ser. No. 682,771

Claims priority, application Luxembourg, Feb. 1, 1994, 88 456

Int. Cl.⁶ B65G 31/04

U.S. Cl. 198—642

11 Claims



1. Device for the distribution of materials in bulk comprising: a chute (10) for the delivery of materials in bulk, a first rotor (18) with a substantially vertical rotation axis (12), the chute (10) being suspended from the said first rotor (18) so as to be driven in rotation by this rotor and so as to be able to pivot about a substantially horizontal pivoting axis (33), a second rotor (40) with a rotation axis substantially coaxial with the said first rotor (18), a pivoting ring (38) connected to the chute (10) at two locations (34, 34') diametrically opposite each other with respect to the pivoting axis (33) of the chute (10) so that it can itself pivot about an axis (36) perpendicular to the horizontal pivoting axis (33) of the chute, and a guide means (52) which is supported by the second rotor (40) and which is in contact with the pivoting ring (38) at no less than three points so as to define for the said pivoting ring, in a coordinates system attached to the second rotor (40), an inclined plane of rotation which makes an angle α with a horizontal reference plane.

5,799,778

DRIVE SYSTEM FOR RECIPROCATING CONVEYORS

Manfred W. Quack, 1515-210th Ave. NW., Redmond, Wash. 98053

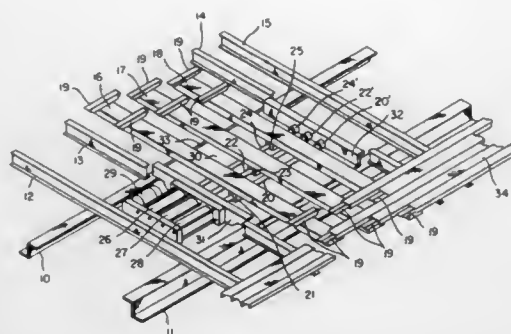
Filed Sep. 19, 1996, Ser. No. 710,578

Int. Cl.⁶ B65G 25/00

U.S. Cl. 198—750.5

1 Claim

1. A drive system for use in a reciprocating conveyor, said conveyor being installed on a structure and comprising a plurality of groups of slats and a plurality of drive members, said slats being longitudinally slidable on said structure, said slats in each group of said plurality of groups being attached to one of said drive members, one for each group, each of said drive members being activated by said drive system to move said slats in said plurality of groups in unison in a first longitudinal direction and sequentially in a second longitudinal direction, said drive system comprising an actuator for each of said groups, a first actuator having a first piston area, each of said remaining actuators progressively having



a piston area which is a fraction of the piston area of the preceding actuator, said fraction being in a range of 0.5 to 0.95, one of said actuators having a smallest piston area, said actuators being hydraulically interconnected, said system further comprising a pump, a reservoir and a control valve, said pump providing hydraulic power to said actuators through said valve, said valve being operable to a first position to cause said actuators to move said drive members in said second direction, said system further comprising means for operating said valve such that said valve is operated to cause said actuators to move said drive members in said first direction when said smallest actuator has completed motion in said second direction and to cause said actuators to move said drive members in said second direction when said smallest actuator has completed motion in said first direction, said actuators and said drive members being arranged such that actuators and drive members can move only in unison in one of said directions and move independently and in sequence in the other of said directions.

5,799,779

INTERLOCKING CARRIER AND CONVEYOR SYSTEM

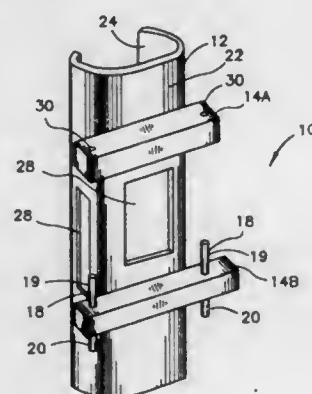
John Konitzer, Woodbury, Minn., and Steven Kostrova, Lindenhurst, Ill., assignors to Tetra Laval Holdings & Finance, SA, Pully, Switzerland

Filed Aug. 22, 1996, Ser. No. 701,497

Int. Cl.⁶ B65G 47/86

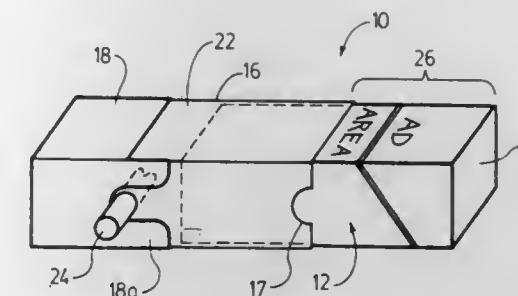
U.S. Cl. 198—803.15

7 Claims



1. A conveyor system comprising: a pair of drive wheels, each of the drive wheels having an outer surface and an inner surface, and each of the drive wheels having a plurality of grooves on the outer surface; at least one track having a generally linear section and a generally curved section, the at least one track further having a guide channel defined by sidewalls; and a plurality of interlocking carriers, each of the plurality of interlocking carriers comprising a sleeve for the placement of cargo therein, the sleeve having an internal surface and an external surface,

- an upper carrier and a lower carrier guide, each mounted fixedly on the external surface of the sleeve, each of upper and lower carrier guides having a plurality of slots there-through, and a plurality of guide supports, each of the plurality of guide supports disposed along the at least one track and engaged to each of the corresponding plurality of slots of one of the upper and lower carrier guides by placement of each of the corresponding plurality of guide supports through a corresponding slot of the plurality of slots; whereby the plurality of guide supports are driven along the at least one track through engagement with the plurality of grooves of the pair of drive wheels, the transverse movement of the plurality of guide supports limited by the sidewalls of the at least one track.



in the closed position, the cigarette holding portion is positioned such that the cigarette holding portion cannot be opened.

5,799,780

CONVEYOR SUPPORT SYSTEM HAVING REMOVABLE WEAR BARS

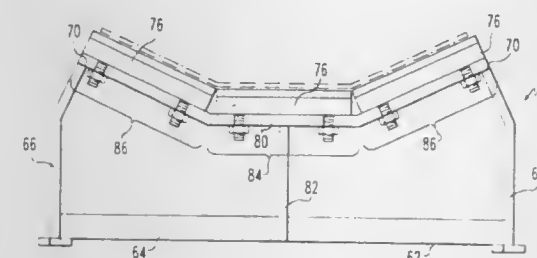
Raymond H. Steeb, Jr., Bethel Park, and Mark E. Mihalyi, Bridgeville, both of Pa., assignors to Industrial Composites, Inc., Bridgeville, Pa.

Filed Jan. 30, 1997, Ser. No. 791,300

Int. Cl.⁶ B65G 15/00

U.S. Cl. 198—823

23 Claims



1. An idler assembly for supporting a conveyor belt, the idler assembly comprising: a frame; a first plate connected to the frame, the first plate having at least one slot formed therein transverse to a longitudinal axis thereof; and a first wear bar having an upper surface adapted to engage the conveyor belt and a bottom surface having a shaft extending therefrom and received in the slot of the first plate and attached thereto.

5,799,781

CIGARETTE PACKAGE WITH ASHTRAY

Will Eugene Arthur, 6876 Lariat La., Castro Valley, Calif. 94553

Filed Oct. 11, 1996, Ser. No. 728,936

Int. Cl.⁶ B65D 85/10

U.S. Cl. 206—246

18 Claims

1. A cigarette package comprising: an outer section having a flip-top lid; inner section slidably positioned within the outer section, the inner section comprising a cigarette holding portion, wherein the inner section is slidably from a closed position to an extended position, when the inner section is in the extended position, the outer section defines an ashtray portion including the flip-top lid and the inner section is positioned so that the cigarette holding portion can be opened, when the package is

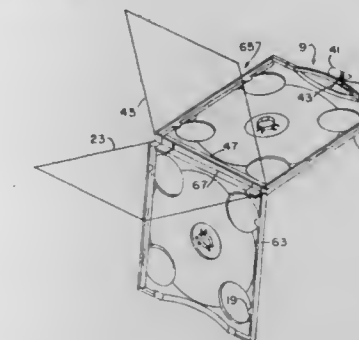
5,799,782

COMPACT DISC CASE

John A. Gelardi, P.O. Box 714, Kennebunkport, Me. 04046
Filed Apr. 10, 1995, Ser. No. 419,270
Int. Cl.⁶ B65D 85/57

U.S. Cl. 206—308.1

11 Claims



1. A compact disc case having a molded plastic tray with a central rosette for holding a compact disc and a hinged cover for covering the tray, a leaf spring mounted at one end of the tray and a clasp connected to the leaf spring for retaining one end of the cover when the leaf spring and clasp are positioned inward, and for releasing the cover when the leaf spring and clasp are positioned outward.

5,799,783

COMPACT DISC STORAGE CASE WITH LATCH-EJECT MECHANISM

Albert B. Cheris, Highland Park, Ill.; Robert B. Staubitz, Collinsville; Timothy Repp, New Hartford, both of Conn., and Dennis Tortorella, Arlington Heights, Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.

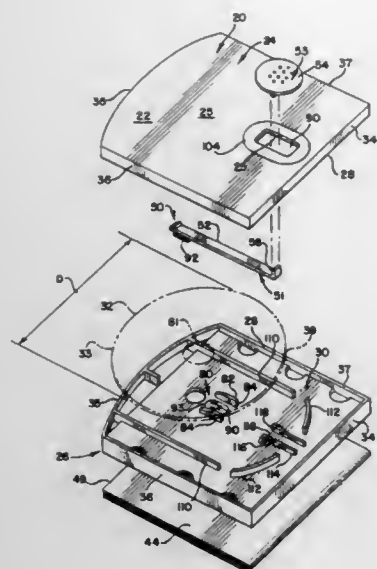
Filed Oct. 15, 1996, Ser. No. 730,405

Int. Cl.⁶ B65D 85/57

U.S. Cl. 206—308.1

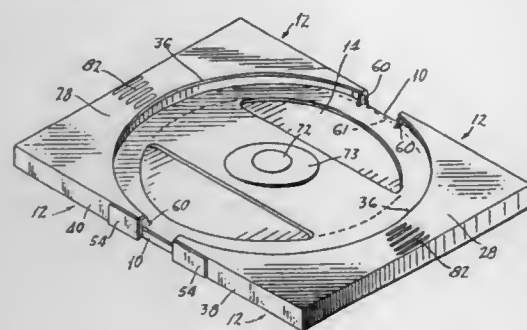
30 Claims

1. A storage case for a compact disc, comprising a housing having four walls defining an interior storage space of the housing, the four walls including a front wall, rear wall and two sidewalls interconnecting the front and rear walls, said front wall having a passage disposed therein opening to the interior storage space; a disc carrier operatively associated with said housing, the disc carrier including an elongated disc-engagement arm slidably disposed within said interior storage space, said disc carrier further including a manually manipulatable actuator slidably mounted on a first surface of said housing and interconnected to said disc-engagement arm, said housing first surface including an actuator slot defining a disc carrier slide path therein, said disc carrier being



movable between first and second operative positions in said storage case, whereby when said disc carrier is in said first operative position, said disc-engagement arm engages said disc and retains it in place within said interior storage space and when said disc carrier is in said second operative position, said disc-engagement arm disengages said disc and forces said disc partially out of said storage case through said disc passage, said housing including disc-engagement arm guide means disposed within said interior storage space for guiding said disc-engagement arm in its movement between said first and second operative positions, said disc-engagement arm guide means including two opposing guide members disposed on opposite sides of and abutting said disc-engagement arm.

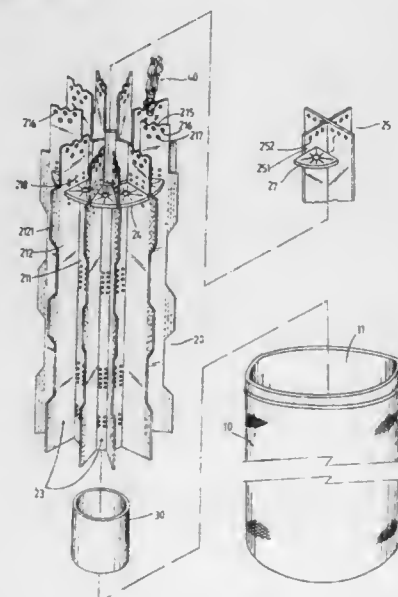
5,799,784
COMPACT DISK RECORD CASE
John Bosworth, 601 N. Broadway, Upper Nyack, N.Y. 10960
Filed Dec. 19, 1996, Ser. No. 769,545
Int. Cl.⁶ B65D 85/57
U.S. Cl. 206—308.1 16 Claims



1. A case for a compact disk record, comprising in combination:
 - a) a flat, rectangular tray having low oppositely-disposed side walls,
 - b) a nest member in said tray, having a nesting formation which is adapted to receive broadside and hold a compact disk record,
 - c) a pair of cover members carried by said tray at one side thereof, and
 - d) cooperable slide mounting means on said tray and one of said cover members, mounting said one cover member for movement in a plane which is common with the other of said cover members, said mounting means enabling said one cover mem-

- ber to be moved in said common plane toward and away from said nest formation of the nest member,
- e) said cover members together having a pair of edges that face each other,
- d) portions of the facing edge of said one member overlying areas of the nest formation of the nest member when the cover member is closest to said nest formation, thereby to hold captive a disk record that has been previously inserted in the nest formation.

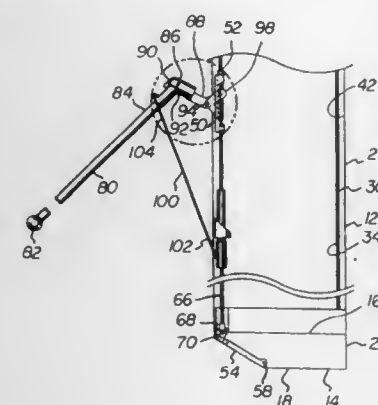
5,799,785
GOLF CLUB CONTAINING CYLINDER STRUCTURE
Kang-Chiang Hsu, No. 9, Lane Tsao-Ya-Nan-4, Mingli Li, Chien-Chen District, Kaohsiung, Taiwan
Filed Jan. 16, 1997, Ser. No. 783,808
Claims priority, application China, Dec. 27, 1996, 96 2 23170.3
Int. Cl.⁶ A63B 55/00
U.S. Cl. 206—315.6 3 Claims



1. A golf club containing cylinder structure comprising:
 - a partitioning rack adapted to be placed in a club containing cylinder installed in a golf bag, said partitioning rack comprises multiple elongated partitioning strips with different lengths, and multiple connecting members interconnecting said partitioning strips to form said partitioning rack,
 - each said partitioning strip includes an arch strip with a short arch cross section and a straight strip adjoined to said arch strip at an angle, said arch strip includes a plurality of groups of latch holes,
 - each said connecting member includes an arch attaching face that includes at least two latch protrusions, a first one of said latch protrusions is received in a latch hole of a first arch strip, and a second one of said latch protrusions is received in a latch hole of a second arch strip, said second arch strip is adjacent to said first arch strip so that said arch strips are held in position with said straight strips extending outward such that said straight strips partition said club containing cylinder into multiple compartments; and
 - said arch strips further include a locating hole between each two adjacent latch holes therein, and a plurality of rows of locating holes are formed on said straight strips corresponding to said locating holes of said arch strips, said locating holes receive a club holding member,
 - said club holding member is shaped in conformance to a cross section of said compartments and include locating protrusions corresponding to said locating holes, said club holding member includes a central resilient plate with a holding hole

therein, said resilient plate further includes a plurality of openings extending outward from said holding hole to divide said resilient plate into a plurality of leaves.

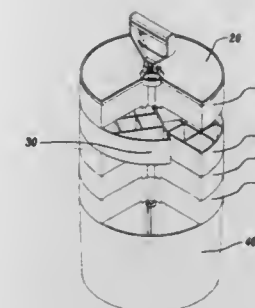
5,799,786
GOLF BAG WITH STAND
Edwin Beck, 139 Lewis Warf, Boston, Mass. 02110, and Chuck Heldenreich, 31 Susan Dr., Westfield, Mass. 01085
Filed Jan. 27, 1997, Ser. No. 789,363
Int. Cl.⁶ A63B 55/00
U.S. Cl. 206—315.7 3 Claims



2. A golf bag with an associated stand comprising:
 - a bag bottom, a bag top formed of a generally rigid material and an enclosure and a guide bracket fixedly secured to the bag with a circular bore extending therethrough in a vertical orientation and a foot pivotally secured through a foot pivot point to the bag bottom;
 - a first link formed as an elongated activating rod having a lower end secured to the foot and having an upper end with an intermediate portion slidably received within the guide bracket;
 - a second link formed as a pair of legs having lower ends positionable in a retracted orientation adjacent to the lower end of the bag and positionable in a deployed orientation remote from the bag, the legs having upper ends;
 - a third link having an interior end pivotally secured to the activating rod, an exterior end pivotally attached to the upper ends of the legs and having an intermediate pivot point pivotally secured to the guide bracket; and
 - a fourth link formed as a wire link with a lower end pivotally secured to the activating rod and having an upper end pivotally secured to the legs.

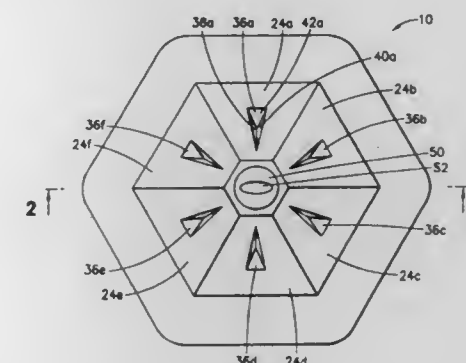
5,799,787
CYLINDRICAL TACKLE BOX WITH ROTATING STORAGE TRAYS
Donald P. Talbot, 983 College St., Wenatchee, Wash. 98801
Filed Jan. 24, 1997, Ser. No. 788,680
Int. Cl.⁶ A01K 97/06; B65D 6/06; 6/12; 6/22
U.S. Cl. 206—315.11 21 Claims

1. A storage container comprising:
 - (a) a bottom tray having a generally circular periphery, a floor, a peripheral side wall extending upwardly from the floor around the periphery and defining an internal portion therein, and a shaft receiving means centered on the floor;
 - (b) a first storage tray located over the bottom tray and having a circular periphery, a floor that provides at least a partial cover for the bottom tray, a peripheral side wall extending upwardly from the floor around the periphery, a central shaft receiving sleeve, a first hole through the floor providing access to the internal portion of the bottom tray, and sidewalls extending upwardly around at least a portion of the first hole;



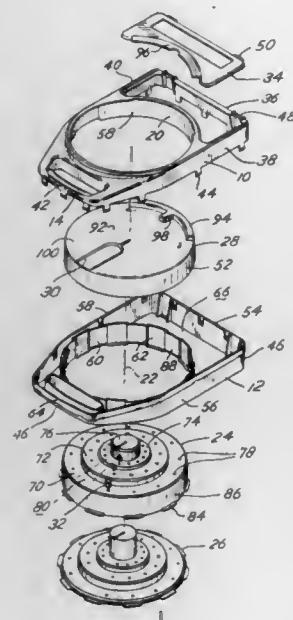
- (c) a second storage tray located over the first tray and having a circular periphery with a floor that provides at least a partial cover for the first tray, a peripheral side wall extending upwardly from the floor around the periphery, a central shaft receiving sleeve, a second hole through the floor providing access to the first tray, and sidewalls extending upwardly around at least a portion of the second hole;
- (d) a cover having a circular periphery and a third hole therein and a central shaft receiving sleeve;
- (e) a central shaft coupled to the shaft receiving means and extending through the shaft receiving sleeve of the storage tray and the shaft receiving sleeve of the cover, the central shaft allowing the first and second storage trays and the cover to rotate around an axis defined by the central shaft so that the first, second, and third holes can be selectively aligned to provide access through the first, second, and third holes to the internal portion of the bottom tray; and
- (f) a locking mechanism to selectively restrict rotation of the first and second storage trays and the cover around the axis defined by the central shaft.

5,799,788
SUTURE NEEDLE PARK AND COLLECTOR
Nicholas J. Webb, Wrightwood, Calif., assignor to Talon Medical Ltd., San Antonio, Tex.
Filed Oct. 14, 1997, Ser. No. 950,251
Int. Cl.⁶ A61B 17/04
U.S. Cl. 206—366 20 Claims



1. A holder and collector for at least one surgical implement having a shaft and a sharp tip, comprising:
 - a hollow holding portion having an exterior surface and an interior sized to hold a plurality of surgical implements, said exterior surface provided with at least one engagement means for frictionally engaging the shaft of one of the surgical implements and having an opening into said interior which permits at least one of the surgical implements to be provided completely into said interior.

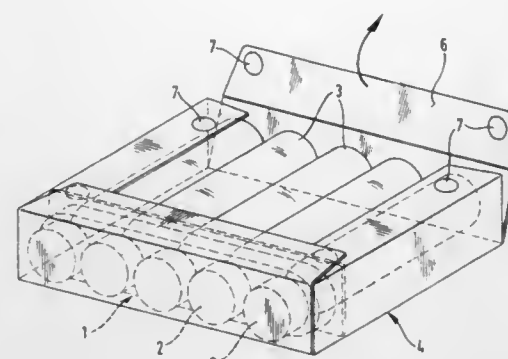
5,799,789
PORTABLE CONTAINER FOR SOCKETS
 Fred Philip Ritchie, and David Allen Trower, both of Waterloo, Iowa, assignors to Waterloo Industries, Inc., Waterloo, Iowa
 Filed Jun. 27, 1997, Ser. No. 884,240
 Int. Cl.⁶ B65D 85/20
 U.S. Cl. 206—378 12 Claims



1. A container for sockets comprising, in combination:
 - a case including first and second generally congruent sections, said sections opposed and joined together, each section including a central, circular through passage having an axis, an integral handle adjacent one side of the through passage and interlocking means for joining the sections together;
 - a circular socket holder wheel including at least two circular platforms, said wheel sized to fit in the circular through passage and projecting into the through passage, said wheel including means for attaching the wheel to one of the sections, said wheel including socket supports arrayed on the platforms; and
 - a circular wheel cover slidably fitted over the socket holder wheel, said cover rotatable relative to the wheel, said cover including a radial slot which exposes selected socket supports upon rotation of the wheel cover.

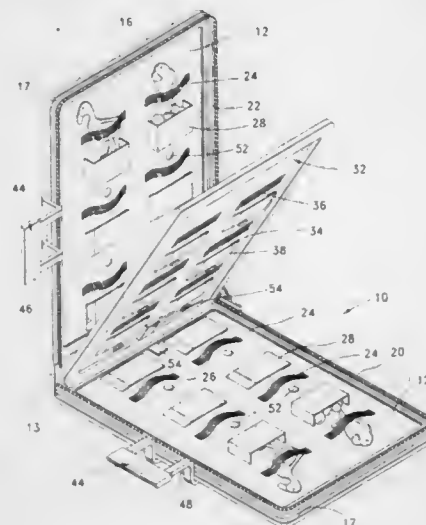
5,799,790
THERMOFORMED TRAY FOR THE PACKAGING OF SYRINGE BARRELS
 Günter Ziegert, Frankfurt, and José Luis Suárez Oviedo, Wal-luf, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany
 Filed Jul. 29, 1996, Ser. No. 681,814
 Claims priority, application Germany, Jul. 31, 1995, 195 27 992.1
 Int. Cl.⁶ B65D 85/20 3 Claims

1. A packaging for a syringe barrel comprising:
 - an elongated syringe barrel (3) having a length and including a cap at one end;
 - a thermoformed tray (1) having a plurality of compartments (2), the cap end of said syringe barrel (3) being received in one of said compartments (2) such that said compartment (2) retains the cap in a clamped manner, a major portion of the length of said syringe barrel (3) extending from said one compartment (2); and



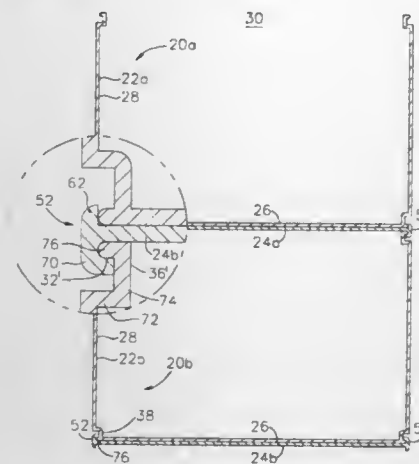
a folded carton (4) containing said tray and said syringe barrel (3).

5,799,791
PORTABLE SHOWCASE FOR COLLECTABLE ITEMS
 Beth A. Harley, 106 Round Leaf Ct., Peachtree City, Ga. 30269
 Filed Jun. 10, 1997, Ser. No. 872,087
 Int. Cl.⁶ A45C 13/00
 U.S. Cl. 206—478 16 Claims



1. A portable and display carrying case for receiving, displaying and transporting a plurality of collectable items, and related accessories, said case comprising
 - (a) a pair of generally rectangular outer members hingedly secured along one pair of complementary edges thereof, and a center inner panel member configured to nest between said rectangular outer members, where said inner panel member is provided with an array of elastic straps secured at their respective ends to said inner panel member, and a corresponding array of collapsible boxes having a releasable engaging cover for securing the accessories therein,
 - (b) means for securing said rectangular outer members together about the periphery thereof to form a closed carrying case, and
 - (c) handle means along said periphery of the case for easily transporting the contents thereof.

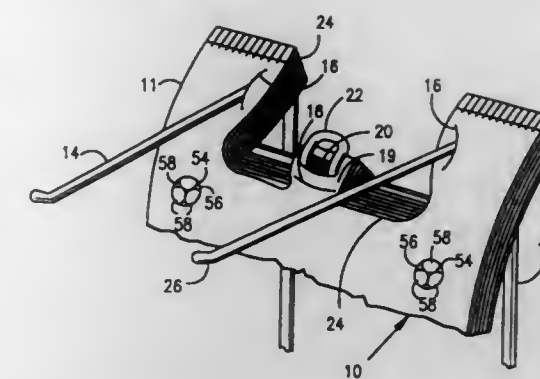
5,799,792
NESTABLE AND STACKABLE STORAGE UNIT
 Rolin L. Abrams, 4243 White Sands Dr., Las Vegas, Nev. 89121
 Continuation-in-part of Ser. No. 663,540, Jun. 13, 1996, abandoned, which is a division of Ser. No. 372,098, Jan. 13, 1995, Pat. No. 5,586,656. This application Jul. 15, 1997, Ser. No. 892,870
 Int. Cl.⁶ B65D 21/02
 U.S. Cl. 206—508 8 Claims



1. A nestable and stackable storage unit comprising:
 - a container having a side wall defining and at one end a base and at the other end an opening for the container;
 - a lip provided at said base inward of said side wall
 - a rim disposed at the open end and located inwardly from the side wall, said rim including at its terminus at least one outwardly extending upper head disposed inwardly of said side wall;
 - said base including at least one outwardly projecting base head disposed inwardly of said side wall; and
 - a lid adapted to provide a closure for the open end and having a top surface and a bottom surface with a member disposed at the outer periphery thereof, said member defining in cooperation with the bottom surface a groove adapted to closely receive the heads to connect the lid to the container open end to close the container and to the base for retaining the lid when the container is open and said member having at said upper surface a ridge to closely receive the base of a like container for stacking of the same, said lid having outside dimensions substantially the same as the side wall.

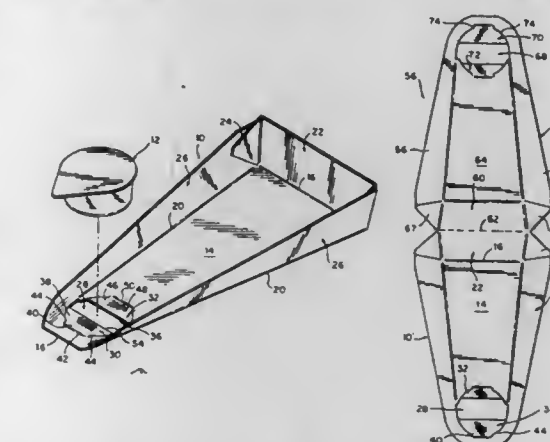
5,799,793
EASY-OPEN BAG PACK, METHOD OF FORMING AND SYSTEM
 Lawrence J. Glod, Sr., Macedon, and Richard E. Leone, Newark, both of N.Y., assignors to Tenneco Packaging Inc., Mt. Prospect, Ill.
 Continuation of Ser. No. 477,211, Jun. 7, 1995, abandoned, which is a division of Ser. No. 119,346, Sep. 9, 1993, Pat. No. 5,507,713. This application Sep. 26, 1997, Ser. No. 938,916
 Int. Cl.⁶ B65D 33/00 19 Claims

1. A thermoplastic film bag pack comprising a plurality of bags stacked in at least general registration in a layflat condition, each of said bags comprising a bottom wall, a front wall, a rear wall, gusseted side walls and an open mouth top portion, said open mouth top portion having double film loop handles at opposite ends thereof, said handles being integral extensions of said front, rear and side walls, each of said walls having an interior and exterior surface,
 - each of said bags having been subjected to a corona discharge treatment on the exterior surface of said front and rear walls so as to define treated surface portions of each bag, the treated



surface portions of each adjacently facing bag in the bag pack being releasably fused to each other in at least one releasable fused region, said at least one releasable fused region having been commonly formed in each of said adjacently facing bags in response to cooperative application of force to said bag pack by a corresponding at least one pair of anvil means, the pair of anvil means including a lower anvil means positioned to contact the bottom bag of the bag pack within the treated surface portion of the bottom bag and an upper anvil means substantially aligned with the lower anvil means and positioned to contact the top bag of the bag pack within the treated surface portion of the top bag, and wherein the cooperative application of force by said upper and lower anvil means is effective to compress the treated surface portions of each bag between said upper and lower anvil means and define a shape of the releasable fused region, said shape including a plurality of at least two dimples formed by said lower anvil means.

5,799,794
SAUCE CUP TRAY
 Simon Whitnell, Exton, Pa., assignor to Dopaco, Inc., Exton, Pa.
 Filed Dec. 2, 1996, Ser. No. 756,938
 Int. Cl.⁶ B65D 1/34 14 Claims



1. A carton for the accommodation of a foodstuff and a sauce cup, said carton comprising a tray with an elongate bottom panel having spaced rear and front ends and laterally spaced sides, a rear wall generally coextensive with and extending upward from said rear end of said bottom panel, opposed side walls each having a length generally coextensive with said laterally spaced sides and extending upward from said laterally spaced sides, an opening defined through said bottom panel between said side walls and proximate said front end for selectively receiving a sauce cup therein and remote from said rear wall wherein an area for foodstuff is provided between said rear wall and said opening, and at

least one flap partially overlying said opening and extending transversely between said side walls, said flap being integral with said bottom panel and selectively foldable to depend from said bottom panel and define a partial support for said bottom panel adjacent said front end and elevate said front end relative to said rear end wherein said flap and said rear end define spaced supports for said carton.

5,799,795
LAP TRAY

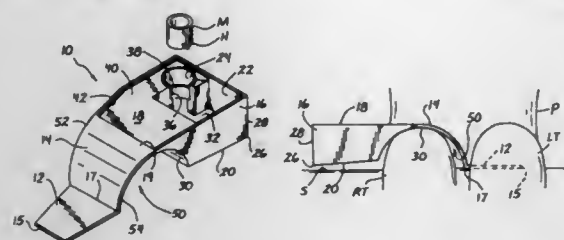
Richard B. Mease, 7829 N. Applegate Rd., Grants Pass, Oreg. 97527

Filed Apr. 18, 1997, Ser. No. 843,565

Int. Cl.⁶ B65D 1/34

U.S. Cl. 206—564

22 Claims



1. A lap tray for use by a person seated on a seat surface, said lap tray comprising a base portion defining a base plane, a tray portion including a tray top supported on a midportion rising from said base, the tray portion being elevated and laterally offset in non-overlying relationship to the base portion, one or more receptacles depending from said tray top to a tray bottom near said base plane, said one or more receptacles being laterally spaced from said midportion to define a space dimensioned for receiving between said midportion and said receptacles the height and width of one thigh of the seated person so that said tray portion is supported on the one thigh while said base portion is captive under the other thigh of the seated person and against the seat surface with said midportion rising between the one thigh and the other thigh.

5,799,796
SPRING SYSTEM END CAP FOR PACKAGING FRAGILE ARTICLES WITHIN SHIPPING CARTONS

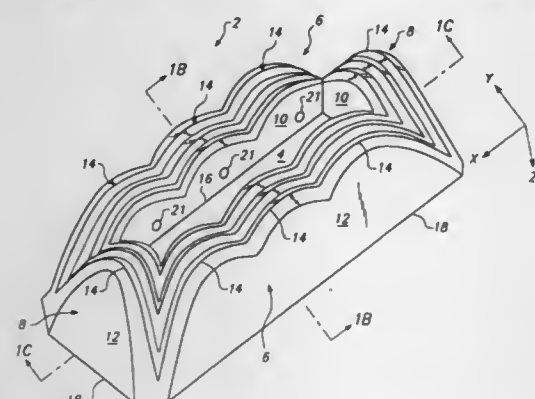
Kerry D. Azelton, Pleasanton; Richard L. Bontrager, Ripon, and Benjamin F. Polando, Byron, all of Calif., assignors to Innovated Packaging Company, Inc., Newark, Calif.

Continuation-in-part of Ser. No. 52,650, Apr. 2, 1996, abandoned. This application Dec. 4, 1996, Ser. No. 759,386

Int. Cl.⁶ B65D 81/113

U.S. Cl. 206—586

36 Claims



1. A unitary spring system end cap for supporting an article, comprising:

a platform portion dimensioned to support at least a portion of the article; and

a sidewall structure having a length and including:

an inner wall having proximal and distal edges, said distal edge joined to said platform portion,

an outer wall having upper and lower edges, and

at least one spring system integrally joined to said proximal edge of said inner wall and said upper edge of said outer wall and spacing said inner wall from said outer wall, said spring system including at least one flexible harmonic bellows forming a flexible ridge that has an arcuate shape along the length of said sidewall structure;

wherein said outer wall extends below said distal edge of said inner wall so that said platform portion is supported above said lower edge of said outer wall.

12. A unitary spring system end cap for supporting an article, comprising:

a platform portion dimensioned to support at least a portion of the article; and

a plurality of sidewall structures each having a length and including:

an inner wall having proximal and distal edges, said distal edge joined to said platform portion,

an outer wall having upper and lower edges, and

at least one spring system integrally joined to said proximal edge of said inner wall and said upper edge of said outer wall and spacing said inner wall from said outer wall, said spring system including at least one flexible harmonic bellows forming a flexible ridge that has an arcuate shape along the length of said sidewall structure;

wherein said outer walls extend below said distal edges of said inner walls so that said platform portion is supported above said lower edges of said outer walls.

26. A unitary spring system end cap for supporting an article, comprising:

a platform portion dimensioned to support at least a portion of the article; and

a sidewall structure having a length and including:

an inner wall having proximal and distal edges, said distal edge joined to said platform portion,

an outer wall having upper and lower edges, and

at least one spring system integrally joined to said proximal edge of said inner wall and said upper edge of said outer wall and spacing said inner wall from said outer wall, said spring system including a plurality of flexible harmonic bellows formed side by side and forming flexible ridges along the length of said sidewall structure;

wherein said outer wall extends below said distal edge of said inner wall so that said platform portion is supported above said lower edge of said outer wall, and wherein said outer wall extends below said harmonic bellows so that said harmonic bellows are supported above said lower edge of said outer wall.

34. A unitary spring system end cap for supporting an article, comprising:

a platform portion dimensioned to support at least a portion of the article; and

a plurality of sidewall structures each having a length and including:

a proximal edge joined to said platform portion,

an outer wall having upper and lower edges, and

at least one spring system integrally joined to said proximal edge and said upper edge of said outer wall, said spring system including at least one flexible harmonic bellows forming a flexible ridge along the length of said sidewall structure;

wherein said outer walls extend below said proximal edges of said plurality of sidewall structures so that said platform portion is supported above said lower edges of said outer walls, and wherein said plurality of sidewall structures is formed entirely below said platform.

35. A unitary spring system end cap for supporting an article, comprising:

a platform portion dimensioned to support at least a portion of the article; and

a sidewall structure having a length and including:
an inner wall having proximal and distal edges, said distal edge joined to said platform portion,

an outer wall having upper and lower edges, and

at least one spring system integrally joined to said proximal edge of said inner wall and said upper edge of said outer wall and spacing said inner wall from said outer wall, said spring system including a plurality of flexible harmonic bellows formed side by side and forming flexible ridges along the length of said sidewall structure;

wherein said outer wall extends below said distal edge of said inner wall so that said platform portion is supported above said lower edge of said outer wall, and wherein each of said bellows is formed by two elastic plate portions joined together at a predetermined angle to form said ridge with bottom edges of adjacent plate portions from adjacent harmonic bellows being joined together to form a channel along the length of said sidewall structure, and further wherein said predetermined angle of one of the ridges of said plurality of harmonic bellows is unequal to said predetermined angle of another of the ridges of said plurality of harmonic bellows.

juxtaposing said opposed inside surfaces to one another upon the sheet being folded.

5,799,798
SCREEN CYLINDER FOR SCREENING HIGH CONSISTENCY PULP

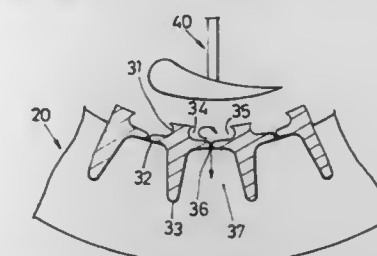
Chao-Ho Chen, Pei-Shan Chuang No. 2, Fu-Chu Tsun, Ta-An Hsiang, Taichung Hsien, Taiwan

Filed Aug. 23, 1996, Ser. No. 701,835

Int. Cl.⁶ B07B 1/20

U.S. Cl. 209—306

3 Claims



1. A screen cylinder adapted to be used with a stirring unit for screening high consistency pulp to be received in said screen cylinder, said screen cylinder comprising:

a plurality of parallel supporting plates, each of which is formed with a plurality of transversely and spacedly arranged mounting grooves, said mounting grooves on one of said supporting plates being aligned with said mounting grooves on an adjacent one of said supporting plates; and

a plurality of parallel elongated bars, each of which has a longitudinal constricted mounting portion to be tightly gripped by said supporting plates in said mounting grooves, each of said elongated bars further having a longitudinal head portion on one end of said constricted mounting portion and a pair of longitudinal ribs which extend respectively from opposite sides of said head portion adjacent to said constricted mounting portion, said head portion having a flat end face and an opposite pair of concave side faces which extend inwardly from said end face to a respective one of said longitudinal ribs;

adjacent ones of said elongated bars having a longitudinal slot formed therebetween, said slot having a narrower inlet portion between said end faces of said adjacent ones of said elongated bars, a wider receiving portion between said concave side faces of said adjacent ones of said elongated bars, a restricted channel portion between said longitudinal ribs of said adjacent ones of said elongated bars, and an outlet portion between said constricted mounting portions of said adjacent ones of said elongated bars;

whereby, when the stirring unit agitates the pulp in said screen cylinder to force the pulp to flow into said slots, said inner portions of said slots can minimize reverse pulp flow to result in smooth flow of the pulp through said slots without need for diluting the pulp.

5,799,799
ULTRASONIC SCREENING SYSTEM

Hossein Alamzad, Weehawken; William Zhao, Livingston, and Alfred Heidinger, Chester, all of N.J., assignors to Kason Corporation, Milburn, N.J.

Filed May 6, 1996, Ser. No. 642,877

Int. Cl.⁶ B07B 1/42; 1/50

U.S. Cl. 209—365.1

6 Claims

1. A transducer structure for use with a separator system having a screen mesh for separating materials fed therethrough, the transducer structure emitting ultrasonic energy for removing clogs of said materials on said screen mesh and comprising a transducer

5,799,797
CORNER POST CONSTRUCTION

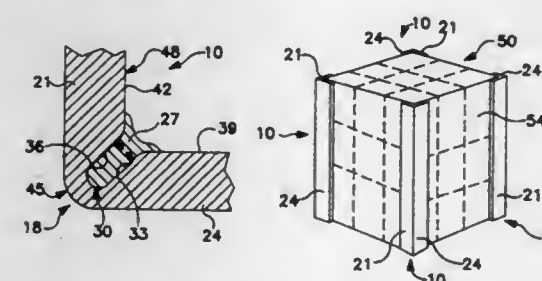
Richard G. Braun, Churchville, Pa., assignor to Stone Container Corporation, Chicago, Ill.

Filed Dec. 26, 1996, Ser. No. 773,445

Int. Cl.⁶ B65D 81/02

U.S. Cl. 206—586

16 Claims



1. An apparatus for providing facilitated support for one or more containers, along a longitudinal direction thereof, the apparatus comprising:

a sheet of material, having a longitudinal axis;

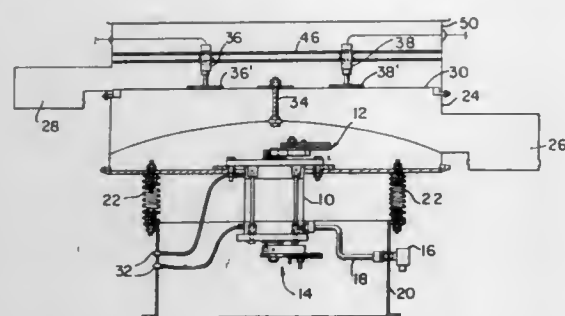
the sheet of material being folded, along at least one fold line extending substantially parallel to the longitudinal axis of the sheet, the at least one fold line demarcating the sheet into at least two support wings, so that at an included angle of less than 180° is provided between two of the at least two support wings, the sheet thus having an inside surface and a corresponding outside surface,

the at least one fold line including a pair of opposed surfaces formed from the inside surface of the sheet of material, defining a fold channel, in which the opposed inside surfaces of said sheet of material remain on each side of said fold channel, substantially unjuxtaposed to one another;

a corner post reinforcing and retaining material, operably disposed on the sheet, within at least a portion of the fold channel at the at least one fold line, so as to reinforce and maintain the sheet in the folded configuration, by facilitating the ability of the apparatus to resist forces which would tend to deform the sheet from its folded configuration,

the apparatus being further operably configured for operable association with one or more containers, toward providing support to the one or more containers along a direction of the one or more containers which is substantially parallel to the fold line of the apparatus;

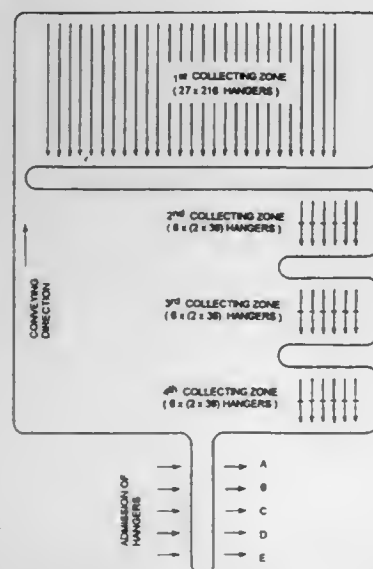
the sheet of material from which the corner post apparatus is fabricated further being devoid of structures for substantially



supported proximate said screen mesh, but independently thereof, said transducer, in turn, comprising means for emitting ultrasonic energy onto said screen mesh, a support rod for mounting said transducer in order to provide said transducer proximate said screen mesh, but independently thereof, said transducer defining an opening for insertion of said support rod.

5,799,800
PROCESS AND INSTALLATION FOR SORTING INDIVIDUAL GOODS
Dietrich Lux, Oranienburger Chaussee 22b, Berlin, Germany, D-13465
PCT No. PCT/DE94/01244, § 371 Date Apr. 1, 1996, § 102(e)
Date Apr. 1, 1996, PCT Pub. No. WO95/10368, PCT Pub. Date Apr. 20, 1995
PCT Filed Oct. 13, 1994, Ser. No. 624,384
Claims priority, application Germany, Oct. 13, 1993, 43 35 637.0

Int. Cl.⁶ B07C 5/00
U.S. Cl. 209—559 7 Claims



1. Method of sorting individual articles with a sorting system formed by collecting zones which consist of several waiting lines and are connected to a continuous conveyor, by a control system, deflecting systems before the waiting lines and also consisting of one or more delivery stations within a delivery system after the collecting zones, wherein the individual articles to be sorted are provided with identification numbers containing several identification features of the individual article in coded form and wherein the identification number is read by the control system and evaluated for control of the individual articles by the sorting system comprising the steps of:

(a) following detection of the identification number and before entry into the first collecting zone, allocating each individual article a position number via a control system according to the

desired position in the stream of individual articles conveyed from a fourth collecting zone according to feature (e) to the numerically predetermined number of delivery stations;
(b) providing a first collecting zone adapted to the load size(s) of the individual articles to be sorted to hold all individual articles, provided with a position number, from one or more loads in a sequence which is arbitrary but is recorded in the control system, and distributing the individual articles entering the first collection zone over m waiting lines according to a first component of the position number, each waiting line having a holding capacity of q individual articles and m and q being integers;
(c) conveying the individual articles from the waiting lines of the first collecting zone through the connecting continuous conveyor to a second, third and fourth collecting zone with a number of n of waiting lines in each collecting zone with further differentiating distribution according to a second, third and fourth component of the position number, the waiting lines having a respective holding capacity r, and r and n being integers;
(d) supplying via the control system, q·n³ individual parts to each individual waiting line in the first collecting zone and r and n² individual articles to each individual waiting line in the second, third and fourth collecting zone;
(e) supplying the individual articles present in the waiting lines which are in an ordered sequence owing to the multi-stage distribution procedure, from the fourth collecting zone to a delivery system in which a delivery station invariably only holds individual articles which are to be sorted and correspond to the predetermined fifth component of the position number, and wherein delivery takes place in the sequence of desired identification features;
(f) designing the collecting zones and waiting lines so that the sorting installation configuration correspond to the equation

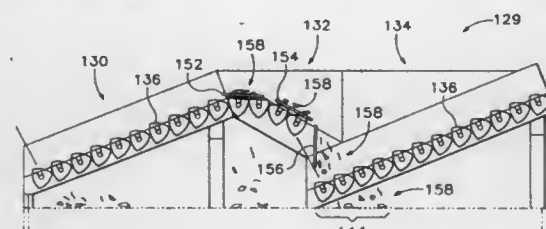
$$M = \frac{m \cdot q \cdot r}{n^2}$$

wherein

M=size of the sorting installation (sortable load)
m=number of waiting lines in the first collecting zone
q=capacity of a waiting line in the first collecting zone
n=number of waiting lines in each further collecting zone
r=capacity of the waiting lines in the further collecting zones.

5,799,801
METHOD AND APPARATUS FOR SEPARATING PAPER FROM CARDBOARD
Brian K. Clark, and Roy R. Miller, both of Eugene, Oreg., assignors to Bulk Handling System, Inc., Eugene, Oreg.
Continuation-in-part of Ser. No. 263,524, Jun. 22, 1994, Pat. No. 5,450,966. This application Apr. 27, 1995, Ser. No. 430,728

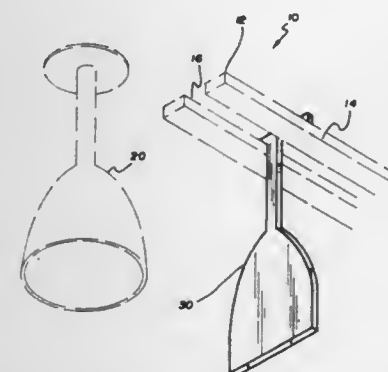
Int. Cl.⁶ B07B 13/05
U.S. Cl. 209—667 15 Claims



1. A screen for classifying material by size comprising:
a receiving section having a front end and a rear end, the receiving section inclining upward from the front end to the rear end at a given angle;
a plurality of shafts mounted on the receiving section substantially parallel with one another, the shafts extending up from

the front end to the rear end of the receiving section in a substantially coplanar alignment at the given angle;
discs mounted on the shafts, each of the discs having an arched perimeter shape that maintains a space between discs substantially constant during rotation while moving material on said discs up and down;
a discharge section having a front end and a rear end, the front end of the discharge section located underneath the rear end of the receiving section; and
a roll over section joined to the rear end of the receiving section and arching downward from the rear end of the receiving section, the roll over section suspended above the discharge section thereby dropping material while moving in a downward direction in a downwardly angled and forward direction onto the discharge section.

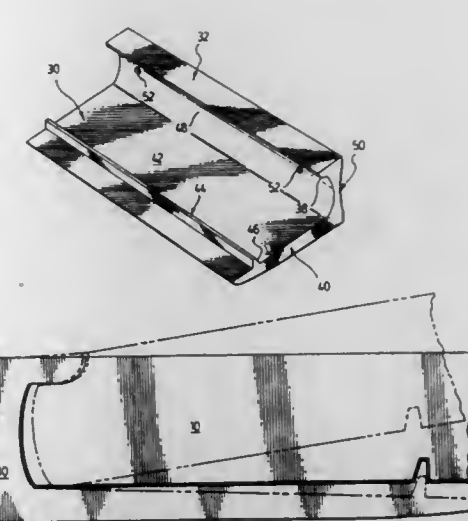
5,799,802
STEMMED GLASSWARE SEPARATORS
Carl F. Delia, and Barbara A. Delia, both of 23041 Posada Dr., Valencia, Calif. 91354
Filed Dec. 20, 1996, Ser. No. 769,754
Int. Cl.⁶ A47F 5/00
U.S. Cl. 211—184 5 Claims



1. A system for separating and protecting stemware while hanging from a rack comprising, in combination:
a wine rack comprised of a pair of elongated and planar rods, the pair of rods having a space disposed therebetween;
a plurality of wine glasses of a predetermined length, each of the wine glasses having a base portion, a stem portion, and a liquid containing portion, each of the wine glasses slidably disposed within the wine rack in an inverted orientation with the stem portion in the space disposed between the pair of rods and the base portion disposed above the pair of rods;
a plurality of separators of a predetermined length corresponding to the length of each of the plurality of wine glasses, each of the separators having a T-shaped upper portion and an arcuate lower portion, each of the separators slidably disposed within the wine rack between two of the plurality of wine glasses.

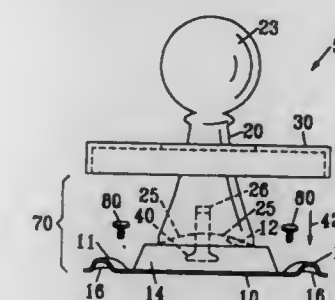
5,799,803
CANTILEVERED SHELF AND SHELF BRACKET
Mark Müller, Uxbridge, Canada, assignor to Nienkamper Furniture & Accessories Inc., Toronto, Canada
Filed Feb. 26, 1997, Ser. No. 805,640
Int. Cl.⁶ A47F 5/00
U.S. Cl. 211—90.01 20 Claims

1. A cantilevered shelf system comprising
a shelf bracket having
an upper jaw,
a lower jaw extending beyond the upper jaw, and
at least one projection projecting into a space between the upper and lower jaws, and



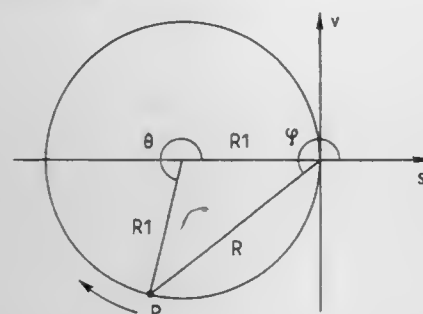
a back plate adjoining the upper jaw and the lower jaw in substantially fixed spaced relation, and
a shelf having
a top face having a supporting surface and an engaging surface which contacts the upper jaw as the shelf is mounted into the bracket, and
a bottom face having a rear cam edge, the bottom face being provided with a recess forwardly of the cam edge for insertion of the at least one projection, and
a spacing between the engaging surface and the bottom face which is substantially the same as a spacing between the upper jaw and the lower jaw,
wherein a distance between the cam edge and the engaging surface is slightly greater than the spacing between the lower jaw and the upper jaw, such that the cam edge applies a force against the lower jaw as the shelf is being mounted into the bracket and the force is released as the shelf is mounted into a mounted position in which the at least one projection is seated in the recess.

5,799,804
WALL MOUNTED FIXTURE
Norton Sharpe, Los Angeles, Calif., assignor to Franklin Brass Manufacturing Company, Rancho Dominguez, Calif.
Filed Sep. 19, 1995, Ser. No. 531,178
Int. Cl.⁶ A47H 1/02
U.S. Cl. 211—105.1 10 Claims



1. A bathroom fixture mounting apparatus, comprising:
a post having a threaded bore and an aperture;
a wall plate having a projection positioned to receive the post aperture;
a screw for fastening the wall plate to the post; and
a flange for covering the wall plate,
wherein the post aperture is positioned to receive the wall plate projection when the wall plate is fastened to the post to prevent rotation between the wall plate and the post.

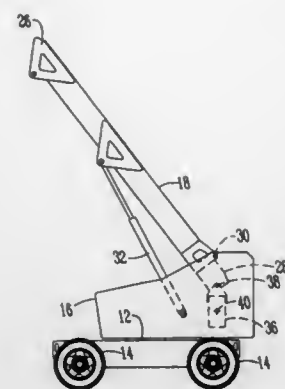
5,799,805
METHOD FOR DAMPING THE LOAD SWING OF A CRANE
 Olli Mård, and Risto Ahvo, both of Helsinki, Finland, assignors to ABB Industry Oy, Helsinki, Finland
 Filed Dec. 1, 1995, Ser. No. 565,950
 Claims priority, application Finland, Dec. 13, 1994, 945859
 Int. Cl.⁶ B66C 13/06
 U.S. Cl. 212—270 7 Claims



1. A method for damping the load swing of a crane during the traversing motion of a pendulum load secured to a load-carrying means driven by a traversing drive and responsive to a changeable velocity reference corresponding to the desired traversing direction and velocity of the load-carrying means, said traversing drive having a predetermined maximum acceleration and said load having a predetermined maximum swing comprising the steps of:
 determining substantially continuously an acceleration of the load-carrying means, an instantaneous switching time constant of the pendulum load, a swing velocity and a deviation from equilibrium of the pendulum load;
 compensating for instantaneous load swings when the velocity of the reference changes, by determining a control compensating for the instantaneous swing, said control in the form of a first acceleration, immediately switching on said first acceleration unless the pendulum swing exceeds the maximum acceleration;
 delaying switching on said first acceleration until the pendulum swing or less than the maximum acceleration;
 compensating for velocity reference changes by determining a control for providing a desired change in velocity in the form of a second acceleration, immediately switching said second acceleration on whenever the velocity reference changes for a time corresponding to the instantaneous swing time constant of the pendulum; and
 applying the switched on first and second accelerations to the traversing drive.

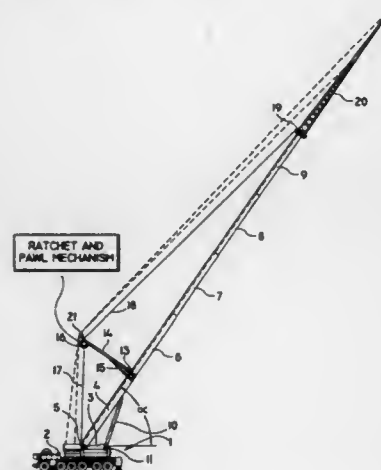
5,799,806
LIFTING DEVICE WITH COUNTERWEIGHT
 Richard E. Cullity, Atlantic, Iowa, assignor to Skyjack Equipment Inc., Atlantic, Iowa
 Filed Jan. 31, 1997, Ser. No. 797,692
 Int. Cl.⁶ B66C 23/76
 U.S. Cl. 212—196 7 Claims

1. A lifting device comprising:
 a frame;
 an elongated boom having a lower end pivotally connected to the frame along a single pivot axis, the lower end of the boom constituting a first end of the boom;
 a freely swinging counterweight connected directly only to the lower end of the boom and offset from the pivot axis so that the counterweight has a center of gravity that moves with respect to the pivot axis in response to the pivoting of the boom about the pivot axis;
 said pivot axis being non-movable with respect to the boom;
 the frame having a turret rotatably mounted thereon and the boom being pivotally connected to the turret and rotatable therewith; and



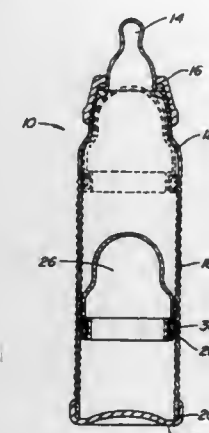
the counterweight being disposed within the turret.

5,799,807
MOBILE CRANE
 Ulrich Hamme, Ehingen, Germany, assignor to Liebherr-Werk Ehingen GmbH, Ehingen/Donau, Germany
 Filed Dec. 11, 1996, Ser. No. 763,751
 Claims priority, application Germany, Dec. 12, 1995, 195 46 388.9; Feb. 19, 1996, 196 06 109.1
 Int. Cl.⁶ B66C 23/42
 U.S. Cl. 212—299 20 Claims



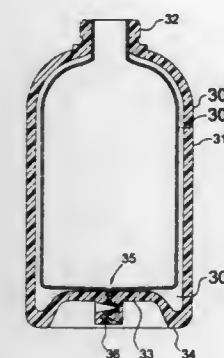
1. A mobile crane comprising
 a telescoping jib hinged to a superstructure thereof, which jib is structured and arranged to be luffed by means of a luffing ram which is hinged to the telescoping jib and the superstructure,
 a guy pole hinged on a rear side of the telescoping jib in an upper area of a hinge section thereof, which guy pole is structured and arranged to be raised by means of a hydraulic ram, and
 a winch about which a guy rope is wound, by means of which the guy rope extending from a tip of a guy pole to a top part of an inner telescope section or a truss of an upper telescope section is arranged to be tensioned, wherein
 the guy pole is guyed over the superstructure, a base or hinge axle of the hinge section or a lower area of the hinge section, by a rope or rod of a predetermined length and the winch is positioned in the area of the tip of the guide pole.

5,799,808
NURSING BOTTLE
 Kisuk Oh, 138-400-507 Changmi Apartments, 23-dong, Shinchon-dong, Songpa-gu, Seoul, Rep. of Korea
 Filed Mar. 12, 1997, Ser. No. 815,615
 Int. Cl.⁶ A61J 9/00; 9/04
 U.S. Cl. 215—11.1 5 Claims



1. A formula bottle, comprising:
 a container for containing a formula, having circumferential undulations to form an undulating inner side wall;
 a nipple attached to the container;
 a support installed in the container and moveable along the undulating inner side wall to support a formula within the container up to the nipple, the support including means for engaging the undulating inner side wall to seal the formula in the container and permit movement of the support along the undulating inner side wall;
 a bottom cap coupled to the container and having a breathing hole that facilitates the free rising and falling of the support.

5,799,809
BLOW MOLDED CONTAINER AND BLOW MOLD THEREOF
 Isamu Sako; Masato Honda; Jyoji Sato; Masato Seguchi, and Hiroaki Hisama, all of Buzen, Japan, assignors to Yoshino Kogyosha Co., Ltd., Tokyo, Japan
 PCT No. PCT/JP96/00224, § 371 Date Oct. 8, 1996, § 102(e)
 Date Oct. 8, 1996, PCT Pub. No. WO96/25284, PCT Pub. Date Aug. 22, 1996
 PCT Filed Feb. 2, 1996, Ser. No. 718,521
 Claims priority, application Japan, Feb. 16, 1995, 7-065313
 Int. Cl.⁶ B65D 1/02; 23/02; B29C 49/48; 49/50
 U.S. Cl. 215—12.1 13 Claims

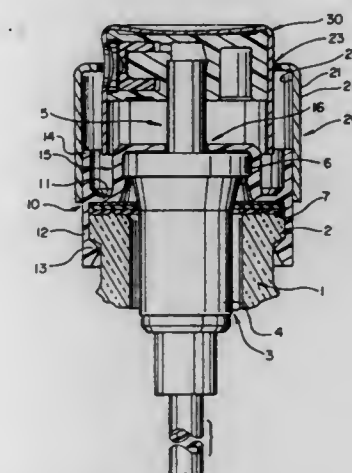


1. A blow molded container formed by blow molding a parison comprising a resin material in a blow mold, wherein the blow mold includes splits, each of said splits having pinch-offs and opposing

projections facing one another at different heights disposed proximate to the pinch-offs, wherein said blow molded container comprises:

a body formed of resin layers, said pinch offs holding the parison and fusion bonding the resin layers to one another, and pinching off residual resin formed while the resin layers are fusion bonded;
 a bottom sealing portion formed by the pinch-offs during the fusion-bonding of the resin layers, the bottom sealing portion having sunk portions formed by the opposing projections in each of the resin layers, the sunk portions in each of the resin layers being at offset heights with respect to the pinch-offs, said offset heights substantially corresponding to the heights of the opposing projections.

5,799,810
DEVICE AND A METHOD FOR ATTACHING A DISPENSER MEMBER TO A RECEPTACLE
 Olivier de Pous, Paris, and Yannick Hermouet, Le Pecq, both of France, assignors to Valois of America, Inc., Greenwich, Conn.
 Division of Ser. No. 311,041, Sep. 22, 1994, Pat. No. 5,562,219.
 This application Oct. 7, 1996, Ser. No. 725,934
 Int. Cl.⁶ B65D 45/30
 U.S. Cl. 215—274 36 Claims

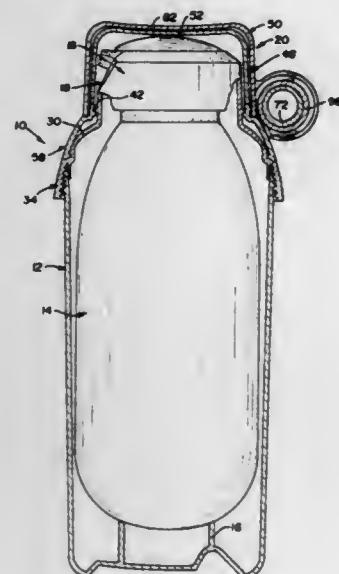


1. A substance dispenser comprising:
 a receptacle having a flange; a dispenser member extending from said receptacle; a fixing ring holding said dispenser member and receptacle together; and a separate annular hoop which has at least a portion defining a generally cylindrical interior surface for retaining said fixing ring in engagement with said receptacle; said fixing ring having a top portion and a bottom portion; a part of said fixing ring bottom portion projecting inwardly for engaging said receptacle in a snap-fit engagement; said top portion defining a receiving cavity receiving said dispenser member in a snap-fit engagement to hold said dispenser member projecting upwardly through said top portion; said fixing ring top portion having a peripheral portion deformed inwardly by said hoop along at least part of the axial length of said top portion above said bottom portion whereby said hoop is retained on said fixing ring so as to completely encompass said top and bottom portions of said fixing ring.

5,799,811

INSULATED FLASK WITH ATTACHMENT FOR ASSOCIATE ASSEMBLY
 Andreas Brückner, Stuttgart, Germany, and Ian Ferris, Berkshire, England, assignors to Dart Industries Inc., Orlando, Fla.

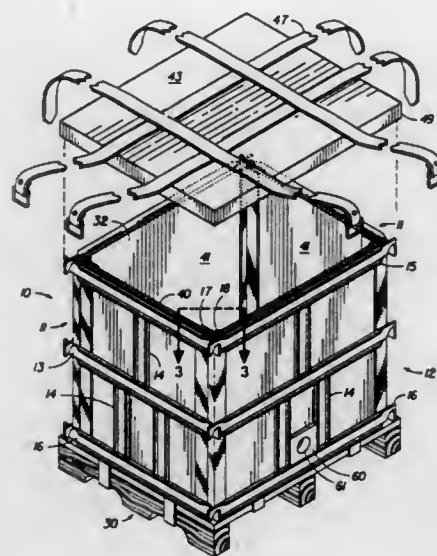
Filed Jun. 7, 1996, Ser. No. 653,137
 Int. Cl.⁶ B65D 23/10; A47J 41/00; A47G 19/23
 U.S. Cl. 215—386 16 Claims



1. A flask including a flask body having an open upper end, a neck unit, engaged over said body upper end; said neck unit including a neck defining an upwardly opening mouth, a shoulder depending from said neck peripherally thereabout, and an outer skirt depending from said shoulder peripherally thereabout, said skirt surrounding said body at and adjacent said body upper end, said skirt being of a predetermined downward and outward expanded configuration; said flask further including a utility enhancing associate assembly removably receivable over said neck unit, said associate assembly including a collar surrounding said shoulder and engaging on said support above said skirt, said collar, upwardly from said support, forming a continuation of said skirt, and cooperating mounting means on said collar and said neck unit for releasably fixing said collar to said neck unit, said collar having inner and outer faces and an outer peripheral edge engaging said support, said mounting means comprising at least one locking lug on and projecting radially inward from said inner face of said collar, and companion means on said shoulder above said support for reception of said at least one lug upon rotation of said associate assembly and said at least one lug relative to said companion means wherein said associate assembly, upon introduction of said at least one lug to said companion means, is in releasable locking engagement with said neck unit, and wherein said associate assembly includes at least one additional locking lug upwardly spaced from said at least one lug and similarly radially inwardly projecting, said neck of said neck unit including an outwardly projecting rib thereon positioned to underlie said at least one additional locking lug upon a positioning of said associate assembly on said neck unit and a rotation of said associate assembly relative to said neck unit, said at least one additional locking lug engaging under said rib simultaneously with rotational engagement of said at least one locking lug with said companion means.

5,799,812

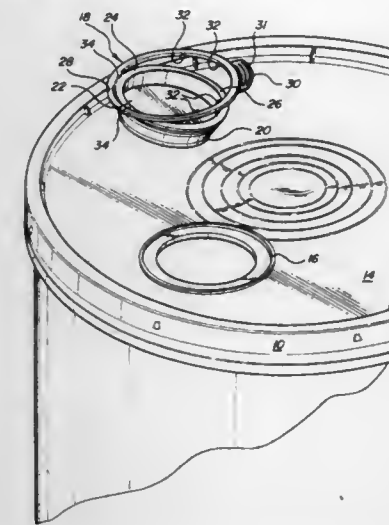
COLLAPSIBLE SHIPPING CONTAINER
 Hossein Mansouri, 8310 Wild Rose #16C, Houston, Tex. 77083
 Filed Mar. 3, 1997, Ser. No. 810,233
 Int. Cl.⁶ B65D 6/22
 U.S. Cl. 220—4.31 2 Claims



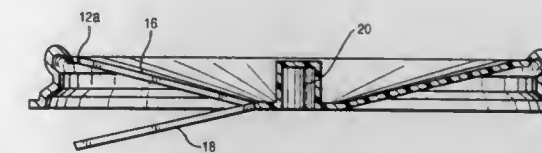
1. A reusable collapsible intermediate bulk shipping container adaptable to receive an inner fill bag supplied in a corrugated cassette, comprising:
 a) a standard size pallet forming an interior floor of the container, said pallet having a length of about 48 inches and a width of about 40 inches;
 b) four interlocking sidewall frame members with wall panel receiving channels, said sidewall frame members interlocking to form a rectangle enclosure with an open top, the rectangle enclosure resting upon said pallet, said sidewall frame members including a plurality of horizontal structural frame members aligned and securely attached to said sidewall frame members to form a lightweight frame structure in conjunction with said sidewall frame members, each of the ends of said horizontal structural frame members includes an engaging tab extending planarly therefrom, each engaging tab having uniformly positioned V-shaped notches, the notches on two adjacent ends of two adjacent horizontal structural frame members being oriented oppositely and perpendicularly to one another so that the notches lockingly engage each other when the notches are aligned and said sidewall frame members are positioned upon said pallet, said sidewall frame members having pallet alignment tabs which are integral with said sidewall frame members and extend from each sidewall frame member to align and maintain the assembled sidewall frame members upon said pallet, one of said sidewall frame members having an aperture providing an outlet means for an inner fill bag drain gland positioned near the container interior floor;
 c) wall panels disposed within said wall panel receiving channels of the sidewall frame members, said wall panels forming an interior surface of the container, whereby the inner fill bag corrugated cassette is adapted to be disposed within said rectangular enclosure and upon the interior floor of the container formed by the pallet, said wall panels having a height of about 36 inches;
 d) a top panel disposed upon the open top of the container, said top panel having skirted edges around the perimeter of the top panel forming a top cap of the assembled container with said skirted edges laying on the exterior of the container, and
 e) a plurality of straps positioned around the top cap, sidewall frame members, wall panels and pallet, which secures the top to the open top and the wall panels and sidewall frame members upon the pallet.

5,799,813

PLUG CLOSURE WITH INTEGRAL PULL RING
 Anton I. Leticia, Rochester Hills, Mich., assignor to Leticia Corporation, Rochester, Mich.
 Filed Mar. 25, 1996, Ser. No. 619,141
 Int. Cl.⁶ B65D 51/18
 U.S. Cl. 220—254 2 Claims



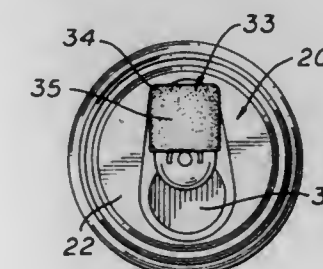
1. A molded plastic closure for an industrial shipping container comprising:
 a) a molded plastic closure body having an outer peripheral inverted U-shaped channel portion adapted to fit over an lock to the rim of a container, said closure having a planar central portion having formed therein a circular aperture and integrally molded, raised ring surrounding and in radially spaced relation to said aperture, a section of said closure surrounding said aperture and being between said aperture and said raised ring, said section and said central portion being in the same plane; and
 a) molded plastic plug body removably disposed in said aperture in snug sealing relationship thereto and having a shallow cylindrical portion comprising a side wall and a floor integral with said side wall, said side wall sealingly engageable with the inner edge of said closure aperture, said plug having an enlarged top flange extending radially outwardly from said side wall but fitting within the interior space defined by said closure ring, said flange being circumferentially subdivided into inner and outer ring portions by a circular slot having at least one thin frangible connector web between said inner and outer ring portions and at least one thicker non-frangible connector portion whereby said flange may be frangibly partially divided into separable ring portions;
 said outer ring portion having integrally formed therewith a lifting tab which extends radially outwardly from said outer ring in overlying relationship with said raised ring so as to be maintained in a raised relationship relative to the central portion of said closure.



application of force and a static depressed position wherein said flap region is maintained without an external application of force; and
 a flap cut out of said flap region, said flap being substantially integral with said flap region when said flap region is in said static raised position, and said flap being separated from said flap region when said flap region is in said static depressed position.

5,799,815

DEVICE AND KIT FOR IDENTIFYING POP-TOP CANS
 Michael A. Lang, Castaic, Calif., assignor to Tony David, and Gregory A. Gile, both of Santa Clarita, Calif.
 Filed Nov. 25, 1996, Ser. No. 755,676
 Int. Cl.⁶ B65D 51/22
 U.S. Cl. 220—258 9 Claims



1. An improved device for identifying an individual pop-top can having a tab for levering open said can, said device comprising a flexible resilient sleeve which slides over and seats on the free end of a tab for opening a pop-top can, said sleeve having indicia to individually identify said sleeve, said sleeve having a top and a bottom interconnected by opposite sides, wherein said sleeve has at least one of the following identifying indicia: color, texture, written indicia and design, wherein said sleeve has an integral plug extending upwardly from the top thereof and dimensioned to plug the opening in an open pop-top can when said sleeve is removed from said tab and inverted.

5,799,816

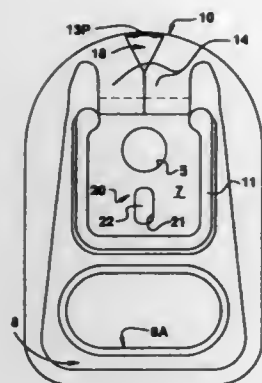
TABS FOR EASY-OPEN CAN END
 James R. Schubert, Dayton, Ohio, assignor to Dayton Systems Group, Inc., Dayton, Ohio
 Filed Jan. 31, 1997, Ser. No. 792,898
 Int. Cl.⁶ B65D 17/34
 U.S. Cl. 220—269 4 Claims

1. A tab for attachment by a rivet to an easy-open can end panel and capable of opening the can end by tearing a pour panel defined by a score on the end panel when a grip portion of the tab is lifted, comprising
 an elongated tab body having a nose end with a tip and an opposite grip end,
 an island formed within said tab body and integrally attached to said nose end along a hinge connection,
 said island including a rivet hole for receiving a rivet on the end panel to attach the tab to the end panel with said tip overlying a portion of the pour panel at the score,
 said grip portion having a rolled end,

5,799,814

DRINK-THROUGH LID FOR CONTAINER
 Robert J. Schaefer, Baltimore, Md., and William B. Pendergrass, Hanover, Pa., assignors to Sweetheart Cup Company Inc., Owings Mills, Md.
 Filed Jul. 30, 1996, Ser. No. 689,142
 Int. Cl.⁶ A47G 19/22; B65D 41/46; 51/20
 U.S. Cl. 220—254 12 Claims

1. A container lid comprising:
 a web portion shaped to fit a container;
 a flap region formed integral with said web portion and being selectively displaceable between a static raised position wherein said flap region is maintained without an external



one of said ends including a pair of tongues, said tongues being folded back against said one end, said folded back tongues defining a gap at said one end into which a protrusion from said one end, resulting from severing a connecting strip used to locate the tab, is rolled to place a cut edge of said protrusion in a guarded location in said gap.

5,799,817

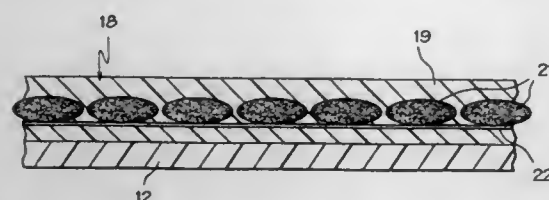
STORAGE TANK SYSTEMS WITH ENCAPSULATED FLOW PATHS

Bruce R. Sharp, 1741 Hawaii Ct., Marco Island, Fla. 33937
Filed Feb. 16, 1996, Ser. No. 602,978

Int. Cl.⁶ B65D 90/02

U.S. Cl. 220-414

45 Claims



1. A storage tank system having a closed communication space between two closely associated discrete walls, said storage tank system comprising:

- a storage tank having a main body side wall and attached end walls at each end thereof; and
- an overlying composite wall of (1) a resinous material and (2) a base layer of discrete filament bundles running generally in one direction whereby the resinous material encompasses the base layer of discrete filament bundles and at least partially penetrates between individual bundles while a mid-portion of each said filament bundle is substantially resin-free to provide flow paths for the detection of leakage.

5,799,818

COLLAPSIBLE LIQUID CONTAINER

Don Ringer, 627 W. Jasper, P.O. Box 377, Goodland, Ind. 47948
Continuation of Ser. No. 273,004, Jul. 8, 1994, abandoned.

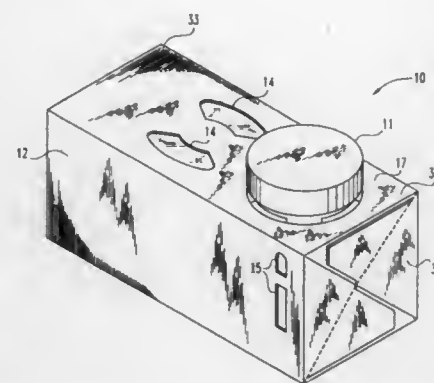
This application Jul. 15, 1996, Ser. No. 679,991

Int. Cl.⁶ B65D 90/04

U.S. Cl. 220-462

16 Claims

1. A collapsible container, comprising:
a plurality of sidewall panels hingedly attached to adjacent ones of said sidewall panels along hinge lines, each said sidewall panel having a first end and an opposite second end, said plurality of sidewall panels including a first sidewall panel having an opening therein for receiving a bag opening therein; first and second opposed automatic ends respectively disposed at said first end and said second end of said sidewall panels, at least one of said automatic ends comprising



a plurality of endwall panels hingedly attached to the respective ends of said sidewall panels, one pair of said endwall panels defining opposed interlocking panels, each said one pair of said end wall panels having a notch formed thereon and upon erection of the container the notches interlocking engage; and

a liquid tight flexible bag within the container for holding a volume of material, said bag having an opening therein aligned in said opening in said first sidewall panel, said bag being secured to the container along a substantial portion of said hinge lines connecting said first sidewall panel to said plurality of sidewall panels and further secured along a substantial portion of at least one of said sidewall panel ends so as to facilitate the unfolding of said bag when the container is manipulated into an erect condition.

5,799,819

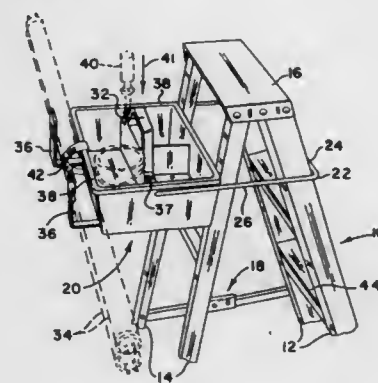
STEPLADDER UTILITY BASKET

Fred Nimer, 1325 Swales Rd., Troy, Ohio 45373
Filed Oct. 15, 1996, Ser. No. 730,126

Int. Cl.⁶ B65D 25/28

U.S. Cl. 220-694

3 Claims



1. A utility basket adapted to be removably mounted over and adjacent the top end of a stepladder to provide support for tools and materials for use by a person standing on the ladder steps and performing work tasks therefrom;

said basket including a generally rectangular bottom wall having its longer sides essentially equal to the width of a stepladder on which it is to be mounted, a pair of opposed parallel side walls extending generally vertically upward from the bottom wall, a pair of opposed parallel end walls the same height as said side walls and extending generally vertically upward from the bottom wall, a ledge extending fully about the top edges of said side and end walls and protruding outwardly a short distance therefrom to form a rim around the basket, and a relatively narrow manual carrying-handle extending centrally across the basket between the end walls and parallel to the side walls;

a journaling hole located immediately below said rim in each end wall, said holes being aligned with each other and with said handle;

a square-cornered and U-shaped bail having diametrically-opposed inwardly-directed journaling portions interfitted with said journaling holes to provide a pivotal support of said basket relative to said bail;

the bottom of the U of said bail remote from the journaling portions extending parallel to said side walls and said U bottom being of a length slightly greater than the outside width of said stepladder;

a leg at each side of the U extending from a journaling portion to the adjacent end of the U bottom, said legs being of a length approximating the distance between the journaling holes in the basket to the side of the stepladder opposite the basket when the bail is pivoted for placement over the top of the stepladder to hold and maintain the basket in position for use when performing a work task; and,

said bail being produced from a spring wire of a diameter and of sufficient rigidity to provide an inward biasing force between the ends of the legs adjacent the journaling portions when said legs are parallel, and the angle where each leg joins said U bottom being an acute angle whereby said legs at said journaling portions are positioned inwardly toward the end walls and said legs are maintained beneath said rim, requiring the legs to be spread outwardly manually to raise the bail above the rim for placement of the basket and bail over a stepladder.

5,799,820

MILK/JUICE JUG INSULATOR

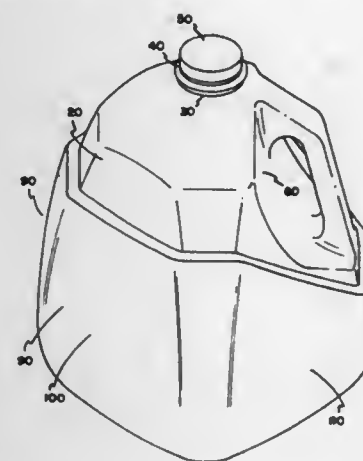
Alan Francis Maas, 15204 Wildwood Rd., Burnsville, Minn. 55306

Filed Oct. 13, 1994, Ser. No. 322,225

Int. Cl.⁶ B65D 23/08

U.S. Cl. 220-739

10 Claims



1. An enclosure for insulating a container which is non-circular in horizontal cross-section, the container being a one-gallon jug having a base portion, a main body portion, a mouth portion formed at one side of the container, an integral handle portion formed on an opposing side of the container, and a neck portion tapering downwardly from the mouth portion to the handle portion, said enclosure comprising:

a shell of insulating material shaped to hold the container, the shell having an interior space which is non-circular in horizontal cross-section and is of dimensions which substantially correspond to the exterior dimensions of the main body portion of the container, said shell comprising:

(a) a main portion to substantially cover the main body portion of the container to insulate the container contents, one side of the main portion of the shell extending substantially as high as the mouth portion of the container at said one side of the container, said main portion tapering down-

wardly to substantially as high as the handle portion at the opposing side of the container, so as to expose and make accessible the handle portion of the container; and

(b) a base portion to substantially cover the base portion of the container to insulate the container contents; and
a hole or plurality of holes penetrating the base portion of said shell to counteract vacuum effect when removing the container from said shell.

5,799,821

VARIABLE DAY START TABLET DISPENSER

Lawrence E. Lambelet, Jr.; Henry Passarotti, both of Flemington, N.J., and Gary E. McQuay, Watertown, Pa., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

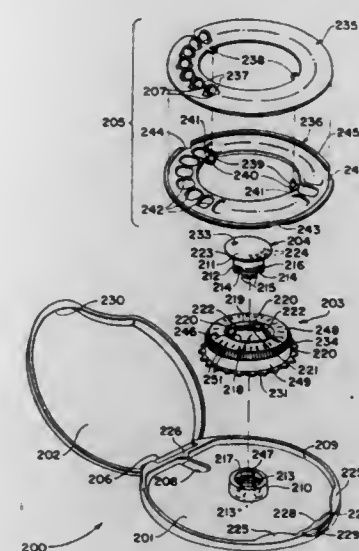
Continuation of Ser. No. 282,950, Jul. 29, 1994, Pat. No.

5,562,231. This application Jun. 19, 1996, Ser. No. 668,593

Int. Cl.⁶ B65D 83/04

U.S. Cl. 221-5

2 Claims



1. An intuitive table dispenser kit for dispensing a regimen of solid dosage preparations in a designated sequence comprising:

- as a first element, a container;
- as a second element, a refill carrier housing the solid dosage preparations in a circular array when loaded into the container, the refill carrier presented separately from said container upon introduction, to emphasize a refillable feature;
- as a third element, a means for individually dispensing the solid dosage preparations from the refill carrier;
- as a fourth element, a set of timing indicators, appropriate for the course of therapy and in correspondence with the solid dosage preparations in count and layout, affixed to, and in registry with the refill carrier; and
- as a fifth element means for positively engaging the refill carrier onto the container upon the initial dispensing of a solid dosage from the refill carrier by said third means and subsequent rotation of the refill container causing the next sequentially arrayed solid dosage to be aligned with said third means; and

wherein said refill carrier is generally circular in shape with a hollow center, and said fifth element means comprises a projection from said hollow center and at least one notch in the circumference of the refill carrier, and a in said container for retaining said refill carrier protrusion matching said at least one notch.

5,799,822

VENDING MACHINE INCLUDING MULTIPLE FAILURE CONTROL DEVICES

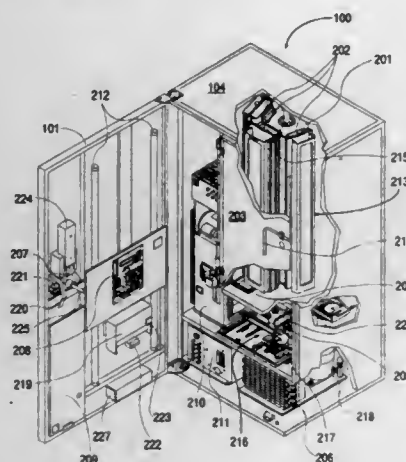
Paul T. Rudewicz, Mission Viejo; Thom Thomas, Ventura; Mark A. Hopkins, Laguna Niguel, and Robert K. Chan, Irvine, all of Calif., assignors to KRh Thermal Systems, S. San Francisco, Calif.

Continuation-in-part of Ser. No. 231,195, Apr. 21, 1994, Pat. No. 5,503,300. This application Apr. 20, 1995, Ser. No. 427,953

Int. Cl.⁶ A24F 27/14

U.S. Cl. 221—150 HC

13 Claims



1. An apparatus comprising:
 - a microcontroller;
 - a product selection switch associated with one or more food product displays, said product selection switch indicating a selected food product on a product selection line coupled to said microcontroller when said product selection switch is operated by said user;
 - a heat source having an input lead coupled to said microcontroller;
 - a failure control device having an output lead coupled to an arithmetic logic in said microcontroller, said failure control device driving a signal on said output lead; and
 - a customer display having an input lead coupled to said microcontroller;
 wherein said microcontroller normally drives a signal on said heat source input lead after receiving a signal on said product selection line; and
 further wherein said microcontroller drives a failure message signal on said customer display input lead after receiving a signal from said failure control device output lead.

5,799,823

DEVICE FOR RELEASING THE PRODUCTS IN A VENDING MACHINE

Antonio Feltrin, Castelletto Monferrato, Italy, assignor to Vendo Italy S.p.A., Italy

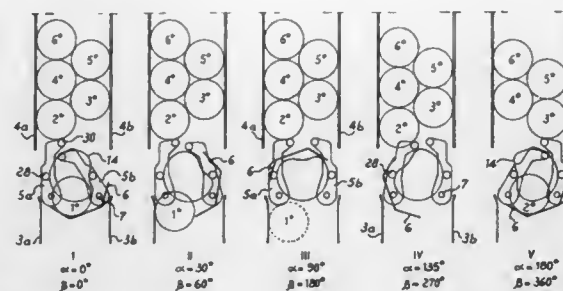
PCT No. PCT/IT95/00059, § 371 Date Oct. 28, 1996, § 102(e) Date Oct. 28, 1996, PCT Pub. No. WO95/30213, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 26, 1995, Ser. No. 732,397
Claims priority, application Italy, Apr. 28, 1994, MI94A0814
Int. Cl.⁶ G07F 11/00

U.S. Cl. 221—298

5 Claims

1. A device for releasing products in a vending machine, including a structure containing two staggered columns of the products comprising a front plate (1) and a rear plate (2) to which two flanks (3a, 3b) and two walls (4a, 4b) are secured, a pair of rocker levers (5a, 5b) and a revolving basket (6) being rotatably mounted inside said structure for alternately supporting the two staggered columns forming the stack of products and for releasing the products, and



components for controlling and driving said rockers (5a, 5b) and said basket (6) positioned outside said structure, characterized in that said driving components impart a unidirectional revolving motion to the basket (6) and said controlling components of the rockers (5a, 5b) comprising in a pair of cams (14) which rotate at half the revolving speed of the basket (6).

5,799,824

APPARATUS AND METHOD TO DETER BREAKAGE OR DEFORMATION OF VERTICALLY STACKED CONTAINERS DURING DISPENSION FROM A VENDING MACHINE

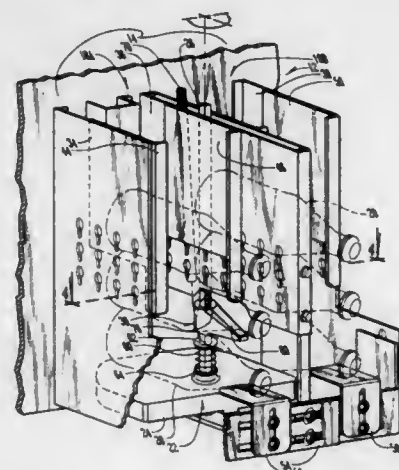
Joseph F. Gasel, West Des Moines, Iowa, assignor to Fawn Engineering Corporation, Des Moines, Iowa

Filed Jan. 31, 1997, Ser. No. 790,299

Int. Cl.⁶ G07F 11/00

U.S. Cl. 221—298

17 Claims



1. An apparatus to facilitate dispensing of containers in a vertical stack comprising:
 - a dispensing device including a holder that defines a vertical stack column and can receive and retain a plurality of containers in a vertical stack, the vertical stack column including a lower end;
 - a dispensing controller at or near the lower end of the vertical stack column, the dispensing controller including a blocking member which can support a vertical stack and which can block release of a container at the lower end of the vertical stack column until dispensation is authorized;
 - an actuator mounted in the dispensing device for moving said blocking member;
 - a separator member connected to the actuator and moveable between a first horizontal position outside of the vertical stack column and a second horizontal position in the vertical stack column for blocking a container above a dispensing container;
 - a biasing member connected to the separator to bias the separator member towards a first vertical position when the separator is in a first horizontal position and when the separator is in the second horizontal position, but allows the separator to

move to a second, lower vertical position when the separator is in the second horizontal position.

5,799,825

GATE SEAL SYSTEM

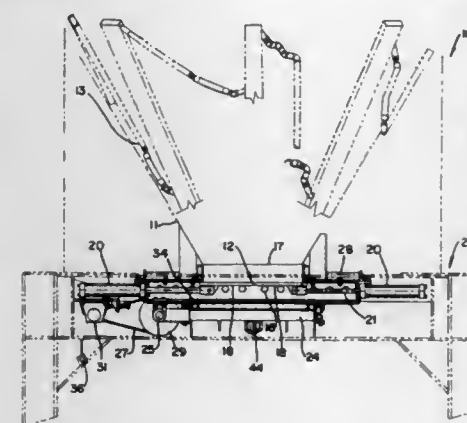
Bruce A. Dillman, Cape Coral, Fla., assignor to Marquette Leasing, Inc., Prairie Du Chien, Wis.

Filed Mar. 13, 1996, Ser. No. 614,866

Int. Cl.⁶ B67B 7/00

U.S. Cl. 222—1

29 Claims



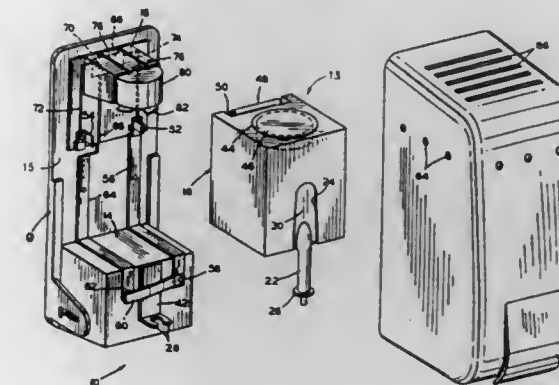
1. A material storing and dispensing assembly for storing and discharging hot asphalt material, the assembly comprising:
 - a vertically-extending vessel having a generally cylindrical shape and a top opening for receiving material;
 - a dispensing cone positioned in the vessel and opposed to the top opening, the dispensing cone having a discharge opening at a distal end for discharging material from the vessel;
 - a first gate adapted for engagement with the discharge opening between one of an open position for releasing material from the vessel through the discharge opening and a closed position for retaining material within the vessel;
 - a second gate adapted for effectively sealing the discharge opening in a closed position;
 means for sliding the first gate alternatively away from and toward the discharge opening for selectively opening and closing the discharge opening; and
 means for pivoting the second gate in relation to the first gate and the discharge opening to further selectively open and close the discharge opening.
21. A method of storing and discharging hot asphalt material comprising the steps of:
 - providing a vertically-extending vessel having a generally cylindrical shape and a top opening for receiving material;
 - providing a dispensing cone positioned in the vessel and opposed to the top opening, the dispensing cone having a discharge opening at a distal end for discharging material from the vessel;
 - engaging a first gate with the discharge opening between one of an open position for releasing material from the vessel through the discharge opening and a closed position for retaining material within the vessel;
 - providing a second gate adapted for effectively sealing the discharge opening in a closed position;
 - sliding the first gate alternatively away from and toward the discharge opening for selectively opening and closing the discharge opening; and
 - rotating the second gate in relation to the first gate and the discharge opening to further selectively open and close the discharge opening.

5,799,826

DUAL DISPENSER, SUPPLY UNIT, AND METHOD
Douglas S. Brown; David F. Scherger, both of Toledo; George C. Heilman, Northwood, and Robert B. Brown, Toledo, all of Ohio, assignors to Fresh Products, Inc., Toledo, Ohio
Continuation of Ser. No. 319,292, Oct. 6, 1994, Pat. No. 5,595,324, which is a continuation-in-part of Ser. No. 24,448, Mar. 1, 1993, Pat. No. 5,379,917. This application Oct. 15, 1996, Ser. No. 730,364
Int. Cl.⁶ B67D 5/00

U.S. Cl. 222—4

17 Claims



1. An assembly having a first wall at least partially defining a first chamber, said first chamber containing a supply of soap, a pump for dispensing a portion of said supply of soap from said assembly, a second wall at least partially defining a second chamber, said second chamber containing a supply of air freshener, said assembly including at least two openings communicating with said second chamber through which a portion of said supply of air freshener is dispensable through evaporation.

5,799,827

BLADDER WATER GUN

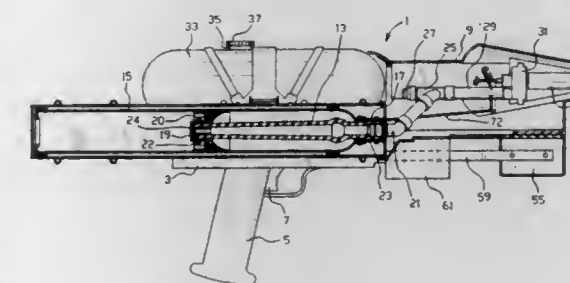
Bruce M. D'Andrade, 3 Ten Eyck Rd., Whitehouse Station, N.J. 08889

Filed Jun. 28, 1996, Ser. No. 672,941

Int. Cl.⁶ A63H 33/00

U.S. Cl. 222—79

28 Claims



1. An expandable bladder toy water gun, which comprises:
 - (a) a main housing having a barrel, a nozzle, a handle and a trigger located thereon;
 - (b) an expandable bladder connected to said main housing, said bladder having an inlet and an outlet;
 - (c) a water storage tank connected to said water gun and having an outlet connected to a pump;
 - (d) a pump for pumping water from said tank to said bladder to expand and fill said bladder with water, resulting in an expanded bladder, wherein said expanded bladder provides a motive force for ejection of water from said toy water gun, said pump being physically connected to said housing and being functionally connected to said bladder inlet and said tank, said pump having sufficient pumping pressure to expand

said bladder upon pumping water thereto, said pump having a one-way valve to permit pumping from said tank to said bladder; and,

- (e) a bladder release valve having an upstream side and a downstream side, and being connected to said bladder outlet at said valve's upstream side, and being connected to said trigger for opening and closing thereof, and being functionally connected to a nozzle for ejection of water at said valve's downstream side upon release of at least a portion of said expanded bladder, said valve having a first, closed position to maintain expanded bladder water containment, and a second, open position to effect bladder release.

5,799,828

WATER GUN

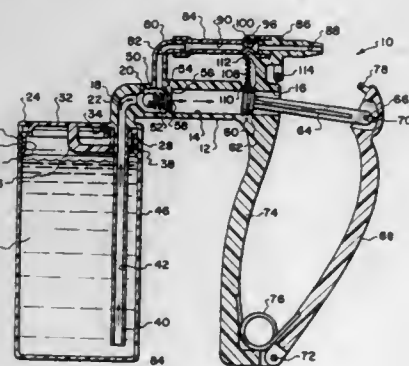
Alan D. Crawford, Burbank, Calif., assignor to Robert A. Demars, Woodland Hills, Calif.

Filed Mar. 3, 1997, Ser. No. 810,350

Int. Cl.⁶ A63H 3/18

U.S. Cl. 222—79

15 Claims



1. A water gun comprising:

- a housing;
- a reservoir mounted on said housing, said reservoir to contain a supply of water;
- a piston cylinder formed in said housing, an inlet passage connecting with said piston cylinder, a one-way valve normally closing said inlet passage relative to said piston cylinder, an outlet passage connecting with said piston cylinder;
- a piston movably mounted within said piston cylinder;
- a handle connected to said piston, said handle being movable between a retracted position and an extended position, said piston being manually moved within said piston cylinder by said handle during movement of said handle between said retracted position and said extended position, said piston being movable in an inward direction and an outward direction, movement of said piston in said outward direction opens said one-way valve and permits water to flow into said inlet passage and into said piston cylinder, movement of said piston in said inward direction causes water to flow from said piston cylinder into said outlet passage with said one-way valve being closed; and
- an elastic bladder connected with said outlet passage, said elastic bladder having a discharge passage, said discharge passage being normally closed by a discharge valve assembly, said elastic bladder to receive water from said outlet passage which will cause said elastic bladder to expand due to a quantity of water contained within said elastic bladder where said quantity of water exceeds the volume of said elastic bladder in its unexpanded state, said handle to contact said discharge valve assembly causing said discharge valve assembly to move to an open position resulting in discharging of said quantity of water into the ambient.

5,799,829
MEMBRANE-SEALED TUBE WITH A NEEDLE CLOSURE

Rolf Ljer, Neustadt, and Herbert Densky, Barsinghausen, both of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP95/02148, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/34480, PCT Pub. Date Dec. 21, 1995

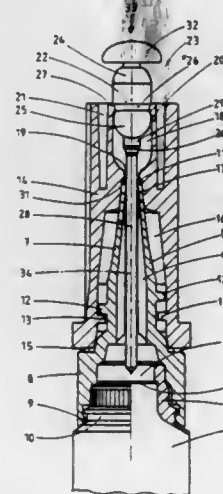
PCT Filed Jun. 6, 1995, Ser. No. 750,658

Claims priority, application Germany, Jun. 15, 1994, 44 20 719.0

Int. Cl.⁶ B67D 5/00

U.S. Cl. 222—83

6 Claims



1. A container comprising a tube, said tube including a membrane-sealed mouth and a cannula—with a bore extending over its longitudinal axis—inseparably fixed to the mouth and a closure cap releasably fixed to the cannula with a needle-like spike, which is guided for displacement in the bore of the cannula, and which is held by its head element—thicker than its needle element—in a starting position in a recess of the closure cap provided with an access opening to the cannula, being designed for axial displacement into an opening position piercing the membrane, wherein at its upper end, the recess is formed internally with an encircling bead which, in the starting position of the spike, engages in an encircling groove of the head element and, in the membrane piercing opening position of the spike, grips the head element of the spike on the upper part in the vicinity of a reduction in cross-section of the head elements, and secures it against axial displaceability by friction, via a closure element formed on the spike between the head element and the needle element, that bears sealingly against the cannula outlet opening in the membrane piercing opening position of the spike.

5,799,830

PRESSURE VESSEL ACCESS PORT

David C. Carroll, 573 Eagle Ridge Dr., Hyrum, Utah 84319, and Dennis Brown, 343 W. 400 North, Logan, Utah 84321

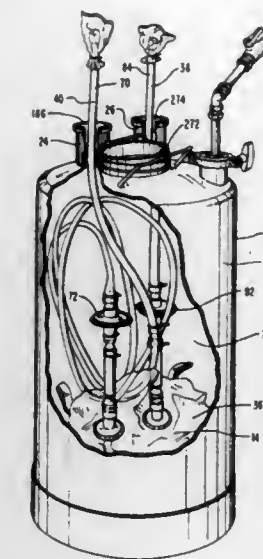
Filed Nov. 8, 1996, Ser. No. 744,418

Int. Cl.⁶ B65D 35/28

U.S. Cl. 222—95

54 Claims

44. A fluid dispensing system comprising:
- (a) a pressure vessel comprising a housing having an exterior surface, the housing also having an interior surface defining a chamber located within the pressure vessel, the pressure vessel further comprising:
 - (i) a sealing flange mounted on the exterior surface of the housing and having an exposed face;
 - (ii) an outlet opening with an inner diameter extending through the face of the sealing flange so as to be in fluid communication with the chamber of the pressure vessel;



- (b) a collapsible media bag having an interior surface defining a compartment for containing a fluid, the media bag being configured to be received within the chamber of the pressure vessel;
- (c) a flexible delivery tube having a first end in sealed fluid communication with the compartment of the media bag and an opposing second end, the delivery tube also being configured to be received within the chamber of the pressure vessel;
- (d) an interface adapter comprising:
 - (i) a tubular member having a first end, an opposing second end, and an exterior surface extending between the tubular member also having an interior surface defining a passage-way extending between the first end and the second end, the tubular member being fluid coupled in axial alignment with the delivery tube at a point between the first end and the second end of the delivery tube; and
 - (ii) a gasket encircling and radially extending out from the exterior surface of the tubular member, the gasket having a first side, a second side, and extending to an outside perimeter that is larger than the inner diameter of the outlet opening extending through the sealing flange, the gasket being sufficiently flexible that when the second end of the delivery tube is passed from within the chamber through the outlet opening, the interface adapter can be constricted to also pass through the outlet opening in the sealing flange and then expanded to enable the gasket to be mounted flush against the face of the sealing flange; and
- (e) clamping means for compressing the interface adapter against the face of the sealing flange to produce a pressure tight seal therebetween.

5,799,831

DUAL ASPIRATOR

John R. Spriggs, Minneapolis; Richard Ruhr, Buffalo, and Roger Keppers, St. Paul, all of Minn., assignors to Ecolab Inc., St. Paul, Minn.

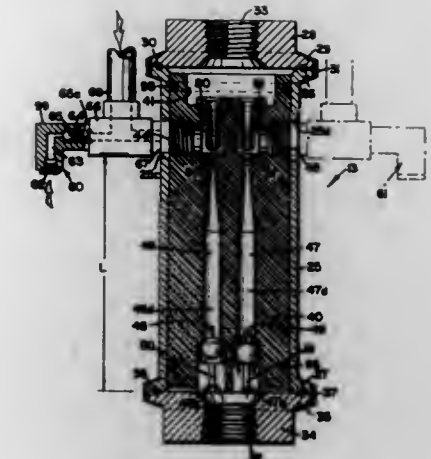
Filed Mar. 20, 1996, Ser. No. 619,033

Int. Cl.⁶ B67D 5/60

U.S. Cl. 222—132

17 Claims

1. A dual aspirator assembly for mixing first and second chemicals with a diluent, comprising:
- (a) a valve body;
 - (b) means defining a cavity in said body, said cavity having first and second chemical inlet ports, first and second mixture outlet ports, and a diluent entrance opening;
 - (c) first and second aspirators, having inlets and outlets for respectively mixing first and second chemicals with a diluent, positioned in said cavity and said inlets in fluid communication with said diluent entrance opening and said outlet of said



- first aspirator proximate said first mixture outlet port and said outlet of said second aspirator proximate said second mixture outlet port;
- (d) a first diffuser having an entrance port proximate said first mixture outlet port and an exit port in fluid communication with said entrance port of said first diffuser;
- (e) a second diffuser having an entrance port proximate said second mixture outlet port and an exit port in fluid communication with said entrance port of said second diffuser;
- (f) a diluted chemicals outlet in fluid communication with said exit ports of said first and second diffusers, wherein, when a diluent passes through the diluent entrance opening and into the inlets of said first and second aspirators and the first chemical is mixed with a diluent and passes through the first diffuser and the second chemical is mixed with the diluent and passes through said second diffuser, the first chemical/diluent mixture is mixed with the second chemical/diluent mixture as they exit their respective exit ports into the diluted chemicals outlet; and
- (g) said diffusers having a length and said entrance ports having a diameter, wherein a ratio of the length to the diameter is greater than 35.

5,799,832

FROZEN DESSERT AND DRINK DISPENSER AND METHOD

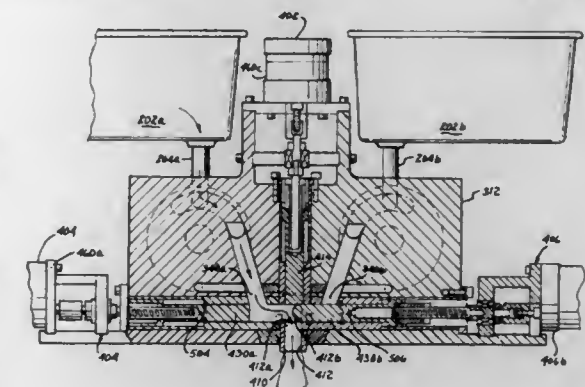
Colin H. Mayo, Mesa, Ariz., assignor to Mesa Technologies, Inc., Chandler, Ariz.

Filed Apr. 4, 1996, Ser. No. 627,980

Int. Cl.⁶ A23G 9/04; 9/28

U.S. Cl. 222—135

8 Claims



1. A machine for dispensing two kinds of frozen food, comprising:
- a first dispenser for one kind of frozen food, said first dispenser comprising:
 - a reservoir for receiving liquid mix to be frozen;

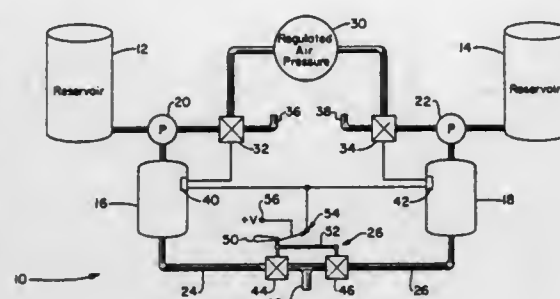
- a mixing container comprising refrigeration means and mixing means for receiving and freezing said liquid mix to form a viscous frozen food product;
- a first cylinder and piston ram valve assembly, said first assembly comprising:
- a first cylinder having proximal and distal ends said first cylinder being in fluid communication with the mixing container for receiving food therefrom; and
 - a first piston having proximal and distal ends reciprocally movable in the first cylinder from an open position wherein frozen food flows through into the first cylinder and out the distal end thereof to be dispensed and a closed position wherein the first piston prevents food from flowing into the first cylinder and substantially fully occupies the first cylinder for thereby forcing substantially all of the food out of the first cylinder;
- a second dispenser for another kind of frozen food, said second dispenser comprising:
- a reservoir for receiving liquid mix to be frozen;
 - a second mixing container comprising refrigeration means and mixing means for receiving and freezing said liquid mix to form a viscous frozen food product;
 - a second cylinder and piston ram valve assembly, said second assembly comprising:
 - a second cylinder having proximal and distal ends, said second cylinder being in fluid communication with the second mixing container for receiving food therefrom; and
 - a second piston having proximal and distal ends reciprocally movable in the second cylinder from an open position wherein frozen food flows through into the second cylinder and out the distal end thereof to be dispensed and a closed position wherein the second piston prevents food from flowing into the second cylinder and substantially fully occupies the second cylinder for thereby forcing substantially all of the food out of the second cylinder; and
 - a third piston and cylinder ram valve assembly comprising:
 - a third cylinder having a proximal end and a distal end, the distal end defining a product dispensing nozzle, said third cylinder being so constructed as to define first and second passages through the wall thereof, and wherein each said first and second cylinder of said first and second cylinder and piston ram valve assemblies is secured, respectively, in fluid communication with the first and second passages of the third cylinder, said third cylinder being constructed, secured and configured for receiving food from either or both said first and second cylinders of said first and second cylinder and piston ram valve assemblies; and
 - a third piston having proximal and distal ends and being reciprocally movable in the third cylinder from an open position wherein food flows into the third cylinder through said passages and a closed position wherein the respective piston closes said passages and substantially fully occupies the third cylinder for thereby forcing substantially all of the food out of the nozzle of the third cylinder; and
 - a control system for controlling the operation of the machine, said control system comprising:
 - first, second and third position signaling means for producing an OPEN electrical signal indicating the open position of each of the first, second and third ram valves respectively and a CLOSED electrical signal indicating the closed position of the first, second, and third ram valves, respectively; and
 - means for selectively opening, at the same time, only the first and third ram valves, or only the second and third ram valves, or all of the first, second and third ram valves to thereby dispense, selectively, food product from the first mixing container, or from the second mixing container, or from both the first and second containers.

5,799,833
GERMICIDE DISPENSING SYSTEM
Thomas S. Green, Atwater, and Eric G. Hilston, Streetsboro, both of Ohio, assignors to ABC Dispensing Technologies, Akron, Ohio

Filed Jun. 19, 1996, Ser. No. 666,143
Int. Cl.⁶ B67D 5/08

U.S. Cl. 222—135

6 Claims



1. A fluid composition dispensing system, comprising:
- a plurality of bulk supplies of fluid components of a fluid composition;
 - a plurality of measuring and dispensing reservoirs in communication with said bulk supplies;
 - first means interposed between said bulk supplies and said measuring and dispensing reservoirs for controlling passage of measured volumes of said fluid components into said measuring and dispensing reservoirs;
 - second means interconnecting said plurality of measuring and dispensing reservoirs for commonly dispensing said fluid components;
 - wherein said second means comprises a dispensing conduit passing from each of said measuring and dispensing reservoirs to a dispensing nozzle, and a dispensing valve interposed in each said conduit, said dispensing valves are manually actuated by interconnection with a single handle, and a dispensing rate associated with each said dispensing valve is a function of a flow rate of an associated fluid component and the volume percentage of such component in said fluid composition; and
 - a linkage interposed between said valves and said handle, said linkage having an actuating arm engaging each valve, each such actuating arm having a length determinative of an amount an associated valve is opened when said handle is moved to an open position, said lengths of said actuating arm being a function of said flow rate and volume of an associated fluid component being dispensed.

5,799,834
TELESCOPING COLUMN PIPE ASSEMBLY FOR FUEL DISPENSING PUMPING SYSTEMS

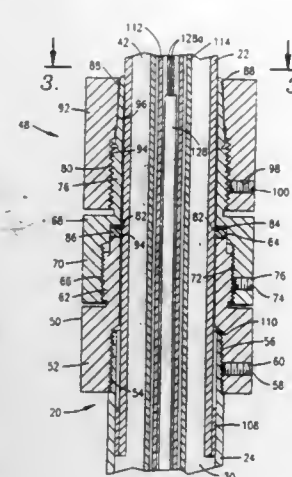
Dorsey D. Small, Port Byron, Ill.; Martin J. Traver, Wheatland, Iowa; Edgar E. Dunning, III, Moline, Ill.; G. Todd Clark, Maquoketa, Iowa, and Bruce W. Kellums, Taylor Ridge, Ill., assignors to Marley Pump, Overland Park, Kans. Continuation-in-part of Ser. No. 735,202, Oct. 21, 1996. This application Jun. 18, 1997, Ser. No. 877,628

Int. Cl.⁶ B67D 5/50

U.S. Cl. 222—148

26 Claims

1. An apparatus adjustably connecting a submersible electric pump to a distribution head which receives flammable fuel pumped by the pump, said apparatus comprising:
- first and second pipes connected to telescopically extend and retract, said first pipe being connected with the distribution head and said second pipe being connected with the pump to establish a flow path for the fuel through the pipes from the pump to the discharge head;
 - first and second electrical conduits connected telescopically and extending inside of said first and second pipes, said first



- conduit being connected with the distribution head and said second conduit being connected with the pump;
- electrical wiring extending in said first and second electrical conduits from the distribution head to the pump to supply electrical power for operation of the pump;
 - a seal arrangement disposed between said first and second electrical conduits and which isolates said wiring from the fuel in said flow path, said seal arrangement allowing said first and second electrical conduits to extend and retract telescopically, wherein said seal arrangement comprises: a sleeve member mounted on an end of one of said first and second electrical conduits so as to surround the other of the first and second electrical conduits; a first annular cleaner member and a first O-ring disposed between an end of said sleeve member and an internal ledge portion of the one of said conduits and in sealing contact with the other of said conduits; and a second annular cleaner member and a second O-ring disposed between said sleeve member and the other of said conduits;
 - a fitting connected to one of said pipes and having a plurality of flexible fingers overlapping an other of said pipes; and
 - a releasable pressing member which presses said fingers against said other pipe into gripping engagement therewith to lock said pipes together.

5,799,835
SPRAYER EXTENSION DEVICE

Keith Gobel, 1455 NE. 175th St., North Miami Beach, Fla. 33162

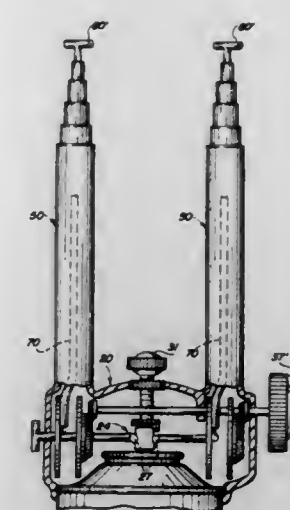
Continuation-in-part of Ser. No. 543,488, Oct. 16, 1995, Pat. No. 5,540,359. This application Jul. 31, 1996, Ser. No. 690,506

Int. Cl.⁶ B05B 15/10; B65D 83/14

U.S. Cl. 222—174

16 Claims

1. To be used with a spray container including a housing and an outlet valve through which a fluid content of the spray container exits the housing, a sprayer extension device comprising:
- a connector hub, said connector hub including a fluid inlet structured and disposed to be connected in fluid flow communication with the outlet valve of the spray container,
 - at least one extension segment, said extension segment including a proximal end secured to said connector hub and a free distal end structured to be spaced from said connector hub,
 - said extension segment including a fluid conduit having a first end and a second end,
 - said first end of said fluid conduit being structured for fluid engagement with said fluid inlet of said connector hub,
 - an outlet nozzle, said outlet nozzle being disposed at substantially said distal end of said extension segment, and being in fluid flow communication with said second end of said fluid conduit so as to permit sprayed passage of the fluid there-through at a spaced apart distance from said connector hub and the spray container, and



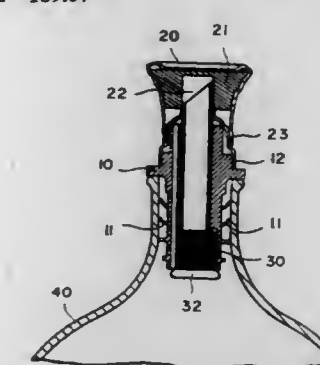
- actuation means structured and disposed to initiate a flow of the fluid from the spray container and into said fluid inlet of said connector hub.

5,799,836
VENTED POURING SPOUT WITH FILTER
Huo-Ke Lee, 1 Fl. No. 25, Alley 17, Lane 12, Pated Rd., Sec. 3, Taipei, Taiwan

Filed Sep. 10, 1997, Ser. No. 926,987
Int. Cl.⁶ B65D 5/72; 25/48; B67D 3/00

U.S. Cl. 222—189.07

3 Claims



1. A dispensing device for bottle container, comprising:
- a plug body which is made from soft plastic material, the lower portion of said plug body being provided with a plurality of sealing flanges, the upper portion of said plug body being enveloped with a rigid casing which is provided with an outer thread, a directing tube being disposed at the central portion, said directing tube being projected over said rigid casing and the tip of said tube being provided with an inclined spout, said plug body being further provided with a ventilating tube which is opposite to said inclined spout, the bottom of said plug body being further provided with a recess;
 - a cap which defines a receiving space thereof, the ceiling of said receiving space being provided with a sealing element which is provided with a sealing hole at the bottom center corresponding to said directing tube of said plug body, the bottom of said receiving space being further provided with inner thread which may tightly engage with said outer thread of said plug body, wherein when said cap is seated, said directing tube of said plug body can be sealed by said sealing hole;
 - a straining cup which is made from a filter which has very fine meshes, the outer diameter of said straining cup being specially sized such that said straining cup can be slightly engaged with said recess of said plug body, the side of said

cup being provided with a groove which is aligned with said ventilating hole of said plug body, the peripheral of said opening of said straining cup being provided with a flange which is slightly larger than the outer diameter of said straining cup.

5,799,837

BARRIER PACKAGING AND MATERIALS THEREFOR
Bruce A. Firestone, Irvine, and Ava Hayashi, Mission Viejo, both of Calif., assignors to Allergan, Waco, Tex.
Continuation-in-part of Ser. No. 398,557, Mar. 3, 1995, Pat. No. 5,609,273. This application Jan. 22, 1997, Ser. No. 785,957
Int. Cl.⁶ B65D 47/18

U.S. Cl. 222—215

17 Claims



1. A packaged pharmaceutical product having extended shelf-life comprising:

a pharmaceutical preparation; and

a dispensing container having a label attached thereto, the container comprising:

a hollow body, having an open end therein, formed from a blend of low density polyethylene, having high permeability of label-related extractables and a polypropylene, having low permeability of label-related extractables;

means, defining a body wall thickness, for both enabling drop-by-drop dispensing of the pharmaceutical preparation by manual squeezing of the body, and, in combination with the blend of polymers, preventing significant ingress of label-related extractables through the body wall upon storage of the container with the body filled with the pharmaceutical preparation; and

dropper tip means, fixed to the body open end, for forming droplets of pharmaceutical preparation upon manual squeezing of the body.

5,799,838

DUAL OPENING CONTAINER CAP

Albert R. Miller, Hinsdale, Ill., assignor to Phoenix Closures, Inc., Naperville, Ill.

Filed Jan. 29, 1997, Ser. No. 790,107

Int. Cl.⁶ B67D 3/00

U.S. Cl. 222—480

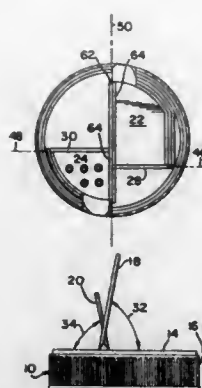
8 Claims

1. A dual opening dispensing closure for use with an associated container comprising:

a closure cap having a circular top wall portion and a depending annular skirt portion depending from said top wall portion, said top wall portion defining first and second open dispensing regions therein;

a first cover portion for covering said first dispensing region, said first cover portion being connected to said top wall portion by a first hinge region; and

a second cover portion for covering said second dispensing region, said second cover portion being connected to said top wall portion by a second hinge region.



a separating portion extending between and separating said first and second dispensing regions, wherein said first and second hinge regions define respective first and second hinge lines, each said hinge line being transverse to said separating portion, said hinge lines being in non-intersecting relation to one another and intersecting said separating portion in spaced relation to one another.

5,799,839

DUAL SPOUT STOPPER

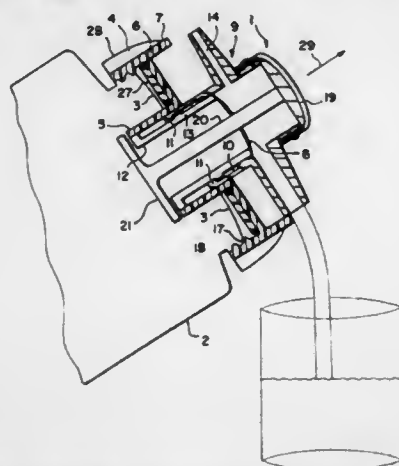
Jorge E. Moran, Nashville, Tenn., and Ariel Lijtenstein, Montevideo, Uruguay, assignors to Megatrade International, Inc., Nashville, Tenn.

Filed Mar. 4, 1997, Ser. No. 810,081

Int. Cl.⁶ B67D 3/00

U.S. Cl. 222—484

8 Claims



1. A fluid dispensing apparatus of a container, said container having a discharge opening comprising:

a cylindrical skirt being sealably engageable with the discharge opening of the container;

an internal tubular sleeve being concentric with said cylindrical skirt and integrally attached perpendicular to and supported by a circular annular plate which is in turn integrally attached perpendicular to said cylindrical skirt and a cylindrical shield; said cylindrical shield being concentric with said cylindrical skirt and integrally attached to said circular annular plate and said cylindrical skirt and extending upward perpendicular thereto;

a manually actuatable cylindrical valve assembly comprising a telescoping dual spout assembly and said internal tubular sleeve in cooperative arrangement, wherein said telescoping dual spout assembly is a component of the apparatus and moves axially and rotationally within said internal tubular sleeve to open and close said actuatable cylindrical valve;

said telescoping dual spout assembly comprising two separate flow chambers integrally attached to a cylindrical valve chamber;

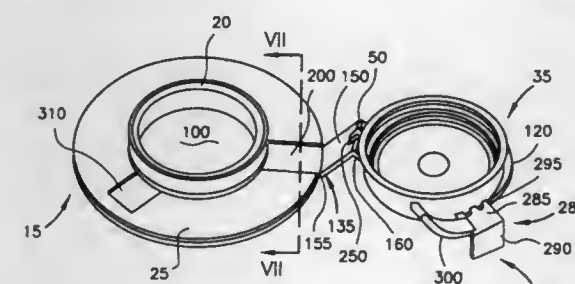
a cover attached to said manually telescoping dual spout assembly; and
a post attached perpendicular to said cover and an annular gasket constructed of elastomeric material affixed to the underside of said circular annular plate.

5,799,840

CLOSURE FORMED AS A SINGLE, INTEGRAL PART
Jens Mogard, Buffalo Grove, Ill., assignor to Tetra Laval Holdings & Finance, S A, Pully, Switzerland
Filed Apr. 25, 1996, Ser. No. 648,806
Int. Cl.⁶ B65D 47/10

U.S. Cl. 222—541.5

15 Claims



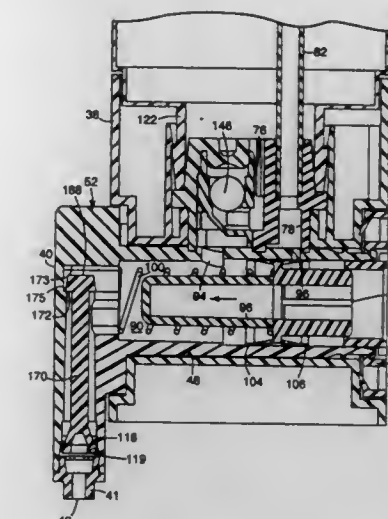
11. A closure for a container, the container having an aperture therethrough for securement of the closure thereabout, the closure comprising:

a spout portion having a stem and a flange projecting outward from the stem, the stem having an aperture therethrough;

a cap portion having a lid and a skirt projecting from the lid;

an L-shaped link connecting the flange to the skirt, the link connected to the flange at an outer edge of the flange to form a first hinged joint and the link connected to the skirt at a second hinged joint to allow for retention of the cap portion during access of the container, the link folded along the first joint so that a first portion of the link overlies and contacts the flange and a second link portion abuts the stem;

whereby the first hinged joint allows for movement of the link, and thus the cap portion, relative to the flange, and the second hinged joint allows for movement of the cap portion relative to the link.



in which the seal portion is spaced from the relaxed position and in which the seal portion engages a different portion of the inner surfaces of the nozzle to seal the outlet relative to the pump chamber, and c) a deflected, dispense position with the seal portion of the flexible, resilient member spaced from engagement with the inner surfaces of the nozzle to afford flow of the product to be dispensed from the pump chamber through the outlet, wherein:

the flexible, resilient member has a relaxed shape and is elongate in an axial direction; and
between said displaced sealing position and said deflected, dispense position, said flexible resilient member stretches axially to deform from its relaxed shape.

5,799,842

METHOD AND APPARATUS FOR FOSTERING A DESIRED APPEARANCE IN CERTAIN WOMEN'S GARMENTS

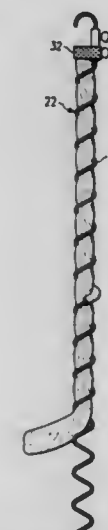
Shirley J. Rumsey, 1021 Shenandoah Dr., Arlington, Tex. 76014

Filed Nov. 25, 1996, Ser. No. 755,605

Int. Cl.⁶ A41H 43/00

U.S. Cl. 223—1

16 Claims



1. An apparatus for storing a garment in a twisted manner when it is not being worn, so that it will have a desired appearance when the time is appropriate for wearing the garment, comprising:

a) a structural frame having a top and a bottom and a generally longitudinal axis tending therebetween, and the structural

5,799,841

DRIP RESISTANT NOZZLE FOR A DISPENSER

David F. Wirt, Prescott, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 21, 1996, Ser. No. 668,270

Int. Cl.⁶ B05B 11/02

U.S. Cl. 222—571

8 Claims

1. A drip resistant nozzle for a dispenser with a reservoir for holding product to be dispensed, a pump chamber adapted to be placed in communication with the reservoir, and a pump for manipulating pressure within the pump chamber; said nozzle comprising:

inner surfaces adapted to communicate with the pump chamber, outer surfaces, and an outlet sized and shaped to afford passage of product to be dispensed;

a flexible, resilient member having a seal portion adapted to engage inner surfaces of the nozzle to seal the outlet relative to the pump chamber;

wherein the flexible, resilient member is adapted to move between a) a relaxed position with the seal portion engaging a portion of the inner surfaces of the nozzle to seal the outlet relative to the pump chamber, b) a displaced sealing position

frame having a length that exceeds the full length of a garment when said garment has been twisted about an axis that is coaxial with the longitudinal axis of the structural frame;

- b) first means for securing the top of the garment to the top of the structural frame, the first means comprising a flexible strap that is manually wrapped around the top of the garment and the top of the structural frame, and further including a buckle placed so as to hold the flexible strap in a closed loop around the top of the garment with a force that is adequate to hold the garment in a supported position while it is being wrapped around the structural frame;
- c) second means for securing the bottom of the garment to the bottom of the structural frame, and the first and second means being held against relative movement to any torque that is applied to the first and second means as a result of the step of securing the top of the garment to the top of the structural frame and wrapping the garment around the structural frame; and
- d) third means for holding the garment at a plurality of fixed and substantially equally spaced locations between the top and the bottom of the structural frame.

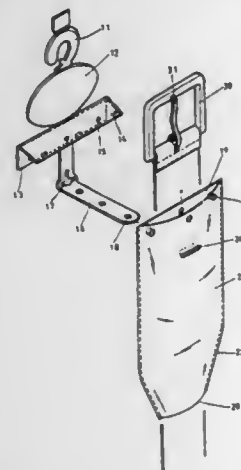
5,799,843

BELT HANGER WITH BUCKLE PROTECTING JACKET
Chao-chun Hsu, 7-3, Lane 140, Chan Swei Road, Chan Hua City, Taiwan

Filed Nov. 7, 1997, Ser. No. 966,323

Claims priority, application Taiwan, Jan. 30, 1997, 86201602
Int. Cl.⁶ A47G 25/14; 25/54; B65D 33/14

U.S. Cl. 223—85



1. A belt hanger comprising:
a hanging piece;
a hook fastened with one side of said hanging piece;
a retaining piece fastened with another side of said hanging piece such that said retaining piece is opposite in location to said hook, said retaining piece provided with a plurality of projections and retaining holes corresponding in location to and engageable with said projections; and
a buckle holder fastened at one end thereof with said retaining piece and provided with a slot for locating a pin of the buckle, said buckle holder further provided with a plurality of retaining holes engageable with said projections of said retaining piece;
wherein said retaining piece is provided with a protective jacket fastened therewith for shielding the buckle of a belt, said protective jacket provided at one end thereof with an opening

and at another end thereof with a plurality of retaining holes engaged with said projections of said retaining piece.

5,799,844

SOCK APPLYING AIDS

Gavin Hugh James, Herefordshire, United Kingdom, assignor to The Helping Hand Company (Ledbury) Limited, Ledbury, United Kingdom

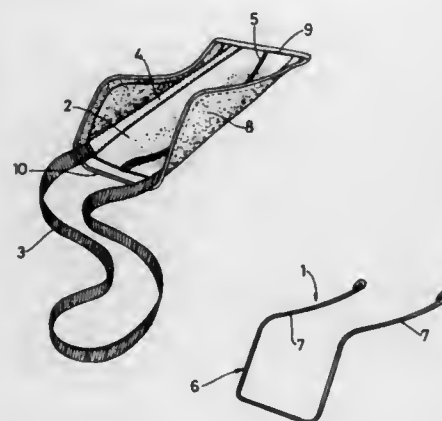
Filed Sep. 2, 1997, Ser. No. 921,593

Claims priority, application United Kingdom, Aug. 31, 1996, 9618532

Int. Cl.⁶ A47G 25/90

U.S. Cl. 223—112

9 Claims



1. A sock aid for enabling the pulling on of a sock onto a foot, and comprising a wire frame having a U-shaped central portion defining a heel part of the aid and two projecting arms whose free ends extend down and out from the U-shaped portion to form the two sides of the toe part of the aid, the frame being covered by a cloth material which defines two sides and a base between the heel and the toe, and a pulling strap secured to and extending away from the heel end of the material cover.

5,799,845

LUGGAGE COMPARTMENT CONSTRUCTION

Yasuhiko Matsushita, Hamamatsu, Japan, assignor to Suzuki Motor Corporation, Hamamatsu, Japan

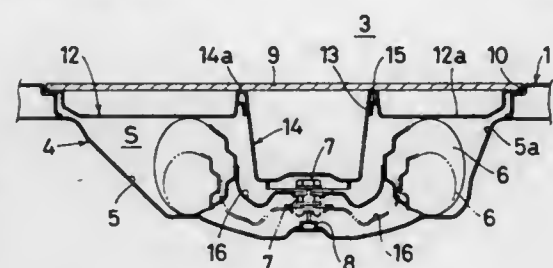
Filed Sep. 12, 1996, Ser. No. 713,230

Claims priority, application Japan, Jan. 19, 1996, 8-006986

Int. Cl.⁶ B62D 43/10; B60R 11/00

U.S. Cl. 224—42.14

4 Claims



1. A luggage compartment construction, comprising:
a luggage compartment having a floor;
a spare tire housing underneath said luggage compartment and defined by a depression in said luggage compartment floor, said spare tire housing having an opening at the top thereof;
a spare tire cover covering said opening;
said spare tire housing additionally comprising a step surface at the periphery of said housing, said step surface being defined

by a substantially horizontal surface disposed at lower elevation relative to said floor of said luggage compartment; and a tray disposed underneath said spare tire cover, the periphery of said tray being supported by said step surface.

5,799,846

HOLDER FOR A CONTAINER WHICH ADMINISTERS A FEEDING PRODUCT TO HUMANS

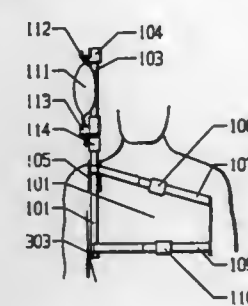
Frederick W. Pfeiffer, 1152 Barbara Dr., Cherry Hill, N.J. 08003

Filed Nov. 7, 1996, Ser. No. 744,974

Int. Cl.⁶ A45F 5/00

U.S. Cl. 224—148.7

10 Claims



1. A holder for holding a container, said holder adapted to be secured to the body of a human being and to hold the container which contains a feeding product for the human being, said holder comprising:

- a rod having a lower end at one end and an attachment end at the other end, an attachment member at the attachment end for holding the container,
a shoulder holder configured to be supported on one shoulder of the human being having a free end and a fastening end wherein said fastening end is fastened between said lower end and said attachment end of said rod,
a first belt securing means comprising a first belt having a first end attached to said free end of said shoulder holder, an intermediate section which runs across the back of said human being and under the armpit opposite the one shoulder and across the chest of the human being and a second end which attaches to said rod at the approximate position of said fastening end of said shoulder holder,
a second belt securing means comprising a second belt having a first end and a second end attached to the lower end of said rod, such that securing said first belt securing means and said second belt securing means to the human being provides a means for holding the container to allow the feeding of a product to be administered to the human being.

5,799,847

TOOL HANGING DEVICE

Joseph Sandor, 203 Coral Ave., Balboa Island, Calif. 92662

Filed Apr. 8, 1997, Ser. No. 841,924

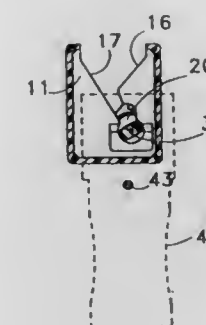
Int. Cl.⁶ B65D 25/52

U.S. Cl. 224—197

12 Claims

1. A tool hanging device having a first member affixable to a tool and a second member affixable to a hanging surface, said tool hanging device comprising:

- one of said first and second members comprising a slotted member, said slotted member (10) having a front plate (11) and a back plate (22), said front plate (11) having an outer face (12) and an inner face (13), a top (24) and a bottom (25) and a thickness (14), said front plate (11) having an open area (21) between the inner face (13) and the back plate (22), said



open area (21) having an open area width (23), said front plate (11) having an angled, wide-mouthed opening (15) beginning at the top (24) and said wide-mouthed opening (15) having a stud sliding edge (17) and a stud-stopping edge (16), said stud-stopping edge (16) terminating at a stud-receiving throat (18) between a throat edge (27) and the stud sliding edge (17), said throat (18) having a throat width (29) with a narrowmost portion (29') and a throat length (19) and said throat edge (27) continuing generally parallel to said stud-sliding edge (17) and said stud-sliding edge (17) terminating in a stud holding area (20), said stud holding area (20) continuing until it intersects said throat edge (27) and said slotted member (10) having a slotted member vertical central axis (28) and said stud sliding edge (17) at said throat (18) having an angle of between about 25 and 35 degrees from said slotted member central axis (28);

the other of said first and second members comprising a stud assembly (30) having a supporting plate (31), a stud member (32) extending outwardly a stud extension distance (34) from said supporting plate (31), said stud member (32) having two rounded ends (38, 39) spaced apart from each other a stud length (37), said stud member (32) having a stud width (36) and said stud width (36) being narrower than said stud length (37) and narrower than said narrowmost portion (29') of said throat width (29) and said stud length (37) being greater than said narrowmost portion (29') of said throat width (29), said stud member (32) terminating in an overhanging button (33), said overhanging button (33) having a button thickness (35) less than the width (23) of said open area behind said front plate, the stud extension distance (34) being greater than the thickness (14) of said front plate and the stud assembly having a stud assembly vertical central axis (40) and a line extending through a stud central axis (41) of said stud is at an angle between about 55 and 65 degrees with respect to said stud assembly vertical central axis (40); and

wherein said throat length (19) is at least the length of one half the stud length (37) whereby when the tool (42) is held by one of said first and second members (10 or 30) above a tool center of gravity (43), said one of said first and second members (10 or 30) is oriented so that it hangs freely with its vertical central axis (28 or 40) oriented vertically and the second of said first and second members (30 or 10) is affixed to a supporting member so that its vertical central axis (40 or 28) is oriented vertically and when said tool (42) is dropped into said second of said first and second members (10 or 30), said wide-mouthed opening (15) contacts said stud member (32) and said button (33) enters the open area (21) behind said front plate (11), said stud member (32) abuts said stud sliding edge (17) and said stud stopping edge (16) where it is retained against the stud stopping edge (16) and the stud sliding edge (17) adjacent the throat (18) until said tool (42) is rotated about 90 degrees when said stud member (32) becomes aligned with said throat (18) and the stud member (32) moves

into the stud holding area (20) where the tool (42) is free to return so that a vertical central axis of the tool (40) is oriented vertically.

5,799,848

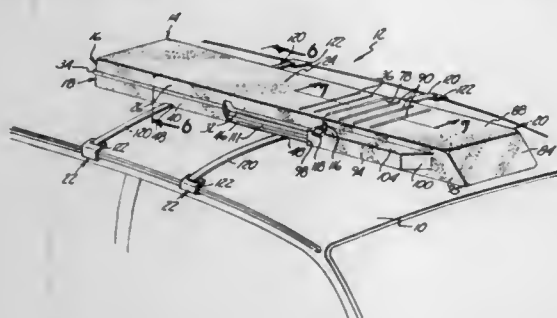
SKI CARRIER AND CASE

James H. Wills, Coon Rapids, Minn., assignor to Image Roto-molding Enterprises, LLC., Brainerd, Minn.
Continuation of Ser. No. 326,644, Oct. 20, 1994, abandoned, which is a continuation-in-part of Ser. No. 22,711, Feb. 24, 1993, Pat. No. 5,415,333. This application Jun. 20, 1996, Ser. No. 667,301

Int. Cl.⁶ B60R 9/00

U.S. Cl. 224—328

4 Claims



1. A case to hold selected items suitable for being alternatively transported by carrying and by vehicular mounting, said case comprising:

an openable case means comprising a cover portion and a holder portion, said cover portion being positionable with respect to said holder portion to thereby permit closing said case means about an interior space formed therein and to permit opening said case means to expose said case interior space, said case means being of extended length between first and second ends thereof along an axis, said first end forming a substantially flat surface substantially perpendicular to said said axis, said holder portion having a holder major outer surface joining a pair of opposite sides of that said holder portion between opposite ends of said holder portion, said holder portion opposite sides each having provided thereon outside thereof a strap lug with an opening therein across from where said holder outer major surface joins said pair of opposite sides at curved corners permitting access to said openings from along said holder major outer surface; and

a pair of wheels of a selected outer diameter mounted to said case means adjacent said case means first end so that each is positioned in a corresponding wheel space formed by a corresponding wheel well structure such said outer diameter of each said wheel as mounted in said wheel space therefor does not reach said case means first end which is positioned with respect to said wheels so that said case means can be selectively rested on said first end thereof when supported solely by a substantially flat horizontal surface without also being substantially supported by said wheels.

5,799,849

PROPANE TANK SAFETY CARRIER

Ivan L. Beer, and Loydene M. Beer, both of 16517 NE. 12th St., Vancouver, Wash. 98684

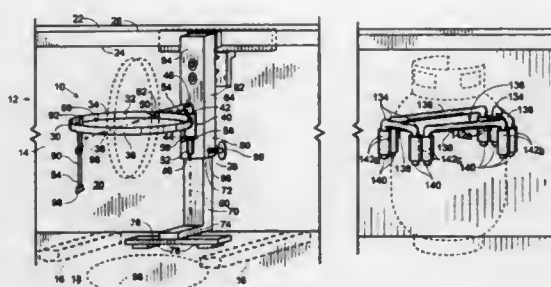
Filed Mar. 20, 1997, Ser. No. 821,368

Int. Cl.⁶ B60R 11/00

U.S. Cl. 224—403

19 Claims

1. A safety carrier for stabilizing a pressure-fluid bottle in an upright position in a truck having a pickup box with a wall, the safety carrier comprising:



a carrier frame configured to be operatively anchored to the pickup box; and
a generally rigid portion, generally having the shape of a ring and including a central aperture configured to receive and fit closely about a portion of such a pressure-fluid bottle, the generally rigid portion being coupled in an articulated manner to the carrier frame to allow a user selectively to change the generally rigid portion back and forth between an operative configuration in which the generally rigid portion is generally horizontally oriented and projects out into the pickup box to receive and stabilize the bottle, and a stowage configuration in which the generally rigid portion is generally vertically oriented and disposed adjacent the wall of the pickup box, where the generally rigid portion remains coupled to the carrier frame in the operative and stowage configurations and during the change therebetween by the user.

5,799,850

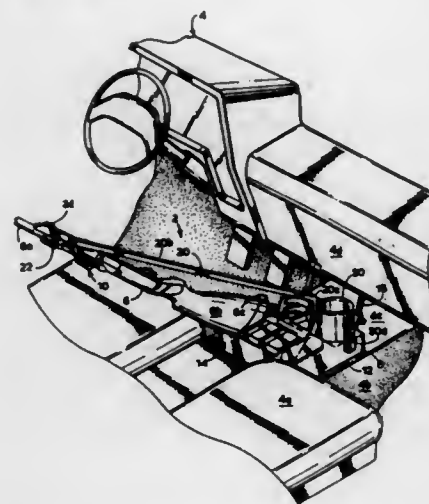
VEHICLE GUN RACK

Dennis R. Ryder, 704 E. 20th, Pittsburg, Kans. 66762
Filed Nov. 15, 1996, Ser. No. 749,808

Int. Cl.⁶ B60R 7/04

U.S. Cl. 224—539

9 Claims



1. A rack for mounting on a vehicle floor in front of a vehicle seat and adapted for receiving a gun with a barrel and a stock having a butt, which includes:

(a) a base having:

- (1) a front;
- (2) a back;
- (3) opposite sides;
- (4) a bottom;
- (5) a top;
- (6) a longitudinal axis;
- (7) a socket located on said longitudinal axis and open at said top;
- (8) a socket reinforcement comprising a sleeve receiving said socket and a plurality of wings extending radially outwardly therefrom;

- (9) a pair of gun butt receivers open at said base top and each located adjacent the base back and adjacent a respective base side;
 - (10) a pair of container receivers having generally circular configurations and open at the base top, each said container receiver being located adjacent to the base front and adjacent to a respective base side;
 - (11) a front compartment open at said base top and located along said base longitudinal axis in front of said socket;
 - (12) a medial compartment open at said base top and located along said base center line behind said socket;
 - (13) a rear compartment open at said base top and located along said center line adjacent to said base back; and
 - (14) a pair of leg recesses each open at a respective base side adjacent to said base front;
- (b) first and second anchor belts each attached to said base at said base back adjacent to a respective base side, each said anchor belt including anchor belt fastening means for fastening said anchor belt in a fastened configuration;
- (c) a pair of legs each having a proximate end pivotably connected to said base at a respective leg recess, inner and outer tubes telescopically interconnected, a collar mounted on said outer tube, a set screw threadably received in said collar and selectively engaging said inner tube, a distal end and a rubber tip mounted on said distal end; and
- (d) an arm assembly including:
- (1) an arm with a proximate section received in said socket and a distal section, said proximate and distal sections forming an obtuse angle with respect to each other;
 - (2) said arm comprising a tube with a generally square cross-sectional configuration;
 - (3) a crossbar including a medial portion mounted transversely on said arm distal section, opposite crossbar hooks each connected to the medial portion and including inner and outer hook legs, each said hook being located adjacent to a respective crossbar end; and
 - (4) a pair of retainer straps each having an inner end receiving a respective hook inner leg and an outer end receiving a respective hook outer leg.

5,799,851

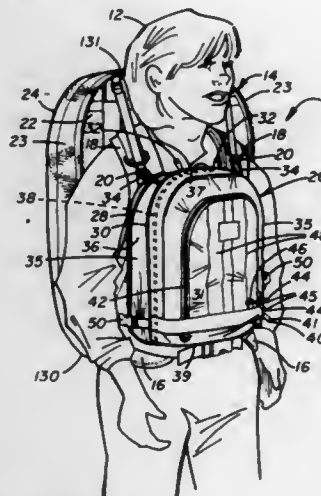
COMBINED DAY PACK/TRAVEL PACK

Katherine Wulf, Vista, and Julie Beer, Encinitas, both of Calif., assignors to Eagle Creek, Inc., San Marcos, Calif.
Filed May 1, 1997, Ser. No. 847,126

Int. Cl.⁶ A45F 3/04

U.S. Cl. 224—583

29 Claims



1. A luggage container comprising:

a main compartment having a front side, a back side, a top, a bottom, a first side, and a second side, said back side having an upper portion, a bottom left portion, and a bottom right portion;

a day pack having a front side, a back side, a top, a bottom, a right side, and a left side;

a first detachable fastening means for detachably affixing said day pack to said front side of said main compartment;

a shoulder strap harness detachably affixed to said upper portion of said main compartment, having a right side and a left side;

a first adjustable shoulder strap with a first upper end affixed to said left side of said shoulder strap harness and a first lower end affixed to said bottom left portion of said back side of said main compartment, and a second adjustable shoulder strap with a second upper end affixed to said right side of said shoulder strap harness and a second lower end affixed to said bottom right portion of said back side of said main compartment, such that said shoulder straps allow a user to carry the main compartment on the user's back;

a first swiveled snap hook fixed to said top of said day pack adjacent said first side, and a second swiveled snap hook fixed to said top of said day pack adjacent said second side; and

a first D-ring fixed to said first adjustable shoulder strap proximate said first upper end, and a second D-ring fixed to said second adjustable shoulder strap proximate said second upper end, such that said day pack may be detachably affixed to said shoulder straps by connecting said first and second swiveled snap hooks to said first and second D-rings.

5,799,852

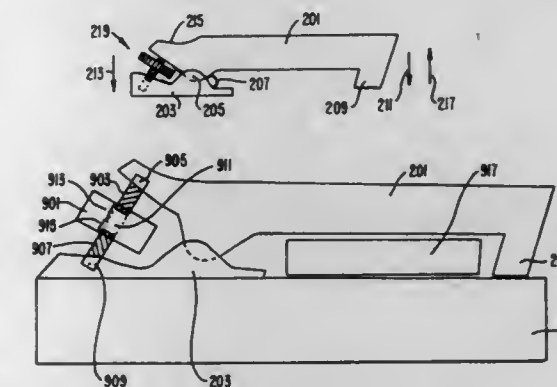
PAGER MOUNTING SYSTEM

Robert Vardanega, 2923 Marina Dr., Alameda, Calif. 94501
Filed Feb. 13, 1996, Ser. No. 600,721

Int. Cl.⁶ A44B 21/00

U.S. Cl. 224—667

12 Claims



1. A securing system combined with a portable electronic device, comprising:

a portable device housing integral to said portable electronic device;

a mounting member integral to said portable device housing;

a clip member having a first portion and a second portion, said clip member pivotably coupled to said mounting member, said pivotal coupling allowing a separation between said second portion of said clip member and said device housing to be varied;

a tensioning spring interposed between said mounting member and said clip member, said tensioning spring applying a force to said clip member to compel said second portion of said clip member to remain in contact with said device housing, wherein an external force applied to said first portion of said clip member forces said second portion of said clip member to separate from said mounting member;

a threaded pin interposed between said mounting member and said first portion of said clip member, said threaded pin having a first portion and a second portion, said first portion fixably attached to said mounting member; and

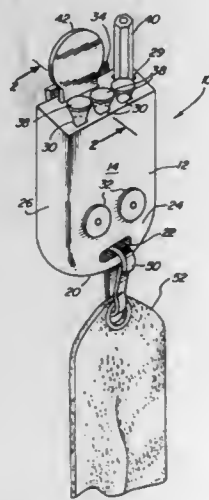
a wheel threadably engaged with said second portion of said threaded pin and interposed between said mounting member and said first portion of said clip member, wherein said wheel

has a plurality of positions, wherein said wheel in a first position prevents said second portion of said clip member from being separated from said device housing, and wherein said wheel in a second position permits a gap to be formed between said second portion of said clip member and said device housing.

5,799,853
CADDY FOR CARRYING GOLFING ITEMS
Frederick P. Brewster, 15111 Capetown La., Huntington Bch., Calif. 92647

Filed Jun. 4, 1996, Ser. No. 659,118
Int. Cl.⁶ A45F 3/00; A63B 57/00
U.S. Cl. 224—679

12 Claims



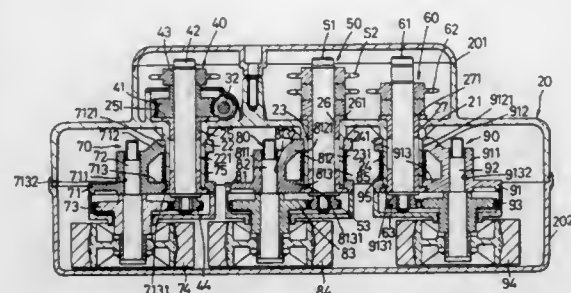
1. A portable caddy for holding a plurality of items used by a golfer comprising, in combination: an elongated, substantially rectangular body; an elongated body, having an elongated front surface with a lower portion and an upper portion; a pair of small openings formed in said lower portion of said elongated front surface for holding a pair of ball markers; said upper portion of said elongated front surface being unencumbered to enable decorative material to be adhered thereto; a pair of elongated side surfaces; an elongated rear surface having a rotatable holding clip mounted thereon; a top surface having a plurality of shape openings formed therein connected to resilient internal passageways formed between said elongated front surface, said pair of elongated side surfaces and said elongated rear surface, for holding a plurality of different shaped golfing items inserted in said plurality of shaped openings; an elongated opening formed in said lower portion of said elongated front surface, below said pair of small openings adjacent a lower surface of said elongated body; and a holding means secured in said elongated opening for supporting a further item.

5,799,854
WORKPIECE FEEDING MACHINE
Ching-Chi Lin, No. 473, San-Feng Rd., Hou-Li Hsiang, Tal-Chung Hsien, Taiwan

Filed Mar. 26, 1997, Ser. No. 824,030
Int. Cl.⁶ B65H 20/00; B27C 1/12
U.S. Cl. 226—188

2 Claims

1. A workpiece feeding device comprising:



- a housing having a front end, a rear end, and a vertical support wall between said front and rear ends, said vertical support wall having a plurality of shaft mounting sleeves; a plurality of first shafts extending horizontally through said shaft mounting sleeves, respectively; a plurality of swing seats mounted respectively to rear ends of said shaft mounting sleeves; a plurality of second shafts respectively mounted to said swing seats and extending horizontally and rearwardly, said second shafts being offset radially from said first shafts respectively; a plurality of advancing rollers mounted respectively to said second shafts; means for biasing said advancing rollers downward; a motor mounted to said housing; and a transmission means in connection with said motor and said first shafts; wherein each of said swing seats has a vertical seat wall which has a first hole for insertion of one of said rear ends of said shaft mounting sleeves and a second hole radially offset from said first hole for receiving one of said second shafts, said vertical seat wall further having a bushing which is formed around said second hole and which projects forwardly from said vertical seat wall to be substantially parallel with said one shaft mounting sleeve, said bushing having a front end and an auxiliary seat portion which extends from said front end to said one shaft mounting sleeve for connection therewith, said auxiliary seat portion having a connecting hole for receiving said one shaft mounting sleeve forwardly of said vertical seat wall.

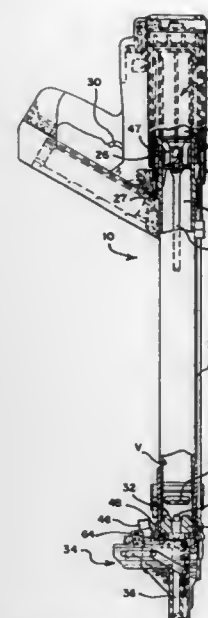
5,799,855
VELOCITY CONTROL AND NOSEPIECE STABILIZER SYSTEM FOR COMBUSTION POWERED TOOLS
Stanley C. Veoukas, Wheeling; Kul-Chiu Kwok, Mundelein; Donald L. Van Erden, Wildwood, and George M. Velan, Mount Prospect, all of Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Feb. 9, 1996, Ser. No. 599,022
Int. Cl.⁶ B25C 1/04

U.S. Cl. 227—10

13 Claims

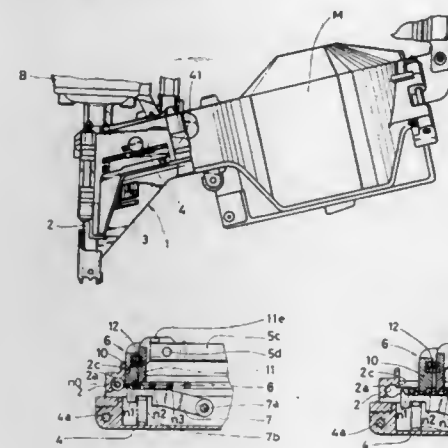
1. A combustion-powered fastener-driving tool, comprising: a housing having a combustion chamber defined therein and enclosing a power source for creating combustion; a cylinder operatively connected to said combustion chamber; a piston movably disposed within said cylinder and adapted to be driven by said combustion developed within said combustion chamber; a driver blade operatively connected to said piston so as to be driven by said piston toward a fastener so as to impact the fastener and drive the fastener into a workpiece; a nosepiece configured for accepting said driver blade, for contacting the workpiece, and for guiding said driver blade so as to impact the fastener as said piston is driven toward a terminal end of said cylinder;



- a bumper fixedly mounted upon said nosepiece for defining the end of travel of said piston within said cylinder when said piston is driven by said combustion toward said terminal end of said cylinder; and isolation means interposed between said nosepiece and said cylinder for isolating said nosepiece and said bumper from reactive movement of said cylinder, induced by said combustion of said power source within said combustion chamber, by permitting said cylinder to undergo said reactive movement while said nosepiece and said bumper remaining substantially stationary with said nosepiece in contact with the workpiece after occurrence of said combustion and prior to impact and driving of the fastener by said driver blade.

5,799,856
FASTENER DRIVING TOOL
Kenji Mukoyama, Anjo, Japan, assignor to Makita Corporation, Anjo, Japan
Filed Oct. 23, 1996, Ser. No. 731,972
Claims priority, application Japan, Oct. 24, 1995, 7-275696
Int. Cl.⁶ B25C 1/04
U.S. Cl. 227—112

8 Claims

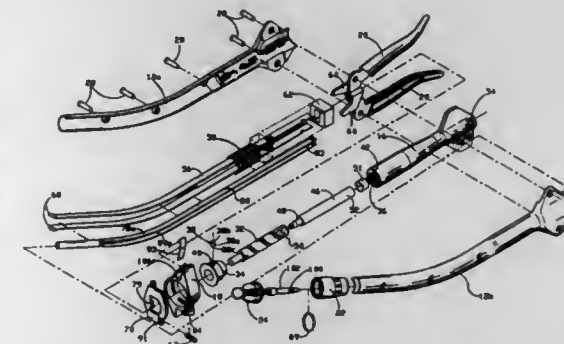


1. In a fastener driving tool having fastener driving means for driving fasteners one after another, the fasteners being connected in series to each other to form a strip of fasteners, the improvement comprising:

- fastener feeding means for feeding the fasteners one after another to a driving position by the fastener driving means; said fastener feeding means including: a first claw and a second claw positioned forwardly of said first claw in the feeding direction of the fasteners; drive means for reciprocally moving each of said first and second claws between a frontmost position and a rearmost position; and stroke adjusting means for providing difference between the stroke of movement of said first claw and the stroke of movement of said second claw, so that the stroke of movement of said second claw is smaller than the stroke of movement of said first claw.

5,799,857
CIRCULAR ANASTOMOSIS DEVICE
John Charles Robertson, Bloomfield, and Frank J. Viola, Sandy Hook, both of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.
Continuation of Ser. No. 133,485, Oct. 7, 1993, abandoned.
This application Jan. 16, 1996, Ser. No. 585,828
Int. Cl.⁶ A61B 17/064; 17/115
U.S. Cl. 227—179.1

39 Claims



1. A surgical instrument for applying at least one circular array of fasteners, comprising: a housing having proximal and distal end portions; a shaft extending from said housing distal end portion, said shaft having proximal and distal end portions; a fastener carrying cartridge positioned at said shaft distal end portion, said cartridge having a plurality of fasteners disposed therein; a fastener firing member operatively associated with said fastener carrying cartridge; at least one lever extending from said housing, said lever being adapted to move said fastener firing member to expel said fasteners from said cartridge; an anvil, including an anvil shaft, disposed opposite said cartridge; an elongated member operatively associated with said anvil for moving said anvil relative to said cartridge; and a lockout member operatively associated with said elongated member and said fastener firing member and movable between at least a first position and a second position such that when said lockout member is in said first position said lockout member permits operative movement of said elongated member and said anvil and prevents said fastener firing member from firing said plurality of fasteners and when said lockout member is in said second position said lockout member prevents operative movement of said elongated member and permits movement of said fastener firing member sufficient to fire said plurality of fasteners.

5,799,858

DIE BONDING DEVICE

Soo-keun Nam, and Kook-hwan Kim, both of Yongin-gun, Rep. of Korea, assignors to Samsung Aerospace Industries, Ltd., Kyongsangnam-do, Rep. of Korea

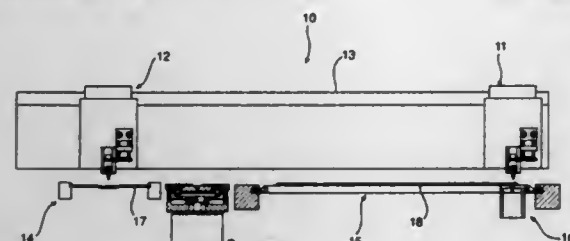
Filed Sep. 13, 1996, Ser. No. 713,389

Claims priority, application Rep. of Korea, Sep. 16, 1995, 95-30325; Jul. 15, 1996, 96-28611

Int. Cl.⁶ H01L 21/60

U.S. Cl. 228—6.2

11 Claims



1. A die bonding device comprising:
 - a frame member;
 - a first bonding head having controlled horizontal linear movement along said frame member;
 - wafer supporting means for supporting a wafer from which semiconductor chips are formed;
 - first semiconductor chip suction means installed in said first bonding head for picking up semiconductor chips from said wafer by vacuum suction;
 - lead frame transferring means for transferring a lead frame to a semiconductor chip bonding position;
 - a second bonding head having controlled horizontal linear movement along said frame member;
 - a pre-alignment system for aligning a semiconductor chip from said first semiconductor chip suction means; and
 - second semiconductor chip suction means installed in said second bonding head for picking up semiconductor chips aligned according to said pre-alignment system.

5,799,859

STRUCTURE FOR GOLF CLUB HEAD AND THE METHOD OF ITS MANUFACTURE

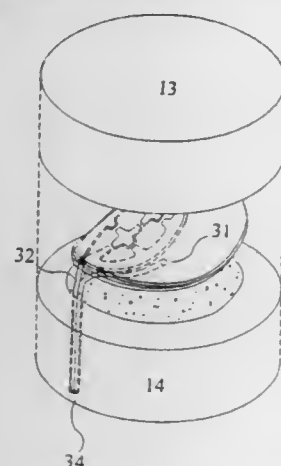
Jung-Ho Cheng, 18 floor, No. 106, Sec. 2, Ho-Pin E. Road, Taipei, Taiwan

Division of Ser. No. 521,735, Aug. 31, 1995, Pat. No. 5,643,108. This application Mar. 6, 1997, Ser. No. 812,784

Int. Cl.⁶ B23K 20/00; 31/00

U.S. Cl. 228—157

13 Claims



1. A method for forming a golf club head, comprising:
 - providing three metallic sheets;

- placing cavities in one of said sheets;
- applying stop-off agent to areas of said sheets where diffusion bonding is not desired;
- sealing said three sheets together with two gas supply tubes to form an assembly;
- placing said assembly in a die;
- attaching a gas supply to said gas supply tubes; and
- subjecting said assembly to a diffusion bonding process and a superplastic inflation process.

5,799,860

PREPARATION AND BONDING OF WORKPIECES TO FORM SPUTTERING TARGETS AND OTHER ASSEMBLIES

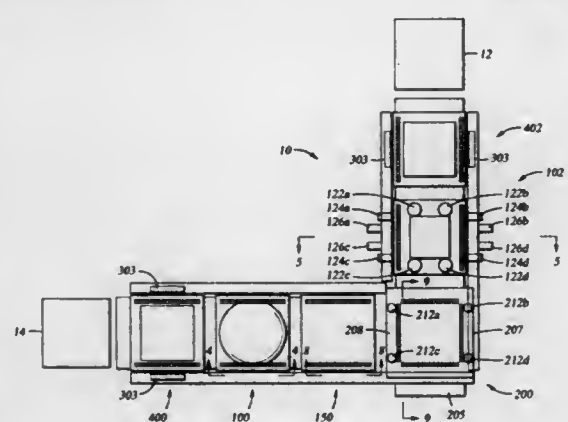
Richard Ernest Demaray, Portola Valley; Akihiko Hosokawa, Cupertino, and Manuel J. Herrera, San Mateo, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Aug. 7, 1995, Ser. No. 511,824

Int. Cl.⁶ B23K 20/14; 20/16

U.S. Cl. 228—194

16 Claims



1. A method of bonding at least a first planar workpiece to a second workpiece at bonding surfaces thereof to form a monolithic member, comprising:
 - cleaning the bonding surfaces of the workpieces in a non-oxidizing cleaning environment;
 - depositing an interlayer on at least one of the workpiece bonding surfaces in a non-oxidizing environment; and
 - joining the workpiece surfaces under heat and pressure in a non-oxidizing environment to form a diffusion bond between the workpieces at the bonding surfaces;
- whereby the workpieces are continually maintained in a non-oxidizing environment during the steps of cleaning, depositing an interlayer on, and joining the workpiece surfaces; and
- wherein the environment includes an oxygen gettering gas therein during at least some of said cleaning, depositing and joining steps.

5,799,861

CASE FORMING MATERIALS AND COMPONENTS AND STRUCTURES THEREOF

Craig Ronald Bonner; Gregory Thomas Blomfield; Ian John McCormack, and John David Riley, all of Auckland, New Zealand, assignors to Carter Holt Harvey Limited, Auckland, New Zealand

PCT No. PCT/NZ94/00006, § 371 Date Sep. 28, 1995, § 102(e) Date Sep. 28, 1995, PCT Pub. No. WO94/19538, PCT Pub. Date Sep. 1, 1994

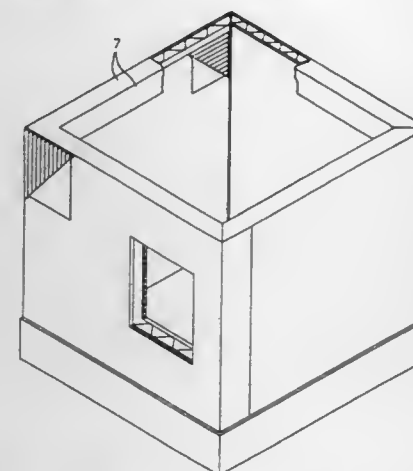
PCT Filed Feb. 4, 1994, Ser. No. 505,265

Claims priority, application New Zealand, Feb. 17, 1993, 245923

Int. Cl.⁶ B65D 5/32; 5/42

U.S. Cl. 229—23 R

24 Claims



1. A panel forming assembly comprising
 - a flute providing medium having two sides,
 - a liner for one side of said flute providing medium, and
 - a liner for the other side of said flute providing medium, wherein said flute providing medium is a corrugated board having a flute pitch and depth greater than that of 'A' flute.

5,799,862

EXPANSIBLE ENVELOPE

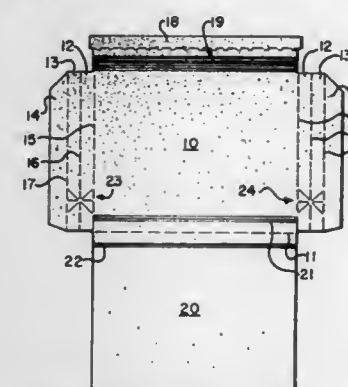
Larry D. Gray, Chesterfield, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed May 27, 1997, Ser. No. 863,165

Int. Cl.⁶ B65D 27/00

U.S. Cl. 229—68.1

2 Claims



1. An expansible envelope prepared from a one piece blank of foldable material comprising a substantially rectangular first panel having top, bottom and side edges, a second panel of the same general size and shape as the first panel foldably attached to the first panel along a single bottom fold line, a closure flap foldably attached to the first panel along a plurality of closely spaced top fold lines, and a pair of gusset panels having bottom edges and a side closure flap foldably attached to each side edge of the first panel along separate longitudinal score lines, the improvement comprising stress relief score lines located above the bottom edges of each pair of gusset panels at each side edge of the first panel wherein said stress relief score lines further comprise a first pair of diagonally oriented score lines which extend upwardly within said gusset panels from the bottom edges thereof to intersect one another along the longitudinal score line joining said gusset panels together, said intersection being located a distance from the bottom edges of the gusset panels that is substantially equal to the combined width of said gusset panels, an additional score line extending across said gusset panels generally perpendicular to the longitudinal score line joining said gusset panels together which passes substantially through the intersection of said first pair of diagonally oriented score lines, and a second pair of diagonally oriented score lines which extend downwardly within said gusset panels to intersect one another at a point which coincides substantially with the point of intersection of the first pair of diagonally oriented score lines.

side closure flap foldably attached to each side edge of the first panel along separate longitudinal score lines, the improvement comprising stress relief score lines located above the bottom edges of each pair of gusset panels at each side edge of the first panel wherein said stress relief score lines further comprise a first pair of diagonally oriented score lines which extend upwardly within said gusset panels from the bottom edges thereof to intersect one another along the longitudinal score line joining said gusset panels together, said intersection being located a distance from the bottom edges of the gusset panels that is substantially equal to the combined width of said gusset panels, an additional score line extending across said gusset panels generally perpendicular to the longitudinal score line joining said gusset panels together which passes substantially through the intersection of said first pair of diagonally oriented score lines, and a second pair of diagonally oriented score lines which extend downwardly within said gusset panels to intersect one another at a point which coincides substantially with the point of intersection of the first pair of diagonally oriented score lines.

5,799,863

UNFOLDING CUP WITH PREFOLDED CONVEX BOTTOM

Gilbert Caby, La Botte, Jarnioux F-69640, France, and Akiva Buchberg, 5030 Pine Tree Dr., Miami Beach, Fla. 33140

PCT No. PCT/FR95/00712, § 371 Date Nov. 29, 1996, § 102(e) Date Nov. 29, 1996, PCT Pub. No. WO95/33654, PCT Pub. Date Dec. 14, 1995

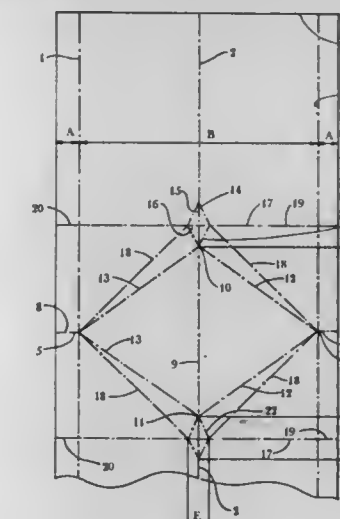
PCT Filed Jun. 1, 1995, Ser. No. 737,807

Claims priority, application France, Jun. 2, 1994, 94 06969

Int. Cl.⁶ B65D 3/08; 5/36

U.S. Cl. 229—104

9 Claims



1. Unfolding cup obtained by folding of an elongate rectangular flat sheet comprising, parallel to its length, two edges of width A framing a region of width B in which the side walls (21) of the cup are formed in the shape of a dihedral which are linked by a convex bottom obtained by prior folding of the borders of width A in a "W" shape, characterized in that the convex bottom is produced by the combination of grooves (12, 13, 18, 22) bounding two isosceles triangles inscribed in two pentagons having a common base (9, 30) of length C, less than B, situated on the mid-line longitudinal axis (2) of the sheet and common vertices (4, 5), (23), (28, 29) situated in the middle of the grooves (1) bounding the borders of width A, while each of their ends (10, 11), (25, 26) and (33-36) is common to a vertex of a diamond-shaped region (14) the long diagonal (15) of which is in the extension of the common base (9, 30) of the triangles and pentagons and the deformation of which, leading to folding of the said diamond (14) along one or the other of its diagonals (15, 16) allows unfolding and refolding of the cup.

5,799,864

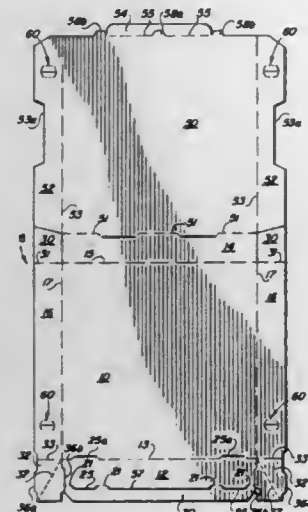
CONTAINER CLOSURE ARRANGEMENT

Noel J. Mertz, Ballwin, Mo., assignor to Jefferson Smurfit Corporation, Clayton, Mo.

Filed Jul. 8, 1997, Ser. No. 889,897

Int. Cl.⁶ B65D 5/30

U.S. Cl. 229—196



1. An improved closure arrangement for a tray type container with hinged cover, said container being formed from a unitary blank of foldable sheet material, such as paperboard, and comprising:

- (a) a tray including a bottom wall panel having a front wall panel, a rear wall panel, and side wall panels foldably joined to front, rear, and side edges thereof and upstanding therefrom;
- (b) a top panel foldably joined, at its front edge, to an upper edge of said tray front wall panel and disposed to extend rearwardly therefrom;
- (c) said tray side wall panels having front and rear corner flaps foldably joined to front and rear edges thereof and being disposed to be folded inwardly 90 degrees to lie against inner faces of said tray front and rear wall panels, respectively;
- (d) said front corner flaps each including integral upper and lower lock tabs extending upwardly and downwardly therefrom and adapted to be received within related openings in said tray top panel and bottom wall panel, respectively, to provide interlocking engagement between said front wall panel and said side wall panels at front corners of said tray;
- (e) each of said front corner flaps having, extending laterally thereacross, a score line arranged and disposed to allow a portion of said corner flap to be deflected, as its related side wall panel is canted inwardly, to facilitate insertion of said corner flap lock tabs into receiving openings of said tray top panel and bottom wall panel;
- (f) a cover including a top wall panel having a rear edge foldably joined to an upper edge of said tray rear wall panel and having a pair of side wall panels foldably joined to opposed side edges thereof and depending therefrom;
- (g) said cover top wall panel having, foldably joined to a front edge thereof, a relatively narrow tuck flap adapted to be received within a related opening in said tray top panel to lock said tray and cover in a closed condition.

5,799,865

FLAP CLOSURE AND OPENING MEANS FOR ENVELOPES

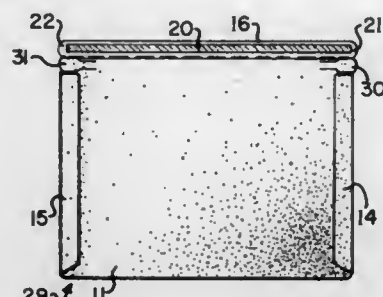
Larry D. Gray, Chesterfield, Va., assignor to Westvaco Corporation, New York, N.Y.

Filed Feb. 10, 1997, Ser. No. 797,168

Int. Cl.⁶ B65D 27/38

U.S. Cl. 229—309

5 Claims



1. In a paperboard envelope having a body including front and rear panels and side flaps, a closure flap hingedly connected to one of said panels which is adapted to be folded over and sealed to the other of said panels, said closure flap having a straight edge opposite its hinge connection which extends across the width of the flap and terminates at the two side edges of the envelope body, a single means for both sealing the closure flap to the envelope body and for releasing the closure flap from the envelope body, said means comprising an elongated strip of tear tape that is stronger than the material from which the envelope is constructed having adhesive on both surfaces, one surface of which is bonded to the inside face of the closure flap adjacent to the straight edge thereof and the other surface of which is adapted to be adhered to the envelope body for closing the envelope, at least one starter element cut from an envelope panel at a side edge thereof which lies beneath the closure flap and extends beyond the side edge of the envelope body, and a complimentary starter element formed at a side edge of the closure flap which also extends beyond the side edge of the envelope body, wherein said starter elements are adapted to be bonded together by said tear tape when the envelope is closed to form a starter tab which extends beyond the side edge of the envelope body for initiating the opening of the envelope, said tear tape serving to tear through the closure flap and produce a fiber separation/delamination of the envelope body material to the tear tape when the envelope is opened.

5,799,866

HOUSEHOLD FOOD CONTAINER

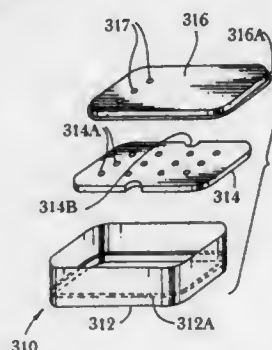
Deeb Hattem, 2701 Castlebluff Ct., SE, #104, Grand Rapids, Mich. 49512

Filed Oct. 4, 1996, Ser. No. 726,269

Int. Cl.⁶ B65D 1/36; 1/24

U.S. Cl. 229—406

5 Claims



1. A food container device comprising:
a) a bottom wall;

- b) a sidewalls extending circumferentially and upwardly from a periphery of the bottom wall forming a cavity therein;
- c) a removable platform contained within the cavity for supporting food items within the cavity;
- d) a means for supporting the removable platform within the cavity;
- e) a cover removably attached to an upper distal end of the sidewall; and
- f) wherein the supporting means is a continuous uninterrupted ridge extending inwardly and completely around on the inside of the sidewall.

5,799,867

ENGINE-DRIVEN HEAT PUMP APPARATUS AND METHOD FOR STABLE OPERATION OF HEAT PUMP

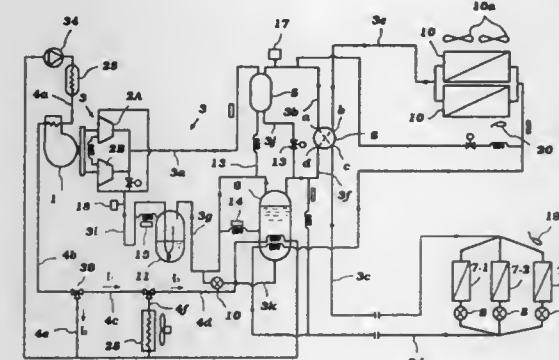
Makoto Misawa, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Feb. 8, 1996, Ser. No. 597,361

Int. Cl.⁶ G05D 23/00; F25B 27/00

U.S. Cl. 237—2 B

19 Claims



1. An engine-driven heat pump apparatus comprising a refrigerant circulation line through which a refrigerant circulates, said refrigerant circulation line comprising: an engine-driven compressor for circulating said refrigerant; a cooling water circulation line through which a cooling water for cooling said engine circulates; a cooling water-refrigerant heat-exchanger for exchanging heat between said cooling water and said refrigerant; at least one inside heat-exchanger for exchanging heat between said refrigerant and the air inside a room; an outside heat-exchanger for exchanging heat between said refrigerant and the air outside said room; an expansion valve arranged in series with each inside heat-exchanger; a four-way valve for reversing the flow of said refrigerant at said at least one inside heat-exchanger and at said outside heat-exchanger; and a pressure-controlling device for controlling the pressure difference in said refrigerant circulation line in the area downstream of said compressor and upstream of said expansion valve relative to the pressure upstream of said compressor and downstream of said expansion valve to be at least above a predetermined pressure when the required quantity of radiated heat from said at least one inside heat-exchanger in use is changed.

5,799,868

MULTI-TRACK ROAD CROSSING

Bernhard Neumann, Gmunden, Austria, assignor to Gmunder Fertigteile Gesellschaft m.b.H. & Co. KG, Gmunden, Austria

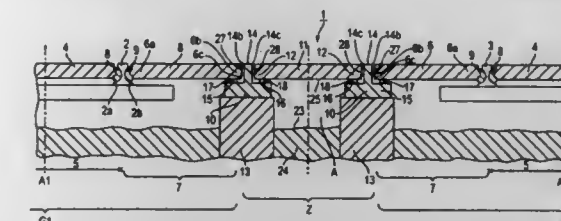
PCT No. PCT/AT95/00215, § 371 Date May 6, 1997, § 102(e) Date May 6, 1997, PCT Pub. No. WO96/15322, PCT Pub. Date May 23, 1996

PCT Filed Nov. 13, 1995, Ser. No. 836,211

Claims priority, application Austria, Nov. 15, 1994, 2108/94 Int. Cl.⁶ E01C 9/04

U.S. Cl. 238—8

12 Claims



1. A multi-track road crossing including a roadway positioned at the level of at least two tracks, each track comprising a pair of rails with each rail having an internally and an externally extending rail base, said roadway being formed at each of the tracks of the road crossing by self-supporting slabs elastically supported on the bases of the rails on at least one side of each slab, comprising inner slabs bridging a space between the two rails of a respective track and being only supported on two said rails and outer slabs each covering a strip-shaped region externally of the rails of the respective track, said outer slabs being elastically supported at sides thereof facing the rails on the externally extending rail bases and said outer slabs being supported on opposite sides facing away from the rails on supporting bodies which are laid on the ground adjacent the respective track, an intermediate area arranged in said road crossing between adjacent tracks, wherein the roadway is formed in said intermediate area by compensating slabs which bridge in a self-supporting manner said intermediate area, said compensating slabs having longitudinal rims and being supported with both of their longitudinal rims only on said supporting bodies which also support said outer slabs disposed adjacent said intermediate area.

5,799,869

OFF-ROAD HEATING CONTROL

Andrew J. Pichotta, Minneapolis, Minn., assignor to Eagle Engineering and Manufacturing, Inc., Welcome, Minn.

Division of Ser. No. 73,887, Jun. 9, 1993, Pat. No. 5,490,556.

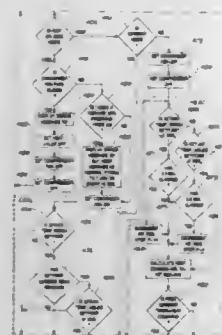
This application Nov. 20, 1995, Ser. No. 561,489

Int. Cl.⁶ F24D 3/00

U.S. Cl. 237—8 A

6 Claims

1. Apparatus for heating an enclosed operator space in an off-road vehicle comprising:
a) a heating loop having a heat valve for heating an internal ambient air environment in an off-road vehicle operator space;
b) an actual air temperature sensor for providing an electrical signal representative of the actual air temperature of the air heated by the heating loop; and
c) an electronic temperature control circuit responsive to a difference between the electrical signal representative of actual air temperature and to a desired air temperature outside a predetermined deadband containing the desired air temperature and having an integral control loop operating outside the predetermined deadband and holding the integral error constant within the predetermined deadband by ignoring actual temperature variations within the predetermined deadband and providing a HEAT COMMAND signal responsive to the integral error; and
d) a heat valve control block having a free running timer counting up to a predetermined number, then resetting to zero, and repeating counting, the block controlling the heat valve



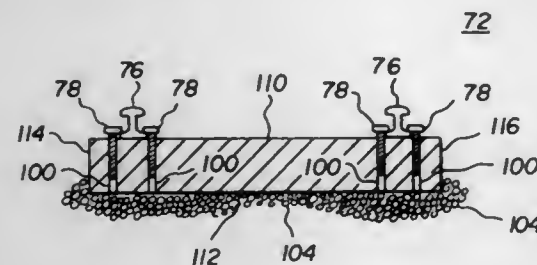
by comparing the count in the timer to the HEAT COMMAND signal and turning ON the heat valve when the timer count is less than the HEAT COMMAND signal and turning the heat valve OFF when the timer count is greater than the HEAT COMMAND signal.

5,799,870
THERMOPLASTIC RAILROAD TIE
John C. Bayer, Folsom, La., assignor to Demer Corporation, Covington, La.

Filed Apr. 21, 1997, Ser. No. 843,823
Int. Cl.⁶ E01B 3/44

U.S. Cl. 238—84

5 Claims



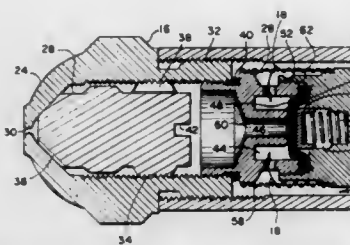
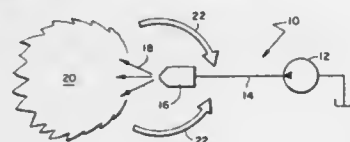
1. A railroad tie made by melt processing a thermoplastic composition comprising:
(a) a thermoplastic resin,
(b) an epoxidized oil, and
(c) a calcium sulphate composition comprising
(i) a calcium sulfate present at a level of from 50 to 99 percent by weight based on the total weight of the calcium sulfate composition and
(ii) a phosphate present at a level of from 1 to 50 percent by weight based on the total weight of the calcium sulfate composition.

5,799,871
SPRAY NOZZLE WITH DISCRETE OPEN/CLOSE DEADBAND AND METHOD THEREFOR
Richard S. Theurer, Asbury, N.J., assignor to Hago Industrial Corp., Mountainside, N.J.

Filed Mar. 13, 1996, Ser. No. 614,515
Int. Cl.⁶ B05B 1/32

U.S. Cl. 239—1

1 Claim



1. A method of controlling the flow of a liquid through a valved spray nozzle having an orifice of a first cross-sectional area, a valve element movable between an open position and a closed position wherein said open position, said valve element is spaced apart from a valve sealing surface to define therebetween a valve gap having a second cross-sectional area and wherein said closed position said valve element is against said valve sealing surface, said valved spray nozzle defining an inlet upstream of said valve sealing surface, a discharge chamber downstream of said valve sealing surface and upstream of said orifice, and a discharge atmosphere downstream of said orifice, said discharge atmosphere being at a discharge atmospheric pressure, said valve element having an inlet area exposed to an inlet pressure of said inlet, said valve element having an outlet area exposed to a discharge pressure of said discharge chamber, said method comprising the steps of:

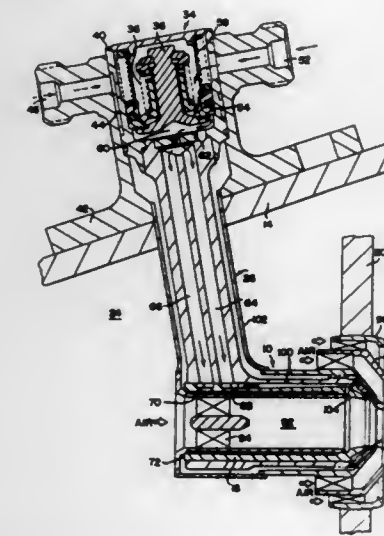
defining a predetermined upper limit and a predetermined lower limit with said predetermined upper limit being appreciably greater than said predetermined lower limit thereby defining a discrete deadband therebetween;
urging said valve element to said open position by way of said inlet pressure;
urging said valve element to said open position by way of said discharge pressure;
raising said inlet pressure substantially above said atmospheric pressure and above said predetermined upper limit;
moving said valve element from said closed position to said open position in response to said inlet pressure exceeding said predetermined upper limit;
raising said discharge pressure to be substantially closer to said inlet pressure than said discharge atmospheric pressure as a result of said inlet pressure being substantially greater than said discharge atmospheric pressure and said second cross-sectional area being substantially greater than said first cross-sectional area;
reducing said inlet pressure to a level substantially less than said predetermined upper limit but above said predetermined lower limit while leaving said valve element in said open position substantially solely by way of a combined effort of said inlet pressure and said discharge pressure acting upon said valve element;
reducing said inlet pressure below said predetermined lower limit to allow said valve element to move to said closed position;
reducing said discharge pressure to be substantially equal to said discharge atmospheric pressure;

pointing said valved spray nozzle in substantially the same direction as said liquid enters said valved spray nozzle; and compressing a gas within a hermetically sealed chamber upon moving said valve element from said closed position to said open position.

5,799,872
PURGING OF FLUID SPRAY APPARATUS
Gregory S. Nesbitt, Norwalk, and Robert D. Shoemaker, West Des Moines, both of Iowa, assignors to Delavan Inc, West Des Moines, Iowa
Continuation of Ser. No. 378,025, Jan. 24, 1995, Pat. No. 5,701,732. This application May 30, 1997, Ser. No. 866,467
Int. Cl.⁶ B05B 15/02

U.S. Cl. 239—8

37 Claims



1. Fluid spray apparatus comprising:
an element having first and second fluid passages for conveying a first fluid therethrough, said first and second fluid passages each having a discharge orifice adjacent an end of the element for discharging a spray of said first fluid, and inlet at a location spaced from said end for receiving the first fluid from a first fluid supply source;
a passage for a second fluid in said element communicating with said first fluid passage to communicate a high pressure second fluid to said first fluid passage to purge the residual first fluid from said first and second first fluid passages through the discharge orifice of said second first fluid passage when the supply of first fluid to said first and second first fluid passages is interrupted;
said element having a longitudinal axis; and
said discharge orifices of said first and second first fluid passages are spaced from said longitudinal axis by substantially the same distance for each.

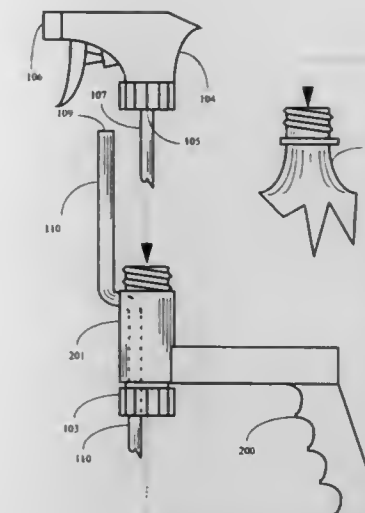
5,799,873
PORTABLE MULTI-PORT LIQUID DISPENSING SYSTEM
Billy Ying Bui Lau, 486 N. Vista Del Norte, Walnut, Calif. 91789

Continuation of Ser. No. 468,194, Jun. 6, 1995, abandoned.
This application May 15, 1997, Ser. No. 857,034
Int. Cl.⁶ B05B 9/043

U.S. Cl. 239—33

40 Claims

1. A dispensing system for dispensing a single liquid, said dispensing system comprising:
a container defining a single chamber, said single liquid being contained in said single chamber;



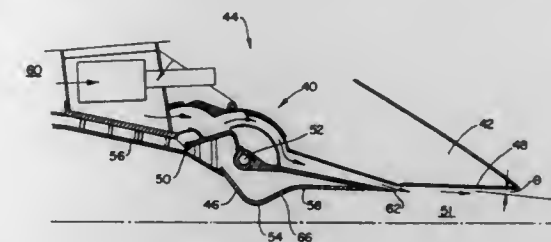
a body having a first liquid channel, said first liquid channel having a first end and a second end, said first end submerged in said single liquid;
a mouth controlled port connected to said second end of said first liquid channel;
an ejector attached to said body; and
a second liquid channel operative inside said body to channel said single liquid to said ejector.

5,799,874
AERODYNAMICALLY CONTROLLED EJECTOR
Daniel E. Eigenbrode, Hobe Sound, Fla., and Robert E. Field, Sycamore, Ill., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 30, 1995, Ser. No. 565,600
Int. Cl.⁶ B64D 33/04

U.S. Cl. 239—127.1

7 Claims



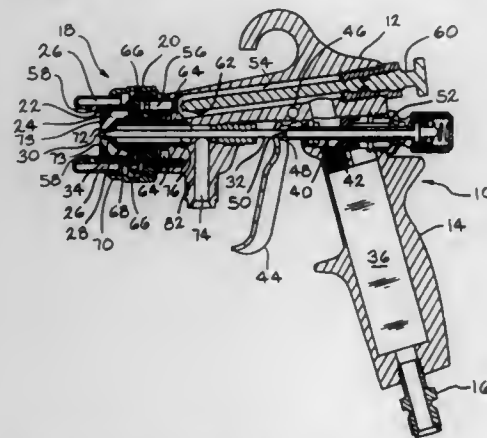
1. A supersonic ejector having a passage for flowing primary gas stream and another passage for flowing secondary gas stream, a throat disposed in the primary gas stream, a cooling extension defining a slot axially extending from said throat, the improvement comprising a contour on said cooling extension extending into the primary stream for accelerating the velocity of the primary gas stream to approximately match the static pressure of the secondary gas stream and contain the expansion shock waves upstream of said slot relative to the flow of said secondary gas stream.

5,799,875
HVLP SPRAY GUN AND INTEGRATED FLUID NOZZLE
THEREFOR

Richard Weinstein, Toledo, Ohio, and David M. Seltz, Temperance, Mich., assignors to Asahi Sunac Corporation, Japan
Continuation-in-part of Ser. No. 413,796, Mar. 30, 1995, abandoned. This application Jan. 21, 1997, Ser. No. 787,528
Int. Cl.⁶ B05B 1/28

U.S. Cl. 239—296

15 Claims



7. A longitudinally extending fluid nozzle for an HVLP spray gun, said nozzle having a fluid inlet end that is threaded for engagement with the fluid cavity of a spray gun body, a fluid outlet end having a fluid outlet passage, an interior passage extending from the inlet end through the outlet end, and an exterior surface between the inlet end and the outlet end having first and second laterally extending flanges separated from one another longitudinally of said nozzle, the second of said flanges being nearer the outlet end of said nozzle than the first of said flanges which is nearer the inlet end, and there being a plurality of bores extending through said first flange and a plurality of bores extending through said second flange, wherein the axes of the bores through said second laterally extending flange are farther from the axis of said nozzle than are the axes of the bores through said first laterally extending flange, wherein the bores in said first flange constitute pressure reduction orifices which are calibrated to reduce the pressure of high pressure air passing therethrough to that required for HVLP atomization of a fluid stream flowing through said fluid outlet passage and out of said fluid outlet end and wherein the bores in said first flange are operable to direct air passing therethrough towards a surface of said second flange and not directly towards the bores in said second flange so that the atomization air impinges on said surface of said second flange, and is directed radially outwardly and its velocity is reduced, before it passes through the bores in said second flange.

5,799,876
EXTERNAL MIXED PLURAL COMPONENT SPRAY GUN
Bobby G. Isler, Lady Lake, Fla., assignor to Martin Marietta, Bethesda, Md.

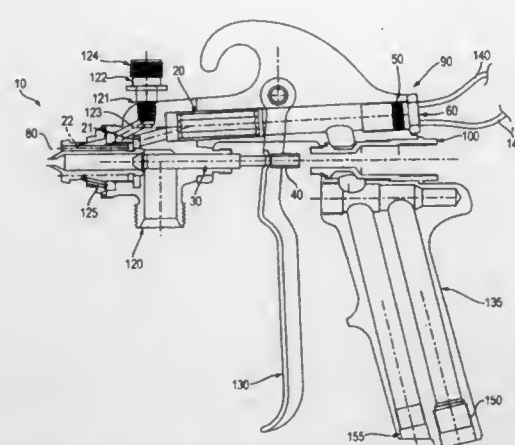
Filed May 31, 1995, Ser. No. 454,944

Int. Cl.⁶ B05B 7/04

U.S. Cl. 235—306

20 Claims

1. A multiple material spray system for applying a spray by a single component spray gun comprising:
a single component spray gun body including a first entry port for feeding a first material therethrough, a second entry port in fluid communication with said first entry port, an exit port in fluid communication with said first entry port and said second entry port, and a plurality of tube injectors connected to said first entry port for feeding a plurality of first materials therethrough;
a fluid section connected to said body at said exit port, said fluid section including a third entry port for feeding a second material therethrough;



said fluid section further comprising first and second passageways to receive said first and second materials from said exit port and said third entry port outside of the single component spray gun body, said first and second passageways for maintaining said first and second materials mutually isolated and for delivering said first and second materials for mixing exteriorly of said single component spray gun body and of said fluid section immediately before applying the spray.

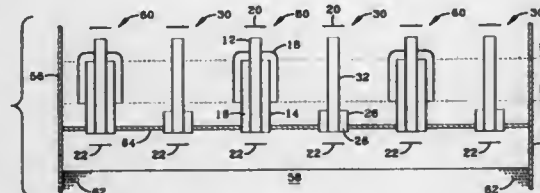
5,799,877
FLUID DISTRIBUTION ACROSS A PARTICULATE BED
Ramesh Gupta, Berkeley Heights, and Jeffrey W. Frederick, Morris Plains, both of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Jan. 3, 1996, Ser. No. 582,602

Int. Cl.⁶ A62C 5/02

U.S. Cl. 239—8

18 Claims



1. A flow distribution means comprising a horizontally disposed tray containing a plurality of gas and liquid spray distribution means extending therethrough for receiving said gas and liquid from above said tray and spraying them below, wherein said gas and liquid spray distribution means comprises a gas conduit and a liquid conduit, each having an entrance and an exit for permitting a respective fluid to flow through, wherein said liquid conduit surrounds a portion of said gas conduit, so that a portion of said gas conduit is disposed inside said liquid conduit to provide an annular space for said liquid to flow through, with said exits positioned proximate each other, whereby the exiting gas is surrounded by downflowing liquid, with said exiting gas contacting said exiting liquid to form a liquid spray.

5,799,878
GAS MIXING NOZZLE FOR A CUTTING TORCH
Werner Görde, Fulda, and Manfred Greifzu, Künzell, both of Germany, assignors to GCE-RHONA Autogengerate GmbH, Fulda, Germany

Filed Jun. 28, 1996, Ser. No. 672,539

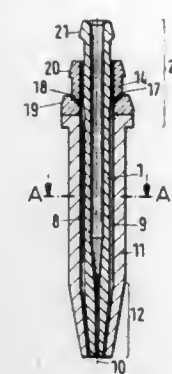
Claims priority, application Germany, Jun. 28, 1995, 195 23 499.5

Int. Cl.⁶ F23D 14/54

U.S. Cl. 239—419.3

10 Claims

1. A gas mixing nozzle for a cutting torch, comprising in coaxial alignment:



a first, axially elongated part (1, 25) having a substantially cylindrical lateral surface and a tapered region (3, 12, 29), an axial cutting duct (4), peripheral longitudinal ducts (8, 9, 26) disposed at the lateral surface, and a sealing seat (7) for a cutting oxygen connection;
a second, axially elongated part (11) having an axial inner bore (13) into which a major portion of the first part is inserted and which radially delimits a major portion of the longitudinal ducts (8, 9, 26) of the first part (1, 25); and
a third, annular part (14) disposed on the second part and with a minor portion of the first part (1, 25) disposed in the annular opening, radially delimiting a minor portion of the longitudinal ducts (8, 9, 26) of the first part (1, 25), having at least one fuel gas passage into at least one of the longitudinal ducts (8, 9), and having centered sealing seats (19, 20) for a fuel gas connection and a heating oxygen connection, respectively;
wherein:
the longitudinal ducts (8, 9, 26) extend at least from a mouth (at 28) of the fuel gas passage to the tapered region (3, 12, 29);
the heating oxygen connection is upstream from the mouth of the fuel gas passage;
the longitudinal ducts (8, 9, 26) have a constant depth between the mouth (at 28) of the fuel gas passage and the tapered region (3, 12, 29), which depth is greater than duct depth in the tapered region (3, 12, 29);
the first part has a region (31) upstream of the mouth (at 28) of the fuel gas passage, wherein the longitudinal ducts (8, 9, 26) have a circular arc profile which meets the region of constant depth tangentially, and wherein duct depth decreases upstream to a lesser depth than the constant depth.

5,799,879
DEVICE FOR PRODUCING A FLUID JET
Josef Ottl, Diedorf, and Werner Kettl, Neusäss, both of Germany, assignors to Grafotec Kottler GmbH, Diedorf, Germany

Filed Dec. 18, 1995, Ser. No. 574,302

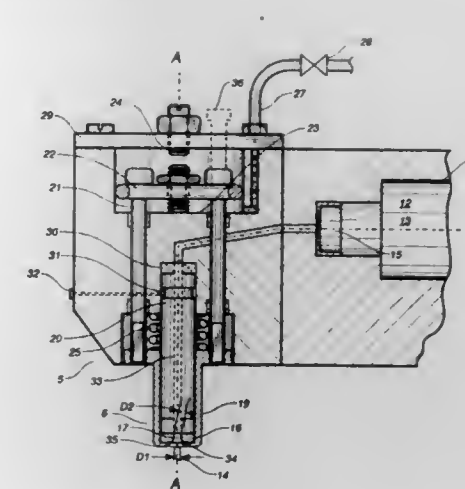
Claims priority, application Germany, Feb. 13, 1995, 195 04 652.8

Int. Cl.⁶ A62C 31/00

U.S. Cl. 239—437

10 Claims

1. A fluid jet device for applying a line of glue or soft fluid from a conduit onto a web comprising:
a nozzle head bearing a nozzle having a discharge port positioned adjacent an end of the conduit;
a ring-shaped elastic element positioned within said nozzle adjacent said discharge port, said elastic element having a bore-shaped through opening communicating with the conduit;
compression means positioned within said nozzle head, said compression means for exerting a compression force onto said elastic element so as to change a diameter of said through



opening and a diameter of the line passing through said elastic element from the conduit, said compression means comprising:
a thrust bolt rigidly mounted in the nozzle head and having a surface abutting a surface of said elastic element; and
a hollow outside cylinder movable in relation to said thrust bolt, said outside cylinder having an inwardly extending collar abutting another surface of the elastic element, said hollow outside cylinder being connected by adjusting rods to an adjustment means, said adjustment means for selectively moving said outside cylinder relative to said thrust bolt so as to compress said elastic element therebetween.

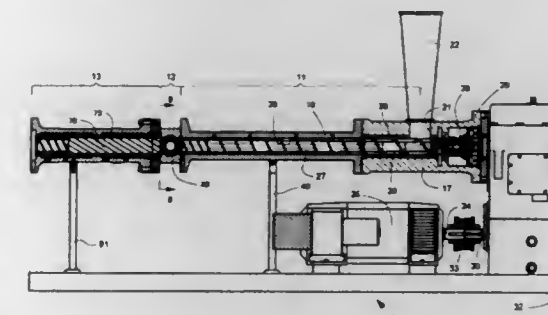
5,799,880
METHOD AND APPARATUS FOR CONTINUOUS
DEVULCANIZATION OF RUBBER
Paul R. Roberson, Massillon, and Tim M. Boron, Canton, both of Ohio, assignors to Ultramer, Inc., Massillon, Ohio

Filed Dec. 2, 1996, Ser. No. 758,464

Int. Cl.⁶ B02C 19/12

U.S. Cl. 241—1

12 Claims



1. An apparatus for devulcanizing vulcanized rubber or crosslinked polymeric material, comprising:
an ultrasonic exposure portion including
a body forming a plurality of exposure channels through which particles of the material flow, and
a plurality of ultrasonic generators each associated with one of the channels and each including a horn extending generally transverse to the direction of the channel;
a preconditioning portion for feeding the particles to the ultrasonic exposure channel.

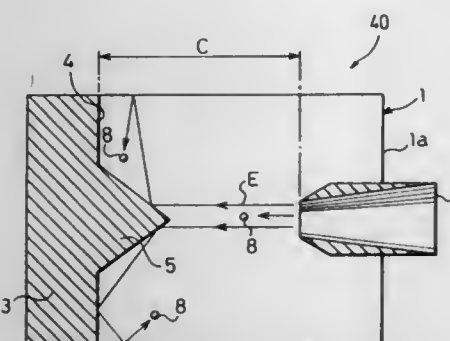
5,799,881

METHOD AND SYSTEM OF PRODUCING TONER
Yoshinori Urata, Kashiwara; Takao Yoneda, Shiki-gun; Yoshiaki Akazawa, Nara; Yasuharu Morinishi, Tenri; Nobuhiko Nakano; Tadashi Nakamura, both of Nara; Takeaki Ouchi, Shiki-gun, and Satoshi Ogawa, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jan. 31, 1997, Ser. No. 792,452
Claims priority, application Japan, Mar. 15, 1996, 8-059690
Int. Cl.⁶ B02C 19/06

U.S. Cl. 241—5

11 Claims



1. A system of producing toner by pulverizing a solid toner raw material and classifying a resulting pulverized material, said system comprising:

first pulverizing means for coarsely pulverizing said toner raw material to a first pulverized material;

first classifying means for classifying said first pulverized material into a first classified coarse powder and a first classified pulverized material, said first classified pulverized material having a smaller particle size than said first classified coarse powder;

second pulverizing means for introducing said first classified coarse powder to a second pulverizing chamber through a second nozzle, and pulverizing said first classified coarse powder to a second pulverized material by making said first classified coarse powder collide with a second pulverizing means colliding member provided in said second pulverizing chamber;

a first delivering member for delivering said first pulverized material from said first pulverizing means to said first classifying means, and for delivering said second pulverized material back to said first classifying means from said second pulverizing means;

second classifying means for classifying said first classified pulverized material into a second classified coarse powder and a second classified pulverized material, said second classified pulverized material having a smaller particle size than said second classified coarse powder;

third pulverizing means for introducing said second classified coarse powder to a third pulverizing chamber through a third nozzle, and pulverizing said second classified coarse powder to a third pulverized material by making said second classified coarse powder collide with a third pulverizing means colliding member provided in said third pulverizing chamber; and

a second delivering member for delivering said first classified pulverized material and said third pulverized material to said second classifying means,

wherein,

said second pulverizing means colliding member includes a second pulverizing means colliding plate, said second pulverizing means colliding plate having a colliding surface inclined at an angle in a range between 45° and 90° inclusive with respect to a direction in which said first classified coarse powder is introduced into said second pulverizing chamber, said third pulverizing means colliding member has a shape such that it makes said second classified coarse powder collide

with an inner surface of said third pulverizing chamber following collision with said third pulverizing means colliding member; and

said second pulverizing means colliding member is structured and arranged so that the first classified coarse powder does not collide substantially with an inner surface of the second pulverizing chamber following collision with the second colliding plate.

5,799,882

HYDROXY-CARBOXYLIC ACID GRINDING AIDS
Richard R. Klimpel, 4805 Oak Ridge Dr., Midland, Mich. 48640

Filed Feb. 21, 1996, Ser. No. 604,576
Int. Cl.⁶ B02C 1/00; 23/06

U.S. Cl. 241—16

5 Claims

1. A process for wet grinding of solids, which comprises grinding an aqueous slurry of a particulate solid selected from the class consisting of mineral ores, ceramic, pigment and coal, said slurry containing from 20 to 95 percent by volume of said solid, in the presence of a grinding aid consisting essentially of a hydroxy-carboxylic acid having from 5 to 6 carbon atoms, at least three hydroxyl groups and one or two carboxylic acid groups or soluble salts of such carboxylic acids in concentrations effective to act as a grinding aid, wherein the hydroxy-carboxylic acid or its soluble salt is formed in situ by the oxidation of a saccharide having from five to six carbon atoms and at least three hydroxyl groups and whereby a smaller particle size or a greater throughput at the same particle size is obtained as compared to grinding in the absence of such grinding aid.

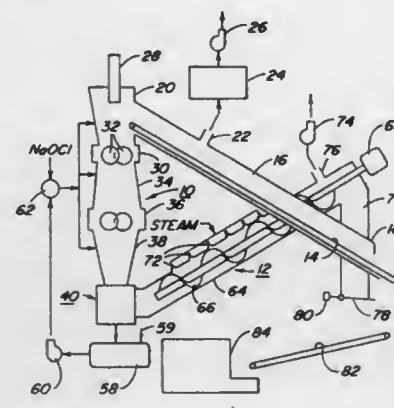
5,799,883

WASTE TREATMENT APPARATUS AND METHOD
Robert W. Lewis, Charlotte, N.C.; Randall G. McKee, and William Jones, both of Lebanon, Ind., assignors to Sterile Technology Industries, Inc., West Chester, Pa.
Division of Ser. No. 511,027, Aug. 3, 1995, Pat. No. 5,570,845.
This application Mar. 11, 1996, Ser. No. 613,376

Int. Cl.⁶ B02C 19/12

U.S. Cl. 241—21

31 Claims



1. Waste treatment apparatus comprising:
means for shredding containers of waste;
means for applying a disinfectant solution to the waste as it is being shredded by the shredding means;
press means for receiving shredded waste from the shredding means, extracting liquid from the shredded waste and delivering a solid waste material;
means for recirculating liquid extracted by the press means to the shredder; and
means for exposing the solid waste material delivered by the press means to an elevated temperature for a time sufficient to

effect substantially complete elimination of live microorganisms in the solid waste material.

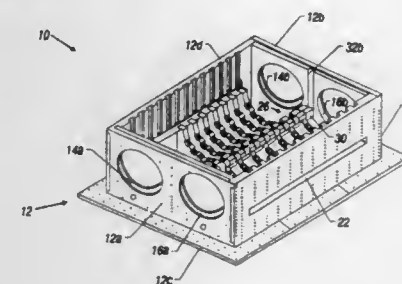
5,799,884

UNIVERSAL SHREDDER
Kamal Alavi, 100 I.H. 45 North, Box 118, L.P. Tower, Conroe, Tex. 77301

Filed Apr. 22, 1997, Ser. No. 837,719
Int. Cl.⁶ B02C 18/06

U.S. Cl. 241—27

20 Claims



17. A method for shearing and cutting bulk material into pieces of a desired size in a single operation, comprising:

(a) feeding the bulk material between two counter-rotating shearing members located in a housing;

(b) shearing the bulk material into sheared pieces between the counter-rotating shearing members and into grooves located on the shearing members and thence to a main cutter located between the two counter-rotating shearing members; and

(c) cutting the sheared pieces between cutting teeth on the counter-rotating members and the main cutter.

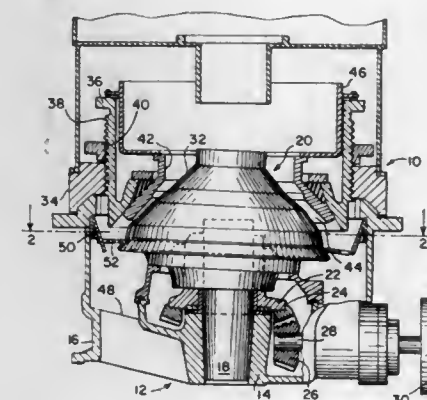
5,799,885

HIGH REDUCTION RATIO CRUSHING IN CONICAL/ GYRATORY CRUSHERS
Vijla Kumar Karra, Franklin, Wis., assignor to Nordberg, Inc., Wis.

Filed Nov. 22, 1996, Ser. No. 754,924
Int. Cl.⁶ B02C 2/04

U.S. Cl. 241—30

12 Claims



1. In a crusher having a first crushing surface and a second crushing surface moveable with respect to the first crushing sur-

face, the first and second crushing surfaces having upper and lower ends, the first and second crushing surfaces being spaced from each other so as to form a crushing space therebetween in which a material may be crushed, the crushing space being wider between the upper ends of the crushing surfaces than between the lower ends, a mechanism for moving the second crushing surface with respect to the first crushing surface, such that at any given location between the first and second crushing surfaces the distance between the crushing surfaces varies, so as to crush a material passing downward through the crushing space, an arrangement for increasing the reduction ratio capability of the crusher comprising a first crushed material retaining member at the lower end of the first crushing surface and a second crushed material retaining member at the lower end of the second crushing surface, said first crushed material retaining member extending downwardly at an angle in the form of a frustum below the crushing space and cooperating with the second crushed material retaining member to restrict the flow of crushed material from the crushing space between the lower ends of the first and second crushing surfaces, so as to delay the passage of the material being crushed from the crushing space, whereby the material is more finely crushed before being discharged from the crushing space.

5,799,886

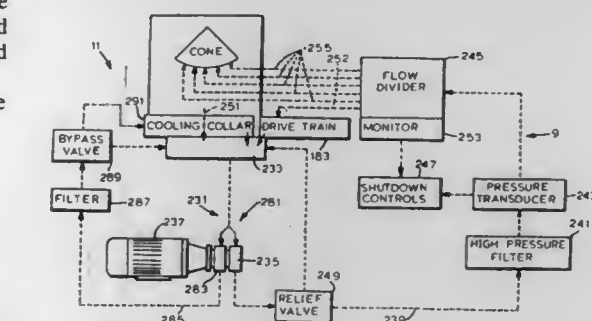
GYRATORY CRUSHER HAVING THERMAL RELIEF SYSTEM

Joseph E. Musil, Ely; Donald W. Henry, Chelsea; David A. Ostergaard, Cedar Rapids, all of Iowa, and Jon Juhlin, Dexter, Oreg., assignors to Cedarapids, Inc., Cedar Rapids, Iowa

Division of Ser. No. 617,346, Mar. 18, 1996. This application Jan. 21, 1997, Ser. No. 788,884
Int. Cl.⁶ B02C 2/04

U.S. Cl. 241—36

14 Claims



1. A gyratory crusher for crushing material, comprising:

(a) a lower frame portion;

(b) an upper frame portion supported by said lower frame portion;

(c) a bonnet supported by said upper frame portion, said bonnet having an upper opening for receiving the material;

(d) an eccentric member;

(e) a crusher head;

(f) mounting means for pivotally mounting said eccentric member on said lower frame portion about a first axis spaced centrally and vertically relative to said lower frame member, and for pivotally mounting said crusher head on said eccentric member about a second axis spaced generally centrally and vertically relative to said lower frame portion wherein said second axis is angularly offset from said first axis and intersects said first axis above said crusher head and wherein a crushing chamber is formed between said crusher head and said bonnet;

(g) thermal relief means for operably transferring thermal energy from said mounting means to said lower frame portion; and
(h) drive means for rotating said eccentric member about said first axis.

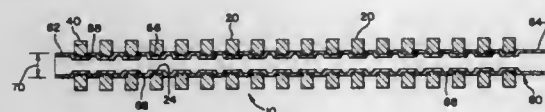
5,799,887
CUTTING CYLINDER FOR A DOCUMENT SHREDDING
MACHINE

Bruce R. Kroger, West Chicago, Ill., assignor to Fellowes Mfg. Co., Itasca, Ill.

Filed Oct. 24, 1996, Ser. No. 740,201
Int. Cl.⁶ B02C 18/16

U.S. Cl. 241—236

11 Claims U.S. Cl. 242—231



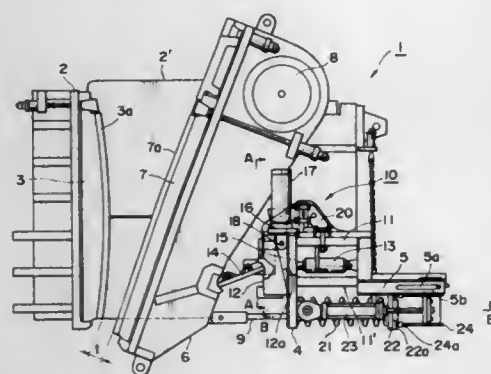
1. A cutting cylinder for a paper shredder comprising:
a shaft having a first end and a second end; and
a plurality of spaced-apart cutter discs arranged on the shaft between the first and second ends of the shaft, each cutter disc having a unitary body with an inner surface defining an inner diameter;
wherein the shaft has a first outer surface lining the inner surface of at least one cutter disc and a second outer surface adjacent to at least one cutter disc, the second outer surface having an outer diameter greater than the inner diameter of the adjacent cutter disc.

5,799,888
JAW CRUSHER
Masaki Hamaguchi; Syoji Inomata; Masayuki Kano; Wataru Taga, and Hideyuki Inayoshi, all of Takasago, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Mar. 25, 1997, Ser. No. 824,092
Claims priority, application Japan, Mar. 25, 1996, 8-067989; Apr. 12, 1996, 8-091242

Int. Cl.⁶ B02C 1/02
U.S. Cl. 241—259.1

7 Claims



1. A jaw crusher comprising:
a fixed jaw plate;
a swing jaw plate;
a back frame;
a toggle block mounted on said back frame;
a gap adjusting cylinder disposed on a side of said back frame opposite said swing jaw plate for moving said toggle block toward said swing jaw in order to adjust an outlet gap for crushed product formed between said fixed jaw plate and said swing jaw plate;
a wedge operating cylinder for inserting and removing a wedge between said back frame and said toggle block;
a tension rod connected to said swing jaw plate through a rod connecting pin;
a tension spring for applying a tension force to said tension rod; and
a tension spring compression cylinder for compressing said tension spring and releasing the compression thereof.

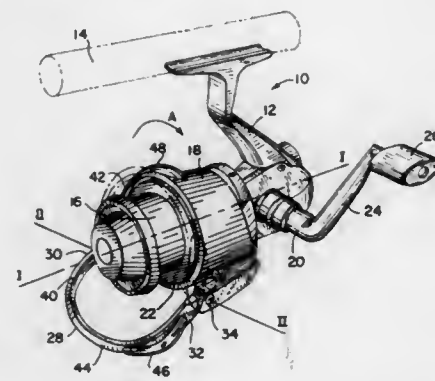
5,799,889
COMPOSITE BAIL FOR A SPINNING REEL AND REEL
INCORPORATING SUCH A BAIL

M. Alain Plestan, Marignier, France, assignor to Johnson Worldwide Associates, Inc., Racine, Wis.

Filed Jun. 24, 1997, Ser. No. 881,545
Int. Cl.⁶ A01K 89/01

U.S. Cl. 242—231

20 Claims



1. A bail for a fishing reel, the reel including a reciprocating spool for storing fishing line and a rotor mounted for rotation about the spool for retrieving fishing line and for storing the line on the spool, the spool and rotor being coupled to a crank arm whereby actuation of the crank arm causes reciprocating motion of the spool and rotation of the rotor, the bail comprising:

first and second support ends coupled to the rotor at opposed locations and pivotable with respect to the rotor for movement of the bail between open and closed positions for casting and retrieving line, respectively;
a central section coupled between the first and second support ends for guiding line to a line guide upon movement of the bail from the open position to the closed position; and
at least one counterbalance weight supported on the central section, the weight providing rotational balancing of the rotor during rotation.

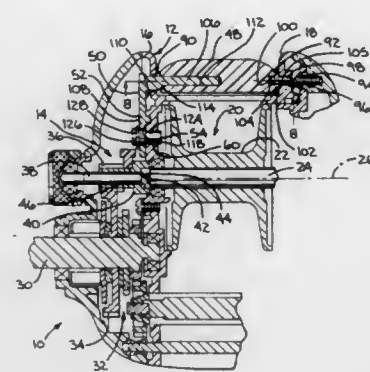
5,799,890
ACTUATING SYSTEM FOR CHANGING A FISHING
REEL FROM A RETRIEVE STATE INTO A CAST STATE

Hyunkyoo Kim, Broken Arrow, Okla., assignor to Brunswick Corporation, Tulsa, Okla.

Filed Jul. 12, 1996, Ser. No. 680,331
Int. Cl.⁶ A01K 89/00

U.S. Cl. 242—261

16 Claims



1. A fishing reel comprising:
a frame having first and second laterally spaced parts with a line storage space therebetween; and
an operating mechanism on the frame,

said operating mechanism including a rotatable line carrying spool, a rotatable crank element, and a drive connection between the crank element and spool,

said drive connection including a first element that is selectively laterally repositionable relative to the frame between a) an engaged position wherein the operating mechanism is in a retrieve state in which the drive connection transmits a rotative force from the crank element through the drive connection to the spool and b) a disengaged position wherein the drive connection is disengaged and the reel operating mechanism is in a cast state in which the spool is freely rotatable to allow line to pay off of the spool,

said operating mechanism further comprising a cam element with a cam surface on one of the frame parts that is repositionable relative to the one frame part from a first position into a second position as an incident of which the cam surface on the cam element produces a lateral camming force that causes the first element to move from the engaged position to the disengaged position,

said operating mechanism further comprising an actuator mounted to the frame for guided movement relative to the frame from a first position into a second position,

said operating mechanism further comprising first means cooperating between the cam element and actuator for causing the cam element to move from its first position into its second position as an incident of the actuator moving from its first position into its second position whereupon the operating mechanism is changed from the retrieve state into the cast state,

said first cooperating means comprising means for connecting a part of the cam element substantially fixedly to the actuator, the cam surface and the part of the cam element moving as one piece as the cam element is repositioned relative to the frame, wherein the one frame part has laterally spaced sides, the cam element has a body with a substantially flat portion on one laterally spaced side of the one frame part and the part of the cam element comprises an arm projecting from the flat portion of the cam element body through the one frame part and engaging the actuator between the first and second frame parts,

wherein the actuator has spaced ends which are connected one each to the first and second frame parts, one of the spaced ends has a laterally facing surface, the arm has a laterally facing surface that abuts to the laterally facing surface of the one of the spaced ends and there is a fastener that is separable from the arm and extends through the cam element body and through each of the laterally facing surface on the one of the spaced ends and the laterally facing arm surface into the one of the spaced ends of the actuator.

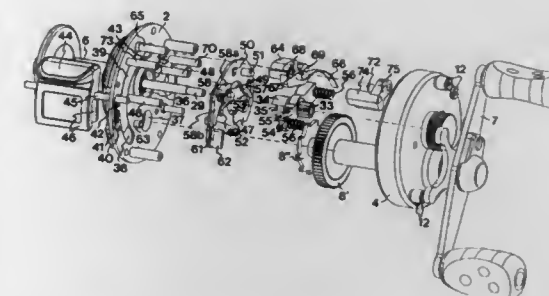
5,799,891
FISHING REEL OF THE MULTIPLIER TYPE
Börje Moosberg, Mörrum, Sweden, assignor to Berkley Inc., Spirit Lake, Iowa

Filed Mar. 17, 1997, Ser. No. 827,101
Int. Cl.⁶ A01K 89/015

U.S. Cl. 242—261

6 Claims

1. A fishing reel of the multiplier type, comprising
a frame;
two outer side plates mounted on said frame;
a line spool shaft mounted in said frame;
a rotatable line spool mounted on said shaft;
a mounting plate arranged in the frame inwardly of one of said side plates and supporting a spindle parallel to the line spool shaft and extending through said one side plate, and having a hole through which the line spool shaft extends, two first



mounting pins substantially diametrically opposed with respect to said hole, and a second mounting pin, said first and second mounting pins being parallel to the line spool shaft and projecting towards said one side plate;

a handle mounted on said spindle outwardly of said one side plate;

a driving gear and a toothed wheel which are mounted on said spindle and arranged to be rotated by means of said handle;

a clutch means which is mounted on said line spool shaft and has a gear portion meshing with the driving gear to be rotated thereby, and which is displaceable along the line spool shaft between an engaging position, in which the clutch means is connected to said line spool for rotation thereof, and a disengaging position, in which the clutch means is disconnected from said line spool;

a disk mounted on the mounting plate and turnable about the line spool shaft between a first position and a second position and having a ramp means formed thereon and a guide pin;

a yoke, in which the clutch means is rotatably mounted and which is displaceably mounted on said two first mounting pins for shifting said clutch means between its two positions; a resilient means adapted to press said yoke in such a direction that said clutch means is urged towards its engaging position; said yoke having a ramp means which is adapted to cooperate with the ramp means on said disk so as to displace, on turning thereof from the first to the second position, said yoke in such a direction that the clutch means is moved to its disengaging position;

a trigger which is mounted on said frame and is connected to said disk for turning thereof from its first position to its second position;

a spring assembly consisting of a spring holder which is pivotally mounted on said second mounting pin and has a cam curve, and a spring which is fixed between the spring holder and the mounting plate in such a manner that by spring action it presses the cam curve of the spring holder into engagement with the guide pin on the disk;

the cam curve having a first cam surface which engages the guide pin when the disk is in its first position, a second cam surface which engages the guide pin when the disk is in its second position, and a crest which is positioned between the cam surfaces and towards which the two cam surfaces rise in such manner that the spring holder, when the disk is turned from its first and second position in the direction of its second and first position, respectively, is pivoted in such a direction that the spring is tensioned further so as to turn, when the guide pin has passed the crest of the cam curve, via the spring holder, the second and first cam surface thereof and the guide pin, the disk further to its second and first position, respectively; and

an engaging means which is movable between a neutral position and an engaging position and is connected to the disk so as to take its neutral position, when the disk is in its first position, and, when the disk is in its second position, take its engaging position, in which the toothed wheel during turning of the

handle engages the engaging means so as to turn, via the same, the disk so far in the direction of its first position that the guide pin passes the crest of the cam curve.

5,799,892

BAITCASTING REEL WITH A LOWERED PROFILE TO FACILITATE PALMING

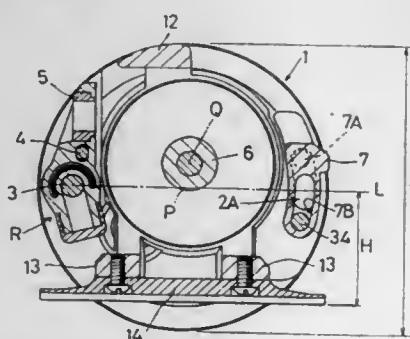
Jun Sato, Sakai, Japan, assignor to Shimano, Inc., Japan
Continuation of Ser. No. 634,220, Apr. 18, 1996, abandoned, which is a continuation of Ser. No. 332,464, Oct. 31, 1994, abandoned, which is a continuation of Ser. No. 52,300, Apr. 26, 1993, abandoned, which is a continuation of Ser. No. 738,148, Jul. 30, 1991, abandoned. This application Sep. 12, 1996, Ser. No. 710,155

Claims priority, application Japan, Aug. 7, 1990, 2-83879; Nov. 7, 1990, 2-116795

Int. Cl.⁶ A01K 89/02; 89/015

U.S. Cl. 242—288

13 Claims



1. A baitcasting reel comprising:

- a reel body having a circular configuration with an outer diameter of 45 to 70 mm and a center, said reel body including a first case, a second case, a lower frame, and a thumb rest, said reel body including a one-piece integral unit including at least a portion of said first case, at least a portion of said second case, said lower frame and said thumb rest;
- a spool having an axis, said first case having a side face facing away from said spool, and said second case having a side face facing away from said spool;
- a first lid portion overlapping with said spool viewed along said spool axis, said lid portion being attached to said side face of said first case by a screw, said screw attaching said first lid portion from inside of said first case such that said first lid portion has a smooth exterior surface, said screw extending from said first case to said first lid portion and having a screw head overlapping with said spool viewed along said spool axis; a handle and a handle shaft attached to said second case;
- a second lid portion covering said side face of said second case; said lower frame being located between said first and second cases and mounted inwardly of an outer peripheral portion of said reel body as viewed in a direction along said axis of said spool;
- said thumb rest being located between said first and second cases at an outer periphery of said reel body and on an opposite side to said lower frame relative to said axis of said spool;
- a mounting foot for connecting said reel body to a fishing rod, said mounting foot being connected to said lower frame, with a distance between said mounting foot and said center of said reel body as viewed in a direction along said axis of the spool being 40 mm or less;
- a central plane of said reel body, which extends through said center of said circular configuration of said reel body and extends substantially parallel to said mounting foot, being located between said mounting foot and said axis of said spool;

- a drive mechanism for transmitting drive from said handle shaft to said spool, said drive mechanism including a drag mechanism, an output gear and a clutch mechanism;
- a level wind mechanism disposed between said first and second cases; and
- a clutch control member located between said first and second cases, said clutch control member and said level wind mechanism being located on opposite sides of said reel body.

5,799,893

MULTI-LEVEL LOAD LIMITING TORSION BAR RETRACTOR

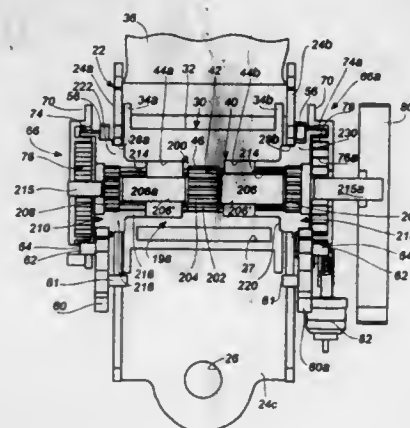
H. John Miller, III, Macomb Township, and Gerald Keller, Shelby Township, both of Mich., assignors to AlliedSignal Inc., Morristown, N.J.

Filed Feb. 19, 1997, Ser. No. 801,234

Int. Cl.⁶ B60R 22/28

U.S. Cl. 242—379.1

9 Claims



1. An energy absorbing retractor (20) having a spool having a through bore, a frame, a locking mechanism to initially stop the spool from rotating in a belt protraction direction, the spool rotationally supported relative to the frame, a seat belt wound about the spool, and bias means to retract the seat belt, torsion means for generating at least a first level of reaction torque on the spool permitting the spool to rotate in a controlled manner in a belt protraction direction including a torsion mechanism having an intermediate portion and a first torsion member extending therefrom and located at least partially within the bore, the intermediate portion fixedly coupled to the spool to prevent relative rotation therebetween, the intermediate portion situated within the bore but remote from the ends of the bore, the first torsion member including a first end coupled to first locking mechanism to prevent the first end from rotating upon such coupling, whereby upon locking of the first end, and the loading of the spool, the first torsion member twists to generate a first level of control force.

5,799,894

SEAT BELT SYSTEM

Kenneth H. Kohladorfer, Roseville, Mich.; Mark F. Gray, New Market, Canada, and Richard W. Koning, Yale, Mich., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

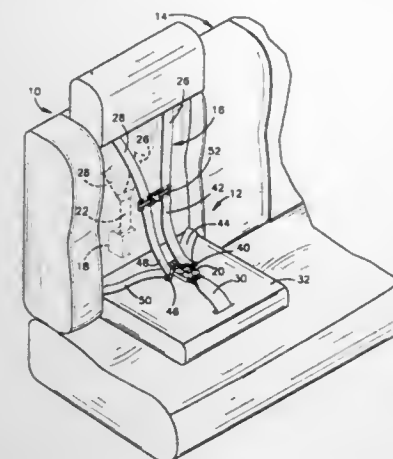
Filed Sep. 15, 1995, Ser. No. 528,795

Int. Cl.⁶ B60R 22/38; 22/36

U.S. Cl. 242—382.4

2 Claims

1. Apparatus comprising:
a spool;



- seat belt webbing including a pair of shoulder belts connected to said spool;
- means for supporting said spool for unwinding rotation upon extraction of either of said shoulder belts and for winding rotation upon retraction of either of said shoulder belts;
- means for blocking unwinding rotation of said spool when said blocking means is actuated; and
- means for actuating said blocking means in response to at least a predetermined amount of rotation of said spool;
- said predetermined amount of rotation including a predetermined amount of unwinding rotation followed by a predetermined amount of winding rotation, and further including a predetermined amount of additional unwinding rotation following said winding rotation.

5,799,895

PAPER DISPENSING APPARATUS AND METHOD

William C. Michaud, Dubach, La.; James B. Jarrell, Dallas, Tex., and James A. Michaud, Jonesboro, La., assignors to Providence Products, Inc., Dallas, Tex.

Filed Dec. 27, 1995, Ser. No. 579,117

Int. Cl.⁶ B65H 23/06; 16/04; 18/04

U.S. Cl. 242—423

18 Claims



1. A paper dispensing apparatus for dispensing paper from a rolled paper product, said paper dispensing apparatus comprising:
at least one roll spindle for receiving the rolled paper product, said roll spindle having a first end, a second end, a length, and a transverse cross section;
a bracket means for supporting said roll spindle at said first end; and
at least one elongated friction blade for frictionally engaging the rolled paper product provided on at least one of said roll spindle and said bracket means,
wherein the transverse cross section of said roll spindle is sufficiently small and suitably shaped so that the rolled paper product may tilt relative to said roll spindle in a first direction

when paper from the rolled paper product is pulled substantially perpendicularly to said roll spindle for dispensing, and said blade is positioned such that said tilt in said first direction substantially disengages the rolled paper product from said friction blade thereby allowing rotation of the rolled paper product on said roll spindle and dispensing of the paper, and wherein the transverse cross section of said roll spindle is sufficiently small and suitably shaped so that the rolled paper product may tilt relative to said roll spindle in a second direction when paper from the rolled paper product is pulled substantially toward said first end of said roll spindle for tearing, and said blade is positioned such that said tilt in said second direction substantially nonrotatably frictionally engages the rolled paper product with said friction blade thereby allowing tearing of dispensed paper from the rolled paper product.

5,799,896

MULTIPLE DYNAMO-ELECTRIC MACHINE PARTS HANDLING AND WINDING METHODS AND APPARATUS

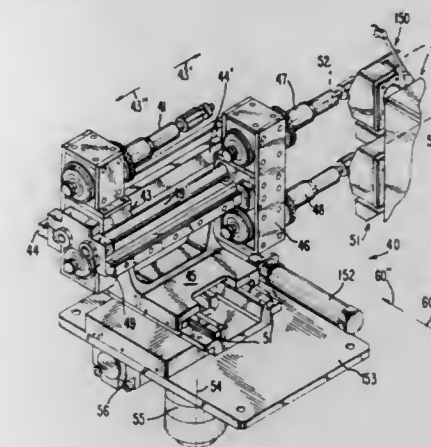
Sabatino Luciani, Florence, and Maurizio Mugelli, Siena, both of Italy, assignors to Axis USA, Inc., Tampa, Fla.

Filed Aug. 7, 1996, Ser. No. 695,835

Int. Cl.⁶ H02K 15/02

U.S. Cl. 242—433.4

28 Claims



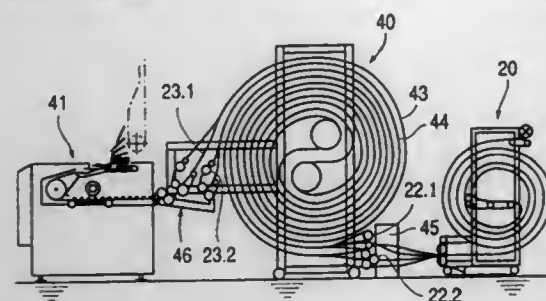
1. Apparatus for winding coils of wire on the cores of dynamo-electric machine parts comprising:

- a conveyor for conveying unwound cores one after another to a transfer location;
- a plurality of winders, each of which winds coils of wire on a core received by that winder; and
- a transfer mechanism for picking up unwound cores one at a time from said conveyor at said transfer location and supplying said unwound cores to said winders, said transfer mechanism holding a sufficient number of unwound cores between picking up from said conveyor and supplying to said winder so that said winders can be operating simultaneously to wind coils while said transfer mechanism is transferring cores previously wound by said winders and picking up from said conveyor.

5,799,897
**METHOD FOR SUPPLYING PRINTED PRODUCTS IN
SCALED FORMATION TO PROCESSING STATIONS AND
SYSTEM FOR CARRYING OUT THE METHOD**
Werner Honegger, Bäch, Switzerland, assignor to Ferag AG,
Hinwil, Switzerland

Filed Aug. 22, 1996, Ser. No. 701,452
Claims priority, application Switzerland, Sep. 20, 1995, 02
656/95

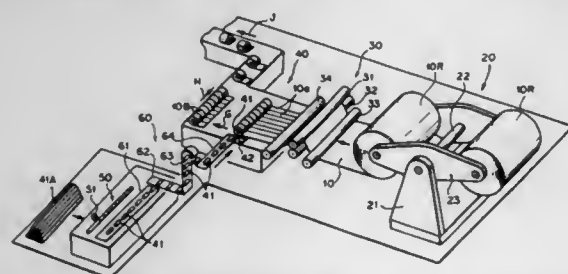
Int. Cl.⁶ B65H 29/00
U.S. Cl. 242—528 13 Claims



1. Method for supplying printed products or intermediate products for printed products to defined feeding points of stations for further processing the products, whereby the products are selectively provided in the form of discrete storage formations consisting of a plurality of products or in substantially continuous form and whereby the products are supplied to the stations for further processing in the form of a plurality of substantially continuous scaled streams each with a predetermined scale orientation and with a feeding speed, characterized in that in a first method step discrete scaled formations of restricted length and a predetermined scale orientation are prepared selectively from storage formations of products or from continuously provided products, that in a second method step discrete scaled formations prepared in the first step are transported to predetermined feeding points, that in a third method step each transported discrete scale formation is loaded alternatively into one part of a two-part feeding buffer allocated to one feeding point each whereby the predetermined scale orientation is maintained and the loading speed is faster than the feeding speed and in that in a fourth method step the products are fed alternatively from one or the other part of the two-part feeding buffer into the stations for further processing as substantially continuous scaled formation, whereby the predetermined scale orientation is maintained.

5,799,898
WEB WINDING APPARATUS
Kunihiro Sumida, and Hiroki Sato, both of Kanagawa-ken,
Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa,
Japan

Filed Oct. 4, 1996, Ser. No. 725,765
Claims priority, application Japan, Oct. 5, 1995, 7-258584
Int. Cl.⁶ B65H 18/08
U.S. Cl. 242—530.1 4 Claims

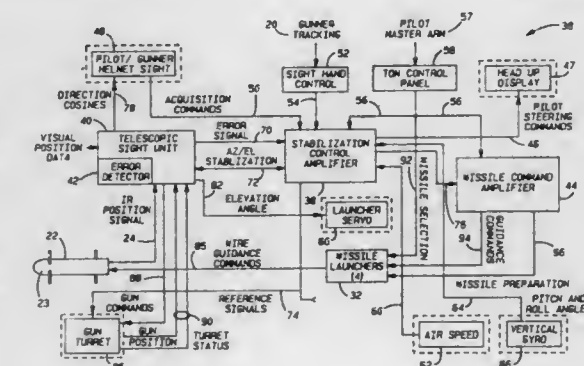


1. A web winding apparatus for taking up a web of a predetermined width and winding said web around a core of a predetermined length, said apparatus comprising:

- a core cutting section which cuts said core into a plurality of cores of a predetermined length from a core material;
- a slitter for cutting said web into a plurality of webs of a predetermined width and the slit webs in continuous lengths are taken up around said plurality of cores supported on one spindle side by side;
- a winding section comprising a winding shaft on which said plurality of cores are horizontally disposed such that said slit webs are wound around said cores, respectively, by rotating said winding shaft; and
- a core transfer mechanism which directly couples the core cutting section to the winding section and loads and transfers said plurality of cores cut in the core cutting section to said winding shaft of the winding section, said core transfer mechanism comprising:
 - a first horizontal conveyor extending in a longitudinal direction of the core adjacent to the core cutting section;
 - a second horizontal conveyor extending perpendicular to the first horizontal conveyor in the same horizontal plane;
 - a bucket conveyor disposed vertically at one end of said second horizontal conveyor; and
 - a third horizontal conveyor disposed at a predetermined level above said first horizontal conveyor and said second horizontal conveyor adjacent to said bucket conveyor;wherein said plurality of cores cut in the core cutting section are transferred to the first horizontal conveyor and then transferred to the second horizontal conveyor from the first horizontal conveyor, and then said cores are loaded on the bucket conveyor from the second horizontal conveyor, the bucket conveyor conveying said cores upward to the third horizontal conveyor at said predetermined level, such that said cores are brought into alignment with the winding shaft in the winding section.

5,799,899
**ERROR DETECTOR APPARATUS WITH DIGITAL
COORDINATE TRANSFORMATION**
Michael L. Wells, Newhall; John A. Tyson, Lawndale; Richard J. Sand, Torrance; Glenn S. Higa, Carson, and Jane L. Pauwels, Harbor City, all of Calif., assignors to Hughes Electronics, El Segundo, Calif.

Continuation of Ser. No. 340,135, Nov. 15, 1994, abandoned.
This application Jul. 7, 1997, Ser. No. 888,613
Int. Cl.⁶ F41G 7/00
U.S. Cl. 244—3.11 22 Claims



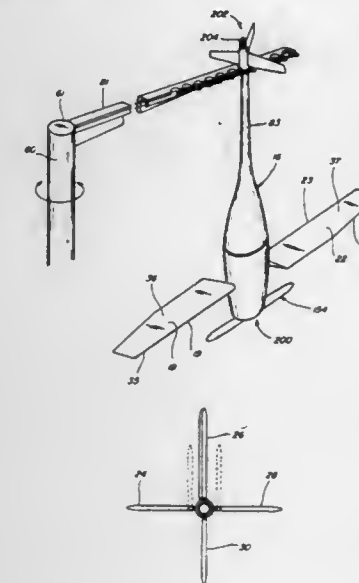
1. An aircraft-based missile guidance and tracking system, including a sight unit for aiming at a missile target and for receiving a tracking signal from a missile, and a generator for providing a reference signal, comprising:
- means for producing an envelope signal from said tracking signal;
 - an analog to digital converter for converting said envelope signal and said reference signal into digital reference signals;
 - a microcontroller, including a data bus, for calculating an error correction signal from said digital signals, said microcontroller being in communication with said analog to digital converter through said data bus; wherein said microcontroller calculates said error correction signal by sampling said digital reference and envelope signals to produce sampled signals, by calculating a centroid value of said envelope signal, computing a value between at least two of said sampled signals, and by interpolating between said sampled signals by recalling a profile from a memory stored in said microcontroller and further interpolating to said centroid value to produce an error correction signal; and
 - a digital to analog converter for converting said digital error correction signal to an analog error correction signal and for outputting said analog signal to said system, for use in computing a missile guidance signal.

verter through said data bus; wherein said microcontroller calculates said error correction signal by sampling said digital reference and envelope signals to produce sampled signals, by calculating a centroid value of said envelope signal, computing a value between at least two of said sampled signals, and by interpolating between said sampled signals by recalling a profile from a memory stored in said microcontroller and further interpolating to said centroid value to produce an error correction signal; and

a digital to analog converter for converting said digital error correction signal to an analog error correction signal and for outputting said analog signal to said system, for use in computing a missile guidance signal.

5,799,900
**LANDING AND TAKE-OFF ASSEMBLY FOR VERTICAL
TAKE-OFF AND LANDING AND HORIZONTAL FLIGHT
AIRCRAFT**

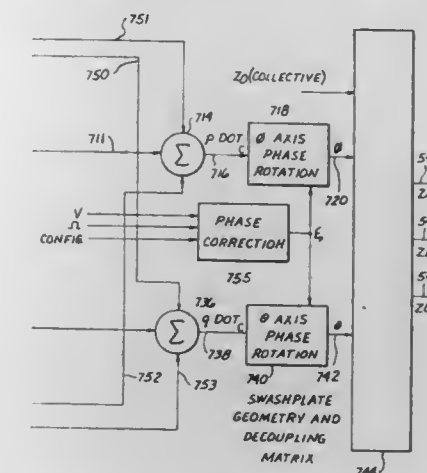
William R. McDonnell, St. Louis, Mo., assignor to Advanced Aerospace Technologies, Inc., St. Louis, Mo.
Filed Jul. 15, 1996, Ser. No. 680,000
Int. Cl.⁶ B64C 29/00
U.S. Cl. 244—7 A 22 Claims



20. An aircraft having a fuselage with an aft portion and a fore portion, said fuselage having a longitudinal axis, the aircraft being adapted for flight in a helicopter mode with the longitudinal axis oriented generally vertically and in an airplane mode with the longitudinal axis oriented generally horizontally, the aircraft comprising:

- (a) at least a pair of rotor blades, each blade having a lateral axis and each blade being connected to the fuselage for rotation about its lateral axis relative to the fuselage; and
- (b) a plurality of stabilizing wings connected to said fuselage;
- (c) at least one of said stabilizing wings is rotatable in plane with the airflow in translational helicopter mode flight.

5,799,901
**ROTOR BLADE SWASHPLATE-AXIS ROTATION AND
GYROSCOPIC MOMENTS COMPENSATOR**
Stephen S. Osder, Scottsdale, Ariz., assignor to McDonnell Douglas, Helicopter, Colo.
Division of Ser. No. 567,953, Dec. 6, 1995. This application
Apr. 29, 1997, Ser. No. 840,369
Int. Cl.⁶ B64C 11/34; 11/44; 27/54; B63H 3/10
U.S. Cl. 244—17.13 14 Claims



1. An apparatus for controlling a tip path plane of a rotating rotor blade of an aircraft having rotor blade controls, the apparatus controlling the tip path plane to eliminate axis cross-coupling from the rotor blade controls of the aircraft, the apparatus comprising:
- (a) a rotor blade swashplate;
 - (b) at least three actuators for controlling a translation and a tilt angle of the rotor blade swashplate;
 - (c) a fly-by-wire computer system for issuing position commands to the three actuators;
 - (d) a first inputting channel for inputting first inputs, for use in determining a spatial phase angle at which flapping oscillations of the rotor blade obtain maximum values, the first inputs including:
 - (1) a measured rotor blade speed;
 - (2) a measured aircraft speed; and
 - (3) measured rotor blade swashplate positions;
 - (e) a second inputting channel for inputting second inputs, for use in determining gyroscopic moments on the rotor blade, the second inputs including:
 - (1) measured changes in a pitch of the aircraft; and
 - (2) measured changes in a roll of the aircraft;
 - (f) a first determiner for determining a required translation and tilt angle of the rotor blade swashplate so that the maximum values of the resulting rotor blade flapping oscillations will occur in alignment with a vector sum of a desired angular acceleration of the aircraft;
 - (g) a second determiner for determining specific positions of the three rotor blade swashplate actuators that will cause the rotor blade swashplate translation and tilt angle determined by the first determiner;
 - (h) a third determiner for determining a changing phase shift of the maximum values of the rotor blade flapping oscillations as the measured rotor blade speed changes, the measured aircraft speed changes, and a rotor blade lift changes;
 - (i) a first gyroscopic moment compensator for generating:
 - (1) an aircraft-pitch gyroscopic moment compensation to aircraft roll, the aircraft-pitch gyroscopic moment compensation to aircraft roll cancelling any longitudinal gyroscopic moments generated by a roll rate of the aircraft; and
 - (2) an aircraft-roll gyroscopic moment compensation to aircraft roll, the aircraft-roll gyroscopic moment compensation to aircraft roll cancelling any lateral gyroscopic moments generated by a roll rate of the aircraft; and
 - (j) a second gyroscopic moment compensator for generating:
 - (1) an aircraft-pitch gyroscopic moment compensation to aircraft pitch, the aircraft-pitch gyroscopic moment compensation to aircraft pitch cancelling any longitudinal gyroscopic moments generated by a pitch rate of the aircraft; and
 - (2) an aircraft-roll gyroscopic moment compensation to aircraft roll, the aircraft-roll gyroscopic moment compensation to aircraft roll cancelling any lateral gyroscopic moments generated by a roll rate of the aircraft.

sation to aircraft pitch cancelling any longitudinal gyroscopic moments generated by a pitch rate of the aircraft; and

- (2) an aircraft-roll gyroscopic moment compensation to aircraft pitch, the aircraft-roll gyroscopic moment compensation to aircraft pitch cancelling any lateral gyroscopic moments generated by a pitch rate of the aircraft.

5,799,902

ECONOMICAL LAUNCH VEHICLE

Edward L. Keith, La Verne, and Thomas P. Bauer, Redondo Beach, both of Calif., assignors to Microcosm, Inc., Torrance, Calif.

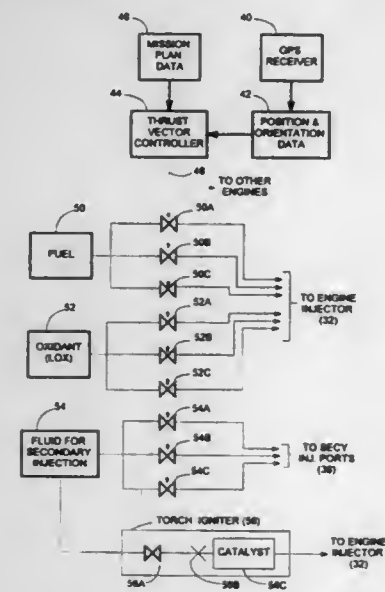
Continuation of Ser. No. 529,808, Sep. 18, 1995, abandoned.

This application Jul. 28, 1997, Ser. No. 900,923

Int. Cl.⁶ B64C 15/02; B64F 1/10; B64G 1/40; 1/42

U.S. Cl. 244—55

22 Claims



1. An expendable, economical, liquid-propellant launch vehicle, for launching a payload along a desired trajectory, the vehicle comprising:

- a central structure in which a payload is stowed;
- a plurality of clusters of liquid-propellant rocket engines, the clusters being configured at launch in symmetric groups of clusters, with each such group being disposed symmetrically about the central structure, wherein each symmetric group of engine clusters is burned and separated from the vehicle in a staging sequence, and wherein each cluster consists of a plurality of similar engines without gimbals;
- a common propellant supply system for each cluster having at least two propellant tanks for supplying liquid propellant to the engines;
- valve control means between the propellant tanks and the engines, for regulating the supply of propellant to the engines; and
- a steering control system, coupled to the valve control means, for modulating the supply of propellant to selected engines to provide differential thrust control and thereby to effect steering of the vehicle.

5,799,903
PIVOTING DOOR THRUST REVERSER WITH COOPERATING PANELS

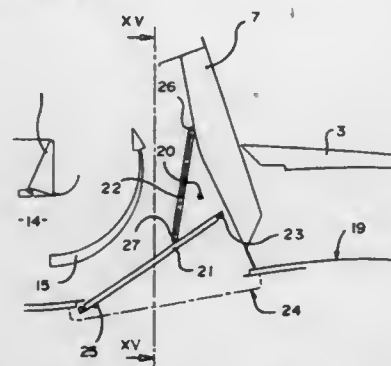
Guy Bernard Vauchel, Le Havre, France, assignor to Societe Hispano Suiza, Colombes Cedex, France

Filed Sep. 6, 1996, Ser. No. 709,155

Claims priority, application France, Sep. 13, 1995, 95 10699 Int. Cl.⁶ B64D 33/04

U.S. Cl. 244—110 B

12 Claims



1. A thrust reverser for a turbojet engine having an outer cowling and an inner cowling forming a generally annular gas flow duct therebetween, the thrust reverser comprising:

- a) at least one thrust reverser door pivotally attached to the outer cowling so as to pivot about a first stationary axis to move between a forward thrust position and a reverse thrust position;
- b) at least one thrust reverser panel pivotally attached to the inner cowling so as to pivot about a second stationary axis to move between a forward thrust position and a reverse thrust position in which the panel extends into the gas flow duct obliquely to a flow of gas flowing through the gas flow duct; and
- c) a connecting device connecting the at least one thrust reverser door to the at least one thrust reverser panel such that when the at least one thrust reverser door is in the reverse thrust position, the at least one thrust reverser panel is in the reverse thrust position and when the at least one thrust reverser door is in the forward thrust position, the at least one thrust reverser panel is in the forward thrust position.

5,799,904

TEMPERATURE CONTROL FOR SPACECRAFT INERTIAL CONTROL UNIT

Nell Evan Goodzeit, Princeton, N.J., and Arthur Jon Throckmorton, Newtown, Pa., assignors to Lockheed Martin Corp., East Windsor, N.J.

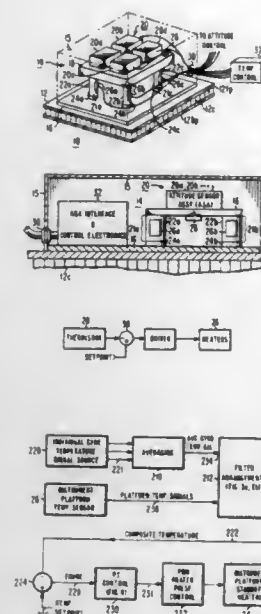
Filed Apr. 25, 1996, Ser. No. 641,020

Int. Cl.⁶ B64G 1/66

U.S. Cl. 244—163

14 Claims

1. A spacecraft including a body, said spacecraft comprising:
- a thermally conductive instrument platform;
 - an attitude sensor element, mechanically mounted on, and thermally coupled to, said instrument platform, said attitude sensor element generating attitude sensor temperature signals which include information about the temperature of said attitude sensor element, said attitude sensor element being sensitive to its temperature, and being specified for operation near a temperature setpoint;
 - a thermally conductive baseplate mounted on and thermally coupled to said spacecraft body;
 - a standoff for mechanically mounting said instrument platform to said baseplate, said standoff including a thermally conductive portion adjacent to and in thermal contact with said instrument platform, and a thermally nonconductive portion mounted between said thermally conductive portion of said standoff and said baseplate, for reducing the flow of thermal energy between said instrument platform and said baseplate;



electrically controllable heating means thermally coupled to said thermally conductive portion of said standoff, for supplying thermal energy to said thermally conductive portion of said standoff, for preferentially coupling said thermal energy to said instrument platform rather than to said baseplate, whereby application of thermal energy to said instrument platform generates stresses in the interface between said temperature sensing element and said instrument platform which tends to degrade the accuracy of said attitude sensing instrument;

- a temperature sensing element thermally coupled to said instrument platform, for producing an instrument platform temperature signal;
- filtering means coupled to at least one of (a) said attitude sensor element and (b) said temperature sensing element, for receiving therefrom at least one of (a) said attitude sensor temperature signals, and (b) said instrument platform temperature signals, for relatively decreasing the lower-frequency content of one of said attitude sensor temperature signals and said instrument platform temperature signals relative to the higher-frequency content of said one of said attitude sensor temperature signals and said instrument platform temperature signals;

summing means coupled at least to said filtering means for receiving said high-pass temperature signals derived from one of (a) said attitude sensor temperature signals and (b) said instrument platform temperature signal therefrom, and also coupled to receive said other one of (a) said attitude sensor temperature signals, and (b) said instrument platform temperature signals, for combining said high-pass temperature signals with said other one of (a) said attitude sensor temperature signals, and (b) said instrument platform temperature signals, for thereby generating a processed temperature-representative signal;

- a source of setpoint signals representing the temperature of said setpoint;
- difference means coupled to said source of setpoint signals and to said summing means, for subtracting said processed temperature-representative signals from said setpoint signals, for thereby generating error signals;
- proportional-integral processing means coupled to said difference means, for generating proportional signals which are proportional to said error signals, for generating integral signals proportional to a time integral of said error signals, and for summing together said proportional and integral signals, for thereby producing heater drive representative signals; and
- drive means coupled to said processing means and to said electrically controllable heating means, for applying electrical

energy to said heating means in response to said heater drive representative signals, whereby a closed thermal control loop is defined which tends to maintain the long-term temperature of one of said attitude sensing element and said instrument platform constant, and to minimize the temperature difference between said instrument platform and said attitude sensor element, thereby reducing stresses at said interface and reducing attitude errors attributable thereto.

5,799,905

APPARATUS AND METHOD FOR ATTACHING GUTTERS TO STRUCTURES

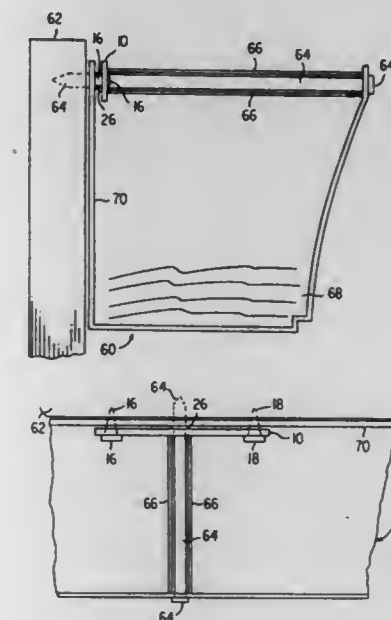
Stephen R. Rokita, P.O. Box 100, Sussex, N.J. 07461

Filed Feb. 13, 1996, Ser. No. 600,443

Int. Cl.⁶ E04D 13/072

U.S. Cl. 248—48.2

6 Claims



1. A drainage apparatus for a structure, comprising:
- a spike;
 - a gutter, the gutter having a hole through which the spike is inserted;
 - a bracket positioned on the gutter such that the bracket is adapted to be attached to the structure through the gutter, the bracket having a push nut section through which the spike is driven, the push nut section firmly holding the spike in place; and
 - fastening means for attaching the bracket to the house.

5,799,906

CABLE MOUNT AND FIXTURE

Larry A. Hillemonds, 2504 Rivendell, New Lenox, Ill. 60451

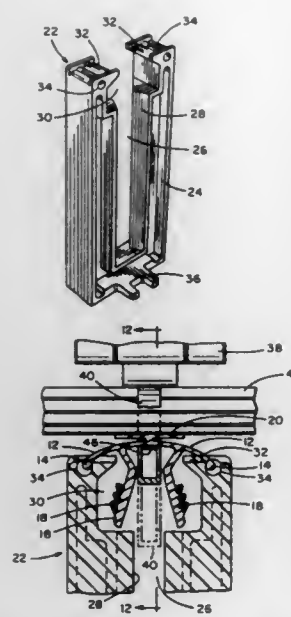
Continuation of Ser. No. 345,163, Nov. 28, 1994, abandoned, which is a division of Ser. No. 148,172, Nov. 1, 1993, Pat. No. 5,368,261, which is a continuation-in-part of Ser. No. 991,820, Dec. 17, 1992, abandoned. This application Jun. 11, 1996, Ser. No. 661,837

Int. Cl.⁶ F16G 11/00

U.S. Cl. 248—49

8 Claims

1. A fixture for supporting a cable mount having a resilient body member formed as a pair of oppositely extending tension arms including flanged ends, resiliently deformable from a first to a second position, and first and second mounting legs formed on and projecting from the body member such that deformation of the body member to the second position spaces the first and second legs further apart comprising:



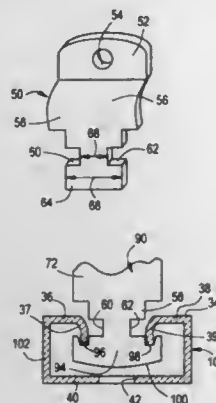
a base member having mounting means for mounting the fixture to a harness board;
a pair of spaced apart fixture arms, each formed on and projecting vertically from the base member to a substantially horizontally planar distal end surface, having engaging means for engaging the cable mount, wherein the engaging means comprises retention pockets formed in the horizontally planar distal end surfaces of the fixture arms so that the fixture is engageable with the flanged ends of the tension arms of the cable mount.

5,799,907 PIPE STRAPS

Ronald Andronica, 1130 44th St., Brooklyn, N.Y. 11219
Filed Feb. 26, 1996, Ser. No. 606,564
Int. Cl.⁶ E21F 17/02

U.S. Cl. 248—62

15 Claims



1. A pipe strap for mounting on a strut to secure a pipe thereto, the strap having a channelled rack arrangement with a longitudinally extending opening in its top portion, and longitudinally spaced apart slotted holes in its bottom portion, said pipe strap comprising:

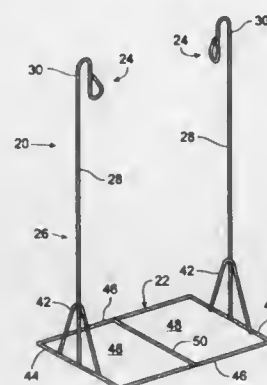
an elongated body having an upper flange portion with an opening therein to receive a threaded bolt therethrough for clamping the pipe;
said elongated body having a curved arm extending downwardly from said upper flange portion for clamping against the pipe;
tab means for engaging in one of the slotted holes of the strut to secure said elongated body to the strut whereby said pipe strap coacts with another pipe strap to clamp the pipe;

said tab means being a reduced lower tab portion of said curved arm so that said tab portion has a first transverse length between opposite first and second side edges thereof which is shorter than a second transverse length between opposite third and fourth side edges of said curved arm;
said first side edge of said tab portion being stepped inwardly from said third side edge of said curved arm, and said second side edge of said tab portion being stepped inwardly from said fourth side edge of said curved arm;
said tab portion having slot means for receiving opposing walls of the slotted holes of the strut therein for securing said first and second side edges of said tab portion to the strut;
said slot means including a pair of opposing first and second slots disposed in a transverse alignment with each other, said first slot extending inwardly from said first side edge, and said second slot extending inwardly from said second side edge to provide a bottom flange at a lower free end of said tab portion, a third transverse length disposed between said pair of opposing first and second slots being shorter than said first transverse length between said opposite first and second side edges of said tab portion.

5,799,908
HOLDER FOR PLASTIC BAGS
Karen L. Downs, 2823 SE Taylor, Portland, Ore. 97214
Filed Feb. 25, 1997, Ser. No. 805,470
Int. Cl.⁶ A63B 55/04

U.S. Cl. 248—97

22 Claims



1. A holder for a bag having a bottom portion, a neck and two spaced-apart straps connected to the neck, the holder comprising:
a base;
a pair of spaced-apart mounts that are each configured to capture and support a respective one of the bag's straps, each mount including a lower surface for supporting the strap in a raised position above the base and an upper surface disposed above the lower surface for selectively retaining the strap within the corresponding mount and preventing the unintentional removal of the strap from the mount; and
a support structure extending upwardly from the base and connected to the mounts to maintain the mounts in a spaced relationship above the base.

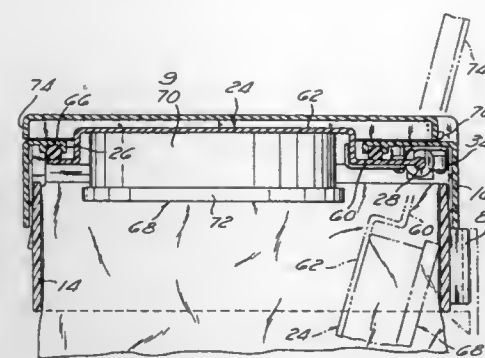
5,799,909
CONTAINMENT SYSTEM FOR RECEIVING AND DISPOSING OF DISPOSABLE SANITARY PRODUCTS
Scott W. Ziegler, 932 Vista Del Monte Way, El Cajon, Calif. 92020

Filed Oct. 25, 1996, Ser. No. 738,418
Int. Cl.⁶ B65B 67/04

U.S. Cl. 248—101

10 Claims

1. A containment system for receiving and disposing of disposable sanitary products, comprising:



a peripheral frame member including a base section and a top section which defines a central opening and is releasably attached to the base section;
a containment bag captured between the top and base sections of the frame member in a manner wherein the containment bag is suspended therefrom, the containment bag defining a hollow interior which communicates with the frame member;
a lid member pivotally connected to the top section of the frame member and movable between a closed position whereat the lid member blocks the central opening and an open position whereat disposable sanitary products are passable through the central opening of the frame member into the interior of the containment bag; and
a biasing mechanism attached to and extending between the top section of the frame member and the lid member for normally maintaining the lid member in the closed position;
the frame member being sized relative to the containment is uncovered and bag such that a substantial portion of the containment bag protrudes downwardly from the frame member.

5,799,910 TOOTHPASTE TUBE HOLDER

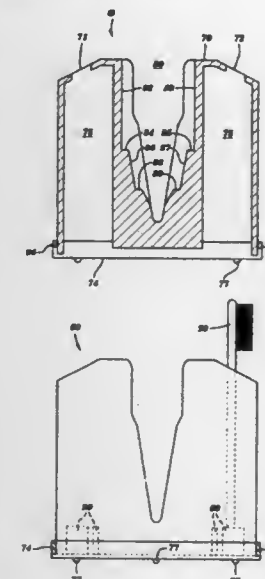
Fred E. Dexter, Box 55, 268 Lake Shore Dr., Boulder City, Nev. 89005

Continuation-in-part of Ser. No. 189,280, Feb. 1, 1994. This application Oct. 31, 1995, Ser. No. 550,951

Int. Cl.⁶ B65D 35/56

U.S. Cl. 248—109

7 Claims



1. A toothpaste tube and toothbrush holder comprising:
(a) a base; and

(b) first and second opposing sections, attached to said base, said opposing sections rigidly fixed relative to one another and adapted for receiving a toothpaste container therebetween, each of said first and second sections including:

- (1) an upper surface, wherein each of said upper surfaces includes a toothbrush receiving hole;
- (2) an outer surface, wherein each of said outer surfaces includes a vertical slit extending from said toothbrush receiving hole down toward said base; and
- (3) an inner surface the inner surface having a plurality of shelves opposite said outer surface.

5,799,911

DISPLAY STAND FOR WRIST WATCHES

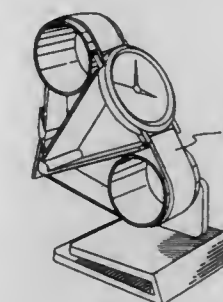
Alain Dostie, Ile Bizard, and Allan Sandler, Dollard des Ormeaux, both of Canada, assignors to Algar Plastics (Canada) Ltd., St-Laurent, Canada

Filed Feb. 13, 1996, Ser. No. 600,895

Int. Cl.⁶ A47F 7/00

U.S. Cl. 248—116

8 Claims



1. A display stand adapted to support wrist watches having different wristband dimensions, said display stand comprising:

- (a) a base portion;
- (b) a support portion mounted to said base portion, said support portion including:
 - (i) a first contact area;
 - (ii) a second contact area, the first contact area and the second contact area being capable of acquiring a first relative position and a second relative position with respect to each other;
 - (iii) a connecting member connecting the first contact area and the second contact area, the connecting member including:
 - (1) a hinge-like portion,
 - (2) a third contact area, and
 - (3) means for urging the first contact area and the second contact area from the second relative position towards the first relative position;

the first contact area, second contact area and the third contact area together defining a support for holding the wristband of the wrist watch when the wristband is clasped, whereby when the first contact area and the second contact area are urged from the second relative position towards the first relative position, the wristband of the wrist watch becomes taut around the support, thereby holding the wrist watch securely in place.

5,799,912

MOBILE REST EQUIPMENT FOR A WORKPIECE WITH VARIABLE DISTANCE SUPPORT ARMS FOR AUTOMATIC PRODUCTION LINES

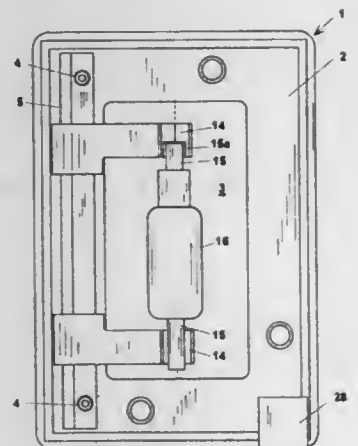
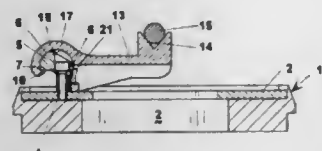
Massimo Ponzio, Barberino V. Elsa, and Fabrizio Cresti, Tavernelle V. Pesa, both of Italy, assignors to ATOP s.p.a., Barberino V. Elsa, Italy

Filed Jul. 24, 1996, Ser. No. 686,364

Claims priority, application Italy, Jun. 8, 1996, PI96A0033
Int. Cl.⁶ F16L 3/00

U.S. Cl. 248—121

19 Claims



1. A pallet for holding at least one workpiece for automatic production lines wherein said pallet is conveyed along said lines by conveyor means, said pallet comprising:

- a base engaging with said conveyor means;
- a guide having a longitudinal axis mounted on said base;
- support arms engaging with said guide, said arms having a first end on which at least a portion of said workpiece can rest, a second end engaging with said guide, and a plane passing through said ends, said plane being transverse to the longitudinal axis of said pallet when in use;
- auto-locking means provided for at said second end for auto-locking engagement with said guide, said auto-locking means allowing movement of said support arms in said transverse plane between a first and a second position;
- whereby in said first position said support arms are capable of translation along said guide or of movement away from said guide in said transverse plane, and whereby in said second position said support arms releasably auto-lock onto said guide.

5,799,913

BEVERAGE HOLDING AND LOCKING DEVICE

Frederick Byron Preston, Sr., 105 Maple Ave., Pasadena, Md. 21122-4342

Filed Mar. 26, 1996, Ser. No. 621,984

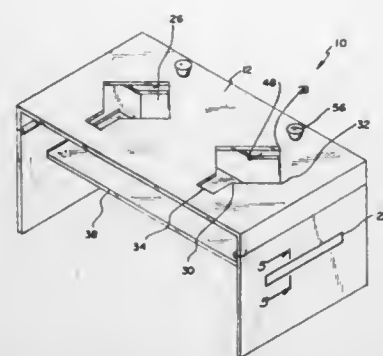
Int. Cl.⁶ A47G 23/02

U.S. Cl. 248—146

1 Claim

1. A beverage holding and locking device for positioning on a floor of a vehicle for engaging a beverage container comprising, in combination:

- a central rack portion having a generally rectangular configuration, the central rack portion having planar upper and lower surfaces, the central rack portion having downturned side portions, the downturned side portions each having an extension member hingedly secured to a lower edge thereof such that the extension members can be extended to an open



position where each extension member is coplanar with a respective said downturned side portion for securement to the floor of the vehicle and to a stowed position where the extension members are closed inwardly to a position perpendicular to the downturned side portions and parallel with the central rack portion, each of the extension members having an elongated horizontal slot therethrough, said slots positioned intermediate of side edges of the extension members and intermediate of side edges of the central rack portion, a lower surface of each said slot having an upwardly extending portion extending a length of the slot, the central rack portion having a pair of substantially diamond shaped openings therethrough, said openings positioned intermediate of the side edges of the central rack portion, each of the openings having an upper apex, a lower apex, and two intermediate apices therebetween, each lower apex having a square opening extending coextensively therefrom;

- a cross member having planar upper and lower surfaces, the lower surface of the cross member having two elongated recesses formed therein inwardly of side edges thereof, the cross member secured between the slots of the extension members of the central rack portion with each of the recesses coupled with a respective said upwardly extending portion, wherein the cross member is disposed beneath the substantially diamond shaped openings of the central rack portion;
- a pair of sliding lock bars each having a generally square configuration, each of the lock bars having an angular recess formed in a rear surface thereof, each of the lock bars having an elongated recess formed therethrough, the lock bars being slidably coupled to the lower surface of the central rack portion whereby the angular recess of each said lock bar is aligned with the upper apex of a respective said substantially diamond shaped opening in a first orientation;
- a pair of elastomeric locking handles, the locking handles each receiving a locking bolt within a metal insert disposed therein, each of the locking bolts extending upwardly through the elongated recess of a respective said lock bar and through an aperture in the central rack portion to slidably couple the lock bars to the central rack portion, a washer being positioned between a lower end of each of the locking handles and the upper surface of the central rack portion and an axis of each of the locking bolts being perpendicular to the upper and lower surfaces of the central rack portion, wherein loosening of the locking bolts from the locking handles allows for the lock bars to slide along the lower surface of the central rack portion.

5,799,914

CRADLE DEVICE FOR A PORTABLE RADIO TERMINAL
Laurent Chivallier, Yvère L'Évêque, and Patrick Guerillot, Pontoise, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 8, 1997, Ser. No. 778,226

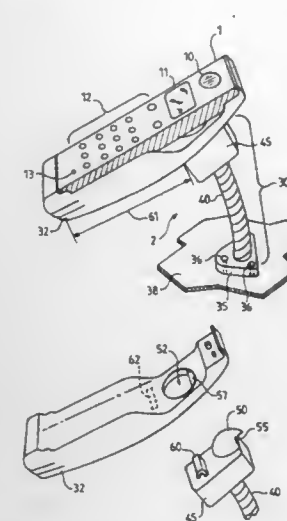
Claims priority, application France, Jan. 10, 1996, 96 00215

Int. Cl.⁶ F16M 11/14

U.S. Cl. 248—176.1

4 Claims

1. A cradle device, said cradle device comprising:



a holder part for holding a portable radio terminal and a fixed part for releasably supporting said holder part;

said fixed part having

- a ball joint accommodated thereon, said ball joint having a curved surface and an engaging surface; and a locking hook spaced from said ball joint and extending from said fixed part;

said holder part having

- an aperture and a stopper extending into said aperture; and a slot formed in said holder part and spaced from said aperture;

wherein said holder part assumes a locked position when said ball joint is accommodated in said aperture, said engaging surface engages said stopper and said hook extends into and engages said slot.

5,799,915

TWIST RACK FOR SNOWBOARDS

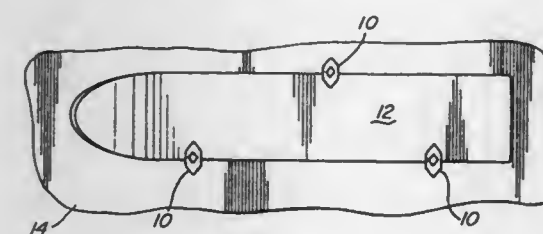
Dennis Earl Morey, Shelburne, Vt., assignor to The Burton Corporation, Burlington, Vt.

Filed Jan. 31, 1995, Ser. No. 381,521

Int. Cl.⁶ F16M 11/00

U.S. Cl. 248—201

34 Claims



1. A bracket to mount a snowboard to a wall, the bracket comprising:

- a base member adapted to be mounted to the wall; and
- no more than one front member rotatable attached to said base member, said front member being adapted to rotate between a first position wherein the bracket is arranged to secure the snowboard between said base and front members, and a second position wherein the bracket is arranged to release the snowboard,

wherein one of said base and front members has a bore and the other has an opposing surface with a shaft projecting therefrom, said shaft being disposed within said bore, and wherein said base member include a first locking element and said front member includes a second locking element adapted to

mate with said first locking element to inhibit rotation of said front member and lock said front member in said first position.

5,799,916

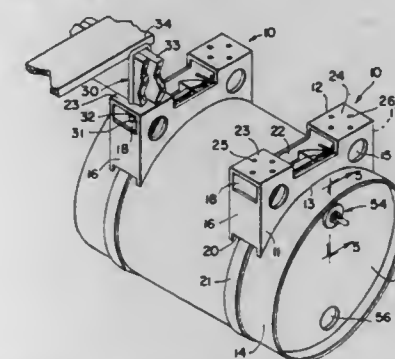
BRACKET FOR FLOATING DOCKS AND RAFTS
Donald A. Lechner, 51 S. County Trunk Y, Mayville (Kekoskee), Wis. 53050

Filed Feb. 14, 1996, Ser. No. 601,529

Int. Cl.⁶ F16L 3/00

U.S. Cl. 248—230.8

3 Claims



1. A bracket for facilitating constructing a floating platform using cylindrical drums for buoyancy, said bracket comprising:

- spaced apart side walls each having opposite ends, end walls and a top wall formed as a single piece, said side walls having lower edges that are curved for bearing on the periphery of one of said cylindrical drums, said end walls formed integrally with said side walls, said end walls spanning across the space between said side walls, said top wall formed integrally with said end walls and sidewalls and said top wall spanning across the space between said side walls,

said end walls respectively having slots for passing through the slots the opposite end portions of a strap, for wrapping the strap about the periphery of the drum,

said top wall having an opening for accessing the space between said side walls, portions of said top wall adjacent opposite sides of said opening constituting spaced apart load bearing surfaces, and

strap support members, respectively, positioned in spaced apart relationship circumferentially of said curved lower edges of said side walls and symmetrically relative to said opening in said top wall, said support members spanning between said side walls and joined unitarily with said side walls, said support members each having a groove for receiving a respective hooked end of a turnbuckle so that the hooked end registers in the groove and is prevented from rotating when the turnbuckle is rotated to alter the distance between the hooks.

5,799,917

ADJUSTABLE SUPPORTING BRACKET
Chin-Chu Li, No. 1-4, Wu Nan Rd., Wu Chi Chen, Taichung Hsien, Taiwan

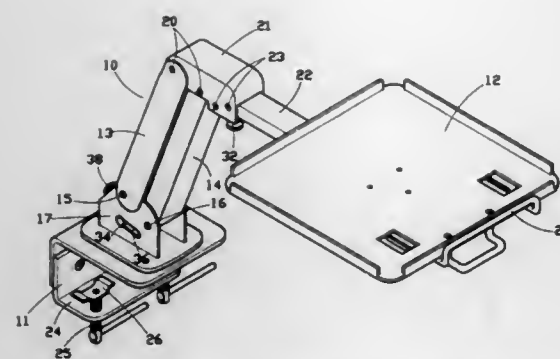
Filed Dec. 17, 1996, Ser. No. 767,874

Int. Cl.⁶ E04G 3/00

U.S. Cl. 248—284.1

3 Claims

1. An adjustable supporting bracket comprising:
a supporting arm assembly having a lower end pivotally connected to a fixing base, a gas cylinder being disposed within said supporting arm assembly and connected to the fixing base, an adjusting bolt having a rotating knob, the supporting



arm assembly, the gas cylinder and the fixing base defining a triangular supporting relationship, when said rotating knob is rotated, the gas cylinder moves relative to the fixing base and the triangular supporting relationship changes to accommodate different load distributions;

an anchoring base disposed beneath the fixing base and is pivotally attached to the lower end of said supporting arm assembly; and

a supporting bracket assembly being locked to a front portion of the supporting arm assembly and characterized in that a lower end of said gas cylinder is disposed with a linking shaft having a pair of sliding shafts at both sides, the free end of said sliding shafts are slidably received within sliding grooves of said fixing base disposed at the lower end of said supporting arm assembly for adjusting the position of the gas cylinder with respect to the fixing base, a rear central portion being disposed with a threaded socket, the top of said adjusting bolt being disposed with said rotating knob which is located outside of the fixing base, said adjusting bolt being screwed into said threaded socket from a back side of said fixing base and locked with said threaded socket, and a spring being enveloped onto said adjusting bolt and being located between said rotating knob and said fixing base for preventing threads of the adjusting bolt from being readily worn out.

5,799,918

VIBRATOR MOUNTING ARRANGEMENT

R. Todd Swinderman, Kewanee, Ill.; Mike Lindbeck, Livonia, Mich., and Doug Lindstrom, Kewanee, Ill., assignors to Martin Engineering Company, Neponset, Ill.

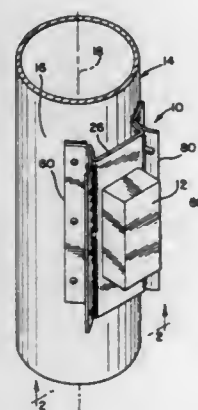
Continuation of Ser. No. 436,930, May 8, 1995, abandoned.

This application May 8, 1997, Ser. No. 853,384

Int. Cl.⁶ A47H 1/10

U.S. Cl. 248—300

18 Claims



1. A vibrator mounting arrangement for securing a vibrator to an object to be vibrated including:

a mounting base adapted to receive the vibrator for attachment thereto;

a first foot member adapted to be secured to the object to be vibrated, said first foot member extending between a first end and a second end;

a first adjustment means for securing said first foot member to said mounting base and for providing selective pivotal movement of said first foot member about a first longitudinal axis with respect to said mounting base, said first foot member extending between said first end and said second end substantially parallel to said first longitudinal axis; and

a second foot member adapted to be secured to said mounting base and adapted to be secured to the object to be vibrated; whereby said first foot member is selectively pivotal about said first longitudinal axis to conform to the configuration of the surface of the object to be vibrated.

5,799,919

ADJUSTABLE STAND

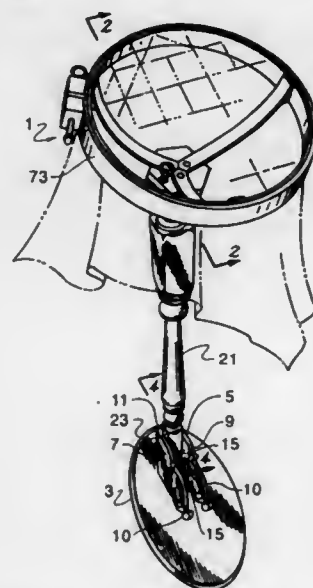
Marjorie Orr, 104 Ashford Ave., Greenville, S.C. 29609

Filed Oct. 30, 1995, Ser. No. 550,486

Int. Cl.⁶ F16M 13/00

U.S. Cl. 248—398

6 Claims



1. An adjustable stand comprising:

a boot defining a three-sided receptacle and carried by an upper surface of a base, said boot further defining a first sidewall, a second sidewall, and a back, said back connecting said first sidewall to said second sidewall;

a first plate attached to an inner surface of said first sidewall, said first plate defining a series of notches along a portion of an arcuate edge of said plate;

a second plate attached to an inner surface of said second sidewall, said second plate defining the series of notches along a portion of an arcuate edge of said second plate;

an upright, one portion of which is carried within said receptacle by an anchor traversing said upright through a chamber defined by a terminal portion of said upright, each end of said anchor mounted within said receptacle, said chamber having a height dimension along a vertical axis of said upright, said height dimension greater than a diameter of said anchor;

a locking pin traversing said upright at a position above said anchor, a first end of said locking pin selectively engaging said notches and an arcuate surface of said first plate and a second end of said locking pin selectively engaging said notches and said arcuate surface of said second plate;

a terminal ball carried on a free end of said upright;

a first frame defining a circular aperture therethrough, said aperture having a diameter less than the diameter of said terminal ball, said frame in communication through said aperture with a lower hemisphere of said ball;

a second frame defining an aperture therethrough and carried by an upper surface of said first frame by a plurality of spaced connectors, said second frame aperture being in communication with a portion of an upper hemisphere of said ball; an article having a base engaging a surface of said second frame, said article base further defining a securing member for attaching said base to said second frame.

5,799,920

DEVICE FOR THE LONGITUDINAL ADJUSTMENT OF A MOTOR VEHICLE SEAT

Uwe Wittkowsky, Bad Muenstereifel; Ralf E. Porath, Solingen, and Jochen Scheidler, Remscheid, all of Germany, assignors to Kelper Recaro GmbH & Co., Remscheid, Germany

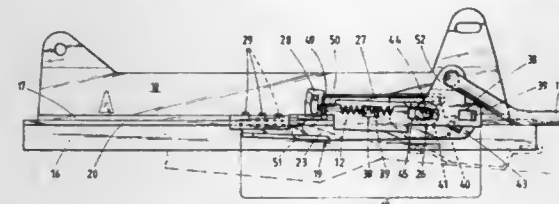
Filed Jul. 16, 1996, Ser. No. 682,001

Claims priority, application Germany, Jul. 19, 1995, 195 26 317.0; Apr. 4, 1996, 196 13 432.3

Int. Cl.⁶ B60N 2/08

U.S. Cl. 248—429

14 Claims



1. In a device for the longitudinal adjustment of a motor vehicle seat whose seat part is supported at the upper rails of rail arrangements which are arranged on both longitudinal sides of the seat and which comprise, in addition to an upper rail, a lower rail which receives the upper rail in a longitudinally displaceable manner, wherein a locking device which can be disengaged from a row of teeth of the lower rails for the purpose of longitudinal displacement is arranged at the upper rails, said locking device having a release device which is coupled with toothed arms of locking levers, which toothed arms are spring-loaded in the locking direction, said release device having a two-part release lever formed of a swivelably supported actuating lever and a grip bar or actuating stirrup, the improvement comprising that the grip bar or actuating stirrup is arranged so as to be displaceable longitudinally relative to the locking levers against the force of a spring element which positions the grip bar or actuating stirrup in the forward initial position and can be deflected to the rear when loaded by pressure acting toward the rear in the longitudinal direction of the seat, to prevent rotation of the locking levers and disengagement thereof from the teeth of the lower rails.

5,799,921

DEVICE FOR PREVENTING THE UNINTENTIONAL CONTACT BETWEEN FURNITURE AND A WALL

Gregory W. Stattel, 17 Falcon Ct., Farmingville, N.Y. 11738

Filed Jul. 8, 1996, Ser. No. 676,939

Int. Cl.⁶ A47B 97/00

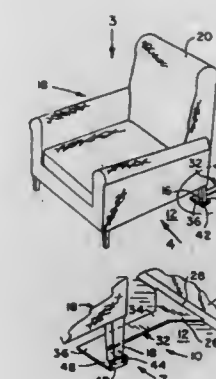
U.S. Cl. 248—501

17 Claims

1. A device for maintaining a typical piece of furniture a predetermined distance from a wall, comprising:

a) a right wall contacting prevention device having a longitudinal midpoint and for positioning on a floor, in abutment with a wall, and for receiving the right rear leg of a typical piece of furniture, and for maintaining the typical piece of furniture a predetermined distance from the wall; and

b) a left wall contacting prevention device having a longitudinal midpoint and being separate from said right wall contacting prevention device and for positioning on the floor, in abutment with the wall, and for receiving the left rear leg of the typical piece of furniture, and for maintaining the typical piece of furniture the predetermined distance from the wall, so



that heat from a baseboard heater, if present, radiates into a room as opposed to being absorbed by the typical piece of furniture, unintentional contact between the typical piece of furniture and the wall is prevented while maintaining fire safety, finished walls are protected from being damaged by contact with the typical piece of furniture, the typical piece of furniture is prevented from damage caused by contact with the wall, and unwanted moving of the typical piece of furniture is prevented and thereby prolonging the life thereof; each of said right wall contacting prevention device and said left wall contacting prevention device having a flat and generally isosceles-trapezoid-shaped wall portion with an elongated base with an outermost point, and a short side; each of said right wall contacting prevention device and said left wall contacting prevention device further having a flat and generally L-shaped extending portion being integral, continuous, and co-planar with said flat and generally isosceles-trapezoid-shaped wall portion.

5,799,922

LOW PROFILE SEAT SUSPENSION

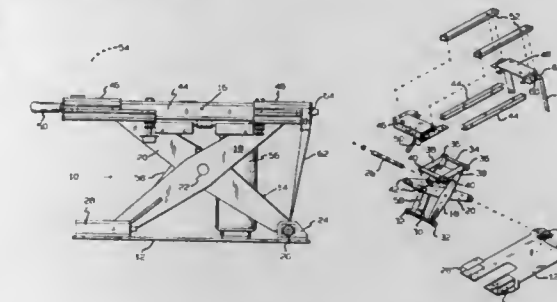
Daryl B. Timms, Springfield; Wilhelm F. L. Sturhan, and Gerhard Hellweg, both of Battle Creek, all of Mich., assignors to Seating Technologies, Inc., Battle Creek, Mich.

Filed Oct. 15, 1996, Ser. No. 732,521

Int. Cl.⁶ F16M 13/00

U.S. Cl. 248—564

1 Claim



1. A vehicle seat suspension for a vehicle having a frame characterized by its low profile, lack of distortion, ease of adjustment and safety, comprising, in combination, a scissor linkage having first and second sets of outer and inner links, each link having a central region and upper and lower ends, said central regions of a set of links being pivotally interconnected, a first anchor bracket pivotally supporting said lower end of one of said links of a set, a second anchor bracket slidably connected to said lower ends of the other of said links of a set, a seat mounting bracket mounted upon said link's upper ends, said seat mounting bracket consisting of a pair of parallel channels each having parallel legs having ends, a front bracket assembly affixed to one end of said channels, and a rear bracket assembly affixed to the other end of said channels, rollers mounted upon said links' upper ends received within said channels' legs, and seat support rails

affixed to said front and rear bracket assemblies, bolts solely affixing said channels to said front and rear bracket assemblies, and bolts solely affixing said seat support rails to said front and rear bracket assemblies whereby said bolted interconnections eliminate distortion of said channels and rails.

5,799,923

MOTOR MOUNT COMPENSATOR ASSEMBLY

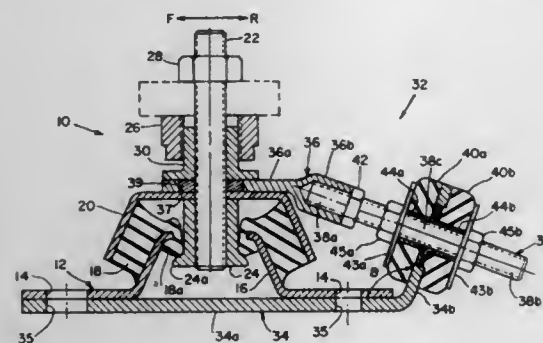
Alan I. Carr; Richard W. Wilbur, both of Camden, and Samuel H. Tibbetts, II, Rockport, all of Me., assignors to The Evolution Co., Inc., Rockland, Me.

Filed Oct. 25, 1996, Ser. No. 738,060

Int. Cl.⁶ F16M 1/00

U.S. Cl. 248—635

14 Claims



1. A thrust compensator assembly for incorporating into a motor mount having a vertically extending motor mount stud and a bottom, comprising:

- a base including a horizontal base section for securing to the bottom of the motor mount and an angular base section having an opening;
- a connecting link including a bracket section having an opening for mounting about the motor mount stud and a connector extending from the bracket section;
- a thrust rod projecting through the opening of the angular base section and having one end coupled to the connector;
- a pair of flexible members mounted about the thrust rod; and
- securing means for securing the pair of members against opposed surfaces of the angular base section, such that a horizontal force on the motor mount is transferable through the connecting link and thrust rod to the pair of flexible members.

5,799,924

REPLICATED-IN-PLACE INTERNAL VISCOUS SHEAR DAMPER FOR MACHINE STRUCTURES AND COMPONENTS

Alexander H. Slocum, Concord, N.H.; Eric R. Marsh, and Douglas H. Smith, both of Naperville, Ill., assignors to AESOP, Inc., Concord, N.H.

Continuation of Ser. No. 942,262, Sep. 9, 1992, abandoned.

This application Mar. 13, 1995, Ser. No. 406,253

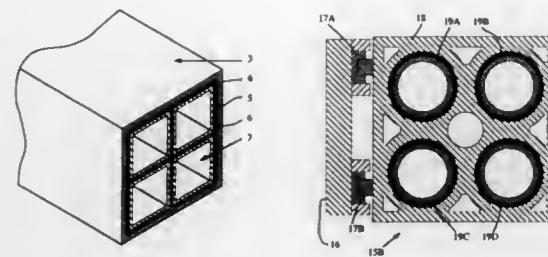
Int. Cl.⁶ F16M 13/00

U.S. Cl. 248—636

33 Claims

2. A damped apparatus having at least one structural member, said structural member comprising:

- a. a longitudinally extending body portion having a long axis and at least one elongate hollow;
- b. inside said hollow and spaced away from said body portion, at least one elongate shear member, aligned parallel to the long axis of said hollow and so that an annular space is defined between said body portion and said shear member;
- c. said at least one shear member coated with a highly viscous thin layer; and



d. in said annular space between said body portion and said coated shear member, a hardened replicant is substantially fixed only to the body portion.

5,799,925

TILT LOCK FOR OUTBOARD MOTOR

Atsushi Kumita, and Manabu Yamamoto, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-ken, Japan

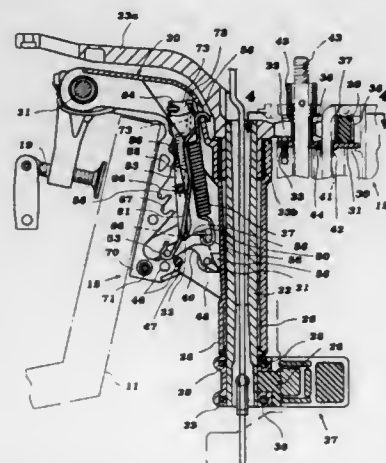
Filed Apr. 22, 1996, Ser. No. 635,721

Claims priority, application Japan, Apr. 21, 1995, 7-097189

Int. Cl.⁶ F16M 1/00

U.S. Cl. 248—642

7 Claims



1. A tilting assembly for an outboard motor drive unit comprising a clamp bracket having a holder portion, said clamp bracket being adapted to be affixed to a transom of an associated watercraft, a swivel bracket pivotally mounted to said clamp bracket for tilting movement between a tilted-down position and a tilted-up position, a stop member secured to said clamp bracket, locking means for locking said swivel bracket to said stop member for setting said tilted-down position, said locking means being pivotally mounted to said swivel bracket and selectively engageable with said stop member, releasing means for releasing said locking means from said stop member, said releasing means being pivotally mounted to said swivel bracket, holding means for holding said swivel bracket in said tilted-up position in cooperation with said holder portion of said clamp bracket, said holding means being pivotally mounted to said swivel bracket and selectively engageable with said holder portion, biasing means for biasing said holding means towards said holder portion or away from said holder portion, said biasing means being pivotally mounted to said swivel bracket, said biasing means and said releasing means being pivotally mounted to said swivel bracket through a single-piece lever, and said biasing means being operatively associated with said releasing means and said single-piece lever being configured so that said holding means is biased away from said holder portion when said stopping member is engaged by said locking means and towards said holder portion when said stopping member is disengaged from said locking means.

5,799,926
ENERGIZATION CONTROL METHOD, AND ELECTROMAGNETIC CONTROL SYSTEM IN ELECTROMAGNETIC DRIVING DEVICE

Takashi Moriya; Yasuyuki Komatsu; Hiroshi Sono, and Takashi Sugai, all of Saltama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 485,705, Jun. 7, 1995, Pat. No. 5,636,601.

This application Jan. 23, 1997, Ser. No. 788,116

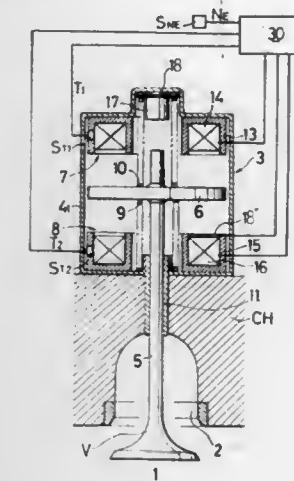
Claims priority, application Japan, Jun. 15, 1994, 6-133423;

Jun. 15, 1994, 6-133425; Jul. 8, 1994, 6-157106

Int. Cl.⁶ F01L 9/04

U.S. Cl. 251—129.1

1 Claim



1. An electromagnetic control system in an electromagnetic driving device for an engine valve in an internal combustion engine, the driving device comprising: an armature operatively connected to the engine valve; a pair of electromagnets disposed in an opposed relation to each other on opposite sides of said armature for exhibiting an electromagnetic force for attracting said armature; a pair of return springs for biasing said armature toward said electromagnets, respectively, and the engine valve toward open and closed positions; and an equilibrium position changing means for changing an equilibrium neutral position of said armature maintained by both the return springs in deexcited states of said electromagnets, between a first position in which said equilibrium neutral position is set at substantially halfway between said electromagnets and a second position in which said equilibrium neutral position is offset toward one of said electromagnets, said electromagnetic control system comprising, an operational position detecting means for detecting that a movement of said armature to each of said electromagnets during excitation of said electromagnets is incomplete; and a control means for controlling the operation of said equilibrium position changing means, so that the equilibrium neutral position of said armature is shifted to said second position in response to the detection of the incomplete movement of said armature by said operational position detecting means.

5,799,927

RADIAL ROTARY SLIDE VALVE FOR CONTROLLING THE STEAM FLOW RATE IN A STEAM TURBINE

Richard Geist, Lauf, Germany, assignor to ABB Patent GmbH, Mannheim, Germany

Filed May 27, 1997, Ser. No. 863,360

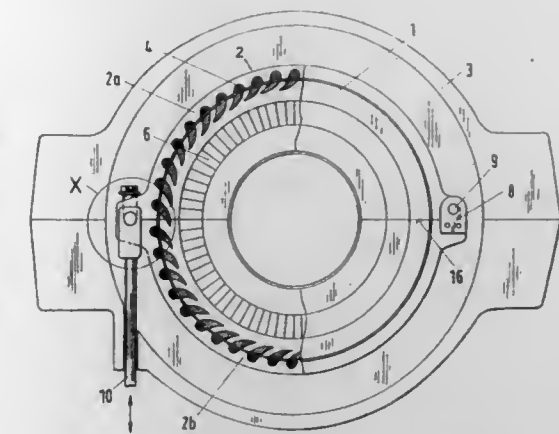
Claims priority, application Germany, May 24, 1996, 196 20 949.8

Int. Cl.⁶ F01D 1/30

U.S. Cl. 251—212

8 Claims

1. A radial rotary slide valve for controlling a steam flow rate in a steam turbine, comprising: an immobile fixed ring;



a rotary ring disposed concentrically and rotatably on said fixed ring, said rotary ring divided along a joint into a top half-ring part and a bottom half-ring part having opposing half-ring ends;

a servo motor for varying an angular position of said rotary ring; said rotary ring having first control profiles and said fixed ring having second control profiles, said first control profiles adjacent to said second control profiles defining control slots therebetween, and said first and second control profiles corresponding with each other for variably opening and closing said control slots; and

a connecting device interconnecting said top and bottom half-ring parts of said rotary ring for varying a distance between at least two of said opposing half-ring ends and permitting a change in an inside diameter of said rotary ring to accommodate a sliding play required for rotary movements between said rotary ring and said fixed ring.

5,799,928

BALL VALVE WITH IMPROVED VALVE SEAT AND BONNET ASSEMBLY

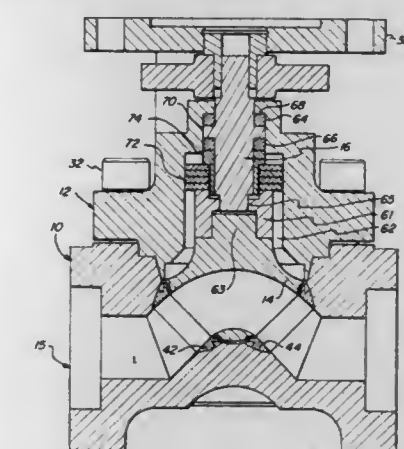
Chester A. Silver, Belleair, Fla., assignor to Conval Inc., Somers, Conn.

Filed Mar. 3, 1997, Ser. No. 796,718

Int. Cl.⁶ F16K 41/04; 5/06

U.S. Cl. 251—214

21 Claims



1. A valve for controlling fluid flow and having open and closed positions comprising:

- (a) a housing providing a chamber therewithin and a fluid flow passage therethrough, with inlet and outlet portions to and from said chamber adjacent the lower end of said housing, said housing also having an opening in its upper end commu-

nicating with said chamber, and generally annular recesses extending about said inlet and outlet ends of said inlet and outlet portions;

(b) a bonnet on said housing sealing said opening in said upper end and having a passage extending therethrough from said chamber, said bonnet passage including a shoulder extending thereabout;

(c) means fastening said bonnet to said housing;

(d) a valve member rotatably seated in said chamber and having an axis of rotation aligned with the center of said opening in said housing and said valve member having

(i) a lower portion including means for permitting fluid flow between said inlet and outlet portions of said flow passage into and from said chamber in the open position of said valve, and means for restricting fluid flow between said inlet and outlet portions of said flow passage in the closed position of said valve; and

(ii) an upper portion;

(e) generally annular body seats seated in said annular recesses and extending about said inlet and outlet ends of said flow passage, said body seats having a concave seating surface on their end disposed towards said chamber;

(f) generally annular valve seats seated on said concave seating surfaces of said body seats and extending about said inlet and outlet portions of said flow passage, said valve seats including a concave sealing surface in sealing engagement with the surface of said lower portion of said ball member, said valve seats having convex seating surfaces slidably seated on said concave surfaces of said body seats;

(g) a cylindrical valve stem extending within said bonnet passage operatively connected at one end to said upper portion of said valve member for rotating said valve member about its axis of rotation between said open and closed positions of said valve, said valve stem having a portion disposed outwardly of said housing at its other end;

(h) means for rotating said valve stem;

(i) resiliently deflectable means in said bonnet passage about said valve stem;

(j) a first annular sealing member in said bonnet passage disposed about said valve stem and against said shoulder;

(k) a collar extending about said valve stem within said bonnet passage and disposed below and against said first annular sealing member;

(l) a second annular sealing member in said bonnet passage disposed below and against said collar; and

(m) a packing gland in said bonnet passage disposed about said valve stem below and against said second annular sealing member, said resiliently deflectable means biasing said packing gland against said second sealing member and thereby said collar against said first sealing member.

5,799,929

FENCE SLATS WITH INTEGRAL LOCKING PORTIONS
Don A. Meglino, and James V. Meglino, both of 100 Frank Rd., Hicksville, N.Y. 11802

Filed Dec. 13, 1996, Ser. No. 766,287

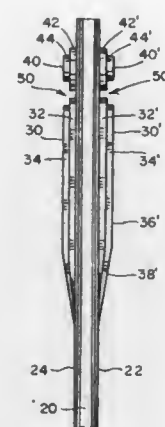
Int. Cl.⁶ E04H 17/00

U.S. Cl. 256—34

16 Claims

1. A fence slat receivable in a channel formed by interwoven wires of a chain link fence, said fence slat comprising:

an elongated body comprising a first side comprising a first outwardly extending stop and a second outwardly extending stop, said first and second outwardly extending stops spaced from each other and defining a first passageway therebetween, said elongated body further comprising a second side comprising a third outwardly extending stop and a fourth outwardly extending stop, said third and fourth outwardly extending stops spaced from each other and defining a second passageway therebetween, wherein when said slat is received



in the channel of the chain link fence, one of the wires is positionable in at least one of said first and second passageways.

5,799,930

BODY MOUNT ASSEMBLY

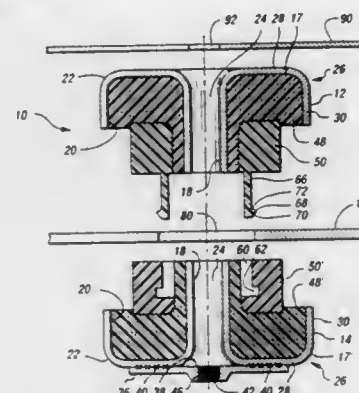
Mark A. Willett, Midland, Mich., assignor to Means Industries, Inc., Saginaw, Mich.

Filed Jan. 30, 1997, Ser. No. 792,173

Int. Cl.⁶ F16F 9/00; B62D 23/00; 24/02

U.S. Cl. 267—141.4

33 Claims



1. A shock absorbing assembly capable of being connected to a vehicle frame member having a frame member aperture defining an aperture perimeter and for dampening movements between a body member and the vehicle frame member, the shock absorbing assembly comprising:

a first spacer member having first absorption material and a first locking member having one of a male and female configuration;

a second spacer member having second absorption material and a second locking member having the other of a male and female configuration; and

the male configuration including at least one prong, the at least one prong having at least one locking protrusion, and the female configuration including at least one female recess, the female recess having at least one locking recess, such that the first spacer member may be connected to the second spacer member through the frame member aperture by inserting the at least one prong into the at least one female recess such that the at least one prong is displaced laterally before the at least one locking protrusion interlocks with the at least one locking recess.

5,799,931

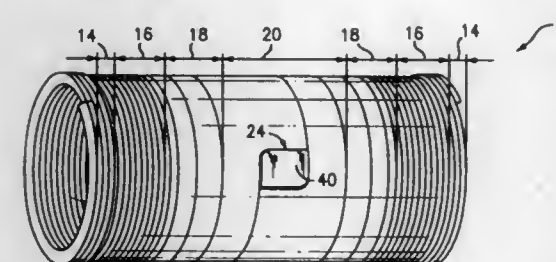
COIL SPRING FOR OVERRUNNING SPRING CLUTCHES
Jules G. Kish, Milford, Conn., assignor to Sikorsky Aircraft Corporation, Stratford, Conn.

Filed Oct. 11, 1996, Ser. No. 730,519

Int. Cl.⁶ F16F 1/10

U.S. Cl. 267—155

20 Claims



1. A coil spring (10) for use in an overrunning spring clutch assembly including a central arbor (32) and coaxially aligned clutch members (34), said coil spring (10) having a crossover coil (20) disposed intermediate of its ends, said crossover coil (20) fabricated from a material having a density ρ_{cc} and having a longitudinal crossover gap (24) therein defining internally opposed surfaces (24s), said coil spring (10) being characterized by:

a dynamic balance weight (40) secured in combination with one of said internally opposed surfaces (24s) of the longitudinal crossover gap (24);

said dynamic balance weight (40), furthermore, being fabricated from a material having a density ρ_{BW} , said density ρ_{BW} being greater than said density ρ_{cc} .

5,799,932

ROTARY CLAMP HAVING A COMMON PLANE MOUNTING ARRANGEMENT

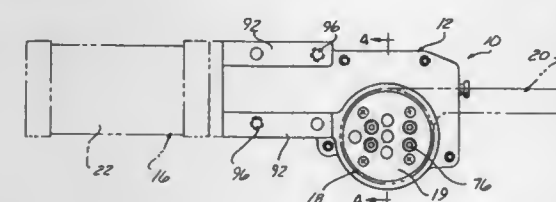
John A. Blatt, Pointe Shores, Mich., assignor to ISI Norgren Inc., Anoka, Minn.

Continuation of Ser. No. 362,152, Dec. 22, 1994, Pat. No. 5,634,629. This application Oct. 31, 1996, Ser. No. 744,700

Int. Cl.⁶ B23Q 3/08

U.S. Cl. 269—32

23 Claims



1. A rotary clamp supported by a supporting member and having a common plane mounting arrangement comprising:

first means for mounting said rotary clamp to said supporting member including a first planar surface on said rotary clamp; means for engaging a workpiece;

second means for mounting said workpiece engaging means to said rotary clamp including a second planar surface on said rotary clamp coplanar with said first planar surface for simplifying the set up procedure of said rotary clamp; and

recess means, located between said first planar surface and said second planar surface of said rotary clamp, for spacing said first planar surface from said second planar surface.

5,799,933

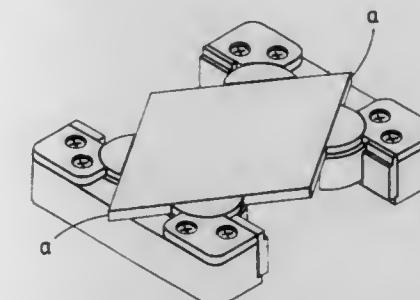
ADJUSTABLE CLAMPING JAW FOR A VISE
Tai-Her Yang, No. 32 Lane 29, Taipin St., Si-Hu Town Dzan-Hwa, Taiwan

Filed Aug. 19, 1996, Ser. No. 699,354

Int. Cl.⁶ B25B 1/24

U.S. Cl. 269—261

2 Claims



1. An adjustable clamping jaw for a vice, comprising:

a) a jaw member having an upper surface;

b) a pair of semi-cylindrical spaced apart clamping members located on the jaw member, each clamping member having a clamping surface extending above the upper surface of the jaw member; and

c) two plates attached to the upper surface of the jaw member, each plate in contact with one of the pair of clamping members so as to attach the clamping members to the jaw member such that each clamping member pivots with respect to the jaw member, a distance between the two spaced apart plates being greater than a distance between adjacent portions of the spaced apart clamping members whereby a workpiece clamped between the pair of clamping members may extend between the two plates and over the upper surface of the jaw member.

5,799,934

BATTERY CONVEY JIG

Minoru Kouda, Hirakata; Hiroyuki Usui, Chigasaki, and Masatoshi Hoshi, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

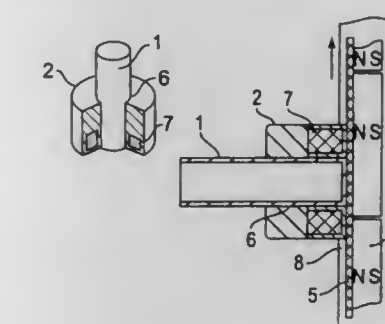
Filed Jan. 5, 1996, Ser. No. 583,798

Claims priority, application Japan, Jan. 5, 1995, 7-000259

Int. Cl.⁶ B23Q 3/00

U.S. Cl. 269—287

17 Claims



1. A battery convey jig comprising,

a main body, and

a weight,

wherein said main body is characterized by having a hole for accommodating a battery or battery constituent member in a center of the main body having a cylindrical profile,

wherein said weight is positioned in said main body such that a center of gravity of the battery convey jig is in a lower part of the battery convey jig,

wherein the main body is composed of a synthetic resin,

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wherein the weight has a specific gravity greater than that of the synthetic resin and is disposed near the lower part of the main body,
wherein the weight is an iron ring, and
wherein the iron ring has at least two parts, with one part being thick and disposed in the lower part of the main body and another part being thin and disposed in an upper part of the main body.

5,799,935

AUTOMATIC STAPLING DEVICE

Satoshi Yamanushi, Nirasaki, and Naoto Mochizuki, Kofu, both of Japan, assignors to NISCA Corporation, Yamanashi, Japan

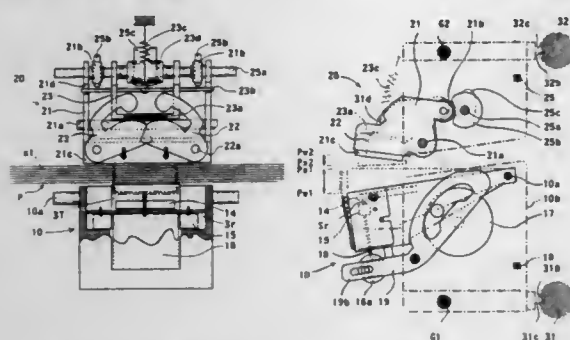
Filed Nov. 18, 1996, Ser. No. 751,406

Claims priority, application Japan, Nov. 16, 1995, 7-322346

Int. Cl.⁶ B27F 7/17

U.S. Cl. 270—58.08

28 Claims



1. An automatic stapling device comprising:
sheet passage for allowing a sheaf of sheets to pass there-through;
a staple driver for inserting a staple into said sheaf of sheets;
clinchers for bending the staple piercing through the sheets, said clincher being separated from said staple driver;
stapling drive means for operating said staple driver to perform stapling and the clincher to bend the staple;
shifting means for bringing at least one of said staple driver and said clincher close to the other to secure said sheaf of sheets therebetween in a stapling operation, and widely separating said at least one of said staple driver and said clincher from the other when standing ready for stapling; and
means for transmitting driving power produced by said stapling drive means respectively to said at least one of said staple driver and said clincher.

5,799,936

AUTOMATIC DEVICE FOR DIVERTING LARGE SHEETS OF PAPER TO A BAR

Masahiro Sekine, and Masami Maruyama, both of Kawasaki, Japan, assignors to Japan Digital Laboratory Co., Ltd., Tokyo, Japan

Filed Dec. 16, 1996, Ser. No. 766,133

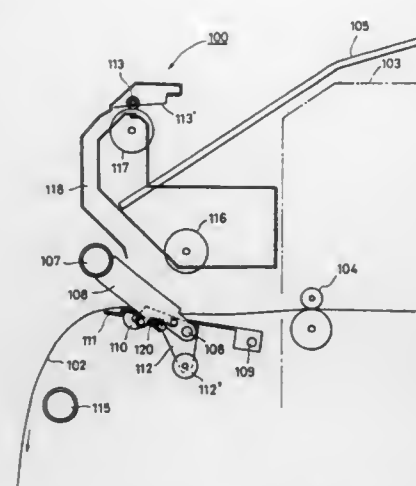
Claims priority, application Japan, Jan. 18, 1996, 8-024654

Int. Cl.⁶ B65H 29/54; B07C 5/04

U.S. Cl. 271—175

12 Claims

1. A sheet stacking apparatus, comprising:
a frame having an inlet for sheet stock having at least first and second sizes and a main roller rotatable about an axle mounted on said frame, an axis of said axle being oriented perpendicular to a direction of movement of said sheet stock moving therepast;
first and second sheet receiving means on said frame each adapted to receive therein said sheet stock of a selected one of said first and second sizes, said first sheet receiving means including a support means for supporting said sheet stock of



said first size in an inverted U form and stacked array, said second sheet receiving means including at least one tray onto which said sheet stock of said second size is to be placed in a stacked array;

sheet guide means including a sheet guide member supported for movement between first and second positions for facilitating a guiding of said sheet stock to a respective one of said first and second sheet receiving means;

sheet stock size selection means for producing control signals indicative of a size of said sheet stock inputted to said inlet; control means responsive to said control signals for controlling the movement of said sheet guide member to a respective one of said first and second positions so that said sheet stock fed to said input will be guided by said sheet guide member to respective said first and second sheet receiving means;

said sheet guide means including a sheet clamp member movable into and out of engagement with said support means in response to said sheet guide member being moved to and from said first position so as to effectively clamp said sheet stock supported on said support means between said sheet clamp member and said support means;

said sheet guide means additionally including an auxiliary roller mounted on said sheet guide member for movement with said sheet guide member toward and away from said main roller in response to a movement of said sheet guide member toward and away from said second position so that sheet stock of said second size will be guided by said sheet guide member between said main roller and said auxiliary roller; and
said sheet guide means additionally including a separate lever arm movable independently of said sheet guide member between first and second positions, and link means interconnecting said lever arm, said sheet guide member and said sheet clamp member;

whereby sheet stock fed to said inlet will cause said control means, in response to a first of said control signals indicative of sheet stock of said first size, movement of said sheet guide member to said first position to guide said sheet stock to said first receiving means or, in response to a second of said control signals indicative of sheet stock of said second size, movement of said sheet guide member to said second position to guide said sheet stock to said second receiving means.

5,799,937

BASEBALL BAT PRACTICE DEVICE AND METHOD OF MANUFACTURE

Timothy J. Nolan, Antioch, Ill., assignor to Paul V. Smith, Sr., and Paul V. Smith, Jr., Lombard, Ill., a part interest
Continuation-in-part of Ser. No. 296,719, Aug. 26, 1994, Pat. No. 5,501,450. This application Sep. 11, 1995, Ser. No. 526,638

Int. Cl.⁶ A63B 69/00

U.S. Cl. 273—26 B

16 Claims

1. In combination, a baseball bat with a knob at one end, and a baseball batting training device comprising a weight sized for

5,799,939

ANAMORPHOSES FOR GAMES, EDUCATION AND PROMOTIONS

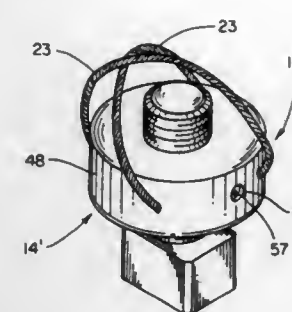
Wesley C. Schneider, Chicago, Ill., assignor to Wesleyan Company, Inc., Kenilworth, Ill.

Filed Dec. 14, 1995, Ser. No. 572,688

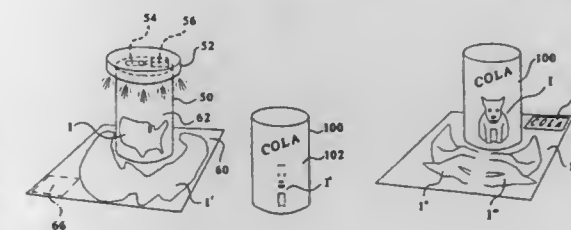
Int. Cl.⁶ A63F 3/06

U.S. Cl. 273—138.1

61 Claims



positioning in co-axial assembly with the knob of the baseball bat, the weight having an internally threaded nut secured in fixed assembly with said weight, a bolt bore extended through the weight co-axially aligned with a threaded bore defined by the internally threaded nut, a bolt with external threads threadably engaged through said threaded bore of the internally threaded nut, a jam nut threadably engaged to the bolt, and a pair of annular members attached in integral assembly with said weight, the annular members being extended away from the weight in a crossed pattern and being positioned in engagement with axially facing remote surface areas of said knob of the baseball bat, the bolt exerting a pulling force against the pair of annular members engaged against the axially facing remote surface areas of said knob to hold the baseball batting training device in fixed assembly with the knob of said baseball bat.



1. A game comprising:
a display of a preselected winning images;
a plurality of perspectively distorted images;
a means for decoding said plurality of distorted images, said means having a reflective surface for decoding said plurality of distorted images and at least one of said distorted images when decoded by said means matching said preselected winning image, and a plurality of said distorted images when decoded by said means not matching said preselected winning image.

5,799,940

METHOD AND APPARATUS FOR AUTOMATIC RANDOM SELECTION IDENTIFICATION

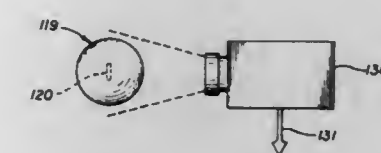
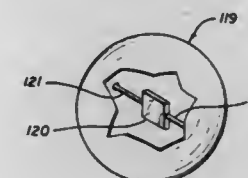
Warren W. Tripp, 2070 Driscoll Dr., Reno, Nev. 89509

Continuation-in-part of Ser. No. 489,606, Jun. 12, 1995, Pat. No. 5,590,879. This application Sep. 30, 1996, Ser. No. 720,441

Int. Cl.⁶ A63F 3/06

U.S. Cl. 273—144 R

3 Claims

5,799,938
BALL AND RING GAMES AND GAME STRUCTURES

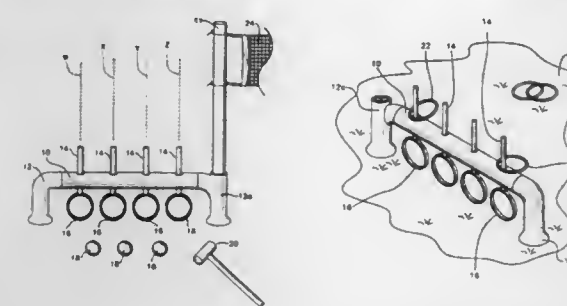
Ronald L. Lewis, 4253 Billoups St., Baton Rouge, La. 70802

Filed Aug. 12, 1997, Ser. No. 909,571

Int. Cl.⁶ A63B 67/00; 67/00; 63/00

U.S. Cl. 273—118 R

17 Claims



1. A game structure for use on a horizontal or substantially horizontal surface, the structure comprising:

- a) a shaft; and
- b) one or more loop members;

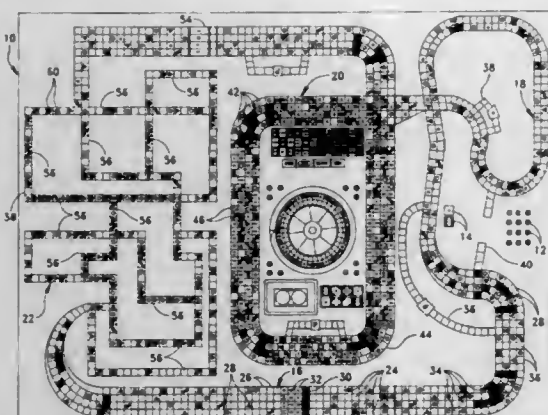
the shaft including two support members extending from each end of the shaft for supporting the shaft in a horizontal or substantially horizontal position above the surface; and each loop member occupying a respective plane and being rotatably connected or connectable to the shaft at the loop periphery so that when the loop member is disposed below the shaft and in contact with or in close proximity to said surface, the loop member may rotate about a vertical or substantially vertical axis which extends through the respective plane.

1. The method of selecting and displaying at random a certain unique identifier carried by each of a number of items by means of a unique semiconductor carried by each of the items from a plurality of identifier carrying items comprising: associating a unique semiconductor identifier on each of a plurality of items; mixing the items and holding the items in suspension in a chamber by blowing air within the chamber; selecting items, one at a time, by an item selector means; placing each item, as selected, in a socket within a moving wheel carrying a plurality of positions; detecting the accuracy of placement of each item within the appropriate position by detection sensors; detecting the identifier of each item as selected by a semiconductor detector; and using identifier so detected.

5,799,941
**BOARD GAME HAVING MULTIPLE,
 INTERCONNECTING SEGMENTS**
 Steev Panneton, 358 Washington St., West Warwick, R.I. 02893
 Filed May 22, 1997, Ser. No. 861,872
 Int. Cl.⁶ A63F 3/00

U.S. Cl. 273—246

19 Claims



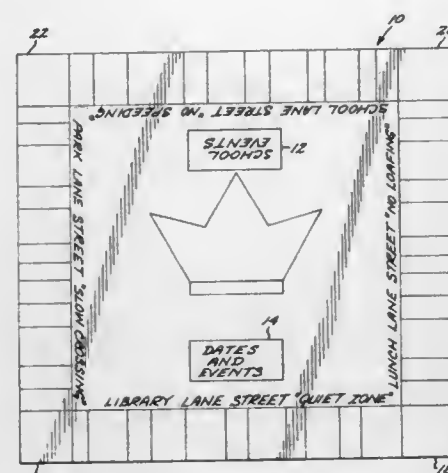
1. A board game which is played by at least two players, the board game comprising:
 - a movement piece for each player;
 - at least one random movement device capable of generating a random number for determining the magnitude of movement of the movement pieces;
 - a racing segment having a plurality of lanes, each lane having a plurality of spaces, some of said plurality of spaces having a first group of movement icons provided thereon for indicating a type of movement to be performed by the movement pieces upon landing on the space;
 - a gaming segment having a plurality of lanes, each lane having a plurality of spaces, some of said plurality of spaces having a group of game icons thereon, the arrangement being such that upon landing on a space having a certain game icon, a player must successfully play a game indicated by the game icon prior to moving off of the space; and
 - a maze segment having one lane with a plurality of spaces, some of said plurality of spaces having a second group of movement icons thereon for indicating a type of movement of the movement pieces,
- wherein said movement pieces move along the spaces of the lanes of the racing, gaming and maze segments a number of spaces as determined by the random movement device.

5,799,942
METHOD OF PLAYING BOARD GAME
 Frances B. Birt, 11701 Lemoli Ave., Inglewood, Calif. 90303
 Filed Jul. 22, 1997, Ser. No. 898,358
 Int. Cl.⁶ A63F 3/00

U.S. Cl. 273—256

5 Claims

1. A method of playing a board game directed to teaching children values, the board game having a playing board and playing area comprising the steps of:
 - dividing said playing area into a plurality of spaces along the edges of said board; certain of said spaces having instruction indicia thereon defining the expenses or income to be paid or received from a playing piece landing thereon, the player then paying expenses or receiving income in accordance with the instruction;
 - placing a plurality of playing pieces initially in predetermined ones of said spaces for a first and second player;
 - distributing a predetermined amount of play money to each player at the beginning of the game;
 - moving a playing piece a number of spaces according to the roll of a dice, the spaces being divided into months and weekdays

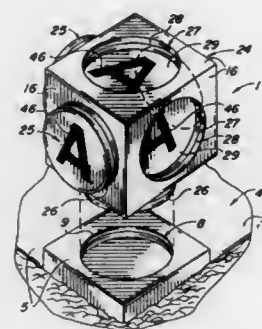


each of which are available for purchase, spaces also including bills and expenses to be paid and income to be received; and
 rolling a die to determine the total number of spaces the playing pieces are to be moved in each turn of play, the first player purchasing all twelve months and all seven days being declared the winner.

5,799,943
THREE-DIMENSIONAL WORD GAME
 Jeffrey D. Morgan, 832 Wilkinson St., Shreveport, La. 71104
 Filed May 11, 1995, Ser. No. 439,484
 Int. Cl.⁶ A63F 3/00

U.S. Cl. 273—272

19 Claims

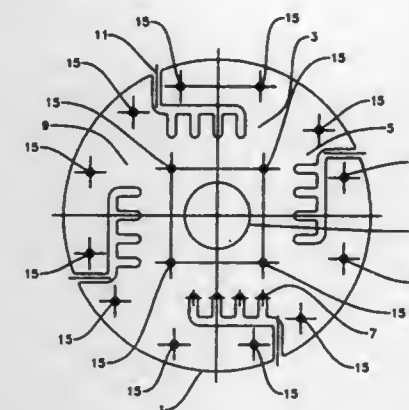


1. A three-dimensional word game comprising a game board; a grid provided on said game board, said grid defining a plurality of grid spaces; a plurality of blocks, each of said blocks having six block faces; a plurality of blocks, each of said blocks having six block faces; male coupling means and female coupling means provided on selected ones of said block faces on selected ones of said blocks for connecting said blocks; game indicia provided on at least three of said block faces; and anchor means provided in selected ones of said grid spaces for selectively receiving said male coupling means and said female coupling means respectively and anchoring selected ones of said blocks to said game board, whereby said blocks are stacked vertically from said game board and said blocks are selectively extended horizontally above said game board to organize said game indicia in a selected manner, responsive to connecting of said blocks by said male coupling means and said female coupling means.

5,799,944
GAME BOARD WITH NON-REMOVABLE PIECES
 Sean Christian Lemmon, 116 N. Bend Ct., Waco, Tex. 76712
 Filed May 21, 1997, Ser. No. 861,193
 Int. Cl.⁶ A63F 3/00

U.S. Cl. 273—281

3 Claims

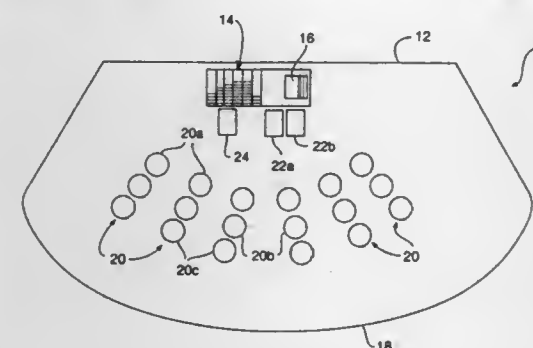


1. A combined game board and playing piece assembly comprising:
 - a game board having indented tracks in which playing pieces can be moved, said game board having a plurality of joined sections including a top and base section with substantially the same outside dimensions;
 - said tracks having a width and a plurality of identical adjacent track stations with each station having its own playing piece entrance and an adjoining track segment to an adjacent different track station;
 - said game board also having a center section between its top and base section, said center section having a series of depending protrusions, and said base section having indentations which engage the protrusions to join the two board sections together; and
 - a movable playing piece adapted to ride in and be moved in said game board's indented tracks, said playing piece having an enlarged upper and lower base portion which is sufficiently larger in cross section than the width of the tracks whereby the playing piece cannot be removed from the tracks.

5,799,945
METHOD OF PLAYING A POKER-TYPE WAGERING GAME
 Eugene B. Boylan, Minden; Robert F. Koerner, Gardnerville, and Russell R. Hebert, Carson City, all of Nev., assignors to Bet Technology Inc., Carson City, Nev.
 Filed Jul. 16, 1997, Ser. No. 893,242
 Int. Cl.⁶ A63F 1/00

U.S. Cl. 273—292

10 Claims



1. A method of playing a poker-type wagering game between a respective player or a group of respective players and a dealer

whose outcome is determined by randomly generated playing cards having various ranks and suits, said method comprising the steps of:

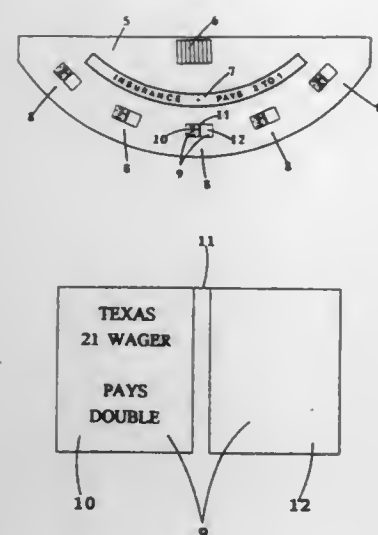
- offering of a plurality of outcomes for each respective player to wager against a dealer, the outcomes offered being:
 - (a) that the respective player has a hand of two cards of the same suit,
 - (b) that the respective player has a hand of two cards which ranks higher than a hand of two cards of the dealer, and
 - (c) that the respective player has a poker hand with a poker value of greater than a predetermined value, the poker hand being comprised of five cards including the two card hand of the respective player, the two card hand of the dealer, and a common card;
- wagering an ante bet by each respective player against the dealer for a selected one of the plurality of outcomes;
- dealing of two cards by the dealer to each respective player to constitute the hand of that player, dealing of two cards by the dealer to the dealer to constitute the hand of the dealer, and dealing of a single card by the dealer which is designated as the common card;
- determining, for each respective player making an ante bet that the respective player has a respective hand with two cards of the same suit, whether that player has a respective hand of two cards of the same suit, and paying off of the ante bet of each respective player which does have a respective hand of two cards of the same suit;
- determining, for each respective player making an ante bet that the respective player has a respective two card hand which ranks higher than the two card hand of the dealer, whether that player has a respective two card hand which ranks higher than the two card hand of the dealer, and paying off of the ante bet of each respective player which does have a respective two card hand which ranks higher than the two card hand of the dealer; and
- determining, for each respective player making an ante bet that the respective player has a five card poker hand which has a poker value higher than the predetermined value, whether that player has a five card poker hand which has a poker value higher than the predetermined value, and paying off of the ante bet of each respective player which does have a five card poker hand greater than the predetermined value.

5,799,946
METHOD OF PLAYING A MODIFIED BLACKJACK GAME
 Raymond K. Groussman, 276-204 N. El Camino Real, Ocean-side, Calif. 92054
 Filed Sep. 17, 1997, Ser. No. 932,200
 Int. Cl.⁶ A63F 1/00

U.S. Cl. 273—292

1 Claim

1. A method of playing a modified version of Blackjack using at least one conventional deck of 52 playing cards, and a table layout having a dealer station located on one side of the table, and a plurality of player stations along the periphery of the side opposite the side of the dealer station, each player station having a first wager box to place conventional "21" wagers and an adjacent second wager box with indicia printed within showing modified 21 wager where the player places a modified 21 wager, the method of playing this modified Blackjack game comprising the steps of:
 - (a) assigning each player to a player station and requiring each player to place a conventional 21 wager and/or a modified 21 wager in their appropriate "21" wager box in order to receive a hand of cards and participate in the game;
 - (b) the player allowing to simultaneously play both wagers, the method comprising the steps of:
 - (c) allowing each player to optionally place a conventional 21 wager in his conventional 21 wager box and/or place a modified 21 wager in the modified 21 wager box with indicia within the box;
 - (d) the dealer dealing one initial hand of two cards in accordance with the conventional manner of play of Blackjack to



5,799,947
CARD PLAYING GAME USING STANDARD PLAYING CARDS MIXED WITH PLAYING-PHONE CARDS
 Donald Spector, 380 Mountain Rd., Union City, N.J. 07080
 Filed Jun. 30, 1997, Ser. No. 884,886
 Int. Cl.⁶ A63F 1/00

U.S. Cl. 273—304

8 Claims

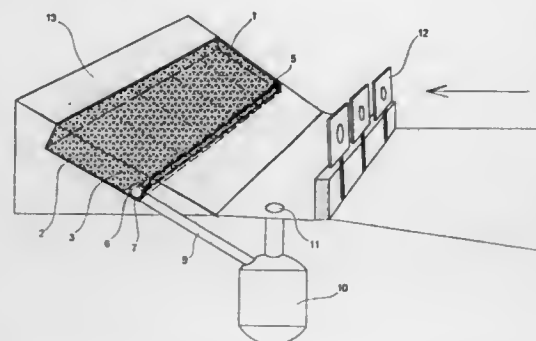


1. A playing card game whose winner gains free phone calling time, said game comprising:
 A. a standard deck of playing cards; and
 B. a deck of hybrid cards, each card of which corresponds to a card in the standard deck and has integrated therewith a prepaid phone card to form a playing-phone card whereby to play the game, some cards in the standard deck are replaced by corresponding hybrid cards, and the winner of the game keeps the playing-phone cards included in his winning hand.

5,799,948
LEACHING PROTECTOR
 Gerth Moberg, PL Helgenäs, S-590 98 Edsbruk, Sweden
 PCT No. PCT/SE96/01301, § 371 Date Jun. 13, 1997, § 102(e)
 Date Jun. 13, 1997, PCT Pub. No. WO97/14929, PCT Pub. Date Apr. 24, 1997
 PCT Filed Oct. 14, 1996, Ser. No. 849,818
 Claims priority, application Sweden, Oct. 17, 1995, 9503617
 Int. Cl.⁶ F41J 1/12

U.S. Cl. 273—410

9 Claims

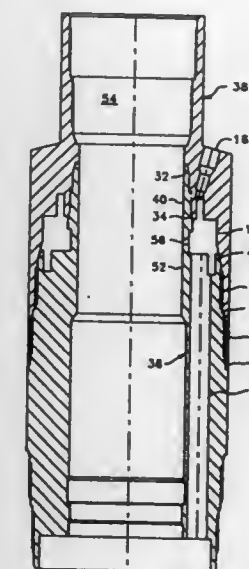


1. A leaching protector for lead at outdoor shooting ranges, comprising:
 an elastic water-repelling first layer that is inclined relative to a ground level, the first layer being penetrable by projectiles;
 a watertight second layer that is spaced apart a distance behind the first layer so that a space is defined therebetween;
 the space being enclosed and sealed from a surrounding environment;
 a projectile-arresting material disposed in the space, the material being isolated from the surrounding environment by the first and second layers; and
 the space being dewaterable via a drainage arrangement that is in operative engagement with the leaching protector.

5,799,949
ANNULAR CHAMBER SEAL
 Clifford H. Beall, Broken Arrow; Michael S. Rawson, Tulsa, and Kurt A. Hickey, Broken Arrow, all of Okla., assignors to Baker Hughes Incorporated, Houston, Tex.
 Continuation of Ser. No. 555,597, Nov. 9, 1995, which is a continuation of Ser. No. 36,345, Mar. 24, 1993, Pat. No. 5,496,044. This application Jan. 23, 1997, Ser. No. 787,781
 Int. Cl.⁶ F16J 9/00; F16L 25/00

U.S. Cl. 277—1

17 Claims



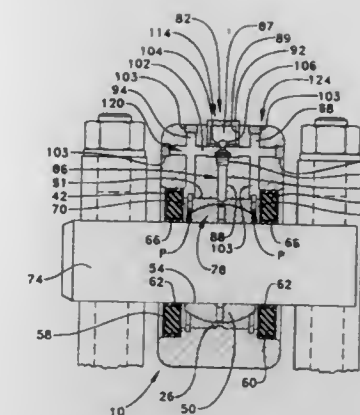
6. A method of sealing a chamber in a wall of a downhole tubular against internal and external applied pressures, comprising:
 forming a threaded tubular pin and a threaded tubular box member so that when threaded together, a chamber is formed in a wall defined by said threaded together pin and box members;
 providing an internal metal-to-metal seal for said chamber, between said pin and box;
 threading said pin and box to form said internal seal;
 providing an external metal-to-metal seal due to said connection; disposing said internal seal on the opposite side of said chamber from said external seal;
 providing at least one passage in said wall in fluid communication with said chamber;
 connecting said passage in a fluid control system independent of an internal bore formed by said wall.

5,799,950
LUBRICATED JOINT WITH EQUALIZING PRESSURE ZONE
 Joseph E. Allen, Brimfield; Robert A. Lapke, Peoria, and Dean M. Peterson, Roanoke, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.
 Filed Sep. 26, 1996, Ser. No. 721,647
 Int. Cl.⁶ F16J 15/16

U.S. Cl. 277—3

8 Claims

1. A sealed joint assembly, comprising:
 a first member having an end portion with a central bore defined therethrough and an inner fluid communication means extending from an outer surface a predetermined distance and terminating within the bore, the fluid communication means including a receiving passage, first and second discharging passages disposed on opposite sides of the receiving passage and a cross passage extending through the end portion and crossing the first discharge passage, the receiving passage and the second discharge passage to fluidly connect them;

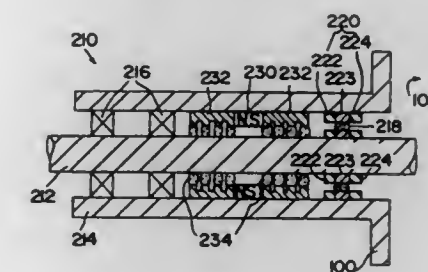


a second member movably connected to the first member and slidably disposed within the bore, the second member fitted against the first member to define a joint;
 a pair of spaced sealing means each disposed within an annulus in the bore and circumferentially surrounding the second member, the pair of sealing means each having an inner surface and an outer surface;
 a cavity defined within the bore adjacent each of the pair of sealing means which is fluidly connected to the fluid communication means;
 means for directing a fluid within the receiving passage and into the joint for substantial accumulation within the pair of cavities, the accumulation within the pair of cavities establishing a variable pressure therein; and
 plugging means disposed within the receiving passage, first and second discharge passages and cross passage for retaining the fluid within the point assembly and preventing the communication of fluid outside thereof.

5,799,951
ROTATING SEALING DEVICE
 Weston A. Anderson, Palo Alto, Calif., and John E. Richardson, Salt Lake City, Utah, assignors to Varian Associates, Inc., Palo Alto, Calif.
 Filed Nov. 21, 1996, Ser. No. 754,946
 Int. Cl.⁶ F16J 15/40; 15/43

U.S. Cl. 277—301

26 Claims



1. A rotating sealing device for sealing between a wall separating a first and a second mediums, said first medium being at substantially higher pressure than said second medium, and a rotating shaft penetrating therethrough, wherein said shaft has a housing being in relative rotational relationship with said shaft incorporated to said wall, said rotating sealing device comprising:
 a liquid metal seal having at least one ring of a liquid metal interposed between said shaft and said housing for forming a seal between said first and second mediums; and
 a fluid shield being adjacent to said liquid metal seal and placed within said first medium for preventing contamination of said liquid metal seal by gases contain therewith.

5,799,952

BRUSH SEAL

Michael K. Morrison; Peter A. Withers, both of Bristol; Terence V. Jones, Oxford, and Peter E. Wood, Crawley, all of Great Britain, assignors to Rolls-Royce PLC, London, England

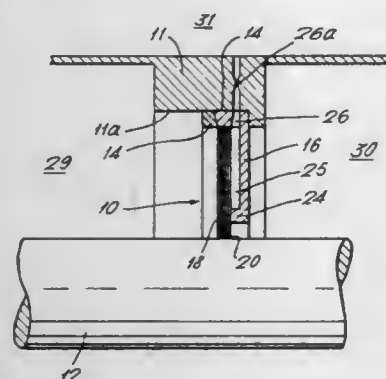
Filed Nov. 27, 1996, Ser. No. 757,165

Claims priority, application United Kingdom, Dec. 9, 1995, 9525212

Int. Cl.⁶ F16J 15/447

U.S. Cl. 277—355

26 Claims



1. A brush seal for sealing a leakage gap between relatively movable parts in a flow path between a region of high fluid pressure and a region of low fluid pressure, comprising a backing member, a mass of bristles packed together in a layer and positioned on one side of the backing member, the backing member adapted to be interposed between said bristle layer and said region of low fluid pressure, a portion of said bristle layer being spaced from the backing member to define at least one chamber between the bristle layer and the backing member and adjoining the bristle layer, the backing member further comprising an upstanding flange in contact with the bristle layer, and means for supplying said at least one chamber with fluid at a pressure higher than the pressure of the region of low fluid pressure.

5,799,953

CAPPED SPRING-ENERGIZED SEAL

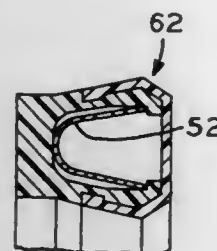
Gary L. Henderson, Arvada, Colo., assignor to American Variseal, Broomfield, Colo.

Filed May 25, 1995, Ser. No. 450,467

Int. Cl.⁶ F16J 15/32

U.S. Cl. 277—554

22 Claims



1. A seal ring for sealing an annular space between two components, said seal ring comprising:
an annular jacket including an annular cavity defined by first and second annular lips;
a spring disposed within said annular cavity; and
a cap disposed over said first and second annular lips, said cap encapsulating said annular cavity and said spring positioned against said lips to seal and lock said lips against said cap to

thereby seal said annular cavity to prevent penetration of contaminants into said annular cavity.

5,799,954

COAXIAL SEALING RING

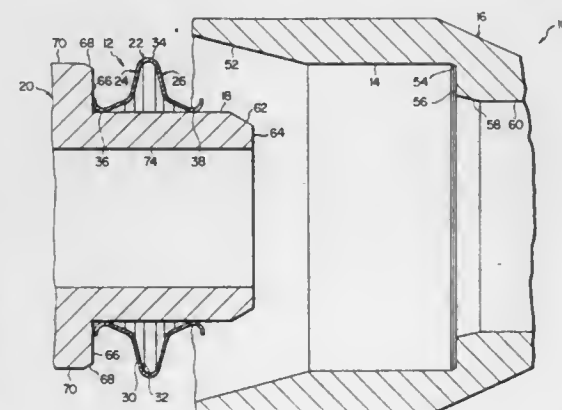
Jeffrey F. Layer, Woodblind, Md., assignor to EG&G Pressure Science, Inc., Beltsville, Md.

Filed Jan. 13, 1997, Ser. No. 783,832

Int. Cl.⁶ F16L 17/06

U.S. Cl. 277—614

22 Claims



1. A sealing ring for sealing two coaxial surfaces relative to one another, comprising:

an annular convolution portion be configured to form a first bending area which has a first annular end and a second annular end with a convex annular surface and a concave annular surface extending therebetween, and said convex surface extending 360° to form a first radial sealing surface facing in a first radial direction;

a first annular leg portion extending outwardly from said first end of said convolution portion to a first free end, and having a second radial sealing surface facing in a second radial direction substantially opposite to said first radial sealing surface of said convolution portion and a first annular bent section located between said second radial sealing surface and said convolution portion, said first annular bent section being configured to form a second bending area; and

a second annular leg portion extending outwardly from said second end of said convolution portion to a second free end, and having a third radial sealing surface facing in said second radial direction and a second annular bent section located between said third radial sealing surface and said convolution portion, said second annular bent section being configured to form a third bending area,

said first annular bent section being arranged axially between said first radial sealing surface and said second radial sealing surface, said second annular bent section being arranged axially between said first radial sealing surface and said third radial sealing surface, said first and second annular bent sections being further arranged radially between said first radial sealing surface and said second and third radial sealing surfaces such that radial compression of said sealing ring causes bending to primarily occur at said first, second and third bending areas to permit said sealing ring to decrease in its radial direction and increase in its axial direction.

5,799,955

INTEGRALLY FORMED IN-LINE SKATE HAVING FLEXIBLE BOOT AND STIFF FRAME

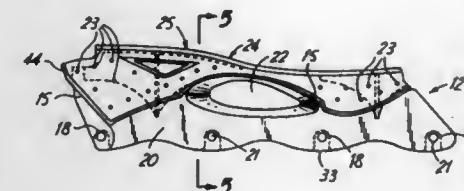
Robert A. Iverson, 9010 Neil Lake Rd., Eden Prairie, Minn. 55347

Filed Jan. 30, 1996, Ser. No. 594,351

Int. Cl.⁶ A63C 17/06

U.S. Cl. 280—11.22

9 Claims



1. An in-line roller skate comprising:
a boot portion fabricated of a first polymeric material;
a lower frame portion fabricated of a second polymeric material, wherein the frame is characterized by a greater degree of stiffness than the first polymeric material due to the second polymeric material, the frame portion including a sole with an outer edge and two spaced-apart wall portions, each wall portion including a plurality of apertures and wherein the wall portions extend from the sole portion and the outer edge extends beyond the surfaces of each of the wall portions; and wherein the boot and the frame are joined by the first polymeric material being molded over the sole portion and extending over the outer edge and onto outer surfaces of each wall portion and extending into the apertures of each wall portion to bond the boot to the frame sufficiently to endure stresses encountered in skating.

5,799,956

TWO-PIECE APPARATUS FOR SLIDING ON A SURFACE

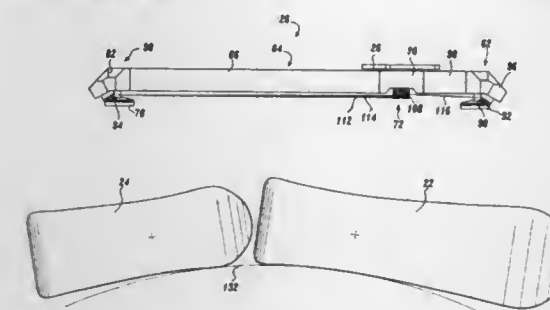
Walter D. Shannon, Tacoma, Wash., assignor to Axxis Sport, Inc., Seattle, Wash.

Continuation-in-part of Ser. No. 611,445, Mar. 1, 1996, abandoned. This application Mar. 4, 1996, Ser. No. 613,436

Int. Cl.⁶ A63C 5/03

U.S. Cl. 280—14.2

13 Claims



1. An apparatus for sliding on a surface comprising:
a forward runner defining right and left edges, front, rearward and central sections, an upper surface, and an opposing lower surface, the width of the central section being less than the width of both the front section and rearward section,
a rear runner defining left and right edges, front, rearward and central sections, an upper surface, and an opposing lower surface, the width of the central section being less than the width of both front section and rearward section, and

a linkage for connecting the forward runner to the rear runner, such that the forward runner and the rear runner lie substantially in a plane and such that the front section of the rear runner is proximal to the rearward section of the forward runner, the linkage being configured such that the linkage maintains a distance between the forward and rear runners, but allows articulation of the two runners relative to one another to define an inside articulation of the forward and rear runners such that an inside angle formed by the longitudinal axis of the forward runner and the longitudinal axis of the rear runner is acute, and wherein the rear portion of the left edge of the forward runner and the forward portion of the left edge of the rear runner form a substantially smooth arc.

5,799,957

SNOWBOARD BINDING

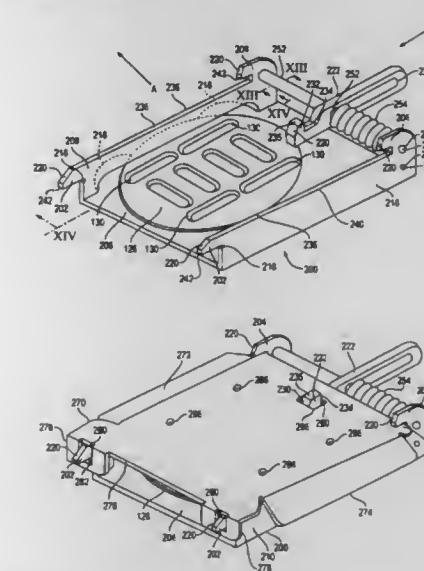
Shinpei Okajima, Izumi, and Yutaka Ueda, Tondabayashi, both of Japan, assignors to Shimano, Inc., Osaka, Japan

Division of Ser. No. 348,844, Nov. 28, 1994, which is a continuation-in-part of Ser. No. 254,889, Jun. 6, 1994, abandoned. This application Dec. 6, 1996, Ser. No. 760,953

Int. Cl.⁶ A63L 9/00

U.S. Cl. 280—14.2

23 Claims



1. A snowboard binding mechanism for securing a cleat of a snowboard boot to a snowboard, comprising:
a main body adapted to be affixed to a top surface of the snowboard, said main body comprising a plurality of inside hooks, a plurality of outside hooks and a latch;
wherein said inside hooks are adapted to engage with and hold a first side of a cleat, said outside hooks are adapted to engage with and hold a second side of a cleat, said inside and outside hooks are oriented to engage with a cleat for attachment to said main body in a first direction from said inside hooks toward said outside hooks, and said latch is adapted to engage the cleat against moving in a direction opposite said first direction.

5,799,958

TOOL STORAGE AND TRANSPORT SYSTEM

Ryan S. Bishop, 3082 Shaughnessy Street, Port Coquitlam, British Columbia, Canada, V3B 4L1

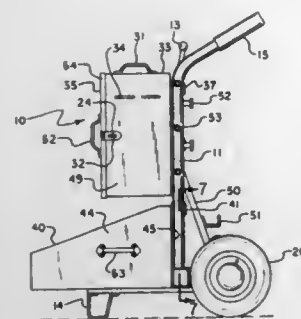
Filed Mar. 28, 1997, Ser. No. 828,054

Int. Cl.⁶ B62B 1/00

U.S. Cl. 280—47.26

16 Claims

1. A tool storage and transport system comprising:
a frame;



mined pivoting of said rod and brake shoes beyond a predetermined braking engagement with said wheels.

5,799,960

ROTATING SAFETY HANDLES FOR WHEELBARROWS
Eddie Charles Davis, Sr., 1235 Piazza La., Gilroy, Calif. 95020
Filed Oct. 27, 1995, Ser. No. 549,512
Int. Cl.⁶ B62B 1/18

U.S. Cl. 280—47.31

2 Claims

means for carrying tools and equipment;
means for mounting the means for carrying tools and equipment on the frame;
wherein the frame further comprises a plurality of hooks, the hooks formed to receive tools and equipment; and
wherein the frame further comprises a plurality of air fittings disposed thereon.

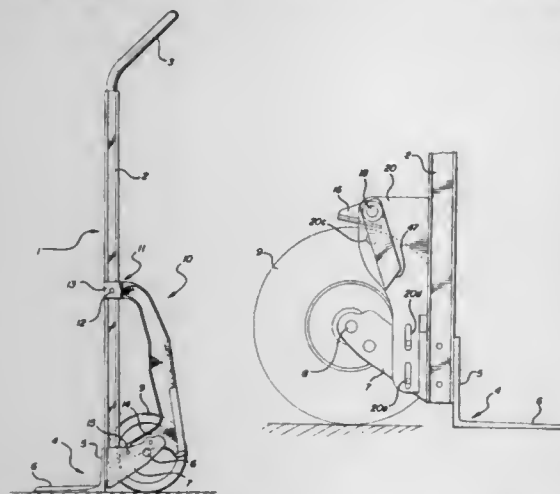
5,799,959

HAND TRUCK BRAKE APPLICATION SYSTEM

Joseph D. Krawczyk, Pinconning, Mich., assignor to Magline, Inc., Pinconning, Mich.
Filed Sep. 5, 1996, Ser. No. 706,599
Int. Cl.⁶ B60T 1/00

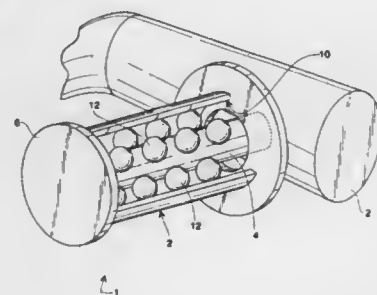
U.S. Cl. 280—47.27

8 Claims



1. In a manually propelled hand truck for use in transporting products and including:

- a. a frame normally supported in generally vertical inclination and comprising side rail members joined by cross members and having a frame handle surface near its upper end, the frame supporting a forwardly extending, load supporting nose plate;
- b. an axle, coupled to and extending crosswisely rearwardly of said frame, having spaced apart frame supporting wheels with pneumatic tires thereon, journaled thereon; and
- c. supports on said frame side rail members journaling a laterally extending pivotal brake applying rod having brake shoes thereon supported on said rod in a first position out of brake applying engagement with said tires but aligned therewith, said rod being pivotal in one direction to move said shoes to a second position into braking engagement with said tires; the improvement wherein said frame supports a rearwardly facing brake control surface at a spaced distance above said nose plate and a safety control member is moveable with said rod with further pivoting of said rod in said one direction from a first remote position to a second operative shoe halting position engaging said brake control surface only after a predeter-



1. A wheelbarrow which permits a user to haul and dump said wheelbarrow without readjusting or repositioning of the user's hands, the wheelbarrow comprising:

- a hopper;
- at least one wheel attached to the hopper;
- two shafts extending away from the hopper;
- two rotating handle assemblies;
- each of the shafts having one of the handle assemblies attached thereto;
- each of said handle assemblies comprising an elongated axle mounted in a substantially perpendicular fashion to said shaft;
- each of said handle assemblies further comprising an elongated grip which shares a common longitudinal axis with said axle and which is mounted in such a manner as to be rotatable about said common longitudinal axis; and
- the grips directed inward toward each other.

5,799,961

QUICK-ATTACHABLE TRAILER STEP

Harold H. Schmeets, R.R. 2, Box 82, Harvey, N. Dak. 58341
Filed Jun. 17, 1996, Ser. No. 662,997
Int. Cl.⁶ E06C 1/00; B60R 3/00

U.S. Cl. 280—163

4 Claims

1. A quick-attachable trailer step comprising:
 - a pair of step members each of which has a respective back end and a top;
 - a plurality of mounting brackets fixedly attached to said pair of step members and interconnecting said pair of step members, each of said mounting brackets having an inverted U shape with an open end which faces downwardly relative to said top of each said step member, each of said mounting brackets further having a first extended portion and a second extended portion spaced from said first extended portion and a second extended portion and substantially resting flat against a tongue of a trailer to substantially secure said trailer step to said tongue; and
 - a plurality of brace members fixedly attached said

5,799,963

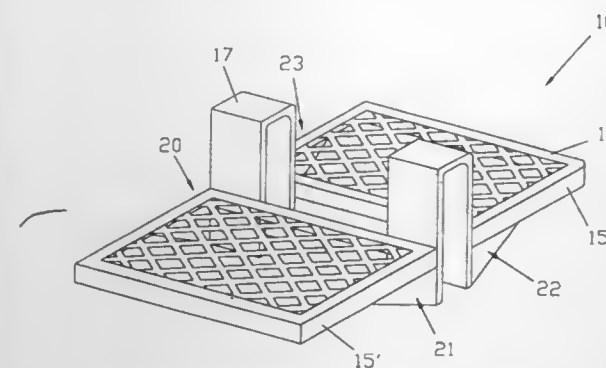
TELESCOPIC FRONT WHEEL SUSPENSION FOR A MOTORCYCLE

Franz Berkmann, Munich, Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany
Filed Mar. 11, 1996, Ser. No. 613,694
Claims priority, application Germany, Mar. 9, 1995, 195 08 499.3

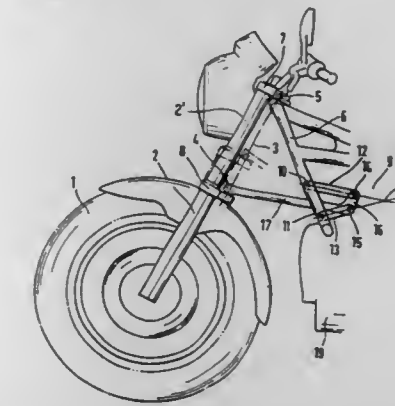
Int. Cl.⁶ B62K 25/08

U.S. Cl. 280—276

5 Claims



to mounting brackets and to said step members and being angled from said mounting brackets to said step members to substantially strengthen said quick-attachable trailer step and to prevent said step member from buckling from a user standing upon said step members.



1. A motorcycle, comprising a frame and a telescopic front wheel suspension having an unsprung part, said unsprung part being connected by way of a universal joint so as to be rotatable about a virtual steering axis;

a four bar mechanism connecting the unsprung part with one of a frame fixed part of the motorcycle and the frame; wherein the four bar mechanism includes two swivel pins fixed to the one of the frame fixed part and the frame, two control bars each of which is swivelably connected with one of said two swivel pins, and additional swivel pins for swivelably connecting said two control bars at their other ends with a coupler of the four bar mechanism; wherein the unsprung part of the telescopic front wheel suspension is mounted via the universal joint on the coupler; and wherein the two swivel pins of the four bar mechanism are situated in front of the additional swivel pins of the coupler viewed in a direction of a longitudinal axis through the motorcycle.

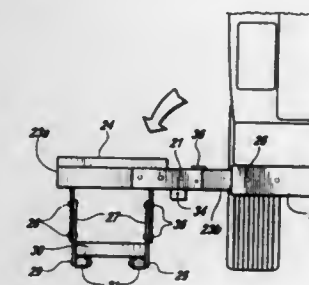
5,799,962

BOAT LAUNCHING/LOADING PLATFORM

Robert D. Barnhart, 1403 Roanoke, Graham, Tex. 76450
Filed Nov. 4, 1996, Ser. No. 742,659
Int. Cl.⁶ B60R 3/00

U.S. Cl. 280—166

10 Claims



1. A vehicle having an attachment for aiding a user in the launching and recovery of boats on a boat trailer to and from a body of water, the vehicle having a front, a rear, and opposing sides, the vehicle attachment comprising:

- a mounting bracket rigidly attached to said vehicle and having an outer end extending outwardly from one of said opposing sides;
- an elongated platform having a top and a bottom and a front and a rear, said platform being pivotally attached to said mounting bracket outer end allowing pivotal movement of said platform between a vertical carrying position and a horizontal plane "in use" position; and
- a stop bar attached to said mounting bracket limiting pivotal movement of said platform such that in the vertical carrying position said platform is adjacent to but not touching the side of the vehicle and in the horizontal plane can be used as a walking platform by the user when the boat trailer is in the water to enable the user to move along the platform above the water to the boat trailer to launch or recover the boat.

5,799,964

WHEELCHAIR ARMREST ASSEMBLY

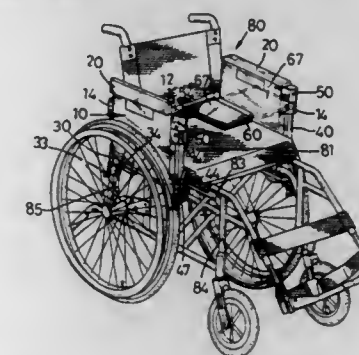
Ya-chen Chao, No. 11-2, Tatung Rd., Wufeng Hsiang, Taichung Hsien, Taiwan

Filed Apr. 3, 1996, Ser. No. 627,348

Int. Cl.⁶ B60R 9/00; A47C 7/68; A47B 83/02

U.S. Cl. 280—304.1

8 Claims



1. An armrest assembly for a wheelchair (80) which comprises a seat (81) with two sides each having a first end and a second end, two support braces (83) each horizontally mounted on an associ-

ated side of said seat (81) and each having a first end and a second end, two first legs (84) each vertically mounted on the first end of an associated side of said seat (81) and located adjacent to the first end of an associated said support brace (83), and two second legs (85) each vertically mounted on the second end of an associated side of said seat (81) and located adjacent to the second end of an associated said support brace (83), said armrest assembly comprising:

- at least one box (10) placed on an associated said support brace (83) and having a first end portion and a second end portion, a chamber (12) defined in said box (10) between said first and second end portions thereof;
- at least one fastener (47) secured to the first end of an associated said support brace (83);
- at least one first tube (40) having an upper end fixedly mounted on the first end portion of said box (10) and a lower end detachably engaged with said fastener (47);
- at least one second tube (30) having an upper end fixedly mounted to the second end portion of said box (10) and a lower end pivotally engaged with an associated said second leg (85);
- at least one pivot base (50) secured to the first end portion of said box (10);
- at least one pivot block (54) pivotally mounted on said pivot base (50), an extension (542) extending from said pivot block (54) to pivot therewith;
- at least one pivot arm (55) pivotally engaged with said extension (542) and releasably mounted in said chamber (12) of said box (10); and
- at least one holding table (60) fixedly mounted on said pivot arm (55) and releasably received in said chamber (12) of said box (10).

5,799,965

HITCH HAVING SPRING BARS WITH INTEGRAL HANGER

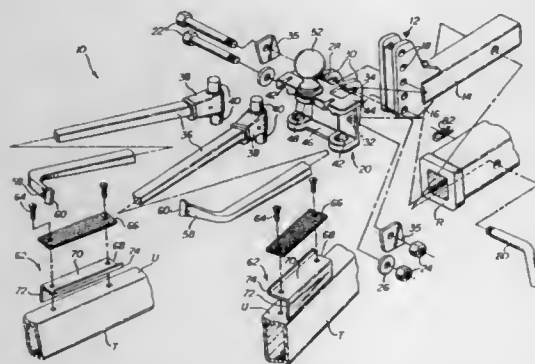
John J. Kass, and Richard McCoy, both of Granger, Ind., assignors to Reese Products, Inc., Elkhart, Ind.

Filed Oct. 20, 1995, Ser. No. 546,385

Int. Cl.⁶ B60D 1/42

U.S. Cl. 280—406.1

4 Claims



1. A weight distributing hitch assembly for towing a trailer behind a vehicle, comprising:

- a hitch bar for mounting to the vehicle;
- a ball mount head carried on said hitch bar;
- a hitch connector carried on said ball mount head; and
- a pair of spring bars for distributing trailer weight relative to said vehicle, each of said pair of spring bars including a proximal end mounted to said ball mount head and a distal end having a lug for engaging said trailer and securing said spring bar in an operative, weight distributing position, each said lug including a retaining tab with said lug extending in a first plane and said retaining tab extending in a second plane substantially perpendicular to said first plane.

5,799,966

DEVICE FOR FASTENING A SHOE TO A SNOW BOARD

Gaston Haldemann, Burgenstock, Switzerland, assignor to Skis Rossignol S.A., Voiron, France

PCT No. PCT/IB95/00493, § 371 Date Jan. 16, 1997, § 102(e) Date Jan. 16, 1997, PCT Pub. No. WO96/03185, PCT Pub. Date Feb. 8, 1996

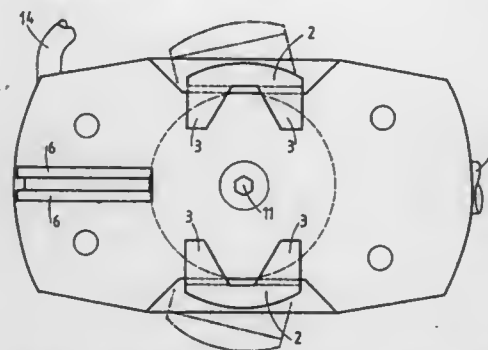
PCT Filed Jun. 19, 1995, Ser. No. 765,929

Claims priority, application Switzerland, Jul. 21, 1994, 2308/94

Int. Cl.⁶ A63C 9/08

U.S. Cl. 280—613

11 Claims



1. A device for fastening a snow board to a shoe with a sole having a mounting member, the device comprising:

- two jaws (2) that are movable parallel to a plane of a bottom of the device that is adapted to be affixed to the snow board and generally parallel to a lateral axis of the device, said two jaws being movable between two stable positions, namely a closed position in which said jaws are close together and an open position in which said jaws are laterally farther apart than in said closed position;

two articulating arms (15), each having a first end pivotally mounted on a respective first journal (17) that is in a fixed position relative to the bottom of the device and a second end pivotally mounted to a longitudinal end of a respective one of said jaws (2) on a respective second journal (16) that is movable relative to the bottom of the device;

linkage means for urging longitudinally middle portions of said jaws to move laterally, said linkage means linking said middle portions to a rocking member (6);

said rocking member (6) having two stable positions corresponding to said open and closed positions, a first stable position in which a protruding portion of said rocking member extends from said device when said jaws are in said open position, and a second stable position in which the protruding portion is depressed into the device when said jaws are in said closed position, the protruding portion being constructed and arranged to be depressed by the shoe when the mounting member is placed between said jaws to move said jaws to said closed position; and

a resilient member (4) connected to said rocking member for biasing movement of said rocking member.

5,799,967

GOLF TROLLEY

Liz Lin, San Diego, Calif., assignor to Super-Tec Manufacturing, San Diego, Calif.

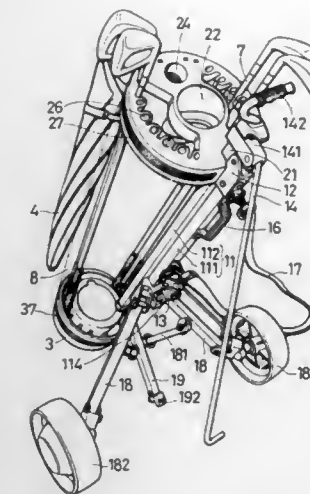
Filed Mar. 11, 1996, Ser. No. 613,314

Int. Cl.⁶ B62B 1/04

U.S. Cl. 280—646

8 Claims

1. A golf trolley, comprising a main tube, an upper holding block, a lower holding block, a pair of wheel legs, an upper plate, and a lower plate, the upper holding block being connected to both an upper portion of the main tube and the upper plate, the lower plate being connected to a lower portion of the main tube, the lower holding block being connected to both a lower portion of the main tube and the wheel legs, the upper holding block having a



pivot button pivotally coupled thereto, the pivot button having a detaining end formed thereon for contacting and releasably fixing a position of a sliding tube of the main tube.

5,799,968

BALL JOINT ASSEMBLY

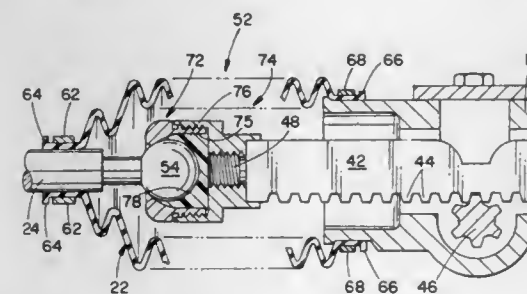
Fredrick L. Loeffler, 2740 S. Canyon Trail, Hinckley, Ohio 44233

Filed Feb. 24, 1995, Ser. No. 393,727

Int. Cl.⁶ B60G 5/00

U.S. Cl. 280—674

13 Claims



1. A repairable tie rod ball joint assembly comprising: a first housing member has a wall extending between first and second open ends, the wall includes an externally threaded portion disposed adjacent the first open end; and a second housing member has a wall extending between first and second ends, the wall includes a first internal threaded portion disposed adjacent the first end which selectively mates with the threaded portion of the first housing member to form a cavity configured to secure a ball of a tie rod therein, and a second threaded portion disposed adjacent the second end for selectively connecting the second housing member to an end of a rack of a rack and pinion steering assembly.

5,799,969

VEHICLE OCCUPANT PROTECTION APPARATUS

Daniel E. Coleman, Mesa, and Thomas O. Minor, Scottsdale, both of Ariz., assignors to TRW Inc., Lyndhurst, Ohio

Filed Mar. 18, 1997, Ser. No. 819,890

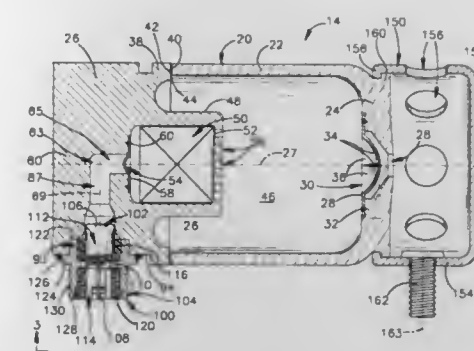
Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.2

13 Claims

12. Apparatus comprising: a reaction structure;

an inflator comprising a source of fluid for inflating a vehicle occupant protection device;



an initiator which, when actuated, initiates a flow of said fluid from said inflator;

a tubular connector containing said initiator, said connector engaging said inflator and extending through an aperture in said reaction structure; and

a fastener engaging said connector to fasten said connector, said initiator and said inflator to said reaction structure;

said inflator comprising a cylindrical container defining a cylindrical fluid pressure chamber, said initiator and said connector having cylindrical shapes with longitudinal central axes perpendicular to a longitudinal central axis of said container.

5,799,970

EXTERNALLY MOUNTED SIDE AIRBAG MODULE WITH DECORATIVE OUTER COVER

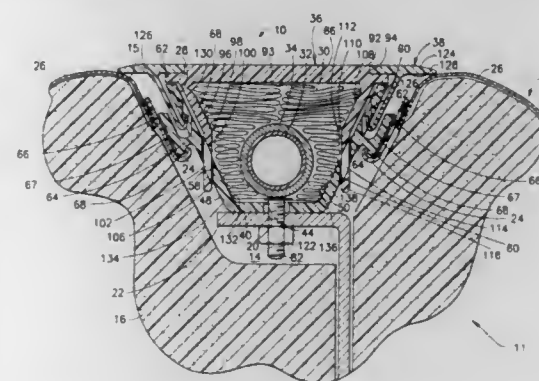
Mark L. Enders, Ogden, Utah, assignor to Autoliv ASP, Inc., Ogden, Utah

Filed Oct. 1, 1996, Ser. No. 724,418

Int. Cl.⁶ B60R 21/22

U.S. Cl. 280—730.2

22 Claims



1. An airbag module housing for use as part of a side airbag module for mounting in a vehicle seat, the airbag module housing comprising:

an elongated, generally flat base and a sidewall extending upwardly from the base to an open top of the module housing, the sidewall having a first side and an opposing second side; and

an elongated first rail portion running along an outer face of the first side of the sidewall and an elongated second rail portion running along an outer face of the second side of the sidewall, each of the first and the second rail portions being generally parallel with the open top and having a flange for catching a fabric hook of the vehicle seat.

5,799,971
SEAT STRUCTURE EQUIPPED WITH SIDE IMPACT AIR BAG

Koujiro Asada, Aichi-ken, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

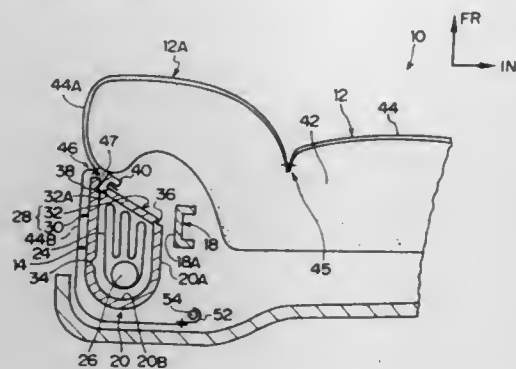
Filed Nov. 19, 1996, Ser. No. 752,035

Claims priority, application Japan, Dec. 14, 1995, 7-326047; Apr. 10, 1996, 8-087979

Int. Cl.⁶ B60K 21/22

U.S. Cl. 280—730.2

24 Claims



1. A seat structure for a vehicle equipped with a side impact air bag apparatus, said seat structure comprising:

- a seat back having a seat back frame;
- an air bag case made of resin and mounted to a side portion of the seat back frame, said air bag case having a lid;
- an air bag body contained within said air bag case;
- a seat pad disposed toward the front of the vehicle relative to said lid; and
- seat surface layers covering said seat pad and having a sewn portion,

wherein, when an external force is applied to a side of the vehicle, the air bag apparatus is activated, the sewn portion is ruptured, and the air bag body is unfolded, said lid of said air bag case opening due to the unfolding of said air bag, and said seat pad being compressed by said lid toward an inner side of said seat back in a transverse direction of said seat back when said lid is opened.

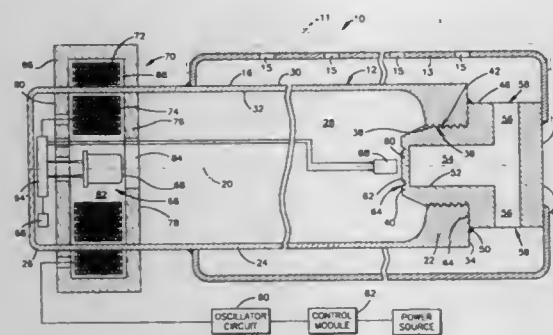
5,799,972
INFLATOR FOR INFLATING AN AIR BAG HAVING MAGNETICALLY COUPLED INTERNAL IGNITION
Daniel F. Handman, Petaluma, Calif., and Kenneth R. Rahl, Romeo, Mich., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Apr. 19, 1996, Ser. No. 635,364

Int. Cl.⁶ B60R 21/26; 21/32

U.S. Cl. 280—735

6 Claims



1. An apparatus comprising:
an inflatable vehicle occupant protection device;

a pressure vessel containing a source of inflation fluid for inflating said inflatable vehicle occupant protection device, said pressure vessel including surface means for defining a passage for inflation fluid to flow from said pressure vessel into said inflatable vehicle occupant protection device and having a wall portion;

a device inside said pressure vessel which sends or receives signals;

energy transmitting means for transmitting energy into said pressure vessel, said energy transmitting means including a first portion outside said pressure vessel and a second portion inside said pressure vessel, said first and second portions transmitting energy through said wall portion of said pressure vessel without electrical leads extending through said wall portion, one of said first and second portions of said energy transmitting means converting said energy into electrical current;

said second portion of said energy transmitting means being operatively coupled with said device inside said pressure vessel; and

a microprocessor inside said pressure vessel, said microprocessor being operatively coupled to said device and to said second portion of said energy transmitting means.

5,799,973
PYROTECHNIC GAS GENERATOR WITH TWO SEPARATE COMBUSTION CHAMBERS

Hermann Bauer, Stöttham; Richard Bender, Lauf; Franz Fürst, Mühldorf; Bernhard Vetter, Bruckmühl; Marc Winterhalder, Garching/Als, and Siegfried Zeuner, München, all of Germany, assignors to TEMIC Bayern-Chemie Airbag GmbH, Aschau, Germany

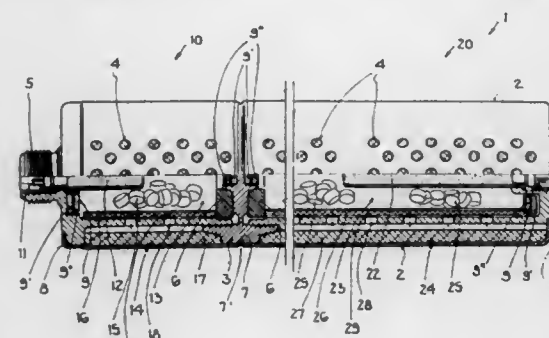
Filed Apr. 1, 1996, Ser. No. 625,325

Claims priority, application Germany, Apr. 22, 1995, 195 14 896.7; Aug. 29, 1995, 195 31 667.3

Int. Cl.⁶ B06R 21/26

U.S. Cl. 280—741

15 Claims



1. A gas generator for filling an airbag in a retention system for occupants of a motor vehicle, the gas generator comprising:

- a first combustion chamber unit having a first ignitor, a first filter means and a first tubular combustion chamber;
- a second combustion chamber unit having a second ignitor, a second filter means, and
- a second tubular combustion chamber, said first and said second combustion chamber units being axially arranged with respect to each other;

at least one means for housing said first and said second combustion chamber units; and

a means for connecting said first and said second combustion chamber units, said connecting means having at least one rounded opening at an outer periphery for forming a beaded connection with at least one housing means.

5,799,974
VEHICLE AIR BAG SYSTEM

Kiyoshi Honda, Saitama-ken, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

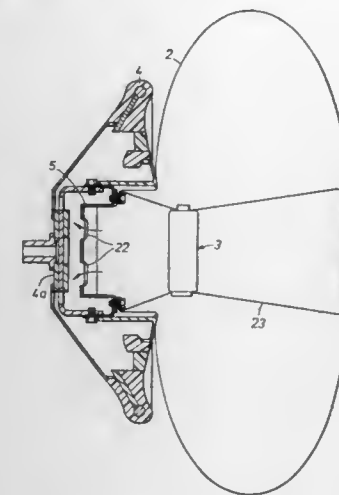
Filed Nov. 21, 1996, Ser. No. 754,620

Claims priority, application Japan, Nov. 24, 1995, 7-329759

Int. Cl.⁶ B60R 21/28

U.S. Cl. 280—739

12 Claims



8. A vehicle air bag system for restraining a vehicle occupant under a high deceleration situation, comprising:

- an air bag adapted to be inflated by gas pressure;
- a retainer for supporting said air bag, said retainer defining an enclosed space jointly with said air bag, and provided with a vent hole for communicating said enclosed space with outside;

an inflator received in said enclosed space for producing gas for inflating and deploying said air bag;

means for disposing said inflator over said vent hole so as to substantially close said vent hole;

means for removing said inflator away from said vent hole at a relatively late stage of air bag deployment; and

said inflator being pushed against said vent hole by interposing said air bag in a folded state between said inflator and a casing covering said folded air bag.

5,799,975
MAGNETIC FENDER COVER
Clint Raymond Crick, Suite #101, 9930 - 86 Avenue, Edmonton, Alberta, Canada, T6E 2L7

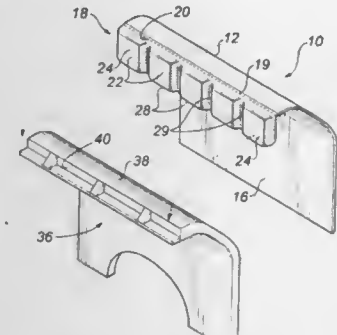
Filed Jul. 15, 1996, Ser. No. 680,154

Claims priority, application Canada, Jun. 12, 1996, 2,178,872

Int. Cl.⁶ B62B 3/00

U.S. Cl. 280—770

21 Claims



1. A magnetic fender cover, comprising:
a sheet form body;

a plurality of magnets attached to the body, each of the magnets having an attachment face used to magnetically attach the body to an object, an opposed face substantially opposed to the attachment face and at least one other surface connecting the opposed face and the attachment face, the opposed face of the plurality of magnets being in the same orientation; and flux concentrating shielding in the form of a covering of magnetic material overlaying the opposed faces of the plurality of magnets, thereby reducing magnetic flux adjacent to the opposed faces and increasing magnetic flux adjacent to the attachment face.

5,799,976
SKI MOUNTED GUARD ASSEMBLY FOR SNOWMOBILES

Walter D. Tischer, P.O. Box 816, Alexandria, Minn. 56308

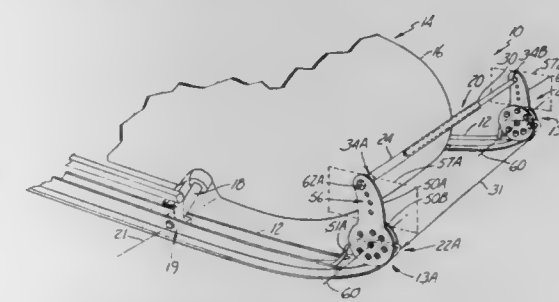
Continuation of Ser. No. 461,726, Jun. 5, 1995, abandoned.

This application May 8, 1997, Ser. No. 855,748

Int. Cl.⁶ B62B 9/14

U.S. Cl. 280—770

14 Claims



1. A guard assembly for a snowmobile having two forwardly extending skis, the guard assembly comprising:

- a first support mountable to a first ski;
- a second support mountable to a second ski;
- a slide assembly having two slide members joined for slidable movement relative to each other during operation of the snowmobile, wherein a first slide member is joined to the first support and a second slide member is joined to the second support;
- a first ball joint joining an end of the first slide member to the first support; and
- second ball joint joining an end of the second slide member to the second support.

5,799,977
GAS GENERATOR FOR SEAT BELT RETRACTING POWER GENERATING DEVICE

Hitoshi Miyazaki; Hitoshi Kunii; Takashi Sato, and Kazuya Saito, all of Fukushima-ken, Japan, assignors to Nippon Koki Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01272, § 371 Date Jan. 4, 1996, § 102(e) Date Jan. 4, 1996, PCT Pub. No. WO96/00157, PCT Pub. Date Jan. 4, 1996

PCT Filed Jun. 26, 1995, Ser. No. 552,630

Claims priority, application Japan, Jun. 27, 1994, 6-144949; Jun. 5, 1995, 7-138344; Jun. 19, 1995, 7-152012

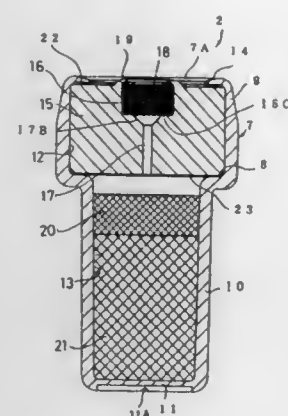
Int. Cl.⁶ B60R 22/46

U.S. Cl. 280—806

3 Claims

1. A gas generator for a seat belt retracting power generating device comprising:

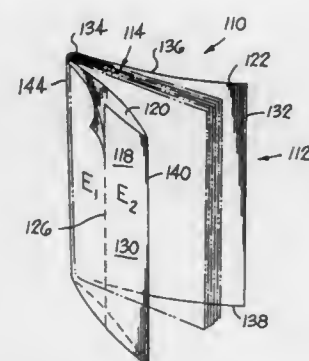
- a cylindrical casing with a one open end, with an inner wall;
- a cylindrical holder chamber disposed at the one open end of the casing;
- a gas generating agent chamber which is communicated with the holder chamber via a shoulder formed on the inner wall of the casing and wherein the gas generating agent chamber has a



5,799,979
PERFORATED COVER
Theodore A. Hutton, Versailles, Ky., assignor to Publishers Printing Company, Inc., Shepherdsville, Ky.
Filed Dec. 16, 1996, Ser. No. 767,531
Int. Cl.⁶ B42D 3/00

U.S. Cl. 281—29

12 Claims



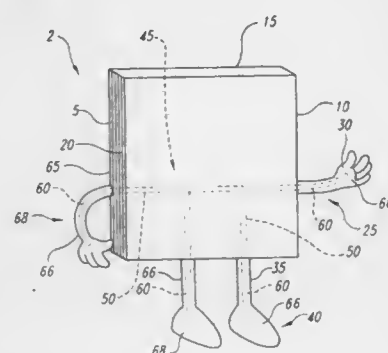
1. A cover for a magazine, comprising:
a continuous sheet of material folded to form at least three continuous, adjacent panels, each having a front surface, a back surface, and top, bottom, left side and right side edges, said three panels being connected to each other at their side edges, said panels forming the front cover, inside front cover, and rear cover of the magazine, with the front cover being perforated so that, when it is torn along its perforation, it opens to reveal the inside front cover, and wherein said front cover remains connected to said magazine after the front cover is torn along its perforation.

5,799,980
POSABLE BOOK

Christine A. McAdam, Redondo Beach, Calif., assignor to Indigo Corporation, Bellevue, Wash.
Filed Mar. 17, 1997, Ser. No. 823,886
Int. Cl.⁶ B42D 3/00

U.S. Cl. 281—29

28 Claims



1. A bound assembly, comprising:
a cover;
a plurality of pages coupled to the cover; and
a frame attached to one of the cover and a selected one of the pages, the frame having an interior portion contained within the one of the cover and the selected one of the pages, and the frame having at least one projecting portion attached to the interior portion and extending outwardly from an edge of the one of the cover and the selected one of the pages, the projecting portion being movable to a selected position relative to the cover and having a sufficient stiffness to remain in the selected position.

5,799,978

COATED BOOK COVER

Gary Churchill Grinnell, Northampton, Mass., assignor to Rexam DSI Incorporated, South Hadley, Mass.
Filed Feb. 12, 1996, Ser. No. 599,781
Int. Cl.⁶ B42D 3/00

U.S. Cl. 281—29

11 Claims

1. A laminate suitable for use as a book cover material, said laminate comprising:
(A) a substrate; and
(B) a layer of cover material adhered to said substrate, said cover material comprising:
(1) an acrylic binder, said binder having a T_g of -10° to 10° C., and
(2) a filler system, said filler system comprising
(a) about 2.0% to about 7.0% of silica or a silicate;
(b) about 28% to about 38% of calcined clay;
(c) about 20% to about 27% of titanium dioxide; and
(d) about 30% to about 45% of a white filler pigment;
wherein the percentages are percents by weight based on the dry weight of the filler system, and wherein the ratio of filler system to binder is about 2.4 to 2.8.

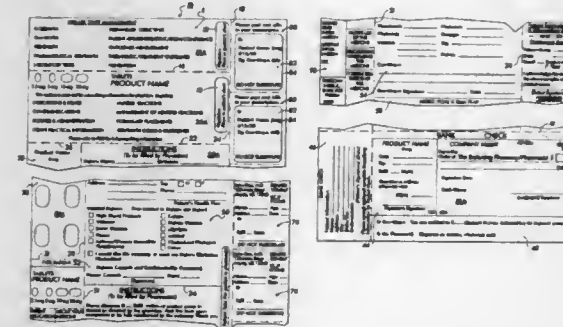
5,799,981
PHARMACEUTICAL MARKETING DEVICE AND SYSTEM

James C. Tung, Blue Bell, and Norman Werther, Fort Washington, both of Pa., assignors to Global Healthcomm, Inc., Abington, Pa.

Continuation-in-part of Ser. No. 439,730, May 12, 1995. This application Jul. 20, 1995, Ser. No. 504,632
Int. Cl.⁶ B42D 15/00

U.S. Cl. 283—56

32 Claims



1. A device for marketing a pharmaceutical product comprising multiple segments separable from each other, said multiple segments comprising:

- (a) A first separable segment having a front surface with information relating to the product and a rear surface including adhesive means thereon, said first segment being sized for attachment through said adhesive means to a patient's medical record retained by a healthcare provider; and
- (b) an additional separable segment having a front surface including information relating to the treatment of a condition for which said pharmaceutical product is employed and a rear surface including an adhesive means thereon, said additional separable segment being sized for attachment through said adhesive means to a patient's medical record retained by a healthcare provider.

5,799,982

ADHESIVE STICKER LABELING SYSTEM FOR USE IN IDENTIFYING COMPACT DISKS

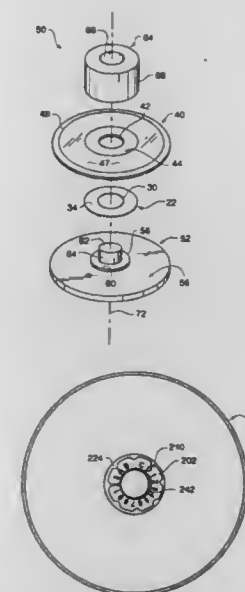
Neil L. McClure, 1220 S. Laird Ct., Superior, Colo. 80027, and Ralph Wieland, 215 Powderhorn Trail, Broomfield, Colo. 80020

Continuation-in-part of Ser. No. 573,446, Dec. 15, 1995. This application Mar. 22, 1996, Ser. No. 620,251
Int. Cl.⁶ B42D 15/00

U.S. Cl. 283—81

4 Claims

1. An adhesive sticker for use in identifying compact disks, said sticker comprising:
a rounded sheet of material having structure defining a central circular aperture of a diameter greater than 15 mm, said rounded sheet of material having a thickness less than 0.4 mm,
said rounded sheet of material having an outer diameter of less than 30 mm;
said rounded sheet of material having a first face bearing printed indicia thereon, said printed indicia including an identifier;
said rounded sheet of material having a second face remote from said first face, said second face being coated with an adhesive; and
said rounded sheet of material including means for inducing misalignment between said rounded sheet of material and an identically shaped sheet of material adhered to the central portion of a compact disk as said rounded sheet of material is adhered to said compact disk atop said identically shaped sheet of material.



wherein said misalignment inducing means includes a plurality of irregular features formed in the outer margin of said rounded sheet of material.

5,799,983

Patent Not Issued For This Number

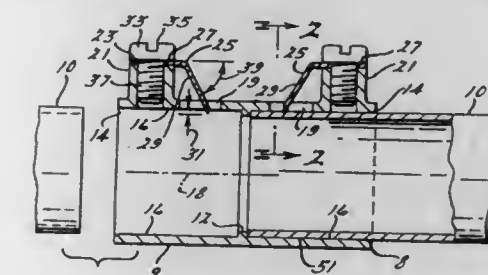
5,799,984
CONDUIT CONNECTION

Russell T. Reynolds, Jr., St. Clair Shores, Mich., assignor to ANR Manufacturing, Inc., St. Clair Shores, Mich.

Continuation-in-part of Ser. No. 306,167, Sep. 14, 1994, Pat. No. 5,570,909, which is a continuation-in-part of Ser. No. 871,068, Apr. 20, 1992, abandoned. This application Mar. 7, 1996, Ser. No. 612,081
Int. Cl.⁶ F16L 35/00

U.S. Cl. 285—38

18 Claims



3. A connector into which a rigid tubular electrical conduit having a smooth exterior surface can be secured, comprising:
an annular socket member that includes a tubular sidewall having an external surface and an internal cylindrical surface defining a socket axis, said internal surface being adapted to have a slidable fit with a tubular electrical conduit inserted into the socket member and to conform matingly with the exterior surface of said tubular electrical conduit throughout the circumference of both surfaces;
a slot formed in said tubular wall;
a mounting area on the external surface of the tubular wall;
a securement device; and

a spring leaf detent being secured to said mounting area by said securement device, said spring leaf detent extending through said slot and being engageable with any point along the smooth exterior surface of said conduit.

5,799,985

TUBE TESTING CONNECTOR

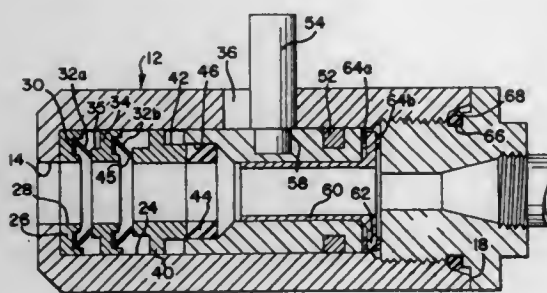
Kevin Murphy, Schaumburg, Ill., assignor to Tuthill Corporation, Hinsdale, Ill.

Filed Aug. 13, 1996, Ser. No. 698,005

Int. Cl.⁶ F16L 35/00

U.S. Cl. 285—38

10 Claims



1. A tube testing connector adapted to engage a tube for pressurization thereof and adapted to be connected to a pressure source said connector including:

a hollow body member defining an entrance aperture at one end thereof and an opposite end, said entrance aperture adapted to receive the tube to be tested;

a central chamber defined within said hollow body member an end cap secured at said opposite end of said hollow body member said end cap defining a pressure aperture adapted to communicate with the pressure source;

a first ring member slidably disposed in said central chamber, adjacent said entrance aperture, said first ring member having a central aperture adapted to receive the tube therethrough; first circumferential retention gripping means, including a first resilient biasing member, associated with said first ring member, said first resilient biasing member defining an opening therethrough and adapted to surround the tube for gripping engagement therewith;

actuator means slidably disposed within said central chamber adjacent said first ring member and adapted to surround the tube;

a piston slidably disposed within said central chamber, said piston having an actuator engaging end and another end, said actuator engaging end adapted to engage said actuator means; a central aperture defined within said piston;

a first spring member disposed between said piston and said end cap;

first seal means disposed between said piston and said hollow body member to prevent the flow of fluid pressure therebetween;

second seal means disposed within said central chamber and adapted to surround the tube;

said connector operative such that, when the tube to be tested is inserted into said hollow body member through said entrance aperture, said first ring member and said first resilient biasing member, said first spring member is axially compressed by the insertion of the tube and upon release of the tube said first spring is free to axially displace said piston and said actuator means toward said entrance aperture, thereby reducing the diameter of said opening of said first resilient biasing member so as to exert a gripping force on the outer diameter of the tube to be tested, thereby securing it in place during the testing procedure.

5,799,986 CONNECTOR ASSEMBLY AND METHOD OF MANUFACTURE

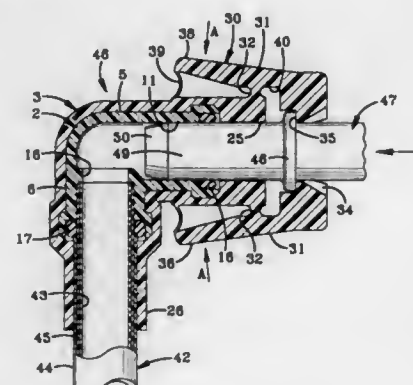
Christopher H. Corbett, New Philadelphia; Brent A. Balika, Cuyahoga Falls; Bruce H. Moore, Kent, and Scott E. Frye, Dover, all of Ohio, assignors to Flex Technologies, Inc., Findlay, Ohio

Continuation-in-part of Ser. No. 361,094, Dec. 21, 1994, abandoned. This application Jul. 2, 1996, Ser. No. 677,448

Int. Cl.⁶ F16L 9/14

U.S. Cl. 285—55

18 Claims



1. A connector assembly including:

a tubular conduit having an outer end and a radially extending latching member spaced inwardly from said outer end of the conduit;

an inner member having first and second open ends and having a bore formed therein and extending between said open ends, with said first open end receiving the said outer end of the conduit therein;

first seal means disposed in the bore of the inner member for providing a seal between the outer end of said conduit and said inner member;

an outer member substantially encapsulating and surrounding the inner member, said outer member having first and second open ends which are coaxial with the first and second open ends, respectively, of the inner member, said second open end receive an end of a tubular member therein to provide fluid communication between said tubular conduit and said tubular member through said inner and outer members;

second seal means disposed in the bore of the inner member adjacent the second open end of said inner member, for providing a seal between said inner member and the tubular member;

metal ring means disposed in the bore of the inner member adjacent the second seal means for securing an end of the tubular member within the bore of the inner member; and a retainer means for cooperating with the latching member of the conduit for releasably retaining the conduit within the bore of the inner member.

5,799,987

FLUID FITTING COUPLING SYSTEM

Richard K. Sampson, 3350 Eastbrook Dr., Fort Collins, Colo. 80521

Filed Jun. 5, 1995, Ser. No. 463,692

Int. Cl.⁶ F16L 35/00

U.S. Cl. 285—81

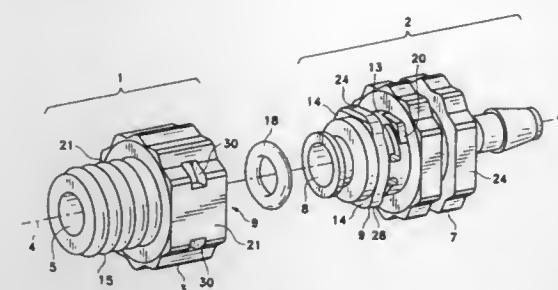
13 Claims

1. A fluid fitting coupling system which connects two fluid fitting assemblies comprising:

a. a first fluid fitting assembly having a first fluid fitting body, a central axis, and a first fluid passageway;

b. a first axial retainer to which said first fluid fitting assembly is responsive, the first axial retainer comprising:

b1. a lip support having an axially fixed position with respect to said first fluid fitting body



b2. a lip support inner surface of the lip support; and b3. at least one retaining lip attached to said lip support and which extends radially inward beyond said lip support;

c. a second fluid fitting assembly having a second fluid fitting body, a central axis, and a second fluid passageway and capable of engaging said first fluid fitting assembly;

d. a second axial retainer to which both said first axial retainer and said second fluid fitting assembly are responsive, the second axial retainer comprising:

d1. a flange support of the second axial retainer having an axially fixed position with respect to said second fluid fitting body; and

d2. at least one flange of the second axial retainer attached to said flange support, which extends radially outward beyond said flange support and which engages said retaining lip;

e. a coupling seal established between said first and second fluid fitting assemblies;

f. an abutment between said first and second fluid fitting assembly bodies formed by the lip support and said flange when assembled;

g. a radially resilient rotational lock formed at the abutment between said lip support and said flange; and

h. an axial lock, comprising:

h1. the flange and

h2. the retaining lip;

wherein the axial lock restricts separation of the first fluid fitting assembly and the second fluid fitting assembly along the central axis when the axial lock is engaged.

5,799,988

OIL-TIGHT COUPLING DEVICE

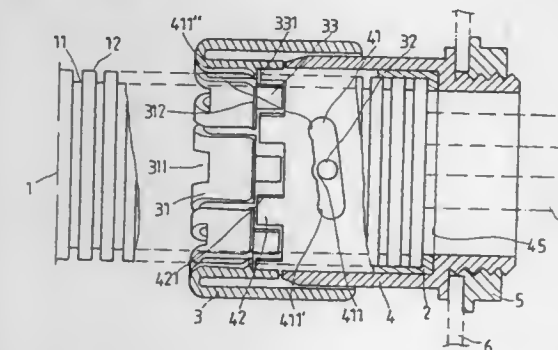
Ying Lih Yeh, No. 9, Alley 22, Lane 301, Feng Chia Rd., Hsi Tun Dist., Taichung, Taiwan

Filed Jul. 1, 1996, Ser. No. 674,551

Int. Cl.⁶ F16L 21/06

U.S. Cl. 285—323

1 Claim



1. An oil-tight coupling device for a hose formed with a plurality of annular portions and a plurality of recessed portions each located between adjacent annular portions, comprising: an oil-tight gasket, a coupling sleeve, and a coupling bushing rotatable engaged with said coupling sleeve, said oil-tight gasket being disposed within said coupling bushing.

wherein said coupling sleeve has one end formed with a plurality of inwardly and axially bending resilient portions, each of said resilient portions having a stop piece with a first radially inclined surface formed at each lateral side and disposed at a lower end thereof and said resilient portion having a protruding lip disposed at the lower end thereof for removably engaging one of said recessed portions of said hose, the other end of said coupling sleeve having a stop post,

said coupling bushing has a curved slot defined therethrough for receiving said stop post and has a plurality of projections formed at an upper end thereof alternately disposed between each of said resilient portions, each of said projections having a second radially inclined surface formed at each lateral side, said first inclined surfaces of said stop pieces and said second inclined surfaces of said projections are engaged when said coupling sleeve is rotated to an engaging Position relative to said coupling bushing,

said stop post being displaceable along said curved slot when said coupling sleeve is rotating relative to said coupling bushing, when said first radial inclined surface engages said second radially inclined surface, said stop pieces move inwardly and bias each of said resilient portions inwardly so that each of said lips are received in a recessed portion of said hose for releasably securing said hose in said coupling sleeve said gasket in oil-tight engagement with said coupling bushing and hose, and

said curved slot defines a plurality of curved portions for receiving said stop post and for releasably securing said coupling sleeve in a rotational position relative to said coupling bushing.

5,799,989

CORRUGATED TUBING FITTING

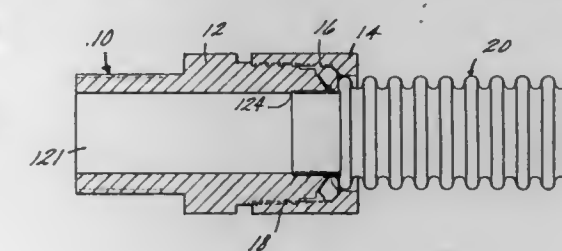
Mark Albino, Belchertown, Mass., assignor to Omega-Flex, Inc., Westfield, Mass.

Filed Aug. 8, 1996, Ser. No. 693,475

Int. Cl.⁶ F16L 37/18

U.S. Cl. 285—334.5

8 Claims



1. A fitting coupled to a corrugated tubing comprising: corrugated tubing;

a body for engaging the said corrugated tubing, said body including a conduit for providing access to said corrugated tubing and a tapered end;

a locating sleeve connected to said body and extending away from said body into said tubing for aligning said body with said corrugated tubing;

a nut positioned around said corrugated tubing for connecting said body to said corrugated tubing;

a split ring washer said split ring washer including a bevel having an angle substantially equal to an angle of said tapered end of said body positioned in a valley of said corrugated tubing; and

a double flare of said corrugated tubing positioned between said tapered end of said body and said split ring washer.

5,799,990

REVERSIBLE GATE LATCH WITH LOCKING MEANS

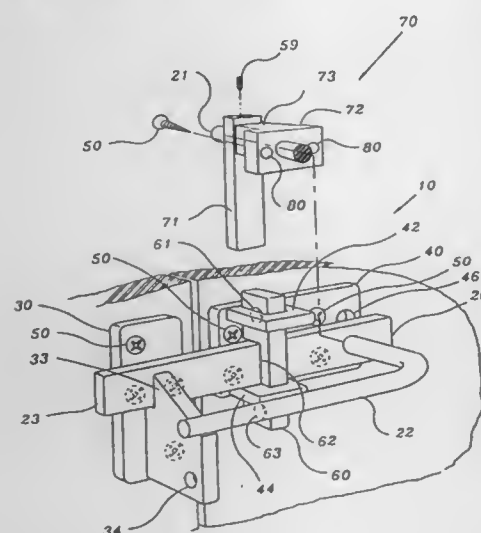
Carl B. Hardee, 2271 Hwy. 348, Loris, S.C. 29569

Filed Apr. 15, 1997, Ser. No. 837,996

Int. Cl.⁶ E05C 3/04

U.S. Cl. 292—238

7 Claims



1. A reversible gate and door latch, comprising in combination:
 - a striker bar having a pivot end and a latch end, said striker bar being of an elongated, rectangular shape;
 - a striker handle having a handle portion and a pivot rod portion, said pivot rod portion extending at a right angle from said handle portion, said pivot rod portion passing through an orifice of said pivot end of said striker bar wherein said handle portion of said striker handle is aligned parallel and adjacent to said striker bar, said handle portion of said striker handle being separated from said striker bar by a distance of at least one inch, thus creating sufficient space to insert a human hand between said handle portion of said striker handle and said striker bar so that said handle portion of said striker handle may be grasped by an open palm of said human hand;
 - a slidable security plate having a security plate slot through which said striker bar passes, said slidable security plate being vertically slidable corresponding with a pivoting action of said striker bar when said striker bar is pivoted between an open and closed position;
 - a means for halting vertical motion of said slidable security plate causing said pivoting action of said striker bar to be halted;
 - a base plate secured to a door by means of a plurality of screws mounting said base plate to said door, said base plate further comprising a lower and upper pivot rod aperture, said pivot rod portion of said striker handle inserting through said lower pivot rod aperture of said base plate on said door;
 - a means for holding said slidable security plate in a vertical position, said means for holding comprising an upper stirrup and a lower stirrup each having a U-shaped opening whereby said slidable security plate slides vertically in an up and down fashion through said U-shaped openings of said upper and lower stirrups; and
 - a keeper mount having a pronged keeper for holding said latch end of said striker bar whereby lateral movement of the striker bar is restricted.

5,799,991

MOLDED BUMPER SYSTEM WITH REINFORCEMENT BEAM

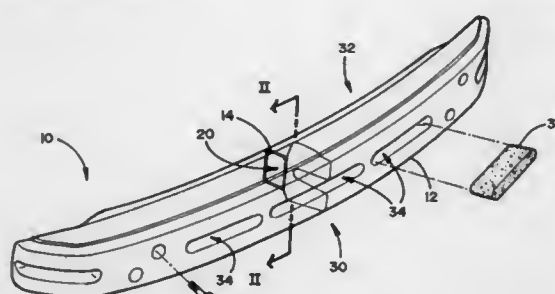
Patrick M. Glance, Plymouth, Mich., assignor to Concept Analysis Corporation, Plymouth, Mich.

Filed Oct. 23, 1996, Ser. No. 735,528

Int. Cl.⁶ B60R 19/03

U.S. Cl. 293—121

18 Claims



1. A vehicular bumper system comprising an elongated body member with a length and a cavity extending along said length, said cavity having at least one open end and having a closed cavity cross-sectional shape; a beam member positioned in said cavity and extending along said length, said beam member having a cooperating beam cross-sectional shape that couples with said cavity in force fit engagement to transfer a rotational force that is applied to said body member to said beam; and an attachment device connected with said beam and adapted to attach said bumper system to a preselected supporting structure.

5,799,992

PROTECTIVE DEVICE FOR VEHICLES

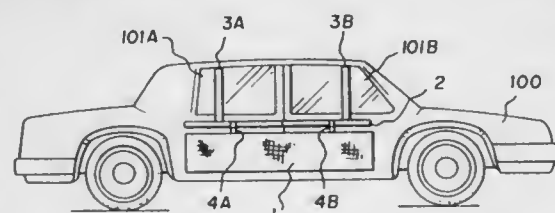
Kimberly Kojima, 2167 Green River Rd., Williamstown, Mass. 01267

Filed Nov. 18, 1996, Ser. No. 751,855

Int. Cl.⁶ B60R 19/42

U.S. Cl. 293—128

9 Claims



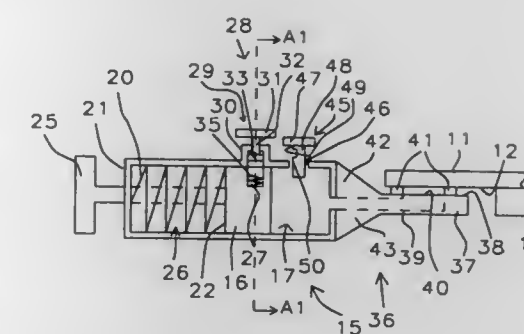
1. A device for protecting the side surface of a vehicle comprising:
 - an elongated rod comprising two sections, a spring operated locking means for holding the two sections as an elongated rod, and a hinge means for holding the two sections to be foldable about each other in a stored position;
 - a pair of hanger means each comprising a hook end connected to an elongated base, each said elongated base being attached to each of said two sections of said elongated rod and being movable to be in a vertical position during an operated position with said hook end fitted over a window of said vehicle, and being movable to be in a horizontal position in said stored position with said hook end fitted adjacent said elongated rod; and
 - a sheet disposed to hang from said two sections of said rod in said operated position so as to protect said side surface of said vehicle and to be rolled about said two sections of said rod in their folded state in said stored position.
5. A device for protecting the side surface of a vehicle comprising:

an elongated rod comprising two sections, a spring operated locking means for holding the two sections as an elongated rod, and a hinge means for holding the two sections to be foldable about each other in a stored position;

a pair of hanger means attached to said two sections of said elongated rod, wherein each of said pair of hanger means comprises a magnet and a strap connected to said elongated rod;

wherein said elongated rod is made of a magnetic material; and whereby in an operated position, said magnet is placed on one side of a window of said vehicle, and said elongated rod is placed on the other side of said window, and said magnet has sufficient magnetic force to hold said elongated rod; and

a sheet disposed to hang from said two sections of said elongated rod in said operated position so as to protect said side surface of said vehicle and to be rolled about said two sections of said elongated rod in their folded state in said stored position.



5,799,993

REFUSE COLLECTING DEVICE

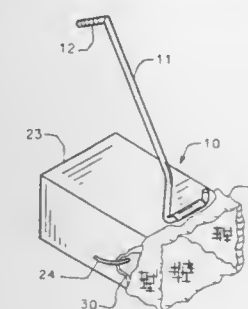
Owen W. Lafferty, P.O. Box 1702, Pampa, Tex. 79065

Filed Apr. 7, 1997, Ser. No. 835,181

Int. Cl.⁶ A01K 29/00; E01H 1/12

U.S. Cl. 294—14

7 Claims



1. A refuse collecting device adapted to removably secure a disposable sack, said device comprising:

- a) a scoop of rectangular box-like configuration comprised of upper and lower panels and opposed side panels, said panels having exterior surfaces and inner surfaces which define an interior region of the scoop having a center axis of elongation, said panels terminating in coplanar forward edges which define a rectangular front opening, and coplanar back edges defining a rectangular rear opening,
- b) at least one sack-securing means associated with the exterior surface of each side panel,
- c) an elongated manipulating staff having proximal and distal extremities, said proximal extremity being pivotally secured to said upper panel adjacent said front opening, the manner of securement permitting a path of movement of said staff within a plane that includes said axis, and
- d) handle means orthogonally associated with the distal extremity of said staff and downwardly directed therefrom in a manner to lie within said path of movement.

5,799,994

WAFER HANDLING TOOL WITH VACUUM PICKUP
Pnyueh Tsai, Peng-dong; Rea-Chang Wang, Hsin-Chu; Te Yun Liu, Hwa-Shing, and Y. F. Lin, Chin-chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Filed May 23, 1997, Ser. No. 862,798

Int. Cl.⁶ B25J 15/06

U.S. Cl. 294—64.1

9 Claims

1. A tool for picking up a thin flat object, comprising,

an open cylinder (15), the directions along the axis of the cylinder being arbitrarily designated forward and rear, a piston (16) adapted to ride inside the cylinder between a rear most position and forward most position, the cylinder having a smooth inside wall (18) and the piston having an air sealing relation to said inside wall,

a hand graspable means (24, 25) attached to the piston for manually moving the piston to its forward position, the hand graspable means comprising a rod (24) having a forward end and a rearward end, the forward end being attached to the piston, the rear end extending outside the cylinder, a handle (25) that is graspable by a user of the tool attached to the rearward end of the rod, the cylinder including means (21) guiding the rod (24) to slide axially with respect to the cylinder,

an expansion spring (20) for urging the piston to its rear most position, the spring being mounted to the rear of piston and adapted to be expanded when the piston is moved from its rear most position to its forward most position,

a manually operable catch mechanism (28) for holding the piston in its forward position against the force of the spring, and means for manually releasing the catch mechanism for allowing the spring to return the piston rapidly to its rear position and thereby produce a vacuum in the cylinder space (17) forward of the piston, the catch mechanism including

a thumb operable button (29) mounted in the upper part of the cylinder where it is easily depressed and held by the user of the tool, using the hand holding the cylinder,

the piston having a cavity (27) for holding a block (34) and a spring (35) urging the block radially outward with respect to the axis of the cylinder and wherein means (30) is located on the outside of the cylinder for receiving the block for locking the piston in its forward most position,

a vacuum pickup part (36) attached to the forward end of the open cylinder for applying the vacuum in the cylinder to grasp the object,

and means for releasing the vacuum to release the grasp on the object.

5,799,995

VERTICAL WAFER CARRIER HANDLING APPARATUS

Gregory D. Bergam, Ontario, Oreg.; Dennis L. Veatch, Meridian, and Mark R. Anderson, Boise, both of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 595,746, Feb. 2, 1996, Pat. No. 5,658,028. This application May 1, 1997, Ser. No. 847,278

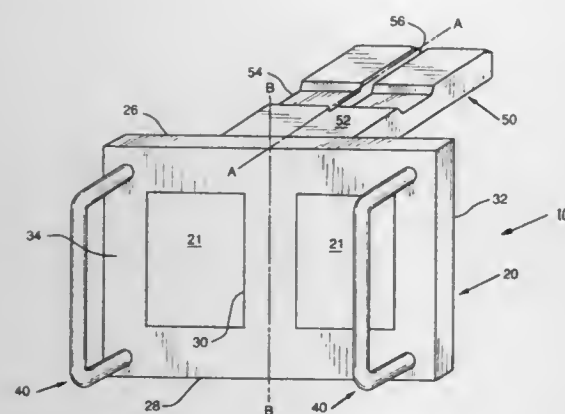
Int. Cl.⁶ B65D 25/28

20 Claims

U.S. Cl. 294—27.1

1. A handling apparatus for a wafer carrier having an upper handle defining an opening and at least one wafer slot, said apparatus comprising:

a body having a front face and a generally opposing back face; an arm extending from said back face, said arm having a portion configured to engage said opening in said wafer carrier handle, said arm having a recess therein configured to engage a surface of said carrier proximate to said opening, and said body extending generally over all wafer slots, when said arm engages said carrier surface; and,



at least one handle extending from said front face on each opposing side of said arm.

5,799,996

MULTI-FUNCTION HAND TOOL

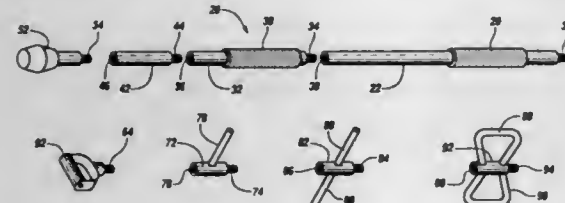
David F. Fredrickson, 4951 Toll Bridge Rd., Belton, Tex. 76513

Filed Feb. 20, 1997, Ser. No. 804,133

Int. Cl.⁶ A01B 1/20; B25F 1/02

U.S. Cl. 294—51

17 Claims



1. A hand tool kit, comprising:

- (a) at least first, second and third segments adapted to be selectively connected in end-to-end relationship to form a tool handle assembly, said first, second and third segments being of differing lengths;
- (b) at least first and second tool heads, said first tool head being configured to perform a first function and said second tool head being configured to perform a second function differing from said first function;
- (c) each of said first, second and third segments including connector means for connecting any one of said first, second and third segments to any other one of said first, second and third segments; and
- (d) each of said first and second tool heads including connector means for connecting each of said first and second tool heads to any one of said first, second and third segments.

5,799,997

BUCKET SCOOP

John S. Lehn, Aaron S. Best, and Eric Schmura, all of Leesport, Pa., assignors to Wind-Lock Corporation, Leesport, Pa.

Filed Jan. 17, 1997, Ser. No. 785,644

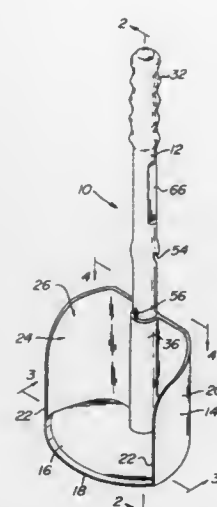
Int. Cl.⁶ A47L 17/06

U.S. Cl. 294—55

6 Claims

- 1. A scoop for removing a semi-fluid material such as joint compound from a bucket-shaped container having an open top, an upper peripheral rim, a substantially cylindrical sidewall and a substantially flat bottom wall, said cylindrical sidewall having a pre-determined radius of curvature, the scoop comprising:

a substantially flat base with a peripheral edge, said peripheral edge including an arcuate bevelled free edge conforming in shape to the cylindrical sidewall of the container such that



said arcuate free edge has a radius of curvature substantially the same as the predetermined radius of curvature of the cylindrical sidewall of the bucket-shaped container;

a sidewall extending from a portion of said peripheral edge of said base such that the scoop is open directly above said arcuate free edge; and

a separately formed handle having a distal end portion capable of lockingly engaging to said scoop sidewall at a location remote from said arcuate bevelled free edge, said handle having a proximal end portion adapted to be grasped by a user to manipulate the scoop;

whereby when the scoop is positioned in the container and said arcuate bevelled free edge of the scoop is manipulated along the bottom wall until it abuts the cylindrical sidewall of the container, a given amount of the semi-fluid material is confined within said base and sidewall of the scoop and the cylindrical sidewall of the container for ready removal from the container.

5,799,998

BEDDING FORK AND BEDDING FORK WALL ASSEMBLY

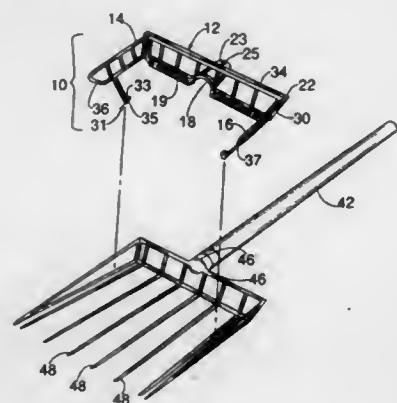
Joseph L. Gitterman, III, 55 Shinar Mountain Rd., Washington Depot, Conn. 06794

Filed Nov. 25, 1996, Ser. No. 758,150

Int. Cl.⁶ A01D 9/00; A01B 1/20

U.S. Cl. 294—59

8 Claims



- 1. A wall assembly, for attachment to a hay fork instrument of the type having a fork array of parallel prongs attached to and extending from one end of an axially extending elongate handle member, said wall assembly comprising:

a rear wall element characterized by a front surface on one side thereof, a rear surface on the other side thereof, first and

second spaced-apart side edges and a bottom edge portion extending from the first side edge to the second side edge; said bottom edge portion having a substantially U-shaped indentation formed therein midway between its ends, and a mounting flange of substantially U-shaped cross-section aligned with and extending axially from said indentation for receiving the handle member of a hay fork instrument in said indentation and in the cross-section of said mounting flange;

first and second spaced-apart side wall elements, coupled to said rear wall element proximate said first and second side edges thereof respectively, and extending from said front surface of said rear wall element from a fixed end proximate said rear wall element to a free end remote from said rear wall element; each of said first and second side wall elements having a depending latching element extending therefrom for engaging different times in the fork array of a hay fork instrument in latching relationship to secure said side wall elements thereto; each depending latching element being resiliently deflectable from its at-rest position and having a transversely projecting latching shoulder for engaging a surface of a tine in a fork array.

5,799,999

MAGNETIC RETRIEVING TOOL

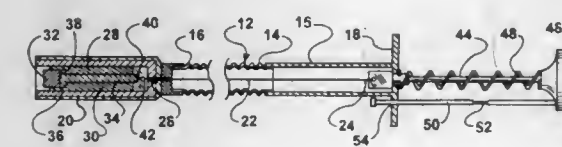
Cyril B. Schneider, Grover Beach; Kent D. Foreman, Tipton, and Philip L. Flynt, Tulare, all of Calif., assignors to Cheyenne Tool, LLC, Tulare, Calif.

Filed Nov. 10, 1997, Ser. No. 966,734

Int. Cl.⁶ B25J 15/06

U.S. Cl. 294—65.5

3 Claims



- 1. A magnetic retrieving tool for capturing and recovering ferromagnetic objects in limited access locations comprising:

a flexible hollow tube having a proximal end and a distal end, and having a flange extending radially from its proximal end; a control wire extending through said flexible hollow tube and having a proximal end and a distal end; a magnetic shield affixed to the distal end of said flexible hollow tube and having a hollow cylindrical shape; a permanent magnet having a proximal surface and a distal surface; and, a magnet carrier retaining said magnet, located within said magnetic shield and attached to the distal end of said control wire, movable with respect to said magnetic shield in response to movement of said control wire from a retracted location within said magnetic shield to an exposed location in which at least a portion of said magnet extends outside of said magnetic shield, said magnet carrier further including a soft steel insert bonded to and attracted magnetically to the proximal surface of said magnet and extending proximally from said magnet within said magnet carrier.

5,800,000

LOAD ADJUSTING DEVICE FOR A HOIST

James D. Shockley, 1735 E. Saluda Lake Rd., Greenville, S.C. 29611

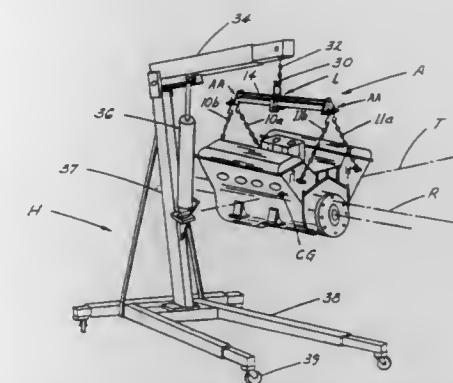
Filed Dec. 23, 1996, Ser. No. 772,971

Int. Cl.⁶ B66C 1/10; 13/08

U.S. Cl. 294—81.3

16 Claims

- 1. A load adjusting device for use with a hoisting unit for handling and biaxially aligning a load with an associated structure to which said load is to be mated, said device comprising:



- a load leveling assembly for adjusting a pitch attitude of said load about a horizontal pitch axis of said load;
- means for attaching said load leveling assembly to said hoisting unit for supporting said load from said hoisting unit;
- a load spreader included in said load leveling assembly to support said load for adjusting said pitch attitude;
- a plurality of alignment adjustment assemblies carried by said leveling assembly for connection to said load for further adjusting said pitch attitude and for adjusting a roll attitude of said load about a horizontal roll axis normal to said pitch axis;
- a plurality of load lifting elements for connecting said alignment adjustment assemblies to said load;
- a first actuator for adjusting said load leveling assembly to facilitate said pitch attitude adjustment; and
- a plurality of second actuators for activating said lifting elements to facilitate said pitch and roll attitude adjustments so that said load is in line for mating with said associated structure;
- said alignment adjustment assemblies including an outstanding leg for supporting said plurality of load lifting elements and said plurality of second actuators; and
- said plurality of second actuators each include:
- a load support carried by said outstanding leg for connecting with a respective transfer linkage for supporting said load; and
- a load adjustor for adjusting the position of said load support with respect to said outstanding leg of said load lifting element of said alignment adjustment assembly.

5,800,001

ARTICLE CARRIER

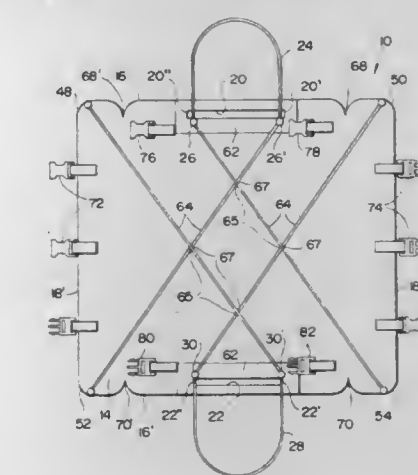
Marguerite V. Anastasi, 5110 Flanders Ave., Kensington, Md. 20895-1109

Filed Nov. 24, 1997, Ser. No. 977,276

Int. Cl.⁶ A45F 5/10; B65D 37/00

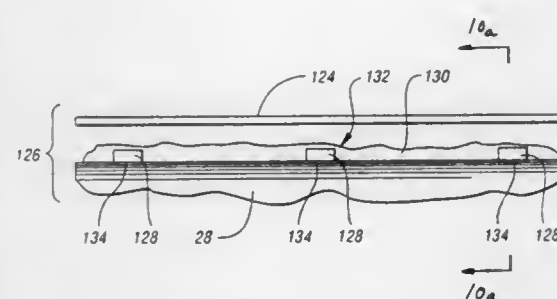
U.S. Cl. 294—152

21 Claims



- 1. An article carrier, comprising:

- a flexible sheet of predetermined material and at least a first predetermined thickness defining first and second opposed sides, first and second opposed edges, and third and fourth opposed edges extending between said first and second edges; said sheet defining a first slotted opening extending between said first and second sides and positioned adjacent to said first edge, and a second slotted opening extending between said first and second sides and positioned adjacent to said second edge;
- a first flexible carrying element connected to said first side at first predetermined locations adjacent to said first slotted opening, said first slotted opening positioned between said first edge and said first locations; and
- a second flexible carrying element connected to said first side at second predetermined locations adjacent to said second slotted opening, said second slotted opening positioned between said second edge and said second locations.



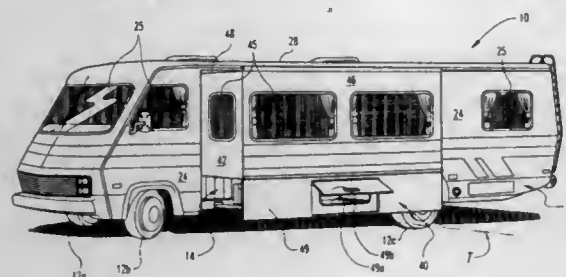
- a space frame including metallic tubular members secured to each other to define the shape of the vehicle body;
- a plurality of panels for enclosing the space frame; and
- adhesive connections of elongated shapes that secure the panels to the tubular members of the space frame and function as the sole securement therebetween, each adhesive connection including elastomeric spacers interposed between the panels and the tubular members, the spacers being located in a spaced relationship from each other along the elongated adhesive connections, each spacer having a nominal thickness between the associated panel and tubular member in the range of 2 to 6 millimeters, each adhesive connection also including an adhesive that extends between the associated panel and tubular member intermediate the spacers, and the adhesive of each connection having a Shore A scale hardness in the range of 40 to 60.

5,800,002
SYSTEM FOR PROVIDING ADJUSTABLE OCCUPANT SPACE IN A VEHICLE
Robert Tiedge, 5501 N. Oxford, Indianapolis, Ind. 46220-0223, and Michael Anderson, 5300 Silver Caynon Rd., Apartment G, Yorba Linda, Calif. 92687

Filed Jan. 11, 1996, Ser. No. 584,060
Int. Cl.⁶ B62C 1/06

U.S. Cl. 296—26

34 Claims



1. A system for varying space in a vehicle, comprising:
- a fixed portion having occupiable space;
- a number of ground engaging wheels coupled to said fixed portion;
- An expandable portion coupled to said fixed portion, said expandable portion having a rigid floor, said expandable portion being movable relative to said fixed portion to adjust volume of a living space defined by said fixed and expandable portions, said floor being configured for planar movement along a generally horizontal plane when said expandable portion is moved;
- a first load bearing arm engaging said floor to support said expandable portion, said first load bearing arm being pivotally anchored to said fixed portion to rotate about a generally vertical first axis to correspondingly move said expandable portion; and
- an operator controlled actuator coupled to said first load bearing arm to selectively rotate said first load bearing arm and thereby control position of said expandable portion relative to said fixed portion to provide adjustment of said living space; wherein said first load bearing arm has an oblique portion for coordinating rotation of said first load bearing arm.

5,800,003
VEHICLE BODY CONSTRUCTION
Alain J-M Clenet, Santa Barbara, Calif., assignor to ASHA Corporation, Santa Barbara, Calif.

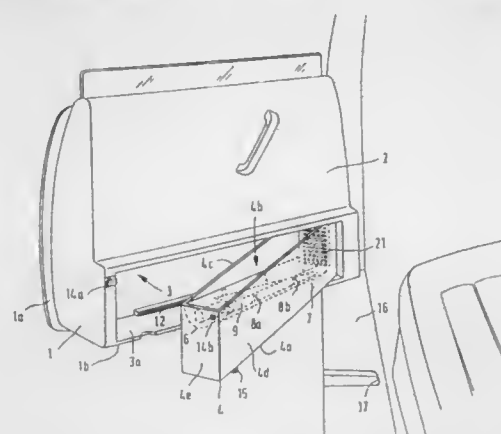
Filed Jan. 8, 1997, Ser. No. 778,247
Int. Cl.⁶ B62D 27/00; B60J 7/00

U.S. Cl. 296—29

10 Claims

1. A vehicle body construction comprising:

1. Storage device for umbrellas, for installation in motor vehicles, having a receiving compartment (3, 30, 31, 60, 70, 80, 110, 130, 140, 160) that is arranged in a vehicle door (1, 10', 61, 71, 100, 131) and an umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) that is movably connected thereto, for receiving an umbrella (9, 91, 76, 86, 147), the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) being movable between an inner end position, in which the umbrella (9, 91, 76, 86, 147) is substantially enclosed in the receiving compartment (3, 30, 31, 60, 70, 80, 110,



U.S. Cl. 296—37.13

40 Claims

5,800,004
STORAGE DEVICE, ESPECIALLY FOR UMBRELLAS, FOR INSTALLATION IN MOTOR VEHICLES
Peter Ackeret, Künsnacht, Switzerland, assignor to Fischerwerke, Artur Fischer GmbH & Co., KG, Waldachtal, Germany

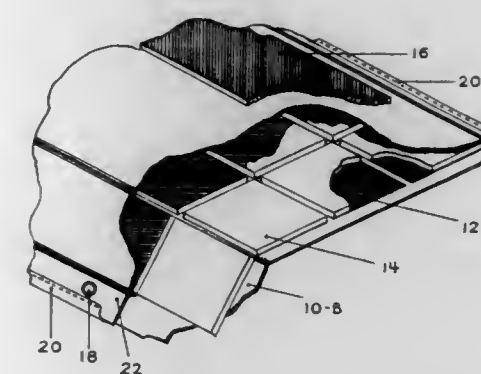
PCT No. PCT/EP95/01000, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO95/27634, PCT Pub. Date Oct. 19, 1995

PCT Filed Mar. 17, 1995, Ser. No. 704,537

Claims priority, application Switzerland, Apr. 6, 1994, 993/94

Int. Cl.⁶ B60R 7/06

- 130, 140, 160), and an outer end position, in which the umbrella (9, 91, 76, 86, 147) can be removed from the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) and inserted therein, means (10, 11, 12, 13, 134) are provided that move the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) from the inner to the outer end position, said means including a spring (12, 134) under whose action the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) is moved from the inner to the outer end position, a manually releasable locking mechanism (14a, 14b, 137a, 137b) that holds the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165), in the receiving compartment and also means (15, 17) are provided that move the umbrella holder (4, 40, 50, 65, 75, 85, 115, 135, 145, 165) from the outer to the inner end position as the vehicle door (10', 61, 71, 100, 131) closes and that include a driver member (15) arranged on the umbrella holder (4) and also a stop (17) arranged on a door sill (16).



5,800,005
CENTER CONSOLE AREA FOR A FRONT PASSENGER SIDE OF A MOTOR VEHICLE
Klaus Arolt; Tilo Volkmann, and Jürgen Körber, all of Sindelfingen, Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

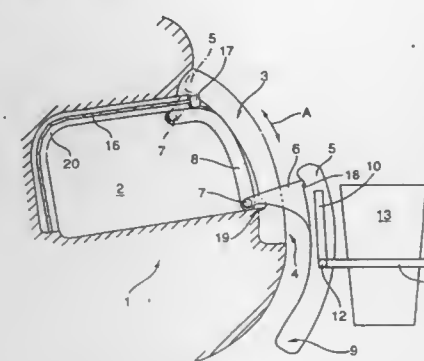
Filed Sep. 16, 1996, Ser. No. 716,796

Claims priority, application Germany, Sep. 16, 1995, 195 34 436.7

Int. Cl.⁶ B60R 7/00

U.S. Cl. 296—37.12

16 Claims



1. A vehicle glove compartment lid assembly comprising:
- a lid member having a passenger side covering and a glove compartment recess side covering connected together by end walls, wherein a stowage recess is formed between said coverings which is open toward one of said end walls, wherein said lid member has open and closed positions, and a beverage holder movable between the stowage recess and an in use position disposed laterally of said lid member when said lid member is in said open position.

5,800,006
IMPACT PROTECTIVE CAR COVER
William Dean Pettigrew, Weatherford, Tex., assignor to William D. Pettigrew, Weatherford, Tex.

Filed Oct. 4, 1996, Ser. No. 726,216

Int. Cl.⁶ B60J 11/00

U.S. Cl. 296—136

6 Claims

1. A large and relatively flexible cover that is adapted to be manually placed and is of a size to extend over at least most of an upper surface and lateral side surfaces of a vehicle for protecting the upper and lateral surfaces of the vehicle from impact forces associated with falling hail, consisting of:

- at least two complimentary sections that are releasably attachable to one another to fully cover the vehicle, each section including:

- a bottom vinyl like, flexible plastic layer having memory and adapted to contact the vehicle surfaces;
- a plurality of rigid impact resistant plastic plates attached on top of the bottom layer in a spaced apart checkerboard like manner, each of the plates have an upper surface and a lower surface; and
- a top vinyl like, flexible plastic layer, having memory and constructed of substantially the same size and shape as the bottom layer, attached to the upper surfaces of said plurality of plates, whereby upon impact on said top layer of said cover by hail the impact force associated with the hail is transferred through said top layer into one or more of said plurality of plates which distributes the impact force of the hail from the impact point on the upper surface of the plate to a large area on the lower surface of the plate and then to said bottom layer in order to prevent damage to the vehicle.

5,800,007
VEHICLE DOOR IMPACT ABSORPTION APPARATUS
Kuk-Hyun Cho, Ansan, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

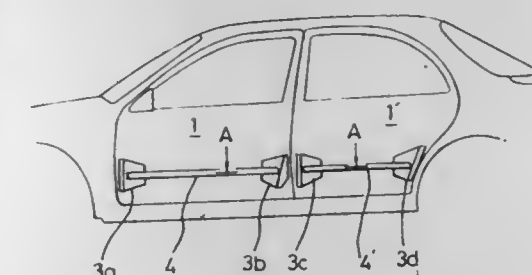
Filed Dec. 10, 1996, Ser. No. 763,047

Claims priority, application Rep. of Korea, Dec. 12, 1995, 1995-48689

Int. Cl.⁶ B60J 5/04

U.S. Cl. 296—146.6

23 Claims



7. A vehicle door impact absorption apparatus for a vehicle having front and rear doors separated by a center pillar, comprising:

- a door impact beam disposed in each of the front and rear doors;
- first and second supporting bars disposed in the center pillar;
- a coil spring for biasing the first and second supporting bars apart; and
- a stopper for releasably holding the first and second supporting bars together, said supporting bars being released upon impact to the stopper to allow each of the supporting bars to extend into a different one of the doors due to the biasing of the coil spring thereby reinforcing the door impact beams.

5,800,008

VEHICLE BODY UPPER STRUCTURE OF AUTOMOBILE
Kenji Gondo, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

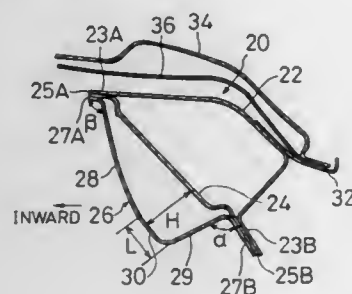
Filed Oct. 29, 1996, Ser. No. 741,222

Claims priority, application Japan, Nov. 1, 1995, 7-306395

Int. Cl.⁶ B60R 27/00

U.S. Cl. 296—189

9 Claims



1. A vehicle body upper structure of an automobile provided with a structural member comprising:

an outer panel having a pair of flange portions;
a reinforcing panel disposed with a space from the outer panel inward thereof and having a pair of flange portions; and
an inner panel spaced from the reinforcing panel inward thereof and having a pair of flange portions,

said structural member being formed as a closed sectional structure by joining said flange portions facing each other, wherein said inner panel is formed by a metal plate having a smaller thickness than that of said outer panel and the thickness of said reinforcing panel, and is deformable when a predetermined or more load is applied, said inner panel having integrally a rising portion rising from each of flange portion of said inner panel and an inward portion for coupling the inward ends of said rising portions, and said pair of rising portions is formed so that one of said pair of rising portions may buckle when a predetermined or more load is applied to said inward portion, and

wherein said structural member is a roofside rail extending longitudinally of said vehicle body, and wherein said one of said pair of rising portions rises to stand substantially erect from said flange portion of said inner panel disposed outwardly of the width direction of said vehicle body, and wherein the other of said pair of rising portions rises with a rising angle from said flange portion of said inner panel disposed inwardly of the width direction of said vehicle body, and wherein said rising angle and the distance of said inward portion between the rising portions within the closed section are set within a range where said other of said pair of rising portions is not buckled.

5,800,009

HANDS-FREE RECLINER

Miles Grandfield, 5036 Riverton Ave. #1, Los Angeles, Calif. 91601-3977

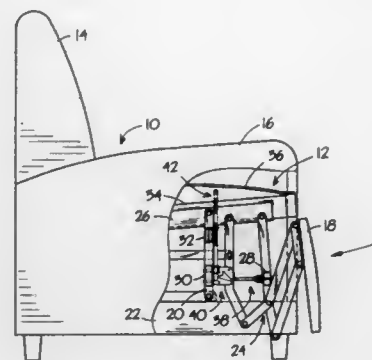
Continuation-in-part of Ser. No. 631,006, Apr. 12, 1996, Pat. No. 5,653,498. This application Jul. 9, 1997, Ser. No. 890,236

Int. Cl.⁶ A47C 1/02

U.S. Cl. 297—85

16 Claims

7. A reclining chair having a deflectable seat and a leg rest which is movable between an extended and a retracted position, a leg rest linkage for moving said leg rest between said extended position when the chair is reclined and said retracted position when the chair is upright, drive means on the chair to drive the leg rest from said retracted position to said extended position, said drive means disposed for storing energy derived from the retraction of said leg rest by actuation of the same in a generally rearward direction by an occupant of the chair.



a leg-rest-operated reciprocating latch means for releasably retaining the leg rest in said retracted position, said latch means comprising a first member mounted to and moveable with said leg rest linkage, and a second member disposed to engage the first member and retain the same in said retracted position,

said second member being automatically releasable by a second actuation in the same generally rearward direction, and an occupant-weight-actuated lock assembly reversibly moveable at least a certain distance between an effective position at which it prevents the release of said latch means and an ineffective position at which it permits the release of said latch means,

said lock assembly being resiliently biased toward said effective position and being forcible said certain distance by said deflectable seat under a predetermined minimum occupant weight,

said lock assembly including an adjustment means by which said predetermined weight required to move said lock assembly said certain distance can be varied.

5,800,010

RECLINING CHAIR AND MECHANISM THEREFOR

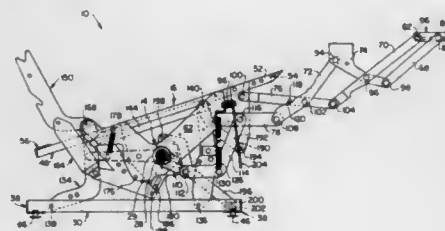
Teddy J. May, Tupelo, Miss., assignor to The Lane Company, Inc., Altavista, Va.

Filed Mar. 27, 1997, Ser. No. 827,183

Int. Cl.⁶ A47C 1/038

U.S. Cl. 297—85

8 Claims



1. A combined mechanism and base for a reclining chair which includes an upholstered seat frame, an upholstered back, an ottoman, comprising: a base arranged to be supported on a floor; and a mechanism including:

left and right side linkages including:

left and right sets of pantographically inter pivoted links for mounting the ottoman for extension to an extended position and retraction to a retracted position;

left and right sets of inter pivoted support links for supporting the upholstered seat frame relative to the base for movement between a rear, less tilted forwardly up erect position and a forward, more tilted forwardly up TV position; and left and right sets of inter pivoted support links for supporting the upholstered back for movement between a more erect position achievable when the ottoman is in said retracted or extended position, and a more recumbent position which is achievable only when the ottoman is in said extended position;

a plurality of transverse members fixedly interconnecting a plurality of corresponding links of said left and right side linkages;

a transversely extending torque tube journaled in said left and right side linkages for reversible rotation about its own longitudinal axis;

inter pivoted crank and driving links operatively connecting said torque tube with said pantographically inter pivoted links, for extending the ottoman upon rotation of the torque tube in one angular direction and for retracting the ottoman upon rotation of the torque tube in an opposite angular direction;

at least one strut which extends downwardly and forwardly from a single pivotal connection to the torque tube at a radial offset from said longitudinal axis, to a single pivotal connection to said base; each said strut being arranged to provide support from said base to a user when seated in the chair, when the ottoman is extended and retracted and is being extended and retracted, when the upholstered seat frame is in the erect and TV positions, and is being moved between the erect and TV positions, and the upholstered back is in the more erect and more recumbent positions, and is being moved between the more erect and more recumbent positions.

a bail pivotally mounted to said housing and including a surface extending under said opening defined by said arm and said housing for supporting the floor of a container positioned therein;

a first spring for moving said arm from a collapsed position adjacent said housing to a first extended position, said first spring disengaging said arm when said arm is in an extended position; and

a second spring extending between said arm and said housing for urging said arm toward said housing such that said arm provides a biasing force against a container positioned between said arm and housing.

5,800,012

IMPACT PAD FOR A SAFETY SEAT

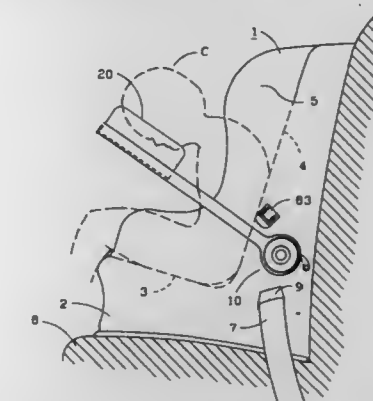
Douglas K. Ziegler, 1350 W. Walnut St., Allentown, Pa. 18102

Filed Jul. 9, 1997, Ser. No. 890,357

Int. Cl.⁶ B60N 2/42

U.S. Cl. 297—216.11

16 Claims



1. In a safety seat including a seat portion defined by siderails, a harness arrangement to releasably restrain an occupant in the safety seat, and means to attach the safety seat to a vehicle seat, an improved impact pad apparatus, the improvement comprising:

a) an impact pad assembly rotatably attached to the safety seat, said impact pad assembly being rotatable toward a riding position and toward an impact position;
b) a bias means that applies a continuous force to rotate said impact pad assembly toward said riding position; and
c) a lock means that engages said impact pad assembly when said impact pad assembly is rotated to said impact position, said lock means preventing said bias means from rotating said impact pad assembly toward said riding position.

5,800,013

VEHICLE PASSENGER SEATING

John Frederick Branham, Aylesbury, and John Tchong, Gerards Cross, both of England, assignors to Flight Equipment & Engineering Limited, Chesham, and John F. Branham, Aylesbury, both of England

Continuation of Ser. No. 366,529, Jun. 15, 1989, abandoned. This application Nov. 5, 1993, Ser. No. 162,362

Int. Cl.⁶ A47C 15/00

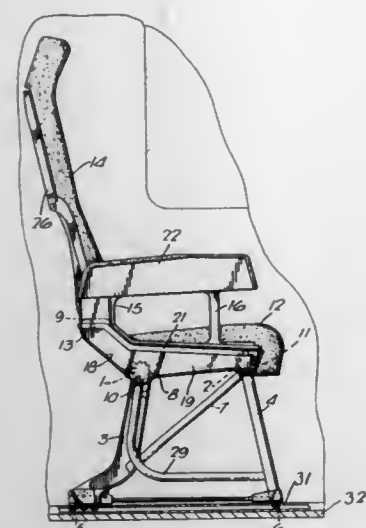
U.S. Cl. 297—232

14 Claims

1. A container holder comprising:

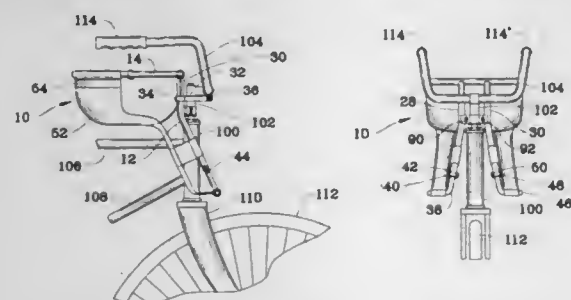
a housing defining at least in part an opening for receiving a container therein;

an arcuate arm pivotally mounted to said housing and further defining said opening for at least partially circumscribing a container positioned between said arm and said housing;



least the longitudinal member at one side of said support frame is a one-piece member that includes an integral second portion which extends away from said first portion and an integral third portion which is elongated and extends away from said second portion and generally in parallel with said first portion, said third portion providing at least a major part of an armrest.

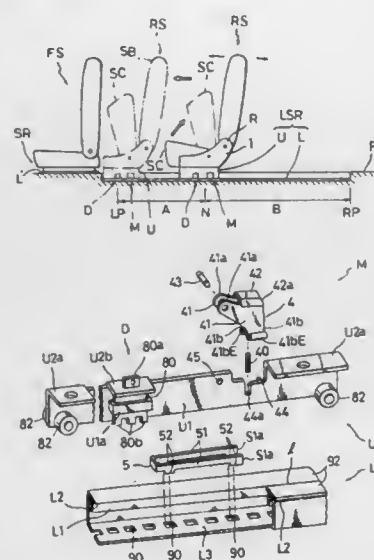
5,800,014
ADJUSTABLE CHILD SEAT FOR BICYCLES
Anthony F. Musso, Jr., 1700 SE. Ranch Rd., Jupiter, Fla. 33478
Filed Mar. 10, 1997, Ser. No. 814,441
Int. Cl.⁶ B60N 2/26
U.S. Cl. 297—243
20 Claims

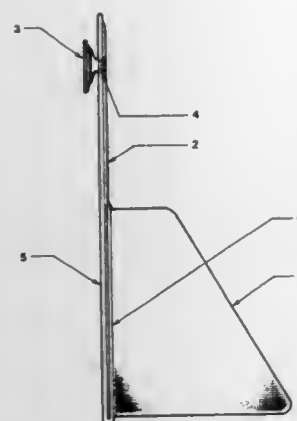


1. A children's bicycle seat for attachment to the steering mechanism on a full sized bicycle, said steering mechanism having a steering post rotatably mounted in a frame support with handlebars extending therefrom, said bicycle seat comprising:
a main frame support structure having a forward upper support portion and a lower support portion;
a rear upper support adjustably secured to said forward upper support portion;
first and second leg extension supports descending from and adjustably secured to said lower support portion;
first attachment means for attaching said forward upper support portion of said main frame support structure to said handlebars of said steering mechanism;
second attachment means for attaching said lower support portion of said main frame support structure to said steering post of said steering mechanism; and
a seat coupled to said rear upper support, said forward upper support portion of said main frame support structure, and said first and second leg extension supports.

5,800,015
LONG SLIDE RAIL DEVICE FOR VEHICLE SEAT
Kenji Tsuchiya, Tamotsu Shirai, and Akira Nemoto, all of Akishima, Japan, assignors to Tachi-S Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1996, Ser. No. 732,149
Int. Cl.⁶ B60N 2/12
U.S. Cl. 297—331
19 Claims





the window side of said back portion of said travel pillow to minimize motion and reduce stress on said suction cups during use, such that the area of the pillow directly behind said cushion includes said nonslip backing.

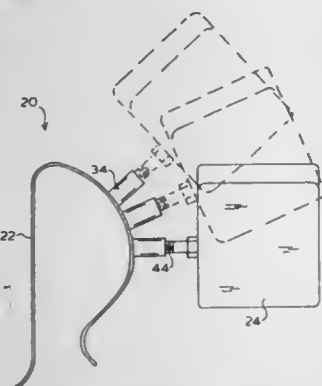
5,800,019 HEADREST

Thomas D. Knightlinger, 4701 Community Rd., Rocky Mount, N.C. 27804

Filed Aug. 26, 1996, Ser. No. 702,942
Int. Cl.⁶ A47C 1/10

U.S. Cl. 297—399

2 Claims



1. A headrest for use in combination with a seat back structure, comprising:

- a clamp having a plurality of attachment sites and being detachably attachable to a side or top of the seat back structure; and
- a cushion detachably attachable to the clamp at any one of the attachment sites, at a plurality of distances from the clamp, and a plurality of angles to the clamp, wherein each attachment site of the plurality of attachment sites comprises a tubular portion which is interiorly threaded, and the cushion has a threaded portion which is attachable to the clamp by threading the threaded portion into a selected tubular portion to a desired depth to effect a desired headrest location and angle.

5,800,020

INFANT POSTURE SUPPORT DEVICE

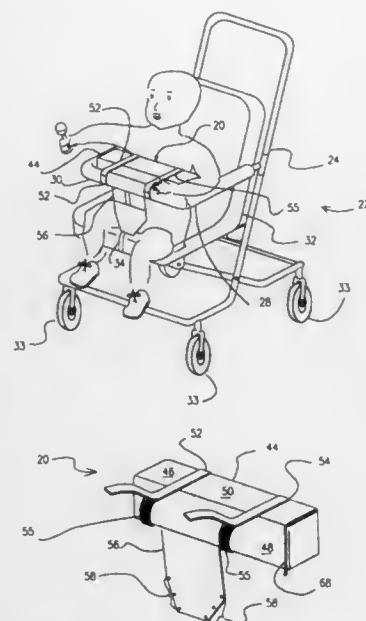
Elvetia C. Brock, 1605 Hampton South, Apt. B308, Colorado Springs, Colo. 80906

Filed Oct. 7, 1996, Ser. No. 742,418
Int. Cl.⁶ A47D 15/00

U.S. Cl. 297—488

19 Claims

1. A posture support apparatus for supporting the posture of an infant while in an infant transport device having a front portion a



straddleable support portion and a cross member adapted for extending across the front portion of the infant transport device, the posture support apparatus comprising:

- a longitudinal body having a first end, a second end opposite the first end, and a mid-portion between the first end and the second end;
- a first strap means attached to said longitudinal body between the first end and the mid-portion;
- a second strap means attached to said longitudinal body between the mid-portion and the second end; and
- a stabilization pad attached to the mid-portion of said longitudinal body, the stabilization pad being adapted for attachment to the straddleable support portion of the infant transport device, so that the first strap means and the second strap means may be extended over the cross member of the infant transport device to hold the posture support apparatus against the infant transport device and the stabilization pad may be attached from the straddleable support portion of the infant transport device to retain the posture support apparatus in a desired position relative to the infant transport device.

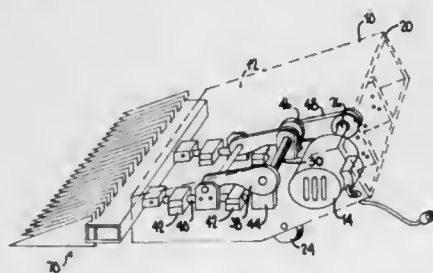
5,800,021

SHINGLE REMOVER AND METHOD OF REMOVING
Mark S. Derr, Alburtis, Pa., assignor to J. Best Company, Alburtis, Pa.

Filed Jun. 19, 1996, Ser. No. 667,976
Int. Cl.⁶ E04D 15/02; A47L 11/12

U.S. Cl. 299—37.1

13 Claims



13. A method for removing roofing shingles and nails, having a shank and a head, from a roof having a deck and a peak comprising:

- providing a powered shingle remover with a reciprocating material stripping assembly having a plurality of teeth formed with a point and an inclined lifting surface, the teeth being spaced apart to define gaps which are larger than the diameter of the

nail shank, the teeth also being spaced apart such that inclined lifting surfaces of two adjacent teeth are operable to contact at least a portion of the nail head on opposite sides of the nail shank, the reciprocating material stripping assembly being operably coupled to a reciprocation driver, the reciprocation driver comprising a counter-shaft rotatably attached to a frame, at least one connecting rod movably coupled to a push rod, the connecting rod and push rods each having a first and second end, the push rod being movably coupled to the frame, the first end of the connecting rod being eccentrically coupled to the counter-shaft, the second end of the connecting rod being coupled to the first end of the push rod, the second end of the push rod being coupled to the material stripping assembly, and having a motor having at least one output shaft, which is coupled to counter-shaft and rotatable drives the counter-shaft;

- removing an area of shingles from a portion of the roof deck immediately below the peak thereby forming a lip under which the point of the teeth can be engaged;
- positioning the shingle remover with the point of the teeth pointing towards the shingles to be removed;
- engaging at least one of the points of the teeth under the lip of the shingles; and
- moving the shingle remover down the roof deck such that the shingles and nails are removed.

5,800,022

QUICK RELEASE FASTENER

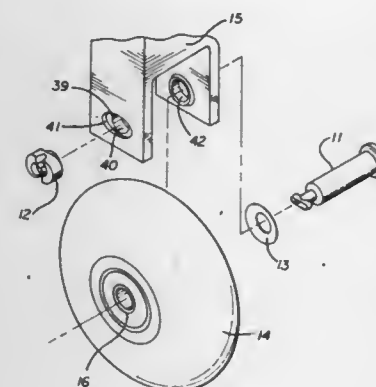
Javier Del Rosario, Perris, Calif., assignor to Hartwell Corporation, Placentia, Calif.

Filed Feb. 13, 1997, Ser. No. 799,197

Int. Cl.⁶ B60B 37/04

U.S. Cl. 301—5.3

10 Claims



6. An axle for a wheel having a central opening, including a quick release fastener having a pin and a retainer,

- said pin having a shaft for positioning in said central opening of said wheel, said pin having a head at one end of said shaft, and having a stem terminating in a cross bar at the other end of said shaft, with said stem of lesser diameter than said shaft, said retainer having a body with an opening for said other end of said pin,
- said body having an inner end for passing said stem and said cross bar and an outer end with transverse notches for receiving said cross bar,
- said body having a ramp adjacent each of said notches.

5,800,023

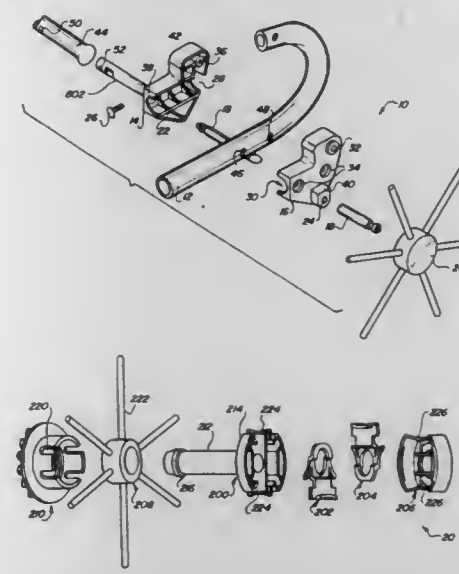
AXLE AND WHEEL MOUNT ASSEMBLY

Curtis Michael Hartenstine, and Kristopher Konawalik, both of Birdsboro, Pa., assignors to Graco Children's Products Inc., Elverson, Pa.

Filed Oct. 25, 1996, Ser. No. 738,234
Int. Cl.⁶ B60B 37/00

U.S. Cl. 301—111

16 Claims



- An assembly for releasably mounting a wheel to an axle shaft having a mounting portion, the assembly comprising:
 - a lock mount adapted to mount the wheel on the axle shaft;
 - a wheel lock adjacent to the lock mount, the wheel lock being adapted to engage the mounting portion of the axle shaft;
 - cover associated with the lock mount such that the wheel lock is captured between the lock mount and the cover;
 - means for actuating the moving members extending beyond the outer periphery of the cover; and
 - means for biasing the wheel lock radially inward towards the axle shaft such that the wheel is secured to the axle shaft at the mounting portion.

5,800,024

MOTOR VEHICLE REAR AXLE AND METHOD OF PRODUCING SAME

Franz Steimmel, Bad Honnef; Walther Hasenpatt, Lengerich; Kai-Uwe Jentsch, Moers; Jorg Ebert, Cologne; Dieter Bungenarten, Neustadt; Olaf Elsner, Bonn; Herbert Linden, Swisttal; Michael Hellenkamp, Wesseling; Gerhardt Sollner, St. Augustin; Karl-Heinz von Zengen, Bonn; Peter Harbig, Werther, and Joachim Löwen, Bielefeld, all of Germany, assignors to VAW Aluminium AG, Germany

Filed Nov. 21, 1995, Ser. No. 561,101

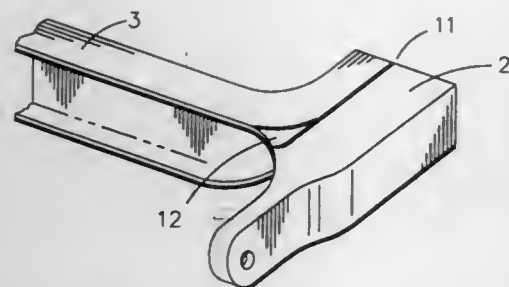
Claims priority, application Germany, Nov. 25, 1994, 44 41 971.6

Int. Cl.⁶ B60B 35/06

U.S. Cl. 301—127

5 Claims

- A motor vehicle rear axle of the twist beam axle type having a unitary control arm assembly comprising an opposed pair of longitudinal control arms (2) of a high flexural strength and torsional stiffness, each for supporting a wheel carrier plate for a wheel, and an elongate transverse strut (3) which extends between said opposed pair of control arms and has opposed ends, said strut being resistant to bending but resilient relative to torsional stress to twist and thereby vary the location of the shear center thereof, and having a profiled hollow cross-section, each of the opposed ends of said strut being united with a said longitudinal control arm, characterized in that the transverse strut (3) consists of an aluminum extrusion having an extrusion structure which transitions and



curves into opposed longitudinal ends extending in the longitudinal direction, parallel to the longitudinal control arms, and become integral with said longitudinal control arms.

5,800,025

ELECTRONIC TRAILER BRAKE CONTROLLER WITH SLEEP MODE

Michael C. McGrath, Farmington Hills; Wayne M. Groleau, Novi; Michael A. Hedding, Canton; Brian J. Stockford, Ann Arbor, and David Sullivan, Brighton, all of Mich., assignors to Hayes Lemmerz International, Inc., Romulus, Mich.

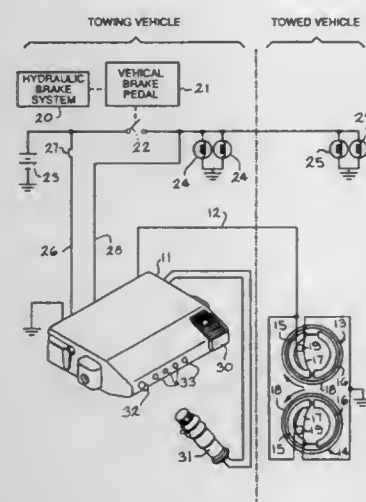
Division of Ser. No. 313,703, Sep. 27, 1994, Pat. No. 5,620,236.

This application Feb. 19, 1997, Ser. No. 802,378

Int. Cl.⁶ B60T 13/00

U.S. Cl. 303—7

15 Claims



1. An electronic brake controller for actuating electric wheel brakes of a towed vehicle, the towed vehicle being associated with a towing vehicle having a set of wheel brakes, the electronic brake controller comprising:

- a sensor for producing a brake control signal which is representative of the desired automatic braking of the towed vehicle;
- a control device adapted to be connected to a vehicle power source and responsive to said brake control signal for generating an output signal for actuating the electric wheel brakes of the towed vehicle; and
- a switch included in said control device for disconnecting the vehicle power source from selected portions of said control device, said control device being operative, following an elapse of a pre-determined time period during which the towing vehicle wheel brakes are released, to cause said switch to disconnect the vehicle power source from said portions of said control device.

5,800,026
ELASTIC-BODIED CRAWLER PLATE AND CRAWLER BAND

Yoshiyuki Nagata, Tatsukuchi, Japan, assignor to Komatsu Ltd., Tokyo, Japan

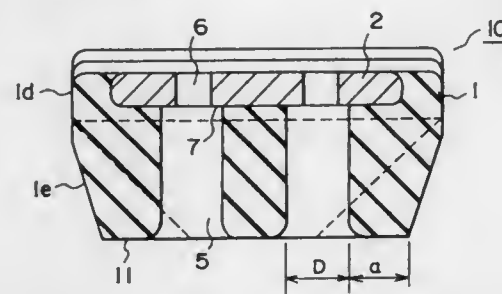
PCT No. PCT/JP95/01046, § 371 Date Dec. 2, 1996, § 102(e) Date Dec. 2, 1996, PCT Pub. No. WO95/32885, PCT Pub. Date Dec. 7, 1995

PCT Filed May 30, 1995, Ser. No. 750,288

Claims priority, application Japan, Jun. 1, 1994, 6-143922 Int. Cl.⁶ B62D 55/275

U.S. Cl. 305—46

31 Claims



1. An elastic-bodied crawler plate having a longitudinal length, a transverse width, a link mounting surface side, a ground contacting surface side, opposite longitudinally extending sides, and opposite longitudinal ends, said crawler plate comprising:

- an elastic body including holes for inserting bolts therethrough;
- a core body having a smooth top surface, without an abrupt convex or concave form, and a smooth bottom surface, without an abrupt convex or concave form; said smooth top surface including a link mounting surface; said core body having a plurality of bolt attaching holes formed therein so as to extend through said link mounting surface;
- said crawler plate being integrally formed by said core body being embedded in said elastic body with said core body having exposed surfaces which are not covered by said elastic body and with said link mounting surface side including said link mounting surface; said exposed surfaces including bolt head bearing surfaces and said link mounting surface.

5,800,027

BROCHURE DISPLAY CASE

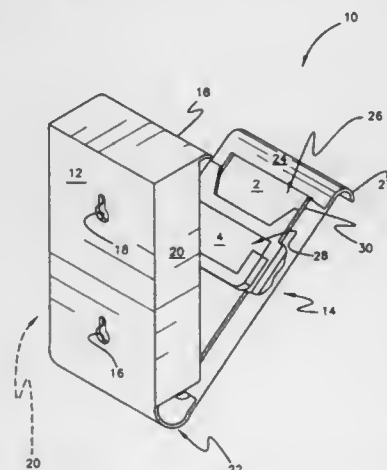
Gary D. Dunn, 2368 Podocarpus Way, Clearwater, Fla. 34619

Filed Mar. 31, 1997, Ser. No. 829,231

Int. Cl.⁶ A47F 3/00

U.S. Cl. 312—138.1

6 Claims



1. A display case for the display and dispensing of brochures and cards, said display case comprising:

a base portion, said base portion being substantially planar and including means to attach said base portion to an environmental surface, said base portion including forwardly projecting side walls and a forwardly projecting rain hood;

a door portion adapted to fit within said base portion between said forwardly projecting side walls and underneath said forwardly projecting rain hood where said door portion also includes a finger pull;

an elastic hinge connecting said base portion and said door portion, where said elastic hinge is configured such that said door portion is maintained within said forwardly projecting side walls and underneath said forwardly projecting rain hood of said base portion when said display case is at rest;

where said door portion further includes a first pocket disposed to face said base portion such that said first pocket holds printed material enclosed within said forwardly projecting side walls and said forwardly projecting rain hood of said base portion when said display case is at rest and where said finger pull is disposed to fit underneath said projecting rain hood of said base portion when said display case is at rest and said finger pull is used to resiliently deform said elastic hinge such that said door portion tilts forwardly away from said base portion and said pocket containing the printed material is accessible to a user.

e) biasing means seated within said groove and interposed between said hinge structure and said socket member for biasing said cover against rotatable movement and statically stabilizing said cover between a closed position and said partially open position, or between said partially open position and said widely open position; and

f) said biasing means including a leaf spring having first and second flexible legs, the first of which is secured within said groove, the second of which contacts said hinge structure to provide a resistive force against rotatable movement of said hinge structure.

5,800,029

COMBINATION WORK AND STORAGE CABINETS

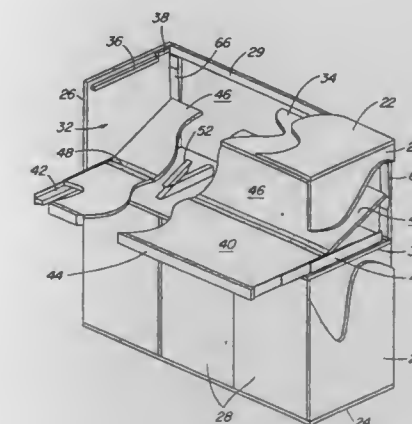
Joann Robertson, Vancouver, and Andy Holisky, Burnaby, both of Canada, assignors to Suite Solutions Designs Ltd., Vancouver, Canada

Filed Apr. 8, 1997, Ser. No. 835,010

Int. Cl.⁶ A47B 81/00

U.S. Cl. 312—271

9 Claims



1. A cabinet defining a chamber having a front portion forming a front opening closable by a frontal door and a back portion forming a back opening spaced rearwardly of said front portion, said back opening being covered by a back panel, and a pull-out platform supported in said chamber such that said platform may be moved inwardly and outwardly of said chamber, said platform defining a generally horizontal support surface capable of providing support to an object in both inward and outward positions of said platform relative to said chamber, said back panel being flexibly connected to said platform and being supported for movement with said platform from (A) a generally vertical position wherein said back panel at least partly closes the back portion of said chamber, said vertical position corresponding to an innermost position of said platform, to (B) a generally horizontal position wherein said back panel is in generally co-planar relation to said platform and the back opening of said chamber is uncovered, such that said back panel and said platform together define a substantially uninterrupted working surface which extends rearwardly through said chamber toward the uncovered opening in the back portion thereof, said back opening located above and extending at least to said horizontal position, said horizontal position corresponding to an outermost position of said platform, whereby, during use, flexible materials being worked on can be moved along said substantially uninterrupted working surface and pushed through the back opening of said chamber.

5,800,030

Patent Not Issued For This Number

5,800,028

TERMINAL BLOCK HINGE MECHANISM

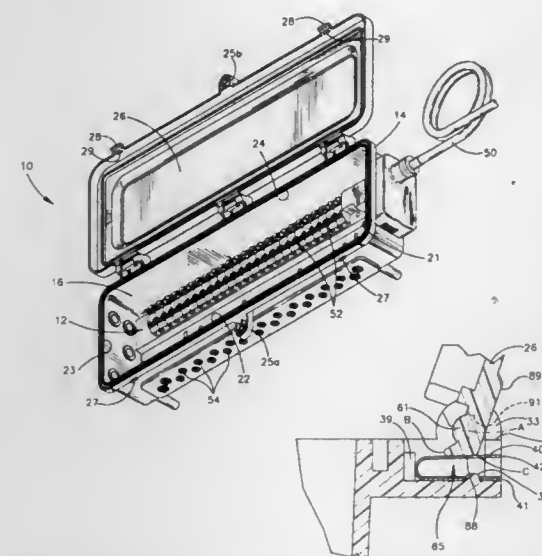
William D. Smith; Harbin C. Farr, both of Marietta; Craig O. Belflower, Fayetteville, and Wendi J. Sams, Atlanta, all of Ga., assignors to Communications Technology Corporation, Madison, Ala.

Filed Feb. 27, 1997, Ser. No. 805,220

Int. Cl.⁶ H05K 5/00

U.S. Cl. 312—223.1

9 Claims



1. An enclosure for a terminal block that provides a telecommunications transmission connection, comprising:

- a) a housing defining an interior region adapted to support a terminal block therein; said housing having an open front face and including a rear wall, and a number of side walls that border the interior region;
- b) a cover attached to one side wall of the housing for covering said interior region and that is moveable to a partially open or a widely open position to allow access to the interior region of the housing;
- c) said one side wall of said housing including a socket member defining a groove therein;
- d) a hinge structure rotatably moveable within said socket member for attaching the cover to a side wall;

5,800,031

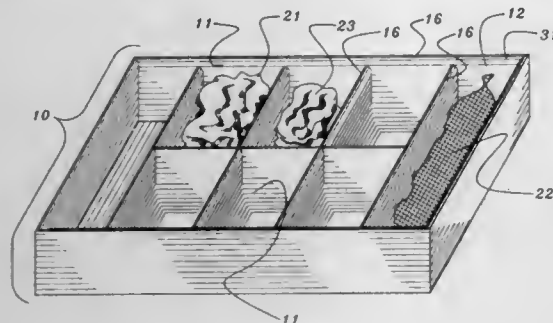
PANTYHOSE ORGANIZER FOR DRESSER OR BUREAU
Keith Hanneman, and Renee Hanneman, both of 1471 Sandalwood Dr., Dunedin, Fla. 34698

Filed Oct. 21, 1996, Ser. No. 733,961

Int. Cl.⁶ A47B 88/20

U.S. Cl. 312—348.3

4 Claims



1. A tray apparatus for storing and organizing hosiery or small delicate clothing articles within a dresser or bureau drawer comprising:

a container comprising an outer shell which further comprises a plurality of inner compartments, said outer shell having a closed bottom, four sides, and an open top;

said inner compartments comprising a series of smaller compartments of substantially equal height which are open at the top and are of suitable size for storing at least one pair of pantyhose, each said smaller compartment further comprising a bottom with a surrounding enclosure;

said inner compartments further comprising at least one elongated compartment, said elongated compartment being of adequate size to store a laundry bag;

each said inner compartment further comprising an interior lower exposed surface which is slightly concave and which further is joined to said side surrounding enclosure in a continuous manner without a sharp edge, wherein a top edge of each said side surrounding enclosure is rounded so as to avoid any sharp surfaces upon which an item of clothing might sag; and

a netted bag having an interior space, adapted to hold a plurality of pairs of pantyhose, said netted bag being further adapted to permit a laundry washing fluid to pass easily in and out of said netted bag when enclosed within a laundry washing fluid environment.

5,800,032

SELF CORRECTING PROJECTOR

Takayuki Uchiyama, Yokohama, and Hirobumi Arima, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed May 13, 1997, Ser. No. 855,115

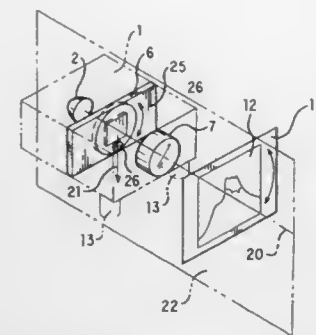
Claims priority, application Japan, May 14, 1996, 8-118925; May 29, 1996, 8-134782

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—69

31 Claims

1. A projector comprising:
a spatial light modulation element; and



a projection optical system having an optical axis, wherein the spatial light modulation element automatically rotates about an axis parallel to the optical axis in response to an external parameter.

5,800,033

IMAGE PROJECTION APPARATUS

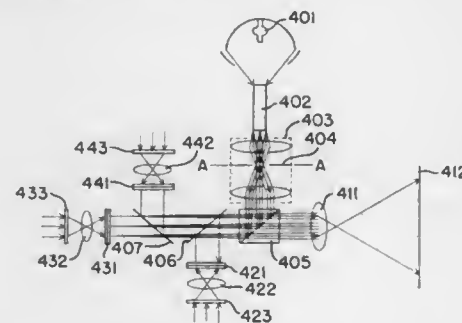
Yukiya Funanami; Yasuyuki Mitsuoka; Nobuyuki Kasama, and Tadao Iwaki, all of Chiba, Japan, assignors to Seiko Instruments Inc., Japan

Filed Oct. 26, 1995, Ser. No. 548,455

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—97

15 Claims



8. An image projecting apparatus comprising: a light source for emitting light; a spatial light modulating element for providing an image; first optical means for irradiating light from the light source onto the spatial light modulating element; second optical means for projecting the image provided by the spatial light modulating element; and control means included in the first optical means for controlling an angular component of a luminous flux of light from either the light source or the spatial light modulating element to adjust the quality of the projected image, the control means comprising a telecentric optical system and a light shielding frame disposed at a focus position of the telecentric optical system for controlling an angular component of the luminous flux of light emitted by the light source.

5,800,034

TOY FILM VIEWER AND METHOD OF MAKING SAME
David Hoyt, and Gary T. Aldcroft, both of Gardena, Calif., assignors to Principle Plastics, Gardena, Calif.

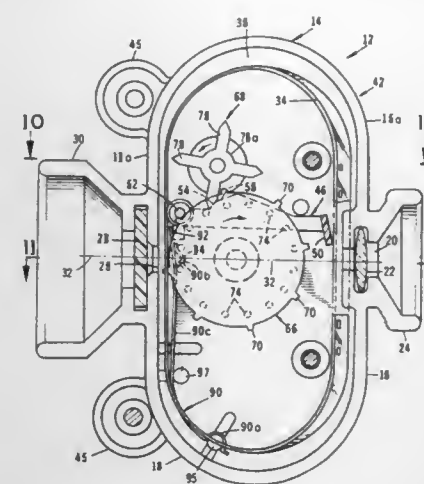
Filed Jun. 13, 1997, Ser. No. 876,184

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—109

20 Claims

11. A toy film viewer comprising:
(a) a housing having a front wall, a rear wall and a pair of side walls connected to and spanning said front and rear walls to define an internal chamber, said front wall having a viewing aperture formed therein and said rear wall having a light-receiving window disposed in alignment with said viewing



aperture to provide a viewing axis between said viewing aperture and said light-receiving window;

(b) a translucent screen mounted within said light receiving window;

(c) lens means mounted within said viewing aperture, said lens means having a focal point located proximate said translucent screen;

(d) shutter means for covering said viewing aperture, including a shutter pivotally mounted within said chamber of said housing for movement between first retracted position and a second closed position covering said viewing aperture;

(e) biasing means for yieldably resisting movement of said shutter from said first retracted position to said second closed position;

(f) an endless film loop carried within said chamber of said housing, said film loop being disposed at an angle relative to said viewing axis and having a multiplicity of circumferentially spaced images from thereon;

(g) operating means for operating said shutter means and for controllably advancing said film loop relative to said translucent screen in a manner to sequentially move said images past said translucent screen, said operating means comprising:

(i) a feed sprocket rotatably mounted within said chamber of said housing, said feed sprocket having a plurality of outwardly extending pins and having a plurality of circumferentially spaced teeth engageable with said film loop for controllably moving said film loop relative to said light-receiving window;

(ii) drive means for driving said feed sprocket and for operating said shutter, said drive means comprising a driving gear rotatably connected to said housing, said drive gear having circumferentially spaced teeth constructed and arranged to engage said outwardly extending pins of said feed sprocket and said shutter; and

(iii) a handle rotatably connected to said housing for controllably rotating said driving gear.

5,800,035

WHEEL LIGHTING APPARATUS

William E. Aichele, 3311 Library Ave., Cleveland, Ohio 44109

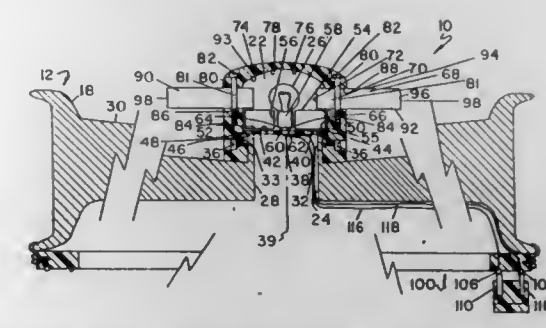
Filed Oct. 29, 1996, Ser. No. 741,142

Int. Cl.⁶ F21V 7/04

U.S. Cl. 362—31

15 Claims

1. A wheel lighting apparatus for illuminating with a predetermined light pattern, a wheel on the body of a vehicle, which pattern rotates with the wheel during movement of the vehicle, said wheel lighting apparatus comprising a chamber mounted on the wheel for rotation therewith, a chamber portion formed from material which contains light in said chamber, a light transmitting member extending substantially radially outwardly of said chamber for transmitting light from said chamber and having a light



receiving surface, said chamber formed by said chamber portion and said light receiving surface of said light transmitting member, a light source positioned in said chamber which selectively emits light therefrom to said light receiving surface, said light transmitting member having a light emitting surface for emitting light in a predetermined pattern and a light transmitting portion having a pair of opposing sides that are substantially parallel to reflect light passing through said light transmitting portion for transmitting light from said light receiving surface to said light emitting surface.

5,800,036

Patent Not Issued For This Number

5,800,037

Patent Not Issued For This Number

5,800,038

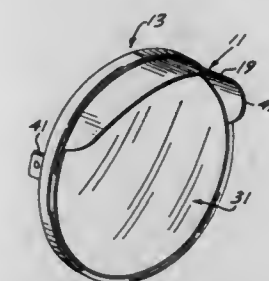
RIM MOUNTED MOTORCYCLE HEADLIGHT VISOR
Timothy McCool, Yorba Linda, Calif., assignor to Cobra Engineering Corporation, Anaheim, Calif.

Filed Feb. 16, 1996, Ser. No. 602,981

Int. Cl.⁶ F21V 1/00

U.S. Cl. 362—72

9 Claims



1. Headlight visor apparatus for mounting to a cylindrically shaped headlight rim of a predetermined radius and having an interior surface and a front extremity formed with a radially inwardly turned retaining lip, said apparatus comprising:

a cylindrically shaped visor plate formed with a radius of curvature complementing said predetermined radius;
a plurality of spaced apart hanger strips projecting rearwardly from said visor plate and comprised of respective U shaped clips defining ribs projecting radially outwardly from a center of curvature of said visor plate relative to said cylindrically shaped rim and further defining respective radially inwardly opening nesting grooves on the interior of the U-shape for, when said visor plate is engaged with said rim, registering said ribs behind said lip, said hanger strips further including

respective retainer strips angling radially outwardly and rearwardly to terminate in respective rear ends configured to, when said visor plate is engaged with said rim, engage the interior surface of said rim; and

a resilient arcuate retaining rod in the shape of a sector of a circle to extend around a portion of said interior surface and having a relaxed radius of curvature larger than said predetermined radius and of an annular length sufficient to, when positioned against said interior surface, extend more than half the way around said interior surface, said rod terminating in opposite ends, and configured in cross section to nest in said grooves so said retaining rod may be nested in said grooves and the opposite ends then grasped to flex said ends radially inwardly to position said hanger strips and of said rod in said rim to, upon being released, allow so opposite ends to flex radially outwardly to engage said interior surface of said rim to urge the medial portion of said retaining rod radially outwardly to trap said hanger strips against said rim.

5,800,039 WARNING DEVICE FOR BICYCLE HAVING CHANGEABLE PATTERNS

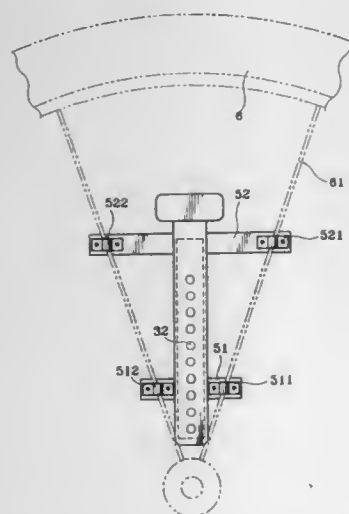
Jen-Wang Lee, 7F., No. 768, Chung Cheng Rd., Chung Ho, Taipei Hsien, Taiwan

Filed Jun. 27, 1997, Ser. No. 883,897

Int. Cl.⁶ B62J 6/00

U.S. Cl. 362—72

11 Claims



1. A warning device for bicycle having changeable patterns of the type which can be readily installed onto the spoke of the wheel of the bicycle such that a changeable warning pattern can be generated, said warning device comprising:

a substrate having a plurality of lighting devices disposed thereon, wherein in a group of lighting devices can be lit on such that a preset pattern can be attained;

a housing for enclosing said substrate therein, said housing being configured by an upper and lower housings, at least two grooves being formed at said housing at suitable position;

a centrifugally controlled switch being disposed within said housing; and

a fastening device for attaching said housing to the spoke of the wheel;

wherein when said wheel is rotated, said centrifugally controlled switch can be triggered on to power said substrate, consequently, a certain group of lighting devices are lit up according to preset modes stored in the memory, a warning pattern is therefore spotted through the transitional vision of our human being.

5,800,040

INTERNAL REARVIEW MIRROR WITH COURTESY LIGHTS

Antonio Ferreira do Espirito Santo, Sao Paulo, Brazil, assignor to Metagal Industria e Comercio Ltda., San Paulo, Brazil

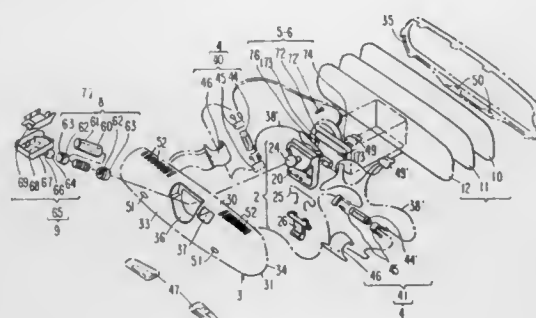
Filed Apr. 29, 1994, Ser. No. 236,369

Claims priority, application Brazil, Jun. 25, 1993, 9302188

Int. Cl.⁶ B60Q 3/021

U.S. Cl. 362—83.1

16 Claims



1. An internal rearview mirror with courtesy lights for a motor vehicle having a vehicle cabin with a front windshield, a plurality of doors provided with a plurality of courtesy lamps, a ceiling lamp on a ceiling of the cabin and a trunk with a trunk light; said rearview mirror comprising a housing (3); a mirror device (1) mounted in the housing (3); an antiglare device (2) connected to the mirror device (1) and mounted in the housing (3); a courtesy light system (4) including switches (49, 49') in the housing (3); an electronic control module (5) in the housing comprising a printed circuit board (70) having electrical conductor paths (75) connected to the courtesy light system (4) and including a timing device (6) connected to and controlling the ceiling lamp (200), the trunk lamp (202) and the door courtesy lamps (201) in the vicinity of the doors; and a detachable support (7) comprising a spring releasable neck (8) and a base (9) connected to the neck (8), said detachable support (7) being pivotally connected to said housing (3) and said base (9) of said detachable support (7) being attached centrally in the vehicle cabin,

wherein the printed circuit board (70) of the electronic control module (5) is provided with throughgoing holes (72) and the housing (3) has interior fixing columns (71) aligned with said holes (72) so that said printed circuit board (70) can be secured to said housing (3) by fixing screws (72') engaged in said fixing columns (71) and passing through said holes (72); and the electronic control module (5) has electrical connector means (173) comprising a prismatic shaped support block (76) mounted on a lateral extension (74) of the printed circuit board (70) and a set of connector pins (73) perpendicular to and arrayed directly on said lateral extension (74) and passing through said support block (76), said connector pins (73) are electrically connected to said electrical conductor paths (75), both said support block (76) and said lateral extension (74) are aligned with an off centrally positioned opening (37) of the housing (3), said housing (3) is provided with claw means (77) engaging in a groove (77') in the lateral extension (74) so as to assist in holding said printed circuit board (70); and a plurality of interior conductor elements (38') originating from said printed circuit board (70) are provided for electrical connection to said switches (49, 49') of said courtesy light system (4).

5,800,041

UNDERWATER LIGHT FITTING

Bryan Poggi, Hamilton, United Kingdom, assignor to Aqua Pharos International Limited, Hamilton, United Kingdom
PCT No. PCT/GB95/01159, § 371 Date Nov. 22, 1996, § 102(e)
Date Nov. 22, 1996, PCT Pub. No. WO95/32288, PCT Pub. Date Nov. 30, 1995

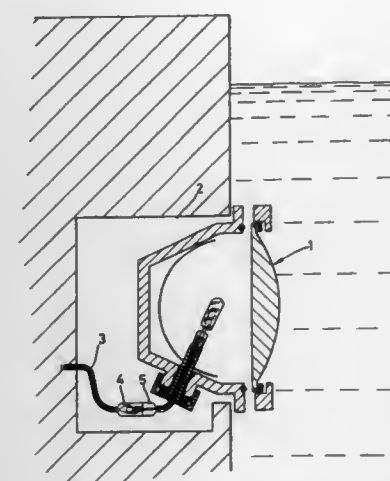
PCT Filed May 20, 1995, Ser. No. 737,969

Claims priority, application United Kingdom, May 24, 1994, 9410401

Int. Cl.⁶ F21V 31/02

U.S. Cl. 362—101

20 Claims



1. An underwater light fitting for mounting in a niche provided in a surface such as a wall, said underwater light fitting comprising:

a waterproof housing, having a front; mounting means for releasably mounting said housing into a niche provided in a surface such as a wall;

power transmission means for transmitting power from a power source external of said housing to a light source within said housing;

a wet-mateable connection in the power transmission means; and wherein the waterproof housing includes a casing, a light transmissive portion, entry means provided in the casing providing entry of said power transmission means into said housing, and a removable portion for sealing said entry means to prevent ingress of water into the housing, wherein said removable portion includes means to receive the power transmission means therethrough and may be replaceably removed from the housing, allowing removal of the light source from the housing via the entry means when the removable portion is removed from the entry means.

5,800,042

ADJUSTABLE HEADLAMP SYSTEM

Stephen E. Blank, 205 Churchtown Rd., Narvon, Pa. 17555

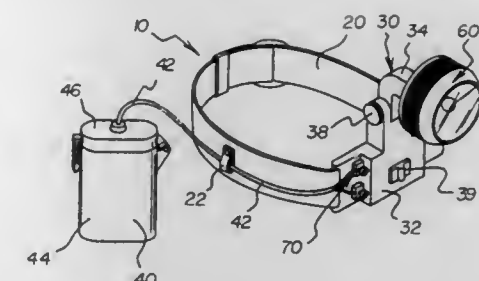
Filed Sep. 30, 1996, Ser. No. 723,391

Int. Cl.⁶ F21L 15/14

U.S. Cl. 362—105

12 Claims

1. An adjustable headlamp system comprising:
an adjustable head band positionable around a person's head;
a headlamp assembly secured to a frontal portion of the adjustable head band;
a high intensity headlamp pivotally secured to an upper portion of the headlamp assembly;
an electrical connector means secured to a lower portion of the headlamp assembly such that the head band is positioned between the person's head and the electrical connector means, the electrical connector means further being electrically connected to the high intensity headlamp;



a battery holder electrically connected to the electrical connector means;
wherein the headlamp assembly includes;
an inverted T-shaped housing including a pair of strap slots within a lower portion and where the adjustable head band projects through said strap slots supporting the inverted T-shaped housing substantially parallel to an exterior surface of the adjustable head band; and
an L-shaped arm pivotally attached to an upper portion of the inverted T-shaped housing by a tightening member, where the L-shaped arm pivots vertically.

5,800,043

ILLUMINATED FUSE EXTRACTING AND INSTALLING TOOL AND TESTER

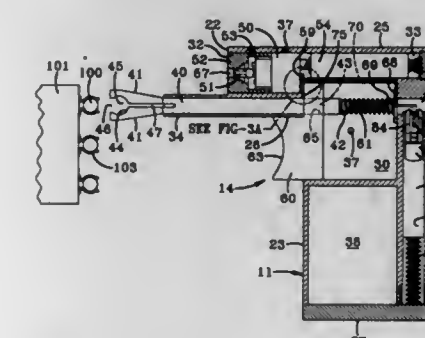
Loy P. Walkerow, Box 344, Marion St., Nashville, Ohio 44661

Filed Oct. 28, 1996, Ser. No. 738,815

Int. Cl.⁶ F21V 33/00

U.S. Cl. 362—119

27 Claims



1. A fuse extractor for extracting fuses from a fuse block comprising:

an extractor body;
means for extracting a fuse from a fuse block, the extraction means attached to the extractor body, the extraction means including means for gripping the fuse and trigger means for actuating the gripping means to grip the fuse; and
means for illuminating the fuse block, the illumination means attached to the trigger means whereby actuation of the trigger means causes illumination of the illumination means.

5,800,044

COMBINATION MAN OVERBOARD PERSONAL RESCUE LIGHT

Richard S. Marshall, 1828 37th East, Seattle, Wash. 98112

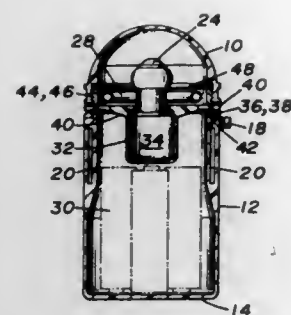
Filed Jan. 22, 1997, Ser. No. 788,081

Int. Cl.⁶ F21L 7/00

U.S. Cl. 362—158

9 Claims

1. A waterproof personal rescue light unit comprising:
a body having a closed lower end and an upper end;



a steady state light located proximate to the upper end of the body so as to emit a generally hemispherical light pattern when energized;
a non-incandescent strobe light located proximate to the upper end of the body so as to emit a generally hemispherical light pattern when energized;
at least one switch for electrically coupling the steady state light and the non-incandescent strobe light to a source of electrical power;
a lens matable to the upper end of the body to create a waterproof enclosure defined by the body and the lens, and to permit a generally hemispherical emission pattern of light generated by the steady state light and the non-incandescent strobe light.

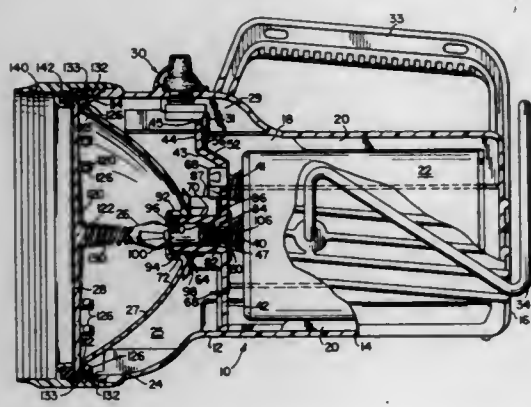
5,800,045 LANTERN

Paul Kish, Wilkes-Barre, and Randy S. Cramer, Lebanon, both of Pa., assignors to Bright Star Industries, Inc., Wilkes-Barre, Pa.

Filed Oct. 25, 1996, Ser. No. 736,991
Int. Cl.⁶ F21L 1/00

U.S. Cl. 362—205

9 Claims



1. A portable lantern comprising a housing having a rear portion defining a rear battery receiving chamber and a forward portion defining a front chamber having an open front end; a lens, reflector, and bulb mountable within said front chamber; a switch assembly mounted on said housing and having electrical terminal means; a transverse platform removably mounted in said housing and separating said rear and front chambers, said platform having electrical contact means which automatically establishes an electrical circuit between a battery in said rear chamber, said switch terminal means and said bulb upon insertion of said platform into said housing; first cooperating snap retainer means on said lens and said reflector for quickly connecting said lens and said reflector together; and second cooperating snap retainer means on said reflector and said housing forward portion around said open front end for quickly connecting said reflector to said housing.

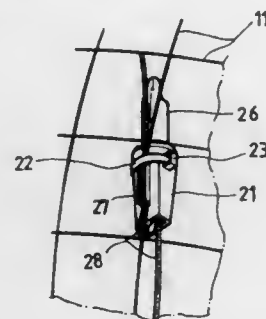
5,800,046 LIT STRING STRUCTURE FOR EASY FORMATION OF PATTERNS

Lindbergh Lin, Taipei, Taiwan, assignor to Studio Eluceo Ltd., Taipei, Taiwan

Filed Aug. 14, 1997, Ser. No. 911,014
Int. Cl.⁶ F21P 1/00

U.S. Cl. 362—252

9 Claims



1. A lit string structure for easy formation of patterns, particularly suitable for use in Christmas season and in the night as a decoration or an advertising means, comprising:
a net woven from soft strings to form a plurality of openings on the net;
at least one set of lit string including a plurality of lamp holders with lamps and serially connected together by electric wires, each said lamp holder being provided with means for binding said electric wires and clamping said net strings, so that said at least one set of lit string can be fixed onto said net according to a predetermined design or pattern; and
control means connected to a plug which can be plugged into a socket to obtain power for said control means to control lighting, extinguishing, and flashing of said lamps on said at least one set of lit string.

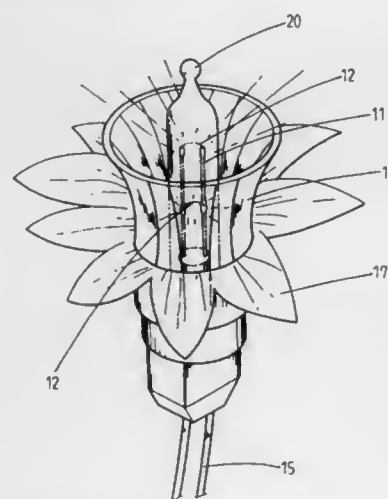
5,800,047 STRUCTURE OF DECORATING LIGHT STRING'S LIGHT BULB

Chin Ying Yang, No.38, Lane 1, Alley 620, Chingkuo Road, Sec. 2, Hsinchu, Taiwan

Filed Aug. 26, 1996, Ser. No. 703,040
Int. Cl.⁶ F21P 1/02

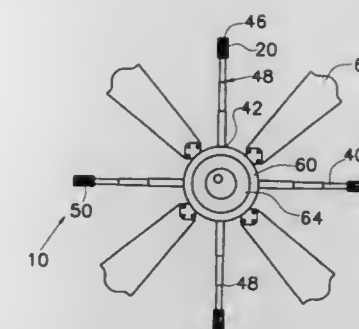
U.S. Cl. 362—255

8 Claims



1. A light emitting apparatus, comprising:
a bulb;

a pair of leads each having at least a portion thereof disposed in said bulb;
a first filament connected between said leads and disposed in said bulb;
a second filament connected between said leads and disposed in said bulb; and
a decorative cover disposed about said bulb wherein,
said decorative cover has a terminal rim,
said first filament is positioned above said terminal rim, and
said second filament is positioned below said terminal rim.



brackets transmitting electricity from a source to said halogen bulb to power said halogen bulb.

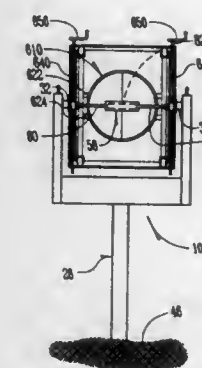
5,800,048 SPLIT REFLECTOR LIGHTING FIXTURE

Myron K. Gordin, Oskaloosa, Iowa, assignor to Musco Corporation, Oskaloosa, Iowa

Filed Mar. 14, 1996, Ser. No. 616,056
Int. Cl.⁶ F21V 21/28

U.S. Cl. 362—275

19 Claims



18. A method of producing an adjustable controlled, concentrated high intensity light beam comprising:
positioning a reflecting surface operatively relative to a light source;
splitting the reflecting surface into two parts along a plane along the reflector's aiming axis;
adjusting the two parts in a pivotal manner at or near the intersection of the aiming axis with the reflector, the adjustment of the two parts causing a change in the elongation of beam pattern in one direction.

5,800,049 LIGHT ASSEMBLY FOR A CEILING FAN

Alvin E. Todd, Jr., 3360 Progress Hill Blvd., Pigeon Forge, Sevier County, Tenn. 37863

Continuation-in-part of Ser. No. 301,658, Sep. 7, 1994. This application Dec. 18, 1995, Ser. No. 574,127

Int. Cl.⁶ F21V 33/00

U.S. Cl. 362—294

14 Claims

1. A light assembly for securing to an existing ceiling fan, said light assembly comprising:
a plurality of support arms radially extending from and connecting to the ceiling fan, each of said plurality of support arms defining a first end and a second end;
a fixture secured to said second end of each of said plurality of support arms, said fixture defining a base and a first and second mounting bracket secured to said base; and
a halogen bulb being supported by said fixture, said first and second mounting brackets being positioned to receive said halogen bulb therebetween, said first and second mounting

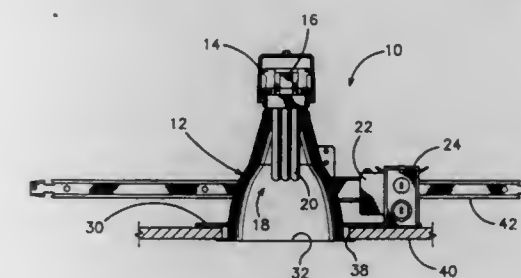
5,800,050 DOWNLIGHT AND DOWNLIGHT WALL WASH REFLECTORS

Kevin F. Leadford, Crawfordsville, Ind., assignor to NSI Enterprises, Inc., Atlanta, Ga.

Filed Mar. 4, 1996, Ser. No. 610,434
Int. Cl.⁶ F21V 7/00; F21S 1/02

U.S. Cl. 362—296

64 Claims



1. In a lighting fixture having a large-area light source and a cutoff angle, the improvement comprising a reflector having a light concentration section within which at least portions of the light source are located and a light distribution section optically joined to the light concentration section, light produced by the light source internally of the light concentration section being internally reflected therewithin to the light distribution section, the light distribution section directing light from an aperture thereof opposite the light concentration section to illuminate surfaces of an environmental space, the light distribution section having an optical contour generated by rotation about a center line of a curve defined by end points lying respectively on lines having an angle to the horizontal equal to shield angles approaching the reflector from opposite sides thereof, the lines each having an outline of the light source above said lines with the lines being tangential to said light source.

5,800,051 MEDICAL LAMP WITH MULTI-COMPONENT PROJECTOR UNIT

Uwe Gampe, Floersheim; Rudolf Marka, Darmstadt; Stefan Greif, Fulda, and Jörg Eduard Hartge, Gelnhausen, all of Germany, assignors to Heraeus Med GmbH, Hanau, Germany

Filed Oct. 10, 1996, Ser. No. 729,042

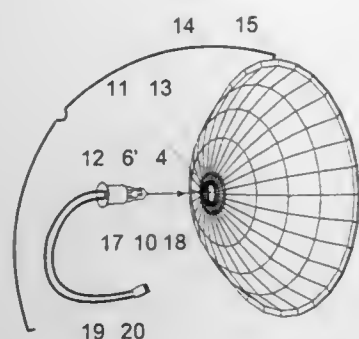
Claims priority, application Germany, Nov. 20, 1995, 195 43 006.9

Int. Cl.⁶ F21V 7/00

U.S. Cl. 362—348

11 Claims

1. A medical lamp with a projector unit comprising:



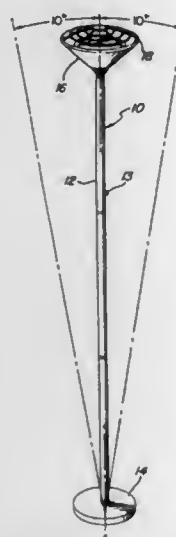
a reflector, the reflector having a front surface which is metallic or metalized and a rear surface, the reflector having an opening, a flange is disposed on the rear surface of the reflector and which surrounds the opening in the reflector, the flange projecting outwardly from the rear surface of the reflector;

a first projector lamp and a second projector lamp which are both disposed in the opening in the reflector, each of the first and second projector lamps having a bulb and a power supply line, the first projector lamp having a first base and the second projector lamp having a second base, wherein the first base and the second base are joined together to form a closed cross-sectional surface whose outer contour conforms to the inner contour of the flange, the first and second bases being adjacent at least partially to an inner surface of the flange, the first and second bases each having an expanded surface at an end thereof opposite the bulbs of each of the first and second projector lamps, the expanded surface of each of the first and second bases projects radially outwardly and rests at least partially on an outer edge of the flange, a passage being provided through the expanded surface of each of the first and second bases through which passes the power supply line, and

a clip which is attached at the ends thereof to the front surface of the reflector and which extends behind the rear surface of the reflector and is in pressure contact with an outer surface of the expanded surface of each of the first and second bases.

5,800,052
FLOOR LAMP SAFETY SHIELD AND SWITCH
John Yeh, 660 S. Aberdeen, Anaheim Hills, Calif. 92807
Filed Dec. 9, 1996, Ser. No. 762,337
Int. Cl.⁶ F21V 15/00

U.S. Cl. 362—376



1. In combination, a protective safety shield for attaching to a floor lamp inverted shade which defines an opening in which is

disposed a lamp bulb that generates an intense heat when lit and is covered by said protective safety shield, which comprises:

a plurality of wire ring members having at least a lowermost wire ring member formed with a diameter equal to or less than the diameter of the opening defined by an inverted shade; and

at least an uppermost wire ring member formed with a diameter less than the diameter of said lowermost wire ring member and positioned above said lowermost wire ring member;

a plurality of strut members fixedly attached between said uppermost and lowermost wire ring members;

means formed with said protective safety shield for securing said safety shield to said inverted shade.

5,800,053
ELEVATION ADJUSTMENT STRUCTURE FOR UPRIGHT LAMP ARM
Jonny Shen, 3F-1, No. 1, Yung An South Rd., Lu Chou Hsiang, Taipei Hsien, Taiwan

Filed Feb. 12, 1997, Ser. No. 799,417

Int. Cl.⁶ F21S 1/12

U.S. Cl. 362—413

1 Claim



1. An elevation adjustment structure for lamp arm, including a cage ring and end plug wherein:

said cage ring made from high resilient material; both ends of it having a small plate ring respectively and a fence ring formed between the two plate rings, said fence ring to form a cage ring by means of two plate rings expanding toward the intermediate section; the end of said cage ring projected with a plurality of setting pieces distributed at equal distance on the inner ring; said cage ring resembling an open ring body with axial notch;

end plug having connection flange, said flange having a thread hole and the center of end plug having an axial hole;

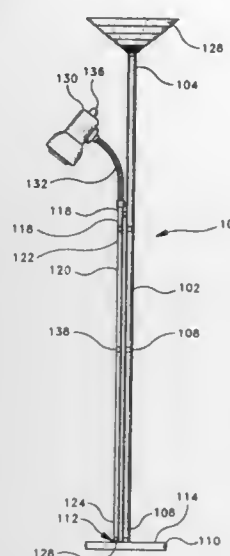
said cage ring and other parts mounted near the end of the inner rod of lamp arm and retained by setting pieces of cage ring; said end plug screwed in the inner rod by means of thread plug; the power cord inserted from the outlet port near the base of outer rod and then inserted in the axial hole of end plug and extending to the lamp connection through the other end of inner rod and screwed in the thread hole of end plug by means of a screw for fixing a length of power cord; the inner rod of lamp arm mounted in the outer rod with the end having end plug, and the distal end of outer rod sealed with a screw cover for holding the cage ring and end plug to prevent the inner rod from separated with the outer rod.

5,800,054
EASY-ASSEMBLY DUAL-POLE FLOOR LAMP
David Lo, Taipei Hsieh, Taiwan, assignor to Holmes Products Corp., Milford, Mass.

Filed Feb. 25, 1997, Ser. No. 810,139

Int. Cl.⁶ F21S 13/12

U.S. Cl. 362—431



1. An easy-assembly dual-pole floor lamp comprising:

a first pole having a top end and a bottom end;

a base portion secured to said bottom end of said first pole, said base portion having a lower second-pole-receiving region;

a second-pole-mounting member secured to said first pole at a predetermined distance above said lower second-pole-receiving region, said second-pole-mounting member having an upper second-pole-receiving region;

a second pole having a top end and a bottom end, said top end of said second pole being configured to mate with said upper second-pole-receiving region, said bottom end of said second pole being configured to mate with said lower second-pole-receiving region, said second pole having a length adjustable over an adjustment range which extends at least between first and second values, said first value of said length being selected for easy insertion of said second pole between said upper and lower second-pole-receiving regions, said second value of said length being selected for secure retention of said second pole between said upper and lower second-pole-receiving regions, said second pole having said length adjusted to said second value and being securely retained between said upper and lower second-pole-receiving regions with said top end of said second pole mated with said upper second-pole-receiving region and said bottom end of said second pole mated with said lower second-pole-receiving regions mating of at least one of:

said top end of said second pole with said upper second-pole-receiving region; and

said bottom end of said second pole with said lower second-pole-receiving region being accomplished by frictional engagement between a respective one of said top and bottom ends and a corresponding one of said upper and lower second-pole-receiving regions, without threaded engagement between said respective one of said top and bottom ends and said corresponding one of said upper and lower second-pole-receiving regions; and

a first illuminating assembly mounted on at least one of said first pole, said second pole, and said second-pole-mounting member.

5,800,055
TEMPERATURE CONTROL SYSTEM AND KNEADING-MIXING EXTRUSION APPARATUS HAVING THE TEMPERATURE CONTROL SYSTEM.

Takuya Sato, Suita, Japan, assignor to Sato Iron Works Co., Ltd., Osaka, Japan

PCT No. PCT/JP95/01465, § 371 Date Mar. 19, 1997, § 102(e)

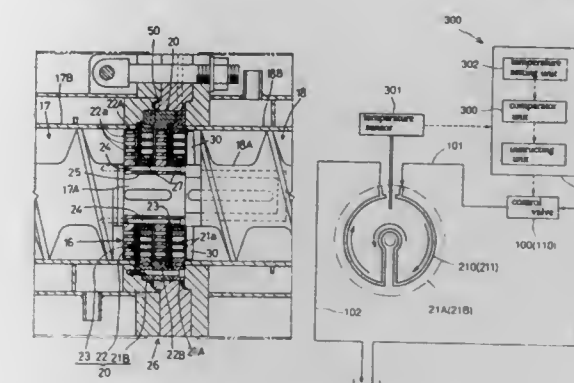
Date Mar. 19, 1997, PCT Pub. No. WO97/03804, PCT Pub. Date Feb. 6, 1997

PCT Filed Jul. 20, 1995, Ser. No. 809,321

Int. Cl.⁶ B29B 7/46; 7/82; 7/84

U.S. Cl. 366—75

6 Claims



1. A kneading-mixing extruder apparatus comprising:

a receiver tank for receiving raw material, the receiver tank having an opening for discharging and supplying therethrough the material into a cylinder;

said cylinder incorporating a screw for extruding and transporting the material within the cylinder;

a kneading-mixing mechanism disposed along the length of the cylinder for kneading and mixing the material; and

a molding mechanism disposed along the length of the cylinder for molding the material;

said kneading-mixing mechanism including a rotary disc rotatable with said screw and a plurality of stationary discs fixed to the cylinder, the rotary disc and the stationary discs having a plurality of holes and being disposed side by side in an axial direction of the cylinder;

said plurality of stationary discs including a first stationary disc and a second stationary disc, said first stationary disc forming a first flow passage extending from the vicinity of a center through to the vicinity of a periphery thereof and defining an inlet opening and an outlet opening for said first flow passage, said second stationary disc including a second flow passage extending from the vicinity of a center through to the vicinity of a periphery thereof and defining an inlet opening and an outlet opening for the second flow passage, said first and second flow passages being in communication with each other;

fluid supply means communicating with said inlet and outlet openings for supplying fluid in circulation; and temperature control means for controlling temperature of the material present inside the holes of said stationary discs;

said temperature control means including a temperature sensor for measuring the temperature of the stationary discs, a temperature setting unit for setting a temperature of any of said plurality of stationary discs, a comparator unit for comparing the temperature measured by the temperature sensor with the temperature set by the temperature setting unit, and an instructing unit for adjusting a flow speed of said fluid supply means based on a temperature difference obtained from the comparison by the comparator unit.

5,800,056

APPARATUS FOR DILUTING A SOLUTION AND METHOD FOR THE SAME

Takao Suzuki, Akashi; Naomiki Kojoh, and Yoshiyasu Takahashi, both of Kakogawa, all of Japan, assignors to Toa Medical Electronics Co., Ltd., Hyogo, Japan

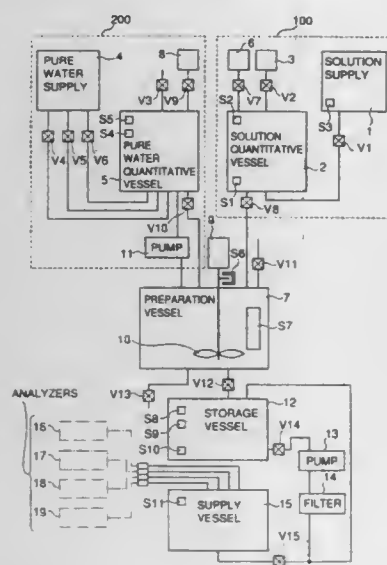
Filed Jul. 2, 1996, Ser. No. 674,729

Claims priority, application Japan, Jul. 19, 1995, 7-182930

Int. Cl.⁶ G05D 11/08

U.S. Cl. 366—152.4

10 Claims



1. An apparatus for diluting a solution, comprising:
 - a preparation vessel for mixing a solution with a diluent to dilute the solution;
 - a solution supply unit for measuring a quantity of the solution and supplying the measured quantity of the solution into the preparation vessel;
 - a diluent supply unit for measuring a quantity of the diluent and supplying the measured quantity of the diluent into the preparation vessel;
 - a concentration sensor for measuring a concentration of the diluted solution in the preparation vessel, said sensor provided inside said preparation vessel; and
 - a controller for controlling the solution supply unit and the diluent supply unit to supply the solution and diluent into the preparation vessel in such quantity that the concentration of the diluted solution is higher than a desired concentration, calculating an additional quantity of the diluent necessary for diluting the solution in the preparation vessel to the desired concentration based on a difference between the concentration measured by the concentration sensor and the desired concentration, and controlling the diluent supply unit to add the diluent into the preparation vessel in smaller quantity than the calculated additional quantity and repeats the calculation and addition until the solution concentration in the preparation vessel reaches the desired concentration wherein
 - said solution supply unit includes a solution supplier and a solution quantitative vessel for measuring the solution quantity of the solution to be supplied from said solution supplier to said preparation vessel, and
 - said diluent supply unit includes a diluent supplier, a diluent quantitative vessel for measuring the diluent quantity to be supplied from said diluent supplier to said preparation vessel, and a quantitative pump for measuring diluent quantity to be added to said preparation vessel from said diluent supplier.

5,800,057

DRIVING HEAD FOR STIRRER CANS

Michel Lesimple, Eure et Loir, France, assignor to Fillon Pichon Societe Anonyme, Eure et Loir, France

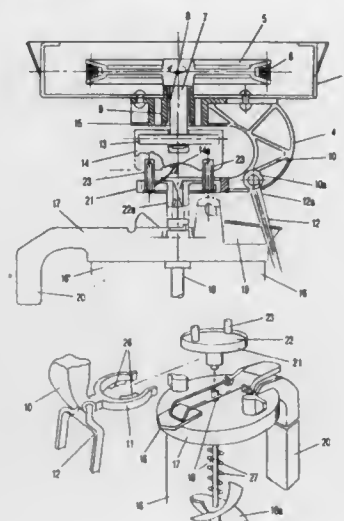
Filed Oct. 8, 1996, Ser. No. 748,891

Claims priority, application France, Dec. 8, 1995, 95 14574

Int. Cl.⁶ B01F 7/24

U.S. Cl. 366—198

14 Claims



1. A driving head for a stirrer can, the stirrer can comprising a cover with a rotatable plate having upwardly projecting fingers and further comprising a stirrer inside the stirrer can, said driving head mounted beneath a hollow shelf and comprising:
 - a driven shaft;
 - a blade fixedly connected to said driven shaft;
 - said blade engaging the fingers for driving the stirrer inside the stirrer can;
 - a swan-neck shaped body having an upper portion connected to the shelf and a lower portion;
 - said lower portion of said body comprising a grip for engaging the rotatable plate of the stirrer can;
 - said driven shaft projecting through said upper portion of said body; and
 - means for preventing rotation of the stirrer can by engaging a portion of the cover of the stirrer can after placement of the stirrer can on a shelf below the hollow shelf to which said body is connected.

5,800,058

VORTEX ELIMINATION DEVICE

Daniel D. Cook, Lancaster, N.Y., assignor to The Research Foundation of State University of New York, Amherst, N.Y.

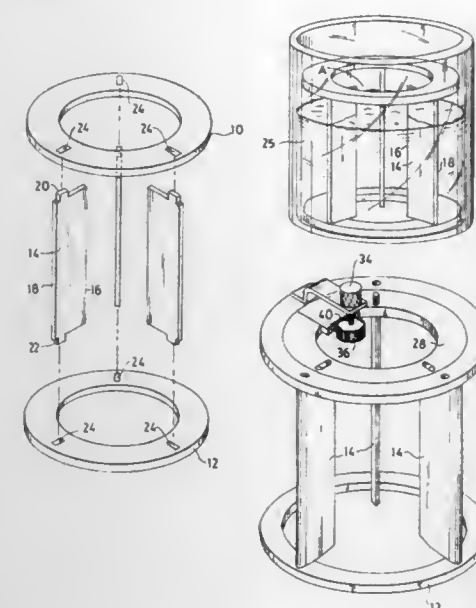
Filed Nov. 6, 1995, Ser. No. 554,267

Int. Cl.⁶ B01F 15/00

U.S. Cl. 366—306

15 Claims

1. A vortex elimination system comprising:
 - a container of liquid; and
 - a vortex elimination device comprising:
 - an upper end cap;
 - a lower end cap; and
 - a plurality of longitudinally extending vanes connecting said upper and lower end caps, wherein each of said plurality of vanes has first and second longitudinal edges extending between said upper and lower end caps with said vanes together defining a treatment area when placed within the container of liquid, wherein the first edge is proximate the treatment area, while the second edge is distal from the treatment area, wherein the first edge of each said plurality of vanes terminates at an open space and wherein the first edge of each of said plurality of vanes is positioned at an angle wherein the angle is measured between each of said



plurality of vane's centerline and a line drawn tangent to said upper and lower end caps where the second edge of each of the vanes and said upper and lower end caps connect and wherein said plurality of vanes are movably connected to said end caps to permit the angles for said plurality of vanes to be varied, wherein the vortex elimination device remains stationary in the container of liquid.

5,800,059

STATIC FLUID FLOW MIXING APPARATUS

Jeffrey A. Cooke; Glen D. Austin, and Michael Jerome McGarity, all of London, Canada, assignors to Labatt Brewing Company Limited, London, Canada

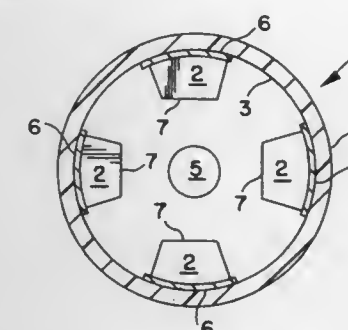
Continuation of Ser. No. 438,235, May 9, 1995, abandoned.

This application Feb. 6, 1997, Ser. No. 796,412

Int. Cl.⁶ B01F 5/00

U.S. Cl. 366—337

6 Claims



1. In a static mixer conduit comprising a longitudinally elongated conduit having tabs that are secured to the conduit wall and that are arranged with respective first edges adjacent the conduit wall, and respective opposed second edges that are spaced radially inwardly from the conduit wall, wherein said tabs are operable as fluid foils which, with fluid flowing through said mixer conduit, have greater fluid pressures manifest against their upstream faces and reduced fluid pressures against their downstream faces, and wherein a resultant pressure difference in the fluid adjacent, respectively, the mutually opposed faces of each of the tabs causes a longitudinal flow of fluid through said conduit over and past each said tab, to be redirected, thereby resulting in the addition of a radial cross-flow component to the longitudinal flow of fluid through the conduit, the improvement which comprises a central body extending generally coaxially along at least a portion of the

longitudinal extent of said conduit and defining between said central body and said conduit wall, an annular space.

5,800,060

CLINICAL THERMOMETER

Gerd Speckbrock, Ilmenau; Siegfert Kamitz, Elgersburg; Marion Alt, Frankenhain, and Heribert Schmitt, Geschwenda, all of Germany, assignors to Geraberg Thermometer Werk GmbH, Germany

PCT No. PCT/DE93/00736, § 371 Date Feb. 21, 1995, § 102(e) Date Feb. 21, 1995, PCT Pub. No. WO94/04895, PCT Pub. Date Mar. 3, 1994

PCT Filed Aug. 16, 1993, Ser. No. 387,921

Claims priority, application Germany, Aug. 19, 1992, 42 27 434.6

Int. Cl.⁶ G01K 3/04; 5/22; 5/10; 5/12

U.S. Cl. 374—104

7 Claims



1. A clinical thermometer which registers the maximum temperature reached with a bulb and a measuring tube containing a liquid, characterized in that the liquid is a eutectic alloy containing gallium in a concentration of 65–95 wt.-%, indium in a concentration of 5–22 wt.-% and tin in a concentration of 0–11 wt.-%, the inside liquid-contacting surface of said measuring tube having disposed thereon a gallium oxide coating produced by reaction of said liquid with water contained in a water coat on said inside surface of said measuring tube.

5,800,061

REVERSIBLE POUCH FOR CARRYING FOOD CONTAINERS

Jacqueline G. Volles, Dublin, Ohio, assignor to Anchor Hocking Corporation, Freeport, Ill.

Filed Jan. 9, 1997, Ser. No. 780,805

Int. Cl.⁶ B65D 33/06

U.S. Cl. 383—15

17 Claims

1. A device for carrying a container comprising:
 - a pouch for receiving the container and having a floor and a plurality of side walls, a flap attached to each of the side walls along an edge thereof spaced from the floor, means on each flap for releasably securing the flap to another flap when the flaps are folded to a position in which they are parallel to and overlie the floor and overlap at least one other flap, a pair of loop carrying handles located on each of the inside and the outside of the pouch, the pouch being reversible so that the inner surface of the floor and side walls become the outer surface of the floor and side walls and so that the surfaces of each flap previously facing toward the inside of the device

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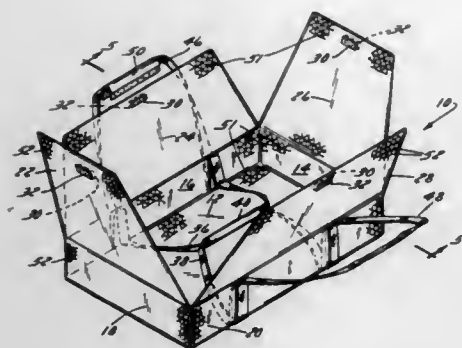
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face outwardly therefrom when reversed and so that a pair of carrying handles is available on the outside of the pouch when the pouch is in its original or reversed orientation.

5,800,062

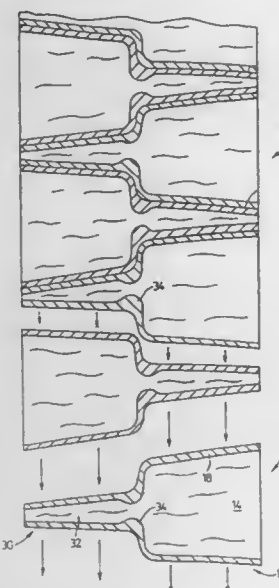
CONTAINER AND METHOD OF MAKING THE SAME
Stefan Tobolka, Ingelwood, Canada, assignor to Arkmount Systems, Inc., Toronto, Canada

Division of Ser. No. 563,951, Nov. 29, 1995. This application
Dec. 20, 1996, Ser. No. 771,166

Int. Cl.⁶ B65D 31/00; 33/00

U.S. Cl. 383—104

25 Claims



1. A container for liquids formed of flexible plastic material comprising:

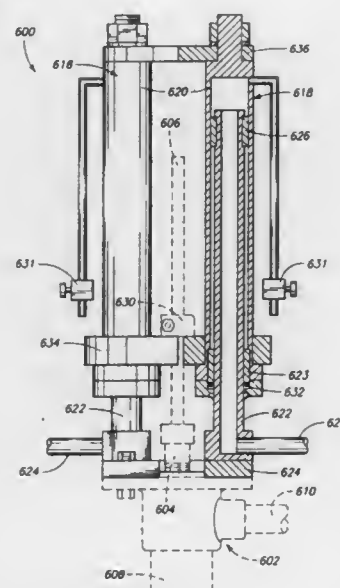
- a body having an internal reservoir;
- a tubular spout extending from said body and having an internal passage in fluid communication with said reservoir; and
- a constriction in said container adjacent the juncture between said spout and said body to create a low pressure zone in said passage downstream of said constriction as liquid flows from said reservoir into said passage;

wherein said passage has a decreasing cross-sectional area in a direction towards a distal end of said spout to cause said liquid to inflate said spout as liquid flows along said passage.

5,800,063
HYDRAULIC OIL WELL PUMP DRIVE SYSTEM
Lloyd Stanley, No. 1, 1504 First Street South, Cranbrook, British Columbia, Canada, VIC 1A2
Continuation of Ser. No. 845,379, Mar. 3, 1992, abandoned, Ser. No. 967,411, Oct. 26, 1992, abandoned, Ser. No. 163,185, Dec. 6, 1993, Pat. No. 5,447,026, and Ser. No. 447,193, May 22, 1995. This application Mar. 6, 1997, Ser. No. 812,723
Int. Cl.⁶ F16C 29/02

U.S. Cl. 384—29

7 Claims



1. A wellhead hydraulic assembly for operable connection to an oil well sucker rod to reciprocally displace the sucker rod, the wellhead hydraulic assembly comprising:

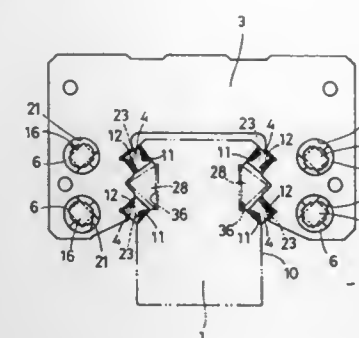
- a hydraulic cylinder;
- a rod positioned at least partially within the hydraulic cylinder, the rod having a relief formed thereabout, wherein the rod and the hydraulic cylinder reciprocate linearly relative to each other;
- a split cylindrical bearing positioned at least partially in the relief about the rod;
- the split cylindrical bearing having an outer bearing surface that slides relative to the inner wall of the hydraulic cylinder.

5,800,064
LINEAR MOTION GUIDE UNIT WITH ELASTIC DEFORMABLE SLEEVES
Yasumasa Ohya, Gifu, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 707,588, Sep. 5, 1996, abandoned. This application Sep. 8, 1997, Ser. No. 925,175
Claims priority, application Japan, Sep. 6, 1995, 7-252019
Int. Cl.⁶ F16C 29/06

U.S. Cl. 384—44

5 Claims

1. A linear motion rolling guide unit comprising
- a track rail provided with first raceway surfaces on longitudinal side portions thereof, a casing provided with second raceway surfaces opposed to said first raceway surfaces, end caps fixed to both longitudinal ends of said casing, rolling elements rolling in raceways between said first and second raceway surfaces of said track rail and said casing, return bores provided in said casing so as to form return passages in which said rolling elements move back, and direction changing passages provided in said end caps and comprising means to change directions of movement of said rolling elements between said raceways to said return passages,
 - and comprising sleeves fitted in said return bores in said casing and extending over the whole length of said return bores, said



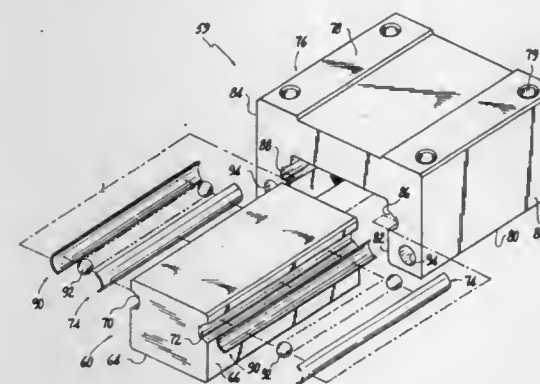
return passages for said rolling elements being formed in an inner surface of said sleeves, and including cylindrical clearances in which said sleeve can be elastically deformed by external forces of said rolling elements being provided cylindrically and longitudinally between inner surfaces of said return bores and outer surfaces of said sleeves;

wherein said sleeves are formed cylindrically and have longitudinally extending return passages therein, wherein each of said sleeves comprises a pair of identical divisional sleeve members obtained by dividing a cylindrical body into two longitudinally at portions thereof which form rolling surfaces on which said rolling elements roll, and wherein each of said divisional sleeve members is provided with slits extending in the longitudinal direction thereof on the axes of rolling of said rolling elements rolling in said return passages in such a manner that said sleeves can be elastically deformed.

5,800,065
LINEAR MOTION BEARING SUB-ASSEMBLY WITH INSERTED RACES
Gregory S. Lyon, Mamaroneck, N.Y., assignor to Thomson Industries, Inc., Port Washington, N.Y.
Filed May 16, 1997, Ser. No. 857,621
Int. Cl.⁶ F16C 29/06

U.S. Cl. 384—45

15 Claims



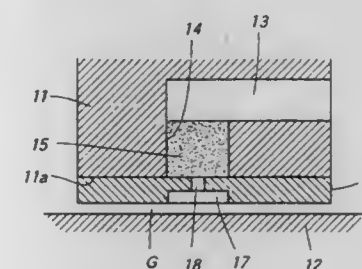
1. A linear motion bearing assembly comprising:
- a rail assembly including an elongate base member having a pair of substantially vertical outer surfaces;
 - a bearing carriage assembly including a bearing carriage, a pair of depending legs extending therefrom, said depending legs having respective facing and opposing sides, said facing sides defining a longitudinal channel for accommodating said rail assembly;
 - a plurality of load bearing inserts, each of said inserts defining a portion of at least one load bearing track, said inserts being

positionable on at least one of said facing sides of said depending legs and said outer surfaces of said rail assembly to define at least one load bearing track interposed said outer surfaces and said depending legs, said plurality of load bearing inserts having a load bearing surface and a non-load bearing surface, said load bearing surface having a predisposed compressive stress; and a plurality of rolling elements disposed in said load bearing tracks.

5,800,066
MECHANICAL ASSEMBLY OF SHAFT AND STATIC PRESSURE BEARING
Takashi Hayashi, Kawasaki, Japan, assignor to Kuroda Seiko Co., Ltd., Kawasaki, Japan
Filed Apr. 25, 1997, Ser. No. 840,719
Claims priority, application Japan, Apr. 30, 1996, 8-134338
Int. Cl.⁶ F16C 32/06

U.S. Cl. 384—100

9 Claims



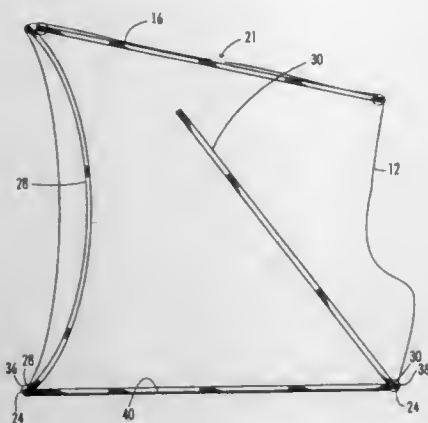
1. A mechanical assembly of shaft and static pressure bearing comprising a shaft, a bearing main body for supporting said shaft movably, and a static pressure bearing mechanism formed in one of said shaft and bearing main body and including at least one air conduit into which a compressed air is supplied, an orifice communicated with said air conduit for restricting a flow rate of a compressed air stream, and a pocket communicated with said orifice for spreading the compressed air stream flowing from said orifice, wherein a porous material is inserted into said air conduit, an outer surface of said porous material is sealed by a sealing member, and said pocket is formed in an outer surface of said sealing member.

5,800,067
POP-UP COLLAPSIBLE PROTECTIVE DEVICE
Scott D. Easter, 322 Southburn Dr., Hendersonville, Tenn. 37075
Continuation of Ser. No. 202,212, Feb. 25, 1994, abandoned. This application Mar. 1, 1996, Ser. No. 611,811
Int. Cl.⁶ B65D 33/02

U.S. Cl. 383—104

15 Claims

1. A pop up container device for protecting articles stowed therein, comprising:
- a collapsible body having a sidewall, a bottom, a top forming an opening and an internal cavity;
 - skeletal support means for supporting the collapsible body;
 - the skeletal support means includes a plurality of stays including a pair of spaced apart support stays, and sleeve means for pivotally constraining only a portion of each of the pair of spaced apart support stays within the collapsible body and enabling each of the spaced apart support stays to pivot freely within the internal cavity of the collapsible body between a collapsed position and a substantially upright position to prop up the top of the collapsible body and hold



it in an elevated relation to the bottom in order to prevent inadvertent collapse of the collapsible body.

5,800,068

SPINDLE FOR GAS BEARING OF A RAPIDLY ROTATING TOOL

Gerhard Wanger, Grossliefenfeld 364, D-91722 Arberg, Germany

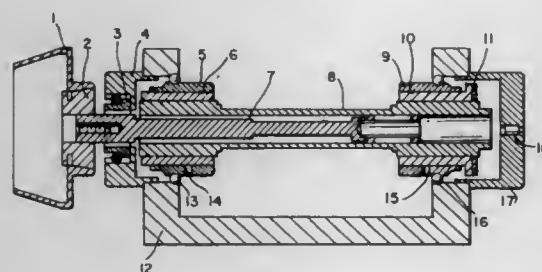
Filed Sep. 16, 1997, Ser. No. 931,794

Claims priority, application Germany, Sep. 16, 1996, 196 37 598.3

Int. Cl.⁶ F16C 32/06

U.S. Cl. 384—119

19 Claims



1. Spindle for a gas bearing of a rapidly rotating tool, comprising a spindle housing, a bushing arranged in said housing, at least one ceramic bearing pressed into said bushing over substantially the entire length of said bushing, a rotating shaft gas-supported in said housing in the axial and radial directions by said at least one bearing such that a gap remains between said shaft and said at least one bearing, the tool being coupled to said shaft, and wherein the product of elasticity module of the material of said bushing and wall thickness of said bushing is at least 1.8 times greater than the product elasticity module of the material of said at least one bearing and wall thickness of said at least one bearing in order to control the narrowing of the gap formed between said shaft and said at least one bearing.

5,800,069

COMPOUND BEARING ASSEMBLY

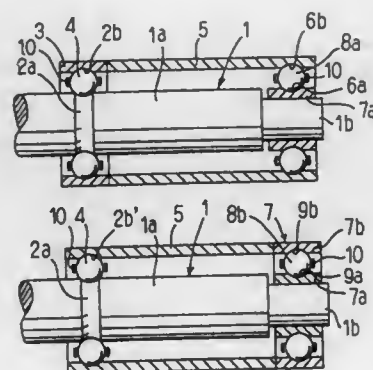
Rikuro Obara, c/o Minebea Kabushiki-kaisha 4106-73, Oaza-Miyota, Miyota-cho, Kitasaku-gun, Nagano-ken, Japan

Filed Jul. 3, 1996, Ser. No. 675,495
Claims priority, application Japan, Jul. 7, 1995, 7-196139; Jul. 7, 1995, 7-196140

Int. Cl.⁶ F16C 19/08

U.S. Cl. 384—504

6 Claims



1. A compound bearing assembly characterized in that:
(a) a stepped-diameter shaft (1) is provided with a large-diameter portion (1a), a small-diameter portion (1b) and an inner raceway groove (2a) directly formed in an outer peripheral surface of said large-diameter portion (1a);
(b) said stepped-diameter shaft (1) is encircled by a sleeve-like outer race ring (5) which is provided with a single-piece outer race ring (3), having an outer raceway groove (2b), at one end of its axially opposite ends and an outer raceway groove (6b) in an inner peripheral surface of the other end of said axially opposite ends;
(c) said single-piece outer race ring (3) having an inner diameter and an outer diameter respectively equal to an inner diameter and an outer diameter of said sleeve-like outer race ring (5), said single-piece outer race ring (3) being axially aligned with said sleeve-like outer race ring (5);
(d) a plurality of first balls (4) rotatably mounted in said inner raceway groove (2a) of said large-diameter portion (1a) of said shaft (1) are held by one of said outer raceway groove (2b) of said single-piece outer race ring (3) and said outer raceway groove (6b) of the other end of said sleeve-like outer race ring (5); and
(e) a plurality of second balls (8a) rotatably mounted in an inner raceway groove (6a) of an inner race ring (7a) mounted on said small-diameter portion (1b) are held by the other of said outer raceway groove (6b) of said sleeve-like outer race ring (5) and said outer raceway groove (2b) of said outer race ring (3).

5,800,070

DAMPING DEVICE

Sven-Åke Nilsson, Gneta, and Robert Sandblom, Ålvsjö, both of Sweden, assignors to Alfa Laval AB, Lund, Sweden
PCT No. PCT/SE96/01279, § 371 Date Jun. 6, 1997, § 102(e)
Date Jun. 6, 1997, PCT Pub. No. WO97/13583, PCT Pub. Date Apr. 17, 1997

PCT Filed Oct. 9, 1996, Ser. No. 860,045

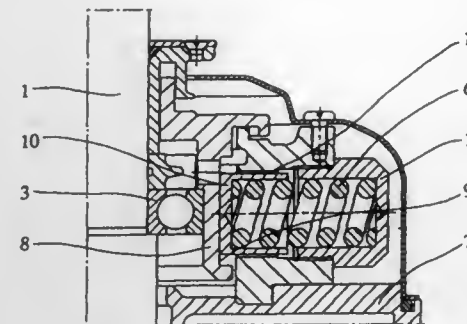
Claims priority, application Sweden, Oct. 1, 1999, 9503527

Int. Cl.⁶ F16C 27/00

U.S. Cl. 384—535

10 Claims

1. A damping device for a rotatable shaft (1), which supports a centrifugal rotor (5) and is journaled in a bearing (3) in a frame (7) in such a way that an oscillating movement of the shaft (1) relative to the frame (7) is admitted during the rotation of the rotor (5), the damping device comprising at least a first friction member (8), which is connected to said bearing (3) in such a way that the shaft



(1) is rotatable relative to the first friction member (8), and a number of second friction members (10), which are supported by a frame (7) and are distributed around the shaft (1), each of the second friction members (10) being arranged to be so kept pressed by a spring force towards the first friction member (8) in a predetermined direction that upon oscillating movement of the shaft (1) perpendicular to this predetermined direction a damping friction arises when the first friction member (8) together with the shaft (1) is moving relative to the second friction member (10) referred to, wherein each one of the second friction members (10) is movable relative to the frame (7) perpendicular to the shaft (1) and perpendicular to said predetermined direction in a limited distance, which at least is 0.2 mm.

5,800,071

JOURNAL FOR A HEAD TUBE OF A BICYCLE

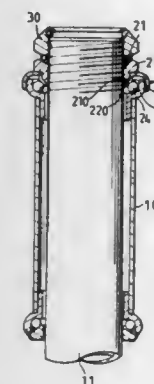
Yi-Chen Chi, No. 139-5, An Mei Road, Hou Li Hsiang, Taichung, Taiwan

Filed Dec. 5, 1996, Ser. No. 759,433

Int. Cl.⁶ F16C 33/58; 43/00; 13/00

U.S. Cl. 384—514

4 Claims



1. A journal assembly for bicycle, said journal assembly comprising:
a head tube, a steerer tube rotatable extending through said head tube, the steerer tube including a threaded top end;
a lower race fitting on an upper end of said head tube and having a first annular recess defined therein;
a plurality of balls rotatably received in said first annular recess of said lower race;
a threaded upper race in threaded engagement with the threaded top end of said steerer tube and having a first inclined surface defined in a bottom end thereof, and
an annular element securely disposed between said balls and said upper race, said annular element having a skirt portion extending radially outwardly and downwardly from an outer periphery thereof and a track portion formed on an inner periphery thereof such that said balls are received between said first annular recess and said track portion, said track portion of said annular element having a second inclined

surface defined in an upper surface thereof for engagement by said first inclined surface of said upper race, said engagement between said first and said second inclined surfaces being realized from a force applied by said upper race in a downward and radially outward direction for defining an annular gap between said annular element and said steerer tube.

5,800,072

BEARING ASSEMBLY

Stefan Buch, Schweinfurt; Paul-Gerhard Hoch, Dittelbrunn, and Wolfgang Klopff, Schweinfurt, all of Germany, assignors to SKF GmbH, Germany

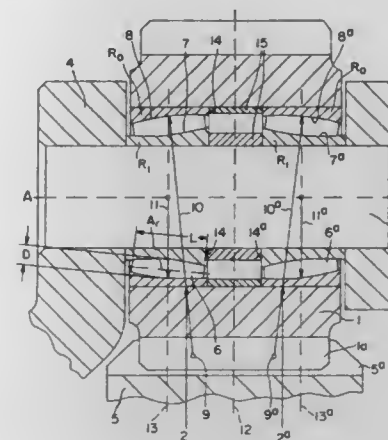
Filed Mar. 24, 1997, Ser. No. 826,399

Claims priority, application Germany, Mar. 29, 1996, 196 12 589.8

Int. Cl.⁶ F16C 33/36

U.S. Cl. 384—568

5 Claims



1. A bearing system for supporting planet gears of a gear train on a shaft member, comprising:
a) at least two slightly pivoting angular roller bearing assemblies for absorbing radial and axial forces;
b) each bearing assembly comprising inner and outer rings (Ri, Ro) having confronting spaced raceways (7a, 8a) and a plurality of barrel-shaped needle rollers (6a) in the annular space between the raceways (7a, 8a);
c) the needle rollers of one bearing assembly being oppositely inclined to the needle rollers of the other bearing assembly relative to the axis of the shaft;
d) the needle rollers (6a) having a length (L) at least twice as long as their largest diameter (D);
e) the raceways (7a, 8a) of the outer rings (Ro) having a circular axial curvature with a curvature having a radius (10) greater than the radius (11) of the raceway (Ro), the center of curvature (9) of the outer raceway (Ro) of one bearing assembly being located in an area extending from the axial center (12) between the two roller bearings and the axial center (13) of said one roller bearing;
f) the width (W) of the raceway of the individual bearing rings being at least the same as the length of the needles; and
g) the two angular roller bearings have a small amount of radial play.

5,800,073 PRINTING APPARATUS FOR PRINTING ERRORS IN COLOR

Noriyuki Matsuda; Yoshio Shiromoto, and Yasuhito Taira, all of Yokohama, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Apr. 15, 1996, Ser. No. 632,155

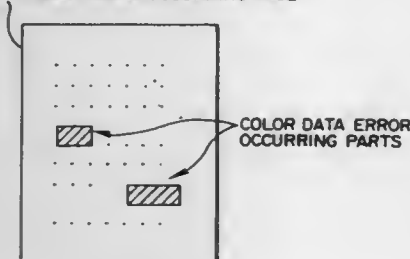
Claims priority, application Japan, Jun. 27, 1995, 7-161210

Int. Cl.⁶ B41J 3/46

U.S. Cl. 400—74

34 Claims

FIG. 4: DATA ERROR OCCURRING PAGE



1. A printing apparatus, comprising:
 - a printing mechanism for implementing printing in at least one printing color on a predetermined paper;
 - a control unit for controlling a printing operation of said printing mechanism; and
 - a detecting unit for detecting an opportunity of printing and outputting a check objective paper that should be an object of confirmation by an operator during a printing operation of said printing mechanism,
- wherein when said detecting unit detects said opportunity, said control unit controls said printing mechanism in order to implement a color printing on said check objective paper in order to discriminate said check objective paper from another printed output paper, and
- wherein said control unit receives color information for said check objective paper, said color information including color designating information and a position designating information.

5,800,074 TAPE PRINTING APPARATUS WITH BLANK SETTING FUNCTION

Hitoshi Hayama, Suwa, Japan, assignor to Seiko Epson Corporation, and King Jim Co., Ltd., both of Tokyo, Japan

Filed Mar. 28, 1996, Ser. No. 623,577

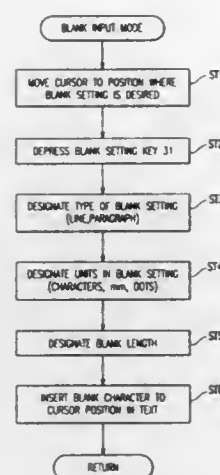
Claims priority, application Japan, Mar. 31, 1995, 7-100496; Mar. 18, 1996, 8-061491

Int. Cl.⁶ B41J 11/44

U.S. Cl. 400—76

7 Claims

1. A tape printing apparatus with a blank setting function, comprising:
 - printing means for printing input data;
 - blank position setting means for selectively designating a position of a blank to be made when printing is performed by the printing means;
 - blank unit selecting means for designating one of a plurality of unit lengths of the blank;
 - blank length designating means for designating a length of the blank in accordance with the one unit length designated by the blank unit selecting means; and
 - control means for controlling the printing means such that the data is printed while making the blank with the length as designated by the blank length designating means at the



position corresponding to the blank position designated by the blank position designating means.

5,800,075 DATA PROCESSING METHOD FOR ELIMINATING INFLUENCE OF HEAT ACCUMULATING IN THERMAL HEAD

Nobuo Katsuma, and Hisashi Enomoto, both of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

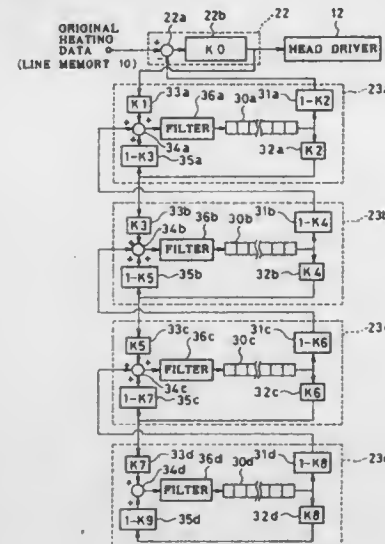
Filed Apr. 9, 1997, Ser. No. 827,606

Claims priority, application Japan, Apr. 11, 1996, 9-089354

Int. Cl.⁶ B41J 2/365

U.S. Cl. 400—120.14

24 Claims



1. A data processing method for correcting heating data for a thermal head to eliminate influence of heat accumulation in the thermal head on recording density, the thermal head having an array of heating elements arranged in a line and first to Nth heat accumulating layers disposed under the heating elements in this order from the side of heating elements, the heating elements being driven by corrected heating data to print one line after another on a recording sheet, one pixel of each line being assigned to one heating element of the array in regular sequence, the method comprising the steps of:

A. obtaining first to Nth correction data for a subject line to print, from first to Nth heat accumulation data respectively, said first to Nth heat accumulation data being previously stored and representative of respective thermal histories of

- said first to Nth heat accumulating layers relating to each heating element of the array;
- B. correcting original heating data of said subject line, with said first correction data in pixel-to-pixel correspondence, to obtain corrected heating data of said subject line;
- C. preparing a new series of first heat accumulation data based on said original or said corrected heating data of said subject line, said previously stored first heat accumulation data, and on said second correction data obtained from said previously stored second heat accumulation data in step A;
- D. storing said new series of first heat accumulation data in place of said previously stored first heat accumulation data, during the recording of said subject line;
- E. preparing a new series of N-th heat accumulation data, J being 2 to N-1, based on said previously stored (J-1)th heat accumulation data, said previously stored Jth heat accumulation data, and on said (J+1)th correction data obtained from said previously stored (J+1)th heat accumulation data in step A;
- F. storing said new series of Jth heat accumulation data in place of said previously stored Jth heat accumulation data, during the recording of said subject line;
- G. preparing a new series of Nth heat accumulation data based on said previously stored (N-1)th heat accumulation data, and on said previously stored Nth heat accumulation data;
- H. storing said new series of Nth heat accumulation data in place of said previously stored Nth heat accumulation data, during the recording of said subject line;
- I. obtaining new series of first to Nth correction data for a next line to print, from said newly stored first to Nth heat accumulation data respectively; and
- J. repeating the above steps for each line to print.

5,800,076 PRINTER HAVING GUIDE PLATE EXTENDING TO PRINTHEAD

Takaichiro Umeda, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

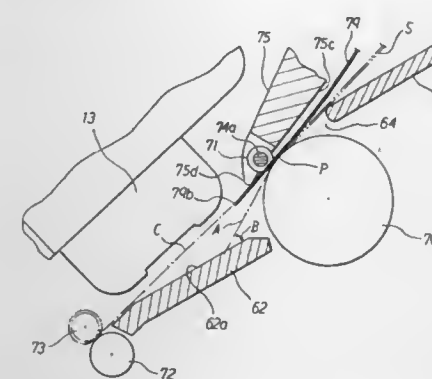
Filed Sep. 25, 1997, Ser. No. 936,999

Claims priority, application Japan, Sep. 26, 1996, 8-254752

Int. Cl.⁶ B41J 13/10

U.S. Cl. 400—645.3

21 Claims



1. A printer, comprising:
 - a feed roller;
 - a pressure roller for pressing a sheet of paper against the feed roller to feed the sheet downstream;
 - a lever for supporting the pressure roller;
 - a printhead disposed downstream from the feed roller and the pressure roller; and
 - an elastic sheet guide plate, a portion of which is affixed to the lever, and which guides the sheet to the printhead; wherein the guide plate extends from an end portion of the lever to a position just before the printhead, and contacts with the

feed roller upstream from a nip formed between the feed roller and the pressure roller.

5,800,077 METHOD AND APPARATUS FOR MONITORING A HYDROELECTRIC FACILITY TRASH RACK

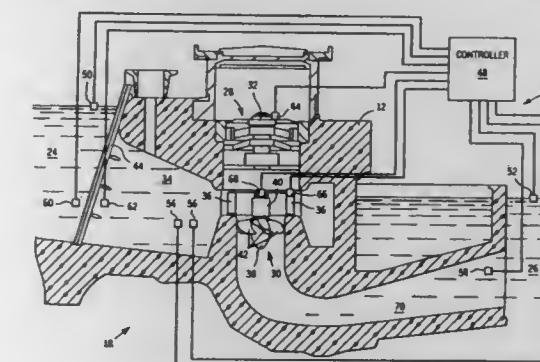
Patrick March, Maryville, Tenn., assignor to Tennessee Valley Authority, Muscle Shoals, Ala.

Filed Aug. 19, 1996, Ser. No. 700,316

Int. Cl.⁶ E02B 1/00; 9/00

U.S. Cl. 405—80

21 Claims



1. A method for monitoring losses in a hydroelectric power generation facility, the facility including a turbine driven power generating unit receiving flow through an upstream conduit and a trash rack disposed upstream of the conduit to prevent debris from flowing into the unit, the method comprising the steps of:
 - (a) monitoring a first parameter representative of head loss across the trash rack;
 - (b) monitoring a second parameter representative of flow rate through the conduit; and
 - (c) deriving a trash rack loss parameter from the first and the second parameters.

5,800,078 EARTHQUAKE ATTENUATING APPARATUS

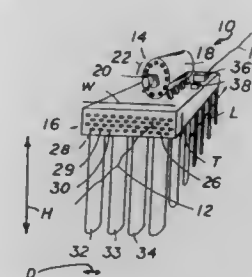
Paul E. Tommeraasen, 2532 High Crest, Beloit, Wis. 53511

Filed Apr. 10, 1995, Ser. No. 419,187

Int. Cl.⁶ E02D 27/34; 31/08; E04B 1/98

U.S. Cl. 405—258

8 Claims



1. An earthquake attenuating apparatus for location adjacent to a fault line for reducing the intensity of a potential earthquake, said apparatus comprising:
 - means for generating vibration, said means being located adjacent to the fault line;
 - said means for generating vibration including:
 - a plurality of vibration units, each of said units including:
 - a motor;
 - a signal generator coupled to said motor for effectively transmitting a mechanical vibration to the ground;
 - said signal generator including:

an eccentric mechanism driven by said motor such that when said eccentric mechanism is rotated by said motor, rotation of said eccentric mechanism generates said vibration, the arrangement being such that potential seismic activity is reduced by the application of said vibration to the earth's crust at the aforementioned fault line; and transmitting means supporting said means for generating vibration, said transmitting means being disposed on the fault line for transmitting said vibration to the fault line; said transmitting means including;

a base;

a plurality of concrete piles secured to said base and extending downwardly therefrom the arrangement being structured such that when said means for generating vibration is operating, said transmitting means transmits said vibration to the fault line to dissipate shear forces along the fault line such that said potential seismic activity is dissipated gradually over a long period of time thereby causing a smooth movement between adjacent tectonic plates of the earth's crust in the vicinity of the fault line so that the intensity of the potential earthquake is reduced.

5,800,079

MILLING TOOL HAVING INSERT-CARRYING CARTRIDGES SECURED BY WEDGES

Ingemar Qvarth, Valbo, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden

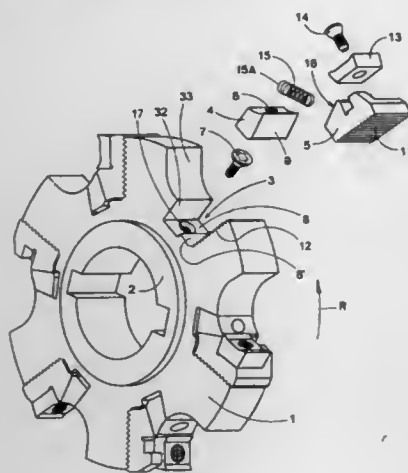
Filed Nov. 1, 1996, Ser. No. 742,482

Claims priority, application Sweden, Nov. 2, 1995, 9503867

Int. Cl.⁶ B23C 5/08; 5/22

U.S. Cl. 407—46

14 Claims



1. A milling cutter tool, comprising:

a body rotatable about an axis and having circumferentially spaced recesses in its outer periphery, each recess including leading and trailing surfaces with reference to a direction of rotation of said body, said leading and trailing surfaces converging in a radially inward direction, and said trailing surface being serrated;

cartridges mounted in respective ones of said recesses, each cartridge including a seat adapted to support a replaceable cutting insert, and having leading and trailing surfaces, said trailing surface of said cartridge being serrated and engaging said serrated trailing surface of said recess;

wedges disposed in respective recesses for clamping said cartridges therein, each wedge including a leading surface engaging said leading surface of said recess, and a trailing surface engaging said leading surface of said cartridge, said leading and trailing surfaces of said wedge being convergent in a radially outward direction; and

an actuator for forcing each of said wedges radially outwardly into clamping engagement with a respective cartridge.

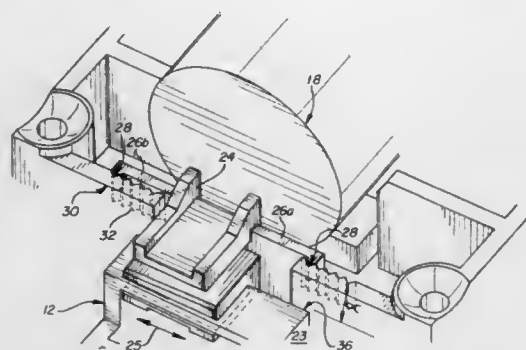
5,800,080 PAPER ADJUSTMENT DEVICE FOR A PRINTER James W. Lee, Groton, N.Y., assignor to Axiohm IPB Inc., Ithaca, N.Y.

Filed Sep. 26, 1997, Ser. No. 938,791

Int. Cl.⁶ B41J 11/20

U.S. Cl. 400—56

13 Claims



1. A paper thickness adjustment mechanism for a printer, comprising:

a carriage assembly having a slide support surface for slidably supporting a slide adjustment member, said carriage assembly being movably mounted upon a frame support and having a detented surface that is angled with respect to said slide support surface of said carriage assembly, said carriage assembly supporting a printhead disposed adjacent a platen; means defining a gap disposed between said printhead and said platen; and

a slide adjustment member mounted on the carriage assembly for movement with respect to said carriage assembly, said slide adjustment member having indexing means that is engageable with said detented surface of said carriage assembly as said slide adjustment member is caused to slide upon said detented surface, said movement of said slide member causing said carriage assembly to move with respect to said frame support, wherein said gap between said printhead and said platen is caused to change, and whereby a paper thickness adjustment is provided for the printer.

5,800,081

PRINTING APPARATUS AND A CONTROL METHOD THEREFOR

Mitsuaki Teradaira, Naohiko Koakutsu, and Takuya Hyonaga, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 339,604, Nov. 15, 1994, abandoned.

This application Jun. 6, 1996, Ser. No. 664,090

Claims priority, application Japan, Nov. 16, 1993, 5-287002

Int. Cl.⁶ B41J 29/00

U.S. Cl. 400—74

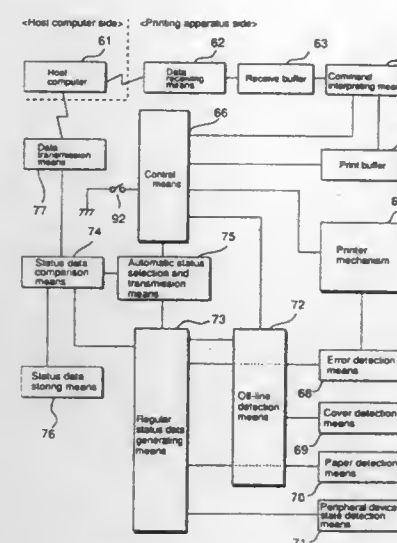
36 Claims

1. A printing apparatus for performing printing corresponding to at least one of print data and control commands provided from a host device and for providing the host device with a plurality of state of said printing apparatus, said printing apparatus comprising:

a plurality of state detection means for detecting each of the states, each of the state detection means belonging to at least one of a plurality of groups;

state change detection means for detecting a change in the state detected by said state detection means; and

state notification means for providing in accordance with said state change detection means to said host device with at least all the states detected by said state detection means belonging



to only a predetermined one of the detector groups containing said state detection means detected by said state change detection means.

5,800,082

RECORDING APPARATUS AND RECORDING TEMPERATURE CONTROL METHOD

Akira Yamasawa, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

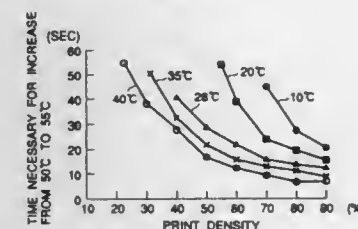
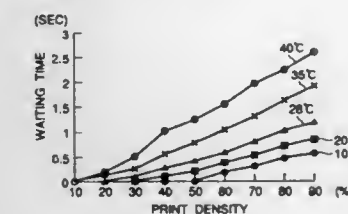
Filed Mar. 13, 1997, Ser. No. 816,253

Claims priority, application Japan, Mar. 14, 1996, 8-057326

Int. Cl.⁶ B41J 2/365

U.S. Cl. 400—120.14

18 Claims



1. A recording apparatus for forming print dots on a recording medium, each page of the recording medium including a plurality of bands, the recording apparatus comprising:

a print head for thermally forming print dots on a recording medium;

head temperature detecting means for detecting a temperature of the print head;

environment temperature detecting means for detecting an environment temperature; and

print control means for controlling formation of print dots by the print head based on an image to be printed while controlling movement of the print head, and for setting a cooling time for each band of the plurality of bands based on at least two of a temperature increase time from a time point when the head temperature detecting means detects a first temperature of the

print head and a time point when it detects a second temperature of the print head, the number of print dots to be formed during the temperature increase time, and the environment temperature detected by the environment temperature detecting means.

5,800,083

MULTIPLE-FUNCTION PRINTER DOCUMENT DEFLECTOR ACTUATION COUPLED TO SERVICE STATION ACTUATION

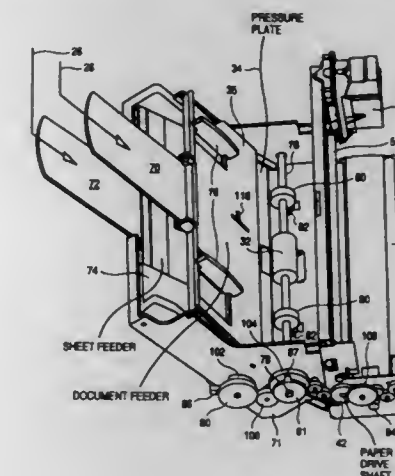
Glenn W. Gaarder, Ramona; Samuel A. Stodder, Encinitas; Lynn D. Palmer, Escondido; Dao S. Caputo, and Chan K. Nguyen, both of San Diego, all of Calif., assignors to Hewlett-Packard Co., Palo Alto, Colo.

Filed Sep. 19, 1996, Ser. No. 724,297

Int. Cl.⁶ B41J 23/34

U.S. Cl. 400—185

23 Claims



1. A multiple-function printer comprising:

a document feeder for holding a stack of documents to be scanned at a scanning station during a scanning mode of operation;

a sheet feeder for holding a stack of sheets to be printed on at a printing station during a printing mode of operation, the scanning station and said printing station being in a common paper path;

said printing station including at least one print cartridge each containing a printhead, and a service station for periodically capping and wiping the printhead or printheads;

a sheets and documents output station in said common paper path;

a document deflector movable with respect to the output station and positioned in an operational mode for constraining a surface of document pages exiting from the scanning station to the output station; and

wherein said service station includes a motor for said capping and wiping and wherein said motor further actuates said document deflector to drive the document deflector into the constraining operational mode when said printhead or printheads are capped.

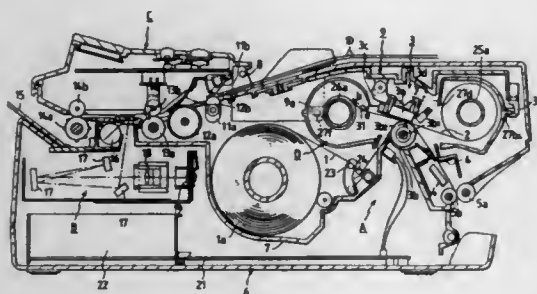
5,800,084

INK SHEET CARTRIDGE AND RECORDING APPARATUS USING THE INK SHEET CARTRIDGE
Hirohisa Sawada, Tokyo; Masakatsu Iwata; Keizo Sasai, both of Yokohama, and Fumihiko Nakamura, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 799,202, Nov. 27, 1991, abandoned.
This application Aug. 29, 1994, Ser. No. 297,514
Claims priority, application Japan, Nov. 29, 1990, 2-325523; Dec. 13, 1990, 2-410109; Dec. 13, 1990, 2-410110; Jan. 14, 1991, 3-016027; Jul. 15, 1991, 3-198287

Int. Cl.⁶ B41J 35/28; 33/14

U.S. Cl. 400—208

22 Claims



1. A thermal transfer recording apparatus comprising:
a recording head for recording on a recording medium;
conveying means for conveying the recording medium;
driving means for conveying an ink sheet; and
an ink sheet cartridge loadable into said recording apparatus, said ink sheet cartridge including: a first winding member for winding the ink sheet, the ink sheet being of a multi-print type having ink on a carrier and being capable of full-line recording; a second winding member for winding the ink sheet; an ink sheet conveying rotational body for affording a conveying force to the ink sheet, said ink sheet conveying rotational body being drivable by said driving means, being provided downstream of a position of said recording head with respect to a conveying direction of the ink sheet and being provided at one side of the ink sheet; and a frame body for containing the ink sheet, said first winding member, said second winding member, and said ink sheet conveying rotational body, wherein the ink sheet is wound around and taken up by said second winding member by rotation of said second winding member during recording in a direction opposite to a rotational direction of the ink sheet conveying rotational body, and wherein the ink sheet is placed in contact with an external face of said ink sheet conveying rotational body at a contact angle in a range from 5° to 180°, and wherein a relationship $D=2L/nR$ is satisfied, with D being a diameter in mm of said ink sheet conveying rotational body, R being an angular velocity in rad/sec of said ink sheet conveying rotational body, n being a number not less than 1, and L being a conveying length rate in mm/sec of the recording medium, and the conveying length rate of the ink sheet during recording being $1/n$ times L.

5,800,085

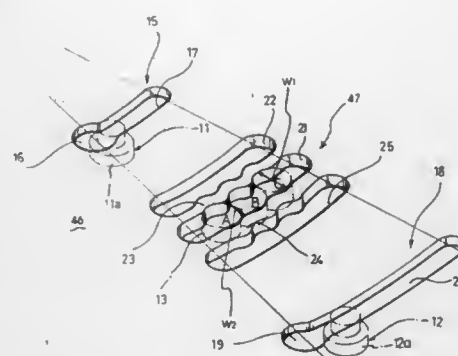
SEPARABLE KEYBOARD AND COMPUTERS HAVING THIS SEPARABLE KEYBOARD
Yi-Kwoun Lee, Suwon-si, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Sep. 17, 1996, Ser. No. 715,319
Claims priority, application Rep. of Korea, Oct. 12, 1995, 35197/1995

Int. Cl.⁶ B41J 5/10

U.S. Cl. 400—489

14 Claims

1. A separable keyboard, comprising:



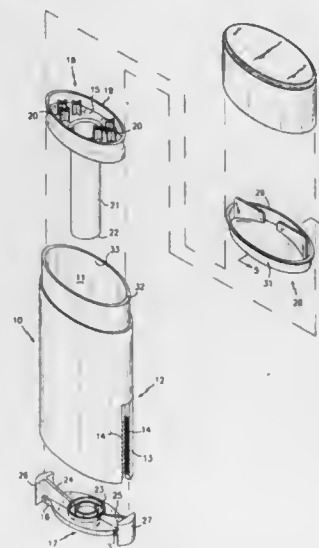
a keyboard separable into right and left sections, said keyboard having a top side and a bottom side, each section of said top side having a plurality of keys disposed thereon and each section of said bottom side having an adjustment shaft protruding therefrom; and
a base having both left and right portions, each portion of said base being perforated by a plurality of adjustment slots, each of said adjustment slots having a plurality of discrete positions, said adjustment shafts being inserted into respective adjustment slots, allowing sidewalls of said adjustment slots to flex and enabling said adjustment shafts to be sequentially positioned into said plurality of discrete positions.

5,800,086

DISPENSER - APPLICATOR
Peter Piscopo, Medford, N.J., and Richard H. Seager, Mystic, Conn., assignors to The Plastek Group, Erie, Pa.
Filed Oct. 9, 1996, Ser. No. 728,067
Int. Cl.⁶ A45D 40/02

U.S. Cl. 401—82

3 Claims



1. A dispenser for applying a solid product to a surface comprising:
a barrel having an oval shape in cross-section with a major axis, a sidewall and top and bottom open ends,
a first disposable barrel closure, said first disposable closure comprising a peripheral rim and a depending skirt whereby said skirt is received within said barrel and the rim is seated on the top open end of the barrel, said first disposable closure when in a closed position operating additionally as a product mold,
a portion of said sidewall being formed with opposed through slots at the ends of said major axis,

said slots extending vertically from a bottom open end of the sidewall terminating at a point which is substantially equidistant from said top and bottom open ends,
an elevator disposed in said barrel having a body connected to a hollow rod,
said hollow rod having an open end and being operable dually to support the elevator and to provide a conduit leading to the body for loading the elevator,
said elevator body being disposed normally above the terminating point of said slots,
said slots being formed with opposed ratchet teeth, and a driver having opposed pawls which are operable to engage and move along said ratchet teeth in step by step fashion,
said driver being formed with an annulus which is operable to receive said open end of said hollow rod thereby closing said open end of said hollow rod,
said driver being further operable to effect and maintain closure of the bottom end of the barrel as the pawls engage and move along mating ratchet teeth in said step by step fashion after loading of the elevator,
said driver being formed with a pair of manually operable, opposed exterior finger tabs extending from said pawls for advancing the driver and thus the elevator,
said finger tabs including opposed inwardly projecting ribs carried by the driver for stabilizing the pawls, the finger tabs and the driver,
said ribs being disposed within the interior of the barrel and being received movably in said slots.

tainer with the coupler removably secured to the aperture, the flexible upper portion having a valve disposed thereon, the valve removably coupled to a spray attachment;
a brush attachment selectively coupled to the valve of the water conduit;
a supplemental container removably coupled to one of the opposed sides of the main container opposite the air compressor, the supplemental container dimensioned to hold a small quantity of liquid detergent and the brush attachment; and
a detergent container having a top, a bottom, a front, a rear, opposed sides and a hollow interior, the top having an inverted hollow U-shaped handle formed integrally therewith, the handle having open ends exposed to the hollow interior, the handle having an air inlet port and an air outlet port disposed on opposite ends thereof, the air inlet port coupleable to the valve on the tube of the air compressor, the top of the detergent container having an aperture therethrough for receiving a spray conduit therethrough, the detergent container holding a predetermined amount of detergent within the hollow interior thereof.

5,800,088

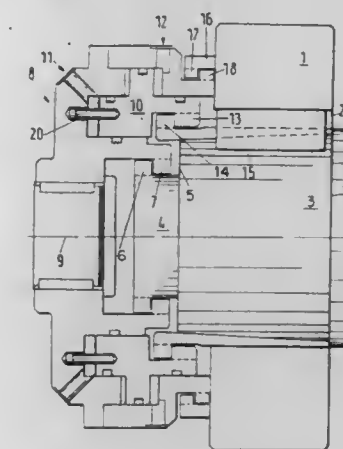
QUICK-CHANGING DEVICE FOR ROLL DISKS
Lothar Lückhof, Herne, and Herbert Berendes, Mülheim, both of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany
Filed Jan. 30, 1996, Ser. No. 593,791

Claims priority, application Germany, Jan. 30, 1995, 195 03 682.4

Int. Cl.⁶ F16B 7/20

U.S. Cl. 403—349

5 Claims



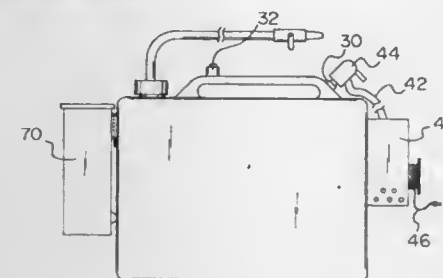
PORTABLE CAR WASHING SYSTEM
Krzysztof Tomasiak, 1204 Kennedy Blvd. #35A, Bayonne, N.J. 07002

Filed Dec. 20, 1996, Ser. No. 769,759

Int. Cl.⁶ A46B 11/02; 11/06

U.S. Cl. 401—188 R

1 Claim



1. A portable car washing system for providing a portable source of pressurized water for washing a vehicle comprising, in combination:

a main container having a top, a bottom, a front, a rear, opposed sides and a hollow interior, the top having an inverted hollow U-shaped handle formed integrally therewith, the handle having open ends exposed to the hollow interior, the handle having an air inlet port and an air outlet port disposed on opposite ends thereof, the air outlet port adapted for releasing air pressure within the main container, the top of the main container having an aperture therethrough, the hollow interior holding a predetermined amount of water therein;
an air compressor secured to one of the opposed sides of the main container, the air compressor having a tube extending outwardly therefrom, the tube having a valve disposed on a free end thereof, the valve removably coupled with the air inlet port of the handle of the main container, the air compressor having a power cable extending therefrom, a free end of the power cable having an automobile cigarette lighter adapter disposed thereon;
a water conduit having a rigid lower portion, a flexible upper portion and a coupler therebetween, the rigid lower portion extending through the aperture in the top of the main container

1. A quick-changing device for changing a roll disk arranged in a free-floating fashion on a roll shaft and braced adjacently against a shoulder of the roll shaft, the device comprising:

a roll disk;
a roll shaft piece connectable to an end face of the roll shaft and having radially outwardly projecting claws;
an axially-moveable installation-and-removal unit configured to be placeable frontally on the roll shaft so as to be turnable coaxially to the roll shaft, the installation-and-removal unit having radially extending claws that form perimeter segments, the claws of the installation-and-removal unit including first claws, second claws and third claws, the first claws being configured to correspond to and engage with the claws of the roll shaft piece;
a taper bushing slidably arrangeable between the roll disk and the roll shaft whereby the roll disk is holdable on the roll shaft, the taper bushing having radially extending claws, the second claws of the installation-and-removal unit being configured to correspond to and engage with the claws of the taper bushing; and

a ring coaxially mounted on a side of the roll disk facing the installation-and-removal unit, the ring having radially extending claws that correspond to and are engageable behind the third claws of the installation-and-removal unit, all the claws being configured to have a perimeter extension whereby the corresponding claws lie perimetally next to one another in a plane seen in the axial direction when the installation-and-removal unit is placed on the roll shaft, the installation-and-removal unit being turnable between a first position in which the claws of the roll shaft piece and the claws of the taper bushing respectively engage with the corresponding first claws and second claws of the installation-and-removal unit, and a second position in which only the claws of the ring engage with the corresponding third claws of the installation-and-removal unit whereby installation-and-removal of the roll disk is facilitated.

5,800,089

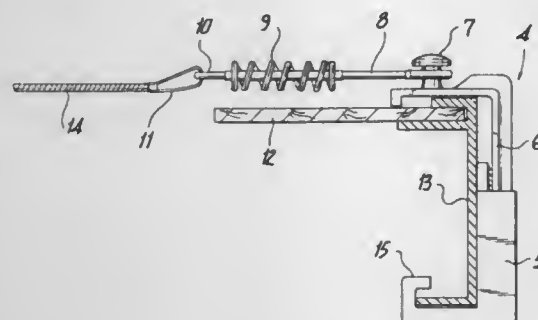
ADJUSTABLE DETACHABLE POOL COVER ANCHOR

William S. Donaton, 100 Engineers Rd., Hauppauge, N.Y. 11788

Filed Jun. 3, 1996, Ser. No. 657,318
Int. Cl.⁶ E04H 4/14

U.S. Cl. 403—393

10 Claims



1. A detachable anchor for a swimming pool cover, said anchor engageable with a swimming pool frame by a spring-loaded attachment to the pool cover, said anchor comprising:

a generally C-shaped body having a first member movable relative to a second member, and an anchor knob integral with one member of said first and said second members, said anchor knob engageable with a loop of the spring-loaded attachment,

said body of said anchor including an adjustment means permitting said anchor to accommodate a wide variety of pool frame sizes, said adjustment means comprising a retaining member including a plurality of nesting positions for said first member relative to said second member,

said retaining member including a plurality of nesting positions comprises a ratchet rack adjustment means including a plurality of teeth comprising a series of step by step adjustment locations, said male anchor member having reinforcing ribs having a male snap tab separately engageable with each tooth of said plurality of teeth comprising said series of step by step adjustment locations of said ratchet rack adjustment means, said snap having an edge movable step by step within said plurality of teeth of said ratchet rack adjustment means, wherein said male anchor member is pushed into said female housing portion for adjustment,

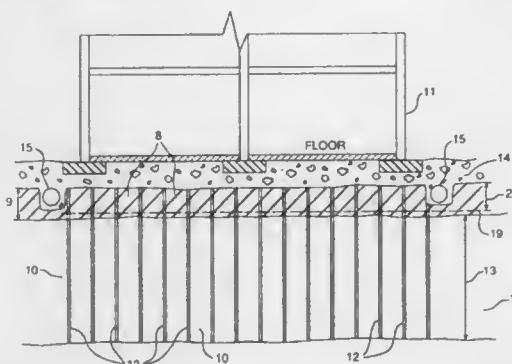
said anchor further comprising a hole at a corner of male anchor member permitting an extension of said ratchet rack to move into said hole when adjusting said anchor to a small clamping position.

5,800,090 APPARATUS AND METHOD FOR LIQUEFACTION REMEDICATION OF LIQUEFIABLE SOILS

R. Robert Goughnour, Leesburg, Va., assignor to Geotechnics America, Inc., Matthews, N.C.
Filed Apr. 9, 1996, Ser. No. 630,001
Int. Cl.⁶ E02D 3/08; 3/10

U.S. Cl. 405—36

31 Claims



1. Apparatus for treating liquefiable soil for earthquake liquefaction protection for a structure or work on or below an overlying ground surface with an initial static ground water level in soil underlying said ground surface, comprising:

a plurality of substantially vertical prefabricated drains positioned at spaced intervals in the liquefiable soil, and a reservoir located below said overlying ground surface for draining off water expelled from said drains.

14. A method for treating liquefiable soil for earthquake liquefaction protection for a structure or work on or below an overlying ground surface with an initial static ground water level in soil underlying said ground surface, comprising the steps of:

inserting prefabricated drains in substantially vertical fashion into the liquefiable soil at predetermined spaced intervals, and draining water expelled from said drains during an earthquake to a reservoir located below said overlying ground surface.

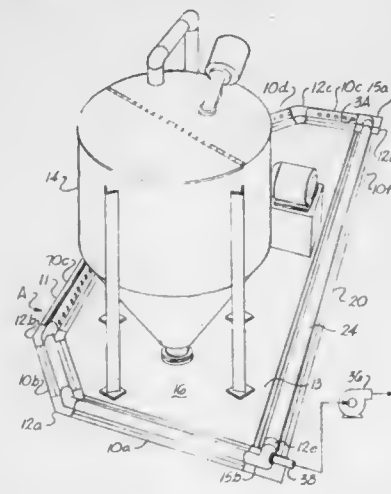
5,800,091 CONFIGURABLE CONTAINMENT SYSTEM AND WALL STRIP

Edward W. Van Romer, 1018 Arrowhead Point, Anderson, S.C. 29625

Filed Jan. 26, 1996, Ser. No. 592,558
Int. Cl.⁶ F02B 7/00

U.S. Cl. 405—52

18 Claims



1. A containment system which may be configured on site for surrounding and containing hazardous materials comprising:

a containment wall strip having a first end and a second end, and said wall strip being constructed from a pliable, severable material so that said strip may be cut into selected lengths for placement on the ground at the site for creating a containment barrier;

said wall strip including an elongated, flattened, pliable base; a free standing berm wall secured with said base, said free standing berm wall extending upward and longitudinally along said base creating said containment barrier;

said berm wall being flexible and having an upright configuration in which said berm wall will contain said hazardous materials within said containment barrier and a deformed configuration enabling wheeled vehicles to pass over said berm wall to enter and exit said containment area;

said berm wall defining a deformable open channel space between said free standing berm wall and said base;

a support secured with said base within said open channel space, said support being formed more rigid than said berm wall and being operative to limit deformation of said open channel space thereby maintaining said berm wall always at an effective spill-retaining height above said base.

5,800,092

METHOD FOR DELAYING RUN-OFF OF FLASH-STORM WATER OR ORDINARY RAINWATER FROM ROOFS AND OTHER SURFACES WITH WATER-RETENTION CAPABILITY

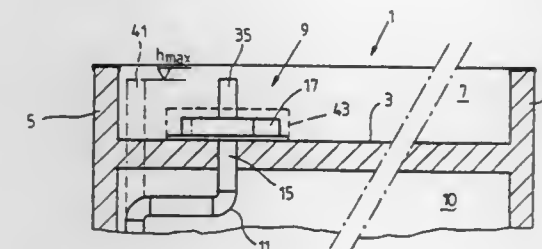
Werner Nill, Eigenheimweg 45, CH-8400 Winterthur, Switzerland, and Johannessen Mosbaek, Aspevej 6 / Strøby Egede, DK-4600 Køge, Denmark

Division of Ser. No. 196,231, Feb. 18, 1994, Pat. No. 5,524,393. This application May 30, 1996, Ser. No. 655,418
Claims priority, application Switzerland, Jun. 30, 1992, 2068/92

Int. Cl.⁶ E02B 13/00

U.S. Cl. 405—52

2 Claims



1. A method for the delayed run-off of flash-storm water or ordinary rainwater from roofs and other surfaces, the method providing for a water-retention capability for sporadic or permanent retention through a drain pipe into a sewage system, the method comprising steps of:

providing a throttle element, and a drain pipe having a roof-side inlet in fluid communication with the throttle element;

constructing said throttle element with an outer wall encircling an axis of said drain inlet for guiding incoming water into a vortex flow pattern about said axis;

forming in said throttle element an inlet port disposed in said outer wall and being oriented relative to said outer wall for directing the incoming water against an inner surface of said outer wall for development of said vortex flow pattern; and

spacing said outer wall apart from said pipe in a radial direction from said axis to provide a vortex diameter of said flow pattern which is larger than a cross sectional dimension of said pipe, and enabling a vortex of said flow pattern to perform a throttling function to limit a rate of flow of said incoming water into said pipe at a maximum vortex flow rate, said maximum vortex flow rate being less than a laminar rate of flow of the rainwater into said pipe.

5,800,093

METHOD AND APPARATUS FOR THE OFFSHORE INSTALLATION OF MULTI-TON PACKAGES SUCH AS DECK PACKAGES, JACKETS, AND SUNKEN VESSELS

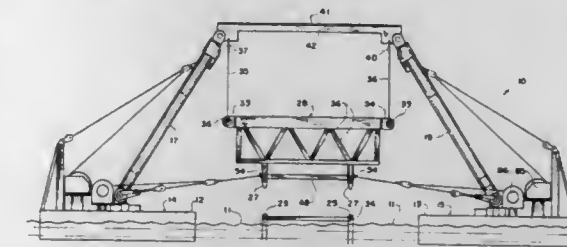
Jon E. Khachaturian, 5827 Rhodes Ave., New Orleans, La. 70131

Continuation-in-part of Ser. No. 615,838, Mar. 14, 1996, Pat. No. 5,662,434, which is a continuation-in-part of Ser. No.

501,717, Jul. 12, 1995, Pat. No. 5,607,260, which is a continuation-in-part of Ser. No. 404,421, Mar. 15, 1995, Pat. No. 5,609,441. This application Sep. 6, 1996, Ser. No. 709,014
Int. Cl.⁶ E02B 17/00

U.S. Cl. 405—204

17 Claims



1. A lifting apparatus for lifting a multi-ton package such as a deck package, sunken vessel, or offshore jacket, comprising:

a) a pair of barges, each defining a base that can support a plurality of diagonally extending lift booms pivotally mounted thereon and a large multi-ton load;

b) a truss supported by the barges about the periphery of the package for forming a load transfer between the barges and the package to be lifted;

c) said truss including at least one compression frame member supported by the plurality of diagonally extending lift booms, each lift boom having a lower end attached to a barge and an upper end that can be attached to the compression frame member;

d) a plurality of cables that depend from the combination of truss and compression member, the cables having lower ends for holding the package; and

f) the combination of the compression frame and booms enabling the cables to raise and lower the package.

5,800,094

APPARATUS FOR LIFTING AND SUPPORTING STRUCTURES

Robert L. Jones, 29505 Golden Gate Canyon Rd., Golden, Colo. 80403

Filed Feb. 5, 1997, Ser. No. 795,598
Int. Cl.⁶ E02D 5/00

U.S. Cl. 405—230

15 Claims

1. An apparatus for lifting and supporting the foundation of a structure relative to the ground, said apparatus comprising:

a pier anchored into the ground having an upper end adjacent to a selected portion of the foundation;

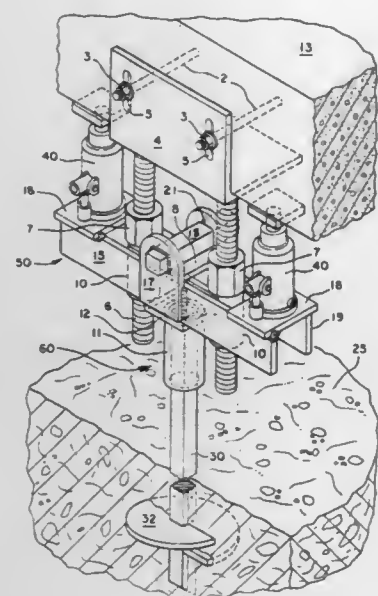
a support assembly having:

(a) a base attached to said upper end of said pier;
(b) a support bracket for engaging the foundation;
(c) a plurality of substantially vertical rods supporting said support bracket above said base; and

(d) means for adjustably controlling the vertical distance between said base and said support bracket on said rods; and

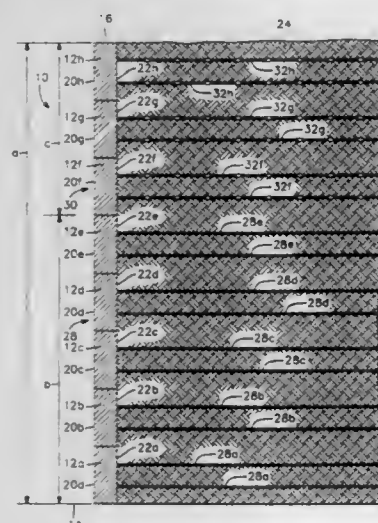
a removable lifting assembly having:

(a) means for removably seating said lifting assembly on said base of said support assembly; and



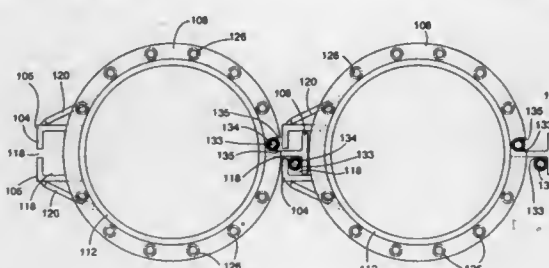
(b) two arms extending laterally outward beyond said support bracket for supporting jacks to lift the foundation.

5,800,095
COMPOSITE RETAINING WALL
Philip D. Egan, Atlanta, Ga., assignor to The Tensar Corporation, Atlanta, Ga.
Filed Jan. 15, 1997, Ser. No. 784,104
Int. Cl.⁶ E02D 29/02
U.S. Cl. 405—262 29 Claims



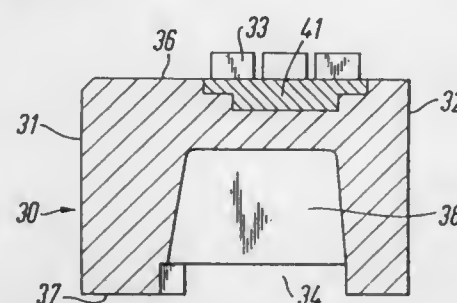
1. A retaining wall comprising:
a plurality of wall members stacked in superimposed courses to form a wall having a front face and a rear face,
fill material located behind the rear face of the wall and retained by the wall,
a plurality of reinforcements extending rearwardly from the rear face of the wall into the fill material,
an upper zone of said reinforcements including substantially only extensible reinforcements, and
a lower zone of said reinforcements including substantially only inextensible reinforcements.

5,800,096
SUBSURFACE BARRIER WALL AND METHOD OF INSTALLATION
Jeffrey Barrow, 640 College St., Woodland, Calif. 95695
Continuation-in-part of Ser. No. 429,818, Apr. 27, 1995, Pat. No. 5,549,170. This application Aug. 27, 1996, Ser. No. 703,850
Int. Cl.⁶ E02D 5/08
U.S. Cl. 405—267 21 Claims



1. A method of forming a barrier wall in a subsurface, comprising the steps of:
driving a first column into a subsurface, the first column having a first interlocking connection extending longitudinally along the first column, and further having a hollow interior;
driving a second column into the subsurface adjacent to and interlocking with the first column, the second column having a second interlocking connection extending longitudinally along the second column, wherein the second column is driven into the subsurface so that the first interlocking connection interlocks with the second interlocking connection, wherein the second column has a hollow interior that is independent from the hollow interior of the first column;
forming a substantially fluid impermeable seal in the interlocking connections between the first and second columns; and
before each driving step, removing a portion of the substrate by advancing a barrel through the hollow interiors of each column and into the subsurface and then removing the barrel from the subsurface.

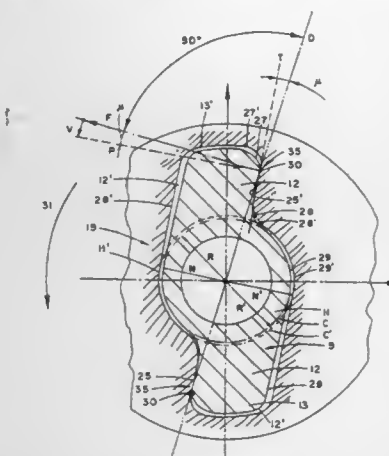
5,800,097
RETAINING WALL BLOCK FOR USE WITH GEOGRIDS
Christopher Martin, Kent, United Kingdom, assignor to Fountain Holdings Ltd., St. Saviour Jersey, United Kingdom
Division of Ser. No. 454,344, Aug. 3, 1995, Pat. No. 5,607,262.
This application Jan. 15, 1997, Ser. No. 783,192
Claims priority, application United Kingdom, Dec. 15, 1992, 9226143
Int. Cl.⁶ F02D 29/02
U.S. Cl. 405—284 8 Claims



1. A retaining wall block (10,30,50) comprising geogrid receiving means to receive and retain a geogrid reinforcing material (91), the receiving means comprising a plurality of projections (13,33,57) provided on a first face of the block and one of an aperture and a recess (14,34) provided on an opposite face of the block, wherein dimensions of each projection and a spacing

between adjacent projections correspond to respective apertures (97) in the geogrid material (91) such that in use, the geogrid material (91) is located over the projections with each projection (13,33,57) mating with a corresponding aperture (97) of the geogrid material; the projections being provided in the form of a discrete element (41) having an element body and a plurality of said projections (13,33,57) extending therefrom, the element body being mountable in a corresponding recess provided in the first face of the block.

5,800,098
CUTTING TOOL ASSEMBLY
Amir Satran, and Yaron Eizen, both of Kfar Vradim, Israel, assignors to Iscar Ltd., Migdal Tefen, Israel
Filed May 10, 1996, Ser. No. 644,800
Claims priority, application Israel, May 11, 1995, 113698
Int. Cl.⁶ B23C 5/26
U.S. Cl. 407—31 12 Claims



1. A tool assembly comprising first and second tool assembly units formed with interfitting male and female coupling members adapted to be coaxially coupled together so as to have a common longitudinal axis, whereby a moment transmitted to the first unit is transmitted to the second unit;

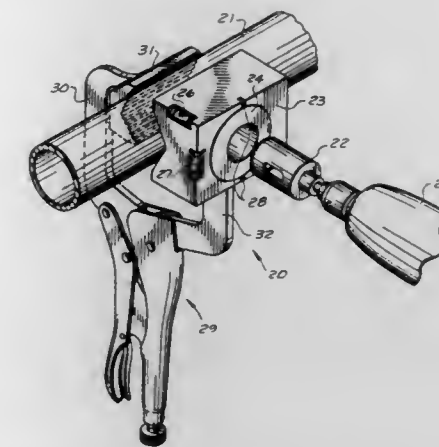
each coupling member comprising a torque transmitting component having a central portion of a radial dimension defined by a radius of a circle inscribed therein and at least one arm extending from said central portion to a periphery of the corresponding coupling member;

the arms of the male and female coupling members being formed with first and second side walls, the first side walls each having a contact region along which the coupling members generally contact, and being directed, at least at said contact region, substantially radially with respect to said longitudinal axis, and the second side walls having a gap therebetween;

wherein the second side wall of said at least one arm of the male coupling member is oriented so that a distance between said second side wall and said longitudinal axis is not shorter than the radius of the circle inscribed in the central portion of the male coupling member.

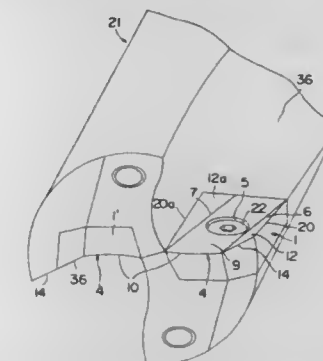
5,800,099
HOLE SAW GUIDE CLAMP SYSTEM
Michael S. Cooper, 105 W. Jomax Rd., Phoenix, Ariz. 85027
Filed Jan. 16, 1996, Ser. No. 587,301
Int. Cl.⁶ B23B 47/28
U.S. Cl. 408—1 R 11 Claims

1. An improved portable tool, for assisting the use of hole-saw means for making a hole in only a first side of a hollow installed pipe, comprising, in combination:



a. hollow-cylindrical hole-saw guide means, having an axis, for guiding hole-saw means while said hole-saw means is making a said hole in only said first side of said hollow installed pipe;
b. said tool being constructed and arranged to maintain user selected relative positions between said hollow installed pipe and said hole-saw means while said hole-saw means is making said hole in only said first side of said hollow installed pipe;
c. first fixed clamp-head means for positioning said hollow-cylindrical hole-saw guide means adjacent said first side of said hollow installed pipe;
d. second movable and swivelable clamp-head means for holding a second side, opposed to said first said side, of said hollow installed pipe in such manner as to have the centerline of said hollow installed pipe intersect said axis of said hollow cylindrical hole-saw guide means;
e. said second movable and swivelable clamp-head means comprising a V-shaped member solid and closed along said axis of said hollow cylindrical hole-saw guide means; and
f. grip means for adjusting and positioning said first and second clamp-head means into a user-selected clamping position about said hollow installed pipe.

5,800,100
DRILLING TOOL WITH RESET INSERTS
Ulrich Krenzer, Zirndorf, Germany, assignor to Kennametal Hertel AG Werkzeuge + Hartstoffe, Fürth, Germany
PCT No. PCT/EP95/04871, § 371 Date Jun. 9, 1997, § 102(e)
Date Jun. 9, 1997, PCT Pub. No. WO96/18471, PCT Pub. Date Jun. 20, 1996
PCT Filed Dec. 11, 1995, Ser. No. 836,144
Claims priority, application Germany, Dec. 10, 1994, 44 023.5; Oct. 14, 1995, 195 38 390.7
Int. Cl.⁶ B23B 51/02
U.S. Cl. 408—224 20 Claims



1. A drilling tool for drilling in solid metal, said drilling tool comprising:

a base body;
 said base body having an axis of rotation;
 a drill tip disposed at a free end of said base body;
 said base body comprising a first chip flute and a second chip flute to carry chips away from said drill tip;
 a first cutting insert and a second cutting insert;
 said first cutting insert being disposed on said first chip flute;
 said second cutting insert being disposed on said second chip flute;
 said first cutting insert being disposed a first radial distance from the axis of rotation;
 said second cutting insert being disposed a second radial distance from the axis of rotation;
 the first radial distance being different from the second radial distance;
 said first cutting insert being disposed to cut material from a first working area of a work piece;
 said second cutting insert being disposed to cut material from a second working area of a work piece;
 said first working area partially overlapping with said second working area;
 each of said cutting inserts comprising a first end and a second end;
 each of said cutting inserts being configured to extend substantially in a longitudinal direction substantially between said first end and said second end;
 each of said cutting inserts having a longitudinal axis extending in the longitudinal direction;
 each of said cutting inserts comprising a cutting surface;
 said cutting surface being configured as a trough-like channel extending in substantially the longitudinal direction substantially between said first end and said second end;
 said cutting surface comprising a first cutting blade and a second cutting blade;
 said first cutting blade being disposed on said first end;
 said second cutting blade being disposed on said second end;
 said channel comprising a base surface extending substantially in the longitudinal direction;
 said base surface being configured to be shaped substantially as a parallelogram;
 said parallelogram comprising two long sides disposed opposite one another;
 said parallelogram comprising two short sides disposed opposite one another;
 said long sides of said parallelogram being dimensioned substantially longer than said short sides of said parallelogram;
 said long sides of said parallelogram being disposed to form an acute angle with the longitudinal axis of a respective one of said cutting inserts;
 a first one of said short sides of said parallelogram being configured to form a first cutting edge of said first cutting blade;
 a second one of said short sides of said parallelogram being configured to form a first cutting edge of said second cutting blade;
 said channel comprising two lateral surfaces;
 a first of said two lateral surfaces being disposed adjacent to a first of said two long sides of said parallelogram;
 a second of said two lateral surfaces being disposed adjacent to a second of said two long sides of said parallelogram;
 each of said two lateral surfaces being disposed at an obtuse angle with respect to said base surface;
 each of said two lateral surfaces being configured to be shaped substantially as an obtuse triangle;
 each of said obtuse triangles comprising a first side, a second side, and a third side;
 said first side being dimensioned longer than said second side;
 said first side being dimensioned longer than said third side;
 said first side of said triangle of said first lateral surface being disposed adjacent to said first long side of said parallelogram;
 said first side of said triangle of said second lateral surface being disposed adjacent to said second long side of said parallelogram;

said second side of said triangle of said first lateral surface being disposed and configured to form a second cutting edge of said first cutting blade; and
 said second side of said triangle of said second lateral surface being disposed and configured to form a second cutting edge of said second cutting blade.

5,800,101 DRILL

Masaaki Jindai, and Jun Okamoto, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

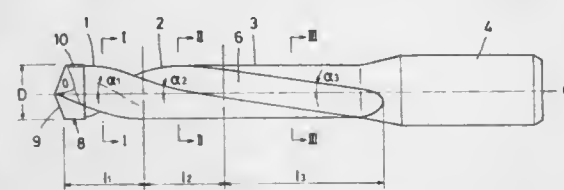
Filed Feb. 12, 1997, Ser. No. 798,920

Claims priority, application Japan, Feb. 14, 1996, 8-026306; Dec. 26, 1996, 8-346828

Int. Cl.⁶ B23B 51/02

U.S. Cl. 408—230

4 Claims



1. A drill comprising a tip portion formed with a helical flute having a constant width and helix angle, a rear portion formed with a helical flute which has a constant width and helix angle but is greater in width and smaller in helix angle than the helical flute formed in said tip portion, and a middle portion provided between said tip portion and said rear portion and formed with a helical flute smoothly connecting with the helical flutes of said tip portion and said rear portion and having a gradually increasing width and a gradually decreasing helix angle from said tip portion toward said rear portion.

5,800,102

KEY AND RETAINER DEVICE FOR A CHUCK

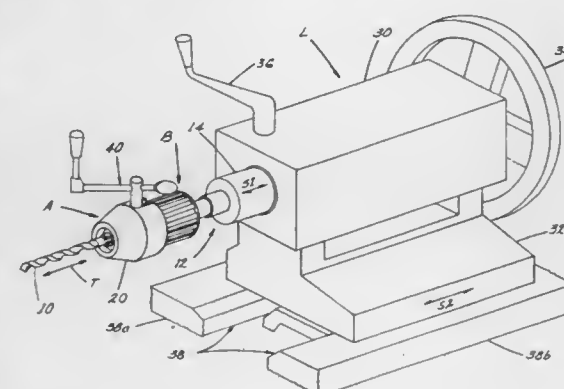
William D. Taber, Greenville, S.C., assignor to Hall's Machining Services, Inc., Easley, S.C.

Filed Sep. 15, 1997, Ser. No. 931,106

Int. Cl.⁶ B23B 39/00

U.S. Cl. 408—241 R

19 Claims



1. A chuck assembly for gripping and releasing a bit held by a drilling machine comprising:
 a chuck having a nose, a locking cylinder with a beveled gear and locking jaws within said nose for gripping and releasing said bit positioned along a drill axis when said nose is rotated relative to said locking cylinder;

a chuck key slidably mounted in said nose along a key axis normal to said drill axis, said chuck key having a key gear for engaging said beveled gear of said locking cylinder and said chuck key being rotatable about said key axis;
 a collar having a first bore for fitting said collar over said nose and a second bore larger than the first bore for encompassing said beveled gear of said locking cylinder;
 a fastener for holding said collar attached to said nose of said chuck; and
 said collar having key cutouts for containing and holding said key gear of said chuck key in an engaged relationship with said beveled gear of said locking cylinder, so that turning said chuck key about said key axis provides said rotation of said nose with respect to said locking cylinder to operate said locking jaws.

5,800,103

METHOD OF MACHINING DURING INDEXING

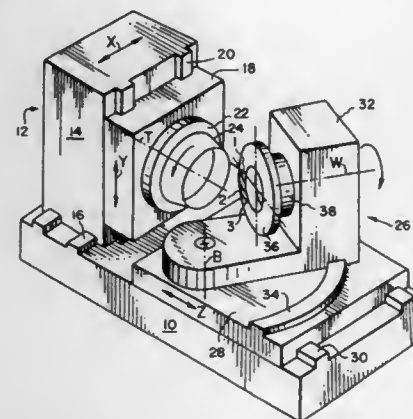
Hermann J. Stadtfeld, Rochester; William D. McGlasson, Caledonia, and Kent D. Yunker, Rochester, all of N.Y., assignors to The Gleason Works, Rochester, N.Y.

Filed Feb. 12, 1997, Ser. No. 798,083

Int. Cl.⁶ B23F 9/10

U.S. Cl. 409—27

15 Claims



1. A method of machining one or more tooth slots in a bevel gear-shaped workpiece by face milling with a generally cup-shaped tool having one or more stock removing surfaces, said method comprising:

indexing said workpiece by rotation about a workpiece axis of rotation to bring one of said tooth slots to a final machining position, simultaneously with at least a portion of said indexing, positioning said tool to contact said workpiece and commencing to machine said slot.

5,800,104

LIQUID COOLANT/LUBRICANT RECOVERY SYSTEM FOR MACHINE TOOLS

Toshiharu Tom Miyano, 50 Dundee La., Barrington Hills, Lake County, Ill. 60010

Filed Apr. 12, 1996, Ser. No. 631,785

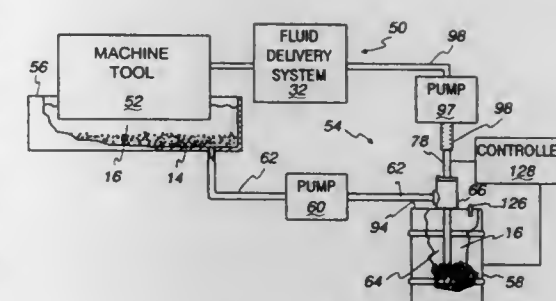
Int. Cl.⁶ B23Q 11/00; B01D 21/00

U.S. Cl. 409—131

9 Claims

1. A method of performing a machining operation and recovering a liquid used in the machining operation, said method comprising the steps of:

providing a machine tool to perform a machining operation; providing at a first location a first receptacle having a storing space with a top and bottom; directing a liquid against at least one of a) a part of the machine tool and b) a workpiece on which the machining operation is



being performed by the machine tool in such a manner that discrete particles become entrained in the liquid; directing at least a part of the liquid with the discrete particles entrained therein into the receptacle storing space; allowing discrete particles that are denser than the liquid to move under gravitational force and progressively accumulate at the bottom of the receptacle storing space; providing a return path from said receptacle to said machine tool so that liquid from above the accumulated discrete particles in the receptacle storing space is directed against at least one of a) a part of the machine tool and b) a workpiece on which a machining operation is being performed by the machine tool until the accumulated discrete particles in the receptacle storing space accumulate to a predetermined height in the receptacle storing space; moving the receptacle with the discrete particles therein accumulated to the predetermined height from the first location to a point of use; and providing at the first location a second receptacle having a storing space with a top and bottom and directing at least part of the liquid with the discrete particles entrained therein into the second receptacle to cause progressive accumulation of discrete particles at the bottom of the storing space in the second receptacle.

5,800,105

VEHICLE TIE-DOWN MECHANISM

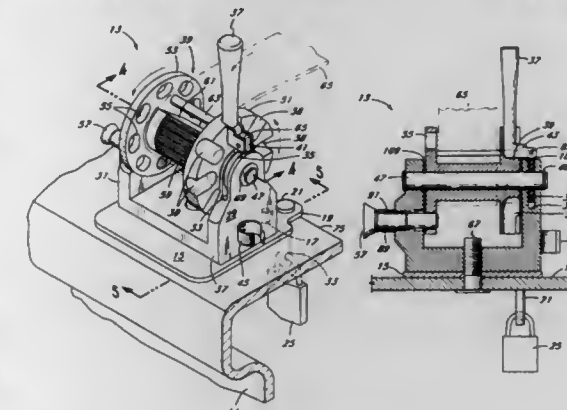
Kenneth Troy Stump, 7011 Candlelight Cir., Huntington Beach, Calif. 92647

Filed Aug. 27, 1996, Ser. No. 697,585

Int. Cl.⁶ B60P 7/08

U.S. Cl. 410—103

10 Claims



1. A tie-down mechanism comprising:
 a frame having a first end portion having a first axle aperture and a second end portion having a second axle aperture;
 a spool member having a through bore;
 an axle engaging said first axle aperture, said through bore, and said second axle aperture and rotatably supporting said spool member;
 a locking pin supported by one of said first and said second end portions and axially displaceably urged to a position to prevent rotation of said spool member; and

a pivoting lever selectively engagable with and rotatable with said spool member.

5,800,106

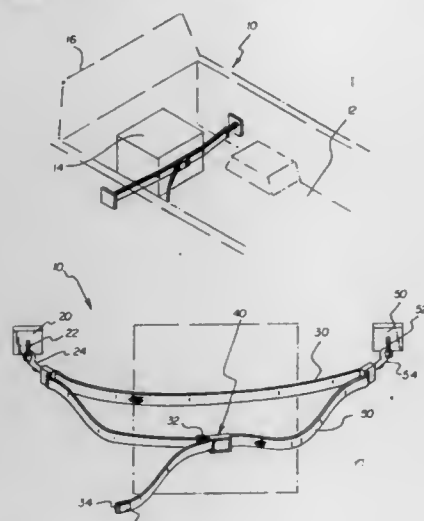
ADJUSTABLE MAGNETIC CARGO STRAP SYSTEM
Bradley A. Miller, 714 Schaefer, Richmond Saskatchewan,
Canada, S0N 2E0

Filed Dec. 9, 1996, Ser. No. 762,279

Int. Cl.⁶ B60P 7/135

U.S. Cl. 410—117

13 Claims



1. An adjustable magnetic cargo strap system comprising:
a first magnet for securing to a side of a bed of a pickup;
a first clasp removably coupled to said first magnet;
a second magnet for securing to an opposite side of said bed of said pickup;
a second clasp removably coupled to said second magnet;
a strap having a first end and a second end, wherein said strap slidably engages said first clasp and said second clasp and forms an open loop; and
a securing means attached to said first end for removably engaging said second end of said strap for closing said open loop and for selectively tightening said strap between said sides of said bed of said pickup for retaining an object within said bed.

5,800,107

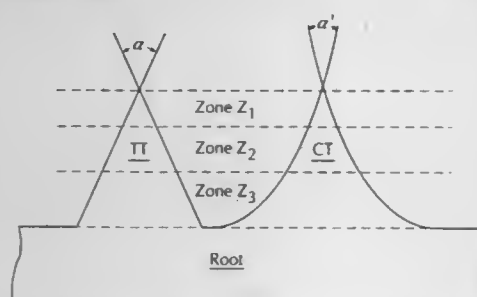
SELF-TAPPING, SCREW-TYPE MASONRY ANCHOR
Louis N. Giannuzzi, and Anthony C. Giannuzzi, both of 28
Doral Farm Rd., Stamford, Conn. 06902

Filed Apr. 19, 1996, Ser. No. 634,824

Int. Cl.⁶ F16B 25/00

U.S. Cl. 411—386

10 Claims



1. A self-tapping, screw-type anchor capable of being turned into a hole drilled in masonry whose hardness renders the wall of the hole highly resistant to a tapping action, said anchor comprising:

A. a head adapted to accept a torque tool for turning the anchor into the drilled hole;
B. a shank extending from the head to form the root of the anchor; and
C. a thread forming a helical ridge on the root, said thread having a crosssectional profile defining a pair of opposing curvilinear flanks which rise from a base integral with the root and converge toward a crest, said flanks each having a plane curve contour creating a crest having a small included angle capable of penetrating the wall of the hole and a relatively broad base affording a strong support for the thread to prevent the thread from being deformed or mutilated as the anchor is turned into the hole, said plane curve contour having a radius which increases progressively from the crest to the base of the thread.

5,800,108

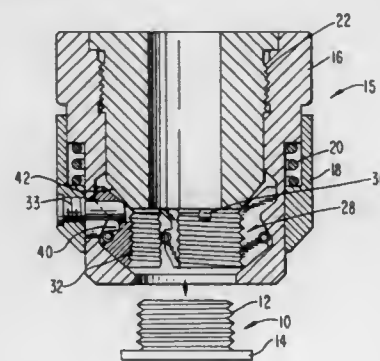
**APPARATUS FOR RAPIDLY ENGAGING AND
DISENGAGING THREADED COUPLING MEMBERS**
Eric F. Cabahug, Falls Church, Va., assignor to Thread Tech-
nology, Inc., Sterling, Va.

Filed Oct. 9, 1996, Ser. No. 731,003

Int. Cl.⁶ F16B 37/08; 39/36

U.S. Cl. 411—433

12 Claims



1. A coupling device comprising:
a first member provided with threads;
a second member having an opening into and out of which said first member may be inserted and removed, respectively;
an outer body having sides, frustoconical internal surfaces and oval openings on the sides;
threaded elements within said second member with frustoconical surfaces matching the frustoconical internal surfaces of the outer body and which are mounted for movement between a first position wherein the first member may be threaded within the second member and the second position wherein the threaded elements have a diameter larger than the diameter of the threads of the first member permitting the first member to slide axially in and out of the second member, as desired;
pull/lock/torque pins passing through the oval openings in the outer body which are associated with the threaded elements, the pull/lock/torque pins terminating in ends;
a sleeve mounted for movement upwardly and downwardly, and a manually operable mechanism associated therewith with the pull/lock/torque pins attached thereto which cause the pins to apply an axial force to the threaded elements moving the pins into engagement with the threaded elements; and
wherein the threaded elements include oval indentations against which the ends of the pull/lock/torque pins abut locking the threaded elements in place when the sleeve is down.

5,800,109

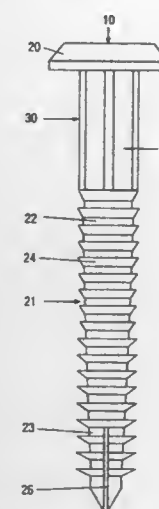
FASTENER WITH A TAPERED SECTION AND A SLOT
Philip D. Carruthers, Austin, Tex., assignor to Amifast Corpo-
ration, Austin, Tex.

Filed May 13, 1997, Ser. No. 855,439

Int. Cl.⁶ F16B 15/08; 19/00

U.S. Cl. 411—510

20 Claims



1. A fastener comprising:
(a) a head;
(b) a shaft having a first end and a second end, said first end of said shaft operably connected to said head, said second end of said shaft defining at least a first slot said shaft comprising a tapered section and an untapered section; and
(c) a fin attached to said shaft, said fin defining at least a first channel.

5,800,110

**BOOK CASE JOINT FORMING METHOD AND
APPARATUS**

Nikolaos Georgitsis, Lubbecke, and Kurt Begemann, Lohne,
both of Germany, assignors to Kolbus GmbH & Co. KG,
Rahden, Germany

Continuation of Ser. No. 437,181, May 8, 1995, abandoned.

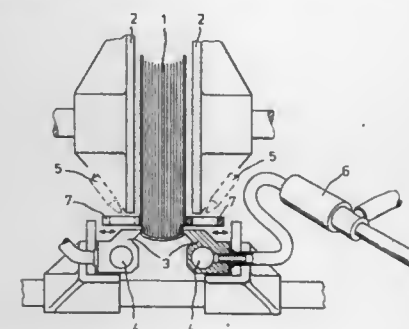
This application Aug. 4, 1997, Ser. No. 905,914

Claims priority, application Germany, May 9, 1994, 44 16 358.4

Int. Cl.⁶ B42C 7/00

U.S. Cl. 412—3

19 Claims



11. In apparatus for forming hinge joints in cased books, the joint forming apparatus including means for compressing the book by application of pressure to the opposed covers thereof while simultaneously impressing the joints into the casing with a pair of oppositely acting heated joint-forming rails, the improvement comprising:
means for acquiring the book subsequent to the impressing of the joints by the heated joint-forming rails; and

5,800,111

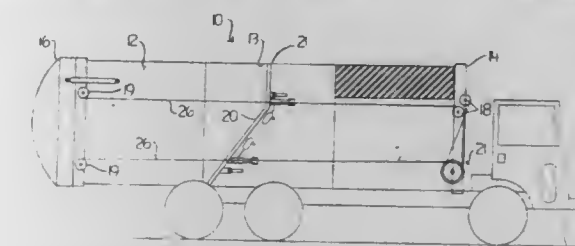
**COMPACTION MECHANISM FOR A COMPACTION
CHAMBER OF A GARBAGE TRUCK**
Warren Tetz, 4520-103A Avenue; Lam Chi Luong, 11621-81
Street, both of Edmonton, Alberta, Canada, T6A 0W3, and
Norman Laverne Heaman, 11 Meadow Crescent, Edmonton,
Alberta, Canada, T6C 1G1

Filed Dec. 18, 1996, Ser. No. 768,181

Int. Cl.⁶ B60P 1/00

U.S. Cl. 414—515

6 Claims



1. A compaction mechanism for a garbage truck, comprising:
a cylindrical compaction chamber having a peripheral defining wall, A first end and a second end;
cable guide means being positioned adjacent each of the first end and the second end of the compaction chamber;
a free floating compaction plate disposed transversely across the compaction chamber, the compaction plate having a peripheral edge which is spaced from the peripheral defining wall;
at least two cables extending between the cable guide means at first end and the cable guide means at the second end of the compaction chamber, each of the at least two cables having a first end and a second end both secured to the compaction plate, the at least two cables being secured in a symmetrical pattern whereby each cable provides an equal pulling force upon the compaction plate;
drive means for concurrently moving the at least two cables to pull the compaction plate toward one of the first end and the second end of the compaction chamber; and
a one piece peripheral wiper seal completely covering the peripheral edge of the compaction plate in sealing engagement with the peripheral defining wall of the compaction chamber, such that the wiper seal maintains a barrier to passage of the garbage upon movement of the compaction plate.

5,800,112

LOADING SPOUT HOIST MECHANISM
Brian T. Stafford, Selby, Canada, assignor to EMS-TECH Inc.,
Belleville, Canada

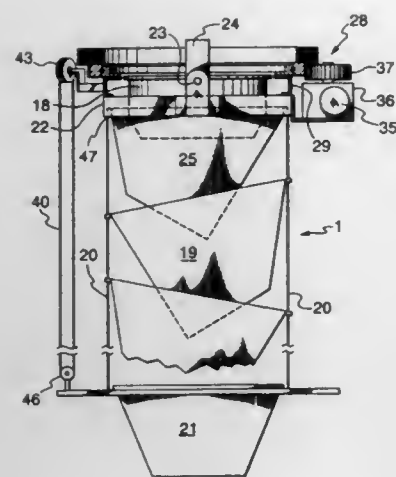
Filed Oct. 16, 1997, Ser. No. 951,449

Int. Cl.⁶ B65G 11/10

U.S. Cl. 414—141.8

18 Claims

1. A loading spout hoist, for attachment to a loading means including a substantially vertical loading spout, comprising in combination:
a substantially horizontal loading spout support frame including a central aperture through which the loading spout passes;
a first circular ring means, supported by the support frame, and located around the outside of the loading spout;
a second circular ring means journaled onto the first ring means;
at least one drive means constructed and arranged to rotate the second ring means in either direction of rotation about the first ring means;
a winch means carried by the outer ring including at least one monospiral drum;



a cable means carried by each monospiral drum attached at a first end to the monospiral drum and anchored at a second end to the loading spout; and

a sheave means constructed and arranged to receive each cable means from each monospiral drum in a substantially horizontal direction and to transfer the received cable means to the loading spout in a substantially vertical direction.

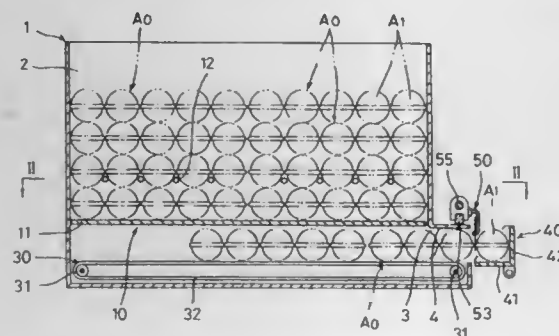
5,800,113 DEVICE FOR SEPARATING SERIES-CONNECTED PLASTIC AMPULES

Shoji Yuyama, and Hiroyasu Hamada, both of Toyonaka, Japan, assignors to Kabushiki Kaisha Yuyama Seisakusho, Osaka, Japan

Filed Mar. 27, 1997, Ser. No. 826,336
Int. Cl.⁶ B65G 65/00

U.S. Cl. 414—416

7 Claims



1. An ampule dispenser comprising a carrier means for transporting plastic ampules arranged side by side and series-connected together in a strip in a longitudinal direction, a guide plate provided over a delivery end of said carrier means for holding down the strip of series-connected plastic ampules, receiver means for receiving the plastic ampule at the head of the strip fed from the delivery end of said carrier means, and an ampule separating means for separating the ampule at the head of the strip along a separating line provided between adjacent ones of the ampules.

5,800,114 CONTAINER HANDLING DEVICE

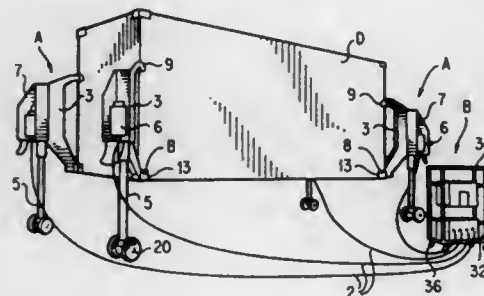
Jean Paul Secondi, Saint Chamond, France, assignor to Hydro 7 International, Saint Etienne, France
PCT No. PCT/FR94/01331, § 371 Date May 14, 1996, § 102(e)
Date May 14, 1996, PCT Pub. No. WO95/13983, PCT Pub. Date May 26, 1995

PCT Filed Nov. 15, 1994, Ser. No. 648,028

Claims priority, application France, Nov. 16, 1993, 93 13957
Int. Cl.⁶ B66F 3/36; 3/46

U.S. Cl. 414—458

9 Claims



1. A device for handling a container used for transporting items, the container being equipped with standardized upper and lower corners with the lower corners each having at least two openings, the device comprising:

four lifting assemblies; and
an electric-power-supply and control unit common to the four lifting assemblies;

wherein each of the four lifting assemblies includes a "C"-shaped yoke having a central member, a subframe having rolling means, a hydraulic cylinder interposed between the subframe and yoke, a frame fastened to the central member of the yoke and an electrohydraulic set having a motor for driving the hydraulic cylinder,

wherein the yoke has a height less than that of the container and includes, at a lower end, a first horizontal angle bracket for engaging the standardized lower corners of the container, the first horizontal angle bracket including a first flange and a second flange, the first flange having means for coupling the first horizontal angle bracket to one of the at least two openings of the standardized lower corners and, at an upper end, a second horizontal angle bracket capable of engaging the standardized upper corners of the container, and

the second flange includes a stationary positioning tenon projecting from an inner face of the second flange, the stationary positioning tenon being capable of passing through another of the at least two openings of the standardized lower corners of the container and of bearing on an upper edge of the opening.

5,800,115 MOTOR DRIVEN TILTABLE CARGO DECK

Barry Fenton, 9036-108 Street, Grande Prairie, Alberta, Canada, T8V 4C8

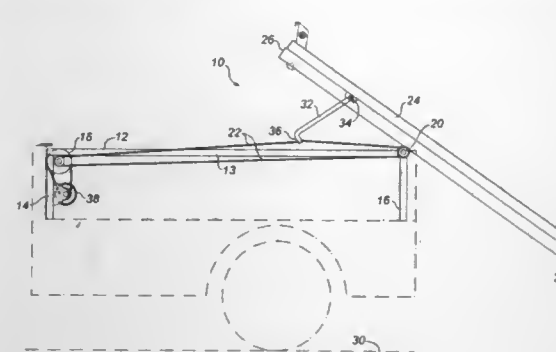
Filed Jan. 21, 1994, Ser. No. 183,856

Int. Cl.⁶ B60P 1/04

U.S. Cl. 414—477

1 Claim

1. The motor driven tiltable cargo deck, comprising:
a. a support frame having opposed sides, a first end and a second end;
b. a first pair of sprockets mounted to opposed sides adjacent the first end of the support frame;
c. a second pair of sprockets mounted to opposed sides adjacent the second end of the support frame;
d. a pair of continuous chains rotatably mounted between the first pair of sprockets and the second pair of sprockets;
e. a rigid deck having a first end and a second end supported by the support frame and slidably movable from a travel position in which the first end of the deck is adjacent the first end of the support frame to an unloading position in which the first



end of the deck is positioned immediately adjacent to the second end of the support frame and the second end of the deck rests upon a ground surface;

f. a pair of rigid linkage arms having a first end and a second end, the first ends of the linkage arms being pivotally mounted in a fixed position adjacent to the first end of the deck, the second ends of the linkage arms being attached to the chains, the linkage arms serving as a rigid connection between the deck and the chains whereby the deck moves relative to the support frame upon movement of the chains, the angular positioning of the linkage arms relative to the chains changing as the linkage arms exert a resisting force upon the first end of the deck to enable the second end of the deck to be lowered in a controlled manner; and

g. a drive motor for rotating one of the first pair of sprockets and the second pair of sprockets thereby rotating the chains to effect movement of the deck relative to the support frame.

5,800,116 AUGER ASSEMBLY FOR CONVEYING GRANULAR MATERIAL

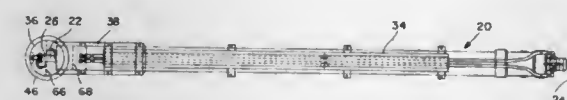
David R. Smith, and Steven R. Hilvers, both of Ft. Jennings, Ohio, assignors to Unverferth Manufacturing Co., Inc., Kalida, Ohio

Filed Jun. 4, 1996, Ser. No. 658,675

Int. Cl.⁶ B60P 1/40

U.S. Cl. 414—523

14 Claims



1. An auger assembly for conveying granular material, comprising:

a) an auger with an axis and a helical flight along said axis, and having a feed end, a discharge end and a central auger section between the feed end and the discharge end of said auger;

b) a cylindrical auger tube having a diameter and surrounding at least the central auger section of said auger, wherein said feed end of said auger extends outwardly from said tube;

c) a generally cylindrical sump for said granular material connected to said auger tube and surrounding said feed end of said auger;

d) a first pivot assembly for pivoting said auger, said auger tube and said sump about approximately the feed end of said auger in approximately a first plane;

e) a second pivot assembly for pivoting said auger, said auger tube and said sump about approximately the feed end of said auger in a second plane approximately perpendicular to said first plane; and

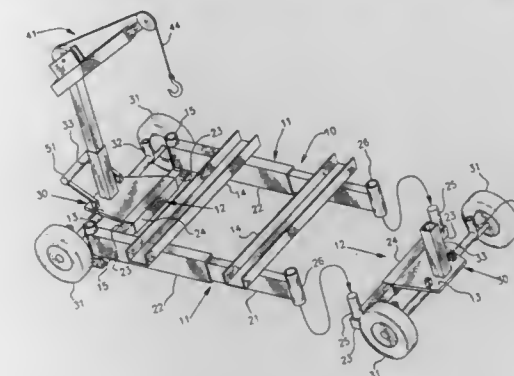
f) said sump having a cylinder diameter, measured in a direction perpendicular to said axis and about perpendicular to said second plane, which is at least about 40–100% larger than the diameter of said auger tube.

5,800,117 TANK LIFTING AND TRANSPORT APPARATUS

George F. Milton, 86 Mabelle Dr., Jacksonville, Fla. 32220
Filed Sep. 17, 1996, Ser. No. 710,351
Int. Cl.⁶ B66C 23/00

U.S. Cl. 414—540

10 Claims



1. A lift and transport apparatus for use with storage tanks, the apparatus comprising a pair of extendable end members each comprising wheels attached to a brace member, winch mounting means attached to said brace member to releasably receive a winch, and a lateral frame member comprising an outer sleeve member attached to said brace member and a pair of inner sliding members positioned within said outer sleeve member, each of said pair of inner sliding members having a connector means to connect with connector means of one of a pair of extendable longitudinal frame members, a pair of extendable longitudinal frame members having connector means, where each of said pair of longitudinal frame members comprises an inner sliding member positioned within an outer sliding member and where each of said pair of longitudinal frame members is releasably attached to said connector means of said lateral frame members to form a generally rectangular frame, a pair of removable support cross members, each of said pair of support cross members positioned atop and extending across both of said longitudinal members of said pair of longitudinal frame members, and a single winch to raise and lower a storage tank between and above said pair of longitudinal frame members when said support cross members are removed, said winch releasably mounted within one of said winch mounting means.

5,800,118 APPARATUS AND METHOD FOR USE IN MANUFACTURE OF FED OBJECTS

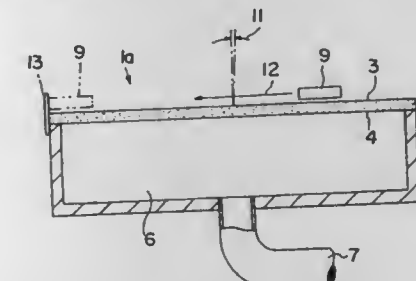
Hideo Kurome, Matsue; Kouta Tamura, Shiga, and Kenichi Watanabe, Izumo, all of Japan, assignors to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan

Filed Nov. 12, 1996, Ser. No. 746,472

Claims priority, application Japan, Nov. 14, 1995, 7-295054
Int. Cl.⁶ B65G 35/00

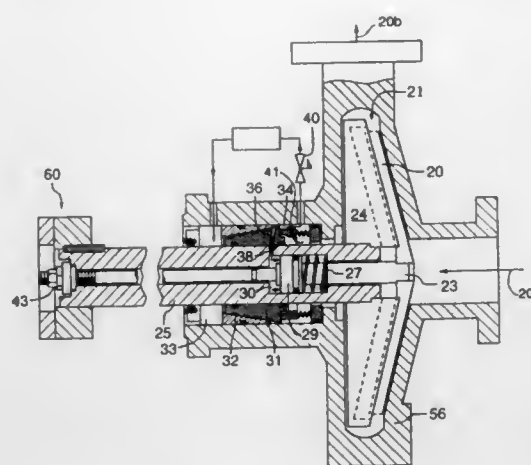
U.S. Cl. 414—676

13 Claims



1. An apparatus for use in manufacture of fed objects, comprising:

a perforated plate having a multiplicity of fine holes formed therein and having upper and lower surfaces,
 a chamber defining a space of which an upper surface of the chamber is provided by the lower surface of said perforated plate,
 an air path for introducing compressed air into said chamber, the compressed air introduced into said chamber being ejected from the upper surface of said perforated plate through said fine holes while a plurality of fed objects are placed on the upper surface side of said perforated plate, so that said plurality of fed objects float above said perforated plate for a further manufacturing process, and
 a pocket receiving said fed objects separated from other objects, wherein said pocket is moved in a direction crossing a predetermined direction of movement of said fed objects in the floating state.



5,800,119

ENVELOPE INVERTER

Christopher Stephen Andrew Biggadike, 33 Brown's Road
 Walthamstow, London, England, E174RN

PCT No. PCT/GB95/02730, § 371 Date May 22, 1997, § 102(e)
 Date May 22, 1997, PCT Pub. No. WO96/15967, PCT Pub.
 Date May 30, 1997

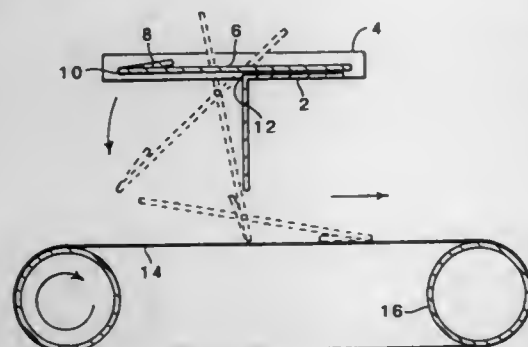
PCT Filed Nov. 22, 1995, Ser. No. 836,957

Claims priority, application United Kingdom, Nov. 23, 1994,
 9423649

Int. Cl.⁶ B65H 15/00

U.S. Cl. 414—757

15 Claims



1. Apparatus for inverting envelopes comprising feeding means for feeding the envelopes successively onto a receiving surface, the receiving surface being arranged such that the envelope is unstable thereon and such that a first edge of the envelope tends to rotate downwardly about a line parallel thereto, a conveyor being provided with a moving surface below the receiving surface for receiving the first edge of the envelope and conveying the envelope in a direction substantially perpendicular to the first edge so as to continue the rotation of the envelope until the envelope is inverted on the conveyor.

5,800,120

PUMP IMPELLER WITH ADJUSTABLE BLADES

Thomas W. Ramsay, Kitchener, Canada, assignor to A. W.
 Chesterton Co., Stoneham, Mass.

Filed Nov. 1, 1996, Ser. No. 742,634

Int. Cl.⁶ F03D 11/00

U.S. Cl. 415—129

15 Claims

1. Rotary pump apparatus, having:
 a rotary impeller and a driven shaft, wherein the impeller is mounted for rotation with the shaft, and includes a movable impeller component which is movable axially relative to the shaft;
 the impeller includes blades for pumping process fluid;

the blades are adjustable, to vary the pumping action, responsively to axial movement of the movable component along the shaft;
 a rotor sleeve, which is driven by the shaft, and which has a tapered outer surface;
 a stator sleeve, which has a complementarily-tapered inner surface;
 the rotor sleeve has a helical groove, formed in the outer tapered surface, the groove having an entry mouth at one end and an exit mouth at the other end of the groove;
 the tapered surfaces of the rotor and stator sleeves lie, during operation of the pump, in a hydrodynamic-film generating relationship;
 an entry chamber, and a means for supplying barrier liquid to the entry chamber;
 the entry chamber is in liquid-flow-communication with the entry mouth of the groove;
 an exit chamber, which is in liquid-flow-communication with the exit mouth of the groove, for receiving barrier liquid from the exit mouth of the groove;
 an actuator assembly, comprising a piston and complementary cylinder, which are mounted for rotation with the shaft;
 the exit chamber is in liquid-flow-communication with the actuator assembly, whereby barrier liquid in the exit chamber can pass into, and pressurize, the cylinder;
 an operable pressure regulator, for regulating the pressure of the barrier liquid in the exit chamber and cylinder;
 the piston and cylinder, in response to pressure of the barrier liquid in the cylinder, comprise a means for adjusting the position of the movable impeller component axially relative to the shaft.

5,800,121

PNEUMATIC ELECTRIC GENERATING SYSTEM

August J. Fanelli, 43 W. Buckingham Ave., Mt. Ephraim, N.J.
 08059

Filed Mar. 26, 1997, Ser. No. 824,768

Int. Cl.⁶ F01D 1/02

U.S. Cl. 415—199.5

20 Claims

1. An apparatus for generating power comprising:
 a plurality of modules connected in a closed loop, at least one module comprising:
 a duct having an axis, an upstream side and a downstream side, wherein a motive fluid passes through the duct from the upstream side to the downstream side;
 an inlet fan mounted in the duct for rotation about an axis and disposed proximate to the upstream side;
 a central shaft disposed along the axis of the duct for rotational movement;
 a reaction turbine wheel mounted to the central shaft in the duct downstream of the inlet fan, the reaction turbine wheel having a plurality of pressure chambers defined by plates

5,800,123

BLADED PUMP CAPSTAN

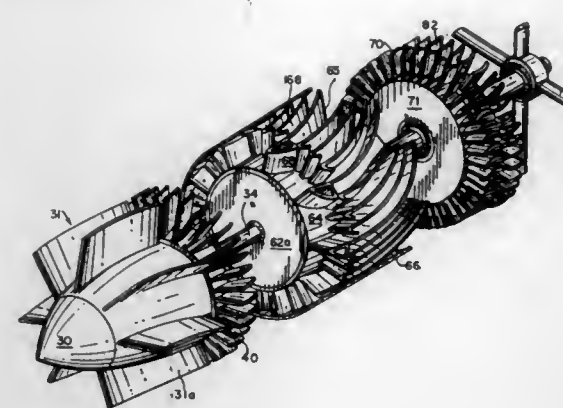
Bruce W. Travor, Holland, Pa., assignor to The United States of
 America as represented by the Secretary of the Navy, Wash-
 ington, D.C.

Filed Mar. 20, 1997, Ser. No. 822,083

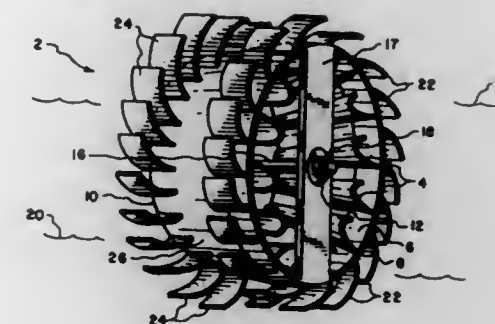
Int. Cl.⁶ F03B 1/02; 7/00; B66D 1/08

U.S. Cl. 416—85

5 Claims



which are disposed about the periphery of an inner shroud, each pressure chamber having an inlet and an outlet, wherein the reaction turbine wheel is rotatable about the axis in a first circumferential direction, and wherein the plates are curved from an upstream portion to a downstream portion in a second circumferential direction, opposite the first direction;
 an aft fan mounted to the duct downstream of the reaction turbine wheel and operably engaged to the central shaft via a gear box such that the aft fan rotates at a fixed speed with respect to the reaction turbine wheel; and
 a power generation means operably engaged to the reaction turbine wheel such that rotation of the reaction turbine wheel results in the generation of power.



1. An apparatus for tensioning a line and holding the line in tension during and after deployment of said line, the apparatus located in a fluid medium, the apparatus comprising:
 a) a rotatable capstan;
 b) first means located in the capstan for moving the fluid medium when said capstan is rotated;
 c) second means located around the outer circumference of said capstan for moving said fluid medium when said capstan is rotated;
 d) third means located around the outer circumference of said capstan for communicating with said line;
 wherein said first and said second means provide a counter rotational force to said capstan and said line when said capstan is rotated by said line.

5,800,122

BEARING CLEARANCE ADJUSTMENT DEVICE

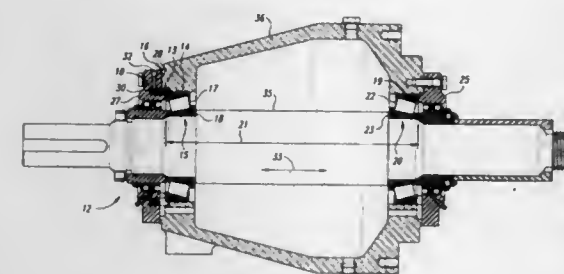
Urs J. Blattmann, Garibaldi Highlands, Canada, assignor to
 Toyo Pumps North America Corp., Burnaby, Canada

Filed Apr. 10, 1997, Ser. No. 831,704

Int. Cl.⁶ F01D 25/16

U.S. Cl. 415—229

11 Claims



1. A device for adjusting the bearing clearance of a pump, comprising:
 an annular piston provided adjacent to a bearing race, an end surface of the bearing race being spaced from an end surface of a bearing end cover by a selected distance;
 an annular elastomeric member positioned adjacent to the annular piston and having a plurality of apertures circumferentially spaced in the annular elastomeric member; and
 a volume control member provided in each of the apertures, the volume control members being selectively advanced into and retracted from the apertures, the elastomeric member expanding in an axial direction to move the piston towards the bearing race when the volume control members are advanced into the apertures, and the elastomeric member contracting in the axial direction such that the piston moves away from the bearing race when the volume control members are retracted from the apertures.

5,800,124

COOLED ROTOR ASSEMBLY FOR A TURBINE ENGINE

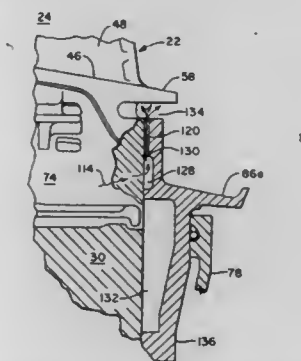
Mark F. Zelesky, Coventry, Conn., assignor to United Tech-
 nologies Corporation, Hartford, Conn.

Filed Apr. 12, 1996, Ser. No. 631,506

Int. Cl.⁶ F01D 5/08

U.S. Cl. 416—95

3 Claims



1. A cooled rotor assembly for a gas turbine engine including:
 a disk with an outer rim, an inner rim and a plurality of blade attachment slots extending from the outer rim to the inner rim;
 a plurality of rotor blades, each blade having a root and a platform with a leading edge, a trailing edge and lateral edges extending from the leading edge to the trailing edge, the blades being retained in the attachment slots so that the outer rim, the blade roots and the blade platforms define a plurality of cooling air cavities; and
 a plurality of cover plates retained in the blade slots, the cover plates having surfaces which abut the associated blade roots,

the rotor assembly characterized in that each cover plate has at least one conduit for drawing leakage air from a plenum in front of the disk and for impinging the leakage air against the trailing edges of the blade platforms.

5,800,125

TURBINE DISK COOLING DEVICE

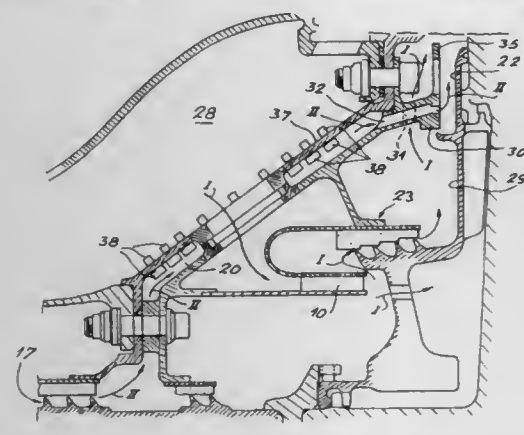
Christian Largillier, Le Mee sur Seine; Marc Roger Marchi, Le Mee; Laurent Palmisano, Yerres, and Gérard Jacques Stangalini, Fontainebleau, all of France, assignors to Societe Nationale D'Etude et de Construction de Moteurs D'Aviation "Snecma", Paris, France

Filed Jan. 7, 1997, Ser. No. 779,438

Claims priority, application France, Jan. 18, 1996, 96 00521
Int. Cl. F04D 29/58

U.S. Cl. 416—96 R

6 Claims



1. Cooling device for a turbine disk comprising:

- a first and a second cooling flow path originating from a stator and leading in front of an inner ring in a turbine disk and an outer ring in a flange respectively, wherein a portion of the first path is separated and directed to a seal placed along the first path, then in front of the flange and parallel to the flange to the outer ring of the flange;
- a part located in front of the outer ring;
- a plurality of first ducts which pass through said part approximately parallel to a surface of a side of the flange, said first ducts forming an extension to the first cooling flow path;
- a plurality of second ducts which pass through said part forming an extension to the second cooling flow path, intersecting but not interrupting the first ducts, and terminating in front of the outer ring.

5,800,126

SWINGING HEAD GEAR SHELL OF AN ELECTRIC FAN
Ching-Lang Tsai, No. 1, Lane 210, Section 1, Chu-Shih Rd., Lung-Chin Hsiang, Taichung County, Taiwan

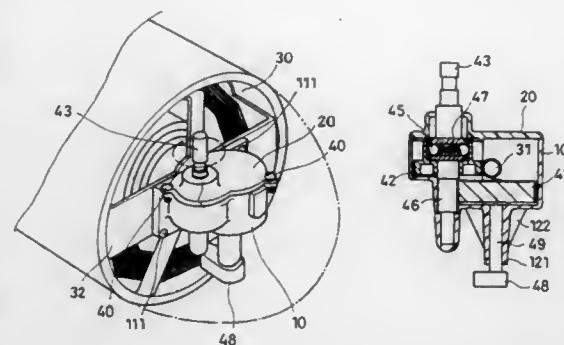
Filed Dec. 9, 1996, Ser. No. 761,361

Int. Cl. F04D 25/10

U.S. Cl. 416—100

2 Claims

1. A swinging head gear shell for a swinging head electric fan having a fan motor comprising a body and a cover respectively molded from reinforced engineering plastic, said body including
- (1) a mounting plate vertically disposed at one side of said body,
 - (2) a first open top chamber, (3) a second open top chamber disposed in parallel with said first open top chamber, (4) a first vertical locating barrel extending from a bottom side of said first open top chamber, (5) a second vertical locating barrel extending from a bottom side of said second open top chamber, and (6) a plurality of screw holes formed in a top border portion of said body, said mounting plate having a plurality of horizontal mounting holes formed therethrough and being respectively fastened to a



locating plate disposed behind the fan motor by screws secured through said horizontal mounting holes, said mounting plate having formed therein a circular through hole disposed in communication with said first open top chamber, said cover overlaying said body to close said first open top chamber and said second open top chamber, said cover having (1) a plurality of mounting holes formed therethrough in aligned relationship with said screw holes of said body for coupling of said cover by screws extending therethrough, (2) a raised portion, and (3) a through hole formed in said raised portion in communication with said second open top chamber, said first open top chamber receiving a first gear therein, said first gear having a gear shaft extending out from said first locating barrel for connection to a fan motor housing through a crank, said first open top chamber having space above said first gear into which a worm gear extends, said worm gear extending through said circular through hole of said mounting plate, said second open top chamber receiving a second gear meshingly engaged with said worm gear and a third gear and a control rod, said third gear being coupled to said control rod and meshingly engaged with said first gear, said control rod extending out from said through hole of said cover, said second open top chamber receiving means for coupling said second gear to said control rod responsive to a longitudinal displacement of said control rod to thereby rotatable drive said first gear and the crank therewith.

5,800,127

METHOD OF BALANCING FAN ROTORS, PARTICULARLY ELECTRIC FANS FOR USE IN MOTOR VEHICLES

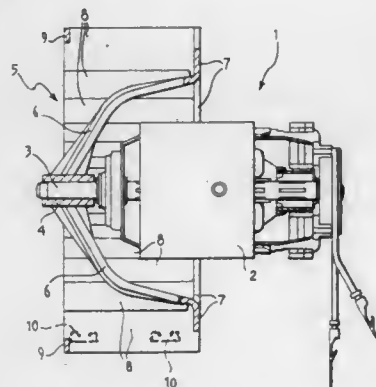
Sergio D'Angelo, Vasto, and Marco Greco, Pescara, both of Italy, assignors to Industrie Magneti Marelli S.p.A., Milan, Italy

Filed Dec. 27, 1996, Ser. No. 777,376

Claims priority, application Italy, Dec. 28, 1995, T095A1053
Int. Cl. F04D 29/00

U.S. Cl. 416—144

2 Claims



1. A fan rotor for use with a motor comprising a rotor having a plurality of blades of plastic material secured thereto and at least one staple secured to one of said blades for balancing said rotor, said staple having a C-shaped configuration with a pair of end arms

penetrated through the plastic material of the blade with the legs bent into engagement with the blade.

5,800,128

FAN WITH INDIVIDUAL FLOW SEGMENTS CONNECTED TO A HUB WITH A PREFABRICATED THERMOPLASTIC STRIP

Urs Bodmer, Ennetbaden, and Vishal Mallick, Birmenstorf, both of Switzerland, assignors to ABB Research Ltd., Zurich, Switzerland

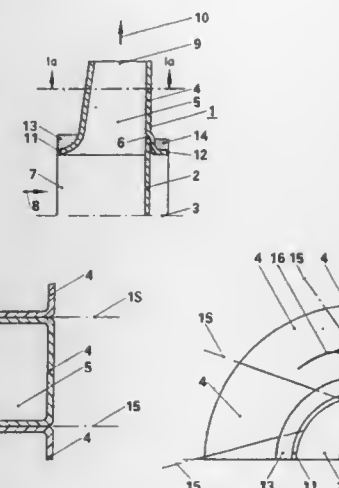
Filed Jul. 15, 1996, Ser. No. 679,954

Claims priority, application Germany, Jul. 15, 1995, 195 25 829.0

Int. Cl. B63H 1/16

U.S. Cl. 416—183

12 Claims



1. A fan comprising an impeller having a hub, a plurality of individual flow segments connected to the hub and to one another, each flow segment comprising and enclosing a flow duct a shaft connected to the hub and extending along an axis;

the flow segments connected with a form fit to the hub; and at least one shrouding positioned to reinforce the connection of said plurality of individual flow segments, said at least one shrouding comprising a prefabricated thermoplastic strip reinforced with continuous fibers and including a top surface and a bottom surface, the thermoplastic strip having been wound onto said impeller such that a portion of said bottom surface is immediately adjacent to portion of said top surface, said portion of said bottom surface heat fused to said portion of said top surface.

5,800,129

BLADE WITH SHIELDING FOR ENHANCED PROTECTION AGAINST LIGHTNING, FOR ROTORCRAFT ROTOR

François-Marie Lorin De La Grandmaison, Aurons; Bernard Marc Tagliana, Marseille, and Patrice Paul René Rauch, Fuveau, all of France, assignors to EUROCOPTER FRANCE S.A. Aeroport International Marseille-Provence, Marignane Cedex, France

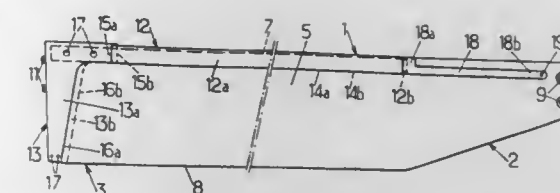
Filed Nov. 25, 1996, Ser. No. 757,965

Claims priority, application France, Nov. 29, 1995, 95 14128
Int. Cl. F04D 29/38

U.S. Cl. 416—224

28 Claims

1. A blade comprising shielding for enhanced protection against lightning for a rotorcraft rotor;
- said blade comprising a composite structure of composite material synthetic matrix and reinforcing fibers, said composite structure comprising a profiled main blade section delimited



between a section face surface and a pressure face surface which extend, in a direction of a chord of the blade, between a leading edge and a trailing edge and, in a direction of a span of the blade, between a blade tip at one end of said main blade section and a blade root which extends an opposite end of said main blade section and which includes means for attaching the blade to a rotor hub;

said shielding for protection against lightning comprising:

- a glove for protecting the leading edge, said glove being metallic, electrically conducting, and comprising a suction face arm and a pressure face arm which are adjacent along the leading edge and which are fixed to underlying parts of the suction face surface and the pressure face surface;
- a cap for protecting the blade tip, said cap being distinct from the glove and attached to the blade in such a way as to cover at least an end of the blade tip and being metallic, electrically conducting, and comprising a suction face arm and a pressure face arm which extend over substantially an entire end chord of the blade tip and which are applied to underlying parts of the suction face surface and the pressure face surface, respectively, in a region of the blade tip, the cap being connected with electrical continuity to the glove and
- electrically conducting means on the blade root for providing electrical continuity between the glove and electrically conducting means of said hub, for earthing the shielding, wherein at least the cap comprises a suction face arm having dimensions, at least in the direction of its span, which are different from dimensions of its pressure face arm.

5,800,130

PRESSURE CONTROL SYSTEM FOR A VARIABLE DISPLACEMENT HYDRAULIC PUMP

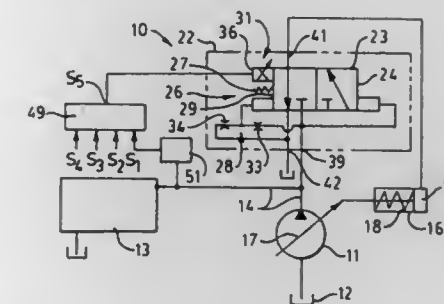
James R. Blass, Bloomington, and Gregory G. Hafner, Normal, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Dec. 19, 1996, Ser. No. 769,872

Int. Cl. F04B 1/26; F16D 31/02

U.S. Cl. 417—213

7 Claims



1. A pressure control system adapted for use with a variable displacement hydraulic pump having a discharge passage and a displacement controller disposed to decrease pump displacement in response to an increasing pressure signal and to increase pump displacement in response to a decreasing pressure signal comprising:

a displacement control valve having an inlet port communicating with the discharge passage, a control port communicating with the displacement controller, an exhaust port, a valve element having first and second ends and a first operative position communicating the control port with the exhaust port

and a second operative position communicating the inlet port with the control port, the first end being in continuous communication with the inlet port to generate a force biasing the valve element toward the second position, and first means for exerting a biasing force on the valve element in opposition to the pressure generated force acting on the first end of the valve element so that a pressure level is established in the discharge passage when the forces acting on the valve element are in equilibrium, the first means including a spring disposed to exert a substantially constant biasing force on the valve element and an orifice means for generating a fluid pressure at the second end of the valve element commensurate with the pressure in the discharge passage; and

a second means for exerting a variable mechanical biasing force on the valve element in concert with the first means to increase the pressure level in the discharge passage proportional to the level of the mechanical biasing force.

5,800,131 PROCESS FOR REGULATING THE CAPACITY OF LUBRICANT PUMPS AND LUBRICANT PUMP THEREFOR

Uwe Lehmann, Wörrstadt; Bodo Stich, Wiesbaden, and Maik Wilhelm, Trebur, all of Germany, assignors to Mercedes-Benz Aktiengesellschaft, Stuttgart, Germany
PCT No. PCT/DE94/00087, § 371 Date Jul. 26, 1995, § 102(e) Date Jul. 26, 1995, PCT Pub. No. WO94/17308, PCT Pub. Date Aug. 4, 1994

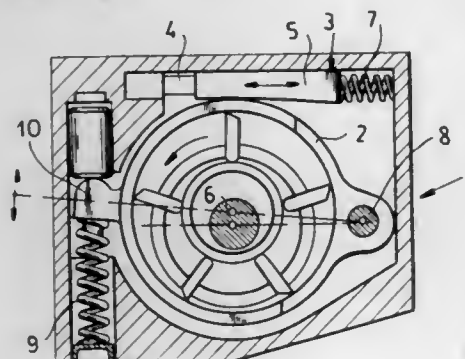
PCT Filed Jan. 27, 1994, Ser. No. 500,937

Claims priority, application Germany, Jan. 30, 1993, 43 02 610.9

Int. Cl. F04B 49/00

U.S. Cl. 417—270

1 Claim



1. A controllable lubricant vane pump, comprising:

- a housing;
- a rotor rotatable in said housing about an axis and provided with pumping vanes extending from the rotor;
- an eccentric ring surrounding said rotor and against which said vanes ride, said ring having on one side a pivot with an axis parallel to the axis of said rotor and on an opposite side, a projection extending from said ring;
- a first spring in said housing braced against said projection and a piston in said housing bearing against said projection against a force of said first spring; and
- a regulating device acting upon said ring against the force of said first spring, said regulating device comprising:
 - a wedge linearly guided in said housing and bearing on said ring between said pivot and said projection against the force of said first spring;
 - a second spring braced in said housing and bearing upon said wedge to urge said wedge between said housing and said ring in a direction wherein said wedge presses said ring against a force of said first spring to reduce eccentricity of said ring relative to said rotor; and
 - a thermally sensitive element interposed between said wedge and said housing and expanding with increasing temperature to displace said wedge against a force of said second

spring so that with decreasing temperature said ring is displaced about said axis of said pivot further against the force of said first spring.

5,800,132 AUTOMOBILE DUAL PURPOSE WATER PUMP DRIVE APPARATUS

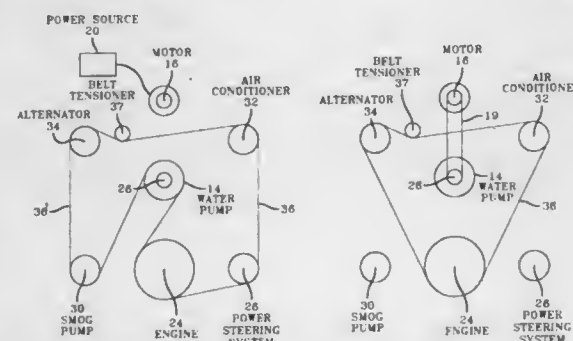
Gregory A. Marietti, 5048 Postlewaite Rd., Columbus, Ohio 43235

Filed May 14, 1996, Ser. No. 647,571

Int. Cl. F01P 5/10

U.S. Cl. 417—238

1 Claim



1. An engine performance apparatus, comprising:

- a water pump;
- a bracket secured at a proximal end to said water pump and extending therefrom;
- an electric motor secured to a distal end of said bracket; and
- a dual purpose, one-piece pulley operatively secured to a drive shaft of said water pump, said pulley having a first drive adapted to engage a belt and a second drive with a cog surface adapted to engage a cog belt, such that in a racing mode the second drive is engaged by the electric motor via the cog belt and in a conventional use mode the first drive is engaged by said belt operatively connected to said engine.

5,800,133 COMPRESSOR WITH DISCHARGE CHAMBER RELIEF VALVE

Hayato Ikeda; Hitoshi Inukai; Kazuhito Kawasumi; Hideo Mori; Koichi Ito, and Naoya Yokomachi, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyota Jidoshokki Seisakusho, Japan

Filed Oct. 11, 1996, Ser. No. 730,485

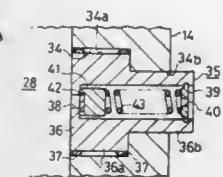
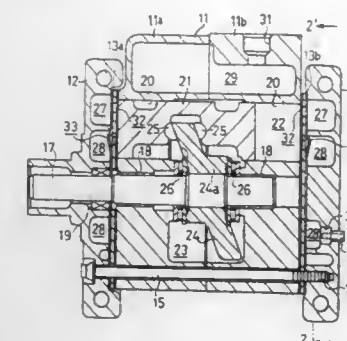
Claims priority, application Japan, Oct. 12, 1995, 7-264516; Feb. 1, 1996, 8-016758

Int. Cl. F04B 1/12

U.S. Cl. 417—269

10 Claims

- 1. A compressor for compressing gas introduced therein from an external circuit and discharging therefrom to an exterior of the compressor, said compressor comprising:
 - a compressor housing having a thickness;
 - a compression chamber defined in the housing to compress the gas;
 - a discharge region defined in the housing to receive the compressed gas discharged from the compression chamber, said discharge region being separated from the exterior by a wall of the housing; and
 - a relief valve mounted to the inside of the discharge region, said relief valve having a length substantially equal to the thickness of the housing near a location where said relief valve is mounted and being capable of connecting the discharge region with the exterior of the compressor, wherein said relief valve includes a first portion located close to the discharge region, a second portion located close to the exterior, said second portion having a diameter smaller than that of the first



portion, a pressure passage connected with the discharge region and extending in a substantially entire length of the first portion and the second portion, and said pressure passage having a bore communicating with the exterior of the compressor.

5,800,134 TANDEM, SWASH PLATE PUMP HAVING DRIVE FORCE TAKE-OUT MECHANISM

Susumu Hasegawa, Kobe; Shoji Nakagaki, Kakogawa, and Tokihiko Umeda, Kobe, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Hyogo, Japan

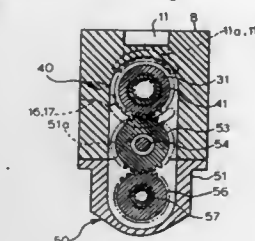
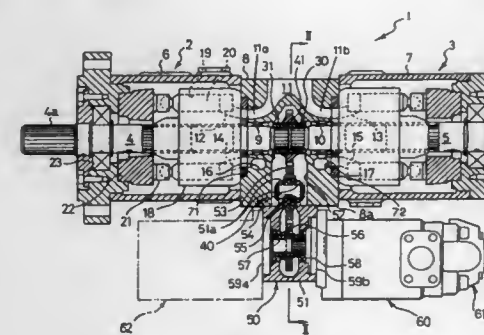
Continuation-in-part of Ser. No. 454,078, May 30, 1995, abandoned. This application Nov. 25, 1996, Ser. No. 756,168

Claims priority, application Japan, Oct. 24, 1994, 6-284173

Int. Cl. F04B 1/12

U.S. Cl. 417—269

6 Claims



- 4. A tandem, swash plate-type hydraulic pump comprising:
 - a housing;
 - at least two swash plate-type hydraulic pumps mounted in said housing and having respective drive shafts movable in response to swash plate inclinations;
 - a spline coupling including a rotatable spline sleeve member for connecting said drive shafts of said two swash plate-type hydraulic pumps coaxial to each other;

a first gear rotating integrally with said spline sleeve member of said spline coupling;

a gear box including an intermediate gear engaged with said first gear and a driven gear engaged with the intermediate gear, a drive force take-out member rotating integrally with the driven gear, a gear case for rotatably housing the intermediate gear, the driven gear and the drive force take-out member, and means for removably mounting said gear box to said housing of the tandem, swash plate-type hydraulic pump; and

means enabling said drive force take-out member mounted in an orthogonal direction with respect to the direction of inclination of said swash plate.

5,800,135
SLIDING VANE PUMP USING A DRIVE SHAFT AS A
FLOW DIVIDER FOR ENHANCED OIL CIRCULATION
Johann Merz, Schwäbisch Gmünd, Germany, assignor to ZF Friedrichshafen AG., Friedrichshafen, Germany
PCT No. PCT/EP95/04129, § 371 Date Apr. 17, 1997, § 102(e) Date Apr. 17, 1997, PCT Pub. No. WO96/13665, PCT Pub. Date May 9, 1996

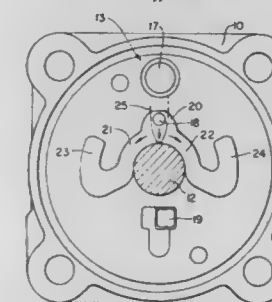
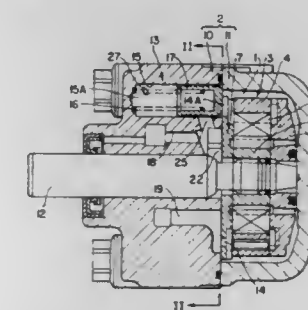
PCT Filed Oct. 21, 1995, Ser. No. 817,518

Claims priority, application Germany, Oct. 29, 1994, 44 38 696.6

Int. Cl. F04B 49/00

U.S. Cl. 417—300

4 Claims



1. A vane cell pump comprising:

- a cam ring seated in a housing having a front wall;
- a rotor, which is driven by means of a driveshaft, has radial slits in which work slides are inserted that sealingly slide along the cam ring;
- work chambers are formed between the cam ring, the rotor and the work slides, which work chambers are delimited in the axial direction by control plates;
- a flow control valve, which on the one side is fed by the conveying pressure and on the other side by an outlet pressure plus a spring force, is located in the housing, which provides a connection from a pressure chamber to a spray channel;
- a suction channel is divided into two symmetrically arranged curved suction arms located in the front wall of the housing, leading to suction zones;
- the improvement comprising:
 - the suction channel terminating in a distributing section, which is located in the center of the flow control valve, from which the curved suction arms radiate,

the distributing section and the curved suction arms are being arranged in such a way that the driveshaft acts as flow divider, and the spray channel of the flow control valve terminating centrally in the distributing section.

5,800,136

PUMP WITH BYPASS VALVE

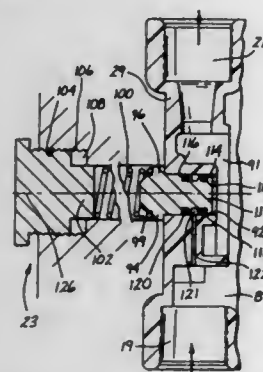
Brian J. Kurth, Lake Elsinore, and Anil B. Patel, La Crescenta, both of Calif., assignors to Shurflo Pump Manufacturing Co., Santa Ana, Calif.

Filed Feb. 28, 1997, Ser. No. 807,788

Int. Cl.⁶ F04B 49/00

U.S. Cl. 417—311

19 Claims



1. A pump comprising:
 - a housing having at least a first pumping chamber, an inlet, an inlet passage leading from the inlet to the pumping chamber, an outlet and an outlet passage leading from the pumping chamber to the outlet;
 - a first pumping member movable in the pumping chamber on an intake stroke whereby fluid from the inlet passage is drawn into the pumping chamber and a discharge stroke whereby fluid in the pumping chamber is discharged into the outlet passage;
 - a drive for moving the pumping member on the intake and discharge strokes;
 - a bypass passage leading from a location in the outlet passage to a location in the inlet passage; and
 - a bypass valve being movable in response to the fluid pressure from the outlet passage and substantially independent of the pressure from the inlet passage from a closed position in which fluid is prevented from flowing through the bypass passage to an open position in which fluid flows through the bypass passage.

5,800,137

REFRIGERATING COMPRESSOR WITH BREAKAWAY PULLEY PORTION

Kazuo Eitai; Minoru Kanaizuka; Hiroyuki Ishida; Shuzo Kumagai, all of Koonan-machi, and Tadashi Kobayashi, Higashimatsuyama, all of Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed May 13, 1996, Ser. No. 645,145

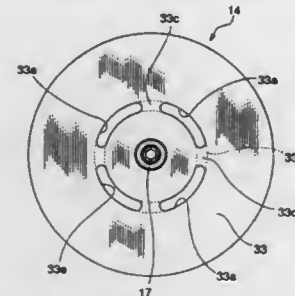
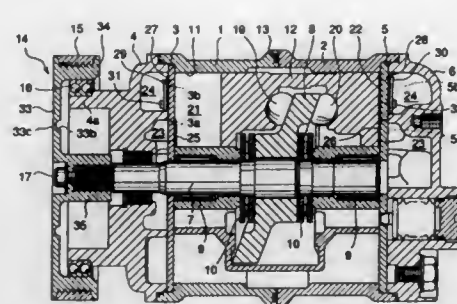
Claims priority, application Japan, May 25, 1995, 7-151037

Int. Cl.⁶ F04B 9/00; F16D 09/08

U.S. Cl. 417—319

15 Claims

1. A refrigerant compressor comprising:
 - a drive shaft;
 - a pulley fixedly fitted on said drive shaft, over which is passed a torque-transmitting member for transmitting torque from an external drive source to said drive shaft;
 - a compression rotational member mounted on said drive shaft for rotation in unison with said drive shaft to enable compression of a refrigerant gas;



- said pulley having a rim in the form of a hollow cylinder, over which is passed said torque-transmitting member; a boss which is fixedly fitted on said drive shaft; and a support member connecting said rim and said boss; said rim, boss and support member being a unitary, integrally formed one-piece member;
- a breakaway portion provided in said support member for breaking to disconnect said torque-transmitting member from said compression rotational member when a load torque larger than a predetermined value is applied to said breakaway portion; and
- a bearing arranged on said pulley for receiving tension of said torque-transmitting member to thereby hold said rim in a rotating state when said torque-transmitting member is disconnected from said compression rotational member by breaking of said breakaway portion; and
- wherein:
- said support member of said pulley is in the form of a disk; and
- said breakaway portion comprises a plurality of through holes in said support member of said pulley, said through holes being arranged along an imaginary circle about said drive shaft, and said through holes being arranged at predetermined spaced intervals along said imaginary circle.

5,800,138

EXTRACORPOREAL BLOOD PUMP FOR CARDIAC SURGERY

Salvador Merce Vives, Ruzafa, 23, 46004 Valencia, Spain

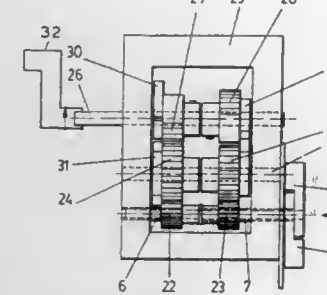
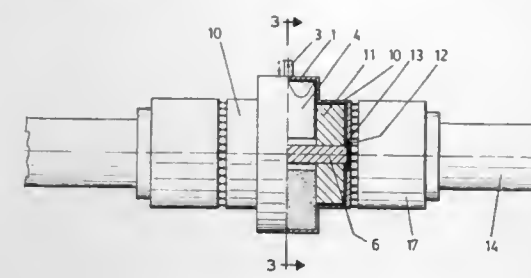
Filed Jul. 30, 1996, Ser. No. 692,866

Int. Cl.⁶ F04B 9/14; 17/00

U.S. Cl. 417—374

11 Claims

1. An extracorporeal blood pump system, comprising:
 - a housing having a cavity and having two ports spaced radially along said cavity, one port being an input port and the other port being an output port;
 - a pair of radial blades within said cavity, said blades being supported on independent axles, said blades being adapted to move independently such that one blade remains still between said input and output ports while the other is moving, thereby creating two independent chambers, an input chamber and an output chamber;
 - independent magnetic elements connected to said axles, and
 - two independent motor means having magnetic elements each aligned with one of said independent magnetic elements connected to said axles, thereby creating magnetic couplings therebetween;



whereby said motor means can activate said two radial blades independently and without a direct connection therebetween.

5,800,139

ELECTROMAGNETIC OIL PUMP

Seiichi Yamada, Iwata, Japan, assignor to Yamada Hatsudoki Kabushiki Kaisha, Iwata, Japan

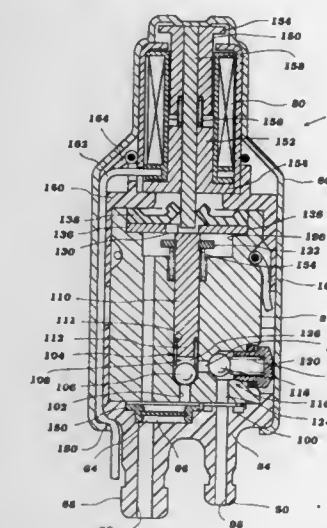
Filed Sep. 12, 1996, Ser. No. 713,250

Claims priority, application Japan, Oct. 13, 1995, 7-265637; Oct. 31, 1995, 7-283897

Int. Cl.⁶ F04B 17/04

U.S. Cl. 417—416

18 Claims



1. An electromagnetic pump comprising a solenoid driving means, said solenoid driving means driving at least one pumping member of a pair of relatively moveable pumping members, said pair of pumping members defining a pumping chamber of a volume that varies cyclically upon relative movement of said members between a first position defining a maximum volume area and a second position defining a minimum, clearance volume area that is included in said maximum volume area, a pair of one-way valves for controlling the flow of fluid upon such relative movement respectively into and out of said pumping chamber, at least one of said one-way valves including a first valve element moveable in a first direction between an opened position and a closed position in response to pressure differences across said first valve element, said first valve element being positioned within said

5,800,140

COMPACT SCROLL FLUID DEVICE

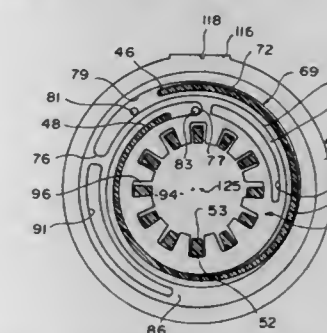
Ronald J. Forni, Littleton, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Oct. 25, 1996, Ser. No. 736,868

Int. Cl.⁶ F01C 1/04

U.S. Cl. 418—2

16 Claims



1. A compact scroll fluid device comprising:
 - first and second involute spiral wrap members, each of said first and second wrap members having respective first and second end portions, said first and second wrap members being meshed and defining at least one fluid chamber between them that moves radially from an inlet zone to an outlet zone when one of said first and second wrap members is orbited along a circular path relative to the other of said first and second wrap members;
 - first and second wrap support elements, each of said first and second wrap support elements supporting a respective one of said first and second wrap members, at least one of said first and second wrap support elements being adapted to be driven to create a relative orbital motion between the first and second wrap members; and
 - a synchronizer assembly interconnecting said wrap support elements and preventing relative rotation between said wrap members while accommodating their relative orbital motion, said synchronizer assembly being arranged axially between said first and second wrap support elements and radially between a central portion of said scroll fluid device and said inlet and outlet zones such that said synchronizer assembly is spaced radially from the central portion.

5,800,141

SCROLL MACHINE WITH REVERSE ROTATION PROTECTION

Muzafer Ceylan, Alsdorf, Germany; Jaroslav Blass, Plymouth, Minn., and Jean-Luc Caillat, Dayton, Ohio, assignors to Copeland Corporation, Sidney, Ohio

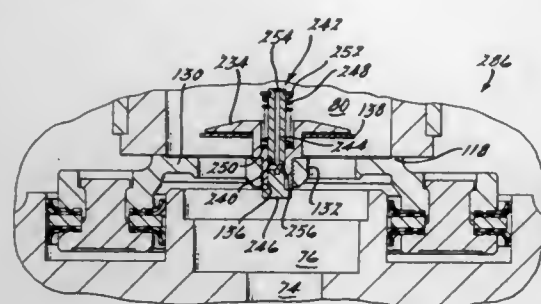
Filed Nov. 21, 1996, Ser. No. 754,821

Int. Cl.⁶ F01C 1/04; 19/08; 21/16

U.S. Cl. 418—55.1

16 Claims

1. A scroll machine comprising:
 - a shell defining a discharge chamber;
 - a first scroll member disposed in said shell, said first scroll member having a first spiral wrap projecting outwardly from an end plate;



- a second scroll member disposed in said shell, said second scroll member having a second spiral wrap projecting outwardly from an end plate, said second spiral wrap intermeshed with said first spiral wrap;
- a drive member for causing said scroll members to orbit relative to one another whereby said spiral wraps will create pockets of progressively changing volume between a suction pressure zone and a discharge pressure zone, said discharge pressure zone being in fluid communication with said discharge chamber;
- a discharge valve disposed between said discharge pressure zone and said discharge chamber, said discharge valve movable between an open position where fluid flow between said discharge pressure zone and said discharge chamber is permitted and a closed position where fluid flow between said discharge chamber and said discharge pressure zone is prohibited;
- a flow path disposed between said discharge chamber and said discharge pressure zone, said flow path being open when said discharge valve is in said closed position; and
- a control valve disposed within said flow path, said control valve being movable between an open position where fluid flow through said flow path is permitted and a closed position where fluid flow through said flow path is prohibited.

5,800,142

SCROLL COMPRESSOR HAVING A COUNTERBORING PART COMMUNICATING WITH AN INTERMEDIATE PRESSURE CHAMBER

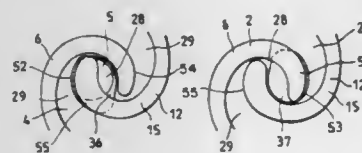
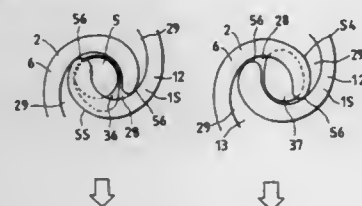
Shuji Motegi; Toshiyuki Nakamura; Fumiaki Sano; Masayuki Kakuda; Kiyoharu Ikeda; Yoshihide Ogawa; Eiji Watanabe, all of Kanagawa, and Shinji Nakashima, Hyogo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 536,161, Sep. 29, 1995, Pat. No. 5,674,061. This application Jun. 21, 1996, Ser. No. 670,224. Claims priority, application Japan, Mar. 22, 1995, 7-062660; Jun. 26, 1995, 7-159494

Int. Cl.⁶ F04C 18/04

U.S. Cl. 418—55.2

3 Claims



1. A scroll compressor comprising:

- a fixed scroll disposed in a sealed vessel and provided with a plate-like spiral tooth on a base plate having a discharge port for a high-pressure refrigerant gas at a center;
- an orbiting scroll disposed in said sealed vessel and having a base plate provided with a plate-like spiral tooth engaging said plate-like spiral tooth of said fixed scroll for forming a compression space consisting of a high pressure chamber, an intermediate pressure chamber, and a low pressure chamber; and
- a counterboring part made in at least one of said base plates of said fixed and orbiting scrolls, having a cutaway part corresponding to a center of said plate-like spiral tooth of said base plate, and set to have a form and position such that when said fixed and orbiting scrolls operate, said counterboring part begins to communicate with said intermediate pressure chamber at a later timing than said high pressure chamber and said intermediate pressure chamber communicate with each other on side faces of said plate-like spiral teeth of said fixed and orbiting scrolls.

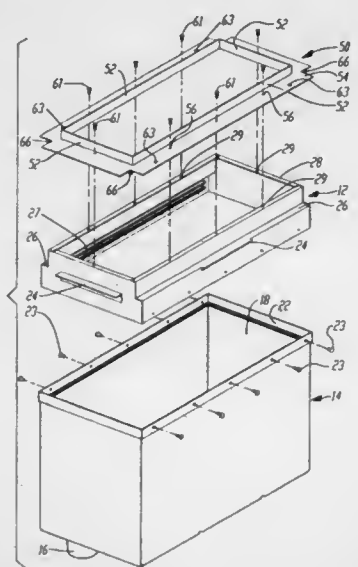
5,800,143

ANCHORING FRAME FOR CONTAINMENT BOX

Sergio M. Bravo, 2872 Tigertail Dr., Los Alamitos, Calif. 90720. Filed Sep. 20, 1996, Ser. No. 710,765. Int. Cl.⁶ E02B 13/00; B09B 3/00

U.S. Cl. 405—52

18 Claims



1. A frame assembly for anchoring a containment box with a top opening in a surrounding driveway surface and for removably attaching one of a plurality of different product dispensers to the containment box, the product dispenser including connections for connecting the product dispenser to product piping to be located in the containment box, the frame assembly comprising:
- an anchor frame attached to the top opening of the containment box, the anchor frame including:
- a plurality of outwardly extending anchoring brackets for anchoring the containment box in the surrounding driveway surface;
- at least one rail permitting adjustable support of the piping in the containment box; and
- means for removable attachment of the anchor frame to any one of plurality of different dispenser frames; and
- a dispenser frame including means for removably attaching the dispenser frame to the anchor frame and means for mounting the one of the plurality of product dispensers to the dispenser frame.

5,800,144

APPLICATOR CONTAINER

William C. Glenn, Alpharetta, and Joseph H. Workman, LaGrange, both of Ga., assignors to OSI Sealants, Inc., Mentor, Ohio

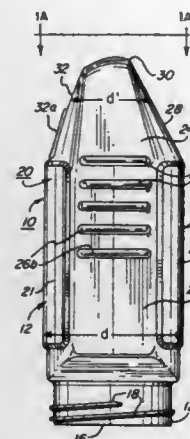
Continuation of Ser. No. 512,890, Aug. 9, 1995, abandoned.

This application Mar. 17, 1997, Ser. No. 819,364

Int. Cl.⁶ B05C 17/00

U.S. Cl. 401—139

11 Claims



1. An applicator-container comprising:
- a container body having a front face and a rear face spaced apart from each other to define therebetween an interior for containing a flowable paste material and further having a container mouth formed therein, the rear face having a rear tapered portion defined by spaced-apart facing portions of the front face and the rear face;
- seating means on the applicator-container dimensioned and configured to receive a closure means for selectively (a) closing the container mouth to seal the interior and (b) opening the container mouth to enable dispensing such flowable material therethrough; and
- applicator means consisting of the rear tapered portion of the container body defined by the spaced-apart facing portions of the front face and the rear face and configured as an applicator blade surface terminating in a straight edge formed by the intersection of the facing portions.

5,800,145

CARGO RESTRAINING DEVICE

Donald Lee Kelce, 503 Florence St., Philipsburg, Pa. 16866-2405

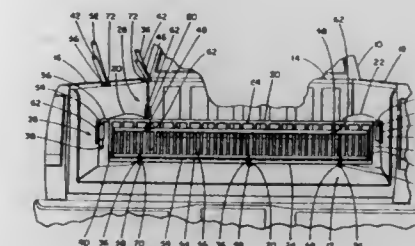
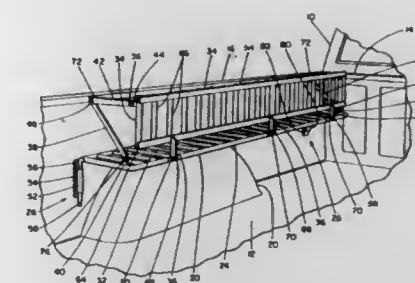
Filed May 16, 1997, Ser. No. 857,644

Int. Cl.⁶ B60P 7/14

U.S. Cl. 410—142

7 Claims

1. A convertible cargo holding device positioned in the bed of a pick-up truck, said bed having a floor, a left side panel, a right side panel and a front panel comprising in combination:
- a base gate;
- a secondary gate hinged upon said base gate;
- a removable rear base gate hinge means attached to said left side panel and rotatably attached to said base gate;
- a removable forward base gate hinge means attached to said left side panel and rotatably attached to said base gate;
- a transverse base gate hinge means attached to said right side panel and rotatably attached to said base gate, said transverse base gate hinge means adapted to receive a portion of said removable forward base gate hinge means;



a removable support means attached to said left side panel and to both said base gate and to said secondary gate.

5,800,146

LIQUID-RING GAS PUMP WITH A SILENCING ELEMENT IN THE DISCHARGE SPACE

Alfons Jünemann, Itzehoe, and Günther Struck, Oelisdorf, both of Germany, assignors to SIHI GmbH & Co. KG, Itzehoe, Germany

PCT No. PCT/EP95/05093, § 371 Date Jun. 17, 1997, § 102(e) Date Jun. 17, 1997, PCT Pub. No. WO96/20346, PCT Pub. Date Apr. 4, 1996

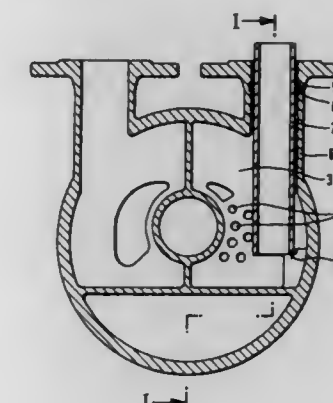
PCT Filed Dec. 22, 1995, Ser. No. 849,870

Claims priority, application Germany, Dec. 23, 1994, 9420803 U

Int. Cl.⁶ F04C 19/00

U.S. Cl. 417—68

6 Claims

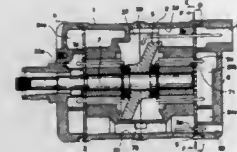
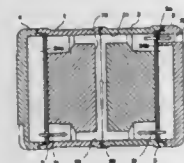
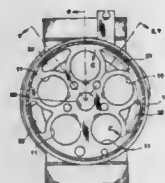


1. Liquid-ring gas pump comprising a discharge space (4), a discharge stub (6) connected to the top of the discharge space, a removable tubular silencing element (7) extending downwardly through the discharge stub into the discharge space (4) and an elastic ring holding the silencing element within the discharge stub.

5,800,147
SWASH PLATE COMPRESSOR
 Katsuhiko Arai; Katsutoshi Enomoto; Kiyoshi Yoshii, and
 Hisao Ichikawa, all of Saitama-ken, Japan, assignors to
 Zexel Corporation, Tokyo, Japan
 Filed Apr. 1, 1997, Ser. No. 834,719
 Claims priority, application Japan, Apr. 19, 1996, 8-122661
 Int. Cl.⁶ F04B 1/12

U.S. Cl. 417—269

4 Claims



1. In a swash plate compressor including a cylinder block, a plurality of cylinder bores extending through said cylinder block, a plurality of pistons received within said plurality of cylinders, respectively, front-side compression chambers formed within said cylinder bores on front sides of said pistons, respectively, a front-side discharge chamber to which refrigerant gas is delivered from said plurality of front-side compression chambers, rear-side compression chambers formed within said cylinder bores on rear sides of said pistons, respectively, a rear-side discharge chamber to which said refrigerant gas is delivered from said plurality of rear-side compression chambers, at least two refrigerant outlet passages extending through said cylinder block in a fashion parallel with said plurality of cylinder bores, for communicating said front-side discharge chamber with said rear-side discharge chamber, a head secured to a front-side end of said cylinder block or a rear-side end of said cylinder block, and a discharge port formed through said head to permit said refrigerant gas within said front-side discharge chamber and said refrigerant gas within said rear-side discharge chamber to be discharged out of said head, one of said at least two refrigerant outlet passages being communicated with said discharge port.

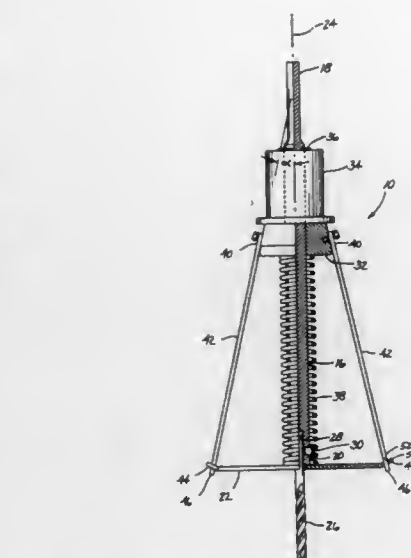
the improvement wherein said cylinder block has a guide passage formed therein for communicating an intermediate portion of any of said at least two refrigerant outlet passages other than said one of said at least two refrigerant outlet passages being communicated with said discharge port, with said one of said at least two refrigerant outlet passages being communicated with said discharge port.

5,800,148
BLIND-TAPER HOLE SAW
 Michael A. Wise, 7851 S. River Rd., Marine City, Mich. 48039
 Filed Dec. 3, 1997, Ser. No. 984,244
 Int. Cl.⁶ B23B 41/02

U.S. Cl. 408—204

14 Claims

1. A rotary tool for forming a hole in a workpiece comprises:

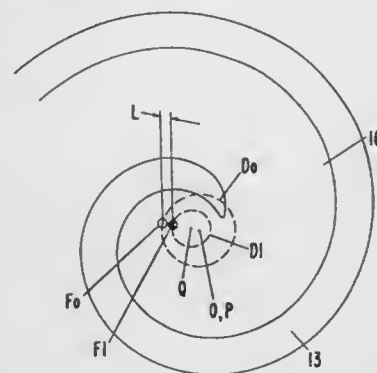


an elongate shaft having a first end, a second end and a longitudinal axis extending between the first end and the second end;
 a collar, mounted for axial movement on the shaft;
 a spring biasing the collar away from the second end of the shaft to a first position on the shaft;
 a plurality of blade guides mounted on the shaft proximate to the second end thereof such that the blade guides are rotatable with the shaft about the longitudinal axis thereof; and
 a plurality of elongate blades pivotally attached to the collar, wherein a portion of the length of each one of the blades is fixedly circumferentially and radially supported relative to the shaft by a respective one of the blade guides, and wherein the angle formed between each blade and the longitudinal axis of the shaft increases with increasing axial displacement of the collar on the shaft away from the first position.

5,800,149
ELECTRICALLY-DRIVEN CLOSED SCROLL COMPRESSOR HAVING MEANS FOR MINIMIZING AN OVERTURNING MOMENT TO AN ORBITING SCROLL
 Manabu Sakai, and Shigeru Muramatsu, both of Kusatsu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-Fu, Japan
 Division of Ser. No. 515,591, Aug. 16, 1995, Pat. No. 5,630,712. This application Jan. 24, 1997, Ser. No. 787,294
 Claims priority, application Japan, Aug. 22, 1994, 6-195838
 Int. Cl.⁶ F04C 18/04; 27/00

U.S. Cl. 418—55.2

12 Claims



1. An electrically-driven closed scroll compressor comprising a closed vessel, and a compression mechanism accommodated in said closed vessel and comprising:

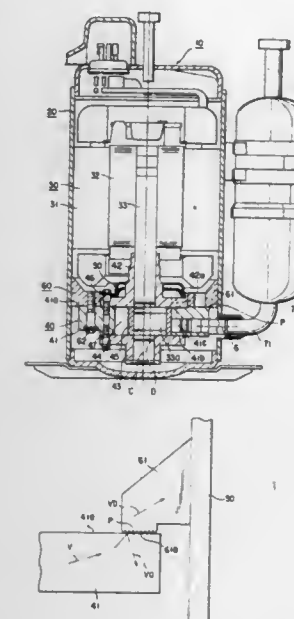
a bearing member securely mounted in said closed vessel;
 a stationary scroll having a stationary scroll wrap formed thereon;
 an orbiting scroll mounted between said stationary scroll and said bearing member and having an orbiting end plate and an orbiting scroll wrap formed on said orbiting end plate so as to engage with said stationary scroll wrap to define a plurality of working pockets therebetween; and
 an eccentric bearing for allowing said orbiting scroll to undergo an orbiting motion relative to said stationary scroll;
 an electric motor accommodated in said closed vessel so as to drive said compression mechanism; and
 a generally ring-shaped sealing member mounted on one of said bearing member and said orbiting end plate so as to be held in contact with the other of said bearing member and said orbiting end plate;
 wherein said orbiting end plate has first and second regions defined therein internally and externally of said sealing member, respectively, said first and second regions receiving first and second pressures, respectively, both forming a first thrust force; and
 wherein said orbiting scroll wrap is formed to represent a scroll curve having a center of development positioned on said orbiting end plate so that during the orbiting motion of said orbiting scroll, when a second thrust force applied to said orbiting scroll from said working pockets takes a substantially maximum value, a distance between a central point of application of said first thrust force and a central point of application of said second thrust force takes a substantially minimum value.

5,800,150
HERMETIC COMPRESSOR HAVING VIBRATION DAMPING SUPPORT

Izumi Onoda; Yasushi Adachi, both of Fuji; Isao Kawabe, Fujinomiya, and Kazu Takashima, Fuji, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
 Filed Nov. 26, 1996, Ser. No. 756,557
 Claims priority, application Japan, Dec. 11, 1995, 7-321705
 Int. Cl.⁶ F04B 39/00; F04C 29/06

U.S. Cl. 418—63

7 Claims



1. A hermetic compressor having vibration damping support which compresses a compressed gas, comprising:
 a sealing container;

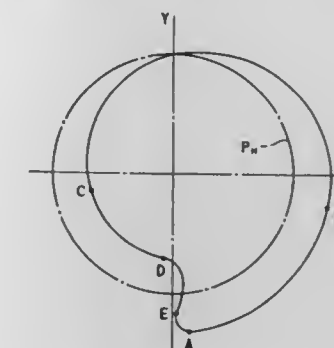
a compression mechanism constituting a cylinder and made of a cast material which is housed in said sealing container and compresses said compressed gas introduced into the inside thereof; and
 a frame made of a cast material for fixedly supporting said compression mechanism, said compression mechanism being fixedly supported so that an outer peripheral end face of said cylinder constituting said compression mechanism abuts against said frame,
 a solid propagation wave damping portion being provided in an abutting portion where said compression mechanism and said frame abut against each other, the outer peripheral end face of said compression mechanism constituting a first abutting surface of said solid propagation wave damping portion and a portion of said frame abutted by said outer peripheral end face of said compression mechanism constituting a second abutting surface of said solid propagation wave damping portion, said first abutting surface and said second abutting surface being formed to have different finishing surface precision, said solid propagation wave damping portion damping vibration by suddenly changing a cross section of said abutting portion, wherein said abutting portion functions as a path for transmitting vibration caused in said compression mechanism to said sealing container.

5,800,151
SCREW ROTOR AND METHOD OF GENERATING TOOTH PROFILE THEREFOR

Takeshi Kawamura; Kiyoshi Yanagisawa, both of Kanagawa-Ken, and Shigeyoshi Nagata, Tokyo, all of Japan, assignors to Ebara Corporation, Tokyo, Japan
 Division of Ser. No. 626,959, Apr. 3, 1996, Pat. No. 5,697,772.
 This application Sep. 3, 1997, Ser. No. 922,553
 Claims priority, application Japan, Apr. 4, 1995, 7-080465
 Int. Cl.⁶ F01C 1/16

U.S. Cl. 418—201.3

11 Claims



1. A method of generating a transverse tooth profile of a screw rotor, comprising the steps of:
 defining a transverse tooth profile of a screw rotor meshing with a companion screw rotor, with a tooth root circular arc, an outer circumferential circular arc, and two curves connected to said tooth root circular arc;
 defining one of said two curves by determining a curve which defines an imaginary rack and producing a tooth profile curve generated by the imaginary rack; and
 defining the other of said two curves comprising two curve segments, one of said two curve segments comprising a tooth tip arc which is defined as an arc having a radius of curvature equal to or smaller than the difference between a radius of curvature of said outer circumferential circular arc and a radius of a pitch circle of the tooth profile and is connected to said outer circumferential circular arc, and the other of said two curve segments comprising a curve connected to said tooth root circular arc and determined by a curve generated by a tooth tip arc of the companion screw rotor.

5,800,152

OXIDATION RESISTANT METALLIC MATERIALS

Hitoshi Taimatu, Akita, and Masami Ueda, Suita, both of Japan, assignors to Sumitomo Special Metals Company, Limited, Osaka, Japan

PCT No. PCT/JP96/00914, § 371 Date Feb. 14, 1997, § 102(e) Date Feb. 14, 1997, PCT Pub. No. WO96/31634, PCT Pub. Date Oct. 10, 1996

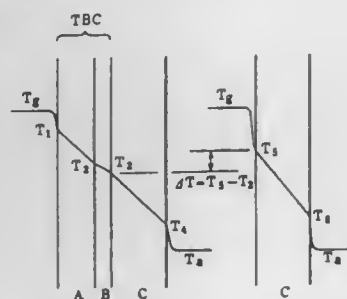
PCT Filed Apr. 3, 1996, Ser. No. 737,993

Claims priority, application Japan, Apr. 4, 1995, 7-104899

Int. Cl.⁶ C22C 38/22; 30/00

U.S. Cl. 420—40

4 Claims



1. An oxidation resistant metallic material exhibiting an average coefficient of thermal expansion ranging from more than $12 \times 10^{-6}/K$ to less than $13 \times 10^{-6}/K$ in a temperature range from room temperature to $1,000^\circ C$, consisting essentially of 15 to 40 wt % Cr, 5 to 15 wt % W, 0.01 to 1 wt % of at least one element chosen from the group consisting of Y, Hf, Ce, La, Nd and Dy, balance Fe and unavoidable impurities.

5,800,153

REPETITIVE DETONATION GENERATOR

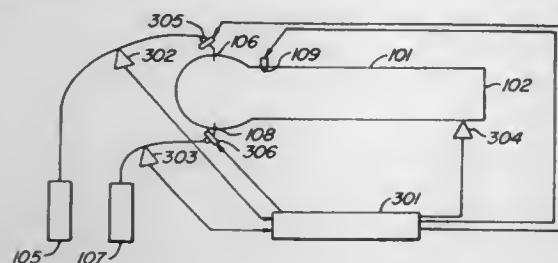
Mark DeRoche, 325 Homer St., Manhattan Beach, Calif. 90266, assignor to Mark DeRoche, Manhattan Beach, Calif.

Filed Sep. 20, 1995, Ser. No. 531,258

Int. Cl.⁶ F23C 11/04

U.S. Cl. 431—1

15 Claims



1. A repetitive detonation generator comprising:
a detonation tube;
a first injection orifice coupled to said detonation tube for injecting a fuel supplied by a fuel source into said detonation tube, said fuel having a first pressure at said first orifice;
a second injection orifice coupled to said detonation tube for injecting an oxidizer supplied by an oxidizer source into said detonation tube, said oxidizer having a second pressure at said second orifice;
a detonation initiator for supplying an initiation energy to a mixture of said fuel and said oxidizer within said detonation tube, said initiation energy causing a detonation reaction, wherein a detonation wave is formed by said detonation reaction, said detonation wave temporarily creating a third pressure in said detonation tube and temporarily interrupting a flow of said fuel and a flow of said oxidizer into said detonation tube, wherein said third pressure is greater than said first and second pressures;
a mechanical valve interposed between said first injection orifice and said fuel source;

a sensor coupled to said detonation tube, said sensor outputting a signal when combustion is detected within said detonation tube; and
a controller coupled to said sensor and coupled to said mechanical valve, said controller causing said mechanical valve to interrupt said flow of said fuel through said first injection orifice if said controller receives said signal from said sensor after said detonation wave has been exhausted from said detonation tube, said mechanical valve continuing to interrupt said flow of fuel until no further combustion is detected by said sensor.

5,800,154

GAS HEATED APPLIANCE FOR PERSONAL USE

Friedrich Henninger, Kelkheim; Dieter Liebenthal, Maintal-Dörnigheim; Michael Stolper, Eschborn, all of Germany, and Anne Tregoning Müller, Cambridge, Great Britain, assignors to Braun Aktiengesellschaft, Frankfurt, Germany

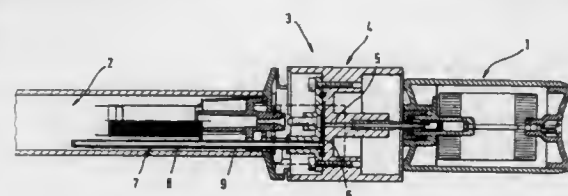
Filed Nov. 1, 1996, Ser. No. 759,362

Claims priority, application Germany, Apr. 8, 1995, 195 13 409.5; European Pat. Off., Dec. 16, 1995, PCT/EP 95/04990

Int. Cl.⁶ F23N 5/00

U.S. Cl. 431—75

46 Claims



1. A gas-heatable appliance for personal use adapted to receive a fuel gas reservoir and comprising means forming a combustion chamber and a valve assembly disposed between the fuel gas reservoir and the combustion chamber for regulating a flow of fuel gas supplied in response to the temperature of the combustion chamber, wherein the valve assembly comprises
a valve housing defining a gas passageway,
a sealing element arranged in the passageway and selectively at least partially occluding the passageway and displaceable during combustion between a first position permitting a first flow of gas and a second position permitting a second flow of gas different from said first gas flow, and
a temperature-responsive actuator, disposed in the valve housing and in thermal communication with the combustion chamber, directly contacting the sealing element, whereby the actuator is displaceable in response to the temperature of the combustion chamber to move the sealing element during combustion to meter the gas flow.

5,800,155

FLAME TORCH

Tsuneo Miyana, 1-2-14, Midori-Cho, Kasukabe-Shi, Saitama-Ken, Japan

Filed Jun. 27, 1996, Ser. No. 669,811

Int. Cl.⁶ F23D 11/36

U.S. Cl. 431—153

3 Claims

1. A flame torch comprising:
a casing composed of a front casing and a rear casing, said front casing having a slot defined transversely therein and said casing having a first hole defined in a first side thereof and a second hole defined in a second side thereof;
a reservoir disposed in said casing and having a valve disposed to a top thereof;
a starter disposed in said casing and having an extension portion which extends from said first hole of said casing, said extension portion connected to said valve of said reservoir by a tube;

5,800,157

GAS BURNER HAVING A BURNER PLATE MADE OF FIBROUS MATERIAL AND WITH REDUCED SOUND GENERATION

Reiner Ulrich Hasse, Mainz, and Michael Kahlke, Bingen, both of Germany, assignors to Schott Glaswerke, Mainz, Germany

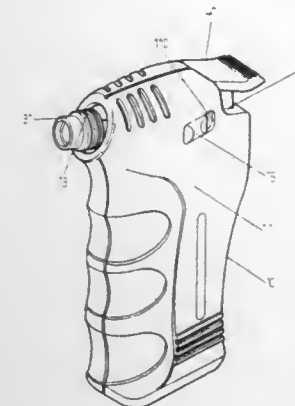
Filed Dec. 5, 1996, Ser. No. 760,991

Claims priority, application Germany, Dec. 6, 1995, 195 45 504.5

Int. Cl.⁶ F23D 14/12

U.S. Cl. 431—328

4 Claims



a button member disposed within said second hole of said casing and receiving said starter therein, said button member having a first shoulder and a second shoulder recessedly defined therein wherein said second shoulder is positioned lower than said first shoulder and is located more closer to said second side of said casing than that of said first shoulder, and
an L-shaped plate disposed above said reservoir and including a vertical plate and a horizontal plate, said vertical plate having a third hole defined therein such that a switch is connected to said vertical plate via said slot and said third hole, said switch slidably disposed within said slot, a pin connected between said switch and said vertical plate, said horizontal plate having a first end and a second end, said first end connected to said valve and said second end having an extending plate extending therefrom which can be shifted to a position beneath said second shoulder by moving said switch to an open position.

1. A gas burner comprising a burner chamber housing, a mixing pipe connected to the burner chamber housing for supply of a gas/air mixture, a burner plate made of fibrous material and having edge regions, said burner chamber housing being attached to the burner plate at said edge regions, a blower for supplying air, and means for suppressing burner plate vibration and resulting sound generation;

wherein said means for suppressing comprises means for attaching a central region of said burner plate to said burner chamber housing and said means for attaching a central region of said burner plate to said burner chamber housing comprises a recessed portion formed in a middle region of a base plate of said burner chamber housing, said recessed portion being shaped to contact said burner plate, and at least one portion of a temperature-resistant adhesive connecting said burner plate and said recessed portion of said burner chamber housing.

5,800,158

OUTDOOR OPEN FIRE IGNITER

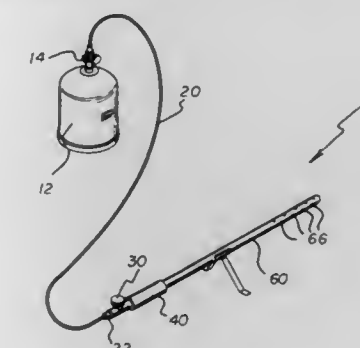
Victor H. De Groot, 827 24 Avenue NW, Calgary, Alberta, Canada, T2M 1X9

Filed Dec. 23, 1996, Ser. No. 771,487

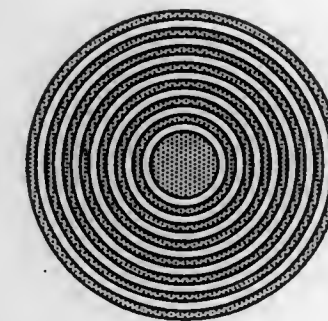
Int. Cl.⁶ F23D 14/20; 14/28; 14/46

U.S. Cl. 431—343

5 Claims



1. An outdoor open fire igniter, comprising:
a control valve removably coupled to an elongated hose, where said elongated hose is coupled to a portable gas tank;
a gas tube connected to said control valve and extending a finite distance;
an elongated outer tube secured to said control valve and surrounding said gas tube;
said elongated outer tube having a closed end opposite of said control valve;
said elongated outer tube having an inner flange surrounding said gas tube forming a first compartment and a second compartment, where said second compartment is enclosed by said closed end;
said gas tube extending into said second compartment; and



1. A radiant burner for gas appliances comprising: a burner chamber; and a gas-permeable burner plate made of ceramic and having a heating surface composed of glass ceramic wherein the gas-permeable burner plate has regions of different gas permeability for providing regions of different temperature distribution, wherein the regions of the burner plate of different gas permeability are circular or annular zones arranged concentrically to one another or are of spiral design.

a plurality of gas apertures radially projecting near the end of said elongated outer tube opposite of said control valve and projecting into said second compartment;
wherein a fire retardant handle is secured around said elongated outer tube near said control valve;
wherein a support stand removably couples to said elongated outer tube providing support during operation;
wherein said support stand includes:
a syncline leg inverted with respect to the ground; and
a snapping clamp secured to the tip of said syncline leg, where said snapping clamp removably couples to said elongated outer tube.

5,800,159

ATMOSPHERIC GAS BURNER ASSEMBLY FOR IMPROVED FLAME STABILITY

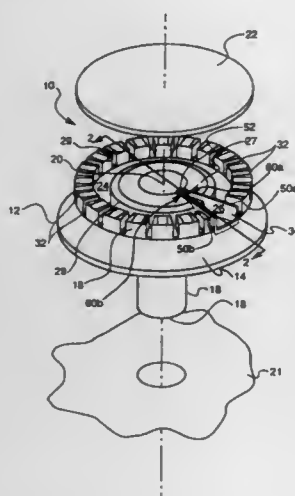
James Rollins Maughan, Scotia, N.Y., and James Kellogg Nelson, Long Beach, N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 26, 1996, Ser. No. 774,976

Int. Cl.⁶ F23D 14/06; 14/58

U.S. Cl. 431—349

19 Claims



1. A gas burner assembly for connection to a source of gas, said gas burner assembly comprising:

- a burner body having a sidewall and a tubular main gas conduit, said tubular main gas conduit having an inlet and an outlet;
- a plurality of primary burner ports disposed within said sidewall so as to be in communication with said outlet of said tubular main gas conduit;
- a simmer flame port disposed within said sidewall in a spaced relation with said primary burner ports for providing a re-ignition source therefore;
- a stability chamber disposed within said burner body, said stability chamber defined on each side by a pair of radially extending baffles, on the bottom by an upper surface of said burner body, on the top by a cap, and by an end-wall at said outlet so as to extend from said outlet to said simmer flame port, and

at least one stability inlet disposed within at least one of said baffles such that said stability inlet is substantially perpendicular to a direction of gas flow radially outward from said outlet, said stability inlet being disposed proximate said outlet so as to create a large flame stabilizing pressure drop across said stability chamber.

5,800,160
PREMIX BURNER FOR A HEAT GENERATOR
Hans Peter Knöpfel, Besenbüren, and Thomas Ruck, Meltingen, both of Switzerland, assignors to ABB Research Ltd., Zurich, Switzerland

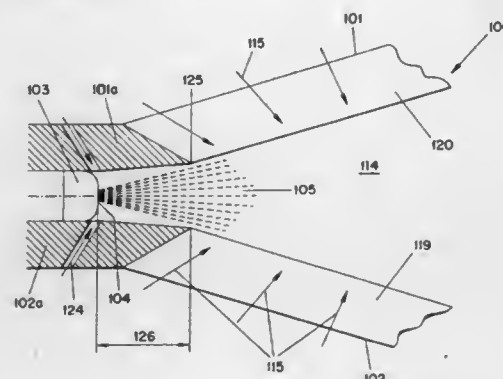
Filed Nov. 18, 1996, Ser. No. 749,888

Claims priority, application Germany, Dec. 21, 1995, 195 47 914.9

Int. Cl.⁶ F23D 14/46

U.S. Cl. 431—351

12 Claims



1. A premix burner for a heat generator, comprising:
at least two hollow, conical sectional bodies nested one inside the other in the direction of flow to define a conical interior space having an inlet plane at a narrower end, respective longitudinal symmetry axes of the sectional bodies being mutually offset so that adjacent walls of the sectional bodies are spaced to form air-inlet slots, extending longitudinally on opposing sides of the conical interior space, for a tangentially directed inflow of combustion air into the conical interior space, and
a fuel nozzle having an injection outlet to inject an axially directed fuel spray into the conical interior space, the fuel nozzle being disposed in a duct upstream of the inlet plane of the conical interior space by a predetermined distance.

5,800,161

HEATING AND/OR TEMPERATURE-MAINTAINING FURNACE FOR SLABS

Fausto Drigani, Zugliano, and Pietro Morasca, Fresonara, both of Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

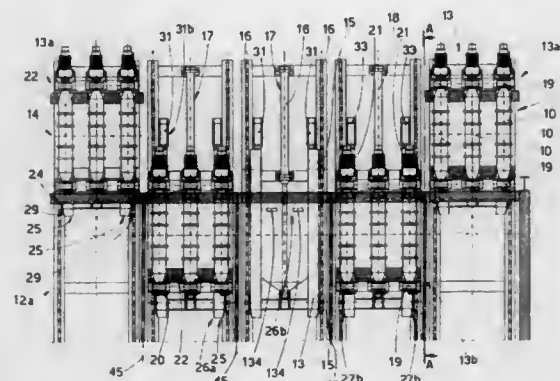
Filed Oct. 19, 1994, Ser. No. 325,587

Claims priority, application Italy, Oct. 19, 1993, UD93A0209

Int. Cl.⁶ F27B 9/00

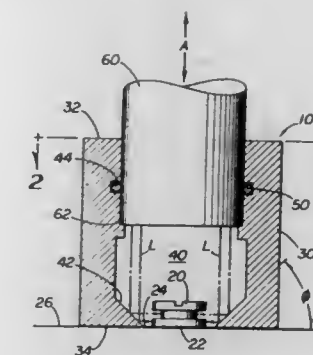
U.S. Cl. 432—121

17 Claims



1. Heating and/or temperature-maintaining furnace for slabs, comprising lateral intake and outlet roller conveyors the axis of which is at a right angle to the axis of movement of the slabs within the furnace, the roller conveyors comprising a plurality of

roller-bearing bogies able to move at a right angle to the axis of the roller conveyors, the roller-bearing bogies having a first maintenance/replacement position outside the furnace and a second working position in which they cooperate with the inside of the furnace, means for the movement of the slabs in the furnace, wherein the rollers are supported at both their ends on the roller-bearing bogies by supporting means and are driven by appropriate motor means, the supporting means and motor means being located outside the furnace when the roller-bearing bogies is brought to its second working position, the ends of the rollers being accessible from outside the furnace, an insulated bottom and insulated side-walls being included in the roller-bearing bogies to protect the roller-supporting means and the motor means associated with the rollers.



- an interior surface and being of a size adjacent the distal end to encompass the orthodontic bracket therein; and
b. means, disposed within the bore of the curing tip enhancer, for directing the light onto the adhesive resin when the orthodontic bracket is disposed within the bore adjacent the distal end.

5,800,162

DENTAL-CARE DEVICE

Kenichi Shimodaira, Junichi Hayashi, and Michio Ito, all of Nagano-ken, Japan, assignors to Injex Corporation, and Matsumoto Dental College, both of Nagano, Japan

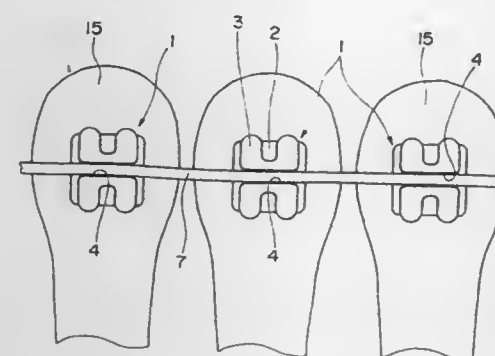
Filed Nov. 29, 1996, Ser. No. 758,451

Claims priority, application Japan, Dec. 1, 1995, 7-313865

Int. Cl.⁶ A61C 3/00

U.S. Cl. 433—8

26 Claims



1. A dental-care device comprising orthodontal braces comprising a planar base and a wire receiving part positioned on a top surface of the base and having a slot through which a wire is passed, wherein the orthodontal braces comprise a metal material comprising a Ti base component, 0.03–0.5 wt % by weight of the metal material of carbon (C), 0.08–0.8 wt % by weight of the metal material of oxygen (O), and 0.03–0.6 wt % by weight of the metal material of nitrogen (N), and wherein a surface layer at an inner surface of the slot has a higher degree of hardness than an inner part of the wire receiving part.

5,800,163

METHOD AND APPARATUS FOR LIGHT-CURING RESIN ADHESIVES FOR ORTHODONTIC BRACKETS

Frederick A. Rueggeberg, Augusta, and Thomas C. Whaley, Mableton, both of Ga., assignors to MCG Research Institute, Augusta, Ga.

Filed Mar. 13, 1997, Ser. No. 816,619

Int. Cl.⁶ A61C 3/00

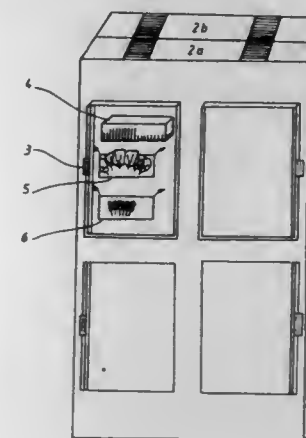
U.S. Cl. 433—9

17 Claims

1. An apparatus for light curing an adhesive resin by use of light on the interface between a bottom surface of an orthodontic bracket and a tooth surface, comprising:

- a. a curing tip enhancer having a body portion with a proximal end and an opposite distal end, the body portion defining a longitudinally-extending bore therethrough, the bore forming

1. A system for the selection of form and color structure of teeth replacements, said system comprising:
at least one situation model of the upper or lower jaw of a subject;
color image representations of a mouth situation of said subject; layering diagrams associated with said color image representations; and
instructions for a step-by-step layering sequence of said layering diagrams for production of a tooth replacement for said subject.

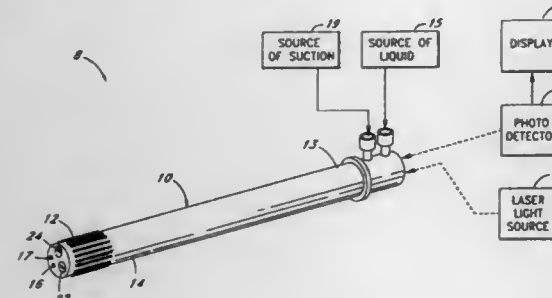


5,800,165
DENTAL INSTRUMENT AND METHOD OF BLEACHING TEETH USING A LASER

Wolff M. Kirsch, Redlands; Yong Hua Zhu, and Mahmoud Torabinejad, both of Loma Linda, all of Calif., assignors to Loma Linda University Medical Center, Loma Linda, Calif.
Filed Mar. 28, 1995, Ser. No. 411,906
Int. Cl.⁶ A61C 1/00

U.S. Cl. 433—29

4 Claims



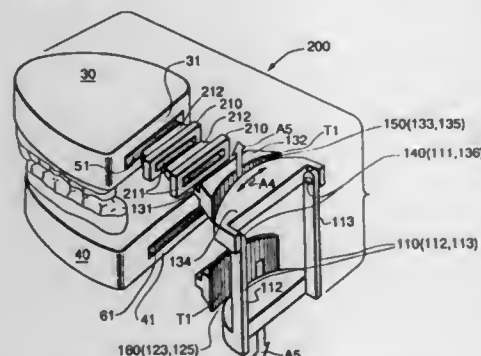
1. A method of bleaching a tooth using a dental instrument comprising a fiber optic delivery channel, a fiber optic viewing channel, and an irrigation channel, said method comprising the steps of:

- inserting the dental instrument into a patient's mouth;
- visualizing a portion of a patient's mouth containing a darkened or stained tooth by causing light to be transmitted through a fiber optic delivery channel in said dental instrument and into the patient's mouth where it is reflected into a fiber optic viewing channel in said dental instrument and onto a photo-detector;
- forming a hole in a stained tooth using laser light transmitted through said fiber optic delivery channel, thereby providing access to pulp inside a stained tooth;
- delivering a bleaching solution through an irrigating channel in said dental instrument and through said hole; and
- photolyzing said bleaching solution by delivering laser light into said solution through said fiber optic delivery channel, through said hole.

5,800,166
SPACER BLOCK FOR A DENTAL ARTICULATOR
Ronald E. Huffman, Sapulpa, Okla., assignor to Dentsply Research & Development Corp., Milford, Del.
Filed Jun. 6, 1995, Ser. No. 467,453
Int. Cl.⁶ A61C 11/00

U.S. Cl. 433—60

1 Claim



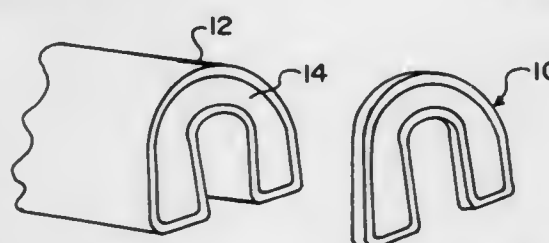
1. An articulator spacer block having two opposite outwardly facing sides comprising a tongue projecting outwardly from one of said sides and a slot projecting inwardly from the opposite of said sides; said slot being sized to receive said tongue such that identical spacer blocks can be joined together to increase the spacing; said slot having four walls defining the penetration of said slot and disposed at substantially 90° from said planar face of said opposite

side and at least two of said slot walls and said planar face of said opposite side having a plurality of channel grooves formed therein, extending from the outer edge of said face to at least near the innermost extent of at least two of said walls.

5,800,167
DENTAL ARCH BITE REGISTRATION DEVICE
Loren S. Adell, 200 Adell Blvd., Sunnyvale, Tex. 75182
Division of Ser. No. 482,479, Jun. 7, 1995, Pat. No. 5,571,011.
This application Nov. 4, 1996, Ser. No. 743,487
Int. Cl.⁶ A61C 9/00

U.S. Cl. 433—71

6 Claims



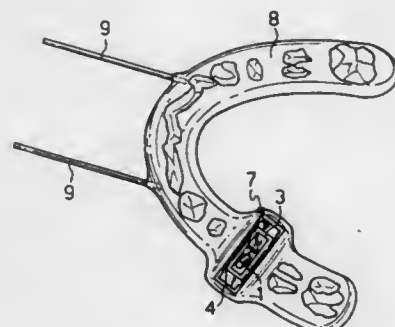
1. A dental arch bite registration device comprising a thin disk having a plan shape corresponding to that portion of opposing dental arches whose registration is to be taken, said disk comprising an outer perimeter frame of polymeric material, and polymeric bite registration material occupying space bounded by said outer perimeter frame and being joined with and supported by said outer perimeter frame, the device being made by the method which comprises injection-molding said frame, and then injection-molding said bite registration material onto said frame.

5,800,168
ADJUSTABLE GUIDING DEVICE FOR POSITIONING DENTAL IMPLANTS, IMPLANTATION SYSTEM COMPRISING IT AND METHOD EMPLOYING SAME
Antonio Cascione, No.18, Via Otranto, 00192 Roma, and Luca Relandini, No.173, Via Gigliozzi, 00128 Roma, both of Italy
PCT No. PCT/IT94/00059, § 371 Date Dec. 14, 1995, § 102(e)
Date Dec. 14, 1995, PCT Pub. No. WO94/26200, PCT Pub. Date Nov. 24, 1994
PCT Filed May 10, 1994, Ser. No. 537,921
Claims priority, application Italy, May 14, 1993, RM93 A 000316

U.S. Cl. 433—75

Int. Cl.⁶ A61C 13/38

20 Claims



1. A guiding device (7) for positioning dental implants comprising a tubular guide (1, 41) made of a radio-opaque material, of a size suitable to guide a drill (23) for implant cavities, adapted for being mounted in a template (8) fitting the patient's dental arch or a portion thereof, in the position corresponding to the desired implant location, said guiding device (7) being characterized in that said tubular guide (1, 41) is pivotally connected to a first substan-

tially radio-transparent supporting member (3, 43) so as to be rotatable relative to said first supporting member (3, 43) about an axis orthogonal to the axis of said tubular guide (1, 41), and in that said first supporting member (3, 43) is supported by a second substantially radio-transparent supporting member (4, 44) adapted for being fixedly mounted in said template (8), and said second supporting member is dimensioned with respect to said first supporting member (3, 43), such that said first supporting member is repositionable relative to said second supporting member (4, 44) to different drill guide positions along a straight line orthogonal to said rotation axis.

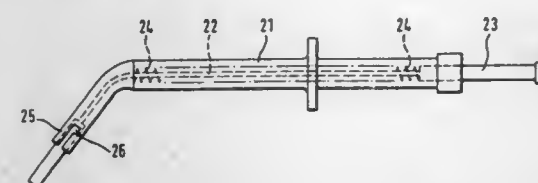
5,800,169
SUPPLY AND METERING SYRINGE FOR VISCOUS DENTAL COMPOUNDS

Ernst Mühlbauer, Elbgastrasse 248, 22547 Hamburg, Germany
Continuation of Ser. No. 350,489, Dec. 7, 1994, abandoned.
This application Jan. 28, 1997, Ser. No. 789,062
Claims priority, application Germany, Dec. 10, 1993, 93 19 007.7 U

Int. Cl.⁶ A61C 5/04

U.S. Cl. 433—90

6 Claims



1. A process for dispensing a strand of a viscous, flowable dental compound with a syringe comprising the steps of providing a syringe body having a bore for the dental compound opening out to a delivery opening without a constriction therebetween, the syringe body being a capsule having the capacity of a single application of the dental compound and having a coupling device for connection to an applicator, providing a piston movable within said bore including an applicator housing the piston, the applicator having coupling means cooperating with the coupling device for mounting the capsule to the applicator, mounting the capsule to the applicator prior to advancing the piston and advancing the piston along the bore for dispensing the dental material therein through the delivery opening without constricting the dental compound and thereby forming the strand of the dental compound.

5,800,170
INTERNAL POLLUTION PREVENTING APPARATUS FOR HANDPIECE

Yoshiro Tsukada, Oome, Japan, assignor to Hinatawada Seimitu Mfg. Co., Ltd., Oome, Japan
Filed Aug. 1, 1996, Ser. No. 691,883

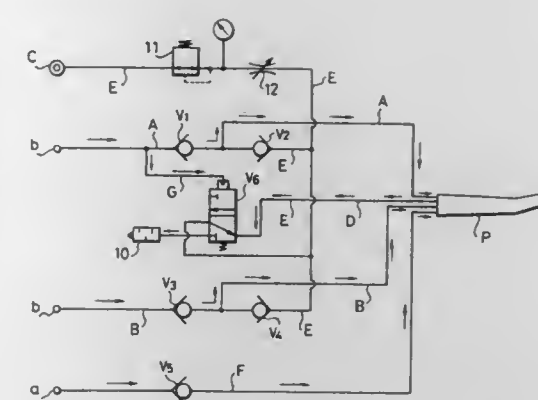
Claims priority, application Japan, Nov. 2, 1995, 7-309929
Int. Cl.⁶ A61C 1/02

U.S. Cl. 433—98

2 Claims

1. An internal pollution preventing apparatus of a handpiece, comprising:

- an air turbine drive air circuit for supplying, when said handpiece operates, air of a comparatively high pressure via a valve;
- an exhaust air circuit for exhausting air after the air has driven an air turbine of the handpiece;
- a chip air circuit for supplying air for the atomization of cooling water via another valve;
- a low pressure air feeding circuit for feeding turbine stopping air and feeding circuit internal pressure maintaining air, of a low pressure, to said drive air circuit and to said chip air circuit via further valves;

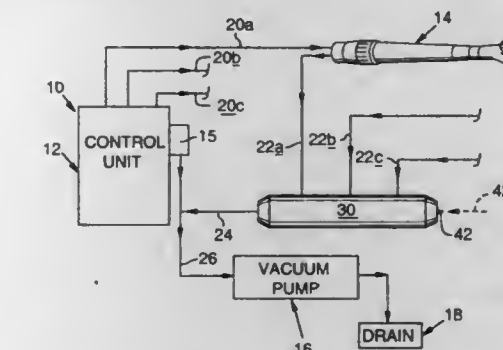


an exhausting change-over valve for opening and closing said exhaust air circuit with respect to the atmospheric air, said exhausting change-over valve being provided in said exhaust air circuit so as to be directly opened or closed by a pilot pressure in said drive air circuit or said chip air circuit, each of said valve, said another valve and said further valves being formed in a mushroom shape with a valve body having an upper face curved in a convex condition and a flat lower face, a post-like supporting leg portion extending from the center of the lower face of said valve body, and a stopper provided substantially at a middle portion of said supporting leg portion, said valve body having a central reinforcing portion of a comparatively great thickness, and a resilient lip integrally provided continuously with an outer periphery of said reinforcing portion.

5,800,171
EXHAUST CONTROL SYSTEM FOR PNEUMATIC DEVICES AND METHOD
Everett A. Barney, 17100 S. Point Dr., Nehalem, Ore. 97131
Filed Dec. 18, 1995, Ser. No. 574,335
Int. Cl.⁶ A61C 1/05

U.S. Cl. 433—132

20 Claims

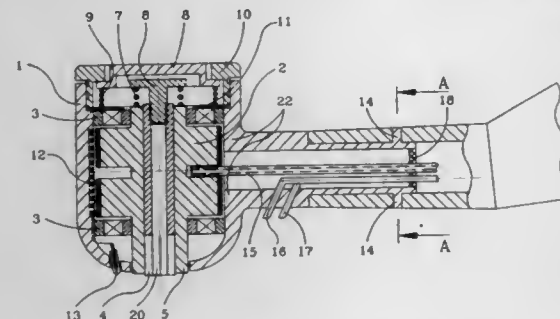


1. An exhaust control system for use with one or more pneumatic devices, each of which has a pressurized fluid input, a turbine driven by fluid from such fluid input and a fluid output which exhausts contaminated fluid from the turbine, said exhaust control system comprising:

- an exhaust manifold including a plurality of inflow ports, each having structure for connecting an output of a corresponding pneumatic device, said exhaust manifold providing a depressurization chamber through which contaminated fluid flows downstream to a collective overflow port, said depressurization chamber being sized to reduce pressure of the contaminated fluid as such contaminated fluid flows through the depressurization chamber;
- a vacuum source connected to said collective outflow port to draw contaminated fluid from said exhaust manifold, said

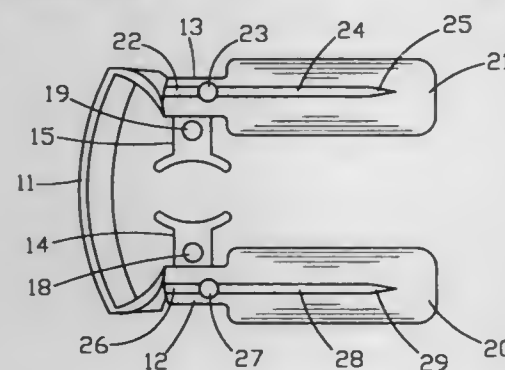
vacuum source being configured to direct the drawn contaminated fluid to a waste collector.

5,800,172
DENTAL TURBINE HAND PIECE WITH LIGHT AND ROTARY HEAD
Boris Goldenberg, 1305 E. 18th St., #5D, Brooklyn, N.Y. 11230
Filed Aug. 11, 1997, Ser. No. 909,258
Int. Cl.⁶ A61C 1/05
U.S. Cl. 433-132



1. A dental turbine hand piece, comprising a body; a turbine rotatable in said body about an axis; a light source arranged on said body; and means for current supply to said light source, said means including a magnetic element formed on one of said turbine and said body, and a winding provided on the other of said turbine and said body, so that during rotation of said turbine element in said body and interaction between said magnetic member and said winding and electric current is generated which is supplied to said light source.

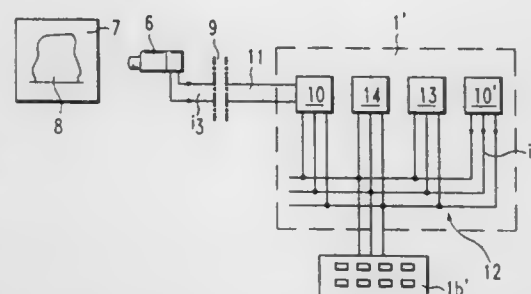
5,800,173
ABSORBENT POLYMER ROLL HOLDER
John M. Heasley, 922 Benton Dr., Iowa City, Iowa 52246
Filed Aug. 11, 1997, Ser. No. 514,108
Int. Cl.⁶ A61C 5/14
U.S. Cl. 433-138



1. A dental instrument for positioning and retaining one or more absorbent rolls in the oral cavity of a patient and for isolating areas of the oral cavity generally, comprising:
(a) an inner arm member and an outer arm member, each of which has a first free end portion and a second, opposite end portion;
(b) a resilient transverse arch member interconnecting said inner and outer arm members at said second end portions;
(c) opposing clasp means operatively associated with each of said arm members for engaging opposing inner and outer surfaces of a tooth, said opposing clasp means being biased to engage said tooth by said transverse arch member;

(d) means on each of said clasp means for engagement and separation by a dental forceps;
(e) an absorbent roll including an absorbent polymer; and
(f) means on each of said arm members for retaining an absorbent roll in position in the oral cavity.

5,800,174
METHOD USING AN ARTICULATOR AND COMPUTER TO REPRESENT AN INDIVIDUAL'S BITE
Matts Andersson, Lerum, Sweden, assignor to Nobel Biocare AB, Goteborg, Sweden
PCT No. PCT/SE95/00147, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO95/22299, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 14, 1995, Ser. No. 532,789
Claims priority, application Sweden, Feb. 18, 1994, 9400554
Int. Cl.⁶ A61C 11/00
U.S. Cl. 433-215



1. A method for representing position and function of the jaw and bite of an individual, said method comprising the steps of: inputting information regarding at least one part of the jaw and bite into a memory of a computer; displaying vertical sections derived from the input information on a display by activating first controls of the computer; producing on said display a construction representing the vertical sections; producing a model based upon the construction; and applying the model to an articulator, wherein the articulator exposes and simulates position and function of the jaw and bite of the individual.

5,800,175
METHOD AND APPARATUS FOR RE-IMPLANTING TEETH
Zenon Zuk, 201 Calle Miramar #11, Redondo Beach, Calif. 90277; Lubomyr T. Romankiw, #Dunn La., Briar Cliff Manor, N.Y. 10510, and Roger Stambaugh, 1245 16th St., Suite 206, Santa Monica, Calif. 90404
Filed Mar. 12, 1996, Ser. No. 615,849
Int. Cl.⁶ A61C 5/00
U.S. Cl. 433-217.1

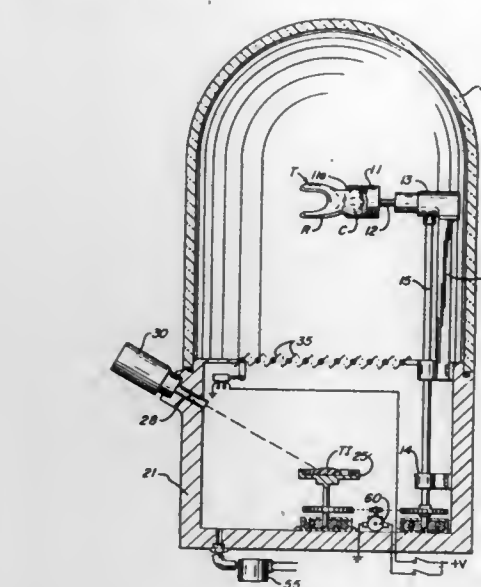
1. A method for sterilizing and re-implanting a natural tooth including a crown and a root comprising the steps of: masking the crown of said tooth; mounting said tooth in one partitioned part of a vacuum container, the partition of said part capable of being selectively opened, said container further comprising another part which is separated from said part by said partition; drawing a progressively increasing vacuum in said container at a rate sufficient to promote dehydration and degassing of the root of said tooth; heating a mass of titanium in said another part of said container by applying progressively increasing beam energy at an increasing rate sufficient to promote outgassing;

wherein said individual letters and letter combinations comprise the following:

A I	Q	Y	BR	SK	CH	HY	AI	ONG
B J	R	Z	CR	SM	SH	EE	AY	IGHT
C K	S	BL	DR	SN	PH	OO	OI	OULD.
D L	T	CL	FR	SS	TH	EW	OY	
E M	U	FL	GR	SP	WH	OR	AR	
F N	V	GL	PR	ST	WR	AW	TION	
G O	W	PL	TR	SW	KN	ER	ING	
H P	X	SL	SC	TW	QU	IR	INK	

5,800,177
SURGICAL SIMULATOR USER INPUT DEVICE
Robert G. Gillio, 2141 Waterford Dr., Lancaster, Pa. 17601
Division of Ser. No. 412,805, Mar. 29, 1995. This application
Jul. 11, 1996, Ser. No. 678,319
Int. Cl.⁶ G09B 23/28
U.S. Cl. 434-262

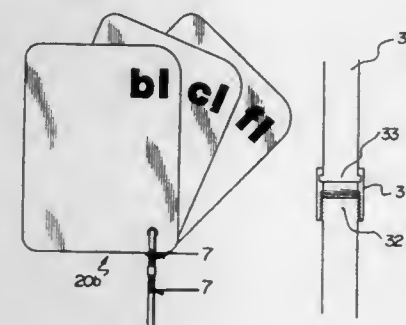
21 Claims



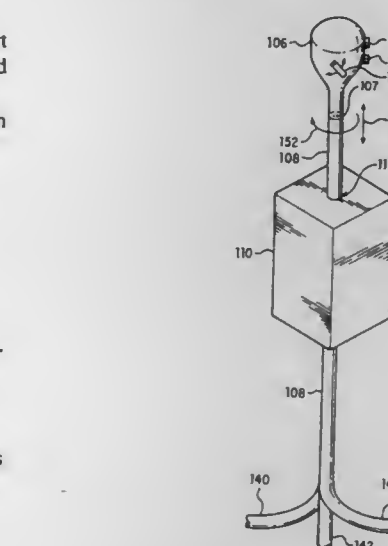
opening the partition between said one part and said another part of said container upon the vaporization of a portion of said titanium mass; and
removing said tooth from said container for the re-implantation thereof.

5,800,176
METHOD AND APPARATUS FOR PREPARATORY READING
Dale Martin Harrison, Mossley Hill 46 Greenbank Road, Liverpool, England, L18 1HN
Filed Apr. 10, 1997, Ser. No. 833,903
Int. Cl.⁶ G09B 17/00
U.S. Cl. 434-172

3 Claims



1. A teaching aid for preparing a person to read, comprising: a series of cards having selected individual letters and combinations of letters imprinted on the cards; wherein each card is generally rectangular defining four corners; a hole formed through each card adjacent one of said corners; a binding means for grouping selected cards together, said binding means including a cylinder formed substantially into a loop, said cylinder having a first threaded end and a second end having a flared rim; wherein said binding means further includes a collar having a groove corresponding to said flared rim and surrounding said flared rim such that said collar is coupled to said second end and may rotate about said second end, said collar having a threaded interior removably engageable to said first threaded end; and

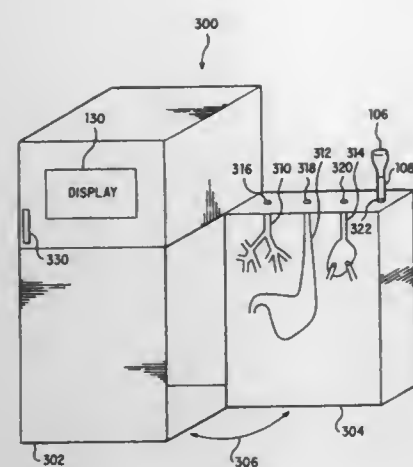


1. A surgical simulator user input device comprising: a virtual medical instrument corresponding to a real surgical instrument used in a medical operation, said virtual medical instrument connected to a computer for simulating a surgical procedure and including a virtual mouse attached to a tube; wherein said virtual medical instrument is capable of simulating multiple real surgical instruments by interchangeably utilizing a different virtual mouse attached to said tube wherein each of said different virtual mouse performs functions associated with a particular real surgical instrument to be simulated.

5,800,178
VIRTUAL SURGERY INPUT DEVICE
Robert G. Gillio, 2001 Pine Dr., Lancaster, Pa. 17601
Division of Ser. No. 412,805, Mar. 29, 1995. This application
Jul. 11, 1996, Ser. No. 680,301
Int. Cl.⁶ G09B 23/28; 3/00; 7/00
U.S. Cl. 434-262

32 Claims

1. A virtual surgery input device comprising: a housing, said housing having a virtual orifice, wherein said virtual orifice is connected to a computer used for conducting a virtual surgery procedure and wherein said virtual orifice may be adjusted by the computer to represent a particular orifice of a human body; and



a surgical instrument simulator partially accommodated within said housing, said surgical instrument simulator entering said housing through said virtual orifice.

5,800,179

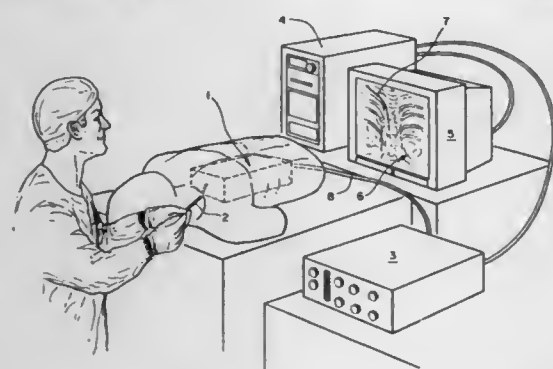
SYSTEM FOR TRAINING PERSONS TO PERFORM MINIMALLY INVASIVE SURGICAL PROCEDURES
Bradford E. Bailey, Brighton, Colo., assignor to Medical Simulation Corporation, Houston, Tex.

Filed Jul. 23, 1996, Ser. No. 681,455

Int. Cl.⁶ G09B 23/28

U.S. Cl. 434—262

5 Claims



1. A system for training persons to perform a minimally invasive surgical procedure using a surgical implement that is inserted and manipulated through a small incision in a patient, said system comprising:

- a housing with an opening;
- an implement for simulating said surgical implement that is manually inserted through said opening in said housing and manipulated axially and rotationally relative to said housing;
- a movement guide and sensor assembly for monitoring the position of said implement relative to said housing, said movement guide and sensor assembly having:
 - a) a guide cable;
 - b) a guide rail proximate to said guide cable;
 - c) a framed assembly mounted on said guide rail for restricting the linear motion of said implement as it is moved relative to said housing to a predetermined axis;
 - d) a rotation sensor affixed to said implement for monitoring the axial rotation of said implement relative to said housing;
 - e) a position sensor on said guide rail for monitoring the axial position of said framed assembly; and
 - f) a connection means connecting said guide cable and said framed assembly, such that motion of the framed assembly along the guide rail imparts motion to the guide cable;

- a force feedback system for producing an adjustable force opposing the motion of said implement having:
 - a) an applied force sensor sensing applied force to said implement; and
 - b) a servo motor applying a torque to said guide cable, which by connection of said connection means to said framed assembly attached to said guide rail, imparts a resistive force to linear motion of said implement;
- a display;
- a video imaging system for producing a video image simulation of said implement superimposed on a visual representation of the patient's internal landscape; and
- a processor for interpreting the data from said rotation sensor and said position sensor to determine the location and occurrence of force feedback to said implement, said force feedback created by said processor controlling said servo motor in response to said sensed applied force, said processor also controlling said video imaging system to create a visual simulation for said display.

5,800,180

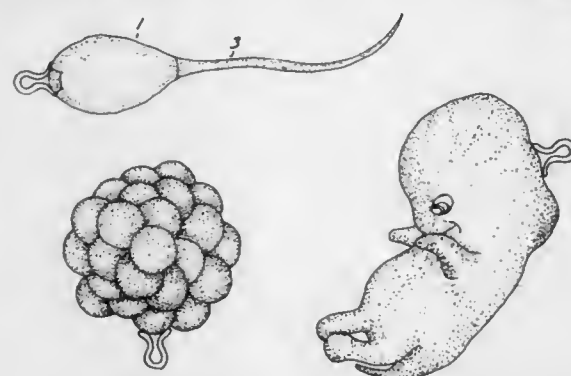
HUMAN PRE-NATAL DEVELOPMENT DOLL JEWELRY
Jeffrey L. Casement, and Lisa E. Malloy, both of P.O. Box 903, La Veta, Colo. 81055

Continuation-in-part of Ser. No. 674,132, Jul. 1, 1996, Pat. No. 5,672,058, which is a continuation-in-part of Ser. No. 352,873, Dec. 12, 1994, abandoned. This application May 12, 1997, Ser. No. 854,616

Int. Cl.⁶ G09B 23/28; A44C 25/00

U.S. Cl. 434—267

17 Claims



1. A set of jewelry charms for ornamental, play or educational purposes, said set comprising a plurality of charms, one or more of said charms for portraying a human gamete, zygote, or embryo, each of said plurality of charms having a differing exterior appearance from others of said plurality of charms, having differing exterior appearances sufficient to portray a human prenatal development sequence from gamete stage prior to fertilization through progressively different states of development during human pregnancy at a set of points prior to full term.

5,800,181

COMPUTER SYSTEM AND METHOD FOR PROCESS SAFETY MANAGEMENT

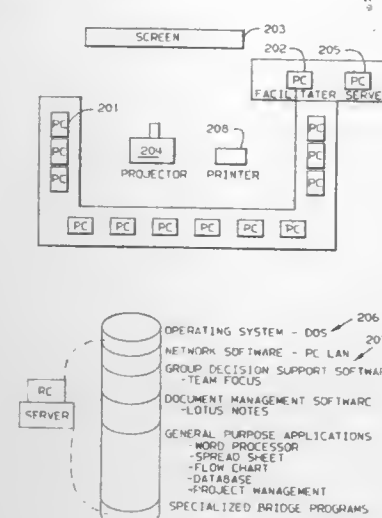
Philip David Heinlein, Binghamton; Carl Frank Ingersoll, Endwell, and Gary Lee Mack, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y. Division of Ser. No. 274,059, Jul. 12, 1994, abandoned. This application Dec. 23, 1996, Ser. No. 773,474

Int. Cl.⁶ G09B 3/00; 7/00

U.S. Cl. 434—322

3 Claims

1. A computer network system, comprising:
a facilitator workstation with a facilitator display and data input means for inputting data into the system including preloaded data;



multiple participant workstations with participant displays and data input means for inputting data into the system, and each workstation having means to control the functions of the workstation;

team display means communicating with the facilitator workstation for displaying several thousand characters of text simultaneously to a plurality of participants;

network means for communication between the facilitator workstation and a plurality of the participant workstations;

automatic means to control the communication between the facilitator workstation and a plurality of the participant workstations, and to control the functions of the facilitator workstation;

collection means to automatically collect data from a plurality of participant workstations simultaneously input at a plurality of input means and to display the preloaded data along with the received data simultaneously to a plurality of participants, and to provide for revising the data to resolve any inconsistencies in the received data;

database means for storing and retrieving data;

means for categorizing and organizing the data collected from the participants by the collection means and transmitting the organized data to the database means;

word processing means for additional input and organization of the data transmitted to the data base into one or more documents;

means for retrieving the data from the database and further organizing the data for use in the word processing means;

means for inputting, and storing, questions prior to a group meeting for subsequent retrieving and displaying during a group meeting; and

education means for presenting in a group meeting depending on input at the facilitator workstation, the previously loaded questions using team display means.

2. A method for using a computer network for education, comprising the steps of:

pre-loading questions and example answers into a computer network for display during a group meeting;

selecting members of a group for participation in a facilitated, automated group meeting;

in a group meeting inputting commands into a facilitator workstation to display questions one at a time simultaneously to a plurality of members of the group; and

for each question performing the steps of:
simultaneously inputting answers into multiple member workstations;

displaying the pre-loaded answer along with a plurality of the answers input into the member workstations, to all the members of the group; and
reaching consensus on the best answer to the question.

5,800,182

FABRIC CHART KIT

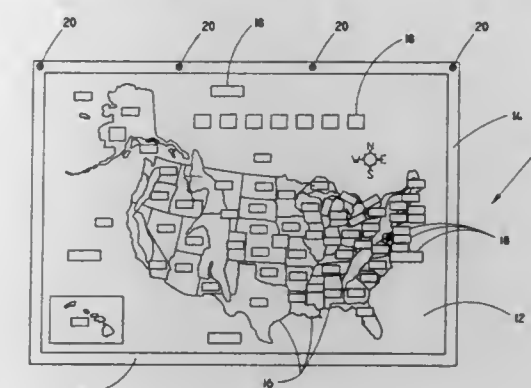
Stephen T. Carson; Patricia L. Carson, and Janet B. Dellola, all of Greensboro, N.C., assignors to Carson-Dellosa Publishing Company, Inc., Greensboro, N.C.

Filed Jun. 7, 1996, Ser. No. 660,495

Int. Cl.⁶ G09B 29/00

U.S. Cl. 434—430

11 Claims



1. An interactive teaching aid, comprising:

(a) a non-magnetic panel, said panel including:

(i) a flexible flannel fabric planar structure; (ii) a flexible binding attached around the outer edges of said structure for providing structural integrity; (iii) a plurality of hanging members for permitting said panel to be hung on a wall or stand; and (iv) wherein a portion of the lower edge of said binding is weighted;

(b) panel indicia on the front surface of said panel; and

(c) non-magnetic relational manipulative elements removably attachable to said panel, said relational manipulative elements including element indicia related to said panel indicia.

5,800,183

SEALED SOCKET ASSEMBLY FOR A PLUG-IN LAMP AND A METHOD FOR ASSEMBLING SAME

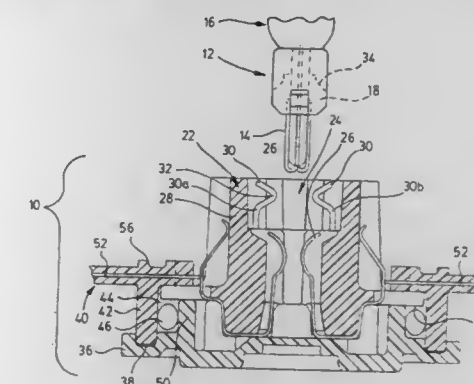
Donald C. Paul, Downers Grove; Joseph C. Bennett, Lisle; Joseph A. Bettini, Naperville, all of Ill., and Edward J. Gordon, Grand Blanc, Mich., assignors to Tricon Industries Incorporated, Lisle, Ill.

Filed Feb. 22, 1996, Ser. No. 603,874

Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—56

13 Claims

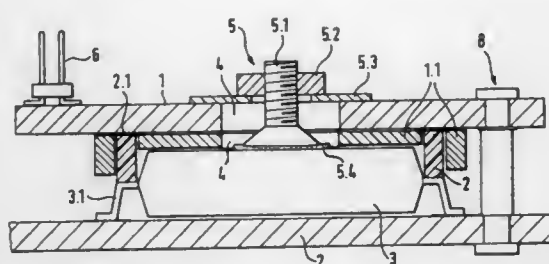


1. A plug-in lamp assembly comprising:

a lamp having a plurality of electrical leads extending therefrom;

a lamp socket having a plurality of contacts corresponding to the plurality of electrical leads wherein each of the plurality of contacts electrically connect to a corresponding one of the plurality of electrical leads within an interior of the lamp socket and further wherein each of the plurality of contacts

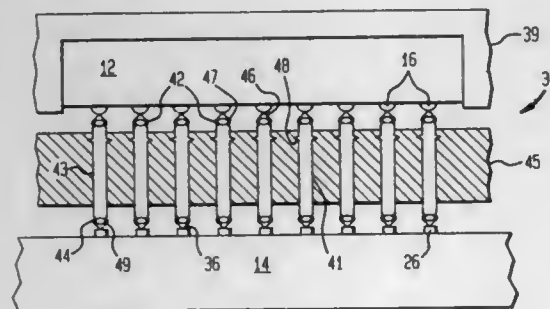
extend around the exterior of the lamp socket to the rest against a vertical side wall of the lamp socket;
a cap plate connected to the socket wherein the cap plate has a surface substantially covering the base of the lamp socket; and
a circuit carrier selectively connectable to the cap plate having a plurality of circuits molded into the circuit carrier corresponding to the plurality of contacts wherein the plurality of circuits electrically connect to the plurality of contacts against the outside wall of the lamp socket when the circuit carrier is connected to the cap plate.



electrical contacts of the electrical component with a test device, the adaptor comprising:

- a support positionable over a top of the housing;
- a contact-overlapping electrical connector having grid-shaped lead segments mounted to said support so as to be positionable over the electrical contacts of the electrical component and vertically pressable against substantially horizontal portions of the electrical contacts;
- a releasable mechanical connector arranged in the support and attaching directly to the top of the housing; and
- wherein the adaptor mounts from above the electrical component so as to not have any part below the electrical component.

5,800,184
HIGH DENSITY ELECTRICAL INTERCONNECT APPARATUS AND METHOD
Emanuele Frank Lopergolo, Marlboro; Lewis Sigmund Goldmann, Bedford; Joseph Michael Sullivan, Wappingers Falls, and Charles Russell Tompkins, Jr., Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of Ser. No. 207,768, Mar. 8, 1994. This application Dec. 11, 1995, Ser. No. 570,076
Int. Cl.⁶ H01R 9/09
U.S. Cl. 439—66 31 Claims

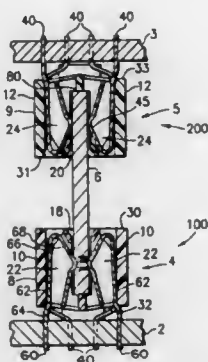


1. An interconnect interposer comprising an electrically insulative body, said electrically insulative body having at least one electrically conductive interconnect probe providing an electrically conductive path, wherein said at least one electrically conductive interconnect probe has a rigid planar center portion, two retainer tabs connected to said rigid planar center portion to limit the floating of said at least one electrically conductive interconnect probe within said electrically insulative body, a first end and a second end, wherein at least said first end at least one of said first or second end said second end has a pre-formed deflective section, wherein a portion of said pre-formed deflective section has a protruding tip, wherein said pre-formed deflective section is narrower in cross-sectional area than said rigid center portion, wherein said rigid center portion is non-deflective, and wherein said electrically conductive path is from said first end through said non-deflective rigid center portion to said second end.

5,800,185
ADAPTER WITH A SUPPORT HAVING A CONTACTING DEVICE
Erwin Habermayr, Reichertshofen, and Dieter Horak, Moosburg, both of Germany, assignors to Hitex-Systementwicklung, Karlsruhe, Germany
Filed Jul. 31, 1996, Ser. No. 688,796
Claims priority, application Germany, Jul. 31, 1995, 195 28 011.3
Int. Cl.⁶ H01R 9/09 2 Claims

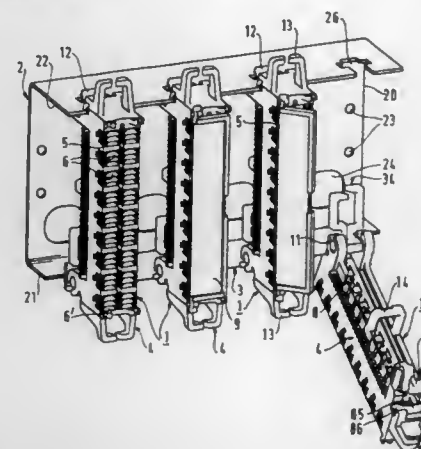
U.S. Cl. 439—72
1. An adaptor for use with an electrical component having a housing and electrical contacts in order to electrically connect the

5,800,186
PRINTED CIRCUIT BOARD ASSEMBLY
Fernando J. Ramirez, Fountain Valley, Calif.; Brian A. Mahar, and Philip J. Burdo, both of Huntington, Conn., assignors to Framatome Connectors USA, Inc., Fairfield, Conn.
Filed Mar. 13, 1997, Ser. No. 816,091
Int. Cl.⁶ H01R 9/09 16 Claims



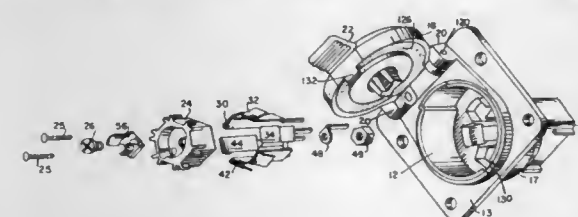
1. A printed circuit board assembly comprising:
a plurality of primary printed circuit boards;
a plurality of card edge electrical connectors through hole fixedly mounted and soldered to the primary printed circuit boards;
at least one secondary printed circuit board readily connected between two of the card edge connectors on two respective primary printed circuit boards; and
means for predictable separation of the boards from each other comprising the secondary printed circuit board having an aperture at only one edge that is inserted into a first one of the card edge connectors, the aperture being contacted by a spring element in the first card edge connector.

5,800,187
CONNECTION STRIP FOR HIGH DATA RATE LINES, AND A RESULTING CONNECTION ASSEMBLY
Virginie Vermon, Sedan, and Fabrice Audeval, Charleville Meziere, both of France, assignors to Alcatel Cable Interface, Vigne Aux Bois, France
Filed Mar. 19, 1996, Ser. No. 617,631
Claims priority, application France, Mar. 20, 1995, 95 03209
Int. Cl.⁶ H01R 13/648 25 Claims



1. In a connection strip for high data rate lines including an elongate insulating body, two rows of insulation-displacement contacts mounted in the body facing one another, means interconnecting electrically said insulation-displacement contacts in pairs from one row to the other inside said insulating body, said contacts defining successive sets along each row, said contacts of each set in one of the rows being assigned to one of the lines and constituting at least one end grounding screen in the set, the improvement wherein, in each set of contacts, said connection strip includes a single one of two end contacts constituting a single grounding screen and forming a grounding contact, and a ground collector extending along said body, connected to an external ground, and provided with a plurality of longitudinally spaced tongues making electrical connection with respective facing grounding contacts in said two rows, inside said body.

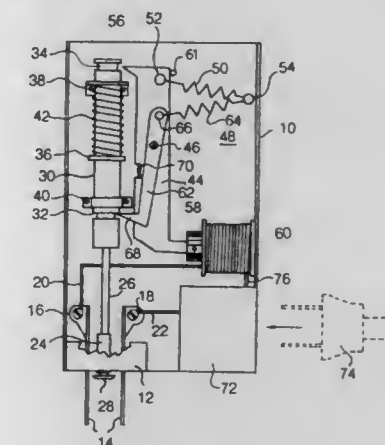
5,800,188
DIRECT CONNECT TRAILER TOW INTERCONNECTOR
Benjamin A. Barber, Needham, and Kayvan Heydayat, Chestnut Hill, both of Mass., assignors to Joseph Pollak Corporation, Boston, Mass.
Filed Feb. 9, 1996, Ser. No. 599,577
Int. Cl.⁶ H01R 13/447 1 Claim



1. An interconnector for the electrical connection of a wiring harness connector fitting of a tow vehicle to the connector plug of a trailer comprising a socket shell of insulating material having a first generally cylindrical end, a second generally rectangular end and a transition section between said ends, an insulating spacer core disposed in said shell, a plurality of pass-through conductors fixed in said insulating core, each of said pass-through conductors being formed of a single piece of metal, said plurality of conductors being arranged in a hexagonal pattern adjacent said first end about a central conductor to accommodate said trailer plug and

being arranged adjacent said second end in a double row pattern of terminals to accommodate said wiring harness fitting.

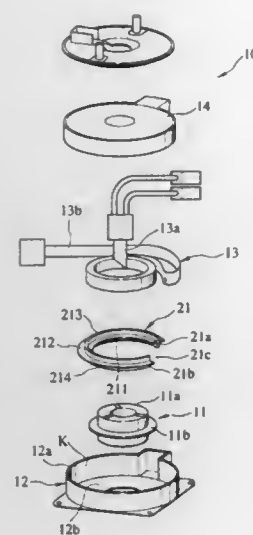
5,800,189
APPARATUS AND METHOD FOR AUTOMATIC DISCONNECTOR
Samir Omar Ramsey Ahmed, 512 Easton Rd., Riegelsville, Pa. 18077
Filed Jun. 18, 1996, Ser. No. 665,455
Int. Cl.⁶ H01R 13/62 38 Claims



1. An automatic disconnector for a plug for supplying supply current to an appliance, said disconnector comprising:
ejector means for ejecting said plug from an outlet;
sensing means for sensing supply current flow being drawn by said appliance through said plug and for sensing a substantial cessation of said supply current flow caused by said appliance being switched off; and
means coupling said ejector means to said sensing means for causing ejection of said plug upon said substantial cessation of said supply current flow.

5,800,190
RELAY DEVICE FOR ROTATING MEMBERS
Hidehiro Ichikawa; Satoshi Ishikawa; Hiroaki Iizuka; Takeshi Sakakibara; Nobuhiko Suzuki, and Hiraku Tanaka, all of Shizuoka-ken, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Aug. 30, 1996, Ser. No. 705,841
Claims priority, application Japan, Sep. 1, 1995, 7-225426
Int. Cl.⁶ H01R 35/04 9 Claims

U.S. Cl. 439—164
1. A relay device comprising:
a first rotor having an inner cylinder;
a second rotor having an outer cylinder surrounding said inner cylinder of said first rotor at a designated distance, said outer cylinder rotating with respect to said inner cylinder relatively;
a flexible flat cable wound spirally in an annular space defined between said inner cylinder and said outer cylinder, said flexible flat cable having an inner peripheral end carried by said inner cylinder and an outer peripheral end carried by said outer cylinder; and
a C-shaped moving member arranged so as to move along said annular space, said C-shaped moving member having a gap where said flexible flat cable is turning over;
a top cover for covering an upside of said annular space and an under cover for covering an underside of said annular space; and
wherein said C-shaped moving member comprises an inner horizontal rib in the form of a plate projecting from an inner peripheral face of said C-shaped moving member horizon-



5,800,191

ROTARY CONNECTOR MOUNTING STRUCTURE

Yoshiro Honda; Seishi Takahashi, and Hiroyuki Bannai, all of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Japan

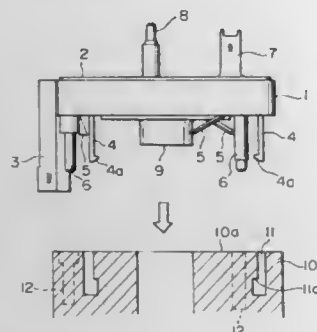
Filed Feb. 3, 1997, Ser. No. 794,299

Claims priority, application Japan, Feb. 7, 1996, 8-021355

Int. Cl.⁶ H01R 35/04

U.S. Cl. 439—164

20 Claims



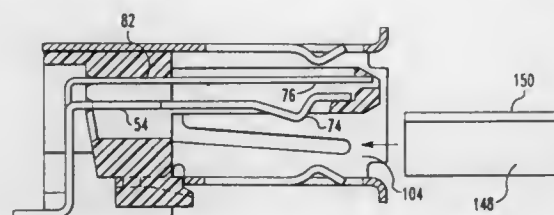
1. A rotary connector mounting structure comprising:
a stationary housing, a movable housing rotatably connected to the stationary housing, and a flexible cable wound inside an accommodating section defined between these housings, the stationary housing being mounted to a stator member of an automobile, the movable housing being mounted to a rotor member of the automobile, wherein there is provided a mounting member for snap-fixing the stationary housing to the stator member, and wherein there is provided a displacement absorbing member for preventing said mounting member from rattling.

5,800,192
RECEPTACLE WITH INTEGRAL SENSOR DEVICE
James J. David, Mechanicsburg, and David F. Fusselman, Middletown, both of Pa., assignors to Berg Technology, Inc., Reno, Nev.

Filed Aug. 30, 1996, Ser. No. 706,117
Int. Cl.⁶ H01R 29/00

U.S. Cl. 439—188

12 Claims



1. An electrical connector adapted to be mounted on a printed wiring board (PWB) comprising:
(a) a receptacle comprising:
(i) an insulative member comprising a first section and a second section extending perpendicularly from said first section to a terminal edge and said second section having a plurality of longitudinal slots;
(ii) a plurality of conductive contact means extending first parallel to the second section of the insulative contact in the longitudinal slots and then parallel to the first section of the insulative member and wherein one of said contact means has a convex bend;
(iii) a conductive shield having a first side superimposed in spaced relation over the second section of the insulative member and a second side positioned in spaced relation beneath the second section of the insulative member and opposed spaced lateral sides connecting said first and second sides to form a plug receiving cavity between the second side and the second section of the insulative member;
(iv) a conductive sensor means spaced from the conductive shield and having a first longitudinal section interposed in spaced relation between said contact means and the first side of the conductive shield and a second transverse section extending perpendicularly to the first section of the insulative member and extending outwardly over one of the lateral edges of the insulative member; and
(b) a plug having a plurality of longitudinal conductive contacts inserted in the plug receiving cavity such that one of said longitudinal conductive contacts bears against the one of the contact means in the receptacle having a convex bend to push said convex bend against said sensor means so that one of the contact means engages with the sensor means.

5,800,193

ELECTRONIC COMPONENT CONNECTOR

Hidehiro Tsubakihara, Amagasaki; Yasushi Kajiura, Kawaguchi, and Michihiko Tetsuka, Urawa, all of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, and Enplas Corporation, Saitama, both of Japan

Filed Sep. 19, 1996, Ser. No. 710,553

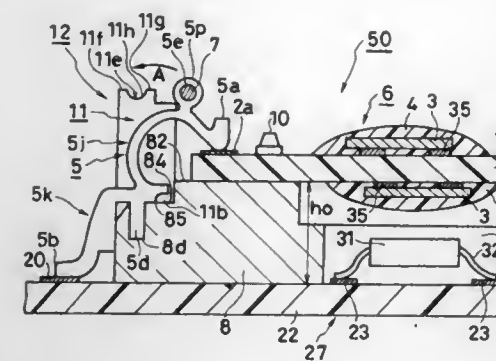
Claims priority, application Japan, Sep. 20, 1995, 7-241373

Int. Cl.⁶ H01R 11/22

U.S. Cl. 439—266

23 Claims

1. An electronic component connector used for mounting an electronic component, comprising:
a frame member; and
an elastic member attached to said frame member, said elastic member having an elastic member attachment portion attached to said frame member, an electronic component pressing portion capable of pressing said electronic component toward said frame member, and a press-canceling member engagement portion integrally attached to said electronic component pressing portion,



wherein said electronic component pressing portion is movable in a direction away from said frame member by engaging a press-canceling member with said press-canceling member engagement portion and moving said press-canceling member in a direction away from said frame member, and wherein said electronic component pressing portion has a contact portion capable of making contact with said electronic component, and a curved portion which extends from said contact portion toward said elastic member attachment portion, and said curved portion is curved toward said frame member.

5,800,194

IC SOCKET

Hiroki Yamagishi, Kawaguchi, Japan, assignor to Enplas Corporation, Kawaguchi, Japan

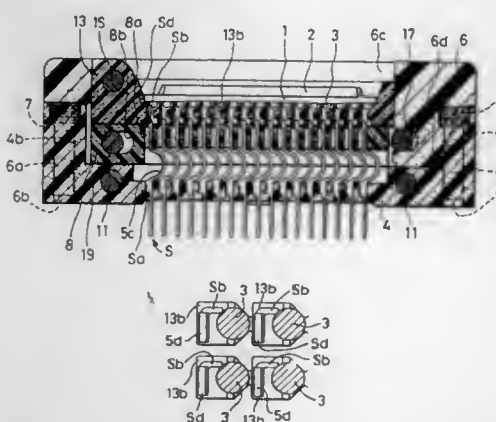
Filed Sep. 25, 1996, Ser. No. 719,538

Claims priority, application Japan, Sep. 25, 1995, 7-246129

Int. Cl.⁶ H01R 11/22

U.S. Cl. 439—266

22 Claims



1. An IC socket comprising:
a cover member having an opening for inserting an IC package, mounted to be movable in a vertical direction with respect to a socket body;
mounting means for placing said IC package, fixed to said socket body;
a slide member of substantially rectangular shape having a plurality of holes in which contact pins are inserted, placed to be movable in a horizontal direction on an underside of said mounting means;
an operating member located on at least one of a set of parallel side faces of said slide member, reciprocating in a plane substantially parallel to said at least one side face in accordance with a vertical movement of said cover member; and
position control means coming in contact with said at least one side face of said slide member, said position control means moved in a direction perpendicular to said at least one side face by said operating member in one stroke of a reciprocation of said operating member to press and move said slide

member in the direction perpendicular to said at least one side face, and releasing a pressure from said slide member in a remaining stroke of the reciprocation to enable said slide member to regain an original position thereof.

5,800,195
DEWING-TROUBLE-PREVENTED WATER-PROOF CONNECTOR

Takayoshi Endo; Kazuhisa Ishizaki; Satoshi Yamada, and Mitsuhiro Matsumoto, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

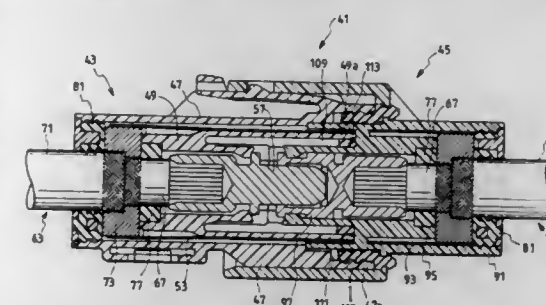
Filed May 24, 1996, Ser. No. 653,477

Claims priority, application Japan, May 25, 1995, 7-126750

Int. Cl.⁶ H01R 13/52

U.S. Cl. 439—271

5 Claims



1. A water-proof connector assembly, comprising:
a first connector comprising:
a first outer housing; and
a first inner housing formed within said first outer housing, said first inner housing including a terminal accommodating chamber for accommodating a first terminal connected to a first shielded wire;
a second connector comprising:
a second outer housing;
a second inner housing formed within said second outer housing, said second inner housing including a terminal accommodating chamber for accommodating a second terminal connected to a second shielded wire;
an inner packing mounted on an outer surface of said second inner housing; and
an outer packing mounted on an outer surface of said second outer housing,
wherein when said first connector is engaged with said second connector, a front end portion of said first inner housing is engaged with a front end portion of said second inner housing to set said inner packing in close contact with an inner surface of the front end portion of said first inner housing, and a front end portion of said first outer housing is engaged with a front end portion of said second outer housing to set said outer packing in close contact with the inner surface of said first outer housing.

5,800,196

HERMAPHRODITIC ELECTRICAL CONNECTOR

Edward Rudoy, Woodland Hills; Leslie Laszlo Kerek, Los Angeles, both of Calif., and Gary D. Burns, Inver Grove Heights, Minn., assignors to Tri-Star Electronics International, Inc., El Segundo, Calif.

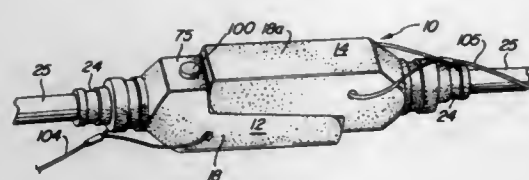
Filed Aug. 21, 1996, Ser. No. 701,168

Int. Cl.⁶ H01R 13/28

U.S. Cl. 439—284

35 Claims

1. A hermaphroditic electrical connector defined by a pair of connector members wherein each of said connector members comprises:
a connector body which is defined by a coupling end and an oppositely disposed electrical cable receiving end defined by a passage in which an electrical cable is fixedly secured;



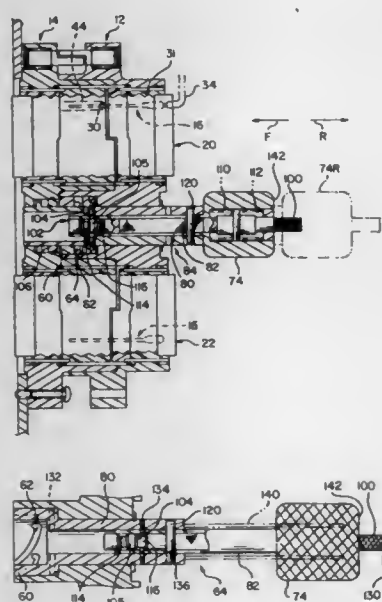
a resilient jacket formed to substantially cover said connector body, whereby said coupling end is exposed;
a latching means positioned in said connector body and covered by said jacket, wherein said latching means is enclosed between said jacket and said connector body the latching means including a manual release member which, when actuated, allows the connector members to be separated with the jackets covering each connector body; and
a male plug and a female receptacle mounted in said connector body in juxtaposition to each other.

5,800,197
CONNECTOR SYSTEM WITH QUICK COUPLING/DECOUPLING

Peter Joseph Hyzin, Lake Forest, Calif., assignor to ITT Manufacturing Enterprises, Inc., Wilmington, Del.
Filed Oct. 18, 1996, Ser. No. 733,851
Int. Cl.⁶ H01R 13/639

U.S. Cl. 439—372

7 Claims



1. A connector that has an axis extending in forward-rearward directions, said connector including a housing with a front end for engaging a mating connector device and with a forwardly-opening connector coupling that can be turned to mate with a device coupling of the mating connector device, comprising:

a shaft arrangement that has a front end coupled to said connector coupling to turn it, said shaft arrangement including a portion extending rearwardly through said housing and having a rear end forming a handle for turning said shaft arrangement to turn said connector coupling;
said shaft arrangement including a first shaft connected to said connector coupling to turn with it and a second shaft rotatably coupled to said first shaft to turn with said first shaft, with said handle being mounted at a rear end of said second shaft, and with said second shaft being movable rearwardly with respect to said first shaft to provide more room for grasping of said handle to turn it and said connector coupling.

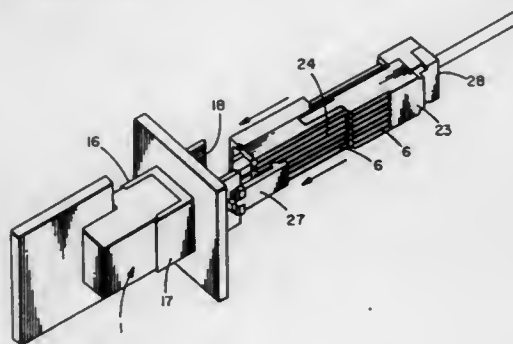
5,800,198
CONNECTOR ASSEMBLY
Danny Morlion, St. Amandsberg; Luc Jonckheere, Dilbeek, and Jan Peter Karel Van Koetssem, Zwijndrecht, all of Belgium, assignors to Framatome Connectors International Tour Framatome, Courbevoie, France
PCT No. PCT/EP95/02402, § 371 Date Dec. 12, 1996, § 102(e)
Date Dec. 12, 1996, PCT Pub. No. WO96/00917, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 20, 1995, Ser. No. 765,346
Claims priority, application Netherlands, Jun. 28, 1994, 9401073

U.S. Cl. 439—372

Int. Cl.⁶ H01R 13/62

7 Claims



1. Connector assembly for interconnecting optical and/or electrical conductors, comprising a first connector part (1) for one or more first conductors, a second connector part (7) for one or more second conductors, and a coupling auxiliary piece (13) adapted to be attached to a support plate (14) or the like, wherein the coupling auxiliary piece (13) comprises a first receiving space (15) for the first connector part (1), and at the side opposite of the first receiving space (15) a second receiving space (19) for the second connector part (7), wherein said receiving spaces are correspondingly sized and shaped to support each connector part independently of the other connector part, characterized in that the coupling auxiliary piece (13) comprises a passage (22) for the second connector part (7) debouching into the first receiving space (15), wherein said second connector part is correspondingly sized and shaped to be inserted into a housing (2) of the first connector part (1) with an insertion end to establish a connection between the respective conductors, and the second connector part (7) in its position received in the coupling auxiliary piece projects into and completely through said passage of said auxiliary piece and into the first receiving space (15) and is inserted into the housing (2) of the first connector part (1) when said first connector part is in its position received in the coupling auxiliary piece.

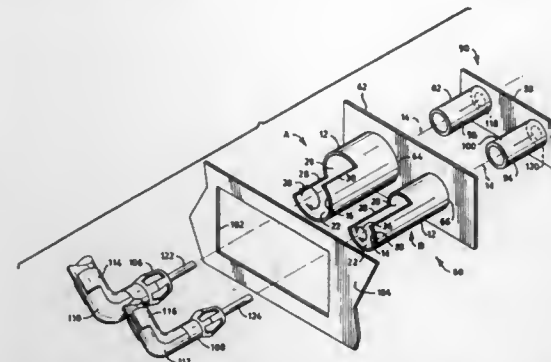
5,800,199
CONNECTOR ALIGNMENT GUIDE
John O. Wright, York, and Patricia M. Reagan, Hummelstown, both of Pa., assignors to Osram Sylvania Inc., Danvers, Mass.

Division of Ser. No. 499,881, Jul. 11, 1995, Pat. No. 5,788,531.
This application Oct. 1, 1996, Ser. No. 720,608
Int. Cl.⁶ H01R 13/629; 13/74

U.S. Cl. 439—374

9 Claims

1. In combination, a right angled electrical connector and a connector alignment guide therefore, said guide comprising:
a segment extending along a longitudinal axis and having a first end, an opposite second end, an inner surface defining a bore which extends from said first end to said opposite second end, and an outer surface;
a single open region at said first end extending through said segment from said outer surface to said inner surface; and
a coupler at said opposite second end, said right angled connector having a first portion extending along said longitudinal axis and fitted within said bore and a second portion project-

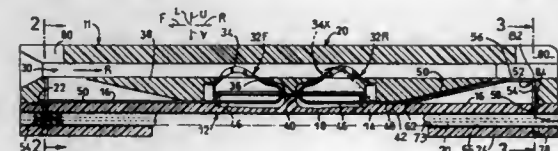


5,800,200
SMART CARD CONNECTOR WITH IDC
Herve' Guy Briand, and Fabrice Valcher, both of Dole, France, assignors to ITT Manufacturing Enterprises, Inc., Wilmington, Del.

Filed Jun. 26, 1996, Ser. No. 669,754
Claims priority, application France, Nov. 7, 1994, 94-13288
Int. Cl.⁶ H01R 13/38

U.S. Cl. 439—404

10 Claims



1. A card connector comprising:

a housing having a portion for holding a cable with insulation and at least one wire therein;

at least one contact mounted in said housing, said contact having a fixing portion that is fixed to said housing, a linking branch that extends at an upward incline from said fixing portion, a largely downwardly-extending insulation displacement fork lying at an end of said linking branch opposite said fixing portion, and an elbow between said linking branch and said fork;

said linking branch being downwardly deflectable to substantially the horizontal to move down said fork into said cable, and said housing including a largely downwardly-facing shoulder that is fixed in position with respect to said housing portion, with said shoulder positioned to allow said fork to pass downwardly across said shoulder and to thereafter lie over said elbow when said fork is moved down into said cable, to prevent the fork from moving up out of said cable.

5,800,201
CONNECTOR ASSEMBLY FOR WIRE HARNESS AND METHOD FOR COUPLING THE SAME
Kensaku Takata, and Junichi Ono, both of Nagoya, Japan, assignors to Sumitomo Wiring Systems, Ltd.; Harness System Technologies Research, Ltd., and Sumitomo Electric Industries, Ltd., all of Japan

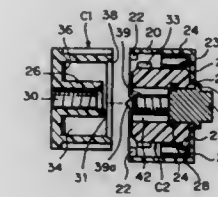
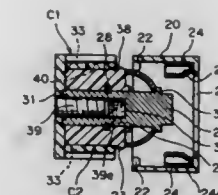
Filed Dec. 9, 1996, Ser. No. 760,950
Claims priority, application Japan, Dec. 11, 1995, 7-321771;
Feb. 6, 1996, 8-019654

U.S. Cl. 439—466

Int. Cl.⁶ H01R 13/58

13 Claims

1. A connector assembly for a wire harness, comprising:
a first connector secured to a first unit;



a second connector to be connected to said first connector, said second connector being provided on a second unit to be coupled to said first unit;

a protector for said wire harness being provided on said second unit and including a protector body which encloses and protects said wire harness and a connector holder, formed together with said protector body and holding said second connector, movable toward said first connector in a connecting direction, said second connector being adapted to be connected to ends of electric wires in said wire harness;

a discrete holding member inside said connector holder resiliently biased against side walls of said second connector, said wire harness to be connected to said second connector being arranged in said protector body; said second connector being temporarily held in said connector holder by said holding member;

a securing position of said first connector on said first unit wherein said second connector is opposed to said first connector upon coupling said first and second units to each other.

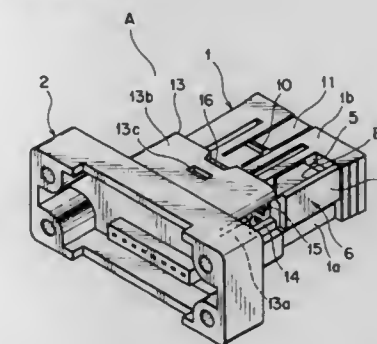
5,800,202
ELECTRICAL CONNECTOR ASSEMBLY WITH COUPLING GUIDE STRUCTURE
Masanori Tsuji, and Haruki Yoshida, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Jun. 13, 1996, Ser. No. 661,326
Claims priority, application Japan, Jun. 19, 1995, 7-151796;
Apr. 19, 1996, 8-098694

U.S. Cl. 439—489

Int. Cl.⁶ H01R 3/00

5 Claims



1. An electrical connector assembly with a coupling guide structure comprising:

a first connector housing having a coupling noticing member slidably mounted in said first connector housing orthogonally to the connector housing coupling directions;
an operating portion provided in one outer end of said coupling noticing member; an actuating portion provided in said cou-

pling noticing member and having an inwardly tapered face with a falling gradient, said tapered face being directed oppositely to the connector housing coupling direction;

a second connector housing being engageable with said first connector housing;

a projecting guide piece provided in an opening end of said second connector housing and abutting against said tapered face of said coupling noticing members; and

an actuating portion inserting recess opened adjacent to said projecting guide piece in said second connector housing, wherein said first connector housing has a resilient lock arm with a ramped locking protrusion and said second connector housing has a stepped portion, said actuating portion of said coupling noticing member prevented from being fully inserted in said first connector housing by said projecting guide piece of said second connector housing while said ramped locking protrusion of said resilient lock arm is abutting against said stepped portion, said coupling noticing member being able to be fully inserted in said first connector housing when said ramped locking protrusion of said resilient lock arm has ridden over said stepped portion.

5,800,203
TERMINAL RETENTION FOR AN ELECTRICAL CONNECTOR

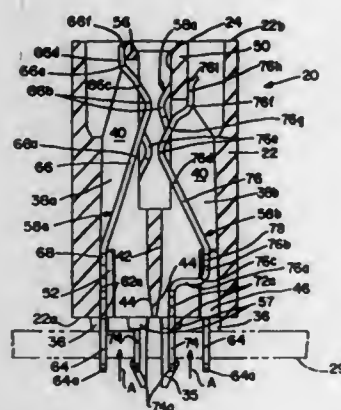
Gregory R. Pratt, Naperville, and Kent E. Regnier, Lombard, both of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 16, 1996, Ser. No. 682,972

Int. Cl.⁶ H01R 23/70

U.S. Cl. 439—637

20 Claims



1. A push-pull edge card electrical connector for receiving an edge of a printed circuit board having contact pads on opposite sides of the board adjacent the edge, comprising:

an elongated dielectric housing including

a board-receiving face and a board-mounting face,

an elongated slot disposed in the board-receiving face generally along a longitudinal axis of the housing for receiving said edge of the printed circuit board,

a plurality of pairs of transversely spaced apart first and second terminal-receiving cavities for receiving respective ones of a pair of first and second terminals engageable with the contact pads on opposite sides of the printed circuit board and defining two rows of alternating first and second cavities lengthwise of the housing, the first cavity of each pair being located on an opposite side of the slot from said second cavity, the cavities within each row being separated by transverse walls extending generally perpendicular to the longitudinal axis of the housing, and

a plurality of retention bosses molded integrally with said housing in alignment with said transverse walls of said second cavities, the retention bosses projecting from the board-mounting face a predetermined distance; and

a pair of first and second shapes of terminals received in each pair of first and second cavities, respectively, each terminal including

a base portion having a retention section adapted to be press-fit within the housing, the retention section of the second shape of terminal being located a greater distance from the board-receiving face than the retention section of the first shape of terminal, and with at least a portion of the retention section of the second shape of terminal being located in engagement with one of the retention bosses,

a resilient spring arm extending from a first end of the base portion and having a contact portion for engaging one of the contact pads on the printed circuit board, and with the contact portion of the first shape of terminals extending a greater distance from a bottom of the slot than the contact portion of the second shape of terminals, and

a tail portion extending from a second, opposite end of the base portion for interconnection to circuitry on a circuit member.

5,800,204
ELECTRICAL CONNECTOR FOR FLAT CABLE
Toshihiro Niitsu, Yokohama, Japan, assignor to Molex Incorporated, Lisle, Ill.

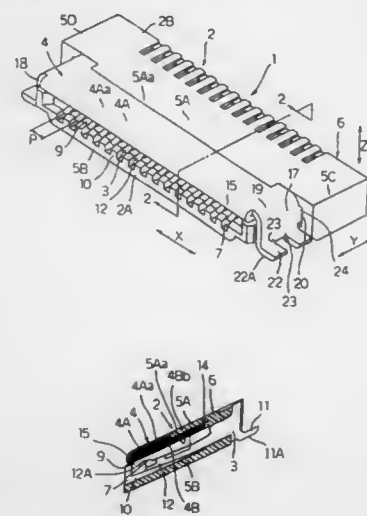
Filed Aug. 22, 1996, Ser. No. 703,916

Claims priority, application Japan, Nov. 9, 1995, 7-316136

Int. Cl.⁶ H01R 9/07

U.S. Cl. 439—495

11 Claims



1. An electrical connector which includes a slot for receiving a flat electrical cable, comprising:

an elongated dielectric housing having a housing wall defining one side of said slot;

a plurality of terminals mounted in the housing with contact portions spaced along the housing wall and projecting into the slot;

a sheet metal support mounted on the housing and having a support wall defining an opposite side of the slot, the sheet metal support being folded back onto itself to provide a double thickness for the support wall; and

said dielectric housing including a shelf extending along said opposite side of the slot, and one thickness of the support wall extending beneath the shelf.

5,800,205
CONTACT MECHANISM FOR IC TESTING
Osamu Arakawa, Tokyo, Japan, assignor to Ando Electrical Co., Ltd., Tokyo, Japan

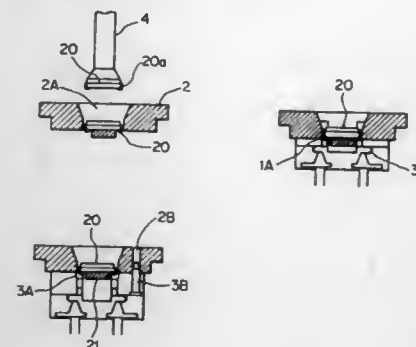
Filed Feb. 9, 1996, Ser. No. 598,841

Claims priority, application Japan, Feb. 28, 1995, 7-065018

Int. Cl.⁶ H05K 1/00

U.S. Cl. 439—526

8 Claims



1. A contact mechanism for connecting leads of an IC package to an IC tester, the IC package having leads on side surfaces thereof, said contact mechanism comprising:

a carrier block having a vertically extending opening for receiving an IC package therein and a stopper disposed near a lower end of the opening for supporting and positioning said IC package in said opening, said opening being defined between opposed side surfaces which are downwardly tapered so that greater clearance is provided at an upper end of the opening than at the lower end of the opening, said side surfaces and said stopper being spaced from each other to form gaps therebetween through which the leads of the IC package project when the IC package is positioned in said opening and is engaged with the stopper;

an IC connector connected to the IC tester, the IC connector being adapted to receive the carrier block having the IC package therein, the IC connector having electrodes for connecting the leads of the IC package extending through the gaps to the IC tester; and

a shifting mechanism for shifting the IC package positioned in the opening of the carrier block toward the IC connector after the carrier block has been joined to the IC connector so as to bring the leads of the IC package into contact with the corresponding electrodes of the IC connector;

the opening of said carrier block being tapered downwardly so that the leads of the IC package are guided by the tapered side surfaces of the opening as the IC package is pushed down toward the IC connector to contact the leads of the IC package to the electrodes of the IC connector.

5,800,206
ELECTRIC CONTROL AND SIGNALING DEVICE FITTED WITH A DETACHABLE BLOCK
Dominique Benol, Mornac, France, assignor to Schneider Electric SA, Boulogne-Billancourt, France

Filed Jun. 19, 1996, Ser. No. 665,981

Claims priority, application France, Jun. 20, 1995, 95 07464

Int. Cl.⁶ H01R 13/60

U.S. Cl. 439—532

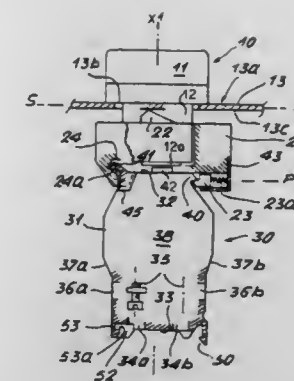
5 Claims

1. Electric control or signaling device comprising:

a body insertable in an orifice of a wall and having a movable part;

an electric block connected to the body and a carrier base connected to the block by a detachable fixing member, said base having a recess formed therein,

wherein the electric block has a fixing face which faces the carrier base and comprises on said fixing face a first and second integral rigid heel, said first heel being positioned on one side thereof and cooperating with a ratchet stop movably



mounted on the base so as to be movable in a plane perpendicular to the axis of said movable part of the body and which is elastically biased by a spring, said second heel being positioned on an opposite side of said electric block;

said second heel comprising a positioning and maintaining heel inserted in said recess formed in the base wherein the electric block includes in lateral faces thereof indentations which cooperate with a guiding and maintenance ear which protrudes from the carrier base.

5,800,207
MECHANISM FOR ARRANGING DIFFERENT I/O PORT CONNECTORS

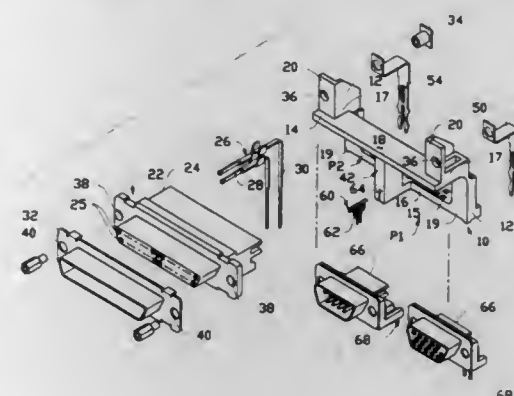
Sung Liu Hsu, Lin-Kou Hsiang, Chun Chu Wang, Pan-Chiao, and Chang-Hua Yin, Hsin-Tien, all of Taiwan, assignors to Hon Hai Precision Ind. Co., Ltd., Taipei, Taiwan

Filed May 22, 1996, Ser. No. 651,565

Int. Cl.⁶ H01R 13/66

U.S. Cl. 439—541.5

12 Claims



1. A bracket for use with two-level connectors for mounting on a board, comprising:

a pair of side stands interconnected with each other by a supporting bar integrally connected between two upper portions thereof, and by a spacer bar integrally connected between two lower portions thereof; wherein

the supporting bar includes a supporting plane for mounting a first connector thereon and the spacer bar includes a plurality of through holes therein for alignment of contact tails of said first connector;

a partition bar integrally extending from at least one of the supporting bar and the spacer bar.

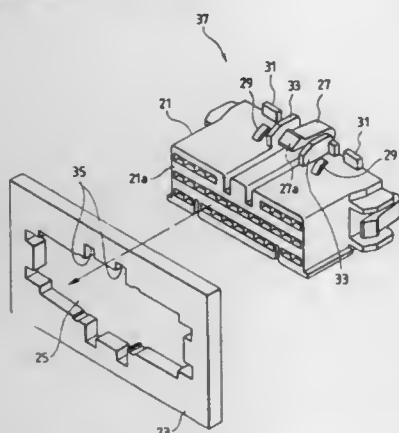
5,800,208

MOVABLE CONNECTOR-MOUNTING CONSTRUCTION
Shigeo Ishizuka, and Isao Kameyama, both of Shizuoka,
Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Jul. 24, 1996, Ser. No. 685,507

Claims priority, application Japan, Aug. 1, 1995, 7-196634
Int. Cl.⁶ H01R 13/73

U.S. Cl. 439—557

6 Claims



1. A movable connector comprising:

- a housing;
- an elastic retaining arm, the elastic retaining arm including a front portion having a front edge and a rear portion, wherein the front portion has a height greater than the rear portion and the rear portion is formed on an outer surface of the housing, and displaceably retaining the movable connector; and
- a pair of protective ribs provided respectively on opposite sides of the retaining arm and projecting outwardly from the outer surface of the housing extending to a first point beyond the front edge of the front portion of the retaining arm and extending at the first point to a height greater than the height of the front portion of the retaining arm.

5,800,209

ELECTRICAL CONNECTOR AND AFFIXING MEMBER
Kenji Suzuki, Kawasaki, Japan, assignor to Berg Technology,
Inc., Reno, Nev.

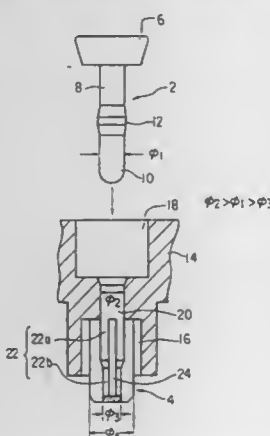
PCT No. PCT/US94/12818, § 371 Date Jul. 12, 1996, § 102(e)
Date Jul. 12, 1996, PCT Pub. No. WO95/13636, PCT Pub.
Date May 18, 1995

PCT Filed Nov. 11, 1994, Ser. No. 640,761

Claims priority, application Japan, Nov. 12, 1993, 5-060959
Int. Cl.⁶ H01R 13/73; H02B 1/01

U.S. Cl. 439—571

7 Claims



1. An electrical connector to be affixed to an insertion hole in a board, the connector comprising:

a pin having an outer diameter; and
a housing, the housing comprising an integral cylindrical member situated in a recess provided on a lower surface side of the housing of the electrical connector, said cylindrical member being configured to be insertable in a substantially coaxial manner within the insertion hole in the board, having an outer diameter smaller than an inner diameter of the insertion hole in the board to enable the cylindrical member to be inserted into the board insertion hole with zero or a small insertion force, and having a hollow section for receiving the pin substantially coaxially with the insertion hole in the board where at least a portion of the hollow section of the cylindrical member has an inner diameter smaller than the outer diameter of the pin, the cylindrical member further having a plurality of segmented outer peripheral portions enabling at least a portion of the cylindrical member to split along a direction when the pin is fully inserted and a connecting member for connecting the plurality of outer peripheral portions together at a forward end of the cylindrical member, the force of said pin on said portion of the cylindrical member causing the outer diameter of the cylindrical member to be enlarged to affix a portion of the cylindrical member to the insertion hole of the board when the pin is fully inserted into the hollow section of the cylindrical member.

5,800,210

SEALED SPACER SLEEVE FOR ELECTRICAL CONNECTOR HOUSING

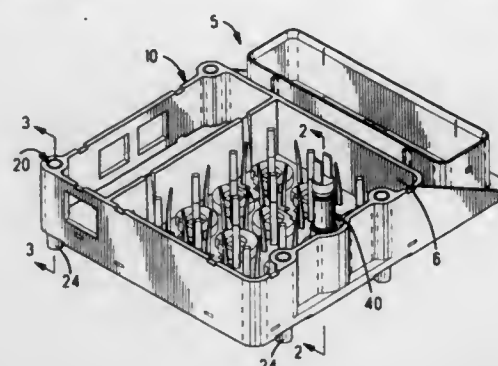
Harry Lee Sparks, Jr., Lewisville, and Galen Monroe Martin, Jamestown, both of N.C., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Apr. 30, 1996, Ser. No. 641,249

Int. Cl.⁶ H01R 13/73

U.S. Cl. 439—573

12 Claims



1. A housing for use with an electrical circuit, said housing is formed of a dielectric material, and said housing comprises:
an electrical contact receiving section for receiving an electrical contact of said circuit; and
a spacer sleeve for receiving a fastener therethrough for fastening the housing to a component,
said spacer sleeve is a stamped part associated with the housing, whereby forces generated by the fastener are generally transmitted through said spacer sleeve to the component.

5,800,211

SNAP TOGETHER CATV CONNECTOR FOR INDOOR USE

David J. Stabile, Horseheads, and Ronald P. Locati, Elmira, both of N.Y., assignors to Augat Inc., Mansfield, Mass.

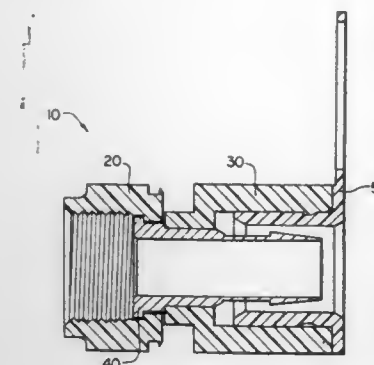
Filed Jun. 24, 1996, Ser. No. 671,128

Int. Cl.⁶ H01R 13/58

U.S. Cl. 439—578

10 Claims

1. A CATV connector for indoor use consisting of:



a post of electrically conductive material having a first open end and a second open end, and a bore centrally disposed therethrough;
a nut having a first open end and a second open end, a bore centrally disposed therethrough, and threads on an internal surface adjacent the first end thereof;
said nut disposed coaxially around and rotatable about a portion of the post;
a collar of electrically insulative material having a first open end and a second open end, a bore centrally disposed therethrough, and an engagement element disposed along an interior surface thereof;
said collar disposed along a common longitudinal axis with said connector, said collar attached to a portion of said post such that the first end of said collar is adjacent the second end of said nut; and
a sleeve of electrically insulative material having a first open end and a second open end, a bore centrally disposed therethrough, and a receiving element configured to receive said engagement element of said collar when said sleeve is fit into said collar.

5,800,212

PLUG-IN TYPE LIGHT BULB

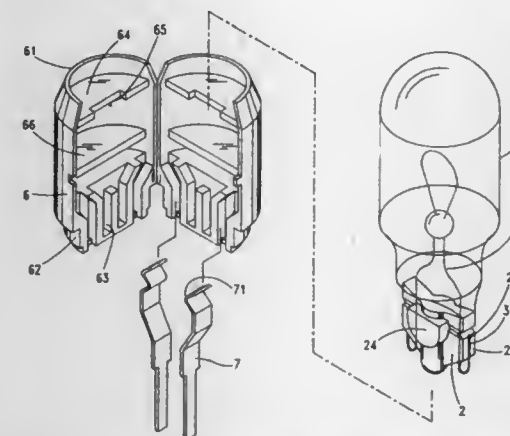
Min-Hsun Hsu, 12F-1, No.311, Sec.4, Chung Hsiao E. Rd., Taipei, Taiwan

Filed Feb. 28, 1997, Ser. No. 807,279

Int. Cl.⁶ H01R 17/00

U.S. Cl. 439—619

1 Claim



1. An improved plug-in type light bulb and socket assembly, comprising:

a socket formed by two symmetrical halves, each half having (a) an upper portion and a lower portion with a plurality of grooves formed therein, (b) a cover plate having a notch formed therein disposed in said upper portion, and (c) a pair of electrically conductive plates at least partially received in a respective pair of said plurality of grooves, each of said pair

of conductive plates having an elastic curved contact terminal formed at an upper end thereof; and,
a light bulb having a plug unit formed on a lower end thereof received in said socket, said light bulb having a pair of lead wires respectively terminated to a pair of contact terminals, said plug unit having a pair of opposing side walls extending longitudinally a first predetermined distance, each of said pair of side walls having a raised block integrally formed thereon and dimensioned to be received in said cover plate notch of a respective socket half, said plug unit having a pair of laterally extending end walls spaced one from another by said first predetermined distance, each of said end walls extending laterally a second predetermined distance, said second predetermined distance being less than said first predetermined distance, each of said end walls having a half round groove formed therein for at least partially receiving a respective one of said contact terminals of the plug unit therein for positioning each of said contact terminals of the plug unit for contact with said elastic curved contact terminal of a respective conductive plate of said socket.

5,800,213

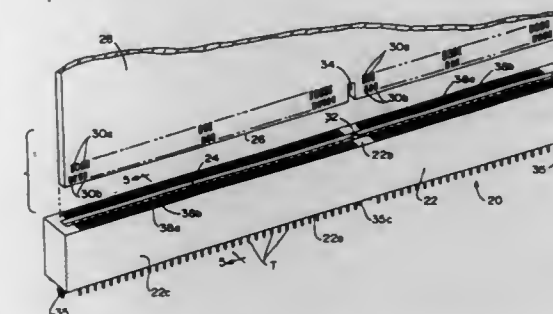
EDGE CONNECTOR FOR A PRINTED CIRCUIT BOARD
Kent E. Regnier, Lombard, and Gregory R. Pratt, Naperville, both of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 16, 1996, Ser. No. 683,549

Int. Cl.⁶ H01R 23/70

U.S. Cl. 439—637

18 Claims



1. A push-pull edge card electrical connector for receiving an edge of a printed circuit board having conductive contact pads on at least one side of the board adjacent the edge, comprising:

- an elongated dielectric housing including a board-receiving face and a terminal-receiving face, an elongated slot disposed in the board-receiving face generally along a longitudinal axis of the housing for receiving said edge of the printed circuit board,
- a plurality of first and second alternating terminal-receiving cavities spaced along at least said one side of the slot and separated by transverse walls extending generally perpendicular to the longitudinal axis of the housing, said cavities being disposed between longitudinal sidewalls of the housing,
- a reinforcing rib extending across and joining the transverse walls of at least some of the cavities generally adjacent said slot, said reinforcing rib being spaced from each of said sidewalls such that a first access opening extends across each of said first terminal-receiving cavities between said reinforcing rib and said sidewall and a second access opening extends across each of said second terminal-receiving cavities between said reinforcing rib and said sidewall, and
- a first press-fit recess in each of the first cavities and a second press-fit recess in each of the second cavities, each first press-fit recess being located generally adjacent but spaced from one of said longitudinal sidewalls and each second press-fit recess being located generally adjacent but spaced from said reinforcing rib; and
- a plurality of first and second terminals, each first terminal being received in one of said first terminal-receiving cavities through said first access opening and each second terminal

being received in one of said second terminal-receiving cavities through said second access opening;

each of said first terminals including a generally planar base portion having a retention section press-fit within the first press-fit recess of its respective cavity, a tail portion projecting from one end of the base portion and a resilient spring arm extending from an opposite end of the base portion, the resilient spring arm having a contact section for contacting one of said contact pads; and

each of said second terminals including a generally planar base portion having a retention section press-fit within the second press-fit recess of its respective cavity, a tail portion projecting from one end of the base portion and a resilient spring arm extending from an opposite end of the base portion, the resilient spring arm having a contact section for contacting one of said contact pads.

5,800,214

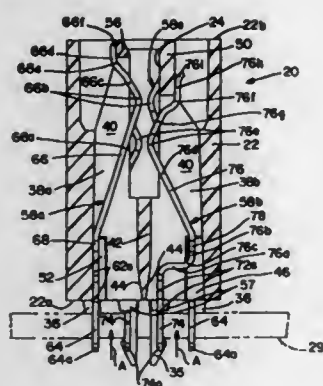
EDGE CONNECTOR FOR A PRINTED CIRCUIT BOARD
Gregory R. Pratt, Naperville, and Kent E. Regnier, Lombard, both of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 16, 1996, Ser. No. 683,551

Int. Cl.⁶ H01R 23/70

U.S. Cl. 439—637

20 Claims



1. A push-pull edge card electrical connector for receiving an edge of a printed circuit board having contact pads on opposite sides of the board adjacent the edge, comprising:
an elongated dielectric housing including a board-receiving face,
an elongated slot disposed in the board-receiving face generally along a longitudinal axis of the housing for receiving said edge of the printed circuit board,
a plurality of pairs of transversely spaced apart first and second terminal-receiving cavities for receiving respective ones of a pair of first and second terminals engageable with the contact pads on opposite sides of the printed circuit board and defining two rows of alternating first and second cavities lengthwise of the housing, the first cavity of each pair being located on an opposite side of the slot from said second cavity, the cavities within each row being separated by transverse walls extending generally perpendicular to the longitudinal axis of the housing, and
each pair of transversely spaced apart terminal-receiving cavities being disposed between longitudinal side walls of the housing, said side walls being generally parallel to the longitudinal axis, and
each said side wall varying in thickness along the length thereof, said side wall having a first thickness at said first terminal-receiving cavities and a second thickness at said second terminal-receiving cavities, said first thickness being greater than said second thickness; and
said first and second terminals having different shapes, one of said first terminals being received in each of said first cavities and one of said second terminals being received in each of said second cavities, the first and second terminals alternating

lengthwise of the housing in each row of cavities, with the first terminals including retention sections press-fit between the transverse walls adjacent portions of said side walls of said greater thickness.

5,800,215

DISTRIBUTION DEVICE FOR THE TELECOMMUNICATION AND DATA TECHNIQUE

Ingo Dohnke, Teltow; Gunter Hegner, and Gerd Richter, both of Berlin, all of Germany, assignors to Krone Aktiengesellschaft, Berlin-Zehlendorf, Germany

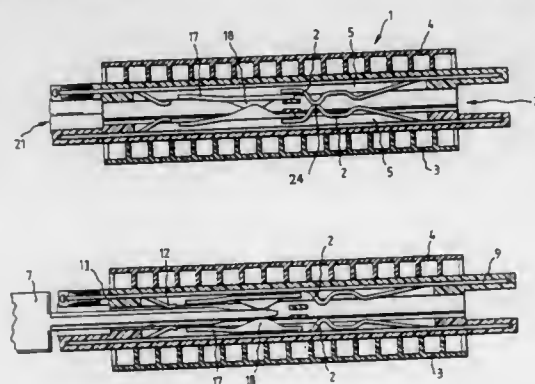
Filed Sep. 25, 1996, Ser. No. 719,784

Claims priority, application Germany, Sep. 29, 1995, 195 37 529.7; Sep. 29, 1995, 295 15 984.7; Sep. 29, 1995, 295 15 983.9

Int. Cl.⁶ H01R 29/00

U.S. Cl. 439—719

20 Claims



1. A distribution block for the telecommunication and data transmission applications, comprising:
a modular-design distribution block having front and rear sides and including a modular upper block portion and a modular lower block portion cooperating to define a block interior;
one-piece contact springs disposed in said interior of said modular-design distribution block, each of said contact springs including insulation displacement connection contacts on the front and rear sides of said block for the connection of subscriber cables as well as for the connection of exchange office cables, a telephone contact in a central section of said contact springs, said telephone contact being composed of at least two different contact surface portions, a support surface, and a tapping contact provided in a front section of said contact spring; and
a tongue connected with the respective upper and lower portions of said block and having a cam for acting on said support surface upon insertion of a disconnection plug, said cam moving said support surface and said two different contact surface portions without the disconnection plug contacting said two different contact surface portions.

5,800,216

ELECTRICAL CONNECTOR

Naohisa Okada, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Apr. 17, 1996, Ser. No. 633,460

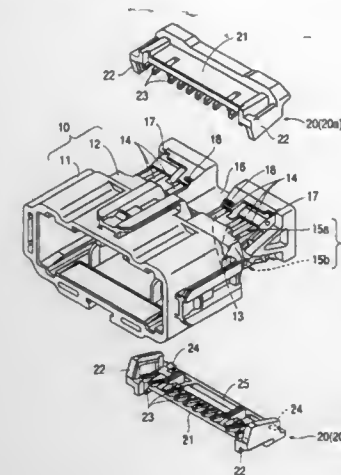
Claims priority, application Japan, Apr. 18, 1995, 7-117828

Int. Cl.⁶ H01R 13/436

U.S. Cl. 439—752

12 Claims

1. An electrical connector comprising a housing, a plurality of laterally-spaced parallel cavities formed in the housing for receiving terminals, a retainer for holding the terminals within the cavities, and a respective window joining each of the cavities to the exterior of the housing, the windows being positioned within a housing face overlying the cavities, the retainer having a base, a pair of arms extending away from the ends of the base, and a



plurality of claws positioned between the arms and extending away from the base in a given direction, the base of the retainer overlying said housing face with the arms of the retainer clamping a pair of side housing faces adjacent to said housing face and with the claws aligned with the windows, the retainer being movable with respect to the housing in a first direction from a first position in which the claws lie outside the windows to a second position in which the claws have entered the windows, wherein the retainer and the housing are provided with interengageable locking means for resisting movement of the retainer from the second position to the first position in a direction opposed to the first direction, wherein said locking means includes a first locking device which includes at least one primary projection formed in a central region of one of the base of the retainer and the housing face, and a primary cut-out formed in the other of the base of the retainer and the housing face to matingly engage said primary projection, and a second locking device at each end of said housing face to resist rotational movement of the retainer in moving from said second position to said first position, each said second locking device including a secondary projection on one of said base of the retainer and the housing face, and a secondary cut-out on the other of said base of the retainer and the housing face and positioned closely adjacent to one of said arms of said retainer to matingly receive one of said secondary projections.

5,800,217

ELECTRICAL CONNECTOR INCLUDING AN APPARATUS THEREIN

Antonio Lehner, Wiesbaden, Germany, assignor to The Whittaker Corporation, Wilmington, Del.

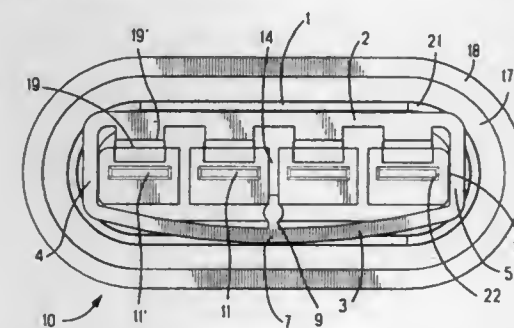
Filed Feb. 25, 1997, Ser. No. 805,800

Claims priority, application Germany, Mar. 13, 1996, 196 09 873.4

Int. Cl.⁶ H01R 13/436

U.S. Cl. 439—752

9 Claims



1. An electrical connector including an apparatus for securing electrical contacts therein, the connector comprising: a connector

housing having a chamber therein for receiving a contact wherein a lateral opening extends through the housing and into communication with the chamber; and a securing insert disposed along the housing and having a first wall with tabs extending therefrom and into the lateral openings wherein the securing member has a first position with the tabs extending into the chamber and a second position with the tabs clear of the chamber; the connector being characterized in that a resilient member acts on the first wall of the securing insert to hold the securing insert in the first position, the resilient member being in a natural condition in the first position and a deformed condition in the second position, whereby the securing insert is naturally biased into the first position.

5,800,218

S110 TEST ADAPTER

Richard T. Abuciewicz, New Britain, Conn., assignor to The Siemon Company, Watertown, Conn.

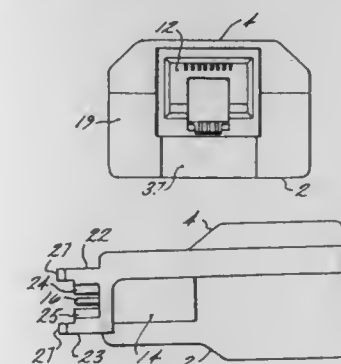
Continuation of Ser. No. 334,679, Nov. 4, 1994, abandoned.

This application Aug. 28, 1997, Ser. No. 921,982

Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—76.1

10 Claims



1. A telecommunications test adapter comprising:
(a) a housing defining an interior space;
(b) an electrical interconnector mounted within said interior space of said housing;
(c) a telecommunications connector electrically connected to said electrical interconnector and arranged within said housing so as to be accessible from an exterior of said housing; and
(d) at least two longitudinally spring loaded contacts electrically connected to said electrical interconnector, said electrical interconnector providing an electrical interconnection between said telecommunications connector and said at least two longitudinally spring loaded contacts, said at least two longitudinally spring loaded contacts extending from within said interior space of said housing to said exterior of said housing, said at least two longitudinally spring loaded contacts providing resilient electrical connection with electrical contacts of a separate telecommunications structure.

5,800,219

STAMPED BATTERY TERMINAL

Henry A. Siedlik, Novi, and Zenon Hotra, Troy, both of Mich., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

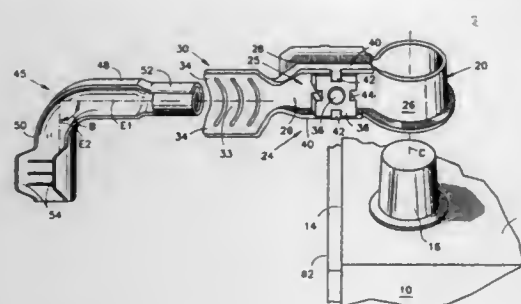
Filed Dec. 17, 1996, Ser. No. 767,900

Int. Cl.⁶ H01R 4/42

U.S. Cl. 439—762

7 Claims

1. A terminal connection for attaching a battery cable to a battery, the battery having a first surface and a second surface, and an electrical terminal post disposed on the first surface, said terminal connection comprising:



a first conductor having first and second ends, with structure at said first end to be brought together for attachment to the electrical terminal post on the battery, said structure including spaced members which may be selectively drawn together to contact the electrical terminal post, said first conductor having a connection structure at said second end; and
a second conductor having first and second ends and said first end having a second connection structure which is attached to said first connection structure on said first conductor, and having structure at said second end for attachment to the battery cable, said first and second connection structure connecting said first and second conductors such that when the battery cable is connected to said second end of said second conductor, electrical communication is made between the electrical terminal post on the battery and the battery cable; and
an angle defined between said first connection structure on said first conductor and said second connection structure on said second conductor, said angle being greater than or equal to 90 degrees and less than 180 degrees, such that said terminal connection conforms to the contour between the first and second surfaces of the battery.

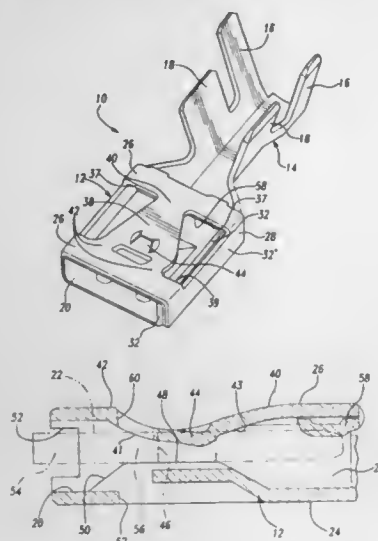
5,800,220

TAB RECEPTACLE TERMINAL

John V. Feeny, Livonia, Mich.; Jeffery A. Kocinski, Valley View, Ohio, and Robert J. Cuc, South Lyon, Mich., assignors to Framatome Connectors Interlock Inc., Norwalk, Conn.
Filed Oct. 23, 1996, Ser. No. 735,679
Int. Cl.⁶ H01R 11/22; 13/11; 15/10

U.S. Cl. 439—849

15 Claims



1. A tab receptacle terminal fabricated by bending a single sheet of electrically conductive material, said receptacle terminal comprising:
a receptacle box having a closed continuous wall defining at one end and an opening through which a male terminal is inserted

so as to make contact with said box, said box including a bottom, a top, and sides;
spring means formed in said top so as to extend substantially across the length of said top between said one end and an opposing end of said box, said spring means projecting interiorly of said box toward said bottom for engagement with an inserted male terminal within said box, said spring means having portions defining a leading surface and a trailing surface thereon, said leading surface defining an angle with respect to said top which is greater than an angle defined between said top and said trailing surface;
retention means for retaining the male terminal, said retention means providing a retention force against withdrawal of an inserted male terminal, said retention force being greater than an insertion force provided by said retention means to engage with said retention means; and
a pair of closed slots extending lengthwise along said top adjacent a juncture of said top with said sides to define said spring means and enable deflection of said spring means.

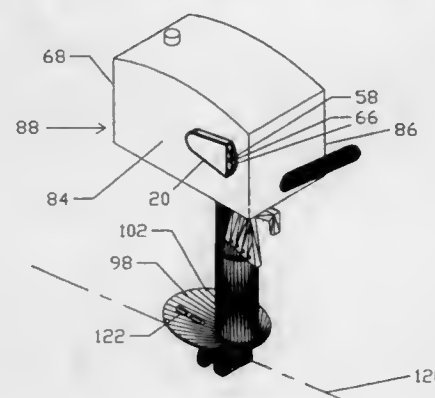
5,800,221

MULTIPOSITION READABLE TRIM POSITION INDICATOR AND METHODS OF USING SAME

Thomas A. Dombrowski, Franklin, Wis.; Melvin P. Sobol, Hicksville, and Michael D. Fitzpatrick, Uniondale, both of N.Y., assignors to Tdaka Products, L.L.C., Franklin, Wis.
Filed Dec. 6, 1997, Ser. No. 986,290
Int. Cl.⁶ B60L 1/14

U.S. Cl. 440—2

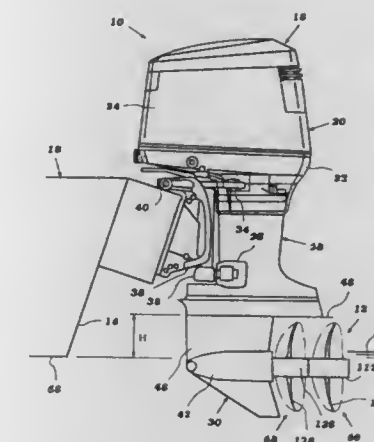
20 Claims



1. A trim position indicator for attachment to either the left or right side of the top cover of an outboard motor, said trim position indicator comprising:

- (a) a closed housing having a top wall, a front wall having a transparent viewing window, a left side wall, and a right side wall, said walls defining a space within said housing;
- (b) a horizontal pivot pin having a cross-section having a predetermined circumference and having a first end and a second end, said pivot pin being disposed within said closed housing and extending from the left side wall to the right side wall, said first end of said horizontal pivot pin being attached to said right side wall, and said second end of said horizontal pivot pin being attached to said left side wall;
- (c) a level-seeking mechanism mounted on said pivot pin, said level-seeking mechanism being viewable through said transparent viewing window, said level-seeking mechanism comprising:
 - (i) a pivot ring having a hole passing therethrough, said pivot pin extending through said hole in said pivot ring, whereby said pivot ring is supported by said pivot pin;
 - (ii) an elongated pointer having a predetermined moment, said elongated pointer having a face end having a width and an attachment end, said attachment end of said elongated pointer being attached to said pivot ring, said elongated pointer projecting radially outward therefrom in the direction of said viewing window;

(iii) a counterbalance weight having a moment substantially equal to the moment of said elongated pointer, said counterbalance weight being fixedly attached to said pivot ring at a point approximately 180 degrees of arc from the attachment end of said elongated pointer and extending radially outward therefrom in a direction approximately 180 degrees of arc from the direction of the elongated pointer, whereby said counterbalance weight tends to keep said elongated pointer in a horizontal orientation; and
(iv) positioning means fixedly attached to said pivot ring, said positioning means helping to maintain said elongated pointer in a horizontal orientation;
said level-seeking mechanism being so disposed within said closed housing that said face end of said elongated pointer is adjacent said transparent viewing window and is viewable therethrough; and
(d) attachment means for attaching said trim position indicator to either the left side or the right side of the outboard motor's top cover;
whereby said face end of said elongated pointer is viewable through the transparent viewing window from a position in front of said outboard motor.



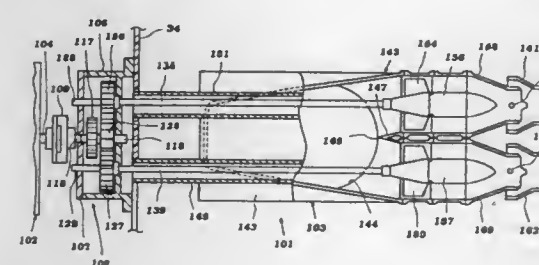
5,800,222

TWIN JET DRIVE FOR WATERCRAFT

Masayoshi Nanami, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Shizuoka, Japan
Filed Aug. 11, 1995, Ser. No. 514,431
Claims priority, application Japan, Aug. 11, 1994, 6-189440
Int. Cl.⁶ B63H 11/08; 11/113

U.S. Cl. 440—38

24 Claims



1. A jet propulsion unit for propelling a watercraft comprising a housing assembly defining a water inlet opening and a water inlet duct extending from said water inlet opening, and a pair of flow paths separated by a dividing wall and communicating with the inlet duct, a pair of impellers supported for rotation about parallel axes in side-by-side relationship downstream of said water inlet opening, each impeller being positioned in a respective one of the flow paths, discharge nozzle means receiving water pumped by said impellers for discharge to provide a propulsive force for an associated watercraft, the dividing wall having at least a portion extending forwardly of the rearward most end of the water inlet opening and into said water inlet duct.

5,800,223

MARINE PROPULSION DEVICE

Yasushi Iriono, and Yoshitsugu Sumino, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Japan
Filed May 22, 1996, Ser. No. 651,389
Claims priority, application Japan, May 22, 1995, 7-122577
Int. Cl.⁶ B63H 5/10

U.S. Cl. 440—49

39 Claims

1. A propulsion device for a watercraft comprising a front propeller and a rear propeller intended to rotate in opposite directions about a common rotational axis, said front and rear propellers each including at least one blade and having a total blade face surface area, the total blade face surface area of said rear propeller

being smaller than the total blade face surface area of said front propeller, but no smaller than about 70% of the total blade face surface area of the front propeller.

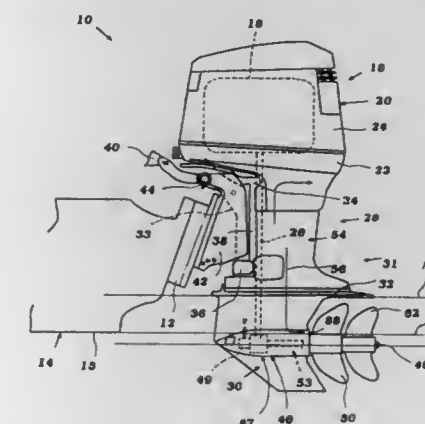
5,800,224

SPLASH AND ANTI-CAVITATION PLATE FOR MARINE DRIVE

Hiroshi Ogino, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Japan
Filed Sep. 6, 1996, Ser. No. 708,640
Claims priority, application Japan, Sep. 6, 1995, 7-228962
Int. Cl.⁶ B63H 1/18

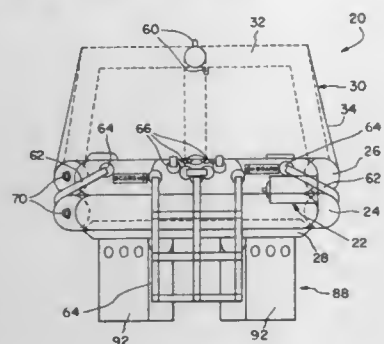
U.S. Cl. 440—66

17 Claims



1. An outboard motor comprising an internal combustion engine positioned above a lower casing which supports a propulsion device on a rear side of the lower casing, a transmission couple to the propulsion device and disposed within the lower casing, said engine driving the transmission and being coupled to the transmission by a generally upstanding drive shaft, a steering mechanism being attached to a housing of the outboard motor above the lower casing and defining a steering axis about which the outboard motor can swivel, and a cavitation plate being connected to a portion of the lower casing and having a generally planar shape, said cavitation plate projecting beyond a front end of the lower casing forward of the steering axis and extending directly over at least a portion of the propulsion device on the rear side of the lower casing, said cavitation plate having a generally uniform width at least over a longitudinal section of the cavitation plate between a rear end of the cavitation plate and a point next to the drive shaft, said width being wider than a maximum width of the portion of the lower casing to which the cavitation plate is connected.

5,800,225
AVIATION AUTO-INFLATABLE LIFE RAFT
 Frederick B. Shoaff, III, 452 Wall's Way, Osprey, Fla. 34229
 Continuation of Ser. No. 535,900, Sep. 28, 1995, abandoned.
 This application Jul. 9, 1997, Ser. No. 890,279
 Int. Cl.⁶ B63B 35/58
 U.S. Cl. 441—38



1 Claim

1. An inflatable life raft for use in an aircraft, said life raft comprising:
 means for providing air;
 a generally circular floor;
 a buoyancy tube disposed about the periphery of said floor, said buoyancy tube coupled with said air providing means; and
 canopy means for protecting survivors located on said floor, said canopy means including a cover and an inflatable support having a U-shaped portion which is approximately coextensive with a diameter line of said floor and a support leg extending between a first side of said U-shaped portion and said buoyancy tube, said U-shaped portion and said support leg attached to said buoyancy tube, said cover extending over said inflatable support and thereby creating a survivor seating area, said inflatable support being squared off on its upper portion to provide head room for the survivors within said survivor seating area, said inflatable support coupled with said air providing means whereby said air providing means is adapted to inflate said buoyancy tube and said inflatable support;
 said cover including a zipper defining a flap portion of said cover which extends over the first side of said U-shaped portion, said cover also including a sail portion which extends over a second side of said U-shaped portion, said cover acting as a sail when said flap portion is unzipped and trade winds impact on said sail portion of said cover, said support leg adapted to maintain the position of said U-shaped portion against oncoming trade winds.

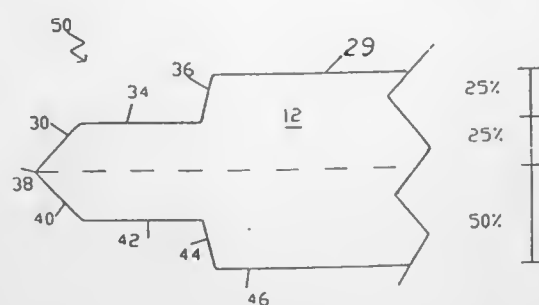
5,800,226
MANEUVERABLE BODY BOARD WITH STEP RAIL
 Gregory Szabad, Oceanside, Calif., and Jon Anthony Glydon, W. Barnstable, Mass., assignors to Earth & Ocean Sports, Inc., Hyannis, Mass.

Filed Sep. 20, 1996, Ser. No. 716,971
 Int. Cl.⁶ B63B 35/73

U.S. Cl. 441—65

17 Claims

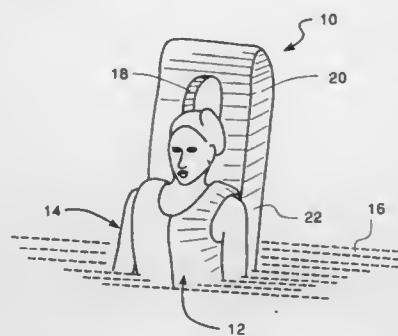
1. A sports board having stepped side rails and adapted for use on a fluid surface, which sports board comprises:
 a) an elongated, substantially planar board comprised of a flotation material and having a top planar support deck surface to support a rider, a bottom planar gliding surface for sliding on a fluid surface, a front end, a rear end, and elongated, laterally opposed side edges, said side edges comprising a top rail and a bottom rail, said side edges extending substantially from said front end toward said rear end, said top rail having an upper beveled rail surface and said bottom rail having a lower beveled rail surface to form said side edges;
 b) said top rail or said bottom rail or both said top and bottom rails having a stepped edge stepped down a selected depth



from the respective planar top deck surface or the bottom planar gliding surface to form a generally lower second top or second bottom, or both, planar stepped rail surface and wherein said stepped rail surface extends to a beveled top or bottom rail surface to decrease rail drag and fluid flow resistance.

5,800,227
SELF ERECTING PERSONAL WATER SAFETY DEVICE
 Robert Edward Brown, Jr., 8 Melba Dr., Hudson, N.H. 03051
 Filed Mar. 26, 1997, Ser. No. 824,528
 Int. Cl.⁶ B63C 9/08
 U.S. Cl. 441—80

11 Claims



1. A self erecting personal water safety device comprising:
 a marker device having a flag portion and a base portion normally in a collapsed state;
 an erection chamber in said flag portion; and
 a compressible storage chamber in said base portion for storing an actuating fluid and interconnected with said erection chamber for compressing when submerged in water to transfer fluid from said compressible storage chamber to said erection chamber and to automatically erect said flag portion when the base portion is submerged in water.

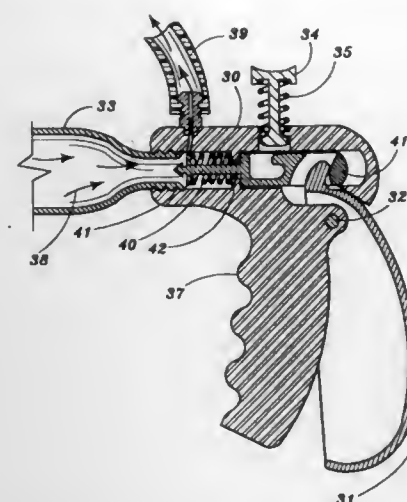
5,800,228
FREE-DRIVER PERMANENTLY WEARABLE SELF-RESCUE SYSTEM
 Ricardo G. Hernandez, 7401 SW. 129th Ave., Miami, Fla. 33183

Filed Apr. 14, 1997, Ser. No. 839,471
 Int. Cl.⁶ B63C 9/125

U.S. Cl. 441—94

19 Claims

1. In an improved life saving device intended primarily for divers, the improvement comprising:
 an inflatable bladder garment that the diver wears when diving with said bladder garment having low hydrodynamic resistance when the diver is underwater, a pressurized gas cartridge for inflating the bladder garment that, when the gas cartridge is punctured, is in gaseous communication with the bladder garment, means for the diver to arm and then restrain manually a trigger mechanism wherein said trigger mechanism



5,800,230
CONJUGATED FILAMENT NONWOVEN FABRIC AND METHOD OF MANUFACTURING THE SAME
 Shingo Horinchi; Taiju Terakawa, and Toshikatsu Fujiwara, all of Shiga, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Sep. 8, 1997, Ser. No. 925,039
 Claims priority, application Japan, Sep. 11, 1996, 8-240748
 Int. Cl.⁶ D03D 3/00

U.S. Cl. 442—352

20 Claims

1. A filament nonwoven fabric comprising conjugated filaments in which intersections of said conjugated filaments are melted, said filament nonwoven fabric having a specific volume of 15–35 cc/g and satisfying the following formula (1) between strength and specific volume;

$$Y \geq -1.25X + 125$$

(1)

wherein Y is a geometrical mean of vertical and horizontal strength per 5 cm wide and 1 g/cm nonwoven fabric (unit: g/(g/m²·5 cm); $Y = (MD \times CD)^{1/2}$ where MD is vertical strength (unit: g/(g/m²·5 cm) and CD is horizontal strength (unit: g/(g/m²·5 cm); and X=specific volume of a nonwoven fabric (unit: cc/g);

wherein said conjugated filaments comprise a low melting point polymer and a high melting point polymer with said low melting point polymer on at least one section of a filament surface and have crimps; and wherein melting points of said low melting point polymer and said high melting point polymer differ by at least 15° C.

5,800,231
METHOD OF PROVIDING A PATTERN OF APERTURES AND/OR CAVITIES IN A PLATE OF NON-METALLIC MATERIAL

Franciscus C.M. De Haas; Franciscus M.H. Van Laarhoven; Johannus M.E. Van Laarhoven; Henricus J. Ligthart; Petrus H.W. Swinkels, and Johannes G. Van Beek, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

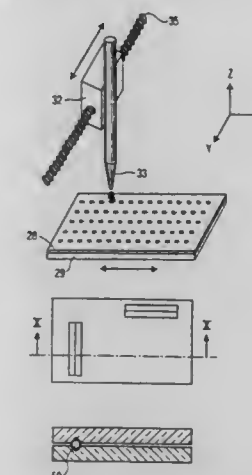
Division of Ser. No. 481,529, Jul. 7, 1995, Pat. No. 5,730,635.

This application Nov. 12, 1996, Ser. No. 744,160

Claims priority, application Belgium, Nov. 9, 1993, 09301236
 Int. Cl.⁶ H01J 9/02

U.S. Cl. 445—24

19 Claims



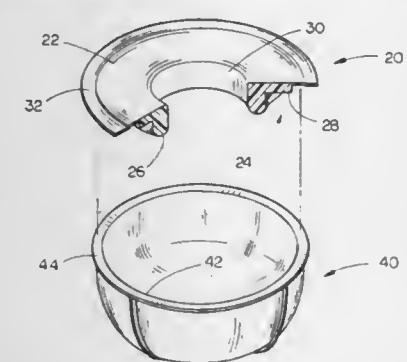
5,800,229
HANDLE UNIT FOR BUOYANT AQUATIC DEVICES
 Leroy L. Peterson, Omaha, Nebr., assignor to Sportsstuff, Inc., Omaha, Nebr.

Filed Feb. 23, 1996, Ser. No. 606,114

Int. Cl.⁶ B63C 9/08

U.S. Cl. 441—129

14 Claims



1. A handle unit for a buoyant aquatic device having an outer skin, wherein the handle unit comprises:
 an enlarged disk member having a generally flat top surface, a central aperture, and a contoured bottom surface; and
 a receptacle member operatively associated with the bottom surface of the disk member to define an interior chamber dimensioned to receive a user's fingers.

1. A method of providing a plurality of cavities and/or apertures arranged in a pattern in a plate of non-metallic material, the plate being for use as a control plate, transport plate or spacer plate in a display, each of the plurality of cavities and/or apertures corresponding to a pixel element of the display, in which the pattern is made by means of the following steps:
 producing at least one jet of abrasive powder particles;
 directing the jet onto a surface of the plate;

limiting the areas where the jet impinges upon the surface; performing a relative movement between the jet and the plate, using a mask provided with a pattern of apertures for limiting the areas where the jet impinges upon the surface, characterized in that the mask is provided with an additional pattern of apertures for forming at least one aligning means in the plate at the same time that the plurality of cavities and/or apertures are formed.

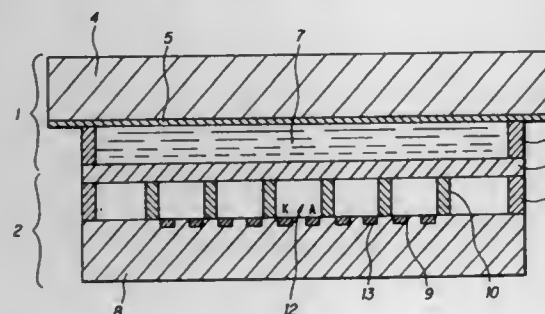
5,800,232

PLASMA-ADDRESSED DISPLAY PANEL AND A METHOD OF MANUFACTURING THE SAME
Shigeki Miyazaki, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 644,955, May 13, 1996, Pat. No. 5,714,841. This application Sep. 30, 1997, Ser. No. 940,977 Claims priority, application Japan, May 12, 1995, 7-166767 Int. Cl.⁶ H01J 19/24

U.S. Cl. 445—24

3 Claims



1. A method of manufacturing the plasma addressed electro-optical display device, which comprises the steps of: forming a plurality of grooves in a surface of a first substrate; filling said grooves with an electrically conductive material for forming a plurality of first electrodes; providing a plurality of barrier ribs on said first electrodes; arranging a dielectric sheet on said barrier ribs; disposing a second substrate having a plurality of second electrodes on said dielectric sheet, which is provided with said second electrodes facing perpendicular to said first electrodes; constructing said first substrate, said dielectric sheet and said second substrate by sealing with a gap between each other; and filling a electro-optical material between said dielectric sheet and said second substrate.

5,800,233

PROCESS OF FABRICATING FIELD-EMISSION TYPE ELECTRON SOURCE, ELECTRON SOURCE FABRICATED THEREBY AND ELEMENT STRUCTURE OF ELECTRON SOURCE

Seiki Yano, Yamatokoriyama; Masao Urayama, Misato; Yoshiyuki Takegawa, Kashiwa, and Yuko Morita, Matsudo, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

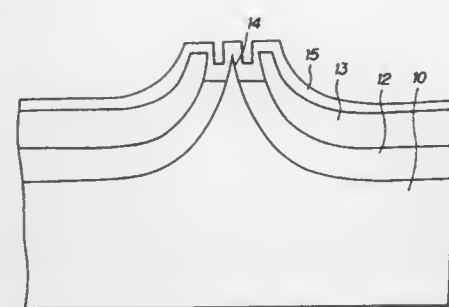
Filed Feb. 9, 1996, Ser. No. 599,315

Claims priority, application Japan, Apr. 3, 1995, 7-077800 Int. Cl.⁶ H01J 9/40

U.S. Cl. 445—25

12 Claims

1. A process of fabricating a field-emission type electron source that emits electrons based on the principle of field-emission, comprising the steps of: forming an emitter emitting electrons on a substrate; covering said emitter with a high vapor-pressure substance having a vapor pressure of 8×10^{-8} Torr or more at a temperature of 200° C.; and



evaporating said high vapor-pressure substance covering said emitter.

5,800,234

METHOD FOR MANUFACTURING A METALLIZED LUMINESCENT SCREEN FOR A CATHODE-RAY TUBE
Paolo Spina, Ferentino; Patrizia Cinquina, Vasto; Guido Mancio, Colleferro, all of Italy, and Aaron William Levine, Lawrenceville, N.J., assignors to Videocolor S.p.A., Anagni, Italy

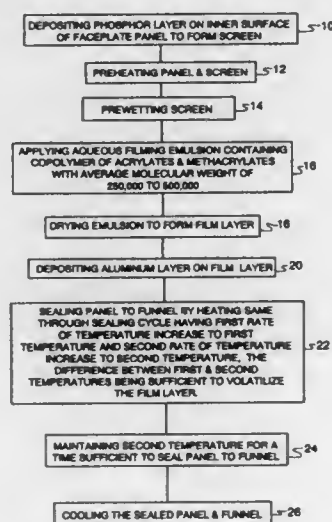
Filed Apr. 24, 1996, Ser. No. 637,028

Claims priority, application Italy, Dec. 6, 1995, M195 A 002563

Int. Cl.⁶ H01J 9/22; 9/26

U.S. Cl. 445—45

15 Claims



6. A method for manufacturing a metallized luminescent screen for a cathode-ray tube including the steps of depositing at least one phosphor layer on an inner surface of a faceplate panel to form a luminescent screen, preheating said panel containing said screen to a temperature equal to, or in excess of, a minimum film-forming temperature, prewetting said screen by applying water thereto, applying an aqueous filming emulsion containing a copolymer of acrylates and methacrylates with an average molecular weight of from 250,000 to 500,000 onto said prewetted screen, drying said emulsion to form a film layer, depositing a layer of aluminum onto said film layer, sealing said faceplate panel to a funnel by heating said panel and funnel through a sealing cycle having a first rate of temperature increase to a first temperature, a second rate of temperature increase to a second temperature, the difference between

said first temperature and said second temperature being sufficient to volatilize said film layer, said second temperature being maintained for a period of time sufficient to frit seal said panel to said funnel, and cooling said faceplate panel and said funnel.

5,800,235

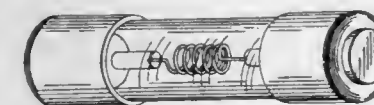
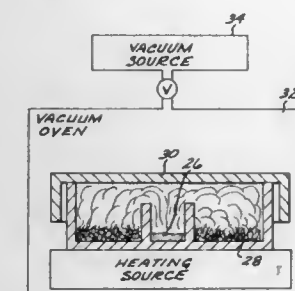
PROCESS FOR MANUFACTURING INCANDESCENT LAMPS HAVING GETTERING AGENTS
Charles R. Ragsdale, Newport Beach, Calif., assignor to Illumination Technology, Inc., Cypress, Calif.

Filed Feb. 27, 1996, Ser. No. 607,723

Int. Cl.⁶ H01K 1/10; 1/56; 3/02

U.S. Cl. 445—48

16 Claims



1. In the process for manufacturing incandescent light bulbs of the type which include a gettering agent within the light bulb, the improvement comprising the steps of:

placing a plurality of tungsten filaments for the light bulbs into a vacuum furnace; placing red phosphorous on the proximity of said plurality of filaments in the vacuum furnace; heating the vacuum furnace until the temperature of said plurality of filaments rises above approximately 675° C., and until the temperature of the red phosphorous reaches at least approximately 400° C., maintaining said filaments in temperature range above approximately 675° C. for a time period and maintaining the temperature of the red phosphorous at least approximately 400° C. for a time period; continuously evacuating the vacuum furnace at least during part of the time period while the furnace is being heated whereby said plurality of filaments are exposed to vapors of phosphorous and react therewith to form tungsten phosphides on the surface of said filaments, and discontinuing heating and evacuating the vacuum furnace and removing said plurality of filaments from the furnace.

5,800,236

TOY CASTING CARD HAVING A CONCAVE OR CONVEX LENS

Davie Joun, Taipei, Taiwan, assignor to Kudos Finder Trading Co., Ltd., Taipei, Taiwan

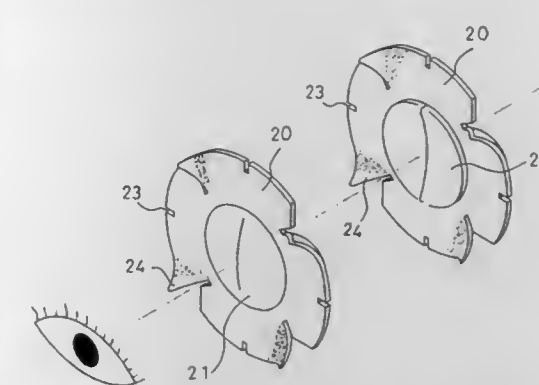
Filed Oct. 16, 1997, Ser. No. 951,227

Int. Cl.⁶ A63B 65/10

U.S. Cl. 446—46

1 Claim

1. Improved toy casting cards comprising first and second cards, each having a periphery and a geometric center, each card having a through-hole at said geometric center, a convex lens located in said first card through-hole and a concave lens located in said second card through-hole, each of said cards having plural bent skirts on



5,800,237

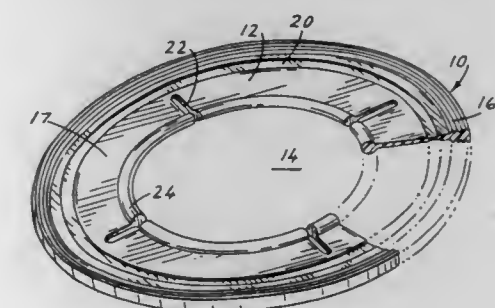
FLYING SEGMENTED RING
Charles A. Cummings, 5719 Thomaridge Ct., Cincinnati, Ohio 45248

Filed Feb. 12, 1997, Ser. No. 799,633

Int. Cl.⁶ A63H 27/00

U.S. Cl. 446—48

4 Claims



1. A toy ring for throwing, capable of demonstrating enhanced accuracy in flight, molded to comprise:

a perimeter, structurally augmented and generally annular in shape; and a plurality of flaps, flexibly hinged to and extending medially from said perimeter, each flap having two sides formed by radial cuts, and the distal ends of said flaps defining a central orifice around which said flaps will flex vertically in direct response to air movement during flight.

5,800,238

BOOK WITH MOVABLE TOY FOR CHILDREN
David Stewart Cowley, Berks, United Kingdom, and Michael J. Morris, Weston, Conn., assignors to Joshua Morris Publishing, Inc., Westport, Conn.

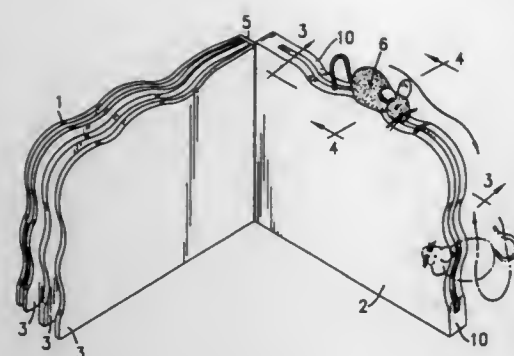
Filed Sep. 30, 1996, Ser. No. 723,730

Int. Cl.⁶ A63H 3/00; 33/38; B42D 1/00

U.S. Cl. 446—72

11 Claims

1. A book in combination with a toy figure, comprising: a front cover, a back cover, and a multiplicity of pages therebetween, said front cover, back cover and pages being bound along one side thereof by a binding; at least one of said front cover, back cover, binding or pages having a track disposed along a peripheral edge thereof; and



a toy figure coupled to said track and being slidable along said track, said toy figure projecting outside the book, when the book is in either an open position or a closed position wherein said toy figure is rotatable about a predetermined axis, the predetermined axis being parallel to a plane of at least one of said front cover, said back cover, and said multiplicity of pages.

5,800,239

BUILDING BLOCK TOY SET

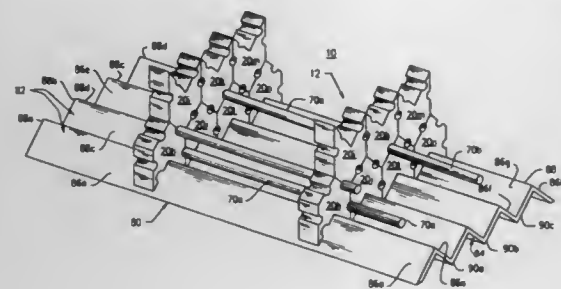
Avi Cohen, 7210 112th St., Apt. 1J, Forrest Hills, N.Y. 11375

Filed Nov. 15, 1996, Ser. No. 752,002

Int. Cl.⁶ A63H 33/04; 33/06; 33/08

U.S. Cl. 446—85

25 Claims



11. A toy block set, comprising:

- a plurality of building blocks each having a plurality of sides for interconnection with each other;
- at least one side of each building block having a partial channel formed therein for alignment with the partial channel of another building block of said plurality of building blocks to form a complete channel;
- each of said building blocks including an extending section and a recessed opening when said building blocks are aligned, said extending section of one building block configured for interfitting with the recessed opening of another building block of said plurality of building blocks; and
- a plurality of rod-like members each configured for placement in one of said complete channels of said aligned building blocks and for extending from said aligned building blocks to support other building blocks in said plurality of building blocks.

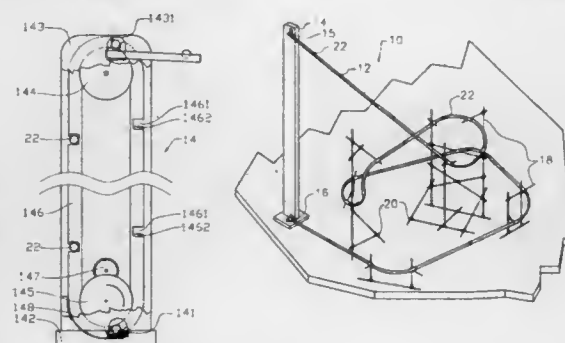
5,800,240
MARBLE RACE TOY WITH ELEVATOR AND
SUPPORTING INFRASTRUCTURE
Douglas L. Jackson, 745 Casterwood Ct., San Jose, Calif.
95120

Filed May 31, 1996, Ser. No. 657,856

Int. Cl.⁶ A63H 18/02; 15/00; 29/08; 33/06

U.S. Cl. 446—171

9 Claims



1. A marble race toy comprising:

- a track comprising a plurality of straight and curved modular channel components, said components being joined by at least one connector,
- an elevator including an endless conveyor, said endless conveyor being formed from a flexible member, said flexible member being a solid cylindrical member substantially circular in cross section, said flexible member includes a plurality of notches therein, said elevator being in communication with a starting point and an end point of said track such that as each said notch passes over a lower pulley, said notch is expanded to receive a marble, said marble being in contact with a top and a bottom side of said notch as said notch contracts after it has passed over said pulley, and when said notch passes over an upper pulley, said notch is again expanded, thereby releasing said marble,
- an infrastructure comprising a plurality of dowel rods and affixing means, said affixing means releasably secure said dowel rods in various configurations so as to support a layout of said track as desired by a user, and
- marbles that travel along a path defined by said track; wherein said marbles are raised by said endless conveyor of said elevator from a staging area of said elevator to said starting point of said track where said marbles are released, said marbles thereafter being urged by gravity along said track to said end point of said track, said end point of said track being in communication with said staging area of said elevator.

5,800,241

Patent Not Issued For This Number

5,800,242
REINFORCED ARTICLES OF ELASTOMERIC
MATERIAL
Arthur C. Clokey, San Raphael, Calif., assignor to Prema Toy
Company, Inc., San Raphael, Calif.

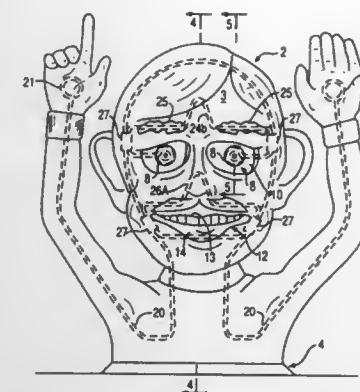
Filed Dec. 23, 1996, Ser. No. 812,066

Int. Cl.⁶ A63H 3/04

U.S. Cl. 446—374

10 Claims

1. An article of elastomeric material having a facial portion in the form of a facial likeness or a caricature capable of assuming a variety of different facial expressions, said article having a mouth with upper and lower lips, a nose, eye and eyebrow portions and



deformable reinforcement embedded in the elastomeric material in said facial portion, said reinforcement being capable of being manually manipulated to hold the elastomeric material in the selected facial expression, said reinforcement comprising a first reinforcing member extending substantially around the periphery of the facial portion of the article, a second reinforcing member generally in the form of an open ended rectangular loop having its spaced end portions extending transversely across the facial portion of the article located behind the eyes, said second reinforcing member being affixed by connections to said first reinforcing member, and a third reinforcing member in said facial portion extending transversely thereof above said mouth, at least one of said second and third reinforcing members having an upwardly extending deformable bow in a portion of said at least one of said second and said third reinforcing members which extends continuously transversely across said facial portion from said connections.

5,800,243

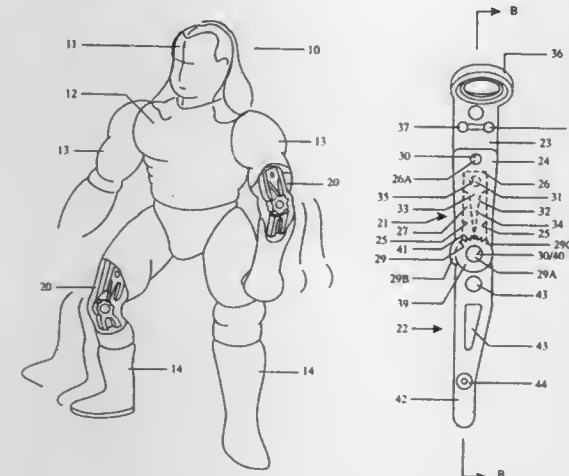
TOY FIGURE WITH CLICKING SOUND EFFECT
Stephen G. Berman, Malibu, Calif., assignor to Jakks Pacific, Inc., Malibu, Calif.

Filed Nov. 1, 1996, Ser. No. 740,709

Int. Cl.⁶ A63H 5/00; 3/46; 3/28

U.S. Cl. 446—420

31 Claims



1. A toy figure comprising:

- a sound generating mechanism comprising first and second members;
- a body part moulded around said sound generating mechanism from a deformable plastic material; and
- wherein said first and second members have portions which are relatively movably engaged with each other, and which are arranged inside a closed chamber which is substantially impermeable or impervious to said plastic material during moulding, and which are configured to produce a clicking or tapping sound upon relative movement thereof.

5,800,244

SLOTTED MARBLE

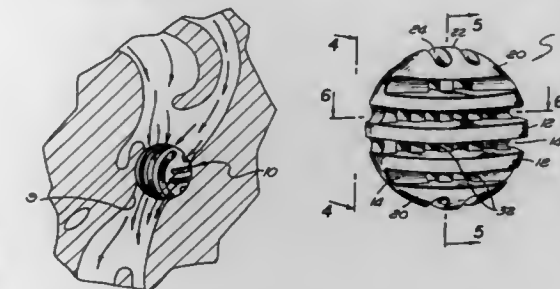
William M. Barton, Jr., Encinitas, Calif., assignor to Rokenbok Toy Company, Cardiff, Calif.

Filed Nov. 26, 1996, Ser. No. 756,428

Int. Cl.⁶ A63H 33/00

U.S. Cl. 446—431

23 Claims



1. A marble for use with safety by children, including, a body having a plurality of first ribs extending in a first direction, the first ribs being defined by slots disposed between the first ribs in a second direction substantially perpendicular to the first direction, the body being defined in part by end caps at the opposite ends of the body in the second direction, and second ribs spaced from one another in the first direction and extending in the second direction from the end caps, the second ribs being defined by slots disposed between the second ribs in the first direction, the first and second slots defining holes which extend entirely through the slots in the first and second directions.

5,800,245

COMPRESSION BRASSIERE AND PAD FOR MANUAL LYMPHATIC DRAINAGE

Lucrecia Barbe-Vicuna, Oisterwijk, and Han Peter Hamers, Esbeek, both of Netherlands, assignors to Lucrecia Barbe-Vicuna, Tilburg, Netherlands

PCT No. PCT/NL94/00195, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/05095, PCT Pub. Date Feb. 23, 1995

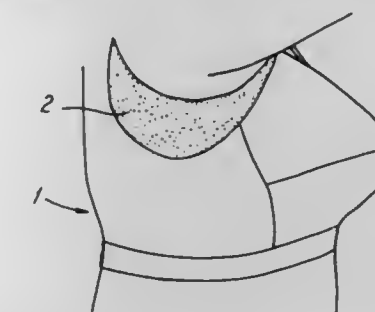
PCT Filed Aug. 18, 1994, Ser. No. 602,732

Claims priority, application Netherlands, Aug. 18, 1993, 9301432

Int. Cl.⁶ A41C 3/00; 3/12

U.S. Cl. 450—57

12 Claims

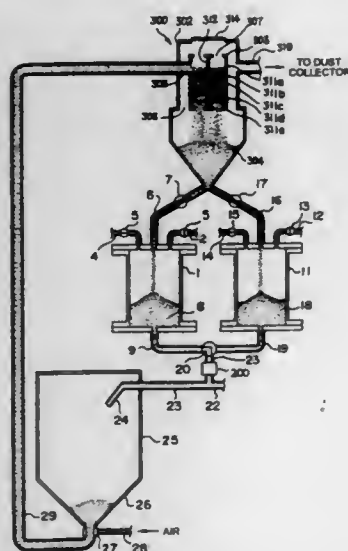


1. A brassiere comprising:

- a cup assembly with two cups, shoulder straps, and side panels that merge into a back panel, at least one of said side panels extending upwardly beneath a location of a wearer's axilla and sloping upwardly into the back panel;
- a separate lining pocket in said cup assembly in at least one of said side panels extending upwardly beneath the location of the wearer's axilla and sloping upwardly into the back panel, said lining pocket having on a side worn next to a wearer's body a thin seam-free liner; and

a compression pad in said lining pocket, said compression pad being made of a resilient material and having a smooth surface on a side worn next to a wearer's body, for increasing tissue pressure and to consolidate an effect of manual lymphatic drainage.

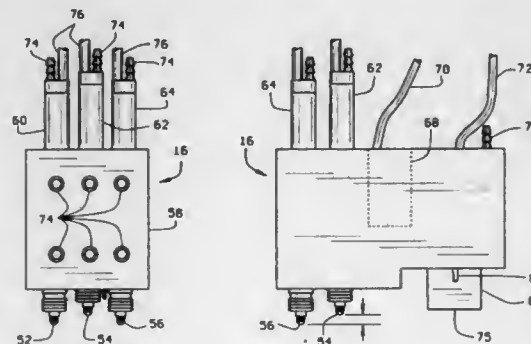
5,800,246
ABRASIVE BLASTING APPARATUS
Naoyoshi Tomloka, Tokyo, Japan, assignor to Rich Hill, Inc., Tokyo, Japan
PCT No. PCT/JP95/00800, § 371 Date Dec. 21, 1995, § 102(e) Date Dec. 21, 1995, PCT Pub. No. WO95/29040, PCT Pub. Date Nov. 2, 1995
PCT Filed Apr. 24, 1995, Ser. No. 564,290
Claims priority, application Japan, Apr. 22, 1994, 6/106278; Apr. 22, 1994, 6/106279; Apr. 22, 1994, 6/106280
Int. Cl.⁶ B24C 1/00; 3/04; 7/00
U.S. Cl. 451—2



1. A method of switching pressure between at least two pressure tanks provided in a blasting apparatus comprising the steps of: charging abrasive particles stored in a hopper to at least a first pressure tank and a second pressure tank; feeding abrasive particles from said first pressure tank to a blasting chamber while at the same time preventing abrasive particles from being fed from said second pressure tank to said blasting chamber, so as to hold said particles in said second pressure tank; applying pressure to said first pressure tank so as to provide pressurized abrasive particles for feeding to said blasting chamber; abrading the surface of work pieces present in said blasting chamber by injecting said pressurized abrasive particles into said blasting chamber; switching the feeding of said abrasive particles from said first pressure tank to said second pressure tank such that abrasive particles are held in said first pressure tank and are fed from said second pressure tank to said blasting chamber; said switching taking place when the amount of abrasive particles present in said first pressure tank reaches a predetermined level; applying pressure to said second pressure tank so as to provide pressurized abrasive particles to said blasting chamber; venting pressure from said first pressure tank so as to obtain atmospheric pressure in said first pressure tank; switching the feeding of said abrasive particles from said second pressure tank to said first pressure tank such that abrasive particles are held in said second pressure tank and are fed from said first pressure tank to said blasting chamber; said

switching taking place when the amount of abrasive particles present in said second pressure tank reaches a predetermined level; applying pressure to said first pressure tank so as to provide pressurized abrasive particles to said blasting chamber; venting pressure from said second pressure tank so as to obtain atmospheric pressure in said second pressure tank; delivering a mixture of debris and abrasive particles to a particle separator from said blasting chamber when particles stored therein reach a predetermined level; and separating particles which are reusable and storing said reusable particles in the hopper.

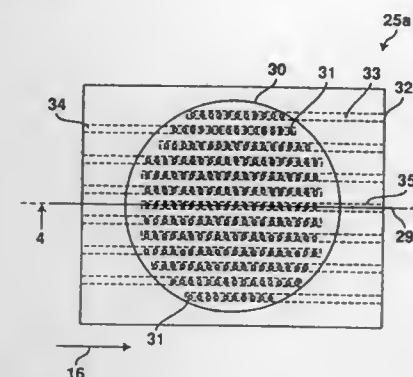
5,800,247
NON-CONTACT GAGING APPARATUS AND METHOD
Michael J. Harms, Dow, Ill., assignor to Centerline Engineering, Inc., Jerseyville, Ill.
Filed Apr. 18, 1997, Ser. No. 844,727
Int. Cl.⁶ B24B 49/04
U.S. Cl. 451—5



1. A non-contact gauging apparatus for precision machining of cylindrical workpieces, which comprises:
a sensor head having:
a pair of contact probes projecting from the body and movable in a radial direction, the probes having means for generating a signal indicative of the amount of movement of the probes in the radial direction relative to a rest position,
a non-contact gauge for generating a signal indicative of the distance of the surface of the workpiece from a surface of the non-contact gauge without contacting the surface,
a linear actuator for moving the non-contact gauge between a retracted rest position and an extended measuring position, and
a vent in the sensor head adjacent the non-contact gauge and adapted to vent air to clear working fluids from between the non-contact gauge and the surface of the workpiece;
a sensor arm attached to and supporting said sensor head having:
a first means for moving the sensor head in precise distances in a radial direction relative to the cylindrical workpiece,
a second means for moving the sensor head in precise distances in a tangential direction relative to the cylindrical workpiece,
means for generating signals indicative of the distance the sensor head is moved by the sensor arm, and
means for attachment of the sensor arm to a machining machine; and
an longitudinal axis encoder adapted to be affixed to the machining machine and having means for generating a signal indicative of the magnitude of movements of the workpiece in the longitudinal axial direction by the machine.

5,800,248
CONTROL OF CHEMICAL-MECHANICAL POLISHING RATE ACROSS A SUBSTRATE SURFACE
Anil K. Pant, Santa Cruz; Douglas W. Young, Sunnyvale; Anthony S. Meyer, San Jose; Konstantin Volodarsky, San Francisco, and David E. Weldon, San Jose, all of Calif., assignors to Ontrak Systems Inc., San Jose, Calif.
Filed Apr. 26, 1996, Ser. No. 638,464
Int. Cl.⁶ B24B 1/00
U.S. Cl. 451—41

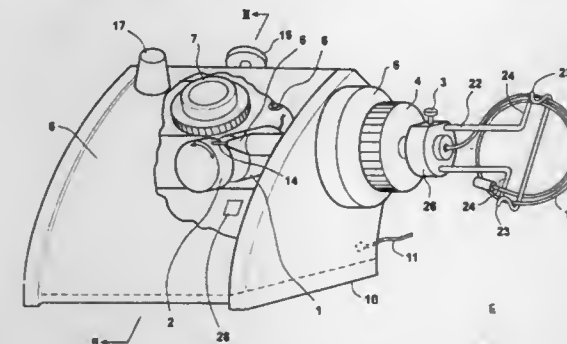
23 Claims



21. A method of polishing a layer formed on a semiconductor wafer comprising:
providing a linear belt having a pad disposed thereon and in which said belt and pad are continuously moving in a linear direction relative to said wafer when said wafer is placed on said pad;
providing a support disposed along an underside of said belt to support said belt and pad when said pad travels across said wafer;
providing a plurality of fluid dispensing openings disposed along a surface of said support facing the underside of said belt, said plurality of openings arranged in linear rows for dispensing pressurized fluid through said openings;
dispensing said fluid through said openings in order to exert a counteracting force against a force pressing said wafer onto said pad;
controlling fluid pressure for each row of said openings, such that at least two of said rows have independent pressure adjustments for varying fluid forces exerted against the underside of said belt.

5,800,249
FIBER SHAPER
Uri Levy, Rehovot; Joshua Degani, Jerusalem; Yitzhak Rozenberg, Tel Aviv, and Ofer Braude, Ramat-Gan, all of Israel, assignors to Laser Industries, Ltd., Tel Aviv, Israel
Filed Jul. 10, 1996, Ser. No. 676,678
Int. Cl.⁶ B24B 1/00
U.S. Cl. 451—41

11 Claims



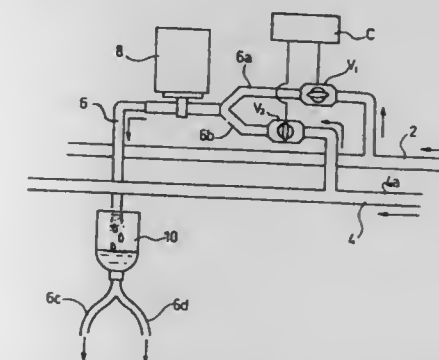
1. An apparatus for shaping the tip of a fiber, comprising:

a grinder including a grinding surface, said grinder being operable in an active mode and inoperable in an inactive mode;
a fiber holder for grasping a portion of a fiber, so that at least a tip of the fiber protrudes from the fiber holder;
an advancer operable to move the fiber holder relative to said grinder so as to selectively bring at least the tip of the fiber into and out of contact with the grinding surface; and
a rotator operable to rotate said fiber holder about an axis, the advancer and the rotator being operable when the grinder is in the active mode,
wherein said rotator and advancer each have knobs movable independent of each other and nested one in the other.

5,800,250
Patent Not Issued For This Number

5,800,251
APPARATUS AND METHOD OF LAPPING WORKS
Yasuaki Nakazato, Koushoku; Kazuo Kubota, and Hisakazu Takano, both of Nagano, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan
Filed Mar. 21, 1997, Ser. No. 822,461
Claims priority, application Japan, Mar. 27, 1996, 8-072650
Int. Cl.⁶ B24B 5/00
U.S. Cl. 451—41

7 Claims

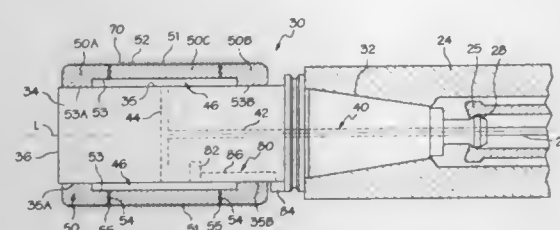


1. A work lapping method using a regenerated abrasive fluid prepared from a used abrasive fluid and a new abrasive fluid, which comprises the steps of preliminarily lapping a work using the regenerated abrasive fluid to a predetermined stock removal of the work, and finally lapping the preliminarily lapped work using the new abrasive fluid.

5,800,252
FLUID-ACTIVATED VARIABLE HONING TOOLS AND METHOD OF USING THE SAME
Gregory Aaron Hyatt, West Chester, Ohio, assignor to Makino Inc., Mason, Ohio
Filed Sep. 3, 1996, Ser. No. 707,336
Int. Cl.⁶ B24B 9/02
U.S. Cl. 451—61

20 Claims

1. An improved honing device configured for use with a source of pressurized fluid, and comprising:
(a) a tool mandrel;
(b) a substantially rigid honing member secured to said mandrel, said member having an interior surface, an abrasive exterior surface and a longitudinal axis, and said member configured such that said exterior surface is selectively and substantially uniformly expanded in a radial direction relative to the longitudinal axis in response to fluid pressure on said interior



surface of said honing member to automatically provide a plurality of predetermined honing diameters as desired; and
(c) a fluid distribution system formed in said tool mandrel and in fluid communication with the source of pressurized fluid, said fluid distribution system configured for selectively applying pressurized fluid to said interior surface of said honing member for selectively and substantially uniformly expanding honing member in a radial direction relative to the longitudinal axis.

5,800,253

DISC STREAK PATTERN FORMING METHOD AND APPARATUS

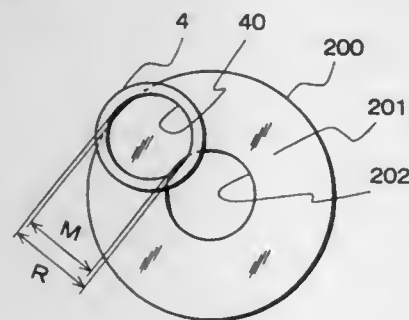
Kiyoshi Ikemoto, Ayase, Japan, assignor to Speedfam Co., Ltd., Japan

Continuation of Ser. No. 703,104, Aug. 26, 1996, Pat. No. 5,690,542. This application May 30, 1997, Ser. No. 866,750
Claims priority, application Japan, Apr. 15, 1996, 8-115294
The portion of the term of this patent subsequent to Aug. 26, 2016, has been disclaimed.

Int. Cl.⁶ B24B 7/17

U.S. Cl. 451-63

12 Claims



1. A disc streak pattern forming method for use in polishing an annular disc having a storage surface, a radially outer periphery and a radially inner periphery, and a center, the method comprising the steps of:

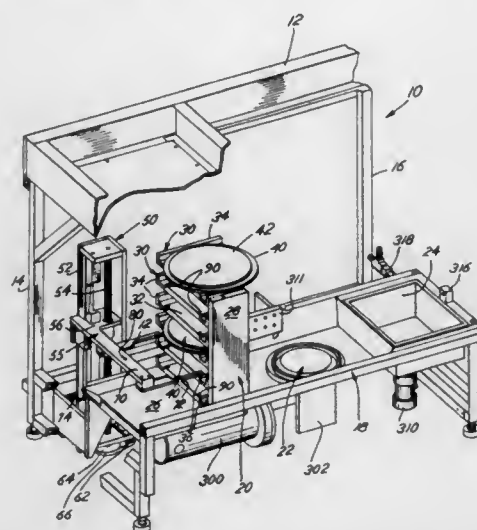
- providing a ring-shaped polishing means having a central axis and defining a central bore therein;
 - placing the ring-shaped polishing means in contact with the surface of said disc, with at least one portion of the disc surface disposed inside the central bore of said ring-shaped polishing means;
 - driving said ring-shaped polishing means to rotate with a first rotation speed about the center of said disc;
 - driving said ring-shaped polishing means to rotate with a second rotation speed around its central axis; and
 - independently controlling said first and said second rotation speeds;
- whereby the surface of said disc is polished and provided with streak patterns by said ring-shaped polishing means.

5,800,254
AUTOMATIC APPARATUS FOR GRINDING AND POLISHING SAMPLES

Charles B. Motley, McHenry, and Dennis L. Hechel, Gurnee, both of Ill., assignors to Buehler Ltd., Lake Bluff, Ill.
Filed Apr. 1, 1996, Ser. No. 625,290
Int. Cl.⁶ B24B 7/22

U.S. Cl. 451-285

11 Claims



1. A sample preparation system for grinding and polishing metallurgical and other samples prior to microscopic examination thereof, said system including, in combination, a platen rack having a plurality of shelves arranged vertically one above the other, each shelf having a support surface for supporting a polishing platen thereon in a horizontal position, platen exchange means for selecting one platen from said rack and transferring the same to a platen drive plate for conjoint rotation with said drive plate for a polishing operation, where said platen exchange means is movable horizontally from a position behind said rack so as to move directly through said rack between a pair of adjacent shelves thereof to remove and transfer a selected platen from said rack to said platen drive plate, and a polishing head which is movable between a polishing position where it is located over said platen drive plate and a wash position where it is located over a wash station, said polishing head having means to support a sample holder therebeneath so that said sample holder may be positioned down against a platen on said drive plate for polishing samples held in said sample holder, means associated with said polishing head for raising and lowering said sample holder and for rotating the same, and said platen exchange means being operated when said polishing head is positioned over said wash station.

5,800,255

LAP ADAPTER

Ronald T. Hyslop, Tulsa, and Lonny D. Qualls, Gore, both of Okla., assignors to Coburn Optical Industries, Inc., Tulsa, Okla.

Continuation of Ser. No. 341,349, Nov. 17, 1994, abandoned.

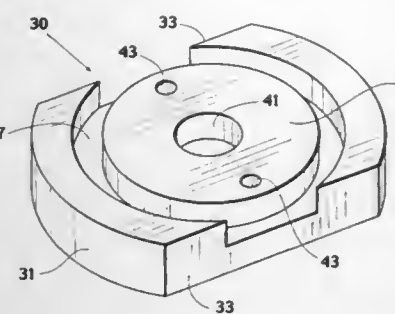
This application Dec. 2, 1996, Ser. No. 759,291

Int. Cl.⁶ B24D 17/00

U.S. Cl. 451-550

3 Claims

1. For use in generating a unique lens polishing lap by use of a computerized lens making lathe having data input thereto defining a contour of a lens surface to be polished in a lens polishing machine, a lap blank comprising a front lap portion and a rear disk portion having upper and lower parallel faces, said disk portion having first means thereon for coupling said disk portion to a chuck of the lathe and second means thereon for coupling said disk portion to a chuck of the polishing machine, said first means comprising an annular channel in said upper face of said disk portion defining a circular land within said channel and a pair of



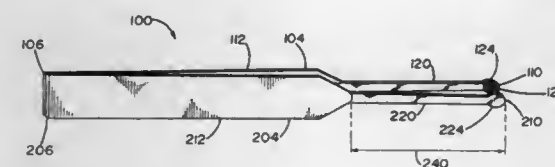
seats in said land, said channel and said seats being arranged for mating with complementary components on the lathe chuck.

5,800,256

TOOL AND METHOD FOR PICKING CRABS
May Bermudez, 10100 Fleming Ave., Bethesda, Md. 20814
Filed May 2, 1996, Ser. No. 643,235
Int. Cl.⁶ A22C 29/04

U.S. Cl. 452-6

13 Claims



1. A forceps tool for picking crabs, comprising:
a left tool portion having a left handle, and a left pincer having a first end connected to a first end of said left handle, said left handle having a length which is equal to or greater than three inches and having a first width, said left pincer having a length equal to or greater than one and one-half inches and having a second width which is narrower than said first width, said left pincer terminating at a second end in a left jaw portion having a third width and a left inside surface;
a right tool portion having a right handle and a right pincer having a first end connected to a first end of said right handle, said right handle having a length and width equal to the length and width of said left handle, and said right pincer having a length and width equal to the length and width of said left pincer, said right pincer terminating in a right jaw portion having a width equal to the width of said left jaw portion and having a right inside surface, said right handle being connected to said left handle at respective second ends of said handles to cause said left handle and pincer to extend parallel to said right handle and pincer, and to bias said left handle and pincer apart from said right handle and pincer with said left inside surface opposed to, and spaced from said right inside surface by a selected distance, said third width being less than said first width and equal to or greater than said second width; and
a roughened surface pattern on each of said opposed left and right inside surfaces.

5,800,257

SHELL SHOCKER

William R. Craig, 2906 Northern Dancer Dr., Churchville, Md. 21028

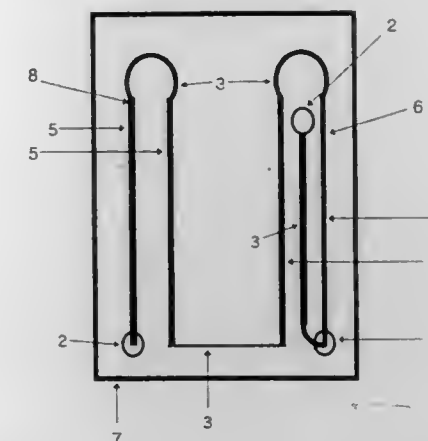
Continuation of Ser. No. 144,013, Dec. 15, 1993. This application Sep. 10, 1997, Ser. No. 926,693

Int. Cl.⁶ A22C 29/04

U.S. Cl. 452-59

17 Claims

1. An apparatus for the immobilization of one or more live crustaceans comprising:



a) a container containing an electrolyte solution, quantity of said electrolyte solution being sufficient to submerge at least one crustacean to be processed;
b) shocking means for immobilizing said crustacean including at least one electrode positioned within the container and being at least partially covered by the electrolyte solution;
c) said at least one electrode being connected into an electrical circuit connected to a source of electrical power;
d) activation means incorporated into said circuit for allowing an operator to activate the apparatus, whereby the electrical energy supplied to the at least one electrode is transferred via the electrolyte solution to a submerged crustacean for immobilization.

5,800,258

VENTILATION SYSTEM FOR CABINETS WITH ELECTRONIC FUNCTIONAL UNITS WHICH PRODUCE CONSIDERABLE HEAT

Franz-Josef Knoop, Buren-Steinhausen, and Heinrich Schmidt, Delbrück-Boke, both of Germany, assignors to Siemens Nixdorf Informationssysteme Aktiengesellschaft, Paderborn, Germany

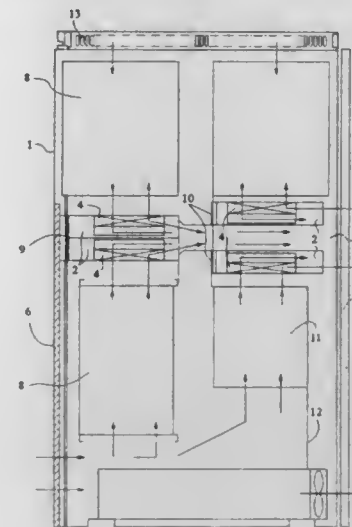
Filed Sep. 22, 1995, Ser. No. 530,294

Claims priority, application Germany, Mar. 23, 1993, 43 09 308.6

Int. Cl.⁶ H05K 7/20

U.S. Cl. 454-184

6 Claims

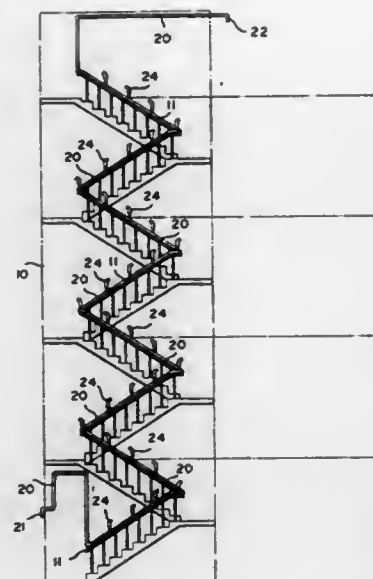


1. A ventilation system for use in a cabinet having doors equipped with louvers and containing a plurality of functional units stacked in tower fashion one above another, said functional units producing heat, said ventilation system comprising:

four identical fan units, each fan unit having a housing with a top and a bottom and open longitudinal sides with at least one fan disposed in said housing, each said fan having an axial air intake and a radial air discharge and an axis of rotation disposed perpendicularly relative to said bottom and top of said housing;

said four fan units being disposed in said cabinet at a mid-height of said cabinet and being divided into two pairs of fan units, the fan units in each pair being oriented with the respective axial intakes of the respective fans being oriented directly toward each other, the fan units in a first of said pairs being disposed closely above each other, and the fan units of a second of said pairs being spaced apart and forming a horizontal air duct therebetween for directing air out of said cabinet; and

a plurality of partitions mounted in said cabinet respectively adjacent said four fan units and causing said fan units in said first pair to discharge air into said horizontal air duct and causing said fan units in said second pair to discharge air out of said cabinet.



5,800,259

GRILL ASSEMBLY

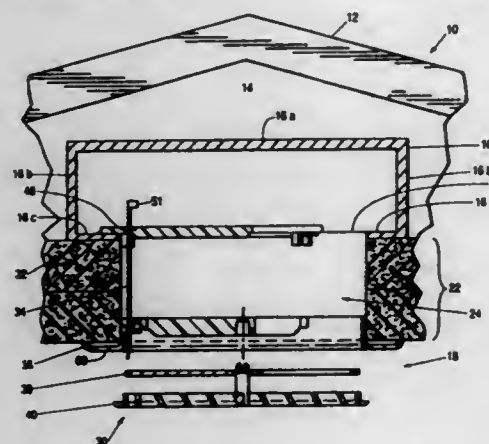
John R. Olney, New Carlisle, Ind., assignor to B & B Molders, L.L.C., Mishawaka, Ind.

Filed Sep. 3, 1996, Ser. No. 707,234

Int. Cl.⁶ F24F 13/06

U.S. Cl. 454-109

48 Claims



1. A grill assembly for covering a duct outlet, the grill assembly comprising:

an anchor member for mounting in the outlet, a frame for covering the outlet, wherein the anchor member and frame have openings for permitting conditioned air to pass through the grill assembly, and means for attaching the frame to the anchor member having at least one anchor aperture disposed in the anchor member, at least one frame aperture disposed in the frame, and a tie member for slidably engaging the anchor and frame apertures and holding the anchor member and frame together.

5,800,260

AIR SUPPLYING DEVICE FOR BUILDING

Chi-Kuang Kao, 1 Fl., No. 25, Alley 17, Laoc 12, Pated Rd., Sec. 3, Taipei, Taiwan

Filed Jun. 4, 1997, Ser. No. 867,876

Int. Cl.⁶ A62B 7/00

U.S. Cl. 454-370

4 Claims

1. An air supplying device of the type which can be disposed properly on the stairwell of a building, said air supplying device comprising an air duct which defines an inlet and an outlet which are directed downward and are provided with protecting cap at the

opening thereof, said inlet of said air duct being disposed at outer wall of said building and said outlet being disposed at top of the building, said air duct being attached to the handrail of the stairwell or serving as a handrail, a plurality of branch ducts being connected to said air duct thereof and which are spaced from each other with a predetermined distance, each of said branch ducts being provided with a neck portion having a plastic ball seated thereon in normally and which is lifted when a negative pressure is applied, the opening of said branch duct being suitably directed and protected with a barrier grid.

5,800,261

AIR VENT DEVICE INCLUDING A LIGHT DEVICE TO PREHEAT SUPPLY AIR

Ove Charles Vølstad, Kvernaland, Norway, assignor to Lega-beam Norge AS, Norway

PCT No. PCT/NO95/00087, § 371 Date Nov. 27, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO95/33959, PCT Pub. Date Dec. 14, 1995

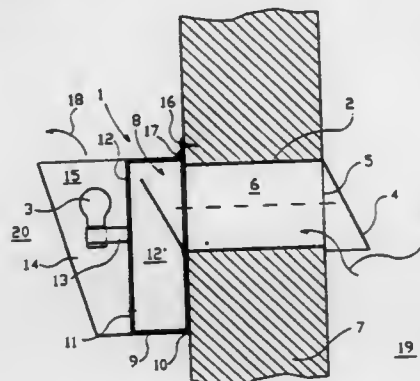
PCT Filed May 31, 1995, Ser. No. 750,384

Claims priority, application Norway, Jun. 2, 1994, 942042

Int. Cl.⁶ F24F 7/007

U.S. Cl. 454-272

2 Claims



1. A heating device for use with an air valve, for heating a fresh air stream drawn through a fresh air inlet mounted in an exterior wall and into a habitable room, the heating device comprising: a receiver consisting substantially of air-tight material, the receiver being adapted to be tightly attached to the interior side of an exterior wall having an interior side, an exterior side, and an internal valve opening extending between the

interior side and the exterior side, the receiver attached to the interior side being positioned around the internal valve opening,

the receiver being divided into an outer chamber and an inner chamber with a connection being established between the chambers in order to permit air to flow from the outer chamber into the inner chamber,

a bulb holder having a supply of electrical current being mounted within the inner chamber of the receiver, and

a heat-generating bulb being mounted on and electrically connected to the bulb holder for generating heat so that a fresh air stream flowing inwardly through the internal valve opening, the outer chamber, and the inner chamber, will be heated by the heat-generating bulb before the air stream leaves the receiver and escapes into the habitable room.

5,800,262

ACOUSTIC VOLUME AND TORQUE WEIGHT SENSOR

David P. Andersen, Burnsville, and Michael Farmer, Eagan, both of Minn., assignors to Lockheed Martin Corporation, Bethesda, Md.

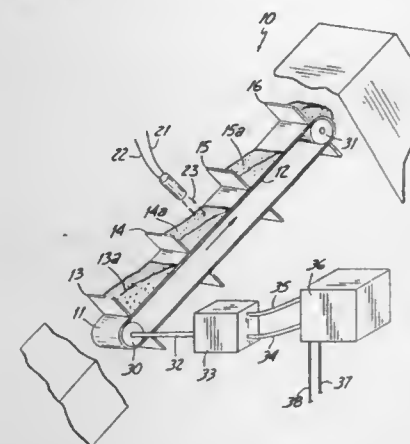
Division of Ser. No. 336,338, Nov. 9, 1994, Pat. No. 5,685,772.

This application Mar. 31, 1997, Ser. No. 829,211

Int. Cl.⁶ A01F 12/50

U.S. Cl. 460-6

8 Claims



6. A device to measure the volume of a harvested grain crop during the harvesting of the grain crop comprising:

a set of sidewalls; a member for moving grain from one location to a second location within the set of sidewalls with the members defining longitudinal compartments of fixed volume; an acoustic position sensor positioned proximate the member to determine the distance the grain extends above the member to thereby determine the depth of the grain within the fixed volume on the member; and a processor for correlating the depth of the grain to the volume of the grain on the member in relation to the fixed volume.

5,800,263

GAME MACHINE

Kohichi Hayashida, Yamato, and Takuya Ando, Kawasaki, both of Japan, assignors to Konami Co., Ltd., Hyogo-ken, Japan

Filed Feb. 21, 1996, Ser. No. 604,514

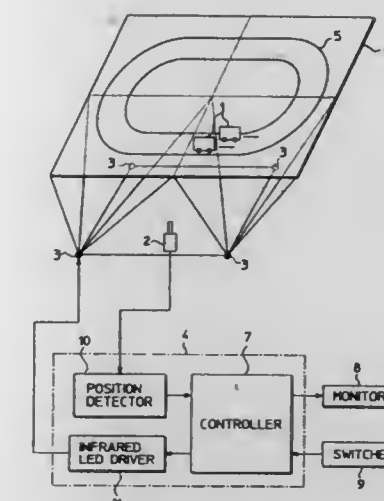
Claims priority, application Japan, Feb. 21, 1995, 7-055226

Int. Cl.⁶ A63F 9/14

U.S. Cl. 463-6

16 Claims

1. A race game machine comprising: a race track; a plurality of running bodies physically engaged in competitive movement along said race track;



a parameter storage device which stores at least one parameter used to control said competitive movement of each of said plurality of running bodies;

a target position calculation device which, at intervals of a predetermined period during a duration of the race, calculates target positions of respective ones of said running bodies in accordance with said at least one parameter stored in said parameter storage device; and

a movement control device which controls said competitive movement of said plurality of running bodies toward corresponding ones of said target positions calculated by said target position calculation device.

5,800,264

METHOD AND APPARATUS FOR PROVIDING A SIGNAL INDICATING THE APPROXIMATE AMOUNT OF ELAPSED TIME

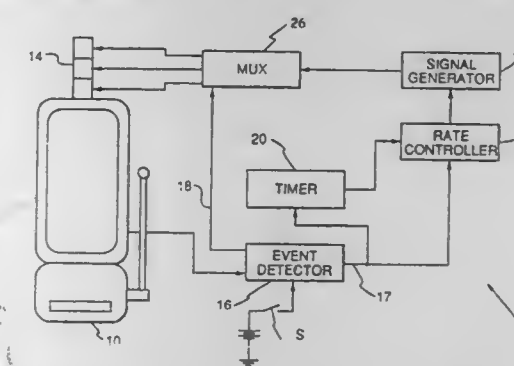
Andrew Pascal, Woodside, Louis David Giacalone, Jr., Palo Alto, and Michael Barnett, Santa Clara, all of Calif., assignors to Silicon Gaming, Inc., Palo Alto, Calif.

Filed Aug. 5, 1996, Ser. No. 692,454

Int. Cl.⁶ G06F 3/00

U.S. Cl. 463-16

32 Claims



1. A signaling system for providing a visual notification in response to the occurrence of one or more predetermined events, comprising:

means for generating a control signal upon the occurrence of one of said predetermined events; indicator means for providing a visually observable signal, said indicator means having an ON-state and an OFF-state; and controller means responsive to said control signal and having preprogrammed instructions and data for operating said indicator means to repeatedly alternate between said ON-state for a first specified duration and said OFF-state for a second specified duration in response to a signal representing a single

event, wherein said first specified duration and said second specified duration change in duration over time.

5,800,265

GAME MACHINE

Shunpei Yamazaki, Tokyo; Akiharu Miyana, and Toshiji Hamatani, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, Japan

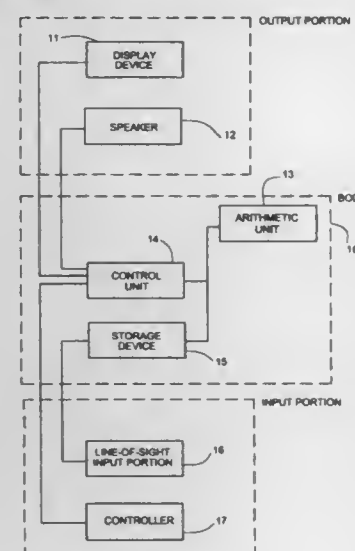
Filed Mar. 21, 1995, Ser. No. 408,009

Claims priority, application Japan, Feb. 24, 1995, 7-61645

Int. Cl. A63F 9/24; 33/00

U.S. Cl. 463—23

9 Claims



1. A game machine comprising:

an image display means on which contents of a game are displayed;

a means for controlling said game contents;

a means for calculating a chaos attractor obtained by numerically processing information about a human player responding to said game contents; and

a means for varying the game contents by making use of an index indicating a degree to which said chaos attractor is matched to chaos definition conditions, wherein the information about the player includes the line of sight of the player responding to the game contents displayed on the image display means.

5,800,266

DEVICE FOR THE SUCCESSIVE EXPOSURE OF IMAGES IN AMUSEMENT MACHINES

Jesús Echaparé Ibarolla, and José Luis Pina Insausti, both of Pamplona, Spain, assignors to Azkoyen Industrial, S.A., Peraltá, Spain

Filed Jun. 21, 1996, Ser. No. 667,551

Claims priority, application Spain, Jun. 23, 1995, 9501263

Int. Cl. A63F 9/00

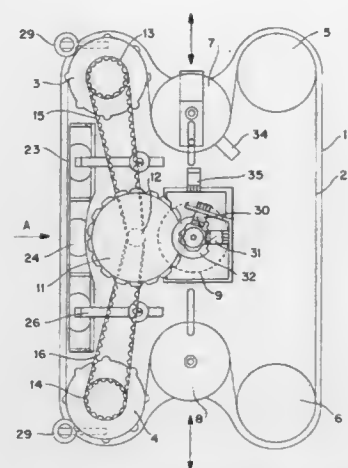
U.S. Cl. 463—34

10 Claims

1. A device for the successive exposure of images in amusement machines comprising:

a frame which supports a number of dragging and guiding rollers upon which is mounted a continuous flexible strip having multiple images thereon, said strip passing in front of a viewing window and wherein an image strip lighting device is mounted near said viewing window; and

position control device which controls the position of said strip in front of said viewing window, said position control device comprising,



(a) two consecutive synchronized dragging rollers mounted on said frame, one dragging roller positioned so that it contacts the strip above the viewing window and the other dragging roller positioned so that it contacts the strip below the viewing window;

(b) at least two consecutive fixedly arranged guiding rollers, and

(c) two non-consecutive, adjustable position, removable guiding rollers positioned between said consecutive dragging rollers and said consecutive guiding rollers, said non-consecutive guiding rollers being displaced inwards in the frame with respect to said consecutive dragging rollers and said consecutive guiding rollers thereby permitting said strip to form two adjustable depth loops.

5,800,267

PROGRESSIVE RESISTANCE DEVICE WITH SELF CENTERING FOR MULTI AXIAL MOTION INPUT

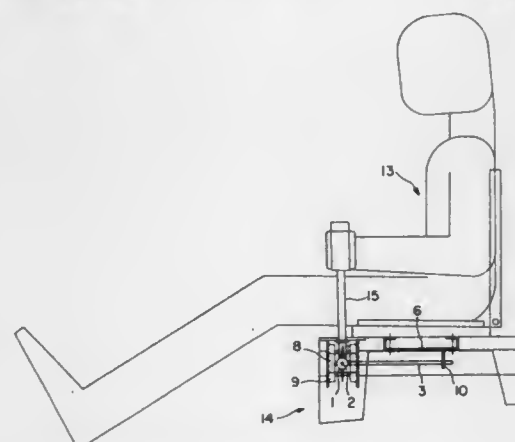
Douglas B. Carlson, 21235 W. Elliot Rd., Buckeye, Ariz. 85326, and Donald Carlson, 1423 E. Pepper, Mesa, Ariz. 85203

Filed Nov. 14, 1995, Ser. No. 557,918

Int. Cl. G05G 9/00

U.S. Cl. 463—38

6 Claims



1. An apparatus for providing progressively increasing resistance to, and automatic self centering with respect to, an operator motion input to the apparatus, the apparatus comprising:

a. a crossbar having a longitudinal axis and connected to a first beam with a coupling, the first beam having a longitudinal axis and cantilever mounted on a base, the crossbar mounted in a first axial bearing for rotation about the crossbar's longitudinal axis, the first bearing rotatably mounted in a second axial bearing, the axes of rotation of the first and second bearings being mutually perpendicular, the second bearing mounted on the base, whereby the crossbar is movable about

the axis of rotation of the second bearing in response to transverse forces acting on the crossbar, thereby to produce a bending moment in the first beam through the coupling and a progressively increasing resistance to the transverse forces;

b. a second beam having a longitudinal axis and engaged at a proximal end of the second beam in a bracket attached to the crossbar, and engaged at a distal end of the second beam in a support that is mounted on the base;

wherein the coupling is slidable along the crossbar and along the first beam whereby through selective positioning of the coupling with respect to the crossbar and the first beam resistance of the first beam to the bending moment is adjustable.

5,800,268

METHOD OF PARTICIPATING IN A LIVE CASINO GAME FROM A REMOTE LOCATION

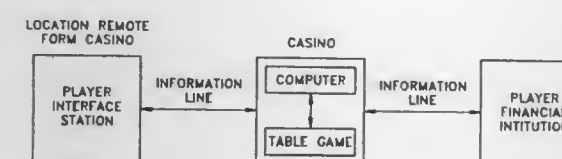
Melvin Molnick, 229 W. Foster Ave., Henderson, Nev. 89015

Filed Oct. 20, 1995, Ser. No. 546,355

Int. Cl. A63F 9/22

U.S. Cl. 463—40

27 Claims



1. A method for a player to remotely participating in a live casino game comprising:

(i) establishing a first information line between a player at an interface station located remotely from the casino for the transmission of live television signals and data signals to a player interface station located remote from the casino, said interface station including a player display to display a live television image of a live game to the player;

(ii) from said interface station, the player transmitting over said first information line to the casino account information related to an account maintained by the player at a third party financial institution;

(iii) the casino opening a second information line with the third party financial institution in response to receipt of said account information;

(iv) maintaining said second information line open with the first information line;

(v) the casino transmitting over the first information line data indicative that the player can make a bet;

(vi) the player from their interface station transmitting over the first information line to the casino bet information indicating a bet being made by the player on the live game;

(vii) in response to the transmitted bet, the casino over the second information line verifying the status of the player's account, the casino accepting the bet if the player's account has sufficient funds and otherwise denying the bet;

(viii) the casino transmitting data over the first information line data indicative that no more bets can be made, said data displayed at the display with the television signal;

(ix) the player over the first information line interacting with the casino to control the play of the game until an outcome is obtained;

(x) determining from the outcome whether the player's bet is won or lost, said player viewing the live play of the game at the display to confirm the outcome;

(xi) in the event of interruption of said first information line, said casino completing the play of the game to determine the outcome pertaining to the player's wager; and

(xii) the casino issuing instructions over the second information line to credit the player's account if the player has won the bet in the amount of the bet and the player's winnings and to debit the player's account if the player's bet is lost.

5,800,269

CASHLESS COMPUTERIZED VIDEO GAME SYSTEM AND METHOD

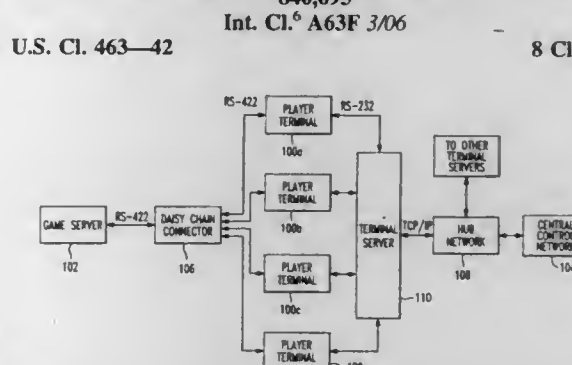
Niels C. Holch, Arlington, Va., and Frank J. Riolo, Rome, N.Y., assignors to Onelda Indian Nation, Vernon, N.Y.

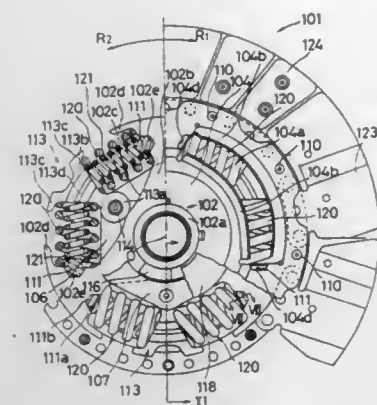
Continuation of Ser. No. 719,651, Sep. 25, 1996, Pat. No. 5,674,128, which is a continuation of Ser. No. 391,509, Feb. 21, 1995, abandoned. This application Apr. 25, 1997, Ser. No. 840,695

Int. Cl. A63F 3/06

U.S. Cl. 463—42

8 Claims





formed with a support recess and spring contact portions on either side of said support recess;

a pair of rotary plate members disposed adjacent to said hub on either side of said hub, said pair of rotary plate members being configured for limited rotary displacement with respect to said hub, said rotary plate members formed with second window holes, each of said second window holes having at least two opposing contact portions;

first and second coil springs, said first and second coil springs being circumferentially adjacent to one another and being disposed in said first and second window holes and extending in the circumferential direction with respect to said hub, wherein a first end of said first coil spring contacts said spring contact portions formed on a first circumferential end of said first window hole and a first end of said second coil spring contacts said spring contact portions on a second circumferential end of said first window hole;

a float body radially extending between a second end of said first coil spring and a second end of said second coil spring such that said second end of said first coil spring contacts said float body and said second end of said second coil spring contacts said float body, said float body configured for limited rotary displacement with respect to said hub and said rotary plate members;

at least two limiting members, one of said limiting members fitted to said first end of said first coil spring and one of said limiting members fitted to said first end of said second coil spring, each of said limiting members disposed with said first and second circumferentially adjacent coil springs within said first window hole, each limiting member in contact with a corresponding one of said support recess and a corresponding one of said second window hole contact portions such that said limiting members are restrained from radial movement by said support recesses and said limiting members are restrained from axial movement with respect to said hub by said pair of said rotary plate members.

5,800,271

PROTECTIVE DEVICE FOR DRIVESHAFTS HAVING A REMOVABLE PROTECTIVE CONE

Paul Herchenbach, Ruppichteroth, and Horst Kretschmer, Köln, both of Germany, assignors to GKN Walterscheid GmbH, Lohmar, Germany

Filed Nov. 8, 1996, Ser. No. 745,792

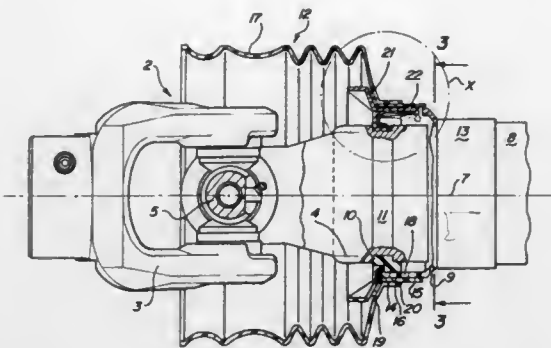
Claims priority, application Germany, Nov. 8, 1995, 195 41 511.6

Int. Cl.⁶ F16C 1/26

U.S. Cl. 464—172

10 Claims

1. A protective device for a driveshaft including two universal joints, each joint including two joint yokes and a cross member articulately connecting the yokes, and a connecting shaft with two sliding profiles inserted into one another, one end of each sliding profile is connected to one of the joint yokes of the two universal joints, said device comprising:



two protective tubes inserted into one another and intended to be arranged coaxially relative to the connecting shaft and to the longitudinal axis of the connecting shaft;

each universal joint having a connecting cap, a sliding ring and one protective cone, said connecting cap, sliding ring and protective cone being discrete from one another, said protective cone being intended for at least partially axially covering the associated universal joint, with the one protective cone, the one protective tube and the one sliding ring being connected to the one connecting cap of each universal joint and with the one sliding ring being intended to be supported in a groove of a joint yoke of the associated universal joint, and with the one protective cone being removably attached to the connecting cap even if the protective device is mounted to the driveshaft;

said connecting cap being provided with a seat face for receiving a fixing portion of the protective cone and from the seat face the protective cone is manually removable from said connecting cap, said fixing portion of the protective cone and the connecting cap including means for form-fittingly connecting the fixing portion of the protective cone and the connecting cap in a rotational direction around the longitudinal axis, said means, with reference to the longitudinal axis, enabling the fixing portion of the protective cone to be axially slid on and pulled off of the connecting cap, said seat face of the connecting cap and said fixing portion of the protective cone further including stops for fixing the fixing portion of the protective cone on said seat face, in an axial direction along the longitudinal axis away from the connected protective tube;

at least one resilient locking element integral with said sliding ring, said locking element being transferable into a withdrawn position, when said fixing portion, of the protective cone engaging said seat face of the connecting cap and, after the assembly position of the protective cone and connecting cap relative to one another has been reached, said locking element returning back to secure the fixing portion in an axial direction along the longitudinal axis towards the protective tube by a locking face engaging a respective counter face on the fixing portion.

5,800,272

MOTOR VEHICLE RACE TRACK HAVING A SUBSTANTIALLY "FIGURE EIGHT" CONFIGURATION

Edward Pons, 2807 35th Ave. West, Bradenton, Fla. 34205

Continuation-in-part of Ser. No. 26,780, Aug. 5, 1994. This

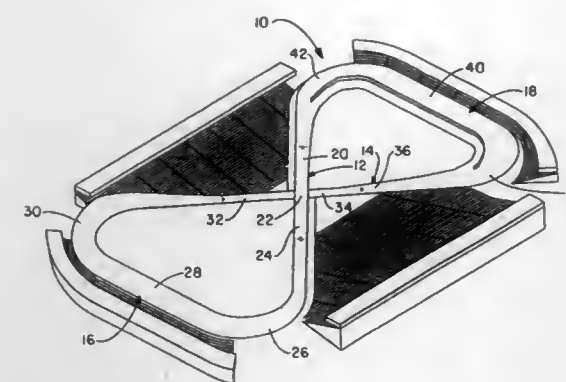
application Mar. 24, 1997, Ser. No. 822,812

Int. Cl.⁶ A63K 1/00

U.S. Cl. 472—85

28 Claims

1. A motor vehicle race track having a substantially "figure eight" configuration, comprising a first straightaway which transitions into a first end portion which transitions into a second straightaway which transitions into a second end portion to form an enclosed loop and said first straightaway passes above said second straightaway at the intersection of the "figure eight" configuration



and said first end portion and said second end portion each have a substantially "hour glass" configuration and each include a first end turn, an end straightaway and a second end turn.

5,800,273

METHOD AND APPARATUS FOR PLAYING A POCKET BILLIARD GAME

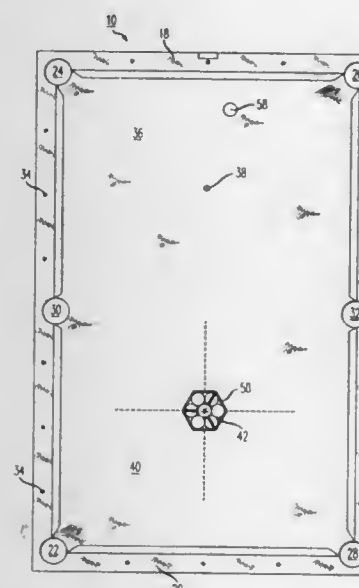
John Potocki, 1 Beam Ave., Jackson, N.J. 08527

Filed Sep. 9, 1997, Ser. No. 926,215

Int. Cl.⁶ A63B 15/00

U.S. Cl. 473—1

11 Claims



1. An apparatus kit for playing a pocket billiards game with a cue ball on a pocket billiard table having pockets, comprising:

a set of seven object balls, three of said object balls having a first indicia, three of said object balls having a second indicia and one of said object balls having a third indicia;

a hexagonal racking tray for racking said object balls, said object ball having said third indicia positioned in the center of said racking tray and said object balls having said first indicia and said second indicia alternately arranged about said object ball having said third indicia;

a pair of markers positionable on a side rail of said pocket billiard table to identify a player's side of the table, each of said markers having an indicia identical to the indicia on said three object balls having a first indicia or said three object balls having a second indicia; and

a plurality of second markers having a distinct indicia for identifying the number of object balls pocketed which must be returned to the table.

5,800,274

BOWLING ALLEY BUMPER SYSTEM FOR PRODUCING VISUAL EFFECTS

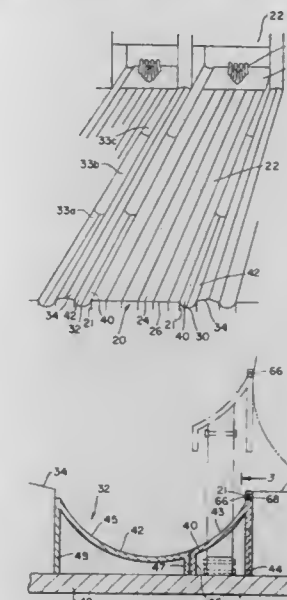
Kent Widrick, Castorland, N.Y.; John Madsen, Glen Allon, Va.; Winston Sanders, Chesterfield, Va.; Darrin Bryant, Richmond, Va., and Leonard Pauley, Mech, Va., assignors to AMF Bowling, Inc., Richmond, Va.

Filed Sep. 20, 1996, Ser. No. 717,237

Int. Cl.⁶ A63D 5/00

U.S. Cl. 473—54

18 Claims



1. A bowling alley including a longitudinally extending lane having two laterally spaced sides and a concave gutter adjacent to each of said two sides of said lane and a bumper system for guarding said gutters and for producing visual effects along the length of said longitudinally extending lane, said bumper system including a pair of longitudinally extending bumpers disposed along the length of said gutters, and means for moving said bumpers between a first or guarding position to thereby prevent a bowling ball from falling into said gutters and a recessed, or retracted position for ordinary bowling, each of said bumpers including a longitudinally extending clear plastic rail having a longitudinally extending passageway extending therethrough and a string of lights disposed within said passageway and extending along said bumper, said clear plastic rail forming an upper most portion of said bumpers when in said first or guarding position and said upper most portion generally flush with said lane when said bumpers are in a recessed or retracted position, and means for pulsating said lights to produce a visual effect along the length of said lane.

5,800,275

CONVERTIBLE BOWLING LANE

Anthony J. Gretzky, Muskegon, and Michael F. Stirling, Spring Lake, both of Mich., assignors to Brunswick Bowling & Billiards, Muskegon, Mich.

Continuation-in-part of Ser. No. 902,937, Jun. 23, 1992, Pat.

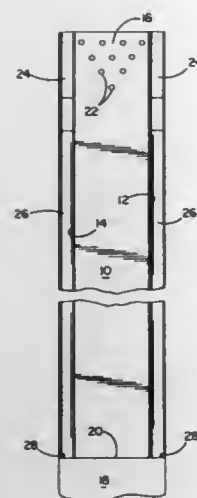
No. 5,564,986. This application Jan. 22, 1993, Ser. No. 7,667

Int. Cl.⁶ A63D 5/00

U.S. Cl. 473—113

10 Claims

1. In the method of making a convertible bowling lane including at least one movably mounted gutter extending along a side of a bowling lane bed from the approach toward the pin deck thereof and mounting a ball deflecting rail along said side for movement between a first position wherein a ball moving toward said side will engage said rail before leaving the bed, and a second position wherein a ball moving toward said side may leave the bed to enter the gutter, and a curtain installed to extend between said side and



said gutter and to be exposed when said rail is in said first position and covered by said gutter when said rail is in said second position, the steps of:

- making the curtain in at least two sections including at least one section have a relatively short length to provide means defining an easily removable section adjacent said approach; a separate section having a relatively long length remote from said approach; and
- placing indicia on the short section or sections to be exposed to the user or users of the lane wherein said rail is in said first position.

5,800,276

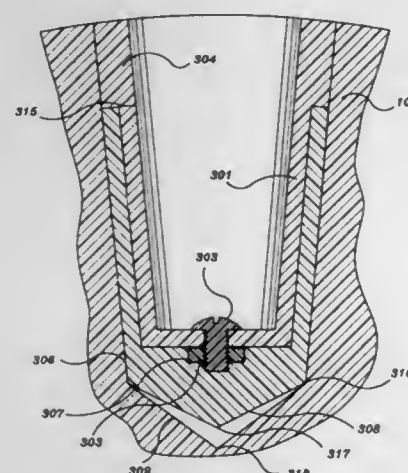
BOWLING BALL INSERT

James R. Hill, P.O. Box 305-368 Sheehy Rd., McEwen, Tenn. 37101

Filed May 21, 1997, Ser. No. 861,159
Int. Cl.⁶ A63B 37/00

U.S. Cl. 473—128

15 Claims



1. An insert system in combination with a bowling ball having a hole, comprising:
 - a master having a tapered substantially cylindrical inner and outer surface, said master fitting within the hole of the bowling ball; and
 - an insert having a tapered substantially cylindrical outer surface, said insert fitting within said inner surface of said master, said insert having a screw at a bottom portion thereof for connecting said insert to said master.

5,800,277

Patent Not Issued For This Number

5,800,278

APPARATUS FOR SIGNALING PROPER ALIGNMENT OF USER'S EYE AND OBJECT TO BE STRUCK

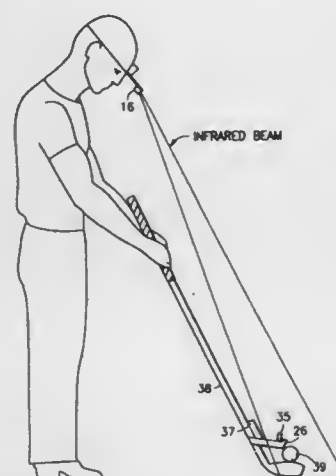
Marc A. Varriano, 740 Tuckahoe Rd., Apt. 4-F, Yonkers, N.Y. 10710

Filed May 6, 1997, Ser. No. 851,674

Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—209

18 Claims



1. An apparatus for practicing the swing of a sports implement in relation to an object to be struck, to train the user to align his eyes with the sports implement and object to be struck at the time of contact between the sports implement and object, comprising:
 - means to be worn on the head of the user for projecting a beam of radiation from the forehead of the user in the direction of the user's straight-ahead vision as the user swings the sporting implement;
 - a radiation detector means to be disposed on the sporting implement, which detector means includes means for producing a signal when the user's eyes and the radiation detector means are aligned;
 - impact detector means to be disposed on the sporting implement which produces a signal upon striking the object with the sporting implement; and
 - circuit means for processing the signals from the radiation detector means and the impact detector means so as to produce a visual or audible signal output upon impact detection.

5,800,279

DETACHABLE TRAINING SYSTEM FOR GOLF CLUBS

John A. Densberger, Livermore, and Derek E. Decker, Discovery Bay, both of Calif., assignors to ICIT, Livermore, Calif.

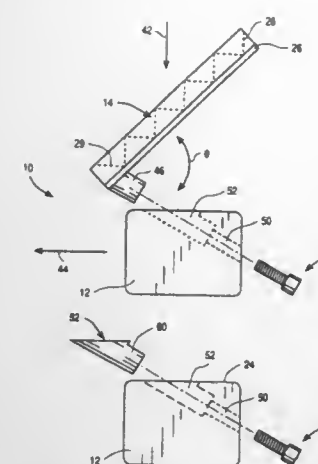
Continuation-in-part of Ser. No. 489,546, Jun. 12, 1995, Pat. No. 5,640,777. This application Jun. 20, 1997, Ser. No. 879,339

Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—220

20 Claims

1. A golf training kit for use with a golf club head having an open architecture, said club head having a top portion and a face portion, the kit comprising:
 - a removable training device having a base, said base formed to fit in a receiver formed in said club head; and



a first removable plate formed to fit in said receiver when said removable training device is removed.

5,800,280

GOLF BALL RETRIEVER

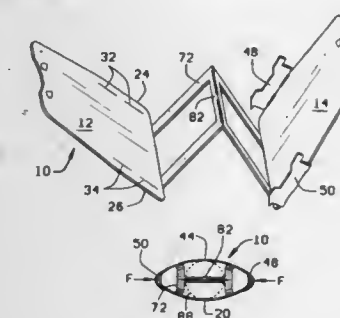
Gordon Rogers, 23 Winwood, School La., Woolton, Liverpool L25 7XJ, United Kingdom

Filed Nov. 26, 1996, Ser. No. 757,000

Int. Cl.⁶ A63B 57/00

U.S. Cl. 473—286

18 Claims



1. A device for retrieving a golf ball when temporarily attached to a golf club handle, the device having a monolithic construction and comprising opposite panels formed of a generally flexible material, each of the opposite panels having first and second side edges, the first and second side edges of one of the opposite panels being attached to the first and second side edges of the other of the opposite panels, respectively, the opposite panels lying generally flat when no force is applied to the attached side edges and bowing outwardly between the attached side edges when a force is applied to the attached side edges to form a tube having opposite first and second tube openings, the first tube opening being sized to permit the insertion therethrough of the golf club handle and the second tube opening being sized to grasp the golf ball.

5,800,281

GOLF CLUB SOLE CONFIGURATION

Peter J. Gilbert, Vista, Calif., assignor to Acushnet Company, Fairhaven, Mass.

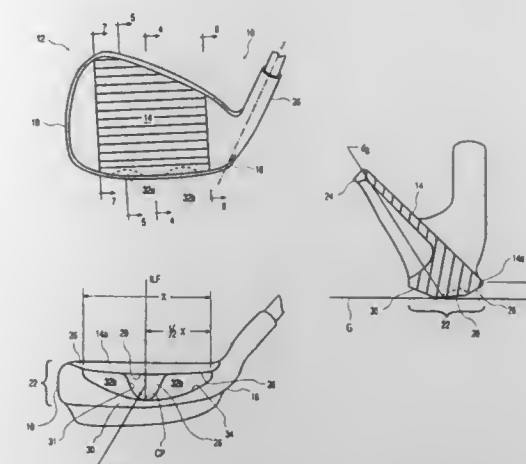
Continuation-in-part of Ser. No. 402,251, Mar. 10, 1995, Pat. No. 5,549,296. This application Aug. 23, 1996, Ser. No. 702,069

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—287

21 Claims

1. A golf club iron wherein the iron has a heel, a toe and a striking face having a lower edge therebetween and a sole extending from the heel to the toe, said sole comprising:



- a) an entrance surface which is substantially adjacent to the lower edge of the striking face;
- b) a trailing surface;
- c) a bounce surface positioned between the entrance surface and the trailing surface;
- d) a first cavity portion located between the bounce surface and the toe and between the entrance surface and the trailing surface; and
- e) a second cavity portion located between the bounce surface and the heel and between the entrance surface and the trailing surface;
- f) wherein the bounce surface and the trailing surface form an aft arcuate border of the bounce surface, and wherein the bounce surface and the entrance surface form a forward border of the bounce surface.

5,800,282

SET OF IRON-TYPE GOLF CLUB HEADS

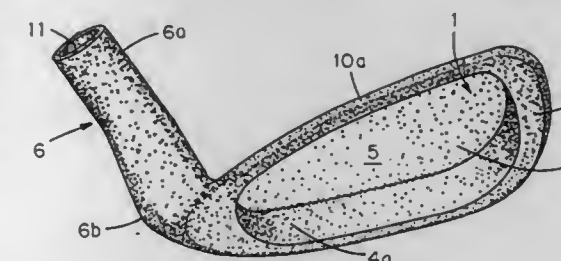
Patrice Hutin; Roger Cleveland, both of Los Angeles; Daniel Joseph Stone; Joseph Lemus, III, both of Long Beach, and John W. Goodin, Coto De Caza, all of Calif., assignors to Roger Cleveland Golf Company, Inc., Cypress, Calif.

Continuation-in-part of Ser. No. 41,500, Jul. 17, 1995, Pat. No. Des. 375,769, Ser. No. 41,513, Jul. 17, 1995, Pat. No. Des. 379,646, and Ser. No. 48,708, Jan. 11, 1996, Pat. No. Des. 380,031. This application May 3, 1996, Ser. No. 642,532

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—291

20 Claims



1. A correlated set of iron-type golf club heads, each head comprising:
 - a substantially planar blade element having a front striking face for impacting a golf ball, and a rear surface opposite said front striking face;
 - a perimeter weighting element integral with at least a portion of the outer perimeter of said rear surface and extending substantially rearwardly from that outer perimeter, a remainder of said rear surface not covered by said perimeter weighting element defining the bottom of an open cavity, the sides of which are defined by an inner peripheral surface of the perimeter weighting element; and

a hosel extending from an upper heel region of the head for connection to a shaft;
wherein the area and shape of said remainder of said rear surface are substantially identical in each club head of the correlated set.

5,800,283

KNEELING PUTTER

Sueki Nomura, 12-15, Higashimachi 1-chome, Kichijoji, Musashino-shi, Tokyo, Japan, 180

PCT No. PCT/JP95/00648, § 371 Date Oct. 24, 1995, § 102(e) Date Oct. 24, 1995, PCT Pub. No. WO95/33530, PCT Pub. Date Dec. 14, 1995

PCT Filed Apr. 4, 1995, Ser. No. 537,657

Claims priority, application Japan, Jun. 6, 1994, 6-008136

Int. Cl.⁶ A63B 53/00; 53/14

U.S. Cl. 473—294

4 Claims



3. A kneeling putter comprising:

- a. a shaft rising obliquely from a top of a putter head at its central portion at an angle from a perpendicular line towards a player using the putter, said shaft having a length comfortable for gripping by a kneeling player such that one hand below the level of the player's head can be placed toward an end of the shaft remote from the head and the other hand placed proximate to the putter head;
- b. grips provided at an upper end portion and a lower end portion of said shaft, so that the shaft may be gripped by a player in a kneeling position in those widely spaced grip regions while allowing the eyes of the player to be positioned vertically above the ball;
- c. said grips spaced one from another on said shaft; and
- d. said grip provided at the upper end portion of said shaft has an upper extremity coincident with the vertical extremity of said shaft remote from said head, wherein said grip at the lower end portion of said shaft has a lower extremity coincident with a lower end of said shaft contacting said head; wherein said upper extremity of an upper grip and a lower extremity of said upper grip are separated by a length of putter shaft substantially equal to the length of putter shaft embraced by each of said grip at said upper end portion and said grip at said lower end of said putter shaft.

5,800,284

GOLF BALL

Michael J. Sullivan, Chicopee, and R. Dennis Nesbitt, Westfield, both of Mass., assignors to LISCO, Inc., Tampa, Fla.

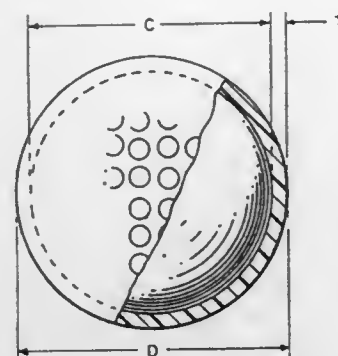
Continuation of Ser. No. 538,340, Oct. 3, 1995, Pat. No. 5,645,497. This application Jun. 11, 1997, Ser. No. 872,673

Int. Cl.⁶ A63B 37/06; 37/12

U.S. Cl. 473—377

1 Claim

1. A golf ball comprising a solid non-wound core; a cover about said core; said cover having a Shore D hardness of substantially 69;



said core and cover having a combined weight of between 47 grams and 53 grams
and said core and cover having a combined coefficient of restitution of at least substantially 0.808; and
said ball having an outside diameter substantially less than 1.68 inches.

5,800,285

METHOD OF FABRICATING GOLF CLUB PARTS CARRYING ARTWORK ETCHED AFTER FABRICATION AND PARTS WITH SUCH ARTWORK

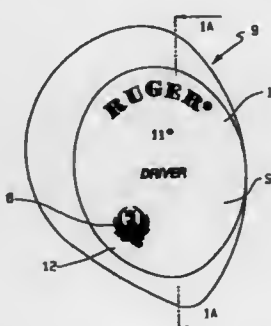
John K. Thorne, Prescott, Ariz., and Chester E. Poplaski, Newark, N.Y., assignors to Sturm, Ruger & Company, Inc., Southport, Conn.

Filed Mar. 19, 1997, Ser. No. 820,562

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—324

10 Claims



1. A method of making a golf club part comprising the steps of
a. initially forming the part having a surface;
b. subsequently treating the formed part; and
c. photochemical etching recessed artwork into a surface of the part subsequent to such treatment.

5,800,286

GOLF BALL

Shinichi Kakiuchi; Yasushi Ichikawa; Takashi Maruko; Junji Umezawa, all of Chichibu; Kunitoshi Ishihara, and Nobuhiko Matsumura, both of Izumiotsu, all of Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1997, Ser. No. 841,559

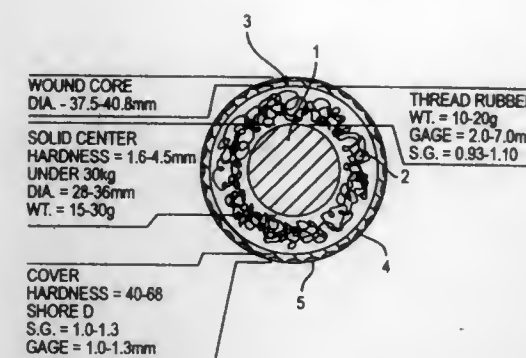
Claims priority, application Japan, May 1, 1996, 8-134250

Int. Cl.⁶ A63B 37/12; 37/06

U.S. Cl. 473—365

3 Claims

1. A thread wound golf ball comprising a solid center and a wound core having a thread rubber layer formed by winding thread rubber around the center and a cover enclosing the wound core, wherein



said cover is based on a non-yellowing thermoplastic polyurethane elastomer, and the difference in specific gravity between the center and the cover is 0.2 or less.

5,800,287

SOLID GOLF BALL

Masatoshi Yokota; Keiji Moriyama, both of Shirakawa, and Mikio Yamada, Kobe, all of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

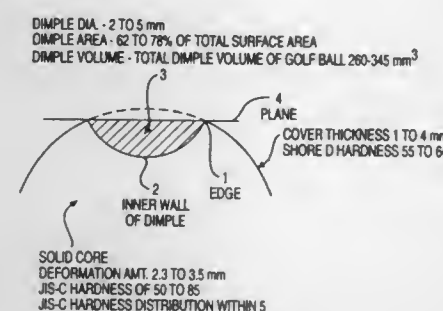
Filed Sep. 13, 1996, Ser. No. 713,609

Claims priority, application Japan, Sep. 14, 1995, 7-236677

Int. Cl.⁶ A63B 37/06; 37/12

U.S. Cl. 473—372

11 Claims



1. A solid golf ball having a good flight performance and a good spin performance comprising a solid core and a cover covering said core, wherein said core is formed from a rubber composition comprising a polybutadiene rubber having a cis-1,4-structure content of at least 40% and either an unsaturated carboxylic acid or a metal salt thereof or the both, and the cover has a thickness of 1 to 4 mm, a Shore D hardness of 55 to 64 and has 300 to 450 dimples having a diameter of 2 to 5 mm, and the dimples have a dimple area proportion of 62 to 78% and a total dimple volume of 260 to 345 mm³.

5,800,288

BALL TOSS SPORT TRAINING APPARATUS

Calvin Mims, 709 N. Cuyler, Oak Park, Ill. 60302

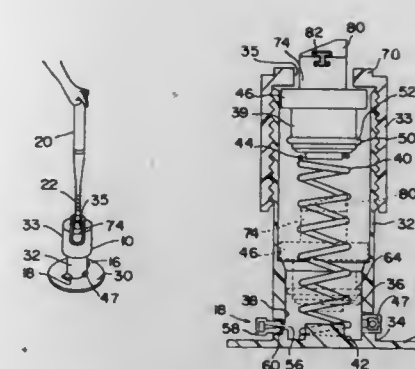
Filed Mar. 24, 1997, Ser. No. 822,875

Int. Cl.⁶ A63B 69/40

U.S. Cl. 473—417

20 Claims

1. A sport training apparatus for projecting a ball into the air, comprising:
a base,
ball projecting means mounted to said base for supporting and projecting said ball upward from said base,
spring means connected to said base and to said ball projecting means, said spring means operable between a cocked state and an actuated state,
first means connected to said base forming a first portion of an air chamber when said spring means is in said cocked state,



second means connected to said ball projecting means and in axial alignment with said first means forming a second portion of said air chamber when said spring means is in said cocked state, said air chamber having a negative pressure formed therein for holding said spring means in said cocked state,
check valve means in fluid communication with said air chamber for providing an unrestricted exit air path from said air chamber as said first means engages said second means and for closing said exit air path from said air chamber for cocking said spring means, and
pneumatic control release means in fluid communication with said air chamber for releasing at least a portion of said negative pressure from said air chamber thereby releasing said spring means from said cocked state to said actuated state and actuating said ball projecting means to propel said ball from said sport training apparatus.

5,800,289

Patent Not Issued For This Number

5,800,290

ATHLETE PRACTICE SHOOTING AID DEVICE

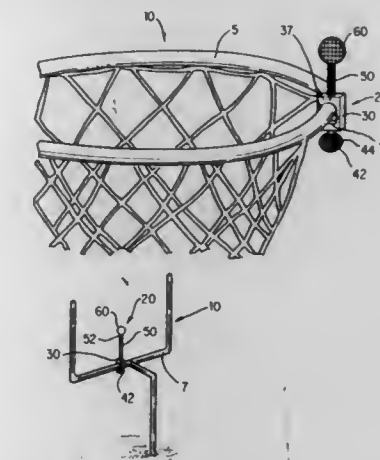
Richard E. Barry, Stanhope, N.J., assignor to Sports Advisor, Inc., New York, N.Y.

Filed Feb. 6, 1997, Ser. No. 796,768

Int. Cl.⁶ A63B 63/04; 63/08; 69/00

U.S. Cl. 473—438

36 Claims



1. A basketball shooting aid device attachable to a basketball rim for improving the accuracy and shooting form of a player by providing a visual target to aim at and strike with the basketball comprising:

a clamp having an inner surface which contacts the basketball rim and an oppositely facing exterior surface, the clamp configured and adapted to removably attach to the basketball rim;

a substantially straight elongated member having first and second ends, the elongated member connected adjacent its first end to the clamp and extending substantially perpendicular from the exterior surface of the clamp such that its second end is located at a point distal from the clamp; and

a three-dimensional bulk member connected adjacent the second end of the elongated member to form a target for the player to aim and attempt to strike with the basketball,

wherein the elongated member is configured and adapted to (a) place the bulk member in the range of approximately two to approximately four inches directly above the rim, (b) deflect when the bulk member is struck by the basketball so that the bulk member moves without substantially altering the trajectory of the basketball and (c) return the bulk member to its original position after it has been deflected by the basketball.

5,800,291

BASKETBALL TRAINING APPARATUS

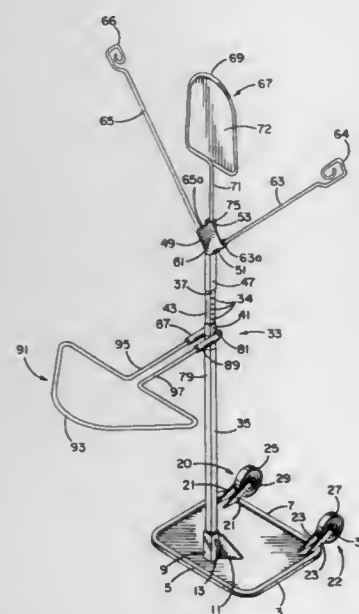
Tim S. Grover, Chicago, Ill., assignor to Hoopmate, Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 487,114, Jun. 7, 1995, abandoned. This application Apr. 16, 1996, Ser. No. 632,816

Int. Cl.⁶ A63B 69/00

U.S. Cl. 473-447

17 Claims



1. An apparatus for simulating a basketball defender, the basketball defender apparatus comprising:

a floor mount for supporting the apparatus on a floor surface;
a standard extending upwardly from the floor mount;
at least one shot obstruction mounted to the vertical standard over which a shot with a basketball can be taken by a player; and

a guarding mechanism secured to the standard and having a player engaging portion thereof spaced above the floor mount, the guarding mechanism being movable transversely relative to the standard to adjust the position of the portion in front of the standard and shot obstruction for creating a minimum distance the player must be from the standard when engaged with the guarding mechanism portion.

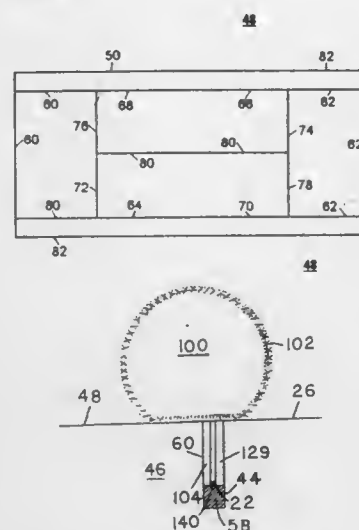
5,800,292
TENNIS COURT BOUNDARY DETECTION SYSTEM
Steven J. Brace, Canyon Country, Calif., assignor to Steven James Brace, Santa Clarita, Calif.

Filed Jul. 8, 1996, Ser. No. 676,925

Int. Cl.⁶ A63B 61/00

U.S. Cl. 473-467

20 Claims



1. An electronic detection system for a playing surface which has boundaries, comprising:

- (a) an installed body of material comprising no less than one exposed edge of no less than one said body of material comprising no less than two pieces of conductive buss bar, and
- (b) said bar sandwiches an insulator of the same dimensions forming said body of material, and
- (c) said playing surface comprises non-porous concrete material, and
- (d) no less than one groove is cut in and extends the full length of said boundaries of said playing surface.

5,800,293

LAMINATED WOOD BAT AND METHOD OF MAKING SAME

Jack W. MacKay, Jr., Mt. Pleasant, Tex., assignor to Hillerich & Bradsby Co., Louisville, Ky.

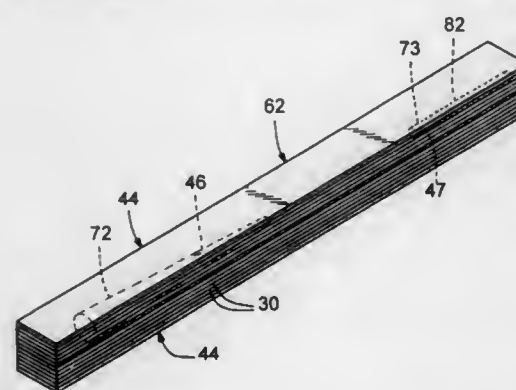
Division of Ser. No. 510,847, Aug. 3, 1995, Pat. No. 5,620,179.

This application Nov. 7, 1996, Ser. No. 745,185

Int. Cl.⁶ A63B 59/06

U.S. Cl. 473-464

8 Claims



1. The method of making a laminated wood ball bat comprising the steps of applying glue to the facing surfaces of a plurality of wood veneer strips, stacking the wood veneer strips, compressing and densifying the stacked strips, curing the glue while compress-

ing the stacked strips to form an elongated stable bat billet and shaping the bat billet into the configuration of a ball bat by a lathe operation, wherein the step of stacking wood veneer strips includes the step of selecting wood veneer strips that are longitudinally continuous and having a length of up to and including approximately 48 inches and a width of approximately 3 inches with the stack of veneer strips and glue having a total thickness of approximately 1 1/2 inches when compressed and densified and cured to form a half bat billet, forming a longitudinal recess in one surface of each half bat billet, placing filler material in one recess, applying glue to the surfaces of at least one of the half bat billets having the recesses formed therein, stacking two half billets with the recesses in registered facing relation, compressing the two stacked half bat billets to form said elongated stable bat billet.

5,800,294

MOBILE HOOP HITCH

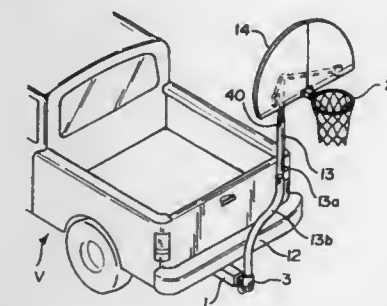
Charles A. Naecker, Jr., 911 Hollywood Ave., Silver Spring, Md. 20904

Filed Mar. 21, 1997, Ser. No. 821,543

Int. Cl.⁶ A63B 63/08

U.S. Cl. 473-481

8 Claims



1. A vehicle having a combination of a portable basketball assembly and a vehicle hitch, said assembly being mounted on said hitch comprising:

- a) a chassis and a rectangular tube welded to an underside of a pair of spaced brackets bolted to the outer sides of said chassis said tube having spaced perforations, a bar having corresponding perforations that fits into said tube, an L-shaped key having a hole on its straight end that locks said bar in one of said perforations, a cotter pin inserted in said hole, a chain affixed to said key on said straight end adjacent said L a short length of an upright column welded to said bar, a hook mounted on said column, a loose end of said chain secured to said hook,
- b) a threaded opening on said column opposite the location of said bar and a cap screw that fits into said threaded opening, a first bent post section having a vertical piece that fits into said column and is secured by said screw, a plurality of telescopic post sections including one section mounted in said first bent post section and a last section,
- c) a backboard and means for fastening a rear side of said backboard to said last section, said backboard having two equal sections attached by a longitudinal hinge on its back side, a rim of a goal and second means for fastening said rim to a front side of said backboard,
- d) a closed casing, said basketball goal assembly being readily disassembled and packaged in said closed casing that is stored in or on said vehicle for transport.

5,800,295
AUTOMATICALLY LOWERING BASKETBALL HOOP FOR DUNKING

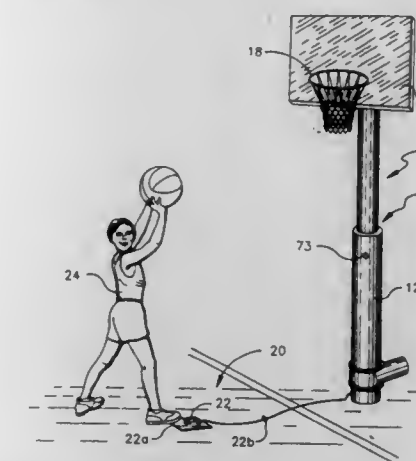
John Mark Rogitz, 8857 Los Coches Rd., Lakeside, Calif. 92040

Filed Mar. 19, 1997, Ser. No. 820,569

Int. Cl.⁶ A63B 63/08

U.S. Cl. 473-483

10 Claims



1. A basketball apparatus, comprising:

- a base;
- a vertically reciprocable mechanism on the base;
- a hoop support connected to the mechanism, such that motion of the mechanism causes motion of the hoop support;
- a basketball hoop attached to the hoop support; and
- an actuator having at least a portion distanced from the base and the mechanism, the actuator being in communication with the mechanism, the actuator being activatable by a person to activate the mechanism to thereby lower the hoop, wherein the portion of the actuator distanced from the base is a pad positionable on the ground such that a person can step on the pad while driving toward the hoop to generate a signal to activate the mechanism and thereby lower the hoop as the person is driving toward the hoop to facilitate dunking.

5,800,296

HEIGHT ADJUSTED BACKBOARD

Dan Shaw, Clinton, Conn., assignor to Jaypro Sports, Inc., Waterford, Conn.

Filed May 1, 1997, Ser. No. 848,857

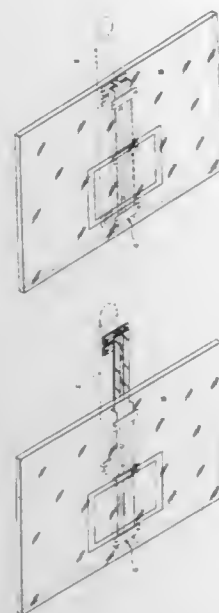
Int. Cl.⁶ A63B 63/08

U.S. Cl. 473-483

8 Claims

1. A device for affixing a backboard to a structure and allowing the height of the backboard to be adjusted, comprising:

- height adjustment mechanism having a first member affixed to a backboard having a front and rear face and a second member for affixing to a structure to maintain said second member in a stationary position with respect thereof;
- said first member slidably engaging said second member with movement of the first member resulting in movement of the backboard;
- screw means coupled to said first member and said second member for moving the first member with respect to the second member;
- said first member and said second member having opposite portions that overlap and slidably engage each other; and



said device being a substantially compact rectangular shape and affixed to the rear face of the backboard whilst being centrally positioned thereon and said opposite portions also being centrally positioned in the device and substantially coextensive with each other when the backboard is in an up position.

5,800,297

COURT BOUNDARY TAPE

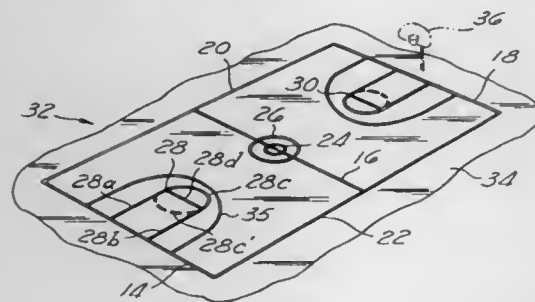
Jeffrey E. Aldstadt, 3353 W. Brady Ave., Anaheim, Calif. 92804

Filed Apr. 4, 1997, Ser. No. 834,519

Int. Cl.⁶ A63B 71/00

U.S. Cl. 473-490

3 Claims



1. A tape kit for forming a basketball court about a basketball hoop and backboard upon a planar surface comprising a multiplicity of elongate and arcuate tape pieces that are designed and configured to be adhesively attached to said planar surface, said multiplicity of tape pieces being designed and adapted to be arranged in the configuration of said basketball court such that said multiplicity of tape pieces correspond and represent the sidelines, endlines, keys, centerline, center circle, and restricting circle of said basketball court when said multiplicity of tape pieces are adhesively attached to said planar surface.

5,800,298
METAL V-BELT TYPE CONTINUOUSLY VARIABLE TRANSMISSION

Shigeru Kanehara; Hideaki Yoshida; Hirofumi Akagi; Hideaki Aoyama, and Takamichi Shimada, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

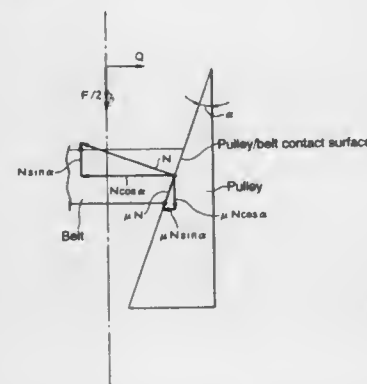
Filed Mar. 14, 1997, Ser. No. 818,792

Claims priority, application Japan, Mar. 27, 1996, 8-071995

Int. Cl.⁶ F16H 55/56

U.S. Cl. 474-8

5 Claims



1. A metal V-belt type continuously variable transmission comprising:

- a driving shaft;
- a driving pulley mounted on said driving shaft, said driving pulley having a V-groove therein;
- a driven shaft;
- a driven pulley mounted on said driven shaft, said driven pulley having a V-groove therein;
- an endless belt reeved around said driving pulley and said driven pulley, and positioned in said V-groove therein, wherein the inclination angle α of said V-groove in said driving pulley and said driven pulley is in the range $\tan^{-1} \mu_a < \alpha < \tan^{-1} \mu_s$, where μ_s is the static friction coefficient between said driving and driven pulley and said endless belt, and μ_a is the dynamic friction coefficient between said driving and driven pulley and said endless belt.

5,800,299

CONTINUOUSLY VARIABLE TRANSMISSION

Gerardus Johannes Maria Lamers, Eindhoven; Johannes Gerardus Ludovicus Maria Van Spijk, Drunen, and Franciscus Cristianus Antonius Hubertus Willems, Hooge-Mierde, all of Netherlands, assignors to Van Doorne's Transmissie B.V., Tilburg, Netherlands

Filed Apr. 3, 1996, Ser. No. 627,071

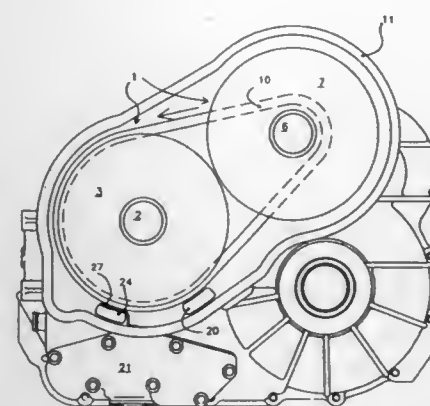
Claims priority, application Netherlands, Apr. 7, 1995, 1000087

Int. Cl.⁶ F16H 57/05

U.S. Cl. 474-45

15 Claims

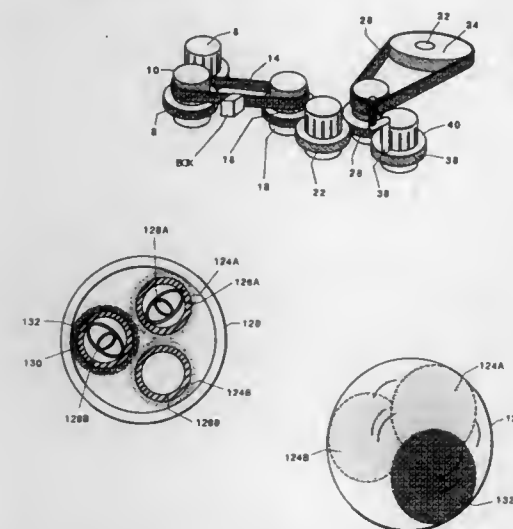
1. Continuously variable transmission, comprising a transmission housing which accommodates a pulley/belt unit, a hydraulic circuit providing at least one of control and lubrication of the transmission, and a fluid reservoir, and which is provided with one or more discharge openings near a bottom part of the transmission housing for discharge of fluid from the transmission housing to the



5,800,300
MOTION TRANSFER DEVICE
Ellen Childress, 105 Green St., Reading, Mass. 01867
Continuation of Ser. No. 489,022, Jun. 8, 1995, Pat. No. 5,651,745. This application Mar. 10, 1997, Ser. No. 814,797
Int. Cl.⁶ F16H 55/48

U.S. Cl. 474-190

17 Claims



1. A device for illustrating motion transfer comprising:

- a hollow structure;
- a first spherical object having a first exterior surface;
- a first motion transfer surface on said first exterior surface of said first spherical object; and
- a means for opening and closing said hollow structure, so that said first spherical object is securable within said hollow structure.

5,800,301

CHAIN ASSEMBLY USING FORMED BUSHINGS WITH INVERTED TEETH

David P. Anderson, Ithaca, N.Y., assignor to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

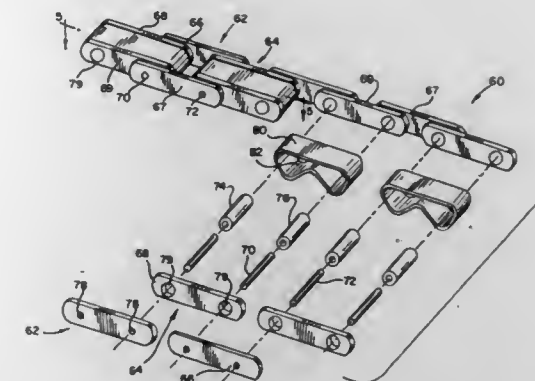
Filed May 9, 1997, Ser. No. 853,835

Int. Cl.⁶ F16G 13/04

U.S. Cl. 474-213

9 Claims

1. A chain assembly, comprising:



a plurality of interleaved outer links and inner links, said outer links each being formed by a pair of outer link plates, said inner links each being formed by a pair of inner link plates; a pair of pin members fixedly mounted to said outer link plates; a plurality of bushings of a first type fixedly mounted to said inner link plates, said first type bushings being mounted and freely rotatable about said pin members; and a plurality of bushings of a second type mounted about said first type bushings, said second type bushings each including an upper edge and a pair of spaced toes extending downwardly from said upper edge and forming a crotch therebetween, said toes and said upper edge defining an aperture in said second type bushings, said crotch dividing said aperture into two separate portions; said first type bushings each being seated in one of said portions of said aperture.

5,800,302

PLANETARY GEAR DRIVE ASSEMBLY

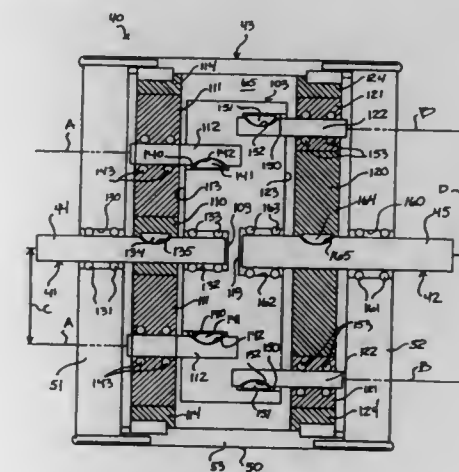
Roger L. Werre, 2065 E. LaSalle Way, Gilbert, Ariz. 85234

Filed Nov. 1, 1996, Ser. No. 742,878

Int. Cl.⁶ F16H 3/72

U.S. Cl. 475-1

12 Claims



1. A transmission for transferring power from an input to an output, said transmission comprising:

- a drive planetary gear assembly coupled to an input and including a drive sun gear rigidly mounted to said input, a plurality of drive planet pinions coupled to said drive sun gear in meshing engagement, and a drive ring gear in meshing engagement with said plurality of drive planet pinions;
- a driven planetary gear assembly coupled to an output and drivenly coupled to said drive planetary gear assembly, the driven planetary gear assembly including a driven sun gear rigidly mounted to said output, a plurality of driven planet pinions coupled to said driven sun gear in meshing engagement and a driven ring gear in meshing engagement with said

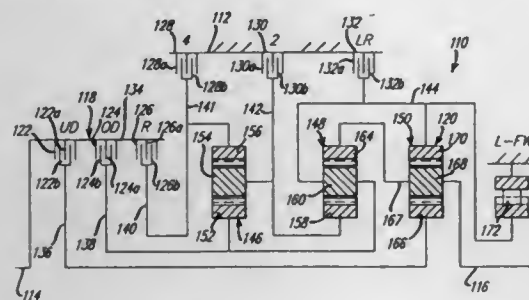
plurality of driven planet pinions, wherein said drive sun gear is smaller than said driven sun gear; whereby power from said input is transferred to said output along an infinitely variable torque and gearing range.

5,800,303

FOUR-SPEED AUTOMATIC TRANSMISSION
Howard L. Benford, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Division of Ser. No. 345,669, Nov. 28, 1994, Pat. No. 5,588,929. This application Dec. 9, 1996, Ser. No. 761,881
Int. Cl.⁶ F16H 3/62

U.S. Cl. 475—276

9 Claims



1. A four-speed automatic transmission for a vehicle comprising: a transmission housing; an input member; an output member; three planetary gearsets for changing a ratio of torque between said input member and said output member; a plurality of clutch assemblies to selectively couple said input member to predetermined gears of said planetary gearsets and a plurality of brake assemblies to selectively couple predetermined gears of said planetary gearsets to said transmission housing; means for allowing said output member and a planetary carrier from one of said planetary gearsets and an annulus gear of another of said planetary gearsets to rotate simultaneously; said planetary gearsets comprising a first planetary gearset, a second planetary gearset axially spaced from said first planetary gearset and a third planetary gearset axially spaced from said second planetary gearset; each of said first, second and third planetary gearsets comprising a sun gear, an annulus gear and a planetary carrier having a plurality of circumferentially spaced pinion gears disposed between said sun gear and said annulus gear; and said clutch assemblies comprising a first clutch assembly to couple said input member to said sun gear of said third planetary gearset, a second clutch assembly independent of said first clutch assembly to couple said input member to said planetary carrier of said second planetary gearset and said first sun gear of said first planetary gearset, and a third clutch assembly to couple said input member to said annulus gear of said first planetary gearset.

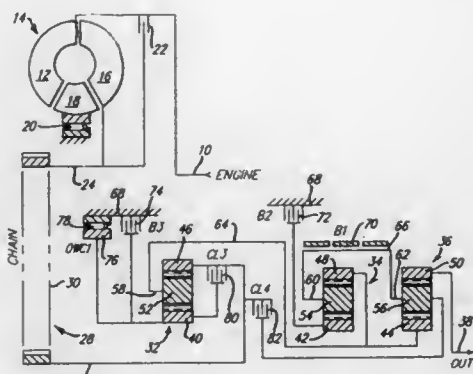
5,800,304

MULTIPLE-SPEED AUTOMATIC TRANSMISSION FOR AN AUTOMOTIVE VEHICLE
Rudolf Beim, Bloomfield Hills, and Daniel W. McCarrick, Canton, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.
Filed Oct. 28, 1996, Ser. No. 740,181
Int. Cl.⁶ F16H 3/44

U.S. Cl. 475—285

8 Claims

1. A multiple-speed transmission comprising: an input shaft; an output shaft;



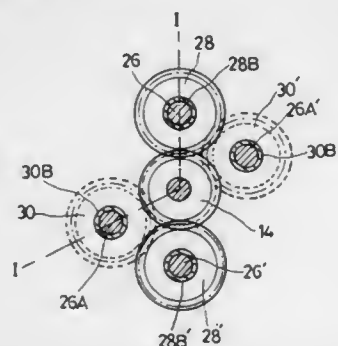
- planetary gearing supported on a first axis comprising multiple planetary gear units, each gear unit having a sun gear, ring gear, carrier, and planet pinions supported rotatably on the carrier and driveably engaged with the sun gear and ring gear of the corresponding gear unit, the ring gear of the first gear unit continually driveably connected to the input shaft, the ring gear of the third gear unit continually driveably connected to the output shaft, the carrier of the first gear unit, ring gear of the second gear unit, and sun gear of the third gear unit continually driveably connected mutually, the carriers of the second and third gear units continually driveably connected mutually; a first clutch for alternatively driveably connecting and releasing the input shaft and sun gear of the first gear unit; a second clutch for alternatively driveably connecting and releasing the input shaft and carrier of the third gear unit; and a first brake for alternatively holding against rotation and releasing the sun gear of the second gear unit.

5,800,305

REDUCTION GEAR WITH COAXIAL INPUT AND OUTPUT SHAFTS AND COMBINING PLANETARY AND NONPLANETARY GEARING
Jong-Oh Ra, Seoul, Rep. of Korea, assignor to Koon-Woo Kang, Seoul, Rep. of Korea, a part interest
Filed Dec. 26, 1996, Ser. No. 780,141
Claims priority, application Rep. of Korea, Dec. 29, 1995, 65777; Dec. 29, 1995, 65778
Int. Cl.⁶ F16H 57/08

U.S. Cl. 475—343

4 Claims



1. A reduction gear for reducing the rotational speed transmitted from an input shaft to an output shaft, comprising: a frame; an input shaft rotatably supported on the frame and rotating by receiving driving force; an output shaft rotatably supported on the frame in the same axis as that of the input shaft, the output shaft being connected to one end of the input shaft and designed to independently rotate from the input shaft; an input sun gear integrally formed with the input shaft;

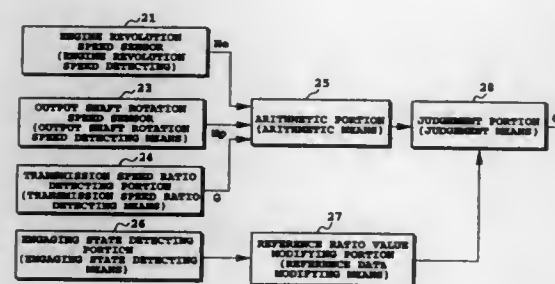
- a first differential gear supported on a locking pin fixed on the frame and meshing with the input sun gear; a second differential gear supported on a locking pin fixed on the frame and meshing with the first differential gear; a hollow shaft coaxially mounted on the input shaft between the output shaft and the input sun gear; a differential sun gear integrally formed with the hollow shaft and meshing the second differential gear; a differential ring gear rotatably mounted around the output shaft and meshing with the second differential gear; a planetary ring gear integrally formed with the differential ring gear; a planetary sun gear integrally formed with the hollow shaft and disposed between the differential sun gear and the output shaft; more than one planetary gear simultaneously meshing with the planetary sun gear and the planetary ring gear; and a carrier connecting an shaft of the planetary gear to the output shaft.

5,800,306

METHOD AND SYSTEM FOR CONTROLLING AUTOMATIC POWER TRANSMISSION
Akimasa Mori, Fuji, Japan, assignor to Jatco Corporation, Fuji, Japan
Filed Oct. 4, 1996, Ser. No. 726,471
Claims priority, application Japan, Oct. 12, 1995, 7-264041
Int. Cl.⁶ F16H 61/00

U.S. Cl. 477—62

14 Claims



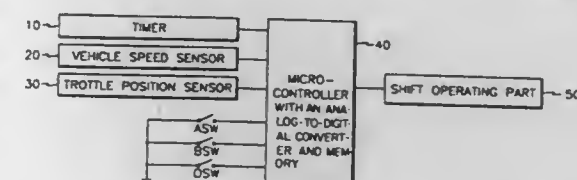
1. A method for controlling an automatic power transmission assembled with a torque converter, including a lock-up mechanism by detecting a state of progress of a shifting operation in said automatic power transmission, comprising the steps of: obtaining data indicative of the state of progress of the shifting operation of the automatic power transmission on the basis of a value determined by multiplying a transmission gear ratio (Gn) at a transmission speed range of the automatic power transmission after shifting with a rotation speed (Np) of an output shaft of said automatic power transmission and dividing with a revolution speed (Ne) of an engine connected to said torque converter; detecting a state of said lock-up mechanism between a lock-up state and a non-lock-up state; obtaining a predetermined reference data; modifying said reference data depending upon the state of said lock-up mechanism; judging a timing in the vicinity of completion of the shifting operation and outputting a judgement signal when the calculated data reaches said reference data; and reducing a shift shock of the shifting operation in response to said judgement signal.

5,800,307

SYSTEM AND METHOD FOR CONTROLLING GEAR SHIFTING OF AUTOMATIC TRANSMISSION VEHICLES, IMPROVING DAMPING FORCE
Kyeongnam Choi, Seoul, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea
Filed Dec. 30, 1996, Ser. No. 777,440
Claims priority, application Rep. of Korea, Dec. 30, 1995, 95-68306
Int. Cl.⁶ F16H 59/54

U.S. Cl. 477—94

6 Claims



1. A system for controlling gear shifting of an automatic transmission in a vehicle having an accelerator pedal and a brake pedal, comprising: a vehicle speed sensor for detecting a speed of the vehicle; a throttle position sensor for detecting an opening of a throttle valve; an accelerator pedal switch for indicating when the accelerator pedal is released; a brake switch for indicating when the brake pedal is pressed; a microcontroller having a control signal output for upshifting the transmission, said control signal being responsive to said vehicle speed sensor and said throttle position sensor, said control signal to prevent inhibiting the upshift when said brake switch indicates that the brake pedal is pressed after a predetermined time from the time the acceleration pedal switch indicates said accelerator pedal is released; and a shift operating part responsive to said control signal.

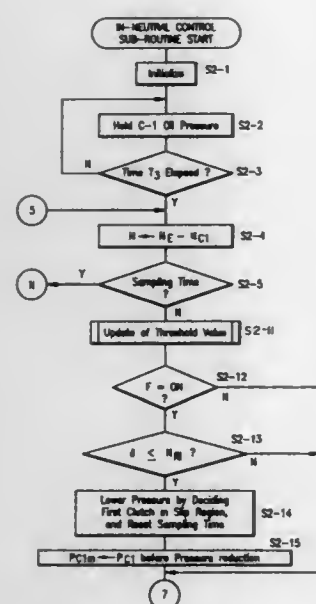
5,800,308

PRESSURE CONTROL OF HYDRAULIC SERVOS WHILE IN GEAR AT A STOPPED NEUTRAL STATE
Hiroshi Tsutsui, Nishio; Kazumasa Tsukamoto, Toyota; Masa-biro Hayabuchi; Masaaki Nishida, both of Anjo, and Yoshihisa Yamamoto, Nishio, all of Japan, assignors to Aisin AW Co., Ltd., Japan
Filed May 13, 1996, Ser. No. 644,444
Claims priority, application Japan, May 12, 1995, 7-115013; Aug. 31, 1995, 7-224310
Int. Cl.⁶ F16H 61/20

U.S. Cl. 477—116

5 Claims

1. A control system for an automatic transmission having a speed change unit with a transmission mechanism, the control system comprising: a fluid transmission unit for transmitting rotation of an engine to the speed change unit; a clutch adapted to be applied when a forward running range is selected to transmit the rotation of said fluid transmission unit to the transmission mechanism of said speed change unit; a hydraulic servo for applying/releasing said clutch; stop state detecting means for detecting a vehicle stop state which is defined by (a) a forward running range being selected, (b) a throttle opening being fully closed, (c) a brake pedal being depressed, and (d) a vehicle speed being substantially zero; input speed detecting means for detecting the input rotational speed of said fluid transmission unit; output speed detecting means for detecting the output rotational speed of said fluid transmission unit; hydraulic control means for controlling oil pressure fed to said hydraulic servo; and a control unit, wherein said control unit includes: calculation means for calculating the rotational difference between said input speed and said output speed; release means for releasing said clutch by lowering the oil pressure fed to said hydraulic servo until the retraction of the piston of said hydraulic servo is started when said vehicle stop state is detected; and specific release state holding means for holding the clutch in a



released state immediately before the transfer of said clutch from a drag region to a slip region until said vehicle stop state is not detected after the release of said clutch, and wherein said specific release state holding means includes: booster means for raising the oil pressure fed to said hydraulic servo by a set pressure unless a rate of change of said rotational difference exceeds a reference rate of change even after lapse of a set time period; and first pressure reducing means for lowering the oil pressure fed to said hydraulic servo by a set pressure if said rate of change exceeds the reference rate irrespective of the lapse of said set time period and if the rotational difference increases.

5,800,309

HYDRAULIC CONTROL DEVICE FOR AUTOMATIC TRANSMISSION

Masahiro Takiguchi, and Yoshifumi Fujita, both of Fuji, Japan, assignors to Jatco Corporation, Japan

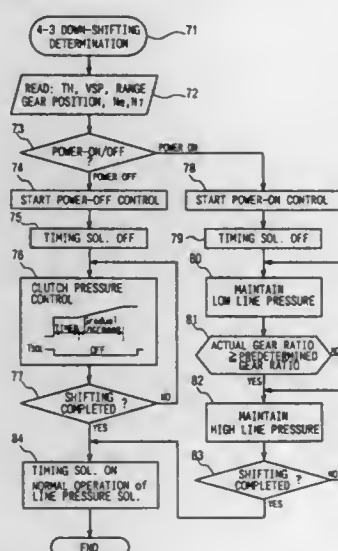
Filed Aug. 28, 1996, Ser. No. 703,568

Claims priority, application Japan, Aug. 28, 1995, 7-219063

Int. Cl.⁶ F16H 61/08

U.S. Cl. 477-144

4 Claims



1. A hydraulic control device for an automatic transmission of a vehicle comprising:

an engaging element that is engaged by a control oil pressure when the transmission is shifted down;
down-shifting determining means for determining whether the transmission is being shifted down;
power-on/off determining means for determining, upon determination of down-shifting of the transmission, whether the vehicle is in a power-on condition in which drive force is transmitted from an engine to wheels through a power transmitting system, or in a power-off condition in which the drive force received from the wheels exceeds that from the engine, whereby brake force is applied to the power transmitting system;

power-off hydraulic control means for regulating the control oil pressure applied to said engaging element, such that the oil pressure is rapidly increased from the beginning of a shifting process, and is maintained at a high level until the shifting process is about to be completed; and

power-on hydraulic control means for regulating the control oil pressure applied to said engaging element, such that the oil pressure is maintained at a low level from the beginning of the shifting process, and is increased just before completion of the shifting process;

wherein said power-on/off determining means employs a power-on/off map which is divided into a power-on region and a power-off region on the basis of a throttle opening, and determines whether the vehicle is in the power-on condition or the power-off condition depending upon which region of said power-on/off map the throttle opening that is currently detected belongs to; and

wherein said power-on/off map is prepared individually on the basis of at least one of a gear position, an ON/OFF state of a lock-up clutch, a range position, and an oil pressure.

5,800,310

MACHINE AND METHOD FOR MEASURING STRENGTH OF MUSCLES WITH AID OF A COMPUTER

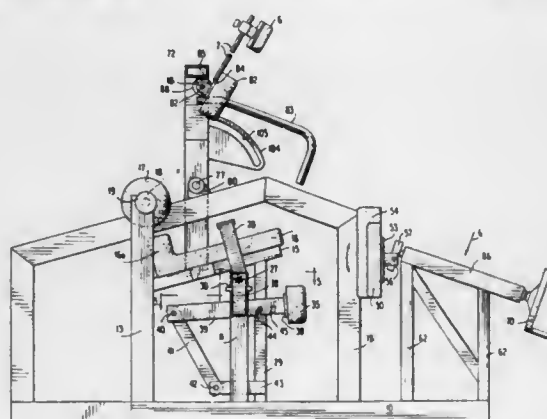
Arthur A. Jones, Ocala, Fla., assignor to MED-X 96, Inc., Ocala, Fla.

Continuation of Ser. No. 947,284, Sep. 15, 1992, Pat. No. 5,667,463, which is a continuation-in-part of Ser. No. 909,658, Jul. 7, 1992, Pat. No. 5,256,125, which is a continuation-in-part of Ser. No. 813,531, Dec. 26, 1991, Pat. No. 5,149,313, which is a continuation of Ser. No. 637,618, Jan. 4, 1991, Pat. No. 5,092,590, which is a division of Ser. No. 422,905, Oct. 18, 1989, Pat. No. 5,005,830, which is a division of Ser. No. 236,367, Aug. 25, 1988, Pat. No. 4,902,009, which is a continuation-in-part of Ser. No. 60,679, Jun. 11, 1987, Pat. No. 4,836,536, and Ser. No. 181,372, Apr. 14, 1988, Pat. No. 4,834,365. This application May 8, 1995, Ser. No. 436,752

Int. Cl.⁶ A63R 23/02; A61B 5/22

U.S. Cl. 482-8

34 Claims



1. A method of testing the lumbar muscles of a subject comprising the steps of having the subject exert his/her lumbar muscles against the opposition of a static resistance provided by a machine,

measuring and displaying the static strength of the subject through the use of a computer and display screen connected to the machine, having the subject exert his/her lumbar muscles by moving his/her back rearwardly to perform positive work and forwardly to perform negative work within a range of movement of about seventy-two degrees against a movement arm of the machine by moving the movement arm in one direction to perform positive work by moving a resistance weight from a starting position against a resistance provided by the resistance weight which is connected to the movement arm and imposes a resistance force less than the static strength of the subject, then having the subject move the movement arm in a direction opposite said one direction to perform negative work and return said resistance weight towards said starting position and repeating said steps to move the movement arm in opposite directions until the muscles become fatigued and can no longer move the resistance weight, and measuring and displaying the dynamic strength of the subject including the positive and negative work performed through the forces applied by the subject to the movement arm through the use of a computer and display screen connected to the machine.

15. A machine for testing muscles of a human subject, the machine comprising in combination, means providing a static resistance to movement upon engagement by the subject and exertion of said muscles, means including a computer and display screen for measuring and displaying the static strength of said muscles upon engagement by the subject and exertion of said muscles, a movement arm mounted for movement in opposite directions between opposite positions in response to engagement by the subject upon exertion of said muscles, a resistance weight connected to the movement arm to oppose movement of said movement arm in one direction upon exertion of said muscle to perform positive work, said movement arm being movable in a direction opposite said one direction upon return movement of the subject to perform negative work, means including said computer and display screen for measuring and displaying the dynamic strength of said muscles in terms of positive and negative work upon engagement and exertion of said muscles to repeatedly move the movement arm in opposite directions between said positions, means for isolating muscles to be tested from other body parts of the subject and holding the other body parts in a predetermined position during movement of the movement arm by the subject including a seat for the subject and means for applying an upwardly directed force to the front of a seated subject's legs to rotate the hip-ends of the femurs downwardly against the seat and a pelvic pad to restrain the legs against movement, and means for determining the angular range of motion of a subject in moving the movement arm.

5,800,311

WRIST EXERCISER

P. S. Chuang, No. 20, Alley 13, Lane 122, Dan Shui Town, Taipei Hsien, 251, Taiwan

Filed Dec. 3, 1997, Ser. No. 984,043

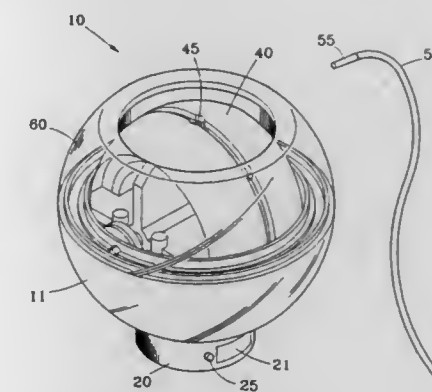
Claims priority, application Taiwan, Jul. 25, 1997, 86212568

Int. Cl.⁶ A63B 5/00

U.S. Cl. 482-44

20 Claims

1. A wrist exerciser comprising a spherical casing having a first axis and a second axis substantially perpendicular to each other, a ring received within the spherical casing to be concentric with and rotatable about the first axis with respect to the casing and a spherical rotor received within the ring and having a rotational axis co-linear with the second axis to be rotatable about the second axis with respect to both the casing and the ring, the rotor having an outer surface on which a circumferential groove is formed with a driving hole formed in the groove, a flexible rope having a rigid end receivable in and engageable with the driving hole. The flexible rope being windable around the outer surface of the rotor



along the groove through a top opening formed on the casing so that the rotor is driven to rotate about the second axis by pulling to unwind the rope from the rotor, light generation means mounted on the rotor to emit light during the rotation of the rotor.

5,800,312

GOALIE TRAINING APPARATUS AND METHOD OF USING A GOALIE TRAINING APPARATUS

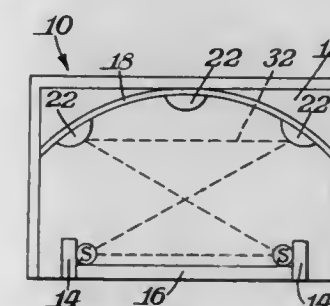
Thomas Ormondroyd, Worcester, Mass., assignor to Sportstec Concepts, Inc., Worcester, Mass.

Filed Oct. 30, 1996, Ser. No. 741,368

Int. Cl.⁶ A63B 23/04

U.S. Cl. 482-51

19 Claims



1. A goalie training apparatus, comprising:
a slide board having an upper glide surface and a lower surface;
a first plurality of barriers attached to the glide surface in spaced-apart relation along an arc representing an outer boundary of a goal crease, said arc having a convex side and a concave side, wherein each barrier in the first plurality of barriers has a convexly-curved outer surface; and
a second barrier attached to the glide surface at a point separated from the first plurality of barriers and on the concave side of the arc leaving a portion of the glide surface of the slide board between the first plurality of barriers and the second barrier unobstructed convexly-curved side surfaces of the barriers of the first plurality of barriers face inwardly on the concave side of the arc and substantially toward the second barrier.

5,800,313

SKIING EXERCISE APPARATUS

Hui-Nan Yu, 5F-23, 70, Fu-Shing Road, Taoyuan, Taiwan

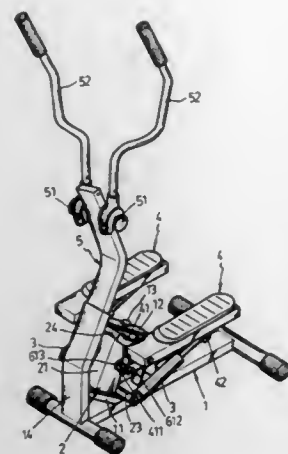
Filed May 1, 1997, Ser. No. 850,017

Int. Cl.⁶ A63B 22/14

U.S. Cl. 482-53

5 Claims

1. An exercise apparatus simulating the motion of skiing comprising:
a) a pedestal;
b) a swinging seat pivotally connected to the pedestal so as to pivot about an axis extending obliquely to the pedestal;



- c) a pair of pedals pivotally connected to opposite sides of the swinging seat;
- d) a damping device connected between each pedal and the swinging seat;
- e) an adjusting seat connected to both pedals and to an extension plate extending from the pedestal so as to adjust angular positions of the pedals relative to the pedestal;
- f) an upright column extending upwardly from the pedestal; and,
- g) a pair of handles each pivotally connected to the upright column.

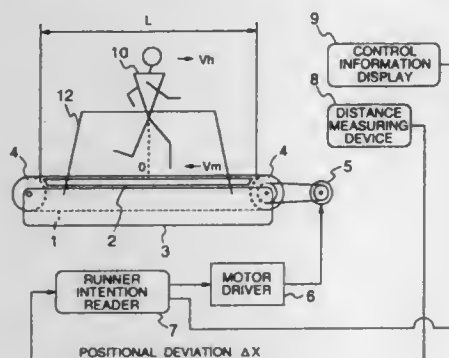
5,800,314
USER-MOTION-RESPONSE TYPE EXERCISE EQUIPMENT

Yoshihiro Sakakibara, Ryugasaki; Yukio Yamada, Hitachinaka, and Kitami Suzuki, Abiko, all of Japan, assignors to Hitachi Techno Engineering Co., Ltd., Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 692,523
Claims priority, application Japan, Sep. 26, 1995, 7-247817
Int. Cl.⁶ A63B 23/00

U.S. Cl. 482—54

14 Claims

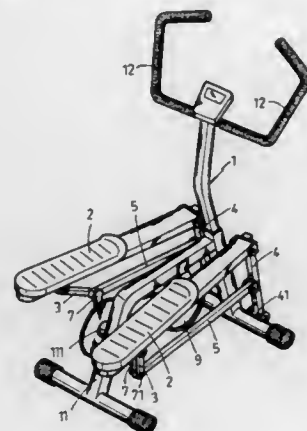


1. A user-motion-response type exercise equipment comprising: an endless belt mechanism having a moving surface for the user to walk or run on;
- driving means for driving said endless belt mechanism such that said moving surface moves at a speed in accordance with a control signal supplied from outside;
- position detecting means for detecting the user's position on said moving surface; and
- control means for performing a control action combining a proportional control action and an integral control action in parallel in accordance with a positional deviation Δx from a reference position for the user on said moving surface of said endless belt mechanism to said user's position detected by said position detecting means as a controlled variable, gener-

ating said control signal on the basis of a result of said control action, and sending said control signal to said driving means.

5,800,315
OVAL TRACK EXERCISING CLIMBER
Hui-Nan Yu, and Michael Lin, both of 5F-23, 70, Fu-Shing Road, Taoyuan, Taiwan
Filed Oct. 30, 1997, Ser. No. 961,076
Int. Cl.⁶ A63B 22/04; 69/16
U.S. Cl. 482—57

1 Claim



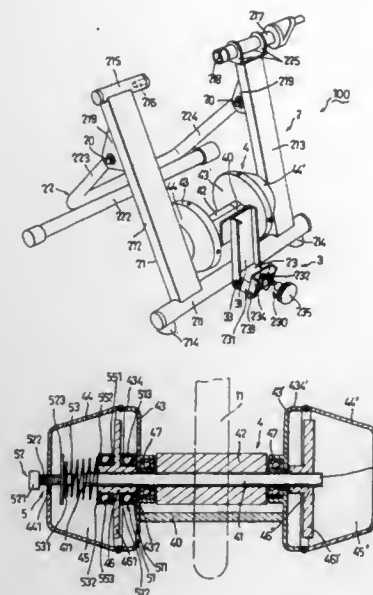
1. An oval track exercising climber comprising: a machine base having a main rod member and a pair of handlebars mounted on said main rod member, said main rod member being provided with an axle bearing at a rear side thereof;
- an axle revolvably supported on said axle bearing;
- a pair of cranks respectively connected to two opposite ends of said axle and disposed at two opposite sides of said main rod member, said cranks having a respective outer end;
- a pair of guide bars having a respective bottom end respectively pivoted to the outer ends of said cranks and a respective top end;
- a pair of pedals having a respective rear end respectively pivoted to the top ends of said guide bars and a respective front end;
- a pair of oscillating bars having a respective top end respectively pivoted to the front ends of said pedals and a respective bottom end respectively pivoted to a front side of said machine base;
- a pair of links having a respective front end respectively pivoted to said oscillating bars on the middle and a respective rear end respectively pivoted to the bottom ends of said guide bars and the outer ends of said cranks; and
- a damping mechanism mounted on said machine base and adapted to impart a damping resistance to said pedals when said pedals are pedaled to turn said axle through said cranks.

5,800,316
RESISTANCE DEVICE FOR AN EXERCISER
Kung-Da Huang, No. 369, Tung-An Rd., Tainan City, Taiwan
Filed May 16, 1997, Ser. No. 857,928
Int. Cl.⁶ A63B 23/04
U.S. Cl. 482—61

15 Claims

11. A resistance device for an exerciser with an axle, a wheel mounted on the axle, and a driving unit which is manually operable to drive rotatable the wheel on the axle, said resistance device comprising:

a support frame adapted to be mounted on the exerciser so as to raise the wheel above a ground surface to prevent the ground surface from providing resistance to rotation of the wheel; and a resistance unit including a transmission shaft mounted rotatable on said support frame and adapted to be driven rotatable



by the wheel, said transmission shaft having opposite first and second end portions and weighting means applied on said transmission shaft so as to generate a resistance to rotation of said transmission shaft in order to resist, in turn, the rotation of the wheel, said weighting means including first and second balancing weights sleeved respectively on said first and second end portions of said transmission shaft for co-rotation therewith;

a contact roller sleeved on said transmission shaft and adapted to be placed in contact with the wheel such that rotation of the wheel by the driving unit results in co-rotation of said contact roller and said transmission shaft therewith;

parallel first and second support members mounted on said support frame, each of said support members having a mounting hole provided with a bearing unit for supporting rotatable a respective one of said first and second end portions of said transmission shaft thereon, said contact roller being disposed between said support members;

an adjustable positioning unit including:

a horizontal positioning plate having a first end portion secured to said support frame, and an opposite second end portion formed with an upwardly extending wall;

an upright pivot plate having an upper end portion disposed between and secured to said support members, and a lower end portion mounted pivotally on said first end portion of said positioning plate;

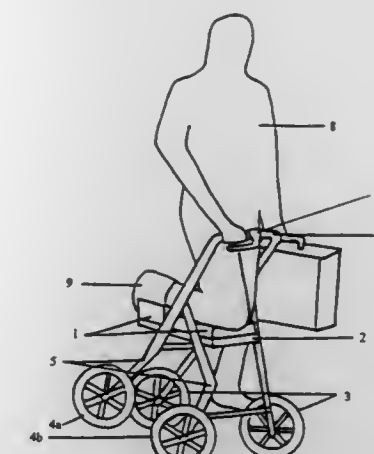
a regulating plate having a lower end portion mounted pivotally on said positioning plate between said first and second end portions of said positioning plate, and an upper end portion which permits resting of said pivot plate inclinedly thereon; and

a regulating rod extending threadedly through said upwardly extending wall and abutting against said regulating plate, said regulating plate being operable so as to support said regulating plate in a desired inclined position, thereby permitting varying of inclination of said pivot plate to vary, in turn, position of said contact roller relative to the wheel.

5,800,317
FOUR WHEEL SIDE SUPPORT KNEELING WALKER
Roderick William Accetta, 1124 Charles Dr., Dover, Del. 19904
Continuation of Ser. No. 212,914, Mar. 14, 1994, abandoned.
This application Jun. 23, 1995, Ser. No. 494,589
Int. Cl.⁶ A63H 3/00
U.S. Cl. 482—66

1 Claim

1. A kneeling walker comprising:



a support frame, said support frame including at least two frame elements pivotally joined to thereby allow said frame to be pivotally folded;

a platform having a longitudinal length, horizontally disposed and connected to said support frame and adapted to receive a knee; said platform having a longitudinal centerline, said support frame has means for allowing height adjustment of platform;

a hand-grip means connected to at least one of said frame elements, said hand-grip and said platform sharing substantially a common centerline, said frame has means for allowing height adjustment of hand-grip;

at least two sets of two wheels each being rotatably connected to a lower end of said supporting frame wherein a first set of said wheels is connected to one side of said supporting frame at a location on one side of the centerline, wherein each wheel of said first set is an unequal distance from the centerline, and a second set of wheels being connected to a second side of said supporting frame on an opposite side of said centerline from said first set of wheels wherein each wheel of said second set of wheels is positioned an unequal distance from said centerline at a distance greater than either of the wheels in said first set of wheels and;

thereby providing an asymmetrical configuration of wheels connected to said supporting frame which provides increased stability to one side of said kneeling walker and increased foldability by orienting the wheels so as not to engage any of the other wheel upon folding, said supporting frame has means for allowing height adjustment of wheels.

5,800,318
REHABILITATION THRU ATHLETIC TRAINING PRINCIPAL/WALKER TYPE DEVICE
Gerald A. Coviello, 152 Stedman st., Chelmsford, Mass. 01824
Filed Mar. 20, 1995, Ser. No. 407,588
Int. Cl.⁶ A63B 22/02; A61H 3/04
U.S. Cl. 482—68

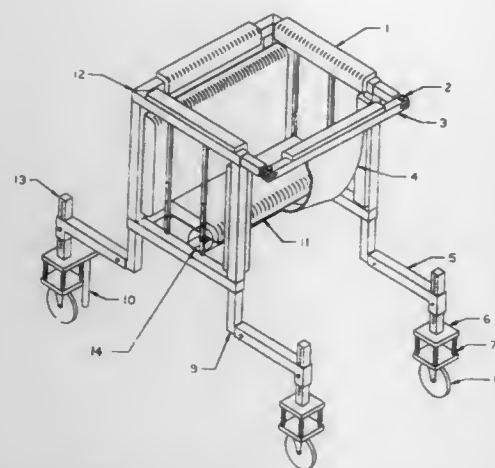
1 Claim

1. A walker type exercise device comprising: (a) four L-shaped square tubing rods, each having an elongated vertical portion and a horizontal extension leg;

(b) four respective wheel units, each comprising: means for height adjustable securement to said extension legs; a shock absorbing unit having a pair of platforms with a plurality of springs therebetween, and a wheel attached to the lowermost platform, and wherein a brake peg is attached to the upper platform of two of said four wheel units and extends downward for positional engagement with a support surface;

(c) three upper and three lower horizontal side rails which interconnect said square rods to form a three sided rectangular enclosure;

(d) a front upper horizontal swing arm connected to said square rods for releasably securing an occupant within said enclosure;



(e) foam padding on said rails; and
(f) a height adjustable padded seat attached to said square rods.

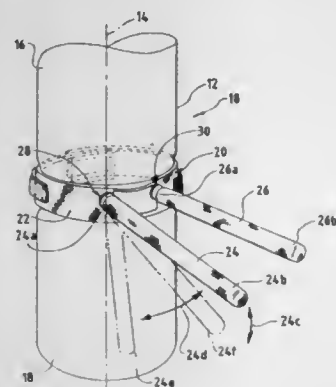
5,800,319

SPARRING DEVICE

Brian W. Choate, 6159 W. Dakin St., Chicago, Ill. 60634
Continuation of Ser. No. 531,596, Sep. 21, 1995, abandoned.
This application Oct. 27, 1997, Ser. No. 962,984
Int. Cl.⁶ A63B 64/20

U.S. Cl. 482—83

15 Claims



1. A sparring device comprising
a columnar member having a longitudinal central axis normally disposed in a vertical direction, and
a sparring member including
a belt portion having arm connector means thereon fastened upon the columnar member, and
at least one arm portion normally disposed in a horizontal attitude from the columnar member and moveable in a gyrating manner in a substantially conical space, said arm portion having an inner end joined to the arm connector means on the belt portion and an outer end disposed in a plurality of arcuate paths across the broad end of the conical space and having a radius extending from the inner end of the arm portion.

5,800,320

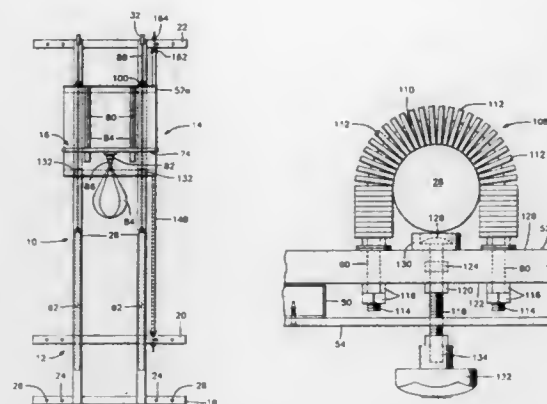
QUICK CHANGE ADJUSTABLE HEIGHT SPEED BAG

Randy Ray, Route 2, Box 127, Noel, Mo. 64854
Filed Dec. 2, 1996, Ser. No. 759,118
Int. Cl.⁶ A63B 69/00; 69/24

U.S. Cl. 482—87

13 Claims

9. An adjustable height target assembly comprising



a frame unit including brackets for attachment to a wall and two hollow tubes secured to and extending between said brackets, a carriage unit slidable along and lockable to said tubes, a bearing and locking assembly for facilitating sliding and locking of said carriage assembly on said tubes, said bearing and locking assembly including a U-shaped rod having a plurality of roller bearings on said U-shaped rod so that said roller bearings surround and engage said tube, and a platform assembly mounted on said carriage assembly, said platform assembly including a target for practicing hitting and kicking.

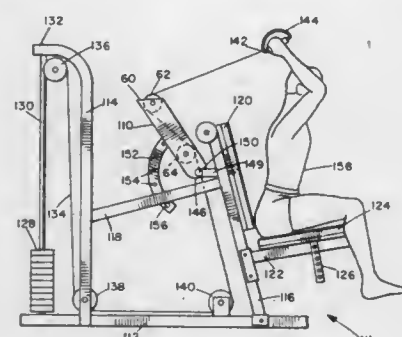
5,800,321

EXERCISE APPARATUS WITH ADJUSTABLE LEVER ARM

Randall T. Webber, 11162 Morning Creek Dr. South, San Diego, Calif. 92128
Continuation-in-part of Ser. No. 802,286, Feb. 20, 1997, abandoned, which is a continuation of Ser. No. 523,647, Sep. 5, 1995, abandoned, which is a continuation-in-part of Ser. No. 374,330, Jan. 18, 1995, abandoned. This application Jul. 25, 1997, Ser. No. 900,569
Int. Cl.⁶ A63B 21/16

U.S. Cl. 482—103

16 Claims



1. Exercise apparatus, comprising:
a vertical support frame;
resistance means on said frame for providing resistance to exercises performed on said apparatus;
an elongate lever arm having a rear end pivotally mounted on said frame for rotation about a first, horizontal axis, and a forward end spaced outwardly from said rear end;
releasable locking means for releasably locking said lever arm in a selected orientation about said first axis;
a first pulley attached to said lever arm for rotation about a second axis adjacent said rear end parallel to and spaced forwardly from said first axis and a second pulley attached to said lever arm adjacent the forward end of said lever arm; and
a cable having a first end linked to said resistance means and a second end, the second end of said cable extending first

around at least part of said first pulley and then around at least part of said second pulley for attachment to an exercise device or tie-off.

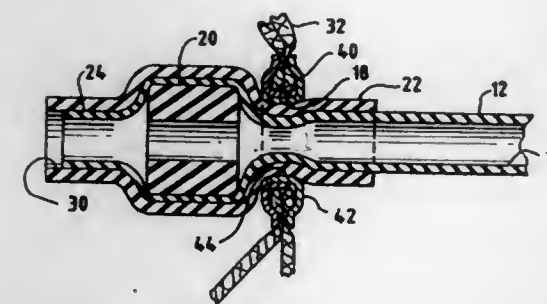
5,800,322

EXERCISE DEVICE AND METHOD FOR FORMING HANDLES OF THE DEVICE

Steve Block, Dearfield, Ill., assignor to Spri Products, Inc., Buffalo Grove, Ill.
Continuation of Ser. No. 723,865, Sep. 30, 1996, abandoned.
This application Apr. 4, 1997, Ser. No. 825,962
Int. Cl.⁶ A63B 21/02

U.S. Cl. 482—126

29 Claims



1. An exercise device comprising:
(a) an elongated flexible tube defining a channel and having at least one end;
(b) a handle defining a hole receiving the elongated tube;
(c) at least one plug received within the channel distal of the hole and expanding a portion of the channel, the plug adapted to prevent the handle from moving distally of the plug; and
(d) a sleeve defining a passageway, the sleeve being disposed about a portion of the elongated tube that surrounds said portion of the channel and extending through the hole to engage the handle.

5,800,323

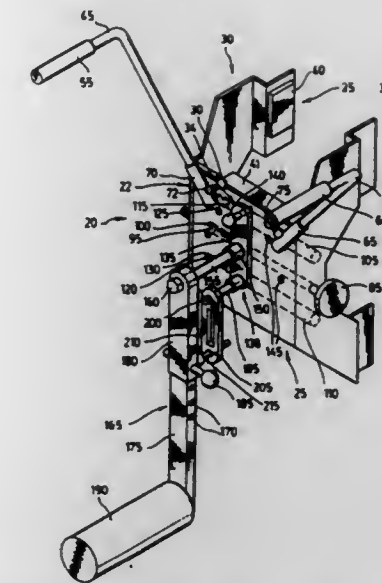
ADJUSTABLE HIP AND THIGH EXERCISER

Cliff Ansel, 252 York Hill Boulevard, Thornhill, Ontario, Canada, L4J 2P6
Filed Jul. 7, 1997, Ser. No. 888,770
Int. Cl.⁶ A63B 21/02

U.S. Cl. 482—129

22 Claims

1. An adjustable hip and thigh exercise apparatus comprising:
a) a frame;
b) a clamp on the frame adapted to releasably attach the apparatus to one end of a wall so as to align the apparatus with the user's hip joint;
c) a lever pivotally attached to the frame and adapted to rotate from a first position to a second position to a second position through an axis of rotation generally parallel to the wall;
d) a means for providing resistance to the rotation of the lever, whereby the apparatus is clamped to the end of a wall and aligned with the user's hip joint and a force is applied by the user's hip and thigh muscles to rotate the lever from the first position to the second position;
e) a rotatable plate on the frame, the rotatable plate having upper and lower ends, the lever is attached between the upper and lower ends of the rotatable plate, whereby the lever rotates from the first position to the second position; and



f) a resistance element having a first end attached to the rotatable plate and a second end attached to the lever, whereby the resistance element provides resistance when the lever rotates from the first position to the second position.

5,800,324

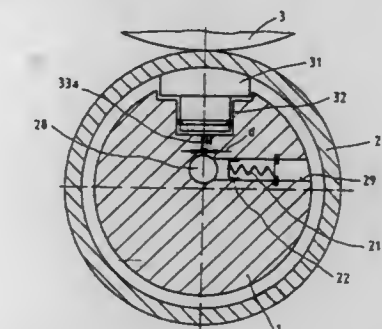
ROLL WITH VIBRATION DAMPER

Christian Schiel, Heidenheim, Germany, assignor to Voith Sulzer Papiermaschinen GmbH, Heidenheim, Germany
Filed Jun. 10, 1996, Ser. No. 661,050
Claims priority, application Germany, Jun. 10, 1995, 295 09 545 U

Int. Cl.⁶ F16C 13/00

U.S. Cl. 492—7

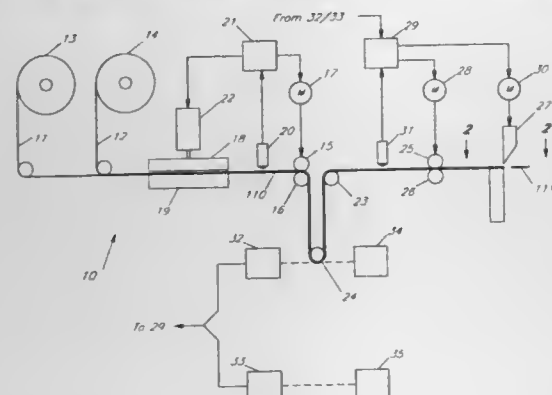
24 Claims



1. A roll with vibration damping for use in manufacturing a fiber web, the roll comprising:
a non-rotating central shaft;
a rotatable, annular roll shell around the shaft and supported for rotation around the central shaft, the roll shell having an interior, the roll shell being capable of vibration with respect to the central shaft;
at least one pressure chamber in the shaft extending radially toward the roll shell and communicating with a source of liquid under pressure;
a support element in the pressure chamber engageable with the interior of the roll shell for supporting the roll shell against pressure applied thereto and being moved by vibration of the roll shell, the pressure chamber being acted upon by a pressure liquid for transmitting a hydraulic supporting force from the source of liquid under pressure via the support element to the roll shell, the support element substantially preventing communication of the liquid under pressure with the interior of the roll shell; and

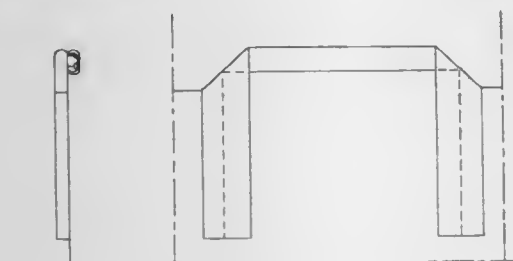
at least one throttle between the source of liquid under pressure and at least one of the pressure chambers.

5,800,325
HIGH SPEED MACHINE AND METHOD FOR FABRICATING POUCHES
Kenneth R. Wilkes, 55 Brookwood Rd., Asheville, N.C. 28804
Filed Mar. 26, 1997, Ser. No. 824,817
Int. Cl.⁶ B31B 1/92
U.S. Cl. 493—22 9 Claims



6. A method of fabricating pouches which comprises the steps of:
providing a web of pouch material comprised of at least two thicknesses of said web material;
creating successive patterns of seams between said thicknesses of pouch material, each of said patterns including seams which define two or more pouches, each of said pouches having a predetermined length, and each of said patterns having a predetermined length;
feeding said web containing said patterns of seams to an accumulator for temporary storage, one pattern length of said web per seaming cycle; and
withdrawing said web from said accumulator and severing said pouches from said web.

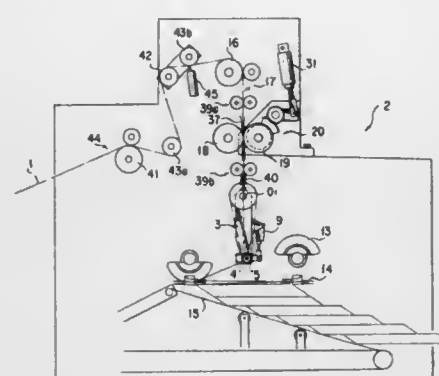
5,800,326
PROCESS FOR MANUFACTURING A HANDLE FOR A BAG MADE OF PAPER OR ANOTHER MATERIAL
Joseph Meynard, 14, rue Octave Mirbeau, 11100 Narbonne, and Antoine Vidal, Rue Paul Brousse, 11100 Narbonne, both of France
PCT No. PCT/FR94/01117, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO95/09776, PCT Pub. Date Apr. 13, 1995
PCT Filed Sep. 26, 1994, Ser. No. 619,694
Claims priority, application France, Oct. 1, 1993, 93/11979
Int. Cl.⁶ B65D 33/10
U.S. Cl. 493—226 10 Claims



1. A method for manufacturing an integrally-formed handle of a bag, comprising the steps of:

- (a) turning an edge of a sheet of bag stock on itself a plurality of times about a longitudinal handle axis to form a multiple-thickness handle on the sheet stock, while leaving an adjacent portion of the sheet stock unfolded;
- (b) folding opposed multiple-thickness side edge portions of the multiple-thickness handle onto and overlying the unfolded portion of the sheet stock so as to define respective folded sides of the handle;
- (c) gluing the folded side edge portions of the handle onto the unfolded portion of the sheet stock; and
- (d) severing the unfolded portion of the sheet stock along a line adjacent the handle to complete formation of the handle.

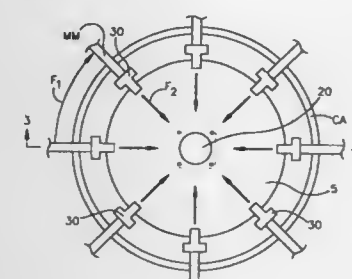
5,800,327
PAPER CUTTING DEVICE IN A PAPER FOLDING APPARATUS FOR A FORM PRINTING MACHINE AND PAPER CUTTING METHOD THEREIN
Toshiaki Kishine, Chiba; Hideo Izawa, Sakura; Noritaka Yamaoka, Chiba-ken, and Toshikazu Yamada, Ichikawa, all of Japan, assignors to Miyakoshi Printing Machinery Co., Ltd., Narashino, Japan
Filed May 30, 1996, Ser. No. 655,703
Claims priority, application Japan, Sep. 13, 1995, 7-235163
Int. Cl.⁶ B65H 45/20; B26D 7/06
U.S. Cl. 493—357 14 Claims



- 1. A paper folding apparatus for a form printing machine, comprising:
a paper traveling path enabling a continuous web of paper to travel at a predetermined speed of travel, said continuous web paper having a plurality of cross perforations formed at pre-selected intervals by a perforating section;
an oscillatory shooter device having at one end thereof a nozzle roller and a counter roller rotating about respective axes, said nozzle roller rotating with a peripheral speed that is faster than the predetermined speed of travel of said continuous web paper, said oscillatory shooter device enabling said continuous web paper to be passed between both of the counter and nozzle rollers, said oscillatory shooter device being oscillatingly swung leftward and rightward so that said continuous web of paper is folded by an oscillatory motion of said oscillatory shooter device along said plurality of cross perforations in a zigzag pattern; and
a paper cutting device comprising:
a cross-line cutting device for forming a cross line of cuts interposed by at least one small uncut portion in said continuous web paper, said cross line cutting device being disposed on an upstream side of said oscillatory shooter device; and
a cutter operatively coupled to and disposed on said cross-line cutting device for cutting said continuous web paper;
wherein said oscillatory shooter device includes:
a support for supporting said nozzle roller such that said nozzle roller axis is displaceable toward and away from said counter roller axis and such that said nozzle roller

axis is movable between a first position at which the nozzle roller is at least lightly pressed against said counter roller so as to enable said continuous web paper to slidably travel between the nozzle and counter rollers and a second position at which said nozzle roller engages against said counter roller such that said continuous web paper does not slide between said counter and nozzle rollers; and
an operating means for moving said nozzle roller axis from said first position to said second position when said cross line of cuts is positioned immediately upstream of said nozzle roller.

5,800,328
METHOD OF AND DEVICE FOR FOLDING A GAS BAG OF A VEHICLE OCCUPANT RESTRAINT SYSTEM
Dietmar Berti, Schechingen, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany
Continuation-in-part of Ser. No. 559,192, Nov. 13, 1995, abandoned. This application Feb. 27, 1997, Ser. No. 805,186
Claims priority, application Germany, Nov. 15, 1994, 44 40 845.5
Int. Cl.⁶ B31B 1/26
U.S. Cl. 493—405 2 Claims



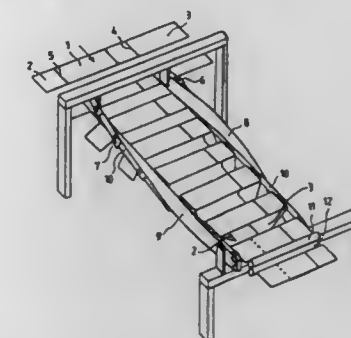
- 1. A device for folding an inflatable gas bag for use in a vehicle occupant restraint system, the gas bag including a front wall section and a rear wall section lying opposite the front wall section, the gas bag having an inflated state in which the gas bag has a three dimensional shape and a deflated state in which the gas bag has a flattened shape and lies substantially in a single plane, said device comprising:

holding means for holding stationary only a central wall zone of the rear wall section of the gas bag in the deflated state while the front wall section remains free to move, the central wall zone surrounding an inflation opening defined in the rear wall section of the gas bag;

clamping means for clamping a junction section of the gas bag where peripheral zones of the front and rear wall sections of the gas bag are interconnected, said clamping means clamping the junction section of the gas bag at a plurality of circumferentially spaced locations; and

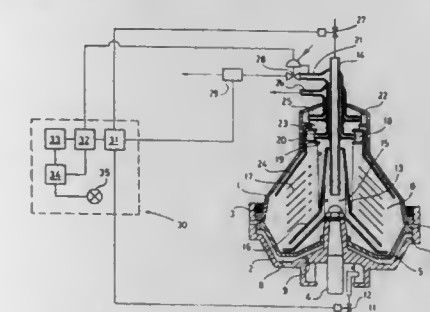
means for rotating said clamping means relative to said holding means for causing an overlying portion of the front wall section of the gas bag overlying the central wall zone of the rear wall section of the gas bag to be rotated relative to the central wall zone wherein the gas bag is folded along a spiral path about an axis substantially normal to said plane.

5,800,329
APPARATUS FOR FOLDING SHEET BLANKS BY ENDLESS CONVEYOR BELTS
Lars Fager, Halmstad, and Bengt Åsberg, Örebro, both of Sweden, assignors to Embla Machinery AB, Örebro, Sweden
PCT No. PCT/SE95/00107, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/21055, PCT Pub. Date Aug. 10, 1995
PCT Filed Feb. 3, 1995, Ser. No. 700,501
Claims priority, application Sweden, Feb. 4, 1994, 9400379
Int. Cl.⁶ B31B 5/58
U.S. Cl. 493—417 8 Claims



- 1. Apparatus for folding sheet blanks (1), including at least one conveyor (10) provided with press means (6, 7) for coaction with selected parts (2, 3) of the blanks for folding said parts inwards into engagement with inwardly situated portions of the blanks during the passage thereof through the apparatus, said passage taking place at the speed at which said conveyor is driven, wherein the conveyor is continuously guided along a helical path by an elongate, rigid structure (8, 9) forming continuous support for the conveyor, and a central axis of the helical path substantially coincides with a crease axis about which folding takes place, so that each of the press means attached to the conveyor presses against a same, fixed point on a part of the blank it coacts with during an entire folding operation to attendantly eliminate any relative movement and resulting friction between a press means and a part of the blank engaged thereby.

5,800,330
METHOD AND EQUIPMENT FOR MONITORING A CENTRIFUGAL SEPARATOR
Bo Modéer, Tumba, Sweden, assignor to Alfa Laval AB, Lund, Sweden
PCT No. PCT/SE95/00877, § 371 Date Apr. 18, 1997, § 102(e) Date Apr. 18, 1997, PCT Pub. No. WO96/03214, PCT Pub. Date Feb. 8, 1996
PCT Filed Jul. 20, 1995, Ser. No. 776,200
Claims priority, application Sweden, Jul. 22, 1994, 9402563
Int. Cl.⁶ B04B 1/14; 11/04
U.S. Cl. 494—2 10 Claims



- 1. A method for monitoring a centrifugal separator for separating a supplied mixture of liquid components, which has a rotor, which forms

an inlet chamber (15), a separation chamber (6) connected to the inlet chamber (15), a radially inner outlet (18, 19, 20), which is connected to said separation chamber (6) at a certain radial level and to an outlet conduit (21), said radially inner outlet being so arranged that a first component separated during operation is discharged out of the separation chamber (6) with a flow through said outlet (18, 19, 20) and further out of the rotor through the outlet conduit (21) when the separation chamber (6) is filled up radially inwardly to a radial level located radially inside said inner outlet (18, 19, 20) and liquid is being supplied, a flow sensor (28) being arranged in the outlet conduit (21) to indicate said flow,

an intermittently openable radially outer outlet (7), which is connected to the separation chamber (6) radially outside the radially inner outlet (18, 19, 20) at a radially outer portion of the separation chamber (6), in which during operation at least one separated component, which is specifically heavier than the first separated component, is accumulated, this second radially outer outlet (7) being arranged to intermittently discharge during operation a predetermined volume of component out of the separation chamber (6) in such a way that the radial level, up to which the separation chamber (6) is filled is displaced radially outwardly and the flow of the first separated component in the outlet conduit (21) ceases temporarily until the separation chamber (6) has been refilled

wherein a mixture of liquid components is supplied to the separation chamber (6),

a first time is measured from a chosen reference point of time, related to the point of time at which the separation chamber (6) begins refilling, to a point of time next thereafter when the flow is indicated in the outlet conduit (21),

a time (T_0 , T_S) for refilling the separation chamber (6) following a correctly performed discharge of the predetermined volume is stored in a memory (33),

a shortest allowable time ($T_S - \Delta T_{MAX}$) for refilling the separation chamber (6) is stored,

the measured first time (T_M) is compared with the stored shortest allowable time ($T_S - \Delta T_{MAX}$) for refilling the separation chamber (6), and

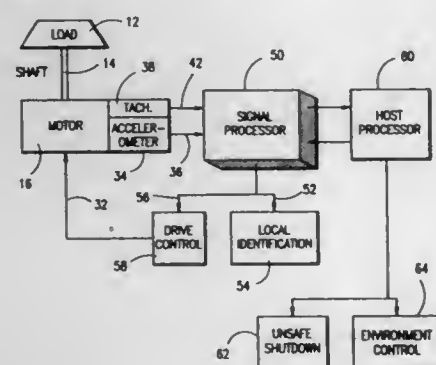
a signal is given if the first measured time (T_M) is shorter than the shortest allowable time ($T_S - \Delta T_{MAX}$) stored in the memory (33).

5,800,331 IMBALANCE DETECTION AND ROTOR IDENTIFICATION SYSTEM

Jin Y. Song, 12790 Idlewood La., Saratoga, Calif. 95070
Filed Oct. 1, 1997, Ser. No. 941,696
Int. Cl.⁶ B04B 13/00; G01M 1/22

U.S. Cl. 494—7

9 Claims



1. An identification system, comprising:

- a rotary drive system including a rotor and a drive motor operatively connected to rotatably drive said rotor;
- a vibration sensor located to detect vibration in said drive system during operation of said motor to accelerate said rotor

from a rest condition to a selected final speed of rotation and to produce a corresponding drive system vibration data signal;

- a speed sensor for producing a speed data signal corresponding to the rate of rotation of said rotor;
- a processor responsive to said vibration data signal to produce a corresponding power spectrum density signal;
- means for deriving from said power spectrum density signal the frequency spectrum of said drive system data signal; and
- a comparator for comparing said derived frequency spectrum with the frequency spectra of known drive systems to identify said first-named drive system.

5,800,332

DECANTING CENTRIFUGE EMPLOYING ELEMENTS WITH DIFFERING RATES OF ROTATION

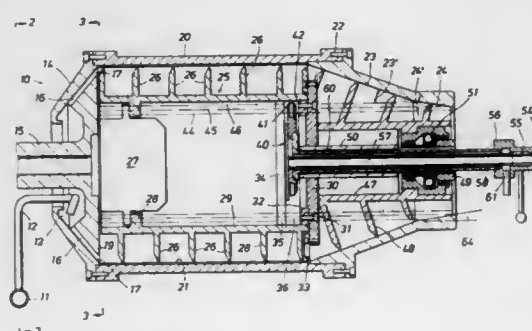
Gary L. Hensley, 5219 Wildblackberry Dr., Kingwood, Tex. 77345

Filed Jul. 3, 1996, Ser. No. 675,449

Int. Cl.⁶ B04B 1/20; 9/00; 11/08

U.S. Cl. 494—53

6 Claims



1. A decanter for separating solids from a liquid comprising:
(a) an elongate bowl for enclosing a slurry therein for separation;

(b) an elongate screw conveyor within said bowl mounted therein to rotate on the interior of said bowl and having flutes therein providing differential movement with respect to said bowl so that solids in said bowl are moved along said bowl;

(c) a solid particle outlet from said bowl for solids scrolled along said bowl by said screw conveyor; and

(d) a liquid outlet for liquid separated from solids in said bowl, wherein

said bowl incorporates an end located hub and said hub supports a circular trough therein, and slurry introduced into said bowl is placed in said trough, and

said trough in said hub connects with a plurality of radially directed passages extending through said hub toward a common slot in said hub so that input slurry is delivered through said passages to said common slot and then to an interior bowl wall of said bowl, and

said hub extends radially outwardly to connect with said bowl wall, said bowl wall comprising an elongate right cylinder construction, and said plurality of passages extending radially outwardly to deliver slurry against said bowl wall at one end thereof, and

said bowl incorporates a deflector ring which is affixed to said hub at said common slot thereby defining an inner edge of said slot and directing said slurry against said bowl wall.

5,800,333

AFTERLOADER PROVIDED WITH REMOTE CONTROL UNIT

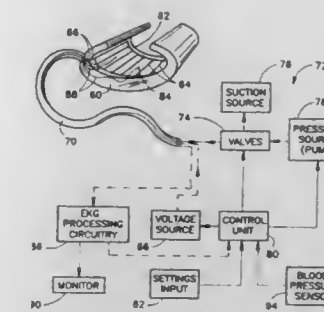
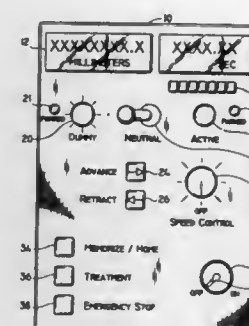
Samuel F. Liprie, Lake Charles, La., assignor to United States Surgical Corporation, Norwalk, Conn.

Filed Feb. 20, 1996, Ser. No. 603,272

Int. Cl.⁶ A61N 5/00

U.S. Cl. 600—3

54 Claims



feeding a lubricant to the intrapericardial space after insertion of said balloon into said space.

5,800,335

INCUBATOR FOR TOMOGRAPHIC EXAMINATIONS

Jochim Koch, Ratzeburg, and Wolfgang Franz, Lübeck, both of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany

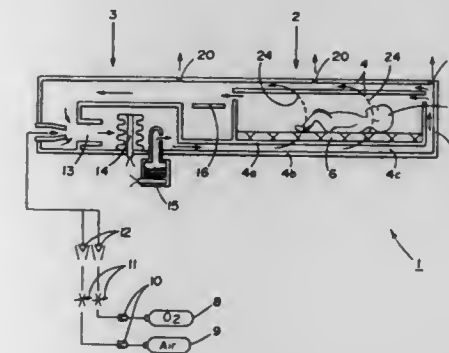
Filed Apr. 30, 1997, Ser. No. 841,382

Claims priority, application Germany, May 3, 1996, 196 17 739.1

Int. Cl.⁶ A61G 11/00

U.S. Cl. 600—22

11 Claims



1. An incubator comprising:

- a first section for accommodating a patient therein; said first section being defined by a double-wall structure enclosing a space for the patient and being made of transparent plastic to facilitate observation of the patient;
- means for supplying an air/oxygen mixture for the patient;
- a second section connected to said first section; apparatus mounted in said second section and said apparatus including a venturi nozzle for passing said air/oxygen mixture into said second section and to establish a difference pressure within said first and second sections to cause said air/oxygen mixture to circulate as a gas flow between said sections;
- said apparatus further including a heater unit downstream of said venturi nozzle for heating the gas flow passing on to said first section; and,
- said double-wall structure defining first opening means for conducting a first portion of said gas flow into and from said space for the patient whereat gas such as carbon dioxide enters the gas flow and second opening means for conducting a second portion of the gas flow to the ambient.

5,800,334

INTRAPERICARDIAL ASSIST DEVICE AND ASSOCIATED METHOD

Peter J. Wilk, 185 W. End Ave., New York, N.Y. 10023

Continuation-in-part of Ser. No. 286,817, Aug. 5, 1994, Pat. No. 5,533,958, which is a continuation-in-part of Ser. No. 78,567, Jun. 17, 1993, Pat. No. 5,385,528. This application Jul. 9, 1996, Ser. No. 678,479

Int. Cl.⁶ A61B 17/12

U.S. Cl. 600—18

20 Claims

1. A surgical method for aiding a malfunctioning heart, comprising:

- providing an inflatable balloon in a collapsed configuration; inserting said balloon into an intrapericardial space about a heart disposed in said space;
- inflating said balloon in said intrapericardial space to place a compressive pressure on the heart sufficient to force blood from the heart; and

5,800,336

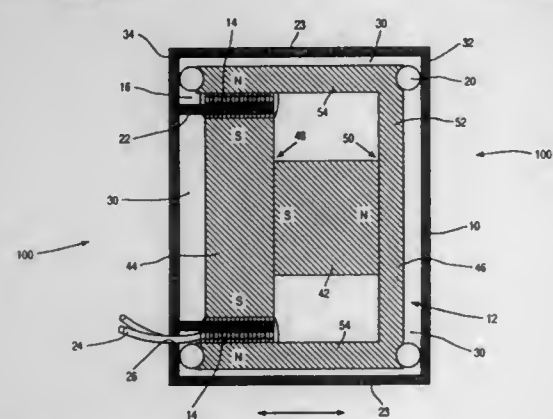
ADVANCED DESIGNS OF FLOATING MASS
TRANSDUCERS

Geoffrey R. Ball, Sunnyvale; Craig Mar, Fremont; Tim Dietz, Castro Valley; Bob H. Katz, Los Gatos, and Dan Wallace, Palo Alto, all of Calif., assignors to Symphonix Devices, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 568,006, Dec. 6, 1995, which is a continuation-in-part of Ser. No. 368,219, Jan. 3, 1995, Pat. No. 5,624,376, which is a continuation-in-part of Ser. No. 225,153, Apr. 8, 1994, Pat. No. 5,554,096, which is a continuation-in-part of Ser. No. 87,618, Jul. 1, 1993, Pat. No. 5,456,654. This application Jan. 3, 1996, Ser. No. 582,301 Int. Cl.⁶ H04R 25/00

U.S. Cl. 600—25

15 Claims



1. An apparatus for improving hearing, comprising:
a housing;
at least one coil coupled to the housing; and
a magnet within the housing, the magnet vibrating in direct response to an externally generated electrical signal through the at least one coil;
whereby vibration of the magnet causes inertial vibration of the housing in order to improve hearing.

5,800,337

SYSTEMS AND METHODS FOR MODIFICATION OF
BIORHYTHMIC ACTIVITY

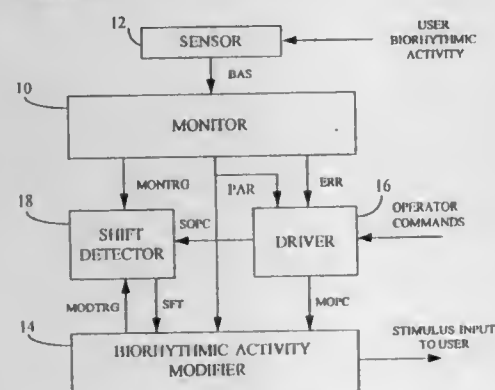
Benjamin Gavish, 65 Yasmin Street, P.O. Box 1141, Mevasseret Zion 90805, Israel

Filed Jan. 22, 1996, Ser. No. 588,049

Int. Cl.⁶ A61M 21/00

U.S. Cl. 600—27

37 Claims



1. A system for modifying naturally occurring biorhythmic activity comprising:
a monitor for analyzing biorhythmic activity of a user;
a biorhythmic activity modifier for providing to the user a stimulus input which is operative to change at least one aspect of the biorhythmic activity of the user;

a driver operative to control the operation of the biorhythmic activity modifier, so as to change at least one non-frequency characteristic of the input to the user, in response to changes in said at least one characteristic of said biorhythmic activity of the user analyzed by said monitor during operation of the modifier.

5,800,338

TAMPON OR CLOSURE DEVICE FOR BODY
PASSAGEWAYS OF ANIMAL OR HUMAN BEINGS

Ib Kollerup, Esbjerg, and Erik Ethelfeld, Copenhagen, both of Denmark, assignors to Coloplast A/S, Esbjerg, Denmark

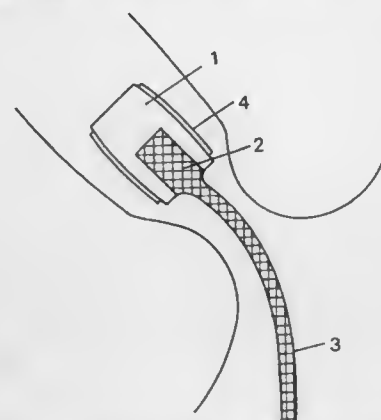
PCT No. PCT/DK95/00155, § 371 Date Oct. 17, 1996, § 102(e) Date Oct. 17, 1996, PCT Pub. No. WO95/28138, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 12, 1995, Ser. No. 727,405

Claims priority, application Denmark, Apr. 18, 1994, 0445/94 Int. Cl.⁶ A61F 2/00

U.S. Cl. 600—29

8 Claims



1. A tampon or closure device for insertion into an external opening of an artificial or natural body canal of an animal or human being, comprising a resilient compressed plug-like body of a moulded material, said body having a longitudinal direction and being expandable to a cross-sectional dimension ensuring closure of said body canal when inserted in said opening with said longitudinal direction extending longitudinally in said canal, said body being provided with a withdrawal handle means protruding from the body and connected with an anchor part encapsulated in the body and having a relatively large bearing face against the surrounding moulded material of the body, said handle means and anchor part being made from a material with a knitted structure, to provide a three-dimensional bond to the moulded material of said body, the anchor part being designed as a soft flexible element oriented in said longitudinal direction.

5,800,339

URINARY CONTROL VALVE

Fouad A. Salama, West Des Moines, Iowa, assignor to Opticon Medical Inc., West Des Moines, Iowa

Continuation-in-part of Ser. No. 725,030, Oct. 2, 1996, Pat. No. 5,693,001, which is a division of Ser. No. 233,308, Apr. 26, 1994, Pat. No. 5,634,877, which is a division of Ser. No. 61,770, May 14, 1993, Pat. No. 5,306,226, which is a division of Ser. No. 600,629, Oct. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 307,992, Feb. 9, 1989, Pat. No. 4,968,294. This application May 2, 1997, Ser. No. 850,203 Int. Cl.⁶ A61F 2/02

U.S. Cl. 600—29

21 Claims

1. A urinary control valve comprising:
a flexible valve body having inlet and outlet openings at opposite ends of a chamber,

5,800,341

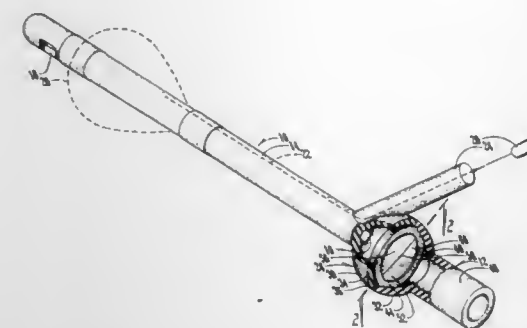
ELECTRONICALLY STEERABLE ENDOSCOPE

Michael A. McKenna, Cambridge, Mass.; Joseph M. Rosen, Hanover, N.H.; David T. Chen, Somerville, Mass.; Steven D. Pieper, Thetford Center, and Peter J. Robble, Norwich, both of Vt., assignors to Medical Media Systems, West Lebanon, N.H.

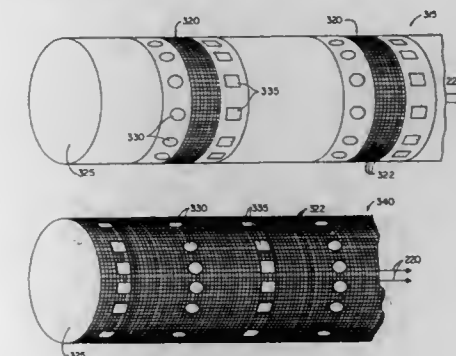
Division of Ser. No. 220,367, Mar. 30, 1994, Pat. No. 5,547,455. This application Jun. 5, 1995, Ser. No. 464,380 Int. Cl.⁶ A61B 1/05

U.S. Cl. 600—109

5 Claims



a valve means extending laterally across said chamber between said inlet and outlet openings and having an axial center, said valve means having an outer peripheral edge and including a plurality of flexible leaf sections in a common plane and having contiguous inner edges defining a slit, said contiguous inner edges sealingly engaging each other when said valve means is in a closed position and spaced apart when in an open position, said leaf sections increase in thickness uniformly from the entire outer peripheral edge toward said axial center and said valve means adapted to move to said open position in response to pressure on opposite sides of said valve body and return to said closed position in response to memory of said flexible leaf sections.



1. An endoscope comprising:
an elongated shaft, said elongated shaft having a distal end terminating in a distal end surface, a proximal end, an outer side wall extending from said distal end to said proximal end, and at least one internal passageway extending from said distal end to said proximal end;
image capturing means associated with said distal end of said shaft so as to face outwardly therefrom, said image capturing means defining a field of view associated therewith, and said image capturing means being adapted to capture an image of any objects located within its said field of view and to convert that image into corresponding signals, wherein said image capturing means comprises a CCD element forming a circumferential band about said distal portion of said shaft, said CCD element comprising a plurality of CCD cells, and further wherein said corresponding signals are made up of the output from each one of said CCD cells; and
processing means associated with said proximal end of said shaft and connected to said CCD cells, said processing means being adapted to (i) use the outputs from all of said CCD cells so as to generate a display of the image captured by said image capturing means, and (ii) use the outputs from only selected ones of said CCD cells so as to generate a display of a selected portion of the image captured by said image capturing means.

5,800,340

EXTERNAL PENILE SUPPORT DEVICE

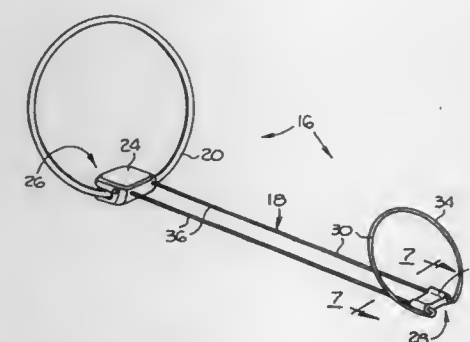
Vladimir Gekhter, 5105 Mulford Ave., and Gregory Goldman, 4912 Jarvis, both of Skokie, Ill. 60077

Filed Aug. 30, 1996, Ser. No. 706,193

Int. Cl.⁶ A61F 5/00

U.S. Cl. 600—39

12 Claims



1. An external penile support device, comprising,
a frame having an inner end and an outer end and including a pair of support rods, a support loop at its outer end and a support ring at its inner end, the frame adapted to be fitted to the penis with the support bars lying under and engaging the penis and the support loop and the support ring receiving and substantially encircling the penis,
the device including a joint connecting the support ring and the support rods, and a retainer controlling the spacing between the support rods,
the device, except for said joint and said retainer, essentially consisting only of filament elements without any additional elements or protuberances thereon,
the support loop and the support ring constituting the sole means for retaining the frame on the penis.

5,800,342

METHOD OF ENDOTRACHEAL INTUBATION

Jai S. Lee, 1205 Clearfield Cir., Lutherville, Md. 21093, and InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131

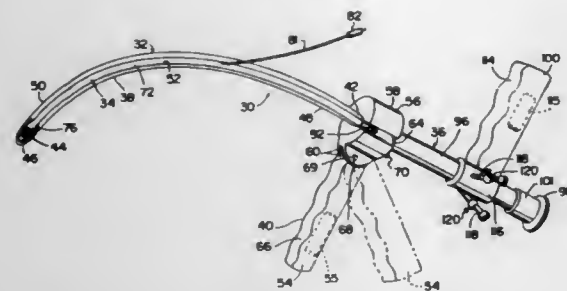
Division of Ser. No. 214,527, Mar. 18, 1994, Pat. No. 5,645,519. This application Dec. 17, 1996, Ser. No. 768,223

Int. Cl.⁶ A61B 1/04

U.S. Cl. 600—114

34 Claims

1. A method of endotracheal intubation utilizing an instrument for introducing an endotracheal tube in the trachea of a patient comprising the steps of
inserting a blade of a blade assembly of the instrument in the oropharyngeal passage;
positioning a distal end of the blade at the base of the tongue;
applying pressure with the distal end of the blade to the tongue to expose the glottis;
moving a distal end of an endotracheal tube of the instrument and a distal end of a remote viewing device of the instrument distally relative to and along the blade and through the glottis into the trachea; and



visualizing the trachea with the remote viewing device, from external of the patient's body, to confirm introduction of the endotracheal tube in the trachea.

5,800,343

ENDOSCOPE LIGHT GUIDE CONNECTOR ALLOWING ADJUSTMENT OF THE ANGLE OF INCIDENT LIGHT RAYS

Shinji Takeuchi, and Haruo Akiba, both of Omiya, Japan, assignors to Fuji Photo Optical Co., Ltd., Omiya, Japan
Continuation of Ser. No. 515,005, Aug. 14, 1995, abandoned.

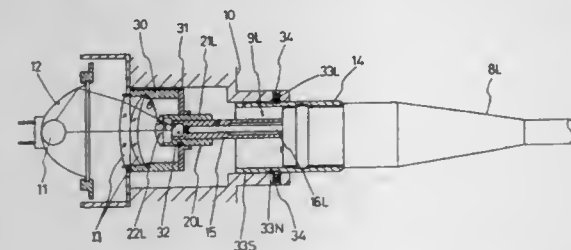
This application Feb. 3, 1997, Ser. No. 792,388

Claims priority, application Japan, Aug. 18, 1994, 6-215247

Int. Cl.⁶ A61B 1/07

U.S. Cl. 600—132

5 Claims



1. A connector device for an endoscopic light guide to be disconnectively connected to a connector socket of an illumination light source having a light condensing lens at a predetermined distance from a source lamp, said connector device comprising:

a light guide rod;
a light guide fitted in said light guide rod and having an input end at a fore end thereof for receiving incident light rays converged to a predetermined light condensing angle through said condensing lens of said light source;

an adaptor pipe fitted on a fore end portion of said light guide rod and connectible to said connector socket of said light source in alignment with optical axis of said light condensing lens;

a light source connector housing;

an adjuster unit movably connected to said light source connector housing and receiving said light guide rod for adjusting a distance between said input end of said light guide and said light condensing lens

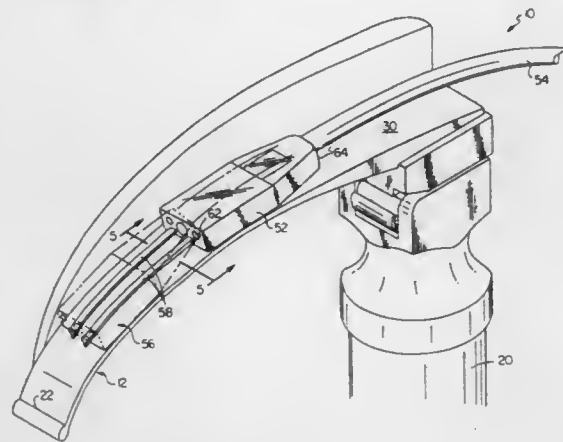
a corrective lens element arranged in said adaptor pipe for varying angles of converged input light rays coming from said light condensing lens of said light source; and

said corrective lens element, in collaboration with said adjuster unit, adjusting an angle of incidence of said input light rays on said input end of said light guide so as to match with a numerical aperture of said light guide.

5,800,344
VIDEO LARYNGOSCOPE
Robert J. Wood, Sr., Syracuse; Connie R. Walts, Auburn, and Michael Lynch, Skaneateles, all of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed Oct. 23, 1996, Ser. No. 736,031
Int. Cl.⁶ A61B 1/26

U.S. Cl. 600—188

9 Claims



1. A laryngoscope adapted for use in opening an airway passage, said laryngoscope comprising:
an elongated body having a distal end and a convex surface;
a tip formed at said distal end adapted for contacting tissue of said airway passage;

a track formed lengthwise on said convex surface; and
an image sensor assembly including an image sensor mounted on said track so that sliding of said image sensor assembly on said track adjusts a distance of said image sensor assembly to a target, and adjusts a viewing direction of said image sensor assembly, said track having a length greater than a length of said image sensor assembly so that said track allows positional adjustment of said imaging assembly on said track.

5,800,345

Patent Not Issued For This Number

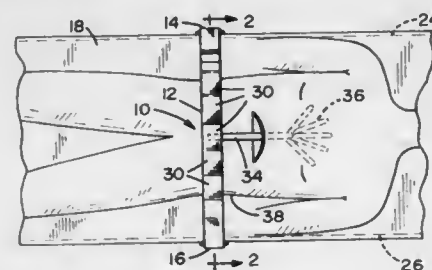
5,800,346
SURGICAL RETRACTOR HOLDER
Carlton Z. Adams, 1712 Woodacre Ct., Carmichael, Calif. 95608

Filed Sep. 30, 1997, Ser. No. 942,699

Int. Cl.⁶ A61B 17/00

U.S. Cl. 600—227

7 Claims

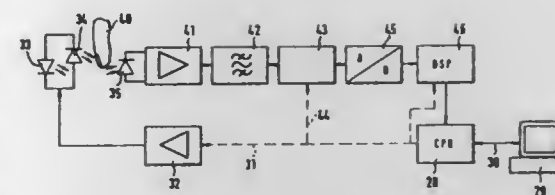


1. A surgical retractor holder comprising:
a length of pliable material having opposed first and second fastening end areas located along the material length;

a surgical table engaging element disposed at each of said fastening end areas;

at least one retractor handle receiving pocket connected to said material and located along the material length, said at least one pocket opening in a direction transverse to the material length;

said material length and at least one of said engaging elements being adjustably connected together so that the effective distance between the fastening end areas of the material can be varied.



5,800,347

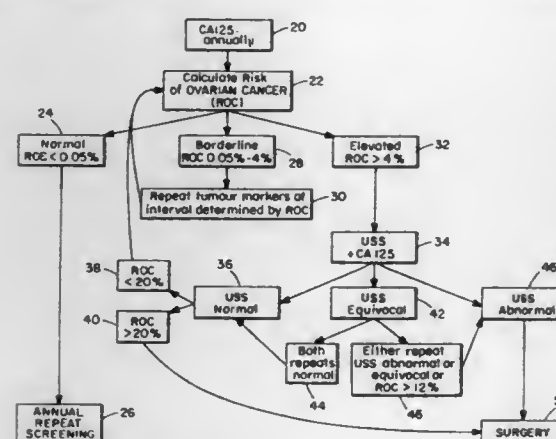
ROC METHOD FOR EARLY DETECTION OF DISEASE
Steven J. Skates, Cambridge, Mass.; Ian Jacobs, Bromley, England, and Robert Knapp, Chestnut Hill, Mass., assignors to The General Hospital Corporation, Boston, Mass.

Filed Nov. 3, 1995, Ser. No. 552,823

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—300

31 Claims



1. A method of assessing the risk of an individual for a disease, comprising:

- testing the individual to detect a level of a marker for the disease;
- computing risk of disease from a detected level of the marker; and
- comparing the computed risk to thresholds to triage the individual into one of normal, borderline and elevated risk groups,

wherein if the individual is triaged to a borderline risk group, the step of testing the individual to detect the level of the marker is repeated at a retest interval substantially less than a routine screening interval.

5,800,348

APPARATUS AND METHOD FOR MEDICAL MONITORING, IN PARTICULAR PULSE OXIMETER
Siegfried Kaestle, Nufringen, Germany, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 565,879, Dec. 1, 1995, abandoned. This application Sep. 23, 1996, Ser. No. 710,794

Claims priority, application European Pat. Off., Aug. 31, 1995, 95113654; Aug. 6, 1996, 96112658

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—322

77 Claims

39. Apparatus for measuring medical parameters of a patient by irradiation of electromagnetic waves into a sample and for measurement and subsequent analysis of the electromagnetic waves which have passed through said sample, said apparatus comprising:

means for generating first and second modulation signals having equal frequencies and having a first phase difference of substantially 90°;

means for irradiating a first electromagnetic wave of a first wavelength into said sample under control of said first modulation signal;

means for irradiating a second electromagnetic wave of a second wavelength different from the first one into said sample under control of said second modulation signal;

means for receiving electromagnetic waves of both wavelengths which have passed through said sample;

means for demodulating signals representative of the received electromagnetic waves by multiplying the same with a first sinusoidal demodulation signal and with a second sinusoidal demodulation signal having the first phase difference with respect to said first sinusoidal signal, said first and second sinusoidal demodulation signals having the same frequency as said first and second modulation signals, such as to generate a first and a second demodulated signal;

wherein the first and the second sinusoidal demodulation signals have a phase difference relative to the first and second modulation signals corresponding to a system phase shift; and

means for analyzing said demodulated signals.

5,800,349

OFFSET PULSE OXIMETER SENSOR
Philip O. Isaacson, Chanhassen, and David W. Gadtke, Plymouth, both of Minn., assignors to Nonin Medical, Inc., Plymouth, Minn.

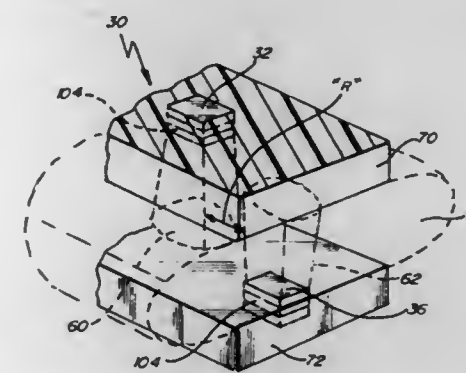
Continuation of Ser. No. 730,444, Oct. 15, 1996, abandoned.

This application Nov. 14, 1997, Ser. No. 970,232

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—323

19 Claims



1. An offset transmittance pulse oximeter sensor for measuring the oxygenation level of blood by passing light of at least two wavelengths through tissue containing blood and measuring the absorption of the light by blood constituents in the blood at the at least two wavelengths, comprising:

(a) a housing having an emitter engagement portion and a detector engagement portion;

(b) an emitter engaged to said emitter engagement portion, said emitter for introducing light of at least two wavelengths into a first tissue surface, said light of at least two wavelengths adapted to traverse said first tissue surface along a substantially identical path;

- (c) a detector engaged to said detector engagement portion, said detector for measuring the light emanating from a second tissue surface, said detector being positioned with respect to said emitter so as to be offset along the second tissue surface with respect to the position of said emitter along said first tissue surface during use such that said light from the emitter traverses a substantially non-perpendicular path through the tissue to the detector; and
- (d) a means for measuring the amount of light absorbed by blood constituents in blood within the tissue along the substantially identical path for the at least two wavelengths between the detector and emitter.

5,800,350

APPARATUS FOR TISSUE TYPE RECOGNITION

John Victor Malcom Coppleston, Potts Point; Bevan Leslie Reid, Weral, and Victor Nickalovich Skladnev, Bondi Junction, all of Australia, assignors to Polartech, Limited, Sydney, Australia

Continuation of Ser. No. 332,830, Oct. 31, 1994, abandoned.

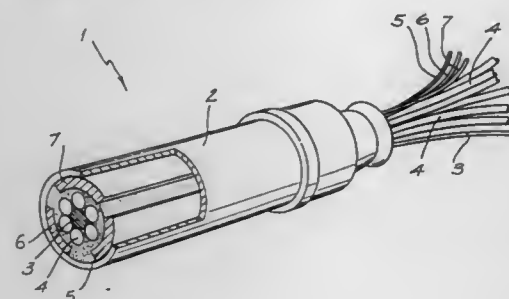
This application Feb. 14, 1997, Ser. No. 799,970

Claims priority, application Australia, Nov. 1, 1993, PM12137

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—372

39 Claims

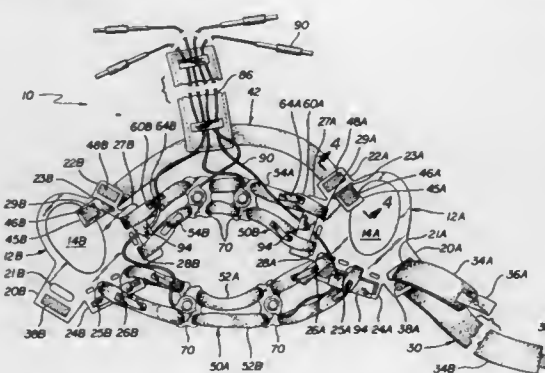


1. An apparatus for categorization of a tissue type, comprising
- (1) a probe comprising a probe tip, said probe tip configured to contact a tissue surface area selected by contacting said area with said probe tip, said probe tip comprising
- a source of electrical current,
- a source of electromagnetic radiation,
- a sensor sensing from a tissue volume proximate said tissue surface a response to an electrical current from said current source, and
- a sensor sensing from said tissue volume proximate said tissue surface a response to electromagnetic radiation from said source of electromagnetic radiation,
- both of said sensors sensing responses from the same tissue volume before the probe is moved to contact another surface area,
- (2) a controller coupled to each of said sensors to receive each corresponding tissue response, said controller including a memory storing a known catalogue of expected tissue types and associated paired electrical current/electromagnetic radiation responses, and
- (3) a processor for processing paired responses from said tissue selected by contact with said probe tip and for analyzing said processed paired tissue responses, said processor processing the responses of said selected tissue to both of said sources to provide a categorization of the tissue type in accordance with a comparison of the tissue responses with said known catalogue of expected tissue types and associated paired responses.

5,800,351
ELECTRODE SUPPORTING HEAD SET
Christopher Allen Mann, Granada Hills, Calif., assignor to Rest Technologies, Inc., Northridge, Calif.
Filed Oct. 4, 1996, Ser. No. 725,768
Int. Cl.⁶ A61B 5/0408

U.S. Cl. 600—383

22 Claims



1. A headset for supporting electrodes used for electrical measurements of the brain of a person comprising:
- first and second mounting fittings for attachment about the head of the person;
- first and second flexible straps having first and second ends connected to said first and second mounting fittings, respectively, said first and second straps adapted to fit about the forehead and rear of the head of the person;
- a plurality of flexible guide members, said guide members having first and second ends connected to said first and second mounting fittings, respectively; and
- a plurality of electrode mounts movably mounted to said guide members.

5,800,352
REGISTRATION SYSTEM FOR USE WITH POSITION TRACKING AND IMAGING SYSTEM FOR USE IN MEDICAL APPLICATIONS

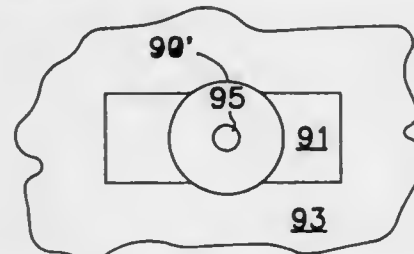
Maurice R. Ferre, North Andover; Peter D. Jakab, Canton, and James S. Tieman, Watertown, all of Mass., assignors to Visualization Technology, Inc., Woburn, Mass.

Division of Ser. No. 527,517, Sep. 13, 1995, which is a continuation-in-part of Ser. No. 306,818, Sep. 15, 1994. This application Apr. 24, 1996, Ser. No. 637,131

Int. Cl.⁶ A61B 5/05

U.S. Cl. 600—407

3 Claims



1. A method of identifying a location of radiopaque elements on computerized tomography medical images of a surgical patient and of locating a position of said radiopaque elements on said surgical patient, said method comprising the steps of:
- placing locating strips on the skin of said patient, said locating strips each including a small generally centrally positioned mark thereon, and including fiducial markers each including a radiopaque element, wherein said markers are positioned on said strips such that said radiopaque elements cover said centrally positioned mark on said locating strips;

removing said fiducial markers after said computerized tomography images are recorded; and

identifying the position of said radiopaque elements on said patient by locating the position of said marks on said strips.

5,800,353

AUTOMATIC IMAGE REGISTRATION OF MAGNETIC RESONANCE IMAGING SCANS FOR LOCALIZATION, 3-DIMENSIONAL TREATMENT PLANNING, AND RADIATION TREATMENT OF ABNORMAL LESIONS

Robert L. McLaurin, Jr., 1528 Iredell Dr., Raleigh, N.C. 27608

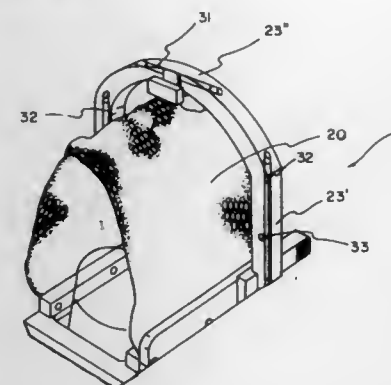
Continuation of Ser. No. 599,850, Feb. 12, 1996, abandoned.

This application Jun. 10, 1997, Ser. No. 872,103

Int. Cl.⁶ A61B 5/055

U.S. Cl. 600—407

7 Claims



1. A method of automatic image registration of standard axial, coronal, and sagittal magnetic resonance images obtained by a Magnetic Resonance Imaging scanner capable of generating a magnetic field, said magnetic field having a center point defining a magnetic center which functions as the origin of a three dimensional coordinate system for locating anatomical targets in a patient for radiation treatment, said method comprising the steps of:

positioning said patient within said scanner such that an anatomical target to be visualized is located as close as possible to said magnet center;

obtaining a series of standard axial, coronal, and sagittal magnetic resonance images of said target, each of said images within said series representing a parallel image slice through said target at a predetermined interval from said magnet center, each of said image slices having a perpendicular axis extending through said magnet center; and

entering digital data corresponding to said images into a computerized Treatment Planning System in a specific format including the number of image slices in each of said series, the position of a first image slice in each of said series relative to said magnet center, the thickness of each of said image slices, and the exact position of said axes extending through said magnet center such that each of said series of axial, coronal and sagittal images are aligned with respect to said magnet center and to each other enabling said series of images to be automatically registered within said three dimensional coordinate system for subsequent treatment planning and radiation therapy.

5,800,354
METHOD OF AND DEVICE FOR MAGNETIC RESONANCE IMAGING

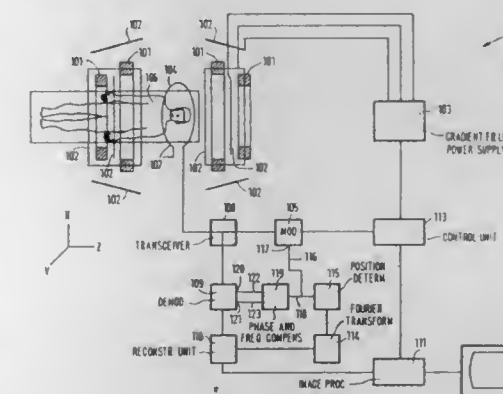
Lennart Hoffand, Eindhoven, Netherlands; Bernard J. Savord, Andover, and Steven A. Scampini, Bedford, both of Mass., assignors to U.S. Phillips Corporation, New York, N.Y., and Hewlett-Packard, Palo Alto, Calif.

Filed Nov. 23, 1994, Ser. No. 345,026

Int. Cl.⁶ A61B 5/055

U.S. Cl. 600—410

18 Claims



1. A method of forming magnetic resonance images of a moving part of a body, which part is arranged in a substantially uniform, steady magnetic field, said method comprising generating MR signals in the body by application of pulse sequences including RF pulses and temporary magnetic gradient fields, and subsequently reconstructing an image from position-dependent information in said MR signals, which method also comprises the following steps:
- 1) determining a position of the moving part,
- 2) adjusting a position of an image slice to be excited in the body within the uniform magnetic field in conformity with the position determined for the moving part,
- 3) exciting the image slice at the adjusted position to generate MR signals,
- 4) receiving and demodulating the MR signals generated in said image slice, and
- 5) processing the received and demodulated MR signals so as to form an image,
- wherein in order to determine the position of the moving part the following sub-steps are executed:
- a) separately exciting a part of the body indicative of a movement of the moving part to generate a navigator signal,
- b) receiving the navigator signal, and
- c) determining the position of the moving part from the received navigator signal.

5,800,355
IMAGE PROCESSING APPARATUS AND METHOD FOR QUANTITATIVELY DETECTING AND CORRECTING THE TWIST BETWEEN IMAGES

Hyoji Hasegawa, Tochigi-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 25, 1996, Ser. No. 719,548

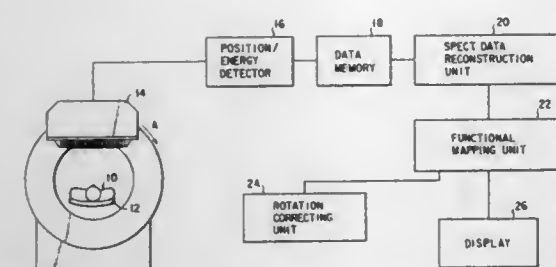
Claims priority, application Japan, Sep. 27, 1995, 7-248204

Int. Cl.⁶ A61B 6/00

U.S. Cl. 600—436

18 Claims

1. An image processing apparatus comprising:
- reconstruction means for detecting radiation rays emitted from an object in synchronization with an electrocardiogram of the object so as to reconstruct a first image of a myocardium at an end of diastole and a second image of the myocardium at an end of systole, the first and second images having first and second tomographic images of plural slices;
- means for developing the first and second tomographic images on a polar coordinate system;



means for detecting an amount of shift in a rotational direction between the first and second tomograph images of each slice; and

twist correction means for rotating at least either of the first and second tomographic images of each slice in accordance with the detected amount of the shift.

5,800,356

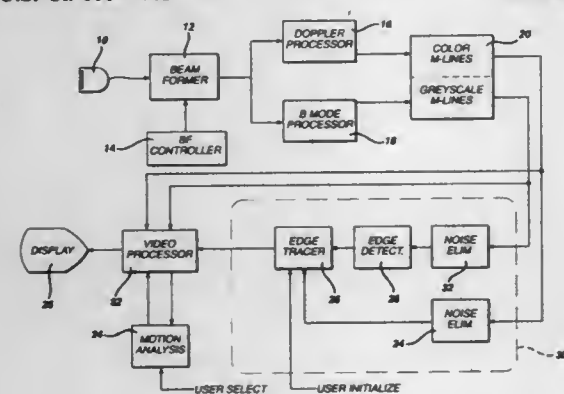
ULTRASONIC DIAGNOSTIC IMAGING SYSTEM WITH DOPPLER ASSISTED TRACKING OF TISSUE MOTION
Aline Laure Criton, and Thanasis Loupas, both of Seattle, Wash., assignors to Advanced Technology Laboratories, Inc., Bothell, Wash.

Filed May 29, 1997, Ser. No. 865,340

Int. Cl.⁶ A61B 8/12

U.S. Cl. 600—441

41 Claims



1. In an ultrasonic diagnostic imaging system, a method for tracking a characteristic of moving tissue in time sequential ultrasonic image lines comprising the steps of:

identifying said characteristic in one of said ultrasonic image lines;

determining the velocity of said characteristic in said one of said ultrasonic image lines; and

using said velocity to identify said characteristic in another of said ultrasonic image lines.

5,800,357

ULTRASOUND DOPPLER POWER IMAGING SYSTEM FOR DISTINGUISHING TISSUE BLOOD FLOW FROM CHAMBER BLOOD FLOW

Jerome F. Witt, Andover, and Patrick G. Rafter, Woburn, both of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 24, 1996, Ser. No. 773,676

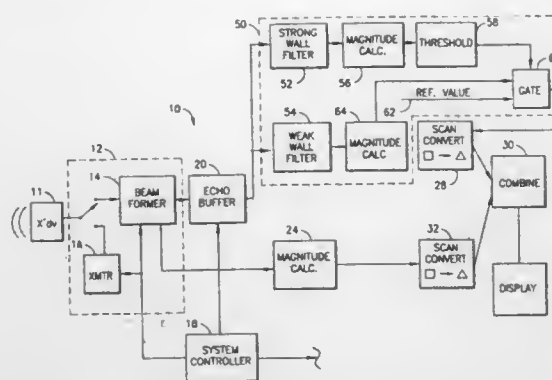
Int. Cl.⁶ A61B 8/06

U.S. Cl. 600—455

10 Claims

1. An ultrasound imaging system for enabling discrimination between heart chamber blood flow and blood flow in a heart wall, said system comprising:

transducer means for transmitting ultrasound pulses into a patient and for receiving ultrasound echoes of said pulses from blood flow targets within said patient;



beam means for converting received ultrasound echoes into echo data patterns from which a relative velocity of a blood flow target within said patient is determinable;

strong filter means coupled to said beam means for preferentially enabling passage of echo data pattern signals which represent a velocity that is higher than a velocity of echo pattern data signals from cardiac wall blood flow targets in said patient, said velocity being a blood flow velocity which is experienced in said heart chamber;

weak filter means coupled to said beam means for partially inhibiting echo signals from low velocity tissue targets; and selection means responsive to outputs from said weak filter means and further responsive to control signals derived from said strong filter means that indicate echo pattern data signals that exceed a threshold set to discriminate signals corresponding to said velocity which is experienced in said heart chamber, to convert to a reference value, echo signals from said weak filter means which positionally correspond to targets which produce said echo data pattern signals that are discriminated by said threshold.

5,800,358

UNDERSAMPLED OMNIDIRECTIONAL ULTRASONIC FLOW DETECTOR

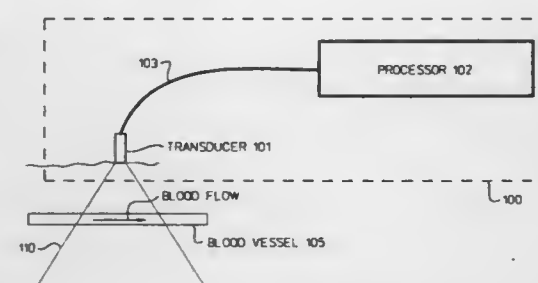
Peter G. Webb, Menlo Park, and Hewlett E. Melton, Jr., Sunnyvale, both of Calif., assignors to Hewlett Packard Company, Palo Alto, Calif.

Filed Mar. 31, 1997, Ser. No. 828,853

Int. Cl.⁶ A61B 8/00

U.S. Cl. 600—454

20 Claims



1. A motion detection method, comprising the steps of:

(A) sending a sequence of pulsed ultrasonic signals from an ultrasonic transducer to a particular range cell (x,y) to generate a sequence of backscattered signals from that range cell, wherein time interval between any successive pulsed ultrasonic signals is not constrained by maximum Doppler shift;

(B) determining temporal variation (v) between envelopes of the backscattered signals to detect motion at the range cell regardless of velocity and direction of the motion relative to the pulsed ultrasonic signals.

5,800,359

NIBP PLAYBACK SYSTEM

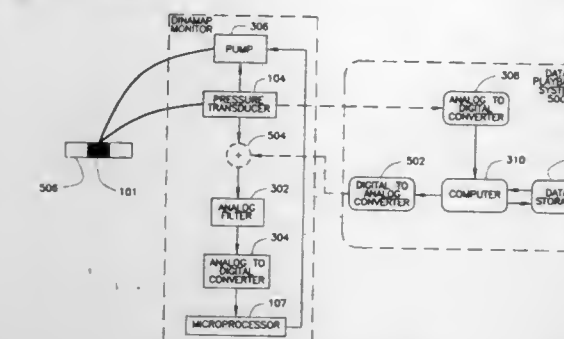
Richard Medero, and John W. Booth, both of Tampa, Fla., assignors to Johnson & Johnson Medical, Inc., New Brunswick, N.J.

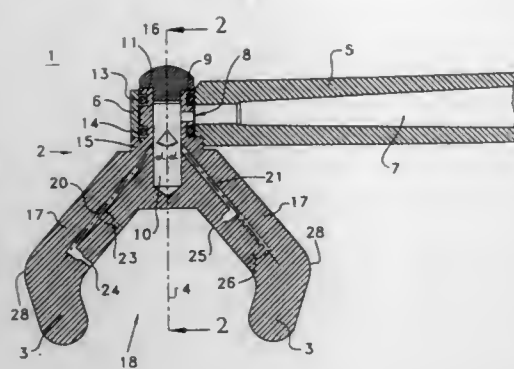
Filed May 19, 1995, Ser. No. 445,273

Int. Cl.⁶ A61B 5/02

U.S. Cl. 600—454

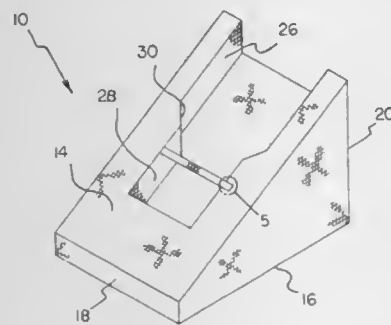
33 Claims





holder is no greater than about 15 mm, said irrigator providing a small volume of cleaning fluid which does not require expectoration to be effective.

5,800,368
SLEEPING DEVICE FOR INFANTS HAVING TRACHEA MALACIA AND/OR GASTRO-INTESTINAL REFLUX
Michael E. Klingemann, and Alisa A. Klingemann, both of 11711 Barrington Way, Austin, Tex. 78759
Filed Mar. 10, 1997, Ser. No. 813,413
Int. Cl.⁶ A61F 5/00; A47C 70/02
U.S. Cl. 602—1 1 Claim

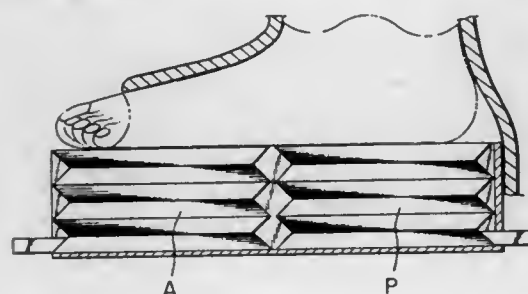


1. A sleeping device for infants having trachea malacia and/or gastro-intestinal reflux for allowing an infant to sleep on their side to control trachea malacia, reflux and apnea problems comprising, in combination:

- a foam wedge comprising an upper wall, a lower wall, a front wall, a back wall, and opposed side walls, the foam wedge being about 20 inches wide, 28 inches long, and between 3 and 20 inches tall, the upper wall being angled upwardly from the front wall to the back wall at an angle of about forty-five degrees, the upper wall having a cutout formed therein, the cutout extending from a position integral with the back wall to a position inward the front wall, the cutout having an upper portion, a lower portion and an inwardly angled intermediate portion therebetween, the upper portion having a width about 1.5 times greater than a width of the lower portion, the upper portion having a length greater than a length of the lower portion;
- a plastic casing dimensioned for securement over the foam wedge for preventing the foam wedge from being saturated by the infant wetting;
- a fabric cover dimensioned for removable coupling over the plastic casing and the foam wedge, the fabric cover including a zippered opening extending along a back and a bottom thereof to facilitate removal from the foam wedge;
- a quilted pad positioned within the cut out of the foam wedge; and
- a strap having a width of one inch secured to the fabric cover at a position adjacent to where the fabric cover resides on the

upper wall and is over the lower portion of the cutout of the foam wedge, a free end of the strap having a hook and loop portion thereon, the hook and loop portion coupling with a patch of hook and loop material secured on an opposing side of where the fabric cover resides on the upper wall and is over the cutout of the foam wedge.

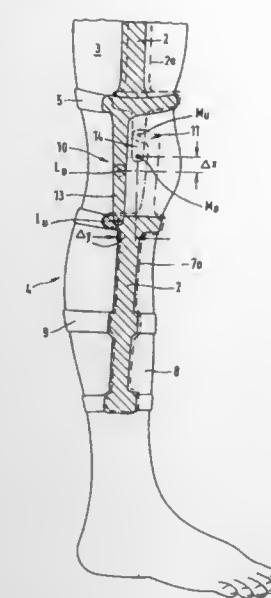
5,800,369
LOAD REMOVING AND WALKING CAST FOR LOWER LEG
Takeshi Goto, Kurume, Japan, assignor to Castec Corporation, Kurume, Japan
Filed Mar. 25, 1997, Ser. No. 823,550
Int. Cl.⁶ A61F 5/00
U.S. Cl. 602—6 7 Claims



1. A load removing and walking cast for surrounding the lower leg and foot of a patient and supporting a load comprising, a leg surrounding plaster cast portion for surrounding the lower leg and foot of a patient and supporting a load and a plaster cast bottom portion including an interior bottom base portion, and load removing means for reducing the loading forces upon a patient's lower leg and foot during the imposition of reactive loading forces upon the cast, said load removing means disposed within a space between the interior base portion and the sole of a patient's foot and including an elastic member comprising a bellows bag formed of soft resin lying upon said interior base portion and extending within the space between the interior base portion and the sole of a patient's foot said bellows bag being divided into at least upper and lower independent superimposed spaces separated by a partition, each of said superimposed spaces provided with an air stopper at an air hole.

5,800,370
EXOPROSTHESIS FOR THE HUMAN KNEE JOINT
Dietmar Kubein-Meesenburg, Kreiensen, and Hans Nagerl, Kleln-Lengden, both of Germany, assignors to Joachim Theusner, Munich, Germany
PCT No. PCT/EP94/00433, § 371 Date Dec. 22, 1995, § 102(e) Date Dec. 22, 1995, PCT Pub. No. WO94/21200, PCT Pub. Date Sep. 29, 1994
PCT Filed Feb. 16, 1994, Ser. No. 525,718
Claims priority, application Germany, Mar. 24, 1993, 43 09 577.1
Int. Cl.⁶ A61F 5/00; 2/64
U.S. Cl. 602—26 4 Claims

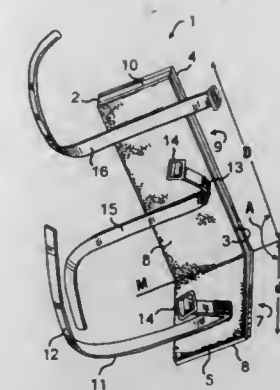
1. An exoprosthesis for the human knee joint comprising: a thigh part (1) and a lower leg part (6); the lower leg part (6) and the thigh part (1) being mutually interconnected by a four-joint arrangement including a medial joint (11) and a lateral joint (10); the medial joint and the lateral joint respectively having a joint geometry of a joint chain with coupling elements (13, 14) and two joint axes (M_u , M_o ; L_u , L_o), wherein the joint geometry of the medial joint (11) forms a folded dimeric chain and the joint geometry of the lateral joint (10) forms an extended dimeric joint chain, where the joint axes (L_u , L_o) of the lateral



joint (10) are coupled in an articulated fashion by the coupling element (13) and the joint axes (M_u , M_o) of the medial joint are coupled in an articulated fashion by the coupling element (14); the joint axle (M_u) between the lower part (6) and the coupling element (14) of the medial joint (11) being offset relative to the joint axle (M_o), between the coupling element (14) and the thigh part (1), in a direction toward the thigh part (1) in an extended position of the knee joint; the joint axle (L_u) between the lower leg part (6) and the coupling element (13) of the lateral joint (10) being connected in an articulated fashion to the thigh part (1) at the joint axle (L_o) and being offset, relative to the joint axle (L_o), in a direction toward the lower leg part (6); whereby in the extended position of the knee joint, the coupling elements (13, 14) extend parallel in two parallel planes that respectively intersect with the joint axes of the lateral joint (L_u , L_o) and the medial joint (M_u , M_o); the lateral joint (10) is offset relative to the medial joint (11) in the posterior direction by a distance (Δy) that corresponds to the distance between the two parallel planes; and the joint axes (M_u , M_o) of the medial joint (11) are offset relative to the lateral joint (10) in the direction toward the thigh (3) by a distance (Δx) that corresponds to the distance between the joint axes (L_u , M_o).

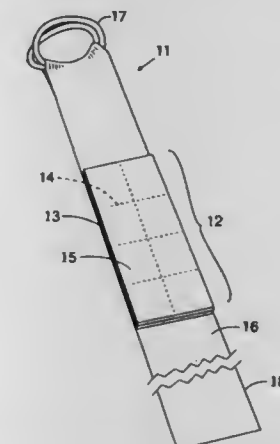
5,800,371
SPORTSMAN'S KNEE BRACE
Michael R. Winn, San Diego, Calif., assignor to Kevin Robbins, San Diego, Calif., a part interest
Filed Jun. 6, 1997, Ser. No. 870,565
Int. Cl.⁶ A61F 5/00
U.S. Cl. 602—26 14 Claims

1. A knee brace for inducing a player's proper swinging posture in the practice of sports, said brace comprising: a rigid, oblong plate bent outwardly to an appropriate angle about a near-medial transversal line, said plate having an inner contact face and an outer face having a first fastener surface; a plurality of straps shaped and dimensioned to wrap around the leg of the player, each of said straps having a second fastener surface along a portion of its length; and



each of said second fastener surface of said straps being transversally adjustably securable to said first fastener surface of said outer face at a plurality of locations along a portion of the length of said plate.

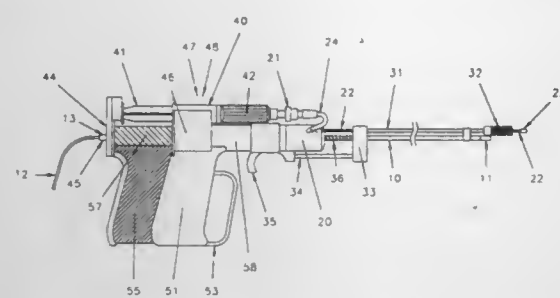
5,800,372
FIELD DRESSING FOR CONTROL OF EXSANGUINATION
Eugene Bell, 305 Commonwealth Ave., Boston, Mass. 02115; Aslam A. Malik, Cameron Park, Calif.; Boris Nahlovsky, Cameron Park, Calif., and Marvin F. Young, El Dorado Hills, Calif., assignors to Aerojet-General Corporation, Rancho Cordova, Calif., and Eugene Bell, Boston, Mass.
Filed Jan. 9, 1996, Ser. No. 584,041
Int. Cl.⁶ A61F 13/00
U.S. Cl. 602—48 24 Claims



1. A dressing for an open wound, comprising a mixture of microfibrillar collagen and superabsorbent polymer, contained in an enclosure of flexible and blood-permeable material.

5,800,373
INITIATOR PRIMING FOR IMPROVED ADHERENCE OF GELS TO SUBSTRATES
David A. Melanson, Hudson, N.H.; Amarpreet S. Sawhney, Lexington, Mass.; Marc Alan Levine, Sharon, Mass.; John C. Spiridigliozzi, Dedham, Mass., and Thomas S. Bromander, Andover, Mass., assignors to Focal, Inc., Lexington, Mass.
Filed Mar. 23, 1995, Ser. No. 410,037
Int. Cl.⁶ A61F 13/00
U.S. Cl. 602—52 12 Claims

1. A process for reducing leakage of bodily fluids, including air, the process comprising:



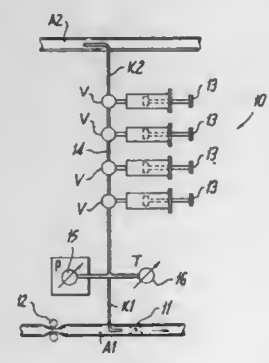
priming an area of a tissue surface by applying a polymerization initiator to the area, and applying to the area a solution containing a biodegradable, biocompatible, polymerizable monomer in combination with an initiator; and polymerizing the monomer to seal the area and to reduce leakage of the bodily fluids through the area, whereby the polymerization occurs in both an interfacial and bulk manner.

5,800,374 REPERFUSION DEVICE

Friedhelm Beyersdorf, Am Schlupfloch 35, D-6200 Wiesbaden, Germany

Filed Aug. 4, 1992, Ser. No. 197,082
Claims priority, application Germany, Feb. 6, 1990, 40 03 425.9

Int. Cl.⁶ A61M 37/00; 29/00; 31/00
U.S. Cl. 604—4 11 Claims



1. A reperfusion device for the reperfusion of a blood vessel of a patient, comprising:
a first reperfusion catheter adapted to be introduced into the blood vessel to be reperfused;
blood-taking means for drawing oxygenated, arterial blood from the patient, including a second catheter for withdrawing oxygenated, arterial blood from a different blood vessel than that being reperfused;
a source of reperfusion solution;
a mixing element in fluid communication with said blood-taking means and said source of reperfusion solution, said mixing element forming a blood-solution mixture of the oxygenated, arterial blood drawn from the patient and the reperfusion solution;
means for measuring and controlling temperature coupled to said mixing element; and
a delivery device in fluid communication with said first reperfusion catheter and said mixing element, said delivery device driving the blood-solution mixture from said mixing element through said first reperfusion catheter; wherein:
said first reperfusion catheter further includes:
an extracorporeal part leading from said mixing element to the patient, said extracorporeal part being thermally insulated;
a pressure measurement lumen, said pressure measurement lumen emerging within the blood vessel to be reperfused

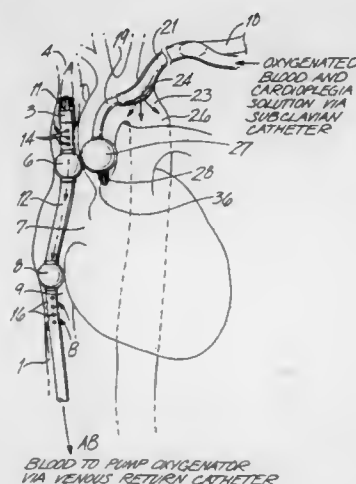
so that said pressure measurement lumen measures the pressure within the blood vessel being treated;
a liquid lumen, the blood-solution mixture being delivered through said liquid lumen to the blood vessel being treated while pressure within the blood vessel being treated is measured with said pressure measurement lumen;
a dilation balloon and an occlusion balloon disposed at a distance from one another; and
between the balloons, an outlet in fluid communication with said liquid lumen and through which the blood-solution mixture flows into the blood vessel being treated; and
said delivery device is a pumping device and delivers blood-solution mixture as a function of pressure within the blood vessel being treated, as measured by said pressure measurement lumen within the blood vessel being treated, said pumping device further being responsive to the pressure within the blood vessel being treated as measured by said pressure measurement lumen within the blood vessel being treated.

5,800,375 CATHETER SYSTEM AND METHOD FOR PROVIDING CARDIOPULMONARY BYPASS PUMP SUPPORT DURING HEART SURGERY

William Penn Sweezer, Lafayette; James Jimison, Palo Alto, and Ronald L. Coleman, Sunnyvale, all of Calif., assignors to Heartport, Inc., Redwood City, Calif.

Continuation of Ser. No. 250,721, May 27, 1994, Pat. No. 5,478,309. This application Dec. 20, 1995, Ser. No. 580,076
Int. Cl.⁶ A61M 29/00 7 Claims

U.S. Cl. 604—4



1. A method of delivering cardioplegic fluid to a patient's coronary arteries and returning oxygenated blood to the patient comprising the steps of:
providing an aortic occlusion catheter and an arterial return catheter, the aortic occlusion catheter having a shaft, a lumen, a distal end, and an occluding member, the occluding member being movable between a collapsed condition and an expanded condition, the lumen having an outlet, the arterial return catheter having a catheter outlet port, a blood flow lumen and a blood flow outlet fluidly coupled to the blood flow lumen;
inserting the arterial return catheter into an aortic arch of the patient;
passing at least a portion of the shaft of the aortic catheter through the catheter outlet port so that the occluding member is positioned in the ascending aorta;
coupling the blood flow lumen to a source of oxygenated blood;

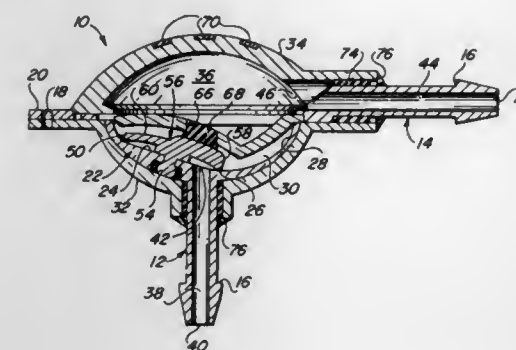
delivering oxygenated blood into the patient through the blood flow lumen and the blood flow outlet;
infusing a cardioplegic fluid through the lumen of the aortic occlusion catheter and into the patient's coronary arteries to arrest the patient's heart; and
moving the occluding member to the expanded condition to occlude the patient's ascending aorta.

5,800,376 BURR-HOLE FLOW CONTROL DEVICE

David A. Watson, Goleta, and Paul S. Vaskelis, Santa Barbara, both of Calif., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation of Ser. No. 536,651, Sep. 29, 1995. This application Apr. 7, 1997, Ser. No. 826,782
Int. Cl.⁶ A61F 5/00 23 Claims

U.S. Cl. 604—9



1. A surgically implantable flow control device for controlling the flow of fluid from one portion of a body to another, the device comprising:

- a base including an inlet port and a valve seat surrounding the inlet port; and
- a flow control member secured to the base and including an asymmetric membrane resiliently biased to contact the valve seat in a manner forming a releasable seal therebetween to provide controlled resistance to proximal-to-distal fluid flow through the device, the membrane including a thickened septum portion overlying the inlet port and a relatively thin portion responsive to fluid pressure differentials on inlet and outlet sides thereof.

5,800,377 TAMPON APPLICATOR

Terese A. Campion, Enfield, Conn.; Mark D. Albright, W. Brookfield, and Betsy A. Davison, Wilbraham, both of Mass., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 292,509, Aug. 18, 1994, Pat. No. 5,558,631, which is a continuation of Ser. No. 171,853, Dec. 22, 1993, Pat. No. 5,346,468, which is a continuation of Ser. No. 819,753, Jan. 13, 1992, abandoned. This application Sep. 20, 1996, Ser. No. 717,320
Int. Cl.⁶ A61F 15/00 11 Claims

U.S. Cl. 604—13

1. A tampon applicator for inserting a tampon into the vagina, comprising:
an elongate, tubular holder shaped for insertion into the vagina, adapted to hold the tampon to be inserted, and having an expulsion end portion and a gripping end portion distal the expulsion end portion, and at least one deformation at the gripping end portion to form a finger grip for said holder, said deformation being unitary with said holder; and



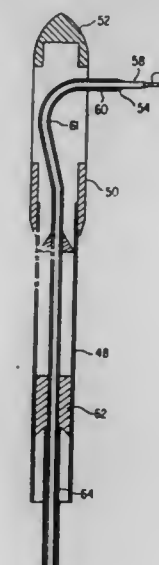
a plunger, telescopically and slidably mounted in said holder at said gripping end and adapted to expel said tampon from said holder when pushed manually into said holder;
wherein said holder comprises a laminate of an outer polymer film attached to the outer surface of an underlying paper layer with an adhesive.

5,800,378 MEDICAL PROBE DEVICE AND METHOD

Stuart D. Edwards, Los Altos; Ronald G. Lax, Grass Valley; Ingemar H. Lundquist, Pebble Beach, and Hugh R. Sharkey, Redwood City, all of Calif., assignors to Vidamed, Inc., Fremont, Calif.

Continuation of Ser. No. 313,715, Sep. 27, 1994, Pat. No. 5,531,676, which is a continuation of Ser. No. 12,370, Feb. 2, 1993, Pat. No. 5,370,675, which is a continuation-in-part of Ser. No. 929,638, Aug. 12, 1992, abandoned. This application Mar. 20, 1996, Ser. No. 618,583
Int. Cl.⁶ A61B 17/20 26 Claims

U.S. Cl. 604—22



1. A medical probe device for treating by radio frequency ablation a target volume in tissue of a prostate of a body of a human male having a bladder with a base with a urethra formed by a urethral wall extending into the base of the bladder with the tissue of the prostate surrounding the urethra near the base of the bladder comprising an elongate probe member having proximal and distal extremities and having a passageway extending from the proximal extremity to the distal extremity along a longitudinal axis, the elongate probe member having a length so that when the distal extremity is disposed in the urethra in the vicinity of the prostate the proximal extremity is outside of the urethra, handle means coupled to the proximal extremity of the elongate probe member for introducing the distal extremity of the elongate probe member into the urethra, a stylet slidably mounted in the passageway

way in the elongate probe member and having a distal extremity, the distal extremity of the stylet being movable between a retracted position in which the distal extremity of the stylet is disposed within the passageway and an extended position disposed outwardly from the distal extremity of the elongate probe member, the stylet having a length so that the distal extremity of the stylet extends through the urethral wall into the tissue of the prostate when in the extended position, means including a radio frequency generator coupled to the stylet for supplying radio frequency energy to the stylet and a grounding plate in contact with the body and electrically coupled to the radio frequency generator, the stylet including a conductive radio frequency electrode and a layer of insulating material coaxially disposed on the conductive electrode so that a distal portion of the conductive electrode is free of insulation and exposed in the tissue of the prostate for causing ablation of tissue in the target volume of the prostate when radio frequency energy is supplied to the conductive electrode while the layer of insulating material extends through the urethral wall and protects the urethral wall from radio frequency energy supplied to the conductive electrode.

5,800,379

METHOD FOR ABLATING INTERIOR SECTIONS OF THE TONGUE

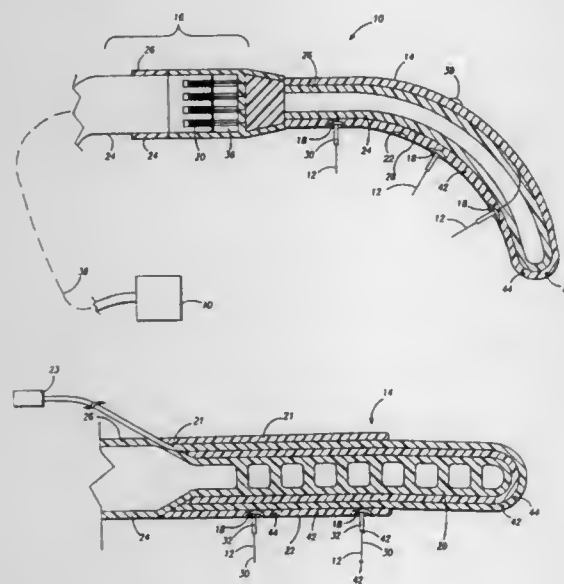
Stuart D. Edwards, Portola Valley, Calif., assignor to Sommus Medical Technologies, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 651,800, May 22, 1996, which is a continuation-in-part of Ser. No. 642,053, May 3, 1996, which is a continuation-in-part of Ser. No. 606,195, Feb. 23, 1996, Pat. No. 5,707,349. This application Aug. 12, 1996, Ser. No. 695,796

Int. Cl.⁶ A61B 17/20

U.S. Cl. 604—22

20 Claims



1. A method for reducing a volume of a tongue, comprising: providing an ablation apparatus including a source of ablation energy and an ablation energy delivery device; advancing at least a portion of the ablation energy delivery device into an interior of the tongue; delivering a sufficient amount of energy from the energy delivery device into the interior of the tongue to debulk a section of the tongue without permanently damaging a main branch of a hypoglossal nerve; and retracting the ablation energy delivery device from the interior of the tongue.

5,800,380

Patent Not Issued For This Number

5,800,381

MEDICAL GAS INSUFFLATOR WITH AUTOMATIC GAS FLOW CONTROL

Jean-François Ognier, Aulhac, 15240, Saignes, France

PCT No. PCT/FR95/00218, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO95/23006, PCT Pub. Date Aug. 31, 1995

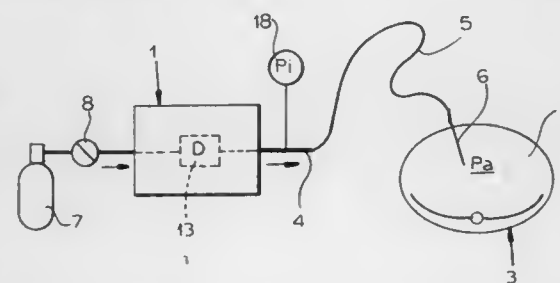
PCT Filed Feb. 23, 1993, Ser. No. 537,892

Claims priority, application France, Feb. 25, 1994, 94 02483

Int. Cl.⁶ A61M 37/00

U.S. Cl. 604—26

8 Claims



1. A method of operating a medical insufflator comprising: a flexible tube having a downstream end provided with a needle and an upstream end, the tube and needle forming an insufflation flow path for a neutral gas into a surgical cavity into which the needle is inserted, a supply of the neutral gas under pressure connected to the upstream end, and a flow-control valve along the flow path at the upstream end, the method comprising the steps of: measuring an insufflation pressure at the upstream end of the insufflation path, continuously calculating intracavity pressure from the insufflation pressure by evaluating loss of pressure of the flow path, comparing the calculated intracavity pressure and a preset value of this intracavity pressure, controlling the flow-control valve as a function of the result of the comparison with the above-mentioned preset value in order to continuously supply a flow the neutral gas that is minimally sufficient to compensate for leakage of gas from the surgical cavity and to maintain the intracavity pressure generally equal to the preset value; and compensating for leaks from surgical cavity by evaluating the derivative with respect to time of the offset between the preset pressure value and the intracavity pressure.

5,800,382

Patent Not Issued For This Number

5,800,383

FLUID MANAGEMENT SYSTEM FOR ARTHROSCOPIC SURGERY

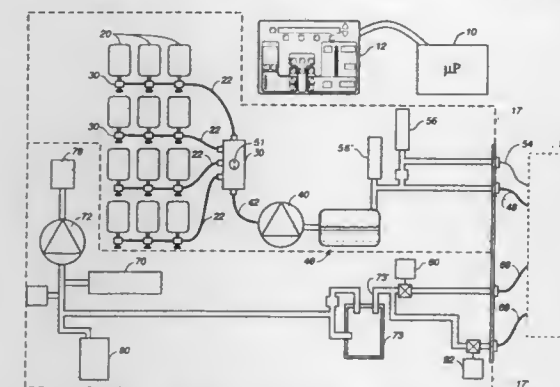
W. Jeffrey Chandler, Phoenix; John Kane, Scottsdale, both of Ariz.; Michael J. Egan, Los Altos, Calif.; Howard S. Phillips, Haverhill, Mass.; James S. Roundy, Gilbert; William Cassaday, Show Low, both of Ariz., and Roger Etherington, Newport Beach, Calif., assignors to Aquarius Medical Corporation, Scottsdale, Ariz.

Filed Jul. 17, 1996, Ser. No. 683,745

Int. Cl.⁶ A61M 1/00

U.S. Cl. 604—35

49 Claims



1. An improved fluid management system for irrigation of a body cavity comprising: means for supplying an uninterrupted supply of irrigation fluid; means for pumping said irrigation fluid from said irrigation fluid supply to a body cavity to create pressure inside said body cavity; a supply conduit connecting said supply of irrigation fluid to said body cavity; a fluid discharge conduit leading from said body cavity to withdraw fluid from said body cavity; means for creating a vacuum in said fluid discharge conduit to create suction inside said body cavity; pressure sensing means for sensing pressure inside said body cavity; and means for controlling said suction and pressure inside said body cavity wherein said pumping means is a peristaltic pump, and said means for controlling said suction and pressure comprise a processor controlling the pump speed of said peristaltic pump and the rate of fluid flowing through said supply conduit to said body cavity; a pressure transducer for sensing the pressure inside the body cavity, said processor communicating with said pressure transducer; and at least one valve for controlling the rate of fluid flow from said body cavity, said processor controlling said valve; wherein said processor communicates with a display console and a hand held remote control having a plurality of control buttons for an operator to manually input functions to control said peristaltic pump speed, said pressure inside the body cavity and for the control by said processor of said pump and said valves.

5,800,384

MULTI-LUMEN PERCUTANEOUS INTRODUCER

Michael A. Russell, Woburn, and Arthur S. Lynch, Westwood, both of Mass., assignors to Medical Parameters, Inc., Woburn, Mass.

Continuation of Ser. No. 134,189, Oct. 8, 1993, abandoned.

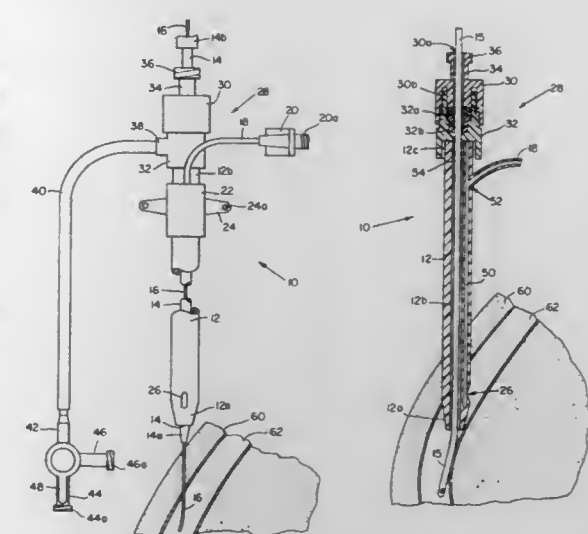
This application Apr. 3, 1997, Ser. No. 828,231

Int. Cl.⁶ A61M 3/00

U.S. Cl. 604—43

11 Claims

1. A method for introducing a catheter and a large volume of fluids into a body lumen with a multi-lumen percutaneous introducer comprising the steps of:



passing a catheter through an introducer sheath, the introducer sheath having a first lumen, the first lumen having a proximal opening a distal opening through which the catheter is passed and an inner diameter of about 8.5 French; delivering fluids into the body lumen with a second introducer sheath lumen, the second lumen having a proximal opening for receiving fluids and a distal opening for delivering the fluids and having an internal size of at least 14 gauge; and advancing the catheter through an introducer port and the sheath, the introducer port being in alignment with the first lumen within the sheath.

5,800,385

VASCULAR IRRIGATION SOLUTION AND METHOD FOR INHIBITION OF PAIN, INFLAMMATION, SPASM AND RESTENOSIS

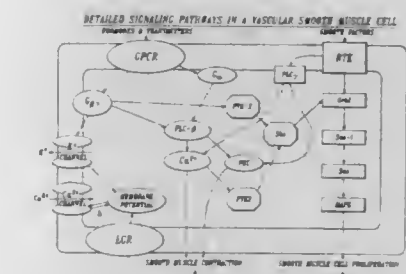
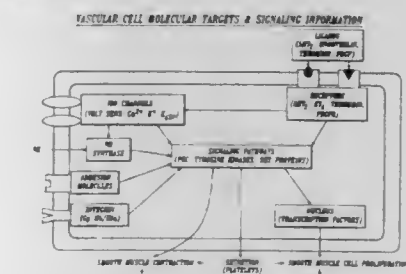
Gregory A. Demopoulos, Mercer Island, Wash.; Pamela A. Pierce, Tiburon, Calif., and Jeffrey M. Herz, Mill Creek, Wash., assignors to Omeros Medical Systems, Inc., Seattle, Wash.

Continuation-in-part of Ser. No. 353,775, Dec. 12, 1994, abandoned. This application Jun. 26, 1996, Ser. No. 670,703

Int. Cl.⁶ A61M 31/00

U.S. Cl. 604—49

35 Claims



1. A method of preemptively inhibiting pain and inflammation, spasm or restenosis in a vascular procedure, comprising:

arterial delivery during a vascular procedure of a solution including a plurality of agents selected from the group consisting of pain/inflammation inhibitory agents, spasm inhibitory agents, and restenosis inhibitory agents in a liquid carrier, the agents being selected to act on a plurality of differing molecular targets, wherein the solution is applied locally and perioperatively to the operative vascular site and the solution applied comprises: a serotonin₁ receptor subtype antagonist included at a concentration of 50 to 500 nanomolar; a cyclooxygenase inhibitor included at a concentration of 500 to 5,000 nanomolar; an endothelin receptor antagonist included at a concentration of 10 to 1,000 nanomolar; an ATP-sensitive potassium channel opener included at a concentration of 100 to 1,000 nanomolar; a calcium channel antagonist included at a concentration of 100 to 1,000 nanomolar; and a nitric oxide donor included at a concentration of 10 to 5,000 nanomolar.

5,800,386

DEVICE FOR MONITORING AND CONTROLLING AN INTRAVENOUS INFUSION SYSTEM

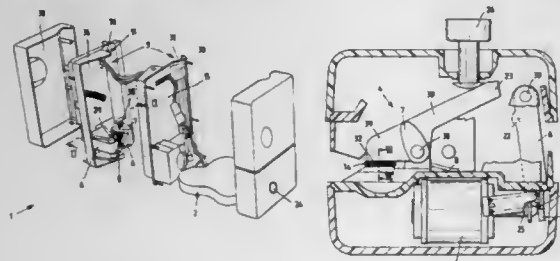
Francesco Bellifemine, Via Perla 57, Varese, Italy

Filed Nov. 20, 1995, Ser. No. 559,839

Claims priority, application Italy, Nov. 25, 1994, MI94A2396
Int. Cl.⁶ A61M 1/00

U.S. Cl. 604—65

43 Claims



1. A device for monitoring and controlling an intravenous infusion system (1) comprising:
 - at least one electrical storage battery (2);
 - a housing (3) adapted to be closed about a drip chamber (17) from which a tube (14) of intravenous infusion system emerges;
 - a shutoff device (4) having an electromagnet (5) and being constructed and arranged to trip respective first and second levers (6, 7) biased by respective first and second springs (9, 8); and
 - electronic circuit means (12) comprising control means contained within microcontroller means (40), sensor means (28, 29) for sensing droplets, generating droplet signals and transferring droplet signals to the microcontroller means (40) for either activating or not activating indicating means (13, 33);
- said electronic circuit means (12) further includes:
 - means for activating the sensor means (28, 29), means for measuring the time interval between the passage of two consecutive droplets;
 - means for comparing the value of said time interval with a first reference time interval originally preset in the microcontroller means (40), to recognize whether the infusion underway is of the type classifiable as slow or fast; means for calculating the arithmetic mean of the times elapsing between a number of successive droplets, the number of successive droplets being preset originally in the microcontroller means (40) on the basis of the type of infusion, such that for fast infusion this number is greater than the corresponding number preset for slow infusion;
 - said comparing means further compares said arithmetic time mean with the time interval between two successively delivered droplets to establish whether said time interval between two successively delivered droplets is equal to the value of the arithmetic mean plus or minus a first or second tolerance time interval originally preset in the microcontroller means (40);

means for setting one of a pre-alarm condition and an alarm condition depending on the extent of the difference between the value of the arithmetic time mean and the value of the time interval between the passage of two successive droplets; means for activating the indicating means (13, 33) both when in the pre-alarm condition and when in the alarm condition; means for activating the shutoff device (4) only when in the alarm condition; and means for interrupting the operation of the sensor means (28, 29) during a second time interval included within the time interval between the passage of two successive droplets.

5,800,387

SAFETY MONITORING APPARATUS FOR A PATIENT CARE SYSTEM

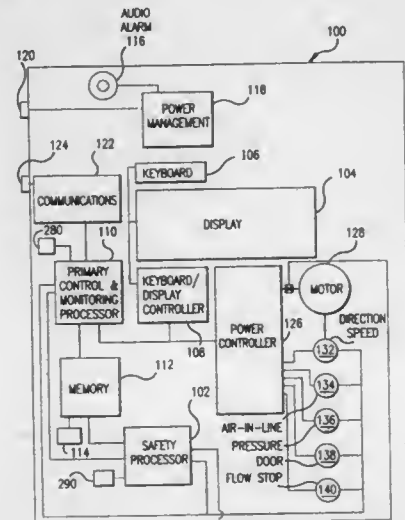
Robert J. Duffy, Poway, and Lon M. Severe, San Diego, both of Calif., assignors to Alaris Medical Systems, Inc., San Diego, Calif.

Filed Oct. 4, 1996, Ser. No. 726,882

Int. Cl.⁶ A61M 31/00

U.S. Cl. 604—65

25 Claims



1. A patient care system, comprising:
 - a functional unit adapted to provide patient therapies or monitor the condition of a patient; and
 - a control system for controlling said functional unit, said control system including:
 - a sensor for sensing conditions indicative of the performance of said functional unit, said sensor including means for providing signals in accordance with said sensed conditions;
 - a primary control unit, which: (1) controls said functional unit in accordance with predetermined information, (2) monitors said functional unit by receiving signals from said sensor, and (3) provides information to a user regarding therapies provided or conditions monitored by said functional unit; and
 - a safety monitoring unit, which: (1) receives signals from said sensor and said primary control unit, (2) monitors said primary control unit and said functional unit using the received signals, (3) detects an alarm condition or failure in the primary control unit or in the functional unit using the received signals, and (4) notifies said primary control unit or disables said functional unit should such alarm condition or failure be detected.

5,800,388

PLUNGER/RAM ASSEMBLY ADAPTED FOR A FLUID INJECTOR

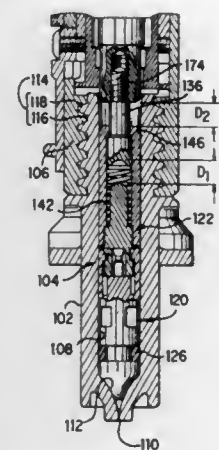
David Schiff, Highland Park, N.J., and Paul Mulhauser, New York, N.Y., assignors to Medi-Ject Corporation, Minneapolis, Minn.

Filed Feb. 29, 1996, Ser. No. 609,140

Int. Cl.⁶ A61M 5/30

U.S. Cl. 604—68

17 Claims



1. A plunger/ram assembly adapted for a fluid injector having a nozzle body defining a fluid chamber, an orifice communicating with the chamber, and a ram for communicating a force to the plunger/ram assembly, said plunger/ram assembly comprising:
 - a plunger adapted to be movably positioned in said chamber; and
 - a ram assembly operatively connected to the plunger for drawing fluid into and expelling fluid out the chamber through the orifice, said ram assembly including first and second driving members spaced apart by a preselected free travel distance and a resilient biasing member having a preselected preload, said plunger connected to the second driving member, said resilient biasing member operatively disposed for maintaining said free travel distance when said preload is greater the force applied to the plunger/ram assembly.

5,800,389

BIOPSY DEVICE

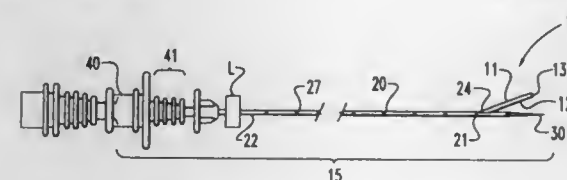
Bryan Burney, Fishers; David L. Schroeder, Franklin, and Michael E. Miller, Indianapolis, all of Ind., assignors to EMX, Inc., Indianapolis, Ind.

Filed Feb. 9, 1996, Ser. No. 599,381

Int. Cl.⁶ A61M 11/00; 5/32; 5/178; 25/00

U.S. Cl. 604—93

44 Claims



1. A biopsy needle introducer, comprising:
 - a cannula having a first end and a second end and defining a lumen therebetween, the lumen sized to receive a biopsy needle therethrough;
 - the second end of the cannula defining an aperture, the aperture sized and configured to receive a biopsy needle for passage into the lumen;
 - said cannula defining a lateral opening in communication with the lumen adjacent said first end, the lateral opening sized and configured to allow exit of an anatomically proximal end of the biopsy needle from the lumen; and

a solid tip having an anatomically distal end secured to the first end of said cannula and a proximal end configured to pierce tissue, wherein the distal end of said tip has an outer diameter smaller than an inner diameter of the first end of the cannula and the distal end of said tip is at least partially disposed within said lumen at the first end of the cannula.

5,800,390

EQUIPMENT FOR INTRACEREBRAL ADMINISTRATION OF PREPARATIONS

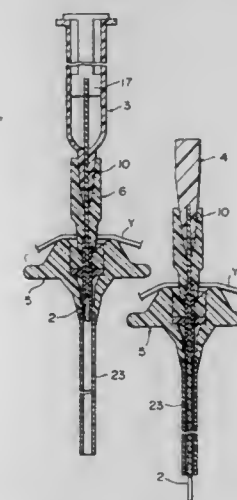
Toru Hayakawa, Kobe; Toshiki Yoshimine, Ashiya; Hiromu Yamamoto, Higashitagawa-gun; Akira Sato, Tsuruoka; Tsunemasa Irie, Takarazuka; Keiji Fujioka, Amagasaki; Yoshihiro Takada, Suita, and Yoshio Sasaki, Takatsuki, all of Japan, assignors to Sumitomo Pharmaceuticals Company, Limited, Osaka, and Koken Co., Ltd., Tokyo, both of Japan
PCT No. PCT/JP92/00658, § 371 Date Nov. 24, 1993, § 102(e)
Date Nov. 24, 1993, PCT Pub. No. WO92/20400, PCT Pub. Date Nov. 26, 1992

Continuation of Ser. No. 533,355, Sep. 25, 1995, abandoned, which is a continuation of Ser. No. 142,392, Nov. 24, 1993, abandoned. This PCT application May 22, 1992, Ser. No. 900,135

Claims priority, application Japan, May 24, 1991, 3-120115
Int. Cl.⁶ A61M 11/00

U.S. Cl. 604—93

19 Claims



1. Equipment for intracerebral administration of preparations comprising:
 - a preparation-introducing guide implantable in the head of a patient;
 - preparation-administrating means for inserting a solid or semi-solid preparation through the preparation-introducing guide;
 - a flexible plunger insertable into and readily removable from the preparation-administrating means;
 - said preparation-introducing guide comprising a guide body with a guide hole passing therethrough for introducing preparations, the guide body including an upwardly protruded head portion which causes a slight swelling of a scalp of the patient and a downwardly protruded tapered projection, backflow check means for preventing a cerebrospinal fluid from back-flowing when said preparation-introducing guide is implanted in the head of a patient, said backflow check means being arranged in the guide hole of said guide body to close said guide hole; and
 - a flexible guide tube connected to the downwardly protruded tapered projection of said guide body and communicated with said guide hole to introduce the preparation into a site of administration,
- the preparation-administrating means including a hollow needle at one end and an inner needle removably inserted into said hollow needle, the hollow needle being insertable into and

readily removable from the preparation-introducing guide, the flexible plunger being inserted into said preparation-administrating means after removing said inner needle from the hollow needle and loading a preparation into the preparation-administrating means to push the preparation to a site of administration through said preparation-introducing guide.

5,800,391

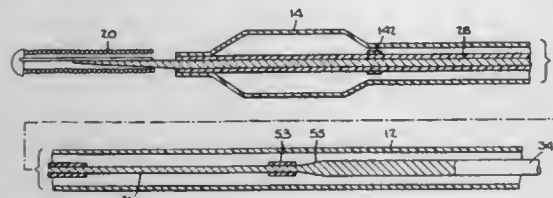
ANGIOPLASTY BALLOON CATHETER AND ADAPTOR
Stavros B. Kontos, Woodcliff Lake, N.J., assignor to Boston Scientific Corporation, Natick, Mass.

Continuation of Ser. No. 229,696, Apr. 19, 1994, Pat. No. 5,501,668, which is a continuation of Ser. No. 743,189, Aug. 9, 1991, Pat. No. 5,318,529, which is a continuation-in-part of Ser. No. 657,381, Feb. 19, 1991, abandoned, which is a continuation of Ser. No. 403,497, Sep. 6, 1989, abandoned. This application Mar. 15, 1996, Ser. No. 616,618

Int. Cl.⁶ A61M 29/00

U.S. Cl. 604—96

18 Claims



1. A fixed-wire balloon angioplasty catheter comprising: a main catheter body having proximal and distal ends and defining a lumen therein; an angioplasty balloon having proximal and distal ends and defining a balloon chamber therein, wherein the proximal end of the balloon is fixedly coupled to the distal end of the main catheter body; an inner tube having proximal and distal ends and defining a lumen therein, the distal end of the inner tube being fixedly coupled to the distal end of the balloon, the inner tube having an outer diameter that is smaller than the diameter of the lumen defined in the main catheter body and having a length that is substantially shorter than the length of the main catheter body; a captive core wire that extends from the proximal end of the main catheter body, through the lumen defined by the main catheter body, through the lumen defined by the inner tube, and terminating distally of the distal end of the inner tube and the distal end of the balloon, wherein the outer diameter of the core wire is sized with respect to the diameter of the lumen of the inner tube to provide a fluid seal therebetween; a steering member coupled to the distal end of the core wire and having an outer diameter that is larger than the lumen defined by the inner tube at distal end of the inner tube; and a stop positioned on the core wire at a location within the main catheter body that is proximal of the proximal end of the inner tube, the stop having a diameter that is larger than the diameter of the lumen defined by the inner tube at the proximal end of the inner tube.

5,800,392

MICROPOROUS CATHETER

Joel R. Racchini, Edina, Minn., assignor to eMed Corporation, St. Paul, Minn.

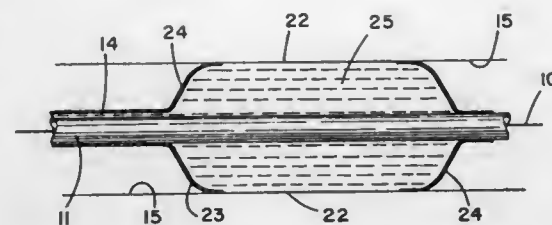
Continuation of Ser. No. 376,765, Jan. 23, 1995, Pat. No. 5,569,198. This application May 8, 1996, Ser. No. 646,620

Int. Cl.⁶ A61M 29/00

U.S. Cl. 604—96

15 Claims

1. An apparatus for delivering an agent to a treatment area, the apparatus comprising:



a catheter having a distal portion and a proximal portion, the catheter defining a lumen; and a selectively inflatable member in fluid communication with the lumen, wherein the selectively inflatable member is formed from a membrane having pores sized from about 10 Å to about 1 μ and a pore density from about 10⁴ pores/cm² to about 10¹¹ pores/cm², further wherein the selectively inflatable member has a single chamber.

5,800,393

WIRE PERFUSION CATHETER

Harvinder Sahota, 3861 Wisteria St., Seal Beach, Calif. 90740

Filed Mar. 7, 1997, Ser. No. 813,478

Int. Cl.⁶ A61M 29/00

U.S. Cl. 604—96

15 Claims



1. A balloon catheter, comprising: an axially elongate wire suitable for insertion into a blood vessel, said wire being hollow such that said wire defines a lumen extending axially therethrough, said wire having a proximal end and a distal end; an inflation balloon directly attached to said wire, said balloon configured to expand radially outward; at least one influent port extending through the wire on a first side of the balloon, said influent port in fluid communication with said lumen; and at least one effluent port extending through said wire on a second side of said balloon, said effluent port in fluid communication with said lumen.

5,800,394

METHOD OF CREATING AN OPERATING SPACE ENDOSCOPICALLY AT AN OBSTRUCTED SITE

InBae Yoon; Suzanne J. Yoon, and Samuel C. Yoon, all of 2101 Highland Ridge Dr., Phoenix, Md. 21131

Division of Ser. No. 369,545, Jan. 6, 1995, which is a continuation-in-part of Ser. No. 596,937, Oct. 15, 1990, abandoned, which is a continuation-in-part of Ser. No. 222,776, Jul. 22, 1988, abandoned, and Ser. No. 249,116, May 25, 1994, Pat. No. 5,514,091. This application Jun. 25, 1997, Ser. No. 882,237

Int. Cl.⁶ A61M 29/00

U.S. Cl. 604—101

6 Claims

1. A method of creating an operating space endoscopically at an obstructed site in anatomical tissue of a body including the steps of introducing in the anatomical tissue an expandable multifunctional instrument including an elongate outer member carrying a first expandable member disposed in a non-expanded position and an elongate inner tubular member disposed in the outer member and carrying a second expandable member disposed in a non-expanded position and spaced from the first expandable member with a second instrument extending through the inner tubular member to locate a distal end of the second instrument and the first and second expandable members at the obstructed site, the distal end of the second

5,800,396

SURGICAL CASSETTE ADAPTER

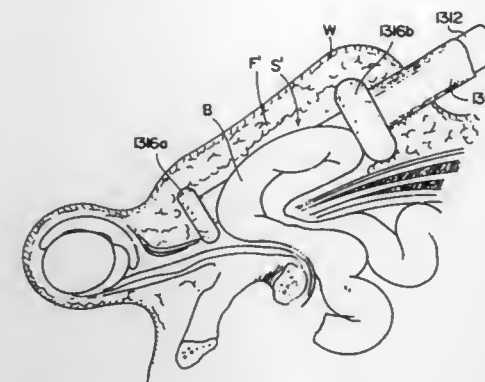
Douglas M. Fanney, Oceanside; Valentine P. Injev, Irvine; Richard A. Rossback, Irvine, and Gary P. Sorensen, Irvine, all of Calif., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Filed Nov. 15, 1995, Ser. No. 558,308

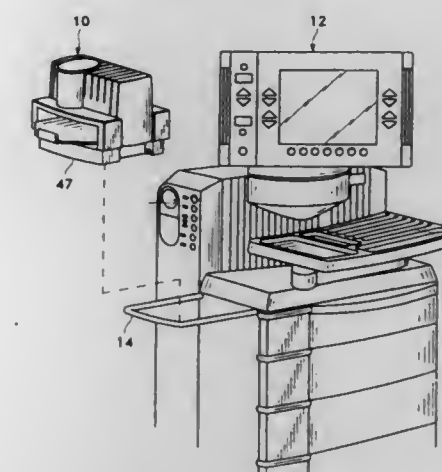
Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—151

8 Claims



instrument being disposed externally, distally of a distal end of the inner tubular member during said step of introducing; moving the first and second expandable members from the non-expanded positions to expanded positions, respectively, to displace the anatomical tissue to create a space at the obstructed site; and visually confirming creation of the space with an endoscope from externally of the body.



5,800,395

MEDICAL DEVICE WITH RETRACTABLE NEEDLE

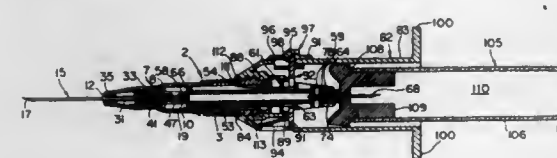
Michael J. Botich, Oxnard, and Thor R. Halseth, Simi Valley, both of Calif., assignors to MDC Investment Holdings, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 761,088, Dec. 5, 1996. This application Apr. 23, 1997, Ser. No. 847,544

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—110

17 Claims



1. A catheter insertion device for positioning a catheter in a blood vessel of a patient, the catheter comprising a hub and a cannula connected with the hub, the device comprising: a barrel having a forward end contoured to mate with an interior surface of the catheter hub; a needle projecting forward from the barrel and having a sharpened tip extending beyond a forward end of the catheter cannula for penetrating the skin of the patient; and a needle retraction mechanism positioned in the barrel and operable by the user to effect retraction of the needle into the barrel after use; the needle retraction mechanism comprising: a spring for exerting a rearward bias upon the needle; a needle retainer for releasably holding the needle in the projecting orientation against the bias of the spring; an actuating member positioned axially within the barrel and movable therein for releasing the needle retainer from holding the needle, the actuating member having a first actuation surface operable for effecting movement of the actuating member; stop means for preventing movement of the actuating member, the stop means having a second actuation surface operable to allow movement of the actuating member, whereby operation of the first and second actuating surfaces is required to effect retraction of the needle into the barrel.

5,800,397

ANGIOGRAPHIC SYSTEM WITH AUTOMATIC HIGH/LOW PRESSURE SWITCHING

Robert F. Wilson, Shoreview, and Jiyun Liu, Roseville, both of Minn., assignors to Invasatec, Inc., Eden Prairie, Minn.

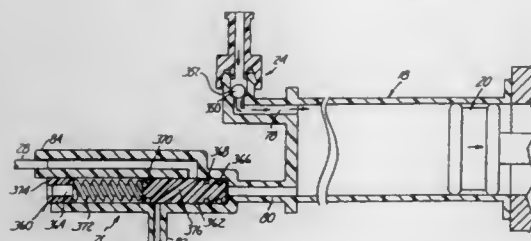
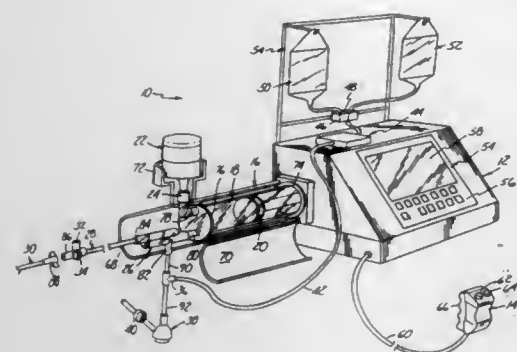
Continuation of Ser. No. 426,148, Apr. 20, 1995. This application Oct. 7, 1997, Ser. No. 946,293

Int. Cl.⁶ A61M 1/00

U.S. Cl. 604—151

8 Claims

1. An angiographic injection system for use in conjunction with a catheter having a distal end for insertion into a patient and having a proximal end, the system comprising: a motor-driven syringe pump for supplying fluid under pressure; a low pressure system; a manifold having a first port for connection to the syringe pump, a second port for connection to the proximal end of the catheter, and a third port for connection to the low pressure system; and a valve, associated with the manifold, having a first state and a mutually exclusive second state; said first state being when the second and third ports are connected and said first and third ports are always disconnected; said second state being when the first and second ports are connected and said first and third ports are always disconnected; the valve being



normally biased to the first state and being switchable to the second state when fluid pressure from the syringe pump reaches a predetermined pressure level.

5,800,398
METHOD AND APPARATUS FOR POSITIONING OPERATING TUBES
Friedrich Hähnle, Bretten; Helmut Hecke, Knittlingen, and Uwe Schumann, Oberderdingen, all of Germany, assignors to Richard Wolf GmbH, Knittlingen, Germany
Filed Apr. 25, 1996, Ser. No. 637,367
Claims priority, application Germany, Apr. 28, 1995, 195 15 626.9

Int. Cl. A61M 5/178
U.S. Cl. 604-164 14 Claims

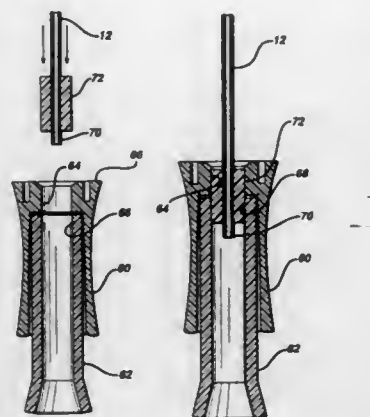


1. An instrument for positioning an operating tube in a patient's body for use in an operation, comprising:
an elongated cannula tube over which an operating tube is slidably guidable to an operating site in a patient's body, said cannula tube having a pointed distal end, a proximal end and a hollow interior;
a handle configured for detachable positioning on the proximal end of said cannula tube;
a mandrin sized for insertion into and through the cannula tube hollow interior through the handle detachably positioned on said cannula tube proximal end and for removal from the cannula tube through said proximal end when the cannula tube is positioned in a patient's body so as to leave the cannula positioned in the patient's body for slidably guiding an operating tube over said cannula tube and into the patient's body to the operating site; and
gripping means on said handle operable for releasably retaining said cannula tube against longitudinal displacement of said cannula tube relative to said handle when said handle is positioned on the proximal end of said cannula tube, and engagement means on said cannula tube and said handle for preventing rotational movement of said cannula tube relative to said handle when said handle is positioned on the proximal end of said cannula tube.

5,800,399
LOW-COST METHOD OF ASSEMBLING AN EXTRUDED CANNULA HOLDER FOR A CATHETER INSERTION DEVICE

David L. Bogert, Plainville; Zino Altman, Unionville, and Thomas Koehler, Simsbury, all of Conn., assignors to Johnson & Johnson Medical, Inc., Arlington, Tex.

Filed Aug. 27, 1996, Ser. No. 703,706
Int. Cl. A61M 5/178
U.S. Cl. 604-165 40 Claims



1. A method of producing a securement between a cannula and a chamber structure for a catheter insertion device; said method comprising:
(a) arranging an elongated cannula in fixed sealed position to extend through an axial central through-bore in an extruded plastic cylindrical member, a major length of said cannula projecting from a first end of said cylindrical member and terminating in a sharp point to facilitate insertion thereof into the body of a patient, and a shorter length of said cannula protruding from a second end of said cylindrical member;
(b) and a chamber structure having an end defining an opening having a diameter in close conformance with an outer diameter of said cylindrical member being fastened to said cylindrical member by extending at least a portion of an axial length of said cylindrical member into said chamber structure in press-fitted sealing engagement therewith.

5,800,400
INTRAVASCULAR NEEDLE WITH MOVABLE SAFETY SHIELD

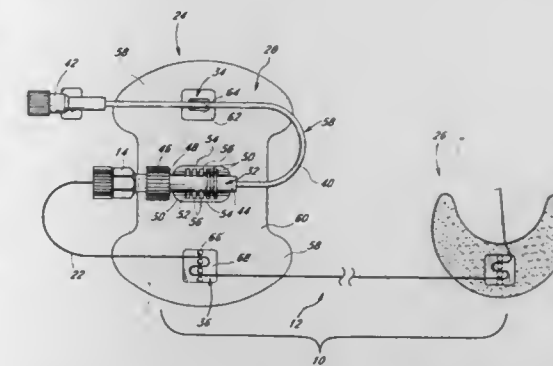
John Martin Hogan, Long Beach, Calif., assignor to City of Hope, Duarte, Calif.

PCT No. PCT/US95/02878, § 371 Date Apr. 4, 1996, § 102(e) Date Apr. 4, 1996
PCT Filed Mar. 16, 1995, Ser. No. 624,491
Int. Cl. A61M 5/32
U.S. Cl. 604-171 5 Claims

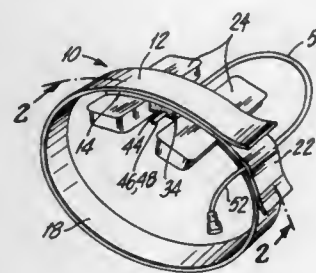


1. An intravascular needle device comprising:
(i) a length of tubing through which fluid may pass, said length of tubing having a first end and a second end;
(ii) said first end of said length of tubing having a needle attachment means provided with a needle;
(iii) a cylindrical needle shield said needle shield having a lumen surrounding a portion of said length of tubing, said needle shield being slidable along said length of tubing from a position spaced apart from said needle attachment means to a position adjacent said needle attachment means;

(iv) said lumen of said needle shield being sized to accommodate said needle attachment means, wherein said needle attachment means and said needle are movable into said lumen of said needle shield by pulling said length of tubing in a direction away from said needle attachment means for said needle;
(v) gripping means for said needle attachment means, said gripping means having passage means therethrough for said needle attachment means; said passage means including friction means to restrain passage of said needle attachment means therethrough; and
(vi) wings on opposite sides of said gripping means for said needle attachment means.



5,800,401
DISPOSABLE VENOCLYSIS ADAPTOR DEVICE
Hubert B. Decker, B. F. Resort Las Pinas, Philippines, assignor to D.A.D. Ltd., Hong Kong
Filed Aug. 28, 1996, Ser. No. 697,651
Int. Cl. A61M 5/32
U.S. Cl. 604-174 8 Claims



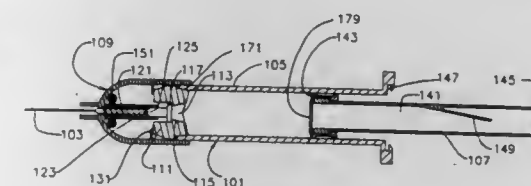
1. A disposable venoclysis adaptor device for supporting a venotube at a person's limb, said adaptor device comprising:
at least one flexible fastening strap to be secured at the person's limb;
two spacing cushions securable to the strap for eliminating any pressure from a fluid flow area and an insertion point;
an adaptor pillow securable to the strap between the two cushions;
an adaptor flap provided between the cushions and cooperating with the adaptor pillow for fixedly retaining a venotube therebetween;
a tube flax provided on the fastening strap for securing an extension of the venotube for preventing displacement of the venotube upon person's limb movement; and
means for securing the strap on the person's limb.

5,800,402
CATHETER ANCHORING SYSTEM AND METHOD OF USE
Steven F. Bierman, Del Mar, Calif., assignor to Venetec International, Inc., Mission Viejo, Calif.
Continuation-in-part of Ser. No. 223,948, Apr. 6, 1994, Pat. No. 5,578,013, which is a continuation-in-part of Ser. No. 121,942, Sep. 15, 1993, Pat. No. 5,456,671, which is a continuation-in-part of Ser. No. 34,340, Mar. 19, 1993, Pat. No. 5,354,282. This application May 10, 1996, Ser. No. 644,208

Int. Cl. A61M 5/32
U.S. Cl. 604-180 46 Claims
1. A catheter anchoring device for securing an indwelling catheter proximate to a point of insertion of the catheter into a body lumen of a patient comprising:
a flexible anchor pad having an upper surface and a lower surface, said lower surface being defined at least in part by an adhesive layer which releasably adheres to the patient's skin,

said upper and lower surfaces together defining an edge that includes a recessed portion positioned on a side of the pad; and
a clip comprising a plurality of channels to receive a section of a flexible tubular body of the catheter, said channels being supported by said anchor pad and being only positioned behind said recessed portion, each channel including an axis through the channel, and said channels being arranged on the anchor pad in a manner offsetting the axes of the channels from one another such that a portion of the received catheter body section lies generally transverse to an axis bifurcating the recessed portion.

5,800,403
SAFETY SYRINGE
William B. S. Pressly, Sr., Greer, S.C.; Charles A. Vaughn, Sr., Duluth, Ga.; G. Samuel Brockway, and Thomas R. Ellis, both of Lawrenceville, Ga., assignors to Syringe Development Partners L.L.C., Lawrenceville, Ga.
Continuation of Ser. No. 481,093, Jun. 7, 1995, Pat. No. 5,613,952, which is a continuation-in-part of Ser. No. 359,001, Dec. 16, 1994, abandoned, which is a continuation of Ser. No. 813,115, Dec. 23, 1991, Pat. No. 5,211,629. This application Jan. 15, 1997, Ser. No. 783,665
Int. Cl. A61M 5/00
U.S. Cl. 604-195 12 Claims



1. A safety syringe comprising:
a needle having a head;
an elongated barrel having first and second ends;
a plunger sized and shaped to be received in the first end of the barrel and to be movable therein;
a needle assembly attached to the second end of the barrel, the needle assembly defining a passageway for communicating with the needle;
a movable base adapted to releasably retain the head of the needle to prevent the premature ejection of the needle into the barrel;
a spring partially compressed within the needle assembly and contacting the head of the needle to bias the base between the needle assembly and the first end of the barrel; and
wherein the plunger is moved within the barrel to force the base toward the needle assembly thereby further compressing the spring to retract the needle.

5,800,404

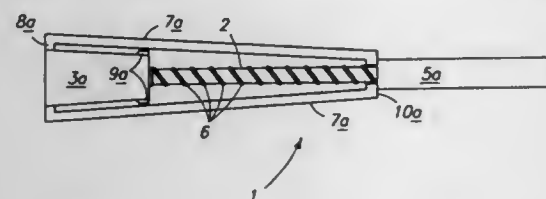
SAFETY HYPODERMIC NEEDLE

Thomas Edward Poulsen, Box 19, Jiggs, Nev. 89827
Continuation of Ser. No. 219,611, Mar. 28, 1994, abandoned,
which is a division of Ser. No. 773,989, Oct. 9, 1991, Pat. No.
5,300,039, which is a continuation of Ser. No. 332,081, May
11, 1989, abandoned. This application Dec. 20, 1996, Ser. No.
772,109

Int. Cl.⁶ A61M 5/32

U.S. Cl. 604—198

18 Claims



1. A safety hypodermic needle comprising:

- a needle provided with a passageway there through for the transmission of fluids, said needle being sharpened at its distal end to form a piercing end;
- a hub connected with the proximal end of said needle, said hub being engagable with a syringe so that fluid may be transmitted between said syringe and said needle, passing through said needle;
- a hollow member including a hole therein, said hollow member being positioned over a portion of said needle so that, when said hypodermic needle is in the usable mode, said hollow member is forward of said hub and said needle passes through said hole;
- a spring positioned between said hollow member and said hub;
- at least one supporting member connected with said hub, said supporting member including a forward extending portion adapted to engage said hollow member, said forward extending portion extending forward from said hub along the outside of said hollow member so that at least part of said forward extending portion of said supporting member lies to the outside of said hollow member when said hypodermic needle is in the usable mode;
- a releasable securement means for holding said hollow member away from the piercing end of said needle, against tension from said spring, so that after said hollow member is released by said securement means, said hollow member will move forward along said needle, by force of said spring, and at least partially cover said piercing end of said needle, with means provided for said forward extending portion of said supporting member to engage said hollow member to support said hollow member against movement back toward said hub that would reexpose said piercing end of said needle.

5,800,405

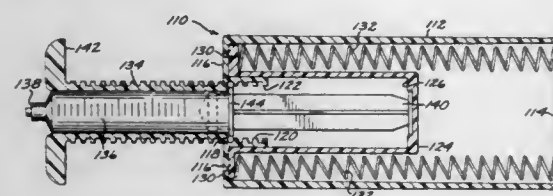
SYRINGE ACTUATION DEVICE

Charles J. McPhee, Huntington Beach, Calif., assignor to
I-Flow Corporation, Lake Forest, Calif.
Continuation-in-part of Ser. No. 969,874, Dec. 1, 1995, Pat.
No. 5,599,315. This application Jan. 30, 1997, Ser. No. 794,211

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—218

51 Claims



1. A device for applying an axially-directed actuation force to a syringe plunger, of the type including a force-applying mechanism

engageable with the plunger to apply the actuation force thereto, characterized by the force applying mechanism having a first position at which the magnitude of the total force applied to the plunger is at a maximum value but the axially-directed actuation force is less than the total force applied to the plunger, and a second position at which the magnitude of the total force applied to the plunger is less than its maximum value and the axially-directed force is approximately equal to the total force applied to the plunger, wherein the force-applying mechanism comprises:

- a housing having a proximal end and a distal end with an opening dimensioned to receive the plunger;
- a piston disposed for longitudinal movement within the housing between a proximal position and a distal position, the piston being seatable against the plunger when the plunger is received in the housing through the opening in the distal end;
- first and second springs disposed between the piston and the proximal end of the housing so as to bias the piston toward its distal position; and

pivoting means, operative on the piston, for canting the piston with respect to the longitudinal axis of the housing when the piston is in its proximal position, and for causing the piston to pivot as it moves toward its distal position until the piston is oriented substantially coaxially with the longitudinal axis when the piston is at its distal position.

5,800,406

CORNEAL IRRIGATION CANNULA

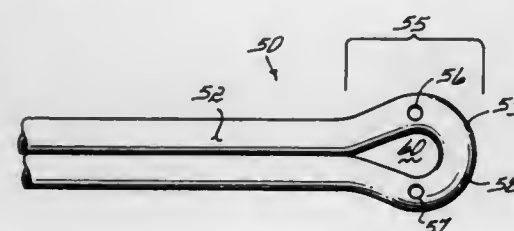
Michael S. Kritzing, 26 Wexford Avenue, Westcliff, Johannes-
burg, South Africa, and Stephen A. Updegraff, 1635 N.
Grand Vista Ct., Rapid City, S. Dak. 57701

Continuation-in-part of Ser. No. 561,744, Nov. 22, 1995. This
application May 31, 1996, Ser. No. 660,188

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—257

18 Claims



1. A corneal irrigation cannula comprising:

- an irrigation fluid source;
- a hand manipulatable tube of sufficient length allowing for entry into the interface of a corneal cap or flap and a corneal bed formed by surgical dissection, said tube having an inlet end connected to said irrigation fluid source for receiving an irrigation fluid and an outlet end for delivery of the irrigation fluid into said corneal interface;
- said outlet end has a flat generally circularly shaped head for entry into said interface having at least two irrigating ports for the low flow delivery of fluid therethrough for irrigation of said corneal interface, one of said ports located on the top and the other located on the bottom of said circularly shaped head for directing fluid upward and downward from said ports into said corneal interface thereby irrigating the interface by gently elevating the overlying cap or flap and washing residual debris from the corneal bed.

5,800,407

MULTIPLE HOLE EPIDURAL CATHETER

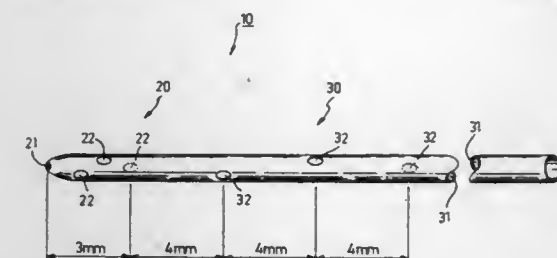
Joseph Eldor, 4 Hanayadot Street, Pisgat Zeev, Jerusalem
97536, Israel

Filed Dec. 21, 1995, Ser. No. 576,014

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—264

17 Claims



1. A device for continuous epidural analgesia comprising:

- an epidural catheter having a single passageway with an end hole and a plurality of side holes, wherein said end hole is smaller in diameter than said side holes for providing flow of epidural analgesic through the passage way and out through said end hole and side holes.

5,800,408

INFUSION DEVICE FOR DISTRIBUTING INFUSATE ALONG AN ELONGATED INFUSION SEGMENT

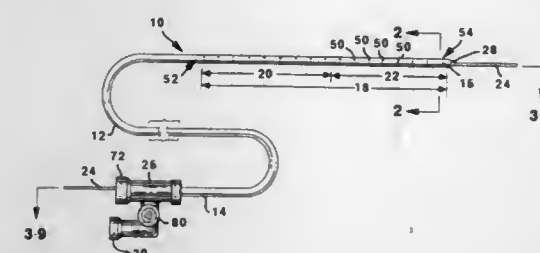
Jonathan H. Strauss, Laguna Niguel, and Blair D. Walker,
Long Beach, both of Calif., assignors to Micro Therapeutics,
Inc., San Clemente, Calif.

Filed Nov. 8, 1996, Ser. No. 746,302

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—264

37 Claims



1. An infusion device for delivering an infusate from an external source of infusate into a body lumen in an infusate distribution profile, said infusion device further comprising:

- an elongated tubular body having an external side wall extending between a proximal tubular body end and a distal tubular body end adapted to be introduced intraluminally into a body lumen, said elongated tubular body formed of an elongated inner tube having an inner tube lumen and inner tube side wall and an elongated outer tube having an outer tube lumen and outer tube side wall arranged in a coaxial arrangement wherein said inner tube is located within said outer tube lumen and an annular lumen is thereby formed between the inner tube side wall and the outer tube side wall, said inner tube lumen having a proximal inner lumen end opening at said proximal tubular body end, and said annular tube lumen having a proximal annular lumen end opening at said proximal tubular body end;
- an elongated infusion segment formed of a segment of said elongated tubular body adapted to be intraluminally positioned within the body lumen, said elongated infusion segment extending between a proximal infusion segment end and a distal infusion segment end and having a proximal infusion section extending distally from said proximal infusion segment end and a distal infusion section extending proximally from said distal infusion segment end;

5,800,409

FLEXIBLE INFLOW/OUTFLOW CANNULA

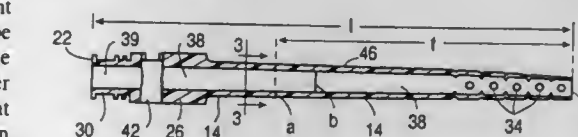
Robert P. Bruce, San Jose, Calif., assignor to Arthroscopic
Assistants, Inc., San Jose, Calif.

Continuation of Ser. No. 242,703, May 13, 1994, Pat. No.
5,527,276, which is a continuation of Ser. No. 3,427, Jan. 12,
1993, abandoned. This application Jan. 26, 1996, Ser. No.
592,794

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—280

19 Claims



1. A cannula for directing a liquid to or from a site during arthroscopic surgery comprised of an elongated hollow tube, the elongated hollow tube comprising:

- a distal end;
- a rigid segment that does not include the distal end;
- a flexible segment that abuts the rigid segment and includes the distal end, the flexible segment having a length "f" and an outer diameter "d" and being tapered along the length "f" such that the outer diameter "d" continuously decreases in the

direction of the distal end, the flexible segment being sufficiently flexible to bend through an angle of approximately ninety degrees and then return to an approximately straight position while the flexible segment is at least partially inserted inside of a living human being, the rigid segment being substantially unbendable relative to the flexible segment; the flexible segment having a first wall thickness measured at a location on the flexible segment that is proximal to the distal end, and a second wall thickness, measured at the distal end, with the first wall thickness being greater than the second wall thickness; and

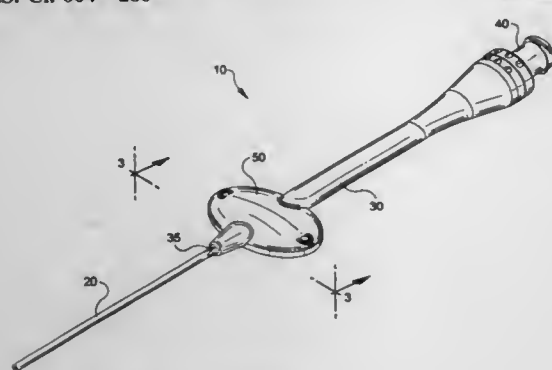
a lumen beginning at the distal end and extending longitudinally completely through the flexible segment and the rigid segment for providing a passageway for the flow of a liquid through the elongated hollow tube, the lumen remaining, open to the flow of the liquid when the flexible segment is bent through an angle of approximately ninety degrees and then returned to an approximately straight position, while the flexible segment is at least partially inserted inside of a living human being.

5,800,410

CATHETER WITH STRESS DISTRIBUTION FINGERS
Craig N. Gawreluk, Park City, Utah, assignor to Becton Dickinson and Company, Franklin Lakes, N.J.
Continuation-in-part of Ser. No. 635,102, Apr. 19, 1996. This application Jun. 19, 1996, Ser. No. 666,775
Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—280

6 Claims



1. A medical device, comprising:
an elongate cannula formed from a soft and flexible material and having a wall thickness;
an abutting element formed from the soft and flexible material and having a distal end operatively connected to the elongate cannula and forming a junction therebetween; and
a plurality of stress distribution fingers formed from the soft and flexible material and extending from the distal end of the abutting element at the junction over the cannula wherein each stress distribution finger has a proximal end with a first width abutting the distal end of the abutting element and a distal end having a second width that is less than the first width and sides that taper from the proximal end to the distal end so as to define an undulating interface between the sides and second width of each stress distribution finger and the cannula.

5,800,411

CATHETER

Mamoru Nakada, and Minoru Shinozuka, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Sep. 6, 1996, Ser. No. 709,065

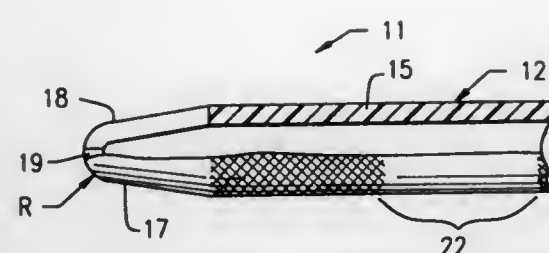
Claims priority, application Japan, Oct. 6, 1995, 7-259991

Int. Cl.⁶ A61M 29/00

U.S. Cl. 604—280

34 Claims

1. A catheter comprising a flexible sheath to be inserted into a celom through an insertion channel of an endoscope for injecting



liquid such as a medicinal solution into the celom through the flexible sheath, wherein the flexible sheath has an inside diameter and a wall having a thickness and comprises a distal end portion which has a distal aperture having a diameter smaller than the inside diameter of the flexible sheath, a frontmost part of the distal end portion being rounded with a radius of curvature larger than the thickness of the wall of the flexible sheath, and at least one slit extending to the aperture, wherein the at least one slit is covered by an elastic film.

5,800,412

HYDROPHILIC COATINGS WITH HYDRATING AGENTS
Xianping Zhang, Webster, and Richard J. Whitbourne, Fairport, both of N.Y., assignors to STS Biopolymers, Inc., Henrietta, N.Y.

Filed Oct. 10, 1996, Ser. No. 728,805

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—280

37 Claims

1. A method of coating a substrate comprising:
providing a hydrophilic polymer dissolved in a solvent, the hydrophilic polymer solvent adapted to dissolve or to disperse a hydrating agent, and comprising less than about 25% water by volume;
adding to the hydrophilic polymer solvent a hydrating agent in an amount greater than about 10% as a percentage of the total weight of the hydrophilic polymer and hydrating agent, the hydrating agent being dissolved or an ultrafine dispersion having particle size less than about 10 microns;
coating the substrate with the hydrophilic polymer and hydrating agent in the hydrophilic polymer solvent; and
forming a hydrophilic coating that adheres to the substrate, becomes lubricious when wet, retains physiologically acceptable lubriciousness after contacting physiological media during a predetermined period of indwelling, is sufficiently smooth to avoid causing physiologically unacceptable trauma to tissue during insertion or removal, and has physiologically acceptable low cellular adhesiveness after contacting the tissue during a predetermined period of indwelling.

5,800,413

GUIDING INTRODUCER FOR USE IN THE TREATMENT OF ATRIAL FLUTTER

John F. Swartz, Tulsa, Okla.; John D. Ockuly, Minnetonka, and James A. Hassett, Bloomington, both of Minn., assignors to Daig, Minnetonka, Minn.

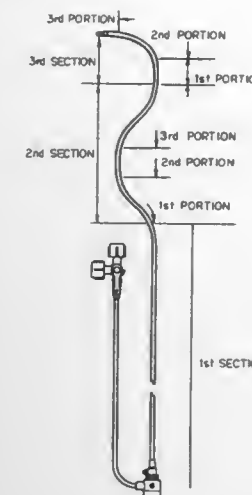
Continuation of Ser. No. 431,787, May 1, 1995, abandoned, which is a continuation-in-part of Ser. No. 272,014, Jul. 8, 1994, Pat. No. 5,575,766, which is a continuation-in-part of Ser. No. 146,744, Nov. 3, 1993, Pat. No. 5,427,119, and a continuation-in-part of Ser. No. 147,168, Nov. 3, 1993, Pat. No. 5,497,774. This application Nov. 27, 1996, Ser. No. 757,832

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—280

21 Claims

1. A shaped guiding introducer for use with an ablating catheter for the treatment of atrial flutter or atrial fibrillation in the right atrium comprising a guiding introducer with a lumen, wherein the diameter of the lumen is sufficient to receive an ablation catheter.



which catheter is capable of ablating atrial tissue in the right atrium, wherein the guiding introducer comprises first, second and third sections and wherein the shape of the guiding introducer guides the ablation catheter into the right atrium.

5,800,414

CATHETER WITH FLEXIBLE AND ELONGATE BODY
Thierry Cazal, Sarlat, France, assignor to Synthelabo, Le Plessis Robinson, France

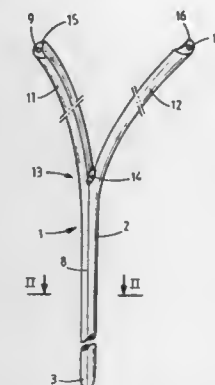
Filed Sep. 5, 1997, Ser. No. 924,140

Claims priority, application France, Oct. 18, 1996, 96 12687

Int. Cl.⁶ A61M 25/00

U.S. Cl. 604—280

6 Claims



1. A medical or surgical probe, intended to be introduced into a body passage and provided with at least two individual longitudinal channels, each extending between the proximal end and the distal end of said probe, this probe including:

a flexible and elongate body (2, 30, 50) intended to be introduced via its distal end (3) into said body passage and provided with at least two internal longitudinal conduits (9, 10; 35, 36, 37; 60, 61, 62, 63); and
at least two flexible and elongate proximal branches (11, 12) which are each provided with an internal longitudinal conduit (9, 10) and are arranged at the proximal end of said elongate body, each of the conduits of said branches continuing a conduit of said elongate body in order to form one of said individual longitudinal channels of said probe.

wherein:

said flexible and elongate body (2, 30, 50) includes, in addition to said internal longitudinal conduits, a central longitudinal channel (4, 31, 55) delimiting, within said body, longitudinal portions (5, 6; 32, 33, 34; 51, 52, 53, 54) connected to one another by surface material lines, which are easily tearable open;

each of said longitudinal portions of the body includes one of said internal longitudinal conduits (9, 10; 35, 36, 37; 60, 61, 62, 63);

each of said proximal branches (11, 12) is formed by one such longitudinal portion of said body, separated from said other longitudinal portions, over a limited length, along said tearable surface material lines; and

said central longitudinal channel (4, 31, 55) has a cross section which is capable of receiving a tubular element (18) which can be attached to said elongate body, at the junction (13) of said proximal branches (11, 12) of said probe.

5,800,415

STABLE ADHESIVE OSTOMY APPLIANCE

Hans Olsen, Hørsholm, Denmark, assignor to Coloplast A/S, Denmark

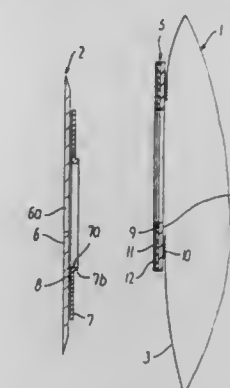
Filed May 29, 1996, Ser. No. 654,663

Claims priority, application Denmark, May 29, 1995, 0607/95

Int. Cl.⁶ A61F 5/44

U.S. Cl. 604—336

8 Claims



1. An ostomy collecting system comprising a collecting bag having an inlet opening formed in a bag wall and connecting elements surrounding said inlet opening for connection with a stoma in a user, and a carrier device for the collecting bag, said carrier device comprising a base plate for fastening on the user and a substantially annular first flange firmly connected with the base plate via a substantially annular first connecting section, said connecting elements comprising a substantially annular second flange firmly connected with the collecting bag via a substantially annular second connecting section and adapted for removable and adhesive connection with said first flange, said first and second flanges being connected with the base plate and the collecting bag, respectively, such that the outer radius of said second connecting section exceeds the outer radius of said first connecting section by a value which at least equals the total thickness of the first and the second flanges, the adhesive connection between the collecting bag and the carrier device being provided by a layer of adhesive on said second flange capable of repeated adhesion with said first flange, said first and second flanges being both made from a flexible and resilient material capable of deformation both in the plane of the flanges and at right angles thereto, thereby providing a cantilever area to secure adsorption of load forces from the bag by the resilient first and second flanges.

5,800,416

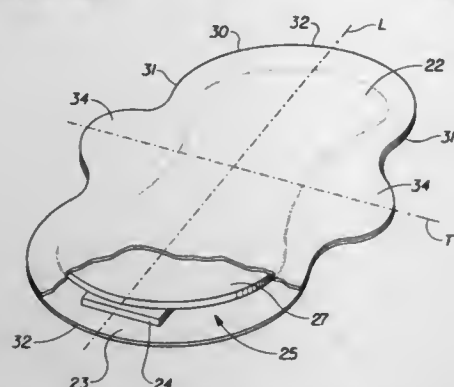
HIGH CAPACITY FLUID ABSORBENT MEMBERS
Geoffrey Eugene Seger, and Daniel Edward Buenger, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 17, 1996, Ser. No. 633,630

Int. Cl.⁶ A61F 13/15; B27J 5/00

U.S. Cl. 604—366

20 Claims



1. A fluid absorbent member, said absorbent member comprising:

- (a) greater than about 80% and up to about 95% stiffened, twisted, and curled bulking fibers;
- (b) between about 3% and about 20% eucalyptus high surface area fibers; and
- (c) between about 1% and about 5% chemical binder additive.

5,800,417

ABSORBENT COMPOSITION COMPRISING HYDROGEL-FORMING POLYMERIC MATERIAL AND FIBER BUNDLES

Kristin Ann Goerg-Wood, 2149 Michelle Ct., Apt. D; Franklin M. C. Chen, 1820 W. Glendale Ave., both of Appleton, Wis. 54914, and Fung-jou Chen, 3216 White Birch La., Appleton, Wis. 54915

Filed Dec. 12, 1995, Ser. No. 571,005

Int. Cl.⁶ A61F 13/15; 13/20

U.S. Cl. 604—367

20 Claims

1. An absorbent composition mixture comprising:
- a. a hydrogel-forming polymeric material in an amount of from about 5 to about 95 weight percent; and
 - b. fiber bundles in an amount of from about 5 to about 95 weight percent, wherein the fiber bundles are a particulate material consisting essentially of entangled fibers that have an equivalent particle size that is greater than about 150 micrometers and less than about 10,000 micrometers, wherein all weight percents are based upon the total weight of the hydrogel-forming polymeric material and the fiber bundles in the absorbent composition, and wherein the absorbent composition exhibits an Absorbency Under Load value that is at least about 10 percent greater than the Absorbency Under Load value exhibited by an otherwise substantially identical absorbent composition that does not comprise the fiber bundles.

5,800,418

ABSORBENT COMPOSITES AND ABSORBENT ARTICLES CONTAINING THE SAME

Nicholas A. Ahr, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 353,002, Dec. 9, 1994, abandoned.

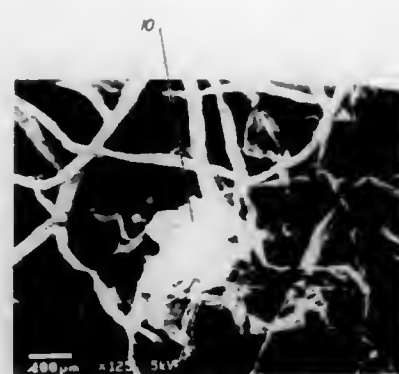
This application Sep. 23, 1996, Ser. No. 718,038

Int. Cl.⁶ A61F 13/15

U.S. Cl. 604—368

23 Claims

9. An absorbent article comprising a liquid pervious topsheet, a liquid impervious backsheet, and an absorbent core disposed there-



between, said absorbent core comprising an absorbent composite comprising particles of polymeric, absorbent gelling material in substantially individual form, polypropylene fibers and chemically stiffened, cellulosic fibers having ends, said fibers being wrapped around and adhered to each said particle such that said fiber ends protrude from each said particle, wherein each said wrapped particle is substantially separated from all other said wrapped particles, said absorbent composite having an absorption capacity under pressure ranging from about 32.2 g/g to about 42.2 g/g, a fluid acquisition time ranging from about 18 seconds to about 25 seconds and acquisition rates ranging from about 0.20 ml/second to about 0.28 ml/second.

5,800,419

DISPOSABLE BODY FLUID ABSORBENT GARMENT
Hiroyuki Soga, Kagawa-ken, and Noriyuki Kimura, Ehime-ken, both of Japan, assignors to Uni-Charm Corporation, Ehime-ken, Japan

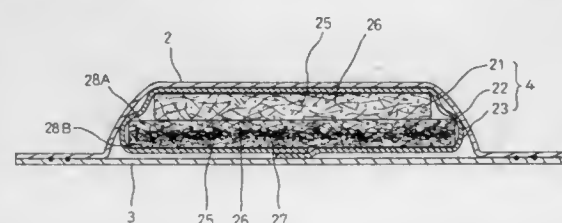
Filed Nov. 27, 1996, Ser. No. 757,795

Claims priority, application Japan, Nov. 30, 1995, 7-311912

Int. Cl.⁶ A61F 13/15; B32B 13/20; D04H 1/58

U.S. Cl. 604—368

6 Claims



1. A disposable body fluid absorbent garment comprising a liquid-absorbent core including a mixture of water-absorbent fibrous material and superabsorbent polymer particles and a liquid-permeable sheet at least partially covering the liquid-absorbent core;

wherein the polymer particles comprise first polymer particles having a water-absorption time shorter than 10 seconds as measured under the conditions as given below and second polymer particles having a water-absorption time longer than that of said first polymer particles by 10 seconds or more, said second polymer particles being integrally bonded to the first polymer particles;

whereby measurement conditions for water-absorption time include:

- (1) 25 ml of 0.9% saline water is poured into a 50 ml beaker and stirred at 500 r.p.m. by a magnetic stirrer equipped with a rotary element having a diameter of 7 mm and a length of 20 mm; and
- (2) 1 g of superabsorbent polymer particles is poured into the beaker during stirring and the time required by the polymer particles to absorb the whole 25 ml of saline water is determined by visual inspection.

5,800,420

ANALYTE-CONTROLLED LIQUID DELIVERY DEVICE AND ANALYTE MONITOR

Joseph Gross, Dublin 3, and John Gerard Kelly, Dublin 6, both of Ireland, assignors to Elan Medical Technologies Limited, Athlone, Ireland

Division of Ser. No. 556,744, Nov. 2, 1995. This application

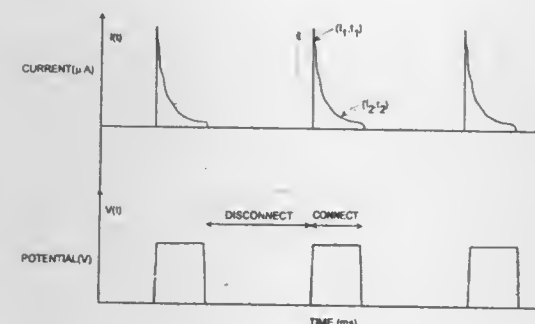
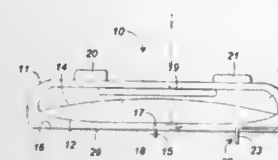
Dec. 19, 1996, Ser. No. 769,996

Claims priority, application Ireland, Nov. 4, 1994, 940864

Int. Cl.⁶ A61K 9/22; G01N 15/06

U.S. Cl. 604—890.1

53 Claims



1. A liquid delivery device for delivering a liquid drug to a subject via the subject's skin at a rate sufficient to maintain levels of an analyte within a physiologically acceptable range, comprising:

- a housing having a lower surface for application to the skin of the subject;
- means for holding the housing in position with the lower surface against the subject's skin;
- a drug reservoir within the housing;
- a hollow delivery needle associated with the drug reservoir extending through the lower surface when the lower surface is in contact with the subject's skin, having an inner end communicating with the drug reservoir and an outer end projecting outwards a sufficient distance so as to penetrate through the epidermis and into the dermis when the housing is pressed against the skin;
- means for actively discharging the drug from the reservoir to the subject's skin via the needle;
- means for intermittently detecting the concentration of an analyte in the subject plasma and for providing an electrical signal in accordance with the detected concentration, the concentration of said analyte being directly or indirectly related to the amount of drug required by the subject; and
- means for receiving said electrical signal and for controlling the rate of active discharge of drug in response thereto.

5,800,421

MEDICAL DEVICES USING ELECTROSENSITIVE GELS
Jerome H. Lemelson, 930 Tahoe Blvd. Unit 802, Suite 286, Incline Village, Nev. 89451-9436

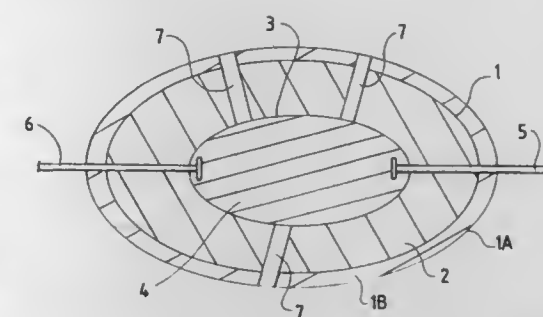
Filed Jun. 12, 1996, Ser. No. 662,345

Int. Cl.⁶ A61K 9/22

U.S. Cl. 604—891.1

7 Claims

1. A drug delivery device comprising an aliquot of a drug; a closed, flexible sack surrounding said drug; a layer of expandable copolymer gel surrounding said flexible sack; a permeable membrane surrounding said layer of expandable copolymer gel; and



electrode means operably coupled to said expandable copolymer gel to cause controllable contraction of said expandable copolymer gel in response to a voltage applied to said electrode means.

5,800,422

OSMOTIC DEVICE WITH DELAYED ACTIVATION OF DRUG DELIVERY AND COMPLETE DRUG RELEASE

Liang C. Dong, Sunnyvale; Patrick S.-L. Wong, Palo Alto; Si-Hong A. Yum, Daly City; Lawrence G. Hamel, Mountain View, and Michael H. Dealey, San Francisco, all of Calif., assignors to ALZA Corporation, Palo Alto, Calif.

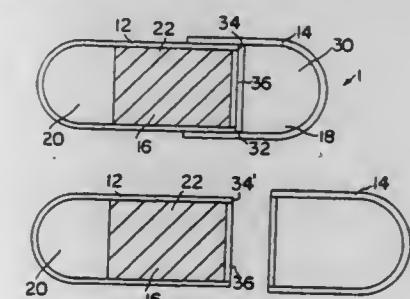
Continuation of Ser. No. 459,387, Jun. 2, 1995, abandoned.

This application Aug. 8, 1996, Ser. No. 700,323

Int. Cl.⁶ A61K 9/22

U.S. Cl. 604—892.1

16 Claims



1. A fluid-imbibing delivery device for dispensing essentially all of an active agent formulation to a fluid environment of use after an initial, preset delay of startup of delivery, the device comprising:

- (a) a first housing and a second housing, the first and second housings being in reversibly sliding telescoping arrangement with each other, the second housing having an open end and a closed end and being semipermeable;
- (b) said first housing having an open end and a closed end, said open end of said first housing being slidably received in said open end of said second housing, and said first housing containing an active agent formulation located adjacent its open end and a biologically inert first expansion agent devoid of active agent formulation located adjacent its closed end, said active agent formulation and said first expansion agent being contained within said first housing; and
- (c) said second housing containing a second expansion agent, wherein said second expansion agent upon imbibing fluid operates to separate said first and second housings and said first expansion agent upon imbibing fluid operates to dispense essentially all of said active agent formulation from said first housing.

5,800,423

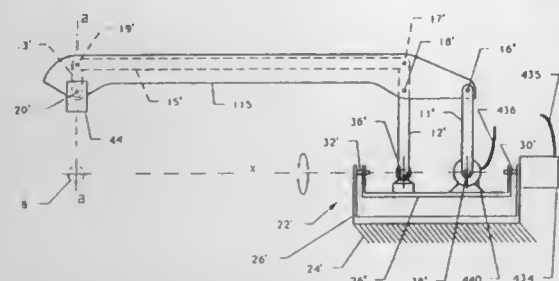
REMOTE CENTER POSITIONER WITH CHANNEL
SHAPED LINKAGE ELEMENT

Joel F. Jensen, Redwood City, Calif., assignor to SRI International, Menlo Park, Calif.

Division of Ser. No. 62,404, May 14, 1993. This application
Jul. 20, 1995, Ser. No. 504,619
Int. Cl.⁶ A61B 17/00

U.S. Cl. 606—1

10 Claims



8. A surgical manipulating system comprising:
- a surgical instrument having an elongate shaft with a proximal end and a distal end configured for introduction through a percutaneous penetration in a patient;
 - an instrument holder coupled to the shaft of the surgical instrument;
 - a rotatable joint having an x—x axis of rotation;
 - a first linkage including one member having one end pivotally mounted on the rotatable joint and the other end remote from the rotatable joint, the axis of rotation of the member of the first linkage being normal to and intersecting the x—x axis;
 - a second linkage comprising a sleeve and a rod disposed within the sleeve, the rod and sleeve being connected to the instrument holder for constraining the instrument holder to move in a parallel relationship with the first linkage, the second linkage being pivotally connected to the first linkage so that the rod and the sleeve remain parallel to the x—x axis and the member remains parallel to the instrument such that the spherical center of rotation is maintained at the desired fixed location of the instrument;
- wherein the instrument comprises an end effector coupled to the distal end and a handle at the proximal end, the handle including means for actuating the end effector and means for pivoting the end effector with respect to the instrument shaft.

5,800,424

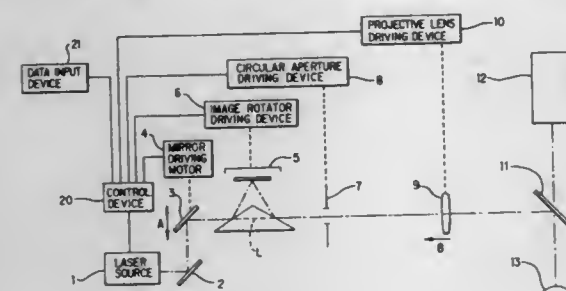
APPARATUS FOR USE IN OPERATING UPON A
CORNEA

Toshifumi Sumiya, Aichi, Japan, assignor to Nidek Co., Ltd., Japan

Continuation-in-part of Ser. No. 466,430, Jun. 6, 1995, abandoned. This application Oct. 29, 1996, Ser. No. 738,785
Claims priority, application Japan, Oct. 31, 1995, HEI 7-308441; Jun. 24, 1996, HEI 6-166231
Int. Cl.⁶ A61N 5/06

U.S. Cl. 606—4

23 Claims



1. An apparatus for use in operating upon a cornea of an eye comprising:

a light delivery optical system for delivering an ultraviolet laser beam emitted from a laser source onto the cornea;

a diaphragm with a variable aperture, disposed in said light delivery optical system, for variably restricting an irradiation area of the laser beam;

means for shifting the laser beam with respect to an optical axis of said light delivery optical system;

means for rotating the laser beam about the optical axis of said light delivery optical system at each shifted position to ablate the cornea circularly;

means for inputting information necessary for determining the shape of a post operative cornea;

means for determining the ablation amount at each shifted position of the laser beam by said beam shifting means, based on the information input through said input means;

means for controlling the laser source and action of the beam rotating means based on the ablation amount determined by said ablation amount determining means at each shifted position; and

wherein said laser beam ablates the cornea of the eye to correct ametropia.

5,800,425

AUTOMATIC NASAL ASPIRATORS

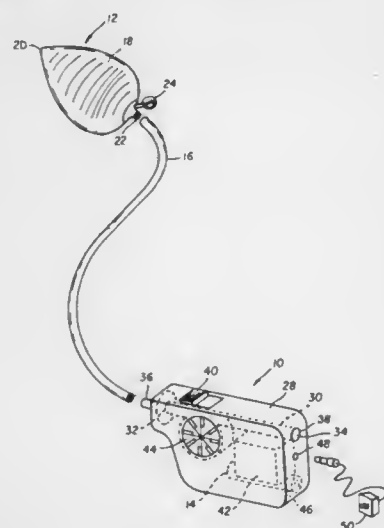
Rocco J. DeLeonardis, P.O. Box 3093, McLean, Va. 22103

Filed Aug. 27, 1996, Ser. No. 697,593

Int. Cl.⁶ A61M 1/00

U.S. Cl. 604—27

8 Claims



1. An Automatic Nasal Aspirator to clean matter from a nasal canal, said Automatic Nasal Aspirator comprising:
- a collection member for collecting the matter, said collection member having a tapered end for insertion into the nasal canal from where the matter is to be cleaned, said collection member having two ends, wherein said hose is removably connected to one of said two ends and the other end comprises the tapered end, and wherein said second end is not directly connected to any hose like structure such that the tapered end can be used at a point in the nasal canal from where the matter is collected;
 - a hose having a first end and a second end, the first end being connected to said collection member; and
 - a motor connected to the second end of said hose, said motor imparting a suction action to said collection member through said hose, wherein the suction action causes the matter to be cleaned from the nasal canal and collected in said collection member when said tapered end is inserted into the nasal canal, and
- wherein the tapered end of the collection member is short such that the suction action need not be of high strength.

5,800,426

HIGH-FREQUENCY HEATING POWER DEVICE FOR
CATHETER

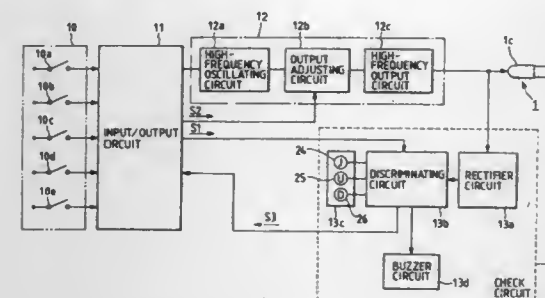
Waro Taki, Osaka; Akiyo Sadato, Kyoto; Atsushi Ogawa, Kanagawa; Yasuhiro Goto, and Shinichi Hirano, both of Aichi, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakush., Niwa-gun, and Kaneka Medix Corporation, Osaka, both of Japan

Filed May 16, 1996, Ser. No. 648,882

Claims priority, application Japan, May 19, 1995, 7-121162
Int. Cl.⁶ A61B 17/38

U.S. Cl. 606—32

13 Claims



1. A high-frequency heating power device comprising:
- a conductive leading member inserted into a catheter adapted to be inserted through a patient's body;
 - a grounding plate adapted to be set in contact with the patient's body;
 - a high-frequency heating power member for applying a high-frequency heating voltage to said conductive leading member through a lead wire to heat a tip portion of said conductive leading member, said high-frequency heating power member being electrically arranged between said conductive leading member and the grounding plate;
 - an impedance measuring for applying a high-frequency measuring voltage lower than said high-frequency heating voltage between said conductive leading member and said grounding plate, to measure an impedance of a circuit which is made up of said lead wire, said conductive leading member, said patient's body, and said grounding plate; and
 - an implanted device connected through a joint member to the tip portion of said conductive leading member, said joint member capable of being fused by application of said high-frequency heating voltage.

5,800,427

ELECTRO-SURGICAL BLADE

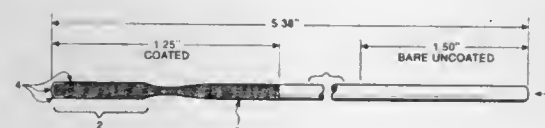
Gene Zamba, c/o BioGenetic Technologies, Inc., 13620 Wright Cir., Tampa, Fla. 34626

Filed Dec. 26, 1996, Ser. No. 773,955

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—39

9 Claims



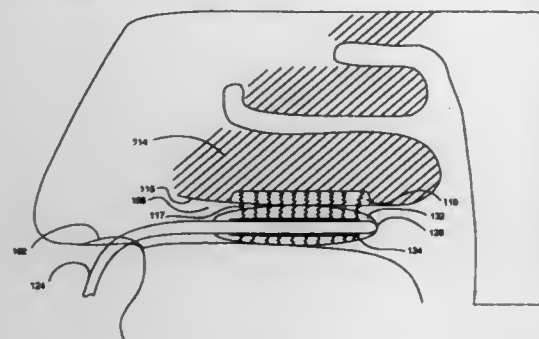
5,800,429 NONINVASIVE APPARATUS FOR ABLATING TURBINATES

Stuart D. Edwards, Portola Valley, Calif., assignor to Somnus Medical Technologies, Inc., Sunnyvale, Calif.
Continuation-in-part of Ser. No. 754,588, Nov. 19, 1996, and Ser. No. 753,063, Nov. 19, 1996, each which is a continuation-in-part of Ser. No. 651,796, May 22, 1996, abandoned, and Ser. No. 651,798, May 22, 1996, abandoned, each which is a continuation-in-part of Ser. No. 265,459, Jun. 24, 1994, Pat. No. 5,505,730. This application Nov. 19, 1996, Ser. No. 752,076

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—41

27 Claims



1. An apparatus for ablating at least a portion of a nasal concha comprising:
 - an introducer having a distal portion with a length operable for positioning the introducer distal portion through a nostril of a patient into a nasal meatus adjacent a surface of a nasal concha, the introducer including a longitudinal axis and a side port formed in a side wall of the introducer;
 - an energy delivery means coupled to the introducer distal portion for delivering sufficient ablative energy to the nasal concha to create an interior ablation section of the nasal concha; and
 - a nasal concha ablation protection means coupled to the energy delivery means the nasal concha ablation protection means having a large enough protection surface positionable adjacent to an exterior surface of the nasal concha to minimize an ablation of the exterior surface of the nasal concha when energy is delivered to the interior ablation section.

5,800,430

Patent Not Issued For This Number

5,800,431 ELECTROSURGICAL TOOL WITH SUCTION AND CAUTERY

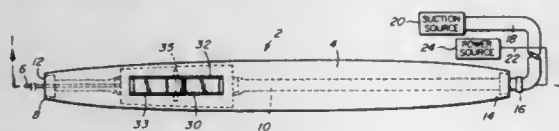
Robert H. Brown, Suite 4, 2151 McCallum Rd., Abbotsford, Canada, BC V2S 3N9

Filed Oct. 11, 1996, Ser. No. 729,169

Int. Cl.⁶ A61B 17/39

U.S. Cl. 606—42

9 Claims



1. An electrosurgical tool for use with a power source and a suction source comprising:
 - a handle for gripping by the user;

- an electrically heatable tip extending from the handle and being electrically connectable to the power source;
- a suction passage formed in the handle connectable to the suction source; and
- a manually actuatable rocker switch on the body including a portion that extends into and blocks the suction passage to prevent communication with the suction source when the switch is in a default position in which the tip is not electrically connected to the power source, the rocker switch being movable to a cutting position in which the tip is electrically connected to the power source and heated to perform cutting and a coagulating position in which the tip is electrically connected to the power source and heated to perform coagulation, movement of the rocker switch to each of the cutting and coagulating positions automatically communicating the suction passage with the suction source by moving the rocker switch portion to unblock the suction passage.

5,800,432 SYSTEMS AND METHODS FOR ACTIVELY COOLING ABLATION ELECTRODES USING DIODES

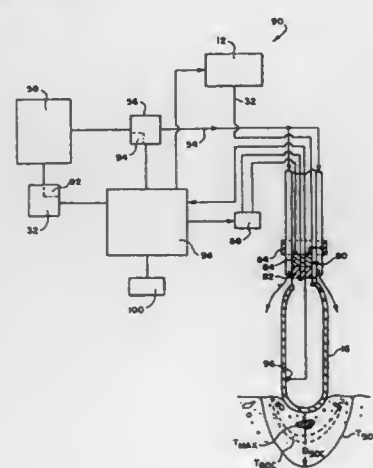
David K. Swanson, Mountain View, Calif., assignor to EP Technologies, Inc., Sunnyvale, Calif.

Filed May 1, 1995, Ser. No. 432,325

Int. Cl.⁶ A61B 17/36

U.S. Cl. 606—49

6 Claims



1. A system for ablating body tissue exposed to a blood pool comprising
 - a catheter body having a distal end,
 - an electrode having a thermal mass carried on the distal end for contact with tissue,
 - a heat dispersing element carried outside the catheter body in a spaced apart relationship from the electrode for thermal conductive contact with the blood pool and not tissue contacted by electrode;
 - a diode carried within the catheter body, the diode having one region couple in thermal conductive contact with the electrode for conducting heat energy from the thermal mass of the electrode in response to current flow through the diode, the diode including another region coupled in thermal conductive contact with the heat dispersing element for conducting the heat energy to the heat dispersing element for dispersion by conductive cooling by the blood pool;
 - a source of ablation energy coupled to the electrode for conveying ablation energy to the electrode for transmission by the electrode into tissue,
 - a source of current coupled to the diode for conveying current through the diode, and
 - a controller coupled to the source of ablation energy and to the source of current for operating the ablation energy source simultaneously with the current source to transmit ablation

energy from the electrode into tissue simultaneous with the conduction of heat energy from the electrode into the blood pool by the diode.

5,800,433 SPINAL COLUMN RETAINING APPARATUS

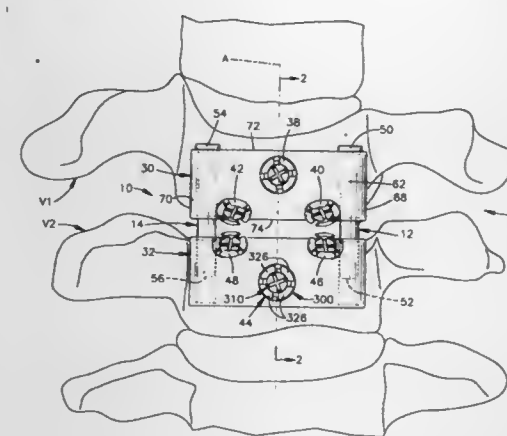
Edward C. Benzel, Albuquerque, N. Mex.; Hansen A. Yuan, Fayetteville, N.Y.; Alex Dinello, Palo Alto, Calif.; Michael H. Wefers, South Euclid, Ohio, and Aaron C. Smith, Gibsonia, Pa., assignors to AcroMed Corporation, Cleveland, Ohio

Filed May 31, 1996, Ser. No. 655,851

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61

12 Claims



1. An apparatus for retaining first and second vertebrae of a spinal column in a desired spatial relationship, said apparatus comprising:
 - a longitudinal member positionable along the spinal column;

- a plate member connectable with the first vertebra, said plate member having a corner defined by an outer surface of said plate member and an edge surface of said plate member extending from said outer surface and forming a lip portion, said plate member having first and second fastener openings through said corner and a portion engageable with said longitudinal member;
- a first fastener extendable through said first fastener opening to connect said plate member with the first vertebra, said first fastener having a first end portion for attachment to the first vertebra and having a longitudinal axis;
- a second fastener extendable through said second fastener opening to connect said plate member with the first vertebra, said second fastener having a first end portion for attachment to the first vertebra and having a longitudinal axis;
- said plate member having a third fastener opening extending through said member intermediate said first and second openings;
- a third fastener extendable through said third fastener opening in said plate member to connect said plate member with the first vertebra, said third fastener having a first end portion for attachment to the first vertebra and having a longitudinal axis, said longitudinal axis of said first fastener and said longitudinal axis of said third fastener converging at an acute angle as viewed in a sagittal plane when said first and second fasteners connect said plate member with the first vertebra; and
- means for connecting said longitudinal member with the second vertebra.

5,800,434 SEGMENTAL RIB CARRIAGE INSTRUMENTATION AND ASSOCIATED METHODS

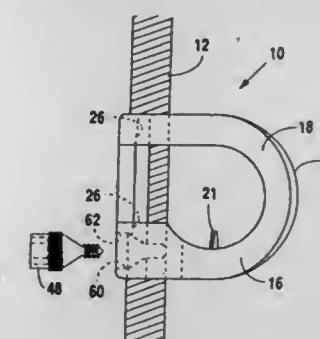
Robert M. Campbell, Jr., 415 Stone Wood, San Antonio, Tex. 78216

Division of Ser. No. 356,235, Jan. 16, 1995, Pat. No. 5,632,744. This application Mar. 18, 1997, Ser. No. 819,877

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61

6 Claims



1. A method for manipulating curvature of a human spine comprising the steps of:
 - selecting a first spinal rod and contouring said first spinal rod to define, in three dimensions, an at least partially corrected first dorsal contour of a first plurality of first ribs substantially along a first line lying in a first plane which first plane lies closely adjacent to said spine on a first side of said spine;

- selecting a second spinal rod and contouring said second spinal rod to define, in three dimensions, an at least partially corrected second dorsal contour of a second plurality of second ribs substantially along a second line lying in a second plane which second plane lies closely adjacent to said spine on a second side of said spine;
- selecting a third plurality of first rib carriages configured for attachment to said first spinal rod and respectively to each of a like fourth plurality of said first ribs on a first side of said spine of a recipient of said apparatus;
- selecting a fifth plurality of second rib carriages configured for attachment to said second spinal rod and respectively to each of a like sixth plurality of said second ribs on a second side of said spine of said recipient of said apparatus;
- attaching each of said first rib carriages respectively to each of said first ribs of said fourth plurality of said first ribs along said first line;
- attaching each of said second rib carriages respectively to each of said second ribs of said sixth plurality of said second ribs along said second line;
- attaching each of said first rib carriages to said first spinal rod; and
- attaching each of said second rib carriages to said second spinal rod wherein each of said first and said second rib carriages comprises a ring unit and a cam insert, each said ring unit including a loop structure on a first side of said ring unit and defining, on a second side of said ring unit, a spinal rod recess for partially enveloping a portion of one of said spinal rods, each said ring unit further exhibiting cam insert mating means adjacent said spinal rod recess for mechanically mating with said cam insert, said cam insert being sized and configured relative to said cam insert mating means whereby when said cam insert is mated with said cam insert mating means, said cam insert exerts a first force on a first side of said one of said spinal rods and a second force, oppositely directed from said first force, on said ring unit, said first and said second forces being vectored whereby said ring unit exerts a third force on a second side of said one of said spinal rods, substantially opposite said first side of said one of said spinal rods, said third force being applied in a substantially opposing direction from said first force whereby said one of said spinal rods is lodged between and substantially immobilized relative to said rib carriage.

5,800,435

MODULAR SPINAL PLATE FOR USE WITH MODULAR POLYAXIAL LOCKING PEDICLE SCREWS

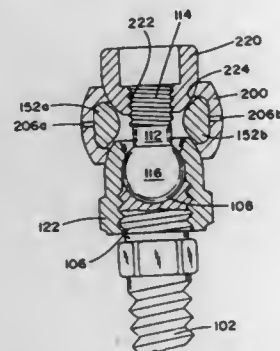
Joseph P. Errico, Far Hills; Thomas J. Errico, Summit; James D. Ralph, Oakland, and Steven Tatar, Montville, all of N.J., assignors to TechSys, LLC, Summit, N.J.

Continuation-in-part of Ser. No. 728,017, Oct. 9, 1996, and a continuation-in-part of Ser. No. 799,720, Feb. 12, 1997. This application May 1, 1997, Ser. No. 846,473

Int. Cl.⁶ A61B 17/70

U.S. Cl. 606—61

7 Claims



1. A modular spinal plating assembly for use with spinal screws having post portions which are extendable above the surface of a vertebral bone into which it has been inserted, comprising:
a track element including a pair of parallel spaced apart rails;
at least one compressible coupling element including
a first through hole for receiving therethrough said parallel spaced apart rails,
a second through hole for receiving therethrough a corresponding one of said post portions of one of said spinal screws, said second through hole being capable of receiving said post portion within a range of angles relative to a perpendicular axis of said through hole, said range including non-zero angles, and
at least one slot, said slot being narrowable by the application of a compression force; and
means for coupling said post portions to said corresponding at least one compressible coupling element,
wherein said means for coupling is mounted on the corresponding post portion and includes a curvate contact surface for providing a downward force onto said compressible coupling element independent of the angle of said post portion relative to said perpendicular axis of said through hole of said compressible coupling element, causing the narrowing of the at least one slot and the corresponding compression of the coupling element such that the coupling element is crush locked to the rails, and the corresponding pedicle screw and the plate assembly are rigidly locked together.

5,800,436

DEVICE FOR POSTOPERATIVE FIXATION BACK INTO THE CRANIUM OF A PLUG OF BONE REMOVED THEREFROM DURING A SURGICAL OPERATION

Karl-Dieter Lerch, Nordstrasse 16, D-58452, Witten, Bundesrepublik, Germany

Filed Jan. 28, 1997, Ser. No. 790,071

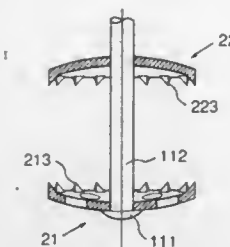
Claims priority, application Germany, Feb. 3, 1996, 196 03 887.1

Int. Cl.⁶ A61B 17/68

U.S. Cl. 606—72

11 Claims

1. An arrangement for postoperative fixation back into the cranium of a plug of bone removed therefrom during a surgical operation, comprising: a pin and two concavoconvex disks of a physiologically compatible metallic substance; said pin having a flat head at one end, one of said disks resting against said head; each disk having teeth extending along an edge of the concave side and a bore through the center of the disk; said pin having a shaft



fitting into said bore; said disks being mounted on said shaft with the teeth of one disk facing the teeth of the other disk, a first one of said disks being mounted adjacent said flat head and the second one of said disks being fastened to said shaft, said plug being fixed back into the cranium without an external device.

5,800,437

CANNULATED TAMP AND CENTERING ROD FOR TOTAL JOINT ARTHROPLASTY

Ramon B. Gustilo, Eden Prairie, and Todd J. Hein, Minneapolis, both of Minn., assignors to Orthopaedic Innovations, Inc., Golden Valley, Minn.

Continuation-in-part of Ser. No. 528,063, Sep. 14, 1995, Pat. No. 5,601,564, which is a continuation of Ser. No. 158,603, Nov. 24, 1993, abandoned. This application Oct. 8, 1996, Ser. No. 728,299

Int. Cl.⁶ A61F 5/00

U.S. Cl. 606—86

8 Claims



3. An orthopedic surgical instrument apparatus for use during an arthroplasty on a bone of a patient, the bone having a joint surface, a native cortical bone outer layer defining an intramedullary cavity, and a native cancellous bone within the intramedullary cavity, the apparatus comprising:

a cannulated tamp, adapted for tamping the native cancellous bone of a patient, having a longitudinal bore extending through the length of the cannulated tamp; and
a centering rod, having a smooth surface and a uniform diameter ending in a tapering distal tip, the centering rod sufficiently rigid to be driven through the native cancellous bone of a patient and become substantially embedded within the native cancellous bone, the centering rod having an outer diameter substantially equivalent to an inner diameter of the longitudinal bore so as to be telescopically slideably engageable within the longitudinal bore, wherein the centering rod is positionable in the longitudinal bore for guiding the cannulated tamp along the centering rod's longitudinal axis.

5,800,438

SURGICAL TOOL

Michael Antony Tuke, Guildford, and Robert Michael Wozen-croft, Surbiton, both of United Kingdom, assignors to Finsbury (Instruments) Limited, Leatherhead Surrey, United Kingdom

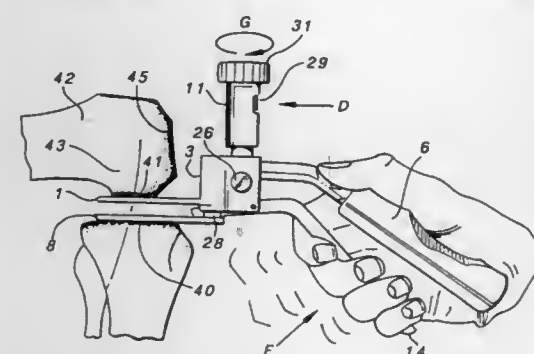
Filed Oct. 22, 1996, Ser. No. 735,033

Claims priority, application United Kingdom, Oct. 23, 1995, 9521683

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—90

26 Claims



1. A surgical tool for checking the flexion and extension gaps located between previously resected surfaces of a proximal tibia and corresponding posterior and distal femoral condyles during knee arthroplasty, the tool comprising a central body portion from which extends a handle; a first paddle flange adapted for insertion into a flexion or extension gap, the first paddle flange being mounted on the central body portion; a second paddle flange substantially parallel to the first paddle flange and cooperating therewith in a first position to define, between an upper surface of an upper one of said first and second paddle flanges and a lower surface of a lower one of said first and second paddle flanges, a first distance corresponding to a minimum gap and movable relative to the first paddle flange to define a second distance between the said upper surface and the said lower surface corresponding to a maximum gap; the second paddle flange being mounted so as to be movable relative to the central body portion of the tool to vary the gap defined by the first and second paddle flanges; hand operable means arranged to cause movement of the second paddle flange in a gap-increasing direction to enable determination of the size of the flexion gap or the extension gap; and means providing to a surgeon using the tool indicia comparative of the size of the flexion or extension gap being checked with the size of a flexion or extension gap checked in a previous operation of the tool.

5,800,439

CEMENT INJECTION AND INTRAMEDULLARY CANAL DRYING SYSTEM

Terry A. Clyburn, 8945 Longpoint, No. 218, Houston, Tex. 77055

Filed May 16, 1997, Ser. No. 857,421

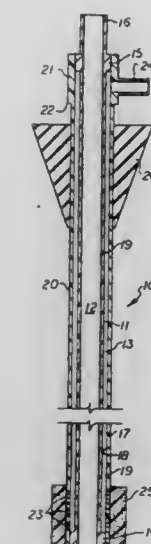
Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—94

6 Claims

1. An apparatus for use with a bone cement injection gun during pressurized injection of bone cement into the intramedullary canal of a bone prepared for implantation of a prosthetic device to facilitate continuous removal of fluid and blood products from, and simultaneous drying of, the interior surfaces of the intramedullary canal, comprising:

an elongate tubular member having a central bore, a proximal end, and a distal end, said proximal end adapted to be engaged on the nozzle of a bone cement injection gun for conducting bone cement through said central bore;



a fluid flow passageway extending from said distal end to said proximal end isolated from said central bore and having a fluid inlet at said distal end and a fluid outlet at said proximal end adapted for connection to a source of vacuum;
a porous absorbent pad secured to said distal end surrounding said fluid inlet and sized to be received in the intramedullary canal; and
a resilient generally conical-shaped pressurizing plug slidably mounted on the exterior of said tubular member sized and shaped to form a seal on the opening at the proximal end of the intramedullary cavity; wherein
bone cement under pressure is injected through said central bore while fluid is drawn through said absorbent pad and said fluid flow passageway, said tubular member and said injection gun are moved axially outward from said intramedullary canal as it is filled with bone cement under pressure, and fluid and blood products are continuously evacuated from the interior of said intramedullary canal during the injection and pressurization of the bone cement.

5,800,440

DEVICE FOR INSERTING A SURGICAL PIN

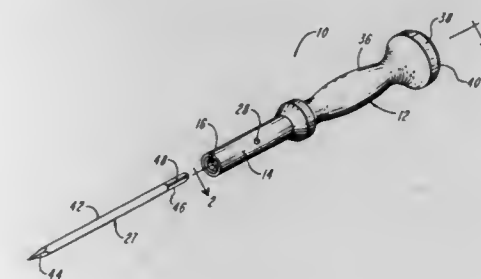
James R. Stead, Woonsocket, R.I., assignor to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Mar. 18, 1997, Ser. No. 819,259

Int. Cl.⁶ A61B 17/56

U.S. Cl. 606—104

22 Claims



1. A device for inserting a surgical pin into solid bone, comprising:
a substantially linear, axially elongated body having a first end defining a bore effective to receive an end of the pin and a second end opposite the first end, the second end defining an

outwardly facing impact surface for receiving a force to drive the pin into the solid bone, the bore including a surgical pin insertion limitation surface effective to transfer the impact force from the device to the pin, a wall portion extending from the surgical pin insertion limitation surface, and a first aperture defining an entry into the bore; and a retainer disposed within the bore effective to provide automatic releasable engagement of the pin in the bore, such that the device is removable from the pin while the pin remains secured in the solid bone.

5,800,441

FOLDABLE LENS DELIVERY SYSTEM

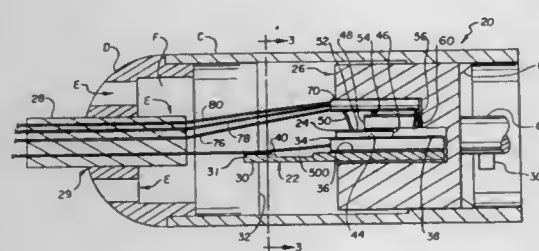
Dennis L. Polla, Plymouth, Minn.; John A. Costin, Lorian, Ohio; Arthur G. Erdman, and David J. Peichel, both of Plymouth, Minn., assignors to Micro Medical Devices, Cleveland, Ohio

Continuation of Ser. No. 326,907, Oct. 21, 1994, Pat. No. 5,607,433, which is a continuation-in-part of Ser. No. 275,835, Jul. 15, 1994, Pat. No. 5,629,577. This application Nov. 12, 1996, Ser. No. 748,190

Int. Cl.⁶ A61F 9/00

U.S. Cl. 606—107

10 Claims



1. An automated lens delivery device comprising:
a first wafer element having first wafer surface of a first material;
a second wafer element of a second material, abutting against but slidable relative to said first material;
a natural oxide thin film electrically insulating layer formed on said first wafer surface between said first and second wafer surfaces and said first and second wafer elements;
a controlling device which produces a first voltage between said first and second wafer elements to selectively electrostatically clamp said first wafer element relative to said second wafer element, and which produces a second voltage across said first wafer element which expands and contracts said first wafer element to move it relative to said second wafer element;
a pushing element, operatively attached to said first wafer element, and including a surface which is shaped to push a folded intra-ocular lens; and
means for holding an intra-ocular lens in a path of said surface of said pushing element.

5,800,442

DEFORMABLE INTRAOCULAR LENS INJECTING SYSTEM

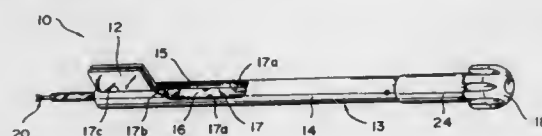
John R. Wolf, San Moreno, and Vladimir Feingold, Laguna Niguel, both of Calif., assignors to Staar Surgical Company, Inc., Monrovia, Calif.

Continuation of Ser. No. 403,530, Mar. 14, 1995, abandoned, which is a continuation-in-part of Ser. No. 221,013, Apr. 1, 1994, Pat. No. 5,494,484, which is a continuation of Ser. No. 953,251, Sep. 30, 1992, abandoned. This application Oct. 16, 1997, Ser. No. 951,311

Int. Cl.⁶ A61F 9/00

U.S. Cl. 606—107

24 Claims



1. A deformable intraocular lens injecting apparatus for inserting a deformable intraocular lens into an eye through a relatively small incision made in the ocular tissue, said apparatus comprising:

a body portion and a nozzle portion, said nozzle portion configured for insertion through the relatively small incision made in the ocular tissue, said nozzle portion having a lens delivery passageway extending therethrough;
a plunger having a plunger tip movably disposed in said lens delivery passageway, said plunger tip being defined by a distal plunger tip portion extending to a proximal plunger tip portion, said distal plunger tip portion having a substantially constant transverse cross-sectional size and shape, said constant transverse cross-sectional size of said distal plunger tip being less than a transverse cross-sectional size of said proximal plunger tip portion,
said distal plunger tip portion having a sufficient length and configured to provide a sufficient side clearance space for accommodating a trailing haptic of the deformable intraocular lens, said side clearance space extending from a front edge of said distal plunger tip portion to said proximal plunger tip portion defining the clearance space between said distal plunger tip portion and an inner wall of said lens delivery passageway to accommodate the trailing haptic of the deformable intraocular lens to prevent damage to the trailing haptic during insertion, and
said proximal plunger tip portion having the transverse cross-sectional size slightly less relative to a transverse cross-sectional size of said lens delivery passageway.

5,800,443

APPARATUS AND METHOD FOR LOCALIZING PROSTHESES DEPLOYED IN A BODY LUMEN

Ajit Shah, 112 Crescent Ave., Portola Valley, Calif. 94028

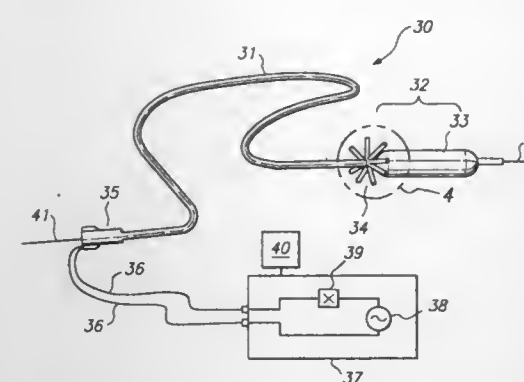
Filed Mar. 28, 1997, Ser. No. 826,035

Int. Cl.⁶ A61F 11/00; A61M 29/00

U.S. Cl. 606—108

21 Claims

1. Apparatus for detecting the location of a prosthesis previously deployed in a body lumen and for treating same, the apparatus for use in combination with an indicator means for providing a sensory indication, the apparatus comprising:
a catheter having a distal end region;
a therapeutic device disposed on the distal end region for effecting treatment in association with the prosthesis;



a first sensor disposed on the distal end region adjacent to the therapeutic device to detect an edge of the prosthesis; and means for coupling the first sensor to the indicator means.

5,800,444

DEVICES FOR REMOVING FIBRIN SHEATHS FROM CATHETERS

Mark T. Ridinger, and Paul V. Suhocki, both of Durham, N.C., assignors to Duke University, Durham, N.C.

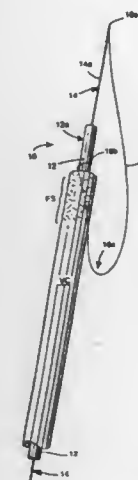
Division of Ser. No. 417,018, Apr. 5, 1995, Pat. No. 5,556,380.

This application Mar. 15, 1996, Ser. No. 616,451

Int. Cl.⁶ A61B 17/24; 17/26

U.S. Cl. 606—113

6 Claims



1. A medical device for removing biological material from a distal end of a patient-internal catheter comprising:
an elongate tubular member for intraluminal insertion within the patient-internal catheter and having a length sufficient to allow a distal end portion of said tubular member to extend beyond the distal end of the patient-internal catheter;
a central wire element positioned within said elongate tubular member and having a terminal end portion which extends distally beyond said distal end of said tubular member;
a snare wire having one end attached to said central wire element to form an acute angle therewith, and another end attached to said distal end of said tubular member at a position proximally of said one end of said snare wire which is attached to said central wire element; wherein
said snare wire includes a segment between said one end and said another end thereof which follows a course which is wrapped about said tubular member and extends in a direction proximally of said another end of said snare wire so as to be located adjacent the distal end of the patient-internal catheter; and wherein

said central wire and said tubular member are capable of relative rotation with respect to one another to cause said proximally extending snare wire segment to be wrapped around said distal end of the patient-internal catheter such that subsequent distal advancement of said wrapped snare wire segment relative to said distal end of the patient-internal catheter strips the biological material therefrom.

5,800,445

TISSUE TAGGING DEVICE

Keith Ratcliff, Newtown; Salvatore Castro, Seymour; Robert C. Savage, Stratford, all of Conn.; Jude S. Sauer, Pittsford, N.Y.; Roger J. Greenwald, Holley, N.Y., and Mark A. Bovard, Palmyra, N.Y., assignors to United States Surgical Corporation, Norwalk, Conn.

Filed Oct. 20, 1995, Ser. No. 546,011

Int. Cl.⁶ A61B 17/00

U.S. Cl. 606—116

22 Claims



14. A tagging device for identifying a particular location within a mass of body tissue comprising: an elongated tube having a proximal end and a distal end; an anchor releasably positioned within the distal end of the elongated tube; an elongated member having a first end connected to a central portion of the anchor; and a plunger which defines a hollow tube slidably positioned within the elongated tube, a second end of the elongated member being positioned within the hollow tube, the plunger being operably engageable with the anchor to move the anchor from a first position within the elongated tube to a second position ejected from the elongated tube, the distal end of the hollow tube and of the elongated tube having a longitudinal slot dimensioned to permit passage of the elongated member during movement of the anchor between the first and second positions; and wherein the plunger and anchor are configured to rotate the anchor continuously as the anchor moves between the first and second positions.

5,800,446

ARTICLE AND METHOD FOR DERMABRADING

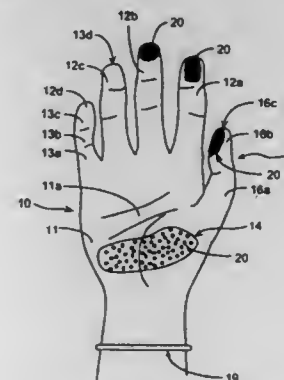
Isabel M. Banuchi, Avenida Domanech 302, Hato Bay, Puerto Rico, 00918

Filed Feb. 27, 1997, Ser. No. 807,362

Int. Cl.⁶ A61B 17/50; A41D 19/00

U.S. Cl. 606—131

5 Claims



1. A method of removing an epidermal portion of the skin of a patient by dermabrasion, comprising the steps of:
providing a disposable dermabrasion glove including (i) a main body having an opening and palmar and posterior regions for respectively covering palmar and posterior portions of the hand of the wearer, (ii) a plurality of finger extensions extend-

ing from the main body and wrapping around anterior and posterior surfaces of the fingers, and (iii) at least one abrasive region provided on a finger extension of the glove, along an anterior outer surface thereof;
fitting the glove on a hand of the wearer;
rubbing the at least one abrasive region against the skin to remove the epidermal portion.

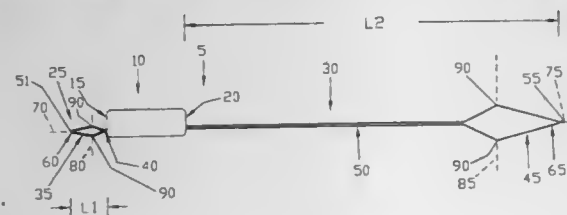
5,800,447
SUTURE THREADER ASSEMBLY, SUTURE ANCHOR ASSEMBLY, AND METHOD FOR THREADING SUTURE
Richard F. Wenstrom, Jr., Norwood, Mass., assignor to Mitek Surgical Products, Inc., Westwood, Mass.

Filed Jan. 3, 1997, Ser. No. 778,915

Int. Cl.⁶ A61B 17/04

U.S. Cl. 606—139

10 Claims



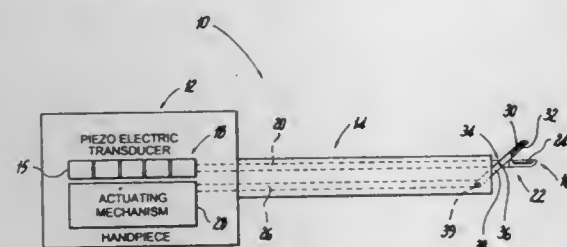
1. A suture threader assembly comprising:
a body having first and second ends;
a first suture threader extending from said body first end, said first suture threader comprising a substantially closed first loop of first wire-like material, a first neck portion of said first wire-like material interconnecting said first loop and said body first end; and
a second suture threader extending from said body second end, said second suture threader comprising a substantially closed second loop of second wire-like material, a second neck portion of said second wire-like material interconnecting said second loop and said body second end;
said second neck portion being longer than said first neck portion.

5,800,448
ULTRASONIC SURGICAL INSTRUMENT
William Banko, New York, N.Y., assignor to Surgical Design Corporation, Long Island City, N.Y.
Continuation-in-part of Ser. No. 685,700, Jul. 24, 1996, abandoned. This application Oct. 17, 1996, Ser. No. 730,851

Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—169

29 Claims



1. A surgical instrument comprising:
a handpiece;
a transducer mounted in the handpiece, the transducer being operative to convert electrical energy into longitudinal vibratory motion;
a first elongate shaft having a first end operatively connected to the transducer and a second end extending distally from the handpiece;

- a first cutting member fixedly mounted to the second end of the first shaft such that longitudinal vibratory motion generated by the transducer causes longitudinal vibratory motion of the first cutting member;
- a second cutting member pivotally mounted in proximity to the second end of the first shaft the second cutting member being pivotable between an open and closed position with respect to the first cutting member; and
- a second shaft having a first end pivotally connected to the second cutting member for affecting pivotable movement of the second cutting member between the open and closed positions.

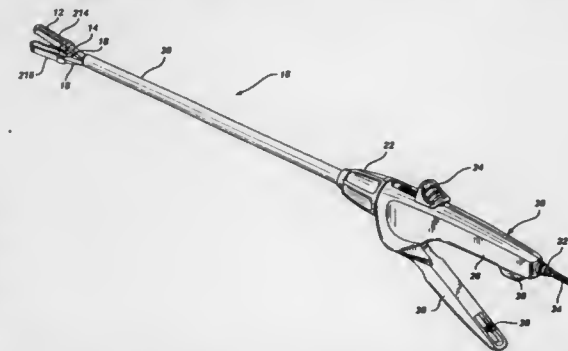
5,800,449
KNIFE SHIELD FOR SURGICAL INSTRUMENTS
Kenneth S. Wales, Mason, Ohio, assignor to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio

Filed Mar. 11, 1997, Ser. No. 816,017

Int. Cl.⁶ A61B 17/32

U.S. Cl. 606—172

9 Claims



1. A surgical instrument including a handle, an end effector and an elongated closure tube connected to said handle and adapted to actuate said end effector comprising:
a tissue stop for use in a surgical instrument, wherein said tissue stop comprises:
a distal end and a proximal end;
a body at said proximal end;
a knife housing at said distal end;
a neck interconnecting said body and said knife housing;
a knife blade slot in said knife housing at said distal end;
a knife channel connecting said distal end to said proximal end through said body, said neck and said housing;
a first wireform guide channel on a first side of said body; and
a second wireform guide channel on a second side of said body;
a first wireform element passing through said elongated tube on a first side of said tissue stop;
a second wireform element passing through said elongated tube on a second side of said tissue stop;
a knife positioned within said tissue stop wherein said knife includes a blade positioned in said knife blade slot;
a knife edge at a distal end of said knife blade such that the entirety of said knife edge is contained within said slot when said knife is in a proximal position.

5,800,450
NEOVASCULARIZATION CATHETER
Banning Gray Lary, Miami, Fla., and Herbert R. Radisch, Jr., San Diego, Calif., assignors to Interventional Technologies Inc., San Diego, Calif.

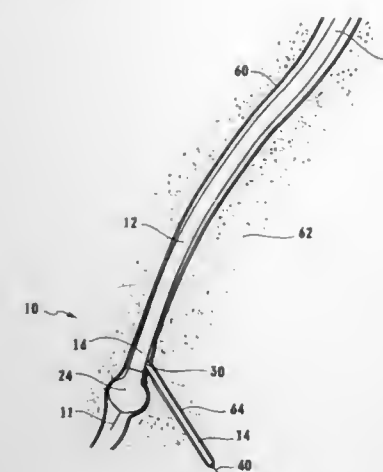
Filed Oct. 3, 1996, Ser. No. 726,401

Int. Cl.⁶ A61B 17/14; 17/32; 29/00; 19/00

U.S. Cl. 606—180

23 Claims

1. A device for boring a perfusion channel from a vessel into the cardiac muscle of a patient which comprises:



- a positioning catheter having a distal end and a proximal end, said positioning catheter formed with a deployment lumen extending from said proximal end of said positioning catheter and terminating at an orifice positioned near said distal end of said positioning catheter, said deployment lumen at said orifice being oriented radially outward from said positioning catheter;
- anchoring means attached to said distal end of said positioning catheter for selectively anchoring said positioning catheter in said vessel; and
- a cutting catheter having a distal end and a proximal end, said cutting catheter slidably insertable through said deployment lumen of said positioning catheter for selective projection of said distal end of cutting catheter from said orifice of said positioning catheter to bore said perfusion channel.

5,800,451
TROCAR SYSTEM
Gerhard Buess, Tübingen; Andreas Melzer, Duisburg; Franz Jakoubek, Liptingen, and Joachim Krauter, Korb, all of Germany, assignors to Willy Rüsch AG, Kernen-Rommelshausen, Germany

PCT No. PCT/DE95/00058, § 371 Date Oct. 25, 1996, § 102(e) Date Oct. 25, 1996, PCT Pub. No. WO95/19146, PCT Pub. Date Jul. 20, 1995

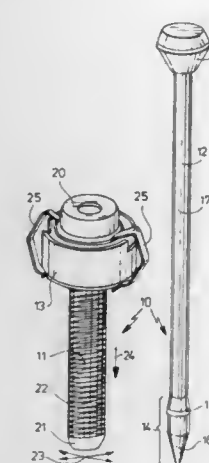
PCT Filed Jan. 16, 1995, Ser. No. 676,357

Claims priority, application Germany, Jan. 18, 1994, 44 01 237.3

Int. Cl.⁶ A61B 17/34

U.S. Cl. 606—185

10 Claims U.S. Cl. 606—191



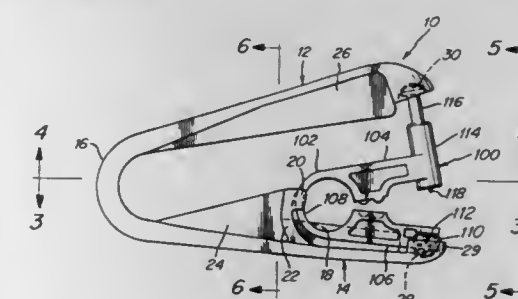
1. A trocar system comprising:
a trocar plunger having one of a circular step and a conical section at a tip thereof;

a flexible trocar tube defining a lumen, said tube being stretchable along an axial length thereof, said tube having a taper at an end proximate to a patient, said taper interlocking with at least one of said circular step or conical section; and
a valve mechanism formed at an end of said trocar tube facing away from a patient, said valve mechanism having a valve housing adapted for passage of said trocar plunger for insertion of said trocar plunger into said trocar tube.

5,800,452
BODY PIERCING INSTRUMENT HOLDER
John A. Hastings, 31 Main St., Bass River, Mass. 02664
Filed Mar. 4, 1997, Ser. No. 810,076
Int. Cl.⁶ A61B 17/00

U.S. Cl. 606—188

5 Claims

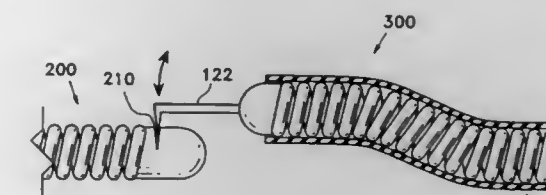


1. In combination, a piercing instrument and a holder for said piercing instrument, said piercing instrument including a plunger adapted to engage a head of a piercing pin and a locknut support adapted to receive a pointed end of said piercing pin after it has been projected through a body part, said holder comprising means for commonly supporting said plunger engaging means and said locknut support engaging means and means for preventing said piercing instrument from being dislodged from said holder.

5,800,453
DETACHABLE EMBOLIC COIL ASSEMBLY USING INTERLOCKING HOOKS AND SLOTS
Son Gia, San Jose, Calif., assignor to Target Therapeutics, Inc., Fremont, Calif.
Continuation of Ser. No. 49,577, Apr. 19, 1993; abandoned. This application Mar. 7, 1995, Ser. No. 400,471

Int. Cl.⁶ A61M 29/00

16 Claims

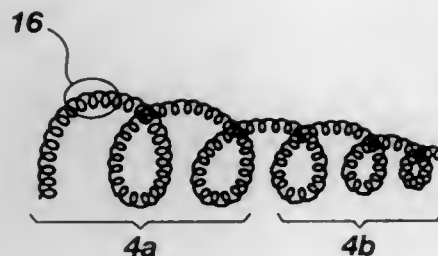


1. A detachable coil assembly for use in occluding a selected vascular site comprising a coil having helical coil windings with an axis, a distal end, and a proximal end; and having an interior slot located adjacent at least one of the proximal and distal ends of said coil windings wherein the interior slot is an open receiving slot located between the proximal and distal coil winding ends; and having a coil cap which is formed from solder, epoxy, fused coil material, or other filling material, and wherein said open receiving slot is within said cap and is generally perpendicular to the coil axis, and wherein the open receiving slot will accept a hook adapted both to enter the receiving slot and also to exit the open receiving slot.

5,800,454
**CATHETER DELIVERABLE COILED WIRE
THROMBOGENIC APPARATUS AND METHOD**
Stephen C. Jacobsen; Clark C. Davis, both of Salt Lake City,
and John A. Lippert, Park City, all of Utah, assignors to
Sarcos, Inc., Salt Lake City, Utah
Filed Mar. 17, 1997, Ser. No. 818,268
Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—191

19 Claims

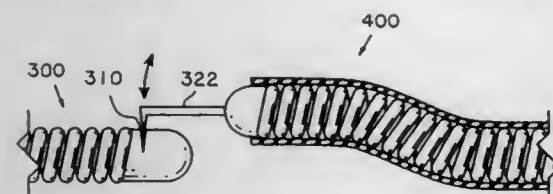


1. Thrombogenic apparatus comprising a catheter for threading into a body vasculature passageway to a target location, and
a resilient wire means coiled and shaped to occupy a certain volume when unconstrained, and to straighten when inserted lengthwise into and constrained by the catheter, for ultimate discharge therefrom to expand and occupy the target location, said wire means further including
a first length of wire, and
a second length of wire coiled into a primary coil about the first wire to form a composite pair, said composite pair itself being coiled into a secondary coil and shaped to occupy said volume when unconstrained, and to straighten when inserted lengthwise into and constrained by the catheter.

5,800,455
DETACHABLE EMBOLIC COIL ASSEMBLY
Thomas J. Palermo, Mountain View, and Son Gia, San Jose, both of Calif., assignors to Target Therapeutics, Inc., Fremont, Calif.
Continuation of Ser. No. 471,825, Jun. 7, 1995, abandoned, which is a division of Ser. No. 361,330, Dec. 21, 1994, which is a continuation-in-part of Ser. No. 49,577, Apr. 19, 1993.
This application Oct. 14, 1997, Ser. No. 949,768
Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—191

16 Claims



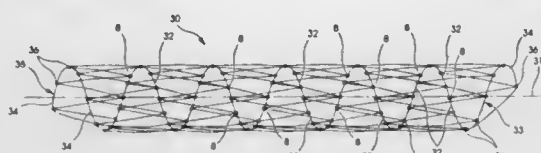
1. A detachable coil assembly for use in occluding a selected vascular site comprising:
a first coil having a longitudinal axis, a distal end, a proximal end, and having a generally hemispherical cap, an open receiving slot being formed in said cap, said first coil further including an axial passageway generally collinear with said longitudinal axis and in communication with said open receiving slot;
a second coil having a proximal end and a distal end, at least one of said proximal and distal ends of said second coil further comprising a hook which enter and engages said open receiving slot, said hook also including an axial opening that is adapted to allow a control wire to pass through said axial opening and said axial passageway when said hook is engaged within said open receiving slot; and

wherein said control wire is adapted to be advanced through said axial passageway and said axial opening when said hook is engaged within said open receiving slot to thereby couple said first and second coils, and is also adapted to be withdrawn from said axial opening and said axial passageway to uncouple said first and second coils.

5,800,456
SPIRAL STENT
Munehiro Maeda, Yamato-Takada, Japan; Hans A. Timmermans, Portland, Oreg.; Barry T. Uchida, Lake Grove, Oreg., and Josef Rösch, Portland, Oreg., assignors to Cook Incorporated, Bloomington, Ind.
Continuation of Ser. No. 580,650, Dec. 29, 1995, abandoned, which is a continuation of Ser. No. 821,477, Jan. 15, 1992, Pat. No. 5,507,767. This application Jun. 13, 1997, Ser. No. 874,879
Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—198

24 Claims

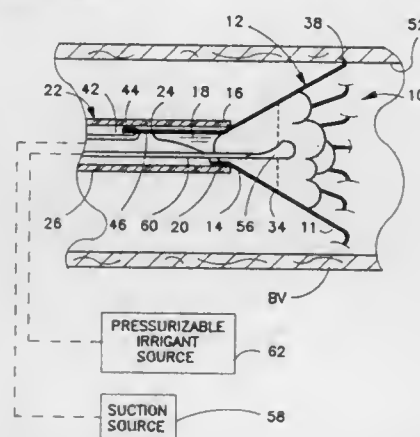


1. A self-expanding stent comprising:
a wire bent into an elongated zigzag pattern having a plurality of bends;
said zigzag pattern being helically wound about a central axis to define a tubular shape such that a majority of said plurality of bends are disposed in a helix;
means for interconnecting adjacent bends of said helix; and
said stent having a radially compressed state such that said bends are tightly packed around said central axis, whereby said stent resiliently self-expands to assume said tubular shape when released from said compressed state.

5,800,457
**INTRAVASCULAR FILTER AND ASSOCIATED
METHODOLOGY**
Gary A. Gelbfish, 2502 Avenue I, Brooklyn, N.Y. 11210
Filed Mar. 5, 1997, Ser. No. 811,919
Int. Cl.⁶ A61B 17/22

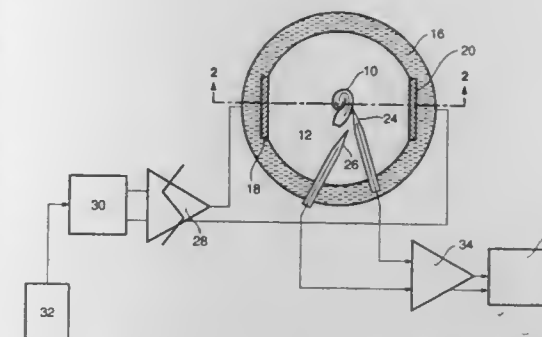
U.S. Cl. 606—200

31 Claims



1. An intravascularly deployable device for collecting intravascular debris, comprising a collector body expandable from a collapsed insertion configuration to an expanded use configuration, said use configuration of said body tapering down from a maximum cross-sectional area to a minimal cross-sectional area at a

downstream end of said body, said body being provided at said downstream end with an access port to removably connect an elongate debris removal instrument to said body so that said instrument can traverse said access port to remove debris from said body after disposition of the intravascularly deployable device inside a blood vessel of a patient, said access port taking the form of a sleeve extending in a downstream direction from said body said sleeve being beveled to taper down from a maximal transverse outside dimension at an upstream end to a minimal transverse outside dimension at a downstream end.

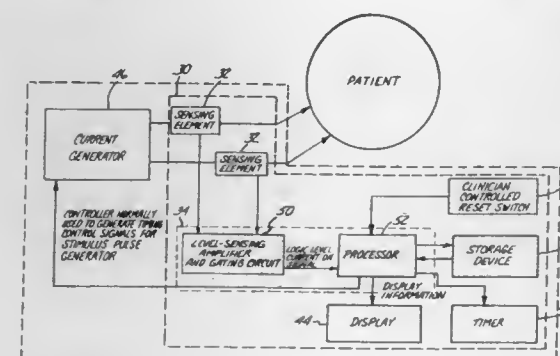


5,800,458
**COMPLIANCE MONITOR FOR MONITORING APPLIED
ELECTRICAL STIMULATION**

Robert C. Wingrove, Inver Grove Heights, Minn., assignor to Rehabilicare, Inc., New Brighton, Minn.
Filed Sep. 30, 1996, Ser. No. 723,518
Int. Cl.⁶ A61N 1/08

U.S. Cl. 607—2

28 Claims



1. A compliance monitor for monitoring electrical stimulation from a stimulator unit, comprising:
(a) a sensing element for sensing the electrical stimulation, the sensing element providing a stimulation indication-signal;
(b) a controller responsive to the stimulation indication-signal for determining when electrical stimulation is applied, wherein the electrical stimulation comprises at least one on-phase and at least one off-phase; and
(c) a timer operably connected to the controller to monitor the amount of time electrical stimulation is applied wherein the timer monitors the amount of time the at least one on-phase and the at least one off-phase has been applied.

5,800,459
**ELECTRIC FIELD CONTROL OF EPILEPTIFORM
ACTIVITY**

Mark L. Spano, Laurel; Steven J. Schiff, Rockville, both of Md.; Bruce J. Gluckman, Arlington, Va., and William L. Ditto, Woodstock, Ga., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 825,150, Mar. 26, 1997. This application Dec. 24, 1996, Ser. No. 773,459
Int. Cl.⁶ A66N 1/40

U.S. Cl. 607—2

6 Claims

5. A method of modifying behavior of a neural system within which epileptic activity occurs including the steps of: generating

an electric field; positioning the electric field in operative alignment with the neural system; recording the epileptic activity occurring in the neural system; and changing the electric field in polarity and magnitude dependent on said recording of the epileptic activity for modification of seizure-like events.

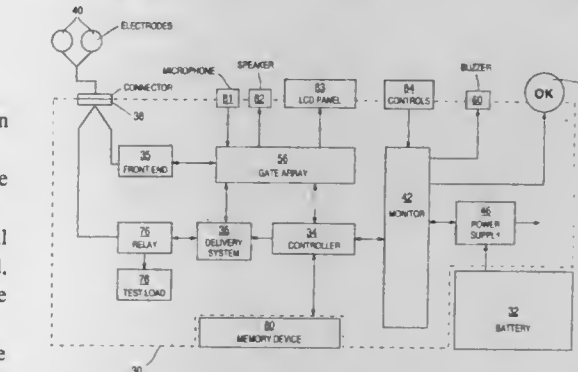
5,800,460
**METHOD FOR PERFORMING SELF-TEST IN A
DEFIBRILLATOR**

Daniel J. Powers, Bainbridge Island; David Cameron; Clinton S. Cole, both of Seattle; Thomas D. Lyster; Steven T. Mydnyski, both of Bothell, and Carlton B. Morgan, Bainbridge Island, all of Wash., assignors to Heartstream, Inc., Seattle, Wash.

Continuation of Ser. No. 468,196, Jun. 6, 1995, abandoned, which is a division of Ser. No. 240,272, May 10, 1994, which is a continuation-in-part of Ser. No. 63,631, May 18, 1993, abandoned. This application Apr. 16, 1997, Ser. No. 834,346
Int. Cl.⁶ A61N 1/39

U.S. Cl. 607—5

7 Claims



1. A method of performing a self-test in an external defibrillator, the method comprising the following steps:
generating a test signal automatically;
turning on a power system within the external defibrillator in response to the test signal; and
performing a plurality of automatic self-tests within the external defibrillator for determining the status of the defibrillator.

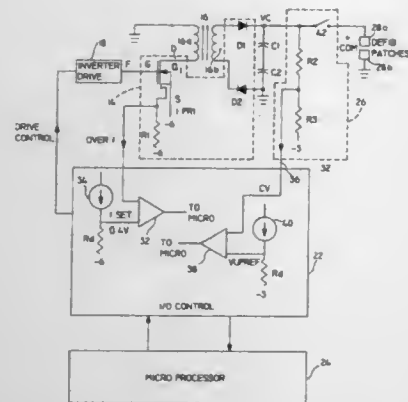
5,800,461
**CONSTANT CHARGE TIME OF DEFIBRILLATION
CAPACITOR**

John Menken, Champlin, Minn., and Paul Monroe, Janesville, Wis., assignors to Cardiac Pacemakers, Inc., St. Paul, Minn.
Continuation of Ser. No. 344,611, Nov. 18, 1994, abandoned, which is a continuation of Ser. No. 978,549, Nov. 19, 1992, abandoned. This application Nov. 13, 1995, Ser. No. 538,831
Int. Cl.⁶ A61N 1/39

U.S. Cl. 607—7

2 Claims

1. A system for controlling the charging and discharging of a defibrillation capacitor comprising:



battery supply means for providing a supply voltage;
defibrillation capacitor means for being charged to a predetermined voltage;

transformer means comprising a primary and a secondary, the secondary being connected to said defibrillation capacitor means, the secondary being charged by said primary for delivering current to the defibrillation capacitor means;

inverter means connected to said battery supply means and to the primary of said transformer means, said inverter means capable of assuming a first state in which current is supplied from the battery supply means to the primary of the transformer means and a second state in which no current is supplied to the primary;

inverter drive means connected to the inverter means for generating an inverter drive signal at least three times the value of the supply voltage comprising repeating spaced pulses, each pulse of the drive signal triggering the inverter means to assume said first state to supply current to the primary of the transformer means for a duration corresponding to a duration of each pulse;

control means connected to said defibrillation capacitor means, to said inverter means and to said inverter drive means, said control means monitoring the voltage across said defibrillation capacitor means and monitoring the current in the primary reaching a preset value, and to terminate the inverter drive signal in response to the voltage of said defibrillation capacitor means reaching said predetermined voltage; said control means controlling said inverter drive means to maintain the frequency of the inverter drive signal constant so that the energy delivered to the defibrillation capacitor means from the secondary of the transformer means per cycle of the inverter drive signal is constant;

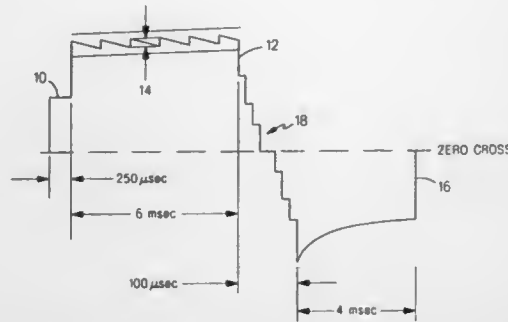
defibrillation trigger means connected to said defibrillation capacitor means for triggering the discharge of said defibrillation capacitor means to defibrillation electrodes;

termination means connected to said defibrillation capacitor means for terminating the discharge of said defibrillation capacitor means a preset period of time after the discharge of the defibrillation capacitor means to the defibrillation electrodes by directing the charge of said defibrillation capacitor means to ground; and

internal discharge means for connecting the defibrillation capacitor means to ground upon desiring not to deliver a defibrillation shock.

5,800,462
ELECTROTHERAPY CIRCUIT FOR PRODUCING THERAPEUTIC DISCHARGE WAVEFORM BASED ON HIGH-CURRENT SENSING PULSE
Michael L. Lopin, Newton, and Shervin Ayati, Sudbury, both of Mass., assignors to ZMD Corporation, Wilmington, Del.
Filed Dec. 18, 1996, Ser. No. 769,045
Int. Cl.⁶ A61N 1/37

U.S. Cl. 607—7 53 Claims
1. An electrotherapy circuit for administering to a patient a current waveform, comprising:
a charge storage device having opposite poles;



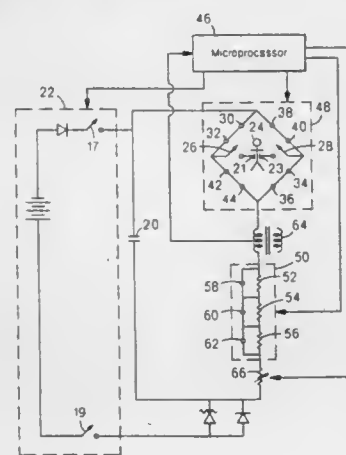
at least two discharge electrodes connected by electrical circuitry to the opposite poles of the charge storage device;
a sensor that senses a patient-dependent electrical parameter during a sensing pulse portion of a current waveform, the sensing pulse portion having insufficient energy for performing therapy; and

a control circuit, connected to the sensor and the charge storage device, for controlling discharge of the charge storage device through the electrodes, the discharge of the charge storage device comprising the current waveform having the sensing pulse portion during which the sensor senses the patient-dependent electrical parameter, the current waveform also having a therapeutic discharge portion, with sufficient energy for performing therapy, having an initial discharge current controlled by the control circuit based on the patient-dependent electrical parameter as sensed by the sensor, the sensing pulse portion having a discharge current that is at least about one-third of the initial discharge current of the therapeutic discharge portion.

5,800,463
ELECTROTHERAPY CIRCUIT HAVING CONTROLLED PEAK CURRENT
Michael L. Lopin, Newton, and Shervin Ayati, Sudbury, both of Mass., assignors to ZMD Corporation, Wilmington, Del.
Filed Dec. 18, 1996, Ser. No. 769,777
Int. Cl.⁶ A61N 1/36

U.S. Cl. 607—8

38 Claims



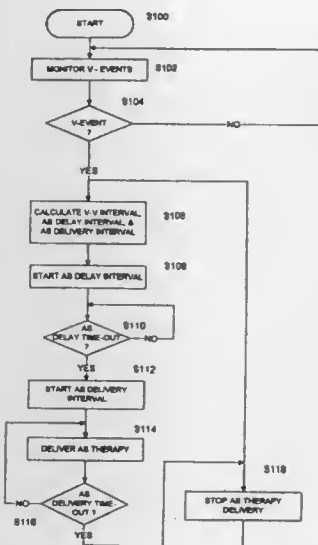
1. An electrotherapy circuit for administering to a patient a current waveform, comprising:
a charge storage device;
at least two discharge electrodes connected by electrical circuitry to opposite poles of the charge storage device;
a sensor that senses a patient-dependent electrical parameter; and
a control circuit, connected to the sensor and the charge storage device, that controls discharge of the charge storage device through the electrodes, during the discharge of the charge storage device, based on the patient-dependent electrical parameter as sensed by the sensor, in a manner so as to reduce

the dependence of peak discharge current on the electrical parameter for a given amount of charge stored by the charge storage device.

5,800,464
SYSTEM FOR PROVIDING HYPERPOLARIZATION OF CARDIAC TO ENHANCE CARDIAC FUNCTION
Robert S. Kleval, Golden Valley, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Oct. 3, 1996, Ser. No. 720,834
Int. Cl.⁶ A61N 1/365

U.S. Cl. 607—9

20 Claims



1. A method of operating a medical device having electrode means adapted for placement about the heart of a living body for hyperpolarizing cardiac cells and characterized by having means to deliver anodal stimulation through said electrode means comprising the steps of:

detecting depolarizations of a chamber of a patient's heart and providing a sense signal in response thereto;
timing an anodal stimulation delivery interval from the sense signal;

generating an anodal stimulation electrical pulse characterized by a waveform having a characteristic sufficient to hyperpolarize myocardial cells of the heart chamber, said waveform also having no characteristic sufficient to capture said cells;
delivering the anodal stimulation therapy to the heart chamber during a delivery interval timed in relation to the sensed signal.

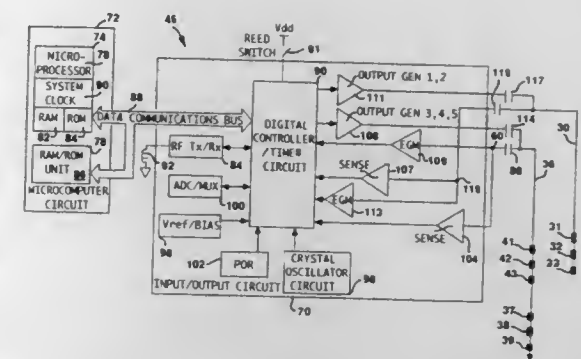
5,800,465
SYSTEM AND METHOD FOR MULTISITE STEERING OF CARDIAC STIMULI
David L. Thompson, Gary W. King, both of Fridley, and Gregory A. Hrdlicka, Plymouth, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Oct. 30, 1996, Ser. No. 755,797
Int. Cl.⁶ A61N 1/36; 1/05

U.S. Cl. 607—9

42 Claims

1. A pacing system for pacing in at least a patient's left atrium, comprising:

a multiple electrode lead for pacing in the patient's left atrium, said lead having a distal end and at least two anode electrodes and one cathode electrode positioned near said distal end, said electrodes being spaced from each other with a predetermined geometry, said lead having a proximal end for connecting to a pulse generator, and respective conductors connecting the respective electrodes to said proximal end,

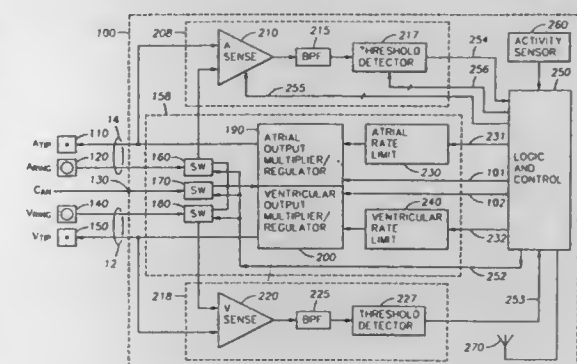


pulse generator means for generating at least two pulse outputs and delivering a first of said outputs between a first of said anode electrodes and said cathode electrode, and for delivering a second of said outputs between the second of said anode electrodes and said cathode electrode, said pulse outputs having magnitude, polarity and phase parameters,
control means for controlling each of said pulse outputs with respect to at least one of said pulse parameters, and
steering means for selecting said at least one pulse parameter for each pulse output so as to generate pulses for steering the delivery of composite steering pulses to an effective site when said lead distal end is positioned in the patient's left atrium.

5,800,466
DYNAMIC ATRIAL DETECTION SENSITIVITY CONTROL IN AN IMPLANTABLE MEDICAL CARDIAC SIMULATOR
Andre Routh, Lake Jackson, Tex.; Annette Bruls, Brussels, Belgium; Drury Woodson, II, Alvin; Joseph Vandegriff, Brazoria, both of Tex., and Yves Verboven, Kessel-Lo, Belgium, assignors to Sulzer Intermedics Inc., Angleton, Tex.
Filed Apr. 14, 1997, Ser. No. 843,234
Int. Cl.⁶ A61N 1/362

U.S. Cl. 607—14

19 Claims



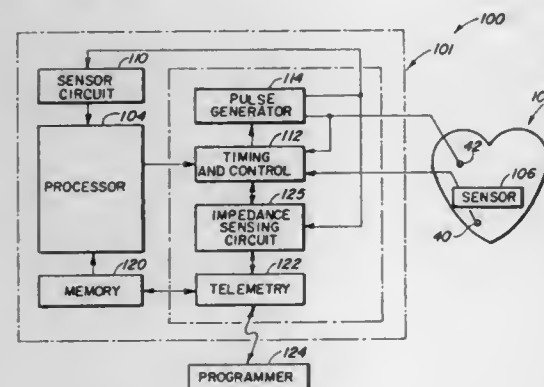
17. An implantable cardiac stimulator comprising
a control circuit including memory for storing a predetermined atrial fibrillation atrial detection sensitivity value;
a pulse generator controlled by said control circuit;
a sense circuit for detecting an electrical condition of the heart, said sense circuit having an adjustable sensitivity circuit;
means responsive to said sense circuit for detecting atrial fibrillation;
means for setting said sensitivity circuit to said predetermined atrial fibrillation atrial detection sensitivity value when atrial fibrillation is detected.

5,800,467
CARDIO-SYNCHRONOUS IMPEDANCE MEASUREMENT
SYSTEM FOR AN IMPLANTABLE STIMULATION
DEVICE

**Euljoon Park, Stevenson Ranch; Kerry Bradley, Pasadena;
Gene A. Bornzin, Simi Valley, and Joseph J. Florio, Sunland,
all of Calif., assignors to Pacesetter, Inc., Sylmar, Calif.
Filed Dec. 13, 1996, Ser. No. 766,641**

U.S. Cl. 607—17

34 Claims



1. An implantable electrical system for delivering therapeutic shocks to a heart of a patient, the system comprising:
a lead, which extends into a ventricle of the heart, adapted for delivering electrical pulses;
control means for selectively inducing the lead to deliver an impedance measurement excitation pulse and pacing pulses to the ventricle to regulate the function of the heart;
measuring means, in response to the delivered excitation pulse, for measuring at least two instantaneous impedance measurements in the heart, wherein the impedance measurement excitation pulses are delivered to the heart at at least two different times during a measurement window to determine a single slope, the window being selected to coincide with contraction of the ventricle;
means for determining an impedance slope based on the instantaneous impedance measurements, the impedance slope being indicative of contractility of the heart; and
means for regulating the heart function based on the impedance slope.

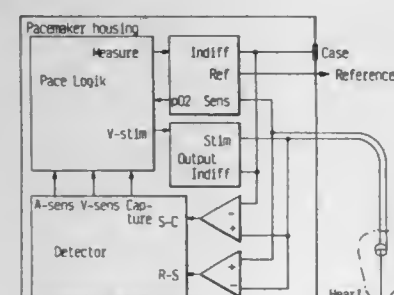
5,800,468
ACTIVITY-RESPONSIVE PACER WITH BIPOLAR
SENSOR ELECTRODE

Nils Holmström, Järfälla, Sweden, assignor to Pacemaker AB,
Solna, Sweden

Filed Feb. 10, 1997, Ser. No. 797,421
Claims priority, application Sweden, Feb. 12, 1996, 9600511
Int. Cl.⁶ A61N 1/365

U.S. Cl. 607-17

21 Claims



1. A pacemaker system comprising:

an electrode lead having only a distal tip electrode for supplying stimulation pulses to heart tissue and, proximal to said distal tip electrode, a ring electrode;

a cardiac stimulator, which emits stimulation pulses having a stimulation parameter associated therewith, to which said electrode lead is electrically connected;

detector means for detecting electrical cardiac activity between said tip electrode and said ring electrode;

means for applying a measuring parameter on said ring electrode during a predetermined measuring period and for measuring a measurement value through said ring electrode during at least a part of said period for sensing, via said ring electrode, at least one physical activity-dependent parameter;

means for adjusting said stimulation parameter dependent on said measured value.

5,800,469
PACEMAKER WITH ANAEROBIC THRESHOLD
DETERMINATION

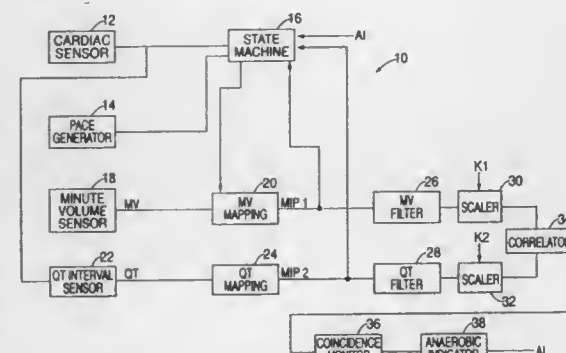
Tibor A. Nappholz, 8524 E. Jamison Ave., Englewood, Colo. 80112

Filed Apr. 16, 1997, Ser. No. 838,284

Int. Cl.⁶ A61N 1/365

U.S. Cl. 607—18

17 Claims



1. An implantable pacemaker comprising:
 - a) an intrinsic event sensor for sensing intrinsic cardiac events, said sensor generating a sensed signal;
 - b) a pace generator for generating pacing signals in response to first and second commands;
 - c) an anaerobic threshold detector for generating an anaerobic indication corresponding to an anaerobic threshold of the patient; and
 - d) a controller receiving said sensed signal and said anaerobic indication, and generating in response said first and second commands, said first and second commands defining respective first and a second modes of operation, said first commands being generated by said controller when said anaerobic indication is indicative of a normal condition of said patient and said second commands being generated by said controller when said anaerobic indication is indicative of an anaerobic condition of said patient.

5,800,470
RESPIRATORY MUSCLE ELECTROMYOGRAPHIC
RATE RESPONSIVE PACEMAKER

Paul M. Stein, Maple Grove; Tom D. Bennett, Shoreview, and Terrell M. Williams, Brooklyn Park, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Continuation of Ser. No. 179,058, Jan. 7, 1994, abandoned.

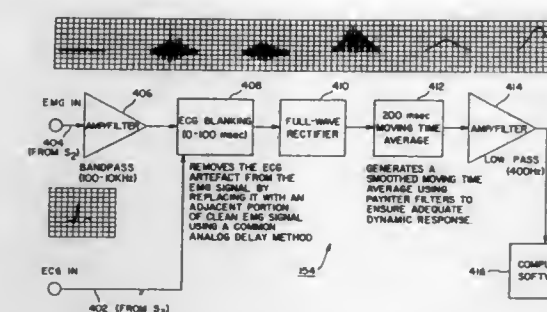
This application Mar. 11, 1996, Ser. No. 613,403

Int. Cl.⁶ A61N 1/365

U.S. Cl. 607—20

22 Claims

1. A rate responsive demand pacemaker comprising:



means for pacing a patient's heart at a controlled rate modifiable by a rate control signal at the end of a pacing escape interval in the absence of a sensed natural depolarization of the heart; means for sensing natural depolarizations of the heart and resetting said escape interval;

electrode and conductor means for coupling said pacing and sensing means to myocardial tissue for conducting pacing pulses to the patient's heart and including natural electrical depolarizations of the patient's heart to said sensing means;

an electrode means, for conducting electromyogram signals generated in the respiratory musculature in conjunction with respiration to said pacing means; and

signal processing means responsive to said electromyogram signals for determining the respiratory minute ventilation through moving time average signal processing of the recurring electromyogram signals,

wherein said electromyogram signal processing means further comprises:

means for amplifying and bandpass filtering the electromyogram signal;

means for rectifying and moving time average processing the amplified and bandpass filtered electromyogram signal;

means for determining values for three time signals; the inspiratory time, expiratory time, and total breath time of successive moving time average processed electromyogram signals so as to employ one or a combination of said three time signals as said minute ventilation variable.

5,800,471

**METHOD FOR OPTIMIZING CARDIAC PERFORMANCE
BY DETERMINING THE OPTIMAL PACING MODE-AV
DELAY FROM A TRANSIENT HEART RATE SIGNAL
FOR USE IN CHF, BRADY, AND TACHY/BRADY
THERAPY DEVICES**

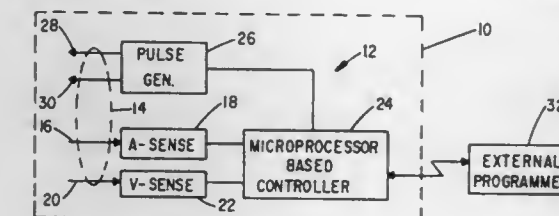
Lawrence S. Baumann, Bloomington, Minn., assignor to Cardiac Pacemakers, Inc., St. Paul, Minn.

Filed Oct. 20, 1997, Ser. No. 953.736

Int. Cl.⁶ A61N 1/365

U.S. Cl. 607-25

8 Claims



1. A method of optimizing the AV delay and pacing mode configuration of a dual chamber pacemaker of the type having means for sensing atrial depolarization events, means for sensing ventricular depolarization events and means for applying cardiac stimulating pulses selectively to the right, left or both ventricular chambers at predetermined AV delay intervals following detection of atrial depolarization events, comprising the steps of:

- (a) tracking a patient's intrinsic atrial depolarization events;
- (b) measuring the patient's atrial cycle length (ACL) between successive atrial depolarization events over a first predetermined

5,800,472
RECOMMENDED REPLACEMENT TIME TRIGGER FOR
USE WITHIN AN IMPLANTABLE RATE-RESPONSIVE
PACEMAKER

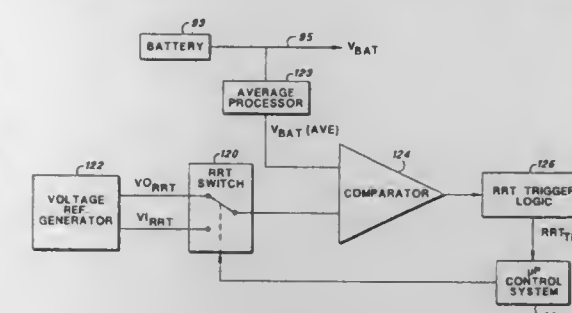
Brian M. Mann, Edgartown, Mass., assignor to Pacesetter, Inc., Sylmar, Calif.

Filed Feb. 19, 1997, Ser. No. 802,624

Int. Cl.⁶ A61N 1/378

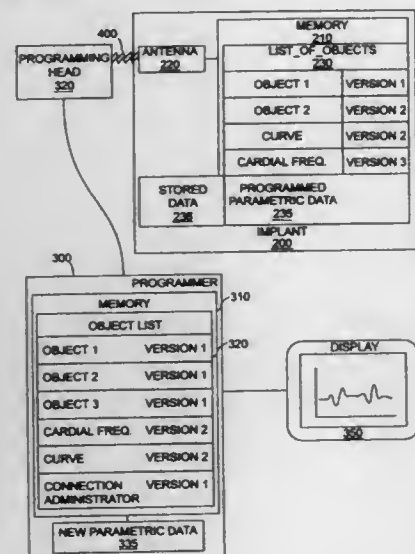
U.S. Cl. 607—29

18 Claims



11. A multi-mode rate-responsive pacemaker comprising:
a battery;
means coupled to the battery for generating pacing stimuli at a basic pacing interval;
means for measuring the battery voltage on a regular basis;
means for comparing the measured battery voltage to a selected one of a plurality of RRT threshold voltages;
means for generating an RRT trigger signal whenever the measured battery voltage falls below the selected one of the plurality of RRT threshold voltages; and
means for increasing the basic pacing interval of the pacemaker in response to generation of the RRT trigger signal.

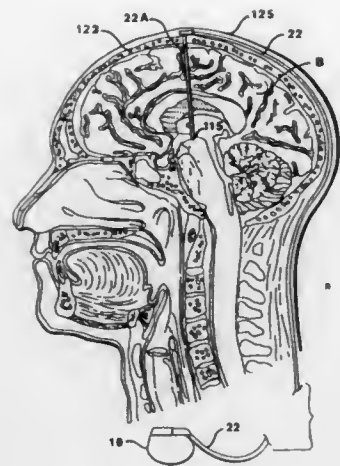
5,800,473
SYSTEMS, METHODS, AND APPARATUS FOR
AUTOMATIC UPDATING OF A PROGRAMMER FOR AN
ACTIVE IMPLANTABLE MEDICAL DEVICE
Yves Faisandier, Paris, France, assignor to ELA Medical S.A.,
Montrouge, France
Filed Feb. 7, 1997, Ser. No. 797,379
Claims priority, application France, Feb. 8, 1996, 96 01564
Int. Cl.⁶ A61N 1/08
U.S. Cl. 607—59 18 Claims



1. A system comprising, an active implantable medical device implant, and an external implant programmer, wherein: the programmer further comprises a memory and a software stored in said memory having at least one software object; the implant further comprises a memory containing parametric data associated with the functioning of the implant and at least one software object necessary for the functioning of the programmer in connection with said parametric data, wherein the programmer and the implant further comprise means to establish between them a bi-directional connection to exchange information, and means for allowing the selective transfer of at least a part of said at least one software object from the implant to the programmer; and the programmer further comprises means for commanding the downloading from the implant of at least a part of said at least one software object contained in the implant memory and storing in said programmer memory the downloaded part of said software object.

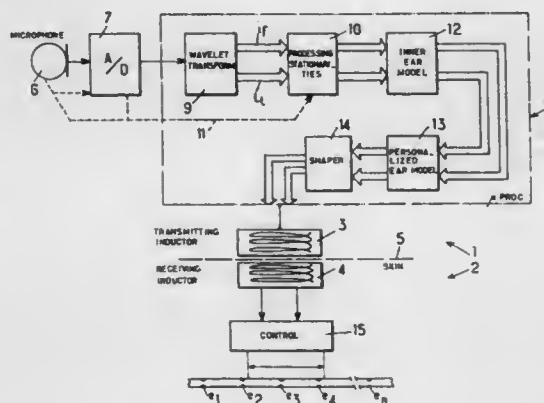
5,800,474
METHOD OF CONTROLLING EPILEPSY BY BRAIN
STIMULATION
Alim L. Benabid, Meylan, and Christian Marescaux, Stras-
bourg, both of France, assignors to Medtronic, Inc., Minne-
apolis, Minn.
Filed Nov. 1, 1996, Ser. No. 742,841
Int. Cl.⁶ A61N 1/32; 1/05; 1/372
U.S. Cl. 607—45 2 Claims

1. A method of therapeutically treating epilepsy resulting in a reduction in the occurrence of seizures comprising the steps of: surgically implanting an implantable electrode in the brain, the implantable electrode having a proximal end and a stimulation portion, the electrode being implanted in the brain so that the stimulation portion of the electrode lies in the subthalamic nucleus of the brain; providing an electrical signal generator; coupling said proximal end of said electrode to said signal generator; and



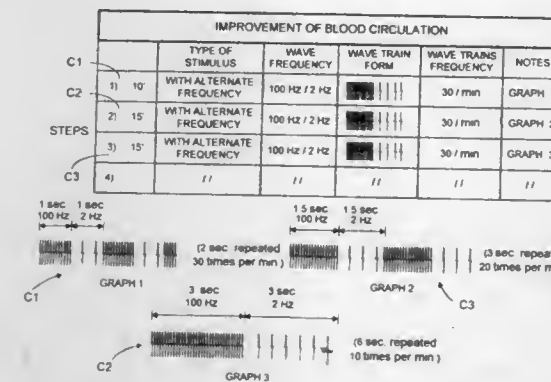
operating said signal generator at a predetermined stimulus repetition rate high enough to block activity of the subthalamic nucleus to reduce the excitatory input from the subthalamic nucleus to the substantia nigra there by reducing the occurrence of seizures.

5,800,475
HEARING AID INCLUDING A COCHLEAR IMPLANT
Fardeau Michel Gustave Jules, Les Milles, France, assignor to
Bertin & Cie, Plaisir, France
Filed May 29, 1996, Ser. No. 654,872
Claims priority, application France, May 31, 1995, 95 06475
Int. Cl.⁶ A61N 1/36
U.S. Cl. 607—57 14 Claims



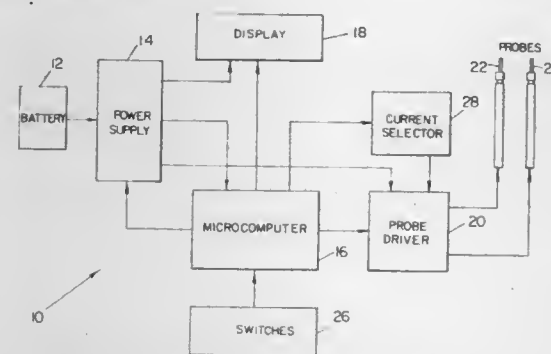
1. A hearing aid comprising: n electrodes for being implanted in a cochlea at n different points chosen to allow identification by a brain of a plurality of different frequency bands of a sound spectrum; a microphone for receiving the sound spectrum and outputting a sound signal representing the sound spectrum; energy measuring means for measuring an instantaneous energy of the sound signal in said frequency bands; electrode operating means for cyclically operating said n electrodes as a function of the instantaneous energy measured in the respective frequency bands; time distribution determining means for determining a time distribution within the sound signal of the instantaneous energy in each of said frequency bands; and electrode exciting means for exciting said electrodes at each cycle in an order corresponding to said time distribution.

5,800,476
METHOD FOR IMPROVING CERTAIN FUNCTIONAL
CHARACTERISTICS OF THE HUMAN BODY
Luigi Piuñti, Porto D'Ascoli, Italy, assignor to Galaxy Top
International S.p.A., Ascoli Piceno, Italy
Filed Oct. 21, 1996, Ser. No. 733,960
Int. Cl.⁶ A61N 1/36
U.S. Cl. 607—66 6 Claims



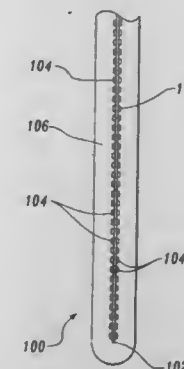
1. A method of improving selected functional characteristics of a human body comprising, the steps of: generating a wave train having a first bunch of waves of 100 hertz frequency, and a second bunch of waves of 2 hertz frequency, each said wave of each first and second bunch having a positive peak and a negative peak relative to a zero reference line and said second bunch having a period equal to the period of said first bunch; grouping a plurality of said wave trains in a time-separated prefixed sequence; and applying said sequence of wave trains to a human body to generate a stimulus in the human body of alternating frequency.

5,800,477
HAIR GROWTH METHOD AND APPARATUS
Paul D. Groux, Vallejo, Calif., assignor to Allied Health Asso-
ciation, Inc., Englewood, Colo.
Filed Feb. 20, 1997, Ser. No. 802,485
Int. Cl.⁶ A61N 1/32
U.S. Cl. 607—76 27 Claims



1. A hair growth method comprising the steps of: energizing a pair of electrodes with an electrical signal which is sufficient to facilitate the growth of hair from hair bulbs on a subject's scalp; pinching a first area of a subject's scalp having hair bulbs with said energized pair of electrodes for at least 2 seconds; and, periodically repeating the foregoing steps to facilitate the growth of hair from the hair bulbs on the first area of the subject's scalp.

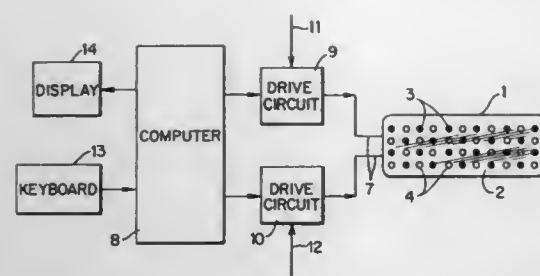
5,800,478
FLEXIBLE MICROCIRCUITS FOR INTERNAL LIGHT
THERAPY
James C. Chen, Bellevue, Wash., and Brent Wiscombe, Mesa,
Ariz., assignors to Light Sciences Limited Partnership,
Issaquah, Wash.
Filed Mar. 7, 1996, Ser. No. 613,390
Int. Cl.⁶ A61N 5/00
U.S. Cl. 607—88 51 Claims



1. Apparatus for effecting a medical treatment at an internal site within a patient's body, comprising: (a) a flexible substrate; (b) a plurality of conductive traces affixed to the flexible substrate, said conductive traces being sufficiently flexible to bend with the flexible substrate without breaking or separating from the flexible substrate as the flexible substrate is flexed during its insertion into a patient's body and advanced to the internal site; (c) an electrical device disposed on the flexible substrate and coupled to the plurality of conductive traces, said electrical device being carried by the flexible substrate for disposition at the internal site; (d) a biocompatible, flexible envelope hermetically enclosing the flexible substrate, the plurality of conductive traces, and the electrical device; and (e) a plurality of electrical leads connected to the conductive traces, said electrical leads being adapted to couple to a source of electrical power in order to energize the electrical device, and being operative to carry signals between the electrical device and a different location.

5,800,479
DEVICE FOR MEDICAL EXTERNAL TREATMENT BY
MEANS OF LIGHT
Rolf Thiberg, Åkersberga, Sweden, assignor to Biolight Patent
Holding AB, Danderyd, Sweden
PCT No. PCT/SE95/00049, § 371 Date Jul. 18, 1996, § 102(e)
Date Jul. 18, 1996, PCT Pub. No. WO95/19810, PCT Pub.
Date Jul. 27, 1995
PCT Filed Jan. 19, 1995, Ser. No. 676,216
Claims priority, application Sweden, Jan. 20, 1994, 9400153;
Aug. 10, 1994, 9402679
Int. Cl.⁶ A61N 5/06
U.S. Cl. 607—88 13 Claims

1. A device for the external medical treatment of a patient with the aid of light, said device comprising: a light emitting element for positioning adjacent a wound or sore on the body of a person, the light emitting element including a source of infrared light and a source of visible light; and drive means for driving the light emitting element, the drive means including a timer for causing the light emitting element to emit only infrared light during a first treatment stage for a



first predetermined period of time and thereafter to emit only visible light during a second stage for a second predetermined period of time, and including pulsation means for pulsating the emitted infrared light and the emitted visible light at a predetermined series of pulsation frequencies over the respective predetermined time periods, wherein the pulsation frequencies are defined by successively increasing frequencies F1, F2, Fn, wherein F1 is a fundamental frequency and wherein F2, Fn are multiples of the fundamental frequency.

5,800,480

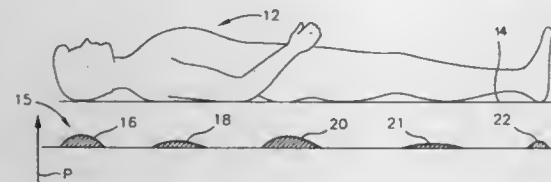
SUPPORT APPARATUS WITH A PLURALITY OF THERMAL ZONES PROVIDING LOCALIZED COOLING
Scott D. Augustine, Bloomington; Paul Anthony Iazzo, White Bear Lake; Ephraim M. Sparrow, St. Paul; Paul Steven Johnson, White Bear Lake, and Randall C. Arnold, Minnetonka, all of Minn., assignors to Augustine Medical, Inc., Eden Prairie, Minn.

Filed Aug. 30, 1996, Ser. No. 707,967

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—96

20 Claims



1. An apparatus for supporting a human or animal body, while selectively cooling weight-bearing areas of the body, the apparatus comprising:

- a cooling layer having a plurality of zones;
- a surface disposed over the cooling layer,
- each zone of the cooling layer being disposed for cooling a respective portion of the surface;
- means for selectively operating one or more zones of the plurality of zones to cool a portion of the surface that receives pressure from a weight-bearing area of the body; and
- means for sensing a location of pressure applied to the surface by the body, the means for selectively operating being coupled to the means for sensing and responsive to an indication of pressure for operating at least one zone.

5,800,481

THERMAL EXCITATION OF SENSORY RESONANCES
Hendricus G. Loos, 3019 Cresta Way, Laguna Beach, Calif. 92651

Filed Dec. 28, 1995, Ser. No. 580,346

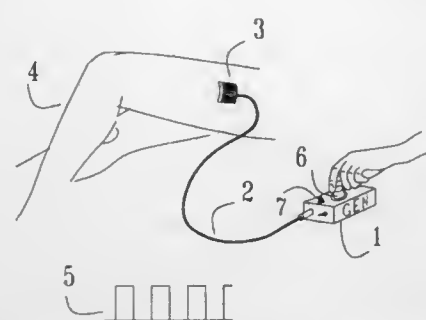
Int. Cl.⁶ A61F 2/00

U.S. Cl. 607—100

12 Claims

1. Apparatus for exciting in a subject a sensory resonance, the sensory resonance having a resonance frequency, the apparatus comprising:

- generator means for generating voltage pulses with a pulse frequency in the range 0.1 to 45 Hz;



heat inducing means, connected to the generator means, for inducing in the skin of the subject heat pulses with an intensity less than 10 mW/cm², and a frequency equal to the pulse frequency; and

tuner means for tuning the pulse frequency to the resonance frequency.

5,800,482

APPARATUS AND METHOD FOR LINEAR LESION ABLATION

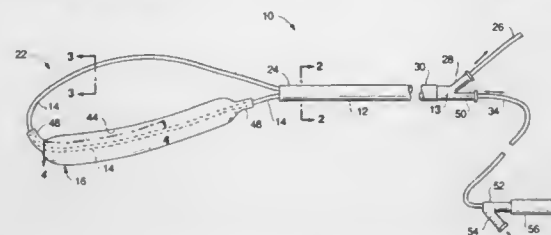
Mark L. Pomeranz, Los Gatos; Troy J. Chapman, Cupertino; Darren R. Sherman, San Jose, and Mir Imran, Los Altos Hills, all of Calif., assignors to Cardiac Pathways Corporation, Sunnyvale, Calif.

Filed Mar. 6, 1996, Ser. No. 611,656

Int. Cl.⁶ A61B 17/39

U.S. Cl. 607—101

25 Claims



23. An assembly carried on the distal end of a catheter for generating a linear lesion in a target tissue comprising:

- a central, elongated support member;
- a plurality of longitudinally spaced apart electrodes, said electrodes being connectable to a source of RF energy;
- an elongated, deformable member surrounding said electrodes and a portion of said support member said deformable member formed from foam surrounded by an outer membrane having apertures formed therein; and
- a source of electrolytic fluid coupled to said deformable member, said fluid functioning to partially pressurize said deformable member and wherein said fluid perfuses out of said deformable member towards the target tissue, said fluid enhancing the coupling of the RF energy from said electrodes to said tissue whereby linear lesions can be effectively created in said tissue.

5,800,483

SYSTEM AND METHOD FOR STERILE SURGICAL-THERMAL DRAPE WITH ACTIVE AIR CIRCULATION
Kimber L. Vought, Columbus, Miss., assignor to Microtek Medical, Inc., Columbus, Mich.

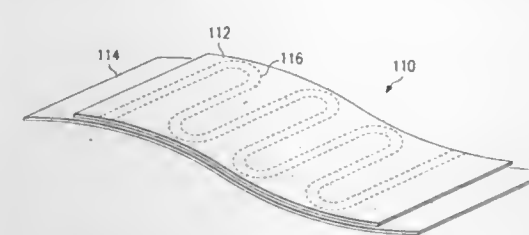
Continuation-in-part of Ser. No. 620,931, Mar. 21, 1996, abandoned. This application Jul. 22, 1996, Ser. No. 681,267

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—104

6 Claims

1. A sterile surgical-thermal drape comprising:



a sterile surgical drape for use during surgery operable to maintain a sterile surgical field; and

a thermal device attached to the sterile surgical drape operable to regulate the body temperature of a patient, wherein the thermal device is operable to provide at least one of convective heating and cooling to the patient by directing a hot or cold fluid towards the patient, the thermal device comprising a fluid passageway operable to conduct at least one of a gas and a liquid, wherein the thermal device further comprises a woven material, and wherein the woven material forms a portion of a sidewall of the fluid passageway.

5,800,484

MULTIPLE ANTENNA ABLATION APPARATUS WITH EXPANDED ELECTRODES

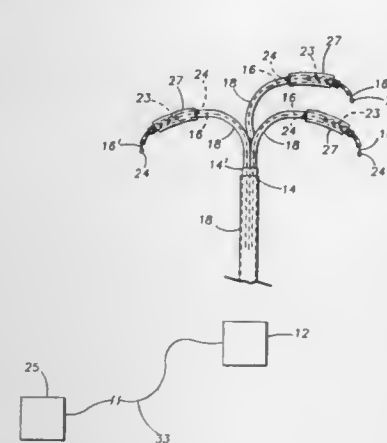
Edward J. Gough, Menlo Park; Alan A. Stein, Moss Beach; Stuart D. Edwards, Portola Valley, and Patrick J. Burns, Kentfield, all of Calif., assignors to Rita Medical Systems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 605,323, Feb. 14, 1996, which is a continuation-in-part of Ser. No. 515,379, Aug. 15, 1995, Pat. No. 5,683,384. This application Sep. 3, 1996, Ser. No. 707,250

Int. Cl.⁶ A61B 17/39

U.S. Cl. 607—104

12 Claims



1. An ablation apparatus, comprising:

- an introducer including an introducer lumen, a proximal portion and a distal portion;
- a handpiece with a proximal portion and a distal portion coupled to the introducer proximal portion;
- two or more electrodes at least partially positioned in the introducer lumen, wherein each electrode is configured to be advanced from the introducer distal portion in a deployed state into a selected tissue site to define a volumetric ablation volume;
- a porous fluid delivery member positioned on at least a portion of an exterior of one of the electrodes, wherein the fluid delivery member is configured to be coupled to a fluid medium source; and
- a cable coupled to the electrodes.

5,800,485
COOLING CYLINDRICAL DEVICE FOR THERAPEUTIC TREATMENT OF HEMORRHOIDS

Moshe Trop, Brooklyn, N.Y.; Avraham Kushelovsky; Gedalya Mazor, both of Metar, Israel; Sergay Popov, Ofakim, Israel, and Boris Baybikov, Mahale Edomim, Israel, assignors to Trop Life Ltd., Ofakim, Israel

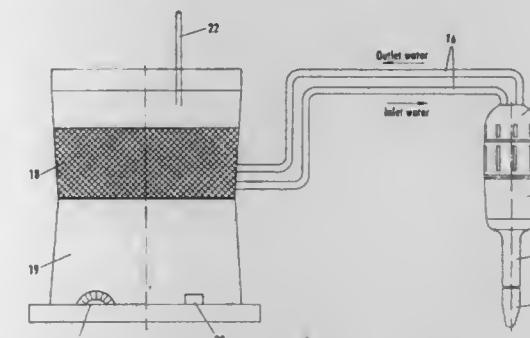
Filed Feb. 22, 1995, Ser. No. 392,316

Claims priority, application Israel, Feb. 22, 1994, 108744

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—105

21 Claims



1. A hemorrhoid therapeutic treatment system for removal of pain and therapeutic treatment of hemorrhoids and anal fissures comprising a hollow insert shaped for insertion into the anus and having an upper base formed with at least one inlet opening and at least one outlet opening, at least one inlet tube connected to said inlet opening, at least one outlet tube connected to said outlet opening, and a first container adapted to contain a cold liquid for cold liquid circulation starting from the first container through the inlet tube into the inlet opening of the hollow insert and wherein the liquid is driven back through the outlet opening of the hollow insert and through the outlet tube to a second container operated by gravity, wherein the containers are plastic containers of the sort that are commonly used for medical infusions and wherein the hollow insert terminates in an insulated tip, separated from the cold liquid, for support and insulation.

5,800,486

DEVICE FOR TRANSURETHRAL THERMAL THERAPY WITH COOLING BALLOON

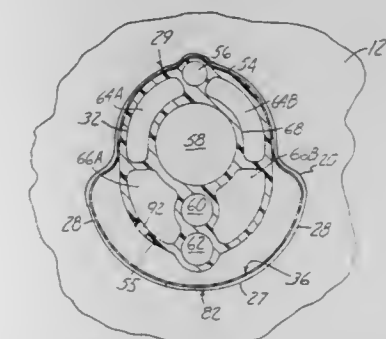
Scott P. Thome, Waite Park; Jim Kauphusman, Champlin, both of Minn., and Mitchell Dann, Jackson, Wyo., assignors to Urologix, Inc., Minn.

Filed Jun. 17, 1996, Ser. No. 672,504

Int. Cl.⁶ A61N 5/02

U.S. Cl. 607—105

25 Claims



1. An intraurethral catheter for microwave thermal therapy comprising:

an elongate shaft having a first end, a second end, an outer surface and a plurality of lumens which extend between the first end and the second end of the shaft, the plurality of lumens including:
an antenna lumen; and
a plurality of fluid flow lumens arranged about the antenna lumen and
a balloon connected to the outer surface of the elongate shaft along a portion of the shaft, the balloon having an inflatable portion which partially surrounds the antenna lumen and which is in fluid communication with at least one of the plurality of fluid flow lumens.

5,800,487
CRYOPROBE

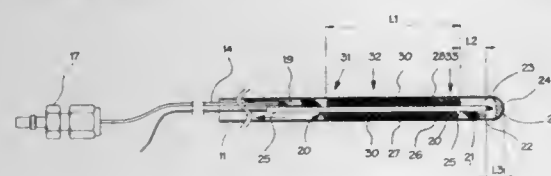
Paul W. Mikus; Gregory L. Kelly, and Ralph K. Brady, all of Irvine, Calif., assignors to Endocare, Inc., Irvine, Calif.

Filed Jul. 23, 1996, Ser. No. 685,233

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—105

1 Claim



1. A cryosurgical probe comprising:
a tube capable of insertion into the body, said tube having a closed distal end for insertion into the body, said closed distal end forming an expansion chamber within the distal end of the tube;
a finned tube coiled heat exchanger disposed within the tube, said heat exchanger having a Joule-Thomson nozzle on the distal end thereof and a high pressure gas supply line on the proximal end thereof, said finned tube coiled heat exchanger having a plurality of windings of the finned tube with interstitial gaps between the windings;
a flow directing sheath disposed coaxially between the tube and the finned tube coiled heat exchanger, wherein the flow directing sheath protrudes radially inwardly into the interstitial gaps between the windings of the finned tube heat exchanger.

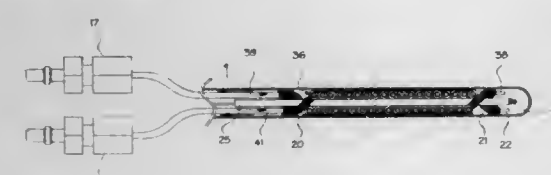
5,800,488
CRYOPROBE WITH WARMING FEATURE
K. David Crockett, Los Angeles, Calif., assignor to Endocare, Inc., Irvine, Calif.

Filed Jul. 23, 1996, Ser. No. 685,326

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—105

7 Claims



1. A cryocooler comprising:
An outer sheath comprising a tube having a closed distal end defining an expansion chamber;
a first high pressure gas supply line extending into the outer sheath, said first high pressure gas supply line having a distal end with a Joule-Thomson expansion nozzle thereon, said Joule-Thomson nozzle communicating with the expansion chamber;

a supply of high pressure cooling gas operably connected to the first high pressure gas supply line;
a second high pressure gas supply line extending into the outer sheath, said second high pressure gas supply line having a distal end with a Joule-Thomson expansion nozzle thereon, said Joule-Thomson nozzle communicating with the expansion chamber;
a supply of high pressure warming gas operably connected to the second high pressure gas supply line.

5,800,489

METHOD FOR WARMING A PATIENT SITTING IN A CHAIR

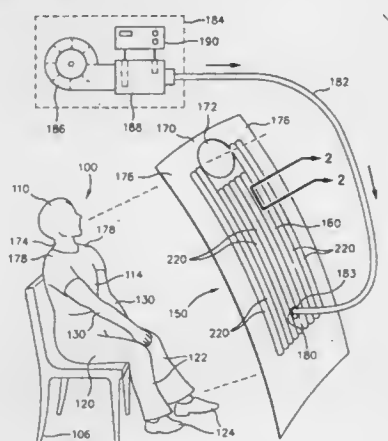
Scott D. Augustine, Bloomington, Minn., assignor to Augustine Medical, Inc., Eden Prairie, Minn.

Continuation of Ser. No. 575,774, Dec. 20, 1995. This application Jun. 23, 1997, Ser. No. 880,268

Int. Cl.⁶ A61F 1/00

U.S. Cl. 607—107

2 Claims



1. A method for warming a sitting patient with an inflatable thermal blanket, the inflatable thermal blanket including:
an inflatable covering including an upper sheet and a base sheet connected together at a plurality of locations, said base sheet having a plurality of outlet apertures, said inflatable covering having a periphery including an uninflatable head section with an uninflatable shoulder drape formed therein, a foot section opposite thereto, a first side section, and a second side section opposite thereto; and
an inlet opening into the inflatable covering for admitting an inflating medium in to the inflatable covering;
the method including the steps of:
a placing the inflatable thermal blanket on a sitting patient such that the uninflatable shoulder drape is draped about the patient's neck, and the plurality of outlet apertures face the patient; and
inflating the inflatable covering by introduction of warmed air through the inlet.

5,800,490

LIGHTWEIGHT PORTABLE COOLING OR HEATING DEVICE WITH MULTIPLE APPLICATIONS

Herbert Samuel Patz, 32 Harrison, Brookline, Mass. 02146-9658, and Leslie Hugh Ross, 57 N. Warren Ave., Brockton, Mass. 02401-3425

Filed Nov. 7, 1996, Ser. No. 747,021

Int. Cl.⁶ A61F 7/00

U.S. Cl. 607—108

10 Claims

1. A modular heating and cooling device comprising:

5,800,492

ADHESIVE WARMING BAG
Charles F. Manker, Lake Forest, Ill., assignor to Prism Enterprises, Inc., San Antonio, Tex.

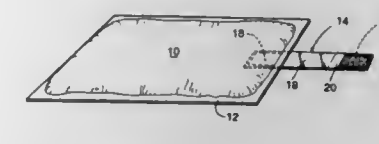
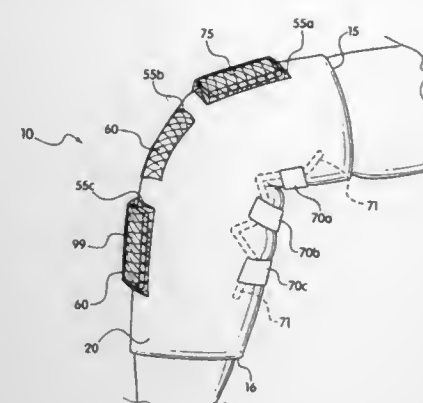
Continuation of Ser. No. 824,045, Jan. 23, 1992, abandoned.

This application Dec. 22, 1992, Ser. No. 995,347

Int. Cl.⁶ A61F 7/02

U.S. Cl. 607—111

11 Claims



1. A warming device comprising (a) first and second opposed flexible plastic walls sealed together to form an edge and a fluid-tight chamber, (b) a fluid disposed in said chamber which is a source of heat, (c) a flexible strip having two sides and two ends, and (d) an adhesive on said two ends of one side of said flexible strip and not on the other side of said flexible strip, said flexible strip being releasably secured to said first and second opposed plastic walls such that the side of one of said flexible strip ends containing adhesive contacts said first opposed plastic wall and the side of the other of said flexible strip ends containing adhesive contacts said second opposed plastic wall such that said flexible strip projects over said edge of said warming device and such that said flexible strip may be unsecured from either said first or second plastic wall and secured to the opposite plastic wall upon placing said warming device into an essentially tubular configuration so as to retain said warming device in such an essentially tubular configuration.

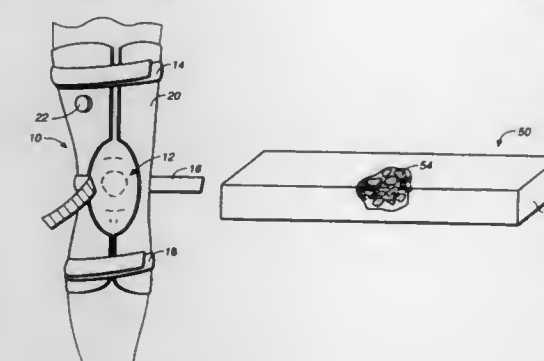
5,800,491
THERMAL THERAPY DEVICES AND METHODS OF MAKING THE SAME
Paul T. Kolen, 139 4th St., Encinitas, Calif. 92024, and Joseph F. Nebolon, 12608 Carmel Country Rd., No. 31, San Diego, Calif. 92130

Filed Feb. 3, 1997, Ser. No. 794,837

Int. Cl.⁶ A61F 5/00; 7/00

U.S. Cl. 607—108

44 Claims



1. A thermal therapy device for applying thermal therapy to a therapy site on a patient's body comprising
a flexible, water-impermeable container conformable to the shape of the therapy site on the patient's body, and
a plurality of discrete, non-water-soluble, hydrophilic absorbers contained within said flexible container and hydrated with a liquid comprising water,
wherein said hydrophilic absorbers remain in discrete form through repeated cycles of water freezing and melting, permitting the thermal device to be reused while retaining conformability to the shape of the therapy site on the patient's body.

5,800,493

INTRAUTERINE ABLATION SYSTEM

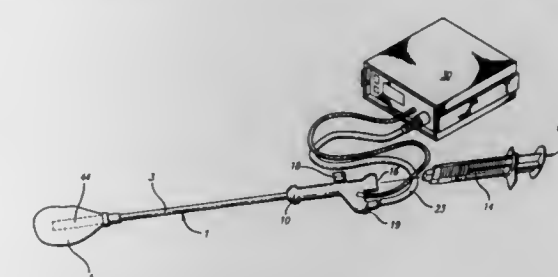
Gail Stevens, Menlo Park; Todd A. Thompson, Sunnyvale; Steven A. Daniel, Fremont, and Robert D. Warner, Cupertino, all of Calif., assignors to Gynecare, Inc., Menlo Park, Calif.

Filed Apr. 26, 1995, Ser. No. 429,960

Int. Cl.⁶ A61F 7/02

U.S. Cl. 607—113

2 Claims



1. An apparatus for endometrial ablation, the apparatus comprising:
an elongate tubular member having a proximal end, a distal end, a first lumen in fluid communication with the proximal end and the distal end, a second lumen extending between the proximal end and the distal end, and a third lumen extending between the proximal end and the distal end;
a distensible bladder secured to the distal end of said elongate tubular member and in fluid communication with the first lumen;
a heating element disposed within said distensible bladder and secured to the distal end of said elongate tubular member, said heating element having a plurality of electrically conductive wires disposed within the second lumen of said elongate tubular member, and

said heating element having a pair of thermocouple wires disposed within the third lumen of said elongate tubular member; and

a handle secured to the proximal end of said elongate tubular member including a body within which is disposed a fluid fill port connected to and in fluid communication with the first lumen of said elongate tubular member,

a valve disposed between and in fluid communication with the first lumen of said tubular member and the fluid fill port,

a pressure port in fluid communication with the first lumen of said tubular member, and

an electrical connector in electrical communication with the plurality of electrically conductive and thermocouple wires disposed within the second and third lumens of said elongate tubular member,

wherein the body of said handle has a distal end and a proximal end having a first extremity and a second extremity forming a ywe, wherein the valve and fluid fill port are disposed within the first extremity, the electrical connector is disposed within the second extremity and the pressure port is disposed between the first extremity and the second extremity.

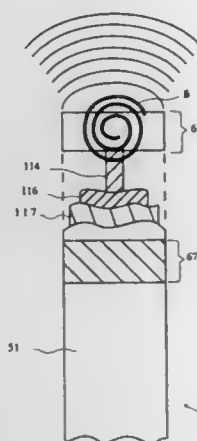
5,800,494
MICROWAVE ABLATION CATHETERS HAVING ANTENNAS WITH DISTAL FIRE CAPABILITIES
Thomas H. Campbell, San Carlos, and Peter Sturzu, Cupertino, both of Calif., assignors to Fidis Medical Technology Corporation, Fremont, Calif.

Filed Aug. 20, 1996, Ser. No. 700,291

Int. Cl.⁶ A61N 1/00

U.S. Cl. 607—116

34 Claims



1. A microwave ablation catheter comprising:

an elongated flexible tubular member adapted to be inserted into a vessel in the body of a patient, the flexible tubular member including a distal portion, a proximal portion and a longitudinal catheter axis;

a coaxial transmission line disposed within the tubular member, the transmission line having proximal and distal ends and being suitable for transmission of microwave energy at frequencies in the range of approximately 800 to 6000 megahertz;

a connector suitable for coupling the proximal end of the transmission line to a microwave energy source;

an antenna coupled to the transmission line for generating an electric field sufficiently strong to cause tissue ablation, the antenna geometry being arranged to direct a majority of the field in a generally longitudinal direction relative to the catheter axis.

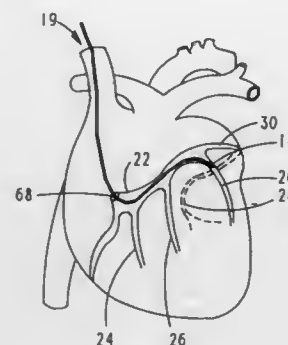
5,800,495
ENDOCARDIAL LEAD ASSEMBLY
James E. Machek, Lake Jackson, Tex.; Yves Verboven, Kessel-Lo, Belgium; Paul R. Spehr, Lake Jackson, and Stephen L. Goldman, Missouri City, both of Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Mar. 27, 1997, Ser. No. 828,793

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—116

33 Claims



1. A lead assembly for implantation in a patient, comprising:

a lead having a proximal end and a distal end, said lead having a lumen extending from said proximal end to said distal end and having an electrical conductor extending from said proximal end to said distal end; and

an electrode coupled to said distal end of said lead and in electrical communication with said conductor, said electrode having an outer surface and an opening extending there-through, said opening defining an inner surface, said lumen and said opening being sized to accept a stylet.

5,800,496
MEDICAL ELECTRICAL LEAD HAVING A CRUSH RESISTANT LEAD BODY
John M. Swoyer, Andover; Peter B. McIntyre, Mounds View; James E. Upton, New Brighton; Annette M. Hebyznski, Spring Lake Park, and Joseph F. Lessar, Coon Rapids, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 24, 1996, Ser. No. 672,011

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—122

26 Claims



1. A medical electrical lead comprising:

a connector assembly;

a coiled conductor having a distal end and a proximal end, the proximal end electrically coupled to the connector assembly, the coiled conductor having a proximal section, an intermediate section and a distal section, the distal section coiled with a first pitch, the intermediate section coiled with a second pitch, the second pitch greater than the first pitch, the distal section extending for a length of approximately 7.2 inches, the intermediate section extending for a length of approximately 10.5 inches, the proximal section having a third pitch, the third pitch less than the second pitch;

an electrode electrically coupled to the distal section of the coiled conductor; and

an insulative sheath covering the coiled conductor.

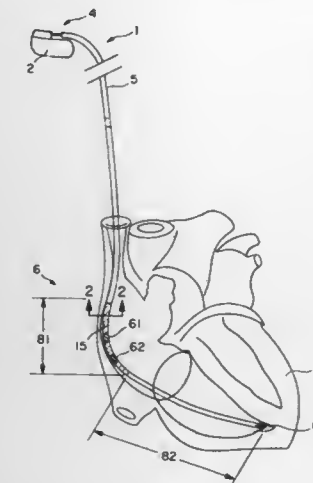
5,800,497
MEDICAL ELECTRICAL LEAD WITH TEMPORARILY STIFF PORTION
Arnoldus P. Bakels, Simpeldeld; Paul A. Gubbels, Brunssum, and Nico M. Lokhoff, Kerkrade, all of Netherlands, assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jul. 17, 1997, Ser. No. 896,096

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—122

17 Claims



1. A medical electrical lead comprising:

a lead body, the lead body having a first portion and a second portion, the lead body further having an insulative sheath and a conductor, the insulative sheath having a first end and a second end, the conductor positioned within the insulative sheath and extending between the first end and the second end;

means for temporarily making a first portion of the lead body more stiff by exposing the first portion to a magnetic field; and

an electrode positioned near the second end, the electrode coupled to the conductor.

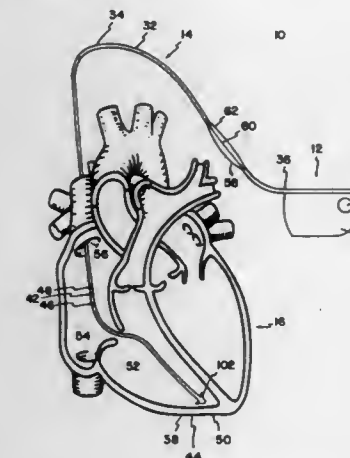
5,800,498
CATHETER FOR IMPLANTABLE RHYTHM CONTROL DEVICE
Stanislao F. Obino, Edina, and Paul J. Buscemi, Long Lake, both of Minn., assignors to PharmaTarget, Inc., Maple Grove, Minn.

Filed Apr. 26, 1996, Ser. No. 639,131

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—123

10 Claims



1. A catheter for use with a rhythm control device comprising:

an elongate body having a peripheral surface and having proximal and distal ends and having at least one liquid lumen extending longitudinally in said body from an inlet end at said proximal end to an outlet port between said proximal and distal ends;

first and second electrodes on said peripheral surface, said first electrode being at or adjacent to said distal end, said second electrode being spaced longitudinally along said peripheral surface from said distal end to afford positioning the catheter in the heart with said first electrode in the apex of the right ventricle chamber and said second electrode in one of the right atrium chamber or a major vein of the heart coupled to the right atrium chamber;

a first electrical lead extending longitudinally within said body from a contact end at said proximal end to said first electrode, and a second electrical lead extending longitudinally within said body from a contact end at said proximal end to said second electrode;

a valve on said body at said outlet port for affording movement of liquid under pressure in said liquid lumen out through said outlet port and for preventing movement of liquid around said peripheral surface into said outlet port; and

connector means adapted for attaching the proximal end of said elongate body to the housing of a rhythm control device with said inlet opening of said liquid lumen in communication with the outlet port, the contact ends of said electrical leads in electrical connection with said connection means so that the rhythm control device receives signals through said first, and second electrodes, and the electrical energy to the heart is provided through said first electrode.

5,800,499
PROBE FOR AN IMPLANTABLE MEDICAL DEVICE
Jean-Francois Ollivier, Guyancourt, France, assignor to ELA Medical S.A., Montrouge, France

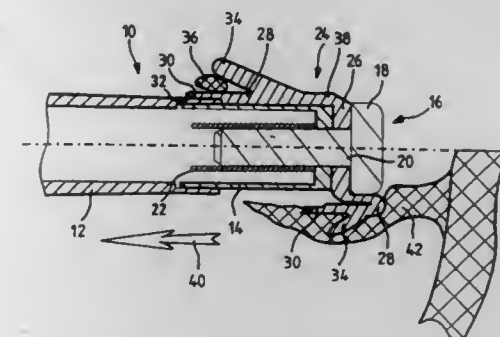
Filed Dec. 20, 1996, Ser. No. 770,794

Claims priority, application France, Dec. 29, 1995, 95 15760

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—126

18 Claims



1. In a probe (10) for an implanted medical device, a distal probe extremity having a distal end and a proximal end, comprising:

a cylindrical body (14);

an electrode (18) supported by the cylindrical body;

an anchorage system having a radially outward orientation; and

a deformable sleeve (24) having a part of attachment (26) and a free part (28), the part of attachment being attached to the cylindrical body at the distal extremity of the probe, wherein the free part (28) further comprises a first position in which it extends against the body proximally relative to the part of attachment and supports thereon the anchorage system with the anchorage system in the radially outward orientation.

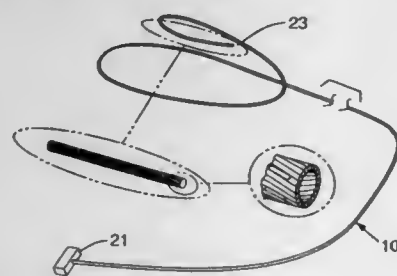
5,800,500
COCHLEAR IMPLANT WITH SHAPE MEMORY
MATERIAL AND METHOD FOR IMPLANTING THE
SAME

Francis A. Spelman, Seattle; Ben M. Clopton, Bainbridge Island; Arne Voic, Seattle, all of Wash.; Claude N. Jolly, Axams, Austria; Ky Huynh, Tigard, Oreg.; Jerome Boogaard, Forest Grove, Oreg., and John W. Swanson, Portland, Oreg., assignors to PI Medical Corporation, Portland, Oreg., and University of Washington, Seattle, Wash.
Continuation-in-part of Ser. No. 516,861, Aug. 18, 1995, Pat. No. 5,630,839. This application May 20, 1997, Ser. No. 858,473

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—137

15 Claims



1. A generally flexible cochlear implant comprising:
 - a core of moderately conductive shape memory material that has been pretreated to transform into the shape of the scala tympani at a temperature level greater than 35° C. (95° F.) and to subsequently remain in the shape of the scala tympani at a temperature of approximately 37° C. (98.6° F.);
 - a set of electrodes disposed about the core;
 - an electrical connector;
 - a first set of electrical conductors electrically connecting the electrical connector to the shape memory material core for warming the shape memory material core to its transition temperature by passing an electric current through it;
 - a second set of electrical conductors electrically connecting the set of electrodes to the connector.

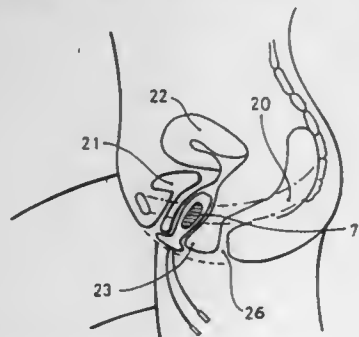
5,800,501
INTRAVAGINAL OR INTRARECTAL ELECTRODE
Roy Sherlock, Barn Lodge, Swanton Morely, Dereham, United Kingdom
PCT No. PCT/GB94/02808, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO95/17922, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 22, 1994, Ser. No. 669,295
Claims priority, application United Kingdom, Dec. 24, 1993, 9326422; Oct. 12, 1994, 9420541

Int. Cl.⁶ A61N 1/00

U.S. Cl. 607—138

16 Claims



1. An intravaginal or intrarectal electrode for electro-stimulation and biofeedback monitoring of muscle activity, which electrode comprises:

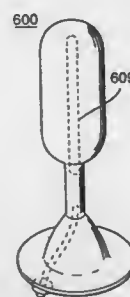
a pair of electrode lines each comprising an electrode terminus with an electroactive surface; and
a probe body having an enlarged head portion adapted to seat within an area of the vagina or the rectum and having at least one longitudinal convex external surface extending for a majority of the length of said probe body head portion and carrying at least one of the electrode termini, in use, a narrower neck portion adapted to seat at the introitus of the vagina or the rectum, and handle means extending from said neck portion to enable said probe head and said neck to be inserted into and withdrawn from said area of the vagina or the rectum, wherein said probe head portion has at least one longitudinal concave internal surface defining a recess extending at least for a majority of the length of said probe head portion whereby upon electro-stimulation of the pelvic floor muscle by the electroactive surfaces of said electrode termini, the pelvic floor muscle contracts against the convex external surface and around the concave internal surface, the upper internal walls of said recess of said probe body in said probe body's normal attitude of operation, in use, bias said probe body against expulsion from said area of the vagina or rectum.

5,800,502
APPARATUS FOR STIMULATING LIVING TISSUE
David Boutos, 4420 Dunlap Crossing St., Las Vegas, Nev. 89129
Division of Ser. No. 568,875, Dec. 7, 1995, Pat. No. 5,697,966, and a continuation-in-part of Ser. No. 369,172, Jan. 5, 1996, Pat. No. 5,571,118. This application Jul. 17, 1997, Ser. No. 895,941

Int. Cl.⁶ A61N 1/05

U.S. Cl. 607—138

7 Claims



1. An electrode apparatus comprising:
 - a base plate which has at least one contact for connecting to a source of electricity;
 - a base arising from said base plate;
 - a stem coupled to the base; and
 - a ball shaped electrode means coupled to said stem;
 the base, the stem and the ball shaped electrode means formed from elastomeric material.

5,800,503
APPARATUS AND METHOD FOR PRODUCING
ELECTRICAL STIMULATION IN RESPONSE TO AN
AUDIO SIGNAL
Tomima L. Edmark, and Roland W. Gooch, both of Dallas, Tex., assignors to SWAK Ventures, Inc., Dallas, Tex.
Filed May 17, 1996, Ser. No. 649,264

Int. Cl.⁶ A61N 1/00

U.S. Cl. 607—145

15 Claims

1. An apparatus for producing electrical stimulation at a point of contact between at least a first person and a second person, comprising:
 - a first circuit operable to receive a varying output audio signal;
 - a second circuit coupled to the first circuit and operable to generate a plurality of electrical pulses which vary in response to said varying output audio signal;

5,800,505

Patent Not Issued For This Number

5,800,506

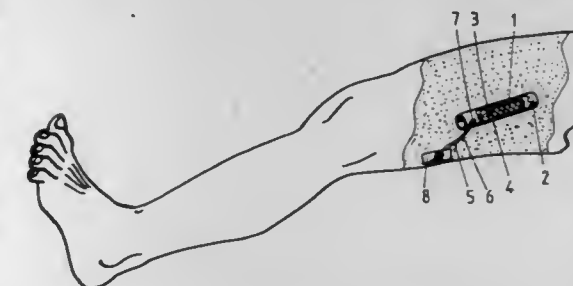
DEVICE FOR TREATING A BLOOD VESSEL
Eric Perouse, L'Isle Adam, France, assignor to Laboratoire Perouse Implant, Bornel, France

Filed Apr. 26, 1995, Ser. No. 427,904

Claims priority, application France, Apr. 26, 1994, 94 05034
Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

15 Claims



- a first node and a second node coupled to the second circuit and operable to conduct the electrical pulses through a current conducting circuit created when the first person touches the first node and makes contact with the second person touching the second node, thereby providing a pleasing variable stimulus to the first and second persons at the point of contact;
- a first control coupled to the first node and operable to adjust a magnitude of the electrical pulses appearing at the first node; and
- a second control coupled to the second node and operable to adjust a magnitude of the electrical pulses appearing at the second node.

5,800,504
PORTABLE DEVICE FOR TREATING INSECT BITES
Francesco Bellifemine, Varese, Italy, assignor to La Tecnica S.r.l., Italy

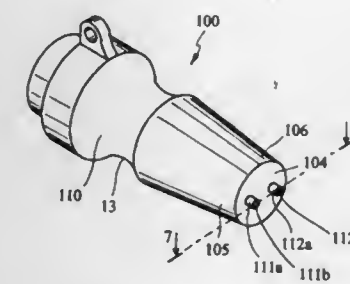
Filed Dec. 13, 1996, Ser. No. 763,712

Claims priority, application Italy, Jan. 19, 1996, M196 A 000085

Int. Cl.⁶ A61N 1/32

U.S. Cl. 607—145

12 Claims



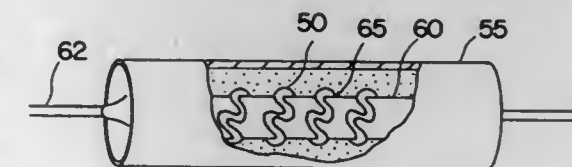
1. A portable device for treating insect bites comprising:
 - a holding casing (13);
 - voltage-generating means (101) defined by at least one piezoelectric body (108) having opposite end faces;
 - drive means (102) having at least a spring striker (107) housed in said casing and acting at least on an end face of the at least one piezoelectric body (108);
 - said drive means (102) having a driving push button (109) operatively connected to the spring striker (107) and axially sliding in a sliding seat (109a) of the holding casing (13), said driving push button (109) projecting at least partly from a first end (103) of the casing (13);
 - first and second conductor means each of which is electrically connected with a corresponding end face of the piezoelectric body (108), said first and second conductor means presenting respective terminal active portions (111a, 112a) operating at and with a second end (104) of the casing (13) axially opposed to the first end (103) of the casing (13), said terminal active portions (111a, 112a) being axially opposed to the push button (109).

5,800,507
INTRALUMINAL STENT
Robert S. Schwartz, Rochester, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Division of Ser. No. 79,222, Jun. 17, 1993, which is a continuation of Ser. No. 854,118, Mar. 19, 1992, abandoned. This application Apr. 27, 1995, Ser. No. 429,977

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

63 Claims



1. An intraluminal device comprising:
 - (a) means for percutaneous, transluminal delivery of a stent into a body lumen and through the body lumen to a portion of the body lumen having a luminal restriction;
 - (b) a stent attached to said delivery means, the stent having preformed fibrin thereon; and
 - (c) means for expanding the stent and preformed fibrin thereon into contact with the body lumen.

5,800,508

BIFURCATED ENDOLUMINAL PROSTHESIS

George Goicoechea, Grand Bahama, Bahamas; John Hudson, Clearwater, Fla., and Claude Mialhe, Draguignan, France, assignors to Boston Scientific Technology, Inc., Maple Grove, Minn.

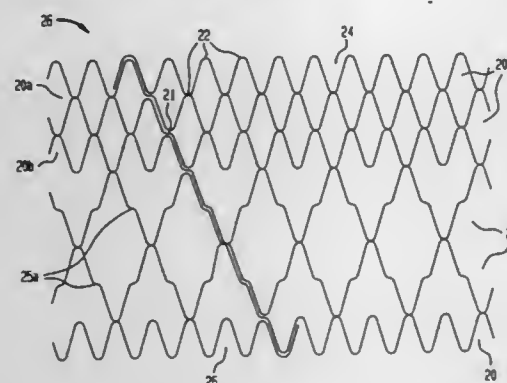
Division of Ser. No. 317,763, Oct. 4, 1994, Pat. No. 5,609,627, which is a continuation-in-part of Ser. No. 312,881, Sep. 27, 1994. This application Jun. 5, 1995, Ser. No. 463,981

Claims priority, application European Pat. Off., Feb. 9, 1994, 94400284; Feb. 10, 1994, 94401306

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

22 Claims



1. An endoluminal stent comprising a plurality of hoops which are axially displaced in a tubular configuration along a common axis, each of said hoops

- (a) having longitudinal ends,
- (b) being formed by a substantially complete turn of a sinuous member having apices at said longitudinal ends, and
- (c) having said apices at said longitudinal ends lie in planes perpendicular to said axis;

wherein apices of sinuous members of adjacent hoops are juxtaposed to one another, and at least two juxtaposed apices are connected to one another by a separate securing means that provides limited relative movement between said apices.

5,800,509

METHOD OF MAKING ENDOVASCULAR SUPPORT DEVICE

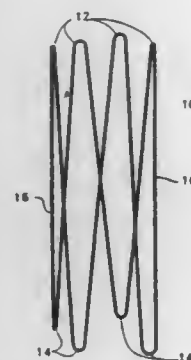
Michael D. Boneau, Campbell, Calif., assignor to Arterial Vascular Engineering, Inc., Santa Rosa, Calif.

Division of Ser. No. 172,420, Dec. 22, 1993, abandoned, which is a division of Ser. No. 398,180, Aug. 24, 1989, Pat. No. 5,292,331. This application Jun. 6, 1995, Ser. No. 465,842

Int. Cl.⁶ A61F 2/06; 2/04

U.S. Cl. 623—1

13 Claims



1. A method of manufacturing an endovascular support device comprising forming a toroid from a first material,

plating the toroid with a second material having higher lubricity than the first material,

bending the toroid to form a plurality of upper and lower peaks, stripping off the second material from the toroid, and reducing the diameter of the bent toroid to a desired size.

5,800,510

IMPLANTABLE TUBULAR PROSTHESIS

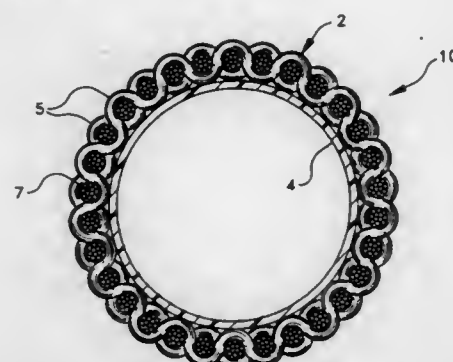
Peter J. Schmitt, Garnerville, N.Y., assignor to Meadox Medicals, Inc., Oakland, N.J.

Division of Ser. No. 161,648, Dec. 2, 1993, Pat. No. 5,527,353. This application Jun. 6, 1995, Ser. No. 470,240

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

11 Claims



1. A soft-tissue, implantable, tubular prosthesis comprising:
- a first component comprising a tubular textile substrate having a textile pattern and an intraluminal surface, said textile substrate incorporating a fusible fiber into said textile pattern, said fusible fiber having a melting temperature below that of said textile substrate; and
 - a second component comprising a smooth microporous liner positioned within and directly in contact with said intraluminal surface of said textile substrate, wherein said liner renders said tubular prosthesis substantially fluid-tight and wherein said fusible fiber is capable of fusing and thereby securing said liner to said textile substrate.

5,800,511

CLAD COMPOSITE STENT

David W. Mayer, Bloomington, Minn., assignor to Schneider (USA) Inc., Plymouth, Minn.

Division of Ser. No. 6,216, Jan. 19, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 485,626

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

41 Claims

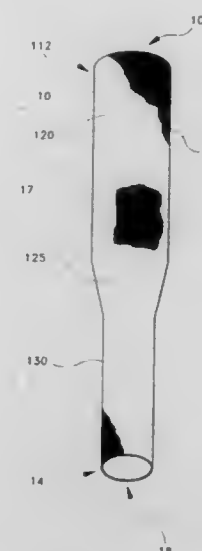


1. A resilient, body implantable prosthesis, including:
- a plurality of elongate resilient strands, helically wound in at least two oppositely directed sets of strands arranged in a braided configuration;
 - wherein the strands are age-hardened and substantially uniform in lateral cross-section over respective lengths thereof, and wherein each of the strands includes an elongate core and an elongate tubular case surrounding the core at least substantially over said respective length, a lateral cross-sectional area

of the core being at least about ten percent of a lateral cross-sectional area of the strand;

wherein one of the core and case is constructed of a first material having a linear attenuation coefficient of at least 25 cm⁻¹ at 100 KeV, the other of the core and case is constructed of a resilient second material, and the first material is more radiopaque than the second material; and

wherein said strands, due at least in part to an age-hardening of the resilient second material when the strands are in said braided configuration, exhibit an enhanced modulus of elasticity which is greater than a nominal modulus of elasticity of non-age-hardened but otherwise identical strands by at least about 10 percent, and further has a greater yield strength at 0.2 percent offset and a greater tensile strength as compared to said non-age-hardened but otherwise identical strands.



5,800,512

PTFE VASCULAR GRAFT

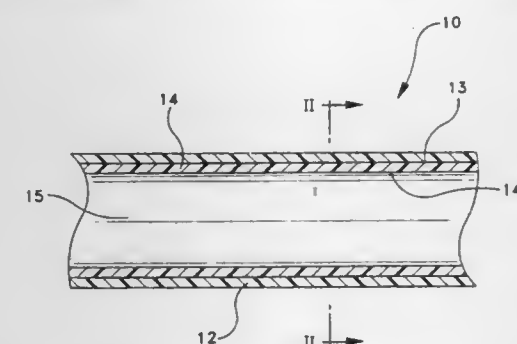
David J. Lentz, Randolph; Jamie Henderson, Oakland; Edward J. Dormier, Rockaway, and Richard J. Zdrahala, Montville, all of N.J., assignors to Meadox Medicals, Inc., Oakland, N.J.

Filed Jan. 22, 1996, Ser. No. 588,052

Int. Cl.⁶ A61F 2/04; 2/06

U.S. Cl. 623—12

14 Claims



1. An implantable tubular prosthesis comprising:
- an expanded polytetrafluoroethylene (ePTFE) composite tubular structure including a clearly defined tissue contacting expanded outer tube and concentrically adjacent separately expanded inner tube, an inner surface of which is a blood contacting surface;
 - said outer and inner tubes each having a given porosity defined by node and fibril spacing of said expanded structure, said given porosity of said inner tube being different from said given porosity of said outer tube and wherein a distinct difference in porosity between said inner tube and said outer tube is defined on either side of an interface therebetween.

5,800,513

Patent Not Issued For This Number

5,800,514

SHAPED WOVEN TUBULAR SOFT-TISSUE PROSTHESES AND METHODS OF MANUFACTURING

Jose F. Nunez, Kearny, N.J., and Peter J. Schmitt, Garnerville, N.Y., assignors to Meadox Medicals, Inc., Oakland, N.J.

Filed May 24, 1996, Ser. No. 653,028

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

33 Claims

1. A flat-woven implantable open-ended tubular prosthesis having a plurality of warp yarns and fill yarns, said tubular prosthesis

comprising a first portion and a second portion spaced from said first portion which define therebetween a transition tubular wall extent, said first portion having a first diameter and said second portion having a second diameter different from said first diameter, said tubular prosthesis further including a weaving pattern along said transition tubular wall extent, said weaving pattern having a gradual change in the number of warp yarns to provide a seamless substantially fluid-tight transition between said first portion and said second portion.

5,800,515

PROSTHESIS IMPLANTABLE IN A HUMAN OR ANIMAL DUCT SUCH AS A STENT OR A PROSTHESIS FOR ANEURISM

Guy Nadal, Poitiers; Gérard Chevillon, Montrouge, and Jean-Philippe Cottenceau, Antony, all of France, assignors to B. Braun Celsa (Societe Anonyme), Chasseneuil-Du-Poitou

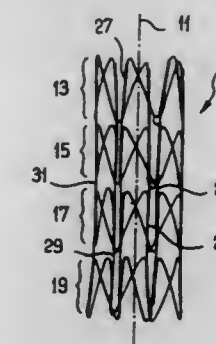
Filed Aug. 1, 1996, Ser. No. 690,979

Claims priority, application France, Aug. 3, 1995, 95 09473

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

13 Claims



1. A generally tubular prosthesis for implantation in a human or animal duct to ensure a passageway in said duct, said prosthesis having a tubular surface and a tube axis and being generally axially subdivided into two or more circumferentially oriented hoop-like tubular portions, said prosthesis comprising:

a plurality of discrete structural wires or filaments joined together to form said prosthesis, said wires or filaments each having one or more corrugated portions and at least some of said wires or filaments having one or more generally straightened extension portions;

wherein said hoop-like tubular portions are formed from the corrugated portions of two or more of said wires or filaments,

a given corrugated portion forming only an arcuate portion of one of said hoop-like tubular portions; and wherein said extension portions extend between and connect consecutive ones of said hoop-like tubular portions.

5,800,516
DEPLOYABLE AND RETRIEVABLE SHAPE MEMORY STENT/TUBE AND METHOD

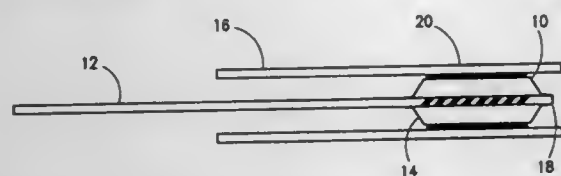
Michael J. Fine, Coral Springs, and Kenneth S. Solovay, Boca Raton, both of Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Aug. 8, 1996, Ser. No. 693,708

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

11 Claims



1. A method for the deployment and retrieval of a shape memory plastic tubular member at a preselected treatment site within a patient, comprising the following steps:

introducing a shape memory plastic tubular member, having a first diameter, to a preselected treatment site with a dilatation balloon catheter;

heating the shape memory plastic tubular member with the dilatation balloon catheter to a temperature where the shape memory plastic tubular member is malleable and expanding the dilatation balloon catheter until the shape memory plastic tubular member reaches a desired second diameter at the treatment site;

deploying the shape memory plastic tubular member at the treatment site;

retrieving the shape memory plastic tubular member from the treatment site by heating the tubular member to, or above, a transition temperature of the shape memory plastic tubular member to cause the shape memory plastic tubular member to begin to return to its first diameter, continuously heating the shape memory plastic tubular member at, or above, the transition temperature until the shape memory plastic tubular member returns to its first diameter, and withdrawing the shape memory plastic tubular member from the treatment site.

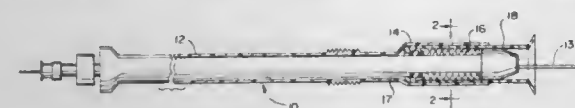
5,800,517
STENT DELIVERY SYSTEM WITH STORAGE SLEEVE
Curtis E. Anderson, Crystal, and Brian J. Brown, Hanover, both of Minn., assignors to Scimed Life Systems, Inc.

Filed Aug. 19, 1996, Ser. No. 699,533

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

12 Claims



1. A delivery system for implantation of a medical device in a vessel, comprising:

an elongate flexible catheter means having proximal and distal ends for delivering a self-expanding medical device to a desired location in a vessel;

an outer sleeve surrounding the distal end of the catheter means; a self-expanding medical device having proximal and distal ends, the medical device surrounding and carried by the flexible catheter means near the distal end of said catheter means, the medical device being in a delivery configuration

where the medical device has a reduced radius along an axial length of said medical device;

a retaining means for retaining the medical device in approximately or substantially the delivery configuration, the retaining means comprising a sleeve retaining means for retaining the medical device in the delivery configuration, the sleeve retaining means surrounding an outer diameter of the medical device and further being surrounded by the outer sleeve, said retaining means being constructed and arranged for removal prior to implantation of the medical device.

5,800,518
METHOD FOR DEPLOYING AN ENDOVASCULAR GRAFT HAVING A BIFURCATION

Alec A. Piplani, Mountain View; Dinah B. Quiachon, San Jose, and Wesley D. Serman, San Francisco, all of Calif., assignors to Endovascular Technologies, Inc., Menlo Park, Calif.

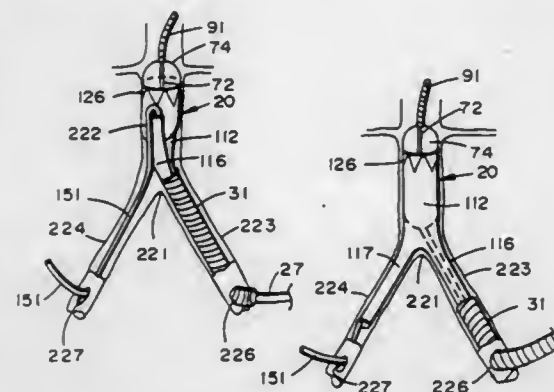
Division of Ser. No. 166,069, Dec. 10, 1993, Pat. No.

5,609,625, which is a division of Ser. No. 66,414, May 21, 1993, Pat. No. 5,489,295, which is a continuation of Ser. No. 684,018, Apr. 11, 1991, abandoned. This application Nov. 1, 1996, Ser. No. 742,360

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

20 Claims



1. A method for deploying a graft having a bifurcation for repairing an aortic aneurysm proximate to an aortic bifurcation associated with first and second iliac arteries of a patient, the method comprising the steps of:

providing a graft having a main tubular body, a first tubular leg and second tubular leg the main tubular body having a main opening associated therewith, the first tubular leg having a first opening associated therewith and the second tubular leg having a second opening associated therewith the second tubular leg further includes a lead tube attached to the second tubular leg proximate the second opening;

folding the second tubular leg of the graft so the second opening and the main opening are oriented in the same general direction and so that the second tubular leg lies substantially parallel to the main tubular body of the graft to provide a folded-over second leg;

introducing the lead tube attached to the folded-over second leg through a first iliac artery of a patient and continuing to advance the graft until the main tubular body of the graft is disposed proximate an aortic aneurysm proximate to an aortic bifurcation, the aortic aneurysm having a proximal end;

securing the main tubular body proximal to the proximal end of the aortic aneurysm;

moving the folded-over second leg of the graft into a second iliac artery by pulling on the lead tube;

securing the first tubular leg of the graft in the first iliac artery; and

securing the second-tubular leg of the graft in the second iliac artery.

5,800,519
TUBULAR MEDICAL PROSTHESIS FOR USE IN A BODY LUMEN

David L. Sandock, Littleton, Mass., assignor to Kopin Corporation, Taunton, Mass.

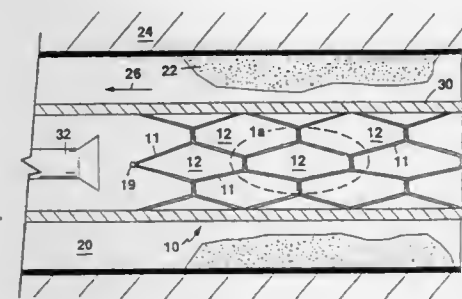
Continuation of Ser. No. 236,786, Apr. 29, 1994, abandoned.

This application Nov. 4, 1996, Ser. No. 743,395

Int. Cl.⁶ A61F 2/04; 2/06

U.S. Cl. 623—1

41 Claims



1. An implantable medical prosthesis, comprising:

a tube-form body with a body wall structure having a geometric pattern of cells defined by a plurality of elongate strands extending to regions of intersection, and

interlocking joints at said regions of intersection formed by a portion of at least one of said strands being helically wrapped through an angle of at least 360° about a portion of another said strand to form helically wrapped portions each having an axis, each strand in a cell having a strand angle relative to an axis of a joint in the cell that decreases upon circumferential expansion of the body, said interlocking joints constructed such that the axes of the helically wrapped portions are oriented substantially circumferentially with respect to said tube-form body.

5,800,520
TUBULAR ENDOLUMINAR PROSTHESIS HAVING OBLIQUE ENDS

Thomas J. Fogarty, Portola Valley, and Jay A. Lenker, Los Altos Hills, both of Calif., assignors to Medtronic, Inc., Minneapolis, Minn.

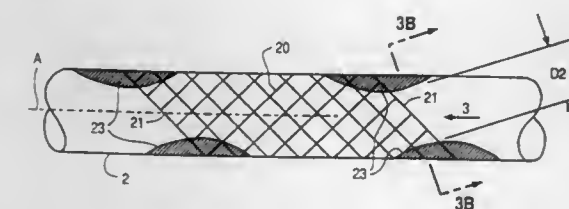
Continuation of Ser. No. 402,435, Mar. 10, 1995, abandoned.

This application Nov. 5, 1996, Ser. No. 744,130

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

6 Claims



1. An intravascular prosthesis comprising a tubular member having a proximal end, a distal end, a lumen, and a luminal axis, wherein the tubular member is insertable within a blood vessel in a small diameter configuration, and is expandable within the blood vessel to an expanded diameter configuration, wherein at least one of the proximal end and the distal end has a terminal edge which is disposed substantially at an oblique angle relative to the luminal axis so that the terminal edge will contact a surrounding blood vessel wall approximately along an oblique cross section when expanded therein, and wherein the terminal edge defines a continuous oblique angle at a side portion and a plurality of cantilevered elements at a top and bottom portion.

5,800,521
PROSTHETIC GRAFT AND METHOD FOR ANEURYSM REPAIR

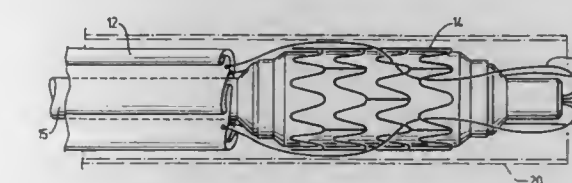
Geoffrey A. Orth, El Granada, Calif., assignor to Endotex Interventional Systems, Inc., Menlo Park, Calif.

Continuation of Ser. No. 472,700, Jun. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 336,875, Nov. 9, 1994, abandoned. This application Nov. 14, 1996, Ser. No. 749,082

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

22 Claims



1. A graft delivery system comprising:

a) an elongated catheter with proximal and distal ends and a means for expanding an expandable anchoring member on a distal portion of the catheter;

b) an expandable anchoring member with proximal and distal ends mounted on the means for expanding;

c) an aortic graft in a radially compressed state with proximal and distal ends and mounted on the catheter proximally adjacent to, and non-overlapping the proximal end of, the anchoring member; and

d) drawing means secured to the distal end of the graft and configured to pull the distal end of the graft to overlap the proximal end of the anchoring member.

5,800,522
INTERIOR LINER FOR TUBES, PIPES AND BLOOD CONDUITS

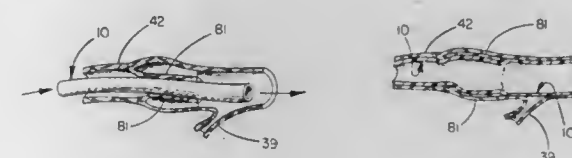
Carey V. Campbell; James F. Kasic, II; Larry J. Kovach; Alvaro J. Laguna; James D. Lewis; Mark E. Mayrand, all of Flagstaff; David J. Myers, Camp Verde, and Stanislaw L. Zukowski, Flagstaff, all of Ariz., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Continuation-in-part of Ser. No. 499,423, Jul. 7, 1995. This application Jan. 24, 1997, Ser. No. 789,378

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

29 Claims



1. A method of performing an in situ bypass, comprising:

a. creating a vein segment;

b. inserting a circumferentially distensible intraluminal graft into the vein segment and into at least one venous valve within the vein segment;

c. circumferentially distending the intraluminal graft, thereby holding open the at least one venous valve; and

d. anastomosing the vein segment to adjacent arteries.

5,800,523

Patent Not Issued For This Number

5,800,524

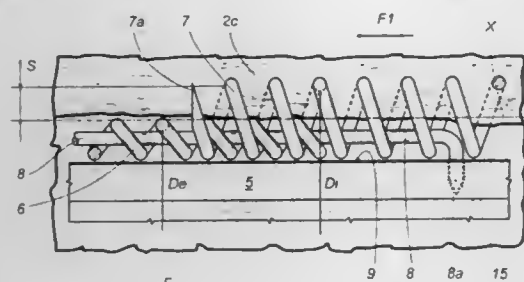
PROSTHESIS WITH SPIRAL STITCHING ELEMENT
Enzo Borghi, Budrio, Italy, assignor to Bard Galway Limited, Galway, Ireland

PCT No. PCT/IT95/00218, § 371 Date Jun. 12, 1997, § 102(e)
Date Jun. 12, 1997, PCT Pub. No. WO96/18360, PCT Pub.
Date Jan. 20, 1996

PCT Filed Dec. 13, 1995, Ser. No. 849,681
Claims priority, application Italy, Dec. 16, 1994, BO94A0552
Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

11 Claims



1. A prosthesis for a blood vessel, comprising a tubular cylindrical element made of biocompatible material implantable in a section of an opened blood vessel and having a pair of first rigidly embodied rings positioned one at either end, adapted to be disposed in direct contact with corresponding cylindrical portions of the blood vessel, also a pair of first spiral wound guide and locating elements made of biocompatible material, respectively associated with and extending circumferentially around the first rigid rings through an angular distance not less than 360°, each first spiral wound element ensheathed by a respective second spiral wound stitching element made of biocompatible material having a sharp point, such that when each of the second spiral wound elements is rotated helically about the respective first spiral wound element it is advanced along its own axis and along the first spiral wound element, causing the first rigid rings to become anchored stably and continuously to the relative cylindrical portions as a given thickness of each cylindrical portion becomes interposed between the two spiral wound elements.

5,800,525

BLOOD FILTER

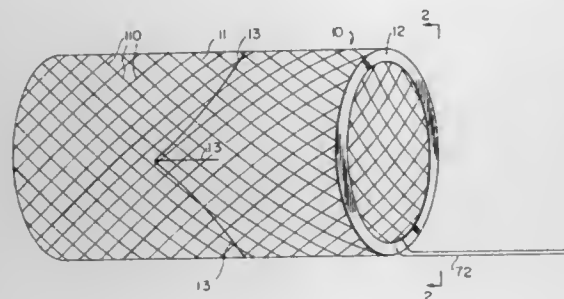
Thomas J. Bachinski, Lakeville; David S. Goldstein, Minneapolis, and Daniel J. Sullivan, Medina, all of Minn., assignors to Vascular Science, Inc., Minneapolis, Minn.

Filed Jun. 4, 1997, Ser. No. 868,957

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

41 Claims



1. A bodily fluid filter comprising:
a tubular framework of a first elastic material having a longitudinal axis, and forming a tubular bodily fluid flow passageway having a tubular wall; and

a plurality of filaments extending from said tubular framework into said tubular blood flow passageway for trapping solid objects flowing in said bodily fluid flow passageway without obstructing said bodily fluid flow.

5,800,526

MULTI-ANCHOR STENT

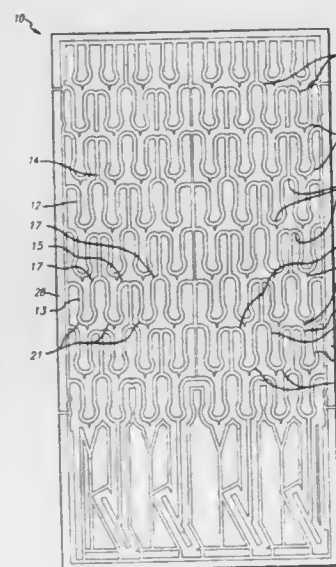
Scott C. Anderson, Sunnyvale; Peter S. Brown, Mountain View, and Geoffrey A. Orth, La Granada, all of Calif., assignors to EndoTex Interventional Systems, Inc., Menlo Park, Calif.

Continuation of Ser. No. 757,486, Nov. 27, 1996, abandoned, which is a continuation of Ser. No. 404,488, Mar. 17, 1995, abandoned. This application Jul. 24, 1997, Ser. No. 901,226

Int. Cl.⁶ A61F 2/06

U.S. Cl. 623—1

10 Claims



1. An intravascular multi-anchor stent for implanting in a body lumen, comprising:

- a first cylindrical element which is substantially independently expandable in the radial direction, the first cylindrical element having a W-shaped portion interposed between two U-shaped portions, the W-shaped portion connected to the U-shaped portions by bulbous arched portions;
- a pair of second cylindrical elements which are substantially independently expandable in the radial direction, each one of the pair of second cylindrical elements having a U-shaped portion interposed between two W-shaped portions, the U-shaped portion connected to the W-shaped portions by bulbous arched portions, the first cylindrical element interposed between the pair of second cylindrical elements so as to be generally aligned on a common longitudinal axis;
- a barb disposed on at least some of the bulbous arched portions of the first and second cylindrical elements, the barb facing partially radially outwardly when the multi-anchor stent is in an expanded configuration to attach the stent to the body lumen;
- a first interconnecting element interconnecting the W-shaped portions of the first cylindrical element to the U-shaped portions of a first one of the pair of the second cylindrical element; and
- a pair of second interconnecting elements interconnecting the two W-shaped portions of a second one of pair of second cylindrical elements to the U-shaped portions of the first cylindrical element.

5,800,527

SUPPORT HOUSING FOR VALVE AND CLOSURE MEMBERS, IN PARTICULAR FOR HEART VALVE PROSTHESES

Josef Jansen, Aachen, and Ulrich Jansen, Dusseldorf, both of Germany, assignors to Adiam Medizintechnik GmbH & Co. KG, Germany

PCT No. PCT/US93/01794, § 371 Date Jan. 6, 1996, § 102(e)
Date Jan. 6, 1996, PCT Pub. No. WO94/01060, PCT Pub.
Date Jan. 20, 1994

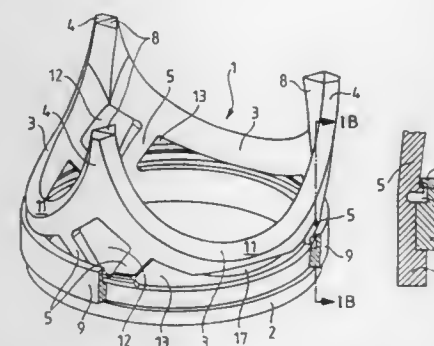
PCT Filed Jul. 9, 1993, Ser. No. 367,298

Claims priority, application Germany, Jul. 10, 1992, 42 22 610.4

Int. Cl.⁶ A61F 2/24

U.S. Cl. 623—2

41 Claims



1. A support stent for valve and closure members, said stent comprising a base ring, at least two posts mounted on said base ring, said posts extending substantially axially to the direction of a ring axis, said posts having free ends and bases, said bases linked together by curved strips and said posts and said strips having backing surfaces for securing at least two flexible webs thereto, said posts and said strips having outer surfaces and inner surfaces that respectively form outer and inner walls of said stent, said posts being inwardly and outwardly deflectable relative to said base ring with said free ends of said posts being rigid, and stop means for limiting inward and outward deflection of said posts.

5,800,528

PASSIVE GIRDLE FOR HEART VENTRICLE FOR THERAPEUTIC AID TO PATIENTS HAVING VENTRICULAR DILATATION

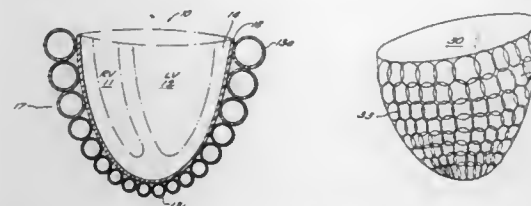
David M. Lederman, Marblehead, and Robert T. V. Kung, Auburn, both of Mass., assignors to Ablomed R & D, Inc., Danvers, Mass.

Continuation-in-part of Ser. No. 490,080, Jun. 13, 1995. This application Dec. 29, 1995, Ser. No. 581,051

Int. Cl.⁶ A61F 2/04

U.S. Cl. 623—3

8 Claims



1. A method for treatment of a patient, whose heart is characterized by ventricular dilatation comprising the steps of, wrapping a girdle around at least the ventricle of said patient's heart, said girdle being wrapped such that it can adjust in size and shape to facilitate a gradual reduction in the size of the heart; and maintaining said girdle in a passive state for an extended period of time, wherein said girdle in said passive state conforms to

the outer shape of said ventricle and does not expand its dimension in a direction away from said natural heart.

5,800,529

CLOSE VASCULARIZATION IMPLANT MATERIAL

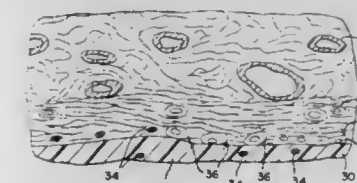
James H. Brauker, Harvard; Robert C. Johnson, Bartlett; Laura A. Martinson, Chicago, and Ronald S. Hill, Gray-slake, all of Ill., assignors to Baxter International, Inc., Deerfield, Ill.

Division of Ser. No. 210,068, Mar. 17, 1994, which is a continuation of Ser. No. 933,871, Aug. 21, 1992, abandoned, which is a continuation of Ser. No. 735,401, Jul. 24, 1991, abandoned, which is a continuation-in-part of Ser. No. 606,791, Oct. 31, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 481,886

Int. Cl.⁶ A61F 2/02; 9/22; 2/00

U.S. Cl. 623—11

11 Claims



1. A device for implantation in a host having a material at an interface between the host and the device, said material having (a) a nominal pore size from about 0.6 to about 20 microns which comprise frames of elongated strands of material that are less than 5 microns in all but the longest dimension wherein said frames define apertures which interconnect to form three-dimensional cavities which permit substantially all host inflammatory cells migrating into the cavities to maintain a rounded morphology; and (b) a conformation which results in growth of vascular structures by the host close to but not substantially into the interface.

5,800,530

INTRA-OCULAR LENS SYSTEM INCLUDING MICROELECTRIC COMPONENTS

Joseph Rizzo, III, 220 Commonwealth Ave., Boston, Mass. 02116

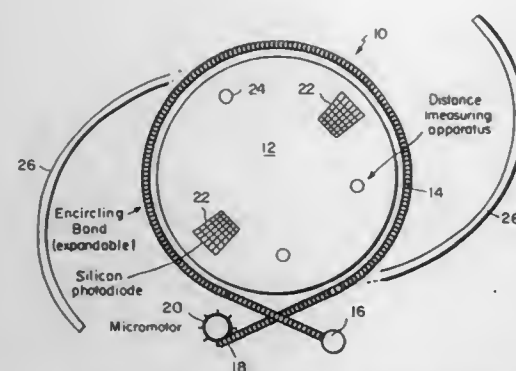
Filed Aug. 18, 1995, Ser. No. 516,711

Int. Cl.⁶ A61F 2/16

U.S. Cl. 623—6

7 Claims

1. Variable focal length implantable intra-ocular lens comprising:
a deformable intra-ocular lens;
a band encircling a peripheral portion of the lens; and



electrical means supported on the lens for altering tension in the band to alter the shape of the deformable lens to vary its focal length.

5,800,531 BIOPROSTHETIC HEART VALVE IMPLANTATION DEVICE

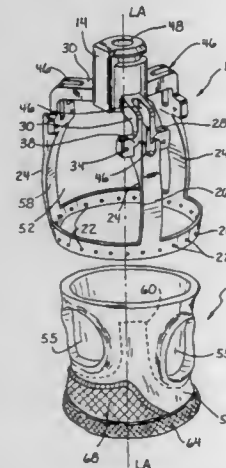
Delos M. Cosgrove, Hunting Valley, Ohio; Richard Rhee, Diamond Bar, and Diana Nguyen, Santa Ana, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Filed Sep. 30, 1996, Ser. No. 723,420

Int. Cl.⁶ A61F 2/24

U.S. Cl. 623—2

82 Claims



1. A holding apparatus for facilitating the surgical implantation of a heart valve prosthesis of the type having, i) a generally tubular prosthesis body having an inner surface, an outer surface, a proximal end, a distal end, an inflow annulus at the proximal end thereof, an outflow annulus at the distal end thereof, and ii) a plurality of valving members disposed within the prosthesis body to perform a hemodynamic valving function and a sewing ring attached to the inflow annulus to facilitate suturing of the inflow annulus to an endogenous opening, said holding apparatus comprising:

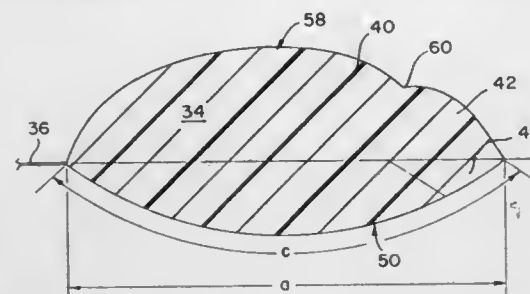
- a hub member positionable adjacent the distal end of the prosthesis body
- a plurality of elongate strut members having proximal ends and distal ends which are attached to said distal hub member such that the strut members extend substantially downward therefrom so as to define a hollow prosthesis retention space inboard of said strut members and beneath said hub member;
- at least one releasable attachment means for releasably holding the prosthesis within said prosthesis retention space such that the proximal inflow end of the prosthesis is connected to the strut members; and
- a proximal ring member attached to the proximal ends of said strut members, said proximal ring member being attachable

about the proximal inflow annulus of the prosthesis such that, when a force is applied in the proximal direction against the distal hub member of the holding apparatus, such force will be transferred through said strut members to said proximal ring member, thereby resulting in the application of a distally directed pulling force which is annularly distributed about the proximal inflow annulus of the prosthesis.

5,800,532
ASYMMETRIC INTRAOCULAR LENS
David M. Lieberman, New York, N.Y., assignor to Scientific Optics, Inc., New York, N.Y.
Continuation of Ser. No. 469,488, Jun. 6, 1995, abandoned.
This application Feb. 21, 1997, Ser. No. 804,254
Int. Cl.⁶ A61F 2/16

U.S. Cl. 623—6

21 Claims



1. An intraocular lens for implantation into an eye, comprising: an optical surface including a central portion and a peripheral portion; a first refractive power region within at least said central portion; and a second refractive power region substantially concentrated only in one predetermined location within said peripheral portion on a nasal side of the intraocular lens relative to the eye upon implantation into the eye, said second refractive power region being of greater refractive power than said first refractive power region.

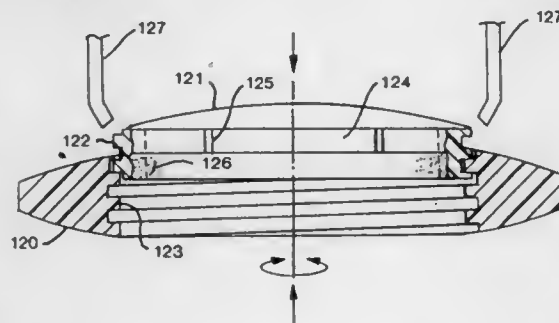
5,800,533
ADJUSTABLE INTRAOCULAR LENS IMPLANT WITH
MAGNETIC ADJUSTMENT FACILITIES
Harry C. Eggleston, 633 Emerson, St. Louis, Mo. 63304, and Thom Day, Jefferson City, Mo., assignors to Harry C. Eggleston, St. Louis, Mo.

Continuation-in-part of Ser. No. 764,501, Dec. 12, 1996, which is a continuation-in-part of Ser. No. 617,183, Mar. 18, 1996, Pat. No. 5,628,798. This application May 9, 1997, Ser. No. 854,175

Int. Cl.⁶ A61F 2/16

U.S. Cl. 623—6

6 Claims



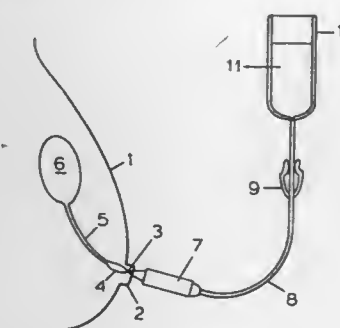
1. An adjustable intraocular lens assembly, and tool for use therewith, comprising:

a base annulus including a threaded inner wall defining a circular opening;
a lens within said circular opening and threadedly engaging in said threaded inner wall wherein rotation of said lens within said base annulus changes the refractive power of said corrective intraocular lens, said lens having operatively associated therewith a magnetic responsive material; and
a magnetic tool means for arrangement in proximity with the lens and when moved providing for a turning of the lens within its base and a readjustment in its focusing power.

5,800,534
BREAST ENHANCEMENT APPARATUS AND METHOD
John D. Jeter, 1403 Teche Dr., St. Martinville, La. 70582, and James J. Fournet, Lafayette, La., assignors to John D. Jeter, Martinville, La.
Division of Ser. No. 570,700, Dec. 11, 1995, Pat. No. 5,683,420.
This application Jun. 13, 1997, Ser. No. 874,523
Int. Cl.⁶ A61F 2/12

U.S. Cl. 623—8

6 Claims



1. A procedure for enhancement of the contour of the human breast by installing enhancement fluids in containments provided by the lacteous systems, comprising the steps:

- providing a source of fluid under pressure;
- delivering said fluid to a nozzle;
- directing said fluid from said nozzle into at least one lactatous duct opening in the nipple and allowing an amount of said fluid to flow into a containment.

5,800,535
WIRELESS PROSTHETIC ELECTRODE FOR THE
BRAIN

Matthew A. Howard, III, Iowa City, Iowa, assignor to The University of Iowa Research Foundation, Iowa City, Iowa
Continuation-in-part of Ser. No. 194,017, Feb. 9, 1994, Pat. No. 5,496,369. This application Nov. 1, 1994, Ser. No. 332,757

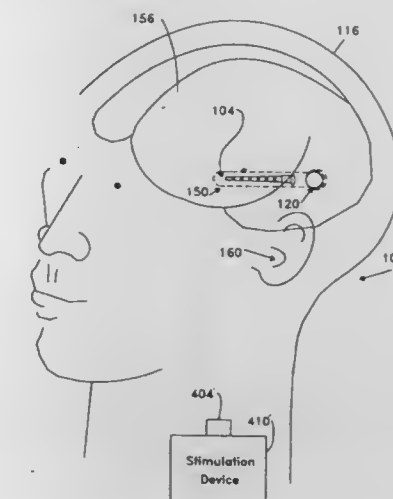
Int. Cl.⁶ A61F 2/18

U.S. Cl. 623—10

22 Claims

1. A wireless neural prosthetic device for placement in a brain target zone of a patient, for receiving processed electrical signals from an exterior processing device, said prosthetic device comprising:

- a thin, elongated electrode support adapted for tonotopic arrangement in said brain target zone having a plurality of electrical contacts arranged to electrically couple with said brain target zone; and



circuitry electrically coupled to said plurality of electrical contacts for receiving said processed electrical signals and for selectively outputting electrical discharges to said plurality of electrical contacts in accordance with said processed electrical signals.

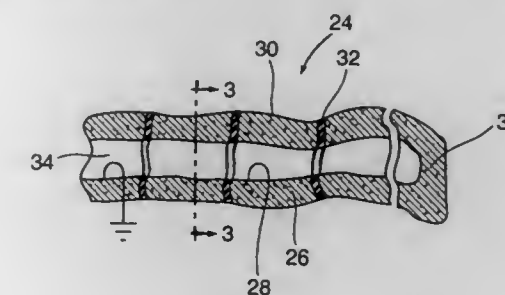
5,800,536
PASSIVE PIEZOELECTRIC PROSTHESIS FOR THE
INNER EAR
Stanley A. Fisher, and Aime S. DeReggi, both of Boyds, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 9, 1997, Ser. No. 854,032

Int. Cl.⁶ A61F 2/18

U.S. Cl. 623—10

8 Claims



8. In a method of improving hearing by application of electrical impulses to nerve endings within an ear of a patient in response to external sound waves transmitted into the ear, the improvement residing in the steps of:

- assembling a plurality of spaced electrodes through which piezoelectric generation of said electrical impulses is achieved;
- inserting said assembled electrodes into the ear for said piezoelectric generation of the electrical impulses internally within the ear; and
- operatively positioning the inserted electrodes in contact with the ear adjacent to said nerve endings for localized injection of the electrical impulses.

5,800,537

METHOD AND CONSTRUCT FOR PRODUCING GRAFT TISSUE FROM AN EXTRACELLULAR MATRIX

Eugene Bell, Boston, Mass., assignor to Tissue Engineering, Inc., Boston, Mass.

Continuation-in-part of Ser. No. 302,087, Sep. 6, 1994, which is a continuation of Ser. No. 926,885, Aug. 7, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 471,535
Int. Cl.⁶ A61F 2/02

U.S. Cl. 623—11

16 Claims

1. A method for producing extracellular matrix particulates, which comprises the steps of:

processing a tissue source having an extracellular matrix and living cells, whereby the living cells are disrupted to form cell remnants;

processing the tissue source to remove the cell remnants from the extracellular matrix of the tissue source in the absence of a high salt solution without removing factors necessary for cell growth, morphogenesis and differentiation to form a processed extracellular matrix; and

fragmenting the processed extracellular matrix to produce extracellular matrix particulates.

5,800,538

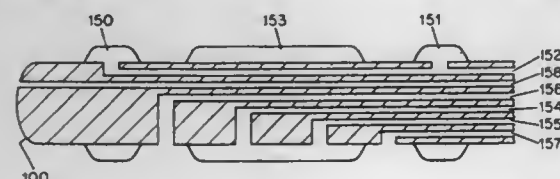
BIODEGRADABLE POLYMERIC ENDOLUMINAL SEALING PROCESS

Marvin J. Slepian, Tucson, Ariz., and Anton Schindler, Durham, N.C., assignors to Endoluminal Therapeutics, Inc., Tucson, Ariz.

Continuation of Ser. No. 182,516, Jan. 14, 1994, which is a continuation of Ser. No. 651,346, Apr. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 593,302, Oct. 3, 1990, abandoned, and a continuation-in-part of Ser. No. 235,998, Aug. 24, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 478,055
Int. Cl.⁶ A61F 2/06; 2/04

U.S. Cl. 623—11

46 Claims



1. A process for forming a polymeric coating on an interior surface of a hollow organ or tissue lumen, comprising:

applying, from a distal end of a catheter, a pre-polymer fluid to an interior surface of a hollow organ or tissue lumen to be coated; and

polymerizing the pre-polymer fluid adjacent the surface to form thereon a polymer coating.

5,800,539

METHOD OF ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION WITHOUT GRAFT FAILURE OR GRAFT VS. HOST DISEASE

Edmund K. Waller, Atlanta, Ga., assignor to Emory University, Atlanta, Ga.

Filed Nov. 8, 1995, Ser. No. 555,520

Int. Cl.⁶ A61F 2/02; A61K 35/12; 35/00; 49/00

U.S. Cl. 623—11

20 Claims

1. A method of transplanting hematopoietic system reconstituting cells from a donor source into an allogeneic recipient comprising:

a) administering to the recipient, prior to or on the same day of the administration of the hematopoietic system reconstituting cells, an amount of mononuclear cells which are treated so as to render them incapable of proliferating and causing a lethal

graft versus host disease effect, but which are effective in enhancing subsequent engraftment of the hematopoietic system reconstituting cells in the recipient; and

b) administering to the recipient an effective amount of hematopoietic system reconstituting cells.

5,800,540

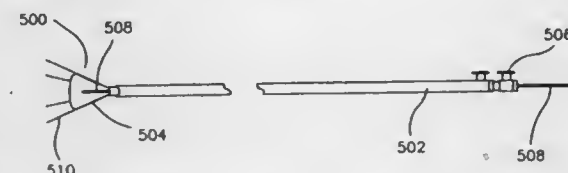
METHOD AND APPARATUS FOR ENDOSCOPIC GRAFTING

Albert K. Chin, Palo Alto, Calif., assignor to Origin Medsystems, Inc., Menlo Park, Calif.

Division of Ser. No. 290,361, Aug. 15, 1994, Pat. No. 5,571,172. This application Oct. 28, 1996, Ser. No. 740,163
Int. Cl.⁶ A61F 2/02; 2/06

U.S. Cl. 623—11

8 Claims



1. A method for reconstruction of target tissue, using a sheathed graft encased in a casing and a stabilizing catheter having a plurality of selectively deployable extensions at one end thereof, the method comprising the steps of:

introducing the sheathed graft through an introduction site to position the sheathed graft at a proximal part of the target tissue;

releasing the graft from the casing;

deploying the extensions of the stabilizing catheter at a proximal part of the graft to press the graft adjacent the target tissue to stabilize the graft at the target tissue;

securing the graft to the target tissue; and

removing the extensions of the stabilizing catheter from the graft secured to the target tissue.

5,800,541

COLLAGEN-SYNTHETIC POLYMER MATRICES PREPARED USING A MULTIPLE STEP REACTION

Woonza M. Rhee, Palo Alto, and Richard A. Berg, Los Altos, both of Calif., assignors to Collagen Corporation, Palo Alto, Calif.

Continuation of Ser. No. 440,863, May 15, 1995, abandoned, which is a division of Ser. No. 236,769, May 2, 1994, Pat. No. 5,475,052, which is a continuation of Ser. No. 198,812, Feb. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 922,541, Jul. 30, 1992, Pat. No. 5,328,955, which is a continuation of Ser. No. 433,441, Nov. 14, 1989, Pat. No. 5,162,430, which is a continuation of Ser. No. 274,071, Nov. 21, 1988, abandoned. This application Jan. 8, 1997, Ser. No. 780,470
Int. Cl.⁶ A61F 2/02; C08G 63/48

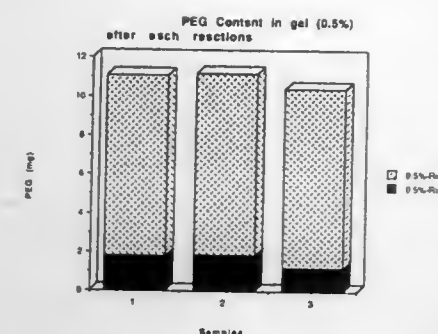
U.S. Cl. 623—11

55 Claims

1. A collagen-synthetic polymer matrix carrying a biologically active agent, a glycosaminoglycan or a glycosaminoglycan derivative prepared by a process comprising the steps of:

(a) covalently binding collagen with a first multifunctionally activated synthetic hydrophilic polymer to form a covalently binding collagen-synthetic polymer matrix intermediate;

(b) further reacting the covalently binding collagen-synthetic polymer matrix intermediate with a first chemical substance to form a modified collagen-synthetic polymer matrix, wherein the first chemical substance is selected from the group consisting of a second synthetic hydrophilic polymer, a chemical crosslinking agent, an esterifying agent, an amidating agent, an acylating agent, a functionally activated amino acid and a functionally activated peptide; and



(c) binding a second chemical substance to the modified covalently binding collagen-synthetic polymer matrix, wherein the second chemical substance is selected from the group consisting of a biologically active agent, a glycosaminoglycan and a glycosaminoglycan derivative.

5,800,542

STERILIZATION BY GAMMA IRRADIATION

Shu-Tung Li, 1 Kiowa Ter., Oakland, N.J. 07436

Division of Ser. No. 416,960, Apr. 5, 1995, Pat. No. 5,674,290. This application Sep. 30, 1997, Ser. No. 940,581
Int. Cl.⁶ A61F 2/02

U.S. Cl. 623—11

16 Claims

1. A method of treating a reconstituted biopolymeric implant, which method comprises:

exposing the implant to an aqueous environment so that a final water content of the implant ranges from 5% by weight to a maximal water absorption capacity; and

sealing the hydrated implant in a gamma ray-penetrable but bacteria- or virus-impenetrable material.

5,800,543

ARTIFICIAL LIGAMENT

Alan Rory Mor McLeod, Evesham, and Ali Shafaghian, Hempton, both of Great Britain, assignors to Surgicraft Limited, Redditch, United Kingdom

PCT No. PCT/GB94/00678, § 371 Date Dec. 13, 1995, § 102(e) Date Dec. 13, 1995, PCT Pub. No. WO94/22395, PCT Pub. Date Oct. 13, 1994

PCT Filed Mar. 31, 1994, Ser. No. 532,641

Claims priority, application United Kingdom, Mar. 31, 1993, 9306737

Int. Cl.⁶ A61F 2/08

U.S. Cl. 623—13

16 Claims



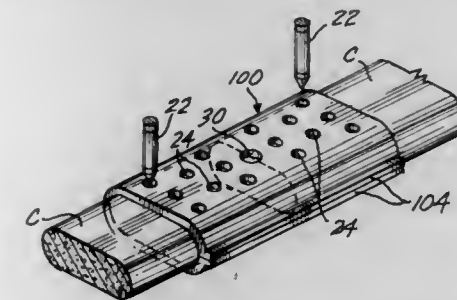
1. A method of manufacturing an artificial ligament device comprising securing a plurality of tows of biocompatible material side-by-side in a flat elongate array by braiding, looping the tows

5,800,544

TENDON AND LIGAMENT REPAIR SYSTEMGregory A. Demopolos, Mercer Island, Wash.; Stephen A. Yencho, Stanford, Calif.; David A. Herrin, Seattle, Wash.; Neil G. McIlvaine, Seattle, Wash.; Michael D. Nelson, Seattle, Wash.; Milton R. Sigelmann, Seattle, Wash.; Jose T. V. de Castro, Newtown, Mass.; George Seelman, Marblehead, Mass.; John Collins, Ipswich, Mass.; Imraan Aziz, Stanford, Calif., and Gorm Bressner, Providence, R.I., assignors to Omeros Medical Systems, Inc., Seattle, Wash. Continuation-in-part of Ser. No. 349,358, Dec. 2, 1994, abandoned. This application Dec. 4, 1995, Ser. No. 567,311
Int. Cl.⁶ A61F 2/08

U.S. Cl. 623—13

179 Claims



1. A splice for a connective cord normally tensioned in the body during joint movement, said splice comprising a hollow sleeve of substantially rigid or semi-rigid material and sized for closely receiving a section of the cord, said securing means including several rigid pins extending between said walls, at least some of said pins projecting from one of said walls and being integral with said one wall and extending through openings in the opposite wall.

5,800,545

ARTIFICIAL HAIR FOR IMPLANTATION AND PROCESS FOR PRODUCING THE SAME

Shiro Yamada, 7-1-606, Mita 2-chome, Minato-ku, Tokyo 108, and Yoshito Ikada, 182, Gokasyo-hirookadani 2-chome, Uji-shi, Kyoto 611, both of Japan

PCT No. PCT/JP96/01501, § 371 Date Feb. 5, 1997, § 102(e) Date Feb. 5, 1997, PCT Pub. No. WO96/40301, PCT Pub. Date Dec. 19, 1996

PCT Filed Jun. 4, 1996, Ser. No. 776,643

Claims priority, application Japan, Jun. 7, 1995, 7-163089; Mar. 19, 1996, 8-089018

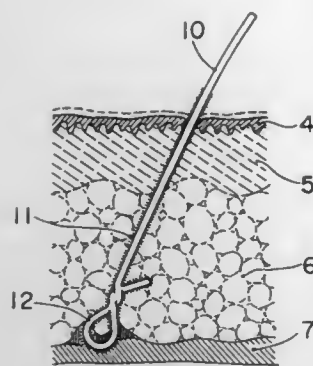
Int. Cl.⁶ A61F 2/10

U.S. Cl. 623—15

11 Claims

1. A process for producing an artificial hair for implantation, formed from a monofilament of a synthetic polymer fiber, said process comprising the steps of:

introducing a graft-polymerized polymer chain onto a surface of the artificial hair by applying ionizing radiation or ultraviolet rays which produce free radicals in the surface of the artificial hair under a condition in which the artificial hair has been immersed in a solution of a radical-polymerizable monomer selected from the group consisting of a carboxyl group-containing monomer and a sulfonic group-containing monomer;



chemically bonding protein molecules to said graft-polymerized chain; and
bonding the protein molecules chemically bonded to said graft-polymerized chain to one another, or to additionally added protein molecules by cross-linking to form a biologically compatible layer on the surface of the artificial hair.

4. In an artificial hair for implantation, formed from a monofilament of a synthetic polymer fiber and having a loop (12) and a book (13) at one end thereof, the improvement wherein said artificial hair includes a biologically compatible layer on an outer surface thereof, said biologically compatible layer comprising a protein fixed to said synthetic polymer by chemical bonding.

5,800,546 IMPACTOR APPARATUS FOR ASSEMBLING MODULAR ORTHOPEDIC PROSTHESIS COMPONENTS

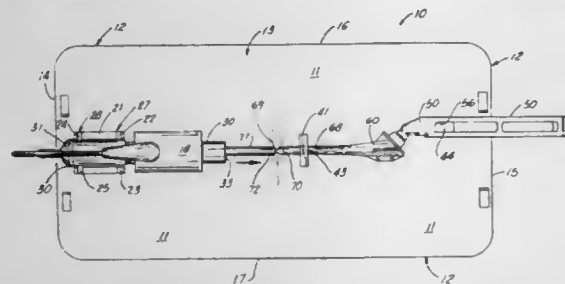
Greg Marik, Scott Mladsi, and Michael Cooper, all of Memphis, Tenn., assignors to Smith & Nephew, Inc., Memphis, Tenn.

Filed Aug. 14, 1995, Ser. No. 514,798

Int. Cl.⁶ A61F 2/28

U.S. Cl. 623—16

10 Claims



1. Modular orthopedic prosthesis parts and an impactor apparatus for assembling modular orthopedic prosthesis parts comprising:
a) a base member defining a plane and having a plurality of components extending away from said plane;
b) said components including a pair of spaced apart supports;
c) an impactor driver tool removably supported upon said supports in a fixed position relative to the base member;
d) said components including an impactor driver tool actuator that pivotally attaches to the base member;
e) the modular prosthesis parts being connectable at a taper lock connection defined by respective tapered annular portions of the prosthesis parts;
f) means for holding the prosthesis parts adjacent the base in axial alignment with the impact driver, in between the pair of supports; and
g) said actuator defining means for activating the impact driver tool to transmit a load to the prosthesis parts for driving said parts together at the taper lock connection;
h) wherein the spaced apart supports hold opposite end portions of the assembly of prosthesis parts and impact driver;
i) wherein the base member and its components carry axial load transmitted from the impact driver to the prosthesis so that the

axial load is reproducible and accurate notwithstanding the rigidity of any underlying surface adjacent the base member.

10. A method of joining a pair of prosthesis parts that are connectable at a taper lock connection defined by respective tapered annular portions of the prosthesis parts comprising the steps of:

- aligning the respective tapered annular portions of the prosthesis parts;
- fitting the respective annular tapered portions together;
- holding the respective tapered annular portions together with spaced apart components anchored to a base member;
- supporting an impact driver in a position that aligns the central axis of the impact driver with the respective annular portions;
- using one of the components to hold one end of the assembly of prosthesis parts opposite the impact driver;
- using a second of the components to hold a second end of the assembly of prosthesis parts and the impact driver;
- compressing the prosthesis parts together with the impact driver;
- wherein in step "g", one of the components is movably mounted to the base member in relation to the other component for activating the impact driver, so that when the impact driver is activated, an impact load is transmitted to the respective annular portions.

5,800,547 VENTRAL INTERVERTEBRAL IMPLANT

Bernd Schäfer, and Stephan Schmitz, both of Schorndorf, Germany, assignors to Schafer micomed GmbH, Schorndorf, Germany

Continuation of Ser. No. 394,017, Feb. 23, 1995, abandoned.

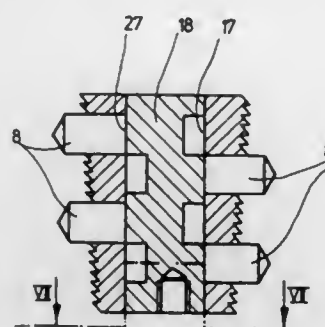
This application Oct. 24, 1996, Ser. No. 736,437

Claims priority, application Germany, Aug. 20, 1994, 94 13 471 U

U.S. Cl. 623—17

Int. Cl.⁶ A61F 2/44

24 Claims



1. A ventral intervertebral implant for use between two vertebral bodies of a spinal column, comprising: a ventral intervertebral body having an upper and lower contact surface, at least one opening extending generally perpendicular to said contact surfaces, and a further opening extending generally parallel to said contact surfaces and situated to intersect said at least one opening; an anchor pin situated in each opening that extends generally perpendicular to said contact surfaces and projecting beyond at least one of said contact surfaces, each anchor pin being retractably disposed in its respective opening; and a camshaft situated in said further opening for extending each anchor pin into a work position, wherein said camshaft is removable from said further opening after each anchor pin is situated in its work position.

5,800,548 DEVICE FOR TRANSVERSE SPINAL CONNECTION

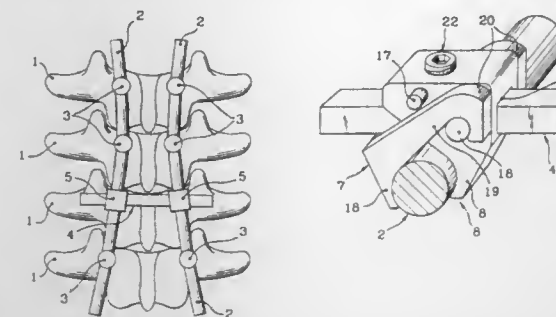
Alain Martin, Saint Medard En Jalles, France, and Bruno Franck, 4 rue Jean Giono, F-87180 Isle, France, assignors to Bruno Franck, Isle; Brienne Industries, Pessac, and Alpha-med, Bidart, all of France

Filed Mar. 5, 1997, Ser. No. 811,930

Int. Cl.⁶ A61F 2/44

U.S. Cl. 623—17

9 Claims



1. A device for transverse spinal connection, comprising a transverse bar (4) secured to at least one spinal osteosynthesis rod (2) by means of a connection/blocking means (5) between said transverse bar and said osteosynthesis rod, adapted to be connected to the osteosynthesis rod in situ; the improvement wherein said connection/blocking means is constituted: by a first part (6) in the form of a jaw (8), provided with a passage (10) for the transverse bar (4) and with a blocking screw (22) adapted to project into said passage, and by a second part (7) in the form of an oppositely acting jaw (18) articulated on the first part (6). the bar (4) when in place in the passage (10) being adapted, upon screwing of said screw (22), to come into bearing both against the first part (6) and against the second part (7) and to cause said jaws (8, 18) to come together.

5,800,549 METHOD AND APPARATUS FOR INJECTING AN ELASTIC SPINAL IMPLANT

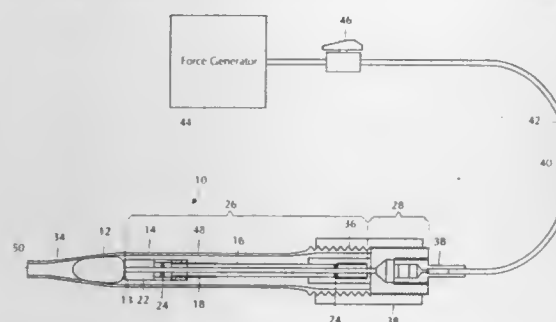
Qi-Bin Bao; Paul A. Higham; Charanpreet S. Bagga, and Hansen A. Yuan, all of New York, N.Y., assignors to Howmedica Inc., New York, N.Y.

Filed Apr. 30, 1997, Ser. No. 846,791

Int. Cl.⁶ A61F 2/44; A61B 17/56

U.S. Cl. 623—17

11 Claims



1. An insertion device for inserting an elastic prosthetic spinal nucleus 12 into an intervertebral disc space, said device comprising:

- a tapered cannula (14) having a straight zone (48) with a cross-sectional area which approximates the cross-sectional area of said prosthetic spinal nucleus 12 and said tapered cannula (14) having a tapered zone (34) which tapers from said straight zone (48) to a proximal opening (50), wherein the cross-sectional area of said straight zone (48) divided by the cross-sectional area of said proximal opening (50) is a ratio lying between about 3 and about 8; and

(b) a force transmitting element (16) for acting on said elastic prosthetic nucleus 12 at its distal end (13) when said nucleus 12 is positioned within said straight zone (48) of said tapered cannula (14), said force transmitting element (16) causing said nucleus 12 first to move into said tapered zone (34) and then out of said proximal opening (50), the force transmitted by said force transmitting element (16) varying directly with the ratio between the cross-sectional area of said straight zone (48) and the cross-sectional area of said proximal opening (50) so that the speed at which said nucleus 12 passes through said proximal opening (50) is so fast as to avoid permanent deformation of said elastic prosthetic nucleus 12.

5,800,550 INTERBODY FUSION CAGE

Mario M. Sertich, 32368 Regency Ct., Avon Lake, Ohio 44012

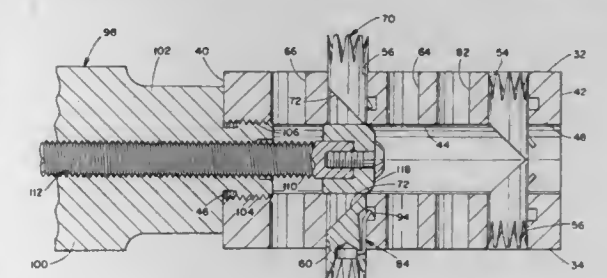
Continuation of Ser. No. 615,681, Mar. 13, 1996, abandoned.

This application Sep. 11, 1997, Ser. No. 928,015

Int. Cl.⁶ A61F 2/44

U.S. Cl. 623—17

24 Claims



1. A prosthetic device adapted for fusing together adjoining vertebrae connected by tissue of a collapsed disc, comprising: an inert generally rectangularly shaped support body configured to be seated on hard end plates of the vertebrae, said support body having solid top and bottom faces; a first aperture located in one of said support body top and bottom faces; and a first anchoring peg movably mounted in said first aperture, said first anchoring peg projecting away from said one of said top and bottom faces and adapted to extend into an associated first vertebra to secure said support body in place relative to the associated first vertebra wherein said first anchoring peg comprises a body having a tapered proximal end and an apertured distal end.

5,800,551 APPARATUS AND METHOD FOR SHOULDER ARTHROPLASTY

Daniel E. Williamson; Connie P. Marchek, and Lance Dean Perry, all of Warsaw, Ind., assignors to Biomet, Inc., Warsaw, Ind.

Filed Mar. 10, 1997, Ser. No. 814,940

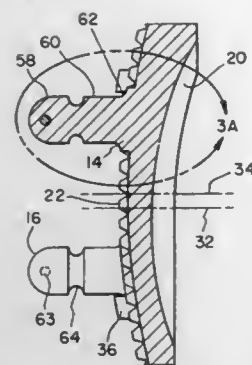
Int. Cl.⁶ A61F 2/40

U.S. Cl. 623—19

27 Claims

1. A glenoid component for use in shoulder arthroplasty, said glenoid component adapted to be implanted into a scapula and engaged by a head of a humeral component, said glenoid component comprising:

- a body having a first articulating surface and a second textured medial surface opposite said first articulating surface, said first articulating surface adapted to be engaged by the head of the humeral component and said second textured medial surface adapted to be secured to the scapula;
- a plurality of circular base members extending from said second textured medial surface, each of said circular base members providing a circular base pad having a first diameter; and



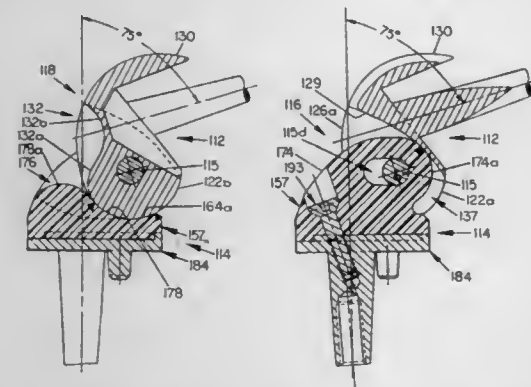
a plurality of cylindrical pegs, each of said cylindrical pegs having a first end adapted to engage a cavity formed in the scapula and a second end extending from one of said circular base members, each of said cylindrical pegs partially defined by a sidewall having a second diameter, wherein said first diameter of said circular base pegs is larger than said second diameter of said cylindrical pegs to increase peg shear strength without having to enlarge each cavity formed in the scapula to accommodate a larger second diameter of said cylindrical pegs.

5,800,552 MECHANICALLY LINKED HINGED TOTAL KNEE PROTHESIS

Mark R. Forte, 11 Oak La., Pine Brook, N.J. 07058
Division of Ser. No. 854,225, Mar. 20, 1992, Pat. No. 5,358,527, which is a continuation-in-part of Ser. No. 673,790, Mar. 22, 1991, Pat. No. 5,236,461. This application Oct. 21, 1994, Ser. No. 327,092
Int. Cl.⁶ A61F 2/38

U.S. Cl. 623—20

16 Claims



II. A hinge assembly for use in a knee prosthesis adapted to provide hingeable connection between a femoral component and a tibial component of such knee prosthesis, to enable anterior-posterior translation to take place between said femoral component and said tibial component and to offer total posterior stabilization thereto, said hinge assembly comprising:

- plural spaced apart femoral hinge components;
- a tibial hinge component located between said femoral hinge components, said tibial hinge component comprising a tibial post having opposed lateral peripheral surfaces and an upper peripheral surface;
- a hinge axis comprising a hinge pin extending between said femoral hinge components and said tibial hinge component; and
- hinge-related posterior stabilization means comprising cam means comprising said tibial hinge component and follower means defined by said femoral hinge components, said follower means comprising an intercondylar housing defined between said femoral hinge components and adapted to receive said tibial hinge component for articulating engagement therein, and wherein said intercondylar housing has lateral wall surfaces and a roof surface; and wherein respective lateral wall surfaces and lateral peripheral surfaces engage each other in sliding contact, and said roof surface and said upper peripheral surface engage each other in rolling and sliding contact.

receive said tibial hinge component for articulating engagement therein, and wherein said intercondylar housing has lateral wall surfaces and a roof surface; and wherein respective lateral wall surfaces and lateral peripheral surfaces engage each other in sliding contact, and said roof surface and said upper peripheral surface engage each other in rolling and sliding contact.

5,800,553 HIP JOINT PROTHESIS TO BE PERMANENTLY ANCHORED WITHIN A FEMUR OF A PATIENT

Bjorn Albrektsson, Onsala; Magnus Jacobsson, Goteborg; Lars Carlsson; Tord Rostlund, both of Kullavik, and Stig Wennberg, Angered, all of Sweden, assignors to Aktiebolaget Astra, Sweden

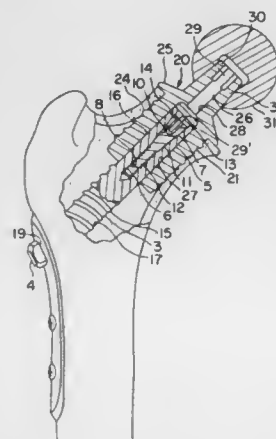
PCT No. PCT/SE92/00511, § 371 Date May 2, 1994, § 102(e) Date May 2, 1994, PCT Pub. No. WO93/01769, PCT Pub. Date Feb. 4, 1993

PCT Filed Jul. 4, 1992, Ser. No. 185,814

Claims priority, application Sweden, Jul. 23, 1991, 9102216
Int. Cl.⁶ A61F 2/36

U.S. Cl. 623—23

12 Claims



I. A fixture for a hip joint prosthesis adapted in use to be permanently anchored in a channel provided in a human femur which extends forwardly into the femur neck from an opening in a femur neck section exposed by resection of the femur head towards a position below the greater trochanter of the femur and comprising a rearward section which extends forwardly from the opening and transversely to the outer surface layer of cortical bone of the femur in at least three locations and a co-axial forward section which extends forwardly from the rearward section, the fixture comprising:

- a rearward fixture component part for anchorage in the rearward section of the channel which is of such transverse dimensions as to extend to at least three cortical bone locations when anchored in the rearward section of the channel; and
- a forward fixture component part for anchorage in the forward section of the channel; wherein a forward end of the rearward fixture component part and a rearward end of the forward fixture component part are adapted to interlock when the fixture component parts are anchored in their respective sections of the channel and wherein securing means are provided for biasing the interlocking end of one of the fixture component parts transversely against the interlocking end of the other fixture component part to secure the forward and rearward fixture component parts together when the fixture component parts are anchored in their respective sections of the channel.

5,800,554 ENDOPROTHESIS FOR AN ARTIFICIAL HIP-JOINT

Werner Scholz, Alte Döhrener Strasse 76, 30173 Hannover, Germany

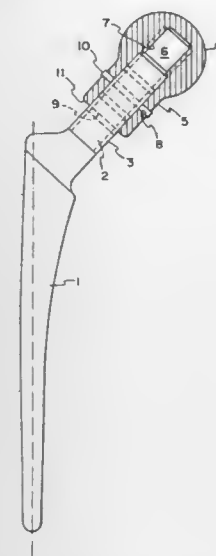
Filed Feb. 26, 1997, Ser. No. 806,432

Claims priority, application Germany, Feb. 29, 1996, 196 07 609.9; May 24, 1996, 296 09 287 U

Int. Cl.⁶ A61F 2/32

U.S. Cl. 623—22

13 Claims



1. An improved endoprosthesis for an artificial hip-joint comprising:
a) a shank having first and second ends;
b) an adapter positioned at one of said ends;
c) a ballhead including a fitted recess, said fitted recess engageable to said adapter in a detachable manner; and
d) each of said adapter (2) and said fitted recess (6) are operatively associated with a means for retaining said ballhead (4) in a selected axial position relative to said adapter (2).

5,800,555 ACETABULAR CUP BEARING LINER

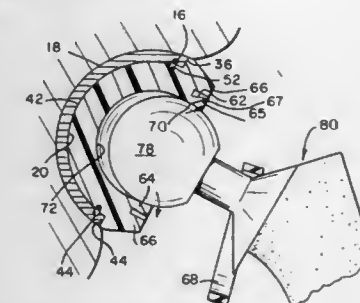
Frederick C. Gray, III, Winona Lake, Ind., assignor to DePuy Orthopaedics, Inc., Warsaw, Ind.

Filed Apr. 24, 1997, Ser. No. 842,074

Int. Cl.⁶ A61F 2/32

U.S. Cl. 623—22

35 Claims



I. A bearing component for a ball-and-socket joint prosthesis, the bearing component comprising
a bearing liner defined by an inner and outer surface and formed with a rim defining an opening to a concave bearing surface describing more than a hemisphere, and means formed in the rim between the inner and outer surfaces for permitting generally radially outward elastic deformation of the bearing surface adjacent the rim, the outward deformation selectively radially enlarging the opening to the concave bearing surface, and

a locking component configured to couple the permitting means to inhibit the generally radially outward elastic deformation of the bearing surface around the rim.

5,800,556 ADJUSTABLE BIPOLAR-UNIPOLAR ADAPTOR FOR A HEAD TRIAL

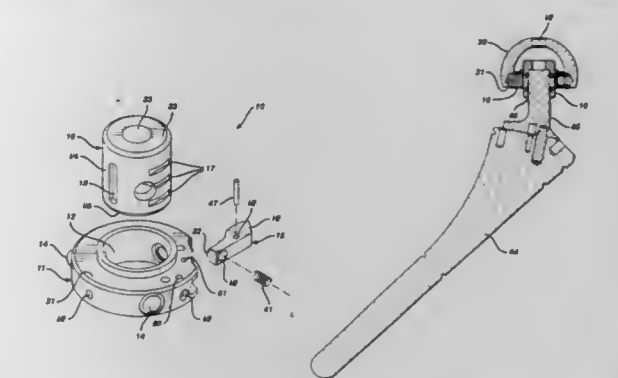
Anthony Sanders, Lakeville; Paul Salvas, Norton, and Mark A. Manasas, South Easton, all of Mass., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed May 23, 1996, Ser. No. 652,764

Int. Cl.⁶ A61F 2/76

U.S. Cl. 623—23

9 Claims



1. A femoral head trial adaptor for converting a shell trial to a head trial comprising:
a) a cylindrical ring portion comprising a central opening, said ring portion adapted to be received by a shell trial;
b) a neck portion extending from said opening in said ring portion, said neck portion comprising an opening for receiving a neck trunnion of a femoral stem trial; and
c) a connecting portion for securing said ring portion to a said shell trial.

5,800,557 JOINT PROTHESIS AND DEVICE FOR MAKING A DRILLING IN AT LEAST ONE JOINT HEAD

Laghaollah Elhami, Kafkastrasse 68, D-81737, Munich, Germany

PCT No. PCT/DE95/00481, § 371 Date Jan. 6, 1997, § 102(e) Date Jan. 6, 1997, PCT Pub. No. WO95/29650, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 18, 1995, Ser. No. 732,347

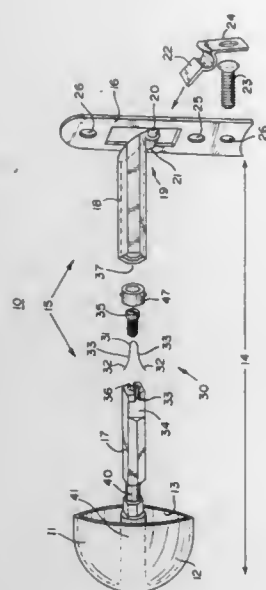
Claims priority, application Germany, May 2, 1994, 44 15 378.3; Oct. 28, 1994, 44 38 620.6

Int. Cl.⁶ A61F 2/36

U.S. Cl. 623—23

53 Claims

1. A joint prosthesis for a joint head of a joint, which head cooperates with a joint cavity, said prosthesis comprising:
a) a cap having a contact surface adapted to abut the joint head, and having an outer surface which is at least approximately shaped as a spherical cap;
b) a telescopic arrangement having a first telescopic member linked with the cap and projecting from the cap, and a second telescopic member which is in telescopic engagement with said first telescopic member, said telescopic arrangement being sized and arranged so as to pass through a drilling in the joint head and bone regions adjacent thereto when in an implanted state, and
c) a supporting member attached to said second telescopic member and designed for fixation to a bone surface of a bone located opposite to the joint head, wherein the first telescopic member is guided for sliding movement in relation to the second telescopic member in a direction away from the joint cavity.



wherein said contact surface is defined by an internal surface of the cap, which internal surface is at least approximately adapted to the shape of the joint head, and wherein said prosthesis comprises restraining means the operation of which is dependent on the direction of the forces acting thereon so as to permit changes in position of the cap with respect to the supporting member in the direction away from the joint cavity, and to at least impede changes in position of the cap with respect to the supporting member in the direction towards the joint cavity in comparison with the changes of position in the direction away of the joint cavity.

5,800,558

HIP PROSTHESIS

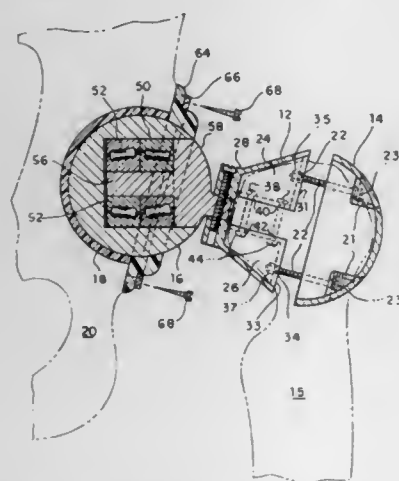
Gerard A. LaHaise, Sr., 275 Anthony Mill Rd., Bechtelsville, Pa. 19505

Filed Feb. 19, 1997, Ser. No. 802,256

Int. Cl.⁶ A61F 2/36; 2/34

U.S. Cl. 623—23

9 Claims



I. A total hip joint replacement prosthesis comprising:
a femoral component including
a medial clamp comprising upper and lower substantially semi-circular members, a bridge member and means for securing said upper and lower semi-circular members together, said upper and said lower semi-circular members oppositely disposed to sandwich a femoral shoulder therebetween and integrally attached to said bridge member in

a substantially frusto-conical formation, said bridge member having a substantially rectangular cross section;
a lateral clamp comprising a substantially hemispherical member, said hemispherical member dimensioned and configured to engage a femoral shoulder; and,
means for connecting said lateral clamp to said medial clamp about a femoral shoulder to allow secure external fixation thereto; and,
an acetabular component including
an acetabular cup for placement within a pelvic acetabular cavity;
a ball dimensioned and configured to be closely received by said acetabular cup to allow universal rotation when placed within said acetabular cup, including a roller bearings assembly;
a hub assembly comprising means for cooperating with said roller bearings assembly to facilitate rotational movement between said acetabular component and said femoral component, and means for insertably connecting said ball to said bridge member of said femoral component;
a protective retainer, said retainer comprising a slightly-curved annular ring and a raised, inwardly-curved annular ring, said slightly-curved annular ring defining a plurality of apertures; and,
means for securing said protective retainer to the outer surface of a pelvic bone.

5,800,559

COATED FEMORAL STEM PROSTHESIS

Paul A. Higham, Ringwood, N.J., and Larry T. Warfield, Heltown, Pa., assignors to Howmedica Inc., New York, N.Y.

Continuation of Ser. No. 503,572, Jul. 18, 1995, Pat. No.

5,593,452, which is a continuation of Ser. No. 189,629, Feb. 1, 1994, abandoned. This application Oct. 28, 1996, Ser. No.

739,090

Int. Cl.⁶ A61F 2/32

U.S. Cl. 623—23

7 Claims

1. A femoral hip joint prosthesis having reduced adhesion to bone cement comprising:
a proximal stem portion; and
a distal stem portion for contact exclusively with bone cement lining a bone cavity, said distal stem being formed from metal having a polished surface finish coated with a discrete layer of diamond-like carbon to reduce adhesion to bone cement, said layer of diamond-like carbon being from about 1 to 30 microns thick with an outer surface maintaining said polished surface finish.

5,800,560

HIP PROSTHESIS WITH ADJUSTABLE HEAD

Klaus Draenert, Gabriel-Max-Str. 3, D-8000 Munich 90, Germany

Division of Ser. No. 595,510, Feb. 1, 1996, Pat. No. 5,658,352, which is a continuation of Ser. No. 466,326, May 8, 1990, abandoned. This application May 15, 1997, Ser. No. 856,646

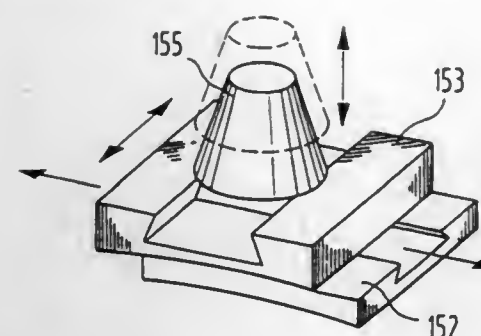
Claims priority, application Germany, Sep. 9, 1988, 38 30 748.0

Int. Cl.⁶ A61F 2/36

U.S. Cl. 623—23

14 Claims

1. A hip joint endoprosthesis comprising:
an elongated stem having an end; and



a head portion mounted on the end of the elongated stem with an adjustable connection, the adjustable connection allowing the head portion to be independently adjustable relative to the elongated stem in a first dimension and in a second dimension.

5,800,561

POWER-ASSISTED UPPER EXTREMITY ORTHOSIS

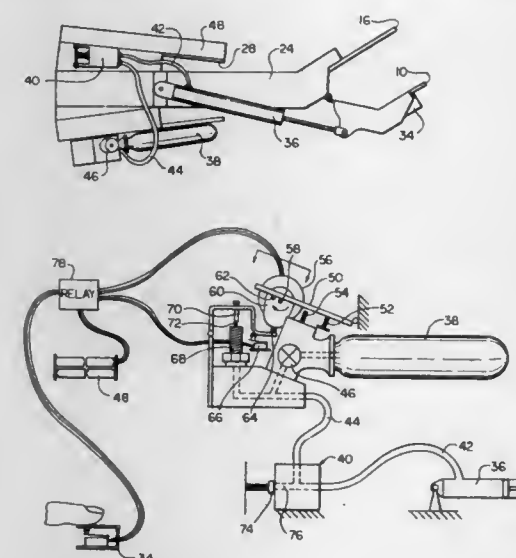
David Rodriguez, Playa del Rey, Calif., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 15, 1996, Ser. No. 649,967

Int. Cl.⁶ A61F 2/54; 2/74

U.S. Cl. 623—26

12 Claims



1. An orthotic device to be worn on a human forearm, hand, fingers and thumb comprising:
a first gripping member including a first gripping surface and a finger placement surface;
a second gripping member including a second gripping surface and a thumb placement surface, said second gripping surface opposing said first gripping surface, said first gripping member being movable with respect to said second gripping member, and said first gripping member and said second gripping member being interposable between said thumb and fingers of said human hand; and
an elongate member immovably secured to one of said first and said second gripping members;
an actuator in communication with one of said first and said second gripping members, said actuator capable of moving said first gripping member relative to said second gripping member;
a cylinder of compressed gas for powering said actuator, said cylinder being mounted to the rest of said orthotic device, said cylinder sized substantially smaller than said device; and

a trigger mechanism on said finger placement surface of said first gripping member, said trigger mechanism in communication with said actuator.

5,800,562

PROSTHETIC APPARATUS FOR ABSORBING SHOCKS

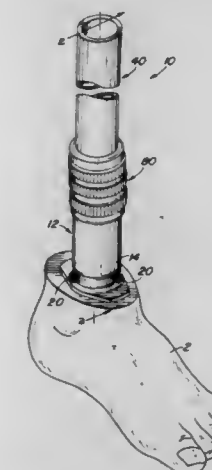
Kerry E. Wilkinson, 5750 W. Linda La., Chandler, Ariz. 85226

Filed Sep. 8, 1997, Ser. No. 929,009

Int. Cl.⁶ A61F 2/60

U.S. Cl. 623—27

7 Claims



1. Prosthetic apparatus comprising in combination:
a cylindrical element, including
a socket portion for receiving a prosthetic connector element, an end wall at the socket portion,
a first slot in the end wall,
a first bore extending from the end wall, and
external threads remote from the end wall;
a tubular member, including
a first portion extending into the bore of the cylindrical element, and
a second bore;
a sleeve disposed in the second bore, including
an end wall spaced apart from the end wall of the cylindrical element,
a second slot in the end wall generally parallel to the slot in the end wall of the cylindrical element, and
a radially outwardly extending flange remote from the end wall;
a cylindrical bushing disposed in the first bore and secured to the tubular member, including a radially inwardly extending flange disposed on the radially outwardly extending flange of the sleeve for providing joint movement of the tubular member, the sleeve, and the bushing;
means for absorbing shocks disposed in the sleeve between the end walls; and
cap means secured to the external threads of the cylindrical element for securing the tubular member, the sleeve and the bushing to the cylindrical element.

5,800,563

IMPACT REDUCING PROSTHETIC PYLON

Robert E. Arbogast, Mt. Sterling; Eric K. Bartkus, Grove City; James M. Colvin, Hilliard, and Sujatha Srinivasan, Mt. Sterling, all of Ohio, assignors to Ohio Willow Wood Company, Mount Sterling, Ohio

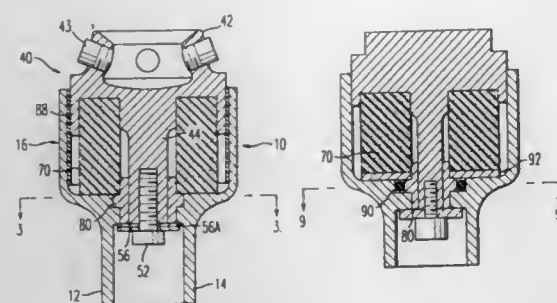
Filed Dec. 22, 1995, Ser. No. 577,141

Int. Cl.⁶ A61F 2/62

U.S. Cl. 623—35

16 Claims

1. An impact reducing prosthetic pylon comprising:



- a distal component configured to be attached to a prosthetic body part;
 a proximal component attachable to a residual body part; and
 a joint between said distal and proximal components, said joint comprising:
 a) a housing formed at an end of said distal component, said proximal component being movably fitted in said housing such that said proximal component fits in said housing by a variable degree;
 b) a compressively resilient foam member located in said housing and elastically limiting a degree of fitting of said proximal component in said housing;
 c) means for limiting rotation of said distal component about said proximal component;
 d) means for absorbing torsional stresses generated in said distal component and reducing transfer of the torsional stresses to said proximal component; and
 e) means for preventing separation of said distal and proximal components, comprising a washer mounted to said proximal component and positioned at a bottom wall of said housing, further comprising an elastomeric gasket positioned between said washer and said bottom wall for absorbing impacts of said washer on said bottom wall.

5,800,564

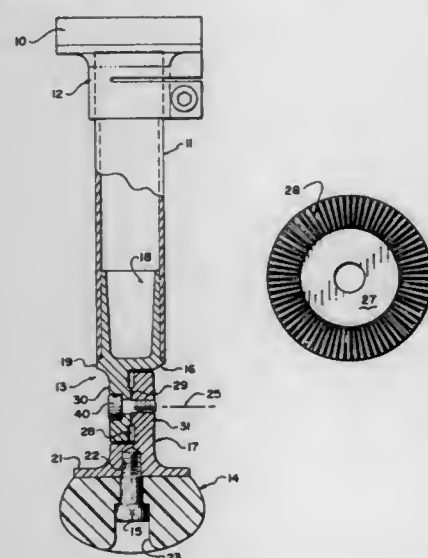
ANKLE PROSTHESIS WITH ANGLE ADJUSTMENT
 Roger Gelineau, 487 First Avenue, Ile des Chenes, Manitoba, Canada, R0H 0T0

Filed Sep. 18, 1996, Ser. No. 715,633

Int. Cl.⁶ A61F 2/62; 2/66

U.S. Cl. 623—38

6 Claims



1. A leg prosthesis for attachment to a remaining leg portion of an amputee patient comprising:
 a foot prosthesis defining an elongate body having a lower surface for engaging the ground, an upper surface generally parallel to the lower surface and two generally upstanding

side surfaces each on a respective side of the body so that the body is shaped to simulate a foot and to receive a shoe of the patient for application of pressure from the leg prosthesis to the ground through the shoe;
 an upper coupling for attachment to the remaining leg portion; and
 an ankle prosthesis located between the foot prosthesis and the upper coupling, the ankle prosthesis comprising:
 a lower mounting bracket attached to the upper surface of the foot prosthesis and having a first swivel element standing upwardly therefrom;
 an upper mounting portion for attachment to the upper coupling and having a second swivel element mounted thereon and extending downwardly therefrom for co-operation with the first swivel element;
 the swivel elements defining co-operating abutment surfaces lying in a vertical plane longitudinal of the foot prosthesis and located between the side surfaces;
 the swivel elements being mounted for relative rotation about an adjustment axis at right angles to the vertical plane;
 each of the abutment surfaces having a plurality of ribs thereon, the ribs being raised in a direction longitudinal of the adjustment axis toward the other of the abutment surfaces and the ribs extending radially of the adjustment axis at angularly spaced positions therearound;
 the ribs of the abutment surface of the first swivel element being arranged to intermesh with the ribs of the abutment surface of the second swivel element;
 and means for clamping the abutment surfaces of the swivel elements together to hold the raised ribs in an intermeshed relationship to maintain the swivel elements against said relative rotation at a selected angle around the adjustment axis;
 the clamping means being temporarily releasable to a distance to release the ribs from said intermeshed relationship to allow adjustment rotation of the first swivel element relative to the second swivel element through an angle which is a whole number multiple of the angular spacing of the ribs.

5,800,565

LEG PROSTHESIS WITH QUICK EXCHANGE AND DISPLACEMENT ADJUSTMENT CONNECTIONS
 Lutz Biedermann, VS-Villingen, Germany, assignor to Biedermann Motech GmbH, VS-Schwenningen, Germany
 PCT No. PCT/EP95/01609, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO95/31949, PCT Pub. Date Nov. 30, 1995

PCT Filed Apr. 27, 1995, Ser. No. 737,018

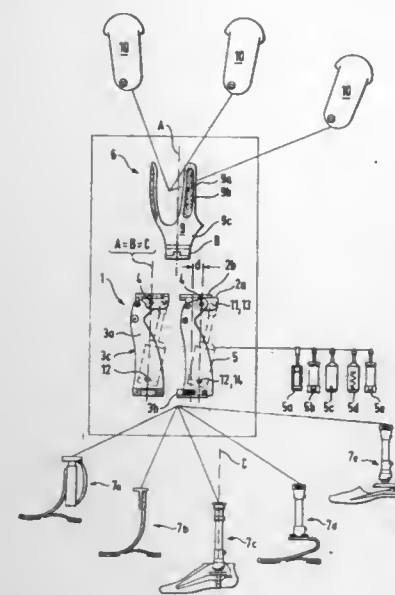
Claims priority, application Germany, May 25, 1994, 94 08 556 U

Int. Cl.⁶ A61F 2/62; 2/64; 2/76

U.S. Cl. 623—38

12 Claims

1. A leg prosthesis comprising
 a thigh member;
 a lower leg member;
 a knee part having an upper knee member, a lower knee member and a joint connecting said knee members;
 said thigh member, lower leg member and knee part being positioned along a leg axis;
 a swing phase control device having a first end and a second end, said first end being connected to said upper knee member and said second end being connected to said lower knee member; and
 a connection unit comprising first means for connecting said thigh member to said upper knee member and second means for connecting said lower leg member to said lower knee member.



each of said first and second means comprising means for providing a relative displacement of the respective connected members in a direction other than said leg axis, said second means comprising quick exchange means.

5,800,566

ARTIFICIAL JOINT WITH A HYDRAULIC DAMPING CYLINDER

Finn Gramnäs, Brantälid 18, S-511 56 Kinna, Sweden

PCT No. PCT/SE93/00513, § 371 Date Jan. 23, 1995, § 102(e)

Date Jan. 23, 1995, PCT Pub. No. WO93/25165, PCT Pub. Date Dec. 23, 1993

PCT Filed Jun. 9, 1993, Ser. No. 351,296

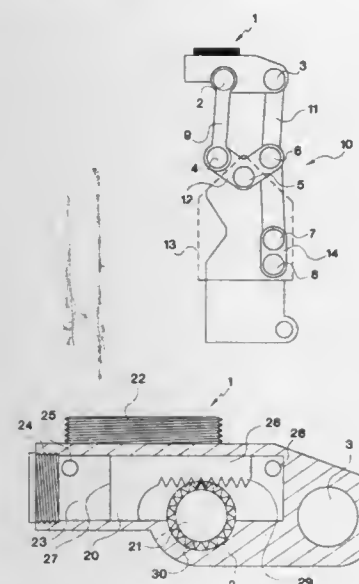
Claims priority, application Sweden, Jun. 9, 1992, 9201749;

Aug. 28, 1992, 9202472

Int. Cl.⁶ A61F 2/64

U.S. Cl. 623—39

15 Claims



1. A combination of an artificial knee joint and a device for damping turning movement in the artificial knee joint, the artificial knee joint having at least one pivot point, the combination comprising the artificial knee joint having a first link and a second link and the device for damping comprising:
 a piston having a rack-gearing along one side thereof;

a hydraulic cylinder having a longitudinal opening in which the piston is mounted, the piston being completely contained within the cylinder, the piston being reciprocable in the hydraulic cylinder, the cylinder further having channels interconnecting opposed ends of the cylinder on opposite sides of the piston whereby hydraulic fluid can flow therethrough upon movement of the piston;
 means on an end of the cylinder for mounting the first link of the artificial joint to the hydraulic cylinder;
 means for resisting movement of the hydraulic fluid through the channels, the means for resisting including back valves for causing hydraulic fluid to flow in different channels for each direction of movement of the piston; and
 a shaft having a gear mounted thereon, the shaft extends into the cylinder and the gear meshes with the rack-gearing of the piston, only the shaft extends from an interior of the hydraulic cylinder while the piston and means for resisting are contained within the cylinder, and wherein the second link of the artificial joint is mounted to the shaft, movement of the shaft moving the hydraulic cylinder and thereby forcing hydraulic fluid through the channels of the cylinder, the means for resisting movement resisting flow of hydraulic fluid to dampen movement of the shaft.

5,800,567

KNEE MECHANISM FOR AN ARTIFICIAL LIMB

John Edwin Cooper, Haslemere, Great Britain; Robert E. Arbogast, Mount Sterling, Ohio; Jay H. Kinsinger, Cedarville, Ohio, and Sujatha Srinivasan, Mount Sterling, Ohio, assignors to Ohio Willow Wood Company, Mount Sterling, Ohio

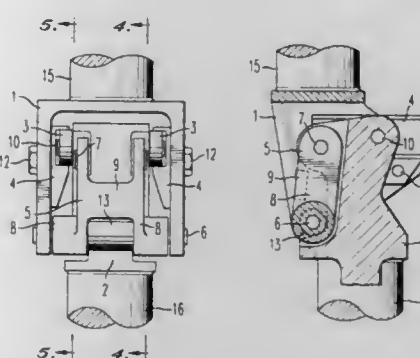
Filed Mar. 10, 1997, Ser. No. 816,002

Claims priority, application United Kingdom, Mar. 11, 1996, 9605110

Int. Cl.⁶ A61F 2/62

U.S. Cl. 623—39

34 Claims



1. A knee mechanism in a lower limb prosthesis, comprising:
 an upper member connectable to a thigh so as to define a posterior and anterior orientation relative to a load line of the upper member;
 a lower member; and
 a polycentric linkage connecting said lower member to said upper member such that said lower member can rotate posteriorly from a fully extended position with respect to said upper member about an instantaneous center of rotation, wherein said instantaneous center of rotation is above the knee mechanism and posterior to the load line when said lower member is in the fully extended position, and wherein, in at least an initial range of flexion of said lower member from said fully extended position, a locus of said instantaneous center of rotation moves continuously downward and to the posterior, with increased flexion of the lower member.

5,800,568

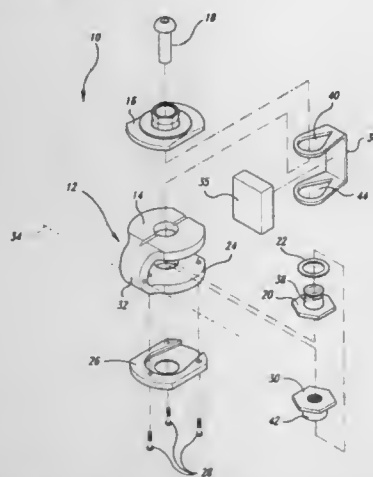
PROSTHETIC ANKLE AND WALKING SYSTEM

Stewart L. Atkinson, and Donald L. Poggi, both of Bainbridge Island, Wash., assignors to Model & Instrument Development Corporation, Poulsbo, Wash.

Filed Feb. 16, 1996, Ser. No. 602,241
Int. Cl.⁶ A61F 2/66

U.S. Cl. 623—52

1 Claim



1. A prosthetic ankle for use between a pylon and a prosthetic foot to support a person's weight on the ground, the prosthetic ankle comprising:

- an upper leg adapted for connecting to a lower end of the pylon, the upper leg having a hole through it in substantial alignment with a longitudinal axis of the pylon;
- a lower leg adapted for connecting to the upper surface of the prosthetic foot in a manner in which the lower leg is substantially prevented from moving upwardly and downwardly with respect to the prosthetic foot;
- an interconnecting member interconnecting the upper and lower legs so the legs rotate about a medial/lateral axis, the interconnecting member resiliently biasing the legs apart from one another about the medial/lateral axis to space front portions of the upper and lower legs apart from one another by a greater distance than rear portions of the upper and lower legs when the person's weight is placed on the prosthetic ankle at heel strike; and
- a limit device having a limit strap coupling the upper and lower legs to each other and a tensioning device coupled between the limit strap and one of the upper and lower legs, wherein the limit strap has a loop having an axis positioned in substantial axial alignment with the hole of the upper leg, wherein the tensioning device comprises a cylindrical insert nut inserted into the hole of the upper leg with its axis substantially coinciding with the hole of the upper leg and with an end extending through the loop of the limit strap, and wherein the insert nut has a cam lobe on its cylindrical surface pressing against an inside edge of the loop of the limit strap such that the limit strap may be tensioned to greater and lesser degrees by turning the insert nut.

5,800,569

PROSTHESIS WITH RESILIENT ANKLE BLOCK

Van L. Phillips, 5499 Maravillas, P.O. Box 1873, Rancho Santa Fe, Calif. 92067

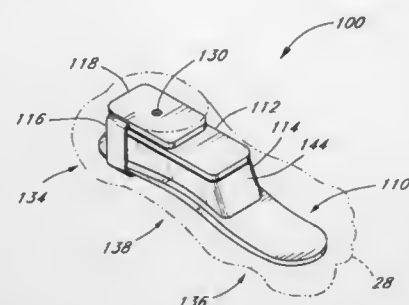
Continuation-in-part of Ser. No. 290,339, Aug. 15, 1994, abandoned. This application Aug. 15, 1995, Ser. No. 515,557

Int. Cl.⁶ A61F 2/66

U.S. Cl. 623—53

29 Claims

1. A prosthetic foot for attaching to a socket or pylon of a lower-limb amputee, comprising:
- a foot plate element, including posterior, medial and anterior sections, having a length approximately equal to the length of



a natural human foot, said foot plate element comprising a resilient material capable of flexing along its length, said foot plate element having a tapered thickness along its length such that said thickness increases from said posterior section to said medial section and decreases from said medial section to said anterior section;

an ankle plate element having a length substantially shorter than said foot plate element; and

an ankle block comprising a relatively soft, compressible material sandwiched between said ankle plate element and said foot plate element, said ankle block providing substantially the sole means of support and connection between said foot plate and said ankle plate;

whereby said foot plate and said ankle block flex in a cooperative manner to provide substantially smooth and continuous rollover transition from heel-strike to heel-off.

5,800,570

LOWER EXTREMITY PROSTHETIC DEVICE

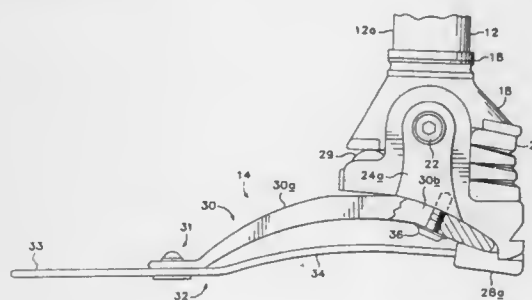
Milo S. Collier, 1152 Douglas St., Longview, Wash. 98632

Filed Mar. 14, 1996, Ser. No. 618,450

Int. Cl.⁶ A61F 2/66

U.S. Cl. 623—55

14 Claims



1. A lower extremity prosthetic device which includes a foot structure, the foot structure comprising:

- a heel member;
- an elongate, dorsal midfoot member joined to said heel member and extending forwardly therefrom in an arc, said midfoot member including elongate medial and lateral arch elements, said arch elements being transversely spaced to accommodate torsional flexion of said foot structure upon application of a stride-related force; and
- an elongate plantar member which extends between said heel member and a forward end of said midfoot member, said plantar member being configured to longitudinally flex in response to application of a stride-related force to said foot structure.

5,800,571

LOCKING MECHANISM FOR VOLUNTARY CLOSING PROSTHETIC PREHENSOR

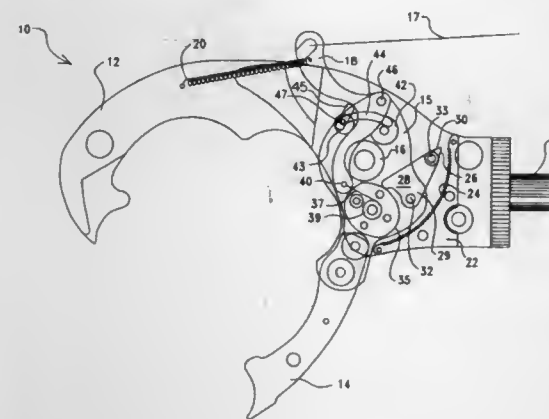
Lawrence Evan Carlson, Boulder, Colo.; Daniel David Frey, Cambridge, Mass., and Eric Stewart Brown, Boulder, Colo., assignors to University Technology Corporation, Boulder, Colo.

Filed Feb. 24, 1997, Ser. No. 804,545

Int. Cl.⁶ A61F 2/42

U.S. Cl. 623—57

12 Claims



1. A ratchet and pawl locking mechanism comprising:

- a ratchet including a sector having a plurality of protruding teeth;
- a pawl assembly,
- base means attached to the pawl assembly for locating the pawl assembly adjacent to the ratchet;
- said pawl assembly including:

- a link pivotally attached to the base means, said link having a first end and a second end, wherein the second end of the link pivots with respect to the first end of the link thereby bringing the second end of the link toward or away from the sector, and

- a pawl, having a first end and a second end, wherein the first end of the pawl is pivotally connected to the second end of the link, said pawl having a tooth on the second end of the pawl for engaging the sector teeth when the second end of the pawl is brought toward the sector; and

means for selectively locking and unlocking the mechanism by pivoting the link such that the pawl tooth moves into and out of engagement with the sector teeth including:

- a cam adjacent to the link having a wider portion and a narrower portion, said cam rotationally attached to the second finger and capable of rotating in only one direction;
- a cable wound around the cam for rotating the cam when the cable is pulled with sufficient force, whereby to lock the mechanism the wider portion of the cam is rotated into contact with the link to pivot the second end of the link toward the sector, such that the pawl tooth moves into engagement with the sector teeth, and to unlock the mechanism the wider portion of the cam is rotated away from the link to allow the link to pivot the second end of the link

away from the sector, whereby the pawl pivots with respect to the link until the pawl tooth is pulled free from the sector teeth; and

means for biasing the link to pivot the second end of the link away from the sector to unlock the mechanism.

5,800,572

ARM SOCKET AND ATTACHED HAND PROSTHESIS

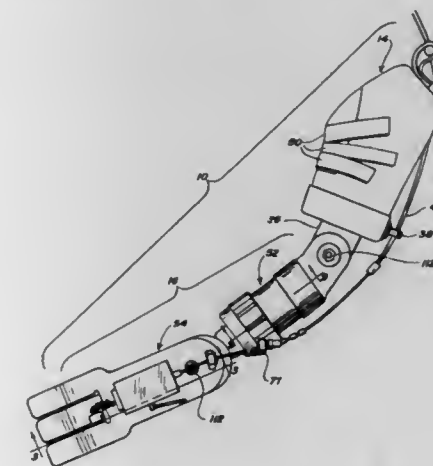
William H. Loveall, R.R. 1, Box 149A, Rutledge, Mo. 63563

Filed May 24, 1996, Ser. No. 653,191

Int. Cl.⁶ A61F 2/56; 2/80

U.S. Cl. 623—63

8 Claims



1. A socket for a residuum of an arm with a below elbow amputation comprising a shell formed to essentially match the contour of the residuum, said shell having an open proximal end, a closed distal end, a posterior wall and an anterior wall attached to the closed end and opposed medial and lateral walls, said medial and lateral walls attached to the closed end and merged into the posterior and anterior walls, a lining of soft, compressible material disposed over at least a portion of an interior surface of said shell, a gate formed in the anterior wall at the elbow, opening the shell along the proximal end and hinged along either the medial or lateral walls and a fastener for securing the gate closed along the medial or lateral wall opposite the hinged side of the gate whereby the lining in the shell can be adjusted with the gate open and the residuum of an arm, including the elbow, easily slipped into the socket.

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CHEMICAL

5,800,573

BULK DYEING USING QUINOPHTHALONE DYESTUFFS
Stephan Michaelis, Odental; Peter Roschger, Ludwigshafen, and Volker Hederich, Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Continuation-in-part of Ser. No. 711,141, Sep. 9, 1996, abandoned, which is a continuation of Ser. No. 536,551, Sep. 29, 1995, abandoned. This application Apr. 9, 1997, Ser. No. 826,961

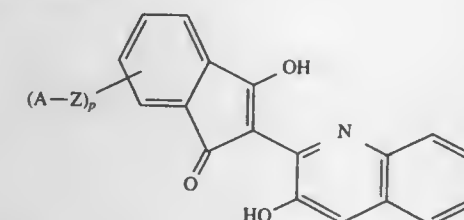
Claims priority, application Germany, Oct. 6, 1994, 44 35 714.1

Int. Cl.⁶ C09B 25/00; C08K 5/3437

U.S. Cl. 8—509

6 Claims

1. Process for the bulk dyeing of plastics, wherein a dyestuff of the formula (I)



wherein

Z represents CO,

A represents alkyl, which is unsubstituted or substituted by halogen, C₁-C₄-alkylmercapto, cyano, C₁-C₄-alkylcarbamino, C₆-C₁₀-aryl, C₆-C₁₀-aryloxy or C₁-C₄-alkoxy or

A represents aryl, which is unsubstituted or substituted by C₁-C₄-alkyl, C₆-C₁₀-aryl, C₁-C₄-alkylmercapto, cyano, C₁-C₄-alkylcarbamino, C₆-C₁₀-aryloxy, or C₁-C₄-alkoxy and p denotes 1 or 2,

is incorporated into the molten plastic composition or in which the dyestuff is added to the monomer components for the preparation of the plastic.

5,800,574

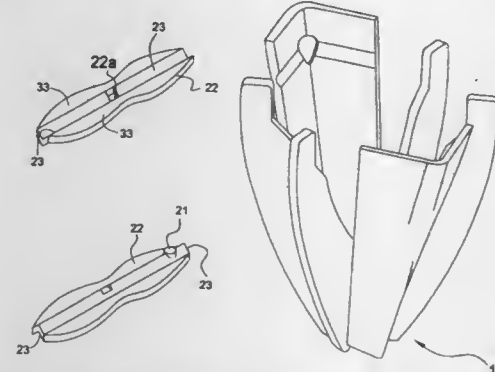
V-END SETTINGS AND METHOD OF MAKING SAME
Walter Ricci, Midlothian; Mark Fillman, Richmond; Michael Shields, Chesterfield; Eric Trevellian, Sandston, and Steve Stickley, Midlothian, all of Va., assignors to Hoover & Strong, Richmond, Va.

Filed Jan. 7, 1997, Ser. No. 779,905

Int. Cl.⁶ B23P 5/00; A44C 17/02

U.S. Cl. 29—10

33 Claims



14. A method of forming a setting for mounting an article, comprising:

forming a V-end prong member having two receptacles that face each other each receptacle having a substantially V-shaped cross-section that includes two faces and a longitudinal groove joining the two faces;

forming a transverse indentation in a surface of at least one of the receptacles near an end portion of the at least one of the receptacles, the transverse indentation intersecting the longitudinal groove; and

attaching at least one prong member to a central portion of the V-end prong member, the central portion connecting the two receptacles to each other, the prong member having two spaced distal ends for confining the article between the spaced distal ends and the two receptacles.

25. A method of forming a setting for mounting an article, comprising:

forming a V-end prong member having two receptacles that face each other, each receptacle having a substantially V-shaped cross-section that includes two faces and a longitudinal groove joining the two faces;

forming a clearance hole in a surface of at least one of the receptacles near an end portion of at least one of the receptacles, the clearance hole extending through the at least one receptacle; and

attaching at least one prong member to a central portion of the V-end prong member, the central portion connecting the two receptacles to each other, the prong member having two spaced distal ends for confining the article between the spaced distal ends and the two receptacles.

5,800,575

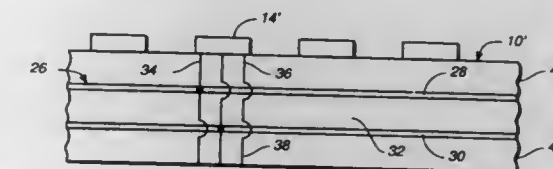
IN SITU METHOD OF FORMING A BYPASS CAPACITOR ELEMENT INTERNALLY WITHIN A CAPACITIVE PCB
Gregory L. Lucas, Newark, Calif., assignor to Zycon Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 864,440, Apr. 6, 1992, Pat. No. 5,261,153. This application Nov. 3, 1993, Ser. No. 147,671

Int. Cl.⁶ H01G 4/40

U.S. Cl. 29—25.42

25 Claims



1. An in situ method of forming a bypass capacitor element internally within a capacitive printed circuit board (PCB), comprising the steps of selecting a dielectric component having at least one sheet of thermally responsive material capable of bonding to adjacent layers during final lamination of a PCB with a dielectric material providing a selected dielectric constant substantially throughout the area of the dielectric component and conductive foils as components of the bypass capacitor element, arranging the conductive foils as layers adjacent both sides of the dielectric component and between other PCB layers, and thereafter laminating the conductive foils to the dielectric sheet in a final lamination step simultaneously forming the capacitive PCB and the internal bypass capacitor element.

5,800,576

WATER CLUSTERS AND USES THEREFOR

Keith H. Johnson, Cambridge, Mass.; Bin Zhang, Milpitas, Calif., and Harry C. Clark, Townsend, Mass., assignors to Quantum Energy Technologies Corporation, Cambridge, Mass.

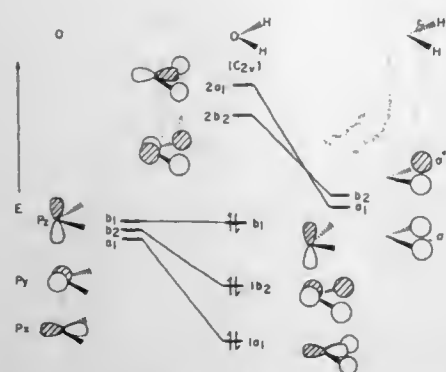
Filed Nov. 13, 1996, Ser. No. 747,862

Int. Cl.⁶ C01L 1/32

U.S. Cl. 44—301

46 Claims

1. A composition comprising:
fuel;



water clusters dispersed within the fuel, the clusters being characterized by having protruding delocalized π orbitals and having an average diameter of less than about 20 Å.

5,800,577

POLISHING COMPOSITION FOR CHEMICAL MECHANICAL POLISHING

Takanori Kido, Shiojiri, Japan, assignor to Showa Denko K.K., Tokyo, Japan

Filed Jul. 17, 1997, Ser. No. 895,954

Claims priority, application Japan, Aug. 6, 1996, 8-223072
Int. Cl.⁶ C09G 1/02

U.S. Cl. 51—307

7 Claims

1. A polishing composition for chemical mechanical polishing which comprises a carboxylic acid, an oxidizing agent, and water and has pH adjusted to 5 to 9 with an alkali.

5,800,578

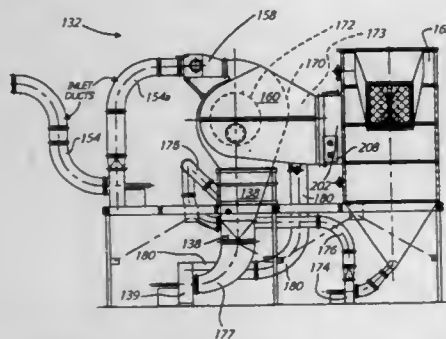
AIR SEPARATION SYSTEM INCLUDING A TANGENTIAL SEPARATOR AND A PNEUMATIC RELAY CONVEYER

Richard D. Johnson, Memphis, Tenn., assignor to Air Conveying Corporation, Memphis, Tenn.

Continuation-in-part of Ser. No. 508,106, Jul. 27, 1995, Pat. No. 5,641,339. This application Sep. 26, 1996, Ser. No. 721,151
Int. Cl.⁶ B01D 45/12; 50/00

U.S. Cl. 55—302

17 Claims



1. A separating system for separating air from material transported by air, the separating system comprising:

a first separator including a composite inlet having a plurality of separate inlets adapted to receive several streams of air and entrained material and combine these streams into a composite stream, a first separation chamber, means for removing a prescribed volume of air from said composite stream through a boundary wall of said chamber, air exhaust conduit means operatively associated with said removing means, and an outlet adapted to discharge said originally entrained material; a second separator having a second inlet adapted to receive material from said outlet of said first separator, a second separation chamber, second means for separating air from

received material, and a lower material exit adapted to discharge said separated material from said second separator by gravity;

a relay conveying means for pneumatically transferring said material discharged from said outlet of said first separator to said second inlet of said second separator; and return conveying means operatively associated with said second air-separating means and with an inlet leading to one of said inlets to said first separator;

wherein said return conveying means transports said air separated in said second separation chamber to one said inlet of said first separator and thereby reduces the static head at said lower material exit.

5,800,579

PRESSURE BALANCED CYCLONE SEPARATOR

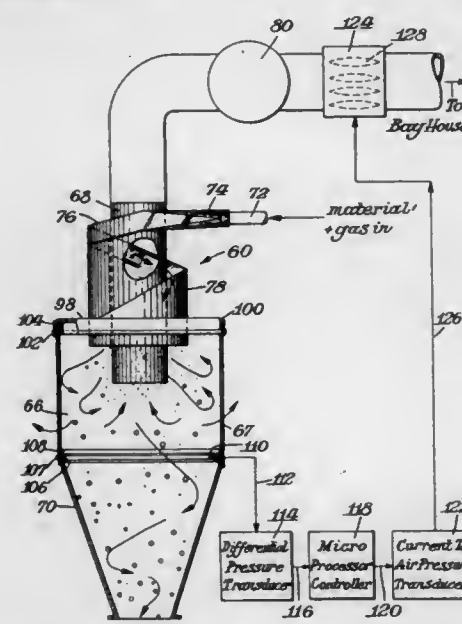
John G. S. Billingsley, Newark, Del., and Lawrence D. Bush, Nazareth, Pa., assignors to Precision Cutters, Inc., Phillipsburgh, N.J.

Filed Dec. 11, 1996, Ser. No. 763,757

Int. Cl.⁶ B01D 45/12

U.S. Cl. 55—337

6 Claims



1. Pressure control apparatus for a cyclone separation device comprising a central separation chamber with porous side walls, a lower discharge opening open to the atmosphere, an upper discharge opening, a pressure sensor located in the central separation chamber, a controller for ascertaining pressure differences between a set point and the pressure in the central separation chamber, and a variable air flow control valve associated with the upper discharge opening which increases air flow therethrough in response to increased pressure in the central separation chamber sensed by the controller.

5,800,580

SUPPORT CAGE FOR GLASS FIBER BAG FILTER FOR GAS FILTRATION

Klas-Goran Feldt, Ljungstigen 4c, 30270 Halmstad, Sweden
Continuation-in-part of Ser. No. 329,564, Oct. 26, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 744,158

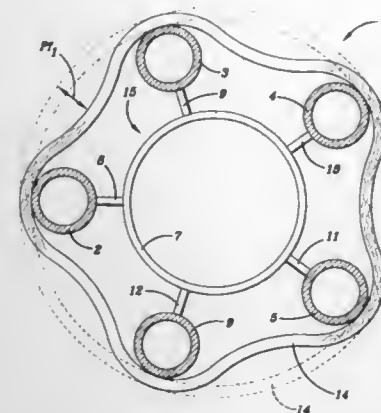
Claims priority, application Germany, Oct. 27, 1993, 9316420 U

Int. Cl.⁶ B01D 46/02

U.S. Cl. 55—378

26 Claims

1. A filter bag assembly for gas filtration comprising:



(a) a tubular filter bag, having an inner surface and an outer surface, and

(b) a support assembly comprising

(i) a closed base plate,

(ii) a cover plate with central outlet,

(iii) a plurality of vertical supports extending between the closed base plate and cover plate, said supports attached to said plates,

each said vertical support having an outer curved surface having a radius of curvature relative to the radius definable by the circumference of the inner surface of said tubular filter bag in the range 1 to 4 to 1 to 16.

5,800,581

AIR CLEANER HAVING FILTER ELEMENT INTEGRALLY FORMED WITH HOUSING END CAP

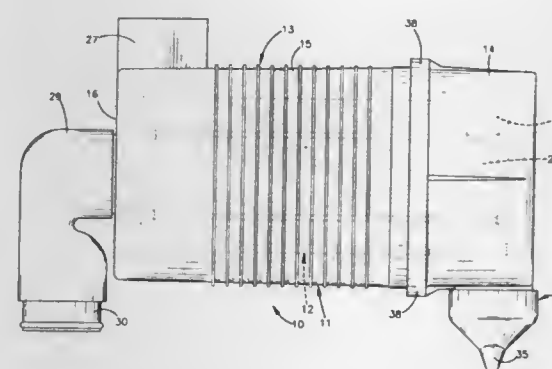
Robert J. Gielink, Mentor, and Michael D. Albers, Rocky River, both of Ohio, assignors to Air-Maze Corporation, Stow, Ohio

Filed Apr. 7, 1997, Ser. No. 838,405

Int. Cl.⁶ B01D 27/08

U.S. Cl. 55—385.3

20 Claims



1. An air cleaner which comprises:

a housing having an air inlet and an air outlet, the housing comprising

a body having a closed end, a side portion, and an open end, and

an end cap removably connected to the side portion of the body at the open end to close the open end of the body; and a filter element positioned within the housing between the air inlet and the air outlet when the end cap is connected to the body, the filter element being permanently attached to the end cap, the filter element being removable from the body when the end cap is removed from the body.

5,800,582

COMPACT WATER COLLECTOR

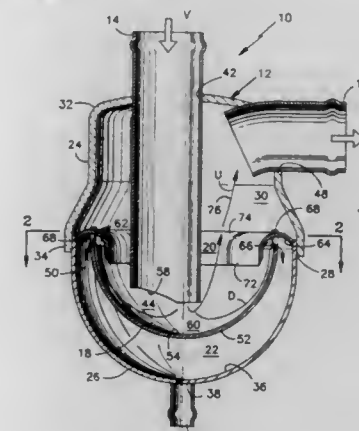
Nigel G. M. Palmer, West Granby; Douglas Christians, Vernon; Michael Zager, Windsor, all of Conn.; Maura Vigliano, West Springfield, Mass.; Scott L. Lothian, Enfield, and George E. Wilmot, Jr., East Granby, both of Conn., assignors to United Technologies Corporation, Windsor Locks, Conn.

Filed Mar. 10, 1997, Ser. No. 814,137

Int. Cl.⁶ B01D 45/06

U.S. Cl. 55—396

12 Claims



1. A moisture collector for collecting moisture from moisture containing air exiting from an air conditioning system in substantially a first flow direction, comprising:

a moisture collector housing defining a volume and having a centerline;

an inlet extending into said volume for receiving said moisture containing air from said air conditioning system while substantially moving in said first flow direction wherein said inlet is offset from said centerline;

an outlet extending out of said volume for exhausting substantially moisture free air;

means for redirecting said moisture containing air within said volume and upstream of said outlet, said means for redirecting comprising a first cupped plate, being hemispherical in shape, and including a first cupped surface, wherein said first cupped surface is positioned substantially transverse said first flow direction to receive said moisture containing air there against for directing moisture from said moisture containing air for forming said substantially moisture free air;

an air passageway defined in said volume for directing said substantially moisture free air from said means for redirecting toward said outlet along with said moisture wherein said first cupped surface defines a portion of said air passageway;

means for collecting said moisture comprising a second cupped plate being hemispherical in shape and including a second cupped surface, wherein said second cupped plate is positioned substantially concentric said first cupped plate; and

means positioned in said air passageway in the path of said substantially moisture free air for directing said moisture moving with said substantially moisture free air into said means for collecting downstream of said outlet, said means for directing comprising a deflecting component positioned in said air passageway and partially obstructing said air passageway to deflect any moisture traveling with said substantially moisture free air into said means for collecting.

5,800,583

AIR TREATMENT SYSTEM

Bradley J. Pippel, Grandville, Mich., and Dale Aberegg, New Albany, Ohio, assignors to Amway Corporation, Ada, Mich.

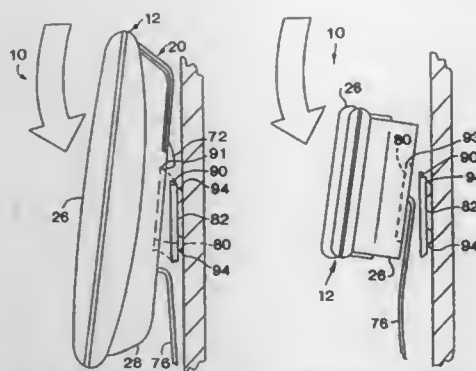
Filed Jun. 11, 1996, Ser. No. 661,589

Int. Cl.⁶ B01D 46/00

U.S. Cl. 55—467

17 Claims

1. An air treatment system comprising:



a housing defining an interior space and a generally square bracket opening, said housing including a peripheral wall surrounding said bracket opening;
a blower mounted within said space for moving air through said housing;
a filter element mounted within said space; and
a wall mount means for mounting said air treatment system to a wall, said wall mount means including a generally square bracket fitted closely within said bracket opening, said bracket including a flange and being mountable within said bracket opening in at least two distinct orientations approximately ninety degree apart from one another whereby said housing can be mounted to the wall in at least two distinct orientations without moving said bracket with respect to the wall, said bracket including a rear wall with a periphery and a peripheral wall extending from said rear wall entirely around said periphery, said flange extending from said peripheral wall of said bracket, said peripheral wall of said bracket extending adjacent to said peripheral wall of said housing whereby said housing is supported upon said peripheral wall of said bracket rather than said flange.

5,800,584

OIL SEPARATOR

Heiko Hinderer, Remseck; Lothar Keller, Stuttgart; Guenter Jokschas, Murrhardt, and Michael Wolf, Gaeufelden, all of Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany

Continuation of Ser. No. 511,661, Aug. 7, 1995, abandoned.

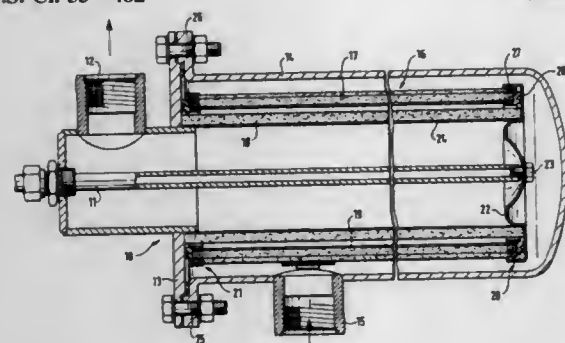
This application Jul. 21, 1997, Ser. No. 897,531

Claims priority, application Germany, Aug. 5, 1994, 44 27 753.9

Int. Cl.⁶ B01D 46/24

U.S. Cl. 55—482

11 Claims



1. An oil separator for separating oil from oil-charged air, said oil separator comprising a mounting member, a housing secured to said mounting member to form an enclosed chamber inside said housing, an inlet for admitting oil-charged air into said chamber, an air outlet for discharging filtered air from said chamber, an oil outlet for discharging separated oil from said chamber, a filter unit in said chamber interposed between said inlet and said air outlet, said filter unit comprising a support body, a coalescer element supported on a surface of said support body, and first and second end gaskets in which respective axial ends of said support body

and said coalescer element are received, said end gaskets fastening said coalescer element to said support body and sealing said filter unit in said chamber, each of said first and second end gaskets comprising a molded component configured as a lipped gasket, and said coalescer element being releasable from said support body by separating said end gaskets, whereby said coalescer element can be disposed of separately from said support body.

5,800,585

SELF-SUPPORTING POCKET FLUID FILTER

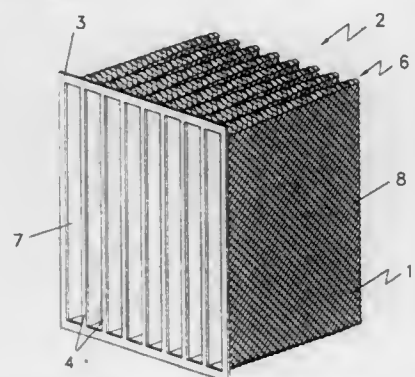
Kyung-Ju Choi, 8406 Running Spring Dr., Louisville, Ky. 40241

Filed Apr. 3, 1997, Ser. No. 832,514

Int. Cl.⁶ B01D 25/22

U.S. Cl. 55—483

16 Claims



1. In a pocket fluid filter including at least one pair of facing longitudinally extending pocket forming filter medium side wall members joined along the longitudinally extending opposed edges thereof and open at at least one end to provide an open pocket end for passage of fluid therethrough and through said filter medium side wall members, an integral self-supporting pocket filter comprising: at least one layer of pocket-forming filter medium; and, at least one layer of sufficiently rigid pocket supporting flow-through netting, said netting having sufficient stiffness and sufficient rigidity to support a preselected pocket weight per given unit area and being conformably laminated and facingly bonded to at least one face of said pocket-forming filter medium to provide self-support of said filter medium in pocket shape in a fluid stream to be treated.

5,800,586

COMPOSITE FILTER MEDIA

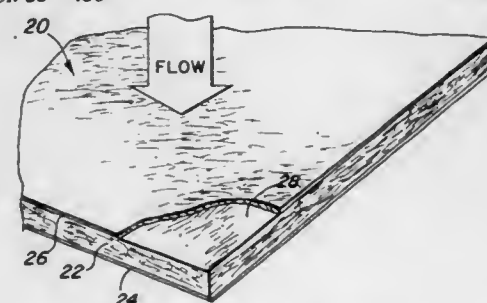
Michael John Cusick, Englewood; Fred Lee Jackson, Littleton, both of Colo.; Charles Francis Kern, Marietta, Ohio, and Craig Donald DePorter, Denver, Colo., assignors to Johns Manville International, Inc., Denver, Colo.

Filed Nov. 8, 1996, Ser. No. 747,172

Int. Cl.⁶ B01D 46/52

U.S. Cl. 55—486

15 Claims



1. A pleatable composite filter media comprising:
a fibrous filtration layer of randomly oriented fibers bonded together at their points of intersection; said fibrous filtration layer comprising an air laid blanket of fibers having an

average mean diameter between 3.0×10^{-5} inches and 11.0×10^{-5} inches, said fibrous filtration layer having an initial pressure drop no greater than about 0.30 inches of water; said fibrous filtration layer having an average filtration efficiency of at least 20%; and said fibrous filtration layer lacking sufficient formability and stiffness in of itself to be scored and reformed into a pleated configuration and to retain said pleated configuration;

a pleatable, permeable stiffening layer means; said stiffening layer means comprising a first pleatable stiffening layer having sufficient formability and stiffness to be scored and reformed into said pleated configuration and to retain said pleated configuration; and

said fibrous filtration layer and said stiffening layer means being bonded together into a composite filtration media having sufficient formability and stiffness to be scored and reformed into a pleated configuration and to retain said pleated configuration.

5,800,587

FILTRATION ARRANGEMENT AND METHOD

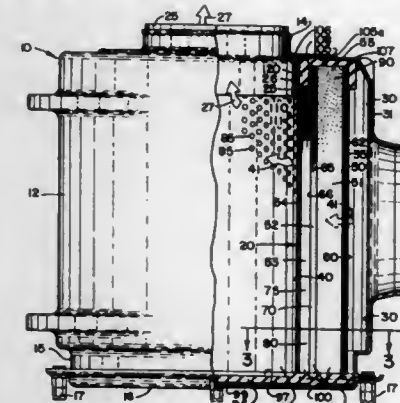
Brad E. Kahlbaugh, Roseville; Susan B. Reinhart, Minneapolis; Denis J. Dudley, Bloomington, and John T. Herman, Dellwood, all of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Continuation of Ser. No. 690,875, Jul. 31, 1996, which is a continuation of Ser. No. 417,830, Apr. 6, 1995, Pat. No. 5,622,537, which is a continuation of Ser. No. 62,268, May 17, 1993, Pat. No. 5,423,892, which is a division of Ser. No. 897,861, Jun. 12, 1992, Pat. No. 5,238,474, which is a continuation-in-part of Ser. No. 759,445, Sep. 13, 1991, abandoned, which is a division of Ser. No. 601,242, Oct. 19, 1990, Pat. No. 5,082,476. This application Feb. 12, 1997, Ser. No. 799,424

Int. Cl.⁶ B01D 46/10

U.S. Cl. 55—486

43 Claims



1. A filter construction comprising:

- a first and second end caps; each of said first and second end caps comprising polyurethane foam;
- said first end cap having a central air flow exit aperture therein;
- said second end cap comprising a closed end cap having no central aperture therein;
- a cylindrical inner liner embedded in, and extending between, said first and second end caps;
- a cylindrical outer liner embedded in, and extending between, said first and second end caps; and,
- a cylindrical filter media arrangement positioned between said inner liner and said outer liner; said cylindrical filter media arrangement extending between said first and second end caps; said filter media arrangement including:
 - a first region of fibrous depth media comprising fibers and having a first average percent solidity, within the construction, of no greater than about 3%; and,
 - a second region of fibrous depth media positioned immediately downstream from said first region of fibrous depth

media; said second region of fibrous depth media comprising fibers and having a second average percent solidity, within the construction, different from said first average percent solidity in said first region;

(c) said filter construction being constructed and arranged for filtering air flow, during use, from an upstream, outermost, side through to a downstream, inner, side.

5,800,588

NESTABLE, RIGID FILTER FRAME

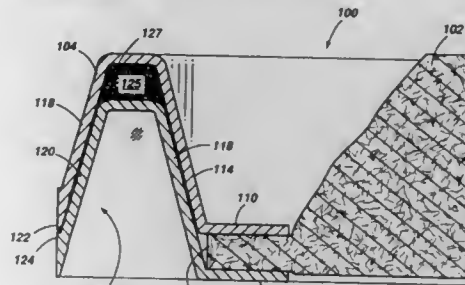
William D. Miller, Hideaway Hills, Ohio, assignor to Superior Fibers, Inc., Bremen, Ohio

Continuation-in-part of Ser. No. 754,283, Nov. 20, 1996, abandoned. This application Jul. 25, 1997, Ser. No. 900,621

Int. Cl.⁶ B01D 46/10

U.S. Cl. 55—494

17 Claims



1. A filter comprising:

- a filter medium panel having peripheral edges and first and second opposite major faces;
- a frame member surrounding the peripheral edges of the filter medium panel, the frame member having a cross-section comprising a first leg abutting the first major filter medium panel face near its periphery, a second leg extending obtusely from the first leg permitting nesting and spaced outwardly of the filter medium panel, and a third leg extending from and located outwardly of the second leg to form a channel between the second and third legs; and
- a brace member mounted to the frame member, said brace member having a cross-section comprising a second leg and a third leg extending from and located outwardly of the second leg to form a channel between the second and third legs, wherein the second and third legs of one member are nested within the channel of the other member forming a chamber between, and defined by, the second and third legs of the frame member and the second and third legs of the brace member.

5,800,589

GLASSWARE MAKING MACHINE

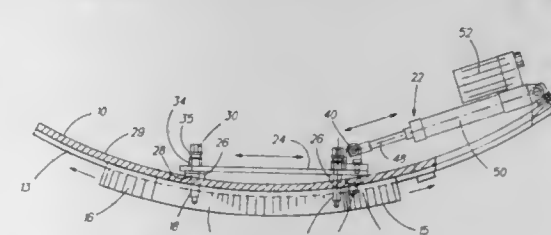
Richard Alan Gorski, West Suffield, and Marty J. Grant, Wethersfield, both of Conn., assignors to Emhart Glass Machinery Investments Inc., Wilmington, Del.

Filed Aug. 21, 1997, Ser. No. 916,096

Int. Cl.⁶ C03B 9/40; 11/16

U.S. Cl. 65—159

4 Claims



a cylindrical timing drum having inner and outer surfaces, a timing cam for controlling the timing of one of the glass article forming functions of a section of the machine, said timing cam having a circumferentially extending inner surface for matingly engaging the outer surface of said drum, a pair of elongated circumferentially extending slots in said timing drum, slider means for matingly engaging the inner surface of said drum for circumferential sliding displacement, means for holding said timing cam against the outer surface of said timing drum including first and second stud means each having a stud supported by said slider means with a portion respectively extending through said first and second slots and secured to said timing cam, and a motor driven horizontally extending linear actuator extending between said timing drum and said slider means for horizontally displacing said slider means to horizontally circumferentially displace said timing cam.

5,800,590

PLUNGER ASSEMBLY

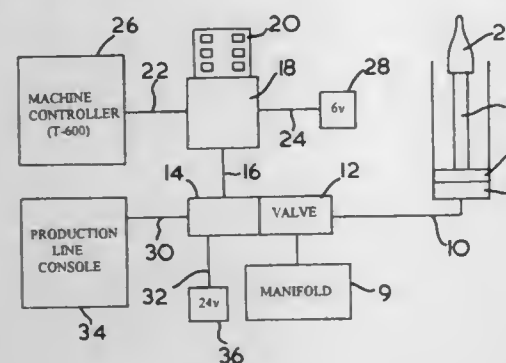
Ove Per Pilskar, Sundsvall, Sweden, assignor to Emhart Glass Machinery Investments Inc., Wilmington, Del.

Filed Apr. 23, 1997, Ser. No. 842,192

Int. Cl.⁶ C03B 9/193; 9/41

U.S. Cl. 65—158

5 Claims

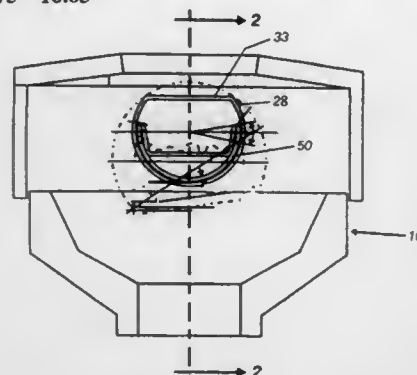


1. A pneumatically operated plunger mechanism for use in a glass container manufacturing machine comprising:
a piston and cylinder device;
a plunger mounted on the piston of the piston and cylinder device;
a pipe leading from the cylinder of the piston and cylinder device to a supply of compressed air;
a pressure regulating control valve in the pipe between the cylinder and the compressed air supply which determines a pressure of compressed air which is supplied to the cylinder according to a magnitude of a control signal provided to the valve;
set point means for determining a magnitude of a control voltage which determines the magnitude of the control signal provided to the valve, which set point means is arranged to commence and terminate a control voltage in response to timing pulses from a timing control of the machine; and
control signal means for providing a control signal to the valve wherein the control signal comprises two portions, an initial minor portion for a very short time at a high value and a succeeding major portion at about 70% of the high value.

5,800,591
METHOD AND APPARATUS FOR FEEDING A STEELMAKING FURNACE
John A. Vallomy, Charlotte, N.C., assignor to Techint Compagnia Tecnica Internazionale, Milan, Italy
Filed Sep. 20, 1996, Ser. No. 717,413
Int. Cl.⁶ F27D 13/00

U.S. Cl. 75—10.63

12 Claims



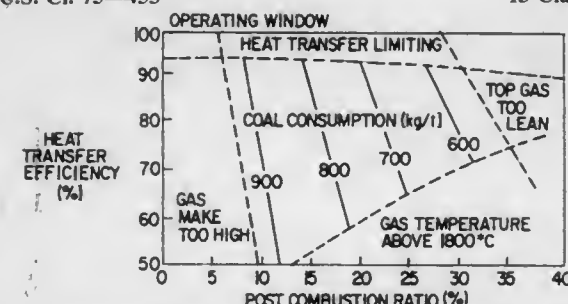
1. A feed device for a metal melting furnace, comprising:
an elongated feeder having an arcuate cross-section;
an elongated generally flat bottom feed pan having a first side wall and a second side wall, said feed pan being mounted within said arcuate feeder to divide said arcuate feeder into an upper feed channel and a lower feed channel;
means for introducing heated metal scrap into said upper feed channel; and
means for introducing granulated feed material into said lower feed channel.

5,800,592
PROCESS FOR PRODUCING MOLTEN PIG IRON WITH MELTING CYCLONE
Huibert W. den Hartog, Noordwijkerhout, and Hendrikus K. A. Meijer, Uitgeest, both of Netherlands, assignors to Hoo-govens Staal BV, IJmuiden, Netherlands
Filed Feb. 5, 1996, Ser. No. 596,607
Claims priority, application Netherlands, Feb. 13, 1995, 9500264

Int. Cl.⁶ C21B 13/14

U.S. Cl. 75—453

13 Claims



1. A process for producing molten pig iron by direct reduction of iron ore in a pre-reduction stage followed by a final reduction stage which forms a reducing process gas, comprising the steps of
(a) conveying iron ore into a melting cyclone and pre-reducing the iron ore in the pre-reduction stage by means of the reducing process gas formed in said final reduction stage; said reducing gas being directly fed into the melting cyclone from the metallurgical vessel situated beneath the melting cyclone,
(b) effecting a post-combustion in said reducing process gas in said melting cyclone by supplying substantially pure oxygen thereto so that said iron ore in said melting cyclone is at least partly melted,
(c) permitting the pre-reduced and at least partly melted iron ore to pass downwardly from said melting cyclone into the metallurgical vessel in which said final reduction takes place, and

(d) effecting said final reduction in said metallurgical vessel in a slag layer therein by supplying coal and oxygen to said metallurgical vessel and thereby forming the reducing process gas, and effecting a partial post-combustion in said reducing process gas in said metallurgical vessel by means of said substantially pure oxygen supplied thereto, said coal being supplied directly into said slag layer,
(e) wherein the post-combustion ratio defined as

$$\frac{\text{CO}_2 + \text{H}_2\text{O}}{\text{CO}_2 + \text{CO} + \text{H}_2\text{O} + \text{H}_2}$$

in which CO_2 , CO , H_2O and H_2 are the concentrations in percent by volume of these gases on exiting said metallurgical vessel, is not more than 0.55, and

(f) wherein said partial post-combustion in said metallurgical vessel at least partly occurs in said slag layer.

5,800,593

METHOD FOR RENDERING REFRACTORY SULFIDE ORES MORE SUSCEPTIBLE TO BIOOXIDATION
William J. Kohr, San Mateo, Calif., assignor to Geobiotics, Inc., Hayward, Calif.

Continuation of Ser. No. 453,016, May 30, 1995, Pat. No. 5,611,839, which is a continuation of Ser. No. 161,742, Dec. 3, 1993, Pat. No. 5,431,717. This application Mar. 18, 1997, Ser. No. 819,753

Int. Cl.⁶ C22B 3/18

U.S. Cl. 75—712

26 Claims

1. A method for recovering precious metal values from refractory sulfide ores, the method comprising the steps of:
a. separating a crushed refractory sulfide ore into a fines fraction and a coarse fraction;
b. producing a concentrate of refractory sulfide mineral particles from said fines fraction;
c. forming a heap with said refractory coarse fraction;
d. bioleaching said heap to thereby oxidize metal sulfides contained therein;
e. extracting precious metal values from the bioleached ore using a lixiviant; and
f. treating said concentrate to recover precious metal values contained therein.

5,800,594

COLUMN AND PROCESSES FOR PURIFYING SOLVENT-CONTAINING GASES

Werner Sievers, Frankfurt, and Günter Müller, Wiesbaden, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Feb. 10, 1997, Ser. No. 797,184

Claims priority, application Germany, Feb. 12, 1996, 196 04 986.5

Int. Cl.⁶ B01D 47/14

U.S. Cl. 95—211

21 Claims

1. A column for removing or recovering gaseous minor components from gases or for introducing gaseous minor components into gases, the column having a first entrance and a first exit for the gas and a second entrance and a second exit for a scrubbing liquid and containing at least one packed bed of fluidizing bodies, and the gas being able to be conducted at an adjustable velocity in the column from bottom to top and the liquid being able to be conducted in countercurrent to the gas, the column height being dimensioned according to the formulae below:

$$H=k_1 \cdot SZ \cdot SH$$

$$SZ = \frac{y_e - y_a}{(y_e - y_a^*) - (y_a - y_a^*)} \cdot \ln \frac{y_e - y_a^*}{y_a - y_a^*}$$

$$SH=k_2 \cdot d \cdot F^{k_3} \cdot S^{k_4} \cdot y_a^* \cdot m \cdot x_a \cdot y_e^* \cdot m \cdot x_e$$

in which the constants and variables have the following meanings:

H is the column height,
SZ is the number of theoretical plates of the column,
SH is the height equivalent to theoretical plate,
F is the Froude number,

$$F=u_L^2/(g \cdot d)$$

S is the Schmidt number,

$$S=\nu_G/D$$

d is the characteristic dimension of the fluidizing bodies,
 u_L is the liquid velocity,
g is acceleration due to gravity,
D is the diffusion coefficient of the gaseous minor component in the gas,

ν_G is the kinematic viscosity of the gas,

y_e is the mole fraction of the gaseous minor component in the gas at the gas entrance,

y_a is the mole fraction of the gaseous minor component in the gas at the gas exit,

y_e^* is the equilibrium mole fraction of the gaseous minor component in the liquid at the gas entrance temperature,

y_a^* is the equilibrium mole fraction of the gaseous minor component in the liquid at the gas exit temperature,

m is the phase equilibrium constant,

x_e is the mole fraction of the gaseous minor component in the liquid at the liquid entrance,

x_a is the mole fraction of the gaseous minor component in the liquid at the liquid exit,

k_1 is a constant from the range 1.5 to 2.5,

k_2 is a constant from the range 1.5 to 2.5,

k_3 is a constant from the range -1 to 0,

k_4 is a constant from the range 0 to 1.

4. A process for removing or recovering gaseous minor components from gases or for introducing gaseous minor components into gases, in which the gas is passed at an adjustable velocity from bottom to top through a column containing fluidizing bodies and a liquid is conducted in countercurrent thereto, at least one fluidized bed forming and a dynamic liquid holdup establishing itself, which comprises the dynamic liquid holdup of the column being established according to the formula below:

$$h=k_5 \cdot \exp \left[k_6 \cdot u_G^{k_7} \cdot \left[\frac{\rho_G^{k_8}}{\eta_G \cdot (\rho_L - \rho_G) \cdot g} \right]^{k_9} \right] \cdot F^{k_{10}}$$

where the constants and variables have the following meanings:

h is the dynamic liquid holdup,

u_G is the gas velocity,

ρ_G is the gas density,

η_G is the dynamic viscosity of the gas,

ρ_L is the scrubbing liquid density,

F is the Froude number,

$$F=u_L^2/(g \cdot d)$$

u_L is the scrubbing liquid velocity,

g is acceleration due to gravity,

d is the characteristic dimension of the fluidizing bodies,

k_5 is a constant from the range 4.0 to 4.5,

k_6 is a constant from the range 0.005 to 0.015,

k_7 is a constant from the range 1.5 to 2.5,

k_8 is a constant from the range 1.5 to 2.5,

k_9 is a constant from the range 0.5 to 1.0,

k_{10} is a constant from the range 0 to 0.6.

5,800,595

SPACED EVAPORATIVE WICKS WITHIN AN AIR COOLER

Peter Sydney Wright, Adelaide, Australia, assignor to William Allen Trusts Pty Ltd, Adelaide, Australia

PCT No. PCT/AU95/00555, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO96/07059, PCT Pub. Date Mar. 7, 1996

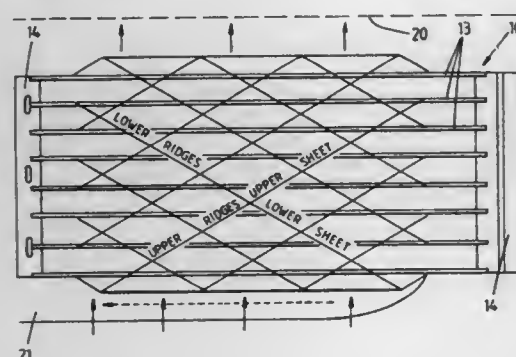
PCT Filed Aug. 30, 1995, Ser. No. 637,694

Claims priority, application Australia, Aug. 30, 1994, PM 7772

Int. Cl.⁶ B01D 50/00

U.S. Cl. 95—288

14 Claims



1. A heat exchanger comprising a stack of spaced, non-planar sheets defining between them a plurality of alternate dry channels and wet channels, each said channel terminating at its ends in air inlet and air outlet openings,

a plurality of spaced wicks extending across said wet channels transversely with respect to air flow and partly in suspension between said non-planar sheets,

said non-planar sheet including corrugations disposed diagonally with respect to air flow and being inclined with respect to one another, at least some of said corrugations contacting and spatially locating at least some of the wicks;

wetting means associated with said wicks, and,

the configuration of said spaced sheets and said wicks being such that, when in use, said wetting means maintain surfaces of said wicks moist, and air flows over most of the surface areas of said wicks.

10. A method of cooling air in an evaporative air cooler comprising moistening a plurality of spaced wicks carried by and suspended between corrugations of a stack of spaced corrugated sheets and impelling an air flow along the corrugations and transversely over and around said wicks to thereby humidify and cool the air in a periodic restart of evaporation.

5,800,596

WATER-IN-OIL EMULSION CONTAINING RETINOL, ITS USE AND ITS PACKAGING

Nathalie Collin, Sceaux, and Eric Queminn, Villepinte, both of France, assignors to L'Oréal, Paris, France

Division of Ser. No. 365,844, Dec. 29, 1994, Pat. No.

5,656,672. This application Jan. 13, 1997, Ser. No. 782,055

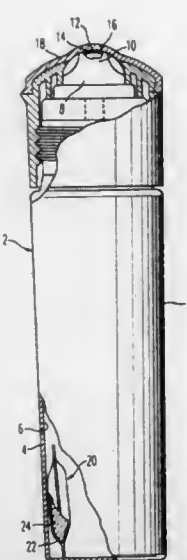
Claims priority, application France, Dec. 30, 1993, 93 15862

Int. Cl.⁶ B01D 53/04; 53/22

U.S. Cl. 96—4

5 Claims

1. A device for packaging a product comprising: i) a dispensing means such that the product is not brought into contact with the



environment, ii) constituent walls which are impermeable to gases and to visible-ultraviolet light, wherein a surface of said walls in contact with said product is non-metallic; and iii) an oxygen-trapping device.

5,800,597

INTEGRAL COALESCER FILTER-MEMBRANE DEVICE TO PROVIDE A FILTERED GAS STREAM AND SYSTEM EMPLOYING SUCH DEVICE

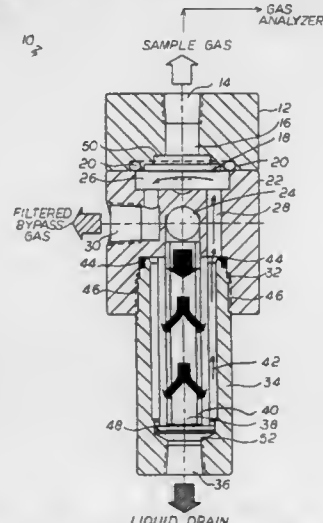
Kenneth A. Perrotta, Salem, N.H., and Dean Hoyt, Burlington, Mass., assignors to Whatman Inc., Haverhill, Mass.

Filed Jan. 21, 1997, Ser. No. 786,808

Int. Cl.⁶ B01D 53/22

U.S. Cl. 96—9

15 Claims



1. An integral coalescing filter-membrane device, adapted for use with a gas feed stream containing entrained liquid and solid particulate material, to provide a clean sample gas essentially free of entrained liquid and particulate material, adapted for use in a gas analyzer, which device comprises:

- a housing having a one upper end with a chamber and an other lower end;
- an inlet port for the introduction of the feed gas stream;
- an outlet port for the withdrawal of a clean sample gas;
- a bypass port for the withdrawal of a bypass coalesced-filtered gas stream;
- a drain port at the other lower end of the housing for the gravity discharge of a coalesced entrained liquid;
- a coalescing filter tube having an interior and an exterior and a first upper end and a second lower end, and with said ends

5,800,599

EMULSION INK FOR STENCIL PRINTING

Keisuke Asada, Miyagi-ken, Japan, assignor to Tohoku Ricoh Co., Ltd., Japan

Filed Jul. 17, 1997, Ser. No. 896,000

Claims priority, application Japan, Dec. 11, 1996, 8-351907

Int. Cl.⁶ C09D 11/03; 11/10

U.S. Cl. 106—31.26

8 Claims

1. A water-in-oil emulsion ink comprising an oil phase and an aqueous phase, said oil phase comprising a pigment and a relatively high molecular weight resin having a weight average molecular weight of between 25,000 and 150,000.

sealed within the housing, said filter tube designed to filter out particulate material and to coalesce the entrained liquid from the gas feed stream introduced from the inlet port at the first upper end and into the interior of the filter tube, and to provide a coalesced filtered gas stream at the exterior of the filter tube and into the chamber, and to provide a coalesced entrained liquid to be discharged from the drain port at the second lower end;

- a porous membrane support plate in the chamber to provide an upper chamber in fluid flow communication with the outlet port and a lower chamber in fluid flow communication with the bypass port; and
- a porous membrane of selected porosity supported by the support plate to provide for a clean sample gas into the upper chamber and to the outlet port and to provide for the withdrawal of the coalesced, filtered gas stream in the lower chamber through the bypass port.

5,800,598

GENERATOR FOR PRODUCING A NARROWLY SIZE-DISTRIBUTED AEROSOL

Hung-Min Chein, Hsinchu, and Charles C. K. Chou, Taoyuan Hsien, both of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

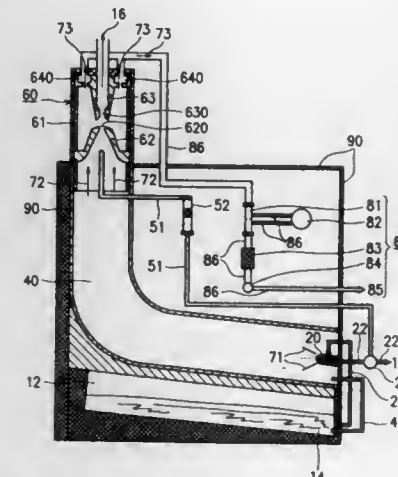
Filed Dec. 11, 1996, Ser. No. 763,786

Claims priority, application Taiwan, Jun. 28, 1996, 85209827

Int. Cl.⁶ B01D 19/00

U.S. Cl. 96—190

17 Claims



1. A generator for producing a narrowly size-distributed aerosol, comprising:

- a reservoir for storing solution and a gas resource utilized by said generator for forming a predetermined small-sized range of droplets from said reservoir;
- an atomizer connected to said reservoir, wherein said atomizer atomizes said solution by said generator and forms first droplets including said predetermined small-sized range of droplets;
- a droplet depositor provided with an outlet and an inlet installed with said atomizer, wherein said droplet depositor deposits larger sized droplets from said predetermined small-sized range of droplets in said first droplets, and wherein second droplets are formed from said first droplets and passed out through said outlet of said droplet depositor; and
- a particulate screening and separating means installed on said outlet of said droplet depositor, wherein said particulate screening and separating means is used to extract third droplets smaller than said predetermined small-sized range of droplets within said second droplets, and said predetermined small-sized range of droplets is obtained therefrom.

5,800,601

FOOD GRADE JET INKS

Wan Kang Zou, Northbrook; Mohammed W. Siddiqui, Carol Stream; Fengel Xiao, Mount Prospect; Arsenia C. Morelos, Glendale Heights; Jose G. Vega, Chicago; Qiao Qiao Dong, Northbrook, and Josephine Aguilar, Elk Grove Village, all of Ill., assignors to Videojet Systems International, Inc., Wood Dale, Ill.

Continuation-in-part of Ser. No. 554,296, Nov. 6, 1995, abandoned, Ser. No. 554,298, Nov. 6, 1995, abandoned, Ser. No. 622,954, Mar. 27, 1996, abandoned, and Ser. No. 623,902, Mar. 27, 1996, abandoned. This application Mar. 14, 1997, Ser. No. 814,987

Int. Cl.⁶ C09D 11/02; 11/08

U.S. Cl. 106—31.65

32 Claims

1. A surface modified or coated food grade colorant comprising a food grade colorant of particle size of from about 0.01 micron to about 5 microns, a colorant carrier, and a surface modifying or coating agent, wherein said surface modified or coated food grade colorant is suitable for preparing a jet ink composition which is substantially sedimentation free.

5,800,602

USE OF INCLUSION COMPOUNDS OF CYCLIC POLYSACCHARIDES AS CHARGE CONTROL AGENTS
Rüdiger Baur, Eppstein, and Hans-Tobias MacHoldt, Darmstadt-Eberstadt, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed May 9, 1996, Ser. No. 647,067

Claims priority, application Germany, May 10, 1995, 19517034.2

Int. Cl.⁶ C08L 5/00; G03G 9/135

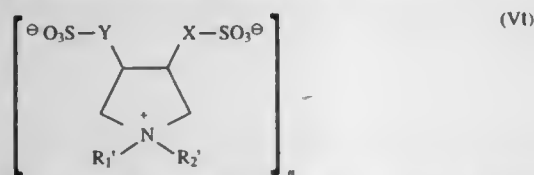
U.S. Cl. 106—162.2

14 Claims

1. An inclusion compound used as a charge control agent comprising:

a host compound, said host compound is a cyclically linked polysaccharide having 3 to 100 monomeric saccharide units and forming a cavity in its molecular framework, and at least one chemical compound in said cavity as a guest compound, said guest compound is selected from the group consisting of:

C_1 - C_{30} aliphatic alcohols, C_2 - C_{30} olefinically unsaturated alcohols, C_3 - C_{30} cycloaliphatic alcohols, C_3 - C_{30} olefinically unsaturated carboxylic acids, fatty acids, C_4 - C_{30} olefinically unsaturated dicarboxylic acids, C_8 - C_{30} aromatic dicarboxylic acids, C_2 - C_{30} aliphatic polyalcohols having 2 to 10 OH groups, C_3 - C_{30} cycloaliphatic polyalcohols having 2 to 10 OH groups, C_6 - C_{30} aromatic polyalcohols having 2 to 10 OH groups, C_6 - C_{30} hydroxy aromatic compounds, quinones having 6 to 30 carbon atoms, monosaccharides, disaccharides, C_2 - C_{30} aliphatic ethers, C_3 - C_{30} olefinically unsaturated ethers, C_4 - C_{30} cycloaliphatic ethers, C_7 - C_{30} araliphatic ethers, aromatic ethers, polyethers having 3 to 100 ethoxy or propoxy units or a combination thereof, amino acids, tetraphenylborate, disulphopyrrolidinium betaines of the formula (VI)



in which R_1' and R_2' are hydrogen, alkyl (C_1 - C_5) or alkoxy (C_1 - C_5) radicals, polyoxyalkylene radicals, or radicals of the formula (alkylene- $(C_1-C_5)-O)_n-R$ in which R is a hydrogen atom or an alkyl(C_1-C_4) radical and n is a number from 1 to 10 and X and Y are each alkylene(C_1-C_5).

octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate, $Zn(NO_3)_2$, $NaB(C_6H_5)_4$, coconutalkyldimethylbenzylammonium chloride, Na trifluoromethanesulfonate, tetramethylphosphonium chloride, KPF_6 , K_2MoO_4 , ascorbic acid, K sorbate, gluconic acid, DL-malic acid, tripentaerythritol, adonitol, hydrindantine, $Al(NO_3)_3$, glycol bis[3,3-bis(4'-hydroxy-3'-tert-butylphenyl)-butanoate], pentaerythritol tetrakis [3,5-di-tert-butyl-4-hydroxyphenylpropionate], β,β' -thiodi(propionic acid lauryl ester), β,β' -thiodi(propionic acid stearyl ester), tris(2,4-di-tert-butylphenyl) phosphite, C_{12} /C₁₄-alkyltrimethylammonium-Cl, didecyltrimethylammonium chloride, didecylmethylalkoxyammonium propionate, poly(dialkylmethylammonium chloride), N-(trihydroperfluoroalkene)-N,N,N-trialkylammonium methosulfate, 2,4,6-trihydroxybenzoic acid and 1,1,1-trihydroxymethylethane.

5,800,603

ZEOLITE DISPERSION

Ylva Crustlock, Mölndal; Maj-Lis Dahlgren, Nödinge, and Lars Lindahl, Göteborg, all of Sweden, assignors to Eka Chemicals AB, Stockholm, Sweden

Filed Mar. 24, 1997, Ser. No. 823,443

Claims priority, application Sweden, Mar. 25, 1996, 9601134
Int. Cl.⁶ C09D 7/02; 105/00; B01J 13/00

U.S. Cl. 106—205.9

8 Claims

1. An aqueous dispersion comprising particles of a zeolite having a hydrophobicity of below about 0.9 percent by weight residual butanol as determined by the Residual Butanol Test, wherein said dispersion comprises a stabilising amount of a biogum.

5,800,604

WAX

Steffen Berger, Düsseldorf, Germany, assignor to Arplas Gesellschaft Fur Plasmatechnologie mbH, Weissandt-Golzau, Germany

PCT No. PCT/EP95/00860, § 371 Date Jan. 27, 1997, § 102(e)
Date Jan. 27, 1997, PCT Pub. No. WO95/29213, PCT Pub. Date Nov. 2, 1995

PCT Filed Mar. 8, 1995, Ser. No. 722,079

Claims priority, application Germany, Apr. 21, 1994, 44 16 070.4

Int. Cl.⁶ C08L 91/06; 91/08

U.S. Cl. 106—270

15 Claims

3. A process for the production of a modified wax, which comprises subjecting a starting wax in granulated or powdered form to a low temperature plasma treatment employing a frequency in the range of from 10 kHz to 10 GHz and in the presence of a process gas which enables the incorporation of polar groups into the wax.

5,800,605

PROCESS FOR THE PREPARATION OF ELECTROSTATICALLY CHARGED PARTICLES

John Farrell Hughes, Southampton, United Kingdom, assignor to University of Southampton, Southampton, United Kingdom

PCT No. PCT/GB95/01372, § 371 Date Mar. 21, 1997, § 102(e)
Date Mar. 21, 1997, PCT Pub. No. WO96/01285, PCT Pub. Date Jan. 18, 1996

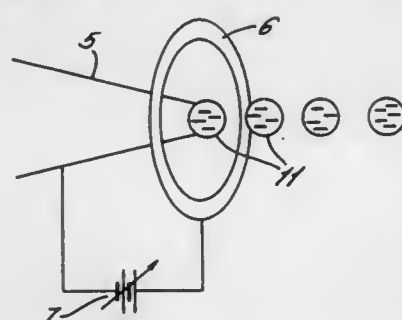
PCT Filed Jun. 13, 1995, Ser. No. 750,754

Claims priority, application United Kingdom, Jul. 1, 1994, 9413281

Int. Cl.⁶ C09D 191/06; 191/08; 5/03; 5/46

U.S. Cl. 106—270

14 Claims



1. A process for the preparation of electrostatically charged particles of a high resistivity material which process comprises incorporating a unipolar charge into the material at a temperature at or above the glass transition temperature thereof or above the melting point thereof, either the said unipolar charge being incorporated into the bulk of the material and the charged material being subsequently comminuted, or the said unipolar charge being incorporated into the material whilst forming particles thereof.

5,800,606

ULTRAFINE REACTIVE SILICA PARTICLES, SUSPENSION CONTAINING THE SAME, AND HARD COATING COMPOSITION

Seiichiro Tanaka; Hanako Kato; Takeshi Sawai, all of Kitakyushu, and Nobuyuki Matsuzoe, Tokyo, all of Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

PCT No. PCT/JP94/02169, § 371 Date Jul. 12, 1996, § 102(e)
Date Jul. 12, 1996, PCT Pub. No. WO95/17349, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 21, 1994, Ser. No. 652,479

Claims priority, application Japan, Dec. 21, 1993, 5-322249;
Sep. 29, 1994, 6-235364

Int. Cl.⁶ C09D 1/00

U.S. Cl. 106—287.16

20 Claims

1. A reactive ultrafine particulate silica having a radius of gyration of at most 10 Å;

having a hydroxyl group in an amount of at least 0.8 time mole to an alkoxy group;

being obtained by adding water to tetramethoxysilane in an amount capable of effecting from 100% to 200% hydrolysis condensation of tetramethoxysilane.

4. A suspension obtained by aging a blending solution obtained by blending tetramethoxysilane with water in an amount capable of effecting from 100% to 200% hydrolysis condensation of tetramethoxysilane.

20. A method of coating an article, comprising applying to the surface of an article, a coating composition obtained by blending tetramethoxysilane with water, in an amount capable of effecting from 100-200% hydrolysis condensation of tetramethoxysilane.

5,800,608

PROCESS FOR THE PREPARATION OF PRECIPITATED SILICA, NEW PRECIPITATED SILICAS CONTAINING ALUMINUM AND THEIR USE FOR THE REINFORCEMENT OF ELASTOMERS

Yves Bomal, Paris; Yvonick Chevallier, Fontaines-Saint-Martin, and Philippe Cochet, Lyons, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

PCT No. PCT/FR96/00464, § 371 Date Mar. 3, 1997, § 102(e)
Date Mar. 3, 1997, PCT Pub. No. WO96/30304, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 28, 1996, Ser. No. 737,882

Claims priority, application France, Mar. 29, 1995, 95 03674
Int. Cl.⁶ C09C 1/28; C01B 33/154; 33/12

U.S. Cl. 106—492

21 Claims

1. A process for preparing precipitated silica comprising reacting a silicate with an acidifying agent to produce a suspension of precipitated silica and, then, separating and drying the suspension, wherein the precipitation is carried out by the steps comprising:

(i) forming an initial base stock comprising the silicate and an electrolyte, said stock initially having a silicate concentration (expressed as SiO_2) lower than about 100 g/l and an electrolyte concentration lower than about 17 g/l,

(ii) adding the acidifying agent to said base stock until a pH value of at least about 7 is obtained, and

(iii) simultaneously adding additional acidifying agent and silicate to said base stock to obtain a suspension having a solids content of not more than 24% by weight when dried, wherein said process further comprises one of the following two operations (a) or (b):

(a) adding at least one aluminum compound A and then a basic agent to the base stock after stage (iii), said separation comprising a filtration to obtain a cake and disintegration of the cake, said disintegration being performed in the presence of at least one aluminum compound B, or

(b) adding simultaneously a silicate and at least one aluminum compound A to the base stock after stage (iii), and said separation comprising a filtration to obtain a cake and the disintegration of the cake, the disintegration being optionally performed in the presence of at least one aluminum compound B.

5,800,609

PRODUCTION OF PIGMENTS

Brian Tuck, Kilmacoll, and Kanwaljit Bal, Bishopbriggs, both of Scotland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Jul. 8, 1996, Ser. No. 676,713

Claims priority, application United Kingdom, Jul. 12, 1995, 9514244; Jan. 31, 1996, 9601883

Int. Cl.⁶ C09B 27/00

U.S. Cl. 106—496

10 Claims

1. An opaque resinated Pigment Yellow 12 containing from 10 to 40% by weight of a resin, based on the weight of pigment product.

5,800,607

PROCESS FOR THE PREPARATION OF LIQUID PIGMENT PREPARATIONS

Dieter Schnaitmann, Eppstein; Martin Böhmer, Neu-Anspach, and Manfred Urban, Wiesbaden, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Jul. 3, 1996, Ser. No. 675,448

Claims priority, application Germany, Jul. 6, 1995, 19524624.1; May 6, 1996, 19618056.2

Int. Cl.⁶ C09B 67/50

U.S. Cl. 106—412

14 Claims

1. A process for the preparation of liquid pigment preparations, which comprises wet milling the crude pigments which are present in coarsely crystalline state, or prepigments or pigments which are present in a form in which they are difficult to disperse, in a concentration of from 20 to 60% by weight based on the total weight of the pigment preparation, in a flocculation-stable liquid medium and in a stirred ball mill which is operated with a peripheral stirrer speed of more than 12 m/s, under the action of nonmetallic grinding media with a diameter of less than or equal to 1.0 mm, until fine division is reached, and then isolating the liquid pigment preparation without a solvent finishing treatment.

5,800,610

METHOD FOR MANUFACTURING CEMENT CLINKER

Ebbe S. Jons, Valby, Denmark, assignor to F.L. Smidth & Co. A/S, Denmark

PCT No. PCT/DK95/00381, § 371 Date May 9, 1997, § 102(e)
Date May 9, 1997, PCT Pub. No. WO96/15076, PCT Pub. Date May 23, 1996

PCT Filed Sep. 25, 1995, Ser. No. 836,434

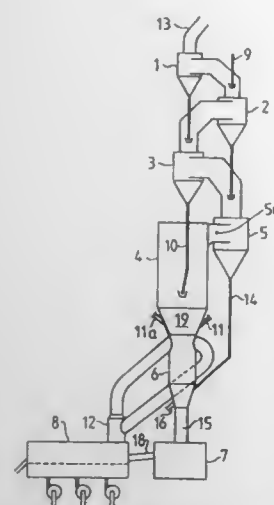
Claims priority, application Denmark, Nov. 11, 1994, 1295/94
Int. Cl.⁶ C04B 7/42

U.S. Cl. 106—743

4 Claims

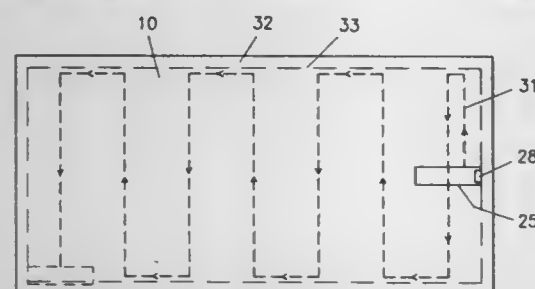
1. A method for manufacturing Portland cement clinker comprising the steps of:

(1) drying and preheating cement raw material;



- (2) calcining the dried, preheated raw material in a calciner;
- (3) burning the calcined raw material in a stationary walled reactor chamber at a temperature between 1000°-1300° C.;
- (4) adding to the cement raw meal during the drying, preheating, calcining or burning steps a quantity of sulfate compound sufficient to cause the formation of a melting phase;
- (5) controlling the quantity of said melting phase by adjusting the temperature in the calciner or reactor, such that clinkerized product is withdrawn from the reactor in the form of nodules with a fineness of more than 80% in excess of 0.5 mm, and without substantial accumulation of material on the walls of the stationary reactor chamber.

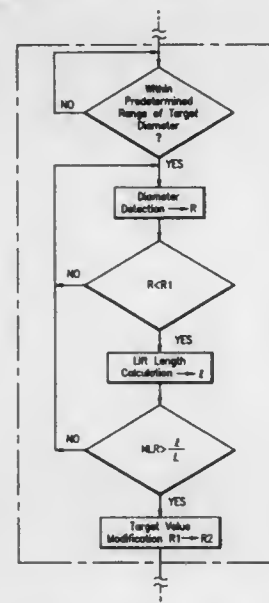
5,800,611
METHOD FOR MAKING LARGE AREA SINGLE CRYSTAL SILICON SHEETS
 Howard Christensen, 171 E. Third Ave. #701, Salt Lake City, Utah 84103
 Filed Sep. 8, 1997, Ser. No. 925,251
 Int. Cl.⁶ C30B 7/00
 U.S. Cl. 117—68 22 Claims



1. A method of making a large area single crystal silicon sheet, comprising the steps of:
 mixing silicon powder with a binder and a solvent to form a silicon slurry;
 spreading the slurry in a uniform layer on a flat surface;
 drying the layer to remove the solvent;
 moistening the layer to cause it to expand and separate from the surface thereby forming a sheet;
 heating the sheet to a temperature sufficient to remove the binder therefrom;
 heating a localized area of the sheet at an initial location on the sheet to a temperature sufficient to cause the silicon at that location to melt forming a melted area having molten silicon;
 contacting the molten silicon at the initial location with a silicon seed crystal to define the crystallographic orientation of the molten silicon;
 moving the heated area and resulting melted area contiguously throughout a substantial portion of the sheet to refine that

portion of the sheet to form a single crystal structure and move impurities to edges of that refined portion of the sheet; cooling the sheet; and removing other than the refined portion from the sheet to form the single crystal sheet of silicon.

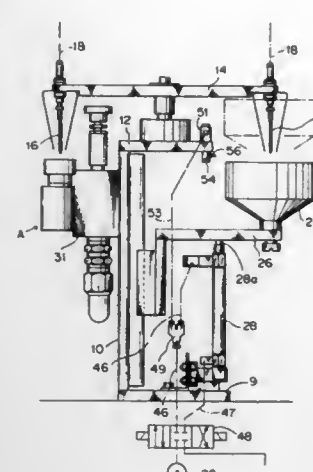
5,800,612
SINGLE-CRYSTAL SEMICONDUCTOR PULLING APPARATUS
 Koichi Shimomura; Yoshinobu Hiraishi, and Taizou Miyamoto, all of Omura, Japan, assignors to Komatsu Electronic Metals Co., Ltd., Hiratsuka, Japan
 Filed Feb. 6, 1997, Ser. No. 796,365
 Claims priority, application Japan, Feb. 8, 1996, 8-059915
 Int. Cl.⁶ C30B 35/00
 U.S. Cl. 117—201 8 Claims



1. A single-crystal semiconductor pulling apparatus for use in conjunction with the Czochralski method, which comprises:
 a control means for automatically controlling a pulling rate of a seed crystal and a temperature of a polycrystal melt and thereby controlling a diameter of a crystal ingot pulled from the seed crystal which is immersed in the melt; the control means automatically controlling the pulling rate and the melt temperature by a two-step control process, so that pulled an ingot from the melt has sufficient strength and dislocation free state,
 the two-step controlling process including a first step where a diameter of a neck of the pulled ingot is reduced to a first value for ensuring the dislocating free state, and a second step where the diameter of the neck portion is increased to a second value so as to have the sufficient strength.

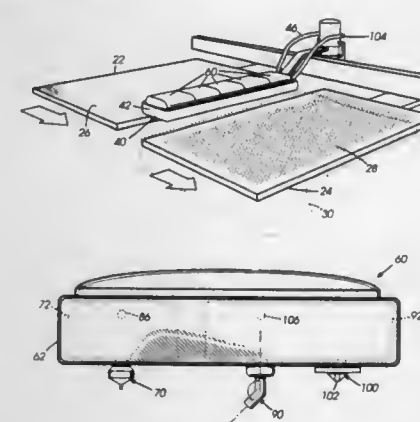
5,800,613
SEED SUPPLYING MECHANISM IN SEED GEL COATING APPARATUS
 Yoichi Ido, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan
 Filed Jul. 9, 1996, Ser. No. 678,054
 Claims priority, application Japan, Jul. 11, 1995, 7-175244
 Int. Cl.⁶ B05C 3/00
 U.S. Cl. 118—13 4 Claims

1. A seed supplying mechanism in a seed gel coating apparatus comprising:
 a seed vessel;
 an air cylinder for elevating and lowering said seed vessel;



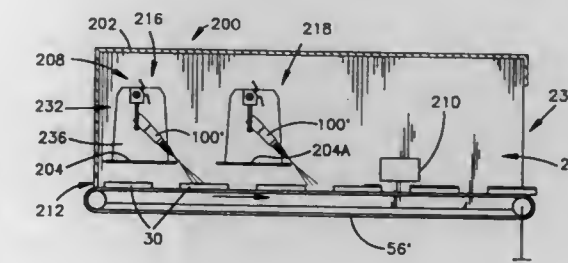
- a lowering pipe line and a lifting pipe line each connected to said air cylinder;
 a cylinder operating solenoid valve by way of which said pipe lines communicate with an air pressure source;
 a hollow needle disposed above said seed vessel having a tip for catching a seed in said seed vessel by suction;
 a negative pressure source connected to said hollow needle to provide said suction;
 an air blow-out nozzle opening toward the tip of said hollow needle; and
 a branch pipe line communicating said lowering pipe line with said air blow-out nozzle;
 wherein air blows out from said air blow-out nozzle synchronized with the lowering of said seed vessel.

5,800,614
ADHESIVE APPLIER FOR SCREEN PRINTING MACHINE
 Paul William Foust, 510 Pine St., Camden, S.C. 29020
 Filed Sep. 24, 1996, Ser. No. 718,772
 Int. Cl.⁶ B05C 5/00; 11/06; 17/06
 U.S. Cl. 118—315 32 Claims



1. A device for applying an adhesive to platens carried by a textile screen printing machine, said device comprising:
 a housing adapted to mount to the screen printing machine so that said housing extends over the platens carried by the screen printing machine;
 a plurality of adhesive nozzles carried by said housing for depositing discrete quantities of adhesive down onto the platens; and
 means carried by said housing and spaced apart from said depositing means for spreading said discrete quantities of adhesive over the platens.

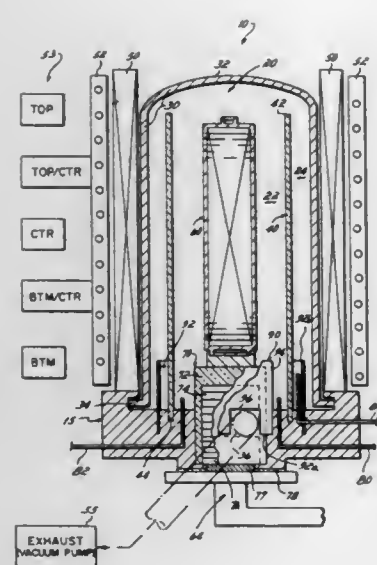
5,800,615
FLAT LINE POWDER COATING SYSTEM
 Peter G. Lambert, Chagrin Falls; John Binder, Lorain, both of Ohio; Ivan E. Frost, Cheshire, England; Stephen F. Brattoll, Jr., Elyria, and Eric P. Fritz, Amherst, both of Ohio, assignors to Nordson Corporation, Westlake, Ohio
 Continuation of Ser. No. 120,971, Sep. 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 57,849, May 7, 1993, abandoned. This application Jan. 30, 1996, Ser. No. 593,878
 Int. Cl.⁶ B05B 1/28
 U.S. Cl. 118—326 21 Claims



1. A powder coating system, comprising:
 a conveyor for transferring a substantially flat article horizontally through a powder coating booth in a direction of travel;
 at least one powder spray gun for applying a layer of powder coating material in said powder coating booth to said substantially flat article, said at least one powder spray gun having a spray nozzle and a charging element for charging powder coating material upstream from said nozzle, said at least one powder spray gun being disposed adjacent said conveyor at an angle of less than sixty degrees with respect to said conveyor, said at least one powder spray gun being oriented to spray powder generally in said direction of travel;
 a canopy installed above said conveyor to enclose at least a portion of said conveyor at which said powder coating material is applied to said substantially flat article;
 said at least one powder spray gun is located inside said canopy and a baffle plate is installed between said at least one powder spray gun and said article so that any powder which collects on said at least one spray gun will fall on said baffle plate and not on said substantially flat article.

5,800,616
VERTICAL LPCVD FURNACE WITH REVERSIBLE MANIFOLD COLLAR AND METHOD OF RETROFITTING SAME
 Steven C. Persyn, Castroville, Tex., assignor to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.
 Filed Dec. 15, 1997, Ser. No. 990,670
 Int. Cl.⁶ C23C 16/00
 U.S. Cl. 118—719 19 Claims

13. A vertical low pressure chemical vapor deposition furnace, comprising:
 (a) a deposition chamber defined by a chamber wall;
 (b) an inner sleeve disposed within and partitioning the deposition chamber;
 (c) an exhaust port disposed in the chamber wall in fluid communication with the deposition chamber; and
 (d) a reversible manifold collar mounted between the inner sleeve and the chamber wall, the manifold collar comprising:
 (1) an annular body forming a thermal mass;
 (2) a first notch defined in the annular body at a first end thereof and adapted to align with the exhaust port when the annular body is mounted in a first, upright orientation; and



(3) a second notch defined in the annular body at a second end thereof and adapted to align with the exhaust port when the annular body is mounted in a second, inverted orientation.

5,800,617

METHOD TO DEPOSIT HIGHLY CONFORMAL CVD FILMS

Gurtej S. Sandhu, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

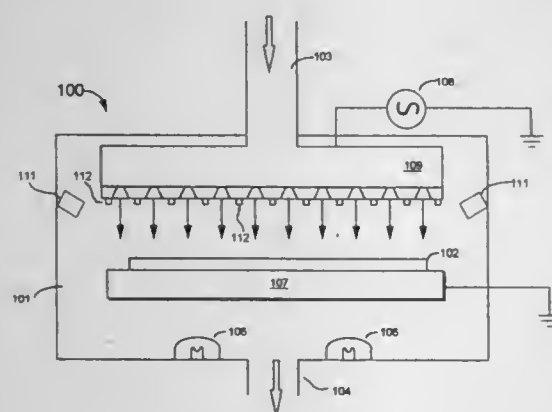
Division of Ser. No. 472,323, Jun. 7, 1995, Pat. No. 5,641,545.

This application Apr. 29, 1997, Ser. No. 841,297

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—722

7 Claims



1. An apparatus for chemical vapor deposition (CVD) of a film onto a wafer, the wafer comprising a substrate and a plurality of patterned features formed on an upper surface of the substrate, the apparatus comprising:

- a reaction chamber;
- a susceptor for holding the wafer;
- a reactant gas supply for providing reactant gas to the substrate;
- a first energy source for supplying a first energy to the upper surface, wherein the first energy is sufficient to cause the reactant gas to deposit on the substrate;
- a second energy source for supplying a second energy, wherein the second energy inhibits deposition of the film onto the patterned features.

5,800,618

PLASMA-GENERATING ELECTRODE DEVICE, AN ELECTRODE-EMBEDDED ARTICLE, AND A METHOD OF MANUFACTURING THEREOF

Yusuke Niori, Inuyama; Kolchi Umamoto, Toyota, and Ryusuke Ushikoshi, Tajimi, all of Japan, assignors to NGK Insulators, Ltd., Japan

PCT No. PCT/JP94/01063, § 371 Date Jul. 18, 1995, § 102(e) Date Jul. 18, 1995, PCT Pub. No. WO95/14308, PCT Pub. Date May 26, 1995

PCT Filed Jun. 30, 1994, Ser. No. 491,999

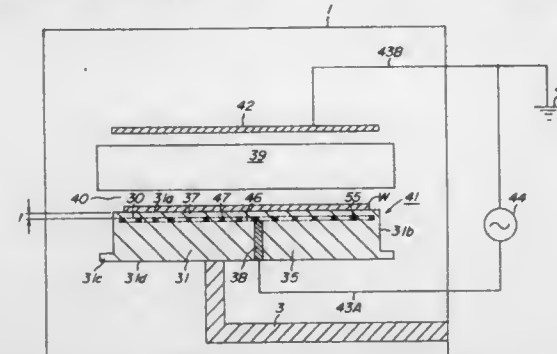
Claims priority, application Japan, Nov. 12, 1992, 4-302351;

Nov. 18, 1993, 5-289290; Mar. 29, 1994, 6-059077

Int. Cl.⁶ H01L 21/00; C23C 16/50

U.S. Cl. 118—723 E

28 Claims



1. A plasma generating electrode device, comprising: a joint-free monolithic substrate made of a dense ceramic sinter; and a planar plasma electrode comprising bulk metal embedded in said substrate, said electrode being isolated from a setting face of the substrate and arranged to generate plasma above the substrate.

5,800,619

VACUUM PLASMA PROCESSOR HAVING COIL WITH MINIMUM MAGNETIC FIELD IN ITS CENTER

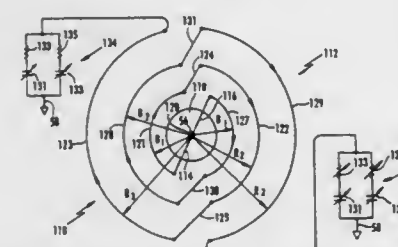
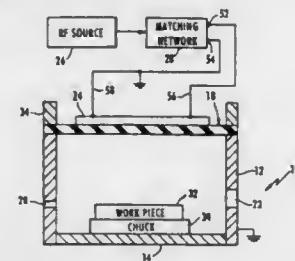
John Patrick Holland, Santa Clara, and Michael S. Barnes, San Francisco, both of Calif., assignors to Lam Research Corporation, Fremont, Calif.

Filed Jun. 10, 1996, Ser. No. 661,203

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—723 I

41 Claims



1. A vacuum plasma processor for treating a workpiece in a vacuum chamber comprising a sealed window transparent to electromagnetic energy, a coil having plural arcuate turns for exciting gas in the processor to a plasma state in response to r.f. energiza-

tion of the coil, the turns of the coil being arranged so the coil extends radially outward from an interior turn to an exterior turn, the coil being located outside the processor and positioned to couple energy to plasma in the chamber through the window, the coil being surrounded by a shield which tends to cause magnetic flux coupled from peripheral portions of the coil to the gas to be less than magnetic flux coupled from interior portions of the coil to the gas, the coil being arranged so magnetic flux derived from a center portion of an area circumscribed by the coil is less than the magnetic flux derived from all other areas circumscribed by the coil so plasma flux across the workpiece is substantially the same.

5,800,620

PLASMA TREATMENT APPARATUS

Ronald Alan Rudder, Wake Forest; Robert Carlisle Hendry, Orange County, and George Carlton Hudson, Johnston County, all of N.C., assignors to Research Triangle Institute, Research Triangle Park, N.C.

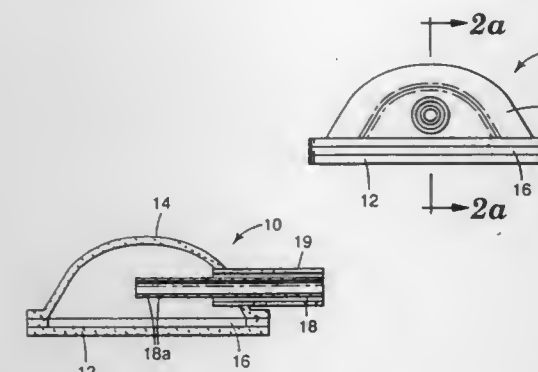
Division of Ser. No. 361,667, Dec. 22, 1994, Pat. No.

5,643,639. This application Jun. 30, 1997, Ser. No. 885,957

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—712 I

3 Claims



1. A plasma treatment apparatus comprising: a chamber having a longitudinal axis and sidewalls that surround the longitudinal axis, at least one sidewall being an extensive planar wall that is parallel to the longitudinal axis; means for providing a gas into the chamber; an axially extending array of current-carrying conductor loops that encircle the chamber, are substantially transverse to the longitudinal axis, and establish a magnetic field parallel to the longitudinal axis of the chamber; and a power supply connected to the conductor array and adapted to provide high frequency current in the conductor loops to magnetically induce ionization of a gaseous material in the chamber.

5,800,621

PLASMA SOURCE FOR HDP-CVD CHAMBER

Fred C. Redeker, Fremont, and Tetsuya Ishikawa, Santa Clara, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

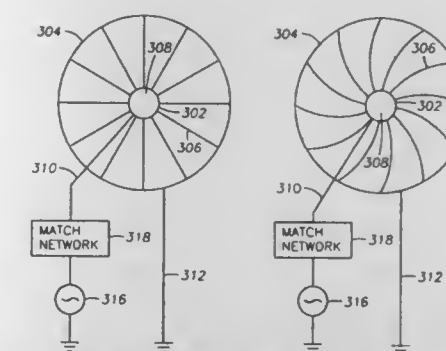
Filed Feb. 10, 1997, Ser. No. 795,169

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—723 AN

9 Claims

1. A chamber for processing a substrate, comprising: a) a chamber body comprising a top and sidewalls defining a plasma cavity and a gas inlet centrally located in the top of the chamber; and b) a top antenna mounted in the top of the chamber body, the top antenna comprising a central coil turn defining a central



passage in the top antenna, an outer coil turn concentrically aligned with the central coil turn, and a plurality of inductors extending between the central coil turn and the outer coil turn.

5,800,622

VAPOR-PHASE GROWTH APPARATUS AND COMPOUND SEMICONDUCTOR DEVICE FABRICATED THEREBY

Masayoshi Takemi, and Yuji Ohkura, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

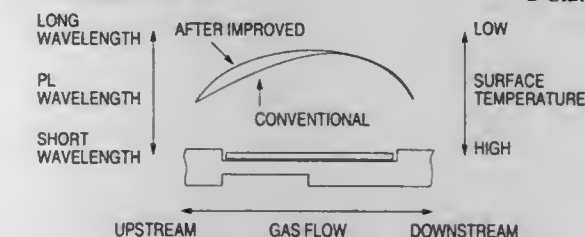
Filed Jan. 30, 1996, Ser. No. 593,964

Claims priority, application Japan, Jul. 21, 1995, 7-186090

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—725

2 Claims



1. A vapor-phase growth apparatus comprising: a vapor-phase reactor chamber including a reaction gas inlet for supplying a gas in a gas flow direction within said vapor-phase reactor chamber, and an exhaust pipe; a wafer holder disposed in said vapor-phase reactor chamber and having a recess in a front side for receiving and supporting a wafer horizontally and contacting substantially all of a rear surface of the wafer, said wafer holder including a concavity in a back side of said wafer holder opposite only part of the recess; a wafer heater located at a back side of said wafer holder for heating said wafer holder and a wafer disposed in the recess; and driving means for rotating said wafer holder about an axis outside the recess in a direction of rotation wherein the direction of rotation and the direction of gas flow are opposite so that the concavity intersects the gas flow substantially simultaneously with the recess and the recess continues to intersect the gas flow after the concavity no longer intersects the gas flow whereby the uniformity of the surface temperature of a wafer placed in the recess is improved.

5,800,623

SEMICONDUCTOR WAFER SUPPORT PLATFORM

Timothy Scott Dyer, Tempe, Ariz., assignor to Accord SEG, Inc., Tempe, Ariz.

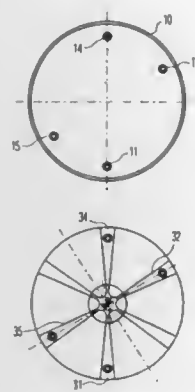
Filed Jul. 18, 1996, Ser. No. 683,363

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—728

5 Claims

1. A susceptor for supporting a semiconductor wafer, said susceptor comprising a first member having a thickness T, said mem-



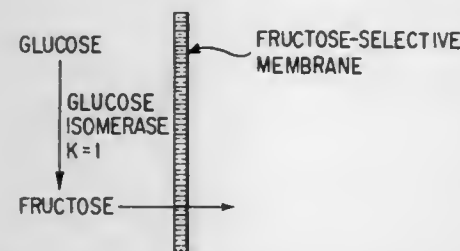
ber having a planar surface and a pattern of holes through said first member, each of said holes having a diameter D less than T , wherein said first member includes a pattern of support struts, said pattern of support struts corresponding to said pattern of holes wherein each of said holes penetrates through a corresponding one of said struts, said first member and said struts having an overall thickness T .

5,800,624 MEMBRANE PROCESS FOR SEPARATING CARBOHYDRATES

Bradley D. Smith, and Jennifer A. Riggs, both of South Bend, Ind., assignors to University of Notre Dame, Notre Dame, Ind.

Filed Oct. 22, 1996, Ser. No. 734,998
Int. Cl.⁶ C13J 1/06; C13D 1/08; 3/12; B01D 15/00
U.S. Cl. 127—461 20 Claims

GLUCOSE ISOMERIZATION AND FRUCTOSE ENRICHMENT



1. A process for separating monosaccharides and disaccharides from crude mixtures thereof which comprises contacting an aqueous solution of the saccharide mixture at a pH between about 2 and about 12 with one surface of a plasticized liquid membrane said membrane being in contact at an opposite surface with an aqueous receiving phase at a pH between about 2 and about 12 wherein said membrane comprises 1) an inert lipophilic polymer selected from polyvinyl acetate, polyvinyl chloride, polyvinyl butyral, polymethacrylate, cellulose triacetate and cellulose nitrate, 2) a hydrophobic organic liquid plasticizer and, 3) a carrier compound selected from a quaternary ammonium salt of the formula



wherein each of the R radicals is a C_1 - C_{20} straight or branched chain alkyl group or a cyclo aliphatic group containing from 3 to 8 carbon atoms, and wherein at least one of the R radicals is a straight or branched chain alkyl group having from 4 to 20 carbon atoms, and A^- represents a halide for example, chloride, bromide or iodide, or a conjugate base of an acid for example, a carboxylate, sulfonate, phosphonate, or phosphinate anion; and a tetraalkylphosphonium salt of the formula



wherein each R radical and A have the same meanings as defined above for the quaternary ammonium salt carrier.

5,800,625 REMOVAL OF MATERIAL BY RADIATION APPLIED AT AN OBLIQUE ANGLE

Audrey C. Engelsberg, Milton; Andrew W. Johnson, South Burlington, and William P. Parker, Waitsfield, all of Vt., assignors to Cauldron Limited Partnership, Bethesda, Md.
Filed Jul. 26, 1996, Ser. No. 686,523
Int. Cl.⁶ B08B 3/12

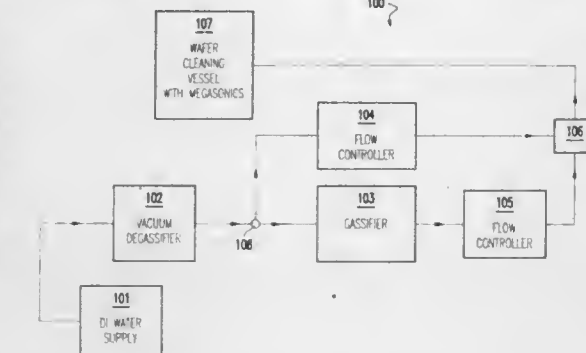
U.S. Cl. 134—1 22 Claims

1. A method for removing undesired material from a treatment surface of a substrate without affecting the physical properties of desired material to be left on the treatment surface adjacent to or underlying the undesired material, comprising the steps of: selecting a substrate and an undesired material to be removed from the treatment surface of the substrate that cannot be removed by radiation of the treatment surface by photons applied at a first incident angle approximately normal to the treatment surface in a predetermined spatial and temporal concentration insufficient to alter the physical properties of the desired material; irradiating the treatment surface with photons at a second incident angle substantially less than said first incident angle in said predetermined spatial and temporal concentration to release the undesired material from the treatment surface; and simultaneously introducing across said undesired material a flow of gas substantially inert to said substrate.

5,800,626 CONTROL OF GAS CONTENT IN PROCESS LIQUIDS FOR IMPROVED MEGASONIC CLEANING OF SEMICONDUCTOR WAFERS AND MICROELECTRONICS SUBSTRATES

Susan Cohen, Austin, Tex.; Emmanuel I. Cooper, Bronx, N.Y.; Klaus Penner, Otendorf-Okrilla, Germany; David L. Rath, Stormville, and Kamalesh K. Srivastava, Wappinger Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 18, 1997, Ser. No. 801,685
Int. Cl.⁶ B08B 3/12; 3/10 14 Claims



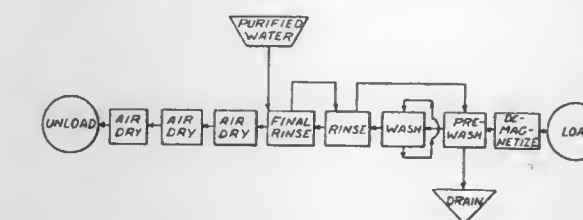
1. A method for controlling the effectiveness of megasonic-assisted cleaning of microelectronics devices, comprising the steps of: providing a cleaning solution containing gas water; controlling a gas concentration in said cleaning solution by i) vacuum-degassing water obtained from a water supply, and ii) adding gas back to said vacuum-degassed water in appropriate amounts; and cleaning a substrate in said cleaning solution at a process temperature, wherein said cleaning solution is partially saturated with said gas at said process temperatures;

said controlling step changing said gas concentration in said cleaning solution prior to wafer cleaning to effect said partial saturation.

5,800,627 AQUEOUS CLEANING OF BLADE STACK

Theodore J. Campo, Somerville; Donald R. Chaulk, Needham; William J. Felton, Roslindale; Manohar S. Grewal, Hanover; John A. Hindley, Abington; John F. Krantz, Wollaston; Mark D. Lincoln, Taunton; Kevin P. McDonough, West Roxbury, and James W. Walsh, Wellesley Hills, all of Mass., assignors to The Gillette Company, Boston, Mass.

Division of Ser. No. 628,883, Dec. 18, 1990, Pat. No. 5,399,204. This application Aug. 29, 1994, Ser. No. 297,021
Int. Cl.⁶ B08B 3/02; 3/04; 7/04 10 Claims

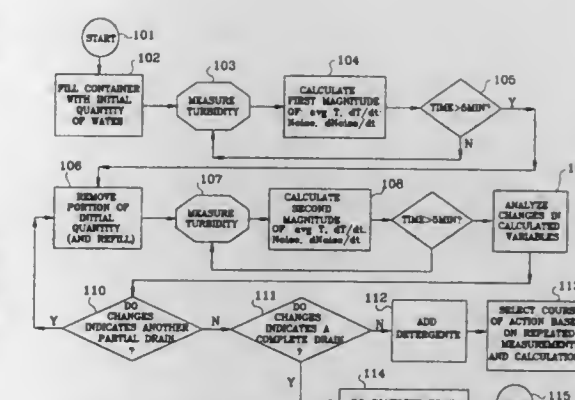


1. A method of manufacturing a razor blade which includes the steps of: stacking a plurality of blades with the edges substantially at right angles to a selected continuous path; supporting the blades such that the blades are free to rattle under fluid pressure directed against the blade edges; providing a demagnetizing means along said path and moving the blade stack through said demagnetizing means to ensure separation of the blades during movement along said path; thereafter, moving the stack of blades along the continuous path through a pre-wash station, a wash station, a rinse station and a final rinse station, each of said stations being separated by wall structure having an opening formed therein to provide for movement of the stack of blades therethrough and providing air under pressure adjacent said wall structure between said wash station, rinse station and final rinse station to form an air curtain adjacent each of the openings; applying a liquid to the stack of blades at each of the pre-wash, wash, rinse and final rinse stations, the application being directed at an angle and pressure to cause ruffling of the blades within the stack; providing non-contaminated water for said application at the final rinse station; circulating the applied water from the final rinse station to the rinse station for said application at the rinse station; and circulating the applied water from the rinse station to the pre-wash station for said application at the pre-wash station.

5,800,628 CONTINUOUS CYCLE OPERATION FOR DISHWASHERS USING TURBIDITY SENSOR FEEDBACK

Timothy K. Erickson, Lena, and Gary R. O'Brien, Freeport, both of Ill., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Oct. 22, 1996, Ser. No. 734,937
Int. Cl.⁶ B08B 3/02 20 Claims

1. A method for washing an object, comprising: providing a container; disposing said object within said container; starting a first washing cycle by providing an initial quantity of water within said container, said cycle being the period from fill to near complete drain of said water in said container; causing said water to contact the surface of said object;

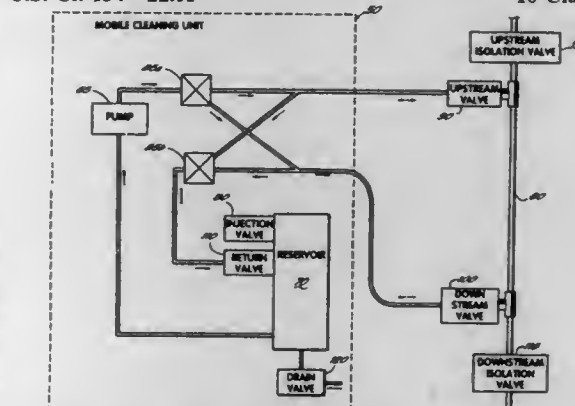


periodically measuring the turbidity of said initial quantity of water while said water is being caused to contact said surface of said object to provide a series of turbidity measurements over time; calculating a first magnitude of a first turbidity characteristic from said turbidity measurements of said initial water quantity; removing a first portion of said initial quantity of said water from said container to obtain a remaining portion, said first portion being less than said initial quantity; measuring the turbidity of said remaining portion; calculating a second magnitude of said first turbidity characteristic from said turbidity measurement of said remaining portion; and determining the degree and character of particulates within said water as a function of the difference between said first and second magnitudes of said first characteristic of said turbidity measurements; and based upon said determination of degree and character, either removing from the container a second portion of the remaining portion, removing from the container all of the remaining portion, or proceeding with the remaining portion contacting the surface of the object.

5,800,629 PIPE SYSTEM CLEANING AND IN-LINE TREATMENT OF SPENT CLEANING SOLUTION

Jerome H. Ludwig, Paradise Valley; Myron Shenkiryk, Phoenix; Dan Temple, Phoenix, and Edward Fyfe, Phoenix, all of Ariz., assignors to H.E.R.C. Products Incorporated, Phoenix, Ariz.

Filed Mar. 6, 1997, Ser. No. 812,273
Int. Cl.⁶ B08B 9/02; C23G 1/02; 1/14; 5/02
U.S. Cl. 134—22.11 10 Claims



adding a treatment agent to said recirculating spent cleaning solution to render said spent cleaning solution environmentally safe;
recirculating said spent cleaning solution containing said treatment agent until said spent cleaning solution is environmentally safe; and
removing said environmentally safe spent cleaning solution from said pipe system for disposal.

5,800,630

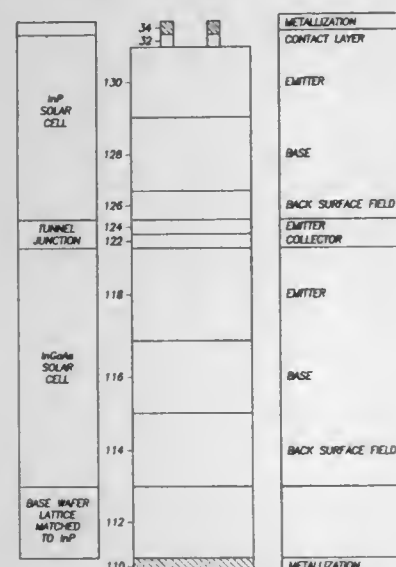
TANDEM SOLAR CELL WITH INDIUM PHOSPHIDE TUNNEL JUNCTION

Mauro F. Vilela; Abdelhak Bensaoula; Alexandre Freundlich; Philippe Renaud, and Nasr-Eddine Medelci, all of Houston, Tex., assignors to University of Houston, Houston, Tex.

Continuation-in-part of Ser. No. 44,941, Apr. 8, 1993, Pat. No. 5,407,491. This application Dec. 5, 1994, Ser. No. 349,601
Int. Cl.⁶ H01L 31/068; 31/18

U.S. Cl. 136—249

21 Claims



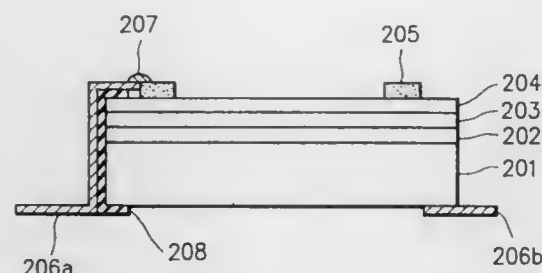
1. A two-terminal, monolithic, tandem photovoltaic, device, comprising:
 - a substrate having an upper and lower surface;
 - a first photoactive subcell on the upper surface of the substrate, the first subcell comprising a semiconductor material lattice-matched to the top layer of the substrate and having an energy bandgap;
 - a second photoactive subcell above the first subcell, the second subcell comprising a material lattice-matched to the first subcell and having a different energy bandgap than the first subcell; and
 - a tunnel junction, the tunnel junction comprising doped indium phosphide, interconnecting the first and second subcells, the tunnel junction being lattice-matched to the first and second subcells and having a peak current density greater than 50 amperes cm⁻².

5,800,631
SOLAR CELL MODULE HAVING A SPECIFIC BACK SIDE COVERING MATERIAL AND A PROCESS FOR THE PRODUCTION OF SAID SOLAR CELL MODULE
Satoru Yamada, Tsuzuki-gun; Takahiro Mori, Ikoma; Ichiro Kataoka; Hidenori Shiotsuka, both of Tsuzuki-gun, and Ayako Komori, Nara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 26, 1996, Ser. No. 703,101

Claims priority, application Japan, Aug. 24, 1995, 7-216332; Jan. 10, 1996, 8-018284; Jan. 19, 1996, 8-024846
Int. Cl.⁶ H01L 31/048

U.S. Cl. 136—251

40 Claims



1. A solar cell module comprising a photovoltaic element having a photoactive semiconductor layer as a photoelectric conversion member, said photovoltaic element being enclosed by a front side covering material covering a light receiving front side of said photovoltaic element and a back side covering material covering a back side of said photovoltaic element, and said back side covering material comprising a foamed material, characterized in that said foamed material comprises a member (a) selected from the group consisting of a stacked body (a-i) comprising a foamed material and a fiber and a material (a-ii) comprising a foamed material with a fiber incorporated therein.

PHOTOVOLTAIC DEVICE AND METHOD FOR MANUFACTURING IT

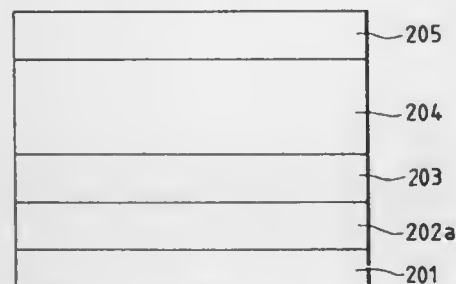
Kozo Arai; Katsumi Nakagawa, and Yukiko Iwasaki, all of Nara, Japan, assignors to Canon Kabushiki Kaisha, Japan
Filed Sep. 24, 1996, Ser. No. 710,947

Claims priority, application Japan, Sep. 28, 1995, 7-250712; Sep. 28, 1995, 7-250713

Int. Cl.⁶ H01L 31/18

U.S. Cl. 136—258

34 Claims



1. A method for manufacturing a photovoltaic device comprising in sequence a metal layer, a first transparent conductive layer, a semiconductor layer, and a second transparent conductive layer stacked on a substrate comprising iron, comprising the steps of: forming said metal layer by electro-deposition of said metal layer from a solution; and forming said first transparent conductive layer by electro-deposition of said first transparent conductive layer from another solution.

5,800,633

METHOD FOR MAKING HIGH MAGNETIC DENSITY, LOW IRON LOSS, GRAIN ORIENTED ELECTROMAGNETIC STEEL SHEET

Yukio Inokuti, Chiba, Japan, assignor to Kawasaki Steel Corporation, Japan

Division of Ser. No. 567,779, Dec. 5, 1995, Pat. No. 5,702,541.

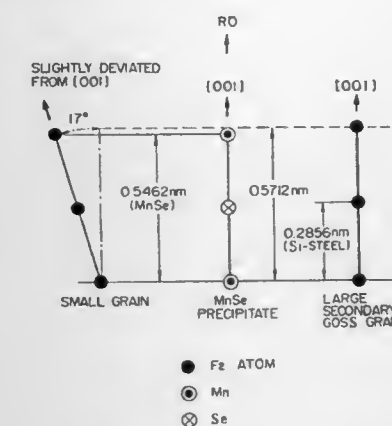
This application May 16, 1997, Ser. No. 858,064

Claims priority, application Japan, Dec. 5, 1994, 6-300894; Jun. 28, 1995, 7-161958

Int. Cl.⁶ H01F 1/18

U.S. Cl. 148—111

3 Claims



1. A method for producing a grain oriented electromagnetic steel sheet exhibiting excellent magnetic flux density and excellent iron loss, comprising:

preparing a slab from steel capable of being formed into an oriented electromagnetic steel sheet, said steel comprising about 2.5 to 4.0 weight percent of Si and about 0.005 to 0.06 weight percent of Al;
hot rolling said slab to a hot-rolled plate;
cold rolling said hot-rolled plate up to two times, including an intermediate annealing between cold rollings, to form a cold-rolled steel sheet;
decarburization and primary recrystallization annealing said steel sheet, said decarburization and primary recrystallization annealing including a first half and a second half, said decarburization and primary recrystallization annealing comprising rapidly heating said cold-rolled steel sheet at a rate of about 10° C./min or more from about 450° C. to a constant temperature between about 800° to 880° C.;
nitriding said steel sheet in a nitrogen atmosphere having a dew point of about -20° C. or less during said second half of said decarburization and primary recrystallization annealing;
applying an annealing separator substantially comprising MgO to the nitrided steel sheet; and
finishing annealing the annealing separator applied steel sheet, said finishing annealing comprising a secondary recrystallization annealing and a purification annealing.

5,800,634

METHOD OF MANUFACTURING AN ELECTRICAL RESISTANCE HEATING MEANS

Joseph Anthony McWilliams, and Ali Paybarah, both of Droitwich, United Kingdom, assignors to Ceramaspeed Limited, United Kingdom

Filed Oct. 15, 1996, Ser. No. 729,960

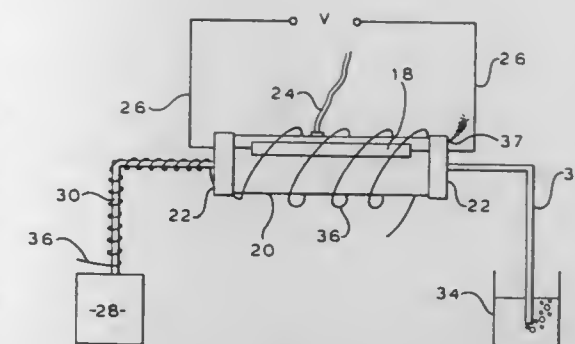
Claims priority, application United Kingdom, Apr. 16, 1994, 9407596; Feb. 16, 1995, 9503019

Int. Cl.⁶ C22C 8/10

U.S. Cl. 148—285

37 Claims

1. A method of manufacturing an electrical resistance heating means comprising the steps of: providing an electrical resistance material comprising an alloy having the following composition in weight percent:



Group A:

aluminum 3-8
a metal selected from a first class consisting of yttrium, zirconium, hafnium, at least one rare earth element, and mixtures thereof

Group B:

chromium 12-30
a metal selected from a second class consisting of iron, nickel, cobalt, and mixtures thereof

and heat treating the electrical resistance material in an enclosure in a single stage, said stage consisting of the steps of:

- a. supplying an atmosphere consisting solely of water vapour to the enclosure such that the heat treatment is effected in an atmosphere consisting essentially of water vapour, the potential for oxidation of the atmosphere being such as to permit oxidation of the constituents(s) from Group A and to inhibit oxidation of the constituents from Group B; and
- b. heating the electrical resistance material in the supplied atmosphere to a temperature in the range from 800° C. to a temperature below the melting point of the alloy so as to oxidize the constituents(s) of Group A at the surface of the alloy whereby to form a surface layer consisting essentially of continuous unified oxide of the constituents(s) of Group A.

5,800,635

METHOD OF ACHIEVING A CONTROLLED STEP CHANGE IN THE MAGNETIZATION LOOP OF AMORPHOUS ALLOYS

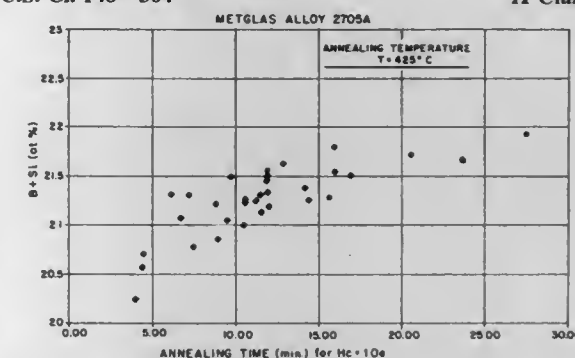
Aliki Collins, Newton, Mass.; Ronald Martis, East Hanover, and Victor Ambasz, Bedminster, both of N.J., assignors to AlliedSignal Inc., Morris Township, N.J.

Filed Jan. 22, 1996, Ser. No. 589,227

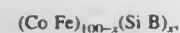
Int. Cl.⁶ H01F 1/53

U.S. Cl. 148—304

11 Claims



1. For use in a magnetic theft detection system, a glassy metal alloy strip having a value of magnetostriction near zero, said strip having been annealed having a crystalline metallic layer on a surface thereof and having a step change in the magnetization versus applied field behavior (B-H loop) thereof, and having a composition consisting essentially of the formula:



where

$$20 \leq x \leq 23$$

and

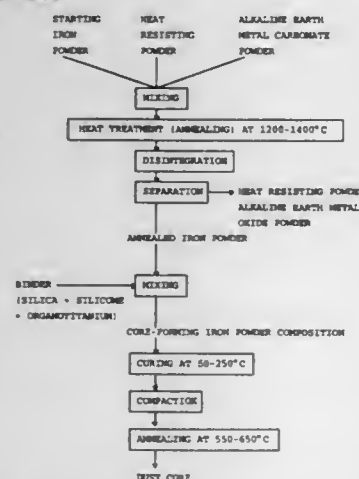
$$15.35 \leq \text{Co/Fe} \leq 15.97$$

and

$$7.5 \leq \text{B/Si} \leq 9.25$$

5,800,636
DUST CORE, IRON POWDER THEREFOR AND METHOD OF MAKING
Takeo Tsukada; Masaaki Kanasugi; Masataka Miyashita; Kazuhiro Okada, and Norishige Yamaguchi, all of Chiba, Japan, assignors to TDK Corporation, Tokyo, Japan
Filed Jan. 3, 1997, Ser. No. 779,240
Claims priority, application Japan, Jan. 16, 1996, 8-023141; Aug. 29, 1996, 8-247076

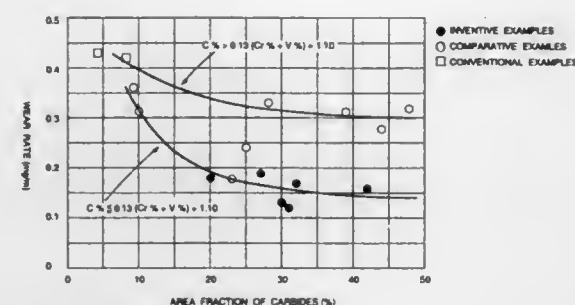
Int. Cl.⁶ H01F 1/22
U.S. Cl. 148—306



1. A dust core consisting essentially of iron powder particles with a particle size of 75 to 200 μm , 0.03 to 0.1% by weight of silicon, 15 to 210 ppm of titanium, and 300 to 2,500 ppm of oxygen.

5,800,637
ROLLING BEARING WITH LONG SERVICE LIFE AND HIGH WEAR RESISTANCE
Kenji Yamamura, and Shuji Wada, both of Kanagawa, Japan, assignors to NSK Ltd., Tokyo, Japan
Continuation of Ser. No. 504,781, Jul. 19, 1995, abandoned.
This application May 15, 1997, Ser. No. 857,061
Claims priority, application Japan, Jul. 19, 1994, 6-166735
Int. Cl.⁶ C23C 8/22; F16C 33/62
U.S. Cl. 148—318

1. In a rolling bearing comprising an inner race, an outer race and a plurality of rolling elements, the improvement wherein at least one member of the inner race, the outer race and the rolling elements is made of an alloy steel comprising:
0.2 to 1.0 wt % of C;
3.0 to 14.0 wt % of Cr;

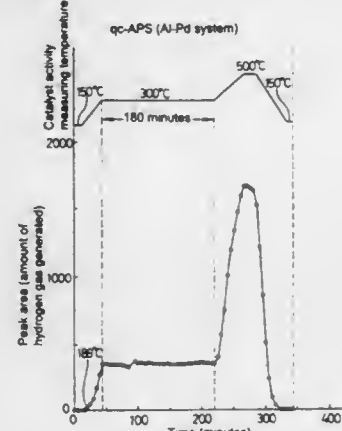


0.8 to 3.0 wt % of V;
at most 3.0 wt % of Mo; and
the balance being Fe,
the member satisfying a relationship of:

$$\text{C}\% \leq 0.13 (\text{Cr}\% + \text{V}\%) + 1.10$$

and having carbides existing on a surface of the member have an area fraction of 15 to 50% after a surface layer thereof is carburized or carbonitrided and then hardened or tempered, where C% is a surface carbon concentration and Cr% and V% are concentrations of Cr and V respectively.

5,800,638
ULTRAFINE PARTICLE OF QUASI-CRYSTALLINE ALUMINUM ALLOY AND PROCESS FOR PRODUCING AGGREGATE THEREOF
Katsutoshi Nosaki, Saitama; Tsuyoshi Masumoto, 8-22, Kamisugi 3-chome, Aoba-ku, Sendai-shi, Miyagi; Akihisa Inoue, Kawauchi Jutaku, 11-806, Kawauchi, Aoba-ku, Sendai-shi, Miyagi, and Tadashi Yamaguchi, Sendai, all of Japan, assignors to Akihisa Inoue; Tsuyoshi Masumoto, both of Miyagi; YKK Corporation, and Honda Giken Kogyo Kabushiki Kaisha, both of Tokyo, all of Japan
Filed Sep. 27, 1994, Ser. No. 313,464
Claims priority, application Japan, Sep. 29, 1993, 5-265591
Int. Cl.⁶ C22C 21/00
U.S. Cl. 148—403



7. Ultrafine quasi-crystalline aluminum alloy particles produced by subjecting a plurality of starting particles of a quasi-crystalline aluminum alloy including Pd and optionally at least one alloy element selected from the group of V, Cr, Mn, Fe, Co, Ni, and Cu and having a particle size $d \leq 200 \text{ nm}$ to a leaching treatment to thereby elute aluminum from said starting particles, wherein as a result of said leaching treatment said ultrafine quasi-crystalline particles retain a skeleton structure of said starting particles, and said ultrafine quasi-crystalline particles have a specific surface area greater than that of said starting particles, and wherein in a methanol decomposition reaction said ultrafine quasi-crystalline particles have a substantially reduced hydrogen generating starting temperature than that of said starting particles, the rate of hydrogen

production at 300° C. is substantially greater than that for said starting particles, and the rate of hydrogen production at 300° C. is substantially maintained by said quasi-crystalline particles for at least 180 minutes after reaching 300° C.

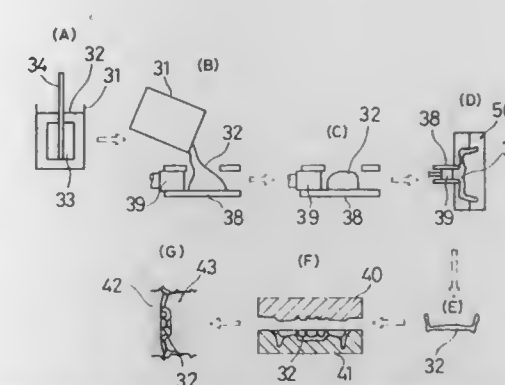
5,800,639
HYDROGEN STORAGE ELECTRODE COMPOSED OF ALLOY WITH DENDRITE-FREE LAVES PHASE STRUCTURE
De Yi Yan, Santa Clara, Calif., assignor to Mobius Green Energy, Inc., Santa Clara, Calif.
Filed Oct. 10, 1995, Ser. No. 541,942
Int. Cl.⁶ H01M 4/38; C01B 6/02; C22C 19/03; 19/30
U.S. Cl. 148—426



1. A Laves-phase hydrogen storage material composition comprising:
an alloy represented by a composition formula as $\alpha_1\beta_1X_1$, wherein:
 α representing $R_{1-X_1}Ti_{X_1}$ wherein R is an element selected from the group consists of Zr or Hf, and X_1 is a real number having a value between zero and one;
 β includes at least one element selected from a group consists of La, Ce, Pr, Nd and mixed with rare earth, alkaline, or alkaline earth metallic element;
 $X = V_{Y_1}Ni_{Y_2}$, where Y_1 has a value between zero to 0.8, Y_2 has a value between 1.3 to 3.0, and X has a value between zero to 0.2 and Y has a value between 2.0 to 3.0; and
said alloy having a dendrite free structure which further includes atoms of V, and Ti and compositions of TiNi and ZrO_2 .

5,800,640
METHOD OF PRODUCING A LIGHT ALLOY PRODUCT
Yukio Yamamoto; Makoto Fujita; Nobuo Sakate; Katsuya Ohuchi, and Shoji Hirabara, all of Hiroshima-ken, Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan
Division of Ser. No. 603,201, Feb. 20, 1996, Pat. No. 5,693,158, which is a continuation of Ser. No. 195,454, Feb. 14, 1994, abandoned. This application Apr. 16, 1997, Ser. No. 843,455
Claims priority, application Japan, Feb. 12, 1993, 5-024114; Feb. 19, 1993, 5-054985; Feb. 7, 1994, 6-013629
Int. Cl.⁶ C22F 1/06

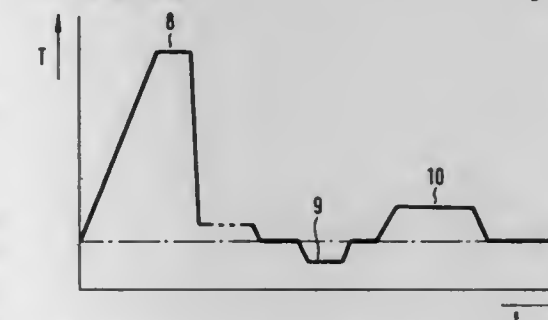
1. A method of manufacturing a magnesium light alloy product, comprising the steps of:
stirring a magnesium alloy material in a semi-solid state in which a solid phase and a liquid phase exist;
casting the magnesium alloy material of semi-solid state into a mold to obtain a cast material;



forging the thus obtained casted material into a set shape at a temperature lower than the melting point of the magnesium alloy material.

5,800,641
METHOD OF THERMAL OR THERMOCHEMICAL TREATMENT OF PRECISION STEEL COMPONENTS
E.H. Georg Schaeffler, Herzogenaurach, Germany, assignor to Ina Walzlager Schaeffler KG, Germany
Filed Mar. 18, 1996, Ser. No. 617,363
Claims priority, application Germany, Jul. 11, 1995, 195 25 218.7

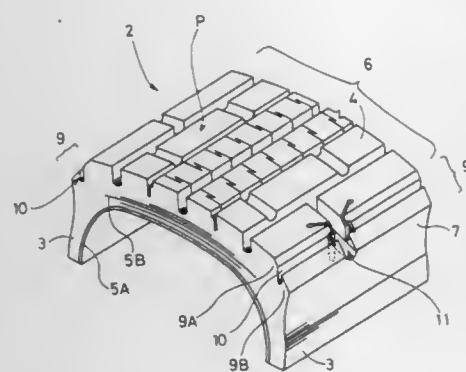
Int. Cl.⁶ C21D 6/04
U.S. Cl. 148—578



1. A method of thermal or thermochemical treatment of precision steel components having different wall thicknesses comprising the steps of a) hardening (8), b) low temperature cooling (9) and c) annealing (10), providing the precision steel components of selected thicker parts of cup tappet (1) are subjected to a partial low temperature cooling so that a reduction of primary residual austenite occurs in the said selected thicker parts.

5,800,642
PNEUMATIC TIRE, MOLD INCLUDING VENT GROOVES, AND METHOD
Yukihide Ohya, Kobe, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan
Filed Jul. 10, 1996, Ser. No. 677,871
Int. Cl.⁶ B29C 33/10; B29D 33/00; B60C 11/01; 101/00
U.S. Cl. 152—209 R

1. A pneumatic tire comprising:
a tread portion having a tread surface, the tread surface having a radius of curvature of 400 to 1500 mm,
a pair of buttress portions, and
a pair of shoulder portions between the tread portion and buttress portions, the shoulder portions tapered axially outwards at an angle of 30 to 60 degrees with respect to an axis of the tire,
a circumferentially extending narrow groove disposed in each of the shoulder portions so as to axially divide this portion into an axially inside part and an axially outside part,



a plurality of thin partition walls disposed in each of the narrow grooves, small ribs each disposed on the radially outer surface of the tread portion, the radially outer surface of the axially inside part of one of the shoulder portions and the radially outer surface of one of the thin partition walls, the small ribs extending continuously from the axially outside part of the shoulder portion into the tread portion, the small ribs having a height of from 0.5 to 2.0 mm and a width of more than 0.5 mm but not more than 2.0 mm, and each of the partition walls having a thickness of from 0.5 to 2.0 mm and the small rib on the radially outer surface of the partition wall protruding from the narrow groove.

5,800,643

PNEUMATIC INNER TIRE

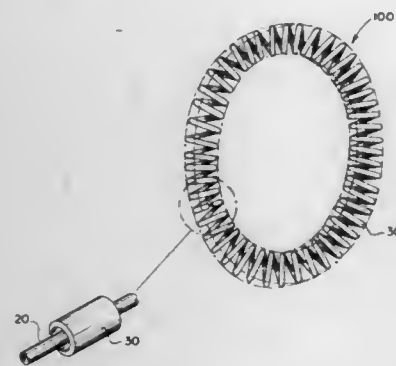
Richard Frankowski, Mobile, Ala., assignor to Inner Tire Corporation, Mobile, Ala.

Filed Apr. 26, 1996, Ser. No. 638,342

Int. Cl.⁶ B60C 17/01

U.S. Cl. 152—156

19 Claims



1. Apparatus including a pneumatic inner tire structure primarily intended for use in a vehicle pneumatic-tubeless tire as a reinforcing improvement when the tire fails while in motion, the tire being mounted on a rim, the tire including a first largest inner diameter, the rim including a first smallest outer diameter, the pneumatic inner tire structure comprising:

- (a) an annular helical inflatable rubber tubing;
- (b) a high strength metal helical coil reinforcing the rubber tubing;
- (c) a valve for filling the rubber tubing, wherein: the structure has an outer diameter smaller than the largest inner diameter of the tire; and the structure has an inner diameter larger than the smallest outer diameter of the rim.

5,800,644
VEHICLE TIRE THAT CAN BE ELASTICALLY FITTED WITH STUDS

Pentti Juhani Eromäki, Nokia, Finland, assignor to Nokian Renkaat Oy, Nokia, Finland

Division of Ser. No. 608,169, Feb. 27, 1996. This application

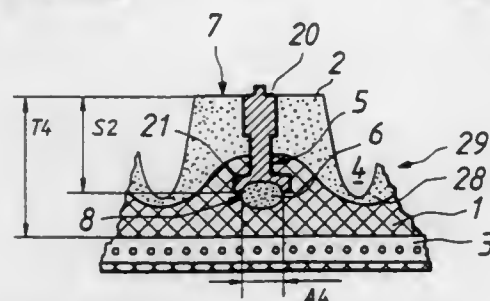
Dec. 2, 1996, Ser. No. 758,910

Claims priority, application Finland, Mar. 3, 1995, 950993

Int. Cl.⁶ B60C 11/16

U.S. Cl. 152—210

16 Claims



1. A vehicle tire comprising:

a tire carcass (3);

a cap (29) on top of the carcass (3), the cap (29) comprising a first layer (1) of rubber next to the carcass (3) and a second layer (2) of rubber on top of the layer (1), the rubber of the first layer (1) being harder than the rubber of the second layer (2), the second layer (2) forming a tread (7) for the tire;

at least one anti-skid stud hole (5) disposed in the cap (29), the anti-skid stud hole (5) extending from the exterior of the tread interiorly of the cap (29) into the first layer (1); and

a cushion (6) disposed at the interior end of the anti-skid stud hole (5), the cushion (6) being at least partly embedded in the rubber of the first layer (1), the cushion (6) comprising material having an elasticity greater than that of the rubber of the first layer (1).

the anti-skid stud hole (5) being adapted to receive an anti-skid stud (20) of the type having a bottom flange (21) and wherein the flange (21) bears against the cushion (6).

5,800,645

SYSTEM FOR ENCAPSULATION OF ELECTRIC WIRE SPLICES

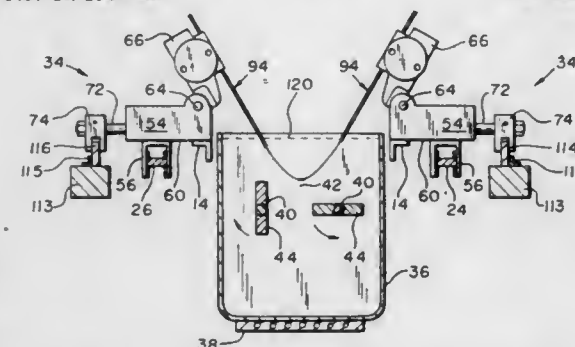
John F. Gatz, 25405 Peekskill, Southfield, Mich. 48034

Filed Mar. 20, 1996, Ser. No. 618,783

Int. Cl.⁶ B65H 69/02

U.S. Cl. 156—49

10 Claims



1. The method of encapsulating the exposed splice of three or more flexible substantially axially aligned elongated electrical conductors with a sealant, each conductor having an insulating cover wherein at least two of the conductors are in adjacent relationship to each other and at least a third conductor extends in the substantially opposite direction from the splice with respect to the two adjacent conductors comprising the steps of:

- (a) holding the conductors on opposite sides of the splice at spaced locations from the splice to define a span wherein the splice is substantially centrally located within said span and

such that adjacent conductors are slightly separated to facilitate the entry of sealant between adjacent conductors at the splice,

(b) bending the conductors downwardly at said spaced locations to substantially form said span into a U configuration with the splice substantially located at the lowermost portion of the span configuration,

(c) immersing said U configuration span into a molten dielectric thermoplastic sealant of low viscosity to a sufficient depth to submerge the splice and predetermined lengths of the conductors on opposite sides of the splice in the sealant to circumferentially coat the splice and submerged conductor portions with the sealant to define a splice encapsulation mass,

(d) projecting sealant substantially parallel to the adjacent conductors and toward the immersed splice to force sealant between adjacent conductors at the splice,

(e) bending the conductors upwardly at said spaced locations and removing the immersed conductors and splice encapsulation mass from the molten sealant,

(f) translating the conductors laterally with respect to their length during the steps of bending the conductors to form a U-configuration and during immersion of said U-configuration span and during the removing of the immersed conductors from the molten sealant,

(g) releasing the conductors at said spaced locations, and

(h) drying the splice encapsulation mass to form an electrically insulated jacket about the splice and the portion of the conductors adjacent the splice.

5,800,646

METHOD AND APPARATUS FOR MANIPULATING FILM

Hideichi Syori; Shigeru Maeda; Tomoyuki Morishita, and Tatsuya Hane, all of Matsusaka, Japan, assignors to Central Glass Company, Limited, Ube, Japan

Continuation of Ser. No. 359,386, Dec. 20, 1994, abandoned.

This application Jul. 17, 1997, Ser. No. 895,689

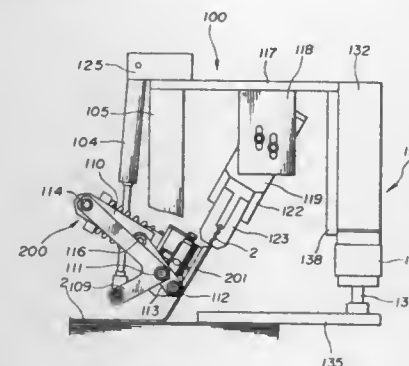
Claims priority, application Japan, Dec. 21, 1993, 5-322596;

Dec. 21, 1993, 5-322597; Dec. 27, 1993, 5-333114; Dec. 27, 1993, 5-333115

Int. Cl.⁶ B32B 31/04

U.S. Cl. 156—64

11 Claims



1. A method of manipulating a particular film of a plurality of stacked films comprising the steps of:

- attaching suction devices to at least two opposite peripheral portions of the particular film;
- grasping ends of the peripheral portions of the particular film;
- lifting the suction devices so that the peripheral portions approach a center of the particular film;
- pressing remaining stacked films of said plurality of stacked films with a vertically and rotatably movable pressure plate; further lifting the particular film to release the particular film from the remaining stacked films;
- transporting and putting the particular film on a predetermined portion; and
- keeping at least one of a temperature and a humidity of the particular film in a predetermined condition.

5,800,647
METHODS FOR MANUFACTURING ARTICLES FROM SHEETS HAVING A HIGHLY INORGANICALLY FILLED ORGANIC POLYMER MATRIX

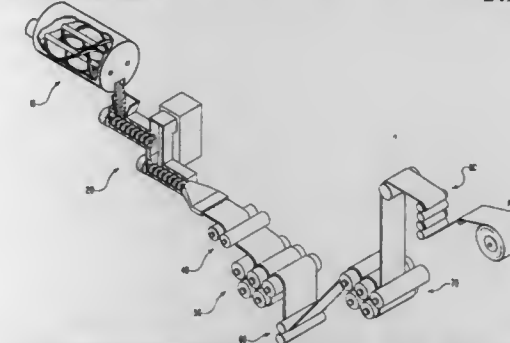
Per Just Andersen, and Simon K. Hodson, both of Santa Barbara, Calif., assignors to E. Khashoggi Industries, LLC, Santa Barbara, Calif.

Continuation-in-part of Ser. No. 95,662, Jul. 21, 1993, Pat. No. 5,385,764, Ser. No. 982,383, Nov. 25, 1992, abandoned, Ser. No. 101,500, Aug. 3, 1993, abandoned, and Ser. No. 152,354, Nov. 19, 1993, Pat. No. 5,508,072, each which is a continuation-in-part of Ser. No. 929,898, Aug. 11, 1992, abandoned. This application Nov. 24, 1993, Ser. No. 157,695

Int. Cl.⁶ B65B 7/00; B29C 47/00; 59/00:37/02

U.S. Cl. 156—69

249 Claims



1. A method for manufacturing an article having an inorganically filled matrix, the method comprising the steps of:

- mixing together water, a water-dispersible organic polymer binder, an aggregate material, and a fibrous material to form an inorganically filled moldable mixture in which the organic polymer binder is substantially solvated in the water;
- forming the inorganically filled moldable mixture into an inorganically filled sheet without significant dewatering of the inorganically filled mixture;
- evaporating a substantial portion of the water from the inorganically filled sheet in order to substantially dry the organic polymer binder in less than about 10 minutes after forming the sheet, thereby binding the aggregate material and fibrous material within the sheet, the sheet having a thickness in a range from about 0.01 mm to about 1 cm; and
- fashioning at least a portion of the inorganically filled sheet into a desired shape of the article of manufacture.

5,800,648

EXTERIOR LINING FOR CATCH BASIN OR MANHOLE

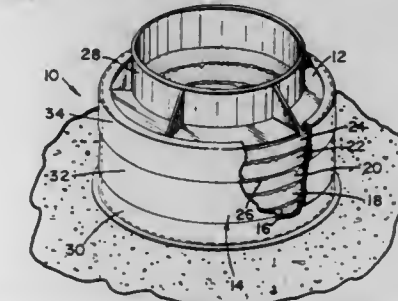
Jeffrey W. House, Marine on the St. Croix, and William K. House, Forest Lake, both of Minn., assignors to Infi-Shield, Inc., St. Paul, Minn.

Division of Ser. No. 477,219, Jun. 7, 1995, Pat. No. 5,613,806, which is a continuation-in-part of Ser. No. 308,256, Sep. 19, 1994, Pat. No. 5,531,485, which is a continuation-in-part of Ser. No. 273,503, Jul. 11, 1994, Pat. No. 5,511,897. This application Feb. 11, 1997, Ser. No. 798,644

Int. Cl.⁶ E02D 29/14

U.S. Cl. 156—71

14 Claims



1. A method for sealing a manhole riser, said method comprising the steps of:

- a. selecting a first and second band of elastomeric material, said first and second band having a total height of at least the height of the manhole riser from the base of the bottom adjusting manhole riser to the top edge of the top adjusting ring of the manhole riser;
- b. placing said first band over said manhole riser and positioning a bottom edge of said band at said base of said manhole riser; and
- c. placing said second band over said manhole riser, positioning said second band such that it extends over said top edge of said first band and also extends over said top edge of said top adjusting ring.

5,800,649

VEHICLE TIRE THAT CAN BE ELASTICALLY FITTED WITH STUDS

Pentti Juhani Eromäki, Nokia, Finland, assignor to Nokian Renkaat Oy, Nokia, Finland

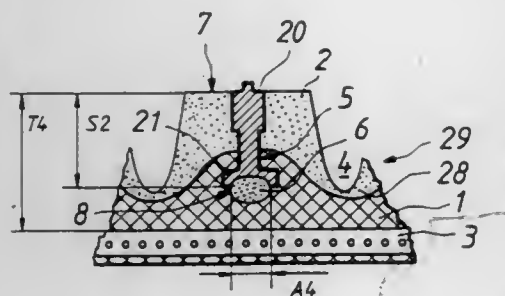
Filed Feb. 27, 1996, Ser. No. 608,169

Claims priority, application Finland, Mar. 3, 1995, 950993

Int. Cl.⁶ B29C 65/72

U.S. Cl. 156—114

12 Claims



1. A method of providing at least one anti-skid stud hole (5) in a cap (29) of a vehicle tyre (30), the tyre (30) comprising a carcass (3) and a cap (29), the cap (29) comprising a first hard rubber layer (1) facing the carcass (3) and a second rubber layer (2) positioned exteriorly of the first layer (1), the rubber of the second layer (2) being more resilient than the rubber of the first layer (1) and forming a tread (7) for the tyre (30), the anti-skid stud hole (5) being adapted to receive an anti-skid stud (20) of the type having a bottom flange (21), and wherein the anti-skid stud hole (5) and a surface pattern comprising a plurality of grooves (4) are pressed into the first and second layers (1,2) by a surface pattern mould (10) while said layers are in a plastic state, the mould (10) comprising at least one pin (11) for producing the hole (5), the method comprising:

- placing the first and second layers (1,2) on top of each other while said layers are in the plastic state, the layers (1,2) meeting at an interface (28);
- providing the mould (10) with a pin (11) comprising a tip recess (15), the pin (11) being of a length whereby the tip recess (15) forces a portion of the rubber of the second layer (2) at least partly into the rubber of the first layer (1) to provide an elastic cushion (6) from the rubber of the second layer (2) at the bottom (8) of the hole (5);
- pressing the mould (10) against the second layer (2) in a direction (P) extending towards the carcass (3) to form the tread (7) and the stud hole (5), the stud hole (5) extending at least partly into the rubber of the first layer (1), said portion of the rubber of the second layer (2) being forced at least partly into the rubber of the first layer (1) to provide the elastic cushion (6) at the bottom (8) of the hole (5);
- vulcanizing the layers (1,2) into a resilient operative condition; and
- removing the mould (10).

5,800,650

FLEXIBLE MULTILAYER PRINTED CIRCUIT BOARDS AND METHODS OF MANUFACTURE

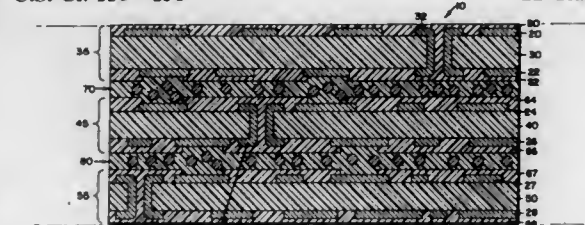
David Allen Anderson, Northfield; Carol Rita Myers, Faribault, and Matthew John Saari, Northfield, all of Minn., assignors to Sheldahl, Inc., Northfield, Minn.

Division of Ser. No. 142,243, Oct. 22, 1993. This application Oct. 16, 1995, Ser. No. 543,623

Int. Cl.⁶ C25D 5/56

U.S. Cl. 156—150

22 Claims



1. A method of manufacturing a flexible multilayer printed circuit board, comprising the steps of:

- (a) constructing at least two adhesiveless laminates, wherein the construction of each adhesiveless laminate comprises the steps of:
- (i) forming at least one through hole through a flexible dielectric substrate; and
- (ii) depositing conductive material on the flexible dielectric substrate to concurrently: (1) form first and second conductive layers of conductive material on opposing surfaces of the flexible dielectric substrate, and (2) electrically interconnect the first and second conductive layers through metallizing the at least one through hole, wherein the conductive material is deposited in the at least one through hole to form a metallized through hole with a thickness of less than about 25 microns; and
- (b) mechanically and electrically interconnecting the adhesiveless laminates in a superposed relationship through a conductive adhesive layer.

5,800,651

PROCESS FOR MANUFACTURING A GLASS REINFORCED PLASTIC DOOR PANEL

Gerald F. Williamson, Laramie, Wyo., assignor to Smartdoor Fiberglass Systems, Inc., Laramie, Wyo.

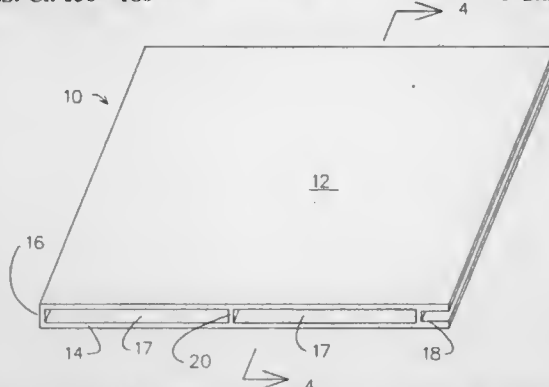
Division of Ser. No. 607,224, Feb. 26, 1996, Pat. No.

5,653,075. This application Mar. 13, 1997, Ser. No. 816,924

Int. Cl.⁶ E04C 2/30

U.S. Cl. 156—180

6 Claims



1. A method for making a door panel that is field alterable to fit an out-of-square or out-of-plumb frame comprising:

- pultruding a continuous length of panel, said panel having a hinge side stile, a strike side stile, and a pair of face sheets, the stiles disposed parallel one to the other, the face sheets spaced apart by the stiles to define a cavity, the strike side stile comprising a channel in the shape of a three sided rectangle open to a side of the panel and extending continuously for the length of the panel, said channel having a base

member and two channel walls, said base member extending between and disposed perpendicularly to said panel face sheets, said channel walls formed as extensions of said face sheets and having a thickness at least twice that of the face sheets; and

cutting the pultruded panel to lengths equal to the desired height of a door panel.

5,800,652

METHOD AND APPARATUS FOR TAIL SEALING OF CONVOLUTELY WOUND WEBS

Richard J. Vigneau, Green Bay; Gerald W. Buxton, Shawano, and Richard C. Dvorak, Green Bay, all of Wis., assignors to Paper Converting Machine Co., Green Bay, Wis.

Continuation-in-part of Ser. No. 437,810, May 9, 1995, Pat.

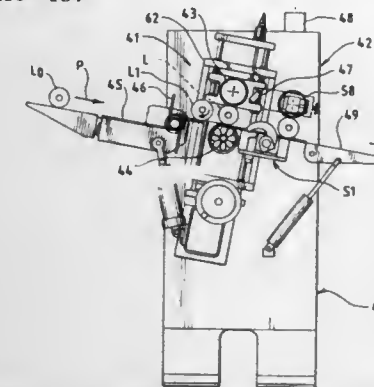
No. 5,573,615. This application Dec. 20, 1995, Ser. No.

575,908

Int. Cl.⁶ B32B 31/00; B65H 81/00

U.S. Cl. 156—184

31 Claims



1. A method for sealing the tail of a convolutely wound log comprising the steps of providing a longitudinally extending path including an infeed station and a sealing station, equipping said infeed station with a pair of spaced-apart, rotatable rollers having a nip therebetween, providing one of said rollers with vacuum port means in the periphery thereof, feeding logs sequentially into the nip between said pair of rollers, rotating said rollers, orienting the log tail to a position over said port means, rotating said rollers to unwind said tail, and rolling each log in said path through said nip into said sealing station.

5,800,653

PROCESS FOR PRODUCING TUBULAR BODIES

Gerhard Keller, Jongny, Switzerland, assignor to AISA Automation Industriale SA, Vougy, Switzerland

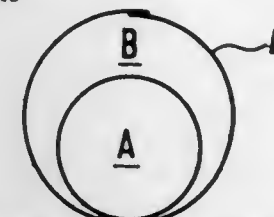
Filed Feb. 10, 1997, Ser. No. 797,137

Claims priority, application European Pat. Off., Nov. 21, 1996, 96118685

Int. Cl.⁶ B29C 53/36; B65D 35/10; 35/22

U.S. Cl. 156—203

8 Claims



1. A process for producing multi-layered tubular bodies, each tubular body having at least one dividing wall extending along its length and forming adjacent longitudinal chambers, comprising: fastening a dividing strip to a foil ribbon, the ribbon having longitudinal edges, wherein the dividing strip is arranged parallel to the longitudinal edges of the foil ribbon and is tube-shaped; and

joining the longitudinal edges of the foil ribbon together to form an endless tubular body, wherein said endless tubular body is optionally cut to produce a plurality of tubular bodies.

5,800,654

METHOD OF MAKING SANITARY NAPKIN HAVING IMPROVED FLAP DISPOSITION AND MEANS FOR MAINTAINING THE FLAP THEREIN

Elizabeth Jean Davis, and Thomas Ward Osborn, III, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 687,845, Jul. 26, 1996, abandoned, which is a division of Ser. No. 437,251, May 8, 1995, which is a continuation of Ser. No. 82,894, Jun. 25, 1993, abandoned, which is a continuation of Ser. No. 960,574, Oct. 13, 1992, abandoned, which is a continuation of Ser. No. 732,442, Jul.

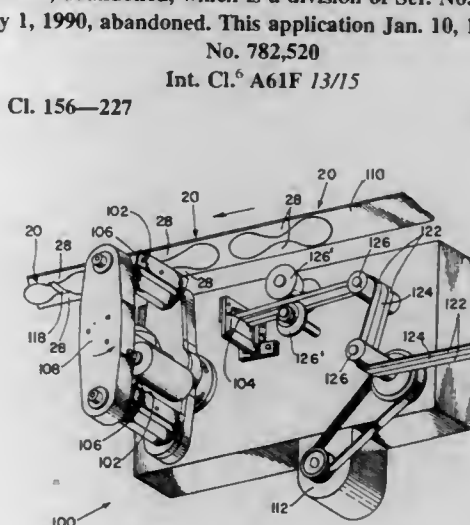
18, 1991, abandoned, which is a division of Ser. No. 517,104, May 1, 1990, abandoned. This application Jan. 10, 1997, Ser.

No. 782,520

Int. Cl.⁶ A61F 13/15

U.S. Cl. 156—227

6 Claims



1. A process for applying adhesive and release strip to a sanitary napkin having a liquid pervious topsheet, a liquid impervious backsheet at least partially peripherally joined to said topsheet, an absorbent core intermediate said topsheet and said backsheet, two longitudinal side margins, and a flap extending outwardly from each longitudinal side margin, each of said flaps having a face generally coextensive of said topsheet and a face generally coextensive of said backsheet, said process comprising the steps of: providing said sanitary napkin in a generally flat position; folding each of said flaps about a line parallel to said longitudinal side margin so that at least a portion of each of said flap faces that is generally coextensive of said topsheet contacts at least a portion of said topsheet that directly overlies said core, said folding pattern exposing each of said flap faces that is generally coextensive of said backsheet; providing a longitudinally trisectioned web of material comprising:

- a release strip having opposed first and second faces, said first face having two outboard trisections, each with a release coating thereon, a central trisection intermediate said outboard trisections, and two longitudinally oriented adhesive segments, one overlying each said outboard trisection; cutting said trisectioned web of material to a predetermined length; and; generally contemporaneously applying said adhesive and said release strip to said exposed faces of said flaps generally coextensive of said backsheet of said sanitary napkin with said adhesive in contacting relationship with said faces.

5,800,655

METHOD OF TRANSFERRING COLOR COPY

Yasuhiko Tokuchi, 707, 1-go, 12-ba, Nishioike 2-chome, Kitaku, Kobe-shi, Hyogo-ken, Japan

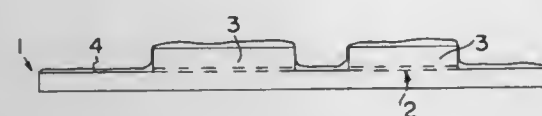
Filed Mar. 29, 1996, Ser. No. 623,686

Claims priority, application Japan, May 22, 1995, 7-159736

Int. Cl.⁶ B44C 1/16; G03G 15/16

U.S. Cl. 156—230

6 Claims



1. A method of transferring a color copy comprising the steps of: copying a desired image, by means of a color copy machine, onto a separable sheet having a separable layer of silicone, removing the parts of the silicone layer on the separable sheet which are not covered by the image, coating a toner treating compound onto the whole surface of the separable sheet including the image, said toner treating compound being prepared from at least a solvent consisting of at least toluene and ethyl acetate and a solid content consisting of at least epoxy resin or butyrate resin, and transferring by fitting the imaged surface of the separable sheet to an object and pressing a reverse surface of the separable sheet to carry out the transfer.

5,800,656

HEAT-TRANSFER LABEL INCLUDING PHENOXY PROTECTIVE LACQUER LAYER

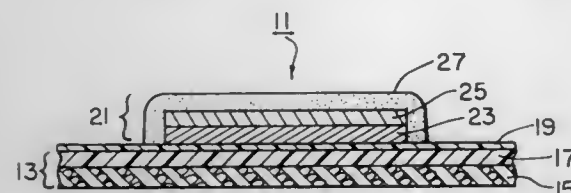
Friedrich H. H. Geurtsen, Holliston; Eleanor R. Snay, Worcester; James S. Nugent, Hudson, and Samuel H. Stein, Westborough, all of Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Jul. 1, 1996, Ser. No. 673,099

Int. Cl.⁶ B32B 7/06; B44C 1/165

U.S. Cl. 156—239

22 Claims



1. A method of labelling an article, said method comprising the steps of:

- providing a heat-transfer label, said heat-transfer label comprising:
 - a support portion, and
 - a transfer portion over said support portion for transfer of the transfer portion from the support portion to the article upon application of heat to the support portion while the transfer portion is placed into contact with the article, said transfer portion comprising a protective lacquer layer, said protective lacquer layer comprising a phenoxy lacquer, and an ink design layer, said ink design layer being printed on said protective lacquer layer; and
- transferring said transfer portion from said support portion to the article.

5,800,657

METHOD OF INTERMITTENT LENGTH STABILIZATION

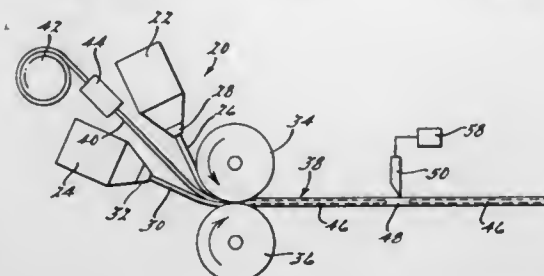
Warren W. Hooper, Mentor, Ohio; James F. Keys, West Bloomfield, Mich.; James F. Kaczynski, Westlake, Ohio, and Douglas N. Malm, Northville, Mich., assignors to The Standard Products Company, Cleveland, Ohio

Filed Oct. 18, 1995, Ser. No. 544,674

Int. Cl.⁶ B60R 13/04

U.S. Cl. 156—244.11

20 Claims



1. A method of producing an extruded strip product, said method comprising the steps of: providing a first strip of a thermoplastic material; providing a second strip of a thermoplastic material; providing a plurality of separate length stabilizing members; forming the first strip of the thermoplastic material, the second strip of the thermoplastic material and the stabilizing members into a continuous extrusion where the first and second strips of the thermoplastic material form a thermoplastic layer around the stabilizing members in a manner so that the stabilizing members are spaced apart along a length of the continuous extrusion; and cutting the continuous extrusion into sections, said step of cutting including cutting the continuous extrusion between the spaced apart stabilizing members so that strip products are formed having end portions that do not include the stabilizing members.

5,800,658

METHOD AND MEANS BY MANUFACTURE OF A PRODUCT OF EXPANDED POLYMER

Per Erik Gustafsson, Skövde, and Ulf Haggstam, Tranås, both of Sweden, assignors to Cirrus AB, Tranås, Sweden

Continuation of Ser. No. 530,260, Oct. 8, 1995, abandoned.

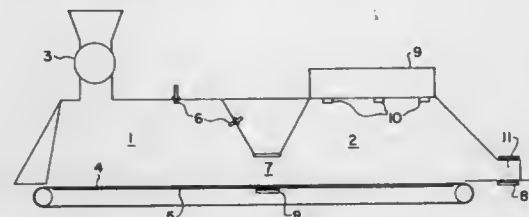
This application Oct. 8, 1997, Ser. No. 947,382

Claims priority, application Sweden, Mar. 1, 1993, 9300672

Int. Cl.⁶ C08J 9/24; C09J 5/06; B05D 3/06

U.S. Cl. 156—245

7 Claims



1. A method of manufacturing an expanded polymer material product comprising: providing small pieces of expanded polymer, applying a water-based glue in droplet form to the surfaces of the pieces of expanded material, drying said pieces having said glue applied thereto using microwave energy, after said step of drying, placing the pieces into a mold and compressing the pieces against each other, and heating the material using microwave energy to bond the pieces together so that the weight per unit volume of the obtained product is lower than that of the pieces.

5,800,659

WALLET SIZE CARD BOOK

William B. Exline, Chaqrin Falls, and Michael P. Exline, Novelly, both of Ohio, assignors to William Exline, Inc., Cleveland, Ohio

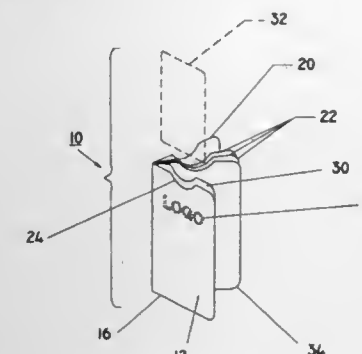
Division of Ser. No. 418,567, Apr. 7, 1995, Pat. No. 5,595,401.

This application Jan. 6, 1997, Ser. No. 779,327

Int. Cl.⁶ B32B 31/18; 31/20

U.S. Cl. 156—250

9 Claims



1. A method for making a wallet size card book, comprising the steps of:

- positioning a cover and a plurality of leaves together in an open position to form at least one card book;
- securing the cover to the plurality of leaves by stitching along a mid-point;
- cutting a first leaf shorter and narrower than the cover;
- applying a resin emulsion adhesive to the inner surface of the cover;
- placing the card book and at least two dies in a vise;
- squeezing the vise under pressure for a sufficient amount of time to seal the first leaf and two edges of a second leaf to the inner surface of the cover, forming a pocket for holding a wallet size card.

5,800,660

METHOD OF PRODUCING ENTIRE FRAMES MADE UP OF PLASTIC PROFILES

Wolf-Jürgen Brickenstein, Papenburg-Aschendorf, Germany, assignor to Brugmann Frisoplast GmbH, Germany

Continuation of Ser. No. 543,903, Oct. 17, 1995, abandoned.

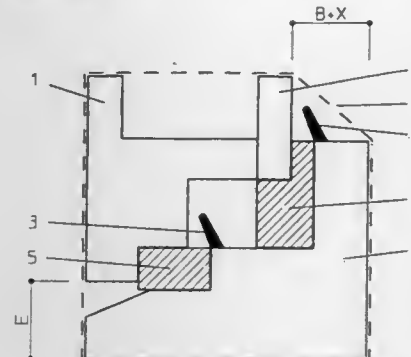
This application Nov. 10, 1997, Ser. No. 966,952

Claims priority, application Germany, Oct. 17, 1994, 44 37 095.4

Int. Cl.⁶ B29C 65/00

U.S. Cl. 156—264

12 Claims



1. A method of producing a plastic outer frame profile and a plastic sash frame profile assembly that can be connected to make a frame for windows or doors wherein the profiles are adapted to be provided in an operative position when finally assembled comprising:

- temporarily connecting the outer frame profile and the sash frame profile to one another with the aid of at least one

interposed spacer piece, wherein said spacer piece compensates for the difference between the outer dimensions of the outer frame profile and the sash frame profile in the direction of the frame plane during said temporary connection, and provides an additional spacing between said outer frame and sash frame profiles in the direction perpendicular to the direction of the frame plane relative to the operative position to thereby prevent said outer frame profile and sash frame profile from being welded to each other during welding.

5,800,661

VACUUM FIXTURE AND METHOD FOR DIMENSIONING AND MANIPULATING MATERIALS

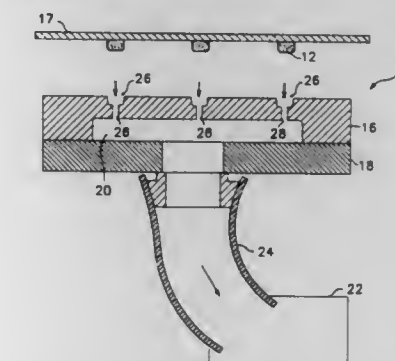
Bradley E. Reis, Wilmington, Del.; William G. Lytle, New London, Pa., and Keith D. Adkins, Elkton, Md., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Division of Ser. No. 515,757, Aug. 15, 1995, Pat. No. 5,660,380. This application Feb. 24, 1997, Ser. No. 805,406

Int. Cl.⁶ B29C 65/78

U.S. Cl. 156—285

10 Claims



1. A method for manipulating a patterned gasket material for positioning on a surface of an object of interest, the method comprising the following steps:

- providing a fixture having a manifold and a working surface, the working surface having at least one patterned portion which fluidly communicates with the manifold, the at least one patterned portion conformably shaped to the patterned gasket material;
- connecting the manifold to a vacuum source;
- providing a patterned gasket material to be positioned on the surface of the object of interest;
- registering the patterned gasket material to the patterned portion of the fixture;
- fixedly locating the patterned gasket material within the patterned portion of the fixture by application of a vacuum;
- precisely positioning the patterned gasket material on the surface of the object of interest; and
- ceasing the vacuum so that the patterned gasket material may be separated from the patterned portion of the fixture.

5,800,662

DUCT ASSEMBLY SYSTEM

George Nicholas Bullen, Oxnard; Stephen A. Brazil, Palmdale; Douglas D. Decker, Redondo Beach, and Ian MacAllister, Irvine, all of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Division of Ser. No. 490,191, Jun. 14, 1995, Pat. No. 5,709,769. This application Jul. 7, 1997, Ser. No. 888,612

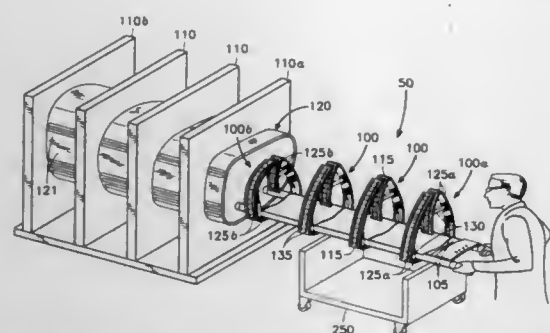
Int. Cl.⁶ B29C 63/34

U.S. Cl. 156—294

3 Claims

1. A method to shape and support a skin against a bulkhead to form a duct, said method comprising the steps of:

- aligning said skin in a desired relation to said bulkhead;



inserting a skin expanding means on a side of said skin opposite said bulkhead, said skin expanding means comprising a plurality of bushings for drilling fastener holes in said skin; expanding said skin to a position adjacent to a cross section of said bulkhead; and drilling fastener holes in said skin using said bushings as a drill guide.

5,800,663

TERMINAL CONNECTION METHOD OF A COIL AND TERMINAL CONNECTION STRUCTURE OF A COIL
Yoshio Imahori; Kazushi Suzuki, and Kazushige Tajima, all of Shizuoka, Japan, assignors to Star Micronics Co., Ltd., Shizuoka, Japan

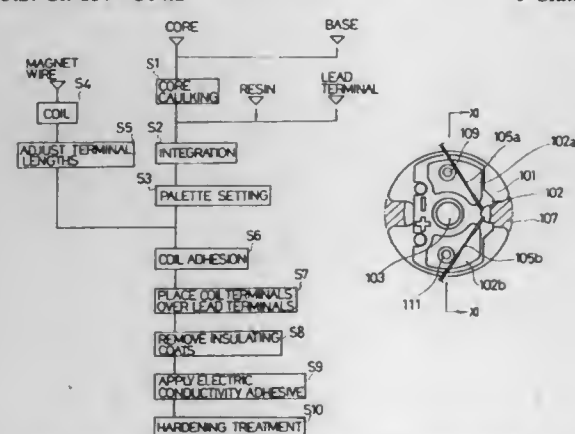
Filed Sep. 5, 1996, Ser. No. 708,695

Claims priority, application Japan, Sep. 7, 1995, 7-255473

Int. Cl.⁶ B29C 65/54

U.S. Cl. 156—304.1

6 Claims



I. A terminal connection method of a coil comprising the steps of:
arranging coil terminals of a coil on lead terminals;
removing insulating coats of said coil terminals to expose core wires; and
applying an electric conductivity adhesive to connected portions of said coil terminals and said lead terminals;
wherein peripheral portions of said lead terminals are constituted by a thermally susceptible material.

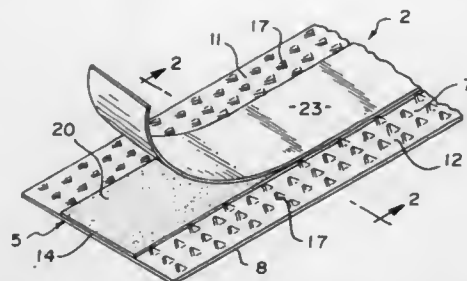
5,800,664

CARPET SEAMING APPARATUS AND METHOD OF UTILIZING THE SAME
William H. Covert, P.O. Box 668, Saucier, Mich. 39574
Filed Jan. 3, 1996, Ser. No. 582,397
Int. Cl.⁶ A47G 27/04; B29C 65/00

U.S. Cl. 156—304.4

18 Claims

I. A carpet seaming apparatus comprising:
an elongated plate having an upper surface and a lower surface, said lower surface being substantially smooth and free of an



additional layer and said upper surface being divided into multiple transversely spaced and longitudinally extending zones including first and second edge zones which are laterally spaced by a central zone, said plate being inextensible in both longitudinal and lateral directions;
a plurality of sharp projections extending upwardly at spaced locations from said first and second edge zones; and
an adhesive layer positioned within said central zone and extending substantially entirely the length of said elongated plate, said plate being adapted to be slidably positioned upon a supporting surface and interconnected to carpet sections to be seamed by positioning said plate below said carpet sections with terminal edge portions of said carpet sections being engaged with a respective set of said projections and abutting in said central zone whereby said carpet sections can be simultaneously stretched with said plate sliding relative to the supporting surface.

5,800,665

METHOD AND APPARATUS FOR FABRICATING SEMICONDUCTOR DEVICE
Kazuhiro Okaniwa, and Iwao Hayase, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

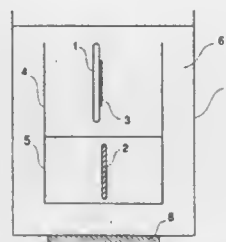
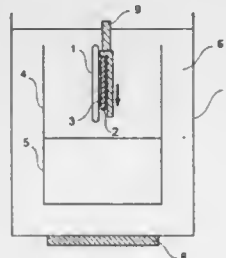
Filed Jan. 23, 1996, Ser. No. 589,084

Claims priority, application Japan, Feb. 10, 1995, 7-023039

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—344

6 Claims



I. A method of fabricating a semiconductor device including:
preparing a semiconductor substrate having a surface;
adhering a reinforcing plate to the surface of the semiconductor substrate with an adhesive and processing the semiconductor substrate;
holding the semiconductor substrate with the reinforcing plate with a holder, the holder supporting one of the semiconductor substrate and the reinforcing plate in a non-horizontal direction;

immersing the semiconductor substrate with the reinforcing plate held by the holder in a heated solvent, melting and dissolving the adhesive; and
applying a relative force parallel to the surface of the semiconductor substrate to one of the reinforcing plate and the semiconductor substrate, separating the semiconductor substrate from the reinforcing plate without applying a force transverse to the surface of the semiconductor substrate, the one of the semiconductor substrate and the reinforcing plate not supported by the holder dropping by gravity towards a cassette located under the holder in the solvent.

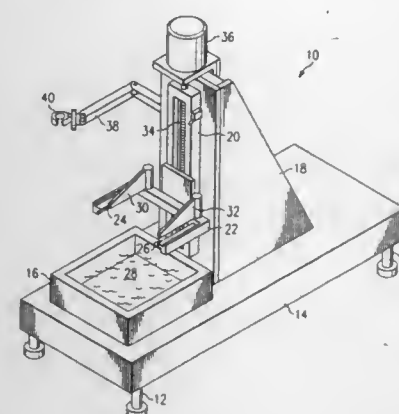
5,800,666

METHOD AND SYSTEM FOR FORMING AN OPTICAL FIBER MICROLENS

Harry B. Bonham, Jr., and Richard E. Lucas, Jr., both of Plano, Tex., assignors to Alcatel Network Systems, Inc.
Division of Ser. No. 243,142, May 16, 1994, Pat. No. 5,598,493. This application Oct. 7, 1996, Ser. No. 726,609
Int. Cl.⁶ C03C 25/06

U.S. Cl. 156—345

19 Claims



I. A system for forming a microlens on an optical fiber, comprising:
a container for containing a bath, said bath comprising an oil layer, an acid layer, and a boundary between the oil layer and the acid layer;
a fiber position control device for inserting the optical fiber at a controlled speed to a depth in said bath to thereby etch the optical fiber at said boundary by forming a meniscus around the optical fiber that selectively and controllably forms a microlens having a shape on the optical fiber;
wherein said fiber position control device further comprises control circuitry for inserting the optical fiber in the bath according to a mathematical algorithm that describes the shape of the microlens.

5,800,667

APPARATUS FOR ADHERING WAFER TO SUPPORTING SUBSTRATE

Katsuya Kosaki, and Takeshi Kuragaki, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 26, 1996, Ser. No. 756,604

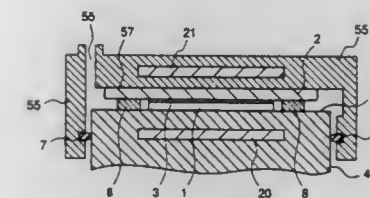
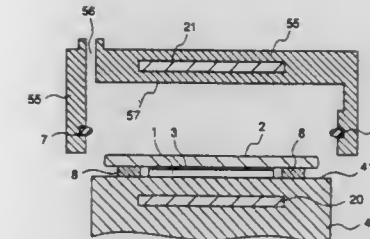
Claims priority, application Japan, Jun. 26, 1996, 8-166214

Int. Cl.⁶ B30B 15/00

U.S. Cl. 156—382

7 Claims

I. An apparatus for adhering a wafer to a supporting substrate comprising:
a chamber having:
a lower part including a wafer stage having a planar surface on which a wafer may be mounted, and



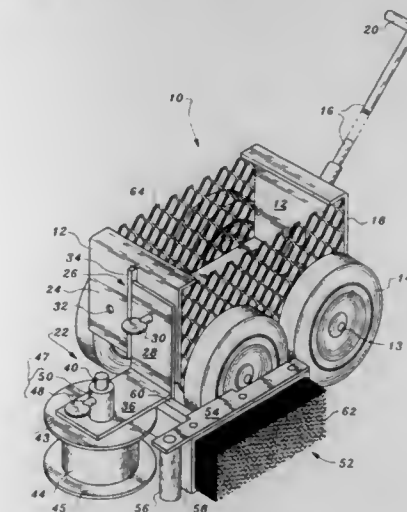
an upper part for covering the planar surface of the wafer stage and including an evacuation port for evacuating the chamber, and a pressure plate movable toward the wafer stage;
at least three gauge blocks having a thickness larger than that of a wafer, disposed on the planar surface of the wafer stage, and sandwiched between the pressure plate and the planar surface when the pressure plate and the wafer stage are brought closer together; and
respective heaters embedded in the lower and upper parts of the chamber for heating the wafer stage and a supporting substrate.

5,800,668

AUTOMATIC TAPING APPARATUS
James Bumb, P.O. Box 603, Coloma, Calif. 95613
Filed Jul. 23, 1996, Ser. No. 687,084
Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—577

16 Claims



I. An automatic taping apparatus, comprising:
a) a carriage body;
b) a handle coupled to an elongate handle shaft, said handle shaft coupled to a rear portion of said carriage body;
c) wheel means for allowing said apparatus to be wheeled about, said carriage body coupled to said wheel means;
d) tape dispensing means for dispensing tape to a work surface, said tape dispensing means further comprising a selectively positionable coupling means for coupling said tape dispensing means to a front portion of said carriage body, said coupling means coupling said tape dispensing means in a plurality of geometric planes; and

d) tape registering means for firmly registering a length of tape upon a work surface, said tape registering means coupled to said tape dispensing means.

5,800,669 LABELER

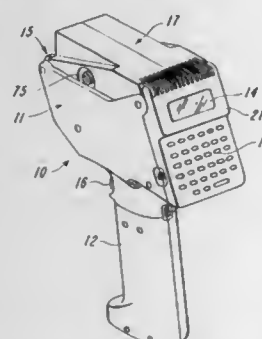
Brent E. Goodwin, Middletown; Thomas P. Keller, Centerville; James A. Makley, Springboro, and Mark W. Moore, Miami-Sburg, all of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Division of Ser. No. 438,333, May 10, 1995, Pat. No. 5,683,545, which is a division of Ser. No. 177,887, Jan. 5, 1994, Pat. No. 5,486,259. This application Jun. 25, 1997, Ser. No. 881,924

Int. Cl.⁶ B65C 11/02

U.S. Cl. 156—577

8 Claims



1. A hand-held labeler, comprising: a housing having a front portion, a rear portion, an upper portion and a generally downwardly extending handle, the housing having a space for receiving a label roll composed of a composite label web having a series of labels releasably adhered to a carrier web, a motor-driven platen roll, a print head cooperable with the platen roll and the composite label web for printing on labels, a delaminator for delaminating printed labels from the carrier web, an applicator at the front portion of the housing for applying printed labels, a scanner mounted at the upper portion of the housing for scanning bar coded data, a keyboard at the rear portion of the housing for entering data, wherein the space for receiving the label roll is between the keyboard and the applicator, and wherein the space for receiving the label roll is between the scanner and the handle.

5,800,670

SPREADER OF AN OPTICAL DISC

Ryoko Kitano, Tokushima-ken, Japan, assignor to Kitano Engineering Co., Ltd., Komatsushima, Japan

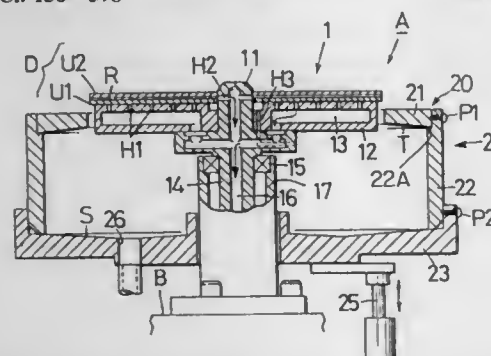
Filed May 17, 1996, Ser. No. 650,885

Claims priority, application Japan, May 20, 1995, 145545/95

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—578

10 Claims



1. A platform arrangement for supporting an optical disc having first and second resin substrates each with a central hole there-

through and having uncured adhesive in a space between the first and second resin substrates, comprising:

a receiving platform having a support surface thereon adapted to support the first resin substrate thereon;

a boss having a hollow interior mounted on said table so as to be oriented in the central hole of the first resin substrate, the boss having suction openings oriented around a periphery of the boss adjacent a radially inner edge of the space and connected to the hollow interior of the boss;

a cover member having an upstanding sidewall and a bottom wall contiguous therewith, thereby forming an excess adhesive receiver, the sidewall being oriented in a position radially outwardly spaced from a radially outer periphery of the optical disc;

rotation means for simultaneously rotating the first and second resin substrates to effect a radially outward spread of the uncured adhesive in the space between the first and second resin substrates, excess adhesive being flung radially outwardly away from the first and second resin substrates and collected in the cover member; and

suction means for effecting through the hollow interior of the boss and the suction openings a pressure reduction at the radially inner edge of the space between the first and second resin substrates and a radially inward spread of the uncured adhesive.

5,800,671

ULTRASOUND SEALING UNIT FOR PREVENTING INTERFERENCE OF RESONANCE FREQUENCIES OF INTERFERING OSCILLATION

Magnus Råbe, Lund, Sweden, assignor to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

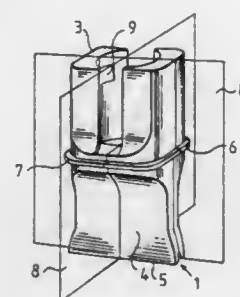
Filed Jun. 13, 1996, Ser. No. 662,521

Claims priority, application Sweden, Jun. 16, 1995, 9502201

Int. Cl.⁶ B65B 51/22

U.S. Cl. 156—580.1

9 Claims



5. An ultrasound sealing unit which operates at a fundamental oscillation mode comprising:

a horn having a sealing surface at one end;

a drive unit mounted on an end of the horn opposite said one end of said horn for being connected to a power source;

a plurality of reaction bodies disposed on the end of the horn opposite said one end of said horn; and means on the reaction bodies for preventing resonant frequencies of interfering oscillation modes from interfering with the fundamental oscillation mode of the sealing unit during operation of the sealing unit.

5,800,672

ULTRASONIC FASTENING SYSTEM AND METHOD

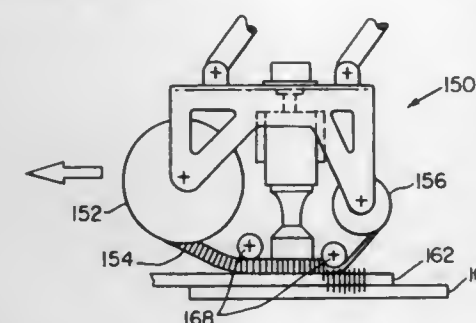
Joseph S. Boyce, Norwell; Glenn A. Freitas, Foxboro; Constance L. Magee, Wilmington; Thomas M. Fusco, Medford; John J. Harris, Northboro, and Edward Kunkel, Newton, all of Mass., assignors to Aztex, Inc., Waltham, Mass.

Continuation-in-part of Ser. No. 600,473, Feb. 13, 1996, Pat. No. 5,589,015, which is a continuation of Ser. No. 254,987, Jun. 7, 1994, abandoned. This application Dec. 26, 1996, Ser. No. 780,171

Int. Cl.⁶ B32B 7/08

U.S. Cl. 156—580.1

29 Claims



1. An ultrasonic fastening system comprising:

an ultrasonic transducer subsystem including an ultrasonic horn, a power source, and means for lowering and raising said ultrasonic horn; and

a fastener/compressible material feed subsystem including means for feeding a combined fastener/compressible member beneath said ultrasonic horn, each combined fastener/compressible member including a compressible body and a plurality of fasteners inserted into the compressible body such that the compressible body supports the fasteners.

5,800,673

STACK TYPE EVAPORATOR

Nobuyuki Okuda, and Masahiro Kojima, both of Osaka, Japan, assignors to Showa Aluminum Corporation, Osaka, Japan

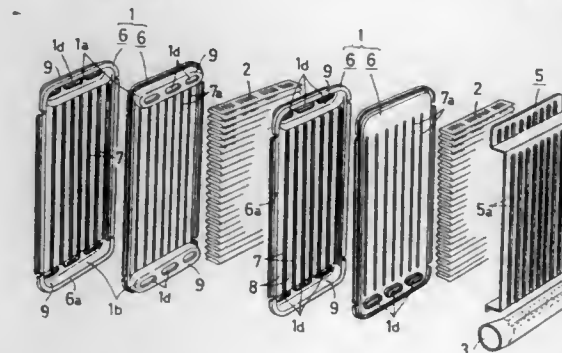
Continuation-in-part of Ser. No. 123,856, Sep. 17, 1993, Pat. No. 5,470,431, which is a continuation-in-part of Ser. No. 901,077, Jun. 19, 1992, abandoned, which is a continuation-in-part of Ser. No. 759,644, Sep. 12, 1991, Pat. No. 5,152,337. This application Oct. 23, 1995, Ser. No. 546,961

Claims priority, application Japan, Apr. 18, 1990, 2-104291; Aug. 30, 1991, 1-223685; Apr. 3, 1992, 4-82467; May 22, 1992, 4-131153

Int. Cl.⁶ B01D 1/00; F28D 1/03; F28F 13/18

U.S. Cl. 159—28.6

20 Claims



1. A stack type evaporator comprising:

a plurality of tubular elements each composed of a pair of facing core plates which are adjoined one to another at their peripheries so as to define a coolant path therebetween, each tubular element being disposed uprightly;

a plurality of fins each interposed between the two adjacent tubular elements which are arranged side by side in a direction of their thickness;

a pair of header portions formed on each tubular element, with the header portions being connected to the other corresponding header portions so as to unite the tubular elements to form the evaporator wherein except for the header portions of the tubular elements located at predetermined positions of evaporator, the other tubular elements adjacent to each other have their header portions in fluid communication with one another through coolant flowing openings formed through the header portions;

a plurality of drainage canals for condensed water, the drainage canals being formed on the outer surface of the core plates forming each tubular element so as to extend downwardly in parallel with one another;

a hydrophilic resin coating covering the outer surfaces of the tubular elements and the fins, the drainage canals being covered with the hydrophilic resin coating, whereby the combination of the parallel drainage canals and the coating in the stack type evaporator results in substantially lower odor and retained water as compared to a coated scattered rib evaporator.

20. A stack type evaporator comprising a plurality of plate-shaped tubular elements of a predetermined thickness, the tubular elements being stacked side by side in a direction of the thickness with a fin member interposed between two of the tubular elements, and being composed respectively of a pair of dish-shaped core plates which are provided with a plurality of ribs protruding from a flat body and are fixed to each other at their peripheries so as to form coolant paths therebetween, a plurality of open-top groove-like drainage canals extending from an upper portion of each tubular element toward a lower portion thereof and formed on each side of the tubular elements, whereby water condensed on the side surfaces of each tubular element flows through said drainage canals to be discharged at the lower portion to thereby substantially prevent any water-drop-flying action from occurring, said pair of core plates facing each other with the ribs arranged inwardly, each tubular element further comprising an inlet header portion and an outer header portion, wherein the ribs of each core plate extend parallel with a flow direction of the coolant and are arranged at regular intervals of distance to form a row in a direction perpendicular to the flow direction, the ribs having outer surfaces formed on the side surfaces of the tubular elements, said rib outer surfaces respectively forming the plurality of open-top groove-like drainage canals, and the tubular element further comprising a hydrophilic resin coating the outer surfaces of the tubular elements and the fins, wherein said drainage canals and the coating in the stack type evaporator results in substantially lower odor and retained water as compared to a coated scattered rib evaporator.

5,800,674

METHOD AND APPARATUS FOR IMPROVING A BATCH COOKING PROCESS

Mauno Iivonen, Joutseno; Arto Koso; Olavi Pikka, both of Karhula; Seppo Pursiainen, and Esko Turunen, both of Joutseno, all of Finland, assignors to Ahlstrom Machinery Oy, Helsinki, and Metsä-Botnia Ab Joutseno Pulp, Pulp, both of Finland

Filed Nov. 1, 1996, Ser. No. 742,915

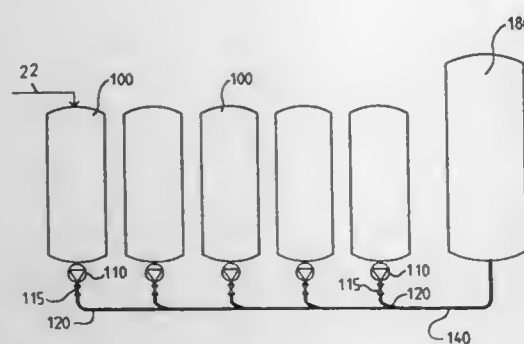
Claims priority, application Finland, Nov. 1, 1995, 955241

Int. Cl.⁶ D21C 7/08

U.S. Cl. 162—52

16 Claims

1. A method of improving a batch cooking process using a plurality of batch digesters each having a dedicated pump connected to a bottom outlet thereof and to a common discharge tank, said method comprising the steps of: (a) diluting the pulp with



dilution liquid; and (b) for each of the plurality of digesters pumping the diluted pulp from the digester outlet to the common discharge tank using the dedicated pump for each digester.

5,800,675

PROCESS FOR MAKING A PAPER BASED PRODUCT CONTAINING A BINDER

Homan B. Kinsley, Jr., 3257 Three Bridge Rd., Powhatan, Va. 23139

Continuation of Ser. No. 103,134, Aug. 9, 1993, Pat. No. 5,498,314, which is a continuation-in-part of Ser. No. 833,165, Feb. 10, 1992, Pat. No. 5,328,567. This application Jun. 7, 1995, Ser. No. 472,661
Int. Cl.⁶ D21H 17/00

U.S. Cl. 162—135

8 Claims

1. A process for making a paper based product which comprises:
 - (i) preparing a slurry comprised of a cellulosic pulp and a particulate polymeric binder sticky at the temperature of drying;
 - (ii) draining a liquid from the slurry to form a web;
 - (iii) spraying onto the web an aqueous emulsion comprised of lecithin and a fatty acid or a derivative thereof, with the amount of lecithin being sufficient to provide a stable emulsion with the fatty acid or derivative thereof; and
 - (iv) drying the web.

5,800,676

METHOD FOR MANUFACTURING A MINERAL FIBER PANEL

Kazuyoshi Koike, Chiba, and Hidetoshi Kojima, Totsukaido, both of Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

Filed Aug. 22, 1997, Ser. No. 916,360
Claims priority, application Japan, Aug. 26, 1996, 8-241006; Aug. 26, 1996, 8-241007; Oct. 9, 1996, 9-285875
Int. Cl.⁶ D21H 13/36

U.S. Cl. 162—145

8 Claims

1. A method for manufacturing a mineral fiber panel which comprises uniformly dispersing in water as composition components, 60 to 90% by weight of a mineral fiber, 2 to 19% by weight of an organic binder, 1 to 20% by weight of an inorganic microfiber, 0.5 to 3% by weight of a flocculant and 0.5 to 10% by weight of thermally expandable resin fine particles which have a diameter after expansion of not less than 0.03 mm but less than 3.0 mm, the expansion degree of the above diameter being at least 3 times, and have an expansion-starting temperature of 50° to 105° C., to prepare a slurry, and thereafter subjecting the slurry to wet forming and then to drying.

5,800,677

METHOD FOR PREVENTING PITCH TROUBLE

Yasuo Kato, Ashiya, Japan, assignor to Nissin Kagaku Kenkyusho Co., Ltd., Japan

PCT No. PCT/JP96/00874, § 371 Date Mar. 24, 1997, § 102(e) Date Mar. 24, 1997, PCT Pub. No. WO96/30585, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 28, 1996, Ser. No. 737,747

Claims priority, application Japan, Mar. 30, 1995, 7-073524
Int. Cl.⁶ D21C 9/08

U.S. Cl. 162—199

4 Claims

1. A method for preventing pitch trouble which comprises adding to pulp slurry, prior to making the slurry into paper, a pitch-controlling agent of an aqueous dispersion comprising 100 parts by weight of a zinc salt of a higher fatty acid of 8 to 30 carbons and from 1 to 20 parts by weight of a cationic surfactant.

5,800,678

METHOD AND DEVICE FOR REGULATING A FLOW OF DILUTION LIQUID IN CONNECTION WITH A HEADBOX OF A PAPER/BOARD MACHINE

Kari Pitkärä, Jyväskylä, Finland, assignor to Valmet Corporation, Helsinki, Finland

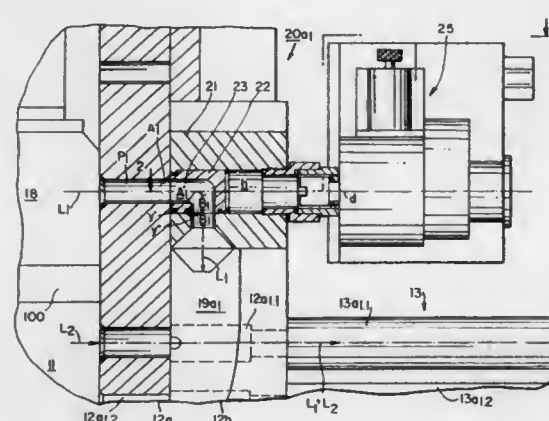
Filed Dec. 31, 1996, Ser. No. 775,773

Claims priority, application Finland, Oct. 23, 1996, 964261

Int. Cl.⁶ D21F 1/08; D21H 23/06

U.S. Cl. 162—199

17 Claims



1. In an arrangement for combining a flow of a dilution liquid from a dilution liquid source with a flow of stock being passed from an inlet header of a headbox of a paper/board machine through at least one conduit to a slice duct, the improvement comprising:
 - a valve for regulating the dilution flow, said valve fluidly connecting the dilution liquid source to the at least one conduit through which the stock flow is passed,
 - said valve comprising:
 - a valve housing having a first flow opening and a second flow opening and a spindle having a flow duct having a first flow opening and a second flow opening, and
 - rotation means arranged in connection with said spindle for rotating said spindle, said spindle being arranged in said valve housing such that upon rotation of said spindle by said rotation means, said first flow opening of said flow duct in said spindle is continuously in alignment with said first flow opening of said valve housing irrespective of the position of rotation of said spindle in said valve housing and said second flow opening of said flow duct of said spindle is moved into different positions in relation to said second flow opening in said valve housing to thereby result in a variable dilution flow through said valve.

5,800,679

DEVICE IN A PAPER MACHINE OR IN A FINISHING DEVICE OF A PAPER MACHINE FOR REMOVING DUST

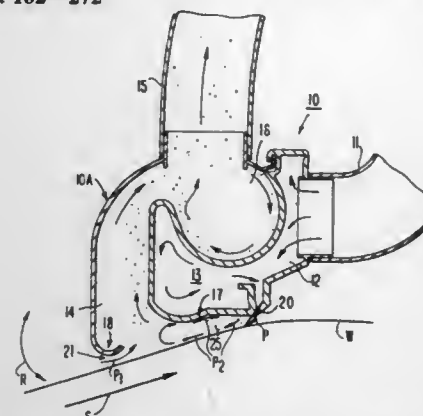
Jan Lindström, Naantali, and Juha Leimu, Turku, both of Finland, assignors to Valmet Corporation, Helsinki, Finland
Filed Nov. 29, 1996, Ser. No. 758,489

Claims priority, application Finland, Oct. 25, 1996, 964297

Int. Cl.⁶ D21F 7/00; B08B 7/04

U.S. Cl. 162—272

16 Claims



1. A device arranged alongside a web for removing dust from the web, comprising:
 - first blow means for directing a dust separation blowing at a first side of the web to cause dust to separate from the web,
 - first vortex means arranged before said first blow means in a running direction of the web for producing a vortex flow on the first side of the web before the dust separation blowing in the running direction of the web such that carrying of dust along with the web into the surrounding environment is reduced and the effect of the suction on the runnability of the web is compensated for, and
 - first suction means arranged at least partially before said first blow means in the running direction of the web for applying suction to an area in which the vortex flow produced by said first vortex means is present and to the first side of the web proximate to and before the dust separation blowing from said first blow means in the running direction of the web to remove the dust separated from the web.

5,800,680

SYSTEM AND METHOD FOR RAPID OPENING OF COKING VESSELS

Eduardo Cardoso De Melo Guerra, Rio de Janeiro, Brazil, assignor to Petroleo Brasileiro S.A. - Petrobras, Rio de Janeiro, Brazil

Filed Sep. 6, 1996, Ser. No. 709,032

Int. Cl.⁶ C01B 47/00

U.S. Cl. 201—35

6 Claims

1. A system for rapid opening of coking vessels under extreme temperature conditions, comprising an assembly for connection of flanges by means of a clamp which has been improved for frequent use, comprising a tongue-type flange (1) and a groove-type flange (2), a C-clamp-type fastening clamp (3) and a non-metallic compression gasket (4) designed to be placed at the interface of the flanges so as to promote sealing of the system.

5,800,681

SEPARATION OF ETHANOL, ISOPROPANOL AND WATER MIXTURES BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. 3rd Ave., Bozeman, Mont. 59715

Filed Apr. 21, 1997, Ser. No. 845,107

Int. Cl.⁶ B01D 3/40; C07C 29/84

U.S. Cl. 203—57

2 Claims

1. A method for recovering ethanol from a mixture consisting of ethanol, isopropanol and water which consists essentially of distill-

ing said mixture of ethanol, isopropanol and water in the presence of an extractive distillation agent, recovering the ethanol as overhead product and obtaining the isopropanol, water and the extractive distillation agent as bottoms product, wherein said extractive distillation agent consists of one material selected from the group consisting of diethylene glycol, dimethylsulfoxide, 4-methyl-2-pentanone and polyethylene glycol 400.

5,800,682

PROCESS FOR THE PRODUCTION OF DIFLUOROMETHANE

Gustavo Cerri, Boonton, N.J., and Kin Ching Kong, Woodside, N.Y., assignors to AlliedSignal Inc., Morristown, N.J.

Filed Oct. 8, 1996, Ser. No. 731,038

Int. Cl.⁶ B01D 3/00; C07C 17/383

U.S. Cl. 203—99

10 Claims

1. A process for reducing monochloromonofluoromethane in a product stream comprising difluoromethane, dichloromethane, hydrogen fluoride and monochloromonofluoromethane comprising feeding said product stream to a distillation column, withdrawing from the distillation column a top product comprising difluoromethane, a bottom product comprising dichloromethane and hydrogen fluoride, and a sidestream comprising monochloromonofluoromethane, wherein the sidestream is withdrawn at a rate such that an amount greater than or equal to the amount of monochloromonofluoromethane in the product stream is being removed from the distillation column.

5,800,683

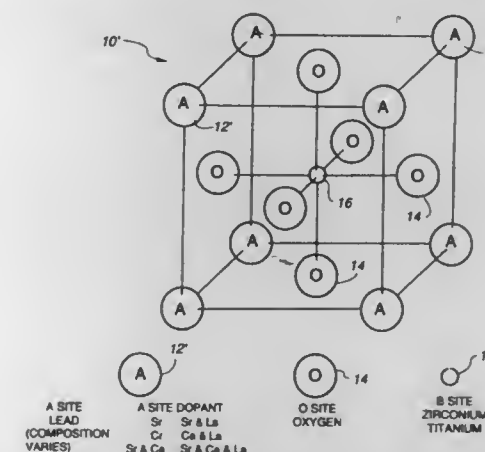
USE OF CALCIUM AND STRONTIUM DOPANTS TO IMPROVE RETENTION PERFORMANCE IN A PZT FERROELECTRIC FILM

Lee Kammerdiner, Avondale; Tom Davenport, and Domokos Hadnagy, both of Colorado Springs, all of Colo., assignors to Ramtron International Corporation, Colorado Springs, Colo.

Division of Ser. No. 616,856, Mar. 15, 1996. This application May 22, 1997, Ser. No. 861,674
Int. Cl.⁶ C23C 14/40

U.S. Cl. 204—192.12

10 Claims



1. A method of forming a ferroelectric film for use in a ferroelectric capacitor comprising sputtering onto a substrate from a target comprising lead zirconate titanate doped with lanthanum and at least one dopant selected from the group consisting of calcium and strontium, and having a lead composition selected so that the ferroelectric capacitor has an opposite state charge greater than eight micro-Coulombs per square centimeter, and has a rate of imprint degradation less than fifteen percent per decade.

5,800,684

PROCESS FOR THE IMPROVEMENT OF THE ABRASION RESISTANCE FEATURES AND OF THE CHEMICAL INERTIA OF TRANSPARENT THIN COATINGS

Giovanni Gagliardi, Conselice RA, and Litterio Bolognese, Vasto CH, both of Italy, assignors to Società Italiana Vetro - SIV - S.p.A., Italy

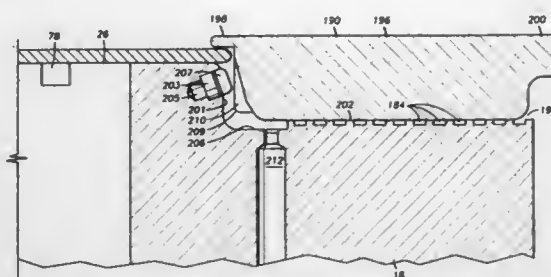
Filed Apr. 16, 1996, Ser. No. 633,287

Claims priority, application Italy, Apr. 18, 1995, RM95A0244 Int. Cl.⁶ C23C 16/34

U.S. Cl. 204—192.16

6 Claims

1. A process for the improvement of the durability of a transparent coating made up of one or more layers deposited on a surface of a transparent substrate, said transparent coating comprising a top layer consisting of stainless steel, titanium, chromium, their oxides, nitrides and/or oxide nitrides, said top layer being formed by physical vapor deposits and said transparent coating controlling the transparent substrate spectrophotometric properties with respect to radiation of wavelength from 0.28 μm to 100 μm , said process consisting essentially of a step of depositing only one transparent protective dielectric layer on said transparent coating, said protective dielectric layer consisting of zirconium oxide, or transparent oxides of zirconium alloys selected from the group consisting of zirconium-aluminum, zirconium-titanium, zirconium-stainless steel, and zirconium chromium alloys, and said protective dielectric film having a thickness in a range from 2×10^{-3} μm to 8×10^{-3} μm .



a purge fluid passage positioned adjacent the substrate receiving surface to deliver a purge fluid to the edge of the substrate when received on the substrate receiving surface, wherein the purge fluid passage is an annular channel extending from an edge of the substrate receiving surface through the support member at an angle of about 135°; and at least one substrate alignment member positioned to align the substrate so that the edge of the substrate is adjacent the purge fluid passage.

5,800,687

DEVICE FOR MASKING OR COVERING SUBSTRATES

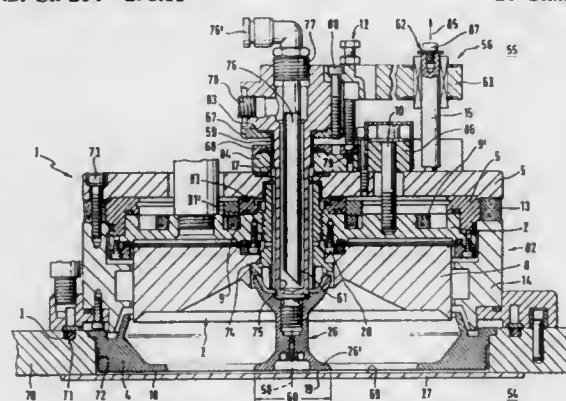
Stefan Kempf, Alzenau-Albstadt, Germany, assignor to Singulus Technologies GmbH, Alzenau, Germany

Filed Apr. 14, 1997, Ser. No. 834,142

Int. Cl.⁶ C23C 14/34

U.S. Cl. 204—298.11

20 Claims



1. A device comprising a sputtering cathode (2) and masking means for masking or covering first portions of a surface of a substrate (27) when the substrate is in position to have a second portion of the surface of the substrate coated by material emitted from said sputtering cathode, wherein said masking means comprise: a center mask (26) for masking one first portion of the substrate surface; a center mask guide element (56) supporting said center mask; an outer mask (4) for masking another first portion of the substrate surface; and displacement means coupled to at least one of said masks for effecting relative displacement of one of said masks relative to the other one of said masks.

5,800,686

CHEMICAL VAPOR DEPOSITION CHAMBER WITH SUBSTRATE EDGE PROTECTION

Karl Littau, Sunnyvale, and Lawrence Chung-lai Lei, Milpitas, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 342,670, Nov. 21, 1994, Pat. No. 5,516,367, which is a continuation of Ser. No. 42,961, Apr. 5, 1993, abandoned. This application Feb. 23, 1994, Ser. No. 200,079

Int. Cl.⁶ C23C 16/00

U.S. Cl. 204—298.07

13 Claims

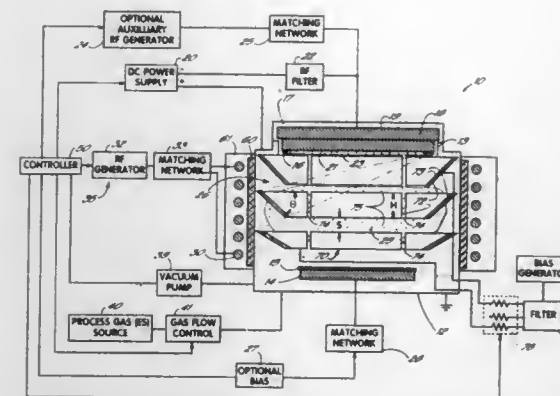
12. An apparatus for protecting an edge of a substrate from a processing gas within a processing chamber, comprising: a substrate support member having a substrate receiving surface to receive the substrate thereon;

5,800,688
APPARATUS FOR IONIZED SPUTTERING
Alexander D. Lantsman, Middletown, and Thomas J. Licata, Monroe, both of N.Y., assignors to Tokyo Electron Limited, Tokyo, Japan
Filed Apr. 21, 1997, Ser. No. 837,551
Int. Cl.⁶ C23C 14/34

U.S. Cl. 204—298.11

11 Claims

1. An ionized physical vapor deposition apparatus comprising: a vacuum sputtering chamber having opposite ends and a sidewall extending around the chamber between the ends, the sidewall having a dielectric window therein extending around the chamber;



a sputtering target centered on an axis in the chamber at one end thereof and having a sputtering surface thereon; separately operable power supplies including (a) a cathode power supply for energizing a main plasma for ionizing gas in the chamber to produce ions of the gas to sputter the target sputter material from the sputtering surface of the target and (b) an RF energy source for producing a secondary plasma for ionizing material after it has been sputtered from sputtering surface of the target; the cathode power supply being connected to the target to energize the target to produce the main plasma in close proximity to the sputtering surface; a substrate support in the chamber at the end thereof opposite the target and spaced from the target to support a substrate parallel to the target; a coil outside of the chamber and surrounding the dielectric window opposite a volume of the chamber between the main plasma and the substrate holder; the RF energy source being connected to the coil to energize the coil to inductively couple RF energy through the window to the secondary plasma in the volume to ionize in-flight sputtered material when passing therethrough; and a shield encircling the chamber outside of the volume and formed of at least one inclined shield segment inside of and spaced from the window, each segment having a surface facing the target and inclined at an angle to the sputtering surface of the target and to the axis of the target to shadow substantially all points on the window from the sputtering surface of the target, the shield having at least one gap therein that interrupts circumferential current paths around the chamber and the shield being configured to facilitate the extension of the secondary plasma from adjacent the window into the volume.

5,800,689

OXYGEN CONCENTRATION DETECTOR

Makoto Hori, Ogaki; Toshimi Miyamoto, Okazaki; Kenji Fukaya, Chiryu; Masahiro Hamaya, Anjo; Minoru Ohta, Okazaki, and Naoto Miwa, Tsushima, all of Japan, assignors to Nippondenso Co., Ltd., Japan

Filed Mar. 1, 1996, Ser. No. 609,634

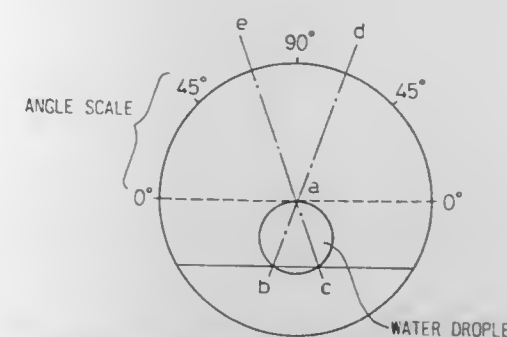
Claims priority, application Japan, Mar. 2, 1995, 7-070963

Int. Cl.⁶ G01N 27/407

U.S. Cl. 204—428

16 Claims

1. An oxygen concentration detector which comprises a housing, a detecting element comprising a solid electrolyte inserted in said housing, and heating means for heating said detecting element, wherein the outer surface of said detecting element is provided with a surface layer comprising particles of one or more materials selected from the group consisting of BN, CaF₂,



NbC, ZrB₂, TiB₂ and talc, and the contact angle of the outer surface of said surface layer is larger than the contact angle of the outer surface of said detecting element with which said surface layer directly contacts, said contact angles being measured using a 5 μl water droplet.

5,800,690

VARIABLE CONTROL OF ELECTROSMOTIC AND/OR ELECTROPHORETIC FORCES WITHIN A FLUID-CONTAINING STRUCTURE VIA ELECTRICAL FORCES

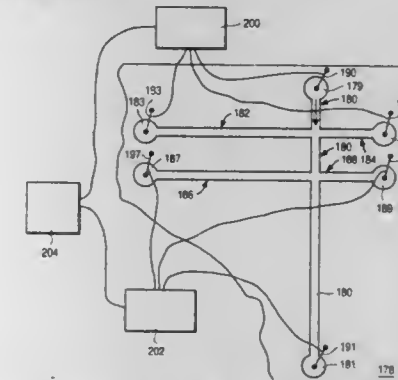
Calvin Y. H. Chow, Portola Valley, and J. Wallace Parce, Palo Alto, both of Calif., assignors to Caliper Technologies Corporation, Palo Alto, Calif.

Filed Jul. 3, 1996, Ser. No. 678,436

Int. Cl.⁶ G01N 27/26

U.S. Cl. 204—451

10 Claims



1. A method of using a microfluidic system having a plurality of interconnected capillary channels and a plurality of electrodes at different nodes of said capillary channels for creating electric fields in said capillary channels to electrokinetically move materials in a fluid through said capillary channels, the method comprising: applying voltages simultaneously to at least three of said electrodes with respect to other electrodes in the system said voltages being responsive to a current at at least two of said at least three electrodes to move materials into and through one or more intersections of said plurality of channels of said system.

5,800,691

ELECTROPHORESIS GELS CONTAINING SAMPLE WELLS WITH ENLARGED LOADING AREA

Branko Kozulic, Zürich, Switzerland, assignor to Guest Elchrom Scientific AG, Cham, Switzerland

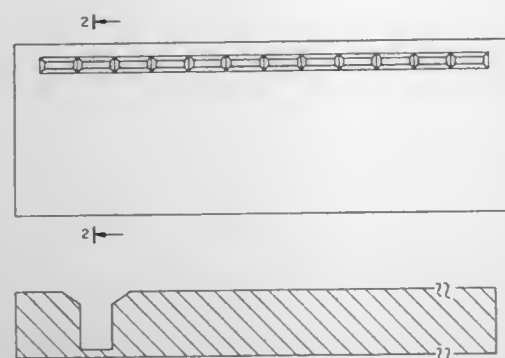
Filed Dec. 23, 1996, Ser. No. 775,028

Int. Cl.⁶ G01N 27/26; 27/447

U.S. Cl. 204—466

17 Claims

15. In the method of horizontal mode electrophoresis through a gel slab comprising a generally planar top surface, and containing at least one sample well disposed proximate to an edge of the gel



slab and extending at least partially through said gel slab transverse to the top surface of said slab, wherein at least one wall of said sample well is at least partially normal to said top surface and substantially parallel to said edge;

which method comprises:

submerging said gel slab in a buffer;

disposing a sample, comprising a plurality of molecules to be electrophoresed, in said sample well; and

applying an electrophoresing voltage and current in a direction substantially parallel to said top surface and normal to said sample well wall sufficient to cause said molecules to separate from each other in a direction substantially parallel to the path of said electrophoresing voltage and current in accord with their molecular weights, size and charge;

the improvement which comprises:

disposing additional gel material on said top surface around the intersection of said top surface and said sample well whereby forming a loading area communicating with said sample well, wherein said sample well has a cross sectional area at a point remote from said sample well that is greater than the cross sectional area of said sample well proximate to said top surface; and depositing an amount of said sample into said loading area, whereby any of said sample that contacts a side of said loading area will run down into said sample well;

whereby enabling more accurate loading of said sample into said sample well without diminishing the area of the wall of said sample well through which said sample is electrophoresed through said gel slab.

5,800,692

PRESEPARATION PROCESSOR FOR USE IN CAPILLARY ELECTROPHORESIS

Stephen Naylor; Andrew J. Tomlinson, both of Rochester; Linda M. Benson, Wanamingo; Walter David Braddock, Rochester, and Robert P. Oda, Stewartville, all of Minn., assignors to Mayo Foundation for Medical Education and Research, Rochester, Minn.

Filed Apr. 17, 1995, Ser. No. 423,220

Int. Cl.⁶ G01N 27/26; 27/447

U.S. Cl. 204—601

11 Claims

1. A pre-separation processor for use in capillary electrophoresis comprising a container having an inner surface, an outer surface, an inlet port, an outlet port, and a sample processing membrane disposed inside the container in contact with the inner surface of the container such that a liquid sample that enters the container through the inlet port and exits the container through the outlet port

traverses the sample processing membrane, wherein the sample processing membrane comprises a chemically inert organic polymer matrix embedded with adsorbent particles.

5,800,693

METHOD FOR SURFACE-TREATING SUBSTRATE AND SUBSTRATE SURFACE-TREATED BY THE METHOD

Masahiko Kakizaki, Tokyo, and Masahiro Akimoto, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, and Denka Himaku Inc., Kanagawa, both of Japan

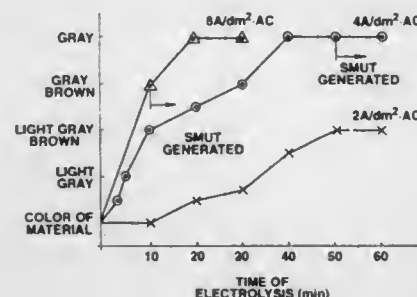
Filed Dec. 20, 1996, Ser. No. 771,154

Claims priority, application Japan, Dec. 21, 1995, 7-333280

Int. Cl.⁶ C25D 11/30

U.S. Cl. 205—50

5 Claims



1. A method for surface-treating a substrate made of magnesium or a magnesium alloy, comprising the steps of:

immersing a substrate of magnesium or magnesium alloy in an electrolytic solution comprising an aqueous solution of at least one first component selected from the group consisting of alkali metal hydroxides, alkali metal carbonates, alkali metal bicarbonates, alkaline earth metal hydroxides, alkaline earth metal carbonates and alkaline earth metal bicarbonates; and at least one second component selected from the group consisting of salts of mineral acids, fluorides, silicates and silicofluorides; and at least one third component selected from the group consisting of ethylene glycol, trihydroxypropane, dihydroxyethyl ether and sodium hydroxybenzoate; and conducting electrolysis to form an anodic oxide film on a surface of said substrate.

5,800,694

PROCESS AND PLANT FOR PICKLING MATERIALS MADE OF STEEL, IN PARTICULAR STAINLESS STEEL

Jovan Starcevic, Vienna, and Erich Mahr, Pörkersdorf, both of Austria, assignors to Andritz-Patentverwaltungs-Gesellschaft m.b.H., Graz, Austria

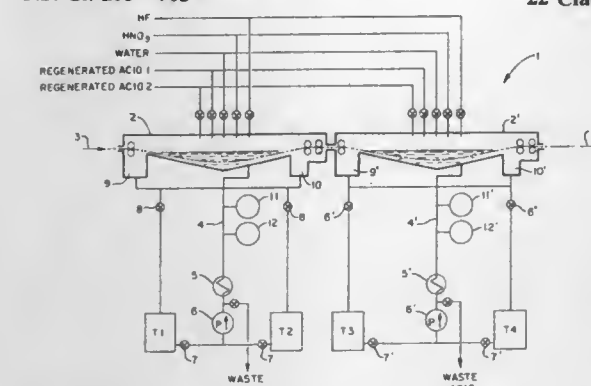
Filed Feb. 15, 1996, Ser. No. 601,723

Claims priority, application Austria, Feb. 15, 1995, 267/95

Int. Cl.⁶ C25F 1/00

U.S. Cl. 205—705

22 Claims



1. Process for pickling material strips made of stainless steel, the stainless steel having a material quality and being subjected to pre-treatment prior to pickling, the process comprising the steps of: selecting a mixed acid composed of a combination of hydrofluoric acid and nitric acid, the combination affecting a composition and a concentration of the mixed acid; placing a quantity of the mixed acid in at least one pickling path to form a pickling bath; and passing the strip through the pickling path, wherein the composition and concentration of the mixed acid in the pickling bath is selected and automatically, continuously controlled as a function of the material quality, operating parameters of the pickling bath, and the operating parameters of the pre-treatment of the strip.

5,800,695

PLATING TURBINE ENGINE COMPONENTS

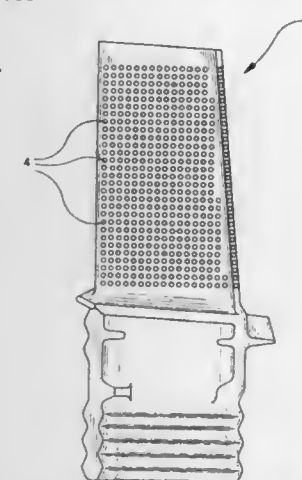
David Kang; Kevin Updegrave, both of Carson City, and Frank Goodwater, Reno, all of Nev., assignors to Chromalloy Gas Turbine Corporation, San Antonio, Tex.

Filed Oct. 16, 1996, Ser. No. 733,028

Int. Cl.⁶ C25D 7/04; B05D 1/32

U.S. Cl. 205—135

15 Claims



1. A process of plating a coating onto a gas turbine engine component containing a plurality of cooling holes and a cooling passage interconnected therewith comprising: injecting a maskant into the cooling passage of the component filling the cooling holes of the component with the maskant;

plating the external surface of the component with a coating by immersing the component in a plating medium; and removing the maskant from the component.

2. Process of claim 1 wherein the maskant is an organic maskant.

3. Process of claim 2 wherein the organic maskant is removed by heating the component to a temperature and time effective to volatilize the maskant.

4. Process of claim 3 wherein the organic maskant is a plastic.

5. Process of claim 4 wherein the plating is an electroplating process.

5,800,696

METHOD FOR INHIBITING THE RATE OF COKE FORMATION DURING THE ZEOLITE CATALYZED AROMATIZATION OF HYDROCARBONS

Charles A. Drake, Nowata, and An-Hsiang Wu, Bartlesville, both of Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 12, 1996, Ser. No. 745,527

Int. Cl.⁶ C10G 35/06

U.S. Cl. 208—135

14 Claims

1. A process for the aromatization of hydrocarbons of a feed-stream containing gasoline boiling range hydrocarbons, said process comprises:

providing a concentration of a silylating agent in said feed stream; and

contacting said feed stream, having said concentration of said silylating agent, with a composition comprising an acid leached zeolite that has not been modified by a silylating agent prior to contacting said composition with said feed-stream, under aromatization reaction conditions.

5,800,697

FCC PROCESS WITH DUAL FUNCTION CATALYST COOLING

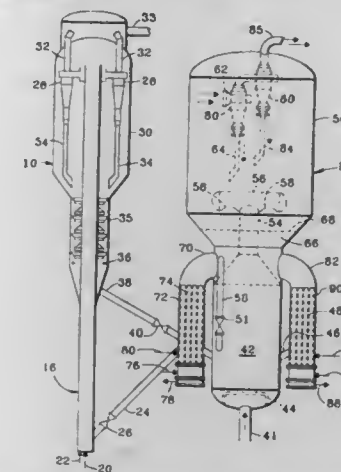
Robert A. Lengemann, Arlington Heights, Ill., assignor to UOP LLC, Des Plaines, Ill.

Filed Jun. 19, 1995, Ser. No. 491,768

Int. Cl.⁶ C10G 11/00

U.S. Cl. 208—159

5 Claims



1. A process for the fluidized catalytic cracking of hydrocarbons comprising:

a) passing a first stream of catalyst comprising cooled regenerated catalyst from a regeneration zone to a reaction zone

b) contacting said regenerated catalyst from said first stream with a feedstream containing hydrocarbons in said reaction zone to crack hydrocarbons and deposit coke on said catalyst to produce spent catalyst and hydrocarbon products and separating a hydrocarbon product stream from said spent catalyst;

c) passing spent catalyst to said regeneration zone;

- d) contacting a second stream of catalyst comprising cooled regenerated catalyst and said spent catalyst with an oxygen containing stream in said regeneration zone to combust coke from said spent catalyst and produce a third stream of catalyst comprising regenerated catalyst;
- e) cooling at least a first portion of the catalyst from said third stream of regenerated catalyst in a single cooling zone to produce cooled regenerated catalyst;
- f) withdrawing a first portion of said cooled regenerated catalyst from said single cooling zone from the bottom of a first section of said cooling zone located at a first elevation and passing said first portion of said cooled regenerated catalyst into contact with said spent catalyst as said second stream of catalyst;
- g) adding a first fluidizing gas stream to the bottom of said first section;
- h) withdrawing a second portion of said cooled regenerated catalyst from said single cooling zone from the bottom of a second section of said cooling zone located at a second elevation and passing said second portion of cooled regenerated catalyst directly to said reaction zone as said first stream of catalyst wherein said first section is at a different elevation than said second section to obtain independent temperature control of said first stream from said second stream; and
- i) adding a second fluidizing gas stream at the bottom of said second section.

5,800,698

CATALYST FOR THE HYDROISOMERIZATION OF CONTAMINATED HYDROCARBON FEEDSTOCK

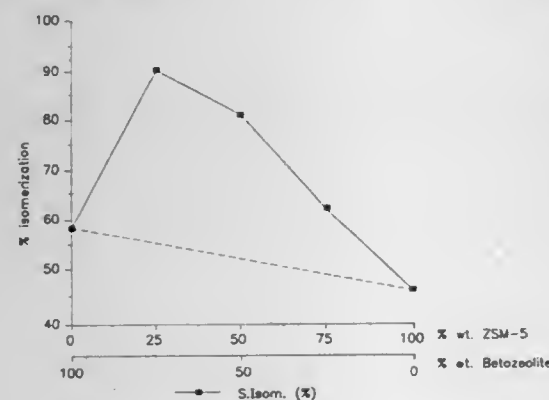
Jorge Tejada, San Antonio de los Altos; Yilda Romero, Edo Aragua; Edito Reyes, Los Tesnes; Ricardo Prada, Qia la Pradera, and Mariana Torrealba, El Picacho, all of Venezuela, assignors to Intevp, S.A., Caracas, Venezuela

Continuation-in-part of Ser. No. 367,405, Dec. 30, 1994, Pat. No. 5,612,273. This application Jun. 3, 1996, Ser. No. 657,368

Int. Cl.⁶ C10G 45/04; B01J 29/06

U.S. Cl. 208—216 R

64 Claims



1. A catalyst system for treating sulfur and nitrogen contaminated hydrocarbon feedstock, comprising:

- a matrix;
- at least one support medium substantially uniformly distributed through said matrix and comprising a silica alumina molecular sieve material;
- a first catalytically active metal phase supported on said support medium, said first catalytically active metal phase comprising a first metal and a second metal each selected from group VIII of the Periodic Table of Elements, said first metal being different from said second metal; and
- a second catalytically active metal phase supported on said matrix, said second catalytically active metal phase comprising a third metal and a fourth metal each selected from group VIII of the Periodic Table of Elements and a fifth metal selected from group VIb of the Periodic Table of Elements, said third metal being different from said fourth metal.

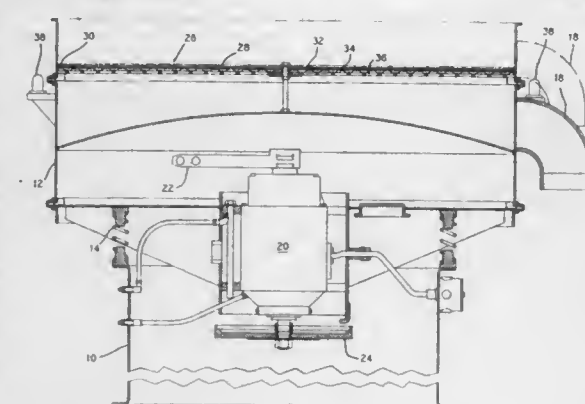
5,800,699
FINE MESH SCREENING
Nagabhusan Senapati, 1188 Kilham Ct., Worthington, Ohio 43235

Continuation of Ser. No. 407,587, Mar. 20, 1995, Pat. No. 5,542,548, which is a continuation of Ser. No. 94,850, Jul. 20, 1993, Pat. No. 5,398,816. This application Mar. 6, 1996, Ser. No. 611,647

Int. Cl.⁶ B07B 1/42

U.S. Cl. 209—365.1

13 Claims



1. A screening system comprising a resiliently mounted frame; a low frequency vibratory drive coupled to the frame; a screen extending across the frame; a high frequency drive rigidly coupled to the screen; and a resilient mounting on the frame, the screen being supported by the resilient mounting on the frame and the high frequency drive being solely supported by the resilient mounting on the frame and displaced from the frame.

5,800,700

SLUDGE SUPERNATANT DECANTING DEVICE

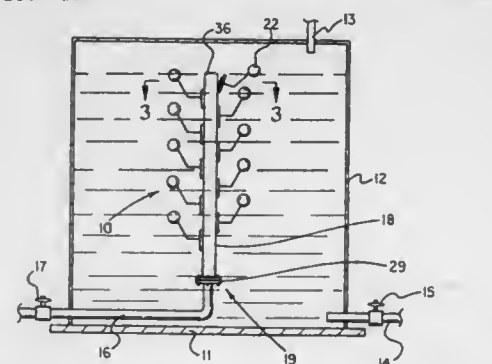
John Keh-Jong Liu, 14 Highland Dr., Parlin, N.J. 08859

Filed Jan. 30, 1997, Ser. No. 791,657

Int. Cl.⁶ B01D 17/12; F16K 21/18

U.S. Cl. 210—109

17 Claims



1. A sludge supernatant decanting device for decanting a supernatant from a sludge holding tank, said sludge supernatant decanting device comprising:

- a decant column being disposable in a sludge holding tank, said decant column having an outer perimeter surface and a plurality of spaced-apart apertures in said outer perimeter surface, the decant column further being connectable to a sludge holding tank supernatant discharge conduit for fluid communication with said conduit;
- a plurality of float switches for opening and sealingly closing the spaced-apart apertures, said float switches being responsive to changes in the fluid level of the sludge holding tank; wherein each float switch comprises a valve comprising a valve plate having a front and rear surface, a gasket fixedly attached to said rear surface, the gasket being sealingly receivable in

the aperture, the valve further comprising a rod extending from a front surface, the rod terminating in a float; and a means for hingedly attaching a lowermost portion of said valve plate to the decant column such that the rear surface of said valve plate is positioned substantially flush with the outer perimeter surface of said decant column when said valve plate is in a closed position for reducing any sludge interference with the movement of said valve plate.

5,800,701

APPARATUS, COMPONENTS AND A METHOD FOR THE FILTERING OF LIQUID

Ole Jens Larsen, Dragoer, Denmark, assignor to I. Kruger Systems A/S, Soeborg, Denmark

PCT No. PCT/DK95/00207, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/32044, PCT Pub. Date Nov. 30, 1995

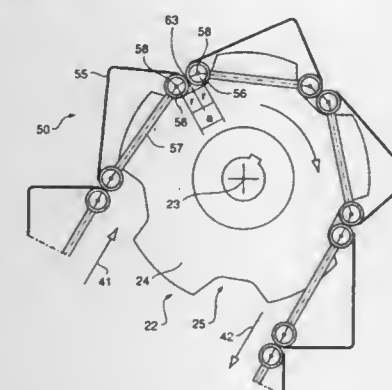
PCT Filed May 24, 1995, Ser. No. 737,858

Claims priority, application Denmark, May 25, 1994, 0586/94

Int. Cl.⁶ B01D 33/056; 33/333; E02B 5/08

U.S. Cl. 210—158

22 Claims



1. An endless filter chain or the filtering of liquid with the object of removing solid objects from the liquid and comprising strainer elements and connecting links,

wherein each strainer element extends in the conveyor direction of the chain and is delimited by two mutually parallel edges designated leading edge and trailing edge, respectively, and by two lateral edges extending perpendicularly to the leading edge and the trailing edge,

wherein two successively arranged strainer elements are connected by means of one or more connecting links embedded substantially completely within the width of said strainer elements,

each connecting link comprising pivot means having two parallel, spaced trunnions defining two parallel, spaced pivot axes which are perpendicular to the conveyor direction of the filter chain, whereby said connecting link may link together two successively arranged strainer elements with freedom for each strainer element to pivot relative to adjacent connecting links about a respective one of said pivot axes parallel with the leading edge and the trailing edge, the leading edge and the trailing edge on each strainer element comprising cylindrical tubes so that a small clearance with approximately unchanged width is maintained between the leading edge of a strainer element and the adjacent trailing edge on the immediately preceding strainer element.

5,800,702

HEAVY DUTY STRAINER

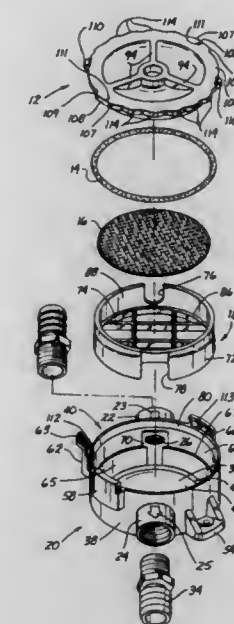
Christopher J. Taylor-McCune, Mission Viejo; Nicolae G. Popescu, Glendora, and William V. Stucker, La Mirada, all of Calif., assignors to Shurflo Pump Manufacturing Co., Santa Ana, Calif.

Filed Jun. 18, 1996, Ser. No. 665,440

Int. Cl.⁶ B01D 29/05

U.S. Cl. 210—162

16 Claims



1. A strainer comprising:
- a body having a closed first end and an open second end and defining a chamber therebetween, said chamber having a central axis intersecting said first end and said second end;
 - an inlet including an inlet passage in fluid communication with said chamber;
 - an outlet, spaced apart from said inlet, including an outlet passage in fluid communication with said chamber;
 - a cover sized and adapted to be secured to said body to close said second end;
 - a screen having a first substantially flat side and an opposing second substantially flat side, said sides being positioned in said chamber at an angle less than 90° relative to said central axis and between said inlet and said outlet; and
 - a basket assembly sized and adapted to be removably located in said chamber and said screen is supported within said basket assembly, said basket assembly has an inlet opening and an outlet opening and a solid sidewall extending from said inlet opening to said outlet opening.

5,800,703

WATER FILTER WITH HYDRAULICALLY DISPLACEABLE FILTER UNIT

Duncan C. McGregor, Scottburgh, South Africa, assignor to Katah Holding AB, Switzerland

Filed Jul. 14, 1995, Ser. No. 502,680

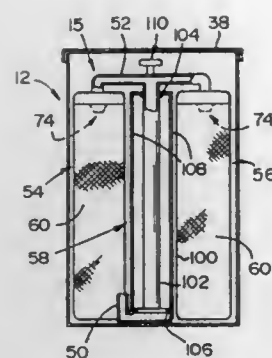
Claims priority, application South Africa, Jul. 21, 1994, 94/5375

Int. Cl.⁶ E04H 4/16; C02F 1/467; B01D 27/00

U.S. Cl. 210—169

10 Claims

1. A water filter having a housing with a flow passage therethrough with an inlet and out outlet and which includes between the inlet and the outlet a filter unit comprising at least one filter bag and a hydraulic jack located said flow passage between said inlet and said filter bag, said jack being constructed and arranged to displace said filter bag between an operative position in which



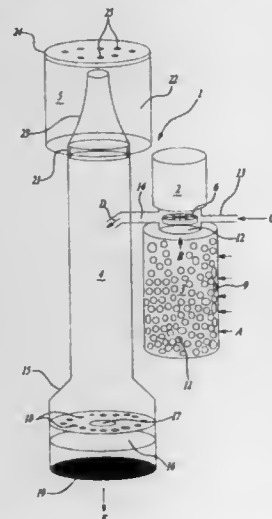
water to be filtered can pass therethrough, and a displaced position in which said filter bag is readily accessible for cleaning or replacement.

5,800,704
FOAM FLOTATION PROTEIN SEPARATOR
Klaus Hansen, Osnabruck, Germany, assignor to AquaMedic Anlagenbau GmbH, Melle, Germany
PCT No. PCT/EP95/01670, § 371 Date Nov. 8, 1996, § 102(e) Date Nov. 8, 1996, PCT Pub. No. WO95/30328, PCT Pub. Date Nov. 16, 1995

PCT Filed May 3, 1995, Ser. No. 737,354
Claims priority, application Germany, May 10, 1994, 44 16 447.5

Int. Cl.⁶ A01K 63/04; C02F 1/24
U.S. Cl. 210—169

25 Claims



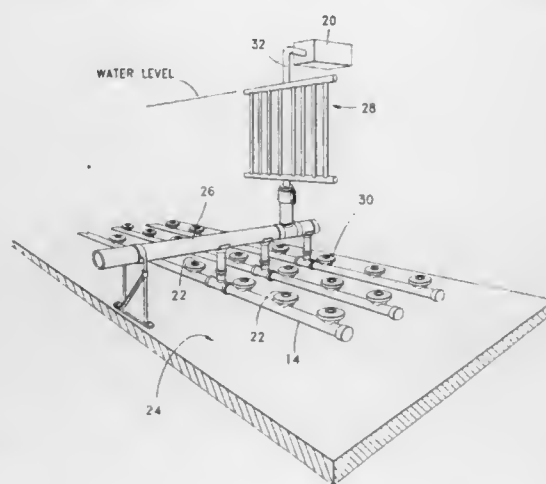
1. A foam flotation separator for sea water aquaria, comprising: a dispersion pump (2) having an intake side and a delivery side, said intake side draws in water to be treated containing pollutants and gas, said gas is air or ozone or a mixture thereof;
- a reaction chamber (4) connected thereto on the delivery side, the reaction chamber having a lower outlet end having a purified water outlet and an upper end foam outlet for a foam containing said pollutant;
- a foam collector (5) having an open bottom on the upper end of the reaction chamber (4), and
- a cross-sectional enlargement (15) at the lower, outlet end of the reaction chamber (4) below the connection of the pump delivery side to the reaction chamber said cross sectional enlargement (15) at the lower end of the reaction chamber being of sufficient magnitude that a downward flow rate of gas and water is reduced so that the air bubbles come to a standstill and rise.

5,800,705
HEAT EXCHANGER FOR AERATION TANK
Ernest W. Downs, Cincinnati, Ohio, assignor to United States Filter Corporation, Palm Desert, Calif.

Filed Aug. 7, 1997, Ser. No. 908,331
Int. Cl.⁶ C02F 3/20; B01F 3/04

U.S. Cl. 210—177

15 Claims



1. In combination with an aeration system for a wastewater treatment facility consisting of a treatment tank containing a quantity of wastewater having a predetermined depth, a plurality of air diffusers disposed along the bottom of said tank, an air blower and air distribution piping system to deliver air under pressure from said air blower to said air diffusers, the improvement comprising, a tube bank heat exchanger in line with said distribution piping system and located within said wastewater, said tube bank heat exchanger comprising a piping system, trough which air from said air blower passes, of a length that exceeds three times said predetermined depth.

11. A tube bank heat exchanger for use in reducing the temperature of air delivered under pressure to an air diffuser system having plural diffuser assemblies, including porous membranes, disposed in a wastewater treatment facility and submerged a predetermined depth within a tank of wastewater, where the temperature of said air thus delivered is based upon ambient temperature and the heat of compression of the air under pressure, and said combination may cause failure of said membranes,

characterized in that said tube bank heat exchanger extends between and in communication with the source of said air under pressure and said air diffuser system, said tube bank heat exchanger being submerged within said wastewater and of a configuration which extends the air flow path between said source and said air diffuser system to a sufficient degree to reduce said combination temperature to no more than 140 degrees F.

5,800,706
NANOFIBER PACKED BEDS HAVING ENHANCED FLUID FLOW CHARACTERISTICS
Alan B. Fischer, Cambridge, Mass., assignor to Hyperion Catalysis International, Inc., Cambridge, Mass.

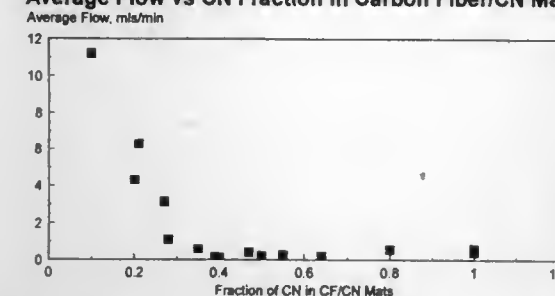
Filed Mar. 6, 1996, Ser. No. 611,367
Int. Cl.⁶ B01D 15/08

U.S. Cl. 210—198.2

18 Claims

1. A composition of matter comprising a porous packed bed having a plurality of nanofibers and a number of scaffold particulates, said packed bed having a fluid flow rate characteristic for

Average Flow vs CN Fraction in Carbon Fiber/CN Mats

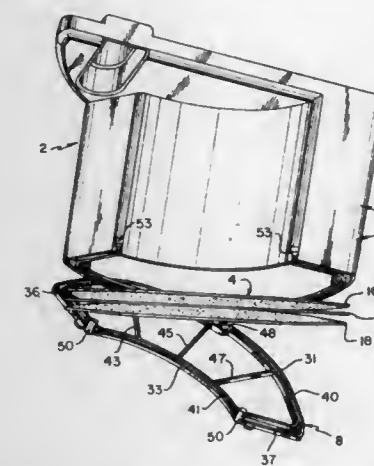


water greater than 0.5 ml/min/cm² at a pressure differential through the packed bed of about 1 atm when said packed bed has a thickness of one mil.

5,800,707
WATER FILTER
Hans-Jürgen Mehnert, Solingen; Erich Hoffmann, Bergisch Gladbach, and Dorothea Pytlík, Solingen, all of Germany, assignors to Robert Krups GmbH & Co. KG, Solingen, Germany

Filed Jan. 31, 1996, Ser. No. 594,831
Claims priority, application France, Jan. 31, 1995, 95 01132
Int. Cl.⁶ C02F 1/28; 1/42; A47J 31/06; 31/24
U.S. Cl. 210—232

8 Claims



1. An apparatus for selectively filtering water, said apparatus inserted between a water source and a water utilization point in a water circuit, said circuit is in a cafetiere, said circuit having a water reservoir connected to a water heater, and said apparatus is upstream of said water heater, said apparatus comprising:

filtration means having a filtering property, said filtering property selected to affect filtration of the water according to a composition of the water to be filtered, said filtration means having a thickness variable according to said selected filtering property; and

a support having first and second facing frames, said first and second frames defining corresponding aligned openings, said first and second frames having corresponding facing surfaces and said first and second frames connected by clamping means, said clamping means adjustable so that said first frame is positionable with respect to said second frame to accommodate said thickness of said filtration means, said filtration means dimensioned to be larger than said corresponding aligned openings, said filtration means removably secured between said first and second frames by positioning said frames with said adjustable clamping means so that portions of said filtration means are clamped between portions of said corresponding facing surfaces of said first and second frames, wherein said reservoir has a bottom end, and said support is positioned in said reservoir at a distance from said reservoir bottom end, such that a portion of said reservoir between said

support and said reservoir bottom end forms an intermediate reservoir between said bottom end and said support, said support being dimensioned to closely fit inside said reservoir, and said first frame of said support comprising a vertically extending hollow body having a base end, said second frame of said support being secured to said base end so that said corresponding aligned openings of said first and second frames and said filtration means are positioned in said base end, and said aligned openings and said filtration means substantially dimensionally correspond to said bottom of said reservoir.

5,800,708
INTERFACIAL PURIFYING APPARATUS USING TOURMALINE

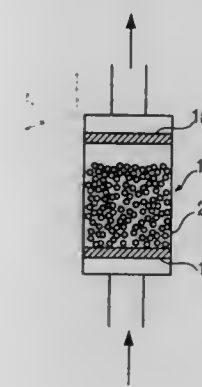
Tetsujiro Kubo, 5-12-408, Shibuya 2-chome, Shibuya-ku, Tokyo, Japan, 150

Continuation of Ser. No. 661,725, Jun. 11, 1996, abandoned, which is a continuation of Ser. No. 257,490, Jun. 9, 1994, abandoned, which is a continuation of Ser. No. 968,143, Oct. 29, 1992, abandoned, which is a continuation of Ser. No. 874,230, Apr. 27, 1992, abandoned, which is a continuation of Ser. No. 586,973, Sep. 24, 1990, abandoned. This application May 19, 1997, Ser. No. 858,617

Claims priority, application Japan, Oct. 3, 1989, 1-257130
Int. Cl.⁶ B01D 24/00

U.S. Cl. 210—287

4 Claims



1. An interfacial purifying apparatus using tourmaline consisting essentially of:

a housing containing a plurality of free bodies, said free bodies comprising a mixture of fine tourmaline crystals which possess polarity and an electrically insulating material which electrically insulates the fine tourmaline crystals from one another, wherein said fine tourmaline crystals are several microns in diameter, wherein said free bodies are spherical pellets about 3.0 to 3.2 millimeters in diameter, wherein said free bodies are comprised of about 5 to 10% of said fine tourmaline crystals, wherein said free bodies are prepared by mixing, granulating and baking said fine tourmaline crystals with the electrically insulating material, and wherein said housing includes a means for passing water through said housing while preventing the passage of said free bodies out of said housing; wherein said means for passing water through said housing while preventing the passage of said free bodies out of said housing comprises opposed inlet and outlet means having a plurality of apertures whose diameter is smaller than the diameter of said free bodies.

5,800,709

BIOLOGICAL AERATED FILTERS

Alan James Smith, Hemel Hempstead, England, assignor to Thames Water Utilities Limited, Reasing, England
PCT No. PCT/GB95/00651, § 371 Date Dec. 2, 1996, § 102(e)
Date Dec. 2, 1996, PCT Pub. No. WO95/25695, PCT Pub.
Date Sep. 28, 1995

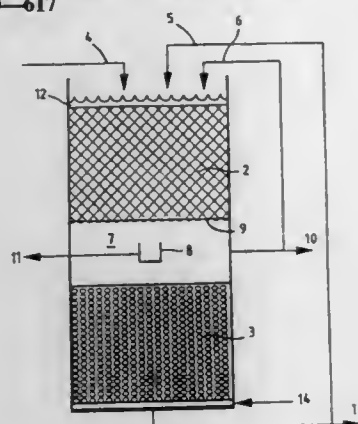
PCT Filed Mar. 23, 1995, Ser. No. 716,291

Claims priority, application United Kingdom, Mar. 24, 1994,
9405871

Int. Cl.⁶ C02F 3/04; 3/06

U.S. Cl. 210—617

21 Claims



1. A process for treating fluid in a biological aerated filter, comprising passing the fluid serially through superposed upper and lower filter beds, the lower filter bed comprising aerated media and the upper filter bed being substantially anoxic, wherein oxygen is prevented from moving from the lower bed to the upper bed.

12. Apparatus for biological aerated filter treatment of fluids, comprising superposed upper and lower filter beds, the lower filter bed comprising aerated media and the upper filter bed being substantially anoxic, the apparatus further comprising separator means for preventing oxygen from the aerated media from passing to the anoxic media.

5,800,710

METHOD AND APPARATUS FOR THE BIOCHEMICAL PURIFICATION OF A LIQUID MEDIUM

Dieter Mähl, Wensin, Germany, assignor to Shieer Globe N.V., Curacao, Netherlands

PCT No. PCT/NL95/00183, § 371 Date Nov. 13, 1996, § 102(e)
Date Nov. 13, 1996, PCT Pub. No. WO95/32923, PCT Pub.
Date Dec. 7, 1995

PCT Filed May 24, 1995, Ser. No. 737,511

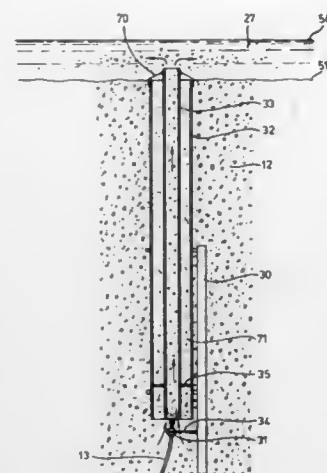
Claims priority, application Netherlands, May 27, 1994,
9400874; Sep. 2, 1994, 9401439

Int. Cl.⁶ C02F 3/08

U.S. Cl. 210—617

20 Claims

1. In a method for the biochemical purification of a liquid medium containing impurities, wherein the liquid medium is passed through a bed containing granular filter material provided in a holder, wherein contaminated liquid medium is supplied at the top of the filter material, wherein purified liquid medium is removed at the bottom of the filter material, wherein a tube is placed essentially vertically in the bed containing filter material and projects above the latter, wherein at least at the bottom end of the tube a chamber is provided around the bottom end of the tube, the chamber being open at its bottom, wherein near the bottom end of the tube a gas is injected such that as a consequence of the ejector action of the injected gas filter material and medium are drawn in from the surrounding of the bottom end of the tube, that the injected gas feeds said filter material and medium drawn in upwards via the tube, and that the filter material fed upwards is spread over the bed; the improvement wherein the gas is injected essentially in a vertically upwards direction from below the bottom end of the tube such that the gas is blown into the tube for feeding



upward filter material and medium and blown into the chamber such that a swirling of bottom material whirling up and falling back again is brought about in said chamber with the result that bottom material falling back sets the bottom material around the bottom end of the tube in motion.

5,800,711

PROCESS FOR THE FRACTIONATION OF POLYOXYALKYLENE BLOCK COPOLYMERS

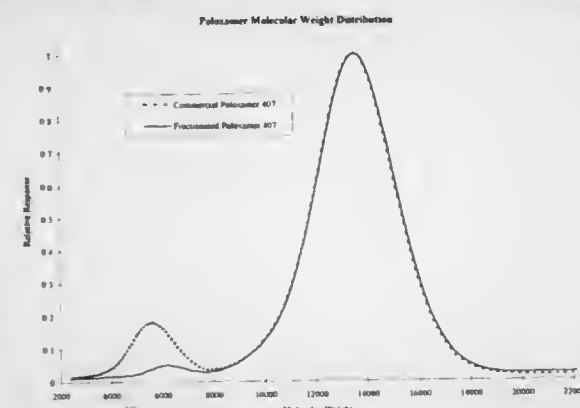
Lorraine E. Reeve, Dexter, and Michael G. Hinsberg, Sterling Heights, both of Mich., assignors to MDV Technologies, Inc., San Diego, Calif.

Filed Oct. 18, 1996, Ser. No. 733,973

Int. Cl.⁶ B01D 11/04; C07C 37/72

U.S. Cl. 210—639

32 Claims



1. A process for the fractionation of polyoxyalkylene block copolymers comprising:

- dissolving a known amount of the copolymer in an extraction solvent to form a solution,
- equilibrating the solution at an effective temperature to allow the formation of an opaque solution when an extraction salt is added to the solution,
- adding a soluble extraction salt to the solution,
- heating and equilibrating the resulting solution at an effective temperature and for an effective amount of time to allow an upper phase and lower phase to appear in the solution,
- removing the lower phase,
- supplanting the volume of the lower phase by adding the extraction solvent to the remaining phase,
- repeating steps b through f an effective number of times to yield the desired fractionation,
- isolating the fractionated upper phase upon the final extraction in step g, and
- removing any remaining solvent from step h to yield the fractionated polyether.

5,800,712

Patent Not Issued For This Number

5,800,713

METHOD AND APPARATUS FOR INSPISSATING SOLID-LIQUID MIXTURES BY MEMBRANE TECHNOLOGY

Eduard Hartmann, Schneisingen, Switzerland, assignor to Bucher-Guyer AG, Niederweningen, Switzerland

PCT No. PCT/CH95/00229, § 371 Date Jun. 24, 1996, § 102(e)
Date Jun. 24, 1996, PCT Pub. No. WO96/12553, PCT Pub.
Date May 2, 1995

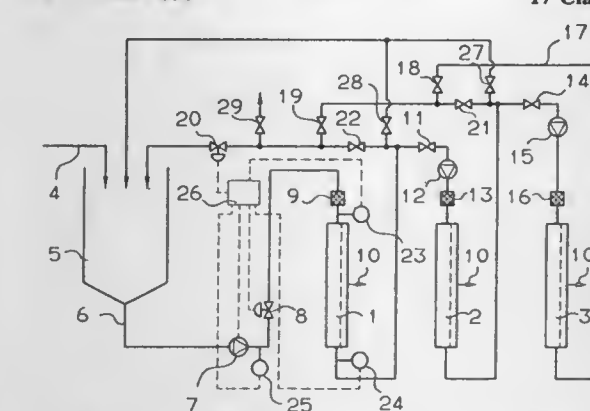
PCT Filed Oct. 10, 1995, Ser. No. 666,587

Claims priority, application Switzerland, Oct. 25, 1994, 93
184/94-9

Int. Cl.⁶ B01D 61/00

U.S. Cl. 210—650

17 Claims



1. A batchwise or quasi-continuous process for thickening solid-liquid mixtures by membrane technology, using an apparatus with a plurality of groups (1, 2, 3) of membrane modules and a retentate circuit passing successively through said plurality of groups of membrane modules in series, said process comprising operating all of said membrane module groups (1, 2, 3) in series during a first interval until as a result of the thickening process, the retentate is thickened to a first predetermined, and then, in a second interval in the course of thickening, at least one membrane module group (2, 3) is disconnected from the retentate circuit and the retentate is thickened to a second value, and then, in a third interval the thickened retentate is removed from the circuit.

5,800,714

RECYCLE OF WATER FROM POLYVINYL CHLORIDE POLYMERIZATION BY TREATMENT WITH A CATION EXCHANGE RESIN

Thomas M. Miller, Aurora; Bhasker B. Dave, Naperville, and W. Hugh Goodman, Lisle, all of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Oct. 21, 1996, Ser. No. 734,571

Int. Cl.⁶ B01D 15/04

U.S. Cl. 210—651

21 Claims

1. A method for deactivating a water soluble chain transfer agent contained in the aqueous filtrate from a vinyl polymerization process which comprises the steps of:

- polymerizing a vinyl monomer in the presence of a chain transfer agent in an oil-in water emulsion or aqueous vinyl suspension polymerization process to form a water insoluble polymer;
- separating the water insoluble polymer from aqueous phase of the oil-in-water emulsion or the suspension to recover a water insoluble polymer and a filtrate containing a residual amount of the chain transfer agent;

c. contacting the filtrate containing the chain transfer agent with a water insoluble cation exchange resin in the hydrogen form; and then,

d. recovering the filtrate and reusing the filtrate in a fresh vinyl polymerization process.

5,800,715

SEPARATION OF A SUSPENSION INTO ITS COMPONENT PARTS

Richard Guy Batson, Benoni, South Africa, assignor to Baker Hughes Incorporated, Houston, Tex.

PCT No. PCT/NL95/00060, § 371 Date Jan. 13, 1997, § 102(e)
Date Jan. 13, 1997, PCT Pub. No. WO95/22391, PCT Pub.
Date Aug. 24, 1995

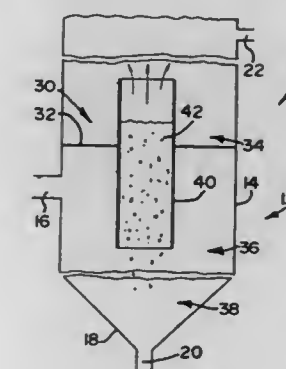
PCT Filed Feb. 15, 1995, Ser. No. 693,116

Claims priority, application South Africa, Feb. 16, 1994,
94/1062

Int. Cl.⁶ B01D 21/08

U.S. Cl. 210—702

12 Claims



1. A method of separating particulate material from a carrier fluid in which it is suspended, the method comprising feeding a suspension of particulate material in carrier fluid into a first zone of a body of the carrier fluid separated from a second clarified fluid zone thereof located at a high level in the body of carrier fluid by means of a fluid impermeable barrier located between the zones, with the particulate material having a higher density than the carrier fluid; withdrawing clarified fluid from the clarified fluid zone; allowing substantially all the clarified fluid which enters the clarified fluid zone to pass from the first zone to the second zone through a vertical fluid passageway of regular or irregular cross-sectional shape, with the fluid passageway being of substantially constant cross-sectional area or dimension along its entire length apart from, optionally, an inwardly flaring peripheral lip at the lower end of the passageway so that the passageway has a reduced inlet area, and/or a portion of increased cross-sectional area or dimension at the upper end of the passageway, with ortho-kinetic flocculation of solid particles taking place in the fluid passageway so that small solid particles are flocculated, in a flocc bed within the passageway, into larger flocs having higher settling velocities, with the flocs dropping down against the direction of fluid flow through the flocc bed and settling at the bottom of the body of fluid in a settling zone.

5,800,716

PROCESSES FOR THE TREATMENT OF ACIDIC LIQUORS AND FOR THE PRODUCTION OF COMMERCIAL PRODUCTS THEREBY

Neil Clarke, and John Harris Newton, both of Warrington, England, assignors to Laporte Industries Limited, England
PCT No. PCT/GB94/02216, § 371 Date Apr. 19, 1996, § 102(e) Date Apr. 19, 1996, PCT Pub. No. WO95/11199, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 11, 1994, Ser. No. 669,563

Claims priority, application United Kingdom, Oct. 21, 1993, 9321732

Int. Cl.⁶ C02F 1/56

U.S. Cl. 210—711

15 Claims

1. A process for the treatment of aqueous acidic liquors containing dissolved aluminum and/or iron compounds to produce an aluminum and/or iron sulphate water-treatment product, comprising the steps of:

- contacting the liquor with an effective amount of a basic magnesium compound to react with the dissolved aluminum and/or iron compounds and precipitate aluminum and/or iron values;
- separating the precipitate in the form of a cake or slurry from the remaining liquor;
- treating the cake or slurry with sulfuric acid to re-dissolve aluminum and/or iron values to thereby produce a solution of aluminum and/or iron sulfate containing free sulfuric acid; and
- separating suspended solid matter from the solution.

5,800,717

WATER AND WASTEWATER TREATMENT SYSTEM WITH INTERNAL RECIRCULATION

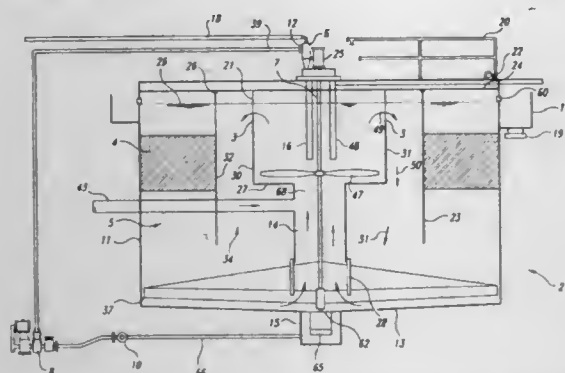
Stephen R. Ramsay, Vancouver, Canada, and Donald G. Nyberg, Vashon, Wash., assignors to Microsep International Corporation, British Columbia, Canada

Filed Oct. 2, 1996, Ser. No. 720,551

Int. Cl.⁶ C02F 1/56

U.S. Cl. 210—711

12 Claims



1. A process for separating suspended solid materials from an influent by ballasted flocculation and differential sedimentation, comprising:

- combining a flow of pretreated influent, flocculant and inert particles with agitation in an upflow zone of an internal recirculation reactor to produce a flocculated mixture including the suspended solid materials;
- passing the flocculated mixture from the upflow zone of the internal recirculation reactor into a downflow zone of the internal recirculation reactor utilizing differential sedimentation without mechanical agitation, wherein the pretreated influent, flocculant and inert particles are subjected to just sufficient agitation in the upflow zone of the internal recirculation reactor to produce sufficient mixing of the influent, flocculant and inert particles to form the flocs by ballasted flocculation without inducing shear that prevents the formation of the flocs or breaks apart the flocs;

recirculating a first portion of the flocculated mixture from the downflow zone of the internal recirculation reactor into the upflow zone of the internal recirculation reactor;

passing a second portion of the flocculated mixture from the downflow zone of the internal recirculation reactor into a settling zone; and

removing clarified liquid from an upper region of the settling zone and settled flocs from a lower region of the settling zone.

5,800,718

METHOD FOR TREATING DRY FILM STRIPPING AND DEVELOPING SOLUTION

Robert M. Gaudette, 42 Lance Ave., Litchfield, N.H. 03052, assignor to Robert M. Gaudette, Litchfield, N.H.

Continuation-in-part of Ser. No. 382,615, Feb. 2, 1995, Pat.

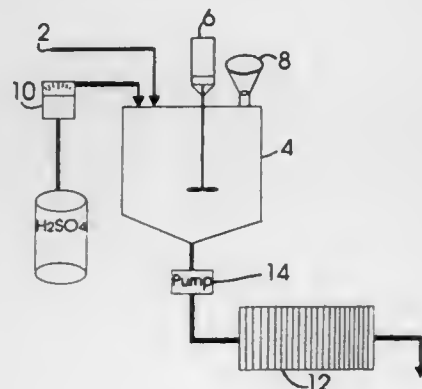
No. 5,615,862. This application Mar. 28, 1997, Ser. No.

827,298

Int. Cl.⁶ C02F 1/54

U.S. Cl. 210—714

19 Claims



1. A method of treating a spent dry film photoresist stripper/developer solution comprising the steps of:
- adding about 0.01 to 15 grams of an aluminum source per liter of solution;
- adding about 0.05 to 25 grams of a metal precipitating agent per liter of solution;
- adding 0.1 to 10 grams of siliceous particulates per liter of spent stripper solution; and
- a flocculating agent;
- mixing said aluminum source, said metal precipitating agent, said siliceous particulates, and said flocculating agent and said solution with one another to form a mixture;
- adding an acid source to said mixture to lower the pH of said mixture to less than about 6.5; and
- filtering said mixture to separate metals and photoresist from the remainder of said solution.

5,800,719

METHOD FOR DEWATERING DRINKING SLUDGE USING A WATER SOLUBLE BLOCK COPOLYMER

Frank J. Sutman, Jacksonville, and Richard A. Hobirk, Fernandina Beach, both of Fla., assignors to BetzDearborn Inc., Trevose, Pa.

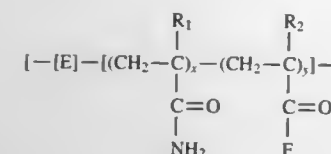
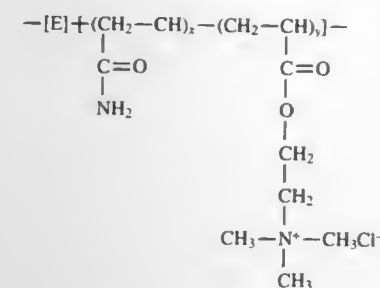
Filed May 14, 1997, Ser. No. 856,218

Int. Cl.⁶ C02F 1/54

U.S. Cl. 210—734

9 Claims

1. A method for dewatering deinking sludge selected from the group consisting of office waste deinking sludge and newsprint deinking sludge comprising adding to the sludge an effective dewatering amount of a water soluble block copolymer having the formula:



wherein E is a polymer of 2-ethylhexyl acrylate and the molar percentage of nonionic monomer X: cationic monomer Y, is from about 65:35 to 80:20 with the proviso that the total of X+Y equals 100%.

5,800,720

SPINNING FILTER SEPARATION SYSTEM FOR OIL SPILL CLEAN-UP OPERATION

John Wehrle, Greenbelt; Eugene C. Fischer, Stevensville; William P. Kenney, Annapolis; Joseph F. Korczynski; Thomas D. Gracik, both of Glen Burnie; Barbara F. Howell, Arnold, and William Klemens, Severna Park, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

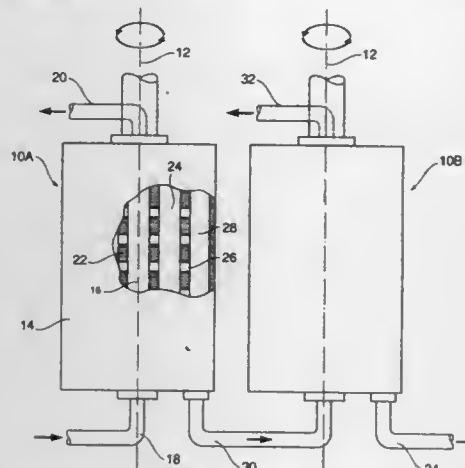
Division of Ser. No. 725,217, Sep. 26, 1996. This application

Oct. 10, 1997, Ser. No. 947,484

Int. Cl.⁶ B01D 17/038

U.S. Cl. 210—787

3 Claims



1. In combination with at least two separator devices through which polluted water is conducted in series for extraction of a contaminant therefrom, a clean-up method including the steps of: conducting the polluted water under pressure to one of the separator devices; rotating the separator devices to centrifugally induce radial outflow therefrom; filtering the radial outflow from said one of the separator devices for retention of the contaminant therein during conduction of the polluted water therethrough; transferring the filtered radial outflow from said one of the separator devices to the other of the separator devices; filtering the radial outflow from the other of the separator devices for further reduction in concentration of the contaminant within the polluted water; discharging the radial outflow of the polluted water from said other of the separator devices with reduced concentration of the contaminant

therein after said filtering; and collecting the polluted water with increased concentration of the contaminant therein from each of the separator devices for disposal of the contaminant.

5,800,721

COMBINED CARDIOTOMY FLUID AND VENOUS BLOOD RESERVOIR

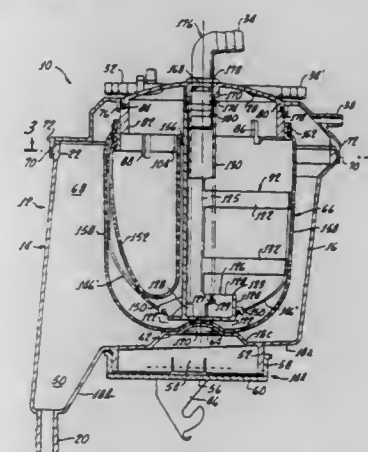
Robert R. McBride, Tustin, Calif., assignor to Baxter International Inc., Deerfield, Ill.

Filed Aug. 30, 1996, Ser. No. 697,814

Int. Cl.⁶ B01D 37/00; 35/01

U.S. Cl. 210—506

68 Claims



21. A method of treating both cardiotomy fluid and venous blood, said method comprising steps of:

- flowing said cardiotomy fluid and said venous blood each separately into a reservoir through at least two inlets at an upper end thereof, and out of the reservoir through a common outlet formed therein by
- separating the cardiotomy and venous blood flows about a generally vertical plane to define two side-by-side flow branches upstream of said common outlet;
- flowing said cardiotomy fluid through a liquid-permeable filtering element to provide filtered cardiotomy fluid;
- providing at least one de-foamer element between the two inlets and the outlet;
- de-foaming said filtered cardiotomy fluid and said venous blood by flowing each separately and at approximately the same elevation through said at least one de-foamer element;
- combining filtered and de-foamed cardiotomy fluid and de-foamed venous blood after said defoaming step; and
- flowing said combined cardiotomy fluid and venous blood together from said outlet.

5,800,722

MULTILAYER PRINTED WIRING BOARD AND PROCESS FOR MANUFACTURING THE SAME

Hiroaki Tsuyoshi, Omiya, and Tetsuro Sato, Ageo, both of Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Japan

Filed May 1, 1996, Ser. No. 640,491

Claims priority, application Japan, May 1, 1995, 7-128767

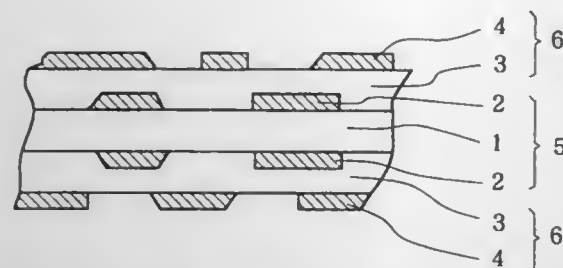
Int. Cl.⁶ B44C 1/22

U.S. Cl. 216—13

4 Claims

1. A process for the preparation of a multilayer printed wiring board comprising the steps of:

- (1) adhering a copper foil to one or both of the surfaces of an inner-layer substrate, masking portions of the surface of the copper foil so adhered and then etching the unmasked portions of the copper foil to form at least one copper circuit,
- (2) forming a cuprous oxide film on the surface of said at least one copper circuit,



- (3) laminating under heat and pressure at least one copper foil having a semi-cured insulating layer formed on one surface thereof on the at least one copper circuit having the cuprous oxide film formed thereon with said insulating layer facing to said cuprous oxide film, the insulating layer comprising 40-70% by weight of an epoxy resin, 20-50% by weight of a polyvinyl acetal resin and 0.1-20% by weight of a melamine resin or urethane resin, each based on the total weight of the resin ingredients, with the proviso that 5-80% by weight of said epoxy resin is a rubber-modified resin, and then
- (4) masking portions of said copper foil so laminated, followed by etching the unmasked portions of the copper foil to form at least one outer-layer copper circuit.

5,800,723

PROCESS FOR FABRICATING FLEX CIRCUITS AND PRODUCT THEREBY

Frank J. Juskey, Coral Springs; Douglas W. Hendricks, Gulfstream, and Sally A. Stallings, Lake Worth, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 10, 1996, Ser. No. 763,958

Int. Cl.⁶ B44C 1/22; C23F 1/00; H05K 1/00

U.S. Cl. 216-16

25 Claims

1. A process for fabricating a flex circuit without use of a photomask comprises:
- generating an electronic image representing circuit traces for a first side of a flex circuit; and
 - transferring a thermal transfer resin to a conductively clad flexible substrate under control of the electronic image representing circuit traces for the first side of a flex circuit to form an etch resist pattern on a first side of the conductively clad flexible substrate.

5,800,724

PATTERNED METAL FOIL LAMINATE AND METHOD FOR MAKING SAME

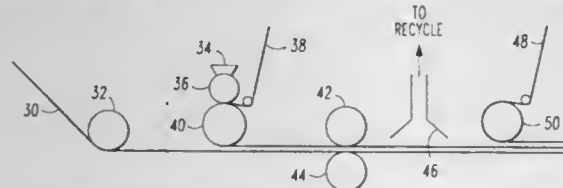
Charles C. Habeger, Atlanta, Ga., and Kenneth A. Pollart, Mason, Ohio, assignors to Fort James Corporation, Richmond, Va.

Continuation-in-part of Ser. No. 602,576, Feb. 14, 1996, Pat. No. 5,759,422. This application Jan. 16, 1997, Ser. No. 784,287

Int. Cl.⁶ B44C 1/22; C23F 1/00

U.S. Cl. 216-35

52 Claims



1. A method of forming a patterned metal foil/substrate laminate comprising the steps of:
- (a) laminating a sheet of metal foil to a substrate by applying an adhesive between said metal foil and said substrate; and
 - (b) irradiating said metal foil with a laser beam in a pattern for removing by vaporization the irradiated areas of the metal foil.

5,800,725

METHOD OF MANUFACTURING SEMICONDUCTOR WAFERS

Tadahiro Kato, Shirakawa; Hisashi Masumura, and Hideo Kudo, both of Fukushima-ken, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

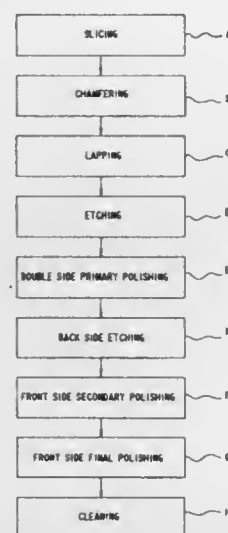
Filed Jan. 28, 1997, Ser. No. 789,798

Claims priority, application Japan, Jan. 31, 1996, 8-014842; Jan. 21, 1997, 9-008169

Int. Cl.⁶ B44C 1/22; C03C 15/00

U.S. Cl. 216-88

13 Claims



1. A method of manufacturing semiconductor wafers which comprises the steps of:
- (a) double side primary polishing of both the front and back sides of a starting wafer;
 - (b) back side etching of the back side alone of the double side polished wafer; and
 - (c) single side mirror polishing of the front side of the back side etched wafer.

5,800,726

SELECTIVE CHEMICAL ETCHING IN MICROELECTRONICS FABRICATION

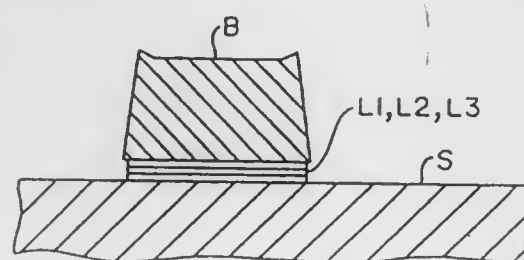
John Michael Cotte, New Fairfield, Conn.; Madhav Datta, Yorktown Heights, N.Y.; Thomas Edward Dinan, Poughkeepsie, N.Y., and Ravindra Vaman Shenoy, Peekskill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 26, 1995, Ser. No. 507,098

Int. Cl.⁶ C23G 001/14

U.S. Cl. 216-108

11 Claims



1. A chemical etchant for etching metals in the presence of one or more metals not to be etched, the etchant comprising:
- between 15 and 35 grams K_2HPO_4 ;
 - between 15 and 35 grms of EDTA; and
 - between 25 and 45 grams of oxalic acid dissolved in a liter of 30% H_2O_2 .

5,800,727

BASE MOLD FOR CONCRETE POST

Morris T. Croghan, 106 Papineau Road, Fulford, Quebec, Canada, J0E 1S0

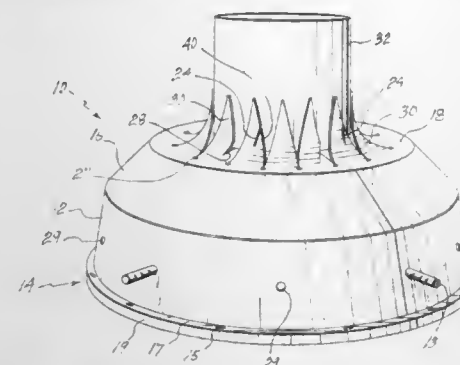
Filed Nov. 12, 1996, Ser. No. 748,198

Claims priority, application Canada, Dec. 7, 1995, 2164650; Jan. 31, 1996, 2168480

Int. Cl.⁶ E02D 5/66

U.S. Cl. 249-51

21 Claims



1. A mold suitable for forming a base for a concrete post, said mold comprising a mold member having a side wall portion and a top wall portion, said top wall portion having means for forming a plurality of radially extending main slits extending from a central point to thereby form a plurality of flaps, said top wall portion being formed of a flexible material.

5,800,728

PERMANENT MAGNETIC MATERIAL MADE OF IRON-RARE EARTH METAL ALLOY

Masao Iwata, Saitama, Japan, assignor to Hitachi Metals, Ltd., Tokyo, Japan

Continuation of Ser. No. 125,611, Sep. 7, 1993, abandoned, which is a continuation of Ser. No. 772,303, Oct. 7, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 468,333

Claims priority, application Japan, Oct. 5, 1990, 2-267736;

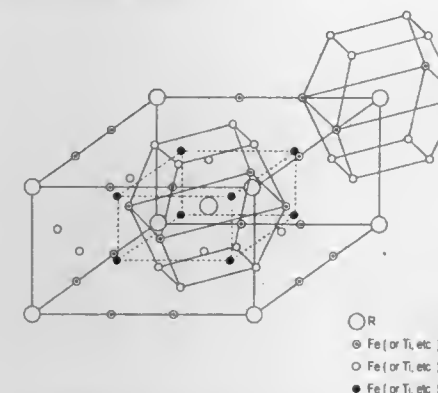
Oct. 11, 1990, 2-272742; Nov. 13, 1990, 2-306589; Nov. 13, 1990, 2-306590; Nov. 13, 1990, 2-306591; Nov. 13, 1990, 2-306592;

Sep. 13, 1991, 3-234913

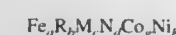
Int. Cl.⁶ C04B 35/64; H01F 1/057

U.S. Cl. 252-62.53

2 Claims



1. A permanent magnet consisting of an iron-rare earth permanent magnetic composition and binder, wherein said iron-rare earth permanent magnetic composition comprises a predominant phase including nitrogen as an interstitial atom, and consisting essentially of an iron-based alloy and having a composition represented by the following formula:



wherein R represents at least one element selected from the group consisting of Y, Th and lanthanide elements;

M represents at least one element selected from the group consisting of Ti, Cr, V, Zr, Nb, Al, Mo, Mn, Hf, Ta, W, Mg, Si, Sn, Ge and Ga;

said elements are present in atomic percentages indicated by a, b, c, d, g and h, wherein $a+b+c+d+g+h=100$ atomic %; and further,

 $3 \leq b \leq 30$ $0.5 \leq c \leq 30$ $0.3 \leq d \leq 50$ $0 \leq g \leq 50$, and $0 \leq h \leq 30$;

and where said nitrogen is introduced by heating the composition in a nitrogen containing gas atmosphere at 200° C. to 700° C.

5,800,729

MIXTURES OF PENTAFLUOROPROPANE AND A HYDROFLUOROCARBON HAVING 3 TO 6 CARBON ATOM

David P. Wilson, East Amherst; Rajiv R. Singh, Getzville; Rajat S. Basu, East Amherst; Ellen L. Swan, Lancaster, and David Nalewajek, West Senaca, all of N.Y., assignors to Electric Power Research, Palo Alto, Calif.

Filed Jul. 25, 1996, Ser. No. 685,821

Int. Cl.⁶ C09K 5/04

U.S. Cl. 252-67

23 Claims

1. A mixture having the properties of an azeotrope for use as a heat transfer agent for cooling, heating and combinations thereof, which mixture comprises:

(a) pentafluoropropane; and

(b) a hydrofluorocarbon of the formula:



wherein x is 3, 4, 5, or 6 and y and z are each independently 1 or a positive whole number such that the result of $y/(y+z)$ is greater than 0.67.

5,800,730

NEAR-AZEOTROPIC BLENDS FOR USE AS REFRIGERANTS

Donald Bernard Bivens, Kennett Square, Pa.; Mark Brandon Shiflett, Newark, and Akimichi Yokozeki, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 478,146, Jun. 7, 1995, Pat. No. 5,635,099, which is a continuation of Ser. No. 293,784, Aug. 22, 1994, abandoned, which is a continuation of Ser. No. 893,065, Jun.

3, 1992, abandoned, which is a continuation of Ser. No. 681,565, Apr. 5, 1991, abandoned, which is a continuation-in-part of Ser. No. 558,346, Jul. 26, 1990, abandoned. This application Jan. 13, 1997, Ser. No. 782,136

Int. Cl.⁶ E09K 5/04

U.S. Cl. 252-67

18 Claims

1. A near-azeotropic composition consisting essentially of 50 to 60 percent by weight pentafluoroethane, 35 to 45 percent by weight 1,1,1-trifluoroethane, and 3 to 10 percent by weight 1-chloro-1,1,2,2-tetrafluoroethane, wherein said composition has a vapor pressure of about 173.4 psia to about 179.0 psia at about 24° C. and said composition exhibits a change in vapor pressure of less than about 3.1 percent after about 80 weight percent of the composition is lost by evaporation.

5,800,731

HOMOGENEOUS ELECTROVISCOUS FLUIDS USING ALUMINUM COMPOUNDS

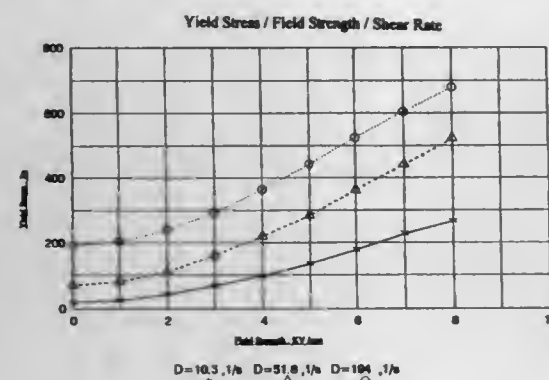
Dietrich Pirck, Sevetal; Hans-Dieter Grasshoff, Hamburg; Harald Kohnz, Oberhausen; Peter Finmans, Duisburg; Tobias Carstensen, Wüfrath; Dieter Jakubik, Mülheim a.d. Ruhr; Wilfried Weber, Brühl-Schwadorf, and Dieter Winkler, Mülheim bei Blankenheim, all of Germany, assignors to RWE-DEA Aktiengesellschaft für Mineralöl und Chemie, Germany

Continuation-in-part of Ser. No. 244,474, May 27, 1994, abandoned, and Ser. No. 374,731, Jan. 27, 1995, abandoned. This application Jun. 11, 1996, Ser. No. 664,294

Claims priority, application Germany, Nov. 28, 1991, 4139065.2; May 28, 1993, 4317764.6

Int. Cl.⁶ C10M 129/28; 129/64; 171/00
U.S. Cl. 252—76

14 Claims



1. A method of using a homogeneous electro-viscous fluid as a hydraulic fluid comprising:

A. inserting the homogeneous electro-viscous fluid into a machine, where the homogeneous electro-viscous fluid comprises:

aluminum soaps produced by a process comprising reacting i. at least one saturated or unsaturated monomeric, oligomeric or polymeric C₃ to C₃₂ carboxylic acid having at least two carboxylic groups, and/or an anhydride thereof or a semi-ester thereof, where the semi-ester has an alcohol moiety from straight or branched, monohydric or polyhydric C₁ to C₁₂ alcohols or oligomers thereof with ii. at least one aluminum compound reactive with carboxylic groups to form —C(=O)O—Al groups;

B. applying pressure to the homogeneous electro-viscous fluid; and

C. using the homogeneous electro-viscous fluid to transfer the pressure through the machine.

5,800,732

ALL-IN-ONE TREATMENT AGENT FOR COOLING WATER

Michael F. Coughlin, Cincinnati, and Lyle H. Steimel, Forest Park, both of Ohio, assignors to Diversy Lever, Inc., Plymouth, Mich.

Filed Feb. 7, 1997, Ser. No. 797,750
Int. Cl.⁶ C02F 5/14

U.S. Cl. 252—180

9 Claims

1. A concentrated, all-in-one cooling water treatment composition comprising from about 5% to about 30% by weight peroxide; a phosphonate in an amount effective to stabilize said peroxide in said treatment composition; an amount of an alcohol selected from the group consisting of ethylene glycol, propylene glycol, butylene glycol, and glycerol effective to further stabilize said peroxide; and a corrosion inhibitor selected from the group consisting of aromatic azoles and molybdates.

5,800,733

PHOTO CROSS-LINKABLE LIQUID CRYSTAL DERIVATIVES

Stephen Kelly, Beverley, England, assignor to Rolic AG, Zug, Switzerland

Filed Jul. 25, 1996, Ser. No. 686,973

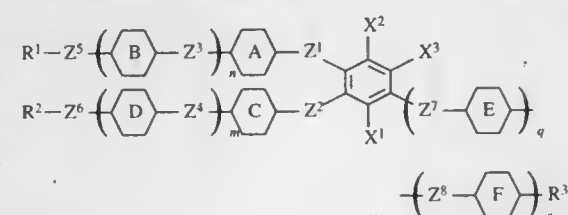
Claims priority, application Switzerland, Jul. 28, 1995, 02 221/95; European Pat. Off., May 9, 1996, 96107341

Int. Cl.⁶ C09K 19/06; 19/12; 19/20; C07C 69/76

U.S. Cl. 252—299.6

19 Claims

1. A compound of the formula



wherein

each of rings A,

B, C, D, E, and F independently is pyridine-2,5-diyl, pyrimidine-2,5-diyl, trans-1,4-cyclohexylene, trans-1,3-dioxane-2,5-diyl or 1,4-phenylene which is unsubstituted or substituted with one or more of halogen, methyl, or cyano;

each of Z¹, Z²

and Z³ independently is —CH₂—(CH₂)_n—, —(CH₂)_nO—, —O(CH₂)_n—, —COO—, —OOC—, —(CH₂)_nCOO— or —(CH₂)_nOOC—;

each of Z⁴, Z⁵

and Z⁶ independently is a single bond, —CH₂CH₂—, —CH₂O—, —OCH₂—, —COO—, —OOC—, —(CH₂)₄—, —O(CH₂)₃— or —(CH₂)₃O—;

each of Z⁷

and Z⁸ independently is —(CY₂)₃—, —O(CY₂)₃—, —(CY₂)₃O—, —(CY₂)₃COO—, —(CY₂)₃OOC—, —Si[(CH₃)₂O]₃—, —OCH₂Si[(CH₃)₂O]₃—, —NHCH₂Si[(CH₃)₂O]₃CH₂NH—; or

Y is hydrogen or fluorine;

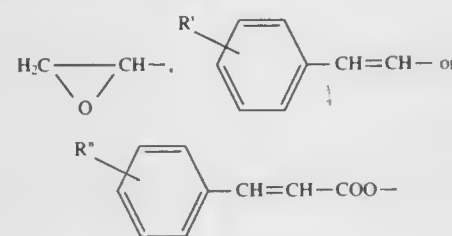
each of m, n,

q and r independently is 0, 1 or 2;

s is a whole number of 1 to 16;

each of R¹

and R² independently is CH₂=CH—, CH₂=CH—COO—, CH₂=C(CH₃)—COO—, CH₂=C(CI)—COO—, CH₂=C(Ph)—COO—, CH₂=CH—COO—Ph, CH₂=CH—CO—NH—, CH₂=C(CH₃)—CONH—, CH₂=C(CI)—CONH—, CH₂=C(Ph)—CONH—, CH₂=C(COOR')—CH₂—COO—, CH₂=CH—O—, CH₂=CH—OOC—, Ph—CH=CH—, CH₃—C(=NR')—, cis,trans HOO—CR'=CR'—COO—,



5,800,737

LIQUID CRYSTAL COMPOSITIONS

Lawrence Kam Ming Chan, Northolt, England, assignor to Central Research Laboratories Limited, Hayes, England
PCT No. PCT/GB95/01240, § 371 Date Feb. 25, 1997, § 102(c)
Date Feb. 25, 1997, PCT Pub. No. WO95/33802, PCT Pub.
Date Dec. 14, 1995

PCT Filed May 30, 1995, Ser. No. 750,119

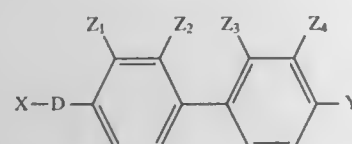
Claims priority, application United Kingdom, Jun. 4, 1994,
9411233

Int. Cl.⁶ C09K 19/12; 19/34

U.S. Cl. 252—299.66

14 Claims

1. A liquid crystal composition which, comprises a high order, tilted ferroelectric achiral Smectic I Phase exhibiting a relaxed cone angle of greater than 20° in the absence of surface tilt alignment layers, at temperatures in the range of 5° C. to 40° C., said composition comprising from 90% to 99.9% by weight of a mixture of at least two achiral host compounds each of the formula 1:



FORMULA 1

wherein

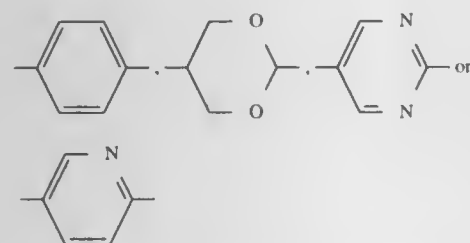
X is A₁ or OA₁;

Y is A₁, OA₁, OCOA₁ or CO₂A₁;

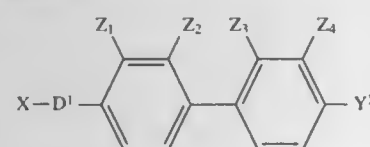
A₁ is a straight or branched chain alkyl group containing from 1 to 18 carbon atoms, optionally substituted with one or more F or CN;

Z₁, Z₂, Z₃, and Z₄ may each be H or F, but either one or two of Z₁, Z₂, Z₃, and Z₄ must be F;

D is



and from 0.1% to 10% by weight of a chiral dopant compound of the formula 2:



FORMULA 2

wherein

D¹ is D (as in Formula 1) or a single bond;

Y¹ is OA₁, OCOA₁ or CO₂A₁;

A₁ is an alkyl group containing from 1 to 18 carbon atoms, optionally substituted with one or more F or CN and containing at least one centre of asymmetry;

A₄ can either be the same as A₁ or a group of the formula —CH(R₁)COA₄;

wherein

R₁ is an alkyl group containing from 1 to 5 carbon atoms and A₄ is OR₁;

or —N(R₂)R₃ where R₂ and R₃ are hydrogen, R₁, phenyl optionally substituted by R₁, or together form a homocyclic or heterocyclic ring optionally substituted by R₁, provided that R₂ and R₃ are not the same;

and D, X, Z₁, Z₂, Z₃ and Z₄ have the above significance, except that all of Z₁, Z₂, Z₃ and Z₄ can be hydrogen.

5,800,738

METHODS FOR INHIBITING FOAM IN CRUDE OILS

Paul R. Hart, The Woodlands, Tex., assignor to BetzDearborn Inc., Trevose, Pa.

Filed Jun. 13, 1996, Ser. No. 664,017

Int. Cl.⁶ B01D 19/04; C10G 7/00

U.S. Cl. 252—321

6 Claims

1. A method for inhibiting foam during the processing of a stream consisting of crude oil and its fractions in crude unit distillation towers comprising adding to said crude oil and its fractions an effective foam inhibiting amount of polyisobutylene having a molecular weight of about 112 daltons to about 1960 daltons.

5,800,739

STABILIZED DISPERSIONS OF GRAPHITE PARTICLES

Wade Sonnenberg, Upton; Patrick J. Houle, Framingham; Thong B. Luong, Springfield; James G. Shelnut, Northboro, and Gordon Fisher, Sudbury, all of Mass., assignors to Shipley Company, L.L.C., Marlborough, Mass.

Filed Apr. 11, 1996, Ser. No. 626,636

Int. Cl.⁶ H01B 1/04; 1/24

U.S. Cl. 252—510

10 Claims

1. A stable aqueous dispersion of discrete conductive graphite particles, said dispersions comprising said particles dispersed in an aqueous medium and stabilized with a stabilizing quantity of a polymeric stabilizer having repeating alkylene oxide groups and a hydrophilic-lipophilic balance (HLB) in excess of 10.

5,800,740

ANTIMONY PENTOXIDE DISPERSIONS AND METHOD OF MAKING

David L. Catone, Hopkinton, Mass., assignor to Nyacol Products, Inc., Ashland, Mass.

Filed Oct. 25, 1996, Ser. No. 738,076

Int. Cl.⁶ C09K 21/04; 21/10; B01F 3/12; C09D 5/18

U.S. Cl. 252—610

7 Claims

1. The process for preparing an aqueous sol for use in providing flame retardancy to acrylic fibers consisting of the steps of:

- (1) forming an aqueous dispersion of a phosphated antimony pentoxide sol;
- (2) mixing the resulting aqueous dispersion with a water soluble alkanol amine; and
- (3) concentrating the dispersion to provide an aqueous dispersion containing at least 50 percent antimony pentoxide by weight, based upon the total weight of the dispersion, the sol being characterized as being essentially free of agglomeration such that substantially all of the sol will pass through an 8 micron filter.

5,800,741

EVAPORATIVE HUMIDIFIER HAVING WICK FILTER WITH COLOR CHANGE INDICATOR

Neville R. Glenn, Milford, Mass.; Ted Collier, Chillicothe, and Lori Rigsby, Waverly, both of Ohio, assignors to Holmes Products Corp., Milford, Mass.

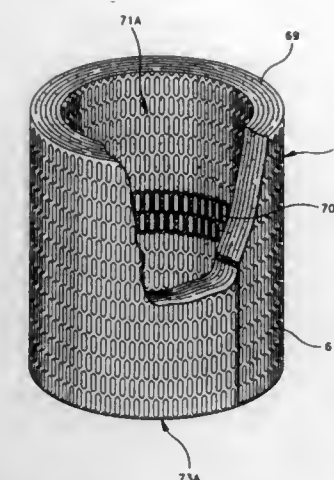
Continuation-in-part of Ser. No. 670,345, Jun. 25, 1996, which is a continuation of Ser. No. 222,295, Apr. 4, 1994, Pat. No. 5,529,726, and a continuation-in-part of Ser. No. 31,893, Dec. 8, 1994, abandoned. This application Aug. 12, 1996, Ser. No. 695,408

Int. Cl.⁶ B01F 3/04

U.S. Cl. 261—107

23 Claims

1. A filter for use with an evaporative humidifier comprising:



a filter made of a water absorbant material, and a color change indicator on a surface of said filter for providing indication when said filter should be replaced.

5,800,742

UNDERWATER AIR DELIVERING DEVICE

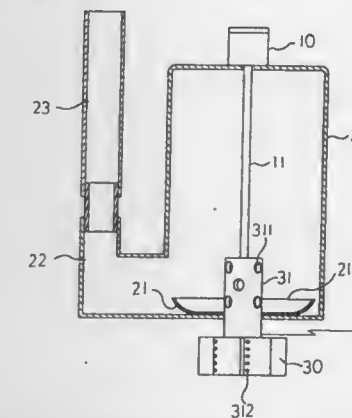
Mao-Chung Cheng, No. 274, Chung-Shan Rd., Hsin-Chu City, Taiwan

Filed Dec. 30, 1996, Ser. No. 774,598

Int. Cl.⁶ B01F 3/04

U.S. Cl. 261—87

4 Claims



1. An improved air delivering device for use in a marine farm or a fish raising pond, comprising:

- a motor, a shelter casing, an air introducing pipe, blade assembly;
- said motor secured to the roof of said shelter casing having an output shaft in connection to said blade assembly;
- said air introducing pipe being in communication with said shelter casing;
- said blade assembly having a hollow shaft with a plurality of slantly drilled holes disposed thereon being coupled to said output shaft of said motor end to end;
- a partition tray disposed at the bottom of said shelter casing for defining a chamber with said shelter casing having a central hole for the passage of said hollow shaft which is further led through a hole at the bottom of said shelter casing;
- said hollow shaft having a sleeve attached to the bottom thereof on which blades are integrally formed and a line of bores disposed adjacent to each said blade being disposed on said sleeve and communicating with said interior of said hollow shaft; said hollow shaft being partly housed inside said shelter casing and the bottom end engaged with said sleeve and blades being disposed externally of said shelter casing;
- whereby when said motor rotates, air introduced in said chamber defined by said partition tray and the shelter casing and water will be taken into said hollow shaft via said slantly drilled

holes and further discharged via said multiple bores on said sleeve so as to increase underwater oxygen content level of a fish-raising pond.

5,800,743

COOLING TOWER

Masahiro Usui, Chigasaki; Shigehira Yamamoto, Hiratsuka, and Osamu Goto, Ushiku, all of Japan, assignors to Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan

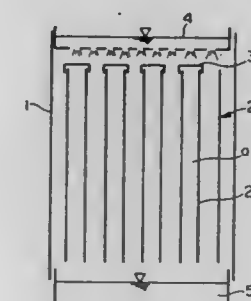
Filed Sep. 5, 1996, Ser. No. 708,716

Claims priority, application Japan, Sep. 6, 1995, 7-229151

Int. Cl.⁶ B01F 3/04

U.S. Cl. 261—153

20 Claims



1. A cooling tower comprising:

- a cross flow type heat dissipation unit having filling plates arranged vertically and parallel with each other so as to form dry air passages and crossflow moist air passages therebetween, each of said dry air passages and said moist air passages having inner surfaces;
- water supply means for supplying water to be cooled on said inner surfaces of said moist air passages for cooling the water by contact with air passing through said moist air passages; and
- water invasion stoppers provided at side ends of said filling plates for preventing the water flowing down said inner surfaces of said moist air passages from invading said dry air passages.

5,800,744

METHOD FOR PRODUCING A DIOPTRIC PHOTOCROMIC SEMI-FINISHED LENS

Yoshikazu Munakata, 2-3-35-606 Nishimiyahara Yodogawa-ku, Osaka 532, Japan

Filed Aug. 13, 1996, Ser. No. 699,776

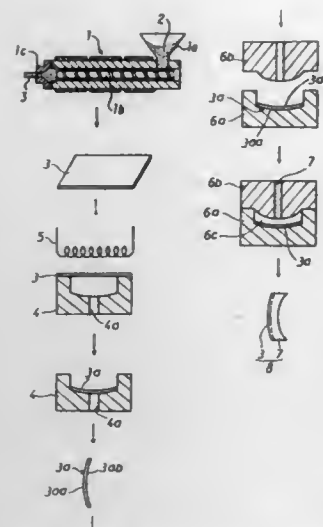
Int. Cl.⁶ B29D 11/00

U.S. Cl. 264—1.7

14 Claims

1. A method for producing a dioptric photochromic semi-finished lens comprising the steps of:

- mixing a photochromic material into a thermoplastic polycarbonate resin to make a photochromic resin
- forming a sheet of the photochromic resin having a predetermined thickness;
- curving the sheet to have a spherical surface to form a spherically curved sheet with a convex surface and a concave surface;
- placing the spherically curved sheet in a mold; and
- injecting a thermoplastic polycarbonate resin into the mold to form the dioptric photochromic semi-finished lens with the convex surface of the spherically curved sheet forming a front



convex surface of the dioptric photochromic semi-finished lens and the concave surface bonding with the thermoplastic polycarbonate resin injected into the mold.

5,800,745

OIL HOLDING CYLINDER FOR AN OIL COATING ROLLER AND METHOD THEREFOR

Yoshihisa Miyahara; Kouichi Kimura, both of Yokohama; Yoshiyuki Motoyoshi, Kawasaki; Tatsuo Takagi, Yokohama; Osamu Horiuchi, Kawasaki, and Hiromi Furuya, Kuroiso, all of Japan, assignors to Nichlas Corporation, Tokyo, and Zenith Corporation, Kuroiso, both of Japan

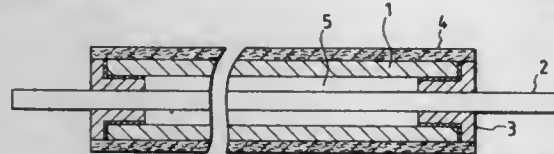
Division of Ser. No. 366,117, Dec. 29, 1994. This application Apr. 17, 1996, Ser. No. 633,531

Claims priority, application Japan, Dec. 29, 1993, 5-349748

Int. Cl.⁶ B29B 7/00

U.S. Cl. 264—13

3 Claims



1. A method for producing an oil holding cylinder for an oil coating roller, composing the following steps of: mixing organic binder of 30 to 50wt % with respect to ceramic fiber with a predetermined amount of water to form plastic mixture; extruding the plastic mixture into a cylinder; and after said extruding, drying said cylinder.

5,800,746

METHODS OF MAKING PIGMENTED SYNTHETIC FILAMENTS

Frank R. Jones, Asheville; Stanley A. McIntosh, Candler; Gary A. Shore, Asheville; Karl H. Buchanan; David B. Ledford, both of Arden; Wayne S. Stanko, Asheville; G. Daniel Gasperson, Candler, and Charles F. Helms, Jr., Asheville, all of N.C., assignors to BASF Corporation, Mount Olive, N.J.

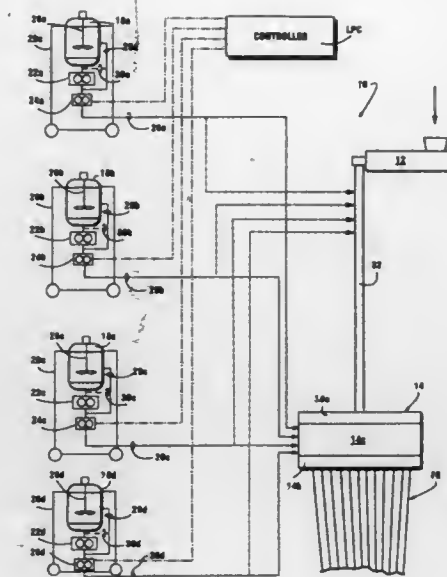
Filed Mar. 3, 1997, Ser. No. 811,058

Int. Cl.⁶ D01F 1/04; 8/04

U.S. Cl. 264—13

39 Claims

1. A method of making pigmented filaments comprising: (i) supplying a melt flow of a melt-spinnable polymeric host material to the spinneret orifices; (ii) providing an additive system which is comprised of (1) a dispersant polymer, (2) solid pigment particles coated by said



dispersant polymer so as to form solid dispersant-coated pigments having an average particle size of greater than about 5 μ m, and (3) a liquid nonaqueous polymer carrier in which said solid dispersant coated pigments are dispersed;

(iii) incorporating the additive system within at least a portion of the melt flow of polymeric host material upstream of the spinneret orifices to form a mixture of the polymeric host material and the additive system, and allowing said dispersant-coated pigment particles to break apart into average particle sizes of about 1 μ m or less in the mixture; and then (iv) extruding a melt of the mixture through the spinneret orifices to form pigmented filaments.

5,800,747

METHOD FOR MOLDING USING AN ION IMPLANTED MOLD

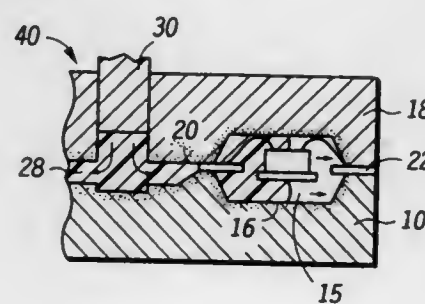
Daniel Cavašin, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 2, 1996, Ser. No. 674,379

Int. Cl.⁶ B29C 33/56; 45/02; 70/70

U.S. Cl. 264—39

15 Claims



1. A method for molding a semiconductor device comprising: providing a mold tool having a cavity which defines the semiconductor device to be molded, wherein the mold tool comprises a first platen having a first surface, wherein a portion of the first surface has been modified by ion implantation to form a first modified surface, and wherein the first surface comprises a contact area and a non-contact area, and the contact area is in contact with the molding compound during the step of filling, and at least a portion of the contact area has been modified by ion implantation to form the first modified surface, and the cavity of the first platen comprises a runner

portion and a package portion, and wherein the contact area comprises the runner portion and the package portion of the cavity; providing a semiconductor element; positioning the semiconductor element within the cavity of the mold tool; providing a molding compound; and filling the cavity of the mold tool with the molding compound.

5,800,748

PRESSURE DATA DISPLAY METHOD FOR AN INJECTION MOLDING MACHINE

Masao Kamiguchi, Kawaguchiko-machi; Noriaki Neko, Oshino-mura; Kaoru Hiraga, Oshino-mura, and Motohiro Nagaya, Oshino-mura, all of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

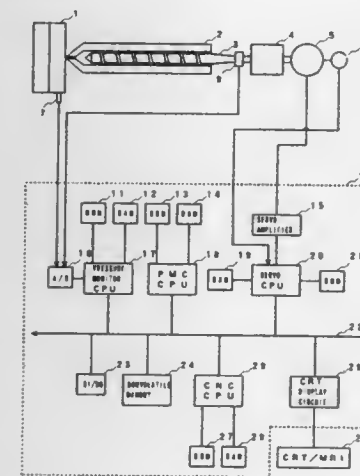
Filed Mar. 6, 1996, Ser. No. 611,813

Claims priority, application Japan, Mar. 13, 1995, 7-079317

Int. Cl.⁶ B29C 45/77

U.S. Cl. 264—40.1

16 Claims



1. A pressure data display method for an injection molding machine, comprising the steps of:

- setting a reference injection pressure at every predetermined time in an injection molding operation, prior to starting the injection molding operation;
- detecting the value of the injection pressure at every predetermined detection time corresponding to the time of said step (a) during the injection molding operation;
- obtaining a deviation between the reference injection pressure and detected injection pressure at said detection time, based on the data of the reference injection pressure set in step (a) and the data of injection pressure in step (b); and
- graphically displaying the deviation between the reference injection pressure for each said detection time and the detected injection pressure on a coordinate system having one axis on a display means representing the detection time and the other axis representing the pressure value; wherein said reference injection pressure set in said step (a) is displayed simultaneously on the coordinate system of the display means of said step (d) when the deviation between the reference injection pressure and the detected injection pressure is displayed on the coordinate system.

5,800,749

METHOD OF MAKING COMPOSITE STRUCTURES

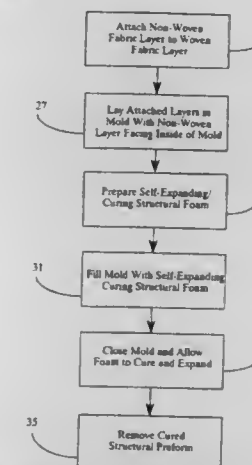
Scott M. Lewit, Melabar, and Neil Rohan, New Smyrna Beach, both of Fla., assignors to Comsys, Inc., West Melbourne, Fla.

Continuation of Ser. No. 345,899, Nov. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 181,321, Jan. 14, 1994, Pat. No. 5,429,066. This application May 21, 1996, Ser. No. 651,621

Int. Cl.⁶ B29C 44/06; 44/12

U.S. Cl. 264—46.4

18 Claims



1. A method of making a composite structure having an exposed reinforcing fabric layer free of structural foam and curable resin, said method comprising the steps of:

- attaching a reinforcing fabric layer to a non-woven fabric layer on one side thereof;
- arranging said attached fabric layers in a configuration constrained against outward movement and with the non-woven fabric layer facing inwardly and defining a cavity between opposing surfaces thereof;
- dispensing a predetermined amount of a self-expanding, self-curable, uncured structural foam into said cavity, said foam expanding and curing in said cavity at a molding pressure determined by said predetermined amount of said foam and thereby attaching itself to said non-woven fabric layer to form said composite structure, said molding pressure causing said expanding foam to substantially fill only interstices of said non-woven fabric layer, without substantially penetrating the reinforcing fabric layer; and,
- freeing said cured composite structure from said constraint of said arranging step, said reinforcing fabric layer of said composite structure being thereafter substantially completely saturable with a curable material for lamination to another structure in a subsequent processing step.

5,800,750

METHOD FOR MOLD PROTECTION OF CRANK-TYPE CLAMPING UNIT

Muh-Wang Laing, Miao Li; Shui-Bin Horng, Hsinchu; Chin-Yu Chao, Shin Ying; Han-Chieh Chang, Taipei, and Chung-Hsih Hsiao, Jia Yi, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jun. 14, 1996, Ser. No. 663,758

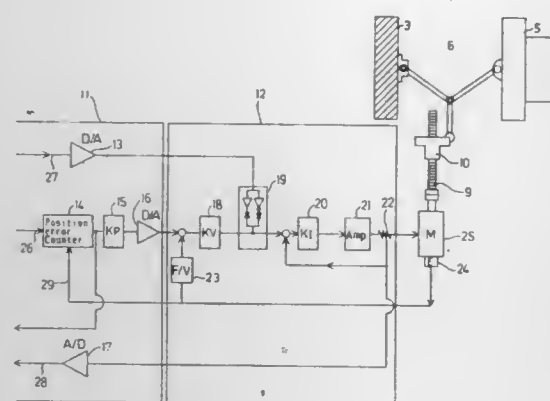
Int. Cl.⁶ B29C 45/77; 45/80

U.S. Cl. 264—40.5

4 Claims

1. A method for using a clamping unit for making a mold, said clamping unit having a movable platen which is linked to a rear platen by means of a toggle mechanism and is driven by a servo motor, from which a driving force is transmitted through a ball screw and a ball screw nut to the toggle mechanism, said method comprising the steps of:

- (1) varying a restrictive torque value for the servo motor so as to obtain an optimum mold protective force; and



- (2) computing a relationship between a mold locking force and the movable platen according to a mold locking force adjustment method to accordingly determine an end point for protection of the mold;
- (3) wherein the restrictive torque value for the servo motor is obtained according to the following sub-steps:
- (i) computing the mechanism advantage of the toggle mechanism, $K(s)$, according to the following equation:

$$K(s) = \frac{V_A}{V_D} = \frac{b \times [\sin(\theta) + \tan(\beta)\cos(\theta)]}{c \times [\sin(\theta') + \tan(\phi)\cos(\theta')]}$$

wherein:

- $K(s)$ is the mechanism advantage of the toggle mechanism which varies with respect to the position of the ball screw nut;
- V_A is the speed of the movable platen;
- V_D is the speed of the ball screw nut;
- b is the length of a first rear arm of the toggle mechanism;
- c is the length of a second rear arm of the toggle mechanism;
- θ is the axial angle of the first rear arm with respect to an axis of the clamping unit;
- ψ is the angle between a driving arm of the toggle mechanism and the ball screw;
- β is the axial angle of a front arm of the toggle mechanism with respect to the axis; and
- $\theta' = \alpha + \theta$ wherein α is the angle of the second rear arm with respect to the axis;
- (ii) computing the theoretical restrictive force according to the following equation:

$$F_{in}(s) \times K(s) = F_{out}$$

- wherein s is the position of the ball screw nut;
- F_{out} is the force required to move the movable platen at a desired speed; and
- F_{in} is the driving force generated by the motor;
- (iii) calculating the restrictive force according to the following equation:

$$F_{in}^1(s) = F_{in}(s) \times (1 + C_1\%)$$

wherein

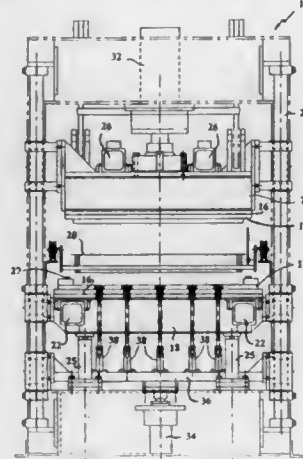
- $F_{in}^1(s)$ is the actual restrictive force;
- $F_{in}(s)$ is the theoretical restrictive force, which is also the driving force generated by the motor; and
- $C_1\%$ is the operator-set correction factor.

5,800,751
METHOD OF MAKING PAINT BRUSH WITH CO-INJECTION MOLDED HANDLE
Richard L. Barker, Apple Creek, Ohio, assignor to The Wooster Brush Company, Wooster, Ohio
Division of Ser. No. 516,214, Aug. 17, 1995. This application Jun. 13, 1997, Ser. No. 874,179
Int. Cl.⁶ B29C 44/04; 44/06
U.S. Cl. 264—46.6 10 Claims



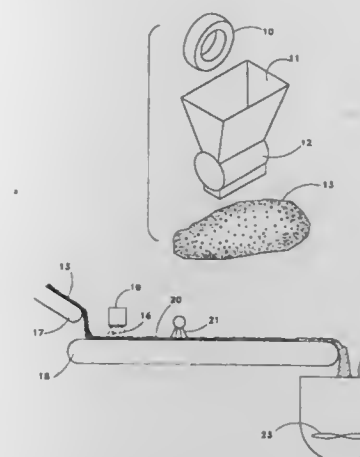
1. A method of making a paint brush handle in a mold having a cavity defining the shape of the paint brush handle with an axially extending grip portion and a head portion, the cavity having an inlet for molding material coaxially with the axis of the handle, comprising the steps of positioning a flow diverter in the head portion of the cavity opposite the inlet, directing through the inlet and toward the diverter an initial partial shot of an elastomeric material to form a coating on the inside of the mold cavity, and thereafter simultaneously injecting more elastomeric material and a polyolefin material containing a foaming agent surrounded by the elastomeric material to fill the balance of the mold cavity.

5,800,752
PROCESS FOR MANUFACTURE OF POLYMER COMPOSITE PRODUCTS
Raymond Charlebois, Quebec, Canada, assignor to Charlebois Technologies Inc., Quebec, Canada
Filed Jan. 11, 1996, Ser. No. 584,821
Int. Cl.⁶ B29C 43/00
U.S. Cl. 264—71 16 Claims

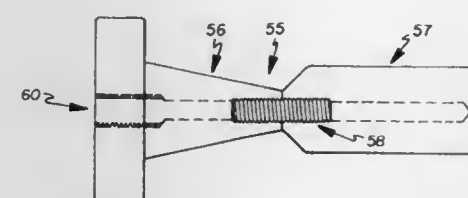


1. A process for the manufacture of a polymer composite product, comprising the steps of distributing a pre-determined amount of a mixture of filler and polymeric binder in a mold; curing the

mixture by simultaneous application of heat, pressure and vibration; the mixture being heated, pressurized and vibrated in the curing step sufficient to: (a) form a skin of cured polymer around the mixture of filler and polymeric binder; (b) minimize boiling and evaporation of the polymeric binder; and (c) evenly distribute the filler in the mold such that the formed polymer composite product is substantially void-free.



5,800,753
CHEMICAL VAPOR DEPOSITION METHOD
Robert F. Donadio, Hudson, N.Y., assignor to Performance Materials, Inc., Hudson, N.H.
Continuation of Ser. No. 433,033, May 3, 1995. This application Oct. 31, 1996, Ser. No. 741,921
Int. Cl.⁶ C23C 16/00
U.S. Cl. 264—81 8 Claims



1. A chemical deposition process for forming a crucible constructed of a unitary layer of crucible material having a first predetermined oxidation temperature and a first thermal contraction coefficient and having a predetermined configuration defining an interior space with at least one negative draft portion, comprising the steps of:

- (a) providing a mandrel having a predetermined exterior configuration equivalent to said crucible interior space, said mandrel comprising at least first and second separable members joined by a third member, and wherein said first separable member is formed with a negative draft forming portion corresponding to the negative draft portion of the interior space of the crucible, said portion of said first member having a predetermined oxidation temperature, and at least one base portion and said third member having a second thermal contraction coefficient;
- (b) forming the crucible around said mandrel by depositing by vapor deposition in a vacuum chamber at elevated temperature a thin layer of said crucible material;
- (c) cooling the formed crucible and mandrel sufficiently to form a predetermined fracture in said third member;
- (d) supplying oxidant to said first member; and
- (e) heating the crucible and mandrel at a temperature at least equal to said predetermined oxidation temperature of said first member and oxidizing said first member.

5,800,754
BUILDING MATERIALS FROM RECYCLED TIRES
Richard J. Woods, 13347 E. Temple, La Puente, Calif. 91748
Filed Jun. 20, 1997, Ser. No. 879,720
Int. Cl.⁶ B29B 43/02
U.S. Cl. 264—115 7 Claims

1. A process for forming a building unit comprising: grinding a plurality of tires into a mixture including ground rubber, metal strand fragments and fiber pieces; adding between 15% and 20% of an adhesive comprising asphalt to form a ground tire/asphalt mixture; placing a quantity of ground tire/asphalt mixture into a heated mold formed in the shape of a building unit; applying heat and pressure to the ground tire/asphalt mixture to create a shaped unit; removing the shaped unit from the mold to form a molded building unit; and

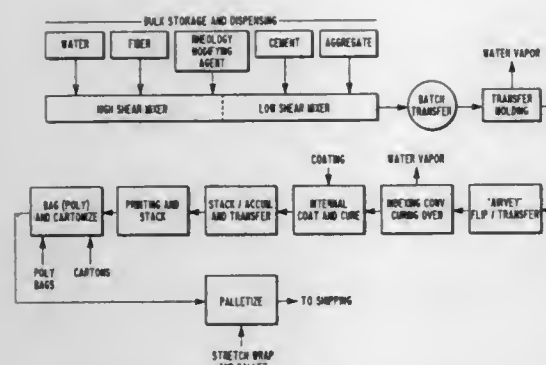
allowing the molded building unit to cool to form a finished building unit.

5,800,755
AGGLOMERATED ACTIVE WITH CONTROLLED RELEASE
John David Withenshaw, Northrop; Mark Arden Chadwick, Greenfield, and William John Wilson, Wirral, all of United Kingdom, assignors to Warwick International Group Limited, United Kingdom
Filed Sep. 16, 1996, Ser. No. 710,340
Claims priority, application United Kingdom, Sep. 19, 1995, 9519094.3
Int. Cl.⁶ B29C 67/02; C09K 3/00
U.S. Cl. 264—117 18 Claims

1. A process for making an agglomerated active with controlled release comprising the steps of mixing a particulate solid active material and a cellulose derivative co-binder in the form of a particulate solid and optionally also a portion of polyvinyl alcohol and then adding an aqueous agglomerating solution which contains polyvinyl alcohol binder whilst mixing and agglomerating and drying the agglomerate to obtain a dried agglomerate with average particle size in the range 1–2000 microns wherein the dried agglomerate comprises from 0.02 to 5% by weight based on the total weight of the agglomerate of polyvinyl alcohol.

5,800,756
METHODS FOR MANUFACTURING CONTAINERS AND OTHER ARTICLES FROM HYDRAULICALLY SETTABLE MIXTURES
Per Just Andersen, and Simon K. Hodson, both of Santa Barbara, Calif., assignors to E. Khashoggi Industries, LLC, Santa Barbara, Calif.
Continuation of Ser. No. 105,352, Aug. 10, 1993, Pat. No. 5,676,905, which is a continuation-in-part of Ser. No. 95,662, Jul. 21, 1993, Pat. No. 5,385,764, which is a continuation-in-part of Ser. No. 929,898, Aug. 11, 1992, abandoned, and Ser. No. 19,151, Feb. 17, 1993, Pat. No. 5,453,310. This application Jun. 7, 1995, Ser. No. 487,792
Int. Cl.⁶ B29C 59/00; 71/00; B28B 3/00
U.S. Cl. 264—129 60 Claims

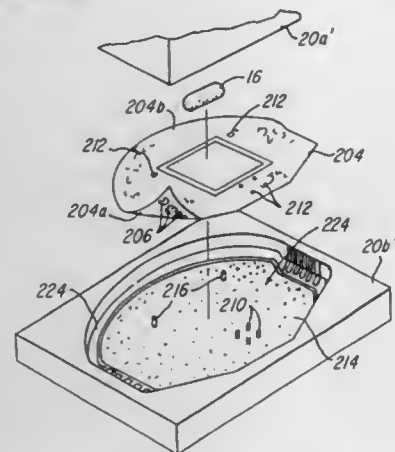
1. A method for manufacturing an article having a base and at least one sidewall, the method comprising the steps of: (a) preparing a highly inorganically filled mixture including a hydraulically settable binder, an inorganic aggregate, a rheology-modifying agent for increasing the yield stress of the mixture, and water; (b) molding the inorganically filled mixture into a desired shape of the article in a manner that causes the article to be form



stable in less than about 1 minute after being molded into the desired shape, the molded article having a base and at least one sidewall; and

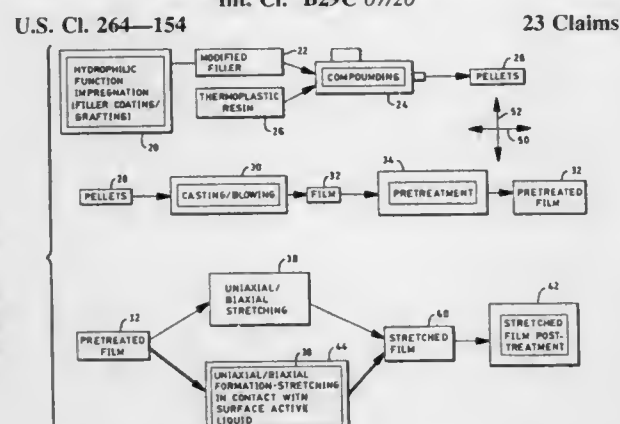
(c) allowing the molded inorganically filled mixture to harden in the desired shape of the article, the hardened article including greater than about 50% by volume of combined amounts of at least partially hydrated hydraulically settable binder and inorganic aggregate.

5,800,757
SYSTEM AND METHOD FOR MOLDING A BASKETBALL BACKBOARD
Fredric Louis Abrams, and Robert F. Freund, both of Dayton, Ohio, assignors to Modern Technologies Corp., Dayton, Ohio
Continuation-in-part of Ser. No. 220,906, Mar. 31, 1994, Pat. No. 5,591,384. This application Sep. 17, 1996, Ser. No. 710,411
Int. Cl.⁶ B29C 43/34; 47/36
U.S. Cl. 264—132 46 Claims



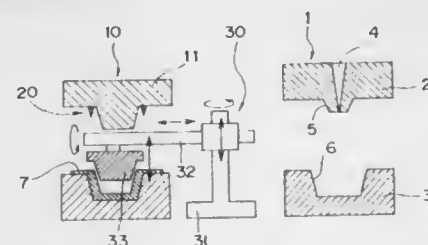
1. A method for molding a part comprising the steps of:
loading a barrel of a plasticator with a plurality of molding materials comprising a plurality of thermoplastic polymers and long reinforcing fibers, said barrel having a screw rotatable mounted therein;
heating said barrel;
rotatable driving said screw to blend said plurality of molding materials together to create a molten suspension in a storage area of said barrel such that a majority of said long reinforcing fibers remain intact;
axially retracting said screw in a first direction as said molten suspension is accumulated in said storage area;
axially driving said screw in a second direction to force said molten suspension out of said barrel, said second direction being opposite said first direction;
severing said molten suspension to provide a billet;
laying a sheet into a mold, said sheet comprises a graphic image on a side thereof;
placing said billet onto said sheet; and
integrally molding said sheet into said part.

5,800,758
PROCESS FOR MAKING MICROPOROUS FILMS WITH IMPROVED PROPERTIES
Vasily Aramovich Topolkarayev, and Fu-Jya Tsai, both of Appleton, Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
Filed Sep. 16, 1997, Ser. No. 932,817
Int. Cl.⁶ B29C 67/20
U.S. Cl. 264—154 23 Claims



1. A method for forming a porous film, comprising a stretching of a layer composed of a polymer material and at least about 5 wt % of a particulate filler material to form said porous film; said particulate filler material having first been treated with an operative amount of surface-active material having a HLB value of not less than about 6 to provide surface modified filler particles, and said modified filler particles having been intermixed with said polymer material after having been treated with said surface-active material.

5,800,759
INSERT MOLDED ARTICLE, AND APPARATUS AND METHOD FOR PRODUCING THE INSERT MOLDED ARTICLE
Seiichi Yamazaki, and Shiroh Okuno, both of Kyoto, Japan, assignors to Nissha Printing Co., Ltd., Kyoto, Japan
PCT No. PCT/JP93/01903, § 371 Date Aug. 26, 1994, § 102(e) Date Aug. 26, 1994, PCT Pub. No. WO94/14590, PCT Pub. Date Jul. 7, 1994
PCT Filed Dec. 27, 1993, Ser. No. 295,663
Claims priority, application Japan, Dec. 27, 1992, 4-358267; Mar. 18, 1993, 5-085482
Int. Cl.⁶ B28B 7/14
U.S. Cl. 264—163 30 Claims



1. A method of producing an insert molded article, comprising:
providing an injection molding die including a female die having a cavity formation face and a male die having a cavity formation face;
providing a preforming die having a projecting part corresponding to one of the cavity formation face of the female die and the cavity formation face of the male die;
providing a trimming device;
providing a transfer head movable between the injection molding die and at least one of the preforming die and the trimming device;

forming a patterned insert material in the preforming die while the patterned insert material is clamped at end parts thereof in the preforming die by a clamping device and while a pattern of the patterned insert material is located at a predetermined position on the projecting part of the preforming die, so as to form a preformed patterned insert conforming to a shape of the projecting part of the preforming die;

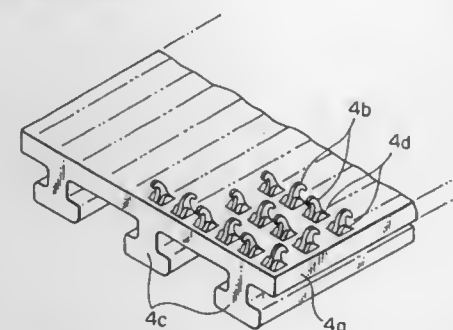
trimming, from the preformed patterned insert, an unnecessary portion of the preformed patterned insert so that the unnecessary portion does not project from a peripheral edge of the preformed patterned insert;

operating the transfer head for removing the preformed and trimmed patterned insert from the preforming die, for transferring the preformed and trimmed patterned insert into the injection molding die and for setting the preformed and trimmed patterned insert against one of said cavity formation face of said female die and said cavity formation face of said male die;

closing said male and female dies relative to one another such that said cavity formation face of said female die and said cavity formation face of said male die together constitute a cavity;

injecting a molding resin into said cavity; and
removing the insert molded article from said injection molding die after the molding resin has cooled and solidified.

5,800,760
METHOD AND APPARATUS FOR CONTINUOUSLY MOLDING A FASTENING CONNECTOR
Toshiaki Takizawa; Mitsuru Akeno, and Tsuyoshi Minato, all of Toyama, Japan, assignors to YKK Corporation, Tokyo, Japan
Filed Sep. 18, 1996, Ser. No. 714,306
Claims priority, application Japan, Sep. 25, 1995, 7-245700
Int. Cl.⁶ B29C 47/32; 39/18
U.S. Cl. 264—167 15 Claims



1. A method of continuously molding a unitary synthetic resin fastening connector which includes a substrate sheet, a multiplicity of engaging elements projecting from a front surface of the substrate sheet, and at least one continuous straight row of engaging ridge projecting from a rear surface of the substrate sheet and extending longitudinally along the rear surface of the substrate, said method comprising the steps of:

(a) rotating in one direction a die wheel having in its circumferential surface a multiplicity of engaging-element-forming cavities;
(b) continuously applying a predetermined width of molten resin onto the circumferential surface of the rotating die wheel under a predetermined resin pressure to fill said engaging-element-forming cavities with a first portion of said molten resin, thereby molding the engaging elements and continuously molding the substrate sheet in a predetermined thickness with a second portion of said molten resin simultaneously with the molding of the engaging elements; and
(c) applying a third portion of said molten resin to at least one engaging-ridge-forming channel of a predetermined cross section facing the circumferential surface of the rotating die wheel to continuously mold the engaging ridge integrally with

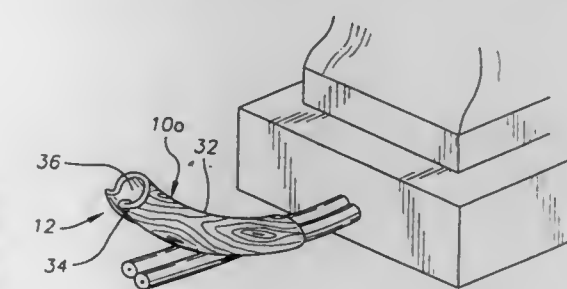
the rear surface of the substrate sheet and simultaneously with the molding of the substrate sheet.

5,800,761
METHOD OF MAKING AN INTERFACE LAYER FOR STACKED LAMINATION SIZING AND SINTERING
Jon A. Casey, Poughkeepsie, N.Y.; Michael A. Cohn, Ramsey, N.J.; Michael E. Cropp, La Grangeville, N.Y.; Candace A. Sullivan; Robert J. Sullivan, both of Pleasant Valley, N.Y., and Andrew H. Vogel, Hopewell Junction, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 8, 1996, Ser. No. 727,097
Int. Cl.⁶ B29D 7/01 14 Claims

1. A method of making an interface layer for separating first and second microelectronic ceramic substrates during firing comprising the steps of:

combining in a container a separating material and a sufficient quantity of a binder and a solvent to bind the separating material;
mixing the binder, solvent and separating material for a sufficient period of time to form a homogeneous mass; and
casting the mixed binder, solvent and separating material in sheet form on a carrier to form the interface layer removing the interface layer from the carrier.

5,800,762
PROCESS FOR DECORATING ELECTRICAL CORDS
Eunice A. Bethel, 1211 Cass St., Gary, Ind. 46403
Filed Dec. 6, 1996, Ser. No. 761,292
Int. Cl.⁶ B29C 61/02 2 Claims



1. A process for decorating electrical cords comprising the steps of:
providing a length of heat shrinkable tubing having a lateral insertion slit formed along said length thereof in connection with a passageway running said length, said heat shrinkable tubing having an outer surface embossed with a pattern thereon;
positioning a length of electrical cord laterally through said lateral insertion slit into said passageway of said heat shrinkable tubing; and
applying heat to a top section of said heat shrinkable tubing, said top section being located opposite said lateral insertion slit, said heat being applied for a sufficient time to shrink said top section of said heat shrinkable tubing.

5,800,763

METHOD FOR PRODUCING DATA CARRIERS WITH EMBEDDED ELEMENTS

Joachim Hoppe, and Arno Hohmann, both of Munich, Germany, assignors to Giesecke & Devrient GmbH, Munich, Germany

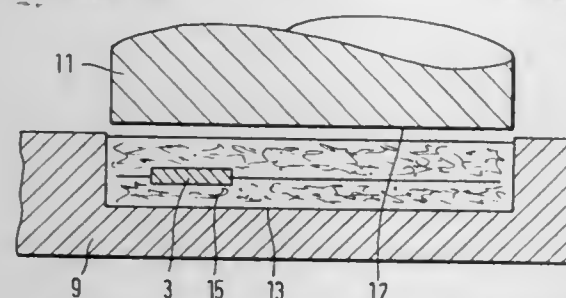
Filed Sep. 28, 1995, Ser. No. 535,877

Claims priority, application Germany, Oct. 6, 1994, 44 35 802.4

Int. Cl.⁶ B29C 39/10; 70/70

U.S. Cl. 264—255

12 Claims



1. A method for producing a data carrier having a card body comprising two plane-parallel main surfaces and at least one data-carrying element, said method comprising the following steps:

- providing a pressing apparatus having a pressure ram whose end face corresponds to one of said main surfaces of the card body and a die with a recess whose base surface corresponds to one of said main surfaces and whose depth corresponds at least to the thickness of the card body;
- charging the recess of the die with a measured quantity of molding compound comprising one of a plastic granular material and a powder;
- heating the molding compound in said recess to the point of flowability;
- performing a pressing operation by lowering the pressure ram into the recess of the die and pressing the molding compound in said recess with the pressure ram until the molding compound in the recess assumes desired dimensions to form said card body;
- returning the pressure ram and removing the card body from the pressing apparatus; and
- performing an operation comprising causing said element to be one of (i) at least partially embedded in said card body and (ii) disposed at least partly on one of said main surfaces of said card body.

5,800,764

EXTERNAL VENTING METHOD FOR FORMING CLOSURE LINERS

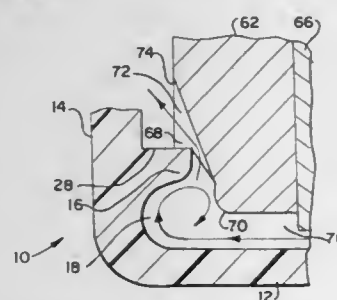
Lawrence M. Smeyak, Lafayette, and Alex I. Lerner, Zionsville, both of Ind., assignors to Alcoa Closure Systems International, Inc., Crawfordsville, Ind.

Filed Dec. 26, 1995, Ser. No. 578,143

Int. Cl.⁶ B29C 43/04

U.S. Cl. 264—268

10 Claims



1. A method for forming a liner in a closure for a container comprising:

forming a plastic closure cap having a circular top wall portion and a depending annular skirt portion depending from the top wall portion;

depositing a quantity of moldable plastic in said cap;

providing a liner forming assembly having a liner tip and a liner sleeve, said liner tip being axially movable relative to said liner sleeve, said liner sleeve having a plurality of circumferentially spaced apart, radially oriented venting passages positioned on an outer surface thereof;

advancing said assembly into said cap to engage said sleeve, adjacent to said venting passages, with said cap, to de a liner space; and

advancing said liner tip into said cap, relative to said liner sleeve, to compress said moldable plastic to form said liner while restraining the flow of moldable plastic between said sleeve and said cap, and while venting gas out of said liner space through said venting passages as said moldable plastic flows into said liner space.

5,800,765

DOUBLE DOCTOR BLADES

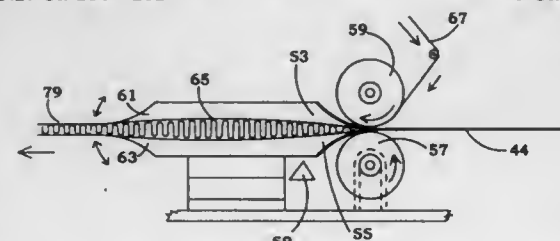
Rexford H. Bradt, Warsaw, Ind., assignor to Materials Research Innovations Corporation, Warsaw, Ind.

Filed Mar. 19, 1996, Ser. No. 617,618

Int. Cl.⁶ B29C 53/02

U.S. Cl. 264—282

6 Claims



1. The method of forming a continuous web of corrugated material comprising the steps of:

- supplying a continuous elongated web of material;
- moving the web in the direction of web elongation along a path between a pair of cylindrical rollers at a first velocity;
- impeding the motion of the web at a preferred location along the path by positioning a pair of crowding doctor blades at the nip between the pair of rollers with each doctor blade closely adjacent the surface of a corresponding one of said rollers to receive the web from between the rollers, and restricting the web progress as it exits from between the pair of doctor blades so that web velocity along the path subsequent to the preferred location is less than the first velocity along the path prior to the preferred location so as to increase the cross-sectional area in a plane perpendicular to the direction of web elongation and deform the web.

5,800,766

METHOD OF COMPACTING A PLURALITY OF FLAT, STACKED, NON-WOVEN ARTICLES

Wayne M. Merry, 431-X Park Ridge La., Winston-Salem, N.C. 27104

Continuation of Ser. No. 610,435, Mar. 4, 1996. This application Mar. 4, 1997, Ser. No. 810,402

Int. Cl.⁶ D21J 3/00; B65B 35/00; 85/18; B30B 13/00

U.S. Cl. 264—324

4 Claims

1. A method of compacting a plurality of substantially flat, stacked, non-woven articles containing cotton from a normal size to a significantly reduced size comprising the steps: positioning the stacked articles in a shaping environment; subjecting the stacked articles to an elevated pressure for a predetermined period of time so that the stacked articles are compacted and reduced in size; and removing the pressure from the articles and the articles from the shaping environment whereby the articles can be individually

5,800,768

METHOD FOR THERMALLY TREATING ELECTROCONDUCTIVE POLYMERIC PYROGEN

Tae Min Kim, 103-904 Dae Woo Apt. Anyang-2 dong, Anyang-City, Kyung Gi-do, and Hyun Suk Kim, 104-4 Godung-dong, Kwonsun-ku, Suwon-City, Kyung Gi-do, both of Rep. of Korea

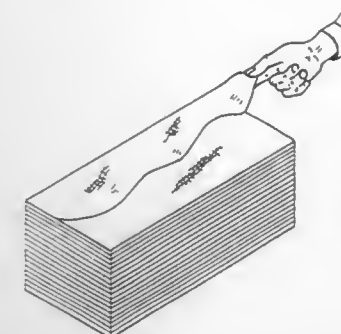
Filed Jan. 16, 1996, Ser. No. 585,487

Claims priority, application Rep. of Korea, Feb. 8, 1995, 95-2210

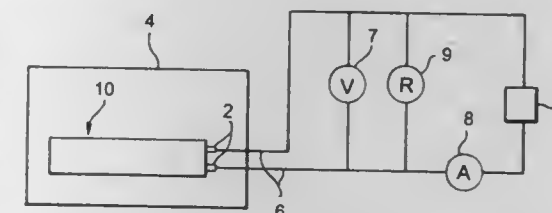
Int. Cl.⁶ B29C 35/02

U.S. Cl. 264—450

10 Claims



removed from the stacked relationship and will thereafter return to their original, uncompacted condition without the application of any additional substances and wherein the stacked articles are mop heads, the pressure applied to compact the articles to achieve a volume reduction of approximately 80% is in the range of from 3,500 psi to 6,000 psi, and the period of time is up to 240 seconds.



1. A method for the thermal treatment of an electroconductive polymeric, self-regulating pyrogen in which at least two parallel conductors are incorporated and electroconductive carbon black is dispersed in an insulating polymer interposed between said at least two parallel conductors, which comprises heating said pyrogen in an oven while simultaneously applying an electric field to said pyrogen through a lid line connected from said two parallel conductors to an external power source, such that current passes between said at least two parallel conductors through said insulating polymer thereby inducing self-pyrolysis into said pyrogen, wherein the application of the electric field is repeated at least twice, the heating in an oven is performed near the melting temperature of said insulating polymer for a time of one hour or less.

5,800,767

ELECTRIC FIELD DOMAIN PATTERNING

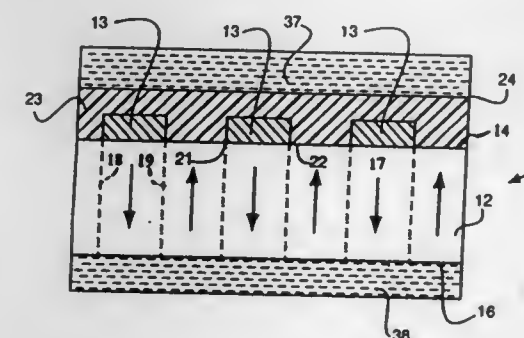
Robert L. Byer, Stanford; Martin M. Fejer, Palo Alto; Gregory D. Miller, and Lawrence E. Myers, both of Stanford, all of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Sep. 16, 1994, Ser. No. 307,867

Int. Cl.⁶ B29C 71/00

U.S. Cl. 264—430

1 Claim



1. A method of domain patterning a body of ferroelectric material comprising the steps of:

- adhering spaced conducting strips to a surface of said body;
- covering portions of said surface of said body between said strips with material which is insulative relative to electric current produced when an electric field configuration is created in said body and which controls the formation of fringe electric field components in said material; and
- applying potentials simultaneously to said conducting strips and to a surface of said insulative material to create an electric field configuration in said body whereby said strips define said electric field configuration within said body and wherein said insulating material between said strips defines a potential within said body which is generally the same as the potential applied to said conducting strips.

5,800,769

METHOD FOR FORMING AN ELECTROSTATIC FIBROUS FILTER WEB

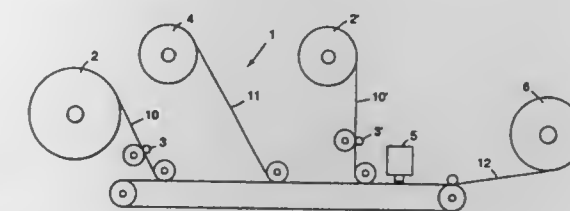
Thomas E. Haskett, P.O. Box 33427, St. Paul, Minn. 55133-3427

Division of Ser. No. 606,810, Feb. 26, 1996. This application May 8, 1997, Ser. No. 854,058

Int. Cl.⁶ B29C 71/04

U.S. Cl. 264—484

8 Claims



1. A method for forming an electret nonwoven filter web comprising the steps of:

- providing at least one nonwoven filter web;
- joining the at least one filter web to a reinforcement scrim said reinforcement scrim having discrete open areas where the average cross-sectional area in the plane of the filter of the open areas is at least 0.25 mm² and said scrim having an overall pressure drop of less than 1.5 mm H₂O at 98.4 meters/min;
- needle punching the at least one filter web and reinforcement scrim to form a filter; and
- providing at least some of the filter fibers of the filter web with electret charges.

5,800,770

METHOD OF MAKING A FLEXIBLE TUBE

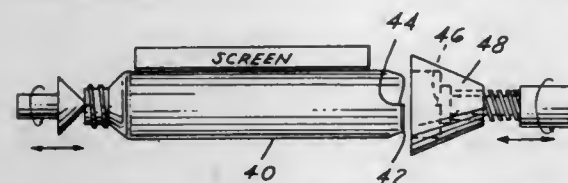
Roger P. Smith, Exeter, N.H.; Thomas J. Krall, Toledo, Ohio; Jeffrey S. Lugar, Fremont, Ohio, and Michael D. Norton, Walbridge, Ohio, assignors to Owens-Brockway Plastic Products Inc., Toledo, Ohio

Continuation-in-part of Ser. No. 228,048, Apr. 15, 1994, Pat. No. 5,632,951, and a continuation-in-part of Ser. No. 493,837, Jun. 22, 1995, Pat. No. 5,687,878. This application Oct. 23, 1996, Ser. No. 735,580

Int. Cl.⁶ B29C 49/06; 49/24

U.S. Cl. 264—509

10 Claims



1. The method of forming a flexible plastic tube for use in dispensing a viscous product which comprises injection molding a neck finish having a shoulder portion and an opening in said neck finish, extruding a tube portion integrally with the finish by relative movement of the finish with respect to an extruder, moving the finish axially away from the extruder while continuously extruding said tube portion, closing a blow mold about the extruded tube portion, blow molding said tube portion into an integral container body having a closed bottom, opening the molds to provide an integral container having an integral finish, a shoulder portion, a tubular body portion having a lower end and the closed bottom, said step of blow molding further comprising providing a single diametrical lug on said closed bottom of said container extending the entire length of the closed bottom of the container along the diameter of the closed bottom, causing said container to rotate by engaging said diametrical lug with a rotating complementary lug, decorating the body portion with indicia while engaging said neck finish and engaging said diametrical lug and rotating the container, and thereafter cutting off the closed bottom of the container leaving a flexible plastic tube having a finish, a shoulder portion and a flexible tube portion having an open end.

5,800,771

METHOD FOR FORMING PATTERN ONTO ARTICLE DURING INJECTION MOLDING THEREOF

Shinpei Ohno, Tokyo, Japan, assignor to Dai Nippon Printing Co., Ltd., Japan

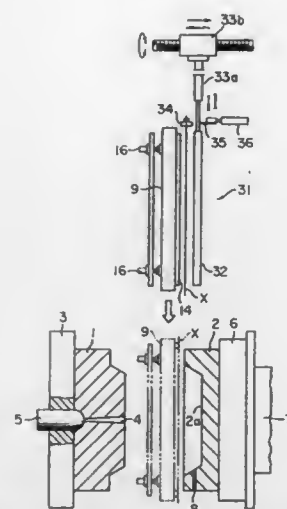
Continuation of Ser. No. 369,491, Jan. 6, 1995, Pat. No. 5,603,889, which is a division of Ser. No. 51,365, Apr. 23, 1993, Pat. No. 5,415,536. This application Aug. 7, 1996, Ser. No. 695,779

Claims priority, application Japan, Apr. 28, 1992, 4-108271 Int. Cl.⁶ B29C 33/02; 33/12; 45/14

U.S. Cl. 264—510

7 Claims

1. A method for forming a pattern onto an article during an injection molding thereof, comprising the steps of: providing a pattern-bearing film in the form of a supply roll of a strip; supplying the pattern-bearing film from said supply roll to move the film to a molding position where a male mold and a female mold are opposed; moving a heating board to said molding position; holding only an outer peripheral portion of a part of said pattern-bearing film in said molding position in a set-apart but sealed relation to a heating surface of said heating board moved to said molding position with said heating surface spaced from the pattern-bearing film;



thereafter cutting the pattern-bearing film at a position thereof displaced toward said supply roll from said part where said film is held to the heating surface to thereby isolate said part from the rest of the film extending from said supply roll to said part; after said step of cutting, heating and softening said part of the pattern-bearing film by the heating board while said set-apart but sealed relation is maintained; transferring said heated part of the pattern-bearing film onto an internal surface of said female mold to contact said pattern-bearing film with said internal surface; retracting said heating board from said molding position; clamping said male mold and said female mold while said heated pattern-bearing film is in contact with said internal surface; and injecting a molten resin into a cavity defined by said male mold and said female mold to form a molded article and to adhere said pattern-bearing film to the surface of said article.

5,800,772

METHOD FOR PRODUCING EMBOSSED CARRIER TAPE SYSTEM

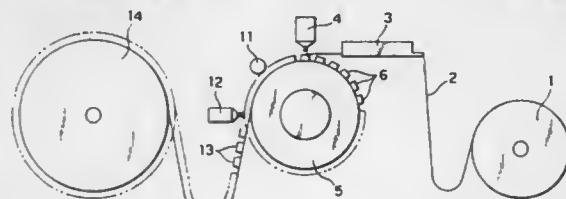
Yasuyuki Kurasawa, Tochigi-ken, Japan, assignor to Yayoi Corporation, Tokyo, Japan

Division of Ser. No. 409,083, Mar. 22, 1995, abandoned. This application Aug. 22, 1996, Ser. No. 701,448

Int. Cl.⁶ B29C 51/10; 51/20

U.S. Cl. 264—554

6 Claims



1. A method for producing an embossed carrier tape having a plurality of longitudinally spaced pockets therein for accommodating surface mountable electronic parts, comprising the steps of: providing a rotatable drum having an outer circumferential peripheral surface which is divided into three adjacent sections including a central drum section, and first and second outer drum sections which are disposed on each of opposite sides of the central drum section, and a series of molds formed around the peripheral surface of the central drum section at equal intervals circumferentially of the rotatable drum for forming the plurality of longitudinally spaced pockets, each mold of the series of molds having opposing lateral sides, each said lateral side having a root at one of said first and second outer drum sections, and a slit formed at each root;

preheating a plastic tape prior to applying the plastic tape to the rotatable drum; applying the preheated plastic tape against the series of molds while rotating the drum; further heating the plastic tape against the series of molds to form a further heated tape; and vacuum drawing the further heated tape against the series of molds through the slits to thereby produce a formed plastic tape with the plurality of longitudinally spaced pockets formed therein which conform in shape with the series of molds, wherein each of said series of molds is of a convex shape with respect to the peripheral surface of the drum, and which has outside dimensions corresponding with inside dimensions of one of the plurality of longitudinally spaced pockets formed.

effected therebetween when said first segment and said second segment are positioned in abutting engagement one with another;

b. tensioning means operable for holding said first segment and said second segment together in assembled relation when said first segment and said second segment are positioned in abutting engagement one with another while concomitantly permitting both said first segment and said second segment to expand and contract thermally; and

c. mounting means cooperatively associated with said first segment and operable for effecting therewith the installation of the segmented smelt spout in a chemical recovery unit.

5,800,773

SEGMENTED SMOKE SPOUT

Christopher J. Beveridge, Orleans, and Andrew K. Jones, Gloucester, both of Canada, assignors to Combustion Engineering, Inc., Windsor, Conn.

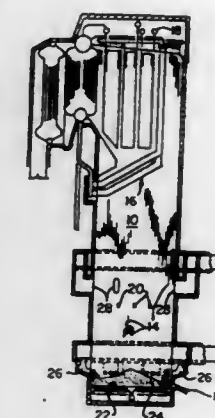
Filed Dec. 20, 1996, Ser. No. 770,465

Claims priority, application Canada, Nov. 15, 1996, 2119963

Int. Cl.⁶ C21C 5/42

U.S. Cl. 266—236

14 Claims



1. A segmented smelt spout installable in a chemical recovery unit and when so installed operable for the purpose of effecting therewith the discharge from the chemical recovery unit of smelt that is produced during the course of the operation of the chemical recovery unit comprising:

a. a plurality of segments of varying shapes capable of being employed in different combinations in order to thereby provide through the use thereof various smelt spout angles and various smelt spout lengths, said plurality of segments of varying shapes including a first segment embodying a first shape and at least one second segment embodying a second shape, said first segment including a pair of longitudinally extending upstanding leg portions and a longitudinally extending trough portion, at least one of said pair of longitudinally extending upstanding leg portions of said first segment including at one end thereof a mating surface having a particular configuration, said second segment including a pair of longitudinally extending upstanding leg portions and a longitudinally extending trough portion, each of said pair of longitudinally extending upstanding leg portions of said second segment including at one end thereof at least one mating surface having a particular configuration, said particular configuration of said at least one mating surface of said at least one of said pair of longitudinally extending upstanding leg portions of said second segment at one end of said second segment being complementary to said particular configuration of said one mating surface of said at least one of said pair of longitudinally extending upstanding leg portions of said first segment in order to thereby enable an interconnection to be

5,800,774

HEAT TREATING FURNACE AND METHOD

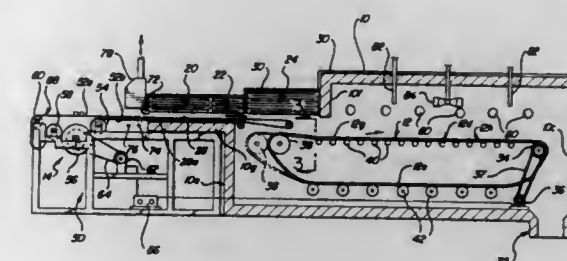
Gordon H. Willett, Grosse Pointe Farms, Mich., assignor to Therm Alliance Company, Detroit, Mich.

Filed Oct. 15, 1996, Ser. No. 730,135

Int. Cl.⁶ C21D 9/54

U.S. Cl. 266—105

22 Claims



1. A heat treating furnace for heat treating articles, the furnace comprising:

a furnace housing defining a closed furnace chamber; means for creating and maintaining a controlled atmosphere within the chamber; an endless generally horizontally extending heat treat conveyor positioned in the chamber and having an entry end positioned proximate an entry end of the chamber; and an endless generally horizontally extending feed conveyor extending from an entry end positioned outside of the furnace housing and through an entry opening in the furnace housing to a location within the chamber where a discharge end of the feed conveyor is positioned in horizontally overlapping and directly overlying relation to the entry end of the heat treat conveyor so that articles entering the chamber on the feed conveyor drop directly onto the entry end of the heat treat conveyor.

5,800,775

REFRACTORY BLOCK SLAG DAM

Robert S. Vihnicka, Aurora, and Richard L. Meskimen, Morris, both of Ill., assignors to Commonwealth Edison Company, Chicago, Ill.

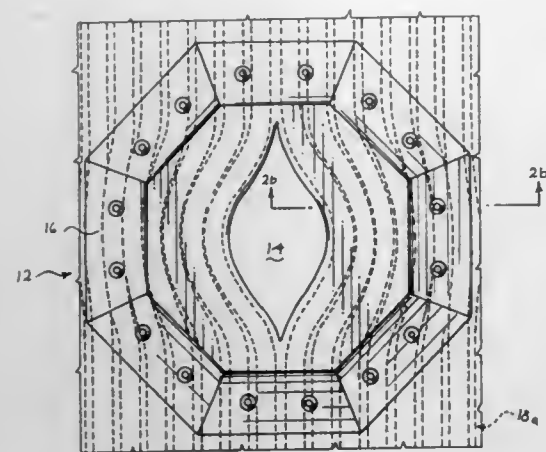
Filed Dec. 9, 1996, Ser. No. 760,943

Int. Cl.⁶ C21B 3/04

U.S. Cl. 266—230

20 Claims

1. In a furnace having a slag tap and a refractory covered, boiler-tube floor, the improvement comprising a dam comprising a



plurality of adjacent refractory blocks mechanically secured to the refractory covered, boiler-tube floor near the slag tap, said dam being positioned away from and extending around the slag tap.

5,800,776

METHOD AND A MACHINE FOR STERILIZING OR DISINFECTING WASTE

Gianpiro Morgantini, and Roberto Pellegrin, both of Turin, Italy, assignors to S.T.R.A.P. S.r.l., Turin, Italy
PCT No. PCT/EP94/02357, § 371 Date Mar. 18, 1996, § 102(e)
Date Mar. 18, 1996, PCT Pub. No. WO95/03072, PCT Pub. Date Feb. 2, 1995

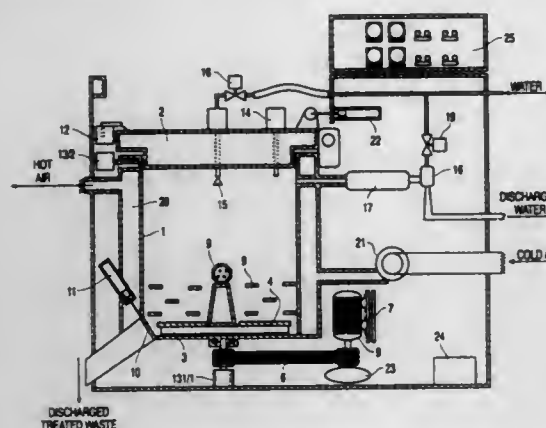
PCT Filed Jul. 18, 1994, Ser. No. 583,058

Claims priority, application Italy, Jul. 21, 1993, TO93 A 000547

Int. Cl.⁶ A61L 2/00

U.S. Cl. 422—1

11 Claims



1. A method for the heat-sterilization or disinfection of infected hospital waste, comprising the step of grinding and/or comminuting the waste at a temperature suitable for heat-sterilization and/or disinfection, wherein said grinding and/or comminuting step is carried out under a shear stress and for an amount of time such as to generate, solely by friction, an amount of heat sufficient for attaining and maintaining said sterilization or disinfection temperature within the mass of waste, in the absence of direct or indirect additional heat supply and dissipating frictional heat by dosing liquid water onto the waste being comminuted when the sterilization and/or disinfection temperature is reached thereby to control the sterilization and/or disinfection temperature.

5,800,777

METHOD AND APPARATUS FOR AUTOMATIC SAMPLE PREPARATION AND HANDLING

Howard P. Jehan, Honeoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 13, 1996, Ser. No. 751,531

Int. Cl.⁶ G01N 21/00

U.S. Cl. 422—63

17 Claims

1. An apparatus for automatic sample preparation and handling for a spectrometer, said apparatus comprising:

- (a) a housing;
- (b) a sample magazine located within said housing, said sample magazine holding a plurality of samples forming a stack;
- (c) a sample acquisition system within said housing, said sample acquisition system automatically acquiring an individual one of said samples from the stack of samples;
- (d) a sample transport system within said housing, said sample acquisition system delivering said individual ones of said samples to said sample transport system;
- (e) a punch mechanism within said housing, said sample transport system automatically positioning said individual ones of said samples of said stack in said punch mechanism, said punch mechanism automatically cutting a sample disk from each of said individual ones of said samples;
- (f) a sample assembly/disassembly arm mechanism for automatically acquiring said sample disks from said punch mechanism, preparing each of said sample disks in a sample cup, and delivering said sample cup to a spectrometer.

5,800,778

SEALANT FOR SAMPLE HOLDER

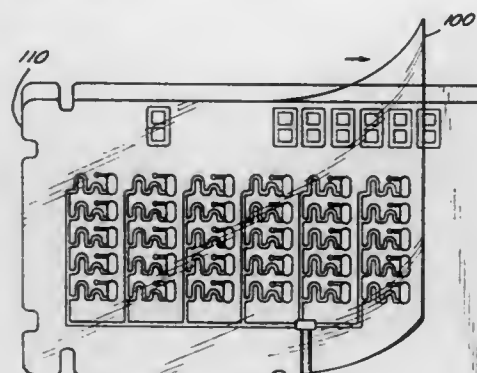
Patrick K. Chen, Chesterfield, Mo., and Raymond E. O'Bear, Granite City, Ill., assignors to bioMérieux Vitek, Inc., Hazelwood, Mo.

Filed May 31, 1995, Ser. No. 455,404

Int. Cl.⁶ B01D 53/22

U.S. Cl. 422—48

17 Claims



11. A biological test sample card, comprising a card body defining a plurality of sample wells, and having front and rear surfaces, said wells comprising an aperture extending between said front and rear surfaces, a high oxygen transmissible and permeable membrane applied to a portion of said front and rear surfaces so as to cover said sample wells, wherein said membrane is substantially impermeable to liquids and wherein said membrane comprises polymethylpentene.

5,800,779

DIAGNOSTIC SAMPLING DEVICE AND SYSTEM FOR ANALYZING BODY FLUIDS

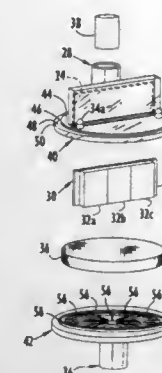
Theodore D. Johnson, 2219 Glenmoor Rd., South, Clearwater, Fla. 34624

Filed Nov. 20, 1995, Ser. No. 559,858

Int. Cl.⁶ G01N 33/16

U.S. Cl. 422—58

19 Claims



1. A diagnostic sampling device for analyzing body fluids comprising a housing defining a test chamber therein in communication with a fluid inlet and a gas outlet; and a test strip disposed in said test chamber, said test strip being visible through said test chamber and having a plurality of indicating portions visibly reactive to pH of the body fluids; said fluid inlet having a configuration to mate in sealing relation with a source of body fluids and said gas outlet having a configuration to permit gas flow while preventing passage of body fluids so that the diagnostic sampling device is essentially sealed during testing to prevent leakage of body fluids from the device.

5,800,781

BLOOD SAMPLING DEVICE

Michael Gavin, Warren; Catherine M. Cimini, Somerset; Ming Huang, Milltown; Anthony Kuklo, Jr., Bridgewater; James A. Mawhirt, Brooklyn; Eduardo Marcelino, Edison, and Albert Simone, Fords, all of N.J., assignors to International Technidyne Corporation, Edison, N.J.

Division of Ser. No. 617,296, Mar. 18, 1996, Pat. No.

5,591,403, which is a division of Ser. No. 424,063, Apr. 19,

1995, Pat. No. 5,534,226, which is a division of Ser. No.

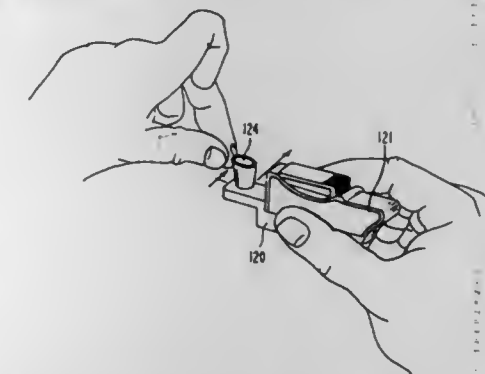
327,320, Oct. 21, 1994, Pat. No. 5,504,011. This application

Sep. 25, 1996, Ser. No. 719,779

Int. Cl.⁶ G01N 33/86

U.S. Cl. 422—73

6 Claims



1. A blood sampling device for providing a blood sample in combination with a cuvette for receiving and performing a blood coagulation test on said blood sample, the combination therewith comprising:

- a lancet for creating an incision in a patient's skin that causes the patient to bleed;
- a receptacle assembly coupled to said lancet, said receptacle assembly having a receptacle member for receiving a predetermined volume of blood from the patient therein and a receptacle attachment member for coupling said receptacle assembly to said lancet, said receptacle member having a conical-shaped reservoir member extending up from an unitary with a surface of said receptacle attachment member, said conical-shaped reservoir including a first opening through which blood can enter said receptacle member and a second opening through which said blood sample can be drawn from said receptacle member;
- a cuvette comprising a transparent member having a plurality of conduits for receiving and performing said blood coagulation test on said blood sample and,
- a channel common to said plurality of conduits through which said predetermined volume of the blood sample can be drawn

5,800,780

ELEVATOR FOR AUTOMATED CONVEYOR SYSTEM

Rodney S. Markin, Omaha, Nebr., assignor to Board of Regents—Univ of Nebraska, Lincoln, Nebr.

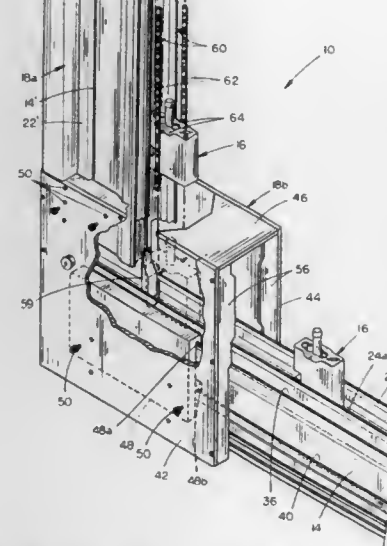
Continuation of Ser. No. 418,942, Apr. 7, 1995, Pat. No.

5,567,386. This application May 7, 1996, Ser. No. 643,997

Int. Cl.⁶ G01N 35/04

U.S. Cl. 422—65

9 Claims



1. An elevator for moving a specimen carrier between vertically spaced apart conveyor tracks, comprising:

from said second opening of said receptacle member into each of said conduits, of said cuvette,
 a first compound contained within a first of said conduits, wherein said first compound reacts with the blood sample within the first of said conduits to produce a first coagulation characteristic, and
 a second compound contained within a second of said conduits, wherein said second compound reacts with the blood sample within the second of said conduits to produce a second coagulation characteristic.

5,800,782

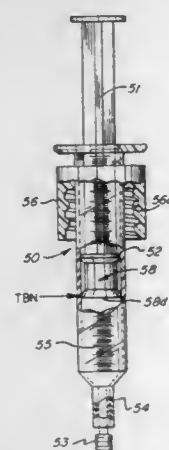
APPARATUS FOR QUANTITATIVE DETERMINATION OF TOTAL BASE OR ACID NUMBER OF OIL

Richard A. Hagstrom, Cheshire, Conn.; Stephen R. Finch, Concord, N.H., and Timothy D. Lynn, Hamden, Conn., assignors to Dexsil Corporation, Hamden, Conn.

Continuation-in-part of Ser. No. 342,150, Nov. 18, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 712,969 Int. Cl.⁶ G01N 31/16;33/26

U.S. Cl. 422—75

4 Claims



1. An apparatus for determining the quantity of acidic or basic resident species present in an oil sample, the apparatus comprising:
 - (a) sampling means for drawing a predetermined quantity of oil as a sample and introducing the sample into a reaction container;
 - (b) a container system comprising:
 - (i) a reactant container containing a predetermined quantity of a reactant species comprising one of an acidic species and a basic species, for reacting with a basic or acidic resident species in the sample, if any;
 - (ii) an extractant container containing a predetermined quantity of an extractant in which the reactant species is soluble but which is immiscible with the sample, for extracting unreacted reactant species from the sample; and
 - (iii) at least one reaction container dimensioned for receiving the sample from the sampling means and for receiving the predetermined quantity of the reactant species, to allow the reactant species to be mixed with the sample, and for receiving the extractant to allow the extractant to be mixed with, and to separate from, the sample to extract the unreacted reactant species from the sample;
 - (c) pH measuring means for determining the pH of the extractant; wherein the pH measuring means comprises:
 - (d) a titration syringe containing a titrant for the reactant species, for titrating a predetermined quantity of the extractant having unreacted reactant species therein; and
 - (e) an indicator container containing a titration end point indicator for indicating the end point of the titration of the extractant with the titrant; wherein the at least one reaction container is dimensioned for further receiving the titrant and the end point indicator; and wherein the titration syringe bears graduations

that are scaled and labeled to indicate one of the total base number and total acid number of the sample at the end point of the titration of reactant species in such predetermined quantity of extractant after reaction of said predetermined quantity of the reactant species with a sample drawn with the sampling means and extraction of remaining reactant therefrom by the extractant.

5,800,783

NOX SENSOR FOR EXHAUST GAS AND METHOD FOR PRODUCING SAME

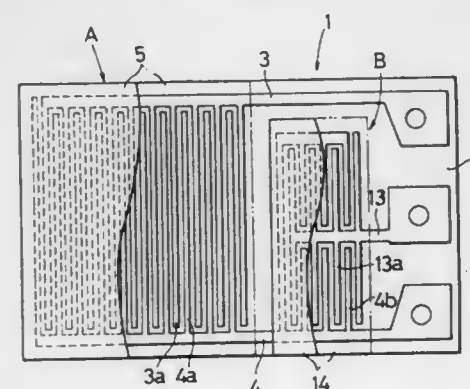
Masaaki Nanaumi, Norihito Ohta, Youichi Asano, Yoshiaki Takagi, and Yoshikazu Fujisawa, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 579,909, Dec. 28, 1995, abandoned. This application Nov. 10, 1997, Ser. No. 967,076

Claims priority, application Japan, Nov. 8, 1995, 7-290217 Int. Cl.⁶ G01H 27/04

U.S. Cl. 422—94

15 Claims



11. An NOx sensor for an exhaust gas, said NOx sensor including an NOx sensing element which comprises a needle crystal aggregate of $\beta\text{-Nb}_2\text{O}_5$ including TiO_2 as a subsidiary component, the needle crystal aggregate of $\beta\text{-Nb}_2\text{O}_5$ and TiO_2 being obtained by subjecting a mixture of a granular crystal aggregate of $\alpha\text{-Nb}_2\text{O}_5$ and TiO_2 to a thermal treatment comprising: (a) heating said granular crystal aggregate of $\alpha\text{-Nb}_2\text{O}_5$ and TiO_2 at a first temperature for a first predetermined period of time wherein said first temperature is less than a transformation temperature of about 900° C., said transformation temperature converting said granular crystal aggregate of $\alpha\text{-Nb}_2\text{O}_5$ to said needle crystal aggregate of $\beta\text{-Nb}_2\text{O}_5$; and (b) heating said granular crystal aggregate of $\alpha\text{-Nb}_2\text{O}_5$ and TiO_2 to a second temperature for a second predetermined period of time, said second temperature being greater than said transformation temperature of about 900° C. to convert said granular crystal aggregate of $\alpha\text{-Nb}_2\text{O}_5$ to said needle crystal aggregate of $\beta\text{-Nb}_2\text{O}_5$.

5,800,784

CHEMICAL SAMPLE TREATMENT SYSTEM AND CASSETTE, AND METHODS FOR EFFECTING MULTISTEP TREATMENT PROCESS

Marcus J. Horn, 214 Shorebird Cir., Redwood Shores, Calif. 94065

Filed Jul. 9, 1996, Ser. No. 679,355

Int. Cl.⁶ G01N 30/06;30/60

U.S. Cl. 422—101

10 Claims

5. A chemical treatment cassette for retaining a plurality of chemical samples for chemical treatment, said chemical treatment cassette comprising:



- a integrated, one-piece funnel assembly comprising a plurality of individually addressable chemical solution sampling funnels for receiving chemical sample solutions, each of said sampling funnels having a first, open mouth end for introduction of a chemical sample solution, and a tapered, second conical end having a trough-hole at the apex of said conical end, said sampling funnels being arranged in an array to permit individual addressing for chemical treatment; and
- a plurality of sample mini-columns for retaining preselected chemical samples, each of said mini-columns having a centrally disposed chamber extending longitudinally through said mini-column, at least one of said mini-columns having a material selected from at least one of a solid support, dry reagent, dry sample, liquid reagent, liquid sample, and porous frits disposed in said central chamber, said chamber terminating into a first open end, said first open end having a flared, tapered inlet port, said inlet port being in flow-through, physical connection with said through-hole in said conical second end of said funnel, said connection resulting in smooth, continuous transition of the taper from said conical second end of said funnel to said taper of said inlet port, said chamber terminating into a second open end, said second open end having a flared, tapered outlet port, said outlet port being in flow-through communication with said inlet port, said first open end of each of said funnels and said tapered conical second end of each of said funnels and permitting localized access by a compressive fit interface means to said mini-column inlet port for near-zero dead volume flow-through communication between said interface means and said mini-columns.

5,800,785

TESTING DEVICE FOR LIQUID AND LIQUID SUSPENDED SAMPLES

Barry Bochner, Alameda, Calif., assignor to Biolog, Inc., Hayward, Calif.

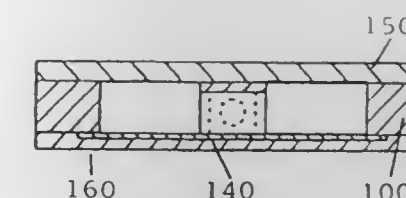
Continuation of Ser. No. 584,989, Jan. 8, 1996, Pat. No. 5,589,350, which is a continuation of Ser. No. 462,443, Jun. 5, 1995, abandoned, which is a continuation of Ser. No. 972,625, Nov. 6, 1992, abandoned. This application Jul. 24, 1996, Ser. No. 685,695

Int. Cl.⁶ B01L 11/00

U.S. Cl. 422—101

21 Claims

1. A device comprising: a) a housing; b) a testing region having a plurality of test wells contained within said housing; c) a liquid receiving means at an external surface of said housing; d) a liquid flow-directing means comprising channels providing liquid communication between said plurality of test wells and said liquid receiving means; and e) a single gas-venting, liquid barrier com-



prising a hydrophobic membrane in fluidic communication with said testing region in contact with said test wells, wherein said hydrophobic membrane contains pores that permit passage of gas at positive pressure greater than 1 pound per square inch, but which blocks the passage of liquid at pressures less than 75 pounds per square inch.

5,800,786

Patent Not Issued For This Number

5,800,787

ELECTRICALLY HEATABLE HONEYCOMB BODY

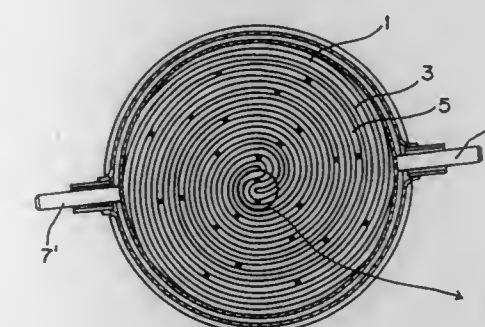
Yasushi Kato, Handa; Shigeharu Hashimoto, Okazaki, and Yoshinobu Watanabe, Iwakura, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Mar. 25, 1996, Ser. No. 621,313

Claims priority, application Japan, Mar. 30, 1995, 7-073127 Int. Cl.⁶ F01N 3/24

U.S. Cl. 422—174

14 Claims



1. An electrically heatable honeycomb body comprising: a plurality of passages extending through the length of the honeycomb body, each of said passages being defined by partition walls comprising an electroconductive material and each of said passages being substantially parallel to the direction of gas flow through the honeycomb body, two ends corresponding to the gas inlet and outlet sides of the honeycomb body, at least one slit for controlling heat generation of the honeycomb body, and means for reducing stress at a current concentration portion of said at least one slit caused by current concentration during heat generation of the honeycomb body, said means being located substantially along a side of said at least one slit toward a dead-end thereof.

5,800,788

REACTOR CONTAINER, PLANT AND PROCESS FOR THE PRODUCTION OF SULFURIC ACID

Lars Dourén, Stenungsund, Sweden, assignor to Sandvik AB, Sandviken, Sweden

PCT No. PCT/SE95/01122, § 371 Date Aug. 15, 1996, § 102(e) Date Aug. 15, 1996, PCT Pub. No. WO96/11876, PCT Pub. Date Apr. 25, 1996

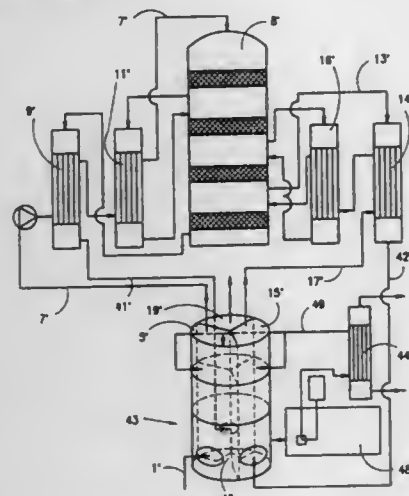
PCT Filed Oct. 3, 1995, Ser. No. 656,227

Claims priority, application Sweden, Oct. 13, 1994, 9403471

Int. Cl.⁶ C01B 17/48; 17/80; 17/765

U.S. Cl. 422—161

8 Claims



1. A reaction container for chemical process plants comprising a substantially cylindrical envelope, closed at both ends, having an inner surface and an outer surface, and a central axis extending from end to end, the reaction container being divided into two or more substantially pie-shaped sections by two or more substantially planar, separation walls extending from one end of the cylindrical envelope to the other end and extending from the inner surface to the central axis, each section having at least one inlet and one outlet, both of which pass through the inner and outer surfaces of the reaction container, each separation wall having one or more openings to allow flow of fluids through the separation wall between two adjacent sections.

5,800,789

ELECTRICALLY HEATED CATALYST ACHIEVING SMALLER POWER CONSUMPTION

Kouji Yoshizaki, Numazu, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Atsugi, Japan

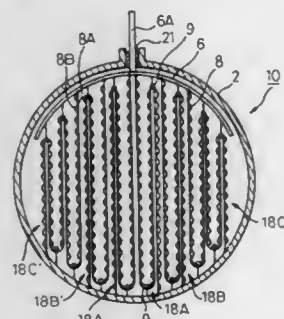
Filed Apr. 15, 1996, Ser. No. 633,918

Claims priority, application Japan, Apr. 18, 1995, 7-092506

Int. Cl.⁶ F01N 3/10

U.S. Cl. 422—174

17 Claims



1. An electrically heated catalyst which is located on an upstream side of a catalytic converter that is provided in an exhaust

pipe of an internal combustion engine to remove harmful components contained in exhaust gases and which, when the catalytic converter is so cool that it is inactive, is electrically heated to assist the purifying action of the catalytic converter, the electrically heated catalyst comprising:

an outer casing for passing the exhaust gases;

first and second electrodes provided inside the outer casing, the first electrode having a first polarity and the second electrode having a second polarity different from the first polarity;

at least one catalyst support received within the outer casing, the catalyst support being formed of metal foils which are folded at least twice in a zig-zag manner in a direction to intersect a direction of flow of the exhaust gases wherein adjacent portions of the catalyst support are separated from one another to form an exhaust gas channel between each pair of adjacent portions of the catalyst support, wherein a first end of the catalyst support is connected to the first electrode and a second end of the catalyst support is connected to the second electrode; and

a plurality of folding axis members, each folding axis member being provided at a folding portion of the catalyst support for stretching and supporting the catalyst support inside the outer casing wherein the first electrode is disposed adjacent to an odd numbered folding portion as counted from the second electrode, and wherein the second electrode is disposed adjacent to an even numbered folding portion, and the folding axis members support the catalyst support while maintaining electric insulation between the first and second electrodes.

5,800,790

FILTER FOR TREATMENT OF CARBON-BASED PARTICLES IN EXHAUST GAS AND A DEVICE FOR SAID TREATMENT USING SAID FILTER

Masato Imamura, Tokyo; Kiichi Nakajima, Kokubunji; Katsumi Jindo; Toshio Asami, both of Toyokawa; Tatsuhiko Kato, Shinshiro; Kouichi Ushirobisu, Okazaki; Yukio Aizawa, Kawasaki; Yasuo Sekido; Akira Goto, both of Yokohama, and Tomonari Komiyama, Kawasaki, all of Japan, assignors to Sintokogio, Ltd., Nagoya, Japan

Filed Sep. 24, 1996, Ser. No. 718,997

Claims priority, application Japan, Sep. 25, 1995, 7-270464; Sep. 25, 1995, 7-270483

Int. Cl.⁶ F01N 3/10

U.S. Cl. 422—174

4 Claims

1. A filter for treating carbon-based particles in exhaust gas characterized by consisting of

a sintered body of high-temperature resistant stainless steel fibers produced by cutting an end face of a coiled material that is obtained by winding a sheet of a high-temperature resistant stainless steel having resistance heat-generating properties to produce fibers, gathering the fibers to form a web, sintering the web, and heat-treating the sintered web to form an alumina film on the sintered fibers.

5,800,791

COLUMN BAFFLES FOR SUSPENSIONS WITH PRECIPITATING SUBSTANCES

Stuart Alnsow, Winterthur, Switzerland, and Rolf Sittkus, Aulendorf, Germany, assignors to Sulzer Chemtech AG, Winterthur, Switzerland

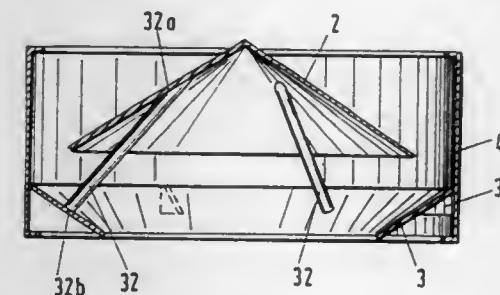
Filed Aug. 9, 1995, Ser. No. 512,874

Claims priority, application European Pat. Off., Aug. 31, 1994, 94810497

Int. Cl.⁶ B01D 3/14; 3/24

U.S. Cl. 422—228

10 Claims



1. Conduit baffles for a suspension with precipitating substances comprising:

a conduit for confining flow of a suspension with precipitating substance;

at least a first member having a major surface mounted across the flow of the suspension, the first member having peripheral attachment to the conduit and defining a central aperture through which the suspension with precipitating substance flows;

at least a second member having a major surface mounted across the flow of the suspension within the conduit, the second member defining a central portion for obstructing suspension flow through the central aperture of the first member to an edge of the second member;

means for mounting the second member in spaced apart relation relative to the first member to produce chicanes for changes of direction of suspension flow through the conduit; and,

the first member at the central aperture and the second member at the edge being flexible to enable flexure respectively at the central aperture and edge responsive to passage of the suspension with precipitating substance whereby precipitating substance is inhibited from deposit on the first member and on the second member.

5,800,792

EXHAUST GAS TREATMENT UNIT AND METHOD

Yoshihiro Ibaraki; Hidekazu Ina, and Hideji Kawanaka, all of Tokyo, Japan, assignors to Teisan Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP95/02415, § 371 Date Jun. 4, 1996, § 102(e) Date Jun. 4, 1996, PCT Pub. No. WO96/16720, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 28, 1995, Ser. No. 646,329

Claims priority, application Japan, Nov. 29, 1994, 6-294651

Int. Cl.⁶ C01B 33/113; B01D 53/34

U.S. Cl. 423—210

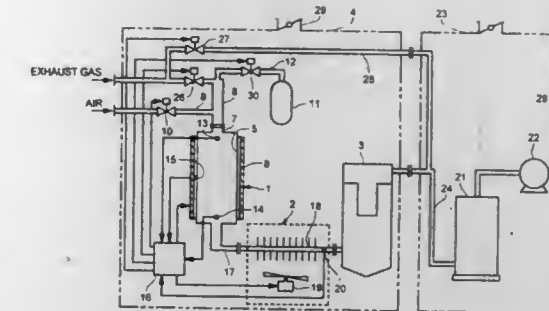
21 Claims

1. An exhaust gas treatment unit for removing noxious gases contained in an exhaust gas by thermal decomposition comprising:

a heating chamber into which exhaust gas and oxygen are introduced, the heating chamber having an outlet;

a heating source disposed at an outer periphery of said heating chamber so as to heat an inside of said heating chamber;

a temperature detector for detecting a temperature of the inside of said heating chamber in a vicinity of the outlet and outputting a detected temperature value;



a valve for controlling the flow of oxygen into the heating chamber;

a controller for controlling said heating source in accordance with the detected temperature value from said temperature detector so that the temperature of the inside of said heating chamber in the vicinity of the outlet is maintained within a predetermined temperature range, and for controlling the flow of oxygen into the heating chamber in accordance with the detected temperature value; and

a cooling device connected to the outlet of said heating chamber.

5,800,793

PROCESS FOR REDUCING NO_x FROM MOBILE SOURCE ENGINE EXHAUST

Jerald A. Cole, Long Beach, Calif., assignor to Energy and Environmental Research Corporation, Irvine, Calif.

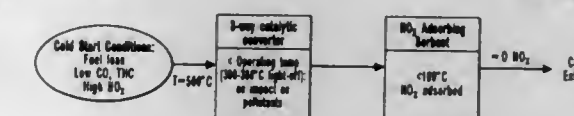
Division of Ser. No. 552,192, Nov. 2, 1995, Pat. No. 5,656,244.

This application Dec. 9, 1996, Ser. No. 762,368

Int. Cl.⁶ B01D 53/94

U.S. Cl. 423—213.2

20 Claims



1. A process for controlling emissions from an internal combustion engine, comprising the steps of:

(a) placing within a casing a bed of a regenerable sorbent material adjacent to a three-way catalyst material, so that exhaust exiting an internal combustion engine will flow directly from the catalyst material to the sorbent material or from the sorbent material to the catalyst material depending on the direction of exhaust flow, the sorbent material comprising a metal oxide material selected from the group consisting of chromium oxide, nickel oxide, copper oxide, manganese oxide, iron oxide, zinc oxide, molybdenum oxide, cobalt oxide, and mixtures thereof;

(b) directing the exhaust exiting the engine to flow through the catalyst material prior to the sorbent material during a cold start condition;

(c) adsorbing NO_x molecules from the exhaust onto the sorbent material having a temperature below an NO_x desorption temperature thereof;

(d) redirecting the exhaust exiting the engine to flow unimpeded from the engine directly to the sorbent material prior to contacting the catalyst material once the catalyst material has reached at least a light-off temperature thereof;

(e) desorbing the NO_x molecules from the sorbent material when the temperature of the sorbent material reaches at least the desorption temperature thereof;

(f) passing the desorbed NO_x molecules through the catalyst material to substantially reduce the NO_x molecules to molecular nitrogen; and

(g) venting the exhaust to the atmosphere.

(a) $R_1R_2R_3N$ where at least one of R_1 , R_2 and R_3 is selected from the group consisting of alkyl containing 6 to 22 carbon atoms and aryl containing 6 to 18 carbon atoms and remaining of R_1 , R_2 and R_3 are selected from the group consisting of hydrogen and alkyl containing 1 to 22 carbon atoms;

(b) $R_1R_2N-X-NR_4R_5$ wherein at least one of the R_1 and the R_2 and R_4 and R_5 are as set forth in (a) and X is selected from the group consisting of alkyl, aryl and aralkyl having 1 to 18 carbon atoms and the remaining of R_1 , R_2 , R_4 and R_5 are selected from the group consisting of hydrogen and alkyl containing 1 to 22 carbon atoms;

(c) and mixtures of (a) and (b).

5,800,801
MTW ZEOLITE FOR CRACKING FEEDSTOCK INTO
OLEFINS AND ISOPARAFFINS

Jorge Tejada, Miranda; Juan Lujano, Caracas, and Yilda Romero, Edo Aragua, all of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

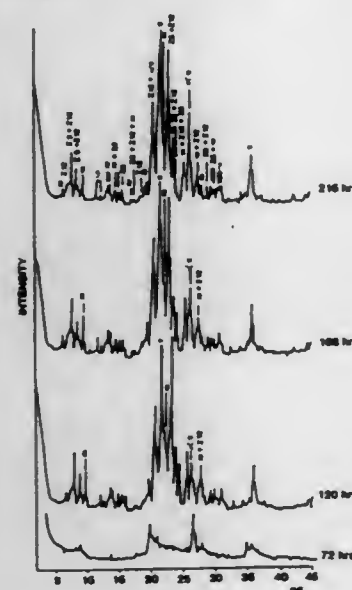
Division of Ser. No. 363,413, Dec. 23, 1994. This application

Jan. 5, 1996, Ser. No. 583,446

Int. Cl.⁶ C01B 39/42; B01J 29/06

U.S. Cl. 423—705

11 Claims



1. A process for preparing a crystalline aluminosilicate, wherein said crystalline aluminosilicate is characterized by an x-ray diffraction pattern as follows:

Interplanar Spacing D(Å)	Relative Intensity (I/I ₀)
12.09	M
11.26	W
10.15	W
9.81	W
7.48	W
6.09	W
4.77	W
4.73	W
4.30	VS
3.99	W
3.87	VS
3.73	M
3.66	W
3.50	M
3.38	M
3.21	W
3.06	W

wherein W represents a weak relative intensity, M represents a medium relative intensity and VS represents a very strong relative intensity, the process comprising the steps of:

forming a mixture comprising silica, alumina, water, a source of alkali metal, and a source of tetraethylammonium cation, wherein said mixture exhibits a composition in terms of mole ratios as follows:

SiO ₂ /Al ₂ O ₃	>120
TEA ⁺ /SiO ₂	0.2-0.95
H ₂ O/SiO ₂	20-300
OH ⁻ /SiO ₂	0.4-0.7

wherein TEA⁺ is said tetraethylammonium cation; and

maintaining said mixture at an elevated temperature so as to provide a crystalline aluminosilicate having a surface area of greater than or equal to about 300 M²/g.

5,800,802
CHELATOR IDAC-2

Ramaswamy Subramanian, 352 Catoclin Ave., Frederick, Md. 27101, and James Colony, 704 N. 75th St., Seattle, Wash. 98103

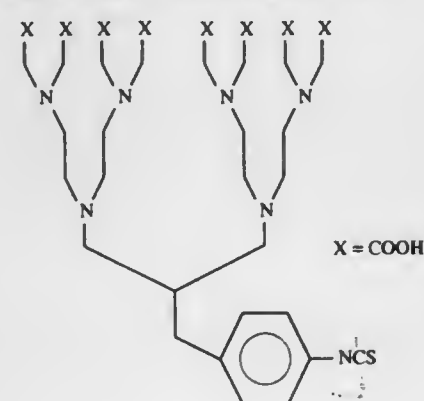
Continuation-in-part of Ser. No. 278,721, Jul. 22, 1994, abandoned, which is a continuation of Ser. No. 92,739, Jul. 16, 1993, abandoned, which is a division of Ser. No. 419,871, Oct. 11, 1989, Pat. No. 5,244,816. This application May 17, 1995, Ser. No. 442,856

Int. Cl.⁶ C07F 19/00; C07C 331/28

U.S. Cl. 424—1.49

7 Claims

1. A chelating agent IDAC-2 having the formula:



5,800,803

ORAL COMPOSITION EXHIBITING ENHANCED
UPTAKE BY DENTAL TISSUE OF NONCATIONIC
ANTIBACTERIAL AGENTS

Yelloji Rao K. Mirajkar, Piscataway; Abdul Gaffar, Princeton, both of N.J.; Stefan Stein, Saulheim, Germany; Ekkehard Jahns, Weinheim, Germany; Reinhold Dieing, Bad Dürheim, Germany, and Karin Sperling, Neustadt, Germany, assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Feb. 10, 1997, Ser. No. 799,639

Int. Cl.⁶ A61K 7/16; 7/22; 31/785; 31/79

U.S. Cl. 424—54

14 Claims

1. An oral composition exhibiting increased uptake by dental tissue of antibacterial compounds contained therein, the oral composition comprising an orally acceptable aqueous vehicle, an effective therapeutic amount of a noncationic antibacterial agent, and an anionic copolymer comprised of about 50% to about 80% by weight of a hydrophilic monomer capable of attachment to oral surfaces and about 20% to about 50% by weight of a hydrophobic monomer; the anionic copolymer containing the hydrophilic monomer acrylamidomethylpropylsulfonic acid or salts thereof, or the anionic copolymer containing the hydrophobic monomer N-vinylcaprolactam, or mixtures thereof.

5,800,804
O-ACYL SERINES AND THREONINES AS DEODORANTS
Judith Wolfe Laney, Silver Spring, Md., assignor to The Gillette Company, Boston, Mass.

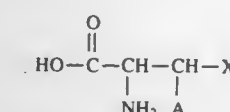
Continuation-in-part of Ser. No. 562,086, Nov. 22, 1995, Pat. No. 5,648,513, which is a continuation of Ser. No. 428,706, Apr. 25, 1995, abandoned, which is a continuation of Ser. No. 118,188, Sep. 9, 1993, Pat. No. 5,431,904. This application Mar. 18, 1996, Ser. No. 617,424

Int. Cl.⁶ A61K 7/32; 7/00

U.S. Cl. 424—65

12 Claims

1. A deodorant composition comprising, in a dermatologically acceptable vehicle, about 0.01% to about 10% by weight of a compound of the structure



where A is H or CH₃ and X is O—C(O)—R, and R is a substituent such that RCOOH, formed by cleavage of said compound by axillary bacteria, has a neutral or pleasant odor.

5,800,805

AEROSOL DEODORANT PRODUCT

Lucia Salas, North Bergen, N.J., assignor to Church & Dwight Co., Inc., Princeton, N.J.

Filed Jun. 19, 1997, Ser. No. 878,763

Int. Cl.⁶ A61K 7/32; 7/00

U.S. Cl. 424—65

17 Claims

1. A deodorant composition in an aerosol dispensing container which comprises (1) between 16-43 weight percent of ethanol; (2) between about 1-15 weight percent of particulate alkali metal bicarbonate having an average particle size between about 5-100 microns; (3) between about 20-60 weight percent of volatile oil; (4) between about 0.5-3 weight percent of particulate suspending agent; and (5) between about 8-50 weight percent of aerosol propellant.

5,800,806

DEODORANT POROUS POLYMER AND A DEODORANT
FIBROUS MATERIAL USING THE SAME

Tohru Yamamoto, c/o Nakato Laboratory, Inc. 6, Ohshinohara, Yasu-cho, Yasu-gun, Shiga-ken, Japan

Division of Ser. No. 962,893, Oct. 19, 1992, Pat. No. 5,405,687, which is a division of Ser. No. 581,331, Sep. 11, 1990, Pat. No. 5,185,169. This application Jan. 4, 1995, Ser. No. 368,538

Int. Cl.⁶ A61K 6/00; 7/00; A61L 9/00; 9/01

U.S. Cl. 424—76.1

3 Claims

1. A deodorant porous polymer in the shape of substantially uniform particulates or an aggregate thereof, produced by the process of

- (a) mixing a solvent with of at least one alkoxide selected from the group consisting of inorganic alkoxides and metal alkoxides to form a sol-mixture;
- (b) optionally adding an acid catalyst;
- (c) adding a base catalyst to cause gelation; then
- (d) forming substantially uniform particulates by spray drying or freeze drying the sol-mixture.

5,800,807
OPHTHALMIC COMPOSITIONS INCLUDING
GLYCERIN AND PROPYLENE GLYCOL

Zhenze Hu, and John Denick, both of Pittsford, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Jan. 29, 1997, Ser. No. 794,690

Int. Cl.⁶ A61K 31/74

U.S. Cl. 424—78.04

10 Claims

1. An ophthalmic composition comprising:
 - (a) from about 0.2 to 1.5 weight percent of glycerin, and
 - (b) from about 0.2 to 1.5 weight percent of propylene glycol, wherein said solution has an osmolality of between about 175 and 330 mOsm/kg and a pH from 6.0 to 8.0.

5,800,808

COPOLYMER-1 IMPROVEMENTS IN COMPOSITIONS
OF COPOLYMERS

Eliezer Konfino, Ramat Gan; Michael Sela, Rehovot; Dvora Telitelbaum, Rehovot, and Ruth Arnon, Rehovot, all of Israel, assignors to Veda Research and Development Co., Ltd., Rehovot, Israel

Continuation-in-part of Ser. No. 344,248, Nov. 23, 1994, abandoned, which is a continuation of Ser. No. 248,037, May 24, 1994, abandoned. This application May 22, 1995, Ser. No. 447,146

Int. Cl.⁶ A61K 27/00

U.S. Cl. 424—78.08

1 Claim

1. A method of manufacturing copolymer-1, comprising reacting protected copolymer-1 with hydrobromic acid to form trifluoroacetyl copolymer-1, treating said trifluoroacetyl copolymer-1 with aqueous piperidine solution to form copolymer-1, and purifying said copolymer-1, to result in copolymer-1 having a molecular weight of about 5 to 9 kilodaltons.

5,800,809

NON-CROSSLINKED ACRYLIC POLYMERS AND NON-
CROSSLINKED ANION EXCHANGE RESINS

Minenobu Okayama, and Shuji Sato, both of Tsukuba, Japan, assignors to Hisamitsu Pharmaceutical Co., Inc., Tosu, Japan

Continuation-in-part of Ser. No. 256,486, Jul. 8, 1994, Pat. No. 5,665,348. This application Mar. 13, 1997, Ser. No. 816,844

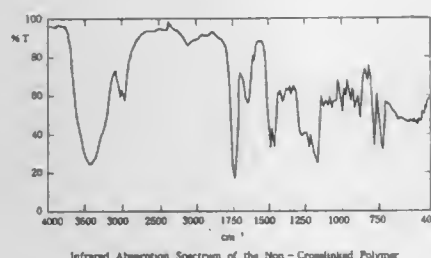
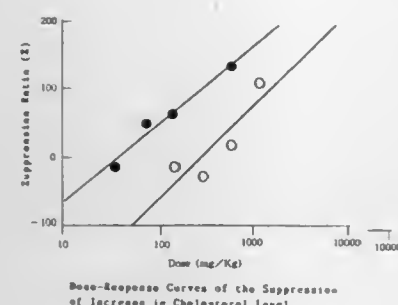
Claims priority, application Japan, Jan. 14, 1992, 4-24531

Int. Cl.⁶ A61K 31/785

U.S. Cl. 424—78.12

8 Claims

1. A drug composition containing an effective amount of a non-crosslinked acrylic polymer consisting of polyacryloyloxyethyl-N,N-dimethylbenzyl ammonium salt having a pH of about 4.5 to about 6.5 when 0.5 g of said polymer are dissolved in water to obtain 50 cc of a solution and a viscosity of



not higher than about 150 centipoises when said polymer is dissolved in water to form a 1 wt. % aqueous solution at 25° C.

5,800,810

HUMAN IL-2 AS A VACCINE ADJUVANT

Michael V. Doyle, Oakland; Arthur D. Newell, Orinda; Jack H. Nunberg, and Thomas J. White, both of Oakland, all of Calif., assignors to Chiron Corporation, Emeryville, Calif. Continuation of Ser. No. 448,884, May 24, 1995, Pat. No. 5,643,565, and a division of Ser. No. 314,975 Feb. 24, 1989, Pat. No. 5,503,841 which is a continuation of Ser. No. 5,926, Jan. 22, 1987, abandoned, which is a continuation-in-part of Ser. No. 856,035, Apr. 25, 1986, abandoned, which is a continuation-in-part of Ser. No. 778,372, Sep. 20, 1985, abandoned. This application Oct. 17, 1996, Ser. No. 734,471

Int. Cl.⁶ A61K 38/20

U.S. Cl. 424—85.2

16 Claims

1. A composition for enhancing the immune response of an animal to an immunoprophylactic infectious disease vaccine, which composition comprises an immunoprophylactic infectious disease vaccine and an immunopotentiating amount of interleukin-2 (IL-2).

5,800,811

ARTIFICIAL SKIN PREPARED FROM COCLAGEN MATRIX CONTAINING TRANSFORMING GROWTH FACTOR-β HAVING A COLLAGEN BINDING SITE

Frederick L. Hall, 345 Pioneer Dr., Suite 1803 W., Glendale, Calif. 91203, Nimni; Marcel E. Nimni, 2800 Neilson Way, #908, Santa Monica, Calif. 90405; Tal-Lan Tuan, 1020 Windsor St., Anaheim, Calif. 92805; Lingtau Wu, 1114 Valencia Way, Arcadia, Calif. 91006, and David T. Cheung, 10 W. Palm Dr., Arcadia, Calif. 91007

Filed Jun. 6, 1995, Ser. No. 470,837

Int. Cl.⁶ C12N 5/06; 5/08; 15/00; 11/02

U.S. Cl. 424—93.7

20 Claims

1. An artificial skin made by the process comprising: impregnating a collagen matrix with transforming growth factor-β comprising a collagen-binding site to thereby bind the transforming growth factor-β to the collagen matrix; incubating the impregnated matrix with a source of fibroblasts and mesenchymal stem cells to form a captured population of mesenchymal stem cells, within the impregnated matrix; and

incubating the captured population of mesenchymal stem cells with a source of keratinocytes which epithelialize the collagen matrix to thereby form an artificial skin.

5,800,812

METHODS OF USE OF MONONUCLEAR PHAGOCYTES TO PROMOTE AXONAL REGENERATION

Michal Eisenbach-Schwartz; Orly Spiegler, both of Rehovot, Israel, and David L. Hirschberg, Stanford, Calif., assignors to Yeda Research And Development Co. Ltd., Rehovot, Israel Continuation-in-part of Ser. No. 528,845, Sep. 15, 1995, abandoned. This application Aug. 9, 1996, Ser. No. 695,351

Int. Cl.⁶ C12N 5/06

U.S. Cl. 424—93.7

26 Claims

1. A method of promoting axonal regeneration in the central nervous system (CNS) of a mammal comprising administering an effective amount of allogeneic mononuclear phagocytes into the CNS of said mammal at or near a site of injury or disease of the CNS that results in or is accompanied by axonal damage.

5,800,813

TREATMENT OF CRYPTOSPORIDIUM INFECTIONS

Ivan A. Casas, Raleigh, N.C., assignor to Biogala Biologics AB, Stockholm, Sweden

Filed Nov. 12, 1996, Ser. No. 748,174

Int. Cl.⁶ C12N 1/20

U.S. Cl. 424—93.45

7 Claims

1. A method of reducing symptoms associated with cryptosporidia infection in a mammal, comprising administering *Lactobacillus reuteri* cells to the mammal in an amount sufficient to reduce diarrhea in the animal to a level found in control animals not infected with cryptosporidi.

5,800,814

METHOD FOR INHIBITION OF BREAST TUMOR GROWTH

Martin Fusek, Oklahoma City, Okla., and Vaclav Vetvicka, Louisville, Ky., assignors to Oklahoma Medical Research Foundation, Oklahoma City, Okla.

Filed Apr. 22, 1994, Ser. No. 232,997

Int. Cl.⁶ A61K 39/395; 38/00

U.S. Cl. 424—133.1

5 Claims

1. A method for inhibiting proliferation of breast cancer cells but not normal cells comprising administering to the cells antibodies that bind with cathepsin D activation peptide and which inhibit binding of procathepsin D activation peptide to the breast cancer cells in an amount effective to inhibit proliferation of the breast cancer cells.

4. A method for inhibiting proliferation of breast cancer cells but not normal cells comprising administering to the cells procathepsin D activation peptides which bind to a receptor for procathepsin D activation peptide but do not stimulate proliferation of the cells, wherein the peptides are administered in an amount effective to inhibit proliferation of the breast cancer cells.

5,800,815

ANTIBODIES TO P-SELECTIN AND THEIR USES

Robert W. Chestnut, Cardiff; Margaret J. Polley, La Jolla; James C. Paulson, Del Mar, all of Calif.; S. Tarran Jones, Radlett, United Kingdom; José W. Saldanha, Middlesex, United Kingdom; Mary M. Bendig, London, United Kingdom; Michael Kriegler, Rancho Santa Fe, Calif.; Carl Perez, San Diego, Calif.; Robert Bayer, San Diego, Calif., and Michael Nunn, San Diego, Calif., assignors to Cytel Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 57,292, May 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 880,198, May 5, 1992, abandoned. This application Feb. 25, 1994, Ser. No. 202,047

Claims priority, application Israel, May 5, 1993, 105614; WIPO, May 4, 1993, PCT/US93/04274

Int. Cl.⁶ A61K 39/395; C07K 16/28; C12N 5/12; C07H 21/04 U.S. Cl. 424—153.1

57 Claims

32. A P-selectin antibody that competitively inhibits the binding of an antibody secreted by a cell line designated ATCC Accession No. HB11041 to P-selectin as measured by a competitive inhibition assay, wherein the P-selectin antibody binds to P-selectin in the presence of a peptide CQNYTDLVAIQNKNE (SEQ ID No. 1) and in the absence of calcium ion and the P-selectin antibody either:

- inhibits P-selectin binding to neutrophils, monocytes or platelets;
- inhibits binding of activated endothelial cells to neutrophils, monocytes or platelets; or
- inhibits binding of activated platelets to neutrophils or monocytes.

40. A method of treating ischemia-reperfusion injury comprising administering to a patient a therapeutically effective dose of the P-selectin antibody of claim 32.

5,800,816

COSMETIC COMPOSITIONS

Hernando Brieva, Manalapan; Julio Gans Russ, Westfield, and Ida Marie Sandewicz, Spotswood, all of N.J., assignors to Revlon Consumer Products Corporation, New York, N.Y.

Continuation of Ser. No. 328,992, Oct. 25, 1994, abandoned.

This application Jan. 5, 1996, Ser. No. 599,400

Int. Cl.⁶ A61K 7/021; 7/02

U.S. Cl. 424—63

21 Claims

1. The method of preparing a grove characterized by more than one tree, substantially each tree having been grown in a nutrient composition comprising the remains of a particular human, a significant portion of such tree having identification associating a particular tree with a particular deceased human, each such tree having been prepared by a method which comprises the steps of:

- producing isolated dirt-like material from the remains of said one particular deceased human;
- preparing a nutrient composition characterized by the incorporation therein of said 'dirt-like material derived from the remains of said particular deceased human, the concentration of the dirt-like material derived from the remains of said particular deceased human constituting from 1% to 99% of the nutrient composition;
- planting a precursor of a tree in said nutrient composition;
- nurturing said precursor rooted in said nutrient composition for growth transformation into a tree, whereby whatever growth is attributable to the remains of deceased humans is significantly attributable only to said particular deceased human; and
- providing a plaque identifying such tree as an embodiment of the ongoing life of said particular deceased human.

5,800,817

PLANT EXTRACTS AND THERAPY FOR INSULIN DEFICIENCIES

Andre J. Verge, 102 Main St., Succasunna, N.J. 07876; Arthur J. Verge, Jr., 325 Pleasant Hill Rd., Flanders, N.J. 07836, and Arthur J. Verge, III, 17 Middle Valley Rd., Long Valley, N.J. 07853

Filed Mar. 11, 1996, Ser. No. 613,620

Int. Cl.⁶ A01N 65/00

U.S. Cl. 424—195.1

6 Claims

1. A non-toxic, bioactive, mammal-therapeutic composition which comprises a liquid extract of *Taxus* plant parts which is produced by the steps of:

- cultivating plants of one or more selected *Taxus* species, including: *T. canadensis*, *T. baccata*, and *T. brevifolia*, *T. chinensis*, *T. cuspidata*, *T. floridana*;
- harvesting tissue of parts of said cultivated *Taxus* plants including roots, stems, needles, blooms, seeds;
- cutting said freshly-harvested plant tissue of said cultivated *Taxus* species into lengths of 5–400 mm length;
- extracting said cut *Taxus* plant tissue and parts in a liquid-fluid solution containing at least 51% water for a time period of about 10 minutes at a temperature of about 98–102 deg C. wherein the ratio of freshly-harvested *Taxus* plant parts is about 20–400 grams per liter of water-base solution or about 20–350 grams of low-moisture *Taxus* plant parts per liter of water; and
- separating solid plant residues of particle size greater than 0.05–0.2 mm diameter from the resulting liquid extract fluids by mechanical filtration, thereby yielding said extract.

5,800,818

MIXTURE COMPRISING PLANT EXTRACTS FOR MOISTURIZING THE UPPER LAYERS OF THE EPIDERMIS

Laurent Prugnaud, Vincennes; Christian Lubrano, L'Hayes Les Roses, and Anne-Marie Scott De Martinville, Nesle, all of France, assignors to Laboratoires de Biologie Vegetale Yves Rocher, La Gacilly, France

Filed Dec. 12, 1996, Ser. No. 764,752

Claims priority, application France, Dec. 12, 1995, 95 14710

Int. Cl.⁶ A61K 35/78; 7/48

U.S. Cl. 424—195.1

1 Claim

1. An emulsion for moisturizing the upper layers of the epidermis comprising the following compounds by weight:

Phosphatidylcholine	1–3%
Guar gum	0.5–2%
Carob gum	0.5–2%
Aloe vera powder	0.5–2%
Yucca powder	2–5%
Glycerol	15 to 40%
Balanites oil	5 to 10%
Jobba oil	5 to 10%
Carnauba wax	1 to 5%
And water to 100%.	

5,800,819

PIPER GUINEENSE, PTEROCARPUS OSUN, EUGENIA CARYOPHYLLATA, AND SORGHUM BICOLOR EXTRACTS FOR TREATING SICKLE CELL DISEASE

Charles Wambebe, Abuja; P. O. Ogunyale, Oyo; K. S. Gamaniel, Abuja; R. N. Nasipuri, Abuja; J. I. Okogun, Abuja; Babatunde Samuel, Abuja; Akin Olusola, Abuja, and Abayomi Orisadipe, Abuja, all of Nigeria, assignors to National Institute for Pharmaceutical Research and Development Federal Ministry of Science and Technology, Abuja, Nigeria
Filed Jan. 21, 1997, Ser. No. 786,313

Claims priority, application Nigeria, Jan. 25, 1996, RP.12369
Int. Cl.⁶ A61K 35/78

U.S. Cl. 424—195.1

13 Claims

1. A composition for treating sickle cell disease comprising a cold water extraction product of a mixture containing from about 12 to about 17 parts by weight of *Piper guineense* seeds, from about 15 to about 19 parts by weight of *Pterocarpus osun* stem, from about 12 to about 18 parts by weight of *Eugenia caryophyllata* fruit, and from about 25 to about 32 parts by weight of *Sorghum bicolor* leaves.

5,800,820

METHODS AND COMPOSITIONS FOR TREATMENT OF ANGIOGENIC DISEASES

Theodore E. Malone, Wakefield, Mass., assignor to Repligen Corporation, Cambridge, Mass.

Continuation of Ser. No. 822,378, Jan. 16, 1992, abandoned, which is a continuation-in-part of Ser. No. 600,472, Oct. 19, 1990, Pat. No. 5,284,827, which is a division of Ser. No. 451,021, Dec. 27, 1989, Pat. No. 5,086,164, which is a continuation-in-part of Ser. No. 295,955, Jan. 10, 1989, abandoned. This application May 31, 1995, Ser. No. 456,132
Int. Cl.⁶ A61K 38/18

U.S. Cl. 424—198.1

10 Claims

1. A method for treating a patient with a tumor of the lung, said method comprising administering to said patient recombinant PF4, or an angiogenesis-inhibiting fragment thereof, in a pharmaceutically acceptable carrier, wherein said recombinant PF4 is administered systemically at a dosage which is sufficient to deliver a tumor-inhibiting concentration of PF4 to said tumor of the lung.

5,800,821

BACTERIAL SPORES AS A HEAT STABLE VACCINE DELIVERY SYSTEM

David W. K. Acheson, Norwood; Abraham L. Sonenshein, Brookline, and Gerald T. Keusch, Lexington, all of Mass., assignors to New England Medical Center Hospitals, Inc., Boston, and Trustees of Tufts College, Medford, both of Mass.

Filed Mar. 10, 1995, Ser. No. 402,347
Int. Cl.⁶ A61K 39/02

U.S. Cl. 424—200.1

9 Claims

1. A method of stimulating an immune response to an antigen in a vertebrate animal, said method comprising:

- providing a bacterial spore genetically engineered with DNA encoding said antigen and DNA encoding an invasin, and
 - orally administering said bacterial spore to said animal so that said spore germinates producing vegetative bacteria and said antigen is expressed by said vegetative bacteria for presentation to the immune system of said animal,
- wherein said invasin is expressed on the surface of said vegetative bacteria so that said vegetative bacteria adhere to cells of said animal.

5,800,822

TANDEM SYNTHETIC HIV-1 PEPTIDES

Charles D. Y. Sia, Thornhill; Pele Chong, Richmond Hill, and Michel H. Klein, Willowdale, all of Canada, assignors to Connaught Laboratories Limited, Willowdale, Canada

Continuation of Ser. No. 257,528, Jun. 9, 1994, Pat. No. 5,639,854, which is a continuation-in-part of Ser. No. 73,378, Jun. 9, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 465,217

Int. Cl.⁶ A61K 39/21;39/00; C07K 5/00;7/00

U.S. Cl. 424—208.1

9 Claims

1. A synthetic peptide molecule having a plurality of individual linear synthetic peptides linked at the C-terminus of each said individual linear synthetic peptides to form a multimeric molecule, each said individual linear synthetic peptides having an amino acid sequence containing a T-cell epitope of a gag or envelope protein of a human immunodeficiency virus (HIV) isolate linked to an amino acid sequence containing a B-cell epitope of a gag or envelope protein of an HIV isolate.

5,800,823

ELONGATE PTFE ELEMENTS AND ARTICLES MADE THEREOF

Jacob Moses Blass, London, United Kingdom, assignor to Caredent Limited, London, England

Filed Dec. 20, 1996, Ser. No. 772,283

Claims priority, application United Kingdom, Dec. 27, 1995, 9526551

Int. Cl.⁶ A61K 9/00

U.S. Cl. 424—400

14 Claims

1. A filament comprising the elongate integral PTFE element which provides the tensile strength of the filament, said PTFE element comprising an extruded matrix of PTFE and containing a water-soluble additive material in the form of solid particles of average particle size in the range 0.1 to 100 μ m, distributed in said matrix.

5,800,824

USE OF METAL OXIDE-DOPED ZINC OXIDES FOR COSMETIC PURPOSES

Ellen Pfrommer, Haßloch; Norbert Mronga, Dossenheim, and Oliver Seeger, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Sep. 26, 1996, Ser. No. 721,543

Int. Cl.⁶ A61K 7/00

U.S. Cl. 424—401

6 Claims

1. A cosmetic composition comprising metal ion-doped colored zinc oxides said oxides further comprising iron, manganese, magnesium, calcium, or a combination thereof in the form of divalent metal oxides.

5,800,825

MASCARA HAVING ENHANCED DRYING CAPABILITY

Alexandra McMullen, 673 Washington Blvd., Marina Del Rey, Calif. 90292

Filed Nov. 8, 1996, Ser. No. 745,605

Int. Cl.⁶ A61K 7/00

U.S. Cl. 424—401

16 Claims

1. A mascara composition having enhanced drying capability comprising a diluent, an emulsifying agent, an antifoaming agent, a pigment, and a drying system included in an amount in a range from about 1% to about 50% by weight of the composition, the drying system consisting essentially of ammonium acrylate copolymer, propylene glycol, potassium octoxynol-12 phosphate, and nonoxynol-10.

5,800,826

SUNSCREEN COMPOSITIONS CONTAINING DAMAGED RNA FRAGMENTS

Thomas Mammone, Farmingdale, and Michael Ingrassia, Brentwood, both of N.Y., assignors to E-L Management Corp., New York, N.Y.

Filed Mar. 5, 1997, Ser. No. 811,892

Int. Cl.⁶ A61K 7/00

U.S. Cl. 424—401

22 Claims

1. A cosmetic or pharmaceutical composition comprising a protection-effective amount of UV-damaged RNA fragments, in combination with a cosmetically or pharmaceutically acceptable carrier.

5,800,827

DISINFECTANT COMPOSITION

Yasuo Igarashi; Takashi Suzuki; Tomoko Kimura; Akira Motoyama; Rina Fukuhara, and Atsuko Torii, all of Yokohama, Japan, assignors to Shiseido Co., Ltd., Tokyo, Japan

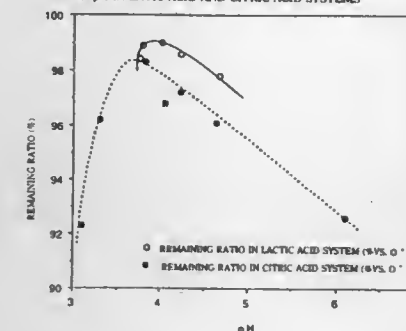
Filed Oct. 18, 1995, Ser. No. 544,633

Claims priority, application Japan, Oct. 21, 1994, 6-282976

Int. Cl.⁶ A01N 31/00;37/12

U.S. Cl. 424—405

2 Claims

RELATIONSHIP BETWEEN CHLORHEXIDINE REMAINING RATIO AND pH IN LACTIC ACID AND CITRIC ACID SYSTEMS

1. A disinfectant composition consisting essentially of ethyl alcohol with a concentration of not lower than 50% by weight of said composition, chlorhexidine, and an organic acid, wherein said organic acid is at least one of lactic acid and citric acid, and said composition has a pH of from 3 to 5.

5,800,828

IMPLANTABLE BIOCOMPATIBLE IMMUNOISOLATORY VEHICLE FOR DELIVERY OF SELECTED THERAPEUTIC PRODUCTS

Keith E. Dionne, Rehoboth, Mass.; Dwaine F. Emerich, Providence, R.I.; Diane Hoffman, Cambridge, Mass.; Paul R. Sanberg, Spring Hill, Fla.; Lisa Christenson, New Haven, Conn.; Orion D. Hegre, Green Valley, Ariz.; David W. Scharp, St. Louis; Paul E. Lacy, Webster Grove, both of Mo.; Patrick Aebischer, Lutry, Switzerland; Alfred V. Vascconcellos, Cranston, R.I.; Michael J. Lysaght, E. Greenwich, R.I., and Frank T. Gentile, Warwick, R.I., assignors to Brown University Research Foundation

Continuation-in-part of Ser. No. 692,403, Apr. 25, 1991, abandoned. This application Jan. 10, 1994, Ser. No. 179,151

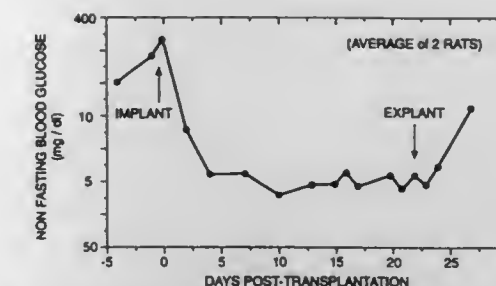
Int. Cl.⁶ A61K 9/50;9/14

U.S. Cl. 424—422

43 Claims

1. An implantable immunisulatory vehicle for providing a biologically active product or function; the vehicle comprising:

- a core comprising a volume in excess of 1 μ l and at least about 10^4 living cells dispersed in a biocompatible matrix formed of a hydrogel, said cells being capable of secreting a biologically active product or of providing a metabolic or immunologic function; and



(b) an external permselective jacket surrounding said core, said jacket being greater than 5 microns thick and formed from a hydrogel that does not ionically bond to a polymer of opposite charge on the core during formation of the jacket, said jacket being free of said cells projecting, externally therefrom, said jacket being biocompatible and having a molecular weight cutoff permitting passage of molecules to and from the core through said jacket to provide said biologically active product or function.

5,800,829

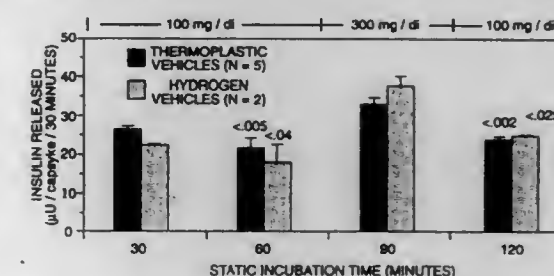
METHODS FOR COEXTRUDING IMMUNOISOLATORY IMPLANTABLE VEHICLES WITH A BIOCOMPATIBLE JACKET AND A BIOCOMPATIBLE MATRIX CORE

Keith E. Dionne, Rehoboth, Mass.; Dwaine F. Emerich, Providence, R.I.; Diane Hoffman, Cambridge, Mass.; Paul R. Sanberg, Spring Hill, Fla.; Lisa Christenson, New Haven, Conn.; Orion D. Hegre, Green Valley, Ariz.; David W. Scharp, St. Louis; Paul E. Lacy, Webster Grove, both of Mo.; Patrick Aebischer, Lutry, Switzerland; Alfred V. Vascconcellos, Cranston, R.I.; Michael J. Lysaght, E. Greenwich, R.I., and Frank T. Gentile, Warwick, R.I., assignors to Brown University Research Foundation

Division of Ser. No. 179,151, Jan. 10, 1994, which is a continuation-in-part of Ser. No. 693,403, Apr. 25, 1991, abandoned. This application May 24, 1995, Ser. No. 449,274
Int. Cl.⁶ A61K 9/50;9/14

U.S. Cl. 424—422

27 Claims



6. A method of making an immunisulatory vehicle comprised of a core comprising living cells dispersed in a biocompatible matrix, said cells being capable of secreting a biologically active product or of providing a metabolic or immunologic function to an individual, and an external jacket surrounding said core which is a biocompatible, permselective thermoplastic or hydrogel, said jacket being free of said cells, comprising coextruding:

- a suspension comprising said cells dispersed in a precursor matrix comprising extracellular matrix components or a biocompatible hydrogel precursor, and
- a solution of a biocompatible jacket precursor from a nested dual-bore extrusion nozzle, wherein the suspension of (a) is coextruded from the inner bore and the solution of (b) is coextruded from the outer bore of the nozzle, to form said jacket as the solution of (b) and the suspension of (a) are coextruded; and
- exposing the vehicle to a treatment that forms a core comprising a biocompatible matrix from the precursor matrix of solution (a) and comprising a volume of at least 1 μ l and at least 10^4 cells.

5,800,830

BIFIDOBACTERIUM GROWTH PROMOTANT

Toshihiko Asano, Tsuchura; Ryoko Kondo; Yasumi Mori, both of Tsukuba; Seishi Takenawa, Nara; Motoko Yamochi, Toyonaka; Kiyohiko Kunugita, Tsukuba, and Tsutomu Terachi, Osaka, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 325,183, Apr. 24, 1995, Pat. No. 5,605,697. This application Nov. 29, 1996, Ser. No. 758,516 Claims priority, application Japan, Oct. 27, 1992, 4/288643; Mar. 5, 1993, 5/45022; Mar. 9, 1993, 5/48354; Mar. 11, 1993, 5/49805; Mar. 22, 1993, 5/61721; Mar. 23, 1993, 5/63765; Mar. 23, 1993, 5/63972; Mar. 23, 1993, 5/64222; Mar. 24, 1993, 5/64451; Mar. 24, 1993, 5/64560; Mar. 26, 1993, 5/67892; Mar. 31, 1993, 5/72695

Int. Cl.⁶ A61K 47/12; 9/68; A23L 1/222

U.S. Cl. 424—439

8 Claims

1. A salt-containing composition, comprising a bifidobacterium growth promoting amount of each of sodium chloride and a metal gluconate.

5,800,831

PSORIASIS TREATMENT WITH POLYMER FILM

Debbie L. Burnett, Basking Ridge; Victor M. Wong, Hackensack; Darius D. Dubash, Pine Brook, and Athanasios S. Ladas, Parsippany, all of N.J., assignors to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 98,497, Jul. 28, 1993, abandoned, and Ser. No. 444,180, May 18, 1995, abandoned, which is a division of Ser. No. 98,497, Jul. 28, 1993, abandoned. This application Apr. 1, 1996, Ser. No. 626,079

Int. Cl.⁶ A61L 25/00; 15/24; A61K 9/70

U.S. Cl. 424—443

16 Claims

1. A composition comprising:

- about 87 weight percent of a solvent system consisting essentially of cosmetically acceptable alcohol in an aqueous solution, such that the concentration of the alcohol in the aqueous solution is from 90 to 95%;
- from about 0.01 to about 0.5 weight percent alkali;
- from about 5 to about 20 weight percent vinyl acetate crotonic acid copolymer or poly (vinylacetate phthalate); and
- from about 0.01 to about 0.2 weight percent plasticizer, said composition, when applied to a psoriatic zone of the skin of a human, forming an occlusive area suppressing greater than 70 percent of water transmission from the psoriatic zone.

5,800,832

BIOERODABLE FILM FOR DELIVERY OF PHARMACEUTICAL COMPOUNDS TO MUCOSAL SURFACES

Gilles H. Tapolsky, and David W. Osborne, both of The Woodlands, Tex., assignors to Vivotex Corporation, The Woodlands, Tex.

Filed Oct. 18, 1996, Ser. No. 734,519

Int. Cl.⁶ A61K 9/70; 37/00

U.S. Cl. 424—449

1 Claim

1. A bioerodable, water-soluble pharmaceutical carrier device comprising a layered film having a first water-soluble adhesive layer to be placed in contact with the mucosal surface and a second, water-soluble non-adhesive backing layer, and a pharmaceutical or combination of pharmaceuticals incorporated within said first or second layer wherein said first water-soluble adhesive layer comprises hydroxyethyl cellulose, polyacrylic acid, and sodium carboxymethyl cellulose; said second water-soluble non-adhesive backing layer comprises hydroxyethyl cellulose; and said pharmaceutical or combination of pharmaceuticals comprises dyclonine HCl.

5,800,833

METHOD FOR LOADING LIPID VESICLES

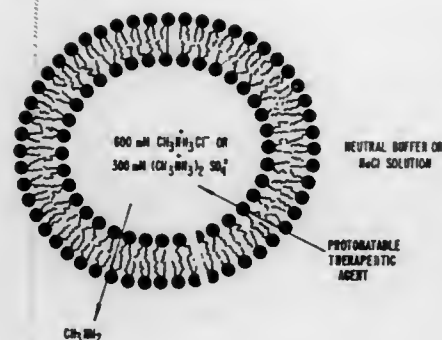
Michael Höpfe; Pieter R. Cullis, both of Vancouver; David Fenske, Surrey, and Kim Wong, Vancouver, all of Canada, assignors to University of British Columbia, Vancouver, Canada

Filed Feb. 27, 1995, Ser. No. 399,692

Int. Cl.⁶ A61K 9/127

U.S. Cl. 424—450

5 Claims



1. A method of preparing a liposome formulation of ciprofloxacin, said method comprising:

- preparing a mixture of liposomes in an aqueous solution, said liposomes having an encapsulated medium and an external medium, wherein said encapsulated medium and said external medium each contain a methylammonium salt;
- establishing a concentration gradient of methylamine across the liposome membranes by removing or diluting said methylammonium salt from said external medium; and
- incubating said liposomes of step (ii) with said ciprofloxacin, said ciprofloxacin being present in a neutral form which is attracted toward said encapsulated medium of said liposomes by said concentration gradient of methylamine, for a period of time sufficient to cause adherence of said ciprofloxacin to said liposomes.

5,800,834

LIQUISOLID SYSTEMS AND METHODS OF PREPARING SAME

Spiridon Spireas, 177 Arlington Ave., 2nd floor, Clifton, N.J. 07011, and Sanford M. Bolton, 5495 N. Via Velazquez, Tucson, Ariz. 85750

Filed Jun. 10, 1996, Ser. No. 658,514

Int. Cl.⁶ A61K 9/20

U.S. Cl. 424—451

25 Claims

1. A method of producing a free-flowing and readily compressible liquid/powder admixture of a liquid medication, which involves converting the liquid medication into a liquisolid system, comprising the steps of:

- selecting a weight (W) of the liquid medication to be included in a single liquisolid compact;
- selecting a carrier material and a coating material to be included in the liquisolid system;
- determining the characteristic minimum carrier:coating ratio, R_{min} , and flowable liquid-retention potentials of the carrier (Φ) and coating (ϕ) materials using a liquisolid flowability test;
- determining the characteristic compressible liquid-retention potentials of the carrier (Ψ) and coating (ψ) materials using a liquisolid compressibility test;
- selecting a carrier:coating ratio, R, where $R > R_{min}$, of the carrier and coating materials to be included in the liquisolid system, where $R = Q/q$, Q=the weight of carrier material, and q=the weight of coating material;
- calculating the optimum liquid load factor (L_o) of the system according to the equations:

$$L_o = \Phi L_f \text{ when } \Phi L_f < \Psi L_f$$

or

$$L_o = \Psi L_f \text{ when } \Phi L_f > \Psi L_f$$

where:

$$\Phi L_f = \Phi + \phi (1/R)$$

and

$$\Psi L_f = \Psi + \psi (1/R)$$

(g) calculating the optimum quantities of the carrier (Q_o) and coating (q_o) materials according to the equations:

$$Q_o = W/L_o$$

$$q_o = Q_o/R$$

(h) admixing the liquid medication with the calculated quantity of carrier material (Q_o); and

(i) blending the resulting wet mixture with the calculated amount of coating material (q_o) to produce a nonadherent, free-flowing and compressible liquid/powder admixture.

5,800,835

PREPARATION FOR IMPROVING THE BLOOD SUPPLY CONTAINING HARD MAGNETIC PARTICLES

Leonhard Zastrow, Monaco, Monaco; Dagmar Hülsenberg, Ilmenau; Karin Golz, Berlin, both of Germany, and Klaus Stanzl, White Plains, N.Y., assignors to Lancaster Group GmbH, Ludwigshafen, Germany

PCT No. PCT/DE94/00879, § 371 Date Sep. 5, 1995, § 102(e) Date Sep. 5, 1995, PCT Pub. No. WO95/03061, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 19, 1994, Ser. No. 522,304

Claims priority, application Germany, Jul. 19, 1993, 43 25 071.8

Int. Cl.⁶ A61K 31/715

U.S. Cl. 424—647

12 Claims

1. A preparation for stimulating the blood circulation of the skin comprising a dispersion containing

a proportion of finely divided magnetically hard single-domain particles in the dispersion being in the range from 0.01% to 70% by weight, based on the total weight of the dispersion; said particles having a strong coercive field and being in the range 600 to 1200 nm; and

wherein the magnetically hard single-domain particles are selected from the group consisting of barium hexaferrite, strontium hexaferrite, undoped barium hexaferrite, undoped strontium hexaferrite, and the mixtures thereof; wherein the magnetically hard single-domain particles are present in combination with asymmetric lamellar aggregates comprising phospholipids with a phosphatidylcholine content in the range 30% to 99% by weight and oxygen-charged fluorocarbons in the range 0.2% to 100% (weight/volume), the asymmetric lamellar aggregates penetrating the skin as a function of the critical solubility temperature of the fluorocarbons or fluorocarbon mixtures used; and

the balance up to 100% by weight of a cosmetic or pharmaceutical excipient carrier substance or a pharmaceutical additive, based on the total weight of the dispersion.

5,800,836

PELLETIZED PHARMACEUTICAL COMPOSITION

Angelo Mario Morella, Campbelltown, and Grant Wayne Helnicke, Fairview Park, both of Australia, assignors to F. H. Faulding & Co. Limited, Parkside, Australia

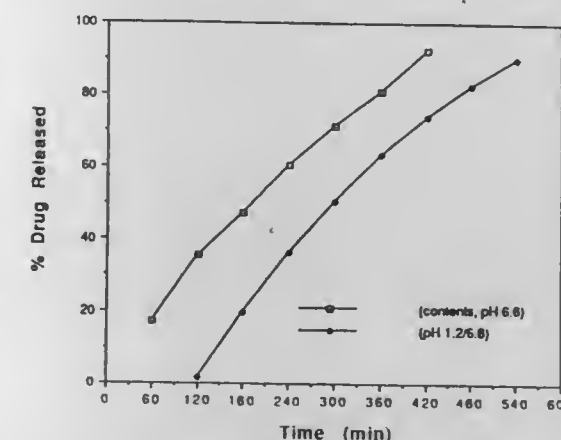
Filed Feb. 6, 1995, Ser. No. 398,744

Claims priority, application Australia, Aug. 5, 1992, PL3921

Int. Cl.⁶ A61K 9/14

U.S. Cl. 424—489

14 Claims



1. A pelletized sustained release pharmaceutical composition comprising

a core element comprising approximately 0.1 to 95% weight, based on the total weight of the core element of an active ingredient of low aqueous solubility,

approximately 0.1 to 55% by weight weight binding agent;

approximately 5 to 99% weight of a core seed; and

a core coating for the core element, comprising

approximately 30 to 97% by weight, based on the total weight of the core coating, excluding filler, of an enteric polymer;

approximately 3 to 50% by weight of an insoluble polymer; and

0 to approximately 50% by weight of plasticizer, the enteric polymer comprising at least approximately 70% by weight of the total weight of the enteric polymer and insoluble polymer;

the core coating being such that the active ingredient is released in a controlled fashion over an extended period in the intestine but

substantially no release occurs in the acid environment of the stomach and blood levels of active ingredient are maintained within the therapeutic range over an extended period of time.

5,800,837

PLANT FERTILIZER COMPOSITIONS CONTAINING PHOSPHONATE AND PHOSPHATE SALTS AND DERIVATIVES THEREOF

John B. Taylor, Deland, Fla., assignor to Foliar Nutrients, Inc., Cairo, Ga.

Continuation-in-part of Ser. No. 705,594, Aug. 30, 1996, Pat. No. 5,736,164. This application Mar. 6, 1997, Ser. No. 812,865

Int. Cl.⁶ A01N 59/26; C05B 7/00; C05G 3/00; 3/02

U.S. Cl. 424—601

5 Claims

1. A fertilizer composition for stimulating growth in plants comprising:

a growth stimulating effective amount of at least a first salt selected from a group consisting of K_2HPO_4 , KH_2PO_4 and K_3PO_4 ; and a second salt selected from a group consisting of K_2HPO_4 , KH_2PO_4 and K_3PO_4 .

5,800,838

COMPOSITION THAT INHIBITS OR DESTROYS AT LEAST ONE UNICELLULAR LIVING ORGANISM CONTAINING FLUORINE F- AND LITHIUM LI+

Pierre Bourbon, Toulouse; Pierre Lagny, Kildare, and Pierre Billot, Neuilly/Seine, all of France, assignors to Atlantic Pharmaceutical Products Limited, France

Continuation of Ser. No. 125,526, Sep. 22, 1993, which is a continuation of Ser. No. 691,472, Apr. 25, 1991, abandoned, which is a continuation-in-part of Ser. No. 246,982, Sep. 20, 1988, Pat. No. 5,063,064. This application Jun. 6, 1995, Ser. No. 469,545

Claims priority, application France, Sep. 22, 1987, 87 13086 Int. Cl.⁶ A61K 33/14; 31/28

U.S. Cl. 424—673

6 Claims

1. A method for inhibiting or destroying unicellular organisms which comprises administering a composition which comprises an active ingredient, and

a synergistically effective amount of a potentiator which is lithium fluoride, said amount being effective to reduce the amount of said active ingredient necessary to inhibit or destroy said unicellular organisms, said amount also being at least 0.2% by weight but less than the amount of said active ingredient.

5,800,839

PLASTIC MAGNET INJECTION MOLDING MACHINE
Yoshiaki Kudo; Haruo Okada, and Fumihiko Kobayashi, all of Hanishina-gun, Japan, assignors to Nissei Plastic Industrial Co., Ltd., Nagano-ken, Japan

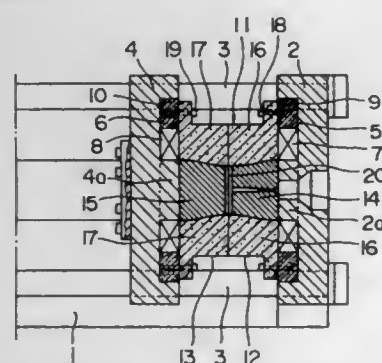
Continuation of Ser. No. 385,751, Feb. 8, 1995, abandoned.

This application Feb. 21, 1997, Ser. No. 802,933

Int. Cl.⁶ B29C 33/32

U.S. Cl. 425—3

2 Claims



1. A plastic magnet injection molding machine comprising a fixed plate, a movable plate, a plurality of tie bars for guiding the movable plate and coupling the fixed and movable plates, said fixed and movable plates and said plurality of tie bars being made of ferromagnetic metal, a plurality of annular exciting coils embedded into respective outer peripheral portions of the plates, annular seats engagedly fitted to the outer periphery of the exciting coils and embedded with said coils into the respective outer peripheral portions of the plates, said annular seats being made of non-magnetic metal, and a metal mold including a fixed mold and a movable mold having respective central members made of ferromagnetic metal and respective peripheral members made of non-magnetic metal, said central members of the metal mold abutting respective central portions of the fixed and movable plates defined by said exciting coils such that the metal mold is secured to the fixed and movable plates by anchoring said peripheral members to the respective annular seats,

wherein a current flowing through one of said exciting coils produces a plurality of toroidal magnetic flux flow paths about said exciting coils, each of said paths consisting of one of said plurality of tie bars, said fixed mold central member, said movable mold central member, said movable plate, and said fixed plate.

5,800,840

APPARATUS FOR PRODUCING A SPUN-BOND WEB FROM THERMOPLASTIC ENDLESS FILAMENTS

Hans Georg Geus, Niederkassel, and Detlef Frey, Troisdorf, both of Germany, assignors to Reifenhauser GmbH & Co. Maschinenfabrik, Troisdorf, Germany

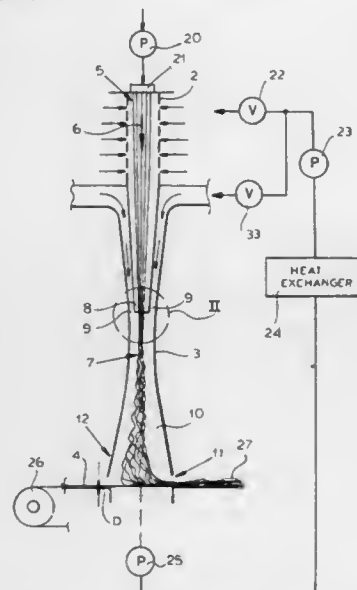
Filed Feb. 5, 1996, Ser. No. 597,016

Claims priority, application Germany, Feb. 15, 1995, 195 04 953.5

Int. Cl.⁶ B29C 47/34

U.S. Cl. 425—7

4 Claims



1. An apparatus for producing a spun-bond web of endless thermoplastic filaments, comprising:

a spinneret having a multiplicity of orifices for molten thermoplastic from which respective endless thermoplastic filaments pass downwardly in a curtain of said filaments;

a process shaft below said spinneret receiving said curtain of filaments and means for supplying said process shaft with process air for cooling said curtain of filaments as said curtain of filaments passes through said process shaft;

a collecting conveyor belt below said process shaft for receiving said filaments of said curtain and accumulating said filaments to form a spun-bond mat of the continuous filaments;

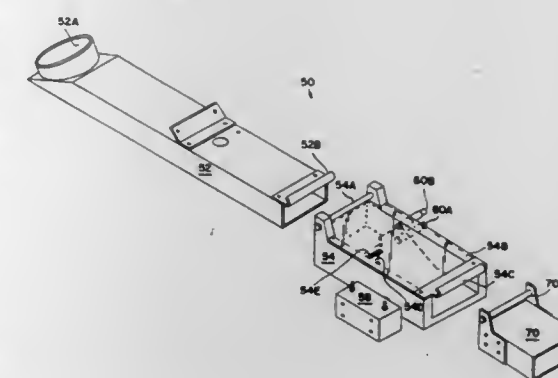
a filament-depositing unit between said process shaft and said collecting conveyor belt for applying a stretching action to said filaments of said curtain and superimposing on said stretching action a fleece-forming movement of said filaments whereby said filaments deposit in random loops on said belt, said filament-depositing unit comprising:

means forming a central inlet passage extending transversely of said collecting conveyor belt and opening centrally with respect to said process shaft into said filament-depositing unit at an upper end thereof for centrally admitting said curtain of filaments to said filament-depositing unit together with said processing air,

means forming air-feed passages on opposite sides of said central inlet passage parallel to said central inlet passage and opening into the filament-depositing unit in the same direction as said central inlet passage for directing air streams along said filaments of said curtain, thereby applying said stretching action to said filaments of said curtain, said air-feed passages extending as bypasses from said process shaft along said central inlet passage to a lower end of said central inlet passage, and

a flap-free filament-depositing shaft having a downwardly converging upper end enclosing said passages and extending downwardly to a constriction and a downwardly diverging lower end extending downwardly from said constriction to a location above said belt and within which a random fleece-forming movement of said filaments, produced exclusively by aerodynamic action, is super-imposed on

said stretching action whereby said filaments collect randomly on said belt; and first control means for regulating a volume rate of flow of the process air through said process shaft and out of said central inlet passage, and second control means for regulating a volume rate of flow of air through said air-feed passages, said first and second control means being constructed so that said volume rates of flow are controllable independently from one another.



5,800,841

RESIN MOLDING MACHINE

Fumio Miyajima, Togura-machi, Japan, assignor to Apic Yamada Corporation, Nagano, Japan

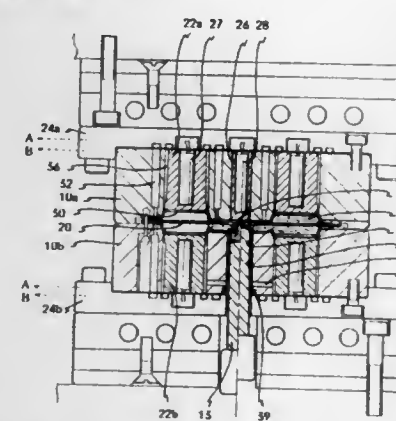
Filed Nov. 22, 1995, Ser. No. 562,151

Claims priority, application Japan, Nov. 24, 1994, 6-289428; May 26, 1995, 7-127658

Int. Cl.⁶ B29C 33/68; 45/02

U.S. Cl. 425—89

14 Claims



1. A resin molding machine, comprising: molding dies capable of clamping a member to be molded; a pot for supplying resin melt to cavities of said molding dies, said resin melt being supplied under pressure to said cavities of said molding dies; a cull member operatively positioned within said molding dies and being disposed adjacent to said pot; and a fixing mechanism for fixing a sheet of release film over said cavities, said pot, said cull member and said release film being capable of easily peeling off from the molding dies and resin.

(c) an air-actuated gate mounted to said conduit housing and adapted to be selectively moved from an open reject position wherein tablets are diverted through said aperture to a closed accept position wherein tablets are allowed to pass through said conduit housing and out of the second end thereof, said selective movement being in response to control signals from the tablet press; and

(d) circuit means electrically connecting said air-actuated gate to the tablet press and including sensor means for detecting whether said air-actuated gate is in a correct accept or reject position, said circuit means serving to stop the tablet press during the tablet press operation when a fault in the position of said air-actuated gate is detected.

5,800,843

APPARATUS FOR INJECTION MOLDING PLASTIC MATERIAL

Werner Kappelmüller, and Heinz Leonhartsberger, both of Schwertberg, Austria, assignors to Engel Maschinenbau Gesellschaft m.b.H., Schwertberg, Austria

PCT No. PCT/AT95/00162, § 371 Date Feb. 7, 1997, § 102(e) Date Feb. 7, 1997, PCT Pub. No. WO96/05041, PCT Pub. Date Feb. 22, 1996

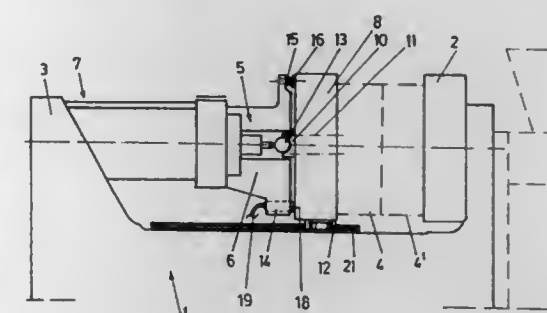
PCT Filed Aug. 10, 1995, Ser. No. 776,872

Claims priority, application Austria, Aug. 11, 1994, GM 237/94

Int. Cl.⁶ B29C 45/80

U.S. Cl. 425—150

10 Claims



1. Apparatus for injection molding thermoplastic materials, comprising a substantially C-shaped frame which is bent open by a closing force produced by a closing device between mold halves carried respectively by a stationary and a movable mold mounting plate, wherein an angle between at least one mold mounting plate and an associated limb of the frame is variable, and including a controllable means, connected to the frame for applying to the at least one mold mounting plate a torque for increasing said angle between the at least one mold mounting plate and the associated limb of the frame.

5,800,842

EXIT CHUTE FOR PHARMACEUTICAL TABLET PRESS MACHINE

Herbert Dale Coble, Raleigh; Robin Cary Maples, Knightdale, and Ross Vincent Martin, Jr., RTP, all of N.C., assignors to Glaxo Wellcome Inc., RTP, N.C.

Filed Feb. 12, 1997, Ser. No. 798,688

Int. Cl.⁶ B29C 43/08; 43/58

U.S. Cl. 425—136

25 Claims

17. A tablet exit chute for a pharmaceutical tablet press, said tablet exit chute comprising:

(a) a first exit chute portion comprising an elongate conduit having a first end and a second end, said first end being adapted to be secured to the tablet press for receiving tablets formed thereby;

(b) a second exit chute portion comprising a conduit housing having a first end and a second end wherein said conduit housing first end is adapted to be removably secured to the second end of said elongate conduit to form an extended tablet pathway, said conduit housing defining an aperture therein wherein rejected tablets can be diverted to pass through and accepted tablets allowed to pass through said conduit housing and out of the second end thereof;

5,800,844

DOUGH PRESS MACHINE

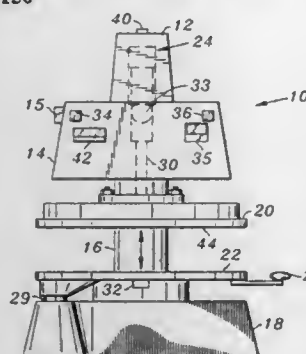
Eugene Louis Raio, Huntington Beach, and Steven M. Raio, Yorba Linda, both of Calif., assignors to Proprocess Corporation, Paramount, Calif.

Filed Dec. 30, 1996, Ser. No. 777,485

Int. Cl.⁶ B30B 15/14

U.S. Cl. 425—150

6 Claims



1. A dough press machine for flattening a quantity of dough, the dough press machine comprising:

- a housing;
 - a lower platen pivotally connected to the housing and movable between an operating position and an access position relative thereto;
 - a thrust actuator attached to the housing;
 - an upper platen attached to the thrust actuator and reciprocally moveable thereby toward and away from the lower platen, the upper platen being substantially aligned with the lower platen when the lower platen is in the operating position; and
 - a sensor attached to the housing and electrically connected to the thrust actuator for detecting the position of the lower platen and the alignment thereof with the upper platen;
- said sensor being operable to prevent the thrust actuator for moving the upper platen toward the lower platen when the lower platen is not in the operating position in substantial alignment with the upper platen.

5,800,845

MOLDED SURFACE FASTENER, AND METHOD AND APPARATUS FOR MANUFACTURING THE SAME

Mitsuru Akeno, and Ryuichi Murasaki, both of Toyama-ken, Japan, assignors to YKK Corporation, Tokyo, Japan

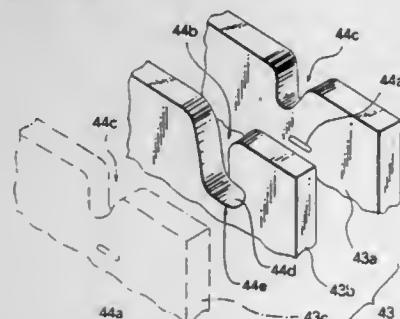
Division of Ser. No. 742,202, Oct. 31, 1996. This application Jun. 10, 1997, Ser. No. 872,289

Claims priority, application Japan, Jun. 6, 1996, 8-144166

Int. Cl.⁶ B29C 47/08; 47/78

U.S. Cl. 425—224

18 Claims



1. An apparatus for manufacturing a molded surface fastener having a substrate sheet and a multiplicity of engaging elements standing on one surface of said substrate sheet, each of the engaging elements being composed of a stem rising from the one surface of said substrate sheet, and an engaging head projecting from an upper end of the stem for detachably engaging a companion loop, said apparatus comprising:

- (a) a molding mold having a multiplicity of generally L-shape engaging-element-forming cavities;
- (b) an injection nozzle for injecting molten resin into said engaging-element-forming cavities; and
- (c) each of said engaging-element-forming cavities being composed of an engaging-head-forming cavity and a pair of protuberance-forming cavities extending from an edge of an inner surface of a top of said engaging-head-forming cavity.

5,800,846

TWIN-SHEET THERMOFORMING APPARATUS WITH HYDRAULIC ARRAY MOLD SUPPORT

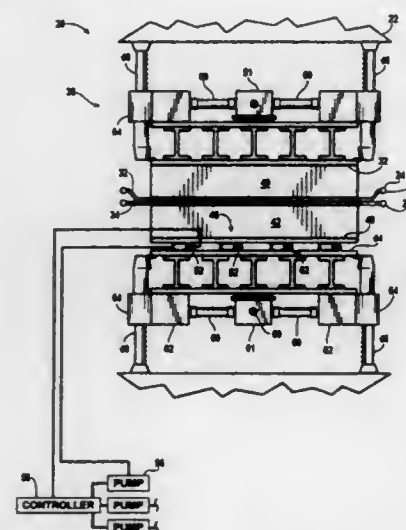
James P. Hart, Portage, Wis., assignor to TriEnda Corporation, Portage, Wis.

Filed Feb. 23, 1996, Ser. No. 604,787

Int. Cl.⁶ B29C 51/46; 51/38

U.S. Cl. 425—504

6 Claims



1. A twin-sheet thermoforming apparatus comprising:

- a) a frame;
- b) an upper mold mounted for vertical movement on the frame;
- c) a platen mounted beneath the upper mold;
- d) a lower mold mounted to the platen;
- e) a plurality of hydraulic actuators mounted to the platen and acting on the lower mold, wherein each actuator has an extensible piston for vertically displacing the lower mold;
- f) a sensor mounted to each actuator for determining the position of the piston;
- g) a controller means for controlling the application of pressurized hydraulic fluid to the hydraulic actuators, wherein the controller means is connected in data receiving relationship to receive piston position information from the sensors, and wherein the controller means performs the additional function of controlling the actuators to uniformly advance the lower mold to drive a first means for forming a molded thermoplastic sheet on the lower mold into engagement with a second means for forming a molded thermoplastic sheet on the upper mold and thereby minimize deflection of the lower mold, the upper mold being separated from the lower mold by the intervening first means and the second means; and
- h) means for supplying precise quantities of hydraulic fluid including hydraulic pumps and each pump is controlled by the controller means, the pumps being incrementable by the controller means to cause a precise and repeatable advancement of the connected actuator.

5,800,847

TOTAL CHEWING GUM MANUFACTURE USING HIGH EFFICIENCY CONTINUOUS MIXING

Joo H. Song, Northbrook; Christafor E. Sundstrom, Glen Ellyn; David W. Record, River Forest; Donald J. Townsend, Chicago; Kevin B. Broderick, Berwyn, and Philip G. Schnell, Downers Grove, all of Ill., assignors to Wm. Wrigley Jr. Company, Chicago, Ill.

Continuation of Ser. No. 362,254, Dec. 22, 1994, Pat. No. 5,543,160, which is a continuation-in-part of Ser. No. 305,363, Sep. 13, 1994, abandoned. This application May 28, 1996, Ser. No. 654,182

Int. Cl.⁶ A23G 3/30

U.S. Cl. 426—3

21 Claims

1. A method of continuously manufacturing chewing gum with integrated manufacture of a chewing gum base, comprising the steps of:

- a) adding at least an elastomer and filler into a high efficiency continuous mixer, and mixing the elastomer and filler together in the continuous mixer;
 - b) adding at least one ingredient selected from the group consisting of fats, oils, waxes, and elastomer plasticizers into the continuous mixer, and mixing said ingredient with the elastomer and filler in the continuous mixer to form a complete gum base; and
 - c) adding at least one sweetener and at least one flavor into the continuous mixer, and mixing said sweetener and flavor with the gum base ingredients to form a chewing gum product;
- d) wherein steps a)-c) are performed using a single high efficiency continuous mixer.

5,800,848

CHEWING GUM CONTAINING SUCROSE POLYESTERS

Robert J. Yotka, Orland Park; Michael J. Greenberg, Northbrook; Michael T. Bunczek, Lisle, all of Ill.; Roy L. Whistler, West Lafayette, Ind.; David W. Record, River Forest, Ill., and Michael A. Reed, Merrillville, Ind., assignors to the Wm. Wrigley Jr. Company, Chicago, Ill.

PCT No. PCT/US95/07826, § 371 Date May 15, 1997, § 102(e) Date May 15, 1997, PCT Pub. No. WO97/00618, PCT Pub. Date Jan. 9, 1997

PCT Filed Jun. 20, 1995, Ser. No. 793,191

Int. Cl.⁶ A23G 3/30

U.S. Cl. 426—3

18 Claims

1. A gum base comprising:
an elastomer; and
at least 0.02% by weight of sucrose fatty acid esters chosen from the group consisting of hexa-, hepta- and octa- fatty acids.

5,800,849

CHEESEMAKING WITH RECOMBINANT ASPARTIC PROTEASE

Peter Budtz, Frederiksberg, and Hans Peter Heldt-Hansen, Virum, both of Denmark, assignors to Gist-brocades, B.V., Netherlands

PCT No. PCT/DK94/00163, § 371 Date Dec. 29, 1995, § 102(e) Date Dec. 29, 1995, PCT Pub. No. WO94/24880, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 22, 1994, Ser. No. 535,237

Claims priority, application Denmark, Apr. 27, 1993, 474/93

Int. Cl.⁶ A23C 9/12

U.S. Cl. 426—36

15 Claims

1. An improved method for producing cheese using aspartic protease to coagulate milk, wherein said improvement comprises the step of adding a recombinant aspartic protease to milk in sufficient amounts to effect clotting of the milk, wherein said recombinant aspartic protease is produced using a DNA molecule encoding an aspartic protease isolated from a filamentous fungus of the genus *Rhizomucor* and is expressed in a host selected from

the group consisting of the genus *Aspergillus* and *Trichoderma* and said recombinant aspartic protease has more N-bound carbohydrates than found in the aspartic protease produced by the fungal source of the DNA molecule encoding said aspartic protease.

5,800,850

PROCESS FOR REDUCING SPOILAGE OF STERILIZED LIQUID PRODUCTS

Gene Frank Clyde; Steven Soon-Young Kwon, both of New Milford, Conn.; Marianne Dorothy Potter, Marysville, Ohio; Dharam Vir Vadehra, New Milford, and Elaine Regina Wedral, Sherman, both of Conn., assignors to Nestec S.A., Vevey, Switzerland

Filed Oct. 4, 1995, Ser. No. 539,313

Int. Cl.⁶ A23F 5/00

U.S. Cl. 426—45

20 Claims

1. A process for preparing and reducing spoilage of a heat-sterilized liquid food product comprising mixing an enzymatically-modified phospholipid composition comprising a phosphatidylcholine component, wherein greater than 90 mol % of the phosphatidylcholine component is lysophosphatidylcholine, in a liquid food product to obtain a food product and lysophospholipid mixture and heating the mixture for sterilizing the mixture for obtaining a sterilized liquid food product.

5,800,851

SLICE OF A FOOD ITEM HAVING A HEAT TACK SEAL

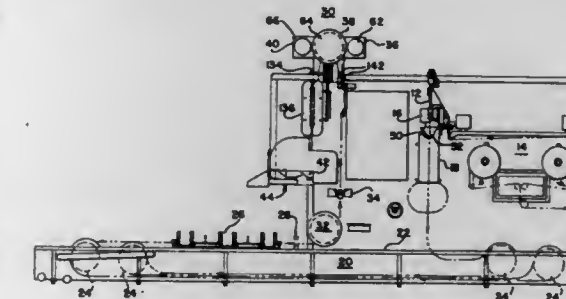
Vincent A. Mell, and David L. Shaft, both of Green Bay, Wis., assignors to Schreiber Foods, Inc., Green Bay, Wis.

Continuation of Ser. No. 594,857, Jan. 31, 1996, abandoned, which is a continuation of Ser. No. 306,491, Sep. 15, 1994, Pat. No. 5,619,844, which is a continuation of Ser. No. 114,981, Aug. 31, 1993, Pat. No. 5,347,792, which is a continuation of Ser. No. 843,503, Feb. 28, 1992, abandoned. This application Aug. 5, 1997, Ser. No. 906,564

Int. Cl.⁶ B65D 75/12; B65B 9/12; 51/30; 51/16

U.S. Cl. 426—130

13 Claims



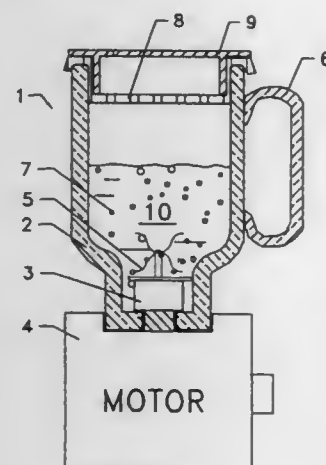
1. An individually wrapped slice of a food item formed from a continuous flattened tube of wrapping material with the food item therein formed by the steps of:

- removing said food item from said tube along a first area so as to form a first registration line;
- removing said food item from said tube along a second area so as to form a second registration line and define a food item slice located between said first and second registration lines;
- heating said first and second registration lines;
- pressing said heated first and second registration lines so as to form a food item slice with a tack seal.

5,800,852

METHOD FOR MAKING A COFFEE/TEA/BEVERAGE USING A TABLE-BLENDER AND A MICROWAVE-OVEN
 Melvin L. Levinson, 8 Stratford Cir., Edison, N.J. 08820-1830
 Continuation-in-part of Ser. No. 370,243, Jan. 9, 1995, Pat. No. 5,635,233. This application May 23, 1997, Ser. No. 862,520

Int. Cl.⁶ A23L 3/00; A21D 6/00; A23F 5/00; 3/34
 U.S. Cl. 426—433 12 Claims

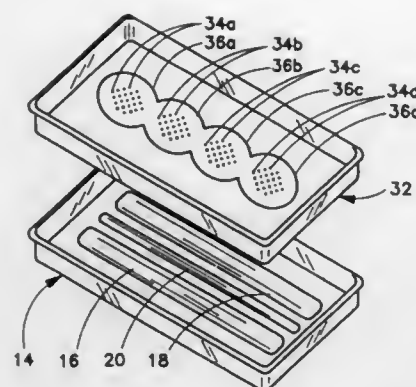


1. A method, for preparing coffee or tea using a table-blender and a microwave-oven that includes the steps of:
 - selecting a table blender that comprises a jar and a motor base, where said jar consists of a microwave-permeable jar open at its top and bottom and a jar base and metal blade assembly and where said jar base and blade assembly seals the bottom of said jar and is designed to facilitate the placement of said jar on said motor base and the removal of said jar from said motor base,
 - adding coffee beans, coffee grounds or tea leaves to said blender jar,
 - adding a liquid,
 - adding a coffee or tea filter to said open top of said jar and employing means to prevent gravity from dislodging said filter when said liquid is poured out of said jar through said filter,
 - energizing said motor so that said metal blades pulverize said coffee or tea and forcefully agitate and mix said liquid and said coffee grounds or tea leaves to initiate the brewing of said coffee or said tea in said liquid,
 - removing said jar containing said brewing mixture of said coffee grounds or tea leaves and said liquid from said motor base,
 - heating said jar containing said mixture of said brewing coffee grounds or tea leaves and said liquid in said microwave oven for a predetermined time,
 - pouring the resultant brewed coffee or tea out of said jar through said filter.

5,800,853

BAKING PAN KIT AND ASSOCIATED METHOD
 Ping Wang, 420 Mills Dr., Benicia, Calif. 94510
 Continuation-in-part of Ser. No. 681,113, Jul. 22, 1996. This application Jun. 27, 1997, Ser. No. 884,345
 Int. Cl.⁶ A23L 1/10

- U.S. Cl. 426—511 22 Claims
1. A baking pan kit for use in cooking different types of food articles having respective lower surfaces with different predetermined sizes and shapes, said baking pan kit comprising:
 - a lower pan portion,
 - an upper pan portion removably connected to said lower pan portion via an effectively steam-proof seal, said upper pan portion having an upper surface provided with an opening; and

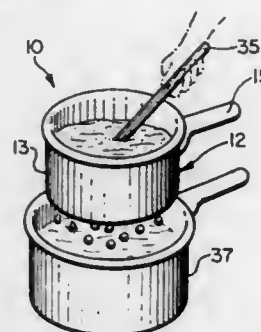


a plurality of panels alternatively connectable to said upper pan portion over said opening, said upper surface having an area surrounding said opening which is continuous and free of perforations, at least one of said panels being provided with a plurality of perforations disposed in a predetermined array substantially conforming in size and shape to the size and shape of the lower surface of a selected one of the food articles whereby the selected food article covers substantially all of said perforations upon being placed on said one of said panels over said array, said one of said panels being connectable to said upper pan portion in an effectively steam-proof seal to define, with said lower pan portion and said upper pan portion, a substantially sealed chamber, said perforations communicating with said chamber.

5,800,854

SYSTEM FOR MAKING PASTA
 William Jaeger, 14701 Golf Rd., Orland Park, Ill. 60462
 Filed Oct. 29, 1996, Ser. No. 739,304
 Int. Cl.⁶ A21C 3/04

U.S. Cl. 426—516 29 Claims

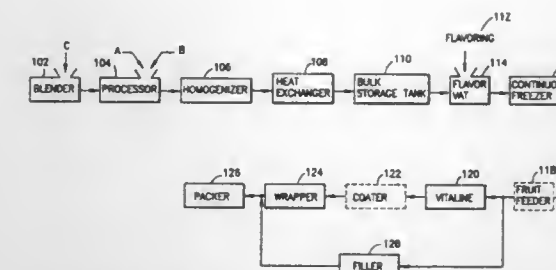


1. A system for making pasta, comprising in combination:
 - a dough bin having a bottom;
 - a gravity extrusion means associated with the bin bottom;
 - and a hydrated substantially fluid pasta dough mixture which extrudes from the extrusion means due to the force of gravity.

5,800,855

CHEESECAKE ICE CREAM
 Michael A. Rosen, 73 Melanle La., Syosset, N.Y. 11791
 Continuation of Ser. No. 423,407, Apr. 18, 1995, abandoned.
 This application Jun. 7, 1996, Ser. No. 659,964
 Int. Cl.⁶ A23C 19/00; A23G 9/00

- U.S. Cl. 426—565 17 Claims
1. A method of manufacturing a frozen cheesecake ice cream, said method comprising the steps of:
 - combining cream, milk and condensed skim milk to form a first mixture;
 - pasteurizing the first mixture;
 - culturing the pasteurized first mixture;

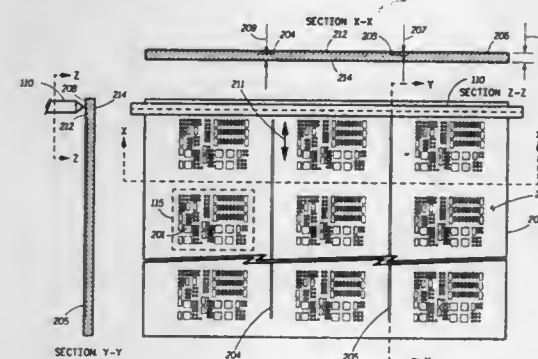


reducing the amount of lactic acid in the cultured mixture, the lactic acid having been produced as a by-product during the step of culturing;
 combining cream cheese, a sweetening agent and a stabilizing component to the cultured mixture to form a second mixture;
 pasteurizing and homogenizing the second mixture; and
 cooling the pasteurized and homogenized second mixture to produce a frozen cheesecake ice cream product.

5,800,856

MASK STENCIL WEAR INDICATOR
 Loan T. Hong Vuong, Parkland, Fla., assignor to Motorola, Inc., Schaumburg, Ill.
 Filed Oct. 3, 1997, Ser. No. 943,446
 Int. Cl.⁶ B05D 1/00

U.S. Cl. 427—9 6 Claims

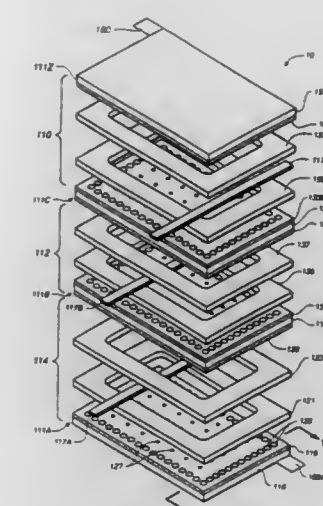


1. A solder mask stencil wear indicator, comprising:
 - a solder mask stencil having a thickness and a wear surface, and
 - an indicator line formed by material pre-removed from the wear surface of the solder mask stencil, the indicator line having a depth less than the thickness of the solder mask stencil.

5,800,857

ENERGY STORAGE DEVICE AND METHODS OF MANUFACTURE
 Nazir Ahmad, San Jose, and Keh-Chi Tsal, Saratoga, both of Calif., assignors to Pinnacle Research Institute, Inc., Los Gatos, Calif.
 PCT No. PCT/US95/03985, § 371 Date Sep. 30, 1996, § 102(e) Date Sep. 30, 1996, PCT Pub. No. WO95/26833, PCT Pub. Date Oct. 12, 1995
 Continuation-in-part of Ser. No. 377,121, Jan. 23, 1995, Pat. No. 5,711,988, and Ser. No. 219,965, Mar. 30, 1994, which is a continuation-in-part of Ser. No. 947,414, Sep. 18, 1992, Pat. No. 5,384,685, Ser. No. 947,294, Sep. 18, 1992, Pat. No. 5,464,453, and Ser. No. 958,506, Oct. 7, 1992, abandoned.
 This PCT application Mar. 30, 1995, Ser. No. 718,569
 Int. Cl.⁶ B05D 5/12

- U.S. Cl. 427—80 25 Claims
1. An improved method to produce a sealable and electrically insulating band of organic polymer on the perimeter edges of an individual electrode for use in an energy storage device, which method comprises:



- A. obtaining a thin flat electrode comprising a thin porous metal oxide, nitride or carbide coated on a thin electrode substrate with or without insulating separators applied to one or both of the flat porous metal oxide, nitride or carbide surfaces;
- B. dissolving at least one organic polymer in at least one organic solvent to obtain a solution having a viscosity sufficiently low to permit the solution to penetrate the porous metal oxide, metal nitride, or metal carbide;
- C. coating the edge perimeter of each of the flat electrode with the polymer solvent solution of step B wherein the total surface area of organic polymer on one side covers between about 5 and 25% of the total area of the flat surface of one side of the electrode from each perimeter edge to create a continuous substantially uniform edge coating of organic polymer and having a thickness effective to stop shunt or leakage current; and
- D. removing the at least one organic solvent from the organic polymer edge coating by maintaining the coated electrode at ambient temperature and pressure for between about 0.1 and 1000 min followed by heating at between about 20° and 150° C. for between about 0.1 and 10 hr, optionally under vacuum conditions, producing an edge seal effective to stop or to reduce up to about 99% of any leakage current, wherein the thin flat electrode is not a component of a nickel metal hydride electrochemical cell.

5,800,858

METHOD FOR CONDITIONING HALOGENATED POLYMERIC MATERIALS AND STRUCTURES FABRICATED THEREWITH

Harry Randall Bickford, Ossining; Peter J. Duke, Endwell, both of N.Y.; Elizabeth Foster, Friendsville, Pa.; Martin Goldberg, San Jose, Calif.; Voya Rista Markovich, Endwell, N.Y.; Linda Matthew, Palo Alto, Calif.; Donald G. McBride, Binghamton, N.Y.; Terrence Robert O'Toole, Webster, N.Y.; Stephen Leo Tisdale, Endwell, N.Y., and Alfred Viehbeck, Fishkill, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 Continuation of Ser. No. 490,930, Jun. 16, 1995, Pat. No. 5,709,906, which is a continuation of Ser. No. 372,685, Jan. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 340,379, Nov. 14, 1994, abandoned, which is a division of Ser. No. 13,652, Feb. 4, 1993, Pat. No. 5,374,454, which is a continuation of Ser. No. 584,327, Sep. 18, 1990, abandoned.
 This application Sep. 12, 1996, Ser. No. 711,894
 Int. Cl.⁶ B05D 5/12

- U.S. Cl. 427—97 7 Claims
1. A method for catalyzing walls of a via in a halogenated polymeric material-containing substrate for subsequent plating therein of a conductive metal, said method comprising the steps of:
 - contacting said substrate with an electrolyte;

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cathodically biasing a means for forming said via to thereby electrochemically reduce portions of said substrate adjacent said walls of said via during formation of said via; and contacting said walls with a composition containing a cation of a metal to thereby provide catalytic sites on said walls.

5,800,859

COPPER COATING OF PRINTED CIRCUIT BOARDS
Andrew David Price, 36 St. James Ave., Surrey, England, and Peter Thomas McGrath, 26693 Sotelo, Mission Viejo, Calif. 92692

Filed Dec. 11, 1995, Ser. No. 570,442
Claims priority, application United Kingdom, Dec. 12, 1994, 9425090

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—98

32 Claims



1. A process for treating a metal surface to promote adhesion thereto, comprising contacting the metal surface with an adhesion promotion composition comprising 0.1 to 20% by weight hydrogen peroxide, an inorganic acid, an organic corrosion inhibitor and a surfactant to form a microroughened conversion-coated surface, and adhering a material to the microroughened conversion-coated surface.

5,800,860

METHOD OF MANUFACTURING PLANAR OPTICAL WAVEGUIDES

Arnd Hermann Kilian, Summlt; Hyung Jong Lee, Westfield, and John Burnette MacChesney, Lebanon, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 28, 1995, Ser. No. 496,268

Int. Cl.⁶ B05D 5/06

U.S. Cl. 427—163.2

18 Claims

1. The method of manufacturing planar optical waveguides, which comprises

forming upon a substrate selected from a group consisting of silicon and silica a lower cladding layer comprising silica having a first index of refraction,

forming upon the lower cladding layer at least one waveguiding ridge comprising silica having a second index of refraction which is higher than said first index of refraction,

forming on said at least one waveguide ridge and on exposed regions of the lower cladding layer an upper cladding layer comprising particles of silica having an index of refraction which is lower than said second index of refraction, said upper cladding layer is formed by depositing a layer of soot particles comprising silica and sintering the soot particles in a helium-containing atmosphere into a glassy layer,

wherein, said sintering is conducted by heating the soot layer in a helium atmosphere containing a gaseous additive selected from the group consisting of BCl₃ and BF₃ at temperatures of from 800° to 900° C., sintering the heated soot layer at a temperature ranging from 1000° to 1100° C. in absence of said gaseous additive, annealing the sintered structure in a

steam-and-oxygen atmosphere at a temperature of from 1000° to 1150° C., and allowing the annealed layer to cool to room temperature.

5,800,861

HIGH SOLID INFRARED ABSORBING COMPOSITIONS
Chwan-Hwa Peter Chiang, Des Plaines; William Roland Dawson, Matteson; Layton Fredrick Kinney, Chicago, all of Ill., and Charles J. Sherman, Dyer, Ind., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Division of Ser. No. 797,261, Nov. 12, 1985, which is a continuation-in-part of Ser. No. 766,158, Aug. 15, 1985. This application Dec. 28, 1988, Ser. No. 288,713

Int. Cl.⁶ B05D 5/06; C08K 3/32

U.S. Cl. 427—160

22 Claims

1. A high solid coating composition which comprises:

(a) 5–50% by weight of a volatile portion which comprises at least one inert organic solvent; and

(b) 50–95% by weight of a non-volatile portion which comprises:

(i) at least one active hydrogen functional polymer having a number average molecular weight less than about 6,000;

(ii) polymeric beads dispersed within the polymer;

(iii) at least one infrared radiation absorbing pigment selected from the group consisting of copper phosphate, basic copper phosphate, copper pyrophosphate, tungsten trioxide and mixtures thereof; and

(iv) a crosslinking agent reactive with the active hydrogen functional polymer under curing conditions

wherein the coating composition, when applied to a substrate and allowed to cure or dry, is further characterized in that the cured or dried coating has a level of reflectance of near infrared radiation of less than 10% and has an 85° visible gloss of less than 10.

5,800,862

TEXTILE TREATMENT

Werner Kaufmann, Rheinfelden, Switzerland; Dieter Reinehr, Kandern, Germany, and Rolf Hilfiker, Basel, Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed May 10, 1995, Ser. No. 438,590

Claims priority, application United Kingdom, May 12, 1994, 9409466

Int. Cl.⁶ B05D 5/00

U.S. Cl. 427—458

54 Claims

1. A method of improving the sun protection factor (SPF) of textile fibre material, comprising treating the textile fibre material in an essentially aqueous medium with an aqueous solution or fine dispersion comprising an effective amount of 0.01 to 3% based on the weight of the textile fibre material of at least one fluorescent whitening agent which is a 4,4'-bis-(triazinylamino)-stilbene-2,2'-disulfonic acid, 4,4'-bis-(triazol-2-yl)stilbene-2,2'-disulfonic acid, 4,4'-(diphenyl)-stilbene, 4,4'-distyryl-biphenyl, 4-phenyl-4'-benzoxazolyl-stilbene, stilbenyl-naphthotriazole, 4-styryl-stilbene, bis-(benzoxazol-2-yl), bis-(benzimidazol-2-yl), coumarin, pyrazoline, naphthalimide, triazinyl-pyrene, 2-styryl-benzoxazole- or -naphthoxazole, benzimidazole-benzofuran or oxanilide.

5,800,863

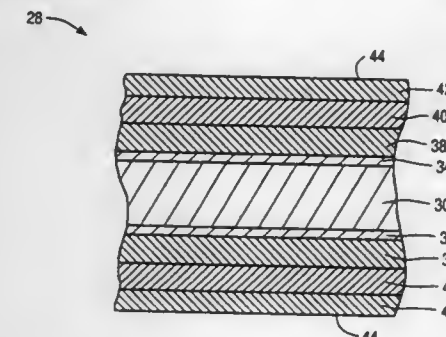
CARBON SEEDLAYER ON NON-METALLIC SUBSTRATES FOR MAGNETIC RECORDING MEDIA
Yuanda Cheng; Richard A. Gardner, both of San Jose, and Mojtaba Sedighi, Fremont, all of Calif., assignors to Akashic Memories Corporation, San Jose, Calif.

Division of Ser. No. 435,440, May 10, 1995, Pat. No. 5,599,632. This application Jan. 14, 1997, Ser. No. 782,988

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—131

6 Claims



1. A method for applying a magnetic layer on a non-metallic substrate, said method comprising:

applying a seedlayer selected from the group consisting of carbon and silicon over the surface of the substrate;

applying a magnetic layer over the seedlayer.

5,800,864

OPTICAL DISC

Masayuki Tatewaki; Hiromasa Kato; Kenichi Obinata, and Masahiro Aoki, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 834,612, Feb. 12, 1992, abandoned, which is a division of Ser. No. 667,829, Mar. 12, 1991, Pat. No. 5,186,994. This application Feb. 12, 1993, Ser. No. 17,977

Claims priority, application Japan, Mar. 16, 1990, 2-064387

Int. Cl.⁶ B05D 5/06

U.S. Cl. 427—164

3 Claims

1. A method for producing a reflective film essentially composed of aluminum on an optical disc, wherein aluminum oxide is inter-dispersed within the aluminum, said method comprising introducing an amount of oxygen into an atmosphere in the course of forming said reflective film on a transparent substrate of said optical disc wherein the amount of oxygen introduced into the atmosphere is such that the oxide of aluminum contained in the formed reflective film bears an oxygen to aluminum atomic ratio between 1.3 and 2.0.

5,800,865

THIN PROFILE BATTERY WITH IMPROVED SEPARATOR AND GASKET CONSTRUCTION

Peter M. Blonsky, and Mark E. Tuttle, both of Boise, Id., assignors to Micron Communications, Inc., Boise, Id. Continuation of Ser. No. 787,611, Jan. 23, 1997, abandoned, which is a division of Ser. No. 659,137, Jun. 4, 1996, Pat. No. 5,663,014, which is a continuation of Ser. No. 205,611, Mar. 2, 1994, Pat. No. 5,547,781. This application Sep. 12, 1997, Ser. No. 928,711

Int. Cl.⁶ H01M 2/08

U.S. Cl. 429—174

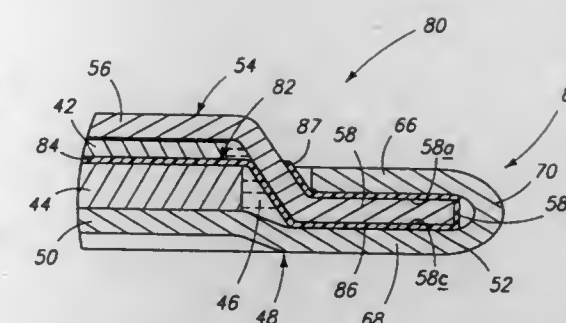
3 Claims

1. A thin profile battery defined by a thickness which is less than a maximum linear dimension of its anode comprising:

a first terminal housing member;

a second terminal housing member;

an anode and a cathode between the first and second terminal housing members;



a single undivided separator/gasket, the separator/gasket consisting of only one material;

the separator/gasket contacting the anode, cathode and both terminal housing members; and

the first and second terminal housing members and the separator/gasket being configured together to form a fluid-tight seal, the seal being void of any gasket other than the single undivided separator/gasket.

5,800,866

METHOD OF PREPARING SMALL PARTICLE DISPERSIONS

David Lewis Myers, Cumming, and Leonid Anthony Turkevich, Alpharetta, both of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Dec. 6, 1996, Ser. No. 758,749

Int. Cl.⁶ B05D 7/00; I38; 3/12

U.S. Cl. 427—220

24 Claims

1. A method of preparing a dispersion of particles in an organic wax, an oligomer, or a monomer, the method comprising:

providing a mixture of a particulate material and a surfactant in a nonaqueous solvent, in which the particulate material comprises particles having longest dimensions in a range of from about 10 nanometers to about 10 micrometers;

forming a dispersion of the particulate material in the nonaqueous solvent;

combining the resulting dispersion of particulate material in the nonaqueous solvent with the organic wax, oligomer, or monomer; and

heating the combination of the dispersion of particulate material and the organic wax, oligomer, or monomer, with mixing, to a temperature which is the boiling point of the nonaqueous solvent;

wherein:

the surfactant is soluble in the nonaqueous solvent and stabilizes the particulate material against agglomeration;

the nonaqueous solvent swells the organic wax, oligomer, or monomer at or near the boiling point of the nonaqueous solvent; and

the boiling point of the nonaqueous solvent is greater than a temperature which is the softening temperature of the organic wax, oligomer, or monomer which is a solid at ambient temperature, or greater than the temperature needed to reduce the viscosity of a liquid organic wax, oligomer, or monomer to a point where it can be mixed, and below a temperature at which the organic wax, oligomer or monomer polymerizes or decomposes.

5,800,867

DEFLECTION CONTROL OF LIQUID OR POWDER STREAM DURING DISPENSING

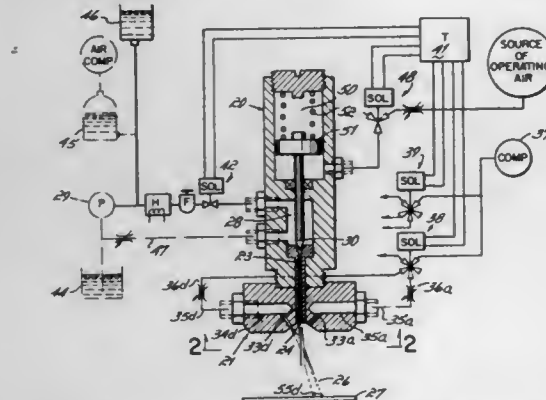
Masafumi Matsunaga, Shimoda-cho; Ikuro Yamagata, Kujirai; Shigenori Kitasako, Futaba, and Akito Takayanagi, Minamidai, all of Japan, assignors to Nordson Corporation, Westlake, Ohio

Continuation of Ser. No. 203,269, Feb. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 974,502, Nov. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 916,988, Aug. 13, 1992, abandoned. This application Oct. 8, 1996, Ser. No. 728,235

Claims priority, application Japan, Jan. 2, 1994, 6-029105
Int. Cl.⁶ B05D 7/22

U.S. Cl. 427—236

34 Claims



1. A method of uniformly coating the inside surface of a can comprising the steps of:

- spraying a stream of coating material from a nozzle toward the inside surface of the can; and
- directing each of a plurality of independently actuatable air flows radially inward into contact with the sprayed stream to deflect the stream in a sequence of directions to uniformly coat a non-linear portion of the inside surface of the can without producing a spray reflection.

5,800,868

METHOD FOR MAKING A COATED CUTTING TOOL

Anders Lenander, Tyresö, and Leif Åkesson, Älvsjö, both of Sweden, assignors to Sandvik AB, Sandviken, Sweden

Division of Ser. No. 407,657, Mar. 21, 1995, Pat. No. 5,705,263. This application Jun. 12, 1997, Ser. No. 873,467

Claims priority, application Sweden, Mar. 22, 1994, 9400951
Int. Cl.⁶ C23C 16/32

U.S. Cl. 427—249

5 Claims



1. A method of making a coated cemented carbide body comprising:

- forming one or more first layers of $\text{MetC}_x\text{N}_{1-x}$ adjacent to a cemented carbide substrate where $0 \leq x \leq 1$ and Met is selected from the group consisting of Ti, Zr, Hf, V, Ta, Nb and mixtures thereof by contacting said substrate with a gas containing hydrogen, nitrogen and hydrocarbons and one or more halides said Met at a temperature range of 800°C – 1200°C , and a pressure of 5–1050 mbar;

- forming a second layer, directly on the one or more first layers, of $\text{MetC}_x\text{O}_y\text{N}_z$, where $0.7 \leq x+y+z \leq 1.3$ and $0.2 < y < 0.8$ and Met is selected from the group consisting of Ti, Zr, Hf, V, Ta, Nb and mixtures thereof by contacting the one or more first layers with a gas containing hydrogen, nitrogen, carbon monoxide and one or more halides of said Met at a temperature range of 800°C – 1200°C , and a pressure of 5–1050 mbar; and
- forming a third layer directly on the second layer, of $\text{MetC}_x\text{N}_{1-x}$, where $0 \leq x \leq 1$ and Met is selected from the group consisting of Ti, Zr, Hf, V, Ta, Nb and mixtures thereof by contacting the second layer with a gas containing hydrogen, nitrogen, hydrocarbon and one or more halides of said Met at a temperature range of 800°C – 1200°C , and a pressure of 5–1050 mbar.

5,800,869

METHOD OF MAKING AN OBJECT, IN PARTICULAR A CULINARY ARTICLE

Henri Piera, Moye, France, assignor to Seb S.A., Ecully, France

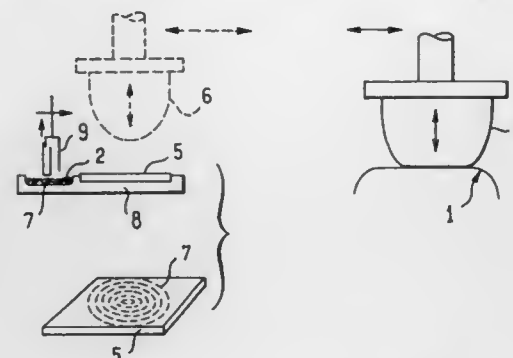
Continuation of Ser. No. 428,480, Apr. 27, 1995, abandoned.

This application Mar. 25, 1997, Ser. No. 829,816

Claims priority, application France, Apr. 27, 1994, 94 05095
Int. Cl.⁶ B05D 1/02; 1/28; 1/38

U.S. Cl. 427—256

12 Claims



1. A method of applying a decoration to an object, comprising the steps of:

- applying at least one layer to form a base layer of enamel frit slip to the object;
- drying the base layer without curing the base layer;
- applying the decoration to a portion of the base layer, the decoration including a paste having an enamel frit, mineral pigments, and one of a binder that is meltable by heat and a binder that can be cross-linked by ultraviolet radiation, wherein if the binder is meltable by heat, said decoration applying step includes heating the paste when the decoration is applied so as to melt the binder; and
- curing the object to vitrify the base layer and the decoration.

5,800,870

SIZE PRESS COATING METHOD

Gary Luebke, Olathe, Kans., and Edward P. Pauley, Jesup, Iowa, assignors to Penford Products Co., Cedar Rapids, Iowa

Filed Mar. 3, 1997, Ser. No. 811,130

Int. Cl.⁶ B05D 7/04; D21F 7/00

U.S. Cl. 427—369

15 Claims

- A method of coating and folding paper characterized by a basis weight greater than 60 pounds per 3,300 square feet without scoring said paper comprising the steps of applying in a size press a paper coating composition comprising a binder which comprises a stable aqueous diversion comprising a water insoluble component and a water soluble component wherein:

5,800,872

AQUEOUS POLYURETHANE DISPERSIONS CONTAINING URETIDIONE

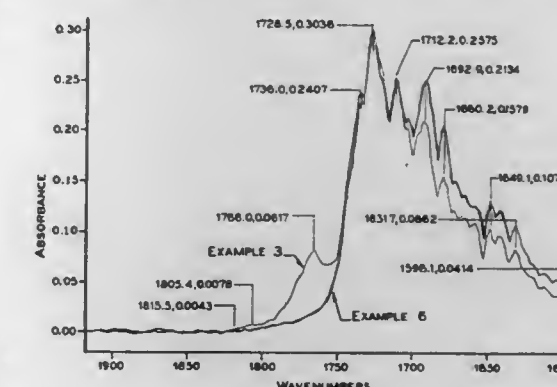
Lawrence E. Katz, Orange; Augustin T. Chen, Cheshire; John W. Reisch, Madison, and Richard J. Feegel, West Haven, all of Conn., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Filed Jun. 17, 1996, Ser. No. 664,734

Int. Cl.⁶ B05D 3/02; C08J 3/00; C08K 3/20; C08L 75/00

U.S. Cl. 427—385.5

7 Claims



- the water insoluble component comprises coalescible polymer particles which have a T_g less than 55°C . and a majority of which have a particle size less than 1 micron; and
- the water soluble component comprises a water soluble polymer capable of inhibiting coalescence of said polymer particles, or a water soluble polymer and a component capable of inhibiting coalescence of said polymer particles; and wherein said water insoluble component comprises greater than 3% and less than 75% by weight of the binder solids and said water soluble component comprises greater than 25% and less than about 97% of said solids; and folding said paper without scoring.

5,800,871

ELECTROSTATIC CHUCK WITH POLYMERIC IMPREGNATION AND METHOD OF MAKING

Kenneth S. Collins, San Jose; Joshua Chiu-Wing Tsui, Santa Clara, and Douglas Buchberger, Tracy, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

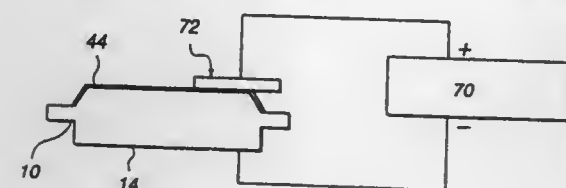
Division of Ser. No. 372,177, Jan. 12, 1995. This application

Aug. 16, 1996, Ser. No. 689,947

Int. Cl.⁶ B05D 3/02

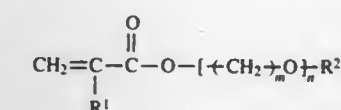
U.S. Cl. 427—385.5

15 Claims



1. A method of producing an electrostatic chuck which comprises the steps of:

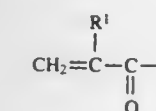
- providing an electrostatic chuck comprising
 - a pedestal having a metallic upper surface, and
 - a porous dielectric formed on said upper surface of said pedestal,
- impregnating substantially the entire porous dielectric with a liquid polymerizable material capable of being cured to form a plasma-resistant material, the liquid polymerizable material comprising at least one monomer having the structural formula:



wherein

R^1 denotes H or CH_3 ,

R^2 denotes H or



m is 2–4, and

n is 1–22; and

- curing said impregnated liquid polymerizable material.

5,800,873

PROCESS FOR THE PRODUCTION OF SEALED PACKAGING CONTAINERS AND THE USE OF A SEALING COATING FOR COATING PLASTICS FILMS

Nicolaas Leonardus Maria Enthoven, Tiel; Jürgen Erwin Lemke, Buren; Peter Eric van Rijn, Tiel, and Henricus Petrus Gemma van Sommeren, West Maas en Waal, all of Netherlands, assignors to BASF Lacke+Farben AG, Muenster-Hiltrup, Germany

Filed Oct. 3, 1994, Ser. No. 316,784

Int. Cl.⁶ B05D 3/00

U.S. Cl. 427—393.5

6 Claims

- A process for the production of sealed packaging containers from plastics films, comprising the step of applying to a plastics film a sealing coating based on an aqueous dispersion or solution of acrylate copolymer, which is prepared by emulsion polymerization of alkyl esters of acrylic acid and methacrylic acid and of α,β -ethylenically unsaturated carboxylic acids, wherein the aqueous dispersion or solution of acrylate copolymer is prepared by a two-stage emulsion polymerization of a monomer mixture, wherein the monomers consist essentially of:

- from 1 to 15% by weight of α,β -ethylenically unsaturated carboxylic acids,

b) from 40 to 69% by weight of alkyl esters of acrylic acid having 1-12 carbon atoms in the alkyl radical,
 c) from 0 to 55% by weight of a compound selected from the group consisting of alkyl esters of methacrylic acid having 1-12 carbon atoms in the alkyl radical, vinylaromatics, and mixtures thereof, and
 d) from 0 to 25% by weight of further monomers,
 the sum of a), b), c), and d) in each case being 100% by weight of total monomers employed, the glass transition temperature (T_g) of the acrylate copolymer being not more than 50° C., and the number-average molecular weight (M_n) of the acrylate copolymer being 8000-12,000; and further wherein from 5 to 20% by weight of the monomer mixture is polymerized at a temperature of 70° C.-90° C. using emulsifiers, polymerization initiators and chain-transfer agents in the first stage of the emulsion polymerization, and in the second stage of the emulsion polymerization, the remaining 80 to 95% by weight of the monomer mixture is polymerized at a temperature of 70° C.-90° C. in the presence of the polymer obtained in the first stage of the emulsion polymerization, the resulting reaction mixture is at least partially neutralized by the addition of bases and the sealing coating obtained is applied to the plastics film and dried.

5,800,874

TECHNIQUE FOR FORMING RESIN-IMPREGNATED FIBERGLASS SHEETS

Bernd Karl Appelt, Apalachin; William Thomas Fotorny, Endicott; Robert Maynard Japp, Vestal; Kostantinos Papatthomas, Endicott, and Mark David Polks, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

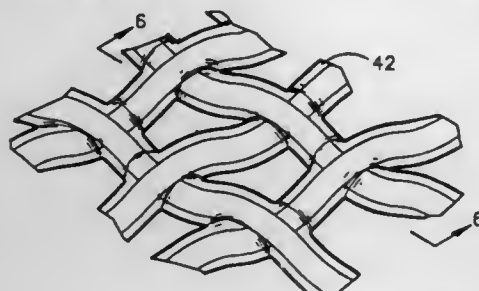
Division of Ser. No. 716,814, Sep. 10, 1996, Pat. No. 5,756,405.

This application Jul. 9, 1997, Ser. No. 890,413

Int. Cl.⁶ B05D 1/38; 3/02

U.S. Cl. 427-412

8 Claims



1. A method of forming a layer of resin-impregnated cloth comprising the steps of:
 providing a sheet of cloth having fiber strands therein separated by openings,
 providing a first resin/solvent mixture wherein said resin is a thermosetting resin which can be partially cured and thereafter fully cured, and which first resin in the partially-cured state during further curing will form an integral bond with a layer of a second resin during curing of said second thermosetting resin,
 coating said sheet of cloth with said first resin/solvent mixture to coat essentially all of the strands with said first resin/solvent mixture while maintaining essentially all of said openings essentially free of said first resin/solvent mixture,
 sufficiently beyond B stage cure so that it will not dissolve in a subsequent coating of the same uncured resin,
 partially curing said first resin on said strands,
 providing a second resin/solvent mixture wherein said second resin is the same resin as the resin of said first resin/solvent mixture,
 coating said sheet of cloth having the partially-cured resin therein with said second resin/solvent mixture to cover said coated strands and to fill essentially all said spaces between said strands with said second resin/solvent mixture, and

partially curing said resin of said second resin/solvent mixture to a B stage cure and further curing said resin of said first resin/solvent mixture to provide a coated sheet with a transition zone between said first and second coatings that is smooth substantially continuous with crosslinking between said first and second coatings providing an essentially continuous polymer of two layers,
 whereby an essentially non-porous, partially-cured, resin-impregnated sheet of cloth is provided.

5,800,875

MINERAL FIBER LOG PROCESSING

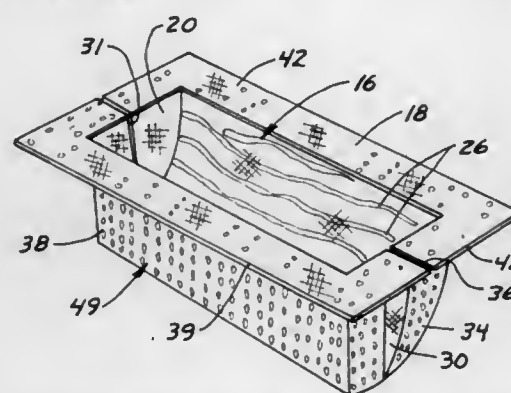
Dudley D. Hussong, Lakefield, Minn., assignor to Hussong Manufacturing Co., Inc., Lakefield, Minn.

Filed Dec. 8, 1995, Ser. No. 569,483

Int. Cl.⁶ B05D 1/18; B29C 33/42

U.S. Cl. 427-430.1

11 Claims



1. A method of forming a mold comprising a three dimensional pattern for a simulated fireplace log, comprising the steps of:
 forming an exterior configuration of a block of material to a general shape of the simulated fireplace log;
 forming elongated grooves in a surface of the block of material;
 filling the elongated grooves with elongated ribs formed of desired sizes and extending outwardly from the block of material; and
 placing a layer of mold forming material over the block of material to form the mold by causing the elongated ribs to adhere to the mold forming material as the mold forming material is removed from the block of material thereby allowing elongated grooves to be formed in a molded simulated fireplace log formed in the mold corresponding to the elongated grooves formed in the block of material.

5,800,876

METHOD AND DEVICE FOR CONTROLLING THE OUTFLOW OF A FLUIDIZED SOLID FROM A CONTAINER

Gunter Börner, Mühlhausen; Johann Nienburg, Heidelberg; Jörg Sopka, Schwetzingen, and Josef Wittmann, Hockenheim, all of Germany, assignors to ABB Research Ltd, Zurich, Switzerland

Filed Feb. 20, 1997, Ser. No. 804,129

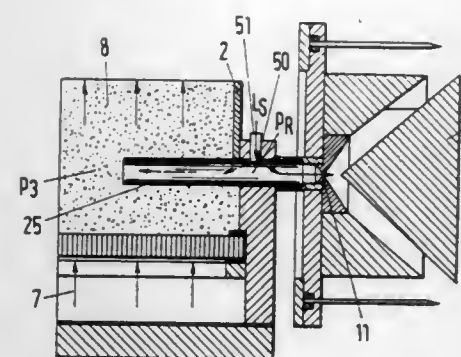
Claims priority, application Germany, Feb. 20, 1996, 196 06 214.4

Int. Cl.⁶ B05D 1/06; B05B 7/24; B05L 19/04

U.S. Cl. 427-459

5 Claims

3. A method for controlling the outflow of a fluidized solid from a powder-spraying appliance for electrostatic coating, which comprises:
 providing a positive air pressure to a fluid bed for discharging a fluidized solid out of the fluid bed located in a container of a powder-spraying appliance through an extraction pipe leading from the container for electrostatic coating to a nozzle; and



controlling the discharge of the fluidized solid by introducing closing air transversely to a flow direction of the fluidized solid at an orifice in a casing of the extraction pipe at a pressure range of greater than the positive air pressure to a pressure of zero so that countering the positive air pressure and controlling a mass flow of the fluidized solid is correspondingly controlled from zero to a maximum mass flow with the closing air.

5,800,877

METHOD FOR FORMING A FLUORINE CONTAINING SILICON OXIDE FILM

Kazuo Maeda; Noboru Tokumasu, both of Tokyo, and Yoshiaki Yuyama, Fussa, all of Japan, assignors to Canon Sales Co., Inc., and Semiconductor Process Laboratory Co., Ltd., both of Japan

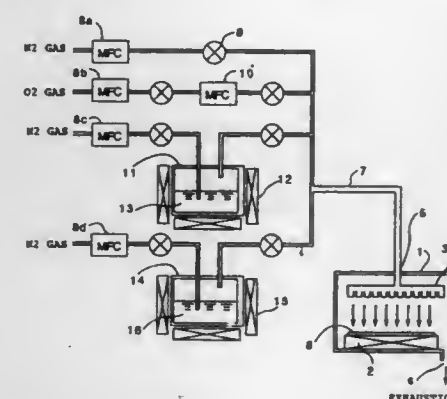
Filed Aug. 9, 1996, Ser. No. 694,660

Claims priority, application Japan, Aug. 18, 1996, 7-210896

Int. Cl.⁶ C23C 16/42; H05H 1/00

U.S. Cl. 427-535

10 Claims



1. A method for forming a film on a substrate comprising:
 providing a mixed gas including an organic silane having a Si-F bond, an organic silane having no Si-F bond and ozone;
 contacting said mixed gas with the substrate;
 heating the substrate while in contact with said mixed gas to thermally react said mixed gas and to thereby form a fluorine-containing silicon oxide film on the substrate;
 discontinuing contact between the substrate and said mixed gas; then
 contacting said fluorine-containing silicon oxide film with a plasma of at least one of oxygen and nitrogen; and
 heating said substrate while said fluorine-containing silicon oxide film is in contact with said plasma.

5,800,878

REDUCING HYDROGEN CONCENTRATION IN PECVD AMORPHOUS SILICON CARBIDE FILMS

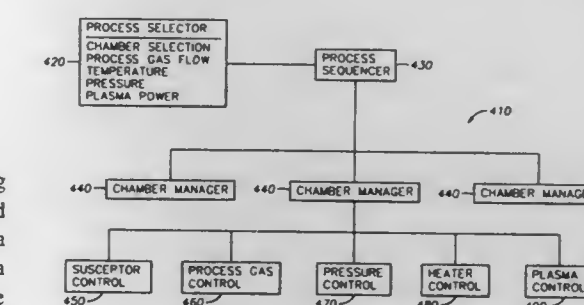
Xiang Yu Yao, Milpitas, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Oct. 24, 1996, Ser. No. 738,137

Int. Cl.⁶ H01L 21/20

U.S. Cl. 427-573

14 Claims



1. A method for depositing a silicon carbide film onto a substrate, comprising the steps of:
 providing a silicon source, a carbon source, and a noble gas in a reaction zone containing a substrate; and
 reacting the silicon source and the carbon source in the presence of a plasma to deposit a silicon carbide film on the substrate; wherein the plasma is generated using mixed frequency RF power.

5,800,879

DEPOSITION OF HIGH QUALITY DIAMOND FILM ON REFRACTORY NITRIDE

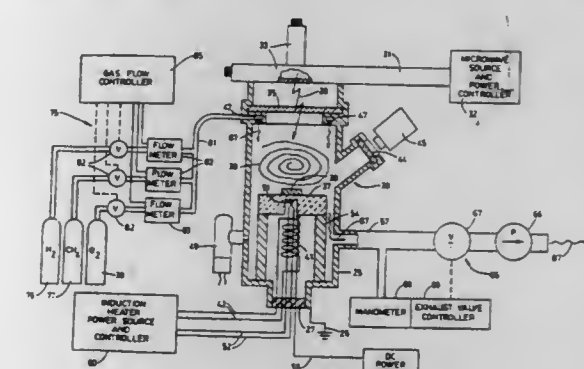
Mark B. Moran; Linda F. Johnson, both of 1124 Yosemite La., and Karl A. Klemm, 1145 W. Langley Ave., all of Ridgecrest, Calif. 93555

Filed May 16, 1991, Ser. No. 702,208

Int. Cl.⁶ B05D 3/06; C23C 16/26

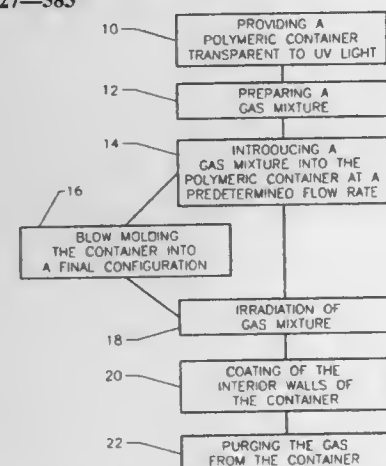
U.S. Cl. 427-577

2 Claims



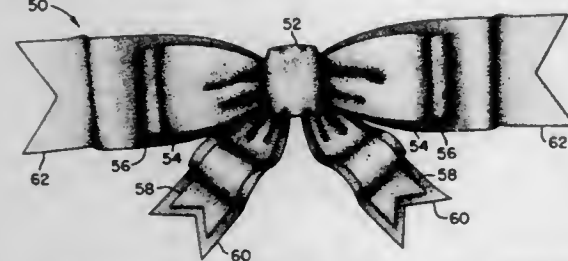
1. A method of forming a continuous layer of polycrystalline diamond on a substrate, the method comprising:
 depositing a refractory nitride on the substrate; and
 depositing said layer directly on said nitride from activated gas containing carbon, said nitride not being abraded with diamond before depositing said layer,
 wherein said gas containing carbon is included in a mixture of gases and wherein:
 said mixture of gases is substantially free from oxygen at the beginning of said depositing of said layer; and
 during said depositing of said layer, oxygen is added to said mixture after said layer has a thickness sufficient to protect said nitride from oxidation by said oxygen.

5,800,880
PROCESS FOR COATING THE INTERIOR WALL OF A CONTAINER WITH A SIOX BARRIER LAYER
 Jacques Laurent, Blonay, Switzerland, assignor to Tetra Laval Holdings & Finance, S.A., Pully, Switzerland
 Filed Mar. 26, 1997, Ser. No. 824,157
 Int. Cl.⁶ B05D 3/06; C23C 8/00
 U.S. Cl. 427—583



1. A process for coating the interior surface of a bottle, the process comprising the steps of:
 providing a preform for a polymeric bottle, the preform having an opening for access to the interior of the preform, the preform transparent to ultraviolet radiation, the preform having an exterior surface and an interior surface;
 introducing a gas mixture through the opening of the preform to blow mold a polymeric bottle, the gas mixture comprising an organosilicon precursor gas, an oxidizer gas and a carrier gas, wherein the organosilicon precursor gas is selected from the group consisting of organosilicones, organosiloxanes and combinations thereof; and
 irradiating the exterior surface of the polymeric bottle and gas mixture therein with ultraviolet radiation from an ultraviolet radiation source disposed proximate to and substantially surrounding the bottle for a sufficient time period to react the gas mixture to form a SiOx layer on the interior surface of the polymeric bottle wherein x of the SiOx layer has range of 1.5 to 2.5.

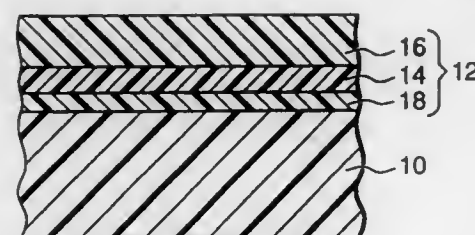
5,800,881
DECORATIVE BOW
 Rafael Etzion, 15 Henhawk Rd., Great Neck, N.Y. 11024
 Filed Mar. 6, 1997, Ser. No. 811,778
 Int. Cl.⁶ D04D 7/10
 U.S. Cl. 428—5



1. A decorative bow comprising six discrete pieces of ribbon and means for securing said pieces of ribbon together in the shape of a bow, wherein said six discrete pieces of ribbon include:
 a first piece formed into a loop;
 a second piece, larger than said first piece, said second piece formed into a loop and gathered;
 a third piece, larger than said first piece, said third piece formed into a loop and gathered;
 a fourth piece gathered but not formed into a loop;

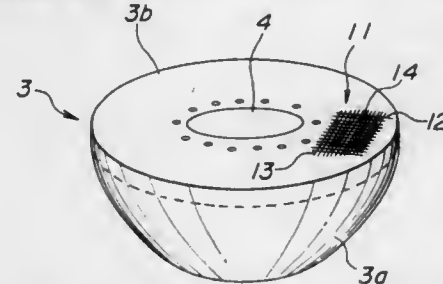
a fifth piece gathered and folded so as to form an angle substantially less than 180°; and
 a sixth piece gathered and folded so as to form an angle substantially less than 180°.

5,800,882
MOLDED ARTICLE
 Chiho Yamasaki, Nishikasugai-gun; Yukihiko Horiba, Konan; Hisaki Tomita, Kasugai; Yasuo Iwata, Nagoya; Kenichi Watanabe, Ama-gun, and Tomoko Miyake, Hashima-gun, all of Japan, assignors to Toyoda Gosei Co., Ltd., Alchi-Ken, Japan
 Filed Aug. 9, 1996, Ser. No. 694,827
 Claims priority, application Japan, Aug. 10, 1995, 7-227292
 Int. Cl.⁶ B60R 13/04; B32B 5/16
 U.S. Cl. 428—31



1. A molded article comprising:
 (a) a film comprised of a first synthetic resin material, including at least a protective layer and an adhesive layer, and
 (b) a base layer comprised of a second synthetic resin material, said adhesive layer being interposed between said protective layer and said base layer, said base layer being integrally formed with said film by joining said second synthetic resin and said adhesive layer of said film in a mold after having melted a contact surface of said base layer prior to contacting said film, said second synthetic resin material comprising butadiene rubber particles dispersed within a matrix, wherein the matrix comprises a copolymer having a molecular weight distribution between 2.18 and 3.05, wherein the copolymer is acrylonitrile-styrene copolymer or denatured acrylonitrile-styrene copolymer.

5,800,883
AIRBAG OF AIRBAG RESTRAINT SYSTEM
 Tomohiro Koseki, Hamamatsu, Japan, assignor to Ikeda Busan Co., Ltd., Ayase, and Hamamatsu Industry Co., Ltd., Hamamatsu, both of Japan
 Continuation of Ser. No. 279,099, Jul. 22, 1994, abandoned.
 This application Sep. 20, 1996, Ser. No. 710,739
 Claims priority, application Japan, Jul. 30, 1993, 5-208489
 Int. Cl.⁶ B05D 1/18; B61R 21/16
 U.S. Cl. 428—35.2



1. An airbag of an airbag restraint system, comprising:
 a single-layer sheet member forming a major part of the airbag, said sheet member consisting essentially of a single-layer cloth formed of warp and weft synthetic fiber yarns of at least

one selected from the group consisting of polyester resin and nylon 6, 6, and impregnated with a resinous material, said resinous material including an adhesive for bonding said yarns, said adhesive including polyurethane resin, an antioxidant for oxidizable components, and a flame retarder for burnable components.

5,800,884
HIGH GLOSS ULTRAVIOLET CURABLE COATING FOR POROUS SUBSTRATES

Guy D'Anna, Ridgefield, N.J.; Stephen H. Monroe, Germantown, Tenn.; Peter J. Angelini, Central Valley, N.Y.; James A. Goettmann, North East, and John R. Boylan, Newtown, both of Pa., assignors to International Paper Company, Purchase, N.Y.

Division of Ser. No. 124,153, Sep. 20, 1993, Pat. No. 5,492,723, which is a continuation-in-part of Ser. No. 4,881, Jan. 19, 1993, abandoned, and a continuation-in-part of Ser. No. 823,525, Jan. 21, 1992, abandoned, and Ser. No. 916,819, Jul. 20, 1992, Pat. No. 5,403,444, which is a continuation-in-part of Ser. No. 489,427, Mar. 5, 1990, Pat. No. 5,133,835. This application Jun. 2, 1995, Ser. No. 458,214
 Int. Cl.⁶ C08J 7/04; C08F 2/50; B32B 27/02; 27/16
 U.S. Cl. 428—35.7



1. A gloss coated product comprising a substrate and a gloss coating applied on a surface thereof;
 wherein said gloss coating is prepared from a homogeneous mixture of radiation curable oligomers and monomers and photosensitizers having a viscosity in the range of 4500 to 8000 cps; wherein said radiation curable oligomers are acrylated epoxy oligomers, said monomers are triacrylate monomers and said photosensitizer consists essentially of a combination of benzophenone and an acrylated amine in the ratio of 3/1 to 1/1;

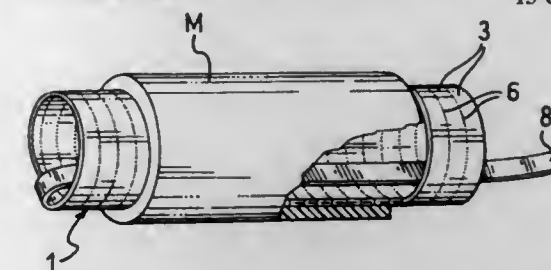
wherein said substrate is a high-opacity cellulose-free synthetic paper comprising a nonwoven web of wet-laid thermoplastic fibers, all or most of said thermoplastic fibers being made of a predetermined polymeric material, said web having a continuous coating of pigmented binder formed on at least one surface thereof, said thermoplastic fibers made of said predetermined polymeric material being bonded by said pigmented binder without substantial thermal fusion by curing said binder at temperatures below the melting temperature of said predetermined polymeric material; and

the presence of said photosensitizers causes polymerization of said radiation curable oligomers and monomers when exposed to an ultraviolet light source resulting in curing of said mixture onto the substrate surface without substantial penetration into the substrate surface forming the gloss coated product.

5,800,885
BLOW MOLDED POLYALCOHOL CONTAINER
 Kazuyori Yoshimi, Kurashiki, Japan, assignor to Kuraray Co., Ltd., Kurashiki, Japan
 Filed Sep. 5, 1997, Ser. No. 924,214
 Claims priority, application Japan, Sep. 18, 1996, 8-245903
 Int. Cl.⁶ B29D 22/00; C08G 67/02
 U.S. Cl. 428—35.7

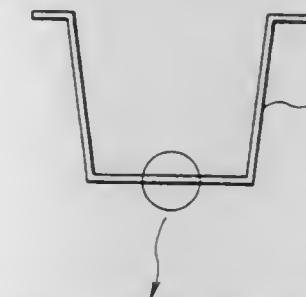
1. A blow molded container comprising a polyalcohol obtained by reduction of a polyketone comprising carbon monoxide-ethylene copolymer, said polyalcohol having an intrinsic viscosity of 0.3 to 3.0 dl/g, a melting point of 110° to 160° C., a density of 1.12 to 1.21 g/cm³ and a tetrahydrofuran ring content of not more than 10 mole %.

5,800,886
ELASTIC SLEEVE SUPPORT
 Ubaldo Vallauri, Monza, and Francesco Portas, Quattordio, both of Italy, assignors to Pirelli Cavi S.p.A., Italy
 Filed Mar. 21, 1996, Ser. No. 619,992
 Claims priority, application Italy, Mar. 27, 1995, M195A0606
 Int. Cl.⁶ F16L 11/16; B29C 47/00
 U.S. Cl. 428—35.8



1. Support for keeping in expanded condition an elastic sleeve for covering elongated cylindrical electrical elements and comprising a tape wound spirally in side-by-side turns so as to take on a cylindrical tubular form and means of mutual constraint between the turns to hold the tape in wound condition and characterized in that the tape and the constraint means are made of different materials and the tape is made of an elastic material having an elasticity modulus greater than 150,000 MPa.

5,800,887
OXYGEN-ABSORBING CONTAINER
 Masayasu Koyama, Zushi, Japan, assignor to Toyo Seikan Kaisha, Ltd., Tokyo, Japan
 Filed Dec. 6, 1995, Ser. No. 568,283
 Int. Cl.⁶ B29D 22/00
 U.S. Cl. 428—36.7



1. A heat-sterilizable multi-layer plastic container comprising an oxygen absorbing layer and a gas barrier layer which is located on an outer side of said oxygen absorbing layer,
 wherein said oxygen absorbing layer comprises:
 a photo-oxidation degradable resin capable of absorbing ultraviolet rays and visible light and selected from the group

consisting of a styrene-carbon monoxide copolymer or an ethylene-carbon monoxide copolymer; and a photo-oxidation promoting agent comprising an α -ketocarbonyl compound, and wherein the combination of said oxygen absorbing layer and said gas barrier layer has an oxygen permeation coefficient of not larger than 10^{-12} cc.cm/cm².sec.cmHg at 20° C. and 0% RH.

5,800,888

HEAT BONDED TYPE VIBRATION-DAMPING RESIN FOR STRUCTURAL MEMBER VIBRATION-DAMPING STRUCTURE

Toshiki Yasumoto, Tokyo; Hiromichi Okumura, Osaka; Kenji Iwai, Tokyo; Toshimitsu Tanaka, Kobe; Toshihiko Sasaki, Shimonoseki; Akio Sugimoto, Kobe; Hiroshi Kawashima, Tokyo; Naofumi Itano, Tokyo; Manabu Shibata, Tokyo, and Yasuo Nanri, Tokyo, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, and Nihon Tokushu Toriy Co., Ltd., Tokyo, both of Japan

Filed Feb. 7, 1996, Ser. No. 598,214

Claims priority, application Japan, Feb. 8, 1995, 7-044937; Jun. 9, 1995, 7-168371

Int. Cl.⁶ B29D 22/00; B32B 15/04; 15/06; E04B 1/82
U.S. Cl. 428—36.91 8 Claims

1. A vibration-damping structure comprised of a metallic plate and a vibration-damping resin layer integrally melted and bonded to said metallic plate, wherein it is comprised of vibration-damping resin material which contains a homogeneous blend of asphalt of 15 to 35 wt %, synthetic rubber of 2 to 10 wt %, petroleum resin of 1 to 5 wt % and filler material of 50 to 75 wt %, and said filler material including inorganic light weight aggregate of 10 to 25 wt %, powder-like filler material of 35 to 50 wt %, fibrous filler material of 3 to 8 wt % and limestone of 2 to 5 wt %.

5,800,889

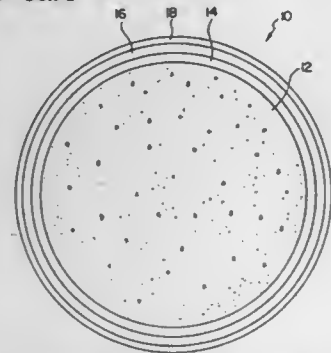
COMPOSITE FILLED HOLLOW STRUCTURE

Robert H. Greene, 131 Stable Dr., Lancaster, Pa. 17603

Continuation-in-part of Ser. No. 915,315, Jul. 20, 1992, abandoned. This application Dec. 20, 1996, Ser. No. 770,111

Int. Cl.⁶ B29D 22/00

U.S. Cl. 428—36.91 18 Claims



1. A filled structure characterized by the combination of high compressive strength and tensile strength to allow a high bending load, the filled structure comprising:

a fiber reinforced resinous hollow structure having fiber rovings throughout an entire thickness thereof and angled with respect to a longitudinal axis thereof so as to have a tensile strength of at least 30,000 psi and an inside surface forming a boundary which encloses a space;

a hard core within said space enclosed by the hollow structure, the hard core having a density of at least 35 pounds per cubic foot and a compressive strength of at least 1500 psi, the hard core being formed from a mixture of particulate cementitious material and liquid, said inside surface being constructed and arranged such that when said core hardens, said hard core is mechanically locked to said inside surface of said hollow structure.

5,800,890

HEAT FUSIBLE LAMINATES AND METHODS FOR PREPARATION AND USE THEREOF

Robert A. Myers, Huntsville, Tex., assignor to M & M Designs, Inc., Huntsville, Tex.

Filed Jul. 15, 1996, Ser. No. 679,829

Int. Cl.⁶ C09J 7/02

U.S. Cl. 428—41.7 13 Claims



1. A heat fusible laminate for imprinting a design on an article of stretchable fabric such as polyamide, polyester and other synthetic materials; said laminate comprising a release layer, a first adhesive layer, at least one ink layer and a second adhesive layer; said laminate being responsive to heat and pressure when placed with said second adhesive layer against said article for securing said design to said article and allowing the removal of said release layer therefrom; said laminate being further characterized by said at least one ink layer being of a pigmented heat fusible composition made from a mixture of polyvinyl chloride, phthalate esters, inert filler and one or more inorganic and/or organic compounds.

5,800,891

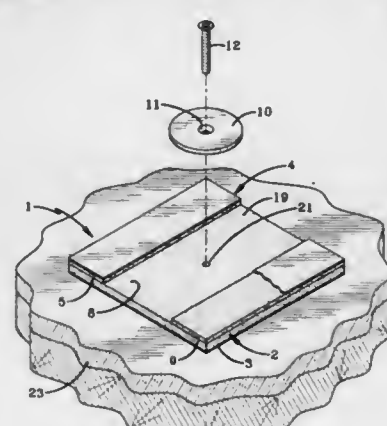
BONDING PAD FOR NONPENETRATING ROOF MEMBRANE FASTENING SYSTEM

William A. Wasitis, Indianapolis, Ind., assignor to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Jan. 23, 1997, Ser. No. 787,969

Int. Cl.⁶ B32B 3/06; 3/08

U.S. Cl. 428—42.2 20 Claims



1. A bonding pad for securing a waterproof membrane to the upper surface of a roof, said pad comprising:

a base member of nonreinforced EPDM having top and bottom surfaces and a coating of a polyester nonwoven fabric secured to the bottom surface of said base member;
a layer of EPDM tape having an adhesive coating on upper and lower surfaces of said tape, the lower surface of said tape being adhered to the top surface of the base member;
an adhesive release sheet covering the adhesive coating on the upper surface of the EPDM tape;
a rigid attachment plate having an upper surface and a lower surface located above the upper surface of the base member; and
a fastener extending through at least the base member and attachment plate for securing the pad and attachment plate to the roof.

5,800,892

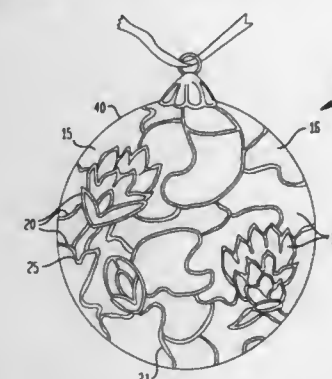
PLASTIC CLOISONNE ARTICLE AND METHOD OF MAKING SAME

William F. Yee, 140 Woodland Ave. P.O. Box 26, Rochelle Park, N.J. 07662

Filed Jan. 21, 1997, Ser. No. 792,927

Int. Cl.⁶ B44F 1/06

U.S. Cl. 428—38 15 Claims



1. A light weight decorative cloisonne article comprising:
a plastic substrate;
a metal framework attached to the plastic substrate;
means for attaching the framework to the plastic substrate;
colored glaze means for coloring the article; and
clear glaze means to finish the article.

5,800,893

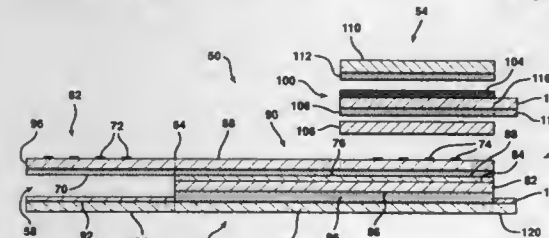
DOUBLE-BLIND LABEL AND METHOD FOR DOUBLE-BLIND LABELLING

John Michael Harden, Knightdale, N.C., assignor to The Standard Register Company, Dayton, Ohio

Filed Jun. 27, 1995, Ser. No. 495,816

Int. Cl.⁶ B42D 15/00; G09F 3/00

U.S. Cl. 428—40.1 19 Claims



1. A double-blind label comprising:
an identification label having first and second end edges and divided into at least first and second sections, said identification label comprising (i) a layer of face stock, said face stock

having first and second surfaces, a printed image provided on at least a portion of said first surface of the face stock in said first section of the label, (ii) an adhesive layer having first and second surfaces, said first surface of said adhesive layer being in contact with said second surface of said face stock, (iii) a protective layer having first and second surfaces, said protective layer lying in register with said first section of said label but not in register with said second section of said label, at least a portion of said first surface of said protective layer having a release coating thereon, and at least a portion of said second surface of said adhesive layer being in contact with said release coating, and (iv) a base sheet having a first surface, a portion of said first surface of said base sheet which is lying in register with said first section of said label being coated with a clean release adhesive and being in contact with said protective layer; and,

a blinding label adhered over said printed image on said identification label, said blinding label comprising an opaque layer having first and second surfaces and a blinding label adhesive layer having first and second surfaces, said first surface of said blinding label adhesive layer being in contact with said second surface of said opaque layer and said second surface of said blinding label adhesive layer being disposed over said printed image.

5,800,894

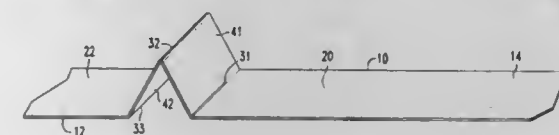
MASKING DEVICE WITH HANDLE

Glen E. Navis, Waupun, Wis., assignor to Brunswick Corporation, Lake Forest, Ill.

Filed Sep. 28, 1997, Ser. No. 939,342

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—41.7 17 Claims



1. A masking device for covering a preselected portion of a material surface, comprising:
a sheet of material having an adhesive attached to a first side thereof; and
an extension formed by folding a first piece of material to form a pleat extending from an unfolded portion of a second side of said sheet of material and by causing adhesive surfaces of two adjacent segments of said extension to adhere to each other, said extension allowing said masking device to be gripped.

5,800,895

BERYLLIUM MEMORY DISK SUBSTRATE FOR COMPUTER HARD DISK DRIVE AND PROCESS FOR MAKING

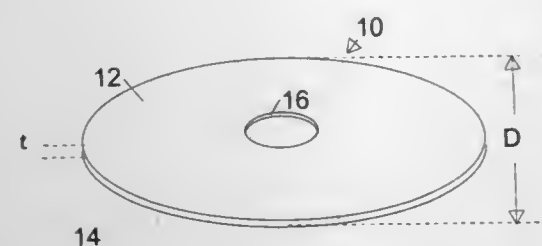
Eugene V. Vygovsky, 4-2/44 Valovaya Str. Apt. 10, Moscow, Russian Federation, 113054; Larry A. Grant, 1600 Saratoga Ave. #403-250, San Jose, Calif. 95129; Wayne L. Wright, 3901 Country Club Rd., Winston Salem, N.C. 27104; Alexander Markovsky, 134 E. Partridge La., Cherry Hill, N.J. 08003; Yuri V. Berestovsky, 134 15 Petrov Str., Apt 12, Saratov, Russian Federation, 1410035, and Igor V. Milov, 27 Kolomenskaya Str., Apt 386, Moscow, Russian Federation, 113054

Filed Aug. 9, 1996, Ser. No. 693,787

Int. Cl.⁶ B32B 3/00; B24B 1/00

U.S. Cl. 428—64.1 20 Claims

1. A method for preparing high performance rigid disk substrates comprising:



obtaining a plurality of circular disks comprised of commercially pure Beryllium, the disks having a stiffness about 4.2 times that of Aluminum, each disk having respective opposed surfaces defining a central axis;

lapping both surfaces of each of the disks to remove at least about a predetermined tolerance of material;

placing the disks between the opposed surfaces of two opposed pressure plates, with the surfaces of the disks in contact with the respective opposed surfaces of two plates, the plates comprised of substantially pure Beryllium, the plates comprised of essentially no BeO;

forcing the plates together such that the disks are compressed with a predetermined pressure;

holding the disks and plates in compressive relationship at the predetermined pressure in a heated environment with a predetermined elevated temperature for a predetermined time period such that the lapping induced stress adjacent to the surfaces of the disks decay to a level such that the distortion of the disks after cooling is essentially zero, and limiting the time-temperature product such that the other desirable metallurgical characteristics of the disks after cooling remain essentially undisturbed;

cooling the disks and plates to essentially room temperature.

5,800,896

DEVICE AND METHOD FOR FILLING A CAVITY IN A STRUCTURAL MEMBER

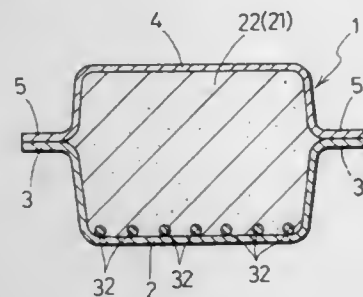
Yasuhiko Kobayashi, Toyota, Japan, assignor to Neo-Ex Lab. Inc., Toyota, Japan

Filed Sep. 19, 1996, Ser. No. 716,532

Claims priority, application Japan, Sep. 21, 1995, 7-243088
Int. Cl.⁶ B32B 3/06; B29C 67/00

U.S. Cl. 428—67

8 Claims



1. A blocking device for filling a cavity in a hollow structural member, comprising:

a blocking member consisting of a magnetic member and a foamable material;

said foamable material having a surface on which the magnetic member is embedded;

said blocking member having its magnetic member secured within the hollow structural member; and

said foamable material being foamed and expanded to completely fill the cavity.

5,800,897 AIR FRESHENER COMPOSITION CONTAINING A FIBER PAD

Mahendra Kumar Sharma; Richard Irving Garrity, and John Jacob Hiller, all of Kingsport, Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Jan. 25, 1996, Ser. No. 599,488

Int. Cl.⁶ B32B 1/04

U.S. Cl. 428—74

16 Claims

1. An air freshener composition comprising:

(A) 1 to 75 weight percent of a fiber pad comprising at least one needle-punched, nonwoven, hydrophilic fiber wherein the fiber has a capillary structure and at least one deep groove along the longitudinal axis of the fiber; and

(B) 25 to 99 weight percent of at least one fragrance incorporated into said fiber pad.

5,800,898

TUFTED CARPET AND PROCESS FOR PREPARING SAME

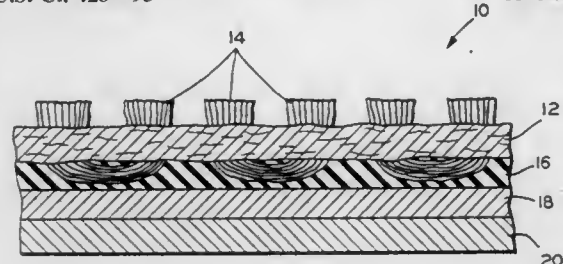
Stephen W. Gerry, Ponte Vedra Beach, Fla., assignor to K2, Inc., Adrian, Mich.

Filed Nov. 26, 1996, Ser. No. 756,983

Int. Cl.⁶ B32B 3/02

U.S. Cl. 428—95

11 Claims



1. A tufted carpet, comprising:

a primary backing stitched with loops of yarn to form a tufted structure projecting outwardly from said primary backing;

a polyolefin locking layer affixed to the primary backing, said polyolefin locking layer completely encapsulating the loops of yarn;

a moisture barrier polyolefin layer affixed to the polyolefin locking layer; and

a secondary backing, comprising a woven polyolefin and reinforcing fibers selected from glass, metal, polyester, acrylic, and polycarbonate fibers, as well as blends, combinations, and copolymers thereof, affixed to the moisture barrier polyolefin layer.

5,800,899

ORTHOPEDIC CASTING MATERIAL HAVING IMPROVED WET STRENGTH

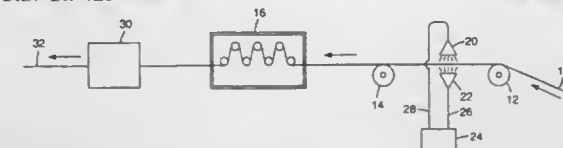
Timothy C. Sandvig, Woodville, Wis.; Dean A. Ersfeld, Maplewood, Minn.; Daniel W. Davis, Hugo, Minn., and Steven H. Gotz, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 5, 1995, Ser. No. 462,838

Int. Cl.⁶ A61F 5/00

U.S. Cl. 428—96

28 Claims



1. An orthopedic casting material comprising a porous fabric provided with a water-curable, isocyanate-functional prepolymer

comprising the reaction product of a polyisocyanate and a polyol having an HLB number per hydroxy group less than zero.

5,800,900

DECORATIVE ATTACHMENTS FOR ARTICLES OF CLOTHING AND FOOTWEAR

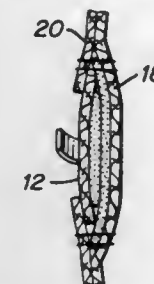
Lawrence E. Mitchell, 52 Beaman Rd. East, Rochester, N.Y. 14624

Filed May 1, 1996, Ser. No. 640,664

Int. Cl.⁶ B32B 7/06

U.S. Cl. 428—100

1 Claim



1. An apparatus for attaching a decorative patch to an article comprising:

(a) a pocket on the article including a backing layer and a surface layer overlaying the backing layer, the surface layer having an opening overlapping the backing layer to form a peripheral pocket therebetween;

(b) a patch having a periphery larger than the opening; and

(c) a layer of hook and loop fasteners attached to the surface layer and the exterior surface of the patch.

5,800,901

PACKING PAPER FOR BAKER'S YEAST

Tsuguo Karasawa; Masayuki Takahashi; Masami Miyamoto, all of Tokyo, and Itaru Takayama, Ibaraki, all of Japan, assignors to Oriental Yeast Co., Ltd., and Nikkan Industries Co., Ltd., both of Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 692,202

Claims priority, application Japan, Aug. 4, 1995, 7-200012

Int. Cl.⁶ B32B 23/06

U.S. Cl. 428—131

15 Claims

1. A packing paper for baker's yeast, comprising:

a base paper;

a printing layer formed on said base paper; and

a wax layer formed on the side of said printing layer away from said base paper where said printing layer is present, wherein said wax layer has a weight of 10–30 g/m², and said packing paper has a carbon dioxide permeability of 400–2,000 cm³/m²·24h·atm., an oxygen permeability of 100–600 cm³/m²·24h·atm. and a moisture permeability of 50 g/m²·24h or less.

5,800,902

METAL DIE CAST ARTICLE WITH REINFORCING INSERT

Dennis S. Shimmell, Hudsonville, and Samir Mesanovic, Kentwood, both of Mich., assignors to Nelson Metal Products Corporation, Grandville, Mich.

Filed Mar. 15, 1995, Ser. No. 404,619

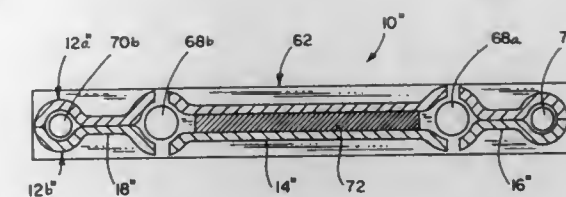
Int. Cl.⁶ B22D 19/02

U.S. Cl. 428—139

18 Claims

1. A metal die cast article comprising:

an insert contained in said metal and including a first stamped metal piece and a second stamped metal piece fixedly inter-



connected to said first insert piece, said insert pieces defining a void and a passage therebetween, said die cast metal being absent from said passage thereby allowing a fastener to extend through said article between said pieces.

5,800,903

COMPOSITE MATERIALS AND PROCESS

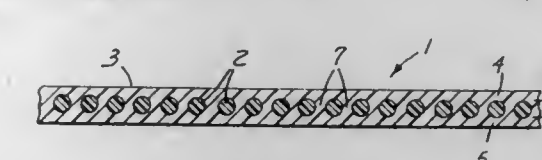
Leigh E. Wood, Woodbury; Dennis L. Krueger, Hudson; Michael R. Gorman, Lake Elmo, and Randall L. Alberg, Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 427,424, Apr. 24, 1995, which is a continuation-in-part of Ser. No. 225,095, Apr. 8, 1994, Pat. No. 5,429,856, which is a continuation of Ser. No. 971,277, Nov. 4, 1992, abandoned, which is a continuation-in-part of Ser. No. 502,331, Mar. 30, 1990, abandoned. This application May 21, 1996, Ser. No. 646,790

Int. Cl.⁶ B32B 3/28

U.S. Cl. 428—152

4 Claims



1. A roll of tape comprising a pressure-sensitive adhesive layer and a backing of a coextruded elastic film having two faces comprising at least one discrete elastomeric core within a thermoplastic matrix, wherein said thermoplastic matrix is less elastic than the elastomeric core material, the thermoplastic matrix forming continuous surfaces on the two faces of the film with the thermoplastic matrix completely circumscribing the at least one elastomeric core, wherein the thickness of the core and/or the core material presence varies across the film, and wherein said thermoplastic matrix has been stretched passed its inelastic deformation limit in at least one direction so as to form at least one microtextured skin layer formed of the thermoplastic matrix material over the at least one elastomeric core having at least one nonelastic end region free of elastomeric core coated with a pressure-sensitive adhesive layer.

5,800,904

EMBOSSABLE SURFACE COVERING WITH INORGANIC WEAR LAYER

Robert A. Hallman, 114 N. Market Ave., Mount Joy, Pa. 17552; Robert D. Hensel, 227 N. Charlotte St., Millersville, Pa. 17551; Eugene M. Kirchner, P.O. Box 2, Maytown, Pa. 17550; Jeffrey S. Ross, 327 N. Mary St., and Jerome D. Wisnosky, 1624 Colonial Manor Dr., both of Lancaster, Pa. 17603

Continuation-in-part of Ser. No. 813,669, Dec. 27, 1991, abandoned. This application Oct. 29, 1993, Ser. No. 143,384

Int. Cl.⁶ B32B 3/28; 18/00

U.S. Cl. 428—156

18 Claims

1. A surface covering composite comprising a substrate and a non-particulate inorganic wear layer, the wear layer being deposited on the substrate by a reduced pressure environment technique



and then the composite being embossed, the deposited and embossed wear layer having a plurality of cracks on the exposed surface, a majority of the cracks forming a non-random pattern.

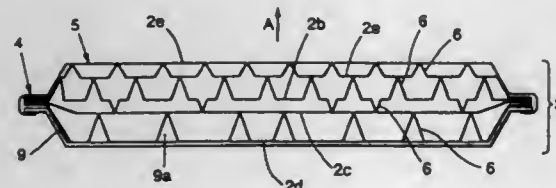
5,800,905

PAD INCLUDING HEAT SINK AND THERMAL INSULATION AREA

William M. Sheridan, St. Louis, and Raymond E. Ragland, Union, both of Mo., assignors to ATD Corporation, St. Louis, Mo.

Continuation of Ser. No. 181,861, Jan. 11, 1994, which is a continuation of Ser. No. 542,131, Jun. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 468,425, Jan. 22, 1990, Pat. No. 5,011,743. This application Sep. 19, 1995, Ser. No. 530,094

Int. Cl.⁶ B32B 3/02; 15/04; B22D 3/00; B22F 5/00
U.S. Cl. 428—157 75 Claims



1. A pad including at least one compressed portion forming a heat sink area and at least one thermal insulating area, comprising: a plurality of interior layers of metal foil between a top layer and a bottom layer of metal foil forming a stack wherein said layers are arranged one above another in said at least one compressed portion forming the heat sink area and in said at least one thermal insulating area, at least one of said layers including plurality of embossments therein separating said at least one of said layers from an adjacent one of said layers in said at least one insulating area so as to provide a gap therebetween, the layers being secured together by securing means at said at least one compressed portion of the stack, one of the layers in said at least one insulating area being adjacent to and not metallurgically bonded to another one of the layers in said at least one insulating area.

5,800,906

LABEL FOR SEMICONDUCTOR WAFER

Jae-sung Lee, Jin-pyo Lee, Nam-cheol Kim, and Seong-won Lee, all of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

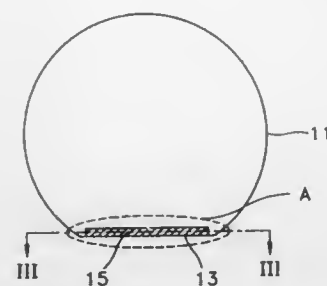
Filed Nov. 22, 1996, Ser. No. 755,158

Claims priority, application Rep. of Korea, Nov. 30, 1995, 95-45823

Int. Cl.⁶ B32B 23/02

U.S. Cl. 428—192 14 Claims

1. A label for identifying a semiconductor wafer during manufacture, wherein said semiconductor wafer comprises a flat zone



formed on an edge portion of the semiconductor wafer, the label comprising: at least one first concave mark formed in the flat zone, wherein the first concave mark is readily identifiable to the human eye.

5,800,907

METHOD OF PRODUCING LENS METHOD OF FABRICATING ARTICLE WITH LENS ARTICLES WITH LENS RESIN COMPOSITION FOR FORMING DEFINING LINES AND LENS-FORMING RESIN COMPOSITION

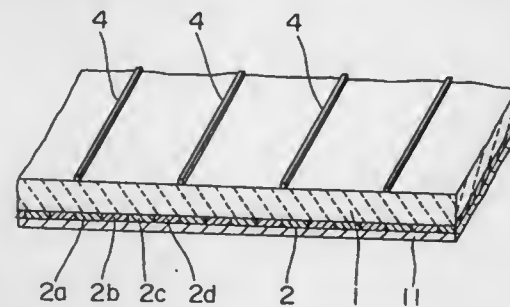
Yoshihide Yumoto, Tokyo, Japan, assignor to Grapac Japan Co., Inc., Tokyo, Japan

PCT No. PCT/JP94/01634, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/09372, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 30, 1994, Ser. No. 619,610

Claims priority, application Japan, Sep. 30, 1993, 5-268091

Int. Cl.⁶ B32B 3/00 24 Claims



24. An article with lenses which is produced by: making an image on a substrate; providing lens-forming defining lines on a surface of the substrate having the image; coating the surface defined by the lens-forming defining lines with a lens-forming resin composition having an angle of contact of at least 15° with a material used for forming the lens-forming defining lines to form a lens forming layer in a convex shape; and curing the lens-forming layer to produce plural sequential lenses.

5,800,908

OIL DELIVERY SHEET MATERIAL FOR USE IN VARIOUS PRINTER DEVICES

Alex R. Hobson, Elkton, Md.; Robert L. Sassa, Newark, Del., and Beth P. Powell, Elkton, Md., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Continuation-in-part of Ser. No. 485,533, Jun. 7, 1995. This application Jan. 30, 1996, Ser. No. 594,046

Int. Cl.⁶ B05C 1/06; 1/08; 1/10; B32B 7/14

U.S. Cl. 428—198 54 Claims

1. A release agent web assembly mounted in a printer device having at least one contact surface, that comprises:

5,800,910

PLASTIC MOLDED ARTICLES HAVING A POLYMER MATRIX FILLED WITH INORGANIC FILLERS

Stefan Harke, Sinsheim-Rohrbach; Stefanie Grathwohl, Oberderdingen; Rudolf Paternoster, Rinchach; Thomas Wilhelm, Sulzfeld; Klaus Hock, and Werner Fenzl, both of Regen, all of Germany, assignors to Blanco GmbH & Co. KG, Oberderdingen, and Schock & Co. GmbH, Schorndorf, both of Germany

Filed Aug. 28, 1996, Ser. No. 705,109

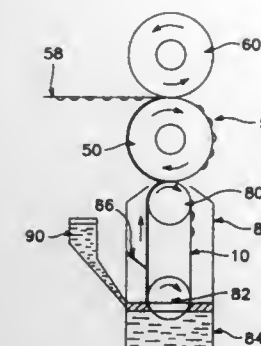
Claims priority, application Germany, Mar. 4, 1994, 44 07 321.6

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—212

18 Claims

an expanded polytetrafluoroethylene (PTFE) membrane filled with a release agent; a substrate material attached to the expanded PTFE membrane; the expanded PTFE and substrate material comprising an elongated web of material attached between at least two rotating members so as to place the web into contact with the contact surface; wherein the web and the contact surface move relative to each other, transferring contaminants on the contact surface to the web and transferring release agent from the web to the contact surface; and wherein the web assembly is adapted to advance the web to move a clean portion of the web into contact with the contact surface.



1. Plastic molded article comprising a polymer matrix filled with inorganic fillers and having a visible outer surface, wherein the filler content is 50 to 90% by weight in relation to the filled matrix, wherein the filler material comprises two filler fractions (a) and (b), wherein the filler fraction (a) has a particle size distribution with 98% by weight of the particles having a particle size less than or equal to 150 μm and is distributed essentially uniformly in the polymer matrix, and wherein fraction (b) comprises particles having a particle size of approximately 300 to 3000 μm, further comprising the proportion of the filler fraction (b) is approximately 1 to 35% by weight of the total filler content, and the proportion of the filler fraction (b) in an outer surface layer of the molded article having a thickness of about 3 millimeters or less as measured from said outer surface is enriched to at least 30% by weight in relation to the total mass of the filled matrix.

5,800,909

SHEET FOR ILLUMINATED SIGNBOARD AND ILLUMINATED SIGNBOARD EMPLOYING THE SAME

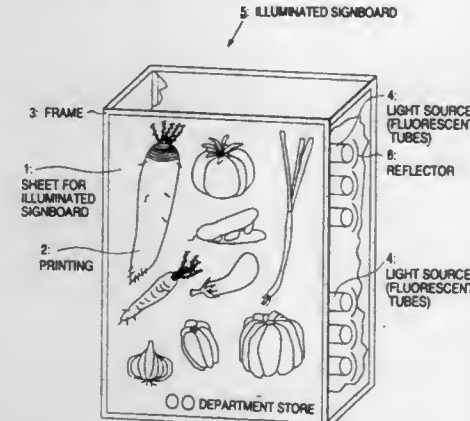
Katsukuni Nitta, and Kazuyo Senga, both of Tokyo, Japan, assignors to Oji-Yuka Synthetic Paper Co., Ltd., Tokyo, Japan

Filed May 16, 1997, Ser. No. 857,820

Claims priority, application Japan, May 31, 1996, 8-159272

Int. Cl.⁶ B32B 5/16; 27/10 14 Claims

U.S. Cl. 428—207



1. A sheet for an illuminated signboard comprising as a base a composite sheet comprising a plain weave fabric (I) having laminated on one or both sides thereof a microporous film (II) comprising a stretched thermoplastic resin film containing fine white inorganic particles, said sheet for an illuminated signboard satisfying the following requirements (1) to (4):

- (1) said sheet has an opacity (JIS P-8128) of from 80 to 100%;
- (2) said sheet has a whiteness (JIS L-1015) of from 85 to 100%;
- (3) said sheet has a total light beam average reflectance (JIS K-7105) of from 12 to 40%; and
- (4) said sheet has a total light beam average transmittance (JIS K-7105) of from 70 to 95%.

5,800,911

POLYMERIC SHEET

Stephen William Sankey; Mark Edward Dawes, both of Northallerton, and Paul David Lawrence, Middlesbrough, all of United Kingdom, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 434,322, May 2, 1995, abandoned, which is a continuation of Ser. No. 174,483, Dec. 28, 1993, abandoned. This application Mar. 19, 1997, Ser. No. 821,582

Claims priority, application United Kingdom, Dec. 29, 1992, 9227031

Int. Cl.⁶ B32B 5/16; 7/02; 27/36; 31/30

U.S. Cl. 428—213 14 Claims



1. A biaxially oriented composite sheet suitable for use in lidding, said sheet having a thickness in the range from 30 to 400 μm, said sheet consisting essentially of an opaque crystalline polyester first layer having a deformation index of greater than or equal to 2.5%, and a transparent crystalline polyester second layer directly bonded to said first layer, said deformation index being measured at a temperature of 200° C. and under a pressure of 2 megaPascals and said biaxially oriented composite sheet having an ultimate tensile strength of from 14 to 26 Kg/mm².

5,800,912

HIGH GLOSS MOLDED RESIN

Koichi Ogiso; Hiroshi Mukai, both of Gifu-ken; Daichiro Kawashima; Junji Koizumi, both of Aichi-ken, and Katsushi Ito, Gifu-ken, all of Japan, assignors to Toyoda Gosei Co., Ltd., Neshikangai, Japan

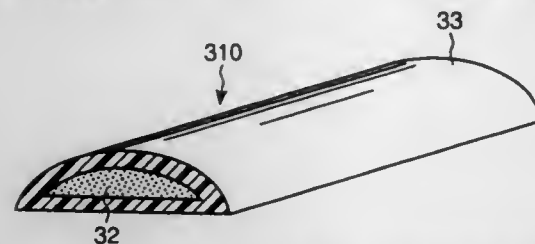
Filed Oct. 31, 1995, Ser. No. 551,008

Claims priority, application Japan, Oct. 31, 1994, 6-292048; Mar. 1, 1995, 7-068792; Mar. 1, 1995, 7-068794; Mar. 1, 1995, 7-068795

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—323

21 Claims



1. A molded resin comprising an inner core layer and an outer skin layer, said core layer comprising a polypropylene composite material, and said skin layer comprising a mixture of a polypropylene resin and a coloring agent, wherein said polypropylene resin of said skin layer contains an amount of ethylene co-monomer about 6 parts by weight or less based on 100 parts by weight of the polypropylene resin of said skin layer, and has a Rockwell hardness equal to or greater than about 85.

5,800,913

HEAT-SEALABLE, WHITE-OPAQUE, BIAXIALLY ORIENTED, MULTI-LAYER POLYPROPYLENE FILM, PROCESS FOR THE PRODUCTION THEREOF, AND THE USE THEREOF

Rudolf Mauer, Mainz; Michael Schreck, Frankfurt, and Adolf Wilhelm, Wiesbaden, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed Dec. 6, 1995, Ser. No. 568,022

Claims priority, application Germany, Dec. 7, 1994, 44 43 411.1

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—323

20 Claims

1. A heat-sealable, white-opaque, biaxially oriented, multilayer polypropylene film comprising a base layer and at least one interlayer arranged thereon and at least one outer layer arranged on the interlayer, wherein the base layer comprises from 2 to 30% by weight, based on the weight of the base layer, of vacuole-inducing particles, and the interlayer comprises from 1 to 25% by weight of vacuole-inducing particles and at least 2% by weight of a pigment, in each case based on the weight of the interlayer.

5,800,914

THERMAL IMAGE TRANSFER RECORDING MEDIUM

Kelichi Shiohara; Yasumitsu Kuga, both of Numazu, and Naoshi Yamamoto, Fujii, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 261,193, Jun. 16, 1994, abandoned. This application Jun. 4, 1996, Ser. No. 657,530

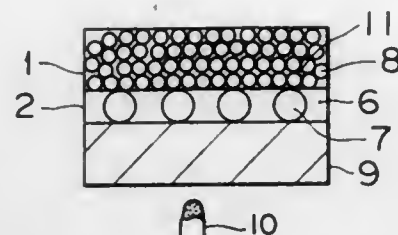
Claims priority, application Japan, Jun. 16, 1993, 5-169765; Sep. 9, 1993, 5-248795

Int. Cl.⁶ B41M 5/26

U.S. Cl. 428—323

11 Claims

1. A thermal image transfer recording medium comprising: a heat resistant substrate; an intermediate layer having a voidage of substantially zero, which comprises wax particles and a thermoplastic resin, formed on said heat resistant substrate, said thermoplastic



resin filling in gaps between wax particles when the intermediate layer is formed on the substrate; and a thermal image transfer ink layer comprising a coloring agent, formed on said intermediate layer, wherein the thermal image transfer ink layer is the only ink-containing layer.

5,800,915

MAGNETIC RECORDING MEDIUM

Masahiro Sawaguchi; Hiroshi Kudo; Takeshi Koizumi; Yuko Abe, and Kazuhiko Suzuki, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 29, 1996, Ser. No. 705,274

Claims priority, application Japan, Aug. 31, 1995, 7-224080; May 21, 1996, 8-125818

Int. Cl.⁶ G11B 5/102

U.S. Cl. 428—323

3 Claims

1. A magnetic recording medium comprising: a non-magnetic substrate and a magnetic layer disposed on said substrate, said magnetic layer comprising a magnetic powder, a binder and a lubricant, wherein said binder comprises from about 70 to about 95% by weight of a polyester-polyurethane resin containing about 0.090 mmol/g of —COOH groups and having a number-average molecular weight (M_n) of not greater than 16,000, a ratio of a weight-average molecular weight (M_w) to the number-average molecular weight (M_n) of not smaller than 2.5, and a glass transition temperature of 20° to 80° C.; and from about 5 to about 30% by weight of a cellulose derivative; and wherein said lubricant comprises a cyclic alkyl ester having a melting point not lower than 40° C. and a silicone oil.

5,800,916

RECORDING MEDIUM, INK-JET RECORDING METHOD USING THE SAME

Hitoshi Yoshino, Zama; Kyo Miura, Yokohama, and Yuji Kondo, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

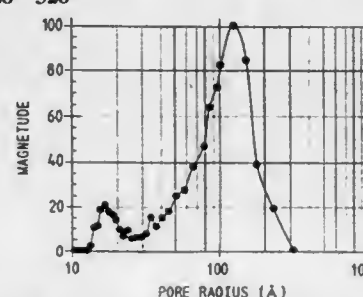
Division of Ser. No. 462,961, Jun. 5, 1995, abandoned, which is a division of Ser. No. 231,659, Apr. 25, 1994, Pat. No. 5,635,291. This application Jan. 14, 1997, Ser. No. 782,641

Claims priority, application Japan, Apr. 28, 1993, 5-125437; Apr. 28, 1993, 5-125438; Apr. 28, 1993, 5-125439; Dec. 28, 1993, 5-352110; Dec. 28, 1993, 5-352111; Dec. 28, 1993, 5-352112

Int. Cl.⁶ B41J 2/01; B41M 5/00

U.S. Cl. 428—328

14 Claims



1. A recording medium comprising a substrate, in the form of a sheet, comprising pulp fibers and a filler, wherein the filler com-

prises an alumina hydrate having at least two peaks in pore radius distribution, one of the peaks being located at a pore radius of smaller than 100 Å and the other being located at a pore radius within a range of from 100 to 200 Å.

5,800,917

MAGNETIC RECORDING MEDIUM

Noriyuki Kitaori; Osamu Yoshida; Katsumi Sasaki; Junko Ishikawa, and Katsumi Endo, all of Tochigi, Japan, assignors to Kao Corporation, Tokyo, Japan

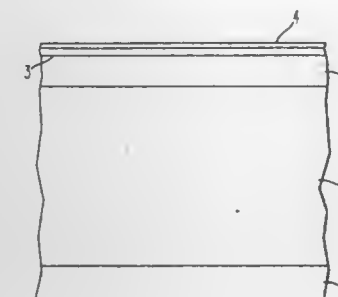
Filed Sep. 23, 1996, Ser. No. 717,727

Claims priority, application Japan, Sep. 28, 1995, 7-250430; Sep. 28, 1995, 7-250431; Sep. 28, 1995, 7-250432; Sep. 28, 1995, 7-250747

Int. Cl.⁶ G11B 5/66

U.S. Cl. 428—332

23 Claims



1. A magnetic recording medium comprising a substrate and a magnetic layer, wherein: said magnetic layer is coated on said substrate, said magnetic layer is an Fe—C—O magnetic layer and has an oblique column structure, and an O concentration (at. %) Oc in a center part of said column and an O concentration (at. %) Os around a surface part of said column satisfy an equation [I] as follows:

$$Oc < Os.$$

5,800,918

MULTILAYERED HYDROPHOBIC WINDOW GLASS

Pascal Chartier, Orsay; Marie-Jose Azzopardi, Paris; Nathalie Codazzi, Ermont; Pierre Chaussade, Sully Sur Loire; Yves Naoumenko, Bray en Val; Fabienne Gauthier, Sully Sur Loire, and Olivier Guiselin, Paris, all of France, assignors to Saint-Gobain Vitrage, Courbevoie, France

Filed Jul. 12, 1995, Ser. No. 501,577

Claims priority, application France, Jul. 13, 1994, 94 08734

Int. Cl.⁶ B32B 17/06; B05D 5/06

U.S. Cl. 428—336

16 Claims

1. A window glass comprising a substrate made of glass that is optionally covered, over at least a part, by one or more layers, and a coating comprising an essentially mineral sublayer and directly bonded thereto, a hydrophobic-oleophobic layer wherein the density of the mineral sublayer is equal to at least 80% of that of its constituent material, and wherein the mineral sublayer is selected from the group consisting of: Al_2O_3 , Ga_2O_3 , SnO_2 , TiO_2 , Ta_2O_5 , Cr_2O_3 , ZrO_2 , Nb_2O_5 , In_2O_3 , Fe_2O_3 , CoO_3 , V_2O_5 , Y_2O_3 , TiN , SiO_x , with x being between 0 and less than 2, and SiO_pC_q , with $1 < p < 2$ and $0 < q < 1$, and mixtures thereof.

5,800,919

PRESSURE SENSITIVE ADHESIVES FOR USE IN LOW TEMPERATURE CONDITIONS

Kenneth Peacock, White Bear Lake; Albert I. Everaerts, Oakdale; Kenneth D. Wilson, Stillwater, and Stephen J. Galick, Oakdale, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 664,731, Jun. 17, 1996, abandoned, which is a continuation of Ser. No. 613,753, Feb. 26, 1996, abandoned. This application Nov. 13, 1997, Ser. No. 970,252

Int. Cl.⁶ B32B 7/12

U.S. Cl. 428—355 AC

17 Claims

1. A graphic marking film comprising: a) a film sheet having first and second surfaces; and b) an acrylate copolymer pressure sensitive adhesive system applied to one of the first and second surfaces, the acrylate copolymer pressure sensitive adhesive composition comprising: i) 100 parts of weight of an acrylate copolymer pressure sensitive adhesive comprising: 1) from about 70–98% by weight of one or more monofunctional acrylates having nontertiary alkyl groups with between 1 and 14 carbon atoms; and 2) from about 30–2% by weight of a polar monomer; ii) 2–10 parts by weight of a plasticizer; and iii) optionally, a crosslinking agent for the adhesive; wherein the plasticizer is selected from the group consisting of polyoxyethylene aryl ethers, toluenesulfonamide, dipropylene glycol dibenzoate, polyethylene glycol dibenzoate, polyoxypropylene aryl ethers, and dibutoxyethoxyethyl formal, and wherein presence of the plasticizer in the composition permits application of the film sheet to a surface at temperatures as low as about 20° F.

5,800,920

DURABLE POLYURETHANE FIBER AND METHOD FOR THE MANUFACTURE THEREOF

Masao Umezawa, Kurita-gun; Hideki Nakanishi, Otsu, and Tsutomu Watanabe, Koka-gun, all of Japan, assignors to Dupont Toray, Chuo-Ku, Japan

PCT No. PCT/US95/02584, § 371 Date Sep. 4, 1996, § 102(e) Date Sep. 4, 1996, PCT Pub. No. WO95/23883, PCT Pub. Date Sep. 8, 1995

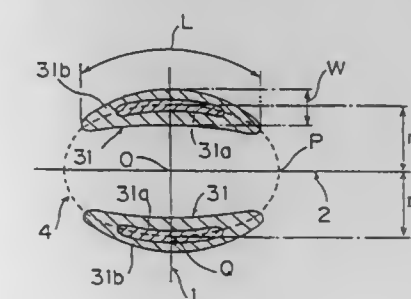
PCT Filed Mar. 3, 1995, Ser. No. 700,488

Claims priority, application Japan, Mar. 4, 1994, 6-059976

Int. Cl.⁶ D02G 3/00; C08G 18/00; 18/08; 18/70

U.S. Cl. 428—364

14 Claims



1. A durable polyurethane fiber, wherein the polyurethane has a structural formula



wherein P is a polyol residue, R^1 and R^3 are the same or different diisocyanate residues, R^2 is a diol residue, U is a urethane bond, and n_1 and n_2 are each the number of repeating units, the number being in the range of 1 to 10, and wherein the fiber exhibits a small angle X-ray scattering image having a long period in the direction of the meridian of 7 to 16 nanometers, and

wherein the image is an eyebrow-shaped four dot scattering image which has a long period in the direction of the equator of 13 to 30 nm or the image of layer line dots.

having an aluminum oxide inner core of $\alpha\text{-Al}_2\text{O}_3$ and an aluminum oxide hydroxide outer phase of $\gamma\text{-AlOOH}$ on said aluminum oxide inner core of $\alpha\text{-Al}_2\text{O}_3$.

5,800,921

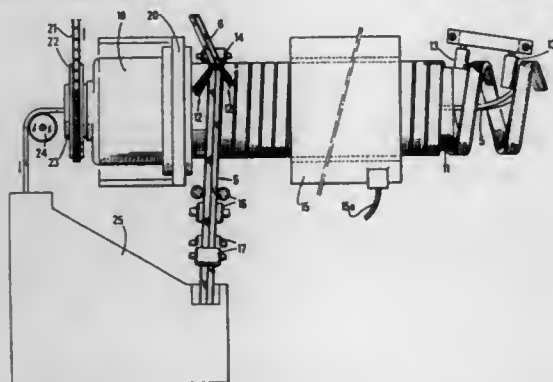
ANTIABRASION CURVED SHAPE AND PROCESS FOR ITS MANUFACTURE

Pierre Groult, deceased, late of Etretch, by Josette Groult, Therese Groult, Maria Santa Groult, Vanina Groult, Henri Groult, Barthelemy Groult, heirs, and Michel Huvey, Bougival, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Division of Ser. No. 773,412, Oct. 9, 1991, Pat. No. 5,389,424, which is a continuation of Ser. No. 144,915, Mar. 3, 1988, abandoned. This application Feb. 24, 1994, Ser. No. 200,994 Int. Cl.⁶ D02G 3/00; B32B 31/00

U.S. Cl. 428—369

18 Claims



1. A strip having a longitudinal axis joining at least two elongated bodies each having a longitudinal axis and arranged in parallel with said elongated bodies being used simultaneously wherein:

each of said elongated bodies comprises a surface which is integral with a portion of a surface of said strip, and wherein each of said elongated bodies when integral with said strip has a relative freedom of movement with respect to at least one other of said elongated bodies when said strip is flexed, the longitudinal axes of the strip and the at least two elongated bodies being parallel and the strip being formed from a material different than a material from which the elongated bodies are formed.

5,800,922

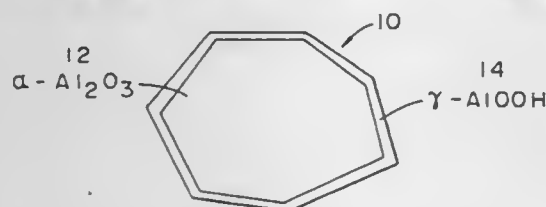
METHOD OF MAKING A GELATION-RESISTANT ALUMINA

Edward M. Anderson, Roland, Ark.; Neal R. Dando, Murrysville, Pa.; Carl H. Lawhon, and Merie D. McRaven, both of Benton, Ark., assignors to Aluminum Company of America, Pittsburgh, Pa.

Division of Ser. No. 453,551, May 30, 1995, Pat. No. 5,681,658. This application Jul. 30, 1996, Ser. No. 688,702 Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—403

19 Claims



13. A gelation-resistant alumina product comprising ground thermally reactive alumina composed of dual phase alumina particles

5,800,923

ACID COMPOSITION COMPRISING A COATED POLYVALENT CARBOXYLIC ACID SOLID PARTICLE AND A POWDER COATING COMPRISING THE SAME

Ronald Lee Amey, Wilmington, and George Alan Schurr, Newark, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 21, 1996, Ser. No. 700,953

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—407

17 Claims

1. An acid composition comprising, a polyvalent carboxylic acid solid particle coated with a coating material comprising a polymer, wherein the polyvalent carboxylic acid solid particle has the following structural formula:



where R is selected from the group consisting of: (a) a linear alkylene group of 7 to 12 carbon atoms, (b) a branched alkylene group of 7 to 12 carbon atoms, (c) a cyclic alkylene group of 6 to 8 carbon atoms, (d) an alkyl-substituted cyclic alkylene group of 6 to 8 carbon atoms, (e) an aromatic group, (f) an alkyl-substituted aromatic group, (g) an anhydride group having a structure $-\text{R}'-\text{CO}-\text{O}-\text{CO}-\text{R}''-$, wherein R' and R'' are independently selected from (a), (b), (c), (d), (e) and (f), x=2-10, and m+n=one of the following: 2, 3 or 4.

5,800,924

HIGH PURITY COMPOSITE USEFUL AS FURNACE COMPONENTS

Robert Howard Metter, Orange, Calif., assignor to SGL Carbon Composites, Inc., Gardena, Calif.

Division of Ser. No. 394,605, Feb. 27, 1995, Pat. No.

5,683,281. This application Mar. 31, 1997, Ser. No. 829,345

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—408

54 Claims

1. A semiconductor crystal growing apparatus comprising at least one high purity, carbon/carbon composite component, said high purity composite including a carbon fiber reinforced carbon matrix having a level of metal impurity below the detection limit of inductively coupled plasma spectroscopy for the metals Ag, Al, Ba, Be, Ca, Cd, Co, Cr, Cu, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sr and Zn;

wherein the carbon fiber is selected from the group consisting of fiber, cloth, woven fabric, yarn and tape;

the high purity composite having an ultimate tensile strength of about 25 to about 100 ksi and a tensile modulus of about 3 to about 30 msi, and having a flexural strength of about 15 to about 60 ksi and a compressive strength of about 10 to about 50 ksi.

5,800,925

NONLINEAR OPTICAL MATERIALS AND PROCESS FOR PRODUCING THE SAME

Masanori Ando; Kohei Kadono; Masatake Haruta; Toru Sakaguchi, and Masaru Miya, all of Ikeda, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Mar. 7, 1995, Ser. No. 399,831

Int. Cl.⁶ B32B 15/00

U.S. Cl. 428—432

2 Claims

1. A third-order nonlinear optical material comprising a film which comprises at least one oxide of a metal selected from the

group consisting of V, Cr, Mn, Fe, Co, Ni and Cu and which is formed on the surface of a transparent substrate by sputter deposition, vacuum evaporation, chemical vapor deposition, or coating followed by pyrolysis of a solution containing a metal alkoxide, a metal nitrate or a metal salt of an organic acid.

5,800,926

COATING FILM HAVING WATER REPELLENCY AND LOW REFRACTIVE INDEX

Tatsuya Nogami; Takakazu Nakada; Rie Sakai, and Takeshi Hosoya, all of Funabashi, Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Nov. 15, 1996, Ser. No. 749,558

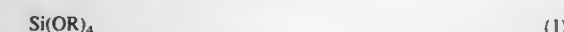
Claims priority, application Japan, Dec. 1, 1995, 7-313999

Int. Cl.⁶ B32B 9/04; C03C 17/02

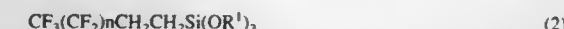
U.S. Cl. 428—447

18 Claims

1. A process for forming a coating film on a substrate surface, which comprises preparing a reaction mixture comprising a silicon compound (A) of the following formula (1):



wherein R is a C_{1-5} alkyl group, a silicon compound (B) of the following formula (2):



wherein R' is a C_{1-5} alkyl group, and n is an integer of from 0 to 12, an alcohol (C) selected from the group consisting of diethylene glycol monomethyl ether, diethylene glycol monoethyl ether and an alcohol of the following formula (3):



wherein R² is a hydrogen atom, or an unsubstituted C_{1-12} alkyl group or a C_{1-12} alkyl group substituted with hydroxy, methoxy or ethoxy, and oxalic acid (D), in a ratio of from 0.05 to 0.43 mol of the silicon compound (B) per mol of the silicon compound (A), in a ratio of from 0.5 to 100 mol of the alcohol (C) per mol of the total alkoxy groups contained in the silicon compounds (A) and (B), and in a ratio of from 0.2 to 2 mol of the oxalic acid (D) per mol of the total alkoxy groups contained in the silicon compounds (A) and (B); heating this reaction mixture at a temperature of from 50° to 180° C. until the total amount of the silicon compounds (A) and (B) remaining in the reaction mixture becomes at most 5 mol %, while maintaining a SiO_2 concentration of from 0.5 to 10 wt % as calculated from silicon atoms in the reaction mixture and maintaining absence of water, to form a polysiloxane solution; then coating a coating fluid comprising the polysiloxane solution on a substrate surface to form a coating; and heat-curing the coating at a temperature of from 80° to 450° C. to form a coating film having a refractive index of from 1.28 to 1.38 and a contact angle of water of from 90° to 115°, as adhered on the substrate surface.

5,800,927

VANADIUM-FREE, LITHIUM-FREE, ALUMINUM ALLOY SUITABLE FOR SHEET AND PLATE AEROSPACE PRODUCTS

Lynette M. Karabin, Ruffdale, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

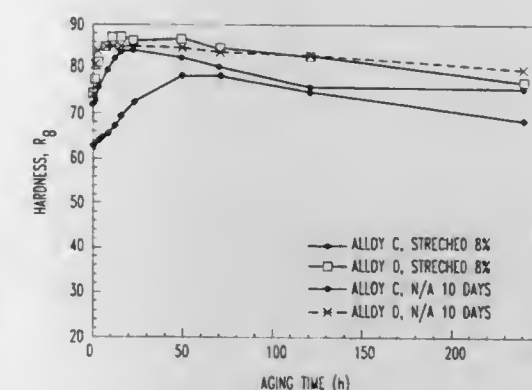
Continuation-in-part of Ser. No. 408,470, Mar. 22, 1995, abandoned. This application Jun. 19, 1996, Ser. No. 666,167

Int. Cl.⁶ C22C 21/00

U.S. Cl. 428—457

6 Claims

1. A rolled structural member having improved combinations of strength and toughness, said structural member having a typical tensile yield strength level of about 77 ksi or higher at room temperature and being made from a vanadium-free, lithium-free, aluminum-based alloy consisting essentially of: about 4.85-5.3 wt. % copper, about 0.51-1.0 wt. % magnesium, about 0.4-0.8 wt. % manganese, about 0.2-0.8 wt. % silver, up to about 0.25 wt. %



zirconium, up to about 0.1 wt. % silicon, and up to about 0.1 wt. % iron, the balance aluminum, incidental elements and impurities.

5,800,928

BREATHABLE WATERPROOF FILM

Laurent Fischer, Serquigny; Michel Degrand; Alain Bouilloux, both of Bernay; Jean-Claude Jammot, Glissoles, and Yves Germain, Serquigny, all of France, assignors to Elf Atochem S.A., Puteaux, France

Filed Jun. 19, 1995, Ser. No. 492,263

Claims priority, application France, Jun. 20, 1994, 94 07514 Int. Cl.⁶ B32B 27/00

U.S. Cl. 428—500

9 Claims

1. A breathable waterproof film of a mixture which comprises: a) at least one thermoplastic elastomer having polyether blocks; and b) at least one copolymer of ethylene and at least one alkyl (meth)acrylate.

5,800,929

Patent Not Issued For This Number

5,800,930

NODULAR COPPER/NICKEL ALLOY TREATMENT FOR COPPER FOIL

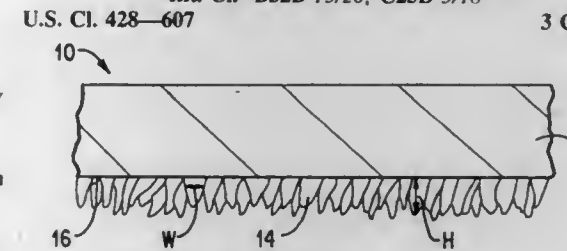
Szuchain Chen, and Nina Yukov, both of Orange, Conn., assignors to Olin Corporation, New Haven, Conn.

Continuation of Ser. No. 522,797, Sep. 5, 1995, abandoned, which is a continuation of Ser. No. 184,534, Jan. 21, 1994, abandoned. This application Jun. 24, 1997, Ser. No. 879,689

Int. Cl.⁶ B32B 15/02; C25D 5/18

U.S. Cl. 428—607

3 Claims



1. A composite foil, comprising: a wrought copper or copper based alloy substrate; and a nodular coating layer having a dark brown to black color adjacent to at least one surface of said copper or copper based alloy substrate, said nodular coating layer being an alloy of copper and nickel containing, by weight, from 55% to 95% of copper and the balance nickel, and nodules forming said nodular coating layer having an average cross-sectional width of from about 0.05 micron to about 5 microns and an average

height of from about 0.5 micron to about 3 microns whereby said nodular coating layer has an etch rate in excess of that of a non-nodular copper/nickel alloy coating having substantially the same ratio of copper to nickel in the deposited coating layer when etched in an alkaline ammonia solution.

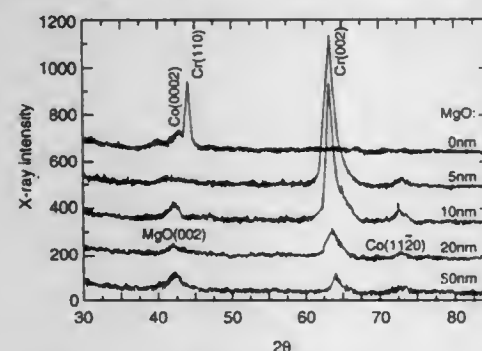
5,800,931
MAGNETIC RECORDING MEDIUM WITH A MGO SPUTTER DEPOSITED SEED LAYER

Li-Lien Lee; David N. Lambeth; David E. Laughlin, all of Pittsburgh, Pa., and Byung-Ki Cheong, Seoul, Rep. of Korea, assignors to Carnegie Mellon University, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 315,096, Sep. 29, 1994. This application Nov. 6, 1995, Ser. No. 553,893
Int. Cl.⁶ G11B 5/66

U.S. Cl. 428—611

26 Claims



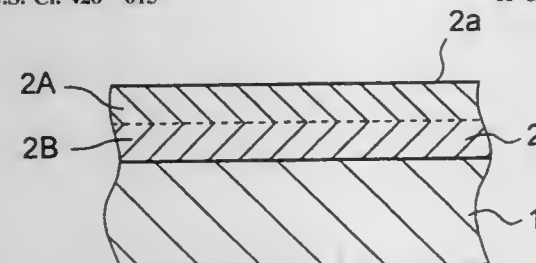
1. A magnetic recording medium comprising:
a substrate;
a seed layer comprised of polycrystalline MgO having an (002) structure deposited on said substrate, wherein said seed layer is between about 1.0 nm to 50 nm thick;
a Co or Co alloy film forming a magnetic layer; and
an underlayer comprised of Cr, a Cr alloy having an A2 crystalline structure or material having a B2 crystalline structure disposed between said seed layer and said magnetic layer.

5,800,932
ELECTRIC CONTACT MATERIAL AND A MANUFACTURING METHOD THEREFOR

Satoshi Suzuki, and Mitsuru Murakawa, both of Nikko, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan
Filed Feb. 22, 1996, Ser. No. 604,836

Claims priority, application Japan, Feb. 28, 1995, 7-039663
Int. Cl.⁶ B32B 15/00; 15/18; B22F 3/00; 7/00
U.S. Cl. 428—615

11 Claims



1. An electric slide contact material comprising:
a contact substrate having an upper surface and a lower surface;
and
a coating layer formed integrally on the upper surface of the contact substrate, the coating layer being formed of an Ag-Li-La alloy containing at least one of Au and Pd, the coating layer comprising (i) a surface layer portion having a thickness of from 0.5 to 2 μm and being formed as a concentration

gradient layer and having an upper surface and a lower surface and (ii) a subsurface layer portion which substantially contains the Ag-Li-La alloy and which is disposed between the upper surface of the contact substrate and the lower surface of the surface layer portion, wherein the content of the at least one of Au and Pd decreases as the subsurface layer portion is approached, and the concentration of at least one of Au and Pd on the upper surface of the surface layer portion is from 50 to 95% by weight.

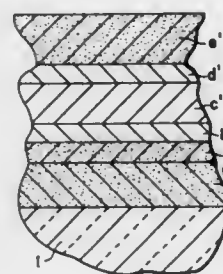
5,800,933
NEUTRAL, HIGH PERFORMANCE, DURABLE LOW-E GLASS COATING SYSTEM AND INSULATING GLASS UNITS MADE THEREFROM

Klaus W. Hartig, Brighton; Philip J. Lingle, Temperance, and Steven L. Larson, Monroe, all of Mich., assignors to Guardian Industries Corp., Auburn Hills, Mich.

Continuation-in-part of Ser. No. 552,366, Nov. 2, 1995, abandoned. This application Dec. 27, 1996, Ser. No. 774,929
Int. Cl.⁶ B32B 15/04; 17/06

U.S. Cl. 428—622

27 Claims



1. In a sputter-coated glass article comprised of a glass substrate having on a surface thereof, from the glass outwardly, a layer system including:
a first layer of Si₃N₄;
a first layer of nickel or nichrome;
a layer of silver;
a second layer of nickel or nichrome; and
a second layer of Si₃N₄;
wherein at least one of said Si₃N₄ layers includes from about 0.5%–15% by weight stainless steel, and wherein when said glass substrate has a thickness of about 2 mm–6 mm, said coated glass substrate has a normal emissivity (E_n) of about 0.06 or less, a hemispherical emissivity (E_h) of about 0.08 or less, a sheet resistance (R_s) of about 7.0 ohms/sq. or less and having a substantially neutral visible reflected color when viewed from the glass side.

5,800,934
ZINC OXIDE STABILIZED ZIRCONIA
Syed B. Qadri, Fairfax Station, Va.; Earl F. Skelton, Washington, D.C., and Peter Lubitz, Great Falls, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 27, 1997, Ser. No. 806,375

Int. Cl.⁶ B32B 15/04; F01D 5/28

U.S. Cl. 428—633

6 Claims

1. An article comprising a substrate and an outer layer disposed on and adhering to said substrate; said outer layer comprising stabilized zirconia in cubic form, said stabilized zirconia is in cubic form and consists essentially of zirconia and zinc oxide in atomic ratio from 99:1 to 50:50 zirconium to zinc wherein zirconium is in the form of zirconia and zinc is in the form of zinc oxide.

5,800,935
MAGNETORESISTIVE HEAD
Tsutomu Ishi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

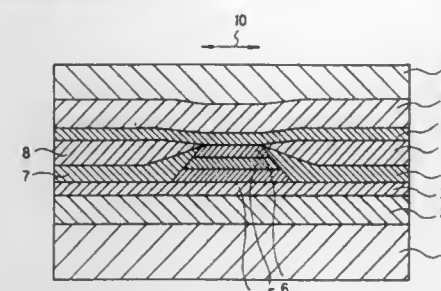
Filed Feb. 26, 1997, Ser. No. 806,690

Claims priority, application Japan, Feb. 27, 1996, 8-039327

Int. Cl.⁶ G11B 5/66

U.S. Cl. 428—692

6 Claims



1. A magnetoresistive head comprising:
a pair of magnetic shield layers formed on a substrate;
a stack including a magnetoresistive layer for detecting a magnetic field from a magnetic recording medium, a non-magnetic intermediate layer and a soft magnetic bias layer for applying a transverse bias magnetic field to said magnetoresistive layer, said stack being formed between said pair of magnetic shield layers via gap layers;
means for applying a longitudinal bias magnetic field to said magnetoresistive layer, said means for applying a longitudinal bias magnetic field being formed on the end regions of said stack;
means for applying a sense current to said magnetoresistive layer; and
said means for applying a sense current being formed on said end region of said stack, the product of saturation flux density and resistivity of said soft magnetic bias layer being 80 [T·μΩcm] or above.

5,800,936

Patent Not Issued For This Number

5,800,937
CURRENT INTERRUPT DEVICE FOR SECONDARY BATTERIES

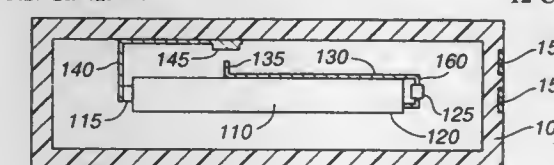
Edward V. Decker, Suwanee; George Thomas; Venus Desai, both of Lawrenceville; Vernon Meadows, Lilburn, all of Ga., and Mark Bresin, Plantation, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 2, 1997, Ser. No. 848,853

Int. Cl.⁶ H01M 2/00

U.S. Cl. 429—7

12 Claims



1. A secondary battery having a current interrupt device, comprising:
a cell having a positive terminal and a negative terminal;
a device for coupling the positive terminal to the negative terminal in response to swelling of the cell; and
a fuse coupled between the positive terminal and the negative terminal in response to swelling of the cell.

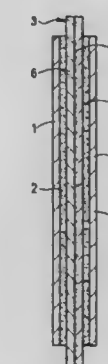
5,800,938
SANDWICH-TYPE SOLID POLYMER ELECTROLYTE FUEL CELL

Masahiro Watanabe, No. 2421-8, Wadamachi, Kofu-shi, Yamashiro, Japan, assignor to Tanaka Kikinzoku Kogyo K.K., Japan; Stonehart Associates Inc., Madison, Conn., and Masahiro Watanabe, Japan

Continuation-in-part of Ser. No. 125,637, Sep. 22, 1993, Pat. No. 5,472,799. This application Dec. 4, 1995, Ser. No. 566,941
Claims priority, application Japan, Sep. 22, 1992, 4-277959
Int. Cl.⁶ H01M 4/86; 8/10

U.S. Cl. 429—30

8 Claims



1. A sandwich-type solid polymer electrolyte fuel cell comprising in sequence: a cathode current collector; a cathode electrically connected to the cathode current collector, said cathode containing a cathode ion exchange resin and cathode electrocatalyst particles in electrical communication with the cathode; an ion exchange membrane; an anode containing an anode ion exchange resin and anode electrocatalyst particles in electrical communication with the anode; and an anode current collector electrically connected to the anode, said cathode and/or anode ion exchange resins containing a cathode and/or anode catalyst metals capable of promoting the reaction of hydrogen and oxygen gases to produce water, said cathode and/or anode catalyst metals being insulated electrically from current collectors due to the presence of the cathode and/or anode ion exchange resins which have no electrical conductivity.

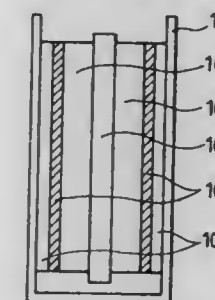
5,800,939
BATTERY AND METHOD FOR THE MANUFACTURE OF SUCH A BATTERY

Shinya Mishina, Kawasaki; Solchiro Kawakami; Naoya Kobayashi, both of Nara, and Masaya Asao, Tsuzuki-gun, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 15, 1995, Ser. No. 515,532

Claims priority, application Japan, Aug. 23, 1994, 6-198846
Int. Cl.⁶ H01M 2/12

U.S. Cl. 429—57

52 Claims



1. A battery comprising, in a battery housing:
positive electrodes and negative electrodes, which are disposed with intervening separators,
a solid electrolyte or an electrolyte solution,
a safety valve, and
a member whose shape is altered;
wherein said member has a shape that is altered at a predetermined first temperature which is a lower temperature than a melting point of said separators;

said member retains said altered shape at temperatures which fall within an operating temperature range of said battery; said member can be heated to said first temperature to exert pressure in at least one area within said battery housing or can be cooled to release said exerted pressure; and wherein, when said shape of said member is altered, said safety valve in said battery housing is actuated.

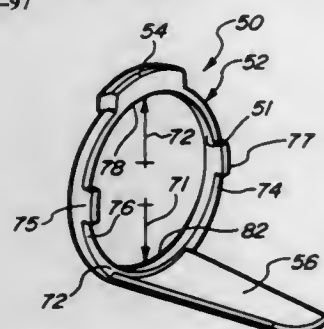
5,800,940

BATTERY PACK RETAINING LATCH FOR CORDLESS DEVICE

Roderick F. Bunyea, Westminster; Alvydas P. Karasa, Fallston; Philip T. Miller, Lutherville, and Allen P. Smith, Baltimore, all of Md., assignors to Black & Decker Inc., Newark, Del. Continuation of Ser. No. 289,158, Aug. 11, 1994, Pat. No. 5,681,667. This application May 5, 1997, Ser. No. 850,965

Int. Cl.⁶ H01M 2/10

U.S. Cl. 429—97



1. A retention latch adapted to be positioned within a device for retaining a battery in the device, said retention latch comprising: at least one annular member, said annular member adapted for engaging with the battery; a release member coupled with said at least one annular member, said release member adapted to be activated to move said annular member to a release position to enable the battery to be removed from the device; and means for maintaining said annular member between a normally engaged position and its release position.

5,800,941

ELECTROCHEMICAL CELL

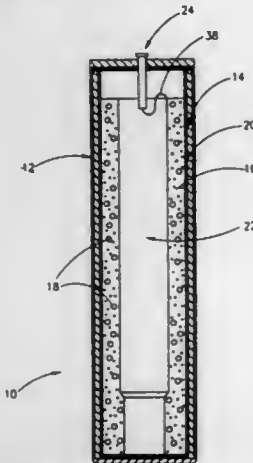
Esther Elster, Kfar Saba, and Herzl Yamin, Rehovot, both of Israel, assignors to Tadiran Ltd., Holon, Israel Filed May 7, 1996, Ser. No. 643,920

Claims priority, application Israel, May 7, 1995, 113641

Int. Cl.⁶ H01M 4/66

U.S. Cl. 429—105

20 Claims



1. An electrochemical cell comprising: a metal anode;

a non-aqueous liquid cathode solution; an electrolyte dissolved in said non-aqueous liquid cathode solution; a current collector for collecting and conducting current generated by said cell to a pole of said cell; and a separator between said anode and said current collector; characterized in that said current collector comprises: a porous carbon current collector filled with said non-aqueous liquid cathode solution having said electrolyte dissolved therein; a metal support electrically connected to said pole of the cell; and a layer of non-porous carbon on said metal support in direct contact with said porous carbon current collector, wherein said cathode solution is essentially an oxyhalide solution.

5,800,942

STORAGE BATTERY WITH VENTILATION SYSTEM

Shinji Hamada, Hirakata; Shuhei Marukawa, Moriguchi; Hiroshi Inoue, Neyagawa, and Munehisa Ikoma, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

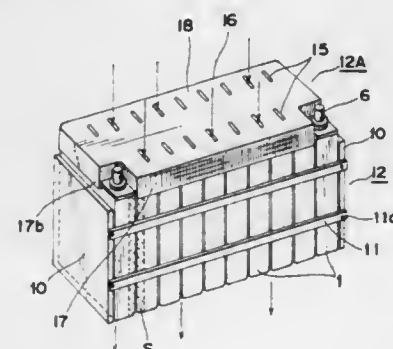
Filed Oct. 24, 1996, Ser. No. 736,453

Claims priority, application Japan, Oct. 24, 1995, 7-275337

Int. Cl.⁶ H01M 2/04

U.S. Cl. 429—148

14 Claims



1. A storage battery assembly comprising: a plurality of electrochemical cells, each of said electrochemical cells including a generally rectangular box shaped electrolyte vessel having an opening, an electrode structure accommodated within the electrolyte vessel and including positive electrode plates and negative electrode plates, a quantity of electrolyte accommodated within the electrolyte vessel, and a top lid enclosing the opening of the electrolyte vessel, each of said electrochemical cells also including pole terminals protruding outwardly from the respective top lid; said electrochemical cells being electrically connected in series with each other by means of generally elongated electroconductive connecting pieces, each of said electroconductive connecting pieces connecting one of the pole terminals of one electrochemical cell with the other of the pole terminals of the next adjoining electrochemical cell, each of said electrochemical cells being bundled in side-by-side fashion together in a row; and an insulating cover made of synthetic resin and having a plurality of vent perforations defined therein, said insulating cover being mounted on the bundled electrochemical cells so as to cover respective tops of the electrochemical cells with each of said vent perforations positioned substantially above a portion of the connecting pieces that overlays adjoining electrochemical cells.

5,800,943

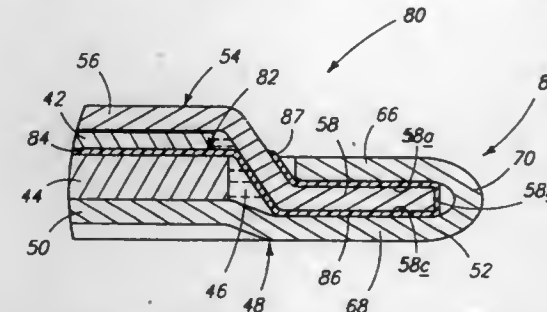
THIN PROFILE BATTERY WITH IMPROVED SEPARATOR AND GASKET CONSTRUCTION

Peter M. Blonsky, and Mark E. Tuttle, both of Boise, Id., assignors to Micron Communications, Inc., Boise, Id. Division of Ser. No. 744,743, Oct. 28, 1996, abandoned, which is a division of Ser. No. 588,559, Jan. 18, 1996, Pat. No. 5,652,070, which is a division of Ser. No. 205,611, Mar. 2, 1994, Pat. No. 5,547,781. This application Jun. 20, 1997, Ser. No. 879,848

Int. Cl.⁶ H01M 2/08

U.S. Cl. 429—174

2 Claims



1. A thin profile battery defined by a thickness which is less than a maximum linear dimension of its anode comprising: an anode, and a cathode; a conductive first terminal housing member having a periphery and being in electrical contact with one of the anode or the cathode; a conductive second terminal housing member having a periphery and being in electrical contact with the other of the anode or the cathode; the first and second terminal housing members forming an enclosed housing which surrounds the anode and cathode; a single undivided separator/gasket layer, the separator/gasket consisting of only one material; the separator/gasket layer having (1) a central portion positioned between the anode and cathode to physically separate the anode and the cathode and to facilitate electrolytic conductivity between the anode and the cathode, and (2) a portion peripheral to the central portion, the peripheral portion being positioned between the first and second terminal housing member peripheries; the first and second terminal housing member peripheries and the peripheral portion of the separator/gasket layer being configured together to form a fluid-tight seal, the peripheral portion of the separator/gasket layer electrically insulating the first terminal housing member from the second terminal housing member; and wherein the peripheral portion of the separator/gasket layer has a peripheral edge, the peripheral edge extending exteriorly beyond the seal and outwardly of the enclosed housing.

5,800,944

THIN PROFILE BATTERY WITH IMPROVED SEPARATOR AND GASKET CONSTRUCTION

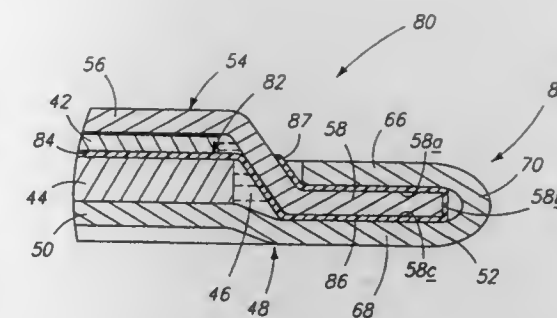
Peter M. Blonsky, and Mark E. Tuttle, both of Boise, Id., assignors to Micron Communications, Inc., Boise, Id. Continuation of Ser. No. 744,743, Oct. 28, 1996, abandoned, which is a division of Ser. No. 588,559, Jan. 18, 1996, Pat. No. 5,652,070, which is a division of Ser. No. 205,611, Feb. 2, 1994, Pat. No. 5,547,781. This application Sep. 12, 1997, Ser. No. 928,898

Int. Cl.⁶ H01M 2/08

U.S. Cl. 429—174

2 Claims

1. A circular-shaped thin profile battery defined by a thickness which is less than a maximum linear dimension of its anode, comprising: an anode and a cathode; a conductive first terminal housing member having a periphery and being in electrical contact with one of the anode or the



cathode, the conductive first terminal housing member periphery comprising a planar extension; a conductive second terminal housing member having a periphery and being in electrical contact with the other of the anode or the cathode, the conductive second terminal housing member periphery comprising a planar extension parallel to the planar extension of the conductive first terminal housing member periphery;

the first and second terminal housing members together forming an enclosed housing which surrounds the anode and cathode; a single undivided separator/gasket, said separator/gasket consisting of only one material; the separator/gasket having (1) a central portion positioned between the anode and cathode to physically separate the anode and the cathode and to facilitate electrolytic conductivity between the anode and the cathode, and (2) a peripheral portion which is peripheral to the central portion, the peripheral portion being positioned between the first and second terminal housing member peripheries; the central portion contacting both the anode and the cathode; the separator/gasket peripheral portion comprising a planar extension which extends along the planar extension of the one of the terminal housing member peripheries and parallel with the planar extensions of both of the terminal housing member peripheries, the separator/gasket physically contacting only one of the terminal housing members; the planar extension of the separator/gasket being between the planar extensions of the terminal housing member peripheries; the planar extensions of the first and second terminal housing member peripheries and the planar extension of the peripheral portion of the separator/gasket together forming a fluid-tight seal; and wherein; the separator/gasket is formed of a porous material; the central portion has a first thickness and a first density; and the peripheral portion has a second thickness less than the first thickness and a second density greater than the first density.

5,800,945

SEALED ONE-PIECE BATTERY HAVING AN ALKALINE ELECTROLYTE

Tristan Grivel, and Roelof Verhoog, both of Bordeaux, France, assignors to Saft, Romainville, France

Filed Apr. 2, 1996, Ser. No. 626,607

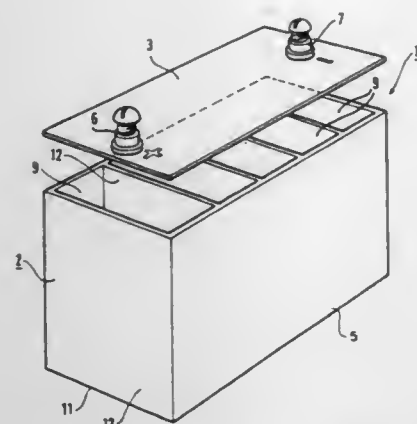
Claims priority, application France, Apr. 3, 1995, 95 03899

Int. Cl.⁶ H01M 2/02

U.S. Cl. 429—176

7 Claims

1. A sealed battery having an electrolyte, comprising a single container including compartments receiving storage cells comprising thermoplastic material, wherein said material comprises an alloy of at least two polymers comprising: a proportion of not less than 50% by weight of the alloy of a first polymer selected from polyamide 6 and polyamide 6-6; and a proportion of not more than 50% by weight of the alloy of a second polymer selected from polyethylene, polypropylene, and copolymers thereof;



said material having permeability to hydrogen no greater than $400 \text{ cm}^3/\text{m}^2 \cdot 0.24 \text{ h}$, said permeability being measured at 25°C . on a film that is $100 \mu\text{m}$ thick under an absolute pressure of 2 bars, and in an atmosphere at 75% relative humidity.

5,800,946

BIPOLAR LEAD-ACID BATTERY PLATES

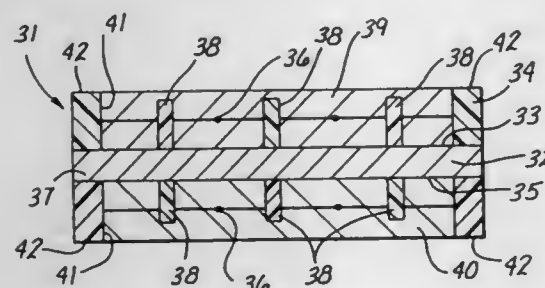
Victor L. Grosvenor, 21875 Canon Dr., Topanga, Calif. 90290, and Naum Pinsky, 1627 Michael La., Pacific Palisades, Calif. 90272

Filed Dec. 6, 1996, Ser. No. 761,781

Int. Cl.⁶ H01M 10/18

U.S. Cl. 429—210

7 Claims



1. A bipolar plate for a battery comprising:
an electrically conductive electrode element having a first side and an opposing second side;
a grid attached to and spaced apart from said electrically conductive electrode element in proximity to said first side;
positive active material in contact with first side or said second side; and
negative active material in contact with said first side or said second side not in contact with said positive active material, said grid being substantially surrounded by said positive active material or said negative active material and being effective in facilitating the maintaining said positive active material or said negative active material which substantially surrounds said grid in contact with said electrically conductive electrode element.

5,800,947
GASTIGHT, SEALED ALKALINE STORAGE BATTERY IN THE FORM OF A BUTTON CELL
Uwe Köhler, Kelkheim; Christoph Klaus, Ellwangen; Günter Hofmann, Hofheim, and Frank Lichtenberg, Zeiskam, all of Germany, assignors to Varta Batterie Aktiengesellschaft, Hanover, Germany

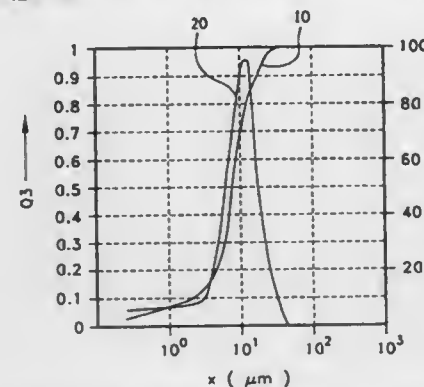
Filed Jul. 25, 1995, Ser. No. 506,834

Claims priority, application Germany, Jul. 29, 1994, 44 26 970.6

Int. Cl.⁶ H01M 4/32; 4/30

U.S. Cl. 429—223

19 Claims



1. A gas-tight, sealed alkaline storage battery formed as a button cell having positive and negative electrodes separated by a separator and disposed in a cell casing, wherein the positive electrode includes a dry pressed tablet having an active material formed from mass conglomerates comprised of: a) spherically shaped nickel hydroxide particles of sizes not exceeding $30 \mu\text{m}$, a particle size distribution maximum in the range from 10 to $20 \mu\text{m}$ and a width at half maximum of 10 to $20 \mu\text{m}$, and a pycnometric density from 3.3 g/cm^3 to 3.9 g/cm^3 ; and b) a powdered plastic binder; wherein the mass conglomerates of the positive electrode are of sizes between $100 \mu\text{m}$ and $1000 \mu\text{m}$ and are prepared by granulating the mass conglomerates before being dry pressed into the tablet; and wherein the separator is a microporous membrane of polyethylene or polypropylene having pore diameters of a size between 5 and $20 \mu\text{m}$.

5,800,948

LEAD-ACID BATTERY AND SEPARATOR THEREFOR

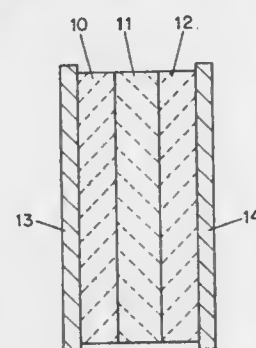
Patrick T. Moseley, Chapel Hill, N.C., assignor to International Lead Zinc Research Organization, Inc., Chapel Hill, N.C.

Filed Dec. 19, 1996, Ser. No. 772,001

Int. Cl.⁶ H01M 2/16; 2/18

U.S. Cl. 429—204

15 Claims



1. A separator for a lead-acid battery comprising a porous ceramic body comprising ceramic fibers welded together at their respective contact points such that the resulting separator body is substantially rigid and non-compressible and wherein the separator has a porosity exceeding about 90% by volume, said separator having pores that are substantially filled with battery electrolyte.

5,800,949

MASK, METHOD OF PRODUCING A DEVICE USING THE MASK AND ALIGNER WITH THE MASK

Ryo Edo; Ryuichi Ebinuma, both of Utsunomiya, and Hiroshi Maehara, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

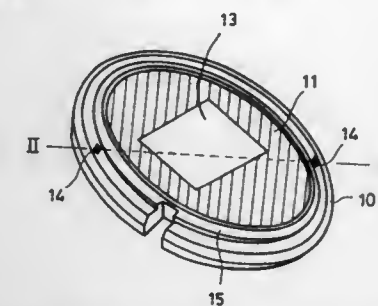
Filed Mar. 26, 1996, Ser. No. 622,004

Claims priority, application Japan, Mar. 28, 1995, 7-094603; Sep. 20, 1995, 7-266292

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

13 Claims



1. A method of making a mask using at least one alignment mark on a mask frame for both aligning the mask frame with a mask substrate and aligning a pattern to be formed on the mask substrate with the mask frame, said method comprising the steps of:
forming the at least one alignment mark at a predetermined position on the mask frame capable of holding the mask substrate;
using the at least one alignment mark for aligning the mask substrate and the mask frame and then joining the mask substrate and the mask frame; and
using the at least one alignment mark for forming a mask pattern on the mask substrate at a predetermined position with respect to the at least one alignment mark.

5,800,950

RECORDING MEDIUM

Akiko Hirao, Chiba; Hirohisa Miyamoto, Kawasaki; Hideyuki Nishizawa, Tokyo; Masahiro Hosoya, Okegawa, and Masami Suguchi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

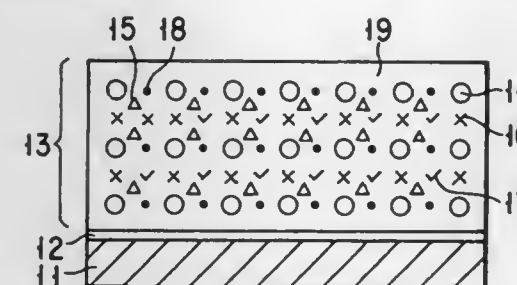
Filed Mar. 13, 1996, Ser. No. 615,687

Claims priority, application Japan, Mar. 16, 1995, 7-056881; May 1, 1995, 7-107504; Mar. 12, 1996, 8-055031

Int. Cl.⁶ H01L 23/00

U.S. Cl. 430—1

22 Claims



16. A recording element which comprises a recording layer containing: a first charge-generating material adapted to generate a first electric charge by irradiation with light; a second charge-generating material adapted to generate a second electric charge having an opposite polarity from that of said first electric charge; a first charge transporting material for transporting said first electric charge; a charge-capturing material for capturing said first electric charge; and material having an electro-optical effect; wherein said recording element does not comprise means for applying an external electric field.

5,800,951

EXPOSURE METHOD AND EXPOSURE MASK WITH MONITORING PATTERNS

Takeo Hashimoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

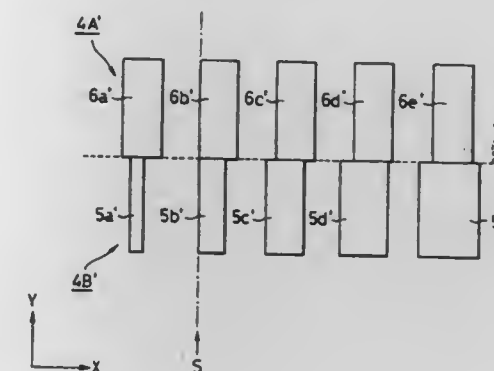
Filed Nov. 22, 1996, Ser. No. 754,367

Claims priority, application Japan, Nov. 22, 1995, 7-304792

Int. Cl.⁶ G03F 9/00

U.S. Cl. 430—5

22 Claims



1. An exposure method comprising the steps of:
(a) preparing an exposure mask having a circuit pattern region and a scribing region formed to surround said circuit pattern region;
said scribing region including a first monitoring pattern of geometric shapes and a shape monitoring pattern of geometric shapes;
said geometric shapes of said first monitoring pattern being arranged at a substantially constant pitch and having substantially the same size;
said geometric shapes of said second monitoring pattern being arranged at substantially the same pitch as that of said geometric shapes of said first monitoring pattern and having different sizes from each other;
(b) forming a first image of said circuit pattern region and a first image of said scribing region on said substrate using said exposure mask by illuminating said substrate so that said first image of said scribing region including a first image of said geometric shapes of said first monitoring pattern and a first image of said geometric shapes of said second monitoring pattern;
(c) forming a second image of said circuit pattern region and a second image of said scribing region on said substrate using said exposure mask by illuminating said substrate so that said second image of said scribing region is adjacent to said first image of said scribing region;
said second image of said scribing region including a second image of said geometric shapes of said second monitoring pattern and a second image of said geometric shapes of said second monitoring pattern;
said second image of said geometric shapes of said second monitoring pattern being adjacent to said first image of said geometric shapes of said first monitoring pattern; and
(d) comparing said second image of said geometric shapes of said second monitoring pattern with said first image of said geometric shapes of said first monitoring pattern to thereby determine at least one of any exposure error and any placement error between said first and second images of said circuit pattern regions.

5,800,952
PHOTOPOLYMERIZABLE COMPOSITION FOR A COLOR FILTER, COLOR FILTER AND LIQUID DISPLAY DEVICE

Toshiyuki Urano; Ryulchiro Takasaki; Jiro Kamimura; Shingo Ikeda; Noriko Endo; Yuzuru Chika, and Tameichi Ochiai, all of Kanagawa, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Oct. 23, 1996, Ser. No. 731,994
Claims priority, application Japan, Dec. 22, 1995, 7-334827
Int. Cl.⁶ G03F 9/00; C09K 19/00

U.S. Cl. 430—7 27 Claims

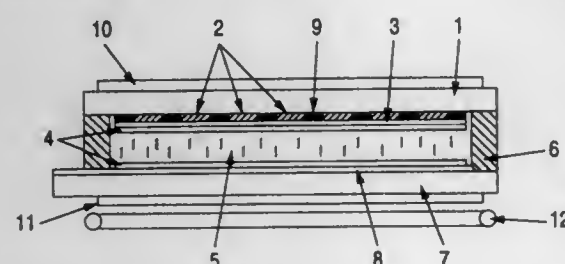
1. A color filter, comprising:
a transparent substrate having a color pattern formed thereon from a photopolymerizable composition which comprises (i) a photopolymerization initiator system, (ii) a compound having at least one ethylenically unsaturated double bond, (iii) a colorant, and (iv) at least one of a phosphoric (meth)acrylate compound and an organic carboxylic anhydride having a molecular weight of at most 800, wherein the content of the colorant in the composition ranges from 20–90 wt. % based on the total solids content.

5,800,953
METHOD FOR PRODUCING COLOR FILTER USING A SILVER HALIDE COLOR PHOTOSENSITIVE MATERIAL

Yuki Mizukawa; Tatsuya Igarashi, and Hiroyuki Hirai, all of Minami-Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan

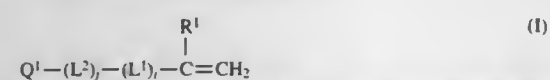
Filed Nov. 22, 1996, Ser. No. 755,739
Int. Cl.⁶ G02B 5/20

U.S. Cl. 430—7 4 Claims



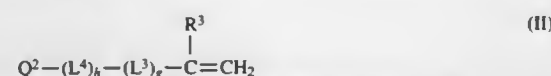
1. A method for producing a color filter having pixel patterns of blue, green and red colors, which comprises the steps of:
pattern-exposing a silver halide photosensitive material which comprises a support having thereon coated at least three silver halide emulsion layers each having a different color sensitivity; and

color developing and desilverizing said exposed material, wherein said photosensitive material contains at least one polymer coupler selected from the group consisting of:
copolymers derived from at least one kind of yellow coupler monomer represented by the following formula (I) and at least one kind of cyan coupler monomer represented by the following formula (II); and
copolymers derived from at least one kind of yellow coupler monomer represented by the following formula (I) and at least one kind of non-color-forming monomer having an ethylene group and no capability to couple with an oxidized product of an aromatic primary amine developing agent:

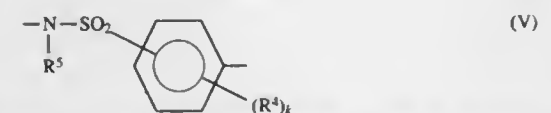
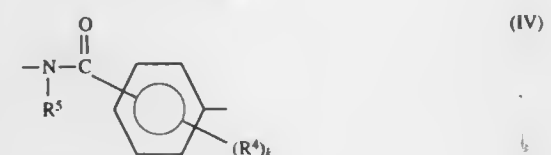
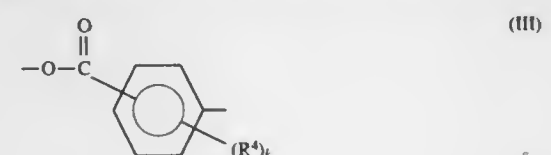


wherein R¹ represents a hydrogen atom, a chlorine atom, an alkyl group or an aryl group; L¹ represents —C(=O)N(R²)—, —C(=O)O—, —N(R²)C(=O)—, —OC(=O)—, or a group represented by the following formula (III), (IV) or (V); R² represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group; L² represents a divalent linkage group connecting L¹ with Q¹; i represents 0 or 1; j represents 0 or 1; and Q¹ represents a yellow coupler residue capable of forming a yellow dye by coupling with an oxidized product of an aromatic primary amine developing agent;

represented by the following formula (III), (IV) or (V); R² represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group; L² represents a divalent linkage group connecting L¹ with Q¹; i represents 0 or 1; j represents 0 or 1; and Q¹ represents a yellow coupler residue capable of forming a yellow dye by coupling with an oxidized product of an aromatic primary amine developing agent;



wherein R³, L³, L⁴, g and h have the same meanings as R¹, L¹, L², i and j in the above formula (I), respectively; and Q² represents a cyan coupler residue capable of forming a cyan dye by coupling with an oxidized product of an aromatic primary amine developing agent;



wherein R⁴ represents a substituent group, R³ has the same meaning as R² in the above formula (I), and k represents an integer of from 0 to 4; and

wherein said silver halide emulsion layers contain couplers in such combination as to develop blue, green and red colors, respectively, by coupling with an oxidized product of an aromatic primary amine developing agent.

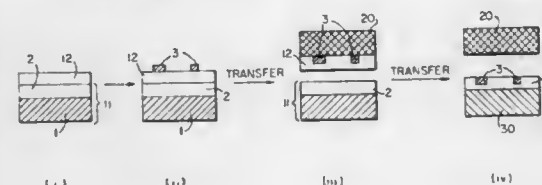
5,800,954
METHOD OF FORMING COLOR IMAGES AND APPARATUS USED THEREFOR

Eiichi Kato; Sadao Osawa, and Yusuke Nakazawa, all of Shi-zuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 505,345, Aug. 30, 1995, abandoned.
This application May 9, 1997, Ser. No. 853,411

Claims priority, application Japan, Mar. 29, 1993, 5-091913; May 27, 1993, 5-146770; Sep. 2, 1993, 5-240279; Sep. 8, 1993, 5-246040; Dec. 28, 1993, 5-354624

Int. Cl.⁶ G03G 13/16; 15/01; 15/16
U.S. Cl. 430—47 9 Claims



1. A method of forming a color image comprising forming at least one color toner image on a peelable transfer layer provided on the surface of an electrophotographic light-sensitive element whose surface has releasability by an electrophotographic process, transferring the toner image together with the transfer layer onto a

primary receptor, and transferring the toner image together with the transfer layer from the primary receptor onto a final receiving material;

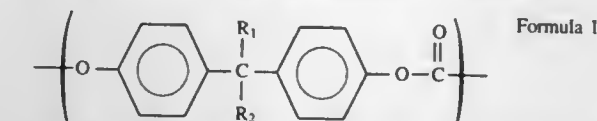
wherein the surface of the electrophotographic light-sensitive element has an adhesive strength of not more than 50 g-f; wherein the transfer layer comprises a thermoplastic resin (A) having a glass transition point of not more than 140° C. or a softening point of not more than 180° C.; and wherein the primary receptor has a surface having an adhesive strength which is at most 180 g-f and is at least 30 g-f larger than the adhesive strength of the surface of the electrophotographic light-sensitive element.

5,800,955
ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MEMBER HAVING POLYCARBONATE-CONTAINING SURFACE LAYER

Noboru Kashimura, Tokyo; Harumi Sakoh; Shoji Amamiya, both of Kawasaki, and Tatsuya Ikezue, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 124,210, Sep. 21, 1993, abandoned.
This application Jul. 10, 1996, Ser. No. 677,790

Claims priority, application Japan, Sep. 21, 1992, 4-274879; Sep. 21, 1992, 4-274880; May 19, 1993, 5-139284
Int. Cl.⁶ G03G 5/05; 5/147

U.S. Cl. 430—58 7 Claims
1. An electrophotographic photosensitive member comprising a conductive support and a photosensitive layer provided on the conductive support, wherein a surface layer of said electrophotographic photosensitive member contains a polycarbonate resin which comprises a monomer unit represented by Formula 1:



wherein R₁ and R₂ are each a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted chain fluoroalkyl group, or a group formed by combination of any of these groups, and at least one of R₁ and R₂ is a chain perfluoroalkyl group having 4 or more carbon atoms, methyl or ethyl having a perfluoroalkyl group having 4 or more carbon atoms or a phenyl group having a perfluoroalkyl group having 4 or more carbon atoms.

5,800,956
ELECTROPHOTOGRAPHIC PHOTORECEPTOR WITH SPECIFIC INTERLAYER

Hiroaki Minemura; Eiichi Sakai; Kenichi Yasuda, and Yoshio Kitahara, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

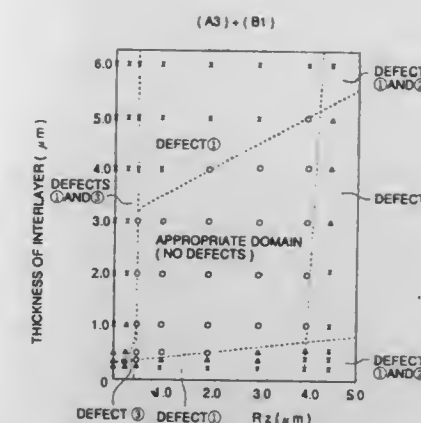
Continuation of Ser. No. 590,095, Jan. 24, 1996, abandoned.
This application Aug. 22, 1997, Ser. No. 917,028

Claims priority, application Japan, Jan. 30, 1995, 7-012729
Int. Cl.⁶ G03G 5/14

U.S. Cl. 430—60 7 Claims

1. An electrophotographic photoreceptor comprising an electroconductive substrate, and an interlayer and a photoconductive layer provided on said substrate in this order from the substrate, wherein the surface of said electroconductive substrate has a ten-point mean roughness R_z of from 0.5 μm to 4.0 μm, said photoconductive layer comprises a titanylphthalocyanine compound,

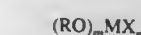
said interlayer comprises a reaction product of an organic metal compound represented by the following Formula 1 and a silane coupling agent represented by the following Formula 2, and the average thickness L of the interlayer and the ten-point



mean roughness of the surface of said substrate satisfying the following requirement:

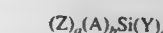
$$0.3 \mu\text{m} + (0.1 \times R_z \mu\text{m}) \leq L \mu\text{m} \leq 3.0 \mu\text{m} + (0.5 \times R_z \mu\text{m})$$

Formula 1



wherein R is an alkyl group; M is a titanium atom or aluminum atom; X is a chelate ligand; and m and n are each an integer of 0 to 4 and the sum of m and n is 3 or 4;

Formula 2



wherein Z is a halogen atom, an alkoxy group or an amino group; A is an alkyl group or an aryl group; and Y is an organic functional group; and a and c each an integer of 1 to 3 and b is an integer of 0 to 2 and the sum of a, b and c is 4.

5,800,957
TONER FOR ELECTROSTATIC LATENT IMAGE DEVELOPMENT AND PROCESS FOR PRODUCING THE SAME

Takeshi Agata, and Takashi Imai, both of Ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 509,853
Claims priority, application Japan, Aug. 9, 1994, 6-187144
Int. Cl.⁶ G03G 9/093; 9/087

U.S. Cl. 430—109 10 Claims

1. A toner for electrostatic latent image development, which comprises a core substance containing a colorant and a binder resin and an outer shell for covering said core, wherein the colorant is treated with an aminoaluminum coupling agent and a rosin derivative selected from the group consisting of natural rosin; abietic acid; neoabietic acid; palustric acid; levopimaric acid; tetrahydroabietic acid; dihydroabietic acid; dihydropalustric acid; an alkali metal salt, an alkaline earth metal salt or an aluminum salt of said acids; rosin-maleic acid resin; and rosin-phenol resin.

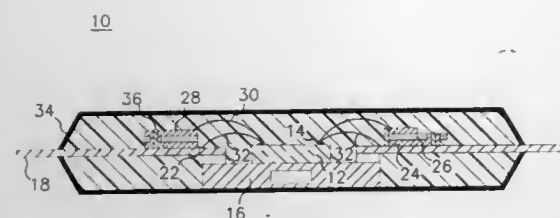
5,800,958
ELECTRICALLY ENHANCED POWER QUAD FLAT PACK ARRANGEMENT

Kamran Manteghi, Manteca, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Division of Ser. No. 581,294, Dec. 28, 1995, Pat. No. 5,646,831. This application Apr. 28, 1997, Ser. No. 847,880
Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—123 6 Claims

1. A method of fabricating a power quad flat pack arrangement for an electrically enhanced integrated-circuit, comprising the steps of:



mounting centrally an integrated-circuit die to a top surface of a substrate;
attaching a lead frame having a centrally-located open portion onto the top surface of the substrate so that the bonding fingers thereof peripherally surround the integrated-circuit die;
bonding a first conductive layer of a double-sided printed circuit board to the top surface of the bonding fingers of the lead frame so as to peripherally surround the integrated-circuit die; providing a second conductive layer on the top surface of the printed circuit board;
electrically connecting the top layer of the printed-circuit board to one or more bonding fingers of the lead frame;
electrically connecting the bottom layer of the printed-circuit board to one or more bonding fingers of the lead frame;
interconnecting bonding wires between bonding pads on the integrated-circuit die and the first and second conductive layers and between said bonding fingers; and
molding a plastic material over the integrated-circuit die, lead frame, printed circuit board and conductive layers and around a portion of the substrate to leave an exposed back surface of said substrate.

5,800,959

ELECTROSTATIC LATENT IMAGE DEVELOPER

Jun Ikami, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jun. 17, 1996, Ser. No. 665,299

Claims priority, application Japan, Jul. 13, 1995, 7-177468

Int. Cl.⁶ G03G 13/18; 9/08

U.S. Cl. 430—126

11 Claims

7. A method for improving transfer efficiency of a toner from a photosensitive material to a recording medium in a non-magnetic one-component developing process, comprising developing an electrostatic latent image on the photosensitive material with a developer comprising a toner, an agent improving transfer efficiency on the surface of the toner in an amount of 1 part by weight or more to 100 parts by weight of toner, wherein the agent improving transfer efficiency is surface treated with a metal salt, a first aluminum oxide fine powder having an average particle size of 8 to 18 nm on the surface of the toner in an amount of about 0.1 to about 1 parts by weight to 100 parts by weight of the toner, and a second aluminum oxide fine powder having an average particle size of 0.3 to 10 μm on the surface of the toner in an amount of about 0.1 to about 1 parts by weight to 100 parts by weight of the toner, and transferring said developed image to the recording medium.

5,800,960

UNIFORM BACKGROUND FOR COLOR TRANSFER

Michael L. Boroson; Judith L. Fleissig, both of Rochester, and Edward A. Tickner, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 24, 1996, Ser. No. 738,951

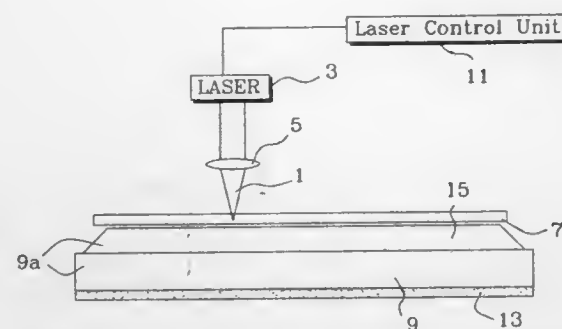
Int. Cl.⁶ G03C 8/00

U.S. Cl. 430—200

6 Claims

1. A method of producing a radiation-induced colorant transfer image on a support, comprising:

a) providing an image-receiving element comprising a support having thereon an image-receiving layer;



b) providing a colorant donor element having a colorant transfer layer on a colorant element support and wherein colorant can be transferred from a transfer surface of the colorant donor element to the image-receiving element in response to selectively applied radiation;
c) providing a uniformly reflecting opaque element that is sufficiently opaque to radiation at the wavelengths of the radiation source and reflects uniformly with a % difference in total reflectivity less than 80% but greater than 4.1%, and wherein the opacity is greater than 0.1 absorption density;
d) causing the image-receiving element to be contacted with the colorant donor element and these elements to be positioned between the radiation source and the uniformly reflecting opaque element; and
e) applying radiation to the colorant donor element to cause colorant to transfer to the image-receiving element.

5,800,961

IMAGING ELEMENT AND METHOD FOR MAKING A LITHOGRAPHIC PRINTING PLATE ACCORDING TO THE SILVER SALT DIFFUSION TRANSFER PROCESS

Lode Deprez, Wachtebeke, Belgium, assignor to Agfa-Gevaert, N.V., Mortsel, Belgium

Filed Jun. 30, 1997, Ser. No. 885,958

Claims priority, application European Pat. Off., Jul. 30, 1996, 96202156.4

Int. Cl.⁶ G03F 7/07; G03C 8/06; 8/52

U.S. Cl. 430—204

9 Claims

1. An imaging element comprising on a support in the order given (i) a base layer comprising a binder in an amount between 1 and 4 g/m², (ii) a photosensitive layer comprising a spectrally sensitized silver halide emulsion, and (iii) a receiving layer containing physical development nuclei in water permeable relationship with said photosensitive layer wherein the base layer contains a latex polymer with a glass transition temperature T_g not higher than 40° C.

5,800,962

TEMPORARY SUPPORT FILM FOR TRANSFERRING WHITE PIGMENT LAYER

Martin Benzing, Biebelnheim; Dieter Mohr, Appenheim; Juergen Mertes, Ingelheim, and Peter Blum, Kronberg, all of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Germany

Division of Ser. No. 641,263, Apr. 30, 1996, Pat. No. 5,705,315, which is a continuation of Ser. No. 418,577, Apr. 6, 1995, abandoned, which is a division of Ser. No. 276,798, Jul. 18, 1994, Pat. No. 5,527,654. This application May 1, 1997, Ser. No. 850,115

Claims priority, application Germany, Jul. 30, 1993, 43 25 684.8

Int. Cl.⁶ B32B 5/16

U.S. Cl. 430—259

16 Claims

1. A temporary support film for use in transferring a pigment layer to an image receiving material for the production of colored images, comprising a sheet-like support and a pigment layer con-

sisting essentially of a white pigment and a polymeric binder selected from the group consisting of an alkyd resin, a phenol resin, a vinyl polymer, a polyacrylate, and a polymethacrylate.

5,800,963

POLYMERIC DYES FOR ANTIREFLECTIVE COATINGS

Christopher John Knors, Bound Brook, N.J.; Elwood Herbert Macy, Hughsonville, and Wayne Martin Moreau, Wappinger Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 168,885, Dec. 16, 1993, Pat. No. 5,731,385. This application Jun. 6, 1995, Ser. No. 466,561

Int. Cl.⁶ G03F 7/11; B05D 3/02; 1/38; G03C 1/825

U.S. Cl. 430—271.1

7 Claims

1. A method of coating a lithographic substrate with a film forming composition comprising the imide reaction product of at least one aminoaromatic chromophore with a polymer comprising an anhydride, said method comprising the steps of:

forming a precursor composition by forming a solution comprising said polymer and said aminoaromatic compound and a solvent selected from the group consisting of cyclopentanone, cyclohexanone, γ-butyrolactone and mixtures thereof; filtering said precursor composition to obtain a filtrate solution; and

directly applying the filtrate solution to a lithographic substrate and heating said substrate whereby said imide reaction product is formed in situ on said substrate.

5,800,964

PHOTORESIST COMPOSITION

Mitsuru Sato, Yokohama; Kazuyuki Nitta, Koza-gun; Hideo Hada, Hiratsuka; Tatsuya Hashiguchi, Chigasaki; Hiroshi Komano, Koza-gun, and Toshimasa Nakayama, Chigasaki, all of Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Japan

Filed Sep. 24, 1996, Ser. No. 717,779

Claims priority, application Japan, Sep. 29, 1995, 7-254215

Int. Cl.⁶ G03F 7/038; 7/039

U.S. Cl. 430—281.1

11 Claims

1. A photoresist composition which comprises, as a uniform blend:

(A) 100 parts by weight of a film-forming resinous compound which is, in the presence of an acid, subject to a change in the solubility in an alkaline solution; and

(B) from 0.1 to 30 parts by weight of an oxime sulfonate compound represented by the general formula



in which R¹ and R² are, each independently from the other, a non-aromatic monovalent group.

3. The photoresist composition as claimed in claim 1 in which the non-aromatic monovalent group is an adamantyl group.

4. The photoresist composition as claimed in claim 1 in which the non-aromatic monovalent group is selected from the group consisting of alkyl groups, cycloalkyl groups, alkenyl groups and cycloalkenyl groups.

10. The photoresist composition as claimed in claim 1 in which the amount of the component (B) is in the range from 1 to 20 parts by weight per 100 parts by weight of the component (A).

5,800,965

PHOTOPOLYMERIZABLE COMPOSITION FOR A PHOTOCURABLE LITHOGRAPHIC PRINTING PLATE AND PHOTOCURABLE LITHOGRAPHIC PRINTING PLATE EMPLOYING IT

Shigeo Tsuji, and Hideaki Okamoto, both of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Dec. 26, 1996, Ser. No. 772,569

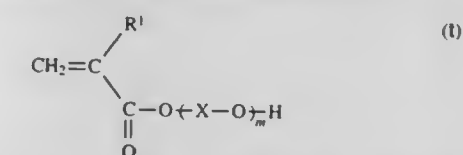
Claims priority, application Japan, Feb. 29, 1996, 8-043259; Apr. 24, 1996, 8-102476

Int. Cl.⁶ G03F 7/038

U.S. Cl. 430—287.1

16 Claims

1. A photopolymerizable composition for a photosensitive lithographic printing plate, comprising (A) addition-polymerizable ethylenically unsaturated bond-containing monomers, (B) a photopolymerization initiator system and (C) a polymer binder having carboxyl groups in its molecule, wherein the addition-polymerizable ethylenically unsaturated bond-containing monomers (A) contain a specific monomer which is a phosphoric acid ester compound (A-1) having at least one (meth)acryloyl group and/or a compound (A-2) of the following formula (1):



wherein R¹ is a hydrogen atom or a methyl group, X is a linear or branched C₁₋₆ alkylene group which is optionally substituted by halogen, and m is an integer of at least 2, and the polymer binder (C) having carboxyl groups in its molecule, is a compound having at least a part of the carboxyl groups reacted with an alicyclic epoxy group-containing unsaturated compound.

5,800,966

POSITIVE PHOTORESIST COMPOSITION

Yuji Ueda, Izumi; Naoki Takeyama, Settsu; Hiromi Ueki, Osaka, and Takehiro Kusumoto, Takarazuki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 9, 1993, Ser. No. 44,487

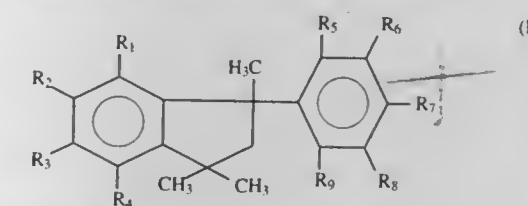
Claims priority, application Japan, Apr. 10, 1992, 4-090771; Jan. 18, 1993, 5-005793

Int. Cl.⁶ G03C 1/725

U.S. Cl. 430—283.1

13 Claims

1. A positive photoresist composition comprising an alkali-soluble resin, a dissolution inhibitor and a photo-induced acid precursor, wherein said alkali-soluble resin is obtainable through a condensation reaction of a phenol compound including a compound represented by the following general formula (1):



wherein R₁ to R₁₀ independently of one another each represent a hydrogen atom, a halogen atom, an optionally substituted straight chain or branched chain alkyl or alkenyl group, a —OH group or an optionally substituted alkylcarbonyl group, provided that at least one of R₁ to R₁₀ is —OH group and at least two hydrogen atoms are attached to the o- or p-position of the —OH group, and an aldehyde component.

5,800,967

METHOD FOR FABRICATING A PLANAR THIN FILM STRUCTURE

James Watterston, Sunnyvale, Calif., assignor to AIWA Research and Development, Inc., Fremont, Calif.

Continuation of Ser. No. 349,712, Dec. 5, 1994, abandoned.

This application Aug. 18, 1997, Ser. No. 914,198

Int. Cl.⁶ G03F 7/26

U.S. Cl. 430—312

41 Claims

1. A method of fabricating a substantially planar thin film structure comprising the steps of:

forming a first thin film member on a substrate, the thin film member including a substantially planar upper surface and exhibiting a height;

determining the height of the first thin film member;

covering the substrate and the first thin film member with a first photoimageable layer thus forming an asperity in the first photoimageable layer above the first thin film member, a photoimageable field portion being formed by the remainder of the first photoimageable layer, the photoimageable field portion exhibiting a height approximately equal to the height of the first thin film member;

removing the asperity by photoimaging such that the first thin film member is substantially planar with respect to the photoimageable field portion; and

applying a second photoimageable layer atop the substantially planar first thin film member and photoimageable field portion to form a substantially planar second photoimageable layer.

5,800,968

METHOD FOR HEAT DEVELOPING PHOTOSENSITIVE MATERIAL AND APPARATUS THEREFOR

Koji Furukawa, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

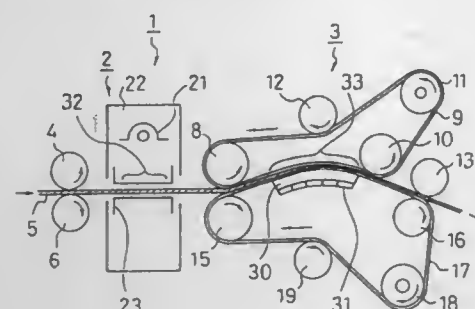
Filed Oct. 9, 1996, Ser. No. 728,075

Claims priority, application Japan, Oct. 9, 1995, 7-261624

Int. Cl.⁶ G03C 5/16

U.S. Cl. 430—350

2 Claims



1. A method for image exposing and heat developing a photosensitive material to form a hardened image, the photosensitive material comprising a support having provided thereon a silver halide, a reducing agent, a base precursor, and at least one of a polymerizable compound and a crosslinkable polymer in at least one layer, the base precursor being decarboxylated by heating to release a base, in which the heat development comprises the steps of:

(1) heating the surface of the photosensitive material at a first predetermined temperature at which decarboxylation and release of the base by decomposition of the base precursor proceed, the surface being exposed to an atmosphere in a non-contact state to liberate carbonic acid gas, and

(2) contact heating the photosensitive material in a contact state at a second predetermined temperature which a hardening reaction proceeds at and is higher than the first temperature.

5,800,969

METHOD OF PROCESSING A LIGHT-SENSITIVE SILVER HALIDE MATERIAL

Hubert Vandenaabee, and Hendrik Lambrecht, both of Mortsel, Belgium, assignors to AGFA-Gevaert, N.V., Mortsel, Belgium

Filed May 5, 1997, Ser. No. 841,806

Claims priority, application European Pat. Off., May 8, 1996, 96201260

Int. Cl.⁶ G03C 5/38

U.S. Cl. 430—401

10 Claims

1. Method of processing an image-wise exposed light-sensitive silver halide material by the steps of developing, fixing in a fixer solution containing less than 4 g per liter of aluminum ions expressed as an equivalent amount of aluminum sulphate, rinsing and drying, characterized in that said material comprises a support and on one or both sides thereof at least one light-sensitive silver halide emulsion layer and a gelatinous protective antistress layer, wherein said antistress layer comprises at least one polymer latex in such an amount that there is a ratio by weight of latex to gelatin from 0.5 to 1.5 and wherein said material is hardened to such an extent that its swelling degree after immersing said material for 3 minutes in demineralized water at 25° C. is not more than 300% and said material has enhanced surface glare characteristics.

5,800,970

FLAW-MENDING AGENT FOR PHOTOGRAPHS AND METHOD FOR MENDING FLAWS

Yutaka Tamura, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 15, 1997, Ser. No. 843,337

Claims priority, application Japan, Apr. 17, 1996, 8-095476

Int. Cl.⁶ G03C 11/06

U.S. Cl. 430—432

9 Claims

1. A method for mending flaws on photographs, comprising the steps of:

applying a flaw-mending agent for silver halide photographic light-sensitive materials on a back surface of a negative film or a positive film after being subjected to development treatment, wherein the flaw-mending agent comprises a liquid having a refractive index in the range of 1.5 to 1.8, and a viscosity in the range of 0.1 cP to 100 cP,

printing the negative film or the positive film by a printer, and wiping away the flaw-mending agent.

5,800,971

PHOTOGRAPHIC ELEMENT CONTAINING CODISPERSIONS OF YELLOW METHINE FILTER OR DENSITY CORRECTION DYES AND REDUCING AGENTS

Paul Leo Zengerle, Rochester, and Paul Barrett Merkel, Victor, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

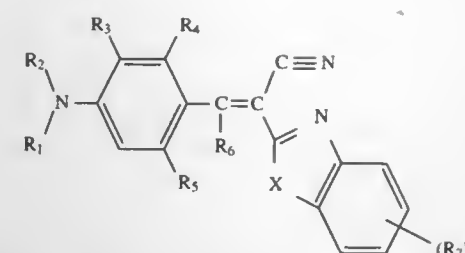
Filed Jan. 5, 1996, Ser. No. 583,394

Int. Cl.⁶ G03C 1/46

U.S. Cl. 430—504

26 Claims

1. A multilayer color negative photographic film element comprising a support, at least one light-sensitive silver halide emulsion layer sensitive to each of the blue, green and red regions of the visible spectrum, one or more yellow or orange-yellow cyano benzoxazolyl or cyano benzothiazolyl arylidene methine filter or density correction dyes of structure I, below, codispersed with one or more hydroquinone, catechol or sulfonamidophenol reducing agents,



wherein:

R₁ is hydrogen or an alkyl group;R₂ is an alkyl group or an aryl group;R₃ is hydrogen, a halogen, an alkyl group, an alkoxy group or an aryloxy group;R₄ is hydrogen or an alkyl group;R₅ is hydrogen or an alkyl group;R₆ is hydrogen or an alkyl group;

X is oxygen or sulfur;

each R₇ is independently selected from the group consisting of a halogen, an alkyl, aryl, alkoxy, aryloxy, carbonamido, sulfonamido, carbamoyl, alkoxycarbonyl, aryloxy carbonyl, acyloxy, acyl, sulfamoyl, sulfonyl, sulfoxyl, sulfonyloxy, alkylthio, arylthio, and cyano groups;

n is 0, 1, 2 or 3; and

provided that R₁ and R₂ or R₂ and R₃ may join to form a ring.

5,800,972

FINE COMPOSITE POLYMER PARTICLES AND IMAGE RECORDING MATERIAL BY USE THEREOF

Chiaki Kotani; Kiyokazu Morita; Eichi Ueda, and Yasuo Kurachi, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Oct. 25, 1996, Ser. No. 738,310

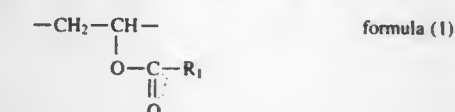
Claims priority, application Japan, Oct. 31, 1995, 7-283354

Int. Cl.⁶ G03C 1/76

U.S. Cl. 430—531

15 Claims

1. An image recording material comprising composite polymer particles which comprise inorganic particles and a hydrophobic polymer compound containing a repeating unit represented by the following formula (1) and said inorganic particles being contained, in said composite polymer particles, in an amount of 30 to 1000% by weight, based on the hydrophobic polymer compound:

wherein R₁ is a substituent.

5,800,973

BACKING LAYERS FOR IMAGING ELEMENTS CONTAINING HARD FILLER PARTICLES AND CROSSLINKED, ELASTOMERIC MATTE BEADS

Charles C. Anderson, Penfield; Andy H. Tsou, Pittsford, and Paul E. Woodgate, Spencerport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 28, 1997, Ser. No. 847,634

Int. Cl.⁶ G03C 1/93; 1/81; 1/76; 1/106

U.S. Cl. 430—537

11 Claims

1. An imaging element comprising a support, an image forming layer superposed on a front side of the support and a backing layer superposed on a backside of the support comprising a film forming polymeric binder, hard filler particles in an amount of from 10 to 80 volume percent of said backing layer wherein the hard filler particles are selected from the group consisting of inorganic conductive fine particles, ionically-conductive sols silicas, clays, mica,

and non-film-forming polymer particles, and crosslinked elastomeric matte beads having a glass transition temperature of 10° C. or less.

5,800,974

SILVER HALIDE IMAGING MATERIALS

Julian Wallis, Pinnacles; Kevin P. Hall, Leaden Roding; Stephen Newman, Bishop's Stortford, and Dian Elizabeth Stevenson, Pinnacles, all of Great Britain, assignors to Imation Corp., Oakdale, Minn.

Filed Sep. 8, 1992, Ser. No. 941,566

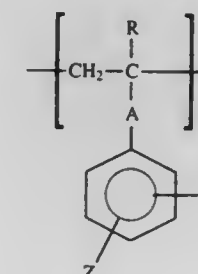
Claims priority, application United Kingdom, Sep. 12, 1991, 9119518

Int. Cl.⁶ G03E 1/42

U.S. Cl. 430—566

6 Claims

1. A black and white photographic element comprising as a photosensitive medium a layer of a silver halide emulsion characterized in that the photosensitive medium comprises in the same layer or in an adjacent layer thereto, a developer comprising a sufficient amount of a substantially non-diffusing polymeric compound to be developed in an activator solution comprising as a repeating unit thereof a structure having a nucleus represented by:



wherein:

A is a member selected from the group consisting of a bond or a divalent linking group,

R is a member selected from the group consisting of hydrogen, an alkyl group comprising up to 5 carbon atoms and a halogen atom,

Z is each independently a member selected from the group consisting of —OH and a group which leaves an —OH residue when contacted with an alkali (pH≥10) at temperatures of ≤50° C., wherein the groups represented by Z are in the ortho- or para-substitution patterns.

5,800,975

SILVER HALIDE PHOTOGRAPHIC LIGHT SENSITIVE MATERIAL

Tetsuya Suzuki, Hino, Japan, assignor to Konica Corporation, Tokyo, Japan

Filed Dec. 11, 1995, Ser. No. 570,488

Claims priority, application Japan, Dec. 14, 1994, 6-310762

Int. Cl.⁶ G03C 1/09; 1/035

U.S. Cl. 430—567

8 Claims

1. A silver halide black and white photographic light sensitive material comprising a support having thereon a silver halide emulsion layer containing silver halide grains, which are tabular grains having two parallel major faces comprised of {100} faces and an average silver chloride content of 50 mol % or more and have been selenium-sensitized in the presence of a purine compound; said silver halide grains further containing silver iodide and a variation coefficient of a silver iodide content of the grains being 30% or less.

5,800,976

RADIOGRAPHIC ELEMENTS THAT SATISFY IMAGE AND TONE REQUIREMENTS WITH MINIMAL SILVER
Robert E. Dickerson, Hamlin; Anthony Adin, Rochester, and Marcia K. Hansen, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 801,767, Feb. 18, 1997, abandoned. This application May 28, 1997, Ser. No. 864,421
Int. Cl.⁶ G03C 1/04; 5/16

U.S. Cl. 430—567 12 Claims

- I. A radiographic element comprised of a blue tinted film support having first and second major surfaces and, coated on each of the major surfaces of the support, at least one layer containing a tabular grain emulsion including a gelatino-vehicle and spectrally sensitized silver halide grains containing greater than 50 mole percent bromide and less than 3 mole percent iodide, based on silver, wherein the properties of a maximum density of at least 3.0, an average contrast of at least 2.7, and a b* value more negative than -5.0 at a silver coating coverage on each major surface of the support of less than 12 mg/dm², are imparted by the support having a neutral density of at least 0.18, tabular grains accounting for at least 90 percent of total grain projected area having a mean thickness of 0.2 micrometer or less and a coefficient of variation of equivalent circular diameter less than 20 percent,
- a covering power enhancing compound containing at least one divalent sulfur atom adsorbed to surfaces of the silver halide grains,
- a water soluble polymer chosen from the class consisting of polyacrylamide and dextran, in a weight ratio of the polymer to the gelatino-vehicle of at least 0.1:1, and
- hardening of the gelatino-vehicle being chosen to allow a weight gain of greater than 200 percent, based on the total weight of gelatino-vehicle, after the following process cycle:

development	24 seconds at 40° C.
fixing	20 seconds at 40° C.,
washing	10 seconds at 40° C.,

when the developer exhibits the composition:

hydroquinone	30 g
4-hydroxymethyl-4-methyl-1-phenyl-3-pyrazolidinone	1.5 g
KOH	21 g
NaHCO ₃	7.5 g
K ₂ SO ₃	44.2 g
Na ₂ S ₂ O ₄	12.6 g
5-methylbenzotriazole	0.06 g
glutaraldehyde	4.9 g
water to 1 liter (pH = 10)	

while allowing subsequent drying at 65° C. within 20 seconds.

5,800,977

HARDENING A HYDROPHILIC COLLOID COMPOSITION

Jeffrey Facer Taylor, Fairport; Hwei-Ling Yau, Rochester; Elmer Charles Flood, Canandaigua; Lan Bach Thai, Penfield, and Susan A Visser, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 24, 1996, Ser. No. 686,082

Int. Cl.⁶ G03C 1/30

U.S. Cl. 430—621

25 Claims

- I. A composition comprising gelatin, a vinyl-sulfone hardener and a borate compound in an amount to accelerate the rate of hardening.

5,800,978

METHOD OF FREEZING CELLS AND CELL-LIKE MATERIALS

Raymond P. Goodrich, Jr., Pasadena; Samuel O. S. Coker, South Pasadena; Francoise Arnaud, and Roger W. Hackett, both of Pasadena, all of Calif., assignors to COBE Laboratories, Inc., Lakewood, Colo.

Division of Ser. No. 260,165, Jun. 15, 1994, which is a continuation of Ser. No. 824,116, Jan. 21, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 475,835

Int. Cl.⁶ A01N 1/02; C12N 5/00; G01N 31/00

U.S. Cl. 435—2

22 Claims

- I. A frozen composition prepared by a process comprising the steps of:
- freezing an aqueous mixture comprising a plurality of cells, cell membranes or cell-like materials with a cryoprotective component;
- wherein said aqueous mixture is characterized by a glass transition temperature of above about -60° C. upon freezing;
- said cryoprotective component containing a saccharide capable of permeating and stabilizing said cells, membranes or cell-like materials;
- a second water-soluble compound impermeable to said cells, membranes or cell-like materials, the amount of said second compound in said mixture being in a weight fraction sufficient to overcome the predicted depression in said glass transition temperature of said mixture due to said first compound; and
- wherein said freezing is performed by lowering the temperature of said mixture to a temperature at or below said glass transition temperature of said mixture and above the glass transition temperature of water, to form a frozen mixture.

5,800,979

GAS CHROMATOGRAPHY/MASS SPECTROMETRIC DETERMINATION OF FOLIC ACID COENZYMES

J. Fred Kolhouse, 480 S. York St., Denver, Colo. 80209; John C. Deutsch, 2508 E. 11th Ave. #504, Denver, Colo. 80206, and C. R. Santhosh-Kumar, 12457 W. Arkansas Ave., Lakewood, Colo. 80228

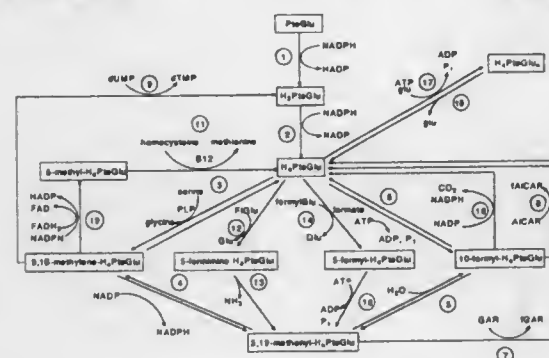
Continuation of Ser. No. 347,855, Dec. 1, 1994, abandoned.

This application Mar. 20, 1996, Ser. No. 619,091

Int. Cl.⁶ C12Q 1/00; 1/32

U.S. Cl. 435—4

6 Claims



1. A method for determination of concentration in a body fluid of at least one member of an endogenous folate co-enzyme pool selected from the group consisting of:

- (1) pool I consisting essentially of tetrahydrofolate, dihydrofolate and 5,10-methylenetetrahydrofolate;
- (2) pool II consisting essentially of 5-methyltetrahydrofolate; and
- (3) pool III consisting essentially of 3-formyltetrahydrofolate, 10-formyltetrahydrofolate, 5,10-methylenetetrahydrofolate, and 5-formiminotetrahydrofolate,

said method comprising the steps of:

- (a) combining a known amount of at least one internal standard folate co-enzyme which is a non-radioactively-labeled stable isotope of a member of the selected folate co-enzyme pool

5,800,981

HUMAN CYTOMEGALOVIRUS ANTIGEN AND ITS USE
Catharina A. Bruggeman; Cornelis Vink, both of AZ Maas-tricht, Netherlands; Albert Ramon, Limberg, Belgium, and Frans Stals, CV Roermond, Netherlands, assignors to University of Limburg, Maastricht, Netherlands

Filed Feb. 22, 1996, Ser. No. 605,541

Int. Cl.⁶ C12Q 1/70; C12P 19/34; A61K 39/12; C07K 1/00
U.S. Cl. 435—5 7 Claims

- I. An antigen comprising, the amino acid sequence from amino acid residue number 41 to residue number 631 of SEQ ID NO: 12 and characterized by an ability to bind HCMV-specific antibodies with a 2- to 3-fold increased affinity relative to an HCMV protein selected from the group consisting of UL80, UL83, and UL32.

5,800,982

ANTIGENIC PEPTIDES FOR GROWING HEPATITIS C VIRUS, KIT COMPRISING THE SAME AND METHODS FOR ITS GROUPING USING THE SAME

Akira Hasegawa, Sakado; Noboru Maki; Shintaro Yagi, both of Iruma-gun; Tomiko Kashiwakuma, Tokyo; Kenjiro Yamaguchi, Iruma; Naoko Ikeguchi, Higashi-Kurume; Tomoko Kobayashi, Kami-Fukuoka, and Chiaki Senoo, Iruma-gun, all of Japan, assignors to Tonen Corporation, Tokyo, Japan

Continuation of Ser. No. 92,192, Jul. 15, 1993, abandoned.

This application Jul. 24, 1996, Ser. No. 685,764

Claims priority, application Japan, Jul. 16, 1992, 4-212061; Oct. 30, 1992, 4-316634; Oct. 30, 1992, 4-316635; Apr. 30, 1993, 5-104754

Int. Cl.⁶ C12Q 1/70; C07K 14/18; A61K 39/29
U.S. Cl. 435—5 8 Claims

- I. An antigenic peptide having an amino acid sequence shown in SEQ ID NO:3 or SEQ ID NO:4 and capable of reacting specifically with antibodies directed against Group II of hepatitis C virus.

5,800,983

PEPTIDES FOR HIV-1 DETECTION

Dominique P. Bridon, Morton Grove; Isaac S.-Y. Sze, deceased, late of Gurnee, by Carolina Luiz, Loch-Hung Leo Sze, Leah Samantha Sze, heirs; David J. Dagfal, Aurora, all of Ill.; Keeve D. Jaffe, Trevor, Wis., and Tracey L. Colpitts, Round Lake, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 472,597, Jun. 7, 1995, abandoned.

This application Apr. 22, 1997, Ser. No. 837,732

Int. Cl.⁶ C12Q 1/70

U.S. Cl. 435—5 21 Claims

13. An immunoassay to detect the presence of HIV antibodies in a test sample, comprising:

- a) contacting said test sample with a solid phase to which has been attached an HIV-1 polypeptide having a point mutation between positions 593 and 611 to form a first mixture, and incubating said first mixture for a time and for conditions sufficient to form polypeptide/antibody complexes;
- b) contacting said polypeptide/antibody complexes with an indicator reagent comprising a member of a specific binding pair attached to a signal generating compound capable of generating a measureable signal to form a second mixture, and incubating said second mixture for a time and for conditions sufficient to form polypeptide/antibody/indicator reagent complexes; and
- c) determining the presence of HIV antibodies in said test sample by detecting the measureable signal.

- with said body fluid, wherein said internal standard folate coenzyme is recovered from harvested bacterial cells grown on a medium containing non-radioactively-labeled stable isotope paraaminobenzoic acid;
- (b) at least partially purifying the endogenous and internal standard folate coenzymes from other components in said body fluid in a partial purification step;
- (c) quantitating the endogenous folate co-enzymes in the purified body fluid of step (b) by gas chromatography/mass spectrometry analysis; and
- (d) determining the concentration of the selected endogenous folate coenzyme pool by correcting the concentrations of endogenous folate coenzymes quantitated in step (c) for endogenous losses as reflected by losses in the known amount of internal standard folate co-enzyme of step (a).

5,800,980

DETECTION OF MSRV1 VIRUS AND MSRV2 PATHOGEN AND/OR INFECTIVE AGENT ASSOCIATED WITH MULTIPLE SCLEROSIS, BY NUCLEIC ACID HYBRIDIZATION

Herve Perron, Grenoble; Francois Mallet; Bernard Mandrand, both of Villeurbanne; Frederic Bedin, Lyons, and Frederic Beseme, Villefontaine, all of France, assignors to Bio Merieux, Marcy L'Etoile, France

Division of Ser. No. 384,137, Feb. 6, 1995. This application Jun. 6, 1995, Ser. No. 471,724

Claims priority, application France, Feb. 4, 1999, 94 01529; Feb. 4, 1994, 94 01530; Feb. 4, 1994, 94 01531; Feb. 4, 1994, 94 01532; Nov. 24, 1994, 94 14322; Dec. 23, 1994, 94 15810

Int. Cl.⁶ C12Q 1/70; 1/68; C07H 21/02; 21/04

U.S. Cl. 435—5

23 Claims

- I. A method for distinguishing, in a biological sample, a viral material, said method comprising contacting at least one nucleic acid from said biological sample, or at least one complementary nucleic acid complementary to said at least one nucleic acid, with at least one probe which hybridizes with a nucleic acid of said viral material, said probe comprising a first nucleotide sequence selected from the group consisting of

- (i) SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33,
- (ii) a first complementary sequence fully complementary to one of said SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:20 through SEQ ID NO:26 or SEQ ID NO:31 through SEQ ID NO:33, and
- (iii) a first homologous sequence sufficiently homologous with at least one first segment of at least 6 contiguous monomers of said SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20 through SEQ ID NO:26, SEQ ID NO:31 through SEQ ID NO:33, or said first complementary sequence, to hybridize to a nucleic acid sequence of MSRV-1 and not hybridize to a nucleic acid sequence of HSERV9; and
- distinguishing in said biological sample any said viral material having a sequence hybridized to said at least one probe.

5,800,984

NUCLEIC ACID SEQUENCE DETECTION BY TRIPLE HELIX FORMATION AT PRIMER SITE IN AMPLIFICATION REACTIONS

Calvin P. H. Vary, Windham, Me., assignor to Idexx Laboratories, Inc., Westbrook, Me.

Continuation of Ser. No. 922, Jan. 6, 1993, abandoned, which is a continuation of Ser. No. 629,601, Dec. 17, 1990, abandoned. This application Aug. 23, 1994, Ser. No. 294,424 Int. Cl.⁶ C12Q 1/68; 1/70; C12P 19/34; C07H 21/04

U.S. Cl. 435—6 60 Claims

1. A method of determining whether a sample contains a target nucleic acid, said method comprising the steps of:

- (a) amplifying said target nucleic acid in vitro, by performing cycles of denaturation and replication using at least one nucleic acid reagent, to yield an amplified population of product duplexes comprising nucleotide sequence from said target nucleic acid, said product duplexes comprising a triple helix-forming sequence of nucleotide base pairs, and,
- (b) thereafter, while at least some of the nucleic acid reagent used in the amplifying step remains mixed with said amplified population, combining said population with a single-stranded nucleic acid probe (third strand) under conditions to allow specific binding of said probe to said product duplexes to form said triple helix, in that the nucleic acid reagents do not specifically bind to said product duplexes, said probe being characterized in that:
 - i. the probe comprises a sequence of nucleotides which is long enough to form a triple helix by specifically binding to said triple helix-forming sequence of said product duplexes at a site that at least partially overlaps with a site corresponding to the sequence of said nucleic acid reagent, and,
 - ii. components of the probe in addition to said nucleotide sequence, if any, allow said nucleotide sequence to form a triple helix with said product duplexes under said conditions; and
- (c) detecting the presence of said triple helix directly as indicative of the presence of said target nucleic acid in said sample.

5,800,985

OLIGONUCLEOTIDE SIGNALLING CONJUGATE

Andrew John Garman, Ashton, England, assignor to Zeneca Limited, London, England

Continuation of Ser. No. 596,302, Oct. 15, 1990, abandoned. This application Sep. 22, 1994, Ser. No. 310,057

Claims priority, application United Kingdom, Oct. 13, 1989, 8923089; Nov. 3, 1989, 8924822

Int. Cl.⁶ C12Q 1/68; C07H 21/00; 21/02; 21/04

U.S. Cl. 435—6 12 Claims

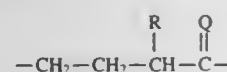
1. A conjugate of the formula



wherein

L is a non-isotopic label or marker

NA is a nucleic acid of predetermined sequence,

R₁ and R₃ are hydrocarbon linkers wherein R₁ comprises a haloacetamidyl, maleimido or N-hydroxysuccinimido ester group,R₄ is hydrogen or C₁₋₆ alkyl, and R₂ iswherein R is hydrogen, —NH₂ or —NH—CO—CH₃, and Q is oxygen or NH₂+

9. A nucleic acid hybridization assay comprising hybridizing the conjugate of claim 1 as a hybridization probe with a nucleic acid sample under hybridization conditions.

5,800,986

ASSAY METHODS FOR TAT CELL LINES

William Alan Haseltine, Cambridge; Craig A. Rosen, Brookline; Joseph Gerald Sodroski, Cambridge, and Wel Chun Goh, Somerville, all of Mass., assignors to Dana Farber Cancer Institute, Boston, Mass.

Division of Ser. No. 213,368, Mar. 14, 1994, abandoned, which is a continuation of Ser. No. 869,053, Apr. 14, 1992, abandoned, which is a continuation of Ser. No. 604,607, Oct. 26, 1990, abandoned, which is a division of Ser. No. 806,263, Dec. 6, 1985, Pat. No. 4,981,790, which is a continuation-in-part of Ser. No. 614,297, May 25, 1984, Pat. No. 4,738,922. This application Jun. 1, 1995, Ser. No. 456,346

Claims priority, application Canada, May 24, 1985, 432374; WIPO, May 24, 1985, US85/00985

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

8 Claims

8. A method of screening for a compound that specifically affects tat transactivation of an HIV-1 long terminal repeat (LTR) comprising:

- (a) transfecting a cell line transfected by a vector encoding a tat gene, but not the entire HIV-1 genome, with a vector containing a gene that expresses a selectable marker whose expression is under the control of the HIV-1 LTR;
- (b) transfecting a second cell line transfected by a vector encoding a tat gene, but not the entire HIV-1 genome, with a vector containing a gene that expresses a selectable marker whose expression is under the control of a regulatory sequence different from the HIV-1 LTR;
- (c) determining the level of expression of the selectable marker in the cell lines resulting from step (a) and step (b);
- (d) adding the compound to the cell lines in increasing concentrations; and
- (e) measuring the expression of the selectable marker in the cell lines after adding the compound at each concentration in step (d) to determine whether the compound affects tat transactivation of the HIV-1 LTR as measured by its ability to affect the expression of the selectable marker under control of the HIV-1 LTR as compared to the expression of the selectable marker under control of the regulatory sequence different from the HIV-1 LTR.

5,800,987

ASSAY METHODS USING DNA ENCODING MAMMALIAN PHOSPHODIESTERASES

Joseph A. Beavo; J. Kelley Bentley, both of Seattle, Wash.; Harry Charbonneau, W. Lafayette, Ind., and William K. Sonnenburg, Mountlake Terrace, Wash., assignors to The Board of Regents of The University of Washington, Seattle, Wash.

Division of Ser. No. 297,494, Aug. 29, 1994, Pat. No. 5,580,771, which is a division of Ser. No. 872,644, Apr. 20, 1992, Pat. No. 5,389,527, which is a continuation-in-part of Ser. No. 688,356, Apr. 19, 1991, abandoned. This application May 31, 1995, Ser. No. 455,525

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

4 Claims

1. An assay method for identifying a chemical agent which modifies the enzymatic activity of a mammalian Ca²⁺/calmodulin sensitive cyclic nucleotide phosphodiesterase said method comprising:

- (a) stably transforming, with a polynucleotide sequence encoding a mammalian Ca²⁺/calmodulin stimulated phosphodiesterase selected from the group consisting of a polypeptide as set forth in SEQ ID NOs: 6, 17, 27, 49, 51, and 53, a eucaryotic host cell having a heat-shock sensitivity phenotypic character susceptible to alteration, such that upon expression of said polynucleotide sequence said cell exhibits an altered heat-shock phenotype;
- (b) growing the transformed host cell formed in step (a) in a nutrient medium under conditions allowing expression of said

polynucleotide sequence in said transformed host cell accompanied by the corresponding alteration in the transformed host cell phenotype;

- (c) contacting the transformed host cells grown according to step (b) with a chemical agent to be assayed; and
- (d) determining if the chemical agent of step (c) modifies the enzymatic activity of the enzyme of step (a) by determining if the altered heat-shock phenotype of the cells of step (c) has been modified.

5,800,988

IMMUNOGLOBULINS DEVOID OF LIGHT CHAINS
Cecile Casterman, and Raymond Hamers, both of Sint-Genesius-Rode, Belgium, assignors to Vrije Universiteit Brussel, Brussels, Belgium

Division of Ser. No. 106,944, Aug. 17, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 467,282

Claims priority, application European Pat. Off., Aug. 21, 1992, 92402326; May 21, 1993, 93401310

Int. Cl.⁶ C12N 7/01; 15/63; C07H 21/04

U.S. Cl. 435—69.6

6 Claims

1. A cDNA library comprising nucleotide sequences coding for a heavy-chain immunoglobulin comprising two heavy polypeptide chains, each heavy chain consisting of a complete antigen binding site, said immunoglobulin containing a variable (V_{HH}) region and a constant region, said constant region being devoid of first constant domain C_{H1}, wherein said immunoglobulin is devoid of polypeptide light chains, obtained by performing the following steps:

- (a) obtaining B lymphocytes from a biological sample containing lymphoid cells, wherein said biological sample is obtained from a Camelid;
- (b) separating polyadenylated RNA from other nucleic acids and components of the B lymphocytes;
- (c) reacting the obtained RNA with a reverse transcriptase in order to obtain the corresponding cDNA;
- (d) contacting the obtained cDNA with 5' primers corresponding to mouse V_H domain of four-chain immunoglobulins, which primer contains a determined restriction site, and with 3' primers corresponding to the N-terminal part of a C_{H2} domain;
- (e) amplifying the DNA;
- (f) cloning the amplified DNA in a vector; and
- (g) recovering the clones hybridizing with a probe corresponding to the sequence coding for a constant domain of an isolated heavy-chain immunoglobulin.

5,800,989

METHOD FOR DETECTION OF NUCLEIC ACID TARGETS BY AMPLIFICATION AND FLUORESCENCE POLARIZATION

Carl Preston Linn, Durham; G. Terrance Walker, Chapel Hill, and Patricia Anne Spears, Raleigh, all of N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Nov. 15, 1995, Ser. No. 559,010

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

20 Claims

1. A method for detecting amplification of a nucleic acid target sequence comprising:

- (a) amplifying the target sequence in an amplification reaction at about 45°–75° C., the amplification reaction comprising a strand displacing polymerase and a fluorescently-labeled single-stranded signal primer which hybridizes to a first strand of the target sequence downstream of a first amplification primer, thereby producing a signal primer extension product which is displaced from the first strand of the target sequence by extension of the first amplification primer;
- (b) hybridizing a second amplification primer to the displaced signal primer extension product and extending the second amplification primer, thereby producing a fluorescently-labeled double-stranded secondary amplification product; and
- (c) detecting production of the double-stranded secondary amplification product by fluorescence polarization in the presence

of a sequence-nonspecific double-stranded DNA binding protein as an indication of target sequence amplification.

5,800,990

ANGIOTENSIN-CONVERTING ENZYME GENETIC VARIANT SCREENS

Mary V. Reynolds, Englewood, and M. Benjamin Perryman, Denver, both of Colo., assignors to Regents of the University of Colorado, Boulder, Colo.

Filed Dec. 6, 1995, Ser. No. 568,271

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

8 Claims

1. A method of detecting small deletions, insertions, or point mutations in an angiotensin-converting enzyme gene of a human patient which is used to assess the patient's risk for developing cardiovascular disease, comprising the steps of:

- (a) isolating an angiotensin-converting enzyme genomic DNA sequence from the patient, wherein the sequence region of the angiotensin-converting enzyme gene is a base pair region spanning intron 25 using oligonucleotide primers in the 3' region of exon 25 and the 5' region of exon 26;
- (b) hybridizing the angiotensin-converting enzyme genomic DNA sequence from the patient with a detectable probe specific for a sequence region of the angiotensin-converting enzyme gene from a person with no mutations in the region; and
- (c) detecting mismatches between the genomic DNA sequence and the probe, wherein mismatches are an indication of small deletions, insertions, or point mutations in the angiotensin-converting enzyme gene of the patient.

5,800,991

NUCLEOTIDE OR NUCLEOSIDE PHOTOAFFINITY COMPOUND MODIFIED ANTIBODIES, METHODS FOR THEIR MANUFACTURE AND USE THEREOF AS DIAGNOSTICS AND THERAPEUTICS

Boyd E. Haley, Nicholasville; Heinz Kohler, Lexington; Krishnan Rajagopalan, Lexington, and Gabriela Pavlinkova, Lexington, all of Ky., assignors to University of Kentucky Research Foundation, Lexington, Ky.

Continuation-in-part of Ser. No. 208,822, Mar. 11, 1994, Pat. No. 5,596,081. This application Jul. 23, 1996, Ser. No. 681,432

Int. Cl.⁶ G01N 33/53; C07K 16/00; C12P 21/00; C12Q 1/68

U.S. Cl. 435—6

15 Claims

8. An immunoconjugate which comprises an antibody conjugated or complexed to one or more moieties having cytotoxic or therapeutic activity wherein the improvement comprises the site-specific attachment of said cytotoxic or therapeutic moieties to a nucleotide photoaffinity compound which has been site-specifically inserted at one or more nucleotide binding sites in the antibody.

5,800,992

METHOD OF DETECTING NUCLEIC ACIDS

Stephen P.A. Fodor, 3863 Nathan Way, Palo Alto, Calif. 94303; Dennis W. Solas, 50 Gardenside Dr., #13, San Francisco, Calif. 94131, and William J. Dower, 761 Partridge Ave., Menlo Park, Calif. 94025

Division of Ser. No. 168,904, Dec. 15, 1993, abandoned, which is a continuation of Ser. No. 624,114, Dec. 6, 1990, abandoned, which is a continuation-in-part of Ser. No. 362,901, Jun. 7, 1989, abandoned, and Ser. No. 492,462, Mar. 7, 1990, Pat. No. 5,143,854. This application Jun. 25, 1996, Ser. No. 670,118

Int. Cl.⁶ C12Q 1/68; C07H 21/02; 21/04

U.S. Cl. 435—6

5 Claims

1. A method for detecting nucleic acid sequences in two or more collections of nucleic acid molecules, the method comprising:

- (a) providing an array of polynucleotides bound to a solid surface, each said polynucleotide comprising a determinable nucleic acid;
- (b) contacting the array of polynucleotides with:
- a first collection of labelled nucleic acid comprising a sequence substantially complementary to a nucleic acid of said array, and
 - at least a second collection of labelled nucleic acid comprising a sequence substantially complementary to a nucleic acid of said array;
- wherein the first and second labels are distinguishable from each other; and
- (c) detecting hybridization of the first and second labelled complementary nucleic acids to nucleic acids of said arrays.

5,800,993

DNA SEQUENCING APPARATUS AND METHOD FOR A SMALL FORMAT GEL WITH A MAGNIFIED READOUT
Suraj P. Bhat, Los Angeles, Calif., assignor to The Regents of the University of California, Oakland, Calif.

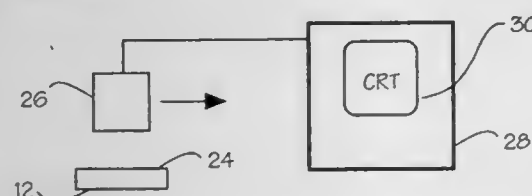
Continuation of Ser. No. 282,610, Jul. 29, 1994, abandoned.

This application Jul. 23, 1996, Ser. No. 685,777

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

21 Claims



1. An improvement in a method of DNA sequencing in a gel comprising the steps of:
- providing a minigel cassette characterized by having reduced length and width with the largest dimension thereof being less than approximately 20 cm;
 - preparing a DNA sequencing gel in said minigel cassette;
 - sequencing a sample of DNA fragments within said DNA sequencing gel in said minigel cassette without prewarming said DNA sequencing gel from room temperature, said step of sequencing being performed at a reduced voltage compared to voltage levels used in large cassettes with the smallest width or length dimension thereof being more than approximately 20 cm to obtain a sequence ladder resolution of a single base pair; and
 - producing an image of sequenced DNA fragment bands within said DNA sequencing gel;
- scanning said image with a CCD camera to produce a computer-magnifiable digital image to permit visual identification of said single base pair among said DNA bands without any loss of performance characteristics.

5,800,994

HYBRIDIZATION-LIGATION ASSAYS FOR THE DETECTION OF SPECIFIC NUCLEIC ACID SEQUENCES
Richard A. Martinelli, Brighton, and John C. Arruda, Attleboro, both of Mass., assignors to Chiron Diagnostics Corporation, East Walpole, Mass.

Continuation of Ser. No. 222,613, Apr. 4, 1994, abandoned.

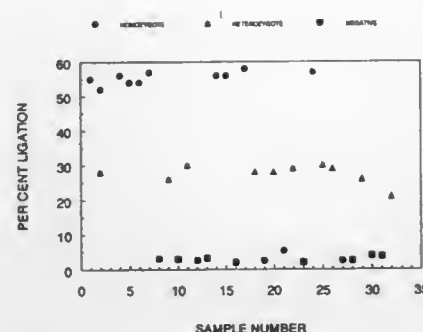
This application Jul. 24, 1996, Ser. No. 685,793

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

47 Claims

1. A method for identifying a target polynucleic acid sequence in a reaction mixture, by detecting whether or not a label is present comprising:
- selecting a first probe and a second probe, such that
 - they are each complementary to a sufficient portion of the target to permit the formation of a hybrid,



- the first probe is joined to a moiety which is a means for selectively separating the first probe from the reaction mixture,
 - the second probe is joined to a label or means for selectively attaching a label,
- mixing the probes with the target polynucleic acid in such a manner that the probes will hybridize under high stringency conditions specifically to the target polynucleic acid,
 - adding a ligating reagent,
 - denaturing the hybridized probes and target polynucleic acid in the reaction mixture so that the probes will be separated from the target polynucleic acid,
 - separating the first probe from the reaction mixture, utilizing the moiety that permits selective separation, and
 - analyzing the selectively separated first probe to determine if the label, or means for attaching a label, of the second probe is present, whereby the identification of the target polynucleotide sequence is made, by correlating the presence or absence of label or means for attaching the label on the second probe with the presence or absence of the target polynucleotide, and analyzing the supernatant remaining after separation of the first probe to determine the amount of label present therein and, further, to determine the percent of hybridized labeled probe which has been ligated to said first probe,
- wherein a step for separating the hybridized probes and target, utilizing the moiety that permits selective separation, must take place either (1) before ligating step c), (2) after ligating step c), or (3) both before and after ligating step c).

5,800,995

SEQUENCING NEAR INFRARED AND INFRARED FLUORESCENCE LABELED DNA FOR DETECTING USING LASER DIODES AND SUITABLE LABELS THEREFOR

Gabor Patonay, Stone Mountain, Ga.; Narasimhachari Narayanan, Lincoln, Nebr.; Lucjan Strekowski, Stone Mountain, Ga.; Lyle Richard Middendorf, Lincoln, Nebr., and Malgorzata Lipowska, Decatur, Ga., assignors to Li-Cor, Inc., Lincoln, Nebr.

Division of Ser. No. 204,627, Mar. 1, 1994, Pat. No. 5,571,388, which is a continuation-in-part of Ser. No. 950,734, Sep. 24, 1992, Pat. No. 5,346,603, which is a continuation of Ser. No. 799,712, Nov. 26, 1991, abandoned, which is a continuation of Ser. No. 632,605, Dec. 24, 1990, abandoned, which is a continuation of Ser. No. 78,279, Jul. 27, 1987, abandoned, which is a division of Ser. No. 594,676, Mar. 29, 1984, Pat. No. 4,729,947, said Ser. No. 204,627 is a continuation-in-part of Ser. No. 860,140, Mar. 20, 1992, Pat. No. 5,366,603, which is a division of Ser. No. 763,230, Sep. 20, 1991, Pat. No. 5,230,781, which is a continuation-in-part of Ser. No. 570,503, Aug. 21, 1990, Pat. No. 5,207,880, which is a continuation-in-part of Ser. No. 78,279, which is a division of Ser. No. 594,676. This application Aug. 30, 1996, Ser. No. 706,004

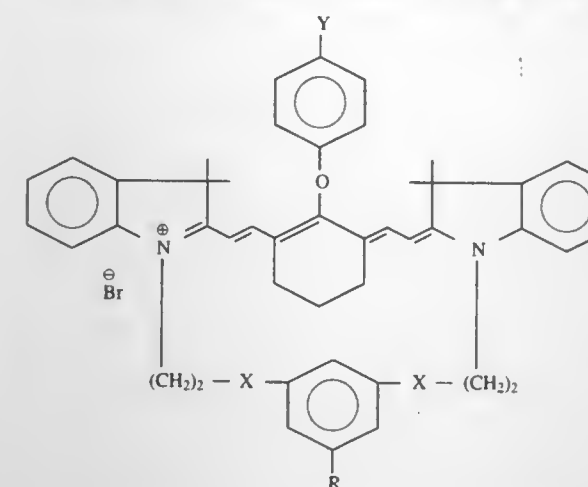
Int. Cl.⁶ C12Q 1/68; G01N 33/53

U.S. Cl. 435—6

5 Claims

1. A method of identifying strands of DNA comprising the steps of:

marking the strands with fluorescent labels that emit light in a region of wavelengths including at least one wavelength within the infrared and near infrared region wherein the fluorescent label includes a chromophore having the formula:



wherein X consists of one of O or NH, Y consists of one of NCS or H; and R consists of one of H, NCS, CH₂OH, CH₂NCS, COOH, irradiating the strands with light having a wavelength within one of the infrared and near infrared regions; and detecting the light emitted from the fluorescent labels.

5,800,996

ENERGY TRANSFER DYES WITH ENHANCED FLUORESCENCE

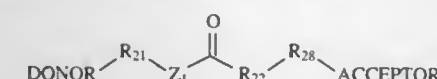
Linda G. Lee, Palo Alto; Sandra L. Spurgeon, San Mateo, and Barnett Rosenblum, San Jose, all of Calif., assignors to The Perkin Elmer Corporation, Foster City, Calif.

Continuation-in-part of Ser. No. 642,330, May 3, 1996, and Ser. No. 672,196, Jun. 27, 1996. This application Oct. 4, 1996, Ser. No. 726,462

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

1. An energy transfer dye having the structure

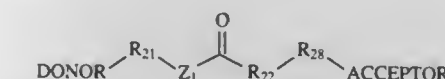


where

- DONOR is a dye capable of absorbing light at a first wavelength and emitting excitation energy in response;
- ACCEPTOR is dye which is capable of absorbing the excitation energy emitted by the donor dye and fluorescing at a second wavelength in response;
- C(O) is a carbonyl group;
- Z₁ is selected from the group consisting of NH, sulfur and oxygen;
- R₂₁ is a C₁₋₅ alkyl attached to the donor dye;
- R₂₂ is a substituent selected from the group consisting of an alkene, diene, alkyne, a five and six membered ring having at least one unsaturated bond or a fused ring structure which is attached to the carbonyl carbon; and
- R₂₈ includes a functional group which attaches the linker to the acceptor dye.
76. A method for sequencing a nucleic acid sequence comprising:
- forming a mixture of extended labeled primers by hybridizing a nucleic acid sequence with a fluorescently labeled oligonucleotide primer in the presence of deoxynucleoside triphosphates, at least one dideoxynucleoside triphosphate and a DNA polymerase, the DNA polymerase extending the primer

with the deoxynucleoside triphosphates until a dideoxynucleoside triphosphate is incorporated which terminates extension of the primer;

separating the mixture of extended primers; and determining the sequence of the nucleic acid sequence by fluorescently measuring the mixture of extended primers formed; the fluorescently labeled oligonucleotide primer including an oligonucleotide sequence complementary to a portion of the nucleic acid sequence being sequenced and having a 3' end extendable by a polymerase, and an energy transfer fluorescent dye attached to the oligonucleotide, the energy transfer fluorescent dye having the structure



where

- DONOR is a dye capable of absorbing light at a first wavelength and emitting excitation energy in response;
- ACCEPTOR is dye which is capable of absorbing the excitation energy emitted by the donor dye and fluorescing at a second wavelength in response;
- C(O) is a carbonyl group;
- Z₁ is selected from the group consisting of NH, sulfur and oxygen;
- R₂₁ is a C₁₋₅ alkyl attached to the donor dye;
- R₂₂ is a substituent selected from the group consisting of an alkene, diene, alkyne, a five and six membered ring having at least one unsaturated bond or a fused ring structure which is attached to the carbonyl carbon; and
- R₂₈ includes a functional group which attaches the linker to the acceptor dye.

5,800,997

DETECTION OF MAIZE FUNGAL PATHOGENS USING THE POLYMERASE CHAIN REACTION

James Joseph Beck, Cary, N.C., assignor to Novartis Finance Corporation, New York, N.Y.

Filed Nov. 1, 1996, Ser. No. 742,023

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

38 Claims

1. An Internal Transcribed Spacer sequence selected from the group consisting of ITS1 and ITS2 of *Helminthosporium carbonum*; ITS1 and ITS2 of *Helminthosporium turcicum*; ITS1 and ITS2 of *Helminthosporium maydis*; ITS1 and ITS2 of *Cercospora zea-maydis*; and ITS1 and ITS2 of *Kabatella zea*.

5,800,998

ASSAYS FOR DIAGNOSING TYPE II DIABETES IN A SUBJECT

M. Alexandra Glucksmann, Somerville, Mass., assignor to Millennium Pharmaceuticals, Inc., Cambridge, Mass.

Continuation-in-part of Ser. No. 748,229, Nov. 2, 1996, abandoned. This application Nov. 15, 1996, Ser. No. 749,431

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

6 Claims

1. A method for determining whether a human subject has or is at risk for developing type II diabetes comprising the step of:
- obtaining a sample from a subject, said sample comprising nucleic acid molecules containing a hepatic nuclear factor 1 (HNF-1) gene; and
 - detecting the presence or absence of a genetic mutation in the gene of said subject, wherein said genetic mutation comprises an alteration in the codon beginning at nucleotide 414 as shown in SEQ ID No 26, which results in a replacement of arginine by another amino acid and the presence of said genetic mutation identifies a subject that has or is at risk for developing type II diabetes.

5,801,999

DIOXETANE-PRECURSOR-LABELED PROBES AND DETECTION ASSAYS EMPLOYING THE SAME
Irena Bronstein, Newton; Brooks Edwards, Cambridge; Christopher Martin, Bedford, and John Voyta, Sudbury, all of Mass., assignors to Tropix, Inc., Bedford, Mass.

Filed Dec. 16, 1996, Ser. No. 767,479

Int. Cl.⁶ C12Q 1/68; C12N 15/11; C07H 21/00; 21/04
U.S. Cl. 435—6 11 Claims

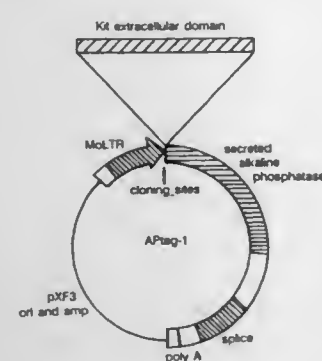
1. A labeled biological probe, comprising:
a first biological moiety selected from the group consisting of a nucleic acid, a peptide nucleic acid, a protein, a steroid and a carbohydrate, said biological moiety bearing a 1,2-dioxetane precursor bound thereto, such that, upon exposure to singlet oxygen, said precursor is converted to a 1,2-dioxetane moiety bound to said biological moiety which 1,2-dioxetane moiety subsequently decomposes to release light.
9. An assay method to detect the presence of a target in a sample, comprising:
combining the labeled probe of claim 1 with said sample under conditions which promote the formation of a single chemical entity in which said probe and any said target present in said sample are bound,
exposing said bound probe to singlet oxygen to form said 1,2-dioxetane moiety, and
detecting light emitted by said dioxetane upon decomposition thereof, wherein said light emitted is indicative of the presence and amount of said target.

5,801,000

DETECTION AND ISOLATION OF RECEPTORS
Philip Leder, Chestnut Hill, and John G. Flanagan, Brookline, both of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Continuation of Ser. No. 306,255, Sep. 14, 1994, Pat. No. 5,554,499, which is a continuation of Ser. No. 945,514, Sep. 16, 1992, abandoned, which is a division of Ser. No. 593,764, Oct. 5, 1990, abandoned. This application Feb. 29, 1996, Ser. No. 608,688

Int. Cl.⁶ G01N 33/535; 33/566
U.S. Cl. 435—7.2 5 Claims



1. A method of isolating, from a sample, a receptor which binds to a known polypeptide ligand, said method comprising providing a hybrid molecule comprising said polypeptide ligand covalently bonded to SEAP,
contacting said sample with said hybrid molecule to form an affinity complex between said receptor and said hybrid molecule, and
isolating said affinity complex using a molecule which binds SEAP.

5,801,001

METHOD OF DETECTING CANCER
Ruth Sager, Brookline, Mass.; Zhiqiang Zou, Gaithersburg, Md., and Anthony Anisowicz, West Newton, Mass., assignors to Dana-Farber Cancer Institute, Inc., Boston, Mass.
Division of Ser. No. 121,714, Sep. 1, 1993, Pat. No. 5,470,970, which is a continuation-in-part of Ser. No. 938,823, Sep. 1, 1992, abandoned, which is a continuation-in-part of Ser. No. 844,296, Feb. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 662,216, Feb. 28, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 477,108

Int. Cl.⁶ G01N 33/536; 33/574; C07K 16/30
U.S. Cl. 435—7.23 27 Claims

1. A diagnostic method comprising providing a test cell from a given type of epithelial tissue, said test cell being suspected of being cancerous;
contacting proteins of the test cell with an antibody which forms an immunocomplex with maspin, having the amino acid sequence of SEQ ID NO:2; and
comparing (1) the amount of immunocomplex formation by said antibody and said proteins, with (2) the amount of immunocomplex formation by said antibody and the proteins of a normal control cell from said type of epithelial tissue, wherein an amount of immunocomplex formation with the proteins of said test cell substantially less than the amount obtained with the proteins of said normal control cell is an indication that said test cell is cancerous.

5,801,002

GALACTOSIDE-BINDING-PROTEIN USEFUL IN THE DIAGNOSIS AND INHIBITION OF METASTASIS
Avraham Raz, West Bloomfield, Mich., assignor to Barbara Ann Karmanos Cancer Institute, Detroit, Mich.

Continuation of Ser. No. 188,225, Jan. 26, 1994, abandoned, which is a continuation-in-part of Ser. No. 681,242, Apr. 5, 1991, abandoned, which is a continuation-in-part of Ser. No. 294,249, Jan. 6, 1989, abandoned. This application Nov. 22, 1995, Ser. No. 562,311

Int. Cl.⁶ G01N 33/574; 33/53
U.S. Cl. 435—7.23 1 Claim

1. A method of assaying a cell sample for determining the probability of metastasis, comprising the steps of:
contacting a cell sample to be tested for metastatic potential with a probe having a detectable label, wherein said probe is an antibody against a polypeptide having an amino acid sequence which is at least 86% homologous with the amino acid sequence set forth in FIGS. 6A and 6B (sequence ID No. 1), and wherein said antibody is directed against a portion of said polypeptide which is substantially homologous with said amino acid sequence, wherein said antibody binds to endogenous L-31-gal-lectin on a cell surface, wherein said antibody is made by immunization techniques using said polypeptide;
removing excess probe from said cell sample; and
detecting the level of said probe bound to said cell sample to determine the level of expression of L-31-gal-lectin expressed by said cell sample, wherein said metastatic potential increases as said level of expression increases.

5,801,003

METHOD AND REAGENT DETECTING HUMAN DISORDERS

Toshiro Shimamura; Junji Hamuro, both of Kawasaki, and Kazuo Sugamura, Sendai, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

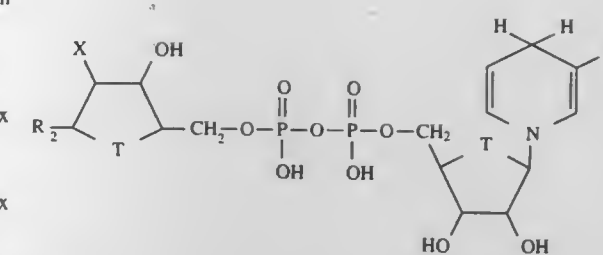
Filed Dec. 6, 1995, Ser. No. 568,427

Claims priority, application Japan, Dec. 6, 1994, 6-301837
Int. Cl.⁶ C12Q 1/70; G01N 33/53; 33/543; 33/574
U.S. Cl. 435—7.23 18 Claims

1. A method for detecting a disease in a human patient, wherein the disease is associated with elevated levels of a human

interleukin-2 receptor γ -chain polypeptide in the patient, wherein the method comprises the steps of:

- (a) obtaining a sample of a biological fluid from the patient;
- (b) providing an antibody specific for the polypeptide;
- (c) contacting the sample with the antibody, whereby a complex comprising the polypeptide and the antibody is formed;
- (d) measuring the amount of the complex; and
- (e) detecting the disease when the amount of the complex exceeds a predetermined magnitude.



wherein:



- R₁ is
R₂ is an aryl or heteroaryl;
Q is C or S;
T is O or S;
X is H, OR₃, or H₂PO₄, where R₃ is H, C₁₋₄ alkyl, C₁₋₄ haloalkyl, C₁₋₄ substituted alkyl or halogen;
Y is O, S or NOH; and
Z is H, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ substituted alkyl, NHL where L is H, OH or NH₂, aryl or aralkyl except that L is not H when R₂ is adenine.

5,801,004

METHOD FOR DETECTING PROSTATIC CANCER

Perry B. Hudson, 11598 Shelly Cir., Seminole, Fla. 33772;
Michael E. Lombardo, 11579 Shelly Cir., Seminole, Fla. 33772-6145, and Said I. Hakky, 8547 Merrimoor Blvd., E., Largo, Fla. 33777-3145

Filed Dec. 23, 1996, Ser. No. 771,963

Int. Cl.⁶ G01N 33/53 3 Claims
U.S. Cl. 435—7.23

1. A method for detecting prostatic cancer in patients which comprises the step of detecting the presence of 5 α -reductase type 2 enzyme in the serum or urine of said patients with an antibody specific for the peptide consisting of SEQ ID NO: 1.

5,801,005

IMMUNE REACTIVITY TO HER-2/NEU PROTEIN FOR DIAGNOSIS OF MALIGNANCIES IN WHICH THE HER-2/NEU ONCOGENE IS ASSOCIATED

Martin A. Cheever, Mercer Island, and Mary L. Disis, Renton, both of Wash., assignors to University of Washington, Seattle, Wash.

Continuation-in-part of Ser. No. 106,112, Aug. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 33,644, Mar. 17, 1993, abandoned. This application Mar. 31, 1995, Ser. No. 414,417

Int. Cl.⁶ G01N 33/53; C07K 7/04; 14/705; 14/82
U.S. Cl. 435—7.24 7 Claims

1. A method of screening for the presence of a malignancy in a warm-blooded animal, wherein a HER-2/neu oncogene is associated with the malignancy, comprising the steps of:
(a) obtaining peripheral blood cells from said warm-blooded animal;
(b) incubating said cells with HER-2/neu protein; and
(c) detecting the presence or absence of specific activation of CD4⁺ T cells, wherein the presence of specific activation is indicative of the presence of malignancy.

5,801,006

USE OF NADPH AND NADH ANALOGS IN THE MEASUREMENT OF ENZYME ACTIVITIES AND METABOLITES

Richard A. Kaufman, Bound Brook, N.J., assignor to Specialty Assays, Inc., New Brunswick, N.J.

Filed Feb. 4, 1997, Ser. No. 795,283

Int. Cl.⁶ C12Q 1/48; 1/00; 1/34; 1/42
U.S. Cl. 435—15 44 Claims

1. A diagnostic reagent kit comprising a compound of the formula: (I)

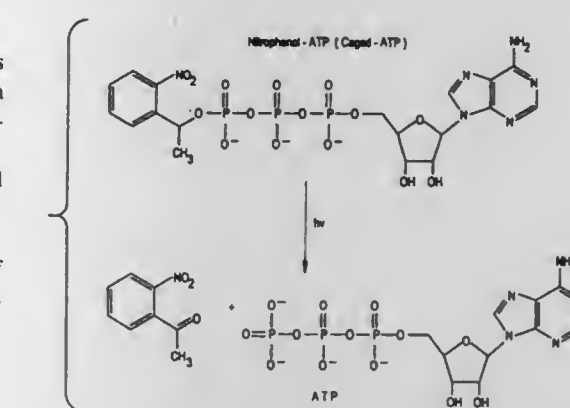
5,801,007

METHODS FOR CALIBRATING CHEMICAL ASSAYS
William John Simpson, Surrey, and Julian Mark Pye, Ayr, both of Great Britain, assignors to BRF International, United Kingdom

PCT No. PCT/GB95/00794, § 371 Date Apr. 6, 1997, § 102(e)
Date Apr. 7, 1997, PCT Pub. No. WO95/27797, PCT Pub. Date Oct. 19, 1995

PCT Filed Apr. 7, 1995, Ser. No. 721,984
Claims priority, application United Kingdom, Apr. 6, 1994, 9406737.8

Int. Cl.⁶ C12Q 1/66; 1/00; 1/34; 1/42
U.S. Cl. 435—8 19 Claims



1. A method for internally standardizing a chemical assay comprising the steps:
i) adding a pre-determined amount of photosensitive derivative of an analyte a sample to be assayed;
ii) measuring a test property of the assay;
iii) exposing the sample/photosensitive derivative mix to a flash of visible light of pre-determined duration and intensity to release from the photosensitive derivative a known amount of analyte;
iv) re-measuring the test property;
v) repeating steps iii) and iv) inclusive from zero-n times as desired;

- vi) calculating the change in the test property measurements; and
vii) using the calculated value(s) from step (vi) as a standard to determine the amount of analyte originally present in the sample.

5,801,008

METHOD OF QUANTITATIVE DETERMINATION OF PEROXIDE, A PEROXIDATION-ACTIVE SUBSTANCE OR A PYRAZOLOPYRIDOPYRIDAZINE DERIVATIVE

Yoshinori Tomlinaga, Nagasaki; Norihito Aoyama, Sunto-gun; Toshlyuki Masunari, Sunto-gun, and Akira Miike, Sunto-gun, all of Japan, assignors to Kyowa Medex Co., Ltd., Tokyo, Japan

Filed May 23, 1996, Ser. No. 653,711

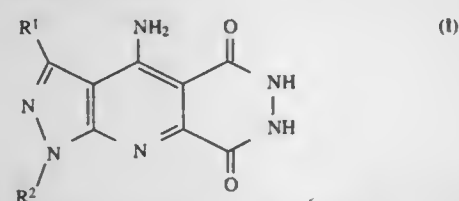
Claims priority, application Japan, May 31, 1995, 7-133379
Int. Cl.⁶ C12Q 1/28

U.S. Cl. 435—28

5 Claims

1. A method of quantitatively determining the amount substance selected from a of one of peroxide, a peroxidation-active substance or a pyrazolopyridopyridazine derivative in a sample, comprising the steps of:

- (a) selecting the pyrazolopyridopyridazine derivative represented by the formula (I):



wherein R¹ represents hydrogen, lower alkyl, cycloalkyl, lower alkenyl, hydroxyl, lower alkoxy, lower alkanoyl, optionally substituted aryl, optionally substituted heterocyclic group, aralkyl, halogen, cyano, nitro, sulfo, carboxyl, lower alkoxy-carbonyl, aryloxy-carbonyl, optionally substituted carbamoyl, optionally substituted amino, substituted sulfonyl, substituted sulfinyl or substituted thio; R² represents hydrogen, lower alkyl, cycloalkyl, lower alkenyl, lower alkanoyl, optionally substituted aryl, optionally substituted heterocyclic group, aralkyl, lower alkoxy-carbonyl, aryloxy-carbonyl, substituted sulfonyl, substituted sulfinyl or substituted thio, or a salt thereof;

- (b) subjecting an unknown amount of one substance selected from the peroxide, peroxidation-active substance and pyrazolopyridopyridazine derivative in the sample to coexist with a known amount of the remaining two substances, to thereby react the unknown amount of the substance with the known amount of the two substances; the known amount of the peroxide being in the range of 0.01 μmol/liter to 100 mmol/liter, peroxidation-active substance being in the range of 1×10⁻⁸ mg/ml to 200 mg/ml, and pyrazolopyridopyridazine derivative being in the range of 0.01 μmol/liter to 100 mmol/liter;

- (c) measuring the light emission signal generated from the reaction;

- (d) determining the substance using a calibration curve previously formed from known amounts of the substance.

5,801,009

METHOD FOR DETERMINING THE ANTIMICROBIAL AGENT SENSITIVITY OF A PARAFFINOPHILIC MICROORGANISM USING VARIOUS MILIEUS AND AN ASSOCIATED APPARATUS

Mitchell S. Felder, Hermitage, and Robert-A. Ollar, Milford, both of Pa., assignors to Infected, Inc., Sharon, Pa.

Division of Ser. No. 555,736, Nov. 9, 1995, abandoned. This application Jul. 21, 1997, Ser. No. 897,815

Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—29

6 Claims

1. An apparatus for determining sensitivity of at least one paraffinophilic microorganism from a specimen obtained from a patient to different antimicrobial agents and predetermined quantities thereof comprising:

- a receptacle adapted to contain an aqueous solution, an amount of antimicrobial agent to be tested and said specimen; means for adjusting said aqueous solution to mimic the in vivo clinical conditions of said patient; and
a paraffin coated slide adapted to being placed in said receptacle.

5,801,010

SELF-CONTAINED BIOLOGICAL INDICATOR FOR NON TRADITIONAL STERILIZATION METHODS

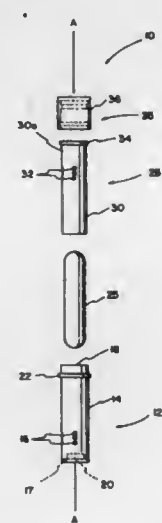
Jerry Falkowski, Cary; Giridhar Shamsunder, Raleigh; Steven J. Risner, Apex, and Pamela M. Lyons, Raleigh, all of N.C., assignors to Surigot, Inc., Research Triangle Park, N.C.

Filed Mar. 17, 1997, Ser. No. 818,944

Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—31

13 Claims



11. A method of evaluating the effectiveness of a hydrogen peroxide sterilizer by subjecting a self-contained biological indicator to a sterilization cycle, said indicator being of the type having a deformable container means including a plurality of telescoping vial means adapted for sliding engagement one inside another from an unsealed sterilization test configuration to a sealed post-test configuration, said indicator further including source of viable microorganisms, a hydrogen peroxide neutralizing means, and frangible ampule containing a culture medium for promoting growth of said microorganisms, said method comprising steps of: providing said self-contained biological indicator; setting said indicator in said unsealed sterilization configuration; positioning said indicator in said sterilizer; subjecting said indicator to a sterilization cycle; engaging said vial means in said sealed post-test configuration; activating said indicator by applying pressure to said deformable container means to permit said medium, said microorganisms, and said neutralizing means to come into contact; and incubating said indicator for a predetermined time to permit any of said microorganisms surviving said sterilization cycle to

grow in said medium thereby providing an indication of the effectiveness of said sterilizer.

5,801,011

PROCESS FOR PREPARING CEPHALOSPORINS WITH PENICILLIN ACYLASE WITHOUT PH CONTROL

John P. Gardner, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

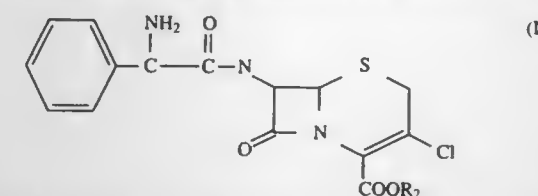
Continuation of Ser. No. 210,652, Mar. 21, 1994, abandoned, which is a continuation of Ser. No. 874,257, Apr. 24, 1992, abandoned. This application Jan. 18, 1996, Ser. No. 588,148

Int. Cl.⁶ C12P 35/00

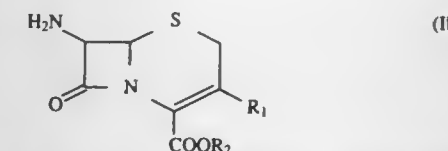
U.S. Cl. 435—47

11 Claims

1. A method for preparing a cephalosporin of formula (I):



wherein R₂ is hydrogen or a carboxy-protecting group; comprising reacting a substrate of formula (II):



said substrate being present in a concentration of between about 0.5 to about 2% (wt/v); with a compound selected from D-phenylglycine methyl ester or D-phenylglycine methyl ester hydrochloride, said compound being present in an amount of between about 3 to about 5 moles per mole of substrate; in the presence of 50–3000 IU of penicillin acylase enzyme per gram of substrate, and conducting said reaction at a temperature ranging from 0° C. to 2° C., where the pH is allowed to drift or change without intervention during the reaction, to produce a compound of formula I.

5,801,012

METHODS AND COMPOSITIONS FOR GENERATING ANGIOSTATIN

Gerald Soff, Skokie; Stephen T. Gately, Palatine, and Przemyslaw Twardowski, Chicago, all of Ill., assignors to Northwestern University, Evanston, Ill.

Filed Sep. 17, 1996, Ser. No. 710,305

Int. Cl.⁶ C12N 9/50; 9/48; 9/00; C12P 21/06

U.S. Cl. 435—68.1

4 Claims

1. A method of generating angiotensin in vitro comprising contacting plasminogen or plasmin with a plasminogen activator and a sulfhydryl donor.

5,801,013

HELICOBACTER AMINOACYL-TRNA SYNTHETASE PROTEINS, NUCLEIC ACIDS AND STRAINS COMPRISING SAME

Jianshi Tao, Needham; Yan Qiu, Brookline; Fariba Houman, Belmont; Xiaoyu Shen, S. Boston, and Paul R. Schimmel, Cambridge, all of Mass., assignors to Cubist Pharmaceuticals, Inc., Cambridge, Mass.

Filed May 26, 1995, Ser. No. 451,715

Int. Cl.⁶ C12N 15/00; 15/63; C07K 14/195; C07H 21/04

U.S. Cl. 435—69.1

63 Claims

53. A method for producing isolated, recombinant helicobacter aminoacyl-tRNA synthetase, wherein the helicobacter aminoacyl-

tRNA synthetase is selected from the group consisting of: isoleucyl-tRNA synthetase, methionyl-tRNA synthetase, leucyl-tRNA synthetase, valyl-tRNA synthetase, lysyl-tRNA synthetase, and seryl-tRNA synthetase, comprising the following steps:

- constructing a recombinant nucleic acid vector comprising a coding sequence for a helicobacter aminoacyl-tRNA synthetase wherein the coding sequence is under control of transcription signals and is linked to appropriate translation signals;
- introducing the vector into suitable host cells which support replication of the vector;
- maintaining the host cells under conditions in which the coding sequence for the helicobacter aminoacyl-tRNA synthetase is expressed; and
- isolating helicobacter aminoacyl-tRNA synthetase from the host cells.

5,801,014

GROWTH DIFFERENTIATION FACTOR-5

Se-Jin Lee, and Thanh Huynh, both of Baltimore, Md., assignors to The Johns Hopkins University School of Medicine, Baltimore, Md.

Continuation-in-part of Ser. No. 3,144, Jan. 12, 1993, abandoned. This application May 31, 1995, Ser. No. 455,559

Int. Cl.⁶ C12N 15/00; 15/63; 15/85; C07H 21/04

U.S. Cl. 435—69.1

11 Claims

1. Substantially pure growth differentiation factor-5 (GDF-5) comprising an amino acid sequence as set forth in SEQ ID NO: 10.

5,801,015

NUCLEIC ACID ENCODING A CANDIDA CELL CYCLE REGULATORY PROTEIN, TYP1 POLYPEPTIDE

Guillaume Cottarel, West Roxbury; Veronique Damagnez, Cambridge, and Giulio Draetta, Winchester, all of Mass., assignors to Mitotix, Inc., Cambridge, Mass.

Filed Jun. 5, 1995, Ser. No. 463,090

Int. Cl.⁶ C12N 15/90; 15/31; 15/63; C07K 14/40

U.S. Cl. 435—69.1

20 Claims

1. A substantially pure nucleic acid comprising a TYP1 nucleotide sequence which encodes a TYP1 polypeptide which polypeptide includes a catalytic domain and catalyzes dephosphorylation of a cyclin-dependent kinase, (cdk), wherein the TYP1 nucleotide sequence hybridizes under high stringency conditions to the TYP1 coding sequence of SEQ ID NO. 1.

5,801,016

DNA FRAGMENT, RECOMBINANT VECTOR CONTAINING THE SAME AND METHOD FOR EXPRESSING FOREIGN GENES USING THE SAME

Shinji Morioka, and Jun Ueki, both of Shizuoka, Japan, assignors to Japan Tobacco Inc., Tokyo, Japan

PCT No. PCT/JP96/00812, § 371 Date Nov. 27, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO96/30510, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 28, 1996, Ser. No. 750,007

Claims priority, application Japan, Mar. 29, 1995, 7-096126

Int. Cl.⁶ C12P 21/02

U.S. Cl. 435—69.1

9 Claims

1. A DNA fragment comprising the nucleotide sequence of SEQ ID NO:1.

5,801,017

PRODUCTION OF RECOMBINANT FACTOR XA INHIBITOR OF LEECH HIRUDO MEDICINALIS
 Moshe M. Werber, Tel Aviv; Elisha P. Zeelon, Mishmar Hashiva; Avigdor Levanon, Mohliver Street; Rachel Guy, Rehovot; Arie Goldlust, Nez-Ziona; Meir Rigbi; Amos Panet, both of Jerusalem, and Meir Fischer, Rehovot, all of Israel, assignors to Bio-Technology General Corp., Iselin, N.J.
 Continuation-in-part of Ser. No. 45,804, Apr. 9, 1993, abandoned. This application Apr. 8, 1994, Ser. No. 226,264
 Int. Cl.⁶ C07K 14/815; C12N 1/21; 15/15; 15/63
 U.S. Cl. 435—69.1 27 Claims

1. A DNA comprising a nucleotide sequence encoding a polypeptide comprising the amino acid sequence X-tyr²⁶-gly¹¹⁰ wherein tyr²⁶-gly¹¹⁰ is identical to the sequence shown in FIG. 10 (SEQ. ID NO. 28) and wherein X is methionine or absent and wherein asn⁷² may be substituted by pro.

5,801,018

VACCINES FOR ACTINOBACILLUS PLEUROPNEUMONIAE
 Andrew A. Potter; Gerald F. Gerlach; Philip J. Willson, and Amalia Rossi-Campos, all of Saskatoon, Canada, assignors to University of Saskatchewan, Saskatoon, Canada
 Continuation of Ser. No. 961,522, Oct. 15, 1992, Pat. No. 5,417,971, which is a continuation-in-part of Ser. No. 780,912, Oct. 22, 1991, abandoned. This application Oct. 12, 1994, Ser. No. 321,978
 Int. Cl.⁶ C12N 15/31; 1/21; C12P 21/00
 U.S. Cl. 435—69.3 12 Claims

1. A nucleic acid molecule (a) encoding an immunogenic serotype 1 *Actinobacillus pleuropneumoniae* APP4 protein as encoded by the APP4 gene found in recombinant plasmid pRAPE4, or (b) encoding an immunogenic serotype 5 *Actinobacillus pleuropneumoniae* APP4 protein as encoded by the APP4 gene found in recombinant plasmid p#4-213-84.

5,801,019

DNA ENCODING FUSED ALPHA-BETA GLOBIN PSEUDODIMER AND PRODUCTION OF PSEUDOTETRAMERIC HEMOGLOBIN
 David C. Anderson, Lafayette, and Antony James Mathews, Louisville, both of Colo., assignors to Somatogen, Inc., Boulder, Colo.
 Division of Ser. No. 789,179, Nov. 8, 1991, Pat. No. 5,545,727, which is a continuation-in-part of Ser. No. 671,707, Apr. 1, 1991, abandoned, which is a continuation-in-part of Ser. No. 374,161, Jun. 30, 1989, abandoned, and Ser. No. 379,116, Jul. 13, 1989, abandoned, and Ser. No. 349,623, May 10, 1989, abandoned. This application May 19, 1995, Ser. No. 444,939
 Int. Cl.⁶ C12P 21/06; C07H 17/00; C07K 14/805
 U.S. Cl. 435—69.6 15 Claims

1. A DNA molecule comprising an expressible DNA sequence encoding a genetically fused pseudodimeric globin-like polypeptide, said pseudodimeric globin-like polypeptide comprising an alpha globin-like domain and a beta globin-like domain, said polypeptide being capable of incorporating heme and combining with itself, or with an alpha globin-like polypeptide and a beta globin-like polypeptide, to form a hemoglobin-like protein with reversible oxygen binding activity.

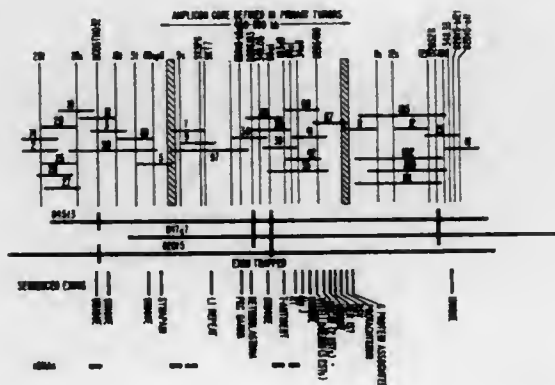
5,801,020

ANTIBIOTIC PRODUCING MICROBE
 Enrico Casareto, Verona; Massimo Leoni, Milan; Enrico Ronzio, Milana, and Ambrogio Magni, Osnago CO, all of Italy, assignors to Poli Industria Chimica, S.p.A., Milan, Italy
 Division of Ser. No. 658,653, Jun. 5, 1996. This application Mar. 5, 1997, Ser. No. 810,077
 Int. Cl.⁶ C12P 21/04; C12N 1/14
 U.S. Cl. 435—71.1 5 Claims

1. A process for producing cyclosporin, comprising aerobically fermenting a microbe having all of the identifying characteristics of the microbe deposited as provisional accession number I-1714, Collection Nationale de Cultures de Microorganismes, Institut Pasteur, in a nutrient medium comprising a carbon source utilizable by said microbe, until cyclosporin is produced and recovering the cyclosporin produced.

5,801,021

AMPLIFICATIONS OF CHROMOSOMAL REGION 20Q13 AS A PROGNOSTIC INDICATOR IN BREAST CANCER
 Joe W. Gray, San Francisco; Colin Collins, San Rafael; Daniel Pinkel, Walnut Creek, all of Calif.; Olli-Pekka Kallioniemi, and Minna M. Tanner, both of Tampere, Finland, assignors to The Regents of the University of California, Oakland, Calif.
 Filed Oct. 20, 1995, Ser. No. 546,130
 Int. Cl.⁶ C12Q 1/68; C07H 21/04; 21/00
 U.S. Cl. 435—94.2 44 Claims



1. A method of detecting a chromosome abnormality at about position FLpter 0.825 on human chromosome 20, the method comprising:
 contacting a chromosome sample from a patient with a composition consisting essentially of one or more labeled nucleic acid probes each of which binds selectively to a target polynucleotide sequence on human chromosome 20 under conditions in which the probe forms a stable hybridization complex with the target sequence, wherein said target polynucleotide sequence comprises about 600 kilobases flanked by and including DuPont P1 library P1 clones 3 and 12, identified by single clone addresses 12c11 and 42c2 respectively; and detecting the hybridization complex.

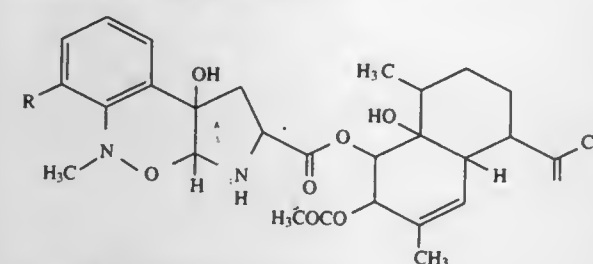
5,801,022

METHOD OF PRODUCING A PRODUCT WITH CROSSLINKED CRYSTALS OF THERMOLYSIN
 Manuel A. Navia, Lexington, and Nancy L. St. Clair, Charlestown, both of Mass., assignors to Vertex Pharmaceuticals, Incorporated, Cambridge, Mass.
 Continuation of Ser. No. 296,861, Aug. 26, 1994, abandoned, which is a continuation of Ser. No. 138,371, Oct. 15, 1993, abandoned, which is a continuation of Ser. No. 980,369, Nov. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 864,424, Apr. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 720,237, Jun. 24, 1991, abandoned, which is a continuation-in-part of Ser. No. 562,280, Aug. 3, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 474,968
 Int. Cl.⁶ C12P 13/22; 13/20; G01N 33/543; C07K 17/00
 U.S. Cl. 435—108 25 Claims

1. A thermolysin-catalyzed method of making a selected product, comprising the steps of:
 (a) combining at least one substrate and thermolysin, said thermolysin being in the form of a thermolysin crystal crosslinked with a multifunctional crosslinking agent, said crosslinked thermolysin crystal having resistance to exogenous proteolysis, such that said crosslinked thermolysin crystal retains at least 96% of its initial activity after incubation for 4 days in the presence of a concentration of Pronase™ that causes the soluble uncrosslinked form of the thermolysin that is crystallized to form said thermolysin crystal that is crosslinked to lose at least 99% of its initial activity after incubation for 90 minutes under the same conditions; and
 (b) maintaining the combination produced in step (a) under conditions which permit the thermolysin to act upon the substrate, thereby producing the selected product.

5,801,023

ANTIPARASITIC PYRROLOBENZOXAZINE COMPOUNDS
 Yasuhiro Kojima, Nishio; Yuji Yamauchi, Handa; Nakao Kojima, Nagoya, all of Japan, and Bernard F. Bishop, Jr., Sandwich, England, assignors to Pfizer Inc., New York, N.Y.
 PCT No. PCT/JP95/00025, § 371 Date Nov. 29, 1996, § 102(e) Date Nov. 29, 1996, PCT Pub. No. WO95/19363, PCT Pub. Date Jul. 20, 1995
 PCT Filed Jan. 11, 1995, Ser. No. 669,555
 Claims priority, application Japan, Jan. 14, 1994, 6-15825
 Int. Cl.⁶ C12P 17/00; 17/16; A61K 31/33; 31/535
 U.S. Cl. 435—117 9 Claims



wherein R is hydrogen or chloro.

5,801,024

OXIDOREDUCTASE FROM FILAMENTOUS FUNGI, DNA CODING THEREFOR AND CELLS TRANSFORMED WITH SAID DNA
 Johannes Maarten van den Brink, Utrecht, and Robertus Franciscus van Gorcom, Delft, both of Netherlands, assignors to Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek TNO, Netherlands
 PCT No. PCT/NL94/00135, § 371 Date Nov. 28, 1995, § 102(e) Date Nov. 28, 1995, PCT Pub. No. WO94/29453, PCT Pub. Date Dec. 22, 1994
 PCT Filed Jun. 10, 1994, Ser. No. 553,279
 Claims priority, application Netherlands, Jun. 11, 1993, 9301025
 Int. Cl.⁶ C12P 7/00; 7/40; C12N 9/02; C07H 21/04
 U.S. Cl. 435—132 13 Claims

1. A recombinant DNA molecule comprising one of
 (a) a nucleic acid sequence encoding a cytochrome P450 oxidoreductase having an amino acid sequence as shown in SEQ ID NO:2,
 (b) a nucleic acid sequence which hybridizes under stringency conditions of 56° C. and 6X SSC with the nucleic acid sequence of (a);
 (c) a nucleic acid sequence complementary with the nucleic acid sequence of (a), and
 (d) a nucleic acid sequence complementary with the nucleic acid sequence of (b).

5,801,025

METHOD FOR PRODUCING L-LACTIC ACID WITH HIGH OPTICAL PURITY USING BACILLUS STRAINS
 Hitomi Ohara, and Masahito Yahata, both of Kyoto, Japan, assignors to Shimadzu Corporation, Kyoto, Japan
 Filed Oct. 25, 1996, Ser. No. 738,289
 Claims priority, application Japan, Oct. 27, 1995, 7-280660; Oct. 27, 1995, 7-280661
 Int. Cl.⁶ C12P 7/56; 7/42 3 Claims

1. A method for producing L-lactic acid, comprising the steps of:
 (a) cultivating a microorganism capable of producing L-lactic acid from an assimilable carbon source; and
 (b) collecting lactic acid which is at least 70% L-lactic acid from the culture; wherein the microorganism is *Bacillus cereus*, *Bacillus thuringiensis* or *Bacillus* sp. SHO-1 (FERM BP-5682).

5,801,026

USE OF PLANT FATTY ACYL HYDROXYLASES TO PRODUCE HYDROXYLATED FATTY ACIDS AND DERIVATIVES IN PLANTS
 Chris Somerville, Portola Valley, Calif., and Frank van de Loo, Lexington, Ky., assignors to Carnegie Institution of Washington, Washington, D.C.
 Continuation-in-part of Ser. No. 314,596, Sep. 26, 1994. This application Oct. 11, 1994, Ser. No. 320,982
 Int. Cl.⁶ C12N 15/29; 15/82; A01H 5/00
 U.S. Cl. 435—172.3 22 Claims

1. A method of increasing the amount of a hydroxylated fatty acyl compound in a seed of a plant from a given percentage of hydroxylated fatty acyl compound to an increased percentage of hydroxylated fatty acyl compound comprising: growing a plant producing said seed having integrated in its genome a DNA construct, said DNA construct comprising in the 5' to 3' direction of transcription, a transcriptional regulatory region functional in said plant and a plant oleate-12 hydroxylase region encoding amino acid sequence SEQ ID NO:40, under conditions which will permit the transcription and translation of said plant oleate-12 hydroxylase region, whereby said increased percentage of hydroxylated fatty acyl compound is produced in said seed.

5,801,027

METHOD OF USING TRANSACTIVATION PROTEINS TO CONTROL GENE EXPRESSION IN TRANSGENIC PLANTS

Malcolm Bennett, Claycroft Hall; Sean May, Earlsdon, and Nicola Ramsay, Bishopston, all of England, assignors to University of Warwick, United Kingdom

Filed May 26, 1995, Ser. No. 452,267

Claims priority, application United Kingdom, Feb. 8, 1995, 9502456

Int. Cl.⁶ C12N 15/29; 15/82; A01H 5/00; 4/00

U.S. Cl. 435—172.3

20 Claims

1. A method of producing a plant exhibiting one or more desired phenotypic traits, wherein the improvement comprises the steps of:

(i) providing a first and a second transgenic plant;

(ii) pollinating the first transgenic plant with pollen from the second transgenic plant to produce an embryo or seed,

wherein:

one of the transgenic plants comprises at least one nucleic acid sequence encoding for herbicide resistance or for the production of a polyhydroxyalkanoate, said nucleic acid sequence operatively linked to an upstream activating sequence recognition site; and

the other transgenic plant comprises a nucleic acid sequence encoding for GAL4, or a derivative thereof which activates said upstream activating sequence; and

(iii) growing the embryo or seed into a plant.

5,801,028

OSMOTIN GENE PROMOTER AND USE THEREOF

Ray Bressan, and Paul M. Hasegawa, both of W. Lafayette, Ind., assignors to Purdue Research Foundation, West Lafayette, Ind.

Division of Ser. No. 180,428, Jan. 12, 1994, abandoned, which is a continuation-in-part of Ser. No. 65,147, May 20, 1993.

This application Jun. 7, 1995, Ser. No. 482,037

Int. Cl.⁶ C12N 15/29; 15/82; A01H 4/00; 5/00

U.S. Cl. 435—172.3

14 Claims

1. A method of inhibiting a pathogen in a plant, comprising the steps of:

(a) constructing a vector comprising an osmotin promoter and a foreign DNA sequence encoding a pathogen-inhibiting protein, wherein said osmotin promoter is operably linked to said foreign DNA sequence and includes:

(i) the nucleotide sequence 5' of the osmotin coding sequence extending to -248 of Table 1 (Seq. I.D. No. 1); or

(ii) a nucleotide sequence which hybridizes to (i) and which promotes expression of an operably linked coding sequence under conditions of desiccation; and

(b) introducing said vector into said plant to create a transformed plant, wherein the expression of said pathogen-inhibiting protein in said transformed plant is regulated by said osmotin promoter,

wherein said pathogen is selected from the group consisting of a fungal pathogen, an insect pathogen, a nematode pathogen and a viral pathogen.

5,801,029

CYTOPATHIC VIRUSES FOR THERAPY AND PROPHYLAXIS OF NEOPLASIA

Francis McCormick, Richmond, Calif., assignor to Onyx Pharmaceuticals, Inc., Richmond, Calif.

Continuation of Ser. No. 198,184, Feb. 16, 1994, abandoned, which is a continuation-in-part of Ser. No. 17,525, Feb. 16, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 484,938

Int. Cl.⁶ C12N 15/01; 7/04; 15/86; A61K 31/70

U.S. Cl. 435—172.3

23 Claims

1. A method for ablating neoplastic cells in a cell population, comprising the steps of:

contacting under infective conditions (1) a recombinant replication deficient adenovirus substantially lacking an expressed viral oncoprotein capable of binding a functional Rb tumor suppressor gene product, with (2) a cell population comprising non-neoplastic cells containing said functional Rb tumor suppressor gene product capable of forming a bound complex with a viral oncoprotein and neoplastic cells substantially lacking said functional Rb tumor suppressor gene product, thereby generating an infected cell population and ablating the neoplastic cells.

5,801,030

METHODS AND VECTORS FOR SITE-SPECIFIC RECOMBINATION

Duncan L. McVey, Derwood, and Imre Kovacs, Rockville, both of Md., assignors to GenVec, Inc., Rockville, Md.

Filed Sep. 1, 1995, Ser. No. 522,684

Int. Cl.⁶ C12N 15/63; C07H 21/04

U.S. Cl. 435—172.3

47 Claims

1. A method of effecting site-specific recombination in a mammalian cell comprising:

(a) contacting said cell with a linear viral vector such that said vector is internalized by said cell, wherein said vector comprises (i) a first recombining site and a second recombining site in parallel orientation, between which are an origin of replication, which is functional in a mammalian cell, and a passenger gene, and (ii) viral encapsidation sequences in a region other than the region between said first and second recombining sites, and

(b) providing said cell with a site-specific recombinase that effects recombination between said first and second recombining sites of said vector.

5,801,031

HUMAN AND RAT GAMMA GLUTAMYL HYDROLASE GENES

John Henry Galivan, Albany; Thomas John Ryan, Schenectady; Rong Yao, Albany, and Zenla Nimec, Watervliet, all of N.Y., assignors to Health Research, Incorporated, Albany, N.Y.

Filed Apr. 5, 1996, Ser. No. 628,291

Int. Cl.⁶ C12N 15/00; 15/85; C07H 21/02; C12Q 1/68

U.S. Cl. 435—172.3

26 Claims

1. An isolated nucleic acid molecule encoding an intracellular human or rat gamma glutamyl hydrolase.

5,801,032

VECTORS AND PROCESS FOR PRODUCING HIGH PURITY 6,12-DIDEOXYERYTHROMYCIN A BY FERMENTATION

Diane L. Stassi, Highland Park; Gregory T. Maine, Gurnee, both of Ill.; David A. Post, and Mark T. Satter, both of Kenosha, Wis., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Aug. 1, 1996, Ser. No. 691,162

Int. Cl.⁶ C12N 15/00; 1/14; 15/63

U.S. Cl. 435—172.3

14 Claims

1. A recombinant DNA vector for integrating a gene of interest into the chromosome of an erythromycin producing host cell, said vector comprising a first DNA sequence having an 11 kb HindIII fragment of the *Saccharopolyspora erythraea* chromosome wherein said DNA sequence contains SEQ ID NO:1, a second DNA sequence which contains the origin of replication from plasmid pCD1, and a third DNA sequence encoding a selectable maker gene.

5,801,033

GELS FOR ENCAPSULATION OF BIOLOGICAL MATERIALS

Jeffrey A. Hubbell, Concord; Chandrashekhar P. Pathak, Waltham; Amarpreet S. Sawhney, Newton, all of Mass.; Nell P. Desai, Los Angeles, Calif., and Syed F. A. Hossainy, Austin, Tex., assignors to The Board of Regents, The University of Texas System, Austin, Tex.

Continuation of Ser. No. 958,870, Oct. 7, 1992, Pat. No. 5,529,914, which is a continuation-in-part of Ser. No. 870,540, Apr. 20, 1992, abandoned, which is a continuation-in-part of Ser. No. 843,485, Feb. 28, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 480,678

Int. Cl.⁶ C12N 11/02; 11/04

U.S. Cl. 435—182

21 Claims

1. An encapsulated biological material comprising a biological material enclosed within an encapsulating membrane, said encapsulated biological material produced by a process comprising the steps of:

providing the biological material, wherein the biological material is selected from the group consisting of tissue, cells, subcellular organelles, and subcellular non-organelle components;

mixing the biological material in an aqueous macromer solution comprising macromer and photoinitiator to form a mixture, said macromer comprising a water-soluble polymer having at least two sites of unsaturation;

forming geometric shapes from said mixture; and polymerizing the macromer by exposing the geometric shapes to light radiation to form the encapsulating membrane surrounding the biological material.

5,801,034

METHOD FOR KILLING CELLS WITHOUT LYSIS AND ENZYME RECOVERY

Virgil B. Lawlis, Jr., San Mateo; Henry G. Heinsohn, Pacifica, and Enrique F. Ballu, San Francisco, all of Calif., assignors to Genencor International, Rochester, N.Y.

Continuation of Ser. No. 128,565, Sep. 29, 1993, abandoned, which is a continuation of Ser. No. 807,475, Dec. 13, 1991, abandoned, which is a continuation-in-part of Ser. No. 799,864, Nov. 27, 1991, abandoned, which is a continuation of Ser. No. 365,945, Jun. 13, 1989, abandoned. This application Dec. 14, 1994, Ser. No. 356,042

Int. Cl.⁶ C12N 9/00; C12P 21/00

U.S. Cl. 435—183

7 Claims

1. A method for killing cells without lysis in a fermentation culture containing an extracellularly produced enzyme and a fungus comprising the steps of:

(a) culturing the fungus to produce the fermentation culture containing the extracellularly produced enzyme and the fungus; and, in either order,

(b) adjusting the pH of the fermentation culture to a value equal to or less than about 2 pH units below the pK_a of a preselected organic acid having from 1 to 5 carbon atoms or a salt thereof with a mineral acid compatible with said extracellularly produced enzyme, and

(c) adding from about 0.25 to 10% by weight of the preselected organic acid or salt thereof to the fermentation culture; then

(d) recovering the extracellularly produced enzyme; wherein at least a four log decrease in the viable fungus in the fermentation culture is effected under conditions which are compatible with the extracellularly produced enzyme and the four log decrease in viable fungus is obtained without cell lysis.

5,801,035

L-AMINO ACID OXIDASE

Palle Schneider, Ballerup; Anders Hjelholt Pedersen, Lyngby, and Svend Aage Hansen, Stenløse, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

PCT No. PCT/DK94/00168, § 371 Date Nov. 2, 1995, § 102(e) Date Nov. 2, 1995, PCT Pub. No. WO94/25574, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 27, 1994, Ser. No. 535,239

Claims priority, application Denmark, Apr. 27, 1993, 488/93

Int. Cl.⁶ C12N 9/02; 9/06

U.S. Cl. 435—189

10 Claims

1. An L-amino acid oxidase E.C. 1.4.3.2, isolated from *Trichodenna harzianum* A611, CBS 223.93 and characterized by having the following properties:

(A) pH optimum in the range of from pH 8.5 to 9.5 determined after incubation for 20 minutes at 20° C. in the presence of L-arginine;

(B) pH stability of 80% or more, relative to initial activity, at pH 9.5 determined after incubation for 1 hour at 40° C. in the absence of substrate; and

(C) activity towards L-arginine, L-lysine, L-methionine, L-asparagine, L-phenylalanine, and L-leucine.

5,801,036

MUTANT URICASE, A MUTANT URICASE GENE, A NOVEL RECOMBINANT DNA, AND A PROCESS FOR PRODUCING MUTANT URICASE

Yasuji Koyama, and Toshio Ichikawa, both of Noda, Japan, assignors to Kikkoman Corporation, Noda, Japan

Division of Ser. No. 701,952, Aug. 23, 1996, Pat. No. 5,700,674. This application Sep. 29, 1997, Ser. No. 938,471

Claims priority, application Japan, Aug. 24, 1995, 7-216239

Int. Cl.⁶ C12N 9/06; 1/20; 15/00; C07H 21/04

U.S. Cl. 435—191

2 Claims

1. Mutant uricase having the amino acid sequence of wild-type uricase shown in SEQ ID NO:1, wherein the 165–170th amino acids contain a mutated amino acid sequence.

5,801,037

EXPRESSION OF SIGNAL-PEPTIDE-FREE STAPHYLOKINASES

Detlev Behnke; Bernhard Schlott, both of Jena; Sybille Albrecht, Dresden; Karl-Heinz Gührs, and Manfred Hartmann, both of Jena, all of Germany, assignors to medac Gesellschaft für klinische Spezialpräparate mbH, Hamburg, Germany

PCT No. PCT/EP92/02989, § 371 Date Jun. 30, 1994, § 102(e) Date Jun. 30, 1994, PCT Pub. No. WO93/13209, PCT Pub. Date Jul. 8, 1993

PCT Filed Dec. 28, 1992, Ser. No. 256,261

Claims priority, application Germany, Dec. 30, 1991, 41 43 297.7; Jun. 22, 1992, 42 20 516.6; Dec. 1, 1992, 42 40 801.6

Int. Cl.⁶ C12N 9/52; 15/58

U.S. Cl. 435—220

8 Claims

1. A method for the recombinant production of a soluble staphylokinase having plasminogen activator activity, comprising culturing a host cell transformed with an expression vector comprising a DNA encoding a staphylokinase, wherein said DNA a) is free of a sequence encoding a signal peptide and b) is operatively linked to expression control sequences, in a medium under conditions wherein said DNA is expressed, and isolating said soluble staphylokinase from the cytoplasm of the host cell.

5,801,038

MODIFIED SUBTILISINS HAVING AMINO ACID ALTERATIONS

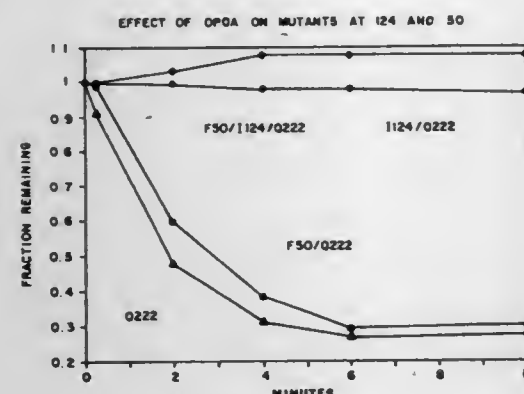
Richard Ray Bott, Burlingame; Robert Mark Caldwell, San Francisco; Brian C. Cunningham, Piedmont; David Aaron Estell, Mountain View; Scott Douglas Power, San Bruno, and James Allen Wells, San Mateo, all of Calif., assignors to Genencor International Inc., Palo Alto, Calif.

Division of Ser. No. 212,291, Mar. 14, 1994, which is a continuation of Ser. No. 898,382, Jun. 9, 1992, abandoned, which is a continuation of Ser. No. 747,459, Aug. 12, 1991, abandoned, which is a continuation of Ser. No. 540,868, Jun. 14, 1990, abandoned, which is a continuation of Ser. No. 35,652, Apr. 5, 1987, abandoned, which is a continuation-in-part of Ser. No. 858,594, Apr. 30, 1986, abandoned, which is a continuation-in-part of Ser. No. 614,612, May 29, 1984, Pat. No. 4,760,025, which is a continuation-in-part of Ser. No. 614,615, May 29, 1984, abandoned, which is a continuation-in-part of Ser. No. 614,617, May 29, 1984, abandoned, which is a continuation-in-part of Ser. No. 614,491, May 29, 1984, abandoned. This application Jun. 7, 1995, Ser. No. 485,827

Int. Cl.⁶ C11D 7/42; C12N 9/52; 9/56; 15/75

U.S. Cl. 435—221

16 Claims



1. A substantially pure subtilisin modified by a substitution of an amino acid at the residue position equivalent to Met50 of the *Bacillus amyloliquefaciens* subtilisin with a different naturally occurring amino acid, wherein the subtilisin which is modified is selected from the group consisting of subtilisins derived from procaryotes, yeast and fungi.

5,801,039

ENZYMES FOR DETERGENTS

Karl-Heinz Maurer, Erkrath; Albrecht Weiss, Langenfeld, both of Germany; Christian G. Paech, Daly City, Calif.; Dean W. Goddette, Chelmsford, Mass.; Teresa M. Christianson, Petaluma, Calif.; Maria R. Tang, Fairfield, Calif., and Charles Ronald Wilson, Santa Rosa, Calif., assignors to Cognis Gesellschaft fuer Bio und Umwelttechnologie mbH, Duesseldorf, Germany

Continuation of Ser. No. 201,120, Feb. 24, 1994, abandoned. This application Dec. 1, 1995, Ser. No. 566,369

Int. Cl.⁶ C12N 9/54; 9/52; 9/56; C11D 3/00

U.S. Cl. 435—221

70 Claims

1. A protease M130 variant substrate binding domain comprising: a substrate binding pocket which forms about a bound substrate molecule; a region within 7 Å of the bound substrate molecule; and at least two amino acid alterations within 7 Å of the bound substrate molecule, the amino acid alterations providing an increased negative charge relative to an unaltered M130 substrate binding domain.

5,801,040

NUCLEIC ACID CODING FOR THE HUMAN TESTICULAR ANGIOTENSIN CONVERTING ENZYME (ACE) AND ITS USES, ESPECIALLY FOR THE IN VITRO SCREENING FOR THIS ENZYME IN THE ORGANISM

Florent Soubrier; François Alhenc-Gelas, both of Paris, and Christine Hubert, Sevres, all of France, assignors to Institut National de la Sante et de la Recherche Medicale, Paris, France

Continuation of Ser. No. 272,283, Jul. 8, 1994, abandoned, which is a continuation of Ser. No. 656,183, Mar. 1, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 481,626

Claims priority, application France, Jul. 5, 1989, 8909062

Int. Cl.⁶ C12N 15/57; 9/64

U.S. Cl. 435—226

13 Claims

1. An isolated and purified nucleic acid containing a human sequence encoding human testicular angiotensin converting enzyme consisting of the nucleotide sequence of SEQ ID NO: 1, or a part of this sequence comprising about 15 to 201 nucleotides of positions 29 to 229 of SEQ ID NO: 1 which encodes for a polypeptide, wherein said polypeptide is recognized by polyclonal or monoclonal antibodies recognizing specifically any peptide corresponding to the peptide sequence of positions 1 to 67 of SEQ ID NO: 2.

5,801,041

GENE ASSOCIATED WITH SUPPRESSION OF TUMOR DEVELOPMENT

Andrew K. Godwin, Philadelphia, Pa., assignor to Fox Chase Cancer Center, Philadelphia, Pa.

Filed Mar. 6, 1995, Ser. No. 399,986

Int. Cl.⁶ C12N 1/20

U.S. Cl. 435—252.3

3 Claims

1. A vector, having ATCC Designation No. A97331, including a heterologous DNA segment from human chromosome 17p13.3, a contiguous sequence of at least 20 kilobase pairs of said segment being flanked by BssHII restriction sites and including locus D17S28 of said chromosome 17p13.3, said segment comprising at least one gene having 13 exons, the disruption of said at least one gene being associated with malignant cell growth.

5,801,042

UNIQUE ASSOCIATED KAPOSI'S SARCOMA VIRUS SEQUENCES AND USES THEREOF

Yuan Chang, and Patrick S. Moore, both of New York, N.Y., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.

Continuation-in-part of Ser. No. 343,101, Nov. 21, 1994, which is a continuation-in-part of Ser. No. 292,365, Aug. 18, 1994, abandoned. This application Apr. 11, 1995, Ser. No. 420,235

Int. Cl.⁶ C12N 1/21; 5/10; 15/38; 15/63

U.S. Cl. 435—252.3

15 Claims

1. An isolated nucleic acid molecule encoding Kaposi's sarcoma-associated herpesvirus glycoprotein H (SEQ ID NO:17).

5,801,043

AMYLASE VARIANTS

Henrik Bisgård-Frantzen, Lyngby; Torben Vedel Borchert, København; Allan Svendsen, Birkerød; Marianne Thellersen, Frederiksberg, and Pia Van der Zee, Virum, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

Continuation of Ser. No. 343,804, Nov. 22, 1994. This application Jun. 2, 1995, Ser. No. 459,610

Claims priority, application Denmark, Oct. 8, 1993, 1133; Feb. 2, 1994, 0140

Int. Cl.⁶ C12N 1/20; 9/28; 15/00; C07H 21/04

U.S. Cl. 435—252.3

36 Claims

1. An isolated DNA sequence encoding a variant of a *B. licheniformis* alpha-amylase enzyme having an improved washing or dishwashing performance as compared to the parent enzyme, wherein said variant comprises a modification, substitution or deletion of said parent at a position corresponding to SEQ ID No. 2 selected from the group consisting of:

- at least one of the amino acid residues located in positions 1, 2, 3, 23, or 29-35 of the parent alpha-amylase has been substituted or deleted;
- in which at least one amino acid has been added to the parent alpha-amylase within the amino acid segment located in positions 29-35;
- the amino acid residue H68 has been modified;
- the amino acid residue located at position 104 has been modified;
- at least one of the amino acid residues located at positions 121 and 128 has been modified;
- the amino acid residues S187 has been modified;
- at least one of the amino acid residues L230, V233 or R242 has been modified;
- at least one of the amino acid residues located at 290 or 293 has been modified;
- at least one of the amino acid residues T341 has been modified;
- at least one of the amino acid residues located in the region 370-374 has been modified; and
- at least one of the amino acid residues at A435 or H450 has been modified.

5,801,044

NUCLEIC ACID ENCODING AN ANTIBODY THAT INHIBITS CELL ADHESION PROTEIN-CARBOHYDRATE INTERACTIONS

Brian Seed, and Gerd Walz, both of Boston, Mass., assignors to The General Hospital Corporation, Boston, Mass.

Division of Ser. No. 618,314, Nov. 23, 1990, abandoned. This application Jun. 5, 1995, Ser. No. 461,968

Int. Cl.⁶ C12N 1/20; C07H 21/04

U.S. Cl. 435—252.3

8 Claims

1. Purified nucleic acid encoding an IgG comprising one or more sites for the attachment of an N-linked sialyl-Le^x which is specific for an ELAM-1 protein, the presence of said sialyl-Le^x interfering with said IgG's ability to fix complement and bind an Fc receptor.

5,801,045

COLLAGEN-LIKE POLYPEPTIDES AND BIOPOLYMERS AND NUCLEIC ACIDS ENCODING SAME

Shane Crawford Weber, Woodbridge, Conn., and John Alan McElver, Des Moines, Iowa, assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 383,804, Feb. 3, 1995, Pat. No. 5,670,616. This application Mar. 10, 1997, Ser. No. 814,309

Int. Cl.⁶ C12N 1/11; 1/15; 1/21

U.S. Cl. 435—252.3

12 Claims

1. A recombinant nucleic acid comprising a nucleotide sequence which encodes a peptide sequence represented by the formula:

I:
{[(Gly Pro Gln)(Gly Pro Glu)_n]₂},
SEQ ID NO: 4

II:
Gly Pro Glu{[(Gly Pro Gln)(Gly Pro Glu)_n]₂},
SEQ ID NO: 1

or

III:
Gly Pro Xaa₁ Gly Leu Xaa₂ Gly Pro Arg Gly Pro Pro
Gly Ala Ser Gly Ala Pro Gly Pro Glu Gly Phe Gly Gly,
SEQ ID NO: 6

wherein Xaa₁ and Xaa₂ are independently the amino acids identified as Met, Ile, His, Lys, Asn, Tyr or Gly, and n is 1 to 25, or its nucleotide complement.

5,801,046

BACILLUS THURINGIENSIS ISOLATES

David R. Wilcox, Lincolnshire; Robert A. Smith, Lindenhurst, and Terry A. Benson, Waukegan, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 141,431, Oct. 21, 1993, abandoned, which is a continuation of Ser. No. 650,500, Feb. 5, 1991, abandoned. This application Feb. 10, 1995, Ser. No. 387,970

Int. Cl.⁶ C12N 1/20

U.S. Cl. 435—252.5

2 Claims

1. A biologically pure bacterial strain of *Bacillus thuringiensis* having all the identifying characteristics of *Bacillus thuringiensis* ABTS 1857.

5,801,047

METHOD FOR MAKING STABLE EXTRACELLULAR TYROSINASE AND SYNTHESIS OF POLYPHENOLIC POLYMERS THEREFROM

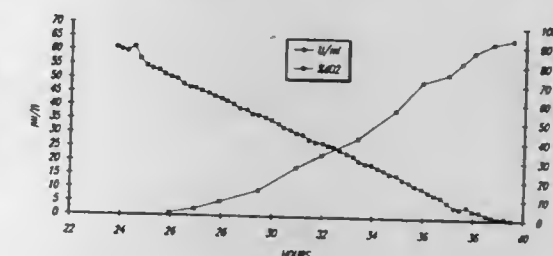
Guy Richard della-Cioppa; Stephen John Garger, Jr.; Richard Barry Holtz; Michael Jay McCulloch, and Genadie Gleb Sverlow, all of Vacaville, Calif., assignors to Biosource Technologies, Inc., Vacaville, Calif.

Continuation of Ser. No. 154,283, Nov. 17, 1993, which is a division of Ser. No. 982,095, Nov. 25, 1992, Pat. No. 5,340,734. This application Jun. 6, 1995, Ser. No. 471,993

Int. Cl.⁶ C12N 1/20; 9/96

U.S. Cl. 435—253.6

6 Claims



1. A microbial culture, comprising:

- at least about 10 units of stabilized tyrosinase activity per ml; and
- a microorganism that has produced said tyrosinase activity selected from the group consisting of *Escherichia*, *Streptomyces*, *Bacillus*, *Streptococcus*, *Salmonella*, *Staphylococcus*, and *Vibrio*, wherein said microorganism contains an expression vector with polynucleotides encoding tyrosinase, and wherein said tyrosinase activity has been stabilized by reducing the amount of dissolved oxygen present in the medium during tyrosinase expression.

5,801,048
PROCESS FOR PRODUCING 7B-(4-CARBOXYBUTANAMIDO)-CEPHALOSPORANIC ACID ACYLASE ("GA") ENZYME

Wilhelmus Van Der Goes, Turin; Antonella Bernardi, Novara; Aldo Bosetti, Vercelli; Giuliana Franzosi, Calvignasco, and Pietro Cesti, S. Martino Di Trecate, all of Italy, assignors to Ministero Dell 'Universita' E Della Ricerca Scientifica E Tecnologica, Rome, Italy
Continuation of Ser. No. 366,457, Dec. 30, 1994, Pat. No. 5,612,210. This application Sep. 11, 1996, Ser. No. 712,389
Claims priority, application Italy, Jan. 14, 1994, MI.94A/000031 U

Int. Cl.⁶ C12N 1/21; 15/70
U.S. Cl. 435—252.33 6 Claims
1. The *E. coli* strain XL1Blue/pWE4.3.1 deposited under accession number NCIMB40560.

5,801,049
FREEZE-RESISTANT BAKER'S YEAST STRAIN HAVING SUGAR RESISTANCE

Hisanori Endo, Mishima, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Jul. 10, 1995, Ser. No. 500,459
Int. Cl.⁶ C12N 1/18

U.S. Cl. 435—255.2 1 Claim
1. A biologically pure culture of the yeast strain *Saccharomyces cerevisiae* F-26, FERM BP-5150.

5,801,050
METHOD FOR PREPARING ALGAL DETRITUS
Motoharu Uchida, and Katsuyuki Numaguchi, both of Yokohama, Japan, assignors to Director-General of National Research Institute of Fisheries Science, Japan
Filed Mar. 7, 1996, Ser. No. 610,824
Claims priority, application Japan, Mar. 9, 1995, 7-078314; Jun. 12, 1995, 7-169204
Int. Cl.⁶ C12N 1/12

U.S. Cl. 435—257.1 11 Claims
1. A method for preparing algal detritus comprising contacting with algae, marine bacteria which belongs to genus *Pseudoalteromonas*, said bacteria being capable of attaching to the algae and decomposing structural components of said algae, thereby decomposing said algae into detritus comprising particles having substantially uniform diameters.

5,801,051
METHOD AND APPARATUS FOR CLEANING A FILTER AID

Johannes Kiefer, Abtwil; Manfred Gurr, St. Gallen; Aukens Jan Smaal, Rorschach, and Brigitte Lippuner, St. Gallen, all of Switzerland, assignors to Filtrox-Werk AG, Gallen, Switzerland
Continuation-in-part of Ser. No. 194,275, Feb. 10, 1994, abandoned. This application Oct. 24, 1995, Ser. No. 547,523
Int. Cl.⁶ C02F 1/00

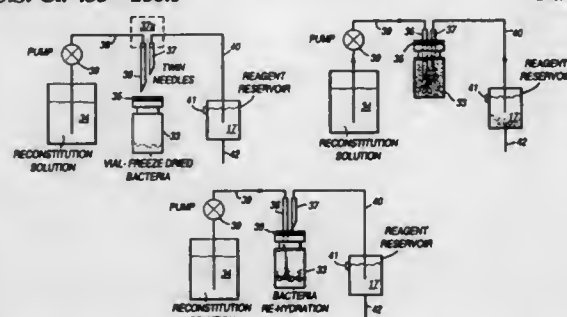
U.S. Cl. 435—262 7 Claims
1. A method for recycling a particulate filter aid comprising kieselguhr which has become contaminated with organic matter including yeast cells, said method comprising steps of producing an aqueous suspension of the filter aid, adding to the aqueous suspension an agent including at least one enzyme which destroys yeast cell walls, and waiting a sufficient time for the yeast cell walls to be destroyed, then removing the particulate filter aid from the suspension, and then reusing the filter aid in a filter.

5,801,052
IN OR RELATING TO AQUEOUS SAMPLE TESTING APPARATUS

William Bartlett-Hooker; Sanath Ediriweera, and Stuart Ward, all of Dorset, England, assignors to Siemens plc, Bracknell, England; Yorkshire Water plc, Leeds, England, and Microbics Corporation, Carlsbad, Calif.
Filed Jul. 16, 1996, Ser. No. 680,873

Claims priority, application United Kingdom, Jul. 29, 1995, 9515636

Int. Cl.⁶ C12M 3/00; B01F 15/02
U.S. Cl. 435—286.1 7 Claims



1. Apparatus for use in reconstituting dried bacteria, comprising: a first reservoir containing a reconstituting solution, a pair of hollow needles, a first of said pair of hollow needles being coupled to said first reservoir, and a second of said pair of hollow needles being coupled to a second reservoir, with said first needle of said pair being arranged to project further than said second needle of said pair, a container having a closure in which the dried bacteria are sealed under vacuum, with said vacuum being effected by said closure, an actuating mechanism, coupled to said pair of hollow needles, which operates to impart substantially linear movement to said pair of hollow needles towards and away from said container, a pump coupled to at least one of said first reservoir and said second reservoir, and a control coupled to said actuating mechanism and to said pump, wherein control signals provided by said control activates said actuating mechanism causing said pair of hollow needles to move towards said container resulting in said first needle of said pair piercing said closure before said second needle, thereby causing said reconstituting solution in said first reservoir to enter said container, and consequent upon said second needle of said pair piercing said closure, the bacteria and said reconstituting solution are transferred to said second reservoir, with transfer of the bacteria and the reconstituting solution being facilitated by pressure provided by action of said pump.

5,801,053
CHROMATOGRAPHIC METHOD FOR THE IDENTIFICATION AND CHARACTERIZATION OF HEMOGLOBIN VARIANTS IN BLOOD

Jimmie K. Noffsinger, Overland Park, Kans., and Ching-Nan Ou, Houston, Tex., assignors to Primus Corporation, Kansas City, Mo.

Continuation of Ser. No. 642,175, May 6, 1996, Pat. No. 5,719,053. This application Sep. 29, 1997, Ser. No. 956,626
Int. Cl.⁶ G01N 33/72

U.S. Cl. 435—288.6 2 Claims
1. In a chromatographic method for the identification of hemoglobin variants including the steps of injecting a first aliquot of a blood sample into the column of an HPLC unit, separating different hemoglobin species from the blood sample and chromatographically analyzing the different hemoglobin species by generating a chromatograph peak for each separated hemoglobin specie and characterizing the separated hemoglobin species as a function of their respective chromatographic absorbance values and retention times, the improvement which comprises the step of ascertaining whether a separated hemoglobin specie has a characteristic indicative of a hemoglobin variant by determining if the specie chromatograph peak:

(a) is not an A₀ or A_{1c} peak and has an area percent value greater than 5%;

(b) appears in the A_{1c} window and has an area percent value greater than 10%;

(c) appears in the A₀ window and has an area percent value less than 80%;

(d) appears in the A₀ window and has a width greater than 1.2 times the width of the marker A₀ peak;

(e) appears in the degradation products window and has an area percent value greater than 10%;

(f) appears after the A₂ window;

(g) appears in the hemoglobin Bart's window and has an area percent value greater than 1%; or

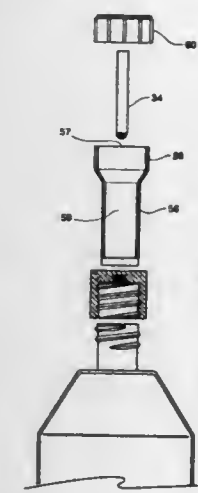
(h) appears in the A₂ window and has an area percent value greater than 10%.

5,801,054
CELL CULTURE VESSEL WITH SELF-MAINTAINED ATMOSPHERE

Johnathan L. Kiel, Universal City, and John L. Alls, San Antonio, both of Tex., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 19, 1996, Ser. No. 716,691

Int. Cl.⁶ C12M 3/00; 1/24
U.S. Cl. 435—297.5 7 Claims



1. A cell culture device constructed for long-term treatment and observation of cells outside of a carbon dioxide incubator, said device having a self maintained atmosphere with selected levels of one or more gases including carbon dioxide gas, said gases generated by one or more self contained gas generators, said device comprising:

(a) a flask adapted for use in growing cell cultures, said flask having a unitary body including gas impermeable walls with a surface area defining a culturing zone having an atmosphere containing one or more gases;

(b) a neck connected to said flask body having an opening for introducing cells and culture fluids into said culturing zone to form a cell culture within said culturing zone;

(c) a closure for covering said opening in said flask neck, said closure comprising a top portion with an annular skirt extending from said top portion;

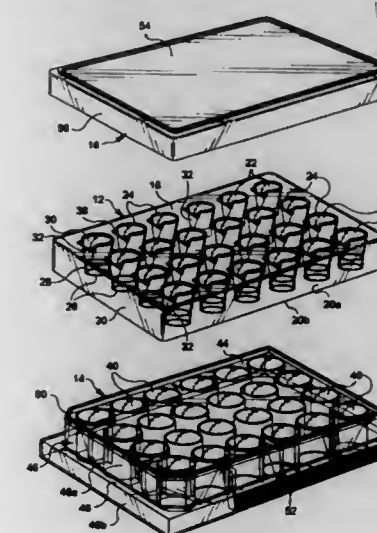
(d) means for removably mounting said closure to said flask neck whereby said closure may be removed from said flask neck when said cells and culturing fluids are to be introduced into or removed from said culturing zone;

(e) a gas permeable insert located in said flask closure defining a gas permeable opening through said closure, said gas permeable insert being made from material having a sufficiently large pore size to allow passage of said gases therethrough while having a sufficiently small pore size to prevent microorganisms from passing therethrough;

(f) a vessel having a unitary body including gas impermeable walls defining a chamber containing one or more self contained gas generators, said vessel body having a neck connected thereto, said vessel neck having gas impermeable walls and an opening for introducing said gas generators into said chamber, said vessel neck removably mounted to said top portion of said flask closure such that said vessel neck opening is covered by said top portion such that said gases from the atmosphere in said vessel produced by said gas generators can communicate with the gases in the atmosphere in said flask through said gas permeable opening to thereby allow equilibration between the two atmospheres to form an equilibrated atmosphere in said flask which is substantially equivalent to the atmosphere in said vessel, said atmosphere in said vessel having selected levels of one or more of said gases generated by said gas generators, said selected levels of said carbon dioxide gas being chosen to maintain optimum pH in said cell culture to provide the desired growth of said cell culture; and

(g) means for removably mounting said vessel neck to said top portion of said closure whereby said vessel may be removed from said closure when said gas generators are to be introduced or removed from said chamber.

5,801,055
MULTI-Well CULTURE DISH ASSEMBLY
Douglas P. Henderson, Morristown, N.J., assignor to Becton Dickinson and Company, Franklin Lakes, N.J.
Filed Sep. 10, 1997, Ser. No. 926,562
Int. Cl.⁶ C12M 3/00
U.S. Cl. 435—297.5 20 Claims



1. A culture dish assembly comprising: a well plate defining at least one well; an insert including a top wall and a plurality of enclosures coupled to said top wall, each of said enclosures including an upper end defining an upper opening, a lower end defining a bottom opening, a side wall connecting said upper and lower ends, a semi-permeable membrane mounted to said lower end and covering said bottom opening, a plurality of wall openings in said top wall, each of said wall openings adjoining one of said enclosures, each of said enclosures including a radial opening extending through said side wall and said upper end, each of said side walls including a substantially vertical portion adjoining said radial opening and extending towards said lower end, said radial openings each adjoining one of said wall openings and defining therewith a plurality of said wall openings and defining therewith a plurality of said wall openings.

pipette openings, said insert being mountable to said well plate such that at least one of said enclosures is positioned within said well.

5,801,056

NUCLEIC ACID ENCODING HIV-1 TAT PROTEIN

William Alan Haseltine, Cambridge; Craig A. Rosen, Brookline; Joseph Gerald Sodroski, Cambridge, all of Mass.; Flossie Wong-Staal, San Diego, Calif., and Suresh K. Arya, Gaithersburg, Md., assignors to Dana-Farber Cancer Institute, Boston, Mass., and The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 869,053, Apr. 14, 1992, abandoned, and a continuation-in-part of Ser. No. 172,152, Mar. 23, 1988, abandoned, which is a continuation-in-part of Ser. No. 780,925, Sep. 27, 1985, abandoned, said Ser. No. 869,053 is a continuation of Ser. No. 604,607, Oct. 26, 1990, abandoned, which is a division of Ser. No. 806,263, Dec. 6, 1985, Pat. No. 4,981,790.

This application Oct. 5, 1993, Ser. No. 131,898

Claims priority, application Canada, May 24, 1985, 482374

Int. Cl.⁶ C12N 15/49; 15/86; 15/63; C07K 14/16

U.S. Cl. 435—320.1

13 Claims

1. An isolated nucleic acid consisting of a nucleotide sequence encoding a functional HTLV-III/LAV trans-activating factor.

5,801,057

MICROSAMPLING DEVICE AND METHOD OF CONSTRUCTION

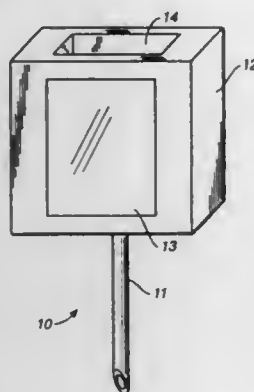
Wilson H. Smart, 245 Washington Ave., Palo Alto, Calif. 94301, and Kumar Subramanian, 6833 Corte Munras, Pleasanton, Calif. 94566

Filed Mar. 22, 1996, Ser. No. 620,994

Int. Cl.⁶ G01N 33/50

U.S. Cl. 436—68

18 Claims



1. A micro-sampler comprising:

a wafer of material defining therein a micro-sampler chamber; a needle formed integrally with and extending from said micro-sampler chamber; and a vent channel communicating with said micro-sampler chamber.

5,801,058

ANALYTIC METHOD TO DETERMINE THE FERTILIZING CAPACITY OF A HUMAN SEMEN SAMPLE

Carmen Blanco-Esteve, Martín El Humano, 1—pta. 22, 46008 Valencia, Spain

Continuation of Ser. No. 489,948, Jun. 13, 1995, abandoned.

This application Feb. 13, 1997, Ser. No. 799,892

Claims priority, application Spain, Jun. 20, 1994, 9401341

Int. Cl.⁶ G01N 33/48

U.S. Cl. 436—63

5 Claims

1. An analytical method for determining the fertilizing capacity of a semen sample comprising:

a) a first step which comprises spreading a drop of reagent solution comprised of 0.5–15% by weight of hyaluronic acid, 20–90% by weight of 5 mM calcium chloride, 0.1–5% by weight of Triton X and 0.1–5% by weight of a potassium phosphate selected from the group consisting of potassium mono-phosphate, potassium diphosphate and mixtures thereof, onto a microscope slide, and allowing the reagent solution to dry for 1–2 minutes, wherein said reagent solution has a pH between 6.5 and 8.0;

b) a second step which comprises spreading a previously washed semen sample on said slide; covering said slide with a cover-glass and allowing said slide to incubate for 30 minutes to approximately 48 hours at about 25°–40° C. in an incubator with about 1%–10% carbon dioxide to obtain an incubated sample;

c) a third step which comprises reading, under a phase contrast microscope having an eyepiece with a micrometer, halos formed around heads of spermatozoa in said incubated sample and evaluating a size of the diameter of said halos;

d) a fourth step which comprises assessing a fertilizing capacity of said incubated sample by determining if between 10–25% of the spermatozoa heads with intact head membranes have halo diameters equal to or larger than 7.5 microns, whereby this level indicates a positive capability of fertilization.

5,801,059

METHOD FOR DETECTING TOTAL KETONE BODIES IN URINE

Jack V. Smith, St. Petersburg, and Jesse M. Carter, Tampa, both of Fla., assignors to Chimera Research & Chemical, Inc., Largo, Fla.

Division of Ser. No. 429,292, Apr. 24, 1995, Pat. No. 5,516,700, which is a continuation-in-part of Ser. No. 68,956, May 28, 1993, abandoned. This application Mar. 19, 1996, Ser. No. 616,479

Int. Cl.⁶ G01N 33/493

U.S. Cl. 436—128

8 Claims

1. An automated method for detecting total ketone bodies in a patient's urine sample without employing an impregnated test strip, the steps comprising

placing an aliquot of the urine to be tested in a first automated analyzer sampling cup,

placing a standard containing a known concentration of total ketone bodies in a second automated analyzer sampling cup, placing the cups in a sampling tray within the automated analyzer, transferring the urine from the first sampling cup to a cuvette mounted within the automated analyzer, injecting at least one reagent composition in an aqueous medium into the cuvette,

wherein said at least one reagent composition comprises a compound to remove substances in the urine interfering with colorimeter reaction selected from the group consisting of 2, 3-butanedione monoxime, ethylenediaminetetraacetic acid and dimercaptopropanol, and a compound to convert B-hydroxybutyric acid in the urine to acetoacetic acid in the presence of nicotinamide adenine dinucleotide,

reading at specified intervals, in accordance with a preprogrammed code introduced into the automated analyzer, at a preprogrammed monochromatically specified wavelength, to

compare absorbance of the patient's urine and reagent composition complex with that of the standard and thereby quantitatively determining the presence of total ketone bodies in the patient's urine.

5,801,060

METHOD OF USING AUTOMATED ANALYZER TESTING OF URINE FOR PRESENCE OF A PH ABNORMALITY WITH SINGLE REAGENT INDICATOR

Jack V. Smith, St. Petersburg, Fla., assignor to Chimera Research & Chemical, Inc., Largo, Fla.

Continuation of Ser. No. 563,365, Nov. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 431,889, May 1, 1995, which is a continuation-in-part of Ser. No. 181,868, Jan. 13, 1994, abandoned, which is a continuation of Ser. No. 848,245, Mar. 9, 1992, abandoned. This application Aug. 27, 1997, Ser. No. 924,421

Int. Cl.⁶ G01N 33/493

U.S. Cl. 436—163

7 Claims

1. A quantitative method for testing urine for normal condition or adulterants that alter pH by determining incrementally to a decimal point of one-tenth the pH number of the urine in an automated analyzer comprising the steps of

admixing about one part by volume urine sample with about 30 parts by volume of a reagent solution having as components thereof based on a one liter quantity, 0.01 to 0.10 g of an indicator which effects a color change selected from the group consisting of litmus, azolitmin and methyl red, about 0.50 ml surfactant and the remainder water with reagent solution pH adjusted to about 4.0 to 8.0;

placing the mixed urine/reagent solution in a cuvette within the automated analyzer,

determining by spectrophotometry within the automated analyzer with a spectrophotometer set at about 405 to 600 nm whether a color change has occurred from 3 to 420 seconds and rejecting the urine sample if a color change has occurred indicating a pH number below 5.0 or above 8.0.

5,801,061

METHOD FOR THE COLORIMETRIC DETERMINATION OF ANALYTES IN THE PRESENCE OF INTERFERING PARTICULATE MATERIALS

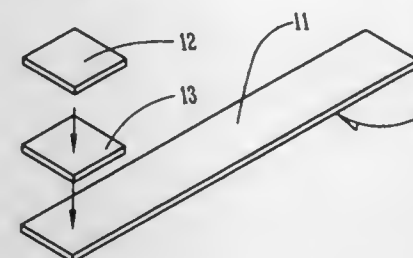
Harry Thomas Stephenson, Elkhart, Ind., assignor to Environmental Test Systems, Inc., Elkhart, Ind.

Filed Apr. 22, 1997, Ser. No. 839,220

Int. Cl.⁶ G01N 33/24

U.S. Cl. 436—169

8 Claims



1. A method for the determination of the concentration of an unknown analyte in a solid soil sample containing interfering water insoluble particulate materials, said method comprising:

a. mixing the solid soil sample with an aqueous extracting fluid to generate an extracted liquid test solution of the unknown analytes mixed with a dispersion of the water insoluble particulate material from the solid soil sample;

b. contacting the liquid test solution with a test device comprising an opaque matrix having filtering characteristics capable of removing the interfering water insoluble particulate mate-

rials, the matrix incorporated with the dried residue of a test composition reactable with the analyte to give a detectable response thereto in proportion to the amount of analyte present in the liquid test solution, the matrix being attached to a test fluid impervious support means having known light transmission characteristics forming a continuous face to face attachment area between the matrix and the support means, resulting in a device having a matrix side and a support means side; and,

c. reading and estimating the degree of detectable response of the test composition in the matrix through the attachment area on the support means side and correlating such response to that obtained using the same test devices with a series of standard concentrations of analyte in aqueous solutions to allow estimation of the concentration of unknown analyte in the test fluid.

5,801,062

METHOD AND DEVICE FOR PROVIDING AND SPREADING FLUIDS

Walter Sarstedt, Rommelsdorfer Strasse, 51582 Nuembrecht; Matthias Pfeiffer, Münsing/Ambach, and E. Henkel, Hannover, all of Germany, assignors to Walter Sarstedt, Nuembrecht, Germany

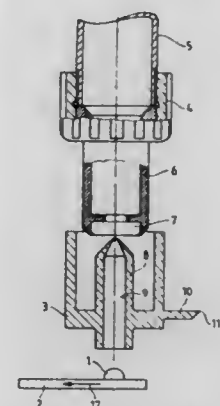
Filed Jan. 16, 1996, Ser. No. 586,074

Claims priority, application Germany, Jan. 13, 1995, 195 00 915.0

Int. Cl.⁶ G01N 1/10

U.S. Cl. 436—180

19 Claims



1. A method of providing and spreading a drop of fluid on a slide, comprising:

pressing an end of a needle of a dropper through a seal into a container of fluid, the needle having a longitudinal channel to allow fluid to move from the container to an outlet of the dropper, the dropper including a spreader mounted thereon distal from the end of the needle and between the end of the needle and the outlet, the spreader having a linear edge;

applying a drop of fluid to a slide by using the dropper; and using the spreader to spread and distribute the drop of fluid on the slide.

5,801,063

DEVICE AND PROCESS FOR THE BIOSPECIFIC REMOVAL OF HEPARIN

Peter Grandics, and Susan Szathmary, both of P.O. Box 1924, Arcadia, Calif. 91077

Filed May 9, 1995, Ser. No. 437,891

Int. Cl.⁶ A61M 37/00; 1/30; G01N 33/543

U.S. Cl. 436—518

16 Claims

1. A system for extracorporeal treatment of heparinized whole blood comprising:

(a) two extracorporeal devices, a first extracorporeal device and a second extracorporeal device, connected in-line; and

(b) means for introducing a precisely controlled flow of heparin into an extracorporeal blood circuit prior to the blood entering the first extracorporeal device; the second device containing antithrombin III covalently immobilized to a biocompatible polymer matrix for binding said heparin, the second device being inserted between the first device and a return line of the blood to a living being, so that said heparin is removed from the returned blood.

5,801,064

ASSAY METHODS AND REAGENTS FOR DETECTING AUTOANTIBODIES

Mark D. Foresman, 6324 Oxford St., Louis Park, Minn. 55416; Jyotsna Ghal, 3012 Ontario Rd., Little Canada, Minn. 55117, and Karel Z. Newman, 6959 Tartan Curve, Eden Prairie, Minn. 55346

Filed Dec. 4, 1995, Ser. No. 566,604
Int. Cl.⁶ G01N 33/543; C07K 1/00

U.S. Cl. 436—518

5 Claims

1. A method for the in vitro detection of the presence or amount of autoantibodies specific to an autoantigen in a test sample comprising: contacting a solution containing a predetermined amount of the autoantigen with a solid phase to which scFv antibody specific to the autoantigen is immobilized, then contacting the sample with the solid phase to which the autoantigen has been captured and allowing the autoantibodies present in the test sample to bind to the captured autoantigen, contacting the solid phase to which autoantibodies are bound with a predetermined amount of a labeled reagent that will specifically bind to the bound autoantibodies and detecting the amount of label bound to the autoantibodies, where the autoantigen is SS-A/Ro.

5,801,065

STRUCTURE AND FABRICATION OF SEMICONDUCTOR DEVICE HAVING MERGED RESISTIVE/CAPACITIVE PLATE AND/OR SURFACE LAYER THAT PROVIDES ESD PROTECTION

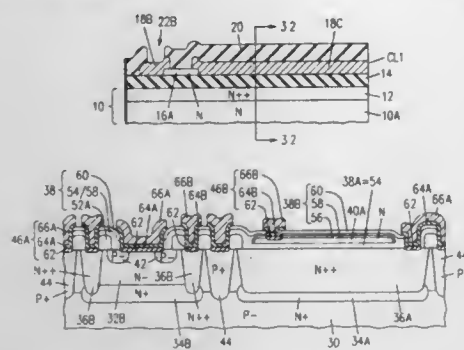
Wajid H. Rizvi, San Jose; Murali K. Denduluri, Santa Clara; Greg Anzelc, Fremont; Henry P. Y. Fong, Daly City; Rahul B. Shinkre, Santa Clara, and Daniel Q. Ho, San Jose, all of Calif., assignors to Universal Semiconductor, Inc., San Jose, Calif.

Continuation of Ser. No. 191,404, Feb. 3, 1994, abandoned.
This application Mar. 1, 1996, Ser. No. 609,414

Int. Cl.⁶ H01L 21/70

U.S. Cl. 437—60

8 Claims



1. A method comprising the steps of:

introducing a semiconductor impurity into part of a monocrystalline semiconductor body to form a doped surface layer extending along, and up to, an upper surface of the body, the doped surface layer acting as a lower plate for a capacitor; forming a dielectric layer along the upper surface of the monocrystalline semiconductor body the dielectric layer overlying at least a portion of the doped surface layer;

forming an upper plate of the capacitor, the upper plate overlying portions of the dielectric layer and the doped surface layer; and

forming a metallic pad for connecting the lower plate of the capacitor to a source of a substantially constant voltage, the metallic pad contacting the surface layer at the upper surface of the body, wherein forming the metallic pad further comprises forming a patterned metallic layer on the semiconductor body over its upper surface, the metallic layer constituting the metallic pad and a first junction electrode for a Schottky diode.

5,801,066

METHOD AND APPARATUS FOR MEASURING A CHANGE IN THE THICKNESS OF POLISHING PADS USED IN CHEMICAL-MECHANICAL PLANARIZATION OF SEMICONDUCTOR WAFERS

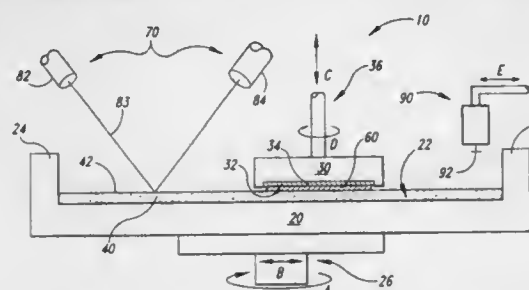
Scott G. Melkle, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Division of Ser. No. 560,734, Nov. 20, 1995, Pat. No. 5,609,718, which is a continuation-in-part of Ser. No. 535,991, Sep. 29, 1995, Pat. No. 5,655,951. This application Mar. 6, 1997, Ser. No. 812,177

Int. Cl.⁶ B24D 17/00; H01L 21/00

U.S. Cl. 438—14

27 Claims



1. A method of identifying a change in polishing operating parameters in planarization of a semiconductor wafer against a polishing pad in which the polishing pad is conditioned by removing a layer of material from a planarizing surface on the pad according to a set of conditioning parameters, the method comprising the steps of:

measuring an actual change in pad thickness caused by removing the layer of material from the planarizing surface of the pad; and comparing the actual change in pad thickness with an expected change in pad thickness based upon a polishing rate of previous wafers and a predetermined correlation between wafer polishing rates and changes in thickness per conditioning cycle, whereby a sufficient difference between the actual change in pad thickness and the expected change in pad thickness indicates a change in a wafer polishing operating parameter.

5,801,067

METHOD FOR RECORDING AND IDENTIFYING INTEGRATED CIRCUIT CHIPS AND THE LIKE

Ronald Shaw, 140 The Village, No. 402, Redondo Beach, Calif. 90277; John Brooks, Los Angeles, and Frank Flemming, North Hollywood, both of Calif., assignors to Ronald Shaw, Redondo Beach, Calif.

Continuation-in-part of Ser. No. 144,733, Oct. 27, 1993, Pat. No. 5,532,773. This application Sep. 5, 1995, Ser. No. 523,595

Int. Cl.⁶ B42D 15/00

U.S. Cl. 438—15

14 Claims

1. A method of recording arbitrary identification information to a plurality of integrated circuit chips that are produced on an assembly line, the method comprising the steps of:

5,801,069

METHOD OF FABRICATING THIN FILM PIEZOELECTRIC DEVICE

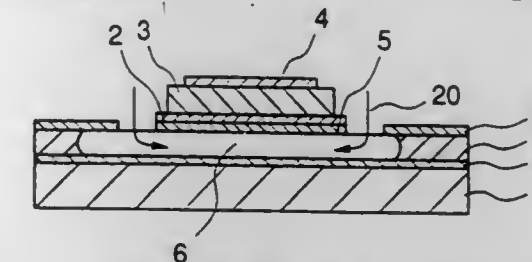
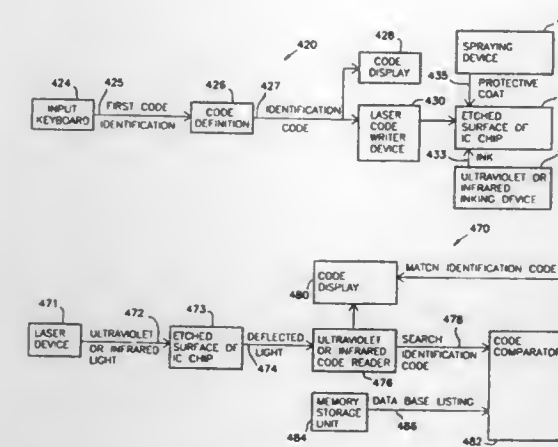
Kenichi Harada; Takeshi Kuragaki; Osamu Ishihara; Kazuhiko Sato, and Akiyoshi Kudo, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,769

Claims priority, application Japan, Sep. 11, 1995, 7-233065
Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—52

2 Claims



- providing an inputting means to input said identification information to each one of said plurality of integrated circuit chips;
- encoding said identification information into an encoded index code;
- etching said encoded index code on a surface of said each chip;
- filling said encoded index code etched on said surface of said each chip with an ultraviolet ink such that said encoded index code remains invisible to the naked eye but can be retrieved at a later time for identifying said each chip;
- spraying a clear protective coat over said etched surface of said each chip; and
- emitting a beam of ultraviolet light onto said ultraviolet ink on said each chip to trigger a code reader for receiving a deflected light and translating said encoded index code of said each chip into a readable data which is readable by a user.

1. A method of fabricating a thin film piezoelectric device comprising:

preparing a semiconductor substrate having a surface; forming an etch stopping layer having an etching rate on the surface of the semiconductor substrate; forming a first semiconductor layer having an etching rate higher than the etching rate of the etch stopping layer on the etch stopping layer; forming a first electrode on a region of the first semiconductor layer; forming a piezoelectric film on the first electrode; forming a second electrode on the piezoelectric film; and etching a portion of the first semiconductor layer opposite where the first electrode, the piezoelectric film, and the second electrode overlap, from the surface of the first semiconductor layer and selectively with respect to the etch stopping layer, thereby forming a cavity in the first semiconductor layer.

5,801,068

HERMETICALLY SEALED MICROELECTRONIC DEVICE AND METHOD OF FORMING SAME

Kathirgamasundaram Sooriakumar, Tempe, Ariz.; Allen Henry Meitzler; Shaun Leaf McCarthy, both of Ann Arbor, Mich., and Russell J. Haeblerle, Plymouth, Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

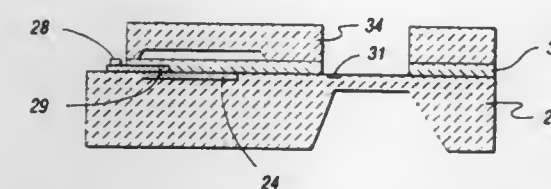
Division of Ser. No. 316,753, Oct. 3, 1994, This application

Nov. 7, 1996, Ser. No. 745,150

Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—51

11 Claims



1. A method of forming a hermetically sealed microelectronic device at the wafer level, comprising:

providing a substrate having associated electronics and at least one metal bond pad; sputter depositing a dielectric layer atop said substrate to form a dielectric/metal seal; polishing said dielectric layer to remove surface variations; and anodically bonding a cover wafer to said dielectric layer so as to form a sealed cavity to house and protect said electronics.

5,801,070

HIGH SENSITIVITY, SILICON-BASED, MICROCALORIMETRIC GAS SENSOR AND FABRICATION METHOD

Margherita Zanini-Fisher, Bloomfield Township, and Jacobus Visser, Southfield, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

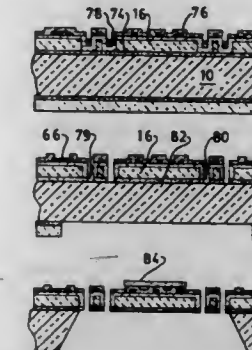
Division of Ser. No. 257,606, Jun. 9, 1994, Pat. No. 5,451,371.

This application May 26, 1995, Ser. No. 451,246

Int. Cl.⁶ H01L 35/04

U.S. Cl. 438—54

4 Claims



1. A method of fabricating a microcalorimetric comprising the steps of applying a coating of silicon nitride on a frame of silicon; depositing a layer of polysilicon on said silicon nitride coating; partially removing said polysilicon with photolithography and selective plasma etching to delineate polysilicon sensor plates with surrounding openings and plate supporting arms extending from said sensor plates to the surrounding polysilicon layer;

applying to said plates, said arms and said polysilicon layer a coating of silicon nitride;
 depositing on said silicon nitride coating a metallic pattern defining heater resistors and resistance thermometers;
 passivating said resistors with a coating of silicon nitride;
 removing the passivation of said resistors at contact areas using photolithography and plasma etching, said passivation removal eliminating also silicon nitride material between said sensor plates and said polysilicon layer to create open spaces surrounding said sensor plates;
 removing by wet etching the silicon of said silicon frame directly adjacent said sensor plates whereby said sensor plates are suspended by said arms and are thermally isolated from said frame and from said polysilicon layer; and
 applying a catalyst material to one of said sensor plates.

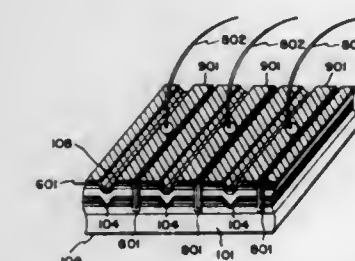
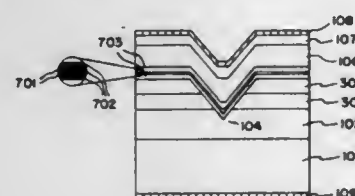
5,801,071
METHOD FOR PRODUCING SEMICONDUCTOR LASER DIODE

Takashi Takahashi, Sendai, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 361,102, Dec. 21, 1994, Pat. No. 5,577,062. This application Jul. 9, 1996, Ser. No. 677,271
 Claims priority, application Japan, Dec. 22, 1993, 5-324037
 Int. Cl.⁶ H01L 21/203

U.S. Cl. 438—57

3 Claims



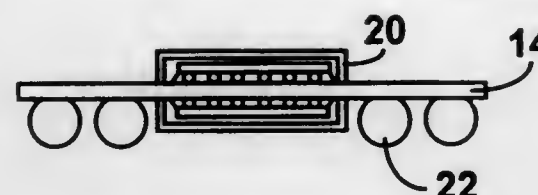
1. A method of producing a semiconductor laser diode comprising steps of:
 forming a first clad layer of a first conduction type on a substrate of the first conduction type by vapor phase epitaxy;
 forming a current block layer on the first clad layer by vapor phase epitaxy;
 forming a V groove stripe in a vertical direction so that a tip of the V groove can arrive at the first clad layer by wet-etching;
 forming an active layer on the first clad layer and the current block layer along the V groove stripe by vapor phase epitaxy;
 forming a second clad layer of a second conduction type on the active layer by vapor phase epitaxy;
 forming a contact layer of the second conduction type on the second clad layer by vapor phase epitaxy;
 forming a first electrode on a surface of the substrate which is opposite side of a surface on which the first clad layer is formed by vacuum evaporation;
 forming a second electrode on a surface of the contact layer by the vacuum evaporation.

5,801,072
METHOD OF PACKAGING INTEGRATED CIRCUITS
 Ivor G. Barber, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Mar. 14, 1996, Ser. No. 615,388
 Int. Cl.⁶ H01L 02/44

U.S. Cl. 438—107

14 Claims



1. A method of assembling an integrated circuit in a package comprising:
 providing a package substrate having first and second opposing sides, the first side having contact pads and first bonding pads, the second side having second bonding pads, and the substrate having electrical connections between at least one of the bonding pads and at least one of the contact pads,
 electrically connecting a first integrated circuit to the first bonding pads on the first side of the package substrate, the contact pads remaining accessible for electrical connection, and
 electrically connecting a second integrated circuit to the second bonding pads on the second side of the package substrate, where the position of the second integrated circuit is substantially opposed to and aligned with the position of the first integrated circuit.

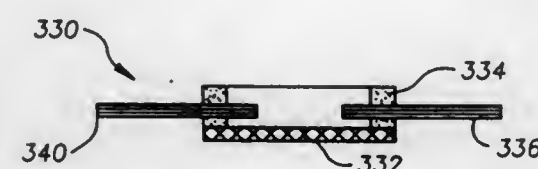
5,801,073
NET-SHAPE CERAMIC PROCESSING FOR ELECTRONIC DEVICES AND PACKAGES
 William L. Robbins, Newton; John S. Haggerty, Lincoln; Dennis D. Rathman, Ashland; William D. Goodhue, Chelmsford; George B. Kenney, Medfield; Annamaria Lightfoot, Andover; R. Allen Murphy, Boxboro; Wendell E. Rhine, Belmont; and Julia Sigalovsky, Sudbury, all of Mass., assignors to Charles Stark Draper Laboratory, and Massachusetts Institute of Technology, both of Cambridge, Mass.

Filed May 25, 1995, Ser. No. 450,692

Int. Cl.⁶ H01L 21/60

U.S. Cl. 438—125

140 Claims



1. A method for producing a packaged electronic device comprising the steps of:
 shaping a package preform comprising a preform of a package base, a preform of package sidewalls connected to the base preform, and a preform of a package conductor positioned to extend to an outside surface of the sidewall preform;
 inserting a semiconducting material component into the package preform to be supported by the package base preform; and
 heating the shaped package preform and inserted semiconducting material component in a nitrogen-containing gas atmosphere to nitride the package preform.

5,801,074
METHOD OF MAKING AN AIR TIGHT CAVITY IN AN ASSEMBLY PACKAGE

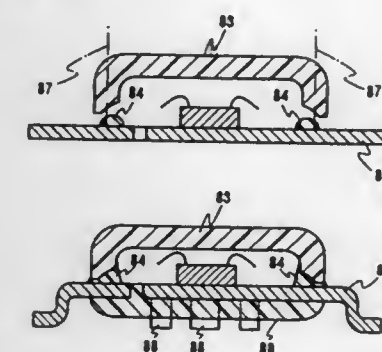
Jong Tae Kim, #301 Spacevilla, 741 Baugbae-Dong, Secho-Gu, Seoul, 137-069, Rep. of Korea; Chau Ik Park, 121-1 Sungbon-Ri, Daeso-Myun, Tsung-sung-koon, Choongchungbook-Do, Rep. of Korea, 369-820, and Chang Hyung Lee, 2-510 Woosung Apt, 1336 Secho-Dong, Secho-Gu, Seoul, 137-072, Rep. of Korea

Filed Feb. 20, 1996, Ser. No. 603,377

Int. Cl.⁶ H01L 21/60

U.S. Cl. 438—125

11 Claims



1. A method of making an assembly package having an air tight cavity, said assembly package comprising (1) a base in the form of a lead frame composed of a conductive plate having a plurality of frame leads and a non-conductive backing plate and (2) a shell having a lip about the circumference thereof, the method comprising the steps of:

- dispensing a thermally alpha-staged setting epoxy resin which is characterized as being a gel in an uncured state at room temperature onto said plurality of frame leads of said base;
- heating said base to a temperature in the range of about 90° to about 100° C.;
- placing said shell onto said base such that said lip of said shell rests on the epoxy dispensed onto said heated base, to form an assembly package having a cavity therein;
- heating said assembly package at a first elevated temperature for a period of time sufficient to cure the epoxy and seal the atmosphere expanding in said cavity such that the pressure exerted on the epoxy by the force of said expanding atmosphere within the cavity counteracts against the surface tension of the epoxy being cured, thereby resulting in said cavity being airtight and said epoxy being cured without puncture; and
- heating the assembly package at a second elevated temperature in an enclosed oven for a period of time sufficient to further cure and stabilize the cured epoxy.

5,801,075
METHOD OF FORMING TRENCH TRANSISTOR WITH METAL SPACERS

Mark I. Gardner, Cedar Creek; Robert Dawson, Austin; H. Jim Fulford, Jr., Austin; Frederick N. Hause, Austin; Mark W. Michael, Cedar Park; Bradley T. Moore, Austin, and Derick J. Wristers, Austin, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

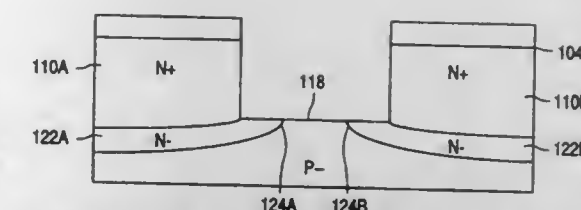
Filed Oct. 30, 1996, Ser. No. 739,593

Int. Cl.⁶ H01L 21/8238

U.S. Cl. 438—197

50 Claims

1. A method of forming an IGFET with a gate electrode and metal spacers in a trench, comprising the steps of:
 forming a trench with a bottom surface and opposing sidewalls in a substrate;
 forming a source and a drain in the substrate and adjacent to the bottom surface;



forming metal spacers in the trench and adjacent to the sidewalls and outer portions of the bottom surface and outside a central portion of the bottom surface after forming the source and the drain;
 forming a gate insulator on the central portion of the bottom surface;
 forming protective insulators on the metal spacers; and
 forming a gate electrode on the gate insulator and the protective insulators such that the gate electrode is spaced from and electrically isolated from the metal spacers and the substrate.

5,801,076
METHOD OF MAKING NON-VOLATILE MEMORY DEVICE HAVING A FLOATING GATE WITH ENHANCED CHARGE RETENTION

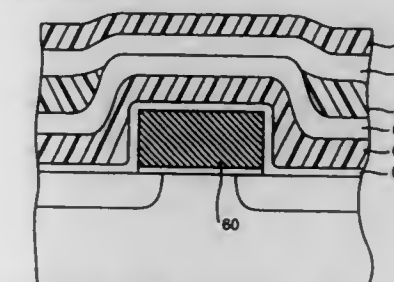
Said N. Ghneim, and H. Jim Fulford, Jr., both of Austin, Tex., assignors to Advanced Micro Devices, Inc.

Filed Feb. 21, 1995, Ser. No. 393,138

Int. Cl.⁶ H01L 21/8247

U.S. Cl. 438—261

27 Claims



1. A method for fabricating a memory device having a floating gate, comprising the steps of:
 providing a semiconductor substrate upon which a tunnel oxide is formed;
 depositing a floating gate upon said tunnel oxide; and
 forming an elevational level above said floating gate a hydrogen-containing dielectric having bonded hydrogen which remains in its bonded location during formation of said hydrogen-containing dielectric and further remains in its bonded location after electrons are injected upon said floating gate.

5,801,077
METHOD OF MAKING SIDEWALL POLYMER ON POLYCIDIC GATE FOR LDD STRUCTURE

Calvin Leung Yat Chor, and Mel Sheng Zhou, both of Singapore, Singapore, assignors to Chartered Semiconductor Manufacturing Ltd., Singapore, Singapore

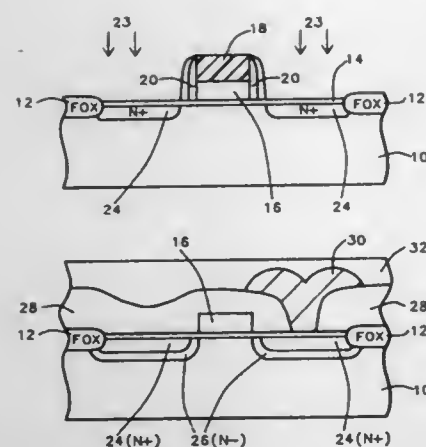
Filed Apr. 22, 1996, Ser. No. 635,994

Int. Cl.⁶ H01L 21/336

U.S. Cl. 438—305

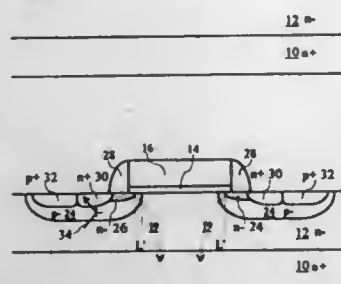
33 Claims

1. A method of fabricating an integrated circuit device comprising:
 providing a layer of gate silicon oxide over the surface of a semiconductor substrate;
 providing a gate conducting layer overlying said gate silicon oxide layer;
 covering said gate conducting layer with a photoresist layer and patterning said photoresist layer to form a mask;



etching away said gate conducting layer where it is not covered by said mask to form gate electrodes whereby a polymer is formed on the sidewalls of said mask and said gate electrodes; implanting first ions into said semiconductor substrate not covered by said mask and said polymer to form source and drain regions; removing said polymer and said mask; implanting second ions into said semiconductor substrate whereby lightly doped source and drain regions are formed within said semiconductor substrate which was covered by said polymer; depositing an insulating layer over the surface of said substrate; etching an opening through said insulating layer to one of said source and drain regions; depositing a conducting layer overlying said insulating layer and within said opening and patterning said conducting layer completing the fabrication of said integrated circuit device.

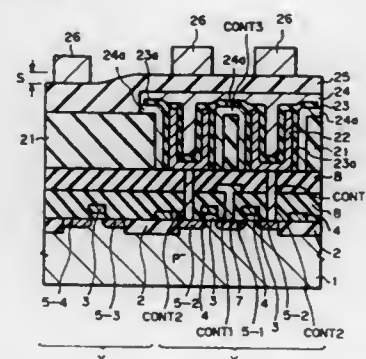
5,801,078
METHOD FOR MANUFACTURING DIFFUSED CHANNEL INSULATED GATE EFFECT TRANSISTOR
Jean Jimenez, Volron, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France
Filed Dec. 12, 1996, Ser. No. 764,356
Claims priority, application France, Dec. 18, 1995, 9515446
Int. Cl.⁶ H01L 21/336
U.S. Cl. 438—306 22 Claims



1. A method for manufacturing a diffused channel insulated gate field effect transistor, comprising the steps of:
providing a semiconductor substrate of a first conductivity type, said semiconductor substrate having an upper surface;
forming a gate isolation layer and a gate electrode on said upper surface of said substrate;
implanting a first dopant of a second conductivity type at a first doping density into a region of said substrate around said gate electrode;
in the absence of thermal annealing said first dopant, implanting a second dopant of said first conductivity type at a second

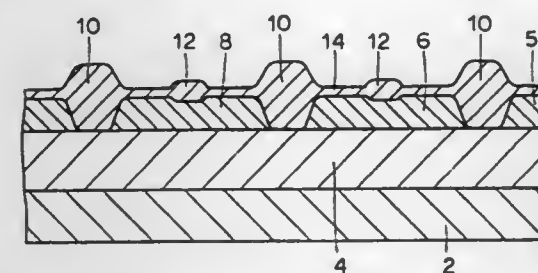
doping density that is less than said first doping density into said region comprising said first dopant;
in the absence of thermal annealing said second dopant, forming spacers on said upper surface of said substrate adjacent to ends of said gate electrode to cover a portion of said region comprising said second dopant;
implanting a third dopant of said first conductivity type at a third doping density that is greater than said first doping density into a portion of said region comprising said first dopant spaced away from said gate electrode by said spacers; and performing a thermal anneal, wherein said first dopant has a diffusion rate greater than said second and third dopants during said anneal step.

5,801,079
METHOD FOR MANUFACTURING A STACKED CAPACITOR TYPE SEMICONDUCTOR MEMORY DEVICE WITH GOOD FLATNESS CHARACTERISTICS
Yoshihiro Takaishi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Division of Ser. No. 506,979, Jul. 28, 1995, Pat. No. 5,604,696.
This application Dec. 7, 1995, Ser. No. 569,006
Claims priority, application Japan, Jul. 29, 1994, 6-177867
Int. Cl.⁶ H01L 21/20
U.S. Cl. 438—396 9 Claims



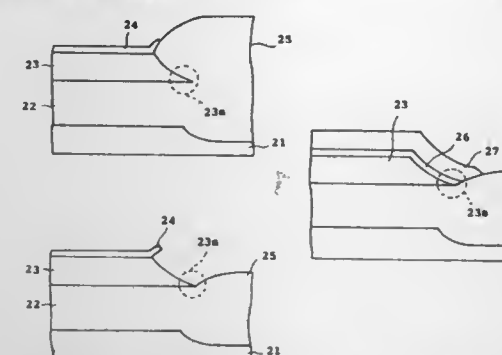
1. A method for manufacturing a stacked capacitor type semiconductor memory device comprising the steps of:
forming a first insulating layer made of a first material on a semiconductor substrate;
forming a second insulating layer made of a second material different from said first material on said first insulating layer;
forming a plurality of openings in said second insulating layer;
forming a plurality of first capacitor upper electrode layers on sidewalls within said openings of said second insulating layer;
forming a first capacitor insulating layer on said first capacitor upper electrode layers;
forming a plurality of capacitor lower electrode layers on bottom surfaces within said openings of said second insulating layers and on said first capacitor insulating layer;
forming a plurality of first contact holes in said first capacitor insulating layer;
forming a second capacitor insulating layer on said capacitor lower electrode layers;
forming a second capacitor upper electrode layer on said capacitor insulating layer, said second capacitor upper electrode layer being electrically connected via said first contact holes to said first capacitor upper electrodes.

5,801,080
METHOD OF MANUFACTURING SEMICONDUCTOR SUBSTRATE HAVING TOTAL AND PARTIAL DIELECTRIC ISOLATION
Yasuo Inoue; Tadashi Nishimura; Yasuo Yamaguchi, and Toshiaki Iwamatsu, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 675,510, Jul. 3, 1996, Pat. No. 5,652,454, which is a continuation of Ser. No. 264,116, Jun. 22, 1994, abandoned. This application Apr. 14, 1997, Ser. No. 837,959
Claims priority, application Japan, Jul. 5, 1993, 5-165426; Dec. 3, 1993, 5-304405
Int. Cl.⁶ H01L 21/76
U.S. Cl. 438—405 4 Claims



1. A method of manufacturing a semiconductor device comprising the steps of:
forming an oxide film on a semiconductor layer on the substrate with an insulation film therebetween and forming at a prescribed position a first field oxide film in plural reaching said insulation film with an LOCOS method; and
forming a second field oxide film smaller in thickness than said first field oxide film again with an LOCOS method in a region sandwiched by said first field oxide films.

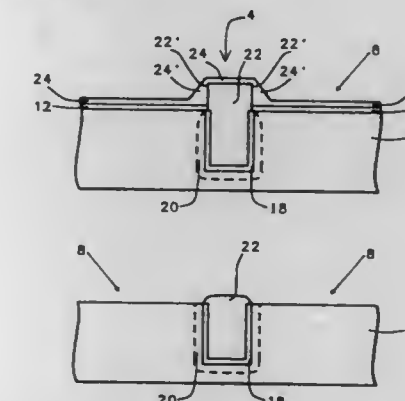
5,801,081
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE
Suguru Warashina, and Osamu Tsuboi, both of Kawasaki, Japan, assignors to Fujitsu Ltd., Kawasaki, Japan
Division of Ser. No. 796,493, Feb. 5, 1997, Pat. No. 5,698,885, which is a continuation of Ser. No. 374,295, Jan. 19, 1995, abandoned. This application May 28, 1997, Ser. No. 864,736
Claims priority, application Japan, Mar. 17, 1994, 6-046950; Nov. 30, 1994, 6-297376
Int. Cl.⁶ H01L 21/76
U.S. Cl. 438—410 4 Claims



1. A method of manufacturing a semiconductor device comprising the steps of:
forming a first semiconductor layer and a second semiconductor layer putting an insulating layer therebetween;
forming an oxidation-preventive mask on said second semiconductor layer;
oxidizing said second semiconductor layer locally with said oxidation-preventive mask to form a local oxide film that

reaches said insulating layer so as to form a protrusion of said second semiconductor layer at the side portion of said second semiconductor layer;
removing said local oxide film on said protrusion; and
forming a gate insulating film and gate electrode/interconnection one after another on said second semiconductor layer, in order that said gate electrode/interconnection is extending on the protrusion.

5,801,082
METHOD FOR MAKING IMPROVED SHALLOW TRENCH ISOLATION WITH DIELECTRIC STUDS FOR SEMICONDUCTOR INTEGRATED CIRCUITS
Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan
Filed Aug. 18, 1997, Ser. No. 912,322
Int. Cl.⁶ H01L 21/76
U.S. Cl. 438—424 26 Claims



13. A method for fabricating raised shallow trench isolation regions in a semiconductor substrate, and gate electrodes for field effect transistors comprising the steps of:
forming a pad oxide layer composed of silicon oxide on said substrate;
depositing a silicon nitride layer on said pad oxide layer;
forming openings in said silicon nitride layer and said pad oxide layer surrounding device areas using a photoresist mask and anisotropic plasma etching;
removing said photoresist mask;
forming trenches by selectively anisotropic plasma etching said silicon substrate in said openings while leaving portions of said silicon nitride layer over said device areas;
forming a liner oxide by thermal oxidation on exposed surfaces of said trenches in said substrate;
forming a channel-stop implant in said trenches;
depositing a conformal chemical vapor deposited gap-fill silicon oxide to fill said trenches;
chemical/mechanically polishing back said gap-fill silicon oxide to said silicon nitride layer;
removing said silicon nitride layer over said device areas, thereby forming raised dielectric studs in said trenches extending above said substrate surface;
depositing a spin-on glass by spin coating thereby forming disposable spin-on glass spacers on said raised dielectric studs;
curing said spin-on glass by thermal annealing;
wet etching back said spin-on glass and said pad oxide to said device areas and concurrently etching back said raised dielectric studs and said spin-on glass spacers thereby forming said shallow trench isolation regions having a convex raised surface relative to said substrate surface;
forming a gate oxide by thermal oxidation on said device areas;
depositing a polysilicon layer on said substrate;
patterning said polysilicon layer and completing said gate electrodes for said field effect transistors.

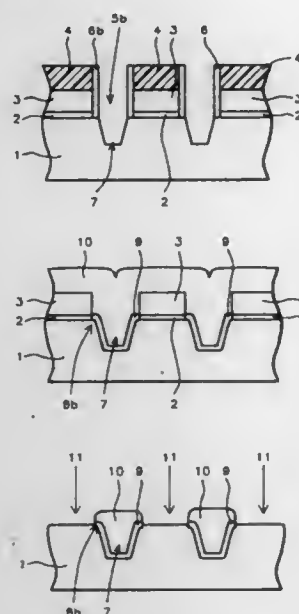
5,801,083

USE OF POLYMER SPACERS FOR THE FABRICATION OF SHALLOW TRENCH ISOLATION REGIONS WITH ROUNDED TOP CORNERS

Bo Yu; Qing Hua Zhong; Jian Hui Ye, and Mei Sheng Zhou, all of Singapore, Singapore, assignors to Chartered Semiconductor Manufacturing, Ltd., Singapore, Singapore
 Filed Oct. 20, 1997, Ser. No. 954,046
 Int. Cl.⁶ H01L 21/76

U.S. Cl. 438—424

16 Claims



9. A method for forming an insulator filled, shallow trench isolation region, with rounded corners, in a semiconductor substrate, comprising the steps of:

- depositing a composite insulator layer, on said semiconductor substrate;
- forming a photoresist shape, with a first opening, on said composite insulator layer;
- anisotropic etching of said composite insulator layer, using said photoresist shape as a mask, extending said first opening in said photoresist shape, to said composite insulator layer;
- forming polymer spacers on the sides of said first opening in said photoresist shape, and on the sides of said first opening in said composite insulator layer, creating a polymer coated opening;
- dry etching of said semiconductor substrate, exposed in polymer coated opening, creating shallow trench regions;
- removal of said photoresist shape, and of said polymer spacers, exposing a region of unetched semiconductor substrate, between said shallow trench and said composite insulator layer, and exposing a sharp corner at the intersection of said shallow trench and said region of unetched semiconductor substrate; growing a silicon oxide layer on exposed surfaces of said shallow trench, and on the exposed surface of said region of unetched semiconductor substrate, converting said sharp corner, to a rounded corner, at intersection of said shallow trench and said region of unetched semiconductor substrate;
- depositing an insulator layer on top surface of said composite insulator layer, completely filling shallow trench; and
- removing said insulator layer from the top surface of said composite insulator layer, resulting in said insulator filled, shallow trench, with rounded corners.

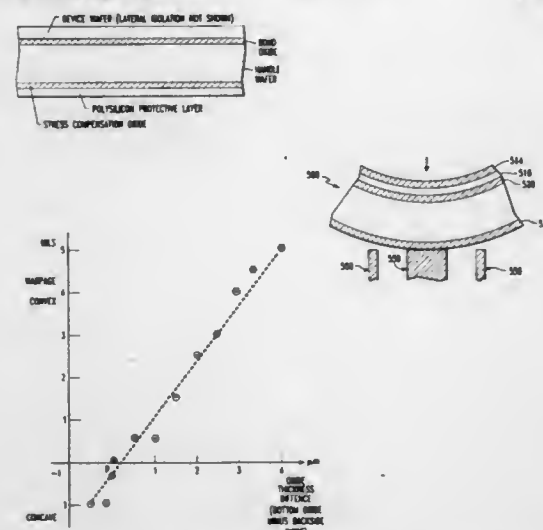
5,801,084

BONDED WAFER PROCESSING

James Douglas Beasom, Melbourne Village, and Craig James McLachlan, Melbourne Beach, both of Fla., assignors to Harris Corporation, Melbourne, Fla.
 Continuation of Ser. No. 653,808, May 28, 1996, abandoned, which is a continuation of Ser. No. 335,600, Nov. 8, 1994, abandoned, which is a continuation of Ser. No. 900,202, Jun. 17, 1992, abandoned. This application Apr. 14, 1997, Ser. No. 843,302
 Int. Cl.⁶ H01L 21/46

U.S. Cl. 438—457

4 Claims



1. A method for preparing a plurality of bonded wafers for contact with vacuum wafer chucks comprising the steps of providing a plurality of device wafers and a plurality of handle wafers suitable for bonding to one another; bonding each device wafer to a first surface of a handle wafer with an oxide layer between said wafers; providing a stress compensation layer along a second surface of each handle wafer, said stress compensation layer generating a net residual stress for concavely warping the bonded wafer along the second surface of said handle wafer; and placing each bonded wafer on a vacuum wafer chuck such that the concave second surface of the handle wafer makes contact with the wafer chuck.

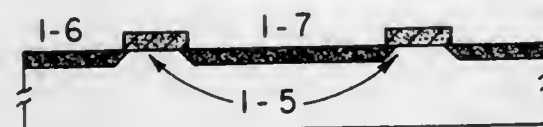
5,801,085

METHOD FOR THE PREVENTION OF MISFIT DISLOCATION IN SILICON WAFER AND SILICON STRUCTURE MANUFACTURED THEREBY

Choong Ki Kim, Seoul; Chul Hi Han, and Ho Jun Lee, both of Daejeon, all of Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Rep. of Korea
 Division of Ser. No. 383,919, Feb. 6, 1995, abandoned. This application Sep. 28, 1995, Ser. No. 535,454
 Claims priority, application Rep. of Korea, Feb. 7, 1994, 1994-2223
 Int. Cl.⁶ H01L 21/425

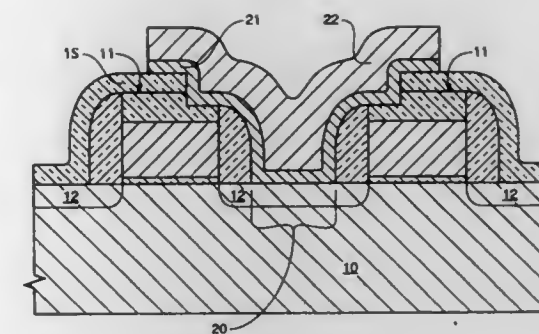
U.S. Cl. 438—524

3 Claims



1. A method for the prevention of misfit dislocation in a silicon wafer, comprising the steps of: depositing a blanket silicon oxide or silicon nitride on silicon wafer in a chemical vapor deposition process;

subjecting the silicon oxide or silicon nitride to selective etch, to form a silicon oxide or silicon nitride pattern which is of closed, continuous perimeter shape; and injecting the silicon wafer with impurities at a high density with the CVD silicon oxide or silicon nitride pattern serving as a mask, to form an impurity-blocked region under the CVD silicon oxide or silicon nitride through the action of the mask, the impurity-blocked region forming a portion of the silicon wafer therewithin, whereby the misfit dislocation cannot be propagated from the edge of the silicon wafer into the portion enclosed by the impurity-blocked region.



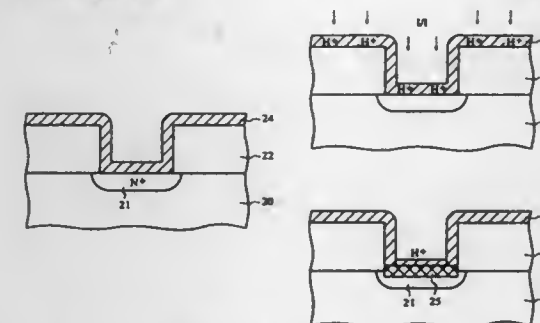
5,801,086

PROCESS FOR FORMATION OF CONTACT CONDUCTIVE LAYER IN A SEMICONDUCTOR DEVICE

Chang Jae Lee, Chungcheongbuk-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea
 Continuation of Ser. No. 547,505, Oct. 24, 1995, abandoned.
 This application Jul. 11, 1997, Ser. No. 893,739
 Claims priority, application Rep. of Korea, Oct. 24, 1994, 94-27132
 Int. Cl.⁶ H01L 21/28

U.S. Cl. 438—558

13 Claims



1. A process for forming a contact between a conductive layer and a semiconductor substrate in a semiconductor device, comprising the steps of:

- (a) forming an insulating layer on the semiconductor substrate, and removing a portion of the insulating layer for opening a contact hole where the contact is to be formed;
- (b) forming a metal layer over the surface of the substrate, and implanting positive ions including hydrogen or halogen ions into the metal layer; and
- (c) carrying out a heat treatment of the substrate so as to form a silicide layer.

5,801,087

METHOD OF FORMING IMPROVED CONTACTS FROM POLYSILICON TO SILICON OR OTHER POLYSILICON LAYERS

Monte Manning, Kuna; Shubneesh Batra, Boise, and Charles H. Dennison, Meridian, all of Id., assignors to Micron Technology, Inc., Boise, Id.
 Continuation of Ser. No. 330,170, Oct. 27, 1994, Pat. No. 5,541,137, which is a continuation of Ser. No. 218,474, Mar. 24, 1994, abandoned. This application Jan. 3, 1996, Ser. No. 582,310
 Int. Cl.⁶ H01L 21/225; 21/28

U.S. Cl. 438—559

9 Claims

1. A method of forming conductively doped contacts on a supporting substrate in a semiconductor device, said method comprising the steps of: preparing a conductive area to accept contact formation; forming a phosphorus doped polysilicon layer over said conductive area, said conductive area and said phosphorus layer having a first interfacial silicon dioxide layer therebetween;

forming an arsenic doped polysilicon layer over said phosphorus doped polysilicon layer, said arsenic doped polysilicon layer and said phosphorus doped polysilicon layer having a second interfacial silicon dioxide layer therebetween; annealing said layers to provide sufficient thermal treatment to allow phosphorus atoms to break up said first interfacial silicon dioxide layer while said second interfacial silicon dioxide layer deters the out-diffusion of phosphorus atoms into said arsenic doped polysilicon layer; and further annealing said layers so that said phosphorus atoms break up said second interfacial silicon dioxide layer.

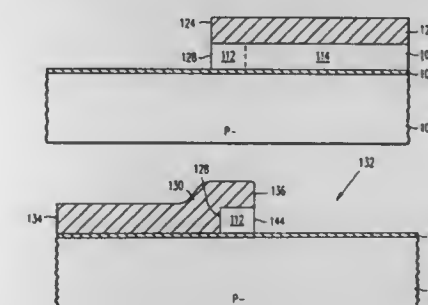
5,801,088

METHOD OF FORMING A GATE ELECTRODE FOR AN IGFET

Mark L. Gardner, Cedar Creek; Derick J. Wisters, and H. Jim Fulford, Jr., both of Austin, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.
 Filed Jul. 17, 1996, Ser. No. 682,233
 Int. Cl.⁶ H01L 21/28

U.S. Cl. 438—585

41 Claims



1. A method of forming a gate electrode for an IGFET prior to introducing any source/drain doping for the IGFET, comprising the steps of:

- forming a gate material for providing a gate electrode over a semiconductor substrate;
- forming a first mask over the gate material, wherein the first mask includes an opening that determines a first edge of the gate electrode;
- removing a first portion of the gate material to form the first edge of the gate electrode as determined by the first mask;
- forming a second mask over the gate material after removing the first mask, wherein the second mask includes an opening that determines a second edge of the gate electrode;
- removing a second portion of the gate material to form the second edge of the gate electrode as determined by the second mask; and
- removing the second mask.

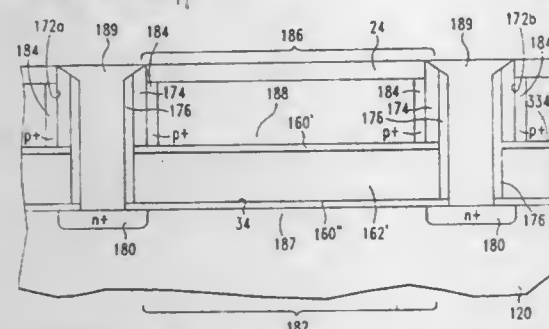
5,801,089

METHOD OF FORMING STACKED DEVICES

Donald McAlpine Kenney, Shelbourne, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 289,069, Aug. 11, 1994, Pat. No. 5,583,368. This application Jun. 7, 1995, Ser. No. 473,538
Int. Cl.⁶ H01L 21/3205

U.S. Cl. 438—589

17 Claims



7. A method of forming a buried connector in a substrate, the method comprising the steps of:

- forming a first vertical trench in bulk single crystal substrate;
- forming a horizontal trench buried within said bulk single crystal substrate starting from a portion of said first vertical trench, wherein said horizontal trench forming step is without the use of an adjacent substantially continuous p+ layer, said horizontal trench having a surface; and
- forming a layer of insulation on said surface of said horizontal trench;
- depositing conductive material on said layer of insulation; and
- forming a first and second heavily doped region within said bulk single crystal substrate adjacent said layer of insulation.

5,801,090

METHOD OF PROTECTING AN ALIGNMENT MARK IN A SEMICONDUCTOR MANUFACTURING PROCESS WITH CMP

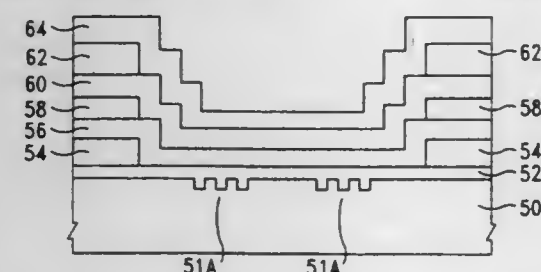
Lin-June Wu, and Jau-Jey Wang, both of Hsinchu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan

Filed Apr. 25, 1997, Ser. No. 845,608

Int. Cl.⁶ H01L 21/28

U.S. Cl. 438—622

20 Claims



20. A method for protecting an alignment mark in semiconductor manufacturing processes with CMP, said method comprising:

- forming a first dielectric layer on a substrate, wherein said substrate has alignment marks thereon;
- planarizing said first dielectric layer;
- patterning and etching said first dielectric layer to open a wide clear-out window encompassing said alignment marks;
- forming a first metal layer on said first dielectric layer and said wide clear-out window;
- forming a second dielectric layer on said first metal layer;

forming a first photoresist layer patterned to define said wide clear-out window;

removing a portion of said second dielectric layer not covered by said first photoresist layer;

planarizing said second dielectric layer;

patterning and etching said second dielectric layer in said wide clear-out window;

forming a second metal layer on said on said second dielectric layer and said wide clear-out window;

forming a third dielectric layer on said second metal layer;

forming a second photoresist layer patterned to define said wide clear-out window;

removing a portion of said third dielectric layer not covered by said second photoresist layer;

planarizing said third dielectric layer;

forming a third metal layer on said third dielectric layer and said wide clear-out window.

5,801,091

METHOD FOR CURRENT BALLASTING AND BUSING OVER ACTIVE DEVICE AREA USING A MULTI-LEVEL CONDUCTOR PROCESS

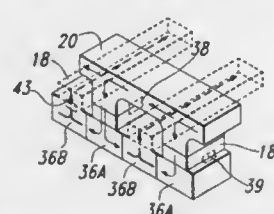
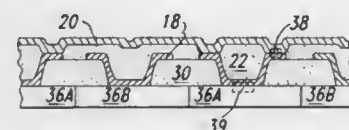
Taylor R. Eftand, Richardson; Satwinder Malhi, Garland; Michael C. Smayling, Missouri City; Joseph A. Devore; Ross E. Tegatz, both of Dallas, and Alec J. Morton, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 850,601, Mar. 13, 1992, abandoned.
This application Jul. 31, 1997, Ser. No. 903,970

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—622

4 Claims



1. A method of making a power integrated circuit device having contact busing over active circuitry, comprising the steps of:

forming a power integrated circuit device having a plurality of parallel stripe diffusions connected together to form a terminal of the power integrated circuit device and having a second plurality of parallel stripe diffusions connected together to form a second terminal of the power integrated circuit device;

forming an insulating layer on top of the power integrated circuit device;

forming a pattern of contact openings through the insulating layer to the first plurality of parallel stripe diffusions and to the second plurality of parallel stripe diffusions of the power integrated circuit device, wherein the pattern of contact openings form a first parallel linear array along the first and second plurality of parallel stripe diffusions;

forming a patterned conductive layer on top of the insulating layer, the conductive layer filling the pattern of contact openings and making electrical contact down to the first plurality of parallel stripe diffusions and the second plurality of parallel stripe diffusions, such that the first plurality of parallel stripe diffusions are electrically isolated from the second plurality of parallel stripe diffusions;

5,801,093

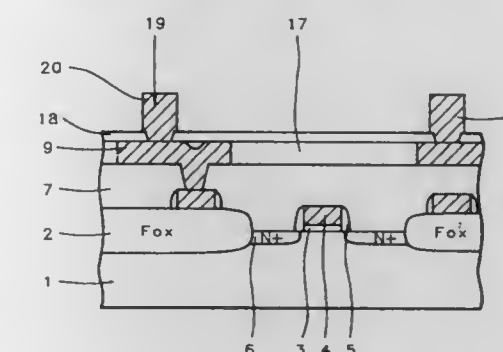
PROCESS FOR CREATING VIAS USING PILLAR TECHNOLOGY

Yung-Fa Lin, Hsin-Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan
Filed Jun. 13, 1996, Ser. No. 663,573

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—624

27 Claims



1. A method for fabricating a MOSFET device, on a semiconductor substrate, using metal pillar via structures, and spin on glass to fill the spaces between said metal pillar structures, comprising the steps of:

- providing an element of said MOSFET device;
- depositing an insulator layer on said semiconductor substrate, including on said element of said MOSFET device;
- opening a contact hole in said insulator layer, to said element of said MOSFET device;
- deposition of a first metallization layer on said on said insulator layer, and on exposed top surface of said element of said MOSFET device, in said contact hole;
- patterning of said first metallization layer to form first level metallization structure, providing contact to underlying, said element of said MOSFET device;
- depositing a dielectric layer on said first level metallization structure, and on said insulator layer, not covered by first level metallization structure;
- opening a via hole in said dielectric layer to expose surface of said first level metallization structure;
- deposition of a second metallization layer on said dielectric layer, and on exposed top surface of said first level metallization structure, in said via hole;
- patterning of said second metallization layer to form said metal pillar via structure, providing contact to underlying, said first level metallization structure;
- depositing a first plasma insulator layer on said metal pillar via structure, and on said dielectric layer, not covered by said metal pillar via structure;
- application of a spin on glass layer on said first plasma insulator layer, filling the spaces between said metal pillar via structures;
- baking of said spin on glass layer;
- curing of said spin on glass layer;
- depositing a second plasma insulator layer on said spin on glass layer;
- chemical mechanical polishing to expose top surface of said metal pillar via structure by removal of said second plasma insulator layer, of said spin on glass layer, and of said first plasma insulator layer, from top surface of said metal pillar via structure, while leaving said second plasma insulator layer, said spin on glass layer, and said first plasma insulator layer, in spaces between said metal pillar structures;
- deposition of a third metallization layer on exposed top surface of said metal pillar via structure, and on exposed top surfaces of said second plasma insulator layer, of said spin on glass

forming a second insulating layer on top of the conductive layer of the power integrated circuit device;

forming a pattern of via openings through the second insulating layer to the patterned conductive layer such that the pattern of via openings forms a second linear parallel array above the first linear parallel array and wherein the second linear parallel array of via openings is space laterally from the contact openings and thereby alternates with respect to the pattern of contact openings and wherein the alternating pattern of contacts and vias have spaces between them providing regions of maximum metal thickness allowing a reduction in bus resistance and therefore a reduction in the risk of electromigration failure; and

forming a second patterned conductive layer on top of the second insulating layer, the second patterned conductive layer filling the pattern of via openings and making electrical connection down to the portion of the first conductive layer that is making electrical contact down to the first plurality of parallel stripe diffusions, wherein the second conductive layer forms a contact bus for the first terminal of the power integrated circuit device and runs over the second plurality of parallel stripe diffusions while remaining electrically isolated from the second plurality of parallel stripe diffusions.

5,801,092

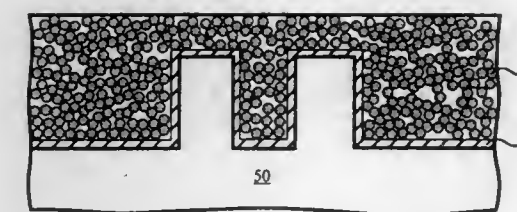
METHOD OF MAKING TWO-COMPONENT NANOSPHERES AND THEIR USE AS A LOW DIELECTRIC CONSTANT MATERIAL FOR SEMICONDUCTOR DEVICES

Michael R. Ayers, 632 Kearny St. #6, El Cerrito, Calif. 94530
Filed Sep. 4, 1997, Ser. No. 923,490

Int. Cl.⁶ H01L 21/31

U.S. Cl. 438—623

14 Claims



1. A method of forming a porous insulator within a microelectronic device comprising:

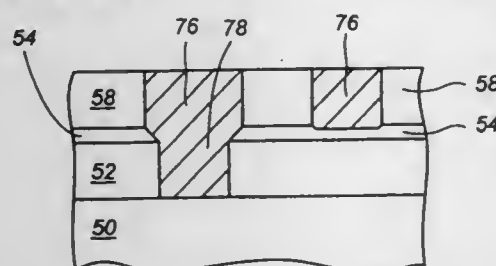
- providing a solid substrate possessing a layer of patterned conductors, or onto which said patterns will subsequently be placed;
- providing a solution comprising particles and solvent, wherein said particles consist of a ceramic core surrounded by a coating of substantially different material;
- depositing a film of said solution onto said substrate such that the gap between any said conductors is filled substantially with said solution;
- drying said film such that said particles form a continuous layer over said substrate; and
- treating the layer such that said particle coatings form crosslinks between adjacent particles and between said particles and said substrate to form a substantially bonded porous dielectric having a dielectric constant less than 3.0, whereby the capacitive coupling and propagation delay of said conductors is substantially reduced compared to solid silicon dioxide, and wherein the sum of the packing density of said particles and the porosity of said layer is equal to one.

layer, and of said first plasma insulator layer, in spaces between said metal pillar via structures; and patterning of said third metallization layer to form second level metallization structure, contacting underlying, said metal pillar via structure.

5,801,094
DUAL DAMASCENE PROCESS
Tri-Rung Yew, Hsin-Chu; Meng-Chang Liu, Chia-Yi; Water Lur, and Shih-Wel Sun, both of Taipei, all of Taiwan, assignors to United Microelectronics Corporation, Hsin-Chu City, Taiwan

Filed Jun. 12, 1997, Ser. No. 873,500
Int. Cl.⁶ H01L 21/28
U.S. Cl. 438—624

12 Claims



1. A method of making an integrated circuit having first level conductor structures and second level conductor structures, the method comprising:

- providing a substrate incorporating one or more integrated circuit devices;
- providing an interlayer dielectric layer over the substrate;
- providing an etch stop layer over the interlayer dielectric layer;
- patterning the etch stop layer to define openings in the patterned etch stop layer corresponding to positions where first level conductor structures are to be formed;
- providing an intermetal dielectric layer over the patterned etch stop layer;
- forming a second level mask over the intermetal dielectric layer, the second level mask having openings corresponding to positions where second level conductor structures are to be formed;
- etching through the openings in the second level mask to form second level conductor openings in the intermetal dielectric layer, and etching through the openings in the patterned etch stop layer to form first level conductor openings in the interlayer dielectric layer and to provide edges of the openings, in the patterned etch stop layer, with a tapered configuration, so that the openings in the patterned etch stop layer provide for a step-free transition between respective ones of the second level conductor openings in the intermetal dielectric layer and the first level conductor openings in the interlayer dielectric layer; and
- depositing metal into the second level conductor openings and into the first level conductor openings.

5,801,095
PRODUCTION WORTHY INTERCONNECT PROCESS FOR DEEP SUB-HALF MICROMETER BACK-END-OF-LINE TECHNOLOGY

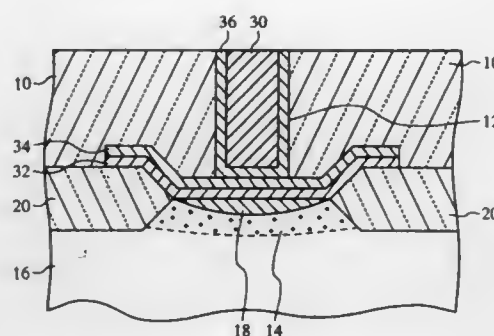
Richard J. Huang, Milpitas, and Christy M.-C. Woo, San Jose, both of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 470,302, Jun. 6, 1995, abandoned.
This application Sep. 10, 1996, Ser. No. 710,071
Int. Cl.⁶ H01L 21/28

U.S. Cl. 438—627

11 Claims

9. A process for employing chemical mechanical polishing to form metal plugs in contact/via openings in an interlayer dielectric,



said metal plugs contacting conductive regions separated by insulating regions supported over a semiconductor substrate comprising:

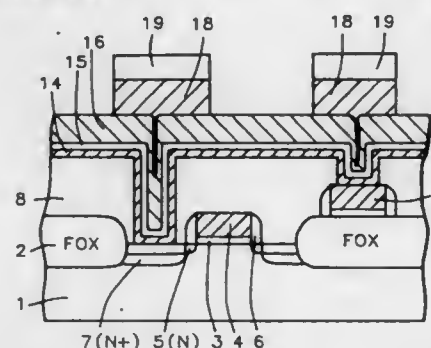
- (a) forming a layer of Ti on said insulating regions and said conductive regions;
- (b) forming a first layer of TiN on said layer of Ti;
- (c) patterning and etching said layer of Ti and said first layer of TiN to form Ti/TiN landing pads, each of said Ti/TiN landing pads contacting one of said conductive regions;
- (d) forming said interlayer dielectric over said semiconductor substrate;
- (e) etching said contact/via openings in said interlayer dielectric down to said first layer of TiN, each of said contact/via openings having a bottom and sidewalls;
- (f) depositing a second layer of TiN which is thinner than said first layer of TiN such that said second layer of TiN is formed on said bottom and said sidewalls of said contact/via openings, said second layer of TiN serving as an adhesion layer;
- (g) blanket depositing a metal over said interlayer dielectric and in said contact/via openings; and
- (h) removing metal and TiN outside said contact/via openings by chemical mechanical polishing thereby forming said metal plugs in said contact/via openings and adhered to said bottom and sidewalls thereof by said second layer of TiN.

5,801,096
SELF-ALIGNED TUNGSTEN ETCH BACK PROCESS TO MINIMIZE SEAMS IN TUNGSTEN PLUGS
Chung-Kuang Lee, and Pin-Nan Tseng, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan

Filed Jun. 3, 1996, Ser. No. 658,523
Int. Cl.⁶ H01L 21/441

U.S. Cl. 438—636

20 Claims



1. A method for fabricating a MOSFET device, on a semiconductor substrate, using a metal filled contact hole, to provide electrical contact between an underlying conductive region, on said semiconductor substrate, and an overlying interconnect metallization structure, comprising the steps of:

- providing said underlying conductive region, on said semiconductor substrate;
- depositing a dielectric layer on said semiconductor substrate, including deposition on said underlying conductive region;

photolithographic processing to open a hole, with a diameter between about 0.3 by 0.5 microns, in a photoresist layer, exposing underlying said dielectric layer, directly over an area of said underlying conductive region;

anisotropic etching of said dielectric layer, using said hole, in said photoresist layer as a mask, to create a contact hole, with a diameter between about 0.3 to 0.5 microns, in said dielectric layer, to said underlying conductive region;

removal of said photoresist layer;

surface cleaning of said underlying conductive region, in said contact hole;

collimated, R.F. sputter deposition of an adhesive layer on top surface of said dielectric layer, on sides of said contact hole, and on top surface of said underlying conductive region, in said contact hole;

a low pressure chemical vapor deposition of a barrier layer on said adhesive layer;

deposition of a metal fill layer, on said barrier layer, forming a metal plug in said contact hole, by completely filling said contact hole with said metal fill layer;

deposition of an interconnect metallization layer on said metal fill layer, including deposition on said metal plug, in said contact hole;

deposition of an anti-reflective layer, on said interconnect metallization layer;

photolithographic processing to form a photoresist shape on said anti-reflective layer, directly overlying said metal plug, in said contact hole;

anisotropic etching, using BCl_3 and Cl_2 as etchants to remove said anti-reflective layer, and said interconnect metallization layer, from areas not covered by said photoresist shape, forming a interconnect metallization structure, directly overlying said metal plug;

removal of said photoresist shape; and

anisotropic etching, using SF_6 as an etchant, to remove said metal fill layer, of said barrier layer, and of said adhesive layer, in areas not covered by overlying said interconnect metallization structure.

5,801,097
THERMAL ANNEALING METHOD EMPLOYING ACTIVATED NITROGEN FORMING NITRIDE LAYERS

Tony Liang-Tung Chang, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Mar. 10, 1997, Ser. No. 814,133
Int. Cl.⁶ H01L 21/4763; 21/44

U.S. Cl. 438—643

13 Claims

1. A thermal annealing method for forming a nitride layer within an integrated circuit comprising:

- providing a substrate;
- forming over the substrate a nitride forming material layer; and
- annealing through a thermal annealing method the nitride forming material layer in the presence of an atmosphere of activated nitrogen to yield a nitride layer, where the atmosphere of activated nitrogen is formed employing at least one of: an electrical discharge within an atmosphere of nitrogen; and an ultra-violet exposure of the atmosphere of nitrogen.

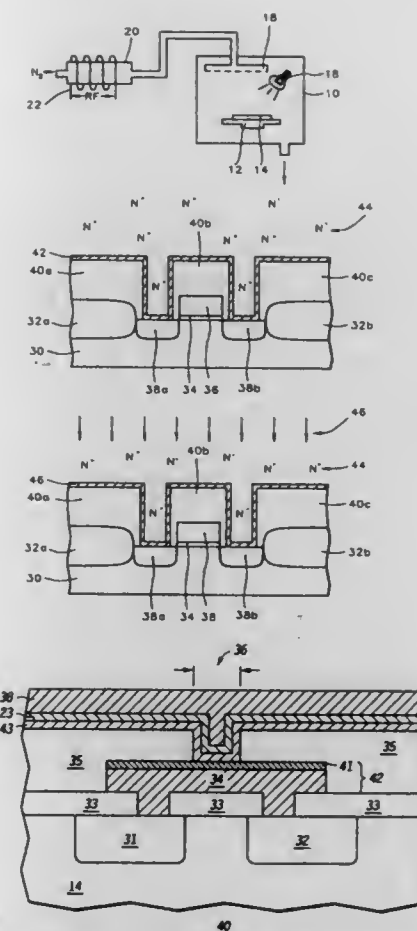
5,801,098
METHOD OF DECREASING RESISTIVITY IN AN ELECTRICALLY CONDUCTIVE LAYER
Robert Fiordalice, Sam Garcia, and T. P. Ong, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 3, 1996, Ser. No. 708,245
Int. Cl.⁶ H01L 21/441

U.S. Cl. 438—653

20 Claims

1. A method of decreasing resistivity in an electrically conductive layer comprising:



providing a substrate having an overlying metal member, the metal member comprising aluminum;

using a high density plasma sputtering technique to deposit the electrically conductive layer over the substrate and in contact with the overlying metal member; and

exposing the electrically conductive layer to a plasma at a temperature below approximately four hundred degrees Celsius to decrease resistivity of the electrically conductive layer.

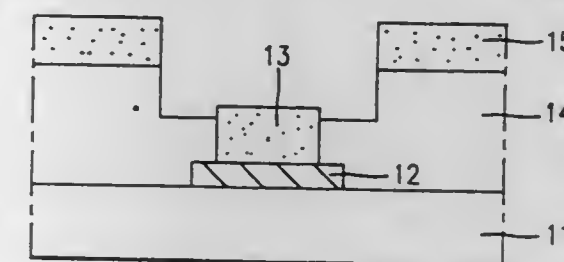
5,801,099
METHOD FOR FORMING INTERCONNECTION OF SEMICONDUCTOR DEVICE
Yong Kwon Kim, Chungcheongbuk-do, and Nae Hak Park, Seoul, both of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Sep. 13, 1996, Ser. No. 712,606
Claims priority, application Rep. of Korea, Apr. 12, 1996, 1996 11061

Int. Cl.⁶ H01L 21/441; 21/475

U.S. Cl. 438—666

20 Claims



1. A method of forming an interconnection for a semiconductor device having a substrate, the method comprising the steps of:

- forming a lower conductive line on the substrate;

forming a first insulating layer on the lower conductive line including the substrate;
patterning the first insulating layer to form a first insulating layer pattern on the lower conductive line, the first insulating layer pattern having a width narrower than the lower conductive line;
forming a second insulating layer on an overall surface of the substrate and on the first insulating layer pattern, to planarize a surface of the second insulating layer;
patterning the second insulating layer to expose a surface of the first insulating layer pattern and to form a first trench wider than the first insulating layer pattern on an upper portion of the first insulating layer pattern;
removing the first insulating layer pattern, to thereby form a second trench at a lower portion of the first trench; and
filling the first and second trenches with conductive material, to thereby form an upper conductive line.

5,801,100

ELECTROLESS COPPER PLATING METHOD FOR FORMING INTEGRATED CIRCUIT STRUCTURES

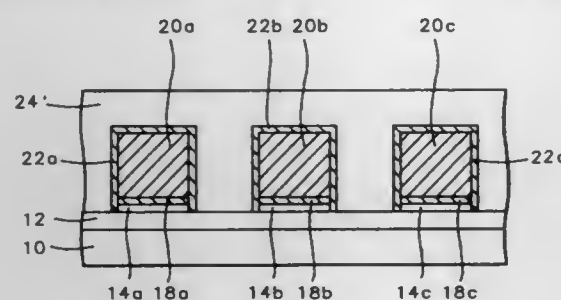
Chwan-Ying Lee, Tainan, and Tzuen-Hsi Huang, Tou Lin, both of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Mar. 7, 1997, Ser. No. 813,719

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—678

18 Claims



1. A method for fabricating a copper containing integrated structure within an integrated circuit comprising:
providing a substrate layer;
forming a nickel containing conductor layer over the substrate layer; and
forming upon the nickel containing conductor layer a copper containing conductor layer, where the copper containing conductor layer is employed within a copper containing integrated circuit inductor structure within the integrated circuit.

5,801,101

METHOD OF FORMING METAL WIRINGS ON A SEMICONDUCTOR SUBSTRATE BY DRY ETCHING

Kousuke Miyoshi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 689,248

Claims priority, application Japan, Aug. 16, 1995, 7-208914

Int. Cl.⁶ H01L 21/306

U.S. Cl. 438—714

20 Claims

1. A method of forming a metal wiring on a semiconductor substrate comprising:
a first dry etching step of etching a metal wiring film formed on said semiconductor substrate in an etching chamber and;
a second dry etching step of overetching said metal wiring film in said etching chamber, wherein said second dry etching step of overetching is performed under such a condition that a residence time of a gas in said etching chamber is shorter than a residence time in said first dry etching step.

5,801,102

Patent Not Issued For This Number

5,801,103

ETCHING PROCESS WHICH PROTECTS METAL

Robert T. Rasmussen, Boise; Surjit S. Chadha, Meridian, and David A. Cathey, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 480,846, Jun. 7, 1995, Pat. No. 5,695,661. This application Dec. 4, 1995, Ser. No. 566,513

Int. Cl.⁶ H01L 21/302

U.S. Cl. 438—753

24 Claims

1. An etching process for a semiconductor material upon which metal is disposed the method comprising the steps of:
pretreating the material to be etched by exposing the material to a surfactant capable of protecting the metal from acid and etch by-products; and exposing said material to an etching solution.

5,801,104

UNIFORM DIELECTRIC FILM DEPOSITION ON TEXTURED SURFACES

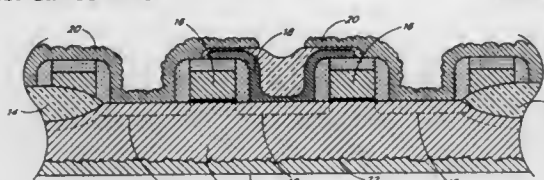
Klaus F. Schuegraf, and Pierre C. Fazan, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Oct. 24, 1995, Ser. No. 547,561

Int. Cl.⁶ H01L 21/31; 21/469

U.S. Cl. 438—778

18 Claims



1. A method of depositing a film on a semiconductor wafer comprising the steps of:
providing a semiconductor wafer;
texturizing a layer on each side of the wafer to produce a textured first surface region and a textured second surface region on an opposite side of the wafer;
smoothing the first surface region; and
depositing the film on both the smooth first surface and the textured second surface regions.

5,801,105

MULTILAYER THIN FILM, SUBSTRATE FOR ELECTRONIC DEVICE, ELECTRONIC DEVICE, AND PREPARATION OF MULTILAYER OXIDE THIN FILM

Yoshihiko Yano, Kanagawa, and Takao Noguchi, Chiba, both of Japan, assignors to TDK Corporation, Tokyo, Japan

Division of Ser. No. 524,904, Sep. 7, 1995. This application

Jun. 14, 1996, Ser. No. 663,741

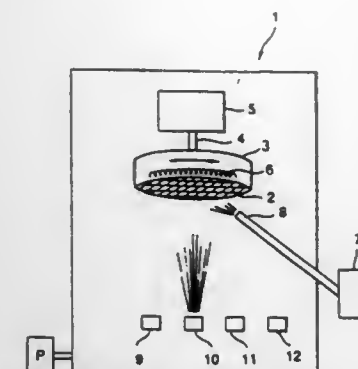
Claims priority, application Japan, Aug. 4, 1995, 7-219850

Int. Cl.⁶ H01L 21/31; 21/469

U.S. Cl. 438—785

10 Claims

1. A method for preparing a multilayer thin film comprising a semiconductor single crystal substrate, an oxide thin film formed thereon from zirconium oxide or zirconium oxide stabilized with a rare earth metal element (inclusive of scandium and yttrium), and an oriented thin film formed on said oxide thin film from a perovskite or tungsten bronze type material, said method comprising carrying out in a vacuum chamber the steps of heating a silicon single crystal substrate, introducing an oxidizing gas into the vacuum chamber, and supplying zirconium or zirconium and



at least one rare earth element (inclusive of scandium and yttrium) to the single crystal substrate surface by evaporation, thereby epitaxially growing the oxide thin film on the single crystal substrate surface to form a unidirectionally oriented epitaxial film which serves as said oxide thin film.

of material over 30 minutes as determined by a Distribution/Retention Fluid Transfer Test.

5,801,108

LOW TEMPERATURE COFIREABLE DIELECTRIC PASTE

Rong-Fong Huang, Albuquerque; Carlos A. Sanchez, Belen, and James H. Lombard, Albuquerque, all of N. Mex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Sep. 11, 1996, Ser. No. 716,785

Int. Cl.⁶ C03C 4/16; 4/400

U.S. Cl. 501—32

4 Claims

1. A multiphase dielectric paste for multilayered ceramic devices, comprising: a (SrCa)TiO₃ dielectric powder and a crystallizable Ca-Pb-borosilicate glass having a weight ratio of about 65:35 and having a particle size of about 1 micron and having a dielectric constant (K) of about 21 and an electrical Q of at least about 560.

5,801,106

POLYMERIC STRANDS WITH HIGH SURFACE AREA OR ALTERED SURFACE PROPERTIES

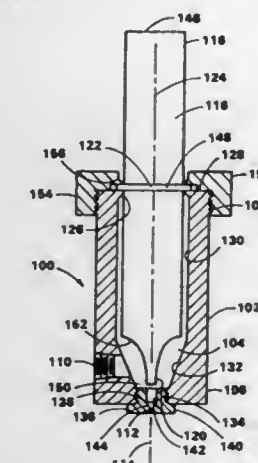
Lee Kirby Jameson, Roswell, Ga., assignor to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed May 10, 1996, Ser. No. 644,511

Int. Cl.⁶ B32B 3/00

U.S. Cl. 442—334

26 Claims



1. A melt-extruded polymeric strand comprising a melt-extrudable polymer and having a surface and a plurality of fissures in the surface such that the strand has a B.E.T. surface area within a range from about 0.10 to about 0.18/g.

5,801,107

LIQUID TRANSPORT MATERIAL

Cherie Hartman Everhart, Alpharetta; Ann Louise McCormack, Cumming, and Debra Nell Welch, Alpharetta, all of Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 467,495, Jun. 6, 1995, abandoned, which is a division of Ser. No. 72,192, Jun. 3, 1993, abandoned. This application Dec. 20, 1996, Ser. No. 777,690

Int. Cl.⁶ D04H 1/46

U.S. Cl. 442—408

17 Claims

1. A nonwoven fibrous material comprising a network of pulp fibers that has been loosened and rearranged by treatment with relatively low energy jets of liquid so that the nonwoven fibrous material has a Frazier porosity of from about 50 cfm/ft² to 91.73 cfm/ft² and is adapted to absorb, transport and release liquid to an absorbent material at a rate of at least 12 grams of liquid per gram

5,801,110

CERAMIC COMPOSITION FOR COATING SURGICAL AND DENTAL INSTRUMENTS

Robert B. Pugliesi, Woodbury, and Salvatore Cucinella, Lindenhurst, both of N.Y., assignors to Millex Instrument Company, Lake Success, N.Y.

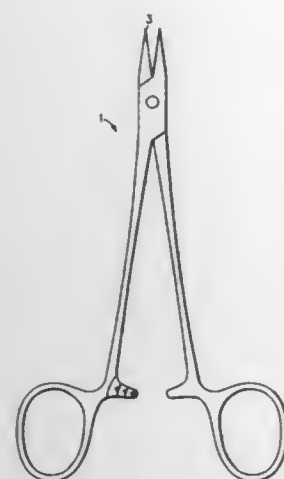
Filed Apr. 7, 1997, Ser. No. 833,540

Int. Cl.⁶ C04B 35/56

U.S. Cl. 501—87

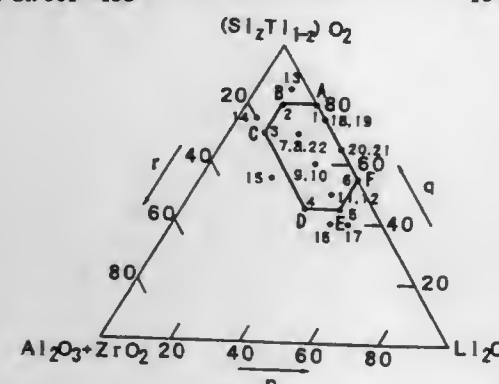
2 Claims

1. A composition of matter for forming a gripping surface on the working end of an instrument comprising a cemented carbide matrix selected from the group consisting of tungsten carbide and chromium carbide in an amount in the range between 50% and 90% by weight, and a ceramic material in an amount in the range between 5% and 50% by weight, of the total composition wherein



the ceramic material consists of aluminum oxide in an amount of 80%–90% by weight and titanium dioxide in an amount of 10%–20% by weight.

5,801,111
DIELECTRIC CERAMIC COMPOSITION AND MONOLITHIC CERAMIC CAPACITOR USING THE SAME
Hiroyuki Wada, Shiga-ken; Harunobu Sano, Kyoto; Norihiko Sakamoto, Shiga-ken, and Yukio Hamaji, Otsu, all of Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto, Japan
Filed Jan. 21, 1997, Ser. No. 785,783
Claims priority, application Japan, Jan. 18, 1996, 8-006530; Mar. 18, 1996, 8-061357; Nov. 1, 1996, 8-291996
Int. Cl.⁶ C04B 35/462; H01G 4/10; 7/00
U.S. Cl. 501—138 **16 Claims**



1. A dielectric ceramic composition which comprises a primary component composed of a barium titanate containing less than about 0.02 wt % of alkali metal oxide as an impurity expressed by the compositional formula:



(where M_2O_3 denotes Sc_2O_3 or Y_2O_3 or both, Re_2O_3 denotes Sm_2O_3 or Eu_2O_3 or both, $0.0025 \leq \alpha + \beta \leq 0.025$

$0 < \beta \leq 0.0075$

$0.0025 \leq \gamma \leq 0.05$

$\gamma/(\alpha+\beta) \leq 4$

$0 \leq x < 1.0$

$0 \leq y < 1.0$

$0 \leq z < 1.0$

$1.0000 < m \leq 1.035$

from about 0.5 to 5 moles per 100 moles of primary component of magnesium oxide; and

from about 0.2 to 3 parts by weight per 100 parts of said primary component and magnesium oxide of an oxide glass represented by $\text{Li}_2\text{O}-(\text{Si},\text{Ti})\text{O}_2-\text{Al}_2\text{O}_3-\text{ZrO}_2$.

5,801,112
DIELECTRIC CERAMIC COMPOSITION
Yoshihiro Okawa, and Tatsuji Furuse, both of Kokubu, Japan, assignors to Kyocera Corporation, Kyoto, Japan
Filed Jun. 13, 1997, Ser. No. 874,390
Claims priority, application Japan, Jun. 14, 1996, 8-153929; Sep. 25, 1996, 8-252980
Int. Cl.⁶ C04B 35/468
U.S. Cl. 501—138 **4 Claims**
1. A dielectric ceramic composition comprising Ba and Ti as main ingredient, said composition represented by



wherein $3.9 \leq x \leq 4.1$, and 0.01 to 7 weight parts of Cu in terms of CuO with respect to 100 weight parts of said main ingredient.

5,801,113
POLYMERIZATION CATALYST SYSTEMS, THEIR PRODUCTION AND USE
Moses Olukayode Jejelowa, Kingwood, and Gregory George Hlatky, Houston, both of Tex., assignors to Exxon Chemical Patents, Inc., Houston, Tex.
Continuation of Ser. No. 155,313, Nov. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 542,236, Jun. 22, 1990, and a continuation-in-part of Ser. No. 926,006, Aug. 5, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 483,650
Int. Cl.⁶ C08F 4/64
U.S. Cl. 502—104 **17 Claims**
1. A catalyst system comprising:
(a) an ionic catalyst formed by combining
(i) a monocyclopentadienyl ligand transition metal compound; and
(ii) an ionic activator; and
(b) an alkyl metal compound supported on a carrier.

5,801,114
CATALYSTS SELECTIVE FOR THE REDUCTION OF NITROGEN OXIDES TO NITROGEN IN AN OXIDIZING MEDIUM, A PROCESS FOR THEIR PREPARATION AND THEIR USE
Daniel Durand, Ruel Malmanson; Gil Mabilon, Carrieres Sur Seine, and Nicolas Des Courtills, Garches, all of France, assignors to Institut Francais du Pétrole, France
Filed Jan. 11, 1996, Ser. No. 584,125
Claims priority, application France, Jan. 11, 1995, 95/00,259
Int. Cl.⁶ B01J 23/02

U.S. Cl. 502—302 **31 Claims**
1. A catalyst which is active and selective for reducing nitrogen oxides to molecular nitrogen, by reducing agents, in a medium which is superstoichiometric in oxidizing agents, said catalyst comprising a catalytic phase optionally supported on a substrate, which catalytic phase contains a carrier and an active phase, said catalytic phase comprising expressed as percentage by weight of the catalytic phase calcined at 1000° for 4 hours:
50% to 99.78% of at least one inorganic refractory oxide;
0.1% to 20% of at least one rare-earth element (A), expressed as the oxide;
0.1% to 15% of at least one alkaline earth metal element (B) from group IIA of the periodic table, expressed as the oxide;
0.01% to 5% of at least one platinum group metal (C); and
0.01% to 10% of at least one metal (D) which is silver or gold.

5,801,115
CATALYST COMPOSITION AND METHODS FOR USING AND PREPARING SAME
Edwin W. Albers, Severna Park; Harry W. Burkhead, Jr., Baltimore, and J. Gary McDaniel, Bel Air, all of Md., assignors to Katalena GmbH, Leuna, Germany
Filed Sep. 5, 1995, Ser. No. 523,434
Int. Cl.⁶ B01J 23/06; 29/06
U.S. Cl. 502—342 **11 Claims**
1. A fluid cracking catalyst composition comprising a sulfur-reducing additive containing:
an SO_x capturing and releasing oxide comprising zinc titanate; and
an inorganic binder comprising:
a first member selected from the group consisting of a sol of aluminum, peptized alumina, a sol of silica, colloidal silica, a sol of titanium, a sol of zirconium, metakaolin, chlorite, talc, and mixtures thereof; and
a smectite selected from the group consisting of bentonite, montmorillonite, nontronite, hectorite, saponite, and mixtures thereof,
wherein the concentration ratio of said first member to said smectite is about two-thirds to about one-third.

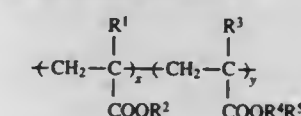
5,801,116
PROCESS FOR PRODUCING POLYSACCHARIDES AND THEIR USE AS ABSORBENT MATERIALS
Ian William Cottrell, Yardley, Pa.; Animesh Goswami, Plainsboro, and Manjit Singh Chowdhary, Princeton Junction, both of N.J., assignors to Rhodia Inc., Cranbury, N.J.
Continuation of Ser. No. 418,334, Apr. 7, 1995, abandoned. This application Jun. 20, 1997, Ser. No. 880,113
Int. Cl.⁶ B01J 20/00; 20/22; 20/26; A61F 13/15
U.S. Cl. 502—404 **28 Claims**
1. An absorbent composition of matter comprising one or more polygalactomannans which, when not in a crosslinked state, has a mean particle size of greater than about 200 mesh, a gel strength of greater than about 2000 dynes per square centimeter and an absorbency of greater than about 15 grams of saline solution per gram of polygalactomannan when immersed in a 0.9% saline solution for a time period of one hour.

5,801,117
COMPRISING SUPPORTED SILVER SULFATE OR SILVER CHLORIDE OR SILVER WITH SULFURIC ACID
Kiyohide Yoshida, Kumagawa, and Tatsuo Miyadera, Tsukuba, both of Japan, assignors to Kabushiki Kaisha Riken, and Agency of Industrial Science and Technology, both of Tokyo, Japan
Continuation of Ser. No. 434,918, May 4, 1995, Pat. No. 5,714,432, which is a division of Ser. No. 288,253, Aug. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 170,736, Dec. 21, 1993, abandoned. This application Aug. 25, 1997, Ser. No. 917,144
Claims priority, application Japan, Dec. 28, 1992, 4-360035; Dec. 28, 1992, 4-360039; Mar. 10, 1993, 5-76294; May 21, 1993, 5-142689
Int. Cl.⁶ B01J 20/02; 23/48; 8/00
U.S. Cl. 502—415 **4 Claims**
1. An exhaust gas cleaner for removing nitrogen oxides from an exhaust gas containing nitrogen oxides and oxygen in an amount larger than its stoichiometric amount relative to unburned components in said exhaust gas, which consists essentially of a porous inorganic oxide of alumina or a composite oxide of alumina with another oxide, said porous inorganic oxide supporting silver sulfate in an amount of 0.2–15 weight %, on a metal basis, based on said porous inorganic oxide or supporting silver in an amount of 0.2–15 weight % based on said porous inorganic oxide in combination with sulfuric acid, a mole ratio of said sulfuric acid to said silver being 1:50 to 2.

3. An exhaust gas cleaner for removing nitrogen oxides from an exhaust gas containing nitrogen oxides and oxygen in an amount larger than its stoichiometric amount relative to unburned components in said exhaust gas, which consists essentially of a porous inorganic oxide of alumina or a composite oxide of alumina with another oxide, said porous inorganic oxide supporting silver chloride in an amount of 0.2–15 weight %, on a metal basis, based on said porous inorganic oxide.

5,801,118
RELEASE AGENT FOR DYE-DONOR ELEMENT USED IN THERMAL DYE TRANSFER
Wayne A. Bowman, Walworth, and Karen M. Kosydar, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 19, 1997, Ser. No. 879,063
Int. Cl.⁶ B41M 5/035; 5/38

U.S. Cl. 503—227 **19 Claims**
8. A process of forming a dye transfer image comprising:
a) imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a binder, and
b) transferring a dye image to a dye-receiving element to form said dye transfer image,
wherein said dye layer also contains a release agent comprising a copolymer having the following formula:



wherein

R^1 and R^3 each independently represents hydrogen or methyl;

R^2 represents a substituted or unsubstituted alkyl group of from 1 to about 6 carbon atoms;

R^4 represents a divalent bridging group having from 1 to about 16 carbon atoms;

R^5 represents a haloalkyl group having from about 3 to about 20 carbon atoms, wherein the halogen consists essentially of fluorine;

x represents 25–95 weight percent; and

y represents 5–75 weight percent.

5,801,119
PROCESS FOR INHIBITING STEM ELONGATION IN BULBOUS PLANTS AND CUT FLOWERS THEREFROM
Gregory D. Venburg, Deerfield; James R. Hansen, Palatine; Derek D. Woolard, Waukegan; Warren E. Shafer, and Candace Black-Schaefer, both of Libertyville, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.
Filed Dec. 31, 1996, Ser. No. 775,467
Int. Cl.⁶ A01N 37/44

U.S. Cl. 504—115 **10 Claims**
1. A process of inhibiting stem elongation in flowering bulbous plants comprising treating said bulbous plants with an effective amount of an ACC synthase inhibitor to inhibit stem elongation.

5,801,120

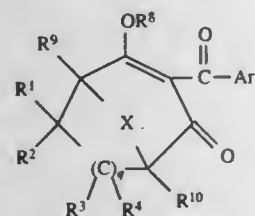
SUBSTITUTED BENZOYL (HETERO) CYCLIC DIONES
Shy-Fuh Lee, Sunnyvale, Calif.; Takashi Nishizaka, and Kenichi Komatsubara, both of Kawasaki, Japan, assignors to Sandoz Ltd., Basel, Switzerland

Continuation-in-part of Ser. No. 182,534, Apr. 18, 1988, abandoned. This application Sep. 22, 1989, Ser. No. 411,086

Claims priority, application Hungary, Apr. 10, 1989, 1707/89
Int. Cl.⁶ A01N 43/58

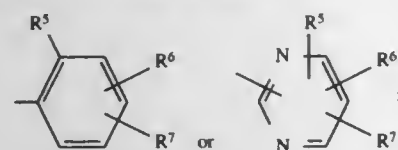
U.S. Cl. 504—236

1. A compound having the formula I



wherein,

Ar is selected from the groups



X is oxygen, sulfur or C₁₋₄alkylene;
each of R¹, R², R³, R⁴, R⁵ and R¹⁰ is, independently, hydrogen, C₁₋₄alkyl or COOR¹⁶;

R⁵ is C₁₋₈alkyl, optionally substituted with one to six halogen atoms; C₁₋₈alkoxy, optionally substituted with one to six halogen atoms; C₁₋₈alkylcarbonyl; C₁₋₈alkoxycarbonyl; NR¹³R¹⁴; O_nS(O)_nR¹²; NR¹⁵SO₂R¹²; halogen; cyano; or nitro;

each of R⁶ and R⁷ is independently hydrogen or selected from the values of R⁵; or R⁶ and R⁷ together form the group —Y—W—Z—;

R⁸ is hydrogen, C₁₋₈alkyl, optionally substituted C₁₋₈alkylcarbonyl, optionally substituted C₁₋₈alkoxycarbonyl, C(O)NR¹³R¹⁴, C₁₋₈alkylsulfonyl, P(O)—(OR¹¹)₂, R¹³P(O)OR¹¹ or optionally substituted benzoyl or a salt forming moiety;

R¹¹ is C₁₋₈alkyl;R¹² is C₁₋₈alkyl, optionally substituted with one to six halogen atoms;each of R¹³, R¹⁴, R¹⁵ and R¹⁶ is, independently, hydrogen or C₁₋₈alkyl;

each of R¹⁷ and R¹⁸ is independently hydrogen, halogen, or C₁₋₈alkyl optionally substituted with one to six halogen atoms; or R¹⁷ and R¹⁸ together form an oxo group;

each of R¹⁹ and R²⁰ is, independently, hydrogen, halogen, or C₁₋₈alkyl optionally substituted with one to six halogen atoms;

W is —(CR¹⁷R¹⁸)_n—(CR¹⁹R²⁰)_m— or SO₂;

each of Y and Z is independently oxygen, sulfur, SO₂, C=O or CR¹⁵R¹⁶; with the proviso that Y and Z are attached to adjacent carbons;

n is zero or one;

n' is zero, one or two;

q is zero, one or two;

t is one or two; and

t' is zero or one.

14. A method for selectively controlling weeds in rice which comprises applying to the weeds or their locus a herbicidally effective amount of a compound according to claim 1.

5,801,121

CYCLOHEXANEDIONE DERIVATIVES AND HERBICIDE CONTAINING THEM

Hideki Kamano, Sodegaura; Ichiro Nasuno, Ichihara; Hiroshi Yamamoto, Sodegaura, and Kazuyoshi Koike, Ichihara, all of Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Filed Jun. 16, 1997, Ser. No. 876,980

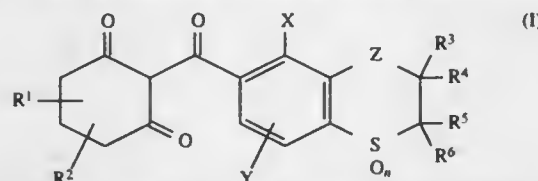
Claims priority, application Japan, Dec. 27, 1996, 8-349866

Int. Cl.⁶ A01N 43/18; C07D 335/04

U.S. Cl. 504—288

11 Claims

1. Cyclohexanedione derivatives of the general formula



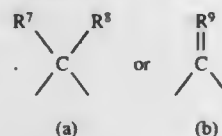
wherein each of R¹ and R² is independently a hydrogen atom or a C₁₋₄ alkyl group,

each of R³ to R⁶ is independently a hydrogen atom, a C₁₋₄ alkyl group, a C₁₋₄ haloalkyl group or a halogen atom, n is an integer of 0, 1 or 2,

X is a C₁₋₄ alkyl group, a C₁₋₄ haloalkyl group, a halogen atom, a C₁₋₄ alkoxy group, a C₁₋₄ haloalkoxy group, a C₂₋₄ alkoxyalkyl group, a C₁₋₄ alkylthio group, a C₁₋₄ haloalkylthio group, a C₁₋₄ alkylsulfinyl group or a C₁₋₄ alkylsulfonyl group,

Y is a hydrogen atom, a C₁₋₄ alkyl group, C₁₋₄ haloalkyl group, a halogen atom, a C₁₋₄ alkoxy group, a C₁₋₄ haloalkoxy group or a C₂₋₄ alkoxyalkyl group, and

Z is a group of



in which each of R⁷ and R⁸ is independently a hydrogen atom, a halogen atom, a C₁₋₄ alkyl group, a C₁₋₄ alkoxy group, a C₁₋₄ alkylthio group or a group of —NR¹⁰R¹¹, provided that when R⁷ and/or R⁸ are/is C₁₋₄ alkyl, C₁₋₄ alkoxy or C₁₋₄ alkylthio group(s), 1 to 9 hydrogen atoms may be substituted with 1 to 9 halogen atoms and that when the carbon number thereof is C₂₋₄, the group(s) may contain an unsaturated bond, each of R¹⁰ and R¹¹ is a hydrogen atom, a C₁₋₄ alkyl group or a C₁₋₄ alkylcarbonyl group,

further provided that when both R⁷ and R⁸ are C₁₋₄ alkyl groups, C₁₋₄ alkoxy groups or C₁₋₄ alkylthio groups, carbon atoms of R⁷ and R⁸ may bond to each other to form a 3- to 7-membered ring,

provided that when both R⁷ and R⁸ are alkyl groups, compounds of the general formula (I) in which X is a C₁₋₄ alkyl group, a halogen atom or a haloalkyl group and all of R³, R⁴, R⁵ and R⁶ are hydrogen atoms are excluded,

provided that when one of R⁷ and R⁸ is an alkoxy group and when the other is a hydrogen atom, compounds of the general formula (I) in which X is a C₁₋₄ alkyl group and all of R³, R⁴, R⁵ and R⁶ are hydrogen atoms when no hydrogen atom of the alkoxy group is replaced with halogen or when the alkoxy group contains no unsaturated bond are excluded, and

R⁹ is an oxygen atom, a sulfur atom or a C₁₋₄ alkoxyimino group, provided that when R⁹ is C₁₋₄ alkoxyimino group, 1 to 9 hydrogen atoms thereof may be replaced with 1 to 9 halogen atoms and that when the carbon number is C₂₋₄, the C₂₋₄ alkoxyimino group may contain an unsaturated bond, and provided that compounds of the general formula (I) in which X is a C₁₋₄ alkyl group and all of R³, R⁴, R⁵ and R⁶ are hydrogen atoms when R⁹ is an alkoxyimino group and

when no hydrogen atom thereof is replaced with a halogen or the alkoxyimino group contains no unsaturated bond are excluded, or salts thereof.

5,801,122

N-PHENYLTETRAHYDROPHTHALMIC ACID DERIVATIVES, METHODS OF PRODUCING SAME, AND HERBICIDES CONTAINING SAME AS EFFECTIVE COMPONENTS

Tetsuo Takematsu, Utsunomiya; Takeo Komata; Takashi Kumé, both of Kawagoe; Yumiko Kohda, Kawaguchi; Kiyoshi Suzuki, Utsunomiya; Matsue Kawamura, Kawagoe; Yukio Ikeda, Kawachi, and Kaoru Mori, Higashimatsuyama, all of Japan, assignors to Central Glass Co., Ltd., Yamaguchi, Japan

PCT No. PCT/JP95/00044, § 371 Date Jul. 15, 1996, § 102(e) Date Jul. 15, 1996, PCT Pub. No. WO95/19962, PCT Pub. Date Jul. 27, 1995

PCT Filed Jan. 19, 1995, Ser. No. 676,148

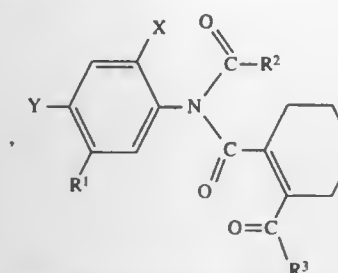
Claims priority, application Japan, Jan. 19, 1994, 6-004205; Jan. 19, 1994, 6-004206; Jan. 19, 1994, 6-004207

Int. Cl.⁶ A01N 43/10; 43/36; C07D 333/22; C07C 321/00

U.S. Cl. 504—289

12 Claims

1. An N-phenyltetrahydrophthalamic acid derivative represented by the general formula I,



wherein X and Y each individually represent hydrogen atoms or halogen atoms, R¹ represents a lower alkoxyalkylalkylthio group, R² represents a lower alkyl group, a halogenated lower alkyl group or a substituted or unsubstituted phenyl group, and R³ represents a lower alkoxy group, a lower alkenyloxy group, a lower alkynyloxy group, or a lower alkoxyalkoxy group.

5,801,123

EPOXYCYCLOHEXANE DERIVATIVE AND PLANT GROWTH REGULATOR

Kunikazu Sakai, Tokyo; Yasuo Kamuro, Aichi; Suguru Takatsuto, Niigata; Tsuyoshi Watanabe, and Hiroki Kuriyama, both of Kanagawa, all of Japan, assignors to Sagami Chemical Research Center, Kanagawa; Tama Biochemical Co. Ltd., Tokyo, and Bal Planning Co., Ltd., Ichinomiya, all of Japan

PCT No. PCT/JP95/01816, § 371 Date Mar. 13, 1997, § 102(e) Date Mar. 13, 1997, PCT Pub. No. WO96/08481, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 13, 1995, Ser. No. 809,051

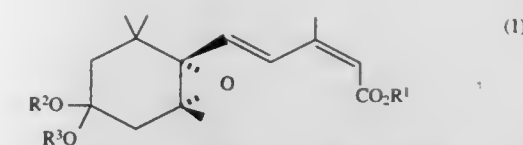
Claims priority, application Japan, Sep. 14, 1994, 6-244863; Sep. 14, 1994, 6-244937

Int. Cl.⁶ C07D 303/40; A01N 43/20; 43/22

U.S. Cl. 504—291

10 Claims

1. A plant growth regulating composition comprising an effective amount of an epoxycyclohexane compound for regulating plant growth, said epoxycyclohexane compound represented by formula (I):



wherein R¹ is a hydrogen atom, a C₁₋₆ alkyl group or C₃₋₆ cycloalkyl group, and R² and R³ are independently C₁₋₆ alkyl groups or are combined to form a C₂₋₃ polymethylene group which may be substituted with C₁₋₆ alkyl group.

5,801,124

LAMINATED SUPERCONDUCTING CERAMIC COMPOSITE CONDUCTORS

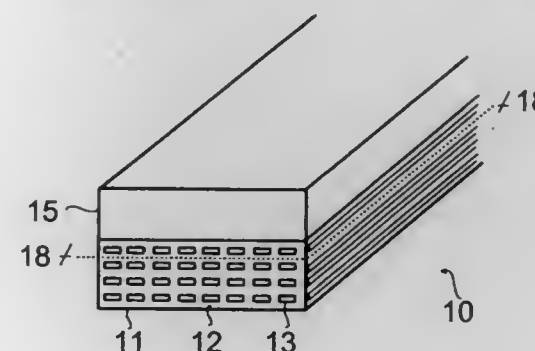
Bruce B. Gamble, Wellesley; Gilbert N. Riley, Jr., Marlborough; John D. Scudiere, Bolton; Michael D. Manlieff, Westborough; David M. Buczek, Needham, and Gregory L. Snitchler, Shrewsbury, all of Mass., assignors to American Superconductor Corporation, Westborough, Mass.

Filed Aug. 30, 1996, Ser. No. 701,333

Int. Cl.⁶ H01L 39/00; H01B 12/00

U.S. Cl. 505—230

24 Claims



1. A superconducting ceramic laminate adapted for use under a predetermined heavy load, comprising:

a superconducting tape comprising a superconducting ceramic having a critical tensile strain and a critical compressive strain, and

a first cladding tape mechanically coupled to the superconducting tape, the material and thickness of the first cladding tape being selected relative to the material and thickness of the superconducting tape to locate the neutral axis of the laminate so that, under the predetermined heavy load, the maximum compressive strain on any superconducting portion of the superconducting tape is less than the critical compressive strain and the maximum tensile strain on any superconducting portion of the superconducting tape under the predetermined heavy load is less than the critical tensile strain.

5,801,125

Patent Not Issued For This Number

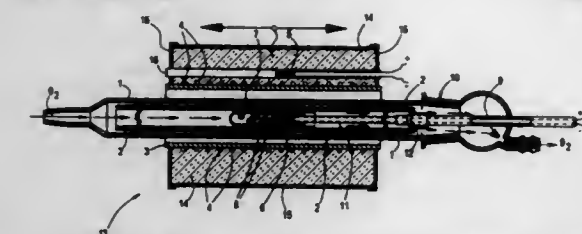
5,801,126
PROCESS FOR PRODUCING THALLIUM-CONTAINING HIGH-T_c SUPERCONDUCTORS IN FLOWING GAS ATMOSPHERES

Marc Neubacher, Frankfurt; Steffen Elschner, Niedernhausen; Christoph Lang, Frankfurt; Christoph Teske, Flintbeck, and Hans Karl Mueller-Buschbaum, Kiel, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

PCT No. PCT/EP94/03009, § 371 Date Sep. 17, 1996, § 102(e) Date Sep. 17, 1996, PCT Pub. No. WO95/08517, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 8, 1994, Ser. No. 612,844
Claims priority, application Germany, Sep. 21, 1993, 43 31 975.0

Int. Cl.⁶ C04B 35/64; 35/50
U.S. Cl. 505—501 17 Claims



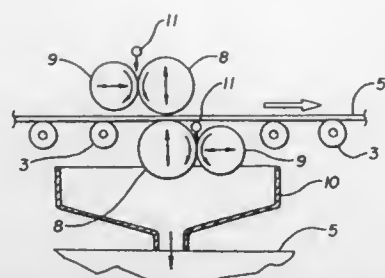
1. A process for producing high-T_c superconductors containing thallium, calcium, barium and copper, and optionally lead and/or strontium, comprising preparing a thallium-free precursor in a first reaction step by mechanically triturating a mixture of compounds of the metals Ba, Ca and Cu, and optionally Pb and/or Sr, having a metal content in the numerical ratio of atoms desired in the particular case, heating the mixture to temperatures in the range from 700° to 950° C. and heat treating the mixture for a period of at least 3 hours, and then, optionally cooling the mixture to ambient temperature, grinding the mixture and subsequently heat treating the mixture at temperatures of from 400° to 500° C. in a stream of pure oxygen, said first reaction step being conducted using alkaline earth metal hydroxides, and triturating the precursor with Ti₂O₃ optionally, shaping the precursor into a shaped part, and oxidatively firing the precursor triturated with Ti₂O₃ in a flowing gas atmosphere.

5,801,127
OLIVE PULP ADDITIVE IN DRILLING OPERATIONS
Jimmy J. Duhon, Sr., 9303 Romules Rd., Abbeville, La. 70510
Filed Oct. 16, 1997, Ser. No. 951,546
Int. Cl.⁶ C09K 7/00

U.S. Cl. 507—104 19 Claims
6. A method for improving drilling fluid comprising the steps of: providing olive pulp; grinding said olive pulp into olive pulp particles; and adding said ground olive pulp to a drilling fluid.

5,801,128
HOT MELT LUBRICANT AND METHOD OF APPLICATION
Thomas S. Overstreet, Highland Park, and Arthur E. Dampts, Wilmette, both of Ill., assignors to International Refining and Manufacturing Company, Evanston, Ill.
Filed Oct. 23, 1995, Ser. No. 553,794
Int. Cl.⁶ C10M 111/04; 169/04; 173/02

U.S. Cl. 508—159 11 Claims
1. A hot melt method for coating a metal substrate with a dry, solid metalworking lubricant comprising the steps of: melting a dry, solid non-fatty acid, non-oil lubricant comprised of 35% to 75% by weight polyethylene glycol and an amine of 1% to 25% by weight and 0% to 30% by weight water,



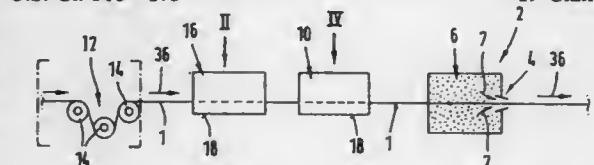
wherein the polyethylene glycol has a molecular weight in the range 8,000 to 20,000, applying the melted lubricant to the metal substrate, and allowing the melted lubricant to solidify on the metal substrate.

5,801,129
PROCESS AND DEVICE FOR APPLYING A LUBRICANT CARRIER LAYER TO A WIRE MATERIAL TO BE FORMED IN A DRAWING PROCESS

Hubertus Damm, Herdecke, Germany, assignor to Firma August Neuhoff, Schwelm, Germany
PCT No. PCT/EP94/03433, § 371 Date Aug. 25, 1995, § 102(e) Date Aug. 25, 1995, PCT Pub. No. WO95/11096, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 19, 1994, Ser. No. 491,947
Claims priority, application Germany, Oct. 23, 1993, 43 36 220.6

Int. Cl.⁶ C10M 125/00; B21C 9/00
U.S. Cl. 508—175 19 Claims



1. Apparatus for application of a lubricant carrier layer to a bare metal surface of a wire material (1) to be formed in a drawing process wherein a carrier material in the dry phase is applied on the surface to form the lubricant carrier layer, comprising: a container (18) surrounding a part of the wire material (1) and receiving a number of loose pressure elements (52) as well as a defined amount of a dry carrier material (54) characterized by a filler and a soap component, and; means for setting in motion the pressure elements (52) surrounding the wire material (1) whereby the pressure elements mechanically apply the dry carrier material (54) contained in the form of smaller particles between the pressure elements by uniform physical contacts moving over the bare metal surface of the wire material (1), so as to form the lubricant carrier layer on the bare metal surface of the wire material.

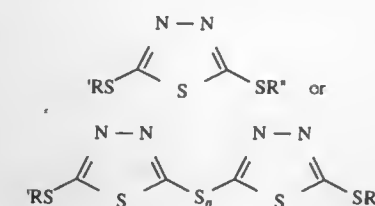
5,801,130
HIGH LOAD-CARRYING TURBO OILS CONTAINING AMINE PHOSPHATE AND DIMERCAPTOTHIAZOLE DERIVATIVES

Manual A. Francisco, Washington; Paul Joseph Berlowitz, East Windsor, and Jeenok T. Kim, Holmdel, all of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 577,782, Dec. 22, 1995, abandoned.
This application Mar. 7, 1997, Ser. No. 813,740
Int. Cl.⁶ C10M 135/36

U.S. Cl. 508—272 8 Claims
1. A method for enhancing the load-carrying capacity of a turbo oil comprising a major amount of a base stock of a synthetic base oil selected from diesters and polyol ester base oil suitable for use as a turbo oil base stock by adding to said turbo oil base stock a minor amount of load carrying additive comprising a mixture of

2,5-dimercapto- 1,3,4-thiadiazole (DMTD), its derivatives and mixtures thereof wherein the DMTD derivative is described by the formula



wherein R' and R" are the same or different and are hydrogen alkyl hydroxy alkyl, cycloalkyl alkyl-substituted-cycloalkyl aryl alkyl-ester, alkyl ether wherein R' and R" in total contain 30 carbons or less and n=1-2, and one or more amine phosphate(s) wherein the amine phosphate(s) is (are) monobasic hydrocarbyl amine salts of mixed mono- and di-acid phosphate(s), and wherein the DMTD, its derivative(s) and mixtures thereof is present in an amount by weight in the range of 100 to 1000 ppm and the amine phosphate(s) is present in an amount by weight in the range of 50 to 300 ppm, based on base stock.

5,801,131
LUBRICANT COMPOSITION FOR MUSICAL INSTRUMENTS

B. Howard Coffey, LaGrange, and Gary L. Coffey, Glendale, both of Ky., assignors to Coffey Marketing Corporation, Louisville, Ky.

Continuation-in-part of Ser. No. 536,994, Sep. 29, 1995, abandoned. This application Jul. 22, 1996, Ser. No. 681,306
Int. Cl.⁶ C10M 127/00

U.S. Cl. 508—491 10 Claims
1. A nontoxic, biodegradable lubricating composition comprising from about 0.1 to about 10.0 percent by volume vegetable oil, from about 90.0 to about 99.9 percent by volume of ethanol and from about 0.1 to about 10.0 percent by volume of a citrus solvent.

5,801,132
REFRIGERATOR OIL COMPOSITION
Masato Kaneko; Tsuneo Konishi, and Katsumi Ichitani, all of Ichihara, Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Filed Apr. 21, 1997, Ser. No. 844,673
Int. Cl.⁶ C10M 145/24; C09K 5/00
U.S. Cl. 508—579 9 Claims

1. A refrigerator oil composition comprising:
i) at least one base oil selected from the group consisting of mineral oils, synthetic oils and a mixture thereof, having a kinematic viscosity of from 1 to 100 mm²/sec at 100° C.; and
ii) 0.01 to 10% by weight relative to the total weight of said composition of at least one polyether compound having a kinematic viscosity of from 200 to 10,000 mm²/sec at 100° C.

5,801,133
EFFECTIVE ALTERNATIVE FILTER CLEANER FOR BIGUANIDE TREATED RECREATIONAL WATER SYSTEMS

Percy A. Jaquess, Tigrett, and Luis Fernando Del Corral, Memphis, both of Tenn., assignors to Buckman Laboratories International Inc., Memphis, Tenn.

Filed May 8, 1995, Ser. No. 436,918
Int. Cl.⁶ C11D 3/20; 3/36; 3/50
U.S. Cl. 510—109 5 Claims

1. An aqueous, biodegradable acid-based cleaner consisting of: 5-7.5% by weight of at least one dicarboxylic acid selected from the group consisting of oxalic acid, malonic acid, and tartaric acid;

5-12% by weight of at least one tricarboxylic acid selected from the group consisting of citric acid and ascorbic acid; 1-40% by weight of 1-Hydroxyethylidene-1,1-bis(phosphonic acid); optionally, 0.05-2.0% by weight of a fragrance; and optionally, 0.05-20% by weight of a surfactant; and the balance being water.
4. An aqueous, biodegradable acid-based cleaner consisting essentially of:
5-7.5% by weight of at least one dicarboxylic acid selected from the group consisting of oxalic acid, malonic acid, and tartaric acid;
5-12% by weight of at least one tricarboxylic acid selected from the group consisting of citric acid and ascorbic acid; 1-40% by weight of 1-Hydroxyethylidene-1,1-bis(phosphonic acid); 0.05-2% by weight of a fragrance selected from the group consisting of lemon, lime, and lemon-lime; 0.05-20% by weight of a nonionic surfactant; and the balance being water.

5,801,134
CLEANSING PRODUCT
Abigail Righton, Nr. Chichester, England, assignor to The Body Shop International Plc, West Sussex, England
Continuation of Ser. No. 499,914, Jul. 11, 1995, abandoned.
This application Oct. 17, 1996, Ser. No. 734,449

Claims priority, application United Kingdom, Jun. 19, 1995, 9413981
Int. Cl.⁶ C11D 17/00; A61K 7/50

U.S. Cl. 510—130 4 Claims
1. A cleansing product for personal use in the form of a solid composition with a dough-like plastic consistency, wherein the composition is malleable whether or not the product is wetted, is suitable for vegetarians and contains no gelatin, paraffin, or mineral oils, is soap-free and comprises 35% to 80% by weight of powder material, 10% to 25% by weight of surfactant material and 5% to 28% by weight of anhydrous base material, wherein the powder material is selected from the group consisting of natural or synthetic hydrated aluminum silicate, metallic oxides, magnesium silicate, silicate minerals, vegetable starches, plant fines, synthetic polymer powders, calcium carbonate, cellulose, and cellulose derivatives, the surfactant material is selected from the group consisting of anionic, nonionic, and amphoteric surfactants, and the anhydrous base material is selected from the group consisting of plant oils, plant waxes, plant butters, synthetic waxes, synthetic butters, hydrogenated oils, fatty esters, fatty alcohols, sorbitol esters, lanolin, lanolin derivatives, silicone waxes, silicone oils, and silicone copolymers.
3. A cleansing product for personal use in the form of a solid composition with a plastic consistency, wherein the composition is soap-free and comprises 60% by weight of Kaolin, 20% by weight of sodium laureth sulfate, 15% to 19% by weight of texturizer comprising vegetable starch and bis-diglyceryl fatty ester adipate and the balance including preservatives, pigments and fragrance.

5,801,135
DEINKING COMPOSITION COMPRISING A FATTY ACID MIXTURE AND A NONIONIC SURFACTANT
Yoshitaka Miyauchi; Toshiki Sowa; Koji Hamaguchi; Daisuke Shiba, and Hiromichi Takahashi, all of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Oct. 12, 1995, Ser. No. 542,419
Claims priority, application Japan, Oct. 20, 1994, 6-255524
Int. Cl.⁶ C11D 1/04; 1/722; 1/83

U.S. Cl. 510—474 17 Claims
1. A liquid deinking composition consisting essentially of (a) a fatty acid mixture consisting essentially of 60 to 90 weight % of saturated fatty acids having 12 to 14 carbon atoms and 5 to 20 weight % of saturated fatty acids having 16 to 18 carbon atoms, (b) a nonionic surfactant with a hydrophilic-lipophilic balance of 2 to 12 in a proportion by weight of (a)/(b) of 5/95 to 40/60, and (c) 0 to 20 weight % of the composition of water.

5,801,136

STABILIZED SOLVENTS AND METHOD FOR CLEANING METALLIC, ELECTRICAL AND PLASTIC SUBSTRATES UTILIZING ENVIRONMENTALLY SAFE SOLVENT MATERIALS

Richard G. Henry, Mayfield, Ohio, assignor to Advanced Chemical Design, Inc., Euclid, Ohio

Continuation-in-part of Ser. No. 293,047, Aug. 19, 1994, abandoned. This application Feb. 9, 1996, Ser. No. 598,798

Int. Cl.⁶ C11D 7/30; 7/34; 7/26; B08B 3/08

U.S. Cl. 510—175

20 Claims

1. A solvent mixture having an ozone depletion factor of less than 0.08, for use in a vapor degreasing system, consisting essentially of:

- about 80–96.8% by volume, chlorobromomethane;
- about 3.2–20.0%, by volume, of a mixture of stabilizers consisting essentially of:
 - (1) nitromethane;
 - (2) 1,2-butylene oxide, and
 - (3) 1,3-dioxolane,

the mixture of stabilizers being effective to inhibit the release of bromine into the atmosphere from the chlorobromomethane.

5,801,137

DETERGENT COMPOSITIONS CONTAINING (POLY)CARBOXYLATES, ORGANO DIPHOSPHONIC AND ACRYLIC ACID DERIVED COMPONENTS, AND SILICATE

Michael Crombie Addison; Lynda Anne Jones, and Rhona Alexandra Knox, all of Newcastle upon Tyne, England, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 349,770, Dec. 6, 1994, abandoned.

This application Dec. 20, 1996, Ser. No. 770,840

Claims priority, application United Kingdom, Dec. 23, 1993, 9326281

Int. Cl.⁶ C11D 7/60; 3/36; 3/37; 7/36

U.S. Cl. 510—228

17 Claims

1. A detergent composition containing in combination
 - (a) 0.5 to 80% by weight of a detergent builder system containing a carboxylate or polycarboxylate builder containing from one to four carboxy groups, wherein said detergent builder system has a major proportion by weight of non-carbonate builder compound and is free of phosphate-containing builder;
 - (b) 0.1 to 10% by weight of a non-nitrogen containing organo diphosphonic acid or its salts or complexes or any mixture thereof;
 - (c) 0.1 to 10% by weight of an organic polymer containing acrylic acid or a salt thereof, having an average molecular weight of less than 15,000, and being selected from the group consisting of (i) homopolymers of acrylic acid and (ii) copolymers of acrylic acid or a salt thereof and a comonomer selected from the group consisting of (1) substituted acrylic acid of the formula $\text{CHR}_2=\text{CR}_1(\text{CO}-\text{O}-\text{R}_3)$ wherein R_1 and R_2 are individually C_1-C_4 alkyl, C_1-C_4 hydroxyalkyl, or hydrogen, and R_3 is C_1-C_4 alkyl, C_1-C_4 hydroxyalkyl, hydrogen or an alkali metal salt, with at least one of R_1 , R_2 and R_3 being C_1-C_4 alkyl or C_1-C_4 hydroxyalkyl, (2) fumaric acid, maleic acid, itaconic acid, aconitic acid, mesaconic acid, citraconic acid, methylenemalononic acid, or salts of any of said acids, (3) maleic anhydride, (4) acrylamide, (5) alkylene, (6) vinylmethyl ether, (7) styrene, and (8) mixtures thereof, and
 - (d) a silicate, wherein the detergent composition is in solid form.

5,801,138

BLEACHING COMPOSITIONS

Vincent Brian Croud, Holywell; Stephen James Tompsett, West Yorkshire, and Susan Jane Scarborough, Rhuddlan, all of Great Britain, assignors to Warwick International Group Limited, Great Britain

PCT No. PCT/GB95/01537, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO96/01311, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 30, 1995, Ser. No. 765,648

Claims priority, application United Kingdom, Jul. 1, 1994, 9413307; Mar. 24, 1995, 9506047

Int. Cl.⁶ C11D 3/39

U.S. Cl. 510—376

20 Claims

1. A liquid oxidising concentrate composition containing transition metal ions and comprising peroxide and a combination of sequestering agents in an amount which is at least stoichiometric to fully complex all of the transition metal ions, at least one of the sequestrants being a Group A sequesterant which sequesters cobalt ions to form non-catalytic complexes for peroxide decomposition and at least one other sequesterant being a Group B sequesterant which sequesters iron, copper and manganese ions to form non-catalytic complexes for peroxide decomposition, said combination further providing an at least as good a result as the control sequesterant in Test A defined hereinbefore.

5,801,139

PROCESS FOR MAKING BAR COMPOSITIONS COMPRISING NOVEL CHELATING SURFACTANTS

Michael Fair, Hackensack; Mengtao He, Wayne, both of N.J., and Michael Massaro, Congers, N.Y., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 5, 1997, Ser. No. 869,401

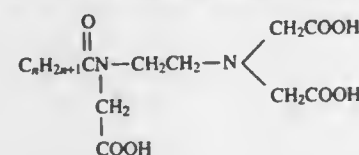
Int. Cl.⁶ C11D 17/00; 3/26

U.S. Cl. 510—447

3 Claims

1. A process for making bar a composition comprising:

- (a) 1 to 40% by wt. total composition of an alkali metal salt of hydrophobically modified ethylenediaminetriacetic acid, said hydrophobically modified ethylenediaminetriacetic acid salt having a structure as set forth below:



wherein n is from 1 to 40;

- (b) 1 to 40% by wt. total composition of one or more synthetic non-soap, anionic surfactants other than the ethylenediaminetriacetic derived anionic described in (a);
- (c) 1 to 20% by wt. total composition one or more amphoteric surfactant zwitterionic surfactant or mixture thereof;
- (d) 0 to 10% by wt. total composition one or more nonionic surfactants;
- (e) 20 to 85% by wt. total composition of a structurant selected from the group consisting of alkylene oxide components having a molecular weight of from about 2,000 to about 25,000; C_8 to C_{22} free fatty acids; C_2 to C_{20} alkanols; paraffin waxes; and water soluble starches;
- (f) 0 to 20% by wt. total composition of fatty acid soaps; wherein no more than 1% wt. of composition comprises inorganic or organic salt with multivalent counterions; wherein said process comprises:
 - (1) dispersing an acid form of ethylenediaminetriacetic acid into the structurant at a temperature between about 80° to 120° C.;
 - (2) adding sufficient caustic alkali to neutralize the ethylenediaminetriacetic acid surfactant wherein the molar ratio of caustic alkali to ethylenediaminetriacetic acid is from about 1:1 to 1:3; and

- (3) mixing the ethylenediaminetriacetic acid neutralized structurant solution of (2) with other compounds used to form the final bar composition at a temperature of 80° to 120° C.

5,801,140

ENZYME DISPERSIONS, THEIR PRODUCTION AND COMPOSITIONS CONTAINING THEM

John Graham Langley; Kenneth Charles Symes, and Kishor Kumar Mistry, all of West Yorkshire, United Kingdom, assignors to Allied Colloids Limited, West Yorkshire, United Kingdom

PCT No. PCT/GB94/00960, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO94/25560, PCT Pub. Date Nov. 10, 1994

PCT Filed May 5, 1994, Ser. No. 545,603

Claims priority, application United Kingdom, May 5, 1993, 9309243

Int. Cl.⁶ C11D 3/386

U.S. Cl. 510—530

22 Claims

1. A process for making a stable fluid dispersion of an enzyme or composition meltable to form such a dispersion comprising emulsifying an enzyme composition into water immiscible liquid in the presence of a polymeric dispersion stabiliser to form a stable dispersion of aqueous enzyme particles having a dry size below 30 μm dispersed in the liquid, and dehydrating the dispersed particles by azeotropic distillation, and in which before, during or after dehydrating the particles an organic liquid which is less volatile than the water immiscible liquid and which is selected from surfactants and water miscible liquids is then added to the dispersion and the water immiscible liquid is distilled from the dispersion until the amount of the initial water immiscible liquid remaining in the dispersion is below 20% by weight of the liquid phase in the dispersion.

5,801,141

IMPLANT COMPOSITIONS CONTAINING A BIOLOGICALLY ACTIVE PROTEIN, PEPTIDE OR POLYPEPTIDE

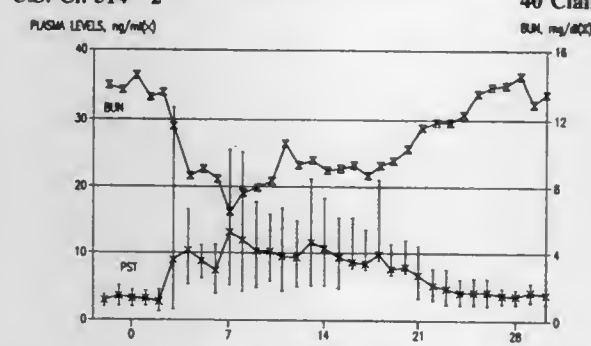
William David Steber, Ewing, N.J.; Susan Mancini Cady; David Farley Johnson, both of Yardley, Pa., and Theresa Rice Haughey, Raleigh, N.C., assignors to American Cyanamid Company, Madison, N.J.

Continuation-in-part of Ser. No. 97,548, Jul. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 719,898, Jun. 24, 1991, abandoned. This application May 31, 1995, Ser. No. 456,167

Int. Cl.⁶ A61K 9/24; 38/18; 38/27

U.S. Cl. 514—2

40 Claims



1. An implant for the parenteral administration of an essentially uniform and continuous amount of a biologically active protein, a peptide or a polypeptide selected from the group consisting of a growth factor, a biologically active fragment thereof and a derivative thereof over an extended period of time which comprises a compacted, indented and partially coated composition containing from one to three layers of a homogeneous core mixture comprising about 20% to about 80% of the growth factor, the biologically active fragment or the derivative; about 10% to about 75% of a fat,

5,801,142

HUMAN MTS-1 PROTEIN

Sayeeda Zain, Pittsford, N.Y., and Eugene Lukanidin, Copenhagen, Denmark, assignors to Research Corporation Technologies, Inc., Tucson, Ariz.

Division of Ser. No. 190,560, Jan. 31, 1994, which is a continuation-in-part of Ser. No. 981,455, Nov. 25, 1992, abandoned, which is a continuation of Ser. No. 550,600, Jul. 9, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 469,277

Int. Cl.⁶ A61K 38/04; 38/17; C07K 7/00; 14/435

U.S. Cl. 514—2

5 Claims

4. A pharmaceutical composition comprising a therapeutically-effective amount of isolated human mts-1 protein, or an antigenic fragment of human mts-1 protein, which fragment generates antibodies which detect mts-1 protein, in a pharmaceutically acceptable carrier.

5,801,143

CYCLIC DEPSIPEPTIDES USEFUL FOR TREATMENT OF HYPERLIPIDEMIA

Shigeru Hiramoto; Yukio Salto; Shigeo Hatanaka, and Akiko Shingai, all of Saitama-ken, Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01003, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO95/32990, PCT Pub. Date Dec. 7, 1995

PCT Filed May 25, 1995, Ser. No. 737,599

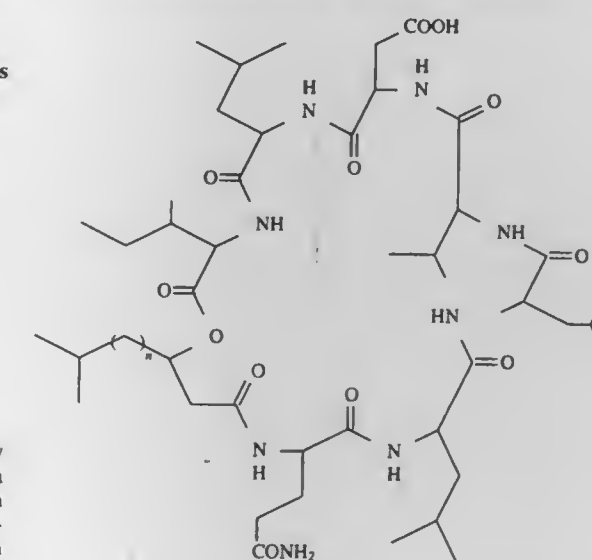
Claims priority, application Japan, May 26, 1994, 6-113023

Int. Cl.⁶ C07K 11/00; 7/00; A61K 38/08; 38/15

U.S. Cl. 514—9

8 Claims

1. A cyclic depsipeptide having the structural formula (I)



(wherein n is an integer of 5–15) and a pharmacologically acceptable salt thereof.

5,801,144

USE OF A COMPOUND FOR THE MANUFACTURE OF A
MEDICAMENT FOR THE TREATMENT OF HIV
INFECTION

Abraham Karpas, 19 Wilberforce Road, and Fergal Hill, MRC
Centre, Hills Road, both of Cambridge CB2 2OH, England
PCT No. PCT/GB93/00171, § 371 Date May 16, 1995, § 102(e)
Date May 16, 1995, PCT Pub. No. WO93/14780, PCT Pub.
Date Aug. 5, 1993

PCT Filed Jan. 27, 1993, Ser. No. 256,952

Claims priority, application United Kingdom, Jan. 28, 1992,
9201764; Aug. 27, 1992, 9218223

Int. Cl.⁶ A61K 38/00; 31/70

U.S. Cl. 514—11

1 Claim

1. A method of inhibiting the growth of HIV-infected cells which
comprises administering thereto an effective amount of FK 506.

5,801,145

METHOD FOR SELECTIVELY PURGING CD77+ CELLS
FROM BONE MARROW

Jean Gariépy, Toronto, Canada, assignor to Ontario Cancer
Institute, Toronto, Canada

Filed Feb. 9, 1996, Ser. No. 599,211

Int. Cl.⁶ C07K 14/25; 17/02; A61K 38/16

U.S. Cl. 514—12

11 Claims

1. A method for the selective ex vivo purging of CD77 positive
cells from a population of mammalian bone marrow cells, com-
prising the steps of:

harvesting bone marrow cells from a mammal expressing
CD77+ cells;

treating the bone marrow cells with a lethal dose of shiga toxin
or shiga-like toxin-1 for a sufficient time to kill the CD77+
cells, said toxin not being bound to an antibody; and
washing the treated bone marrow cells to remove residual shiga
toxin or shiga-like toxin-1.

10. A method for treatment of a non-Hodgkin's lymphoma in
humans, comprising the steps of:

harvesting bone marrow cells from a human having the lym-
phoma;

treating the harvested cells with a lethal dose of shiga toxin or
shiga-like toxin-1 for a sufficient time to kill the lymphoma
cells, said toxin not being bound to an antibody;

washing the treated bone marrow cells to remove residual toxin;
irradiating the human to destroy lymphoma cells in vivo; and
transplanting the treated bone marrow cells into the irradiated
human so that the human's immune system is reconstituted.

5,801,146

COMPOUND AND METHOD FOR INHIBITING
ANGIOGENESIS

Donald J. Davidson, Gurnee, Ill., assignor to Abbott Laborato-
ries, Abbott Park, Ill.

Filed May 3, 1996, Ser. No. 643,219

Int. Cl.⁶ A61K 38/00; 35/14

U.S. Cl. 514—12

14 Claims

1. An isolated kringle 5 of mammalian plasminogen selected
from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ
ID NO:4, SEQ ID NO:5, SEQ ID NO:6 and SEQ ID NO:7.

5,801,147

POLYPEPTIDES AND USE THEREOF

Chieko Kitada, Osaka, and Takuya Watanabe, Ibaraki, both of
Japan, assignors to Takeda Chemical Industries, Ltd.,
Osaka, Japan

Continuation of Ser. No. 932,455, Aug. 18, 1992, Pat. No.
5,623,050. This application Dec. 13, 1996, Ser. No. 766,725

Claims priority, application Japan, Aug. 22, 1991, 3-211161
Int. Cl.⁶ A61K 38/00; C07K 14/00

U.S. Cl. 514—12

1 Claim

1. A method for increasing the survival time of nerve cells in a
warm-blooded animal, which comprises administering to the
warm-blooded animal an effective amount of a polypeptide repre-
sented by the following formula:

His-Ser-Asp-Gly-Ile-Phe-Thr-Asp-Ser-Tyr-Ser-Arg-Tyr-Arg-Lys-
Gln-NH-CHX-CO-Ala-Val-Lys-Lys-Tyr-Y (SEQ ID NO: 13)

wherein: NH-CHX-CO is Glu, Gly, Ser or Arg residue; and
Y is an amino acid residue Leu or a peptide selected from the
group consisting of Leu-Ala, Leu-Ala-Ala, Leu-Ala-Ala-Val
(SEQ ID NO: 22), Leu-Ala-Ala-Val-Leu (SEQ ID NO: 23),
Leu-Ala-Ala-Val-Leu-Gly (SEQ ID NO: 24), Leu-Ala-Ala-
Val-Leu-Gly-Lys (SEQ ID NO: 25), Leu-Ala-Ala-Val-Leu-
Gly-Lys-Arg (SEQ ID NO: 26), Leu-Ala-Ala-Val-Leu-Gly-
Lys-Arg-Tyr (SEQ ID NO: 27), Leu-Ala-Ala-Val-Leu-Gly-
Lys-Arg-Tyr-Lys (SEQ ID NO: 14), Leu-Ala-Ala-Val-Leu-
Gly-Lys-Arg-Tyr-Lys-Gln (SEQ ID NO: 15), Leu-Ala-Ala-
Val-Leu-Gly-Lys-Arg-Tyr-Lys-Gln-Arg (SEQ ID NO: 16),
Leu-Ala-Ala-Val-Leu-Gly-Lys-Arg-Tyr-Lys-Gln-Arg-Val
(SEQ ID NO: 17), Leu-Ala-Ala-Val-Leu-Gly-Lys-Arg-Tyr-
Lys-Gln-Arg-Val-Lys (SEQ ID NO: 18), Leu-Ala-Ala-Val-
Leu-Gly-Lys-Arg-Tyr-Lys-Gln-Arg-Val-Lys-Asn (SEQ ID
NO: 19) and Leu-Ala-Ala-Val-Leu-Gly-Lys-Arg-Tyr-Lys-
Gln-Arg-Val-Lys-Asn-Lys (SEQ ID NO: 20), or a pharmaceu-
tically acceptable amide, ester or salt thereof.

5,801,148

SERINE PROTEASE INHIBITORS-PROLINE ANALOGS

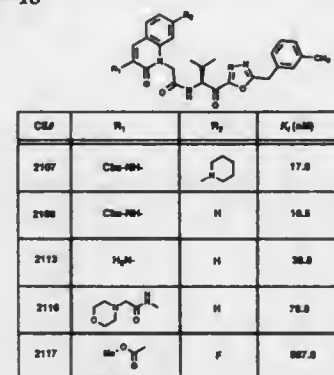
Albert Gyorkos, Westminster, and Lyle W. Spruce, Arvada,
both of Colo., assignors to Cortech, Inc., Denver, Colo.

Continuation-in-part of Ser. No. 345,820, Nov. 21, 1994, Pat.
No. 5,618,792. This application Dec. 6, 1996, Ser. No. 771,317

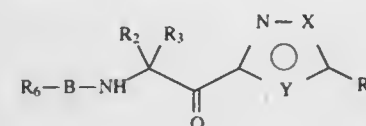
Int. Cl.⁶ A61K 38/05; 38/06; C07K 5/078; 5/097

U.S. Cl. 514—18

21 Claims



1. The compound of the formula



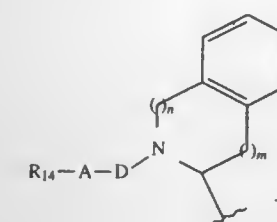
wherein

X and Y are O, N or S where at least one of X or Y is N;
R₁ is alkyl or alkenyl, optionally substituted with halo or
hydroxy; alkynyl, alkyl-C(O)OCH₃, dialkylamino, alkyl-
dialkylamino; or cycloalkyl, alkylcycloalkyl, alkenylcy-
cloalkyl, (C₅-C₁₂)aryl, (C₅-C₁₂)arylalkyl or
(C₅-C₁₂)arylalkenyl optionally comprising one or more het-
eroatoms selected from N, S, or non-peroxide O, and option-
ally substituted with halo, cyano, nitro, haloalkyl, amino,
aminoalkyl, dialkylamino, alkyl, alkenyl, alkynyl, alkoxy,
haloalkoxy, carboxyl, carboalkoxy, alkylcarboxamido,
(C₅-C₆)aryl, —O—(C₅-C₆)aryl, arylcarboxamido, alkylthio
or haloalkylthio;

R₂ and R₃ are independently or together H, alkyl, alkylthio,
alkylthioalkyl or cycloalkyl, alkylcycloalkyl, phenyl or phenyl
alkyl optionally substituted with guanidine, carboalkoxy,
hydroxy, haloalkyl, alkylthio, alkylguanidine, dialkylgua-
nidine or amidine;

B is —S(O)₂— or —C(O)—;

R₆ is



where m is 0 or 1;

n is 0 or 1;

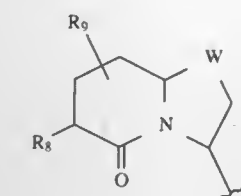
D is a direct bond or an amino acid selected from proline,
isoleucine, cyclohexylalanine, cysteine optionally substituted
at the sulfur with alkyl, alkenyl or phenyl optionally substi-
tuted with halogen, cyano, nitro, haloalkyl, amino, amino-
alkyl, dialkylamino, alkyl, alkoxy, haloalkoxy, carboxyl,
carboalkoxy, alkylcarboxamide, arylcarboxamide, alkylthio,
or haloalkyl thio; phenylalanine, indoline-2-carboxylic acid,
tetrahydroisoquinoline-2-carboxylic acid optionally substi-
tuted with alkyl, alkenyl, haloalkenyl, alkynyl, halogen,
cyano, nitro, haloalkyl; amino, aminoalkyl, dialkylamino,
alkoxy, haloalkoxy, carbonyl, carboalkoxy, alkylcarboxamide,
arylcarboxamide, alkylthio or haloalkylthio; tryptophan,
valine, norvaline, norleucine, octahydroindole-2-carboxylic
acid, lysine optionally substituted at the side chain nitrogen
with alkyl, alkenyl, alkynyl, alkoxyalkyl, alkylthioalkyl, alky-
laminoalkyl, dialkylaminoalkyl, carboxyalkyl, alkoxyalkyl,
alkyl or cycloalkyl, bicycloalkyl, cycloalkyl alkyl, bicy-
cloalkyl alkyl or fused aryl-cycloalkyl alkyl optionally com-
prising 1 or more heteroatoms selected from N, O and S;

A is a direct bond, —C(O)—, —NH—C(O)—, —S(O)₂—,
—OC(O)—, —OC(O)NH— or —CH₂—;

R₁₄ is H, alkyl, alkenyl or cycloalkyl, aryl, arylalkyl or fused
aryl-cycloalkyl optionally comprising 1 or more heteroatoms
selected from N, O and S, and optionally substituted with
alkyl, halo, alkoxy, amino, alkylamino, dialkylamino, car-
boxy, alkenyl, alkynyl, haloalkoxy, carboalkoxy, alkylcar-
boxamido, aryl, arylcarboxamido, alkylthio, or haloalkylthio;

or

R₆ is



where

W is S or O;

R₈ is alkylamino, dialkylamino or amino; and

R₉ is H, alkyl or halo; or

a pharmaceutically acceptable salt thereof.

5,801,149

INHIBITION OF SIGNAL TRANSDUCTION MOLECULES
Steven Shoelson, Natick, Mass., assignor to Joslin D-abetes
Center, Inc., Boston, Mass.

Continuation-in-part of Ser. No. 134,558, Oct. 8, 1993, aban-
doned, which is a continuation-in-part of Ser. No. 959,949,
Oct. 9, 1992, abandoned, which is a continuation-in-part of
Ser. No. 722,359, Jun. 19, 1991, abandoned. This application
Mar. 21, 1995, Ser. No. 408,604

Int. Cl.⁶ A61K 38/00; 38/04; C07K 5/00

U.S. Cl. 514—18

16 Claims

1. A method of inhibiting a site specific interaction between a
first molecule which comprises an SH2 domain and a second
molecule which interacts with said SH2 domain comprising contact-
ing said first molecule with an inhibitor molecule which comprises
a peptide comprising the sequence R¹-R²-R³-R⁴ wherein:

R¹, phosphotyrosine, or an analog of phosphotyrosine having a
hydrolysis resistant phosphorous moiety;

R² is Met;

R³ is any amino acid;

R⁴ is Met; and

wherein said peptide is between 4 and 30 amino acid residues in
length.

5,801,150

AMINOPYRIMIDINE DERIVATIVES COMBINED WITH
AMINO ACIDS, AND PHARMACOLOGICAL ACTIVITIES
THEREOF

Jean-Luc Caillot, 32 rue du Moulin, 67205 Oberhausbergen;
Louis Jung, 205 route d'Oberhausbergen, 67200 Strasbourg,
and Minjie Zhao, 119 route de Colmar, 67100 Strasbourg, all
of France

PCT No. PCT/FR94/00753, § 371 Date Jul. 2, 1996, § 102(e)
Date Jul. 2, 1996, PCT Pub. No. WO95/00495, PCT Pub.
Date Jan. 5, 1995

PCT Filed Jun. 22, 1994, Ser. No. 571,832

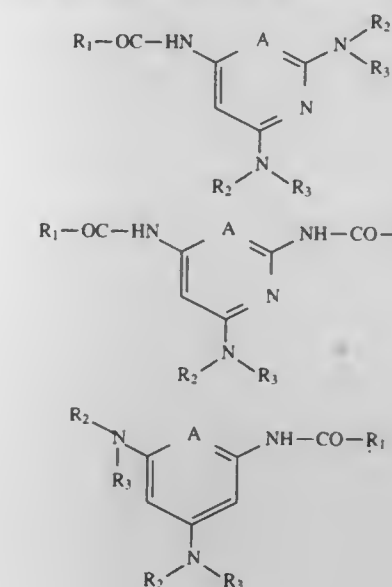
Claims priority, application France, Jun. 23, 1993, 93 07821

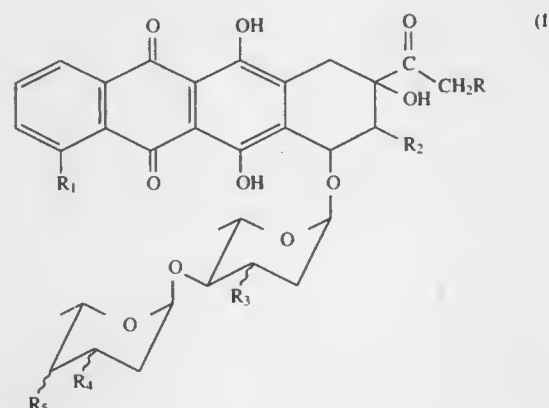
Int. Cl.⁶ A61K 38/00; C07K 5/00

U.S. Cl. 514—18

16 Claims

1. A compound having one of the following four formulae:





a minor groove binder moiety attached to at least one of said nucleotides through a linking group which covalently binds the minor groove binder moiety to the oligonucleotide through no more than 15 atoms, wherein the minor groove binder moiety is a molecule having a molecular weight of approximately 150 to approximately 2000 Daltons that before attachment to said oligonucleotide binds in a non-intercalating manner into the minor groove of double stranded DNA, RNA or hybrids thereof with an association constant greater than approximately 10^3M^{-1} and wherein the minor groove binder is attached through the linking group to a site of the oligonucleotide which is selected from the group consisting of the 5'-end of the oligonucleotide, the 3'-end of the oligonucleotide and a heterocyclic base in an intermediate position within said oligonucleotide.

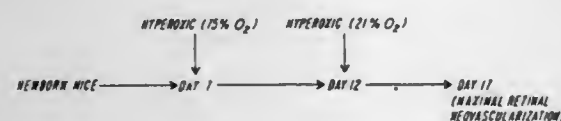
5,801,156

INHIBITION OF NEOVASCULARIZATION USING VEGF-SPECIFIC OLIGONUCLEOTIDES

Gregory S. Robinson, Acton, and Lois Elaine Hodgson Smith, West Newton, both of Mass., assignors to Hybridon, Inc., Cambridge, Mass.

Division of Ser. No. 378,860, Jan. 26, 1995, which is a continuation-in-part of Ser. No. 98,942, Jul. 27, 1993. This application Jul. 12, 1995, Ser. No. 501,626
Int. Cl.⁶ A61K 48/00; C07H 21/02; 21/04
U.S. Cl. 514—44

8 Claims



1. A method of treating age-related macular degeneration comprising the step of administering by intravitreal injection to a subject afflicted with age-related macular degeneration a therapeutic amount of an oligonucleotide complementary to human vascular endothelial growth factor mRNA and effective in inhibiting the expression of vascular endothelial growth factor in the retina.

5,801,157

COMPOSITION COMPRISING A RECOMBINANT PLASMID AND ITS USES AS VACCINE AND MEDICAMENT

Vincent Ganne, La Varenne Saint Hilaire, France, assignor to Societe D'Exploitation de Produits Pour L'Industrie Chimique S.E.P.P.I.C., Paris, France

PCT No. PCT/FR95/00345, § 371 Date Sep. 9, 1996, § 102(e) Date Sep. 9, 1996, PCT Pub. No. WO95/25542, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 21, 1995, Ser. No. 704,572
Claims priority, application France, Mar. 22, 1994, 94/03361
Int. Cl.⁶ A61K 45/00; 47/44; 48/00; C07H 21/02
U.S. Cl. 514—44

7 Claims

1. A composition containing:
(a) a recombinant plasmid comprising a nucleotide sequence encoding a protein, glycoprotein, or peptide; and
(b) an emulsion comprising one or two aqueous phases and an oil phase containing a surfactant having a hydrophilic-lipophilic balance (HLB) value of between 1 and 19, said recombinant plasmid being contained in at least one of said phases.

5,801,158

ENZYMATIC RNA WITH ACTIVITY TO RAS

James D. Thompson, and Kenneth G. Draper, both of Boulder, Colo., assignors to Ribozyme Pharmaceuticals, Inc., Boulder, Colo.

Continuation of Ser. No. 936,110, Aug. 26, 1992, Pat. No. 5,610,052. This application Dec. 23, 1996, Ser. No. 777,918
Int. Cl.⁶ C12Q 1/68; C12N 5/08; C70H 21/02; A61R 48/00
U.S. Cl. 514—44

22 Claims

1. An enzymatic RNA molecule which specifically cleaves RNA encoding K-RAS RNA, wherein said enzymatic RNA molecule comprises a substrate binding site and a nucleotide sequence within or surrounding said substrate binding site wherein said nucleotide sequence imparts to said enzymatic RNA molecule activity for the cleavage of said K-RAS RNA.

2. The enzymatic RNA molecule of claim 1, wherein said substrate binding site is complementary to said K-RAS RNA.

19. The enzymatic RNA molecule of claim 2, wherein said enzymatic RNA molecule comprises a 3'-polyA tail.

5,801,159

METHOD AND COMPOSITION FOR INHIBITING CELLULAR IRREVERSIBLE CHANGES DUE TO STRESS

Guy Miller, Mountain View; Lillian Lou, Palo Alto, and John Nakamura, San Jose, all of Calif., assignors to Galileo Laboratories, Inc., Sunnyvale, Calif.

Filed Feb. 23, 1996, Ser. No. 607,022
Int. Cl.⁶ A61K 31/70

U.S. Cl. 514—45

20 Claims

1. A method for delaying the time that mammalian cells under stress due to energetic dysfunction undergo irreversible change related to said stress, said method comprising:

adding to a medium comprising said cells in an amount sufficient to delay the time for said irreversible change at least one of an electron acceptor and an amino acid and a purine derivative other than adenosine triphosphate or adenosine.

17. A composition comprising a concentrate capable of forming a solution of a purine derivative in combination with at least one of an electron acceptor and an amino acid, wherein said solution comprises said purine derivative at a concentration in the range of about 0.1 μ M to 5 mM and said electron acceptor and/or amino acid are in a molar ratio of 1:1–100 to said purine derivative, wherein the purine derivative is guanosine.

5,801,160

METHOD OF PROTECTING BRAIN TISSUE FROM CEREBRAL INFARCTION SUBSEQUENT TO ISCHEMIA

Bobby Winston Sandage, Acton; Marc Fisher, Shrewsbury, and Kenneth Walter Locke, Littleton, all of Mass., assignors to Interneuron Pharmaceuticals, Inc., Lexington, Mass.

Continuation of Ser. No. 399,262, Mar. 6, 1995, abandoned.
This application Mar. 18, 1997, Ser. No. 820,244
Int. Cl.⁶ A61K 31/70

U.S. Cl. 514—49

11 Claims

1. A method of protecting brain tissue from cerebral infarction subsequent to ischemia comprising administering an effective amount of citicoline, excluding effective amounts of cytidine diphosphoethanolamine, cytidine diphospho-N-methylethanolamine, cytidine diphospho-N,N-dimethylethanolamine, or mixtures thereof, to a subject in need thereof such that the extent of cerebral infarction subsequent to ischemia is reduced compared to the extent of cerebral infarction in control subjects.

5,801,161

PHARMACEUTICAL COMPOSITION FOR THE INTRANASAL ADMINISTRATION OF HYDROXOCOBALAMIN

Franciscus W. H. M. Merkus, Groot Reesdijk 26, Kasterlee 2460, Belgium

PCT No. PCT/EP94/01567, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/17164, PCT Pub. Date Jun. 29, 1995

PCT Filed May 13, 1994, Ser. No. 663,240
Claims priority, application Belgium, Dec. 20, 1993, 9301418
Int. Cl.⁶ A61K 31/70

U.S. Cl. 514—52

4 Claims

1. A method of treating Vitamin B₁₂ deficiency, said method comprising the intranasal administration of a pharmaceutical composition, said composition comprising one or more hydroxocobalamin compounds selected from the group consisting of hydroxocobalamin, hydroxocobalamin hydrochloride, hydroxocobalamin sulphate, hydroxocobalamin acetate, and any other pharmaceutically acceptable hydroxocobalamin salt, dissolved in an aqueous solution in a total concentration above 1% (w/w) and having a viscosity of less than 1000 cP.

5,801,162

DERMATAN SULFATE COMPOSITIONS AND ANTITHROMBOTIC COMPOSITIONS CONTAINING SAME

Akikazu Takada, Hamamatsu; Junichi Onaya; Mikio Arai, both of Higashiyama; Satoshi Miyauchi, Musashimurayama; Mamoru Kyogashima, Higashiyama, and Keiichi Yoshida, Higashimurayama, all of Japan, assignors to Seikagaku Kogyo Kabushiki Kaisha (Seikagaku Corporation), Japan

PCT No. PCT/JP94/01643, § 371 Date Aug. 28, 1995, § 102(e) Date Aug. 28, 1995, PCT Pub. No. WO95/09188, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 30, 1994, Ser. No. 446,662
Claims priority, application Japan, Sep. 30, 1993, 5-269758
Int. Cl.⁶ A61K 31/715; C08B 37/00

U.S. Cl. 514—54

19 Claims

1. Dermatan sulfate or pharmacologically acceptable salts thereof having an intrinsic viscosity of about 0.8–2.0 (100 ml/g) as determined with an Ubbelohde viscometer using 0.2M sodium chloride solution as a solvent and at a temperature of about 30 \pm 0.1 $^{\circ}$ C.; and a heparin or heparan sulfate content of about 0.15% or less as determined by heparin or heparan sulfate degradation enzymes and high performance liquid chromatography; a heparin or heparan sulfate content of about 0.07% or less as determined by inhibitory activity of active factor X in the presence of antithrombin III using bovine intestine derived heparin as a standard substance; or a heparin or heparan sulfate content of about 0.05% or less as determined by inhibitory activity of active factor II in the presence of antithrombin III using bovine intestine derived heparin as a standard substance.

5,801,163

USE OF SALICYLIC ACID FOR REGULATING SKIN WRINKLES AND/OR SKIN ATROPHY

Roy Lonnie Blank, Spring Valley, N.Y., assignor to Richardson-Vicks Inc., Shelton, Conn.

Division of Ser. No. 775,487, Dec. 31, 1996, Pat. No. 5,691,327, which is a continuation of Ser. No. 641,296, Apr. 30, 1996, Pat. No. 5,616,572, which is a continuation of Ser. No. 434,250, May 3, 1995, abandoned, which is a continuation of Ser. No. 28,756, Mar. 9, 1993, abandoned, which is a continuation of Ser. No. 796,750, Nov. 25, 1991, abandoned. This application Apr. 10, 1997, Ser. No. 843,669
Int. Cl.⁶ A61K 31/60; 7/42; 7/44; 7/00

U.S. Cl. 514—159

19 Claims

1. A method for preventing, retarding, arresting, or reversing wrinkles or atrophy in mammalian skin comprising treating the skin with a safe and effective amount of a composition comprising:

(a) a safe and effective amount of salicylic acid,
(b) a humectant, and
(c) a pharmaceutically-acceptable carrier.

5,801,164

METHODS OF TREATING OSTEOPOROSIS PROPHYLACTICALLY OR THERAPEUTICALLY

Joyce C. Knutson, Madison; Charles W. Bishop, Verona, both of Wis., and Robert M. Moriarty, Oak Park, Ill., assignors to Bone Care International, Inc., Madison, Wis.

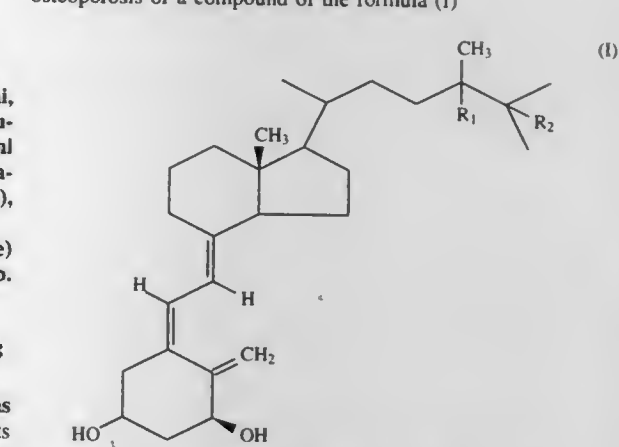
Division of Ser. No. 265,438, Jun. 24, 1994, which is a continuation of Ser. No. 886,554, May 20, 1992, abandoned, which is a continuation-in-part of Ser. No. 800,045, Nov. 29, 1991, abandoned, which is a continuation of Ser. No. 586,854, Sep. 21, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 480,310
Int. Cl.⁶ A61K 31/59

U.S. Cl. 514—167

11 Claims

1. A method of treating osteoporosis, comprising administering to a patient suffering therefrom an amount effective to treat the

osteoporosis of a compound of the formula (I)

wherein R₁ is either H or OH and R₂ is either H or OH.

5,801,165

ANTIINFLAMMATORY, IMMUNOSUPPRESSIVE AND ANTIALLERGIC 16, 17-ALKYLDIOXY-STERIODS

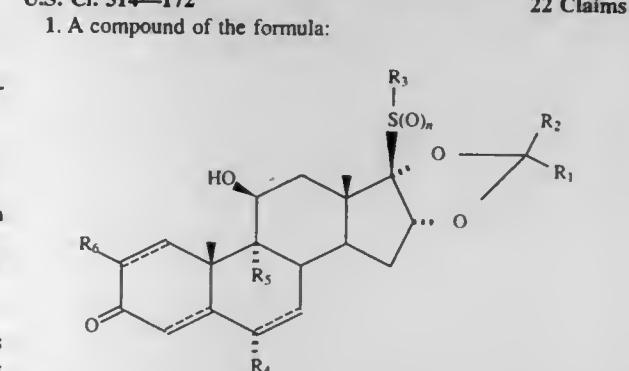
Michael John Ashton; Sven Jan-Anders Karlsson; Bernard Yvon Jack Vacher, and Michael Thomas Withnall, all of Dagenham, United Kingdom, assignors to Rhone-Poulenc Rorer Limited, Kent, England

Filed Jun. 2, 1995, Ser. No. 459,954
Claims priority, application United Kingdom, Dec. 24, 1992, 9226917; Feb. 17, 1993, 9303121
Int. Cl.⁶ C07J 71/00; 75/00; A61K 31/58

U.S. Cl. 514—172

22 Claims

1. A compound of the formula:



where:
— is independently at each of the 1,2-, 4,5- and 6,7-positions, a single or double bond;

R₁ is a straight- or branched-chain C₁₋₄ alkyl or C₂₋₄ alkenyl;
R₂ is hydrogen or methyl;

R₃ is C₁₋₇ alkyl, phenyl, substituted phenyl, heteroaryl, substituted heteroaryl or —CH₂R where R is halo, hydroxy, C₁₋₅ alkoxy or C₁₋₁₀ alkanoyloxy;

R₄ is hydrogen, halo, hydroxy, keto or C₁₋₃ alkoxy when — at the 6,7-position forms a single bond, or hydrogen, halo or C₁₋₃ alkoxy when — at the 6,7-position forms a double bond;

R₅ is hydrogen or halo;

R₆ is hydrogen when — at the 1,2-position forms a single bond or hydrogen or chloro when — at the 1,2-position forms a double bond; and

n is 0–2; or a race mate diastereomer thereof.

5,801,166

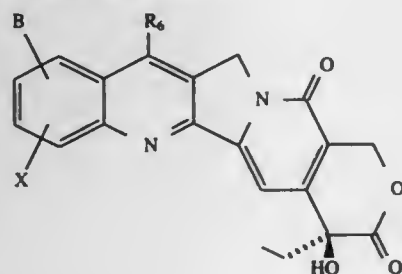
Patent Not Issued For This Number

5,801,167
CAMPTOTHECIN DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Angelo Bedeschi, Milan; Franco Zarini, Settimo Milanese; Walter Cabri, Rozzano; Ilaria Candiani, Busto Arsizio; Sergio Penco, and Laura Capolongo, both of Milan, all of Italy, assignors to Pharmacia S.p.A., Milan, Italy
Division of Ser. No. 389,190, Feb. 15, 1995, Pat. No. 5,602,141. This application Aug. 20, 1996, Ser. No. 697,125
Claims priority, application United Kingdom, Feb. 16, 1994, 9402934

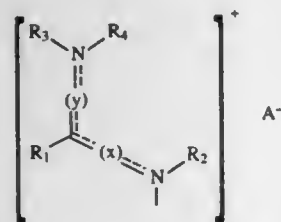
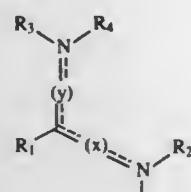
Int. Cl.⁶ A61K 31/47; C07D 491/22
U.S. Cl. 514—233.2

1. A compound of the formula (I)



wherein

B is a group B' or B*



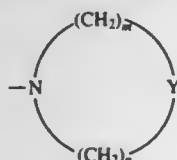
wherein one of (x) and (y) is a single bond and the other is a double bond;

R₁ and R₂ are each independently hydrogen, C₁-C₆ alkyl, C₃-C₇ cycloalkyl, phenyl C₁-C₆ alkyl or a group of the formula



wherein Q is hydrogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ acyloxy or a halogen atom,

R₃ and R₄ are combined together with the nitrogen atom to which they are linked to form a group of the formula



wherein Y is —O—; and m and n are each independently equal to 2, and

A is a pharmaceutically acceptable anion of a pharmaceutically acceptable inorganic or organic acid, provided that when B is a group B', then R₂ is absent;
R₆ is hydrogen or C₁-C₆ alkyl;
X is hydrogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ acyloxy, C₃-C₇ cycloalkyl, C₃-C₇ cycloalkoxy, benzoyloxy, hydroxy, nitro, a halogen atom or a methylenedioxy group linked to the position 10 and 11 of the molecule;
or a pharmaceutically acceptable salt thereof.

7 Claims

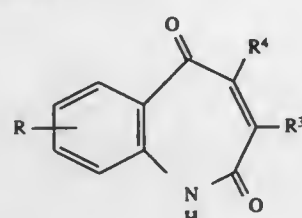
5,801,168
SUBSTITUTED NITROGEN HETEROCYCLES
Marc Jerome Chapdelaine, Wilmington; Timothy W. Davenport; Laura E. Garcia-Davenport, both of New Castle, all of Del.; Paul Francis Jackson, Chadds Ford, Pa.; Jeffrey A. McKinney, West Chester, Pa., and Charles D. McLaren, Landenberg, Pa., assignors to Zeneca Limited, London, United Kingdom

Continuation of Ser. No. 547,696, Oct. 19, 1995, Pat. No. 5,656,626, which is a continuation of Ser. No. 255,613, Jun. 9, 1994, Pat. No. 5,502,048. This application Feb. 3, 1997, Ser. No. 794,102

Int. Cl.⁶ A61K 31/55; C07D 223/16

U.S. Cl. 514—213

1. A method of treating perinatal asphyxia, epilepsy, pain, drug and alcohol withdrawal symptoms or tolerance and dependence on opiate analgesics comprising administering to a patient in need of treatment thereof a therapeutically effective amount of a compound of formula I



wherein

R denotes 0-3 substituents on the benz-ring selected independently from halo, trifluoromethyl and cyano;

R³ is hydroxy, (1-6C)alkoxy (which may bear a carboxy or (1-3C)alkoxycarbonyl substituent) or NR⁴R⁵ in which

R⁴ and R⁵ are independently selected from hydrogen, (1-6C)alkyl, (2-6C)alkenyl, (3-7C)cycloalkyl, (3-7C)cycloalkyl(1-6C)alkyl, aryl, aryl(1-6C)alkyl, heteroaryl, heteroaryl(1-6C)alkyl and CH₂Y in which Y is

(CHOH)_nCH₂OH or (CH₂)_nR⁶ (wherein n is an integer from 1 to 5) and in which R⁶ and R⁷ (except when CH₂Y) independently may bear a COR^c substituent; or

NR⁴R⁵ forms a pyrrolyl, pyrrolidinyl, piperidino, piperazinyl, morpholino, thiomorpholino (or S-oxide) or perhydroazepinyl ring which may further bear one or more

(1-6C)alkyl, phenyl, phenyl(1-4C)alkyl, phenoxy or phenyl(1-4C)alkyl substituents;

R⁴ is (2-6C)alkenyl, (2-6C)alkynyl, aryl or heteroaryl and R⁵ independently may bear COR^c; —OH or —O(1-4C)alkyl; (1-4C)alkyl, —(1-4C)alkylcarboxy(1-4C)alkyl, aryl or —Si— and wherein

R^c is hydroxy, (1-4C)alkoxy, or NR^dR^e in which R^d and R^e are independently selected from hydrogen, (1-3C)alkyl, benzyl or phenyl wherein the aryl portion may be unsubstituted or substituted with halogen, (1-4C)alkyl or (1-5C)O—; or

NR^dR^e forms a pyrrolyl, pyrrolidinyl, piperidino, piperazinyl (which may bear a (1-3C)alkyl or benzyl substituent at the 4-position), morpholino, thiomorpholino (or S-oxide) or perhydroazepinyl ring;

and wherein each aryl moiety is selected from a phenyl radical or an ortho-fused bicyclic carbocyclic radical having nine to ten ring atoms in which at least one ring is aromatic; and each heteroaryl moiety is a radical attached via a ring carbon of a monocyclic aromatic ring containing five ring atoms consist-

ing of carbon and one to four heteroatoms selected from oxygen, sulfur and nitrogen, or containing six ring atoms consisting of carbon and one or two nitrogens;

and in which an aryl or heteroaryl portion of R³ or R⁴ may bear one or more halo, trifluoromethyl, (1-6C)alkyl, (2-6C)alkenyl, phenyl, phenyl(1-4C)alkyl, hydroxy, (1-6C)alkoxy, phenoxy, phenyl(1-4C)alkoxy, nitro, amino, (1-4C)acylamino, trifluoroacetyl amino, carboxy, (1-3C)alkoxy-carbonyl or a phenyl carbonyl group; a 1,3 dioxolo group; a —(1-4C)alkylNRR¹ wherein R or R¹ is H or (1-4C)alkyl; a —(1-4C)alkylCN or cyano substituents;

or a pharmaceutically acceptable salt thereof.

Int. Cl.⁶ A61K 31/55; C07D 223/16

U.S. Cl. 514—213

1. A method of treating perinatal asphyxia, epilepsy, pain, drug and alcohol withdrawal symptoms or tolerance and dependence on opiate analgesics comprising administering to a patient in need of treatment thereof a therapeutically effective amount of a compound of formula I

Int. Cl.⁶ A61K 31/55; C07D 223/16

U.S. Cl. 514—213

ing of carbon and one to four heteroatoms selected from oxygen, sulfur and nitrogen, or containing six ring atoms consisting of carbon and one or two nitrogens;
and in which an aryl or heteroaryl portion of R³ or R⁴ may bear one or more halo, trifluoromethyl, (1-6C)alkyl, (2-6C)alkenyl, phenyl, phenyl(1-4C)alkyl, hydroxy, (1-6C)alkoxy, phenoxy, phenyl(1-4C)alkoxy, nitro, amino, (1-4C)acylamino, trifluoroacetyl amino, carboxy, (1-3C)alkoxy-carbonyl or a phenyl carbonyl group; a 1,3 dioxolo group; a —(1-4C)alkylNRR¹ wherein R or R¹ is H or (1-4C)alkyl; a —(1-4C)alkylCN or cyano substituents;
or a pharmaceutically acceptable salt thereof.

5,801,169
COMPOUNDS IN THE FORM OF 5,6-DIHYDROXYINDOLE POLYMERS, THEIR PROCESS OF PREPARATION AND COMPOSITIONS COMPRISING THEM

Laurent Marrot, Livry Gargan, France, assignor to L'Oreal, Paris, France
Division of Ser. No. 548,195, Oct. 25, 1995, Pat. No. 5,721,333.
This application Nov. 21, 1997, Ser. No. 976,346

Claims priority, application France, Oct. 25, 1994, 94-12743
Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—231.2

1. A method for the preparation of a cosmetic composition which comprises including in said composition a 5,6-dihydroxyindole polymer substituted with at least one hydrophilic group via a sulphur-containing residue, wherein the number of hydrophilic groups in said polymer is such that said polymer is soluble in an aqueous or aqueous-alcoholic medium.

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—231.2

1. A method for the preparation of a cosmetic composition which comprises including in said composition a 5,6-dihydroxyindole polymer substituted with at least one hydrophilic group via a sulphur-containing residue, wherein the number of hydrophilic groups in said polymer is such that said polymer is soluble in an aqueous or aqueous-alcoholic medium.

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—231.2

1. A method of

(a) preventing or reducing dependence on, or

(b) preventing or reducing tolerance or reverse tolerance to,

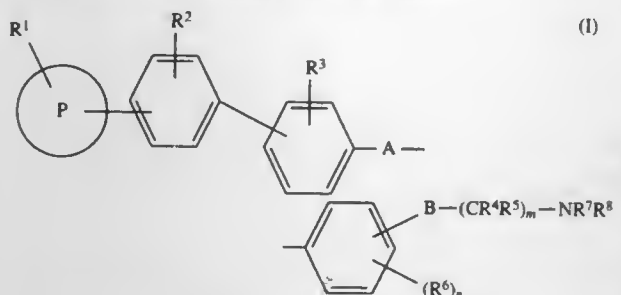
a dependence-inducing agent, the method comprising administering to a human or animal patient in need of such treatment a therapeutically effective amount of a compound selected from

3,5-diamino-6-(2,3-dichlorophenyl)-1,2,4-triazine and the pharmaceutically and veterinarily acceptable acid addition salts thereof, wherein said dependence-inducing agent is selected from the group consisting of opioids, central nervous system depressants, nicotine and tobacco, cannabinoids, psychedelics, arylcyclohexylamines, and inhalants.

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:



wherein P is oxadiazolyl;

R¹, R² and R³ are independently hydrogen, halogen, C₁-C₆ alkyl, C₃-C₇ cycloalkyl, C₁-C₆ cycloalkenyl, C₁-C₆ alkoxy, hydroxy, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkoxy, optionally substituted phenyl, alkanoyloxy, hydroxy, nitro, trifluoromethyl, cyano, CO₂R⁹, CONR¹⁰R¹¹ where R⁹, R¹⁰ and R¹¹ are independently hydrogen or C₁-C₆ alkyl;

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

R⁴ and R⁵ are independently hydrogen or C₁-C₆ alkyl;
R⁶ is hydrogen, halogen, hydroxy, C₁-C₆ alkyl or C₁-C₆ alkoxy

R⁷ and R⁸ are independently hydrogen, C₁-C₆ alkyl, optionally substituted phenylalkyl, or together with the nitrogen atom to which they are attached form an optionally substituted 5- to 7-membered heterocyclic ring containing one or two heteroatoms selected from oxygen, nitrogen or sulphur;

A is CONH or NHCO;

B is oxygen, S(O)_p where p is 0.1 or 2, or B is CR⁴=CR⁵ or CR⁴R⁵ where R⁴ and R⁵ are independently hydrogen or C₁-C₆ alkyl;

m is R¹, R² and R³ are independently hydrogen, halogen, C₁-C₆ alkyl, C₃-C₇ cycloalkyl, C₃-C₇ cycloalkenyl, 1 to 4; and n is 1 or 2.

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

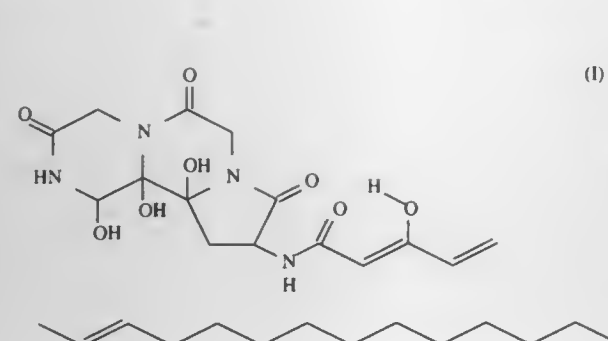
Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2

1. A compound of formula (I) or a salt thereof:

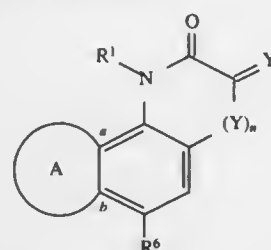
Int. Cl.⁶ A61K 31/535; 7/42; 7/00; 31/74

U.S. Cl. 514—236.2



5,801,174
FUSED INDOLE AND QUINOXALINE DERIVATIVES,
THEIR PREPARATION AND USE
 Peter Moldt, Humlebaek, and Frank Wätjen, Herlev, both of Denmark, assignors to Neurosearch A/S, Glostrup, Denmark
 PCT No. PCT/EP95/03594, § 371 Date May 20, 1997, § 102(e)
 Date May 20, 1997, PCT Pub. No. WO96/08495, PCT Pub.
 Date Mar. 21, 1996
 PCT Filed Sep. 12, 1995, Ser. No. 809,086
 Claims priority, application Denmark, Sep. 14, 1994, 1054/94
 Int. Cl.⁶ C07D 487/04; 471/04; A61K 31/435; 31/495
 U.S. Cl. 514—253 14 Claims

1. A compound having the formula

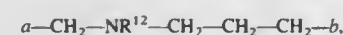
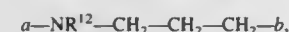
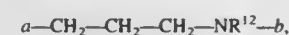
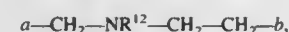
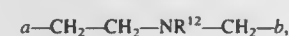
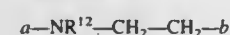


or a pharmaceutically acceptable salt thereof
 wherein

R¹ is hydrogen, alkyl or benzyl;
 X is O or NOR², wherein R² is hydrogen, alkyl or benzyl;
 Y is N—R⁴ wherein R⁴ is hydrogen, OH or alkyl;
 n is 0 or 1;
 R⁶ is phenyl which is substituted one or more times with
 substituents selected from the group consisting of SO₂NR¹R²,
 CONR¹R², and COR¹

wherein R¹ and R² each independently are hydrogen, alkyl, or
 —(CH₂)_p—W, wherein p is 0, 1, 2, 3, 4, 5, or 6, and W is hydroxy,
 amino, alkoxy, carbonyl, or phenyl which may be substituted one
 or more times with substituents selected from the group consisting of
 halogen, CF₃, NO₂, amino, alkyl, alkoxy or methylenedioxy;
 or wherein R¹ and R² together is (CH₂)_rZ(CH₂)_s, wherein r and s each
 independently are 0, 1, 2, 3, 4, 5, or 6 and Z is O, S, CH₂ or NR¹
 wherein R¹ is hydrogen, alkyl, or —(CH₂)_p—W, wherein p is 0,
 1, 2, 3, 4, 5, or 6, and W is hydroxy, amino, alkoxy, carbonyl,
 or phenyl which may be substituted one or more times with substituents
 selected from the group consisting of halogen, CF₃, NO₂,
 amino, alkyl, alkoxy or methylenedioxy;
 and wherein R¹ is hydrogen, alkyl, alkoxy or phenyl which may be
 substituted one or more times with substituents selected from the
 group consisting of halogen, CF₃, NO₂, amino, alkyl, alkoxy or
 methylenedioxy;

A is a ring of five to seven atoms fused with the benzo ring at
 the positions marked a and b, and formed by the following
 bivalent radicals:

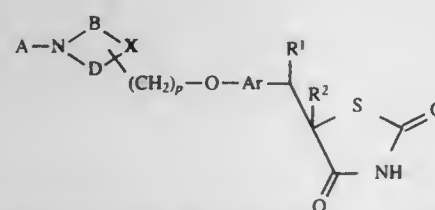


5,801,173
HETEROCYCLIC COMPOUNDS HAVING
ANTI-DIABETIC, HYPO-LIPIDAEMIC,
ANTI-HYPERTENSIVE PROPERTIES, PROCESS FOR
THEIR PREPARATION AND PHARMACEUTICAL
COMPOSITIONS CONTAINING THEM

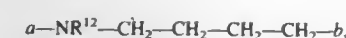
Vidya Bhushan Lohray; Braj Bhushan Lohray; Sekar Reddy
 Alla; Rajagopalan Ramanujam, and Ranjan Chakrabarti,
 all of Hyderabad, India, assignors to Dr. Reddy's Research
 Foundation, Hyderabad, India, and Reddy-Cheminor, Inc.,
 Ridgewood, N.J.

Filed Jul. 26, 1996, Ser. No. 687,840
 Int. Cl.⁶ C07D 417/12; A61K 31/425
 U.S. Cl. 514—252

1. A compound of the formula (I),



its tautomeric forms, its stereoisomers, its polymorphs, its phar-
 maceutically acceptable salts or its pharmaceutically acceptable sol-
 vates, where A represents a substituted or unsubstituted carbocyclic
 aromatic group, a substituted or unsubstituted 5-membered hetero-
 cyclic group with one heteroatom selected from oxygen, nitrogen
 or sulfur, or a substituted or unsubstituted six-membered hetero-
 cyclic group with one or more nitrogen atoms; B represents a
 substituted or unsubstituted linking group between N and X and B
 contains 1-4 carbon atoms; D represents a bond or D represents a
 substituted or unsubstituted linking group between N and X when
 D contains 1-4 carbon atoms; with the proviso that when the
 linking group B, D or both is substituted the substituent is not=O
 or=X represents a CH₂ group or a hetero atom selected from
 nitrogen, oxygen or sulfur; Ar represents a substituted or unsubsti-
 tuted divalent aromatic or heterocyclic group; R¹ and R² are the
 same or different and represent hydrogen, lower alkyl, halogen,
 alkoxy or hydroxy or R¹ and R² taken together represent a bond
 and p is an integer of 0 to 4.



wherein

R¹² is hydrogen, CH₂CH₂OH, or alkyl.

5,801,175

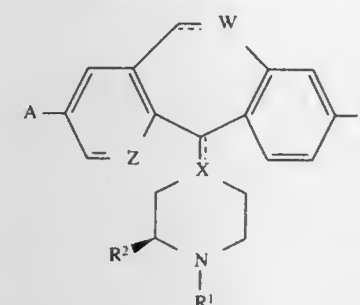
TRICYCLIC COMPOUNDS USEFUL FOR INHIBITION
OF G-PROTEIN FUNCTION AND FOR TREATMENT OF
PROLIFERATIVE DISEASES

Adriano Afonso, West Caldwell, N.J.; John J. Baldwin,
 Gwynedd Valley, Pa.; Ronald J. Doll, Maplewood, N.J.; Ge
 Li, Franklin Park, N.J.; Alan K. Mallams, Long Valley, N.J.;
 F. George Njoroge, Union, N.J.; Dinanath F. Rane, Morgan-
 ville, N.J.; John C. Reader, Princeton, N.J., and Randall R.
 Rossman, Nutley, N.J., assignors to Schering Corporation,
 N.J., and Pharmacoepia, Inc., Del.

Continuation-in-part of Ser. No. 418,323, Apr. 7, 1995, aban-
 doned. This application Sep. 13, 1996, Ser. No. 713,324
 Claims priority, application WIPO, Apr. 3, 1996, PCT/US96/
 04172

Int. Cl.⁶ A61K 31/495; 31/505; C07D 403/14; 401/14
 U.S. Cl. 514—254 35 Claims

1. A compound of the formula



wherein:

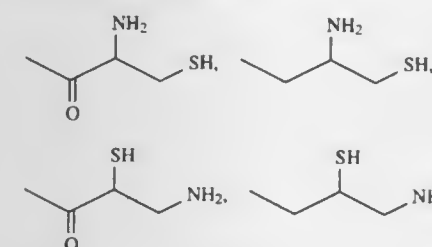
A and B are independently selected from H, halo or C₁-C₆ alkyl;
 Z is N or CH;

W is CH, CH₂, O or S, wherein the dotted line to W represents
 a double bond which is present when W is CH;

X is C, CH or N, wherein the dotted line connecting X to the
 tricyclic ring system represents a double bond which is
 present when X is C;

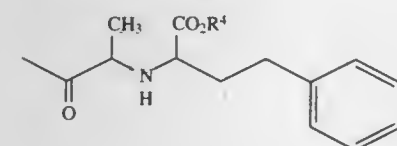
R¹ is selected from:

1) a group of the formula:

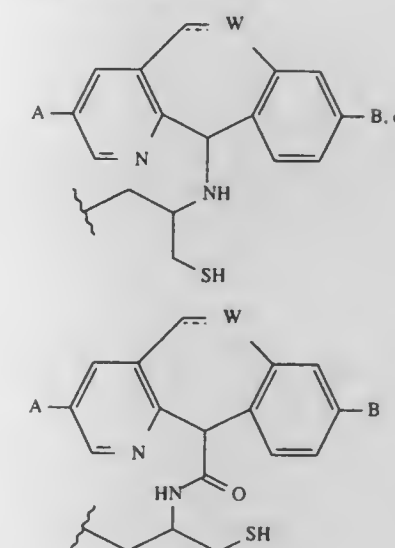


or disulfide dimers thereof;

2) a group of the formula:

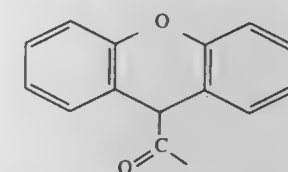


3) a group of the formula:

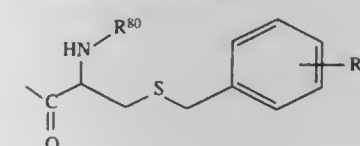


wherein W, A and B are as defined above;

4) a group of the formula:

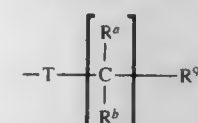


5) a group of the formula:



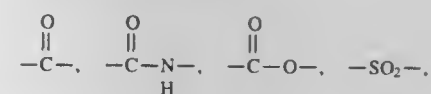
wherein R⁸⁰ is selected from H or —C(O)OR⁹⁰ wherein
 R⁹⁰ is a C₁-C₆ alkyl group, and R⁸⁵ is a C₁-C₆ alkoxy
 group; and

6) a group of the formula:



wherein:

(a) T is selected from:



or a single bond;

(b) x is 0, 1, 2, 3, 4, 5 or 6;

(c) each R^a and each R^b is independently selected from H,
 aryl, alkyl, alkoxy, aralkyl, amino, alkylamino, heterocy-
 cloalkyl, —COOR⁶⁰, —NH{C(O)}_zR⁶⁰ (wherein z is 0 or
 1), or —(CH₂)_wS(O)_mR⁶⁰ (wherein w is 0, 1, 2 or 3, and
 m is 0, 1 or 2); or R^a and R^b taken together can represent
 cycloalkyl, —N—O-alkyl, —O or heterocycloalkyl with
 the proviso that for the same carbon, R^a is not selected
 from alkoxy, amino, alkylamino or —NH{C(O)}_zR⁶⁰
 when R^b is selected from alkoxy, amino, alkylamino or
 —NH{C(O)}_zR⁶⁰; and with the proviso that when T is a

single bond, for the first carbon containing R^a and R^b , R^a and R^b are not selected from alkoxy, alkylamino, amino or $-NHR^{60}$; and

(d) R^{92} can represent H, alkyl, aryl, aryloxy, arylthio, aralkoxy, aralkyl, heteroaryl or heterocycloalkyl;

R^{60} represents H, alkyl, aryl or aralkyl;

R^4 is H or C_1-C_6 alkyl;

R^2 is selected from: $-C(O)NR^6R^7$ or substituted (C_1-C_8) alkyl, wherein said substituted group has one or more substituents selected from $C(O)NR^6R^7$;

R^6 and R^7 are independently selected from H, C_1-C_4 alkyl, (C_3-C_6) cycloalkyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, heterocycloalkyl, substituted (C_1-C_4) alkyl, substituted (C_3-C_6) cycloalkyl, substituted aryl, substituted arylalkyl, substituted heteroaryl, substituted heteroarylalkyl or substituted heterocycloalkyl, wherein said substituted groups have one or more substituents selected from: C_1-C_4 alkoxy, aralkyl, heteroarylalkyl, $-NO_2$, C_3-C_{10} -alkoxyalkoxy, C_3-C_6 cycloalkyl, aryl, $-CN$, nitrophenyl, methylenedioxy-phenyl, heteroaryl, heterocycloalkyl, halo, $-OH$, $-C(O)R^{14}$, $-C(O)NR^6R^7$, $-N(R^6)C(O)R^{14}$, $-S(O)R^{14}$ or $-NR^{95}R^{15}$; provided that R^6 and R^7 are not $-CH_2OH$ or $-CH_2NR^{95}R^{15}$ when said R^6 , or R^7 is directly bonded to a heteroatom;

optionally, when R^6 and R^7 are bound to the same nitrogen, R^6 and R^7 together with the nitrogen to which they are bound, form a 5 to 7 membered heterocycloalkyl ring which optionally contains O, NR^6 , or $S(O)$, wherein t is 0, 1 or 2;

R^{95} and R^{15} are independently H, C_1-C_4 alkyl or arylalkyl;

R^{14} is C_1-C_4 alkyl, aryl or arylalkyl;

$n=0, 1, 2, 3$ or 4; and

$t=0, 1$ or 2;

or pharmaceutically acceptable salts thereof.

21. A compound of the formula

wherein:

A and B are independently selected from H, halo or C_1-C_6 alkyl;

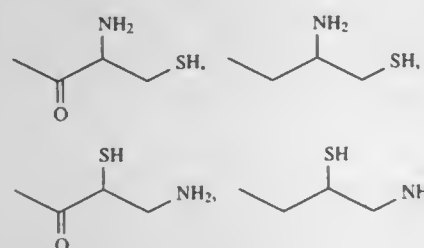
Z is N or CH;

W is CH, CH_2 , O or S, wherein the dotted line to W represents a double bond which is present when W is CH;

X is C, CH or N, wherein the dotted line connecting X to the tricyclic ring system represents a double bond which is present when X is C;

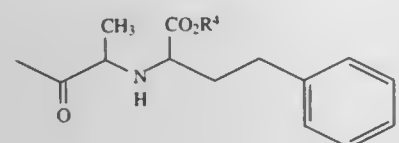
R^1 is selected from:

1) a group of the formula:

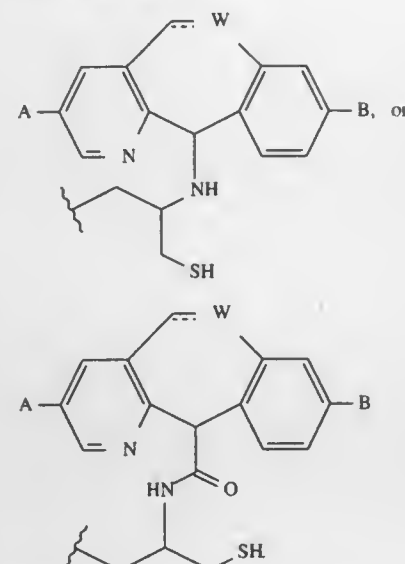


or disulfide dimers thereof;

2) a group of the formula:

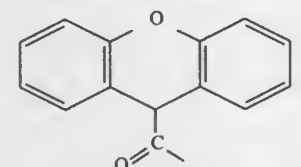


3) a group of the formula:



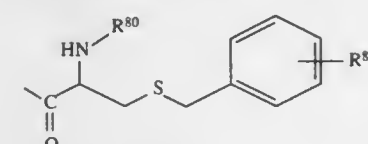
wherein W, A and B are as defined above;

4) a group of the formula:



(159.0)

5) a group of the formula:



wherein R^{80} is selected from H or $-C(O)OR^{90}$ wherein R^{90} is a C_1-C_6 alkyl group, and R^{85} is a C_1-C_6 alkoxy group; and

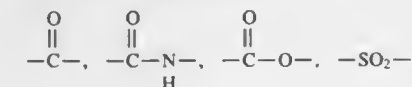
6) a group of the formula:



(82.0)

wherein:

(a) T is selected from:



or a single bond;

(b) x is 0, 1, 2, 3, 4, 5 or 6;

(c) each R^a and each R^b is independently selected from H, aryl, alkyl, alkoxy, aralkyl, amino, alkylamino, heterocycloalkyl, $-COOR^{60}$, $-NH\{C(O)\}_zR^{60}$ (wherein z is 0 or 1), or $-(CH_2)_mS(O)_nR^{60}$ (wherein m is 0, 1, 2 or 3, and n is 0, 1 or 2); or R^a and R^b taken together can represent cycloalkyl, $=N-O$ alkyl, $=O$ or heterocycloalkyl with the proviso that for the same carbon, R^a is not selected from alkoxy, amino, alkylamino or $-NH\{C(O)\}_zR^{60}$ when R^b is selected from alkoxy, amino, alkylamino or $-NH\{C(O)\}_zR^{60}$; and with the proviso that when T is a single bond, for the first carbon containing R^a and R^b , R^a and R^b are not selected from alkoxy, alkylamino, amino or $-NHR^{60}$; and

(d) R^{92} can represent H, alkyl, aryl, aryloxy, arylthio, and aralkoxy, aralkyl, heteroaryl or heterocycloalkyl; R^{60} represents H, alkyl, aryl or aralkyl; R^4 is H or C_1-C_6 alkyl;

R^2 is selected from: $-C(O)OR^6$, $-C(O)NR^6R^7$, C_2-C_8 alkenyl, C_2-C_8 alkynyl, substituted (C_1-C_6) alkyl, substituted (C_2-C_6) alkenyl, substituted (C_2-C_6) alkynyl, wherein said substituted groups have one or more substituents selected from:

- 1) aryl, arylalkyl, heteroarylalkyl, heteroaryl, heterocycloalkyl, B-substituted aryl, B-substituted arylalkyl, B-substituted heteroarylalkyl, B-substituted heteroaryl or B-substituted heterocycloalkyl, wherein B is selected from C_1-C_4 alkyl, $-(CH_2)_nOR^6$, $-(CH_2)_nNR^6R^7$ and halo;
- 2) C_3-C_6 cycloalkyl;
- 3) $-N(R^6)-C(O)R^7$;
- 4) $-N(R^6)-C(O)NR^7R^{12}$;
- 5) $-O-C(O)NR^6R^7$;
- 6) $-SO_2NR^6R^7$;
- 7) $-N(R^6)-SO_2-R^7$; and
- 8) $-C(O)NR^6R^7$;

R^6 , R^7 and R^{12} are independently selected from H, C_1-C_4 alkyl, (C_3-C_6) cycloalkyl, aryl, arylalkyl, heteroaryl, heteroarylalkyl, heterocycloalkyl, substituted (C_1-C_4) alkyl, substituted (C_3-C_6) cycloalkyl, substituted aryl, substituted arylalkyl, substituted heteroaryl, substituted heteroarylalkyl or substituted heterocycloalkyl, wherein said substituted groups have one or more substituents selected from: C_1-C_4 alkoxy, aralkyl, heteroarylalkyl, $-NO_2$, C_3-C_{10} -alkoxyalkoxy, C_3-C_6 cycloalkyl, aryl, $-CN$, nitrophenyl, methylenedioxy-phenyl, heteroaryl, heterocycloalkyl, halo, $-OH$, $-C(O)R^{14}$, $-C(O)NR^6R^7$, $-N(R^6)C(O)R^{14}$, $-S(O)R^{14}$ or $-NR^{95}R^{15}$; provided that R^6 , R^7 and R^{12} are not $-CH_2OH$ or $-CH_2NR^{95}R^{15}$ when said R^6 , R^7 or R^{12} is directly bonded to a heteroatom, and further provided that R^7 is not H for group 3);

optionally, when R^6 and R^7 are bound to the same nitrogen, R^6 and R^7 together with the nitrogen to which they are bound, form a 5 to 7 membered heterocycloalkyl ring which optionally contains O, NR^6 , or $S(O)$, wherein t is 0, 1 or 2;

optionally, when R^7 and R^{12} are bound to the same nitrogen, R^7 and R^{12} together with the nitrogen to which they are bound, form a 5 to 7 membered heterocycloalkyl ring which optionally contains O, NR^6 , or $S(O)$, wherein t is 0, 1 or 2;

R^{95} and R^{15} are independently H, C_1-C_4 alkyl or arylalkyl; R^{14} is C_1-C_4 alkyl, aryl or arylalkyl;

$n=0, 1, 2, 3$ or 4; and

$t=0, 1$ or 2;

or pharmaceutically acceptable salts thereof.

5,801,176

SUBSTITUTED BENZOTHIENYLPIPERAZINES AND THEIR USE

Nicholas Joseph Hrib, Somerville, N.J.; John Gerard Jurcak, Bethlehem, Pa., and Abdul E. Mutlib, Bedminster, N.J., assignors to Hoechst Marion Roussel, Inc.

Continuation of Ser. No. 413,818, Mar. 17, 1995, abandoned.

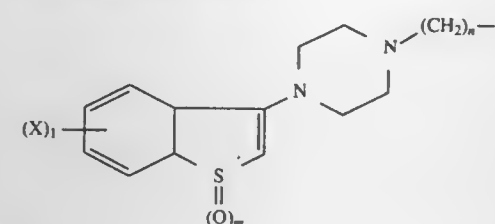
This application Jun. 6, 1997, Ser. No. 870,988

Int. Cl. A61K 31/495; C07D 405/04

U.S. Cl. 514-254

1. A compound of the formula

23 Claims



wherein

X is hydroxy, halogen, (C_1-C_6) alkoxy, amino or trifluoromethyl;

Y is $-CN$ or NR^1R^2 ;

where

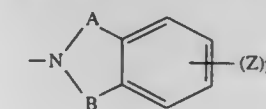
l is an integer of 0, 1 or 2;

m is an integer of 0, 1 or 2;

n is an integer of 2, 3, or 4, except where Y is CN, in which case n can also be 1;

R^1 is hydrogen, (G_1-C_6) alkyl or (C_1-C_6) alkylcarbonyl; R^2 is hydrogen, (C_1-C_{10}) alkylcarbonyl, (C_3-C_{12}) cycloalkylcarbonyl, hydroxy (C_1-C_6) alkylcarbonyl, substituted phenylcarbonyl, where the phenyl group is substituted with 1, 2, or 3 moieties selected from phenyl and 2(4'-trifluoromethyl)phenyl, thienylcarbonyl, substituted thienylcarbonyl where the thienyl group is substituted with 1 or 2 moieties selected from halogen, (C_1-C_6) alkoxy and (C_1-C_6) alkyl, benzothienylcarbonyl or substituted benzothienylcarbonyl where the benzothienyl is substituted with 1, 2 or 3 moieties in the benzo ring selected from halogen, trifluoromethyl, (C_1-C_6) alkoxy and (C_1-C_6) alkyl; with the proviso that

when l is 0 and n is 4, R^1 and R^2 cannot both be hydrogen; or R^1 and R^2 together with the nitrogen atom to which they are attached form the ring



where

A is $C=O$ or CH_2 ; and

B is $CHOH$, CH_2 or CH_2CH_2 ; and

Z is halogen, hydroxy, (C_1-C_6) alkoxy, amino or trifluoromethyl; p is 0 or 1; or pharmaceutically acceptable acid addition salts thereof with the proviso that

when A is $C=O$, B is not CH_2 , or CH_2CH_2 .

5,801,177

METHOD FOR CONTROLLING AND/OR LOWERING SERUM GLUCOSE AND FATTY ACID CONCENTRATIONS AND HYPERTENSIVE BLOOD PRESSURE IN NON-INSULIN-DEPENDENT DIABETIC PATIENTS

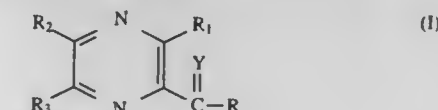
Karl H. Beyer, Jr., 1001 Gypsy Hill Rd., Penllyn, Pa. 19422
Filed Dec. 14, 1995, Ser. No. 572,743

Int. Cl. A61K 31/495

U.S. Cl. 514-255

11 Claims

1. A method of treating non-insulin-dependent diabetes mellitus comprising administering to a patient in need thereof a therapeutically effective amount of at least one compound of formula (I) for a period of time of more than 6 days:



wherein

Y is O

R^1 is $NHCONR^5$, or $N=C(NR^5)_2$;

R^4 and R^5 are each independently selected from the group consisting of hydrogen; C_1-10 alkyl, straight or branched chain; aryl C_1-4 alkyl; and mono- or disubstituted aryl C_1-4 alkyl where the substituents are fluoro, chloro, bromo, iodo or C_1-10 alkyl, straight or branched chain;

R^1 and R^2 are each independent selected from the group consisting of hydrogen, amino, and mono- or di-substituted amino where the substituents are C_1-10 alkyl, straight or branched chain C_3-8 , cycloalkyl; provided that R^1 and R^2 may not both be amino or substituted amino; and

R^3 is hydrogen, trifluoromethyl; fluoro; chloro; bromo; or iodo; or a pharmaceutically acceptable salt thereof.

5,801,178

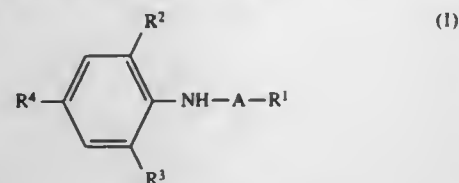
ANILINE DERIVATIVE HAVING POLYUNSATURATED FATTY ACID RESIDUE AND USE THEREOF

Kazunaga Yazawa; Kazuo Watanabe; Yasuharu Ijuin, all of Sagami-hara; Mayumi Shikano, Machida; Yasuji Soda, Kobe; Tetsuya Kosaka, Ibaraki; Naoto Matsuyama, Takatsuki, and Koji Mizuno, Kyoto, all of Japan, assignors to Nippon Shoji Kaish Ltd., Osaka, and Sagami Chemical Research, Kanagawa, both of Japan

Filed Feb. 7, 1996, Ser. No. 597,983

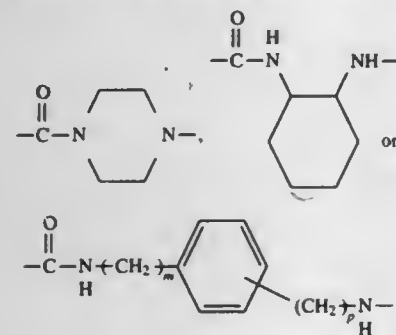
Claims priority, application Japan, Feb. 8, 1995, 7-020741
Int. Cl.⁶ A61K 31/495; 31/165; C07C 233/09; C07D 295/185
U.S. Cl. 514—255 5 Claims

1. An aniline derivative of the formula (I)



wherein

R¹ is an eicosapentaenoyl or a docosahexaenoyl;
R² and R³ are each independently an alkyl or alkoxy having 1 to 6 carbon atoms, or a halogen atom;
R⁴ is a hydrogen atom, an alkyl or alkoxy having 1 to 6 carbon atoms, or a halogen atom; and
A is a single bond, —C(=O)NH—(CH₂)_n—NH— wherein n is 2 or 3, or a bivalent group of the following formula



wherein m and p are each independently 0 or 1.

5,801,179

VASOCONSTRICTIVE SUBSTITUTED ARYLOXYALKYL DIAMINES

Guy Rosalia Eugene Van Lommen, Berlaar; Marcel Frans Leopold De Bruyn, Wortel, and Piet Tom Bert Paul Wigerinck, Turnhout, all of Belgium, assignors to Janssen Pharmaceutica, NV, Beerse, Belgium

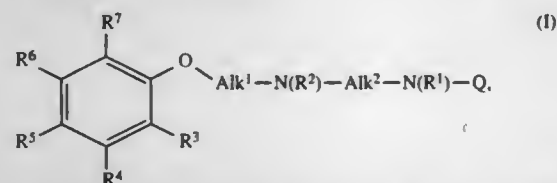
Division of Ser. No. 612,849, Feb. 5, 1996, Pat. No. 5,677,310.

This application Jun. 2, 1997, Ser. No. 867,870

Claims priority, application European Pat. Off., Aug. 19, 1993, 93.202.44.8; Aug. 19, 1993, 93.202.44.1

Int. Cl.⁶ A61K 31/155; C07C 279/30; C07D 239/14; 239/42
U.S. Cl. 514—255 10 Claims

1. A compound of the formula:

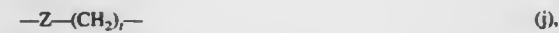
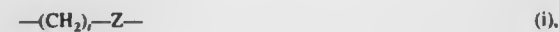
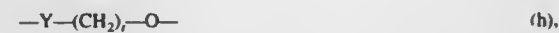
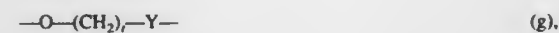
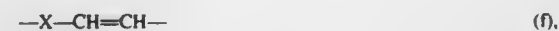
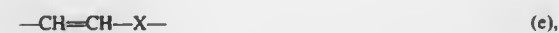
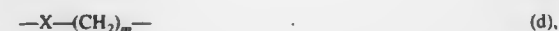
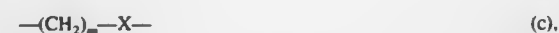
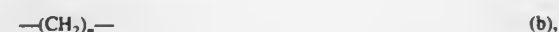
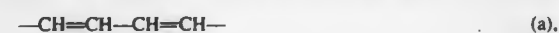


the pharmaceutically acceptable acid addition salts thereof, and the stereochemically isomeric forms thereof, wherein:

R¹ and R² each independently are hydrogen or C₁₋₆alkyl;

R³ is C₁₋₆alkyl, hydroxy, cyano, halo, C₁₋₆alkyloxy, aryloxy, arylmethoxy, C₂₋₆alkenyl, C₂₋₆alkynyl, C₁₋₆alkyl-S—, C₁₋₆alkyl(S=O)—, C₁₋₆alkylcarbonyl;

R⁴ is hydrogen, halo, hydroxy, C₁₋₆alkyl, or C₁₋₆alkyloxy; or

R³ and R⁴ taken together form a bivalent radical of the formula:

wherein:

in the bivalent radicals (a) through (j) one or two hydrogen atoms may be substituted with C₁₋₆alkyl, C₁₋₆alkyl-carbonyl or C₁₋₆alkyl-S(O)—;

each X independently is —O—, —S—, —S(O)—, —S(O)₂—, —C(O)—, or —NR⁸—;

n is 3 or 4;

each Y independently is —O—, —S—, —S(O)—, —S(O)₂—, —C(O)—, or —NR⁸—;

m is 2 or 3;

each Z independently is —O—C(O)—, —C(O)—O—, —NH—C(O)—, —C(O)—NH—, or —O—S(O)₂—;

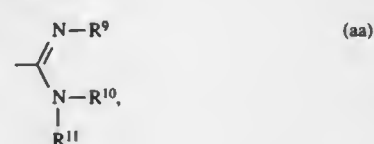
t is 1 or 2; and

R⁸ is hydrogen, C₁₋₆alkyl, C₁₋₆alkylcarbonyl or C₁₋₆alkyl-S(O)—;

R⁵ and R⁶ each independently are hydrogen, halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy, aryloxy or arylmethoxy;

R⁷ is hydrogen;Alk¹ is C₂₋₁₅alkanediyl;Alk² is C₂₋₁₅alkanediyl; and

Q is a radical of the formula:



wherein:

R⁹ is hydrogen, cyano, aminocarbonyl or C₁₋₆alkyl;

R¹⁰ is hydrogen, C₁₋₆alkyl, C₃₋₆alkenyl, C₃₋₆alkynyl, C₃₋₆cycloalkyl or arylC₁₋₆alkyl;

R¹¹ is hydrogen or C₁₋₆alkyl;

or

R¹⁰ and R¹¹ taken together may form a bivalent radical of the formula —(CH₂)₄— or —(CH₂)₅—, or a piperazine which is optionally substituted with C₁₋₆alkyl; and

aryl is phenyl, optionally substituted with hydroxy, halo, C₁₋₆alkyl, C₁₋₆alkyloxy;

with the proviso that N-[2-[2-(2-methoxyphenoxy)ethylamino]-ethyl]guanidine is excluded.

5,801,180

QUINAZOLINE DERIVATIVES

Yasutaka Takase; Nobuhisa Watanabe, both of Ibaraki; Makoto Matsui, Aichi; Hironori Ikuta, Ibaraki; Teiji Kimura, Ibaraki; Takao Saeki, Ibaraki; Hideyuki Adachi, Ibaraki; Tadakazu Tokumura, Ibaraki; Hisatoshi Mochida, Aichi; Yasunori Akita, Chiba, and Shigeru Souda, Ibaraki, all of Japan, assignors to Eisai Co., Ltd., Japan

Division of Ser. No. 408,867, Mar. 23, 1995, Pat. No.

5,693,652, which is a division of Ser. No. 196,110, Feb. 18, 1994, Pat. No. 5,576,322. This application Jul. 31, 1997, Ser.

No. 904,260

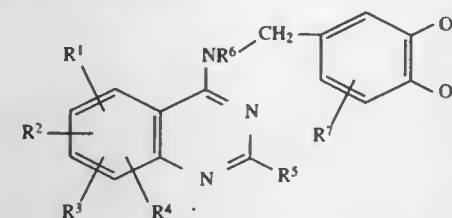
Claims priority, application Japan, Sep. 30, 1991, 3-320853

Int. Cl.⁶ A61K 31/505; C07D 239/94

U.S. Cl. 514—259

7 Claims

1. A compound represented by the formula or a pharmacologically acceptable salt thereof



wherein R¹, R², R³ and R⁴, each of which may be the same or different from one another, each represent a hydrogen atom, a halogen atom or a lower alkoxy group;

R⁵ represents a hydrogen atom, a lower alkoxy, formyl, or imidazolyl group;

R⁶ is hydrogen or a C₁₋₄ alkyl group; andR⁷ is a halogen atom or a hydrogen atom,

provided that at least one of R¹, R², R³ and R⁴ is a lower alkoxy group.

5,801,181

AMINO ALCOHOL SUBSTITUTED CYCLIC COMPOUNDS

John Michnick, Seattle; Gail E. Underiner, Brier; J. Peter Klein, Vashon Island, and Glenn C. Rice, Seattle, all of Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash. Division of Ser. No. 152,650, Nov. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 40,820, Mar. 31, 1993.

This application Jun. 7, 1995, Ser. No. 474,820

Int. Cl.⁶ A01N 43/00; 43/90; 43/58; 43/42

U.S. Cl. 514—263

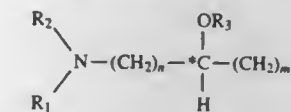
45 Claims

1. A method for treating symptoms of a disease or treatment-induced toxicity selected from the group consisting of: tumor progression resulting from angiogenesis; tumor invasion and metastases formation through adhesion molecule binding; tissue invasion through tumor metalloprotease production; TNF or IL-1-mediated acute allergic reaction; growth factor-induced proliferation of smooth muscle cell, endothelial cell, fibroblast or other cell types; IL-1, MIP-1, PDGF or FGF-induced kidney mesangial cell proliferation; inflammation; Alzheimer's disease; lupus; cyclosporin A or amphotericin B-induced kidney glomerular or tubular toxicity; organ toxicity resulting from cytotoxic therapies and non-alkylating anti-tumor agents; metalloprotease-induced inflammation; bone diseases caused by overproduction of osteoclast-activating factor (OAF) by osteoclasts; septic shock, adult respiratory distress syndrome and multi-organ dysfunction associated with an inflammatory cytokine cascade, the method comprising the step of administering an effective amount of a compound to an individual having the disease or treatment-induced toxicity whereby a cellular response mediated by a second messenger is affected, the compound having a formula:



wherein:

j is an integer from one to three, the core moiety comprises a substituted or unsubstituted nitrogen-containing heterocycle having one ring or two fused rings, each ring having five to six ring atoms and X is a racemic mixture, R or S enantiomer, solvate, hydrate, or salt of:



wherein:

*C is a chiral carbon atom;

n is an integer from one to four;

one or more carbon atoms of (CH₂)_n may be substituted by a carbonyl or hydroxyl group;

m is an integer from four to fourteen;

independently, R₁ and R₂ are hydrogen, a straight or branched chain alkyl or alkenyl group of up to twelve carbon atoms in length, or —(CH₂)_wR₃, w being an integer from two to fourteen and R₃ being a mono-, di- or tri-substituted or unsubstituted aryl group, substituents on R₃ being selected from the group consisting of hydroxyl, chloro, fluoro, bromo, or C₁₋₆ alkoxy, or a substituted or unsubstituted, saturated or unsaturated heterocyclic group having from four to seven carbon atoms; or

R₁ and R₂ jointly form a substituted or unsubstituted, saturated or unsaturated heterocyclic group having from four to seven carbon atoms, N being a hetero atom; and

R₃ is hydrogen or C₁₋₃; or

jointly one of R₁ or R₂ and R₃ form a substituted or unsubstituted linking carbon chain, having from one to four carbon atoms, joining the O and N in a cyclic structure, an integer sum equal to n+a number of carbon atoms in the linking carbon chain being less than six; and

wherein a ring atom of the core moiety is attached to a terminal carbon atom of (CH₂)_m.

5,801,182

AMINE SUBSTITUTED CYCLIC COMPOUNDS

J. Peter Klein, Vashon; Gail E. Underiner, Brier; Anil M. Kumar, Seattle, and Lance H. Ridgers, Bothell, all of Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash.

Continuation-in-part of Ser. No. 217,051, Mar. 24, 1994,

abandoned. This application Jun. 7, 1995, Ser. No. 485,777

Int. Cl.⁶ A61K 31/505; C07D 239/02

U.S. Cl. 514—269

16 Claims

1. A therapeutic compound, including resolved enantiomers and/or diastereomers, hydrates, salts, or solvates thereof, having a formula:

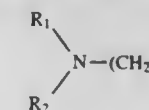


wherein:

j is an integer from one to three;

the core moiety is a pyrimidinyl, wherein the pyrimidinyl is optionally substituted with oxo groups bound to a ring carbon atom; and

R is independently selected from the group consisting of amine, hydrogen, halogen, hydroxyl, C₍₁₋₁₀₎ alkyl, C₍₂₋₁₀₎ alkenyl, and formula I, at least one R being attached to a nitrogen atom on the pyrimidinyl having formula I:



wherein:

(CH₂)_n is substituted or unsubstituted;

n is an integer from five to twenty;

each R₁ or R₂ is independently hydrogen, substituted or unsubstituted C₍₁₋₂₀₎ alkyl, C₍₁₋₂₀₎ alkoxy or C₍₂₋₂₀₎ alkenyl

group or a carbocyclic or heterocyclic ring comprising one ring or two fused rings, with the proviso that at least one of R_1 or R_2 is hydrogen or methyl.

5,801,183

AZA AND AZA (N-OXY) ANALOGS OF GLYCINE/NMDA RECEPTOR ANTAGONISTS

John F. W. Keana, Eugene, Oreg.; Sui Xiong Cai, Foothill Ranch, Calif.; Zhang-Lin Zhou, and James M. Navratil, both of Eugene, Oreg., assignors to State of Oregon, Acting by and Through the Oregon State Board of Higher Education, Acting for and on Behalf of the Oregon Health Sciences University and the University of Oregon, Eugene, Oreg., and Cogensys, Inc., Irvine, Calif.

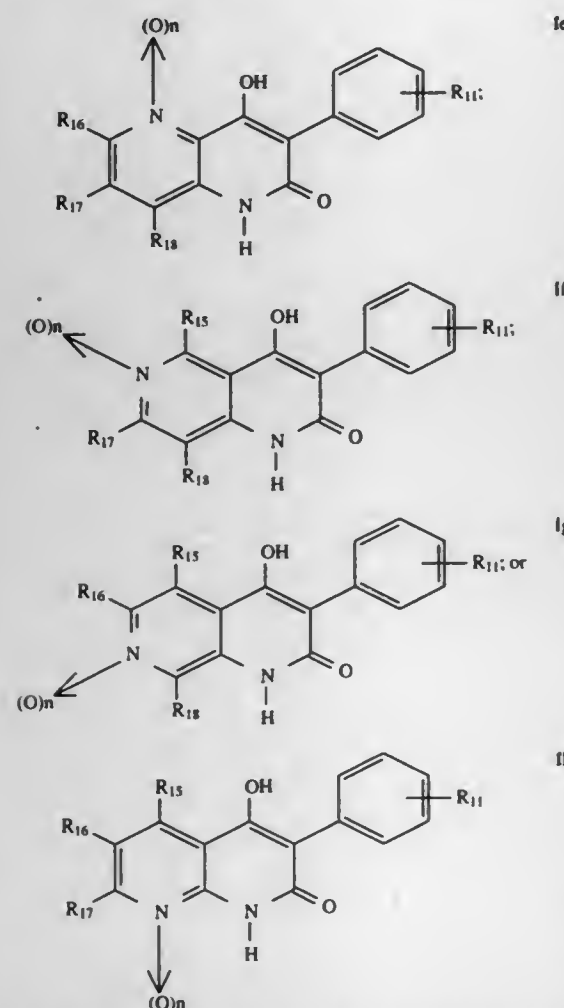
Continuation-in-part of Ser. No. 379,699, Jan. 27, 1995, abandoned. This application Jun. 6, 1995, Ser. No. 466,043

Int. Cl.⁶ A61K 31/435; C07D 471/04

U.S. Cl. 514—300

33 Claims

1. A compound having one of the formulae:



or a tautomer or a pharmaceutically acceptable salt thereof; wherein

R_{15} and R_{16} independently represent hydrogen, halogen, cyano, trifluoromethyl, nitro, hydroxy, amino, carboxy, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkylthio or C_{2-6} alkoxy carbonyl; R_{17} represents hydrogen, halogen, cyano, trifluoromethyl, nitro, carboxy, C_{1-6} alkyl, C_{1-6} alkylthio or C_{2-6} alkoxy carbonyl; R_{18} represents hydrogen or fluorine; R_{11} represents hydrogen, halogen, cyano, trifluoromethyl, nitro, hydroxy, amino, carboxy, C_{1-6} alkyl, C_{6-14} aryl(C_{1-6})alkyl, C_{6-14} aryloxy, C_{6-14} aryl(C_{2-6})alkenyl, heteroaryl(C_1 ,

6)alkyl, heteroaryloxy, and heteroaryl(C_{2-6})alkenyl, any of which groups may be optionally substituted by hydroxy, halogen, trifluoromethyl, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{1-6} haloalkyl, phenyl, benzyl or phenoxy, wherein the heteroaryl group in any of said heteroaryl, heteroarylalkyl or heteroarylalkenyl is one of thienyl, pyridyl, or (N-oxy)pyridyl; and n is zero or one.

5,801,184

CARBON MONOXIDE DEPENDENT GUANYLYL CYCLASE MODIFIERS AND METHODS OF USE

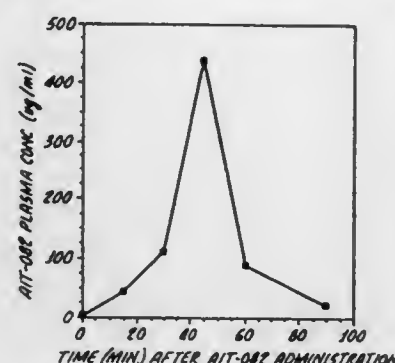
Alvin J. Glasky, 12231 Pevero, Tustin, Calif. 92680, and Michel P. Rathbone, 40 Spadine Avenue, Hamilton, Ontario, Canada, L8M 2 X1

Continuation-in-part of Ser. No. 280,719, Jul. 25, 1994, Pat. No. 5,447,939. This application Jun. 8, 1995, Ser. No. 488,976

Int. Cl.⁶ A01N 43/42; 43/90; C07D 473/00

U.S. Cl. 514—310

16 Claims



1. A method for selectively and controllably inducing the in vivo genetic expression of at least one naturally occurring genetically encoded neurotrophic factor in a mammal, said method comprising the step of administering an effective amount of at least one carbon monoxide dependent guanylyl cyclase modulating purine derivative.

5,801,185

METHOD OF TREATING TAY-SACHS DISEASE

Frances M. Platt, Oxford, United Kingdom; Gabrielle R. Neises, Chesterfield, Mo.; Raymond A. Dwek, and Terry D. Butters, both of Oxford, United Kingdom, assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 650,558, May 20, 1996, which is a continuation of Ser. No. 393,640, Feb. 24, 1995, which is a continuation of Ser. No. 61,645, May 13, 1993, Pat. No. 5,399,567. This application Jan. 13, 1997, Ser. No. 782,322

Int. Cl.⁶ A61K 31/445

U.S. Cl. 514—315

4 Claims

1. A method of treating Tay-Sachs disease in a patient in need thereof comprising administering to said patient a glycolipid inhibitory effective amount of an N-alkyl derivative of 1,5-dideoxy-1,5-imino-D-glucitol in which said alkyl group contains from 2-8 carbon atoms.

5,801,186

3-[4-(1-SUBSTITUTED-4-PIPERAZINYL)BUTYL]-4-THIAZOLIDINONE AND RELATED COMPOUNDS

Nicholas Joseph Hrib, Somerville, N.J., and John Gerard Jurcak, Bethlehem, Pa., assignors to Hoechst Marion Roussel, Inc., Cincinnati, Ohio

Continuation of Ser. No. 299,880, Sep. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 85,273, Jun. 29, 1993, Pat. No. 5,371,087, which is a division of Ser. No. 795,608, Nov. 21, 1991, Pat. No. 5,229,388, which is a

continuation-in-part of Ser. No. 713,247, Jun. 7, 1991, Pat. No. 5,136,037, which is a division of Ser. No. 487,832, Mar. 2, 1990, Pat. No. 5,037,984, which is a continuation of Ser. No. 430,688, Oct. 31, 1989, Pat. No. 4,933,453, which is a

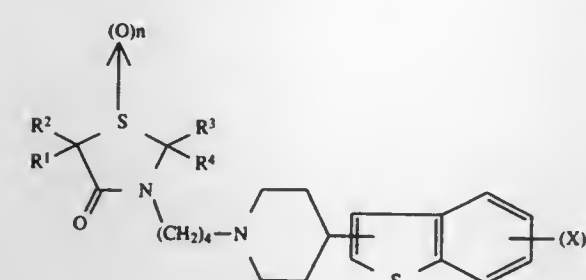
continuation-in-part of Ser. No. 123,622, Nov. 20, 1987, abandoned. This application Oct. 9, 1996, Ser. No. 728,353

Int. Cl.⁶ A61K 31/445; C07D 409/14

U.S. Cl. 514—324

7 Claims

1. A compound of the formula:



wherein

n is 0, 1 or 2;

X in each occurrence is independently hydrogen, halogen, loweralkyl, hydroxy, nitro, loweralkoxy, amino, cyano, trifluoromethyl or methylthio;

m is 1 or 2;

R^1 and R^2 are independently hydrogen, loweralkyl, $-(CH_2)_n$, $-(CH_2)_n$, or aryl except that when R^1 is $-(CH_2)_n$, $-(CH_2)_n$, or aryl,

R^2 is hydrogen or alternatively R^1 and R^2 taken together with the carbon atom to which they are attached from a cyclopentane, cyclohexane, cycloheptane, pyran, thiopyran, indan or piperidine ring.

R^3 and R^4 are each independently hydrogen or loweralkyl;

R^3 and R^4 together with the carbon to which they are attached form a cyclopentane, cyclohexane, cycloheptane, pyran, thiopyran, pyrrolidine or piperidine ring.

wherein the term aryl means unsubstituted phenyl or phenyl substituted with 1, 2 or 3 substituents each independently selected from the group consisting of loweralkyl, loweralkoxy, hydroxy, halogen, loweralkylthio, cyano, amino or trifluoromethyl, or a pharmaceutically acceptable salt thereof.

5,801,187

HETEROCYCLIC ESTERS AND AMIDES

Jia-He Li, Cockeysville, and Gregory S. Hamilton, Catonsville, both of Md., assignors to GPI-NIL Holdings, Inc., Wilmington, Del.

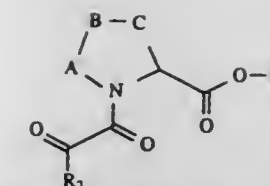
Filed Sep. 25, 1996, Ser. No. 719,947

Int. Cl.⁶ A61K 31/425; C07D 277/04

U.S. Cl. 514—365

12 Claims

1. A non-immunosuppressive compound of formula II:



or a pharmaceutically acceptable salt, ester, or hydrate thereof, wherein:

one of A, B and C is S and the other two of A, B and C are CH_2 ; R_1 is C_1-C_3 straight or branched chain alkyl or alkenyl, which is substituted in one or more position(s) with $(Ar)_m$, $(Ar)_n$, connected by a C_1-C_6 straight or branched chain alkyl or alkenyl, or a combination thereof;

n is 1 or 2;

R_2 is either C_1-C_6 straight or branched chain alkyl or alkenyl, C_3-C_6 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1 ; and

Ar_1 is a mono-, bi- or tricyclic, carbo- or heterocyclic ring, wherein the ring is either unsubstituted or substituted in one to three position(s) with halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched chain alkyl or alkenyl, C_1-C_4 alkoxy, C_1-C_4 alkenyloxy, phenoxy, benzyloxy, amino, or a combination thereof; wherein the individual ring sizes are 5-6 members; and wherein the heterocyclic ring contains 1-6 heteroatom(s) selected from the group consisting of O, N, S, and a combination thereof.

5,801,188

CLONIDINE THERAPY ENHANCEMENT

Samuel J. Hassenbusch, III, Houston, Tex.; Patrick Edeburn, Maple Grove, Minn., and Lawrence A. Trissel, Houston, Tex., assignors to Medtronic Inc., Minneapolis, Minn.

Filed Jan. 8, 1997, Ser. No. 781,030

Int. Cl.⁶ A61K 31/415

U.S. Cl. 514—392

31 Claims

1. A method for achieving an analgesic effect in a human, the method comprising intraspinal administration to the human of an increasing and analgesically-effective dose of clonidine over a treatment period whereby administration is unaccompanied by clinically-adverse hemodynamic effects.

5,801,189

METHOD FOR COMBATING INSECTS

David Twinn, Essex, England, assignor to Rhone-Poulenc Agriculture Limited, Essex, United Kingdom

Continuation-in-part of Ser. No. 425,205, Apr. 20, 1995, abandoned. This application Jun. 4, 1996, Ser. No. 658,252

Claims priority, application United Kingdom, Apr. 5, 1995, 9507073

Int. Cl.⁶ A01N 43/40; 43/56

U.S. Cl. 514—406

11 Claims

1. A method for controlling cockroaches, said method comprising treating a surface over which said cockroaches will move with the compound 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethyl)phenyl-4-trifluoromethylsulfonylpyrazole, said compound being applied so as to be in the form of a thin layer or imbedded in a thin layer in a non-seizable amount sufficient to be insecticidally effective against said cockroaches when they move over the treated surface, said compound being applied as an insecticidal composition, said compound being lethal to said cockroaches not less than about 4 hours after their contact with the treated surface.

5,801,190

FUSED PYRROLO[2,3-C] CARBAZOLE-6-ONES

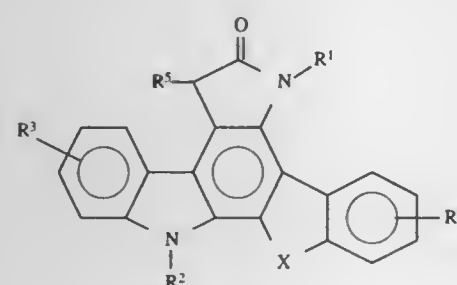
Robert L. Hudkins, Chester Springs; James L. Diebold, Norristown, both of Pa., and Ernest Knight, Jr., Wilmington, Del., assignors to Cephalon, Inc., West Chester, Pa.

Continuation of Ser. No. 604,474, Feb. 21, 1996, Pat. No. 5,616,724. This application Mar. 28, 1997, Ser. No. 827,215
Int. Cl.⁶ A61K 31/40; C07D 487/04; 487/14

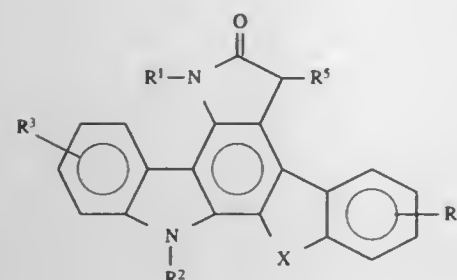
U.S. Cl. 514-410

27 Claims

1. A method for enhancing interferon-gamma (IFN- γ) induction of the major histocompatibility (MHC) proteins in a mammalian cell responsive to IFN- γ , said method comprising contacting said cell with an effective amount of a fused pyrrolo[2,3-c]carbazole-6-one represented by a formula selected from the group consisting of:



and



wherein:

- a) R¹ is selected from the group consisting of H, alkyl of 1-4 carbons, aryl alkyl heteroaryl, heteroarylalkyl; C(=O)R⁹ where R⁹ is alkyl of 1-4 carbons or aryl; (CH₂)_nOR¹⁰, where n is an integer of 1-4; OR¹⁰, where R¹⁰ is H or alkyl of 1-4 carbons; (CH₂)_nOR¹⁴ where R¹⁴ is the residue of an amino acid after the hydroxyl group of the carboxyl group is removed; OR¹⁴, NR⁷R⁸; (CH₂)_nNR⁷R⁸, and O(CH₂)_nNR⁷R⁸; and either
- (1) R⁷ and R⁸ independently are H or alkyl of 1-4 carbons; or
- (2) R⁷ and R⁸ are combined together to form a linking group of the general formula —(CH₂)₂—X¹—(CH₂)₂—, where X¹ is O, S or CH₂;
- b) R² is selected from the group consisting of H, SO₂R⁹, CO₂R⁹, C(=O)R⁹, alkyl of 1-8 carbons, alkenyl of 2-8 carbons, alkynyl of 2-8 carbons, and a monosaccharide of 5-7 carbons, wherein each hydroxyl group of said monosaccharide is independently selected from the group consisting of unsubstituted hydroxyl and a replacement moiety replacing said hydroxyl group selected from the group consisting of H, alkyl of 1-4 carbons, alkylcarbonyloxy of 2-5 carbons, and alkoxy of 1-4 carbons; wherein either

- 1) each alkyl of 1-8 carbons, alkenyl of 2-8 carbons, or alkynyl of 2-8 carbons is unsubstituted; or
- 2) each alkyl of 1-8 carbons, alkenyl of 2-8 carbons, or alkynyl of 2-8 carbons is independently substituted with 1-3 groups selected from the group consisting of aryl of 6-10 carbons, heteroaryl, F, Cl, Br, I, CN, NO₂, OH, OR⁹, O(CH₂)_nNR⁷R⁸, OCOR⁹, OCONHR⁹, O-tetrahydropyranyl, NH₂, NR⁷R⁸, NR¹⁰CO₂R⁹, NR¹⁰CONR⁷R⁸, NHC(=NH)NH₂, NR¹⁰SO₂R⁹; S(O)₂R¹¹, wherein R¹¹ is H, alkyl of 1-4 carbons, aryl of 6-10 carbons, or heteroaryl, and y is 1 or 2; SR¹¹, CO₂R⁹, CONR⁷R⁸, CHO, COR⁹, CH₂OR⁷, CH₂OR⁹, CH=NR¹¹R¹², CH=NOR¹¹, CH=NR⁹, CH=NNHCH(N=NH)NH₂; SO₂NR¹²R¹³, wherein either (1a) R¹² and R¹³, independently, are H, alkyl of 1-4 carbons, aryl of 6-10 carbons, or heteroaryl; or (2a) R¹² and R¹³ are combined together to form a —(CH₂)₂—X¹—(CH₂)₂— linking group; PO(OR¹¹)₂, NHR¹⁴, NR¹⁰R¹⁴, OR¹⁴, and a monosaccharide of 5-7 carbons wherein each hydroxyl group of said monosaccharide is independently selected from the group consisting of unsubstituted hydroxyl and a replacement moiety replacing said hydroxyl group selected from the group consisting of H, alkyl of 1-4 carbons, alkylcarbonyloxy of 2-5 carbons, and alkoxy of 1-4 carbons;
- c) each R³ and R⁴, independently, is selected from the group consisting of H, aryl of 6-10 carbons, heteroaryl, F, Cl, Br, I, CN, CF₃, NO₂, OH, OR⁹, O(CH₂)_nNR⁷R⁸, OCOR⁹, OCONHR⁹, NH₂, (CH₂)_nOR⁹, (CH₂)_nOR¹⁰, (CH₂)_nOR¹⁴, OR¹⁴, NHR¹⁴, NR⁷R⁸, NR⁷(CH₂)_nNR⁷R⁸, NR¹⁰CO₂R⁹, NR¹⁰CONR⁷R⁸, SR¹¹, S(O)₂R¹¹, CO₂R⁹, COR⁹, CONR⁷R⁸, CHO, CH=NR¹¹, CH=NR⁹, CH=NNR¹¹R¹², (CH₂)_nSR⁹, (CH₂)_nS(O)₂R⁹, CH₂SR¹⁵, where R¹⁵ is alkyl of 1-4 carbons; CH₂S(O)₂R¹⁴, (CH₂)_nNR⁷R⁸, (CH₂)_nNBR¹⁴, alkyl of 1-8 carbons, alkenyl of 2-8 carbons, and alkynyl of 2-8 carbons; and either
- 1) each alkyl of 1-8 carbons, alkenyl of 2-8 carbons or alkynyl of 2-8 carbons is unsubstituted; or
- 2) each alkyl of 1-8 carbons, alkenyl of 2-8 carbons, or alkynyl of 2-8 carbons is independently substituted as described in b) 2) above;
- d) R⁵ is selected from the group consisting of alkyl of 1-8 carbons, alkenyl of 2-8 carbons, and alkynyl of 2-8 carbons; and either
- 1) each alkyl, alkenyl, or alkynyl group is unsubstituted; or
- 2) each alkyl, alkenyl, or alkynyl group is substituted with 1-3 groups selected from the group consisting of F, Cl, Br, I, CN, CF₃, NO₂, OH, OR⁹, O(CH₂)_nNR⁷R⁸, OCOR⁹, OCONHR⁹, NH₂, (CH₂)_nOR⁹, (CH₂)_nOR¹⁴, NR⁷R⁸, NR⁷(CH₂)_nNR⁷R⁸, NR¹⁰CO₂R⁹, NR¹⁰CONR⁷R⁸, SR¹¹, S(O)₂R¹¹, CO₂R⁹, COR⁹, CONR⁷R⁸, CHO, CH=NR¹¹, CH=NR⁹, CH=NNR¹¹R¹², (CH₂)_nSR⁹, (CH₂)_nS(O)₂R⁹, CH₂SR¹⁵, CH₂S(O)₂R¹⁴, (CH₂)_nNR⁷R⁸, and (CH₂)_nNHR¹⁴;
- e) X is selected from the group consisting of —N—, —O—, —S—, —S(=O)—, —S(=O)₂—, alkylene of 1-3 carbons, —C(=O)—, —C(R²)=C(R²)—, —C(R²)₂—, —CH=CH—, —CH(OH)—CH(OH)—, —C(=NOR¹¹)—, —C(OR¹¹)(R¹¹)—, —C(=O)CH(R¹⁵)—, —CH(R¹⁵)C(=O)—, —CH₂—Z—, —Z—CH₂—, —CH₂ZCH₂—, where Z is selected from the group consisting of —C(OR¹¹)(R¹¹)—, O, S, C(=O), and NR¹¹; and alkylene

5,801,193

COMPOSITIONS AND METHODS FOR IMMUNOSUPPRESSION

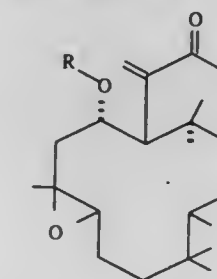
Emmanuel A. Ojo-Amaize, Glendora, Calif.; Joseph I. Okogun, New Rochelle, N.Y., and Howard B. Cottam, Fallbrook, Calif., assignors to Immune Modulation, Inc., Santa Monica, Calif.

Filed Apr. 15, 1997, Ser. No. 843,401

Int. Cl.⁶ A61K 31/335; 31/535; C07D 413/00; 303/36
U.S. Cl. 514-475

4 Claims

1. A compound having the formula

5,801,191
TAXOIDS

Jerome C. Bressi; James G. Douglass, both of San Diego; Allen Sellgson, Poway, and Milos Sovak, LaJolla, all of Calif., assignors to Biophysics Foundation, LaJolla, Calif.

Filed Jun. 1, 1995, Ser. No. 457,674

Int. Cl.⁶ A61K 31/335; C07D 305/14

U.S. Cl. 514-449

23 Claims

1. A 2' and/or 7' paclitaxel substituted compound, or the 2' or 7' epimer thereof, wherein the substituent at the 2' and/or 7' position is:

- bonded to the oxygen at the 2' and/or 7' position of the paclitaxel group through an ether or ester bond; and is
- a hydrophilic group of from 3 to 12 carbon atoms and at least 1 heteroatom and up to 1 heteroatom per 1.25 carbon atoms, said hydrophilic group being substituted at the 7' position of the paclitaxel group only; or
- an organic molecule of less than 2.5 kD other than a poly(amino acid) binding specifically to a mammalian cellular receptor of cells susceptible to neoplasia.

where

R is H, PO₃⁻, alkyl of 1 to 12 carbon atoms substituted or unsubstituted, straight chain or branched, 0 to 6 double bonds, (CH₂)_nmorpholine where n=1-4, morpholinomethylphenyl, orthoaminophenyl, orthohydroxyphenyl, (CH₂)_nCOOR₂ where n=1-4 where R₂ is H, an alkali metal salt, an alkaline earth metal salt, NH₄⁺, N⁺(R₃)₄ where R₃ is independently selected from the group consisting of H and alkyl of 1 to 4 carbon atoms, COR₁ wherein R₁ is selected from the group consisting of H, (CH₂)_nCH₃, where n=1-6, (CH₂)_nCOOR₂ where n=1-4 and R₂ is previously defined, (CH₂)_nN⁺(R₃)₄ wherein n=1-4, and (CH₂)_nSO₃⁻ where n=1-4, and pharmaceutically acceptable salts thereof.

5,801,194

TERMITE AND BORING INSECT GROUND BARRIER FOR THE PROTECTION OF WOODEN STRUCTURES

Peter Van Voris, Richland, and Dominic A. Cataldo, Kennewick, both of Wash., assignors to Battelle Memorial Institute, Richland, Wash.

Continuation-in-part of Ser. No. 482,151, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 348,774, Dec. 1, 1994, abandoned, which is a continuation of Ser. No. 117,877, Sep. 7, 1993, abandoned, which is a continuation of Ser. No. 893,970, Jun. 4, 1992, abandoned, which is a continuation of Ser. No. 401,955, Sep. 1, 1989, abandoned. This application Dec. 22, 1995, Ser. No. 577,161

Int. Cl.⁶ A01N 25/34; 53/06

U.S. Cl. 514-531

14 Claims



1. A method of making an insect barrier comprising the following steps:

5,801,192

USE OF VITAMIN C OR DERIVATIVES OR ANALOGUES THEREOF PROMOTING SKIN ELASTIN SYNTHESIS

Marc Dumas, Colombes; Frédéric Bonte; Alain Meybeck, both of Courbevoie, and Catherine Chaudagne, Chatou, all of France, assignors to LVMH Recherche, Nanterre, France
PCT No. PCT/IB96/00444, § 371 Date Apr. 25, 1997, § 102(e)
Date Apr. 25, 1997, PCT Pub. No. WO96/19099, PCT Pub. Date Jun. 27, 1996

PCT Filed May 10, 1996, Ser. No. 817,978

Claims priority, application France, Aug. 25, 1995, 95 10093

Int. Cl.⁶ A61K 31/34

U.S. Cl. 514-474

24 Claims

1. A method of promoting elastin synthesis in dermis in vitro or in vivo comprising:
- administering an effective amount of a composition comprising, as the sole elastin synthesis promoting compound, a vitamin C compound selected from the group consisting of ascorbic acid, sodium ascorbate, magnesium ascorbate, sodium ascorbyl phosphate, magnesium ascorbyl phosphate, erythorbic acid, sodium erythorbate, ascorbyl acetate, ascorbyl propionate, ascorbyl palmitate, erythorbic acetate, erythorbic propionate and erythorbic palmitate, or a combination thereof.

- a. mixing a low volatility insecticide with a polymer having a high or medium density, as a first polymer;
- b. mixing a higher volatility insecticide with a polymer having a low density as a second polymer;
- c. combining the first and second polymers into a shaped controlled release device.

5,801,195

IMMUNOTHERAPEUTIC ARYL AMIDES

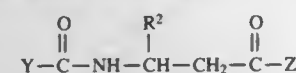
George W. Muller, Bridgewater; Mary Shire, North Plainfield, and David I. Stirling, Branchburg, all of N.J., assignors to Celgene Corporation, Warrent, N.J.

Filed Dec. 30, 1994, Ser. No. 366,618

Int. Cl.⁶ C07C 229/18; A01N 37/46

U.S. Cl. 514—539

1. A compound having the formula:



where R² is 3,4-disubstituted phenyl where each substituent is selected independently of the other from the group consisting of nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxo, carboxy, hydroxy, amino, alkyl of 1 to 10 carbon atoms, alkoxy of 1 to 10 carbon atoms, and halo; Z is alkoxy of 1 to 10 carbon atoms, benzyloxy, amino, or alkylamino of 1 to 10 carbon atoms; and Y is (i) a phenyl, unsubstituted or substituted with one or more substituents each selected, independently one from the other, from the group consisting of nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxo, carboxy, hydroxy, amino, alkyl of 1 to 10 carbon atoms, alkoxy of 1 to 10 carbon atoms, and halo, or (ii) naphthyl.

5,801,196

METHODS OF USING EMU OIL AND ACTIVE FRACTIONS THEREOF AS AN INSECT REPELLENT

Denise C. Manker; Pamela Gail Marrone, and Stephen Judd, all of Davis, Calif., assignors to AgraQuest, Inc., and P.E. Zogen, both of Davis, Calif.

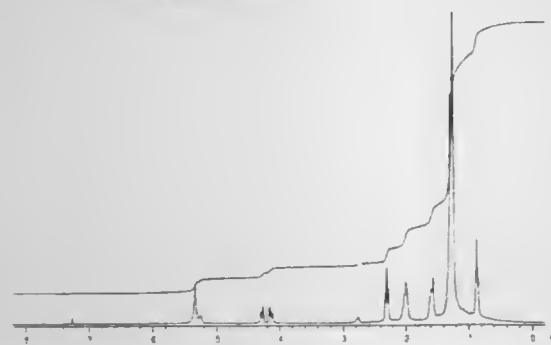
Division of Ser. No. 746,894, Nov. 18, 1996, which is a continuation-in-part of Ser. No. 616,708, Mar. 15, 1996, Pat. No. 5,626,882. This application Apr. 4, 1997, Ser. No. 833,332

Int. Cl.⁶ A01N 37/02; 37/06; A61K 35/12

U.S. Cl. 514—547

2 Claims

¹H NMR spectrum of 776 F2



1. A method for repelling biting insects comprising the step of topically applying to the skin of a subject in need of repellence of biting insects a fraction of emu oil obtained by flash chromatogra-

phy having the ¹H NMR (300 MHz, CDCl₃) spectrum of FIG. 4 and that is not ultra violet light active and non reactive with vanillin/sulfuric acid.

5,801,197

ROTAMASE ENZYME ACTIVITY INHIBITORS

Joseph P. Steiner, Hampstead, and Gregory S. Hamilton, Catonsville, both of Md., assignors to GPI Nil Holdings, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 551,026, Oct. 31, 1995, abandoned. This application May 13, 1996, Ser. No. 645,149

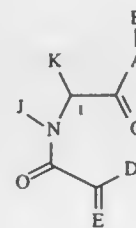
Int. Cl.⁶ A61K 31/445; 31/40; 31/22; 31/24

U.S. Cl. 514—548

4 Claims

1. A method of stimulating growth of damaged nerves in an animal which damage is not caused by amyotrophic lateral sclerosis, comprising:

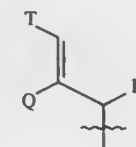
administering to said animal an effective non-immunosuppressive amount of a pipecolic acid derivative consisting essentially of a compound represented by the formula:



or a pharmaceutically acceptable salt thereof,

wherein A is O, NH, or N-(C1-C4 alkyl);

wherein B is hydrogen, CHL—Ar, (C1-C6)-straight or branched alkyl, (C1-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl or Ar substituted (C1-C6)-alkyl or alkenyl, or



wherein L and Q are independently hydrogen, (C1-C6)-straight or branched alkyl or (C1-C6)-straight or branched alkenyl;

wherein T is Ar or substituted cyclohexyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, hydroxyl, O-(C1-C4)-alkyl or O-(C1-C4)-alkenyl and carbonyl;

wherein Ar is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-furyl, 3-furyl, 2-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl and phenyl having one to three substituents which are independently selected from the group consisting of

hydrogen, halo, hydroxyl, nitro, CF₃, (C1-C6)-straight or branched alkyl or (C1-C6)-straight or branched alkenyl, O-(C1-C4)-straight or branched alkyl or O-(C1-C4)-straight or branched alkenyl, O-benzyl, O-phenyl, amino and phenyl. wherein D is either hydrogen or U; E is either oxygen or CH—U, provided that if D is hydrogen, then E is CH—U, or if E is oxygen then D is U;

wherein U is hydrogen, O-(C1-C4)-straight or branched alkyl or O-(C1-C4)-straight or branched alkenyl, (C1-C6)-straight or branched alkyl or (C1-C6)-straight or branched alkenyl, (C5-C7)-cycloalkyl, (C5-C7)-cycloalkenyl substituted with (C1-C4)-straight or branched alkyl or (C1-C4)-straight or branched alkenyl, 2-indolyl, 3-indolyl, [(C1-C4)-alkyl or (C1-C4)-alkenyl]-Ar or Ar (Ar as described above);

wherein J is hydrogen or C1 or C2 alkyl or benzyl; K is (C1-C4)-straight or branched alkyl, benzyl or cyclohexylethyl; or wherein J and K may be taken together to form a 5-7 membered heterocyclic ring which may contain an oxygen (O), sulfur (S), SO or SO₂ substituted therein.

5,801,198

RETARDING NEUTROPHIL INFILTRATION AND MORPHOLOGIC REDUCTION IN ISCHEMIC BOWEL TISSUES

Ronald Thomas Stanko, Pittsburgh, Pa.; Robert Harold Miller, and Mark Anthony McCamish, both of Worthington, Ohio, assignors to University of Pittsburgh Medical Center, Pittsburgh, Pa., and Abbott Laboratories, Abbott Park, Ill.

Filed Jul. 13, 1995, Ser. No. 502,024

Int. Cl.⁶ A61K 31/195

U.S. Cl. 514—563

14 Claims

1. A method for retarding loss of morphology in the bowel of a mammal experiencing ischemic bowel which comprises introducing a therapeutic quantity of pyruvate enterally or parenterally into the mammal prior to and during said ischemic bowel or during reperfusion.

5,801,199

PHARMACEUTICAL COMPOSITION FOR TREATING ACUTE RHINITIS

Rainer Greve, Bad Segeberg, and Harald Greve, Düsseldorf, both of Germany, assignors to Maria Clementine Martin, Germany

Filed Nov. 8, 1996, Ser. No. 745,291

Claims priority, application Germany, Nov. 10, 1995, 195 41 919.7

Int. Cl.⁶ A61K 37/12

U.S. Cl. 514—563

28 Claims

1. A pharmaceutical preparation for the topical treatment of acute rhinitis, comprising, in pharmaceutically effective amounts, a) a sympathomimetic having a 2-imidazoline structure which is suitable for topical use or its physiologically acceptable salts; and b) a pantothenic-functional compound selected from the group consisting of

- b1) pantothenol or its physiologically equivalent derivatives, in particular esters; and
- b2) pantothenic acid or its physiologically acceptable salts.

5,801,200

METHODS AND MATERIALS FOR THE DIAGNOSIS AND TREATMENT OF CONDITIONS SUCH AS STROKE

Richard J. Bucala, New York; Helen Vlassara; Anthony Cerami, both of Shelter Island, all of N.Y., and Kevin J. Tracey, Old Greenwich, Conn., assignors to The Picower Institute for Medical Research, Manhasset, N.Y.

Continuation-in-part of Ser. No. 319,747, Oct. 7, 1994, and a continuation-in-part of Ser. No. 236,228, Apr. 29, 1994, Pat. No. 5,468,777, which is a continuation-in-part of Ser. No.

825,598, Jan. 27, 1992, Pat. No. 5,334,617, which is a continuation-in-part of Ser. No. 805,200, Dec. 10, 1991, Pat. No. 5,238,968, which is a division of Ser. No. 481,869, Jan. 20, 1990, Pat. No. 5,128,360, which is a continuation-in-part of Ser. No. 220,504, Jul. 18, 1988, abandoned, which is a division of Ser. No. 798,032, Nov. 14, 1985, Pat. No. 4,758,583, which is a continuation-in-part of Ser. No. 590,820, Mar. 19, 1984, Pat. No. 4,665,192, said Ser. No. 319,747 is a continuation-in-part of Ser. No. 29,417, Mar. 11, 1993, which is a continuation-in-part of Ser. No. 887,279, May 21, 1992, abandoned. This application Apr. 7, 1995, Ser. No. 418,525

Int. Cl.⁶ A61K 31/155

U.S. Cl. 514—634

3 Claims

1. The method for the treatment of stroke, which method comprises administering a stroke-ameliorating or stroke-inhibiting amount of an agent selected from the group consisting of aminoguanidine, an analog of aminoguanidine, and mixtures thereof, capable of averting the occurrence, or beneficially limiting or reducing the size and severity of an ischemic infarct.

5,801,201

1-PHENYL-2-DIMETHYLAMINOMETHYL-CYCLOHEXAN-1-OL COMPOUNDS AS PHARMACEUTICAL ACTIVE INGREDIENTS

Ivars Graudums, Stolberg; Werner Winter, Aachen; Ernst Frankus, Stolberg; Wolfgang Werner Alfred Strassburger, Wuerselen, and Elmar Josef Friderichs, Stolberg, all of Germany, assignors to Gruenthal GmbH, Aachen, Germany

Filed Dec. 19, 1996, Ser. No. 769,744

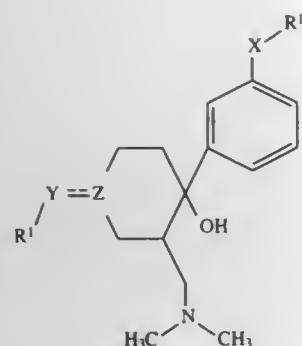
Claims priority, application Germany, Dec. 20, 1995, 195 47 766.9

Int. Cl.⁶ A61K 31/135; C07K 217/56

U.S. Cl. 514—646

8 Claims

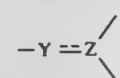
1. A 1-phenyl-2-dimethylaminomethyl-cyclohexan-1-ol compound corresponding to formula I



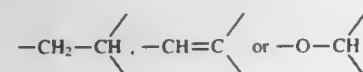
wherein

X represents O or S,

R¹ represents H, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₃₋₇ cycloalkyl, or halogenated C₁₋₆ alkyl, the grouping



represents



and

R² represents C₁₋₆ alkyl, C₂₋₆ alkenyl, C₃₋₇ cycloalkylmethyl, substituted or unsubstituted phenyl, or substituted or unsubstituted benzyl,

or a salt thereof with a physiologically acceptable acid.

5,801,202

AMINE DERIVATIVES FOR TREATMENT OF SKIN DISORDERS

Taketoshi Fujimori; Hiroshi Kusuoku, both of Ichikai-machi; Akira Yamamuro, Utsunomiya; Yukihiko Yada, Ninomiya-machi; Kazuhiko Higuchi, Utsunomiya; Genji Imokawa, Utsunomiya; Naoki Kondo, Utsunomiya; Yoshinori Masukawa, Utsunomiya; Hajime Tokuda, Utsunomiya, and Hisashi Tsujimura, Ichikai-machi, all of Japan, assignors to Kao Corporation, Tokyo, Japan

PCT No. PCT/JP95/02284, § 371 Date May 30, 1997, § 102(e) Date May 30, 1997, PCT Pub. No. WO96/15098, PCT Pub. Date May 23, 1996

PCT Filed Nov. 8, 1995, Ser. No. 817,928

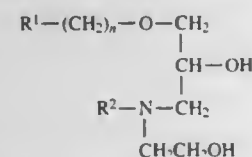
Claims priority, application Japan, Nov. 9, 1994, 6-274874; Nov. 9, 1994, 6-274875

Int. Cl.⁶ A01K 31/13

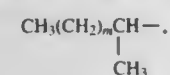
U.S. Cl. 514—659

12 Claims

1. An amine derivative represented by the following formula (1) or an acid addition salt thereof:



wherein R¹ represents a group



a cyclopentyl group, cyclohexyl group, or a cycloheptyl group, R² is a hydrogen atom or C1-C3 alkyl group which may be substituted by one or more hydroxy groups, m is an integer falling in the range from 3 to 5 inclusive, and n is an integer falling in the range from 9 to 11 inclusive.

5,801,203

NITROGLYCERINE PATCH

Stuart A. Lipton, Newton, Mass., assignor to The Children's Medical Center Corporation, Boston, Mass.

Continuation of Ser. No. 25,028, Mar. 2, 1993, Pat. No. 5,455,279, which is a continuation-in-part of Ser. No. 949,342, Sep. 22, 1992, Pat. No. 5,234,956, which is a continuation of Ser. No. 688,965, Apr. 19, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 482,365

Int. Cl.⁶ A61K 31/04; 31/045

U.S. Cl. 514—742

1 Claim

1. A transdermal patch suitable for delivering nitroglycerin to a human patient, said patch:

- a) having a surface area exceeding 50 cm²;
- b) being loaded with nitroglycerin to deliver at least 3.0 mg/hr;
- c) being loaded to release nitroglycerin continually for a period exceeding 12 hours.

5,801,204

METHOD OF RECLAIMING WASTE PLASTIC MATERIAL AND A COMPOUND INCLUDING WASTE PLASTIC MATERIAL

Jan-Erik Johansson, Raisio, and Jaakko Paatero, Turku, both of Finland, assignors to Raisio Chemicals Oy, Raisio, Finland

PCT No. PCT/FI95/00383, § 371 Date Jan. 21, 1997, § 102(e) Date Jan. 21, 1997, PCT Pub. No. WO96/02590, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 3, 1995, Ser. No. 776,102

Claims priority, application Finland, Jul. 19, 1994, 943413

Int. Cl.⁶ C08J 11/04

U.S. Cl. 521—41

30 Claims

1. A method of forming a road surfacing material binder comprising the steps of:

- (a) dissolving waste plastic material in a solvent which mainly comprises (a1) waste fats produced in refining or treating one or more of vegetable fat and animal fat, (a2) crude fatty acids obtained as by-products of refining fats, (a3) fatty acids or pitch obtained by distilling hydrolyzed fats, and (a4) mixtures of (a1)–(a3); and
- (b) incorporating the solvent and waste plastic material from step (a) with a road surfacing material binder, suitable for use in road surfacing.

5,801,205

REPROCESSED RESIN FORMED OF THERMOSET RESIN FORMED MATERIAL, METHOD FOR REPROCESSING THERMOSET RESIN FOAMED MATERIAL AND METHOD FOR MOLDING MOLDED ARTICLE FORMED OF THE REPROCESSED RESIN

Sadao Nishibori, Tokyo, and Takuji Kajiwara, Okazaki, both of Japan, assignors to EIN Engineering Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1996, Ser. No. 659,604

Claims priority, application Japan, Jun. 19, 1995, 7-151849

Int. Cl.⁶ C08J 9/35

U.S. Cl. 521—54

1 Claim

1. A reprocessed resin comprising a mixture of 30 to 80 wt. % of thermoplastic resin molding material and 20 to 70 wt. % of pulverized resin to be processed having a bulk specific gravity increased to 0.1 to 0.2 obtained by pulverizing a thermoset foamed

5,801,208

BLOWING AGENT, EXPANDABLE COMPOSITION, AND PROCESS FOR EXTRUDED THERMOPLASTIC FOAMS

Shau-Tarnng Lee, Oakland, N.J., assignor to Sealed Air Corporation, Saddle Brook, N.J.

Division of Ser. No. 739,704, Oct. 29, 1996, Pat. No. 5,667,728.

This application Apr. 21, 1997, Ser. No. 840,507

Int. Cl.⁶ C08J 9/14

U.S. Cl. 521—98

15 Claims

1. A process for producing an extruded, low density polyolefin foam product, said process comprising the steps of:

- a) mixing a blowing agent with a plasticized polyolefin resin, the blowing agent comprising ethane and a different alkane selected from the group consisting of C₁, C₂, C₃, C₄, C₅, and C₆ alkanes, the ethane being present in said resin in an amount of at least about 40 percent by weight based upon the total weight of the blowing agent; and
- b) extruding the mixture of resin and blowing agent so as to produce a low density foamed polyolefin product.

5,801,206

CONCENTRATES FOR IMPROVING POLYESTER COMPOSITIONS AND METHOD OF MAKING SAME

Kishan C. Khemani, 1811 W. Lakeview Dr., D-13, Johnson City, Tenn. 37601; James W. Mercer, Jr., 1033 Hanover Ct., and Richard L. McConnell, 421 Manderly Rd., both of Kingsport, Tenn. 37660

Division of Ser. No. 716,920, Sep. 20, 1996, abandoned, which is a division of Ser. No. 494,197, Jun. 23, 1995, Pat. No. 5,654,347, which is a continuation of Ser. No. 130,816, Oct. 4, 1993, abandoned. This application Sep. 9, 1997, Ser. No. 926,359

Int. Cl.⁶ C08L 67/02

U.S. Cl. 521—81

37 Claims

1. A method of preparing a foamed polyester composition comprising dry blending from about 0.1 to about 20 parts by weight of a concentrate blend with from about 80 to about 99.9 parts by weight of one or more polyesters, wherein the one or more polyesters comprises aromatic, aliphatic or cycloaliphatic dicarboxylic acid residues having from 6 to 40 carbon atoms, and aliphatic or cycloaliphatic glycol residues having from 2 to 10 carbon atoms, and wherein the concentrate comprises a blend obtained by melt mixing (a) from about 50 to about 99 parts by weight of a polyolefin of (1) an ethylene homopolymer, or a copolymer of ethylene and one or more alpha-olefins having 2 to 10 carbon atoms, having a melt index of from about 0 to about 100 at 190° C.; or (2) a propylene homopolymer, a 1-butene homopolymer, a copolymer of propylene and 1-butene, having a melt flow rate of from about 0 to about 100 at 230° C.; and (b) from about 1 to about 50 parts by weight of one or more polyfunctional carboxylic acid, anhydride or polyol branching agents.

5,801,207

BIODEGRADABLE FOAMED ARTICLES AND PROCESS FOR THE PREPARATION THEREOF

Catia Bastioli, Novara; Vittorio Bellotti, Fontaneto d'Agogna; Gianfranco Del Tredici, Sesto Calende, and Angelos Rallis, Novara, all of Italy, assignors to Novamont S.p.A., Novara, Italy

Division of Ser. No. 469,566, Jun. 6, 1995, Pat. No. 5,589,518, which is a continuation-in-part of Ser. No. 384,515, Feb. 6, 1995, abandoned. This application Sep. 6, 1996, Ser. No. 708,207

Claims priority, application Italy, Feb. 9, 1994, MI94A0228

Int. Cl.⁶ C08J 9/24; 9/36

U.S. Cl. 521—84.1

21 Claims

1. Biodegradable foamed articles having a density of from 5 to 300 kg/m³, formed of agglomerated foamed particles comprising: (a) 30 to 98.5% by weight of a thermoplastic natural polymer which, when converted into the thermoplastic state, is capable of absorbing water in an amount of at least 15% by weight; (b) 1.5 to 70% by weight of a thermoplastic polymer, and (c) 0 to 20% by weight water, based on the weight of the composition;

wherein the particles are agglomerated by means of a bonding agent capable of modifying the surface characteristics of the particles to render them bondable when subjected to compression.

5,801,209

EPDM COMPOSITIONS AND PROCESS FOR PRODUCING SAME

Bin Chung, Nashua, N.H.; Bruce E. Mackay, Framingham, Mass., and Ivan Zlatko Podobnik, Nashua, N.H., assignors to Cabot Corporation, Boston, Mass.

Division of Ser. No. 317,208, Oct. 3, 1994, Pat. No. 5,700,845.

This application Aug. 15, 1997, Ser. No. 911,779

Int. Cl.⁶ C08G 18/14; C08K 3/04

U.S. Cl. 521—99

7 Claims

1. A process for producing foamed, cured EPDM compositions comprising:

- mixing EPDM, a carbon black having a CTAB of 50 to 60 m²/g, and a DBP of 90 to 115 cc/100 g and a blowing agent, and foaming and curing the resulting mixture,

wherein the carbon black is present in an amount of 50–250 phr.

5,801,210

METHOD AND APPARATUS FOR THE PRODUCTION OF ESSENTIALLY VOID FREE FOAMS

David A. Radovich, Pittsburgh; David D. Steppan, Gibsonia; Kelth G. Spittler, Burgettstown and James D. Shoup, Bulger, all of Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Oct. 29, 1997, Ser. No. 960,493

Int. Cl.⁶ C08J 9/00; 9/14; C08G 18/14

U.S. Cl. 521—130

5 Claims

1. A process for the manufacture of polyurethane foam comprising the steps of

- (i) mixing at a reaction index of 40 to 400: (a) a polyisocyanate blend comprising at least one polyisocyanate and optionally, additives and fillers; and (b) a polyol blend comprising isocyanate reactive components and optionally, water, additional blowing agents, catalysts, surfactants, fillers and other additives;
- wherein either or both said polyisocyanate blend or said polyol blend contain between 0.3 to about 20 wt % of liquid CO₂ based on the total weight of said polyisocyanate blend and said polyol blend; and
- (ii) introducing and uniformly mixing in liquid form CO₂ as a blowing agent into either or both said polyisocyanate blend or said polyol blend and maintaining said CO₂ in said liquid form under pressure, wherein either said polyol blend or said polyisocyanate blend is mixed with a corresponding different polyisocyanate blend or a polyol blend, respectively, through an impingement mixhead; and
- (iii) dispensing said reaction mixture into a zone of lower pressure.

5,801,211

RESILIENT FIBER MASS AND METHOD

Roger Tornero, and S. David Gray, both of Greensboro, N.C., assignors to CINCO, Inc., Greensboro, N.C.

Filed Oct. 4, 1996, Ser. No. 725,508

Int. Cl.⁶ C08G 18/04

U.S. Cl. 521—159

20 Claims

1. A method of forming a resilient mass comprising the steps of:
- forming a loose fiber batting;
 - spraying said fiber batting with a foamable prepolymer;
 - placing the sprayed fiber batting into a mold;
 - introducing steam into the mold;
 - reacting the foamable prepolymer with the steam;
 - foaming the prepolymer; and
 - separating the fibers of the batting as the prepolymer foams to form a resilient fiber mass.

5,801,212

PHOTOPOLYMERIZABLE COMPOSITION CONTAINING A SENSITIZING DYE AND A TITANOCENE COMPOUND
Yasuo Okamoto, and Shunichi Kondo, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 4, 1996, Ser. No. 668,612

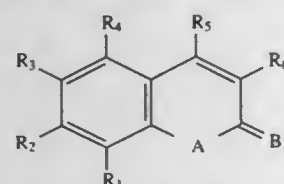
Claims priority, application Japan, Jun. 7, 1995, 7-164583

Int. Cl.⁶ C08F 2/50; G03C 1/675; 1/735

U.S. Cl. 522—16

5 Claims

1. A photopolymerizable composition comprising an addition-polymerizable compound having at least one ethylenic unsaturated double bond, a sensitizing dye represented by the following formula (I), and a titanocene compound having two phenyl groups:



wherein R₁, R₂, R₃, and R₄ are the same or different, and each represents a hydrogen atom, a halogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a hydroxyl group, a substituted or unsubstituted alkoxy group, or a substituted or unsubstituted amino group, or R₁, R₂, R₃, or R₄ may be combined with a carbon atom in formula (I) to form a nonmetallic atom ring;

R₅ represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heteroaromatic group, a cyano group, a substituted or unsubstituted alkoxy group, a carboxyl group, or a substituted or unsubstituted alkenyl group;

R₆ has the same meaning as R₅ or represents —Z—R₅, in which Z represents a carbonyl group, a sulfonyl group, a sulfinyl group or an arylenedicarbonyl group, or R₅ and R₆ may be combined with each other to form a nonmetallic atom ring;

A represents O, S, NH, or a nitrogen atom having a substituent; and

B represents a group represented by the following formula:



wherein G₁ and G₂ are the same or different, and each represents a hydrogen atom, a cyano group, a substituted or unsubstituted alkoxy carbonyl group, a substituted or unsubstituted aryloxy carbonyl group, a substituted or unsubstituted acyl group, a substituted or unsubstituted aryl carbonyl group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted alkylsulfonyl group, a substituted or unsubstituted arylsulfonyl group, or a fluorosulfonyl group, provided that G₁ and G₂

are not a hydrogen atom at the same time, or G₁ and G₂ may be combined with each other to form a nonmetallic atom group together with a carbon atom.

5,801,213

RADIATION-CURABLE COMPOSITIONS COMPRISING SURFACE-ACTIVE CAPPED AMINO COMPOUNDS

Reinhold Schwalm, Wachenheim; Wolfgang Reich, Maxdorf; Lukas Häussling, Dürkheim, and Erich Beck, Ladenburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Sep. 16, 1996, Ser. No. 714,421

Claims priority, application Germany, Sep. 22, 1995, 195 35 161.4

Int. Cl.⁶ C08F 2/46

U.S. Cl. 522—182

7 Claims

7. A radiation-curable composition of reduced oxygen sensitivity, comprising

- radiation-curable, free-radical polymerizable compounds, and
- capped amino compounds which are surface-active in compounds a) and on irradiation with light liberate amino compounds having primary, secondary or primary and secondary amino groups, the overall number of amine hydrogens being at least 2, wherein the content of the compounds b) is 0.1–20% by weight based on the sum of a)+b) and wherein a surface activity of compound b) in a mixture of 99% by weight a) and 1% by weight b), measured 2 minutes after application to a glass surface, is at least 110% of a corresponding contact angle of pure compound a).

5,801,214

DENTURE RETAINING COMPOSITION

John Alexander Staton, Kingsgrove, and Luke Thomas, Dural, both of Australia, assignors to Confi-Dent Pty Limited, New South Wales, Australia

Filed Jun. 14, 1996, Ser. No. 665,197

Claims priority, application Australia, Jun. 15, 1995, PN3558

Int. Cl.⁶ A61K 6/08; 6/097; C08L 5/04; 5/00

U.S. Cl. 523—118

9 Claims

1. A denture-retaining composition for retaining dentures in the mouth of a denture wearer, the composition consisting essentially of:

- 5–8% w/w of an hydrophilic gelling agent;
- 2–7% w/w of a thickening agent;
- 5–20% w/w of an agent that imparts water resistance to the composition;
- 0.2–5% w/w of humectant(s); and
- the balance being water;

the composition being formable into a viscous hydrophobic film in use so as to form a seal between a denture and mouth tissue.

5,801,215

BAKED PENCIL LEAD AND METHOD FOR MANUFACTURING THE SAME

Hideo Odashima, Sawa-gun, Japan, assignor to Mitsubishi Pencil Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1995, Ser. No. 506,681

Claims priority, application Japan, Aug. 12, 1994, 6-190502

Int. Cl.⁶ G09D 13/00

U.S. Cl. 523—164

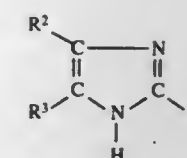
9 Claims

1. A baked pencil lead manufactured by a method comprising the steps of:

- kneading a composition containing a graphite, wherein said graphite acts as a filler and a binder;
- extruding the kneaded composition at a controlled back face pressure of at least 300 kg/cm² and at a controlled shear rate at the time the molten kneaded composition passes through an extrusion nozzle of at least 5×10⁴ (1 sec); and

baking the extruded product;

wherein the resultant degree of orientation π of the graphite in the direction of an extrusion axis is at least 0.85 and the baked pencil lead has a flexural modulus of at least 100 Gpa and a bending strength of at least 320 Mpa.



5,801,216

FLEXIBLE RESIN-CLAY COMPOSITE, METHOD OF PREPARATION AND USE

Thomas J. Pinnavaia, and Tie Lan, both of East Lansing, Mich., assignors to Board of Trustees Operating Michigan State University, East Lansing, Mich.

Continuation of Ser. No. 498,350, Jul. 5, 1995, abandoned.

This application Jul. 7, 1997, Ser. No. 888,424

Int. Cl.⁶ C08K 3/34; 9/12; C08L 63/00

U.S. Cl. 523—209

26 Claims

1. A resin-clay composite composition which comprises:
- a cured epoxy resin which has been cured by a curing agent; and
 - a smectite clay having layers with the cured epoxy resin and with organic onium cations separating the layers, wherein the onium cations are protonated unsubstituted alkyl ammonium cations containing 3 to 22 carbon atoms in the alkyl ammonium cations, wherein the composition contains between about 5 and 50 weight percent of the clay and wherein the average separation between the clay layers in the composition is between 7 Å to 300 Å, and wherein the curing agent is non-interfering with the onium cations in achieving separation of the layers of the smectite clay.

5,801,217

CHROMIUM-FREE CONVERSION COATING AND METHODS OF USE

Edward A. Rodzewich, Flourtown, Pa.; Jiangbo Ouyang, Flemington, N.J., and Joseph E. Murphy, Lansdale, Pa., assignors to BetzDearborn Inc., Trevose, Pa.

Division of Ser. No. 734,429, Oct. 16, 1996, Pat. No. 5,693,371.

This application May 22, 1997, Ser. No. 862,206

Int. Cl.⁶ C08K 3/20; C08L 63/00

U.S. Cl. 523—409

9 Claims

1. A chromium-free conversion coating composition consisting essentially of a diglycidyl ether of Bisphenol A, a silicon compound containing a hydrolyzable group, a fluoroacid selected from the group consisting of fluorotitanic acid and fluorozirconic acid, and water.

5,801,218

LATENT CURING AGENT COMPOSITIONS AND A METHOD OF MAKING

Taun L. McKenzie, North St. Paul, and Allen L. Griggs, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 572,309, Dec. 14, 1995, Pat. No. 5,733,954. This application Aug. 28, 1997, Ser. No. 924,045

Int. Cl.⁶ C08L 63/00

U.S. Cl. 523—414

26 Claims

1. A method of preparing a curing agent composition comprising the steps of:

- providing a mixture having a temperature range of about 15 to about 50 degrees C., the mixture consisting essentially of:
- (i) an epoxy compound(s) having an average of at least one vicinal epoxy group per molecule and an epoxy equivalent weight of less than about 350, wherein if the epoxy compound is water insoluble it must have a ball and ring softening point of about 40 degrees C. or less;
- (ii) an imidazole compound(s) selected from the group consisting of

wherein

R¹ is independently selected from the group consisting of hydrogen, aryl radicals, alkyl radicals comprising up to about 18 carbon atoms, and cycloalkyl radicals comprising up to about 18 carbon atoms;

R² is independently selected from the group consisting of hydrogen, aryl radicals, alkyl radicals comprising up to about 18 carbon atoms, and cycloalkyl radicals comprising up to about 18 carbon atoms;

R³ is independently selected from the group consisting of hydrogen, aryl radicals, alkyl radicals comprising up to about 18 carbon atoms, and cycloalkyl radicals comprising up to about 18 carbon atoms;

wherein R² and R³ may alternatively together form a fused ring structure; and

(iii) at least about 5 percent by weight water based on the total weight of components of elements (i) plus (ii) plus (iii);

(b) allowing the mixture to react with agitation and with optional heating in order to accelerate the reaction, wherein the amount of water added in step (a) and the amount of heat optionally added in step (b) is such that the mixture temperature does not exceed about 110 degrees, in order to yield a curing agent composition in water, and wherein the amount of water added in step (a) is such that at least about 5 weight percent water is present based upon the total weight of the mixture during step (b);

(c) optionally extracting from the mixture unreacted water soluble imidazole compounds;

(d) optionally repeating step (c) one or more times;

(e) removing the water at a temperature not to exceed about 110 degrees C to yield the curing agent composition;

wherein the total amount of epoxy compound(s) and imidazole compound(s) used according to the method is such that about 0.55 to about 1.3 equivalents of secondary amino group of the imidazole compound(s) per equivalent of epoxy group are used.

5,801,219

ZERO VOC AQUEOUS DISPERSION OF AN ACID-MODIFIED POLYOLEFIN AND A MONOEPoxide/POLYMERIC ACID ADDUCT

Alexander L. Neymark, Chicago, and David J. Miklos, Berwyn, both of Ill., assignors to Bee Chemical Company, Lansing, Ill.

Division of Ser. No. 548,121, Oct. 25, 1995, Pat. No. 5,759,703.

This application Oct. 23, 1996, Ser. No. 735,840

Int. Cl.⁶ C08K 3/20

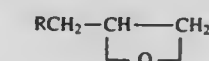
U.S. Cl. 523—501

27 Claims

1. A neutralized aqueous dispersion of an acid-modified polyolefin and an adduct of a monoepoxide with a polymeric acid, wherein:

said acid-modified polyolefin comprises a polyolefin having grafted thereon a dicarboxylic acid or anhydride or half-ester thereof;

said monoepoxide has from 14 to 46 carbon atoms and has the general formula:



wherein R is an alkyl radical, an alkoxy radical, an alkylphenoxy radical, or an alkenylphenoxy radical;

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said polymeric acid has a number average molecular weight of from about 1000 to about 20,000 and an acid number of from about 180 to about 240; and
said adduct has an acid number of from about 50 to about 150.

5,801,220

RAPIDLY DISINTEGRATING THICKENING COMPOSITION

Divyakant S. Desai, West Windsor, and Ajit B. Thakur, East Brunswick, both of N.J., assignors to E.R. Squibb & Sons, Inc., Princeton, N.J.

Filed Nov. 1, 1995, Ser. No. 548,308

Int. Cl.⁶ D01J 20/26; 20/10; 20/14; 20/16

U.S. Cl. 524—13

12 Claims

1. A method for thickening and disposing of liquid waste selected from the group consisting of waste excreted from an artificial opening through the abdominal wall of an ostomy patient, vomitus, and the liquid waste of an incontinent person, comprising:

- (a) placing a rapidly disintegrating thickening composition in a suitable containment means adapted to collect the continuous flow of said liquid waste;
- (b) collecting the continuous flow of said liquid waste in the containment means;
- (c) contacting the liquid waste as it collects in the containment means with the rapidly disintegrating thickening composition, said thickening agent comprising:
 - i) about 50 to 98 weight % of a highly absorbent, finely divided polymeric acrylic resin, and
 - ii) about 2 to 50 weight % of a dispersant selected from the group consisting of a mixture of microcrystalline cellulose and sodium carboxymethylcellulose, sodium alginate, tragacanth, methyl cellulose, magnesium aluminum silicate, xanthum gum, sodium carboxymethylcellulose and mixtures thereof;
- (d) to thereby form a thixotropic gel as a result of contacting the liquid waste with the thickening composition, and wherein the properties of the thixotropic gel enable it to be restored to a liquid when sufficient amounts of hand pressure are applied to the containment means, to enable the gelled waste to be disposed of in the form of a liquid.

5,801,221

POLYMERIC PHASE TRANSITION ARTIFICIAL RECEPTORS, ANTIBODIES, AND ENZYMES

Toyochi Tanaka, Wellesley, Mass.; Masahiko Annaka, Yokohama, Japan, and Satoru Masamune, Newton, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation of Ser. No. 155,001, Nov. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 62,134, May 17, 1993, abandoned. This application Jun. 2, 1995, Ser. No. 460,385

Int. Cl.⁶ G08F 271/00

U.S. Cl. 525—328.4

16 Claims

14. A composition used in molecular imprinting, comprising a copolymer capable of undergoing at least one discontinuous phase-transition when subjected to at least one phase-transition condition, the copolymer capable of specifically binding to a target molecule, at least a portion of the copolymer having been formed around the target molecule; and a template that is the target molecule or that is a structural analogue of the target molecule;

wherein the structural analogue is a molecule having a chemical structure substantially similar to the target molecule such that at least a portion of the copolymer is capable of binding to the structural analogue in a manner substantially the same as the copolymer binds to the target molecule.

5,801,222

ISOLATION AND STRUCTURE OF THE HUMAN CANCER CELL GROWTH INHIBITORY CYCLIC OCTAPEPTIDES PHAKELLISTATIN 10 AND 11

George R. Pettit, Paradise Valley, and Rul Tan, Mesa, both of Ariz., assignors to Arizona Board of Regents acting on behalf of Arizona State University, Tempe, Ariz.

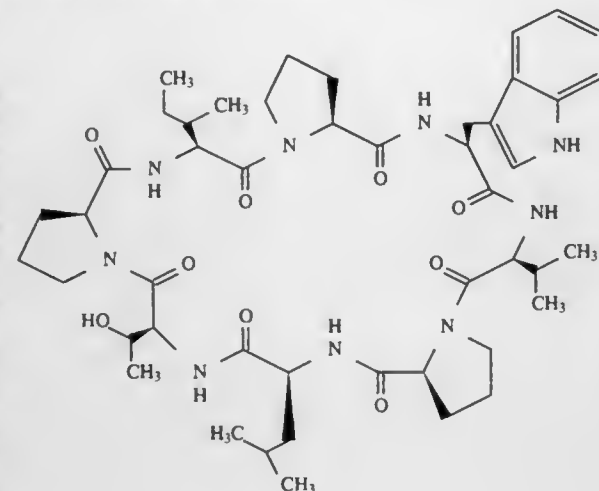
Filed Dec. 20, 1994, Ser. No. 360,239

Int. Cl.⁶ C07K 7/64; A61K 38/12

U.S. Cl. 530—317

4 Claims

1. A compound denominated herein as phakellistatin 10 and having the structure set forth below:



5,801,223

DEGRADABLE POLYDIOXANEONE-BASED MATERIALS
Edward S. Lipinsky, 6481 Bellbrook Pl., Worthington, Ohio 43085; Richard G. Sinclair, 985 Kenway Ct., Columbus, Ohio 43220; James D. Browning, 198 Richards Rd., Columbus, Ohio 43214; Alex Cheung, 3024 Ross Dr., Apt. D28, Ft. Collins, Colo. 80526; Kevin H. Schilling, 13011 W. 79th Pl., Arvada, Colo. 80005, and Dan W. Verser, 27451 Craig La., Golden, Colo. 80401

Continuation of Ser. No. 127,907, Sep. 29, 1993, Pat. No. 5,767,222, which is a continuation-in-part of Ser. No. 854,559, Mar. 19, 1992, Pat. No. 5,319,107, and Ser. No. 949,675, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 579,000, Sep. 6, 1990, Pat. No. 5,216,050, Ser. No. 579,005, Sep. 6, 1990, Pat. No. 5,180,765, Ser. No. 579,460, Sep. 6, 1990, Pat. No. 5,252,647, and Ser. No. 579,465, Sep. 6, 1990, abandoned, which is a continuation-in-part of Ser. No. 387,670, Jul. 31, 1989, abandoned, said Ser. No. 579,000 is a continuation-in-part of Ser. No. 387,676, Jul. 31, 1989, abandoned, said Ser. No. 579,005 is a continuation-in-part of Ser. No. 387,678, Jul. 31, 1989, abandoned, said Ser. No. 579,460 is a continuation-in-part of Ser. No. 386,844, Jul. 31, 1989, abandoned, which is a continuation-in-part of Ser. No. 317,391, Mar. 1, 1989, abandoned, said Ser. No. 387,676 is a continuation-in-part of Ser. No. 229,894, Aug. 8, 1988, abandoned, said Ser. No. 387,678 is a continuation-in-part of Ser. No. 229,896, Aug. 8, 1988, abandoned, said Ser. No. 378,670 is a continuation-in-part of Ser. No. 229,939, Aug. 8, 1988, abandoned, said Ser. No. 854,559 is a continuation-in-part of Ser. No. 584,126, Sep. 18, 1990, abandoned. This application Jun. 1, 1995, Ser. No. 457,017

Int. Cl.⁶ C08G 63/08; C07D 323/04; 321/12

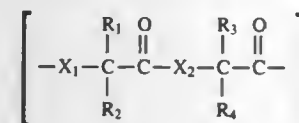
U.S. Cl. 528—354

35 Claims

1. A degradable film material comprising a hydrolytically degradable polymer in a film form, said polymer comprising:

- (a) a backbone chain;

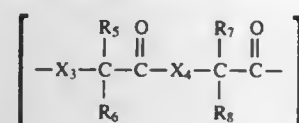
(b) first repeating units of the formula



where, independently for each such first repeating unit:

X₁ and X₂ are O; R₁ and R₂ combined have at most one carbon atom; R₃ and R₄ combined have at most one carbon atom; and the molecular weight of such a first repeating unit is less than about 145; and

(c) from about 1 weight percent to about 50 weight percent, based on the total weight of said polymer, of second repeating units of the formula



where, independently for each such second repeating unit:

X₃ and X₄ are O; R₅, R₆, R₇ and R₈ combined have at least four carbon atoms.

5,801,224

BULK REACTIVE EXTRUSION POLYMERIZATION PROCESS PRODUCING ALIPHATIC ESTER POLYMER COMPOSITIONS

Ramani Narayan; Mohan Krishnan, both of Okemos; Joseph B. Snook; Ajay Gupta, both of East Lansing, all of Mich., and Philippe DuBois, Cipler, Belgium, assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

Filed Apr. 26, 1996, Ser. No. 639,198

Int. Cl.⁶ C08G 63/08

U.S. Cl. 528—357

16 Claims

1. A process for forming a branched aliphatic polyester polymer of number average molecular weight, M_n, greater than 100,000, as measured by size exclusion chromatography relative to polystyrene standards in tetrahydrofuran solvent at 25° C., which comprises:

- (a) introducing a reactant mixture comprising an aliphatic ester component containing less than 100 ppm water and having an acid value less than 0.5 mg KOH/g, wherein the aliphatic ester component is a cyclic aliphatic ester containing 4 to 24 carbon atoms, and a metal alkoxide having the formula:

M(OR)_x

wherein x is 3 or 4, wherein M is selected from the group consisting of Al, Ti and Zr into an extruder, in the absence of a solvent for the ester monomer;

- (b) extruding the reactant mixture at a temperature between 80° and 240° C. and for a period of time to form and retain the branched aliphatic polyester polymer with 3 or 4 branches from M with the average molecular weight, M_n, greater than 100,000; and

(c) optionally admixing additional components selected from the group consisting of polymers, additives, fillers and plasticizers.

5,801,225

SORBENT FAMILIES

Lawrence M. Kauvar, San Francisco, Calif., assignor to Terra-pin Technologies, Inc., San Francisco, Calif.

Division of Ser. No. 248,538, May 24, 1994, Pat. No.

5,599,901, which is a continuation of Ser. No. 920,335, Jul. 27, 1992, abandoned. This application Jul. 31, 1996, Ser. No.

690,605

Int. Cl.⁶ A61K 38/08; C01K 7/00

U.S. Cl. 530—344

14 Claims

1. A compound in purified and isolated form substantially free of contamination with, or coupling to, additional substances, which compound is selected from

C-terminal amidated peptides of the formula:



wherein

AA₂ is cys, orn, lys, asp, glu, ser, gly, ala, phe or tyr;

each of AA₃, AA₄, AA₅ and AA₆ is independently orn, lys, asp, glu, ser, gly, ala, phe or tyr;

AA₇ is absent or is cys, orn, lys, asp, glu, ser, gly, ala, phe or tyr; and

wherein said peptide optionally contains one or more pseudopeptide linkages.

5,801,226

ORAL CARE COMPOSITIONS

Diane Cummins, West Kirby; Karen Marie Pickup, Spital, both of Great Britain, and Larry A. Tabak, Rochester, N.Y., assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Filed Apr. 5, 1996, Ser. No. 628,412

Claims priority, application European Pat. Off., Apr. 5, 1995, 95302271

Int. Cl.⁶ C07K 16/00

U.S. Cl. 530—388.2

10 Claims

1. Monoclonal antibodies, raised against salivary pellicle, capable of recognising cryptitopes.

4. An oral care composition comprising an effective amount of a monoclonal antibody raised against salivary pellicle, capable of recognising cryptitopes.

5,801,227

ANTIBODIES TO CD40

William C. Fanslow, III, 218 SW. 327th Pl., Federal Way, Wash. 98023; JoDee Zappone, 4426—176th St. SW., #J-2, Lynnwood, Wash. 98037; Mark Alderson, 1116 Grow Ave. NW., and Richard J. Armitage, 5133 Eagle Harbor Dr., both of Bainbridge Island, Wash. 98110

Continuation of Ser. No. 130,541, Oct. 1, 1993, abandoned.

This application Sep. 8, 1995, Ser. No. 526,014

Int. Cl.⁶ C07K 16/28; 16/18; C12N 5/12

U.S. Cl. 530—388.73

6 Claims

1. A murine monoclonal antibody selected from the group consisting of HuCD40-M2 (ATCC HB 11459) and monoclonal antibodies that bind the same epitope bound by HuCD40-M2.

5,801,228

POLYMERIC CONTRAST AGENTS FOR MEDICAL IMAGING

Kenneth Robert Hollister; Kenneth Edmund Keller; Dong Wei; Xin Peng; David Lee Ladd, all of Wayne, Pa.; Paul Mark Henrichs, Houston, Tex., and Robert Allen Snow, West Chester, Pa., assignors to Nycomed Imaging AS, Oslo, Norway

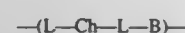
Filed Jun. 7, 1995, Ser. No. 478,803

Int. Cl.⁶ C07F 5/00; A61K 49/00; C09F 13/00

U.S. Cl. 534—15

19 Claims

I. A polymeric polychelant having polymer repeat units of formula I



where Ch is a polydentate chelant moiety; L is an amide or ester linkage; B is a hydrophobic group providing a carbon chain of 6 to 30 carbon atoms between the L linkages it interconnects, or a salt or chelate thereof, metallated by paramagnetic lanthanide or manganese ions.

5,801,229

METAL COMPLEXES OF TEXAPHYRINS

Jonathan L. Sessler, Austin, Tex.; Tarak D. Mody, Sunnyvale, Calif.; Gregory W. Hemmi, Sunnyvale, Calif., and Vladimir A. Král, Austin, Tex., assignors to The Board of Regents, University of Texas System, Austin, Tex.

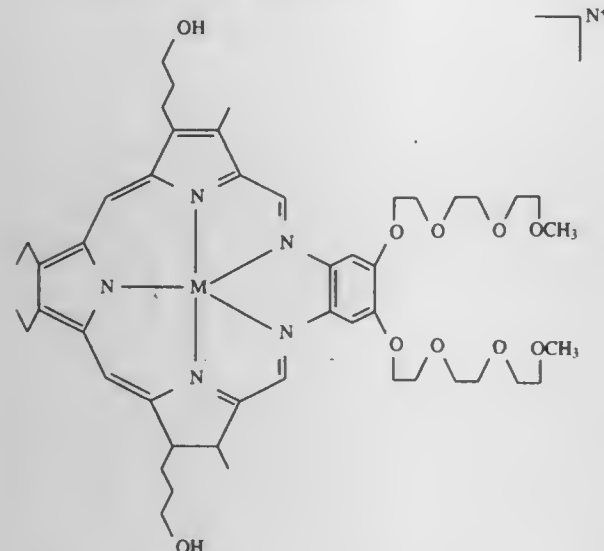
Continuation of Ser. No. 437,968, May 10, 1995, Pat. No. 5,622,946, Continuation-in-part of Ser. No. 135,118, Oct. 12, 1993, Pat. No. 5,457,183, which is a continuation-in-part of Ser. No. 75,123, Jun. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 822,964, Jan. 21, 1992, Pat. No. 5,252,720, and Ser. No. 679,162, Jul. 10, 1996, which is a continuation of Ser. No. 98,514, Jul. 28, 1993, Pat. No. 5,569,759, which is a division of Ser. No. 822,964, Jan. 21, 1992, Pat. No. 5,252,720. This application Sep. 13, 1996, Ser. No. 713,701

Int. Cl.⁶ C07D 487/22

U.S. Cl. 534—15

26 Claims

I. A texaphyrin having the structure:



where:

M is a divalent metal cation or a trivalent metal cation; and N is 0, 1 or 2.

5,801,230

POLYFUNCTIONAL AZO REACTIVE DYESTUFFS

Horst Jäger, Leverkusen, and Frank-Michael Stöhr, Odenthal, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 22, 1996, Ser. No. 651,285

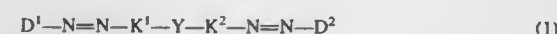
Claims priority, application Germany, May 31, 1995, 195 19 823.9

Int. Cl.⁶ C09B 62/513; 67/24; D06P 1/384

U.S. Cl. 534—642

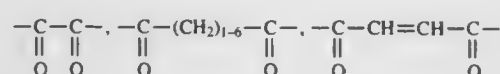
5 Claims

I. An azo reactive dyestuff of the formula

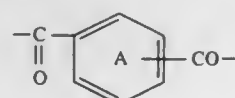


in which

Y is a bifunctional acyl radical of the formula

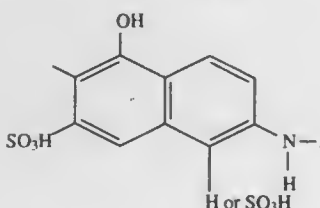
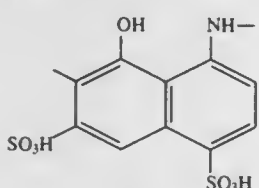
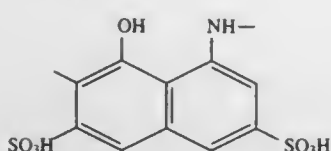
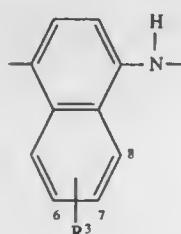


or



in which the two carbonyl groups of the benzene ring A are in the p position relative to one another and benzene ring A is unsubstituted or substituted by a substituent selected from the group consisting of Cl, CH₃ and OCH₃

K¹ and K² are identical or different and represent a radical of the formulae



5,801,231

NUCLEIC ACID ENCODING TGF-β AND ITS USES

Rik M. A. Derynck, So. San Francisco, and David V. Goeddel, Hillsborough, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 147,364, Nov. 5, 1993, Pat. No. 5,482,851, which is a continuation of Ser. No. 845,893, Mar. 4, 1992, Pat. No. 5,284,763, which is a continuation of Ser. No. 389,929, Aug. 4, 1989, Pat. No. 5,168,051, which is a continuation of Ser. No. 25,423, Mar. 13, 1987, Pat. No. 4,886,747, which is a continuation-in-part of Ser. No. 715,142, Mar. 22, 1985, abandoned. This application May 30, 1995, Ser. No. 454,468

Int. Cl.⁶ C12N 15/11

U.S. Cl. 536—23.1

5 Claims

1. DNA encoding the presequence of preTGF-β without mature TGF-β.

5,801,232

DNA AND MRNA ENCODING HUMAN NEURONAL NICOTINIC ACETYLCHOLINE RECEPTOR ALPHA-2 SUBUNIT AND CELLS TRANSFORMED WITH SAME

Kathryn J. Elliott; Steven B. Ellis, both of San Diego, and Michael M. Harpold, El Cajon, all of Calif., assignors to SIBIA Neuroscience, Inc., La Jolla, Calif.

Continuation of Ser. No. 149,503, Nov. 8, 1993, abandoned.

This application Jun. 20, 1995, Ser. No. 496,855

Int. Cl.⁶ C12N 15/00

U.S. Cl. 536—23.5

12 Claims

1. An isolated nucleic acid, comprising a sequence of nucleotides encoding an α2 subunit of a human neuronal nicotinic acetylcholine receptor, wherein the sequence of nucleotides encodes an amino acid sequence having more than 95% identity with the amino acid sequence set forth in SEQ. ID No.2.

5,801,233

NUCLEIC ACID COMPOSITIONS ENCODING ACETYL-CoA CARBOXYLASE AND USES THEREFOR

Robert Haselkorn, and Piotr Gornicki, both of Chicago, Ill., assignors to Arch Development Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 422,560, Apr. 14, 1995, which is a continuation-in-part of Ser. No. 956,700, Oct. 2, 1992, Pat. No. 5,539,092. This application Mar. 5, 1996, Ser. No. 611,107

Int. Cl.⁶ C07H 21/04; C12N 5/00; C12P 21/06

U.S. Cl. 536—23.6

43 Claims

1. An isolated DNA segment that encodes canola or wheat acetyl-CoA carboxylase.

5,801,234

POLYNUCLEOTIDE ENCODING SALIVA BINDING PROTEIN

John Edward Hodgson, Malvern, and Martin Karl Russell Burnham, Norristown, both of Pa., assignors to SmithKline Beecham p.l.c., Brentford, England

Division of Ser. No. 729,202, Oct. 15, 1996, Pat. No. 5,700,928.

This application Jul. 18, 1997, Ser. No. 896,371

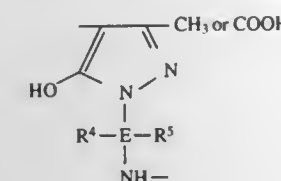
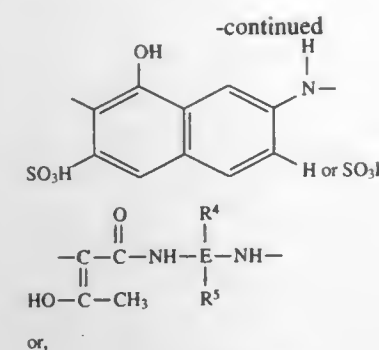
Claims priority, application United Kingdom, Oct. 16, 1995, 9521147; Mar. 4, 1996, 9604599; Aug. 1, 1996, 9616136

Int. Cl.⁶ C07H 21/04; C07K 14/31; G01N 33/53

U.S. Cl. 536—23.7

20 Claims

1. An isolated first polypeptide comprising an amino acid sequence which is at least 70% identical to a second polypeptide consisting of amino acid 1 to 309 of SEQ ID NO: 1 wherein said first polypeptide is capable of generating antibodies having binding specificity for said second polypeptide.



in which

R is H or C₁-C₄-alkyl.

R¹ is H, C₁-C₄-alkyl, C₁-C₄-alkoxy, halogen or —NR-acyl.

R² is H, C₁-C₄-alkyl, C₁-C₄-alkoxy, halogen, SO₃H or COOH.

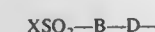
R³ is H or SO₃H, and

R⁴, R⁵, independently of one another, are H, C₁-C₄-alkyl,

C₁-C₄-alkoxy, halogen, COOH or SO₃H

D¹ and D² are identical or different and are the radical of a diazo

component of the formula

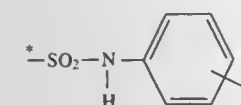
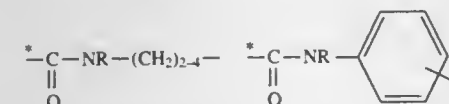
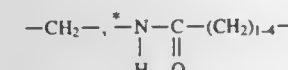


(2)

in which

D is an unsubstituted benzene or naphthalene ring, or is a benzene or naphthalene ring which is substituted by a substituent selected from the group consisting of C₁-C₄-alkyl, substituted or unsubstituted C₁-C₄-alkoxy, substituted or unsubstituted NH₂, COOH, SO₃H, OH, halogen, SCH₂CH₂OH and SCH₂COOH

B is a direct bond or a divalent bridging member of the formula



the bond marked with an asterisk being linked to the radical D and

R being H or C₁-C₄-alkyl and

X is CH=CH₂ or CH₂CH₂Z where

Z is OSO₃H, S₂O₃H, OPO₃H₂, Cl, OCOCH₃ or OSO₂CH₃.

5,801,235

OLIGONUCLEOTIDES WITH ANTI-CYTOMEGALOVIRUS ACTIVITY

Gregory S. Pari, North Smithfield, R.I., assignor to Hybridon, Inc., Cambridge, Mass.

Filed May 25, 1994, Ser. No. 249,386

Int. Cl.⁶ C07H 21/02; 21/04; C12Q 1/68; C12N 5/16

U.S. Cl. 536—24.5

18 Claims

1. A synthetic oligonucleotide which binds specifically to an mRNA encoding the UL36, UL84, UL101x-102, or UL112-113 genes of a human cytomegalovirus, the oligonucleotide binding to a portion of the mRNA which is complementary to SEQ. ID. NOS: 1, 2, 3, 4, 5, 6, 7, 8, or 9, wherein the binding inhibits cytomegalovirus replication.

5,801,236

PROBES FOR MTS1 GENE AND POLYNUCLEOTIDES ENCODING MUTANT MTS1 GENES

Alexander Kamb, Salt Lake City, Utah, assignor to Myriad Genetics, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 251,938, Jun. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 227,369, Apr. 14, 1994, abandoned, which is a continuation-in-part of Ser. No. 214,582, Mar. 18, 1994, abandoned, Ser. No. 215,087, Mar. 18, 1994, abandoned, and Ser. No. 215,086, Mar. 18, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 480,810

Int. Cl.⁶ C07H 21/04; C12N 15/63

U.S. Cl. 536—24.31

15 Claims

4. A single-stranded DNA primer for determination of a nucleotide sequence of an MTS1 gene or for use in a polymerase chain reaction wherein said primer comprises 8 or more consecutive nucleotides of a sequence selected from the group consisting of: (i) nucleotides 1-24 of SEQ ID NO:1 or a complement thereof, (ii) nucleotides 1-890 of SEQ ID NO:3 or a complement thereof, (iii) nucleotides 1017-1149 of SEQ ID NO:3 or a complement thereof, (iv) nucleotides 1-191 of SEQ ID NO:4 or a complement thereof, (v) nucleotides 499-1187 of SEQ ID NO:4 or a complement thereof, and (vi) nucleotides 1-24 of SEQ ID NO:36 or a complement thereof.

5,801,237

METHOD FOR THE PURIFICATION OF SHORT NUCLEIC ACIDS

Hans Johansson, Upsala, Sweden, assignor to Pharmacia Biotech AB, Upsala, Sweden

PCT No. PCT/SE96/00043, § 371 Date Sep. 15, 1997, § 102(e) Date Sep. 15, 1997, PCT Pub. No. WO96/22299, PCT Pub. Date Jul. 25, 1996

PCT Filed Jan. 18, 1996, Ser. No. 860,860

Claims priority, application Sweden, Jan. 20, 1995, 9500183 Int. Cl.⁶ C07H 21/00; 19/00; 21/02; C12Q 1/68

U.S. Cl. 536—25.4

5 Claims

1. A method for the purification of a synthetic oligonucleotide from failure sequences, comprising: contacting a sample containing a desired protected oligonucleotide in protected water-soluble form with a hydrophilic adsorbent exhibiting anion exchange groups under conditions permitting binding of said protected oligonucleotide to said adsorbent, wherein said adsorbent binds the protected oligonucleotide under conditions of high as well as low ionic strength; deprotecting the adsorbed protected oligonucleotide while adsorbed; and separating said adsorbed protected or deprotected oligonucleotide from failure sequences.

5,801,238

METHOD FOR PRODUCING WATER ABSORBENT RESIN AND WATER ABSORBENT

Keiji Tanaka, Kyoto-fu; Masashi Date, Osaka-fu; Kenjiro Tsubota; Tsuyoshi Yuki, both of Kyoto-fu, and Satoshi Tamabuchi, Osaka-fu, all of Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto-fu, Japan

Filed Sep. 10, 1996, Ser. No. 711,544

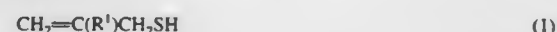
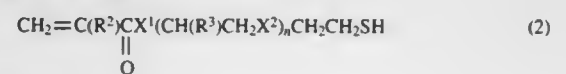
Claims priority, application Japan, Sep. 13, 1995, 7-262098

Int. Cl.⁶ C07H 1/00; 5/10; B01J 20/00

U.S. Cl. 536—123.1

6 Claims

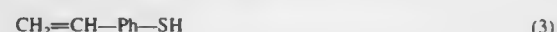
4. A water absorbent obtained by radically polymerizing a water-soluble radically polymerizable monomer (A) having an acid group or a group of the salt thereof, or the above mentioned (A) and a polysaccharide (B), in the presence of water using a crosslinking agent (C), wherein 0.0001 to 1 weight % of a thiol compound (D) having a radically polymerizable double bond, based on the above mentioned water-soluble radically polymerizable monomer (A), is used as a copolymerizing component, the thiol compound (D) being a compound capable of being dissolved in the monomer solution for the radical polymerization and being a compound selected from the group consisting of the following general formulae (1) to (3);

wherein: R¹ denotes H or CH₃;

wherein:

R² and R³ denote H or CH₃;X¹ and X² denote O or S; and

n denotes 0 or a positive integer from 1 to 10; and



wherein Ph denotes a phenylene group.

5,801,239

PROCESS FOR THE PREPARATION OF ALKALI SALT OF CARBOXY ALKYL CELLULOSE

Chowdhury Nath Saikia; Tridip Goswami, and Anil Chandra Ghosh, all of Jorhat, India, assignors to Council of Scientific & Industrial Research, New Delhi, India

Filed Jan. 17, 1997, Ser. No. 785,471

Int. Cl.⁶ C07H 1/00; C08B 11/12; 11/00; 15/05

U.S. Cl. 536—124

17 Claims

1. An improved process for the preparation of alkali salt of carboxyalkyl cellulose with good solubility in salt water which is useful for petroleum drilling muds, which comprises:

- powdering high alpha cellulose containing from 90-97% by weight of alpha cellulose obtained from fast growing plants or bamboo pulp to a size in the range of 50-100 BSS sieve,
- preparing the alkali metal salt of cellulose by mixing the high alpha cellulose pulp obtained from fast growing plant or bamboo with an alkalinizing agent in an amount ranging from 1.0-1.30 mole of the agent/per mole of the glucose unit in the cellulose pulp, in the presence of an inert organic solvent, the ratio of cellulose pulp to solvent being in the range of 1:12 with intermittent agitation,
- etherifying the prepared alkali metal salt of cellulose with an etherifying agent at a temperature in the range of 70°-80° C. with constant agitation to form an alkali metal salt of carboxyalkyl cellulose,
- recovering the alkali metal salt of carboxyalkyl cellulose having a degree of substitution of 1.08 to 1.80, and
- drying the resulting alkali metal salt of carboxyalkyl cellulose by heating at a temperature in the range of 65°-80° C. in an air circulating oven.

5,801,240

METHOD FOR EXTRACTING SEMI-REFINED CARRAGEENAN FROM SEAWEED

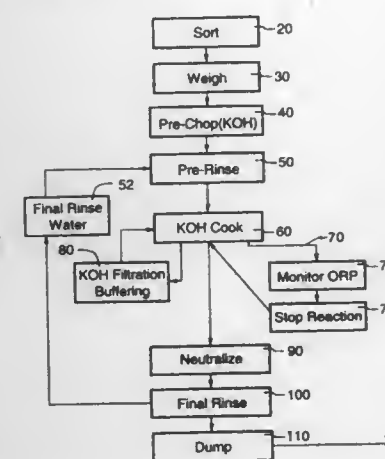
Christopher S. Rideout, Richmond Hill, and Michael G. Bernabe, Markham, both of Canada, assignors to Tanvest Limited, Grand Cayman, Cayman Islands

Filed Mar. 7, 1997, Ser. No. 813,385

Int. Cl.⁶ C07H 1/08

U.S. Cl. 536—128

20 Claims



1. In a method of producing kappa carrageenan by the processing steps of:

- pre-rinsing seaweed containing seaweed;
 - cooking the seaweed in a cooking tank containing an aqueous solution of KOH so as to cause desulfation at the 6-position of the galactose units of the carrageenan, and so as to create recurring 3,6 anhydrous galactose polymers by dehydration and reorientation;
 - washing the seaweed in a neutralizing bath;
 - rinsing the seaweed in water; and
 - drying and chopping the seaweed;
- the improvement wherein the cooking step of step (b) comprises the sub-steps of:
- monitoring the reaction progress of said desulfation, dehydration and reorientation by continuously measuring the oxidation-reduction potential of the aqueous KOH solution using an oxidation-reduction potential sensor; and,
 - upon the occurrence of substantial reaction equilibrium of said reorientation, as indicated by the oxidation-reduction potential reaching a predetermined constant value, stopping step (b) by removal of the seaweed from the aqueous KOH solution.

5,801,241

CYCLOHEXANONE EXTRACTION OF 3-HYDROXYMETHYLCEPHALOSPORINS

Gary M. F. Lim; John M. Roubie, both of Onondaga, N.Y., and Vicki H. Audia, Plainsboro, N.J., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Filed Jul. 18, 1997, Ser. No. 896,377

Int. Cl.⁶ C07D 501/28

U.S. Cl. 540—230

6 Claims

1. A process for preparing a concentrated (≥10% weight/volume) aqueous solution of desacetyl 7-glutaryl ACA from an aqueous solution containing the desacetyl 7-glutaryl ACA in lower concentration, which comprises the steps of:

- providing an aqueous solution containing desacetyl 7-glutaryl ACA;
- contacting the solution with cyclohexanone at a pH of from about 1.5 to about 3 so as to extract the desacetyl 7-glutaryl ACA into the cyclohexanone solvent phase;
- separating the cyclohexanone solvent phase from the aqueous phase;

- contacting the cyclohexanone phase with water at a pH of from about 5 to about 7.5; and
- separating the aqueous phase containing the desired concentrated solution of desacetyl 7-glutaryl ACA.

4. A process for preparing a concentrated (≥10% weight/volume) aqueous solution of desacetyl cephalosporin D from an aqueous solution containing the desacetyl cephalosporin D in lower concentration, which comprises the steps of

- providing an aqueous solution containing desacetyl cephalosporin D;
- contacting the solution with cyclohexanone at a pH of from about 1.5 to about 3 so as to extract the desacetyl cephalosporin D into the cyclohexanone solvent phase;
- separating the cyclohexanone solvent phase from the aqueous phase;
- contacting the cyclohexanone phase with water at a pH of from about 5 to about 7.5; and
- separating the aqueous phase containing the desired concentrated solution of desacetyl cephalosporin D.

5,801,242

PROCESS FOR MAKING QUINOLONYL LACTAM ANTIMICROBIALS AND NOVEL INTERMEDIATE COMPOUNDS

Jared Lynn Randall, Oxford, and Jane Ellen Godlewski, South Plymouth, both of N.Y., assignors to The Procter & Gamble Company, Cincinnati, Ohio

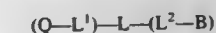
Continuation of Ser. No. 284,771, Aug. 2, 1994, abandoned. This application Nov. 12, 1997, Ser. No. 968,987

Int. Cl.⁶ C07D 499/04; 499/08; 499/12; 205/12

U.S. Cl. 540—302

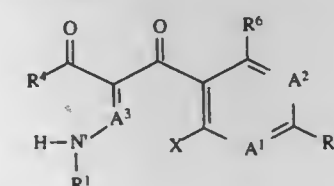
24 Claims

1. A process for making a compound of the formula



the method comprising the steps of:

- coupling a compound having a structure according to Formula (III)



wherein

(A)

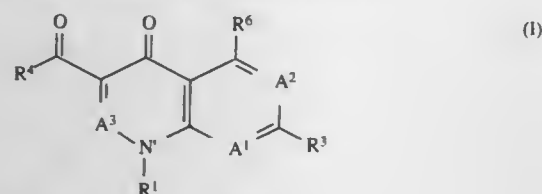
- A¹, A², or A³ is N C(R⁷), C(R⁷), or C(R⁵); where
- R⁵ is hydrogen
- R⁷ is R⁵ or halogen
- R⁷ is R⁵, hydroxy, alkoxy, nitro, cyano, alkyl, or —N(R⁸)(R⁹), and
- R⁸ and R⁹ are, independently, hydrogen, alkyl, alkenyl, a carbocyclic ring, or a heterocyclic ring; or R⁸ and R⁹ together form a heterocyclic ring including the nitrogen to which they are bonded;
- R¹ is hydrogen, alkyl, a carbocyclic ring, a heterocyclic ring, alkoxy, hydroxy, alkenyl, arylalkyl, or —N(R⁸)(R⁹);
- R³ is hydrogen, halogen, alkyl, a carbocyclic ring, or a heterocyclic ring;
- R⁴ is hydroxy;
- R⁶ is hydrogen, halogen, nitro or —N(R⁸)(R⁹); and
- X is a leaving group

(B) and

- when A² is C(R⁷), R² and R³ may together form —O—(CH₂)_n—O—, where n is from 1 to 4;
- when A³ is C(R⁵), R⁴ and R⁵ may together form a heterocyclic ring; and
- when A¹ is C(R⁷), R⁷ and R³ may together form a heterocyclic ring including A¹ and the carbon atom to which R³ is bonded;

or a protected form, salt, ester, or solvate thereof; with a lactam-containing compound having a structure according to Formula (II), to form an intermediate compound; and (2) cyclizing the intermediate compound by reaction with an organosilicon compound to give a compound of the formula $(Q-L^1)-L-(L^2-B)$;

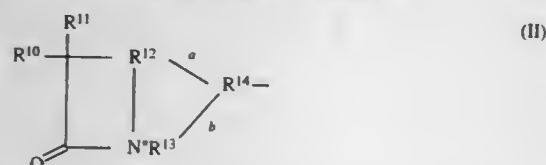
wherein
(I) Q has a structure according to Formula (I)



wherein
(A)

- (1) A¹, A² or A³ is N or C(R⁷) C(R²) or C(R⁵); where
 - (a) R⁵ is hydrogen,
 - (b) R² is R⁵ or halogen,
 - (c) R⁷ is, R² or, hydroxy, alkoxy, nitro, cyano, alkyl, or —N(R⁸)(R⁹), and
 - (d) R⁸ and R⁹ are, independently, R^{8a} where R^{8a} is hydrogen, alkyl, alkenyl, a carbocyclic ring, or a heterocyclic ring; or R⁸ and R⁹ together form a heterocyclic ring including the nitrogen to which they are bonded;
 - (2) R¹ is hydrogen, alkyl, a carbocyclic ring, a heterocyclic ring, alkoxy, hydroxy, alkenyl, arylalkyl, or —N(R⁸)(R⁹);
 - (3) R³ is hydrogen, halogen, alkyl, a carbocyclic ring, or a heterocyclic ring;
 - (4) R⁴ is hydroxy; and
 - (5) R⁶ is hydrogen, halogen, nitro or —N(R⁸)(R⁹);
- (B) and
- (1) when A² is C(R²), R² and R³ may together form —O—(CH₂)_n—O—, where n is from 1 to 4;
 - (2) when A³ is C(R⁵), R⁴ and R⁵ may together form a heterocyclic ring; and
 - (3) when A¹ is C(R⁷), R⁷ and R³ may together form a heterocyclic ring including A¹ and the carbon atom to which R³ is bonded;

(C) and provided that one of R¹, R³, or R⁶ is a covalent bond to L¹;
(II) B has a structure according to Formula (II):



wherein

- (A) R¹⁰ is hydrogen, halogen, alkyl, alkenyl, heteroalkyl, a carbocyclic ring, a heterocyclic ring, R⁸—O—, R⁸CH=N—, (R⁸)(R⁹)N—, R¹⁷—C(=CHR²⁰)—C(=O)NH—, R¹⁷—C(=NO—R¹⁹)—C(=O)NH—, or R¹⁸—(CH₂)_m—C(=O)NH—; where
 - (1) m is an integer from 0 to 9;
 - (2) R¹⁷ is hydrogen, alkyl, alkenyl, heteroalkyl, heteroalkenyl, a carbocyclic ring, or a heterocyclic ring;
 - (3) R¹⁸ is R¹⁷, —Y¹, or —CH(Y²)(R¹⁷);
 - (4) R¹⁹ is R¹⁷, arylalkyl, heteroarylalkyl, —C(R²²)(R²³)—COOH, —C(=O)O—R¹⁷, or —C(=O)NH—R¹⁷, where R²² and R²³ are, independently, R¹⁷ or together form a carbocyclic ring or a heterocyclic ring including the carbon atom to which R²² and R²³ are bonded;
 - (5) R²⁰ is R¹⁹, halogen, —Y¹, or —CH(Y²)(R¹⁷);
 - (6) Y¹ is —C(=O)OR²¹, —C(=O)R²¹, —N(R²⁴)R²¹, —S(O)_pR²⁹, or —OR²⁹; and Y² is Y¹ or —OH, —SH, or —SO₃H;
 - (a) p is an integer from 0 to 2;
 - (b) R²⁴ is hydrogen; alkyl; alkenyl; heteroalkyl; heteroalkenyl; a carbocyclic ring; a heterocyclic ring; —SO₃H;

- C(=O)R²⁵; or, when R¹⁸ is —CH(N(R²⁴)R²¹)(R¹⁷), R²⁴ may form a moiety bonded to R²¹ to form a heterocyclic ring; and
 - (c) R²⁵ is R¹⁷, NH(R¹⁷), N(R¹⁷)(R²⁶), O(R²⁶), or S(R²⁶); where R²⁶ is alkyl, alkenyl, a carbocyclic ring, a heterocyclic ring, or when R²⁵ is —N(R¹⁷)(R²⁶), R²⁶ may be a moiety bonded to R¹⁷ to form a heterocyclic ring; and
 - (7) R²¹ is R²⁹ or hydrogen; where R²⁹ is alkyl; alkenyl; arylalkyl; heteroalkyl; heteroalkenyl; heteroarylalkyl; a carbocyclic ring; a heterocyclic ring; or, when Y¹ or Y² is —N(R²⁴)R²¹ and R²¹ is R²⁹, R²¹ and R²⁴ may together form a heterocyclic ring including the nitrogen atom to which R²⁴ is bonded;
- (B) R¹¹ is hydrogen, halogen, alkoxy, or R²⁷C(=O)NH—, where R²⁷ is hydrogen or alkyl;
- (C) bond "a" is a single bond or is nil; and bond "b" is a single bond, a double bond, or is nil; except bond "a" and bond "b" are not both nil;
- (D) R¹² is —C(R⁸)—, or —CH₂—R²⁸—; where R²⁸ is —C(R⁸)—, —O—, or —N—, and R²⁸ is directly bonded to N¹ in Formula (II) to form a 5-membered ring; except, if bond "a" is nil, then R¹² is
- (1) —C(R⁸)(X¹)—, where
 - (a) X¹ is —R²¹—, —OR³⁰—, —S(O)_vR³⁰, where v is an integer from 0 to 2; —OC(=O)R³⁰, or —N(R³⁰)R³¹; and
 - (b) R³⁰ and R³¹ are, independently, alkyl, alkenyl, a carbocyclic ring or a heterocyclic ring; or R³⁰ and R³¹ together form a heterocyclic ring including the nitrogen atom to which R³⁰ and R³¹ are bonded; or
 - (2) —CH₂—R³²—; where R³² is —C(R⁸)(R²¹)—, —O—, or —NR⁸—, and R³² is directly bonded to N¹ in Formula (II) to form a 5-membered ring;
- (E)
- (1) if bond "b" is a single bond, R¹³ is —CH(R³³)—; or, —C(O)NHSO₂—, if bond "a" is nil; or —C*(R³³)— if R¹⁴ contains a R³⁶ moiety; where R³³ is hydrogen or COOR⁴⁶ where R⁴⁶ is hydrogen, alkyl or alkenyl, and C* is linked to R³⁶ to form a 3-membered ring;
 - (2) if bond "b" is a double bond, R¹³ is —C(R³³)=; or
 - (3) if bond "b" is nil, R¹³ is hydrogen, —SO₃H, —PO(OR³⁴)OH, —C(O)NHSO₂N(R³⁴)(R³⁵), —OSO₃H, —CH(R³⁵)COOH, or —OCH(R³⁴)—COOH; where R³⁴ is hydrogen, alkyl, alkenyl, a carbocyclic ring, or a heterocyclic ring; and R³⁵ is hydrogen, alkyl, alkenyl, or —NHR⁸; or, if R¹³ is —C(O)NH—SO₂N—(R³⁴)(R³⁵), R³⁴ and R³⁵ may together comprise a heterocyclic ring including the nitrogen to which R³⁴ and R³⁵ are bonded; and
- (F)
- (1) if bond "a" or bond "b" is nil, then R¹⁴ is a covalent bond;
 - (2) if bond "a" and "b" are single bonds, R¹⁴ is —W—C*(R⁸)—R³⁷—, or —W—C*(R³⁶)—R³⁷—; or
 - (3) if bond "a" is a single bond and bond "b" is a double bond, R¹⁴ is —C(R⁸)(R³⁸)—W—C*(R³⁶)—R³⁷—; —W—C(R⁸)—(R³⁸)—C*(R³⁶)—R³⁷—; or —W—C*(R³⁶)—R³⁷—; or
 - (4) where
 - (a) W is O; S(O)_s, where s is an integer from 0 to 2; or C(R³⁸), where R³⁸ is hydrogen, alkyl or alkoxy;
 - (b) R³⁶ is hydrogen; alkyl; alkenyl; —COOH; or, if R¹³ is —C*(R³³), R³⁶ may be linked to C* to form a 3-membered carbocyclic ring;
 - (c) R³⁷ is covalent bond, alkyl, alkenyl, a carbocyclic ring, or a heterocyclic ring; and
 - (d) C* is directly bonded to R¹³ to form a 5- or 6-membered ring; and
- (III)
- (A) L is —C(=Z)—; —S(O)_v—; —N(R⁴⁴)—; —N*(R⁴⁴)(R⁴⁵)—; —N(R⁴⁴)—N(R⁴⁴)—; —O—; =N—; or a covalent bond; and L is bonded to L³ and L⁴; where
 - (1) Z is O, S, or *N(H)₂;
 - (2) v is 0, 1 or 2;
 - (3) R⁴⁴ is hydrogen, substituted or unsubstituted lower alkyl, aryl, acyl, hydroxy, alkoxy, aryloxy, or acyloxy; and
 - (4) R⁴⁵ is hydrogen, unsubstituted or substituted lower alkyl, or substituted or unsubstituted aryl;

(B) L¹ is L³ or R¹⁵L³; where

- (1) when L is —C(=Z)—, L³ is a covalent bond, oxygen, sulfur, or nitrogen; and when L is other than —C(=Z)—, L³ is a covalent bond;
 - (2) R¹⁵ is alkyl, alkenyl, heteroalkyl, a heterocyclic ring, a carbocyclic ring, or R¹⁵ together with L³ is a heteroalkyl or a heterocyclic ring; and
 - (3) L¹ is bonded to Q at the point of attachment of R¹, R³ or R⁶, whichever is a covalent bond;
- (C) L² is L⁴, —X²—R³⁹—L⁴, or —X³—R³⁹—L⁴; where
- (1) when L is —C(=Z)—, L⁴ is a covalent bond, oxygen, sulfur, or nitrogen; and when L is other than —C(=Z)—, L⁴ is a covalent bond;
 - (2) X² is oxygen, or S(O)_v, where v is 0, 1, or 2;
 - (3) X³ is nitrogen; —N(R⁴⁰)—; —N*(R⁴¹)(R⁴²)—; or R⁴³—N(R⁴¹); and is linked to R¹⁴ by a single or double bond; or, if R¹⁴ is covalent bond, X³ is linked to B by a single or double bond; where
 - (a) R⁴⁰ is R⁸; —OR⁸; or —C(=O)R⁸;
 - (b) R⁴¹ and R⁴² are, independently, hydrogen; alkyl; alkenyl; carbocyclic rings; heterocyclic rings; or, if R⁶ is R¹⁶X, then R⁴¹ and R⁴² together with "Q" may form a heterocyclic ring as R¹⁶;
 - (c) R⁴³ is N(R⁴¹), oxygen or sulfur;
 - (4) t is 0 or 1;
 - (5) R³⁹ is alkyl, alkenyl, heteroalkyl, heteroalkenyl, a carbocyclic ring, or a heterocyclic ring; and
 - (6)
 - (a) if bond "a" or bond "b" is nil, then L² is bonded directly to R¹² or R¹³; or
 - (b) if bond "a" and bond "b" are not nil, then L² is bonded to R¹⁴;
- (D) provided that if L¹, L² and R³⁷ are each a covalent bond, then L cannot be a covalent bond;
- or a protected form, salt, pharmaceutically-acceptable salt, biodegradable ester, or solvate thereof.

5,801,243

PHOTOCHROMIC COMPOUNDS (7)

Manfred Melzig, Wessling, and Herbert Zinner, Taufkirchen, both of Germany, assignors to Optische Werke G. Rodenstock, Munich, Germany

PCT No. PCT/DE94/00744, § 371 Date Feb. 27, 1995, § 102(e) Date Feb. 27, 1995, PCT Pub. No. WO95/00500, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 28, 1994, Ser. No. 393,010
Claims priority, application Germany, Jun. 28, 1993, 43 21 461.4

Int. Cl.⁶ C07D 265/12; 265/34; 265/36

U.S. Cl. 544—71

10 Claims

1. A process for the production of photochromic oxazine compounds, characterized by an aldehyde bearing in the λ-position to the aldehyde group a halogen or hydroxy group (reacting agent 1) being condensed with a (substituted) ortho-amino-hydroxy aromatic compound (reacting agent 2).

5,801,244

SUNSCREENS

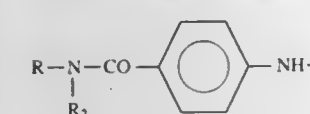
Giuseppe Raspanti, Bergamo, Italy, assignor to 3V Inc., Weehawken, N.J.

Filed Mar. 25, 1996, Ser. No. 620,953
Int. Cl.⁶ C07D 251/70

U.S. Cl. 544—197

3 Claims

1. A compound of formula (I)

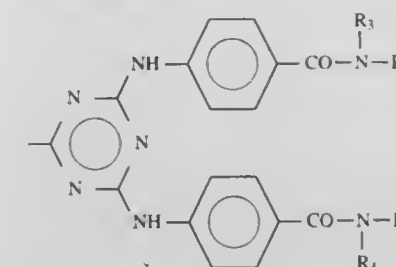


(I)

wherein Y=Cl or Br;

c) reacting Compound (G) with a compound of the formula:

—continued



wherein R and R₁ can be the same or different and are C₁–C₁₈ straight or branched alkyl. C₅–C₁₂ cycloalkyl optionally substituted with one or more C₁–C₄ alkyl; R₂, R₃ and R₄ can be the same or different and have the same meaning of R or are hydrogen.

5,801,245

PROCESS FOR THE PREPARATION OF ETHYL-N-(2,3-DICHLORO-6-NITROBENZYL) GLYCINE

Philip C. Lang, Toms River, N.J., assignor to Roberts Laboratories Inc., Eatontown, N.J.

Continuation of Ser. No. 566,862, Dec. 4, 1995, abandoned.

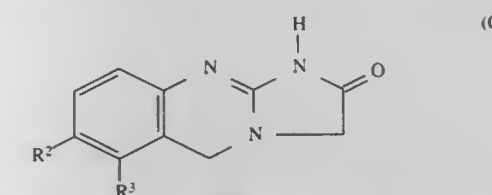
This application Aug. 28, 1997, Ser. No. 919,964

Int. Cl.⁶ C07D 239/00

U.S. Cl. 544—250

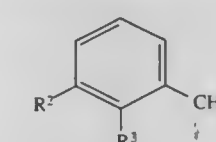
4 Claims

1. A process for the preparation of Compound (C) of the formula:

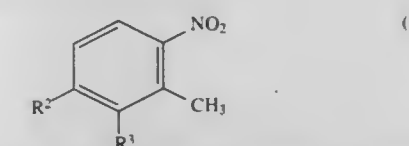


in which R² and R³ are the same and are chloro, bromo or iodo; and pharmaceutically acceptable addition salts thereof, which process comprises:

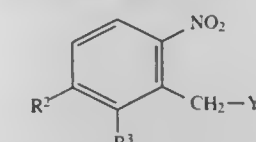
a) nitrating a 2,3 toluene compound of the formula:



to form compound (F) of the formula:



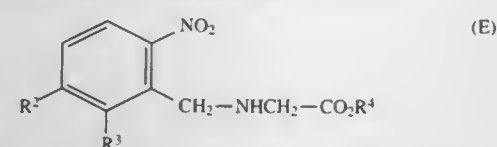
b) reacting Compound (F) by forming a mixture of compound (F) with a peroxide and chlorine or bromine and irradiating the mixture in a quartz vessel with a halogen lamp to form Compound (G) of the formula:



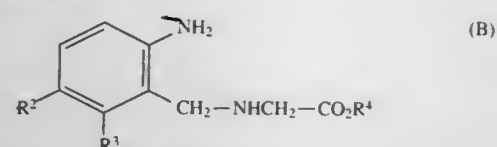
wherein Y=Cl or Br;

c) reacting Compound (G) with a compound of the formula:

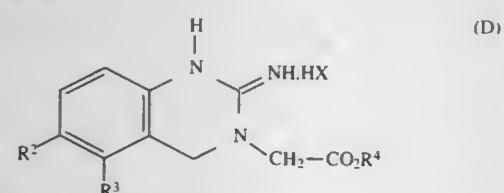
$\text{H}_2\text{NCH}_2\text{CO}_2\text{R}^4$
wherein R^4 is lower alkyl or H;
to form Compound (E) of the following formula:



d) reacting Compound (E) under reducing conditions to form Compound (B):



e) reacting Compound (B) with CNBr, CNCl or CNI to form Compound (D):



wherein X is Cl, Br or I; and

f) reacting Compound (D) under alkaline conditions to form Compound (C).

5,801,246

SUBSTITUTED

HETEROARYLPHENYLOXAZOLIDINONES

Michael R. Barbachyn, Kalamazoo, and Steven J. Brickner, Portage, both of Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

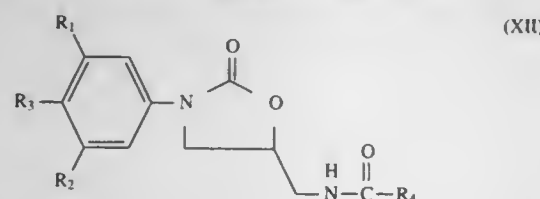
Division of Ser. No. 233,903, Apr. 28, 1994, Pat. No. 5,565,571, which is a continuation-in-part of Ser. No. 831,213, Feb. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 786,107, Nov. 1, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 466,955

Int. Cl.⁶ C07D 413/04; 413/10; 417/10

U.S. Cl. 548—152

2. A substituted aryloxazolidinone of formula (XII)

11 Claims



where

(I) R_1 and R_2 are the same or different and are selected from the group consisting of

- (a) —H,
(b) —F,
(c) —Cl,
(d) —CF₃, and
(e) —OCH₃, provided that only one of R_1 or R_2 may be hydrogen;

(II) R_3 is selected from the group consisting of

(i) benzothiazolyl optionally substituted with X and Y;

(ii) benzoxazolyl optionally substituted with X and Y;

(III) each occurrence of Y is independently selected from

- (a) —H,
(b) —F, (c) —Cl, (d) —Br, (e) —I,

- (f) — $\text{R}_{3,1}$ where R_3 is —H or C₁–C₄ alkyl,
(g) —OR_{3,1} where R_3 is —H or C₁–C₄ alkyl, or
(h) —NO₂;

(IV) each occurrence of X is independently selected from

- (a) —H,
(b) C₁–C₈ alkyl optionally substituted with one or more halogens,
—OH,
=O other than at alpha position,
—S(O)_nR_{3,2} where $\text{R}_{3,2}$ is C₁–C₄ alkyl or C₃–C₈ cycloalkyl, or
—NR_{3,3}R_{3,4} where $\text{R}_{3,3}$ and $\text{R}_{3,4}$ are the same or different and are —H, C₁–C₈ alkyl, C₃–C₈ cycloalkyl,
—(CH₂)₇CHOR_{3,5}, —(CH₂)₇NR_{3,6}R_{3,7} or taken together are —(CH₂)₇O(CH₂)₇—, —(CH₂)₇CH(CO)R_{3,8}, or
—(CH₂)₇N(R_{3,8})(CH₂)₇— where
 $\text{R}_{3,5}$ is —H or C₁–C₃ alkyl, or
 $\text{R}_{3,6}$ and $\text{R}_{3,7}$ are the same or different and are —H, C₁–C₄ alkyl or taken together are —(CH₂)₇—,

(c) —OR_{3,3} where $\text{R}_{3,3}$ is as defined above,

(k) —NR_{3,3}R_{3,4} where $\text{R}_{3,3}$ and $\text{R}_{3,4}$ are as defined above,

(l) —N(R_{3,8})COR_{3,11} where $\text{R}_{3,3}$ and $\text{R}_{3,11}$ are as defined above,

(m) —N(R_{3,3})S(O)_nR_{3,11} where $\text{R}_{3,3}$ and $\text{R}_{3,11}$ are as defined above,

(n) —CONR_{3,3}R_{3,4} where $\text{R}_{3,3}$ and $\text{R}_{3,4}$ are as defined above,

(o) —C(O)R_{3,16} where $\text{R}_{3,16}$ is

—H,
C₁–C₈ alkyl optionally substituted with one or more halogens,

C₁–C₄ alkyl optionally substituted with

—OR_{3,5},

—OC(O)R_{3,5},

—NR_{3,3}R_{3,4},

—S(O)_nR_{3,17},

C₃–C₈ cycloalkyl, or

C₂–C₅ alkenyl optionally substituted with —CHO or

—CO₂R_{3,5}, where $\text{R}_{3,3}$, $\text{R}_{3,4}$, and $\text{R}_{3,5}$ are as defined above and $\text{R}_{3,17}$ is C₁–C₄ alkyl or C₃–C₈ cycloalkyl,

(V) R_4 is selected from the group consisting of

- (a) —H,
(b) C₁–C₁₂ alkyl optionally substituted with 1–3 Cl,
(c) phenyl optionally substituted with 1–3 —OH, —OCH₃, —OC₂H₅, —NO₂, —F, —Cl, —Br, —COOH and —SO₃H,
—N(R_{4,1})(R_{4,2}) where $\text{R}_{4,1}$ and $\text{R}_{4,2}$ are the same or different and are —H and C₁–C₅ alkyl,
(k) —O— $\text{R}_{4,3}$ where $\text{R}_{4,3}$ is C₁–C₄ alkyl and pharmaceutically acceptable salts thereof.

5,801,247

PROCESS FOR THE ENANTIOSELECTIVE SYNTHESIS
OF HYDROXYPYRROLIDINES FROM AMINO ACIDS
AND PRODUCTS THEREOF

David R. Dalton, Radnor, and Yifang Huang, Cheltenham, both of Pa., assignors to Temple University—of the Commonwealth System of Higher Education, Philadelphia, Pa.

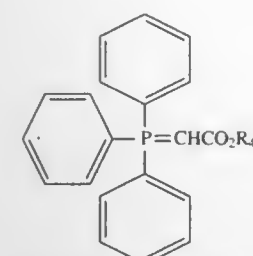
Filed Jan. 23, 1997, Ser. No. 787,994

Int. Cl.⁶ C07D 207/12; 263/14

U.S. Cl. 548—201

12 Claims

1. A method of synthesizing an S-methyl-3-(4,5-dihydro-2-phenyl-4-oxazolyl)-2-propenoate comprising reacting a 4-(carbomethoxy)-2-phenyl-Δ²-oxazoline with diisobutyl aluminum hydride and a carboalkoxymethylene triphenylphosphorane of the following formula:



wherein R_4 is selected from the group consisting of C₁–C₄ alkyl groups.

5,801,248

STEREOSELECTIVE SYNTHESSES

Mario Eugenio Cosamino Polywka, Didcot, and Stephen Graham Davies, Oxford, both of Great Britain, assignors to Oxford Asymmetry International PLC., Abingdon, United Kingdom

PCT No. PCT/GB95/02484, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO96/12726, PCT Pub. Date May 2, 1996

PCT Filed Oct. 20, 1995, Ser. No. 817,166

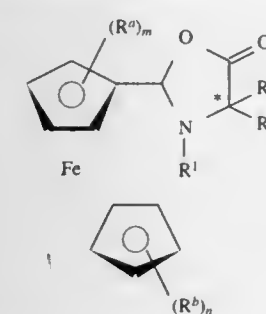
Claims priority, application United Kingdom, Oct. 20, 1994, 9421208

Int. Cl.⁶ C07D 263/14

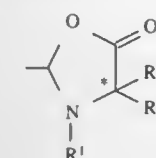
U.S. Cl. 548—228

1. Chiral compounds of formula (V)

19 Claims



where R represents a hydrogen atom or an organic group selected from the group consisting of optionally substituted aliphatic, cycloaliphatic and araliphatic groups containing up to 20 carbon atoms; R^1 represents an N-protecting group; R^2 represents an organic group selected from the group consisting of optionally substituted aliphatic and araliphatic groups containing up to 20 carbon atoms; R^3 and R^4 , which may be the same or different, are each selected from the group consisting of lower alkyl, lower alkoxy, lower alkylthio, lower alkylsulfonyl, lower alkanoyl, lower alkanoyloxy, lower alkoxy carbonyl, disubstituted amino, disubstituted aminoalkyl, lower alkanoylamino, C₆–12 aryl-C₁–4 alkyl, C₆–20 aryl, carbamoyl, sulphonyl, nitro and halo, or R^6 is an oxazolidinone group of formula:



m is 0 or an integer of 1–4; n is 0 or an integer of 1–5; and the asterisk denotes that the configuration of R and R^2 is such that the compound is in substantially enantiomerically pure form.

5,801,249

CHIRAL AUXILIARIES

Stephen Graham Davies, Oxford; Mario Eugenio Cosamino Polywka, Oxon, and Hitesh Jayantilal Sangane, London, all of Great Britain, assignors to Oxford Asymmetry International plc, Abingdon, United Kingdom

PCT No. PCT/GB94/02826, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO95/18112, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 28, 1994, Ser. No. 663,258

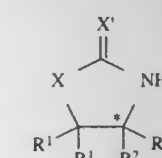
Claims priority, application United Kingdom, Dec. 24, 1993, 9326432

Int. Cl.⁶ C07D 263/20

U.S. Cl. 548—229

10 Claims

1. Compounds of general formula (I):



where the two R^1 groups are identical C₁–10 alkyl groups or together form a C₃–10 alkylene group; R^2 and R^3 are different and are each selected from the group consisting of hydrogen atoms, optionally substituted aliphatic, cycloaliphatic, araliphatic and aromatic hydrocarbyl groups containing up to 20 carbon atoms, and groups of formula —CH₂OP where P represents a hydroxyl protecting group, a crosslinked polysaccharide or a divinylbenzene-crosslinked polystyrene; X and X', which may be the same or different, are each selected from the group consisting of O, S and NR, where R represents an organic group as described above for R^2 ; and the asterisk denotes that the configurations of R^2 and R^3 are such that the compound (I) is in substantially enantiomerically pure 4R- or 4S-form.

5,801,250

PROCESS FOR THE STEREOSELECTIVE PRODUCTION
OF NITRO-ENAMINE COMPOUNDS

Patricia A. Oliver-Shaffer, Lindenhurst; Bikshandarkoil A. Narayanan, Mundelein; James E. Resek, Lake Bluff, and Pulla Reddy Singam, Chicago, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

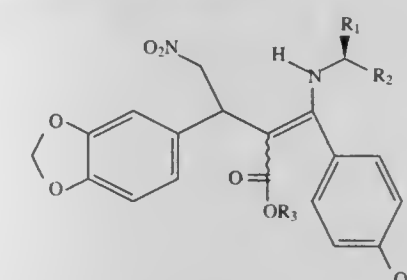
Filed Dec. 13, 1996, Ser. No. 764,866

Int. Cl.⁶ C07D 405/04; 317/60

U.S. Cl. 548—526

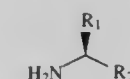
19 Claims

1. A process for producing enhanced stereoselective nitro enamine diastereomers of the formula,

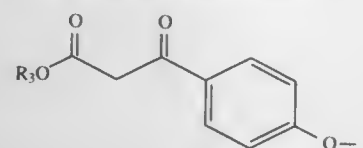


comprising the steps of:

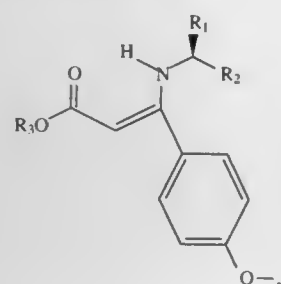
(a.) reacting a chiral primary amine of the formula,



wherein R_1 and R_2 are independently selected from the group consisting of alkyl, substituted and unsubstituted aryl, heterocyclic, and alkoxy, with a -ketoester compound of the formula,

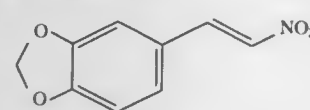


wherein R_3 is selected from the group consisting of alkyl and substituted and unsubstituted aryl, in the presence of a first solvent and an acid to form a chiral enamino-ester of the formula,



and

(b.) reacting said chiral enamino-ester with a nitrostyrene compound of the formula,



to form said nitro enamines diastereomers.

5,801,251

PROCESS FOR CRYSTALLIZING N²-(S)-1-ETHOXYCARBONYL-3-PHENYLPROPYL)-N⁶-TRIFLUOROACETYL-L-LYSYL-L-PROLINE

Yasuyoshi Ueda, Himeji, and Hajime Manabe, Takasago, both of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 295,649, Aug. 26, 1994, Pat. No. 5,519,146. This application May 3, 1996, Ser. No. 642,308
Claims priority, application Japan, Jan. 8, 1993, 2044/1993
Int. Cl.⁶ C07D 207/16

U.S. Cl. 548—533

17 Claims

1. A process for crystallizing N²-(S)-1-ethoxycarbonyl-3-phenylpropyl)-N⁶-trifluoroacetyl-L-lysyl-L-proline which comprises first crystallizing said N²-(S)-1-ethoxycarbonyl-3-phenylpropyl)-N⁶-trifluoroacetyl-L-lysyl-L-proline from a solution of said N²-(S)-1-ethoxycarbonyl-3-phenylpropyl)-N⁶-trifluoroacetyl-L-lysyl-L-proline where a sufficient amount of at least one compound is used as a solvent, and then completing crystallization by successively adding a sufficient amount of auxiliary solvent for controlling crystallizing conditions, said compound having a property that said N²-(S)-1-ethoxycarbonyl-3-phenylpropyl)-N⁶-trifluoroacetyl-L-lysyl-L-proline can be crystallized from said solution therewith and having the general formula:



wherein R^1 is chlorine atom, bromine atom, methoxy group, acetyl group, acetoxymethyl group or phenyl group; R^2 is hydrogen atom, chlorine atom, bromine atom, methyl group, ethyl group or methoxy group; R^3 is chlorine atom, bromine atom, methyl group or methoxy group; R^4 is chlorine atom, bromine

atom, methyl group or methoxy group; provided that the combination, and wherein R^1 is methoxy group and R^3 and R^4 are methyl group is excluded.

5,801,252

PROCESS FOR PRODUCTION OF CYCLIC N-VINYL CARBOXYLIC ACID AMIDE

Hitoshi Yano, Suita, and Yuuji Shimasaki, Otsu, both of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

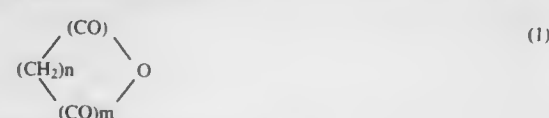
Filed Mar. 18, 1997, Ser. No. 820,283

Claims priority, application Japan, Mar. 18, 1996, 8-060455
Int. Cl.⁶ C07D 207/408

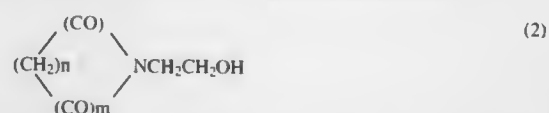
U.S. Cl. 548—554

10 Claims

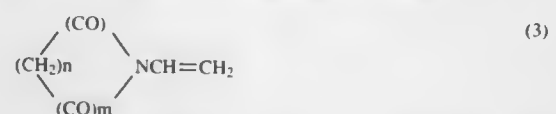
1. A process for production of cyclic N-vinyl carboxylic acid amide, which comprises subjecting, to an intermolecular dehydration reaction in a first-step reaction in a liquid phase, monoethanolamine and a cyclic carboxylic acid ester represented by the following general formula (1):



wherein m is 0 or 1; the sum of m and n is an integer of 3–5; and one of the CH₂s may be substituted with an oxygen atom or a sulfur atom to form a cyclic N-(2-hydroxyethyl) carboxylic acid amide represented by the following general formula (2):

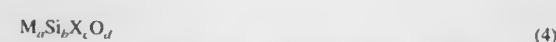


wherein m is 0 or 1; the sum of m and n is an integer of 3–5; and one of the CH₂s may be replaced by an oxygen atom or a sulfur atom, and then subjecting the cyclic N-(2-hydroxyethyl)carboxylic acid amide to an intramolecular dehydration reaction in a second-step reaction in a gas phase in the presence of an oxide catalyst containing an alkali metal element and/or an alkaline earth metal element and silicon, to form a cyclic N-vinyl carboxylic acid amide represented by the following general formula (3):



wherein m is 0 or 1; the sum of m and n is an integer of 3–5; and one of the CH₂s may be replaced by an oxygen atom or a sulfur atom, and

wherein the second step reaction catalyst is an oxide represented by the following general formula (4):



wherein M is at least one element selected from the group consisting of alkali metal elements and alkaline earth metal elements; Si is silicon; X is at least one element selected from the group consisting essentially of boron, has been aluminum; O is oxygen; and a, b, c and d are the atom numbers of M, Si, X and O, respectively, with provisos that when a=1, b is 1–500 and c is 0–1, and d is a value determined by the values of a, b, and c and the bonding states of the individual constituent elements.

5,801,253

RETINOIC ACID X-RECEPTOR LIGANDS

Michael Klaus, Weil am Rhein, Germany; Allen John Lovey, North Caldwell, N.J.; Peter Mohr, Basel, Switzerland, and Michael Rosenberger, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

PCT No. PCT/EP95/03021, § 371 Date Jan. 21, 1997, § 102(e)
Date Jan. 21, 1997, PCT Pub. No. WO96/05165, PCT Pub. Date Feb. 22, 1996

PCT Filed Jul. 29, 1995, Ser. No. 776,087

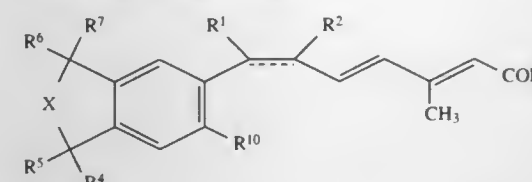
Claims priority, application European Pat. Off., Aug. 10, 1994, 94112461; Jul. 5, 1995, 95110460

Int. Cl.⁶ C07D 333/08; C07C 63/00; 69/76; 233/00

U.S. Cl. 549—79

22 Claims

1. Compounds of the formula I



wherein the dotted bond is optional; and, when the dotted bond is present, R^1 is lower alkyl and R^2 is halogen, or R^1 and R^2 taken together with the carbon atoms to which they are attached form a 5–8 membered carbocyclic ring or a 5–8 membered heterocyclic ring containing one sulfur, oxygen or nitrogen atom, wherein, when said ring is aromatic, the dotted bond is part of the mesomeric system; or, when the dotted bond is absent, R^1 and R^2 taken together are methylene to form a cis-substituted cyclopropyl ring; R^3 is hydroxy or lower alkoxy; R^4 , R^5 , R^6 and R^7 are, independently, hydrogen or lower alkyl; X is $(-CR^8R^9)_n$; and n is 1, 2 or 3; R^8 , R^9 are, independently, hydrogen or lower alkyl; R^{10} is hydrogen, alkyl or alkoxy; and pharmaceutically acceptable salts of carboxylic acids of formula I.

5,801,254

ARTEMINOLIDE DERIVATIVES AND PROCESS FOR THE MANUFACTURE THEREOF

Byoung-Mog Kwon; Song-Hae Bok, both of Daejeon; Seung-Ho Lee, Cheongju-shi; Young-Kook Kim, Daejeon; Mi-Jeong Kim, Daegu; Jongheon Shin; Youngwan Seo, both of Ansan-shi, and Soo-Ik Chang, Cheongju-shi, all of Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Aug. 5, 1997, Ser. No. 906,612

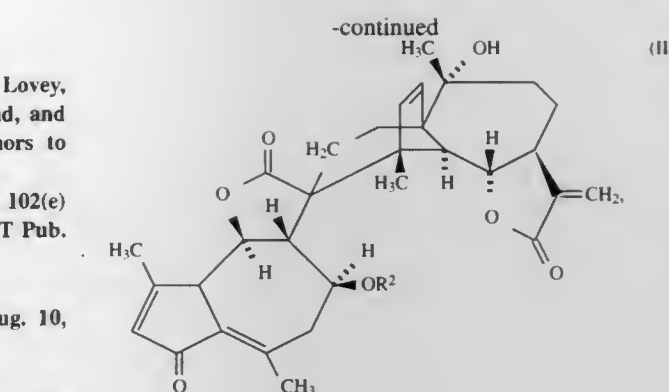
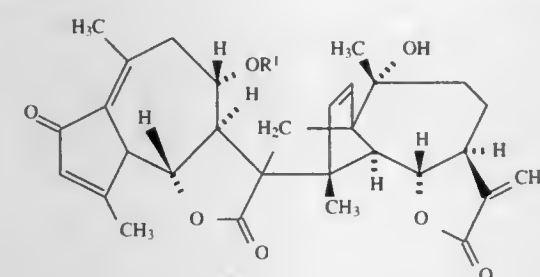
Claims priority, application Rep. of Korea, Aug. 6, 1996, 96-32714; Mar. 13, 1997, 97-8517

Int. Cl.⁶ C07D 307/94

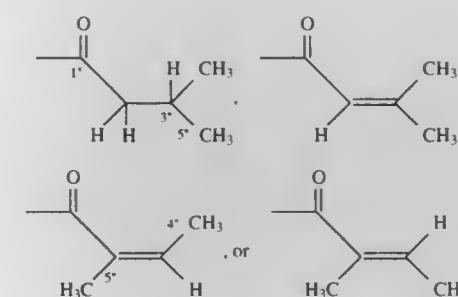
U.S. Cl. 549—265

3 Claims

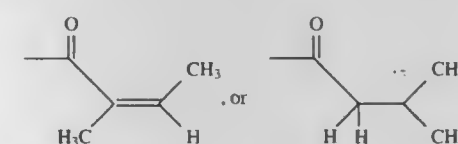
1. A substantially pure arteminolide compound of formula (I) or (II):



wherein R^1 is



and R^2 is



5,801,255

METHOD FOR PRODUCING LACTIDE AND APPARATUS USED THEREFOR

Hitomi Ohara, Kyoto, and Makoto Ogaito, Nagaokakyo, both of Japan, assignors to Shimadzu Corporation, Kyoto, Japan

Filed Aug. 1, 1996, Ser. No. 690,787

Int. Cl.⁶ C07D 319/12

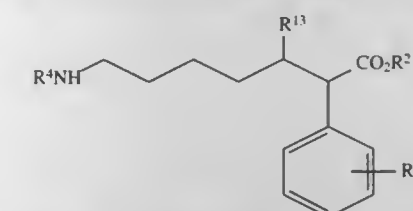
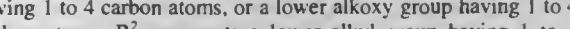
U.S. Cl. 549—274

11 Claims

1. A method for producing lactide, comprising the steps of:
(a) synthesizing lactide from lactic acid;
(b) gasifying the synthesized lactide and impurities formed in step (a);
(c) cooling the gaseous lactide and the gaseous impurities to solidify only the gaseous lactide and to separate the solidified lactide from the impurities;
(d) raising the temperature of the solidified lactide without melting the solidified lactide and to leak out the impurities from the solidified lactide; and
(e) returning the impurities in step (c) back to step (a).

R^1 and R^2 are identical or different and are each a linear, branched or cyclic C_1 – C_{30} -alkyl radical or C_6 – C_{10} -aryl radical which is unsubstituted or mono-substituted to penta-substituted by C_1 – C_3 -alkyl radicals, or R^1 and R^2 together with the trivalent P atom form a dibenzophosphoryl of the formula

UMI



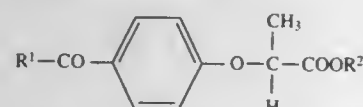
wherein R¹ represents a hydrogen atom, a lower alkyl group having 1 to 4 carbon atoms, or a lower alkoxy group having 1 to 4 carbon atoms; R² represents a lower alkyl group having 1 to 4

carbon atoms; R¹ represents a hydrogen atom or a protective group for an amino group; and R¹³ represents a keto group, a hydroxy group or a benzenesulfonyloxy group which may contain a substituted group.

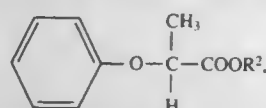
5,801,272
PREPARATION OF MIXTURES OF (R)- AND (S)-2-(4-ALKANOYLPHENOXY)- OR (R)- AND (S)-2-(4-AROYLPHENOXY)PROPIONIC ESTERS
Wolfgang Siegel; Hubert Sauter, both of Mannheim, and Gerhard Schaefer, Heidelberg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany
PCT No. PCT/EP94/01684, § 371 Date Aug. 11, 1995, § 102(e) Date Aug. 11, 1995, PCT Pub. No. WO94/27950, PCT Pub. Date Dec. 8, 1994

PCT Filed May 26, 1994, Ser. No. 522,291
Claims priority, application Germany, Jun. 1, 1993, 43 18 092.2

Int. Cl.⁶ C07C 69/76 **4 Claims**
U.S. Cl. 560—52
1. A process for preparing a mixture of (R)- and (S)-2-(4-alkanoylphenoxy)- or (R)- and (S)-2-(4-arylphenoxy)propionic esters of the general formula I



where R¹ is aryl, alkyl or aralkyl, and R² is alkyl, where the mixture contains an enantiomeric excess of at least 90 mol% of (R) or (S) isomer, which comprises reacting a mixture of (R) and (S) enantiomer of a 2-phenoxypropionic ester of the formula II



in which the appropriate (R) or (S) isomer is present in said excess, with a carboxylic acid derivative of the formula III



where X is hydroxyl, halogen, R¹COO or a sulfonyloxy radical, in the presence of a Friedel-Crafts catalyst.

5,801,273
METHODS AND DEVICES FOR CONTROLLING THE REACTION RATE OF A HYDROCARBON TO AN INTERMEDIATE OXIDATION PRODUCT BY PRESSURE DROP ADJUSTMENTS

Eustathios Vassiliou, Newark, Del.; Mark W. Dassel, Indianola, Wash.; David C. DeCoster, Buckley, Wash.; Ader M. Rostami, Bainbridge Island, Wash., and Sharon M. Aldrich, Poulsbo, Wash., assignors to Twenty-First Century Research Corporation, Newark, Del.

Filed May 21, 1997, Ser. No. 859,985

Int. Cl.⁶ C07C 51/16 **16 Claims**
U.S. Cl. 562—413
1. A method of controlling the oxidation of a hydrocarbon to an intermediate oxidation product in a reaction zone comprising the steps of:

- feeding a predetermined amount or rate of a gaseous oxidant and a predetermined amount or rate of hydrocarbon into the reaction zone, the reaction zone attaining a first pressure;
- measuring a rate of a pressure-drop during the reaction by conducting at least one step of
 - allowing the gaseous oxidant to cause a reaction in a manner that the reaction zone attains a second pressure, lower than the first pressure, at least partially resulting from the reaction;

(ii) allowing the gaseous oxidant to cause a reaction and measuring the pressure drop within a predetermined interval of time;

(c) adjusting the rate of the pressure-drop within a desired range by regulating a parameter in the reaction zone selected from a group consisting of temperature, feed of gaseous oxidant, composition of gaseous oxidant, pressure, feed of hydrocarbon, feed of solvent, feed of catalyst, feed of promoter, and a combination thereof;

(d) repeating steps (a) to (c);

(e) continuing repeating steps (a) to (c).

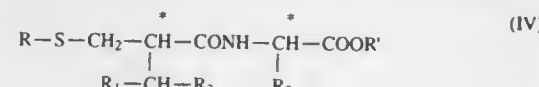
5,801,274
N-[MERCAPTOACYL(AMINO ACID OR PEPTIDE)] COMPOUNDS AND S-LIPOPHILIC ALIPHATIC CARBONYL DERIVATIVES THEREOF AS ANTIHYPERTENSIVES

Marie-Claude Fournie-Zaluski, Paris, and Bernard-Pierre Roques, Saint Maurice, both of France, assignors to Institut National de la Sante et de la Recherche Medicale, Paris, France

Division of Ser. No. 185,563, Jan. 24, 1994, Pat. No. 5,591,891. This application Jun. 7, 1995, Ser. No. 474,980

Int. Cl.⁶ C07C 321/00 **12 Claims**
U.S. Cl. 562—426

1. An S-lipophilic aliphatic carbonyl compound of the formula



wherein:

- R is lipophilic aliphatic carbonyl;
 - R₁ is alkyl;
 - R₂ is aryl or heteroaryl;
 - R₃ also may be alkylene which is linked to R₂;
 - R₃ is hydrogen, alkyl, aryl, alkoxy or aryloxy; and
 - R' is hydrogen, alkyl, aralkyl, acyl or aryl;
- or a pharmaceutically acceptable salt thereof.

5,801,275
METHOD FOR FORMING TWO TERMINAL CARBOXYLIC ACID GROUPS FROM AN OZONIDE

Kenneth R. McVay, Hamilton; Dennis G. Gaige, Fairfield, and William S. Kain, Cincinnati, all of Ohio, assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation of Ser. No. 376,173, Jan. 20, 1995, Pat. No. 5,543,565. This application Feb. 20, 1996, Ser. No. 602,555

Int. Cl.⁶ C07C 51/16 **20 Claims**
U.S. Cl. 562—523

2. In a process for the formation of two terminal carboxylic acid groups from a mixture comprising an ozonide having from about 8 to about 30 carbon atoms by contacting a mixture comprising at least one of the ozonide or oxidizable ozonide scission products with oxygen at a temperature of from about 50° C. to about 150° C. with an oxygen-containing gas, the improvement which comprises: contacting an agitated liquid mixture comprising at least one of the ozonide or the oxidizable ozonide scission products with an oxygen containing gas in the form of bubbles with a diameter of less than 25 microns.

5,801,276
PROCESS FOR THE PREPARATION OF HYDROXYPIVALIC ACID
Karl-Heinz Neumann, Sankt Augustin; Wlfrid Joentgen, Köln; Dieter Heitkamp, Burscheid, and Helmut Fiege, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 5, 1997, Ser. No. 910,442
Claims priority, application Germany, Aug. 16, 1996, 196 32 922.1

Int. Cl.⁶ C07C 51/235 **4 Claims**
U.S. Cl. 562—531
1. A process for the preparation of hydroxypivalic acid by oxidation of hydroxypivalaldehyde with hydrogen peroxide, which comprises metering an aqueous hydrogen peroxide solution into an aqueous reservoir of hydroxypivalaldehyde at 60° to 80° C. such that the concentration of hydrogen peroxide does not exceed 4% by weight of the total weight of the reaction mixture, and ending the addition of hydrogen peroxide when the concentration of hydroxypivalaldehyde falls below 1% by weight of the total weight of the reaction mixture.

5,801,277
SOLID CATALYST FOR ETHERIFICATION REACTION AND PRODUCTION PROCESS FOR ETHER COMPOUND USING THIS CATALYST

Yasutaka Sumida, Daito; Miaki Asakawa, Himeji; Yuichi Kita, Akashi; Mitsuhiro Kitajima, Suita; Yoshiyuki Takahashi, Kyoto, and Kazuo Sagi, Suita, all of Japan, assignors to Nippon Shokubai Co., Ltd., Japan

Filed May 19, 1997, Ser. No. 858,274
Claims priority, application Japan, May 23, 1996, 8-128335; Aug. 28, 1996, 8-226298; Nov. 11, 1996, 8-298997

Int. Cl.⁶ C07C 59/125 **14 Claims**
U.S. Cl. 562—583
1. A process for producing an ether compound, which comprises the step of carrying out a reaction between an organic compound having a hydroxyl group and an unsaturated carboxylic acid compound in the presence of at least one solid catalyst selected from the group consisting of a first and a second solid catalyst, thus forming the ether compound, wherein:

- the first solid catalyst includes a rare earth element; and
 - the second solid catalyst includes a metallic compound which includes a metal atom and a nonmetal atom bonded to the metal atom, wherein the metallic compound has molecular orbitals including:
 - at least one orbital (L) having an energy of E_L (eV) which satisfies E_{LUMO} ≤ E_L ≤ (E_{LUMO} + 0.05) wherein E_{LUMO} is an energy (eV) of the lowest unoccupied molecular orbital around the metal atom; and
 - at least one orbital (H) having an energy of E_H (eV) which satisfies (E_{HOMO} - 0.02) ≤ E_H ≤ E_{HOMO} wherein E_{HOMO} is an energy (eV) of the highest occupied molecular orbital around the nonmetal atom;
- wherein at least one of orbitals (L) and at least one of orbitals (H) are both orientational.

5,801,278
LOW WATER DIAMINE-DICARBOXYLIC ACID SALT PREPARATION

Ioannis V. Bletsos, Vienna, W. Va., and Constantine D. Papaspyrides, Athens, Greece, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 7, 1997, Ser. No. 813,737
Int. Cl.⁶ C07C 55/00; 209/00; C08G 69/26

U.S. Cl. 562—590 **11 Claims**
1. A process for preparing a diamine/dicarboxylic acid salt comprising contacting a diamine with a dicarboxylic acid to provide a reaction mixture in which said diamine and said dicarboxy-

lic acid react to form a diamine/dicarboxylic acid salt, said contacting being carried out in the presence of about 0.5% to about 25% water by weight based on the weight of the reaction mixture and while providing conditions in said reaction mixture such that said reaction mixture is in substantially solid particulate form.

5,801,279
METHOD FOR REMOVING IODINE COMPOUNDS CONTAINED IN ORGANIC MEDIUM

Hiroyuki Miura; Masanobu Kayajima, both of Hyogo, and Takashi Sato, Hiroshima, all of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 8, 1997, Ser. No. 835,486
Claims priority, application Japan, Apr. 26, 1996, 8-106520
Int. Cl.⁶ C07C 51/42; 53/08; 51/573

U.S. Cl. 562—608 **8 Claims**
1. In a process for removing iodine compounds from an organic medium in which the organic medium containing the iodine compounds is brought into contact with a cation exchange resin having at least 1% of its active sites converted to a silver or mercury form to remove the iodine compounds from the organic medium, the improvement comprising the steps of: initially contacting the cation exchange resin with the organic medium containing the iodine compounds at an initial temperature and incrementally increasing the temperature in an amount of from 2° to 25° C. during the contacting of the cation exchange resin with the organic medium containing the iodine compounds to remove the iodine compounds therefrom.

5,801,280
PROCESSES FOR PREPARING OPTICALLY ACTIVE ALCOHOLS AND OPTICALLY ACTIVE AMINES

Yukio Yoneyoshi, Shiga; Naoto Konya, Chiba; Gohfu Suzukamo, Osaka; Masashi Kamitani, Osaka, and Takashi Miyawaki, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 5, 1996, Ser. No. 628,154
Claims priority, application Japan, Apr. 7, 1995, 7-082919; Apr. 7, 1995, 7-082920; Apr. 7, 1995, 7-082958; Apr. 13, 1995, 7-088450; Jun. 22, 1995, 7-156071

Int. Cl.⁶ C07C 209/40 **9 Claims**
U.S. Cl. 564—415
1. A process for preparing an optically active amine of the formula: (III):



wherein R⁷ and R⁸ are different and represent an alkyl group which may have at least one substituent, an aryl group which may have at least one substituent or an aralkyl group which may have at least one substituent, or R⁷ and R⁸ form, together with the carbon atom bonded to the amino group, a ring or condensed ring which may have a hetero atom, and * is the same as defined above, comprising:

reacting an oxime derivative of the formula (IV):



wherein R⁷ and R⁸ are the same as defined above, and R⁹ is an alkyl group, an aralkyl group or an alkyl-substituted silyl group and an acid with a mixture which comprises (1) a boron-containing compound selected from the group consisting of (i) a borane compound which is obtained from an optically active β-aminoalcohol of the formula (I) and a boron hydride, or obtained from said optically active β-aminoalcohol (I), a metal borohydride

5,801,288

DIPHENYL SULFONE DERIVATIVE AND RECORDING MATERIAL PREPARED THEREFROM

Hiroshi Fujii, Chiba; Ryuichi Kaneko, Hoya, and Shinichi Satoh, Chiba, all of Japan, assignors to Nippon Soda Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01072, § 371 Date Nov. 26, 1996, § 102(e) Date Nov. 26, 1996, PCT Pub. No. WO95/33714, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 1, 1995, Ser. No. 737,911

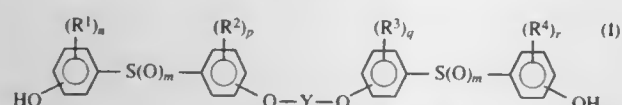
Claims priority, application Japan, Jun. 6, 1994, 6-147146; Apr. 7, 1995, 7-108058

Int. Cl.⁶ C07C 317/14

U.S. Cl. 568—33

2 Claims

1. A recording material comprising:
a coloring chromogen; and
at least one diphenyl sulfone derivative represented by formula (I)



wherein Y represents a linear or branched, saturated or unsaturated C₁-C₁₂ hydrocarbon group, a C₁-C₈ hydrocarbon group having an ether linkage, or a group represented by a formula



wherein R represents methylene or ethylene; R¹, R², R³ and R⁴ each independently represent lower alkyl or lower alkenyl; m represents 0 or an integer of 1 or 2; and n, p, q and r each independently represent 0 or an integer of 1 to 4, provided that when n, p, q and r are each 2 or above the substituents represented by R¹, R², R³ and R⁴ may each be different.

5,801,289

Patent Not Issued For This Number

5,801,290

PROCESS FOR MAKING POLY(THIOETHER ETHER)S FROM DIALLYL ETHER AND DITHIOLS

Gangfeng Cai, and Robert G. Gastinger, both of West Chester, Pa., assignors to ARCO Chemical Technology, L.P., Greenville, Del.

Filed Jan. 11, 1994, Ser. No. 179,793

Int. Cl.⁶ C07C 213/08

U.S. Cl. 568—46

14 Claims

1. A process for making a poly(thioether ether), said process comprising reacting diallyl ether with an aliphatic C₂-C₁₀ dithiol in a bulk polymerization process under free-radical conditions to produce a poly(thioether ether).

5,801,291

PROCESS FOR THE PREPARATION OF ALDEHYDES BY MEANS OF A CATALYST SYSTEM COMPRISING RHODIUM AND SUBSTITUTED DIPHENYLDIPHOSPHINES

Helmut Bahrmann, Hamminkeln; Hans-Jerg Kleiner, Kronberg, and Dieter Regnat, Eppstein, all of Germany, assignors to Hoechst AG, Germany

Filed Mar. 7, 1997, Ser. No. 813,877

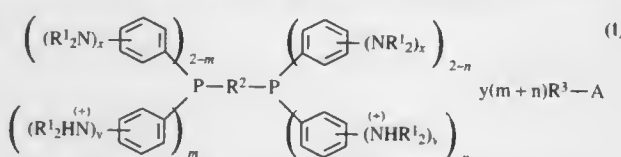
Claims priority, application Germany, Mar. 11, 1996, 196 09 337.6

Int. Cl.⁶ C07C 45/50

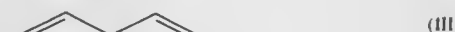
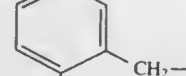
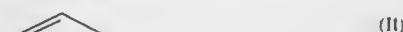
U.S. Cl. 568—454

20 Claims

1. A process for the preparation of an aldehyde, which comprises reacting an olefinic compound having 2 to 20 carbon atoms with carbon monoxide and hydrogen, in the presence or absence of a solvent, in the presence of a catalyst comprising rhodium and a compound or a mixture of compounds of the formula (I)



in which R¹ is H or an alkyl radical having 1 to 12 carbon atoms, R² is a straight-chain alkylene radical having 1 to 8 carbon atoms, an oxygen-containing alkylene radical having 2 to 4 carbon atoms, a radical of the formula (II) or (III)



or a cycloalkylene radical having 3 to 10 carbon atoms, R³ is an alkyl radical having 1 to 25 carbon atoms or an aryl radical having 6 to 10 carbon atoms, A is a radical —COO⁻ or —SO₃⁻ and x=0, y=1, m=1 and n=1, or x=1, y=1, m=(1 or 2) and n=(1 or 2), or, if R² is a radical of the formula (II) or (III), x=1, y=0, m=(0 or 1) and n=(0 or 1), at a temperature from 50° to 190° C. and under a pressure from 0.1 to 45 Mpa, and separating the reaction product off from the catalyst.

5,801,292

ALDEHYDE PROCESS

Thomas J. Kwok, Flanders, N.J., and Windell C. Watkins, Longview, Tex., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Mar. 28, 1996, Ser. No. 623,072

Int. Cl.⁶ C07C 45/45

U.S. Cl. 568—463

32 Claims

1. A process for the condensation of an aldehyde comprising contacting aldehyde containing an α hydrogen atom and having the formula R₁CHO, wherein R₁ is selected from alkyl having one to twelve carbon atoms, and aralkyl having one to fourteen carbon atoms, with a catalytic amount of hydrated MgO under reaction conditions to form reaction product mixture comprising an aldol of

said aldehyde, the unsaturated aldehyde derived by dehydration of said aldol, or mixtures thereof.

5,801,293

METHOD OF ISOMERIZING OLEFINS

Stephen J. Miller, San Francisco, Calif., assignor to Chevron U.S.A. Inc., San Francisco, Calif.

Filed Jan. 10, 1997, Ser. No. 780,197

Int. Cl.⁶ C07C 41/06

U.S. Cl. 568—697

18 Claims

1. A method of making TAME, the method comprising:
a. Passing an FCC zone effluent containing n-C₅ olefins and iso-C₅ olefins to an etherification-distillation zone, wherein at least a portion of said iso-C₅ olefins are converted to TAME;
b. Recovering from said etherification-distillation zone an etherification-distillation zone raffinate containing n-C₅ olefins;
c. Mixing at least a portion of said etherification-distillation zone raffinate containing n-C₅ olefins with an FCC feedstream, thereby forming a mixture and passing said mixture to an FCC zone containing a ZSM-5 zeolite having a SiO₂/Al₂O₃ mole ratio greater than about 500; and

d. Contacting in said FCC zone, said mixture and said ZSM-5 zeolite having a SiO₂/Al₂O₃ mole ratio greater than about 500, under FCC conditions comprising a pressure from about 0 atm. to about 6 atm. and a temperature from about 425° C. to about 650° C., wherein at least a portion of said n-C₅ olefins in said mixture are converted to iso-C₅ olefins.

5,801,294

PROCESS FOR THE PURIFICATION OF SATURATED HYDROFLUOROCARBONS

Jean-Marc Sage, Oullins, and Eric Lacroix, Amberieux D'Azergues, both of France, assignors to Elf Atochem S.A., France

Filed Jun. 5, 1997, Ser. No. 869,948

Claims priority, application France, Jun. 6, 1996, 96 06992 Int. Cl.⁶ C07C 17/20

U.S. Cl. 570—177

17 Claims

1. Process for the purification of a hydrofluorocarbon (HFC) containing at least one olefinic impurity, comprising a stage which consists in bringing the impure HFC into contact with oxygen, in the absence of catalyst or of active charcoal.

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5,801,295

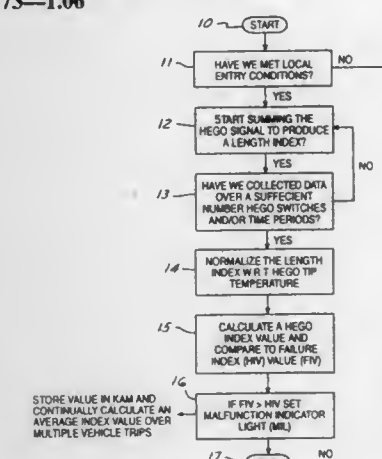
ON-BOARD DIAGNOSTIC TEST OF OXYGEN SENSOR
Christopher Kirk Davey, Novi; Anand J. Shah, Canton;
Donald Fenwick Dickison, Sterling Heights; David R. Nader,
Farmington Hills; Robert Joseph Jerger, Livonia, and
Michael Igor Kluzner, Oak Park, all of Mich., assignors to
Ford Global Technologies, Inc., Dearborn, Mich.

Filed May 27, 1997, Ser. No. 863,221

Int. Cl. G01M 19/00

U.S. Cl. 73—1.06

9 Claims



1. A method for determining performance of a heated exhaust gas oxygen (HEGO) sensor, including the steps of:
monitoring nonintrusively a HEGO output voltage trace with respect to time;
summing the HEGO output voltage trace over a specified completion criteria;
establishing a predetermined threshold completion criteria for the sum of the HEGO voltage; and
comparing the summed HEGO output voltage against said threshold completion criteria to determine if the HEGO meets predetermined performance requirement specifications.

5,801,296

PROCESS FOR AUTOMATED MEASUREMENT OF
AMMONIA CONTENT IN A GAS MIXTURE

Gary D. Keil, Elmwood; Ronald G. Morgan; Sheryl A. Tipton,
both of East Peoria, and Wayne A. Supak, Washington, all of
Ill., assignors to Caterpillar Inc., Peoria, Ill.

Division of Ser. No. 799,754, Feb. 11, 1997. This application

Jul. 25, 1997, Ser. No. 900,684

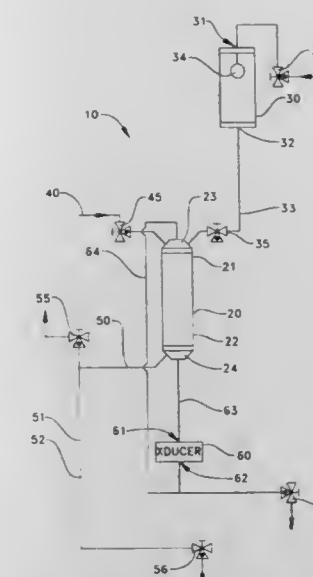
Int. Cl. G01N 33/18; 7/00

U.S. Cl. 73—19.1

17 Claims

1. A process for automated measurement of ammonia content in a gas mixture containing water-soluble ammonia gas and one or more water-insoluble gases, comprising the steps of:

- (a) providing a water reservoir adapted for (i) receiving water therein while maintaining a predetermined water level in said reservoir, and (ii) supplying water therefrom through a first solenoid valve;
(b) providing a measurement vessel adapted for (i) receiving said water from said reservoir through said first solenoid valve and draining said water from said vessel through a second solenoid valve, (ii) receiving said gas mixture at a predetermined pressure and temperature through a third solenoid valve and purging said gas mixture from said vessel through a fourth solenoid valve, (iii) maintaining said gas in said vessel and receiving said water in said vessel, said water being of sufficient amount to dissolve the ammonia gas contained in said gas mixture into said water, and (iv) allowing a differential pressure between said gas mixture and said water containing dissolved ammonia, to be measured;
(c) providing a differential pressure transducer having a high pressure port and a low pressure port, said pressure transducer being adapted for (i) sensing the pressure exerted by said water containing dissolved ammonia, at said high pressure



- port, (ii) sensing the pressure exerted by said gas mixture, at said low pressure port, and (iii) providing a voltage signal in response to a differential pressure between the respective pressures exerted by said water and said gas;
(d) providing a programmable logic controller connected electrically to each of (i) said first, second, third and fourth solenoid valves for sequentially operating said solenoid valves, and (ii) said pressure differential transducer; and
(e) providing recording means connected electrically to said differential pressure transducer for collecting said voltage signal from said transducer and converting said voltage signal to an ammonia concentration value.

5,801,297

METHODS AND DEVICES FOR THE DETECTION OF
ODOROUS SUBSTANCES AND APPLICATIONS

Jean Christophe Mifsud, Saint-Jean, and Laurent Moy, Toulouse, both of France, assignors to Alpha M.O.S., Toulouse, France

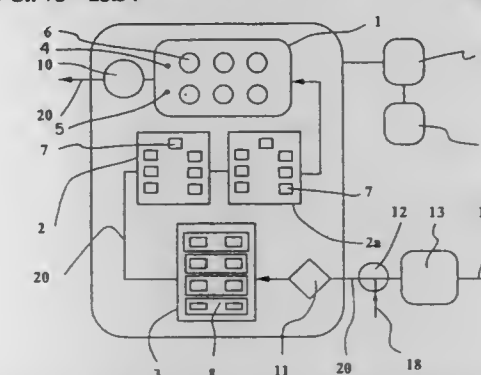
PCT No. PCT/FR94/01085, § 371 Date Mar. 15, 1996, § 102(e)
Date Mar. 15, 1996, PCT Pub. No. WO95/08113, PCT Pub.
Date Mar. 23, 1995

PCT Filed Sep. 16, 1994, Ser. No. 615,308

Claims priority, application France, Sep. 17, 1993, 93 11291
Int. Cl. G01N 33/00

U.S. Cl. 73—23.34

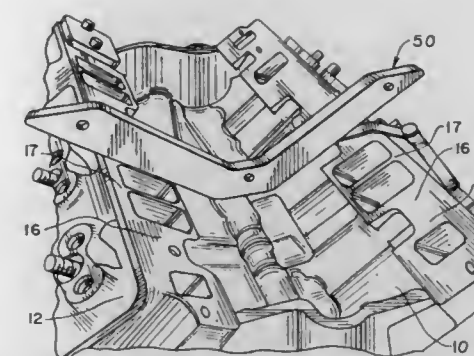
20 Claims



1. A process for analyzing odorous or volatile substances using an apparatus including:
a first enclosure having a first detection means, said first detection means comprising a plurality of gas sensors using a same first technology selected from semiconductor gas sensors technology, or conductive polymer gas sensors technology, or acoustic surface wave gas sensors technology,
a second enclosure having a second detection means, said second detection means comprising a plurality of gas sensors

UMI

1. A gauge for determining correctness of angular orientations of a pair of elongated heads secured to an elongated V-block automobile engine in preparation for securing of an intake manifold to



a) forming a plurality of radial cuts in at least one portion of a radially external surface of said tread band, a first plurality of portions of said at least one portion lying between pairs of adjacent said cuts, said tread band comprising an internal band portion which directly underlies said at least one portion to be radially more internal relative to the at least one portion, said cuts of said at least one portion extending at most through a depth of said at least one portion, said internal band portion comprising a second plurality of portions which are not cut, wherein each portion of said second plurality of portions underlies a respective one of each of said first plu-

rality of portions, the depth, width and mutual distance between said cuts being such that each portion of said first plurality of portions is immobile relative to the respective underlying portion of said second plurality of portions while the tire is being rotated;

- b) rotating the tire at a predetermined speed and with a predetermined load in contact with a friction surface, said cuts not performing any function as regards road holding of the tire;
- c) stopping the rotating of the tire;
- d) verifying wearing of said at least one tread band portion through observation of disappearing of said radial cuts after the tire has stopped.

5,801,305

METHOD AND APPARATUS FOR DETECTING A TIRE INFLATION PRESSURE

Hiroaki Kawai, Anjo, and Katsu Hattori, Nagoya, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

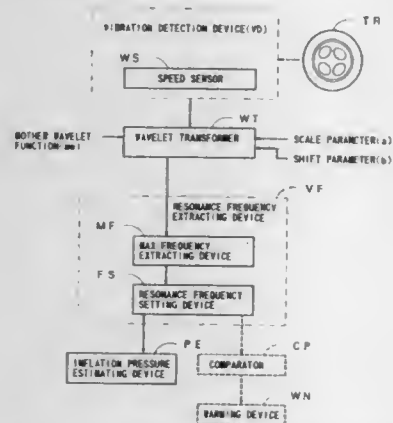
Filed Oct. 28, 1996, Ser. No. 738,809

Claims priority, application Japan, Oct. 31, 1995, 7-308183

Int. Cl.⁶ B60C 23/00; 23/02

U.S. Cl. 73—146.2

8 Claims



1. A method for detecting a tire inflation pressure of a vehicle tire, comprising the steps of:

- producing an oscillating electric signal having a vibration frequency component of said vehicle tire;
- transforming the oscillating electric signal by a wavelet function into a wavelet coefficient, said wavelet function being provided on the basis of a mother wavelet function localized in time, scaled in response to a scale parameter, and shifted in response to a shift parameter indicative of a time localization;
- extracting a resonance frequency from the vibration frequency component of said vehicle tire on the basis of the wavelet coefficient, the step of extracting the resonance frequency including extracting a maximum frequency from the vibration frequency components of said vehicle tire obtained every first predetermined time period on the basis of the wavelet coefficient, and selecting a most frequent value of the maximum frequencies extracted in a second predetermined time period thereby to set the most frequent value for the resonance frequency; and
- estimating the tire inflation pressure on the basis of the resonance frequency.

5,801,306

METHOD OF PROCESSING PRESSURE MEASUREMENTS IN A TIRE MONITORING SYSTEM

Jean-François Chamussy, Blois; Jean-Pierre Francois, Romagnat, and André Meunier, Lempdes, all of France, assignors to Compagnie Générale Des Etablissements Michelin - Michelin & CIE, Clermont-Ferrand Cedex, France

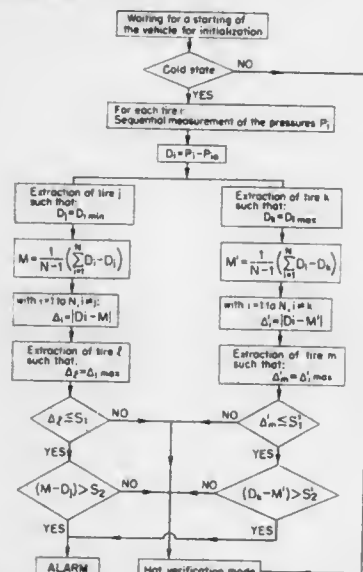
Filed Mar. 19, 1997, Ser. No. 822,572

Claims priority, application France, Mar. 20, 1996, 96 03568; Mar. 20, 1996, 96 03708

Int. Cl.⁶ B60C 23/02

U.S. Cl. 73—146.2

5 Claims



1. A method of monitoring signals in a system for the monitoring of the tires of a vehicle, said system delivering for each tire at least one measurement of the inflation pressure of said tire, in which, after having verified the cold state of the tires:

- for each tire, the inflation pressure is measured and the deviation between the measured inflation pressure and the nominal pressure is calculated;
- the tire of the vehicle, the deviation of which from the algebraic value is the lowest, is identified and this tire is called "the most under-inflated tire";
- for all the tires of the vehicle, with the exception of the most under-inflated tire, a characteristic value of the dispersion of said deviations between the measured inflation pressures and the nominal pressures is calculated and this characteristic value is compared with a first given threshold;
- if the characteristic value of the dispersion of said deviations is less than the first threshold, then the difference between said deviation between the measured inflation pressure and the nominal pressure of said tire and the average of said deviations of the other tires is calculated for the most under-inflated tire and said difference is compared with a second given threshold;
- if said difference is greater than said second threshold, an alarm is sounded.

5,801,307

DIFFERENTIAL WINDSHIELD CAPACITIVE MOISTURE SENSORS

Yishay Netzer, Yuvalim, Doar Na Misgav, Israel

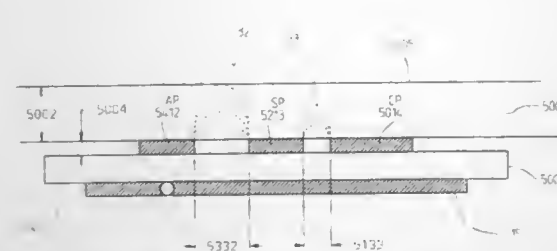
Continuation-in-part of Ser. No. 501,684, Jul. 12, 1995, Pat. No. 5,682,788. This application Jan. 10, 1997, Ser. No. 782,194

Int. Cl.⁶ G01N 1/00

U.S. Cl. 73—170.17

12 Claims

11. A device for detecting presence of ice on a second surface of a dielectric having first and second surfaces, comprising
- (a) a fringing-field capacitive moisture sensor including



- (1) first and second fringing-field capacitances formed between first and second pairs of capacitive electrode plates, respectively, said pairs of capacitive electrode plates having first and second pairs of values of A, effective capacitive plate area, and d, effective capacitive separation distance between the two plates of each said pair of capacitive electrode plates, respectively, said fringing-field capacitances having first and second effective ratios of A/d, respectively, said first and second effective ratios of A/d of said first and second fringing-field capacitances being substantially equal, whereby said first and second fringing-field capacitances having substantially equal values of capacitance; and,

- (2) a dielectric having a dielectric thickness and first and second surfaces,

said first and second pairs of capacitive electrode plates in contact with said first surface of said dielectric, said first and second pairs of capacitive electrode plates having first and second ratios of effective capacitive separation distance, d, to dielectric thickness, respectively;

said first ratio of effective separation distance, d, to dielectric thickness sufficiently large that the fringing field of said first fringing-field capacitor extends beyond said second surface of said dielectric,

said second ratio of effective separation distance to dielectric thickness sufficiently small that the fringing field of said second fringing-field capacitor is substantially totally contained within said dielectric,

whereby, the fringing-field differential capacitive moisture sensor having substantially equal dry first and second fringing-field capacitances, resulting in a substantially zero dry-condition sensor output signal, thereby providing insensitivity of a resulting sensor wet-condition output signal to variations in said dielectric versus temperature and stress;

said fringing-field differential capacitive moisture sensor for excitation by at least two excitation frequencies,

said fringing-field differential capacitive moisture sensor for providing a moisture output signal at each said excitation frequency;

- (b) at least two oscillators for providing respectively at least two said excitation frequencies for excitation of said moisture sensor;

- (c) at least two mixers for synchronously detecting each said moisture output signal at each said excitation frequency, each said mixer for providing a DC output corresponding to each said moisture output signal at each said excitation frequency; and,

- (d) a processor for determining whether ice is present, based on said DC outputs corresponding to each said moisture output signal at each said excitation frequency.

5,801,308

MEASURING APPARATUS FOR MEASURING AN INJECTED QUANTITY OF LIQUID

Hideaki Hara, Chiryu, Japan, assignor to Denso Corporation, Kariya, Japan

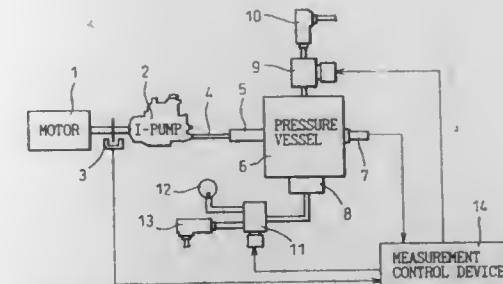
Filed Sep. 4, 1997, Ser. No. 923,270

Int. Cl.⁶ G01F 3/24

U.S. Cl. 73—223

10 Claims

1. A measuring apparatus for measuring an injected quantity of liquid, comprising:
- an injection pump for injecting liquid every one injection period;



- a closed pressure vessel for temporarily storing the liquid injected from the injection pump;
- a detection means for detecting change of pressure of the liquid within the pressure vessel;
- a volume-variable device, having a predetermined volume, coupled to the pressure vessel; and
- a measurement control means for measuring the injected quantity of the liquid at one injection period based on result of detection by the detection means, by calculating the injected quantity at injection of the liquid based on a ratio of the change of pressure within the pressure vessel at injection of the liquid and the change of the predetermined volume before injection of the liquid.

5,801,309

MICROACCELEROMETER EMPLOYING RESONANT CIRCUIT DETECTION OF SEISMIC MASS DISPLACEMENT

William N. Carr, Wayne, N.J., and Dong-Il Cho, Seoul, Rep. of Korea, assignors to New Jersey Institute of Technology, Newark, and Princeton University, Princeton, both of N.J.

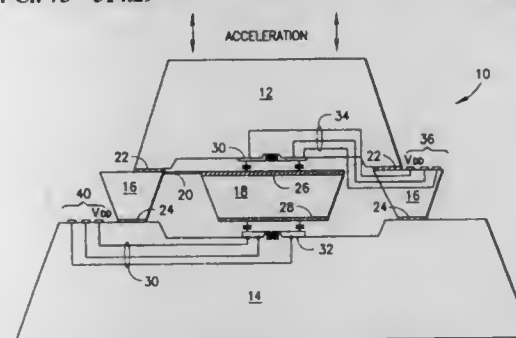
Continuation of Ser. No. 210,696, Mar. 18, 1994, abandoned.

This application Nov. 30, 1995, Ser. No. 565,325

Int. Cl.⁶ G01P 15/10

U.S. Cl. 73—514.29

4 Claims



1. An accelerometer comprising:
- a seismic mass having upper and lower surfaces;
- a support wafer positioned below said lower surface of said seismic mass and having an upper surface separated from and opposed to the lower surface of said seismic mass;
- a cover wafer positioned above said upper surface of said seismic mass and having a lower surface separated from and opposed to the upper surface of said seismic mass;
- beam means for flexibly mounting said seismic mass between said support wafer and said cover wafer;
- a first oscillator having a resonant circuit, including inductance and first capacitance, said first capacitance comprising a dielectric positioned between a conductive plate arrangement covering a substantial area of said upper surface of said seismic mass and a conductive plate arrangement on said lower surface of said cover wafer;
- a second oscillator having a resonant circuit including inductance and second capacitance, said second capacitance comprising a dielectric positioned between a conductive plate arrangement covering a substantial area of said lower surface

of said seismic mass and a conductive plate arrangement on said upper surface of said support wafer; and frequency difference means coupled to said first oscillator and said second oscillator for providing an output indicative of a difference in oscillation frequencies of said first and second oscillators when said accelerometer is subjected to an acceleration event that positionally displaces said seismic mass, said output of the difference in oscillation frequencies being a measure of said acceleration event.

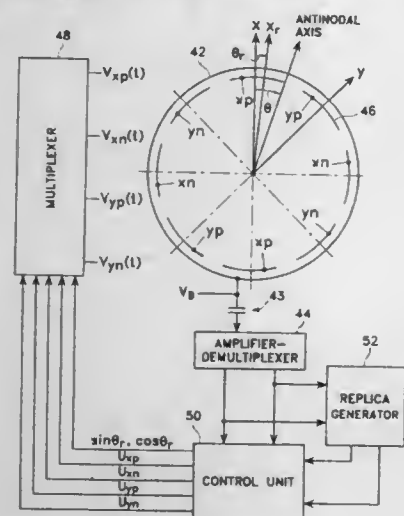
5,801,310 VIBRATORY ROTATION SENSOR WITH WHOLE-ANGLE TRACKING

Anthony Matthews, Santa Barbara; Guy Thomas Varty, Woodland Hills; Chung-Ming Li, and David Dexter Lynch, both of Santa Barbara, all of Calif., assignors to Litton Systems, Inc., Woodland Hills, Calif.

Filed Feb. 18, 1997, Ser. No. 802,009
Int. Cl. G01C 19/00

U.S. Cl. 73—504.13

44 Claims



1. A vibratory rotation sensor comprising:
a resonator, the resonator being a rotationally-symmetric thin-walled object, the resonator being capable of vibrating in at least one of a plurality of standing-wave modes, the orientation of a standing wave with respect to a reference point on the resonator being specified by an orientation angle, one or more electrodes being attached to a surface of the resonator, the one or more electrodes being electrically connected to a single output port;
sensing electronics having an input port which is connected to the output port of the resonator, the sensing electronics obtaining from a resonator signal available at the output port of the resonator a measure of the difference between the orientation angle of a standing wave and a tracking angle, the tracking angle being with respect to the reference point on the resonator.

5,801,311 ROTARY DRIVE ACCELERATOR

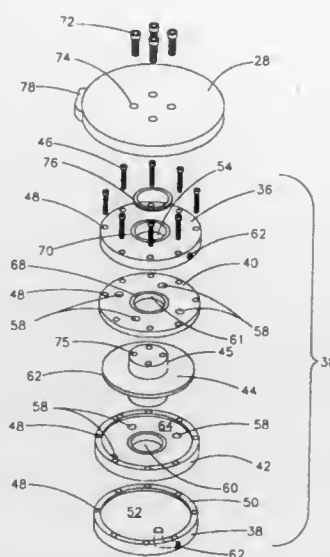
David Lee Duell, Scotts Valley, and Eric Alan Smith, Santa Cruz, both of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Apr. 30, 1997, Ser. No. 846,278
Int. Cl. G01P 15/00

U.S. Cl. 73—514.37

21 Claims

1. A rotary accelerator mounted to a support platform, the accelerator including a rotating table and a means for generating and delivering a shock to the rotating table, the rotary accelerator comprising:



a bearing assembly to which the rotating table is affixed, the bearing assembly including:
a first plate stationarily mounted with respect to the support platform, said first plate including a central aperture therethrough;
a second plate stationarily mounted to the first plate, said second plate including a central depression formed at least partially therethrough, said first and second plates together defining a space therebetween;
a bearing plate including a disk portion having a first surface and a second surface opposite said first surface, the bearing plate further including a first hub extending away from said first surface of said disk portion, and a second hub extending away from said second surface of said disk portion, said disk portion fitting within said space defined between said first and second plates, said first hub fitting within said central aperture in said first plate, and said second hub fitting within said depression in said second plate;
a hydrostatic bearing provided within said space between said first surface of said disk portion and a juxtaposed surface of said first plate, and between said second surface and a juxtaposed surface of said second plate;
a first annular bearing provided within said central aperture between said first hub and a portion of said first plate defining said central aperture; and
a second annular bearing provided within said depression between said second hub and a portion of said second plate defining said depression;
wherein said hydrostatic bearing, and said first and second annular bearings support said bearing plate for substantially frictionless rotation with respect to said first and second plates, and prevent radial and axial translation of said bearing plate with respect to said first and second plates.

5,801,312 METHOD AND SYSTEM FOR LASER ULTRASONIC IMAGING OF AN OBJECT

Peter William Lorraine, Niskayuna; Ralph Allen Hewes, Burnt Hills, and Phillip Randall Staver, Hagaman, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

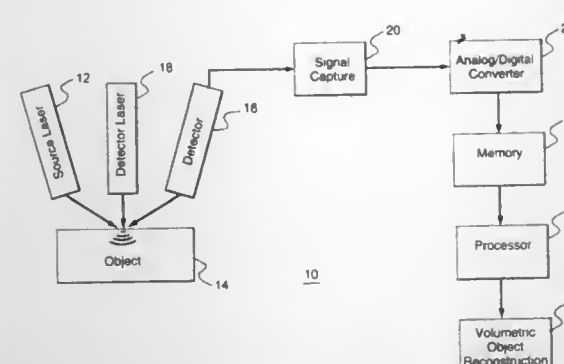
Filed Apr. 1, 1996, Ser. No. 627,670
Int. Cl. G01N 29/06; 29/10; 29/22

U.S. Cl. 73—602

12 Claims

1. A method for laser ultrasonic imaging an object, comprising the steps of:

scanning a surface of the object with a source laser emitting a laser beam at a plurality of scanning positions along the object surface, the emitted laser beam generating ultrasonic sound waves at the plurality of scanning positions and transmitting the ultrasonic sound waves within the object;



scanning the surface of the object with a detector laser emitting a laser beam onto the object surface at the plurality of scanning positions;
detecting surface displacement produced by ultrasonic sound waves reflected from within the object with a detector at each scanning position, the detected displacement at each scanning position containing signals representing a laser ultrasound waveform data set corresponding to a three-dimensional volumetric region in the object;
filtering each of the laser ultrasound waveform data sets to restore a bipolar signal suitable for use in a synthetic aperture focusing technique; and
processing the laser ultrasound waveform data sets at each scanning position with a synthetic aperture focusing technique wherein the laser ultrasound waveform data sets are coherently summed along a time of flight locus curve forming an image of the three-dimensional volumetric region in the object.

5,801,313 CAPACITIVE SENSOR

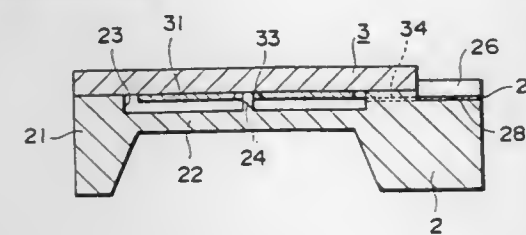
Kenji Horibata, Wako; Toshihiko Omi, and Fumihiko Sato, both of Tsukuba, all of Japan, assignors to Omron Corporation, Kyoto, Japan

Filed May 24, 1996, Ser. No. 653,301

Claims priority, application Japan, May 26, 1995, 7-151148
Int. Cl. G01L 9/12; G01P 15/125

U.S. Cl. 73—718

11 Claims



1. A capacitive sensor for sensing pressure, comprising:
a first substrate having a thin portion capable of being displaced by external force and wherein said thin portion serves as a movable electrode;
a second substrate having a fixed electrode provided on a position facing said movable electrode, a gap being formed between said movable electrode and said fixed electrode; and
a fixing member connected between the first and second substrates for fixing the center of said thin portion so as to prevent the center of said thin portion from being displaced.

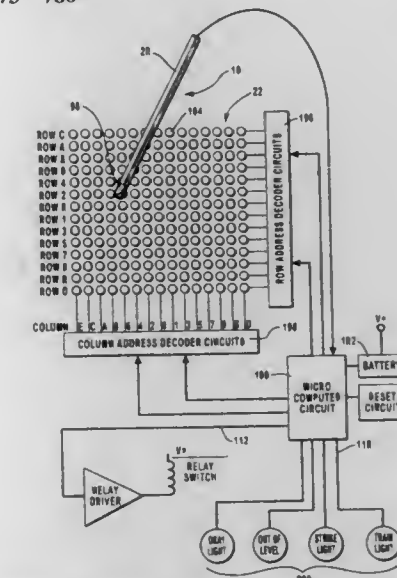
5,801,314 BRIDGE MOVEMENT DETECTOR

John R. Irwin, Riverdale, Utah, and Shane F. Stoddard, 3920 S. 1915 West, Roy, Utah 84067, assignors to Shane F. Stoddard, Roy, Utah

Filed Apr. 11, 1994, Ser. No. 226,277
Int. Cl. G01M 5/00

U.S. Cl. 73—786

11 Claims



1. A damage detection system for detecting damage to static structures from impacts thereto, said damage system comprising:
an impact sensor assembly for mounting to a portion of said static structure, the impact sensor assembly including a pendulum mounted for movement therein and means for sensing the location of the pendulum in response to said impact to said static structure, the impact sensor including:
a pendulum housing having the pendulum mounted therein, a mounting member having the pendulum housing mounted thereon;
a leveling assembly for leveling the pendulum housing with respect to said static structure;
a gimbal mounting contained within the pendulum housing, the gimbal mounting having a portion thereof secured to the pendulum housing and having one end of the pendulum connected to another portion of the gimbal mounting to allow the pendulum to swing within the pendulum housing along two axis of motion; and
an impact analyzer system for detecting the motion of the pendulum to determine if the motion exceeds a predetermined condition of pendulum motion beyond acceptable limits of predetermined conditions of pendulum motion, the impact analyzer system including a micro-computer circuit, power means providing power for said micro-power circuit, visual indication means for indicating types of pendulum motion and relay circuit means to transmit a signal indicative of the type and magnitude of the pendulum motion.

5,801,315 DEVELOPER FLOW CHECK SYSTEM AND METHOD THEREOF

Geun-bok Park; Kil-yong Kim; Jae-seung Go, and Dong-heyun Kim, all of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

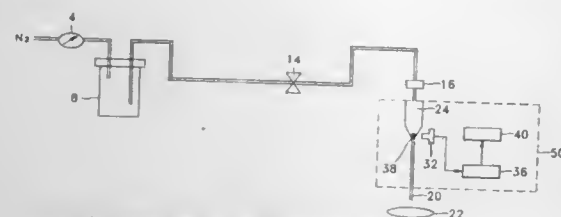
Filed Nov. 22, 1996, Ser. No. 755,155
Claims priority, application Rep. of Korea, Nov. 23, 1995, 1995 43199

Int. Cl. G01F 1/22

U.S. Cl. 73—861.57

11 Claims

1. A developer flow check system, comprising:
a pressure regulator;



a reservoir connected to said pressure regulator;
a valve connected to said reservoir;
a developer nozzle connected to said valve;
means for timing developer flow through a predetermined part of said developer flow check system located downstream from said developer nozzle;
means for calculating a quantity of developer actually delivered based upon a time period of developer flow between a beginning of developer movement through said predetermined part as indicated by a first position of a display in said predetermined part, and a complete drainage of developer from said predetermined part as indicated by a second position of said display.

5,801,316

Patent Not Issued For This Number

5,801,317

OXYGEN/CARBON DIOXIDE SENSOR AND CONTROLLER FOR A REFRIGERATED CONTROLLED ATMOSPHERE SHIPPING CONTAINER

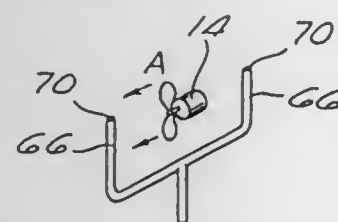
Max D. Liston, 76 Seton Rd., Irvine, Calif. 92715; Todd I. Harrison, 2901 W. First St., Space 28, Santa Ana, Calif. 92703, and Paul K. Hsei, 20491 Greystone La., Huntington Beach, Calif. 92646

Continuation of Ser. No. 603,863, Feb. 22, 1996, abandoned, which is a continuation of Ser. No. 374,876, Jan. 19, 1995, Pat. No. 5,623,105, which is a continuation of Ser. No. 113,428, Aug. 26, 1993, abandoned, which is a division of Ser. No. 964,937, Oct. 21, 1992, abandoned. This application Apr. 28, 1997, Ser. No. 840,331

Int. Cl.⁶ G05B 15/00; A61L 9/00

U.S. Cl. 73—863.81

8 Claims



I. A method for maintaining controlled concentrations of oxygen and carbon-dioxide gas within a refrigerated shipping container, said method comprising the steps of:

- measuring the carbon-dioxide and oxygen concentrations of gas within the refrigerated shipping container by utilizing a circulation fan of the refrigerated shipping container to effect the flow of gas, so as to obtain a sample thereof;
- varying the concentrations of carbon-dioxide and oxygen within the shipping container in response to such measuring, so as to maintain controlled concentrations thereof; and
- ceasing measurement of the carbon-dioxide and oxygen concentrations of gas within the refrigerated shipping container when the air circulation fan of the refrigerated shipping container is not operating.

METHOD OF MANUFACTURING COPPER POWDER HAVING EXCELLENT DISPERSIBILITY AND SMALL PARTICLE DIAMETER DEVIATION

Hiroji Tani, Nagaokakyo, and Naoaki Ogata, Moriyama, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Mar. 21, 1997, Ser. No. 822,293

Claims priority, application Japan, Mar. 22, 1996, 8-065980 Int. Cl.⁶ B22F 9/24

U.S. Cl. 75—373

16 Claims

I. A method for manufacturing copper powder, comprising the step of combining a reducing agent with a solution containing a copper compound, ammonia and a phosphate dispersion agent to precipitate metal copper powder.

5,801,319

STRINGS FOR MUSICAL INSTRUMENTS

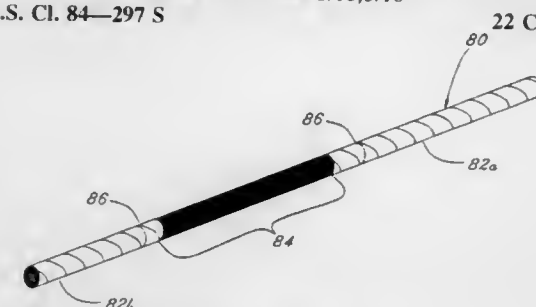
Charles G. Hebestreit, Flagstaff; David J. Myers, Camp Verde; Joseph A. Huppenthal, and Glenn T. Bethke, both of Flagstaff, all of Ariz., assignors to W.L. Gore & Associates, Inc., Newark, Del.

Continuation-in-part of Ser. No. 561,774, Nov. 22, 1995. This application Apr. 2, 1996, Ser. No. 630,416

Int. Cl.⁶ G10D 3/00; 3/10

U.S. Cl. 84—297 S

22 Claims



I. A musical instrument string that comprises:
a length of main string having variable mass per unit length along its length;
a cover over a portion of the main string;
wherein combination of the main string and the cover provides a musical instrument string with approximately equal mass per unit length along the length of the string.

5,801,320

FOLDABLE PERCUSSION SYNTHESIZER UNIT

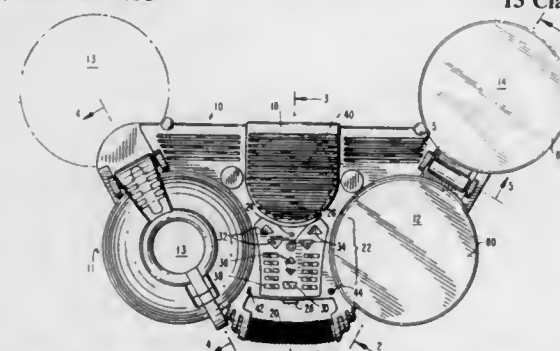
Marc H. Segal, New York; Gary Strauss, Mamaroneck, and Maxwell Meyer Segal, New York, all of N.Y., assignors to M. H. Segal Limited Partnership, Great Barrington, Mass.

Filed Jan. 7, 1997, Ser. No. 779,701

Int. Cl.⁶ G10D 13/02; G10H 1/057; 3/02

U.S. Cl. 84—738

13 Claims



I. An electronic percussion synthesizer assembly, foldable so as to be compact in size and portable, said assembly comprising:

5,801,322

EXERCISE MINE AND PROGRAMMING AND SIMULATION DEVICE THEREFOR

Loïc Laine, Saint Doulchard, and Philippe Arnaud, Orléans, both of France, assignors to Giat Industries, Versailles, France

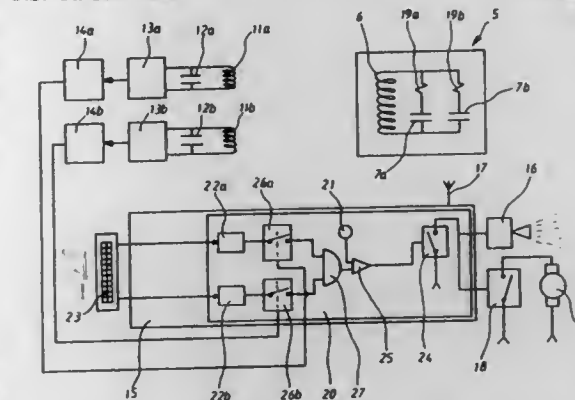
PCT No. PCT/FR96/00165, § 371 Date Sep. 9, 1996, § 102(e) Date Sep. 9, 1996, PCT Pub. No. WO96/24818, PCT Pub. Date Aug. 15, 1996

PCT Filed Jan. 31, 1996, Ser. No. 714,052

Claims priority, application France, Feb. 10, 1995, 95 01580 Int. Cl.⁶ G01V 3/165; F42B 8/28

U.S. Cl. 102—401

23 Claims



23. A device to simulate a demining operation, comprising:
a remote signal generator for emitting a signal at a predetermined frequency;
a passive oscillating circuit carried by an exercise mine, said passive oscillating circuit having at least one fuse; and
wherein said remote signal emitted by said signal generator is of a strength to melt at least one of the at least one fuse to render the passive oscillating circuit inactive.

5,801,321

LOW COST ENVIRONMENTALLY FRIENDLY FLARE

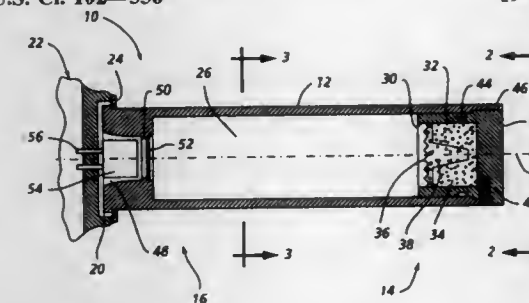
Donald E. LaGrange, Washington; Dennis D. Deckard, Bedford, and Douglas A. Schulte, Bloomfield, all of Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 24, 1997, Ser. No. 880,291

Int. Cl.⁶ F92B 4/26

U.S. Cl. 102—336

19 Claims



I. A flare, comprising
a polymeric case having fore and aft portions,
the aft portion of the case being configured for affixation to a launcher,
means defining a first chamber in the case,
a biodegradable polymeric candle housing disposed in the first chamber at the fore portion of the case,
the candle housing having a cavity opening toward the aft portion of the case,
a pyrotechnic candle disposed in the cavity and comprising a mass of pyrotechnic illuminant, and
a mass of environmentally friendly, fast-burning ignition composition interposed between the illuminant and the aft portion of the case,
releasable securing means for securing the candle housing in the case,
means defining a second chamber in the aft portion of the case, the second chamber opening in a direction aft of the case, and
means defining a passageway communicating between the first and second chambers,
the second chamber being configured to receive expulsion charge means affixed to the launcher for igniting the ignition composition, releasing the securing means, and ejecting the candle and the candle housing from the case.

5,801,323

SHAPED-CHARGED WARHEAD AND MUNITION EQUIPPED WITH SUCH A WARHEAD

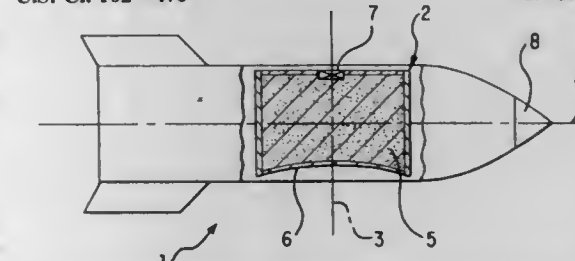
Alain Kerdraon, Bourges, France, assignor to Giat Industries, Versailles, France

Filed Jul. 8, 1996, Ser. No. 677,741

Claims priority, application France, Jul. 7, 1995, 95 08246 Int. Cl.⁶ F42B 12/10

U.S. Cl. 102—476

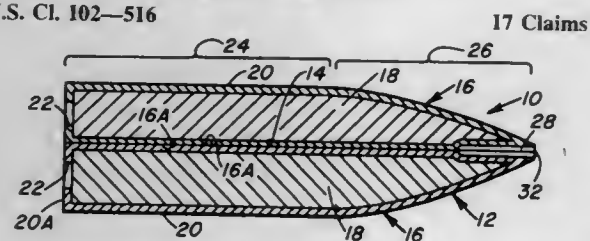
19 Claims



I. A shaped-charge warhead, in a munition having a longitudinal axis, said munition comprising:
an envelope housed in the munition extending along the longitudinal axis and having a cylindrical shape extending along the longitudinal axis;
an explosive charge housed in the envelope and extending along the longitudinal axis;
a trigger for detonating the explosive charge, said trigger being positioned adjacent a periphery of the explosive charge and comprising a detonator and a substantially plane wave generator; and

a single piece covering housed in the envelope at the periphery of the explosive charge and movable in a direction of action perpendicular to the longitudinal axis by the detonation of the explosive charge, said covering positioned adjacent an opposite side of the explosive charge from said trigger.

5,801,324
DIVIDING BULLET HAVING LONGITUDINALLY JOINED JACKETED PROJECTILE SEGMENTS THAT SEPARATE UPON TARGET IMPACT
Richard Pickard, 20505 E. Country Club Dr., Suite 335, Aventura, Fla. 33180
Filed Mar. 31, 1997, Ser. No. 831,458
Int. Cl.⁶ F42B 12/34
U.S. Cl. 102—516

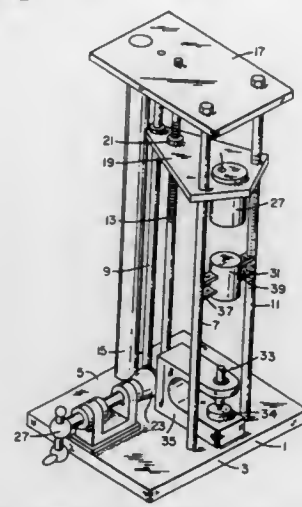


1. A dividing bullet, comprising:
- a projectile body having a longitudinal central axis and a plurality of individually jacketed longitudinally extending segments, each of said segments having an inner core composed substantially of lead and outer jacket composed substantially of copper encasing said inner core, said plurality of jacketed segments being symmetrically disposed about said longitudinal central axis; and
 - a seam extending through said projectile body between said individually jacketed segments thereof, said individually jacketed segments being joined together at said seam by a joint that is weaker in strength than said copper composition of said outer jacket of each of said jacketed segments such that said projectile body will separate at said seam into said jacketed segments upon impact with a target.

5,801,325
HIGH PERFORMANCE LARGE LAUNCH VEHICLE SOLID PROPELLANTS
Rodney L. Willer, Newark, Del., and David K. McGrath, Elkton, Md., assignors to Cordant Technologies Inc., Ogden, Utah
Filed Aug. 2, 1990, Ser. No. 561,774
Int. Cl.⁶ C06D 45/10
U.S. Cl. 149—19.4

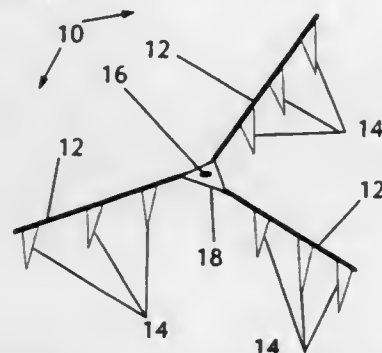
1. A high energy, large launch vehicle, solid propellant having a theoretical specific impulse, at a pressure ratio of 1,000 psi to 14.7 psi, of at least about 250 lb-sec/lb and comprising an isocyanate cured polyglycidyl nitrate binder and from about 60 to about 75% by weight high energy particulate solids comprising ammonium nitrate oxidizer particulates and fuel particulates selected from aluminum and magnesium and wherein the polyglycidyl nitrate is an isocyanate curable polyglycidyl nitrate polymer having a functionality of nearly 2.0 or more and a hydroxyl equivalent weight of from about 1000 to about 1700 and has less than about 2 to 5% by weight cyclic oligomer present in the polyglycidyl nitrate.

5,801,326
EXPLOSIVE FORMULATIONS
Ralph Edward Dawson, Kingsport, Tenn., assignor to Eastman Chemical Company, Kingsport, Tenn.
Filed Apr. 18, 1997, Ser. No. 844,183
Int. Cl.⁶ C06B 29/34
U.S. Cl. 149—92



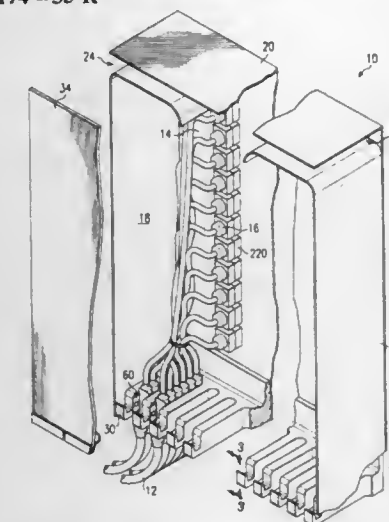
1. High energy explosive formulation characterized by reduced susceptibility to impact and sympathetic detonation due to shock forces, said composition comprising HMX, and a shock sensitivity reducing agent comprising trialkyl polyalkoxyalkylene quaternary ammonium chloride, said shock sensitivity reducing agent being present in an amount effective to impart an increase in HDC Impact Value to the formulation which is statistically significant.

5,801,327
RADIALLY EXTENDING GROUND DEVICE
John M. Tobias, Toms River, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 10, 1997, Ser. No. 838,816
Int. Cl.⁶ H01R 4/66
U.S. Cl. 174—6



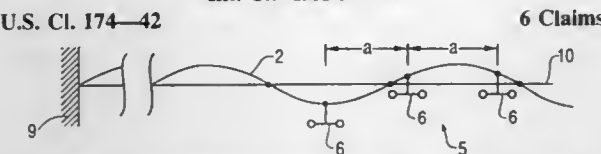
1. A grounding device for conducting current into the earth, comprising:
- at least three electrical conductors which are radially extendible from a common center in directions to separate the radially extendible conductors at substantially equal angles; and
 - a plurality of electrically conductive stakes affixed to each of the conductors;
- the grounding device being deployed to ground items electrically connected thereto by interconnecting the conductors at the common center and forcing the stakes into the earth after fully extending the conductors from the common center.

5,801,328
CABLE EMI SHIELD TERMINATION AND ENCLOSURE
Sheldon L. Rohde, Allen, Tex.; Michael W. Kement, North Boro, Mass.; Michael K. Pratt, Plano, and Felipe D. Mendoza, Dallas, both of Tex., assignors to DSC Communications Corporation, Plano, Tex.
Filed Feb. 8, 1995, Ser. No. 385,465
Int. Cl.⁶ H05K 9/00
U.S. Cl. 174—35 R



1. A system for EMI shield termination of a plurality of cables connected to a piece of electronic equipment, comprising:
- a backplane having at least four edges and a plurality of cable connectors arranged orderly on said backplane;
 - a plurality of conductive groomer fingers extending generally perpendicularly from said backplane and disposed along at least an edge of said backplane, each pair of said plurality of conductive groomer fingers defining an elongated slot therebetween;
 - said plurality of cables being coupled to said cable connectors on said backplane, said cables each having an EMI shield termination zone and being tightly packed into said elongated slots between said conductive groomer fingers for ensuring good electrical contact between said EMI shield termination zone of said cables and said conductive groomer fingers, wherein said EMI shield termination zones of more than one of said cables are packed tightly in each said elongated slot defined between two of said conductive groomer fingers; and
 - a rear cover substantially covering and enclosing said backplane.

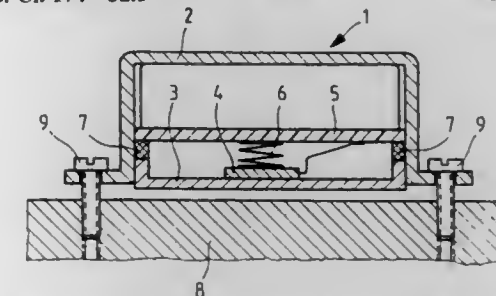
5,801,329
OUTDOOR POWER LINE HAVING A DAMPING DEVICE
Johannes Schmidt, Schwabach, Germany, assignor to Richard Bergner GmbH & Co., Schwabach, Germany
Filed Jan. 10, 1994, Ser. No. 179,990
Claims priority, application Germany, Jan. 13, 1993, 43 00 657.4
Int. Cl.⁶ H02G 7/14
U.S. Cl. 174—42



1. A high voltage outdoor power line comprising at least one stranded conductor, and at least one damping device for damping mechanical Karman vibrations of the stranded conductor, the damping device including a plurality of vibration dampers mounted on the stranded conductor, each vibration damper being suspended from a corresponding suspension point on the stranded conductor, the spacing between the suspension points of two

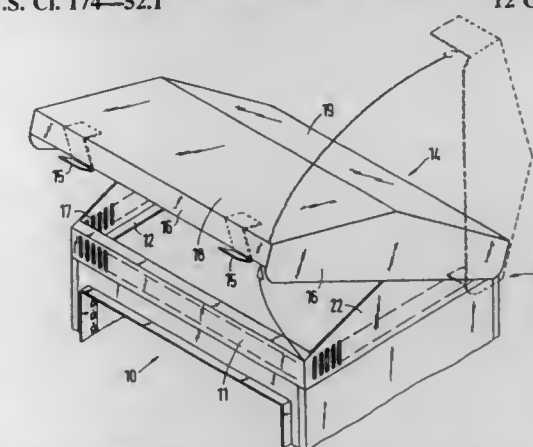
directly adjacent vibration dampers being smaller than half of a smallest anticipated wavelength of the Karman vibrations.

5,801,330
HOUSING FOR AN ELECTRICAL DEVICE HAVING SPRING MEANS
Lothar Gademann, Rottenburg; Roland Schmid, Dettingen, and Friedrich-Reinhold Hamann, Tuebingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Dec. 15, 1995, Ser. No. 573,251
Claims priority, application Germany, Feb. 9, 1995, 195 04 238.7
Int. Cl.⁶ H05K 5/00
U.S. Cl. 174—52.1



1. An electrical device, comprising at least one electrical power component; a housing including a plurality of heat withdrawing housing parts; and spring means arranged to provide a mechanical and thermal contact of said at least one electrical power component with said housing, said housing parts including a lower housing part which is formed as a metal cover moveable within a predetermined range, said spring means pressing said at least one power component in an interior of said housing against said metal cover for producing a thermal contact.

5,801,331
SWITCHGEAR CABINET WITH DOOR AND COVER
Jürgen Zachrai, Dillenburg, Germany, assignor to Rittal-Werk Rudolf Loh GmbH & Co. KG, Herborn, Germany
PCT No. PCT/EP96/00868, § 371 Date Feb. 4, 1997, § 102(e) Date Feb. 4, 1997, PCT Pub. No. WO96/27933, PCT Pub. Date Sep. 12, 1996
PCT Filed Mar. 1, 1996, Ser. No. 776,982
Claims priority, application Germany, Mar. 7, 1995, 195 07 731.8
Int. Cl.⁶ H02G 3/08; H02B 5/00
U.S. Cl. 174—52.1



1. A switchgear cabinet having a cabinet door and a cover fastened on a top of the switchgear cabinet, comprising:

a lower element (11) connected with the top of the switchgear cabinet (10) and the cover (14) covering the lower element (11).

the cover (14) being connected on a back of the cover (14) with the lower element (11) by one of a plug and a hinge connection, and the cover (14) having a plurality of holding brackets (15) on a front, the cabinet door (20) mounted with respect to the lower element (11) to move between an open door position and a closed door position, and in a closed position of the cover (14) and the closed door position the cabinet door (20) the holding brackets (15) being overlapped and held by a bevel (21) of the cabinet door (20).

5,801,332

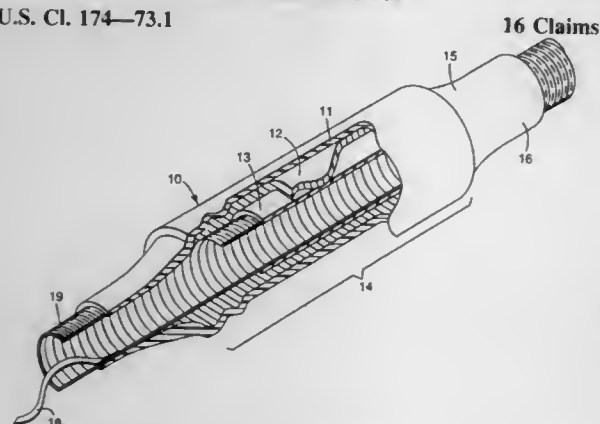
ELASTICALLY RECOVERABLE SILICONE SPLICE COVER

Todd P. Berger, Lago Vista, and Frank Yi Xu, Austin, both of Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 31, 1995, Ser. No. 521,887

Int. Cl.⁶ H02G 15/064

U.S. Cl. 174—73.1



16 Claims

1. An elastically recoverable elastomeric splice cover suitable for use covering a joint connector in a cable conductor, said splice cover comprising a central body having two distal opposing geometric cones capped by extended endseals, said body consisting essentially of three contiguous layers,

- a semiconductive outer shield layer,
- an inner toroidal electrode disposed along a central axis having a length less than that of said body,
- and interposed therebetween, an intermediate insulative layer having a length equal to that of said body and said geometric cones, and

said outer shield layer and said electrode having been formed from a thermally conductive silicone elastomer, all of said layers having been formed from a silicone elastomer having a tear strength of at least about 15 N/mm, and an elongation of at least about 400%, said insulative layer further including from about 10% to about 35% of an electrically insulative thermally conductive filler, said insulative layer having a minimum thermal conductivity of at least about 0.18 W/mK,

wherein after 30 alternating load current cycles said connector has maintained a temperature of about 10° C. cooler than said cable conductor beyond said splice.

5,801,333

LOW-ODOR SINGLE ELEMENT CABLE CONNECTION COVER

Michael G. Jones, 220 Bingham St., San Marcos, Calif. 92069

Filed Jan. 8, 1997, Ser. No. 780,289

Int. Cl.⁶ F16L 11/12

U.S. Cl. 174—74 A

21 Claims



1. A protective cover for a cable connector, said connector being affixed to an end of a cable and having an outside diameter greater than an outside diameter of said cable, said cover comprising: an elongated annular sleeve having two ends and formed from a material expandable by a contact with a dilating chemical composition and shrinkable upon removal of said contact with said chemical composition; said chemical composition comprising a mixture of a C₇-C₈ aliphatic hydrocarbon component and a fluorocarbon component, said hydrocarbon component and said fluorocarbon component being liquid and volatile at ambient conditions; said cover with said sleeve in a chemically expanded state being moveable into a disposition covering said connector and a portion of said cable attached thereto, with said sleeve covering at least said portion of said cable and said connector; whereby when said cover is so disposed over said connector and said portion of said cable and removed from contact with a source of said chemical composition, said chemical composition evaporates from said sleeve and said sleeve thereupon shrinks and covers the outside diameters of said connector and said attached portion of said cable sufficiently to form a tightly fitted and substantially immovable covering secured around said connector, thereby preventing said connector from coming into contact with adverse ambient components.

5,801,334

CONDUCTOR (TURN) INSULATION SYSTEM FOR COILS IN HIGH VOLTAGE MACHINES

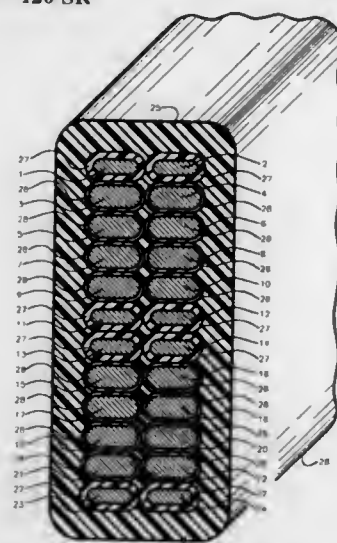
Demetrius C. Theodorides, 3002 Sunny Slope Rd., Bridgewater, N.J. 08807

Filed Aug. 24, 1995, Ser. No. 519,595

Int. Cl.⁶ H01F 27/28

U.S. Cl. 174—120 SR

5 Claims



1. An insulation system for windings of high voltage dynamo-electric machines comprising: a multilayered coil having a substantially rectangular cross-section, said rectangular cross-section having a long side, a short side, a vertical axis corresponding to said long side and a horizontal axis corresponding to said short side;

an insulation wall completely encasing the multilayer coil; the multilayer coil being constructed from at least two identical insulated turns formed by spirally winding along the vertical axis of the coil an elongated multistrand conductor; each of said at least two identical insulated turns comprising one or more stacks of insulated copper strands, said one or more stacks forming a row along the horizontal axis of the coil and said insulated copper strands being stacked along the vertical axis of the coil; each of said one or more stacks of insulated copper strands comprising a top strand insulated with mica or other high dielectric strength insulation, a bottom strand insulated with mica or other high dielectric strength insulation and at least one inner strand therebetween insulated with double dacron glass, single dacron glass or other low dielectric strength insulation.

5,801,335

SWAGE LOCK FOR COUPLING SUBSTRATES TOGETHER

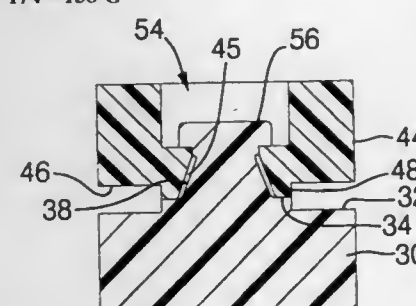
Stacy Ann Brussalis, Niles; Joseph Howard Gladd, and Aaron Dillon Monroe, both of Cortland, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 28, 1997, Ser. No. 825,454

Int. Cl.⁶ H01R 4/26

U.S. Cl. 174—138 G

14 Claims



1. A product comprising: a first and second substrate; said first substrate having a pin extending from a surface, the pin having a middle portion including a first substantially straight wall, a lower tapered portion extending from the middle portion toward the surface of the first substrate, and a cold formed mushroomed cap extending from the middle portion; the second substrate having an aperture formed therethrough, the aperture being formed to have a middle bore portion defined by a second substantially straight wall of the second substrate constructed and arranged to receive the middle portion of the pin, a lower tapered base portion of the aperture partially defined at least by a tapered wall of the second substrate extending from the straight wall of a second substrate, and an upper counter-bore portion of the aperture communicating with the middle bore portion and having a width greater than the middle bore portion and constructed and arranged to receive the cold formed cap of the pin, and wherein said first and second substrates are constructed and arranged to be fastened together by the pin.

5,801,336

AERIAL CONDUCTOR SPACER

Douglas Blanding, 1016 Smithridge Rd., Bridgeport, N.Y. 13030

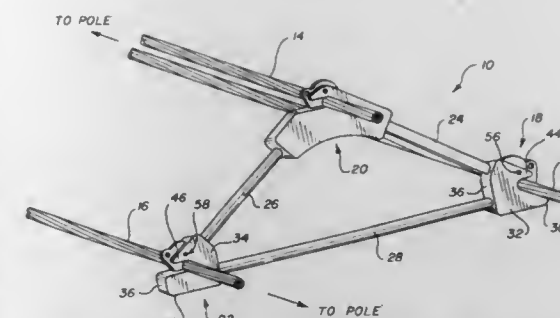
Filed Sep. 2, 1997, Ser. No. 922,012

Int. Cl.⁶ H02G 7/12

U.S. Cl. 174—146

4 Claims

1. A device for maintaining overhead electric cables in spaced, non-contacting relation to one another, said device comprising: a) first and second cable clamping assemblies each including:



- a body member having first and second bored holes formed therein and a recessed portion, said first and second bored holes extending along first and second linear axes, respectively, which are disposed at a predetermined, acute angle from one another; and
 - a clamping member pivotally and slidably attached to said body member and having first and second forks extending in spaced, parallel relation to one another, said first and second forks being movable between engaged and disengaged relation with respect to said recessed portion;
- a third cable clamping assembly including:
 - a body member having third and fourth bored holes formed therein and a recessed portion, said third and fourth bored holes extending along third and fourth linear axes, respectively, which are disposed at a predetermined obtuse angle with respect to one another; and
 - a clamping member pivotally and slidably attached to said body member and having third and fourth forks extending in spaced, parallel relation to one another, said third and fourth forks being movable between engaged and disengaged relation with respect to said recessed portion; and
 - means for interconnecting said first, second and third cable clamping assemblies.

5,801,337

METHOD OF AND APPARATUS FOR COMPENSATING FOR LOAD/ENVIRONMENT TEMPERATURE DIFFERENTIAL-INDUCED MEASURED LOAD WEIGHT ERROR

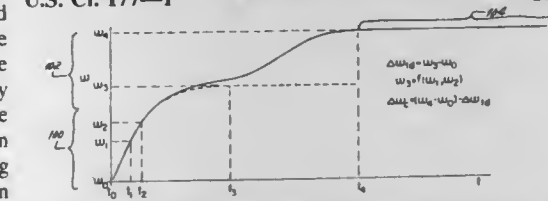
Steven C. Peake, Dubuque, Iowa, assignor to Barnstead/Thermolyne Corporation, Dubuque, Iowa

Filed Jan. 11, 1996, Ser. No. 584,313

Int. Cl.⁶ G01G 9/00; 19/22; G01N 25/00

U.S. Cl. 177—1

17 Claims



1. A method of compensating for load/environment temperature differential-induced measured load weight error comprising the steps of: providing a load having a load temperature T_L; providing an environment having an environment temperature T_E, different from the load temperature; providing processor; providing a weighing device; subjecting the load to the environment at time t₀; measuring with the weighing device the weight w₀ of the load at time t₀; measuring with the weighing device the weight w₁ of the load at time t₁; calculating with the processor the apparent change in weight Δw_{app} of the load, between the time t₀ at which the load is subjected to the environment and the time t₁ at which the load and environment temperatures reach equilibrium, induced

solely by the temperature differential between the load and the environment, from the measured load weights w_0 and w_1 ; and generating a signal with the processor representative of the change in weight Δw_{nr} .

5,801,338

SCALE BEARING INSERT

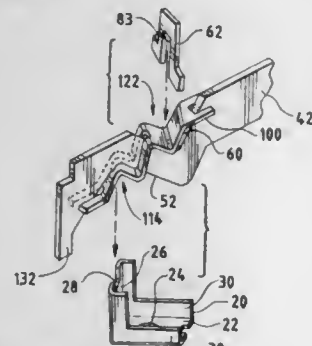
Sidney Williamson, Las Cruces, N. Mex., assignor to Metro Corporation, Las Cruces, N. Mex.

Filed Oct. 22, 1996, Ser. No. 734,898

Int. Cl.⁶ G01G 21/02; 21/08

U.S. Cl. 177—179

11 Claims



1. A platform weighing scale comprising:
 - a base including vertical corner stands;
 - a weight supporting platform including depending corner bearings; and
 - weight sensing apparatus supported on said base corner stands, and supporting said weight supporting platform so that said platform is moveable relative to said base, including a weight sensing mechanism responsive to movement of said platform for operating a weight indicating mechanism, the weight sensing mechanism including
 - a plate operatively associated with the weight indicating mechanism,
 - a pair of primary levers secured at one end to said plate and diverging therefrom relative to a longitudinal centerline and defining a select angle therebetween, each primary lever including an upper notch receiving one of said corner bearings and a lower notch receiving one of said corner stands so that movement of said platform causes pivotal movement of said levers to move said plate, and
 - a bearing insert fit to each said primary lever between the upper notch and the corner bearing and between the lower notch and the corner stand, each bearing insert being formed to include a pair of troughs received in said notches for bearing on the corner bearing and corner stand, the troughs being angled relative to the primary levers corresponding to the select angle so that the levers fulcrum about an axis perpendicular to said centerline.

5,801,339

LOAD MEASURING APPARATUS

Brian Frederick Boulton, Auckland, New Zealand, assignor to Tru-Test Limited, Auckland, New Zealand

Filed Mar. 1, 1995, Ser. No. 396,140

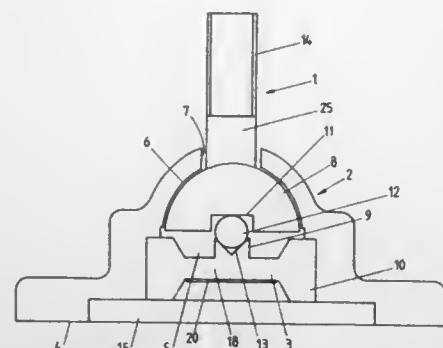
Claims priority, application New Zealand, Mar. 3, 1994, 260019; Nov. 14, 1994, 260019

Int. Cl.⁶ G01G 21/08

U.S. Cl. 177—261

27 Claims

1. A load bearing foot comprising:
 - a housing having a base which in use is supported by a load bearing surface and an aperture in said housing opposite said base,
 - a load cell means including an abutment portion adapted to receive an applied load, said load cell means mechanically supported by and within said housing, and



a rigid strut having a lower end which bears against said abutment portion of said load cell means and extends outside said housing through said aperture, at least the portion of said strut passing through said aperture being significantly narrower than said aperture, said strut in use being connected to an applied load, said strut being free to move axially in a direction towards said load cell means, and said portion of said strut passing through said aperture being free to move laterally within the confines of said aperture.

5,801,340

PROXIMITY SENSOR

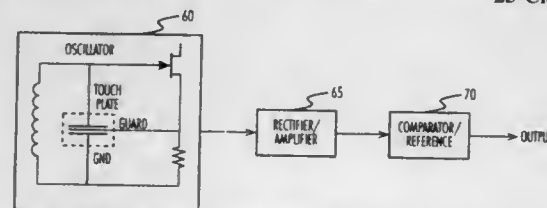
Walter H. Peter, Hobart, N.Y., assignor to Invotronics Manufacturing, Farmington Hills, Mich.

Filed Jun. 29, 1995, Ser. No. 496,561

Int. Cl.⁶ G08C 21/00

U.S. Cl. 178—19

25 Claims



10. A capacitive sensor for detecting the presence of an object in a sensing region comprising:
 - a ground plane;
 - a first insulating layer disposed on said ground plane;
 - a guard layer disposed on said first insulating layer;
 - a second insulating layer disposed on said guard layer;
 - a touch plate disposed on said second insulating layer; and
 - an inductor in parallel to said sensor, said inductor and said sensor forming an oscillator means to excite said sensor.

5,801,341

MECHANISM OF NOISE SUPPRESSION SYSTEM FOR A SUPERSONIC AIRCRAFT

John Keith Newell, Fontana, and Gregory Richard Zwerne-mann, Anaheim Hills, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 442,257, May 16, 1995, abandoned. This application Sep. 9, 1996, Ser. No. 709,984

Int. Cl.⁶ F02K 1/08; B64D 33/04

U.S. Cl. 181—215

16 Claims

1. A noise suppression system for a jet engine of an aircraft, comprising:
 - (a) a blocking apparatus for blocking a first portion of a flow of exhaust gases flowing down an exhaust nozzle of the engine; and
 - (b) a separating device for separating the first portion of the flow of exhaust gases blocked by the blocking apparatus into multiple streams of exhaust gases spaced a predetermined distance apart, and for directing the streams of exhaust gases

5,801,343

MUFFLER FOR INTERNAL COMBUSTION ENGINE

Mitsuro Suzuki; Kazunari Ohno; Kunihiro Fujiwara; Tetsuo Kato, and Takanori Morishita, all of Okazaki, Japan, assignors to Futaba Industrial Co., Ltd., Okazaki, Japan

PCT No. PCT/JP94/01889, § 371 Date Jun. 19, 1995, § 102(e) Date Jun. 19, 1995, PCT Pub. No. WO95/13460, PCT Pub. Date May 18, 1995

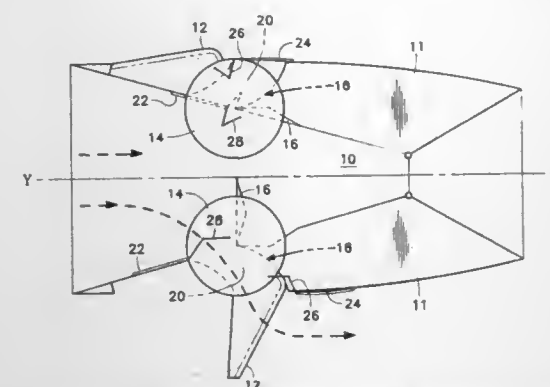
PCT Filed Nov. 9, 1994, Ser. No. 481,445

Claims priority, application Japan, Nov. 9, 1993, 5-279479

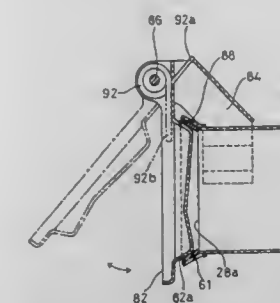
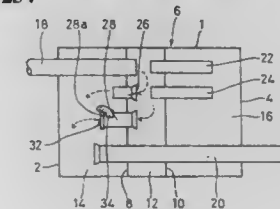
Int. Cl.⁶ F01N 1/00

U.S. Cl. 181—254

12 Claims



- from points outside of a nacelle covering the engine towards a rear of the engine; and wherein,
- (c) the predetermined distance separating the streams of exhaust gases and a cross-sectional area of the streams of exhaust gases are chosen so that noise generated by the engine and carried by the exhaust gases is shifted to a higher average frequency than that of the original flow of exhaust gases; and
- (d) an injection apparatus for injecting outside air into the interior of the exhaust nozzle aft of the blocking apparatus to cause a mixing of a remaining portion of the flow of exhaust gases not blocked by the blocking apparatus with the outside air.



1. A muffler for an internal combustion engine, comprising:
 - a) a housing having a plurality of separate chambers, each of said chambers being separated from said other chambers by a partitioning wall;
 - b) an inlet pipe communicating with a first of the chambers for introducing exhaust gas to the first chamber;
 - c) an outlet pipe having an inlet in a second of the chambers for exhausting gas from the muffler;
 - d) a port in the partitioning wall separating the first and second chambers to provide an exhaust gas path extending from the first to the second chamber to permit exhaust gas to flow from the inlet pipe to the outlet pipe;
 - e) a by-pass port extending through the partitioning wall separating the first and second chambers to provide an additional exhaust gas path extending from the first to the second chamber to permit exhaust gas to flow from the inlet pipe to the outlet pipe;
 - f) a flap valve, provided at the by-pass port and supported on a shaft displaced laterally of and proximate the by-pass port, the flap valve being movable between a position at which the flap valve closes the by-pass port and a position at which the flap valve allows exhaust gas to flow through the by-pass port; and
 - g) a resilient member positioned and supported proximate the flap valve to resiliently bias the flap valve to the position at which the by-pass port is closed while permitting exhaust gas in the by-pass port to move the flap valve against the resilient bias to allow exhaust gas to flow through the by-pass port when the exhaust gas in the by-pass port reaches a desired pressure;
- wherein a buffer material is interposed between the flap valve and a stay supporting the shaft.

5,801,342

DOUBLE-WALLED STRUCTURE AND METHOD AND ARRANGEMENT FOR PRODUCING THE SAME

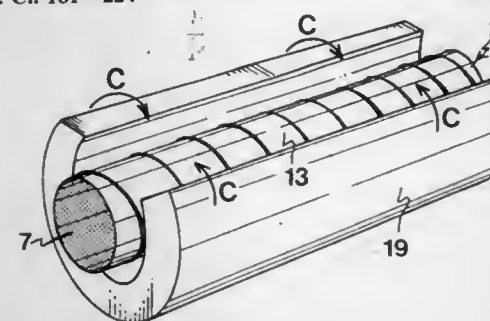
Kent Hultberg, Båstad, and Teuvo Ranta, Laholm, both of Sweden, assignors to Lindab AB, Båstad, Sweden

Filed Jan. 27, 1997, Ser. No. 788,246

Int. Cl.⁶ E04F 17/02

U.S. Cl. 181—224

12 Claims



1. A double-walled structure, comprising:
 - an inner tube having a perforated wall;
 - an outer casing spaced from and enclosing said inner tube;
 - a filler material provided between said inner tube and said casing; and
 - a fluid-permeable cover tightly applied on the outside of said inner tube and covering said perforated wall of said inner tube;
- wherein said inner tube is a helically-wound lock-seam tube formed from a first perforated strip; and wherein said fluid-permeable cover is formed from a second strip helically wound together with said first strip.

5,801,344

SOUND ATTENUATOR WITH THROAT TUNER

Andrew J. Herold, Bloomington, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.

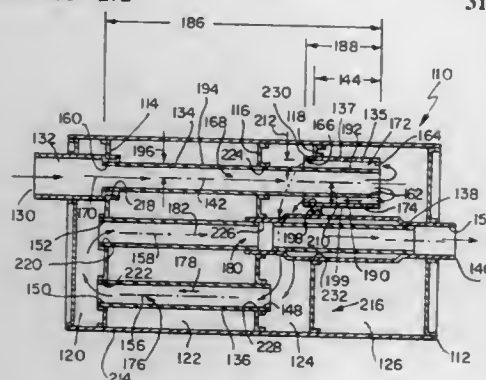
Continuation of Ser. No. 516,281, Aug. 17, 1995, abandoned.

This application Feb. 24, 1997, Ser. No. 805,092

Int. Cl.⁶ F01N 1/08

U.S. Cl. 181—272

31 Claims



1. A sound attenuating apparatus comprising:
 a housing including an inlet, an outlet, a first chamber having an effective volume, and a second chamber;
 a first conduit positioned to lie in said housing along a first conduit axis, said first conduit having a passageway, an inlet opening into the passageway, and an outlet opening into the passageway, said outlet of said first conduit communicating with said first chamber so that exhaust gas passes through the outlet of the first conduit into the first chamber; and
 a second conduit positioned to lie in said housing along said first conduit axis around said first conduit, the second conduit having a passageway, a first end defining an inlet opening into the passageway so that exhaust gas passes from the first chamber into the inlet of the second conduit, and a second end spaced apart from the first end and defining an outlet opening in the passageway so that exhaust gas passes through the outlet of the second conduit into said second chamber, the first end being situated in the first chamber and the second end being situated in the second chamber.

5,801,345

KEYBOARD ASSEMBLY INCORPORATING MULTIPLE LIGHTING MODES FOR IMPROVED USER FEEDBACK

Anastasia M. Mikula-Curtis, Saratoga; Richard W. Henderson, Fremont; Randal J. Bertuccielli, Mount Aukum, and Gary A. Arndt, Folsom, all of Calif., assignors to Acuson Corporation, Mountain View, Calif.

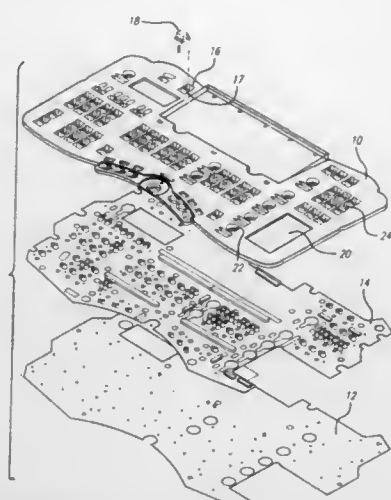
Filed Jun. 21, 1996, Ser. No. 667,194

Int. Cl.⁶ H01H 9/16

U.S. Cl. 200—5 A

18 Claims

1. A keyboard assembly incorporating at least a first and a second lighting mode, the keyboard assembly comprising a plurality of actuator keys, said first lighting mode comprising an indicator light on each of the plurality of keys, and said second lighting mode comprising backlit legends each in close proximity to and spaced from a corresponding one of the plurality of actuator



keys and identifying an associated function of said corresponding one of the plurality of actuator keys.

5,801,346

ROTARY SWITCH

Ryoichi Taniuchi, Fukui-ken, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

Filed May 28, 1996, Ser. No. 654,219

Claims priority, application Japan, May 30, 1995, 7-131353

Int. Cl.⁶ H01H 19/58

U.S. Cl. 200—11 K

9 Claims



1. A rotary switch comprising:
 a terminal plate formed into a circular cup shape having a bottom and a cylindrical wall;
 terminals provided on said bottom of said terminal plate;
 a rotor rotatably supported on said terminal plate;
 a contact piece resiliently engaged with said rotor so that said contact piece is selectively brought into contact with said terminals on the bottom of said terminal plate to close a circuit; and
 an intermittent movement mechanism, the components of which are mounted on said rotor and said terminal plate, said intermittent movement mechanism allowing said contact piece to intermittently rotate against a resilient force to change its rotational angle in accordance with a rotation of said rotor;
 wherein a guide shaft is provided on a center of said bottom of said terminal plate so as to extend in an axial direction of said rotor, a stopper flange is provided on a top of said guide shaft, and a guide hole is formed on a center of said rotor so that said rotor is locked with said terminal plate by inserting said guide shaft into said guide hole.

5,801,347

CORD SWITCH HAVING ALTERNATE INSULATING MEMBERS

Noboru Tsuge, Kariya, and Takeshi Tanaka, Toyohashi, both of Japan, assignors to Asmo Co., Ltd., Kosai, Japan

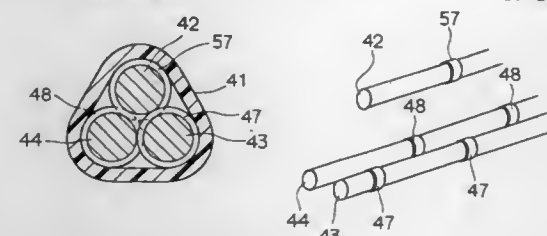
Filed Mar. 5, 1997, Ser. No. 812,312

Claims priority, application Japan, Apr. 22, 1996, 8-100400

Int. Cl.⁶ H01H 3/16

U.S. Cl. 200—61.44

17 Claims



1. A cord switch comprising:
 an elastically deformable insulating tube; elastically deformable first and second conductive members disposed within said insulating tube and extending in a longitudinal direction of said insulating tube, said first and second conductive members having circular cross-sectional shapes; and
 a plurality of first insulating members disposed with a predetermined distance between adjacent first insulating members in said longitudinal direction of said insulating tube to form insulating spaces between said first and second conductive members, wherein:
 said first insulating members are disposed slidably relative to at least one of said first and second conductive members; and
 said first and second conductive members are arranged to deform elastically to contact each other when an external force is applied thereto.

5,801,348

ACCELERATION DETECTOR

Satoshi Asada, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

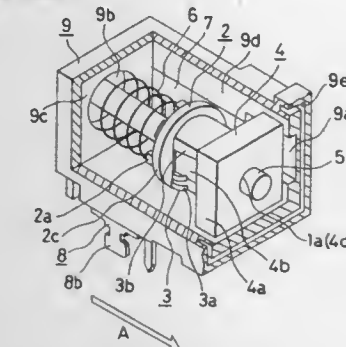
Filed Aug. 14, 1996, Ser. No. 696,501

Claims priority, application Japan, Jan. 31, 1996, 8-015448

Int. Cl.⁶ H01H 35/14

U.S. Cl. 200—61.53

17 Claims



1. An acceleration detector comprising:
 a mass body having a predetermined mass;
 a slide shaft slidably supporting said mass body;
 first and second regulation parts for limiting a slide range of said mass body at respective ends of said slide shaft;
 an elastic member disposed between said first regulation part and said mass body, and providing an elastic force for biasing said mass body in a direction toward said second regulation part;
 a case having at least one of said first and second regulation parts and a notch formed therein;
 a first contact integrally provided on said mass body; and
 a second contact provided in said notch of said case.

179-290 O.G.-98-22:QL 3

wherein when said mass body slides on said slide shaft against said elastic force of said elastic member, said first contact slides together with said mass body, and when said first contact slides a predetermined distance, said first contact comes in contact with said second contact, to thereby establish an electric conduction between said first and second contacts.

5,801,349

STEERING WHEEL HORN SWITCH AND ITS PAD MOUNTING STRUCTURE

Fuminori Komiya; Sakashi Hattori, and Keizoh Suzuki, all of Niwa-gun, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

PCT No. PCT/JP95/02496, § 371 Date Aug. 7, 1996, § 102(e)

Date Aug. 7, 1996, PCT Pub. No. WO96/17762, PCT Pub.

Date Jun. 13, 1996

PCT Filed Dec. 6, 1994, Ser. No. 687,524

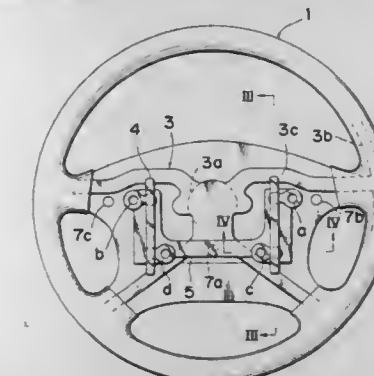
Claims priority, application Japan, Dec. 7, 1994, 6-303401;

Dec. 7, 1994, 6-303402; Nov. 21, 1995, 7-302832

Int. Cl.⁶ H01H 9/00; B62D 1/02

U.S. Cl. 200—61.55

17 Claims



15. A steering wheel assembly comprising:
 a core for attachment to a steering shaft;
 a bracket fixed for reciprocal movement relative to said metal core;
 a horn actuation pad attached to said bracket;
 four biasing assemblies, each for biasing said bracket away from said core, said four biasing assemblies forming four corners of a trapezoidal shape; and
 three switch assemblies, two of said three switch assemblies being located adjacent to two of said four biasing assemblies and a third of said three switch assemblies being located between another two of said four biasing assemblies.

5,801,350

SURFACE REFORMATION METHOD OF HIGH POLYMER MATERIAL

Tutomu Shibuya; Kaoru Katayama; Mitugu Shirai; Shinichi Kazui; Hideaki Sasaki, and Yasuhiro Iwata, all of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

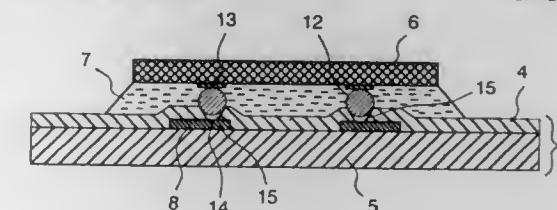
Filed Mar. 21, 1996, Ser. No. 619,186

Claims priority, application Japan, Mar. 23, 1995, 7-064496

Int. Cl.⁶ H05K 3/34

U.S. Cl. 204—157.15

19 Claims



14. A method of processing an electronic circuit board on which a plurality of electronic parts are mounted and connected to a metal pattern on said circuit board, a surface of said metal pattern being covered with a high polymer material layer, said method comprising the following steps:

- irradiating light energy on each area on a surface of said high polymer material layer where each of said plurality of electronic parts is to be mounted;
- providing a liquid for temporary immobilization on said each area;
- mounting each of said electronic parts through a solder which is on said each area on which said liquid for temporary immobilization is provided; and
- fixing each of said electronic parts to said metal pattern, by heating of said solder on said each area.

5,801,351

METHOD FOR WELDING HINGE PINS ONTO ELEMENTS INTENDED TO FORM HINGED LINKS OF A WRISTLET

Roger Ecoffet, Villers-le-Lac, France; Joseph Eray, Glovelier, and Sylvain Wenger, Commugny, both of Switzerland, assignors to Werthanor S.A., Le Locle, Switzerland

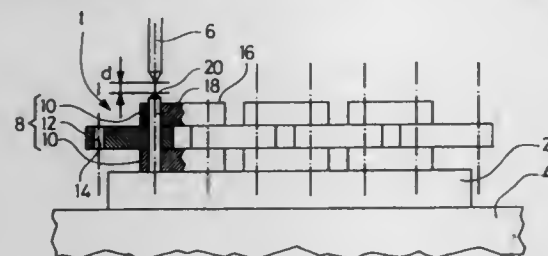
Filed Dec. 19, 1996, Ser. No. 770,582

Claims priority, application Switzerland, Dec. 22, 1995, 03652/95

Int. Cl.⁶ B23K 9/00

U.S. Cl. 219—52

2 Claims



1. A method of welding elongated hinge pins onto links each formed of one or more elements, the links being connected to each other by means of said elongated hinge pins arranged in passages provided for this purpose in the links, each elongated pin being fixed into one of the links and hinged onto the next link,

- wherein a connection of the elongated pin to the link is made via an arc welding operation with the aid of an electrode in an inert atmosphere without using a solder;
- wherein said elongated hinge pins have ends projecting from lateral faces of the links, before the welding operation;
- wherein the projecting end of each elongated hinge pin has a shape defining a central position of the arc with respect to the longitudinal axis of said elongated pin; and
- wherein said shape is conical.

5,801,352

POWER SUPPLY UNIT FOR DISCHARGE APPARATUS WHICH PREVENTS EXCESSIVE ELECTRODE WEAR

Atsushi Taneda; Koji Akamatsu; Hajime Ogawa, and Satoshi Suzuki, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Electric Engineering Co., Ltd., both of Tokyo, Japan

Filed Sep. 8, 1995, Ser. No. 525,024

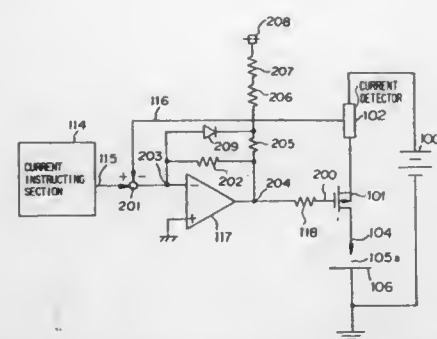
Claims priority, application Japan, Sep. 9, 1994, 6-216245; Sep. 5, 1995, 7-228102

Int. Cl.⁶ B23H 7/14

U.S. Cl. 219—69.18

18 Claims

1. A power supply unit for a discharge apparatus comprising:



a discharger provided with a DC power supply source, an amplifier and a current detector connected to each other in series;

a current instructing section for outputting a current instruction value corresponding to a pulse form of a discharge current pulse;

an operational amplifier for driving said amplifier by amplifying a difference between a current instruction value outputted from said current instructing section and an output current value detected by said current detector;

a power supply unit for driving said operational amplifier; and a clamping section connected in series between an output terminal of said operational amplifier and said power supply unit for clamping an active area of said amplifier.

5,801,353

SUPERIMPOSED SHEET WELDING SYSTEM INCLUDING ROTATABLE WELDING ELECTRODE AND COOLING RINGS

Timo Mauno Pirilä, Kalanti as, Finland, assignor to Vahterus Oy, Kalanti, Finland

PCT No. PCT/FI95/00237, § 371 Date Mar. 4, 1997, § 102(e) Date Mar. 4, 1997, PCT Pub. No. WO95/30511, PCT Pub. Date Nov. 16, 1995

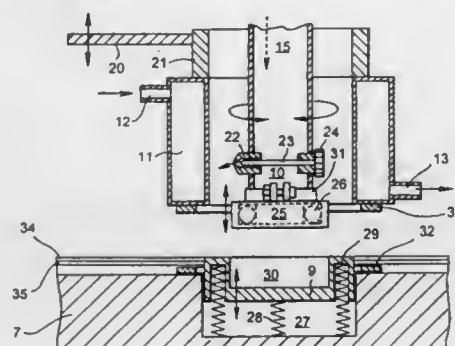
PCT Filed May 3, 1997, Ser. No. 732,281

Claims priority, application Finland, May 4, 1994, 942054

Int. Cl.⁶ B23K 37/04; 9/028

U.S. Cl. 219—86.31

12 Claims



1. A method of welding superimposed thin sheets of material at the periphery of holes in the sheets of material, said method comprising:

supporting two sheets of material in superimposed relation between two heat-transfer rings which surround aligned holes in the sheets of material,

positioning an electrode within the aligned holes in the sheets of material in facing relation with mating surfaces of the superimposed sheets of material around said holes, said sheets of material being initially supported on one of said heat-transfer rings, said electrode and the other of said heat-transfer rings being moved together to clamp the sheets of material between the rings while bringing the electrode into position to face the mating surfaces of the superimposed sheets of material around

said holes, and resiliently resisting movement of said other of said heat-transfer rings when clamping said sheets of material between said rings,

rotating said electrode while supplying electric current thereto to melt the sheets of material at said mating surfaces around the periphery of the holes in the sheets of material to form a continuous weld seal at the periphery of the holes,

said heat-transferings supporting said sheets of material during formation of said weld seal while concurrently conducting heat away from the sheets of material.

5,801,354

DEVICE FOR STERILIZING THE INNER SURFACES OF PRESSURE SENSITIVE CONTAINERS

Wolfgang Kasper, Altusried, Germany, assignor to Ruediger Haaga GmbH, Germany

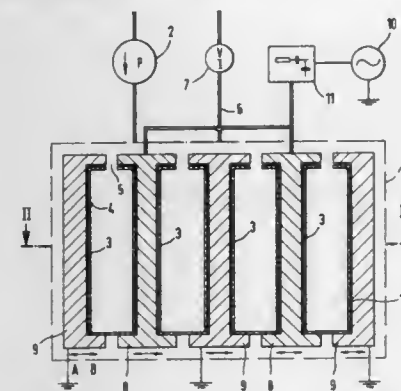
Filed Mar. 28, 1997, Ser. No. 827,494

Claims priority, application Germany, Apr. 20, 1996, 196 15 735.8

Int. Cl.⁶ B23K 10/00

U.S. Cl. 219—121.43

10 Claims



1. A device for sterilization with ionized particles inner surfaces of electrically non-conducting, pressure sensitive containers having an unsealed filling opening, comprising an evacuable chamber for receiving the containers, a gas supply line attached to the chamber, plasma-generating electrodes located in the chamber two electrodes for each container, and an alternating current generator for supplying an alternating voltage to the electrodes, wherein both electrodes are arranged outside of and defining a Debye length determined cap surrounding an outer surface of the associated container.

5,801,355

PLASMA PIERCING WITH NON-OXIDATIVE PLASMA GAS AND PLASMA CUTTING WITH OXIDATIVE PLASMA GAS

Katsuo Saio, Ninomiya-machi, and Masahiko Hasegawa, Hiratsuka, both of Japan, assignors to Komatsu Ltd., Tokyo, Japan

PCT No. PCT/JP95/00979, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO95/32072, PCT Pub. Date Nov. 30, 1995

PCT Filed May 23, 1995, Ser. No. 750,033

Claims priority, application Japan, May 25, 1994, 6-135169

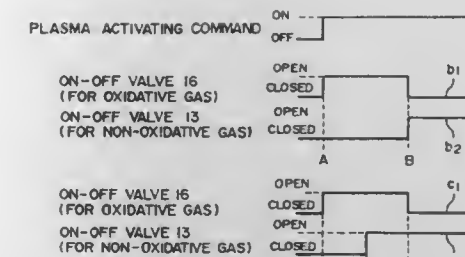
Int. Cl.⁶ B23K 10/00

U.S. Cl. 219—121.44

17 Claims

1. In a method for using a plasma torch for piercing a hole in a workpiece and for cutting the workpiece, said plasma torch having an electrode and a nozzle, said method comprising the steps of:

- supplying a plasma gas between the electrode and the nozzle of the plasma torch, and
- ejecting a plasma arc from the nozzle toward the workpiece while the plasma gas is being supplied between the electrode



and the nozzle, in order to effect a piercing operation for piercing a hole in said workpiece and to subsequently effect a cutting operation for cutting the workpiece;

the improvement wherein said step of supplying a plasma gas between the electrode and the nozzle of the plasma torch comprises:

supplying an oxidative gas between the electrode and the nozzle of said plasma torch as said plasma gas at a time of piercing said hole in said workpiece so that the piercing operation is effected with said oxidative gas, and

supplying a non-oxidative gas between the electrode and the nozzle of said plasma torch as said plasma gas at a time of cutting the workpiece so that the cutting operation is effected with said non-oxidative gas.

5,801,356

LASER SCRIBING ON GLASS USING ND:YAG LASER

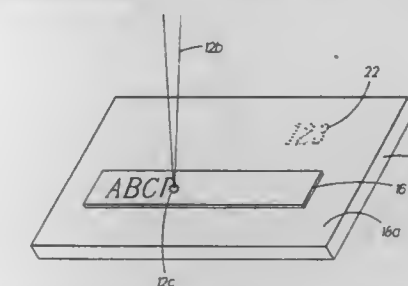
John A. Richman, Oceanside, Calif., assignor to Santa Barbara Research Center, Goleta, Calif.

Filed Aug. 16, 1995, Ser. No. 515,721

Int. Cl.⁶ B23K 26/18

U.S. Cl. 219—121.68

17 Claims



8. Apparatus for inscribing a pattern into a surface of a substrate, comprising:

- a source of electromagnetic energy having a characteristic output wavelength;
- means for focussing an output of the source to a localized region at or near to the surface of the substrate; and
- means for translating the substrate relative to the localized region, wherein the substrate has a layer of material that is adhesively applied to the surface, the layer of material being selected so as to strongly absorb the characteristic output wavelength such that the layer of material absorbs the output of the source and is heated thereby to a temperature sufficient for inscribing the surface underlying the localized region, the layer of material being located between the surface and the source.

5,801,357

ELECTRIC BARBECUE WITH ROTISSERIE

Marc Danen, Albens, France, assignor to SEB S.A., Ecully Cedex, France

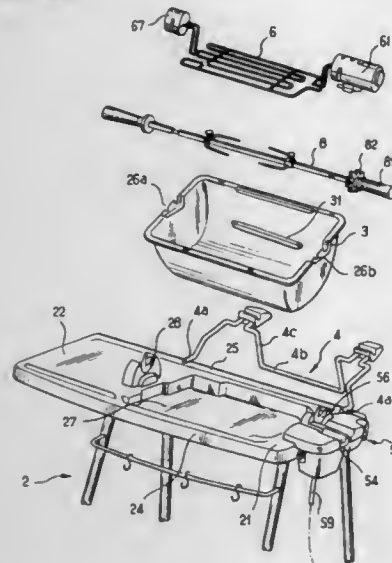
Filed Nov. 29, 1996, Ser. No. 758,368

Claims priority, application France, Nov. 28, 1995, 95 14091

Int. Cl.⁶ A47J 37/07; 37/04; F24L 7/06; H05B 3/06

U.S. Cl. 219—403

10 Claims



1. An electric barbecue with rotisserie comprising a frame, a kettle placed on the frame, electric heater means, at least one spit rotated by an electric motor housed in a unit fixed to said frame and further comprising electric connection means adapted to supply electric power to said electric heater means, and a single power supply cable adapted to be connected to an external electric power supply and to supply power to said connection means and said motor, wherein said unit comprises on a top face a recessed portion adapted to accommodate removably a part of a handle fixed to one end of said spit, said recessed portion having an opening through it in line with drive means housed in said unit and said handle of said spit incorporating complementary drive means adapted to be inter-engaged with said drive means when said handle is housed in said recessed portion, and wherein said unit comprises on said top face a housing adapted to receive removably a connection end of said electric heater means.

5,801,358

METHOD FOR DISINTEGRATING JOINED STRUCTURE WITH HIGH FREQUENCY FIELDS

Sadahiko Yokoyama, and Masatoshi Iji, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Division of Ser. No. 685,665, Jul. 24, 1996, This application

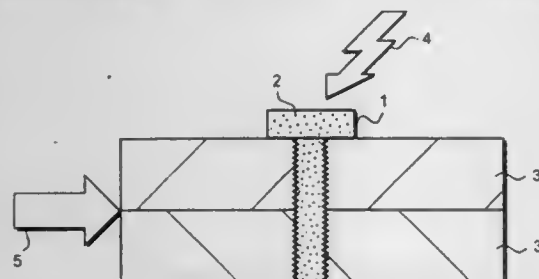
Jun. 26, 1997, Ser. No. 883,602

Claims priority, application Japan, Jul. 25, 1995, 7-188735

Int. Cl.⁶ H05B 6/14; 6/80; B23P 19/06

U.S. Cl. 219—634

4 Claims



1. A method of disintegrating a joining member of a joined structure in which two parts, a part and a base material, or two base

materials are joined by said joining member constituted by a composite material containing a heating assistant, said method comprising the steps of:

- placing said joining member in a heating zone; and
- applying one of a high frequency magnetic field and a high frequency electric field to said joining member in order to disintegrate said joining member.

5,801,359

TEMPERATURE CONTROL THAT DEFECTS VOLTAGE DROP ACROSS EXCITATION COIL IN IMAGE HEATING APPARATUS

Hiroshi Mano, Tokyo, and Minoru Hayasaki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 500,453, Jul. 10, 1995, abandoned.

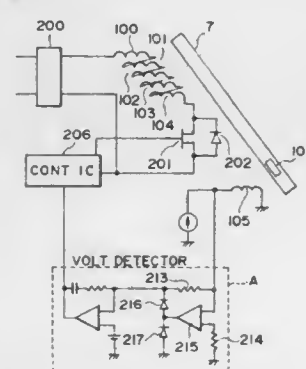
This application Jan. 27, 1997, Ser. No. 788,351

Claims priority, application Japan, Jul. 8, 1994, 6-180962; Mar. 2, 1995, 7-068826

Int. Cl.⁶ H05B 6/06; 6/10; G03G 15/20

U.S. Cl. 219—667

8 Claims



1. An image heating apparatus, comprising:
 - a heater for heating an image carried on a recording material, said heater having a metal layer for generating heat by electric energy supply thereto;
 - an excitation coil magnetically couplable with said metal layer, said excitation coil being supplied with an AC electric energy; means for detecting a voltage drop, across said excitation coil, which changes with a temperature of the heater; and
 - electric energy control means for controlling electric energy to be supplied to said metal layer in accordance with an output of said detecting means, wherein said metal layer has a metal ring therein, and said excitation coil is in magnetical connection with said metal ring.

5,801,360

IMAGE FIXING APPARATUS

Hiroyuki Oba; Yasumasa Ohtsuka; Kouichi Okuda; Tatsunori Ishiyama, all of Yokohama; Akira Hayakawa; Daizo Fukuzawa, both of Tokyo, and Takashi Shihuya, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1995, Ser. No. 539,739

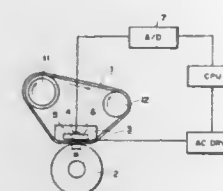
Claims priority, application Japan, Oct. 5, 1994, 6-264383; Nov. 30, 1994, 6-296676

Int. Cl.⁶ G03G 15/20

U.S. Cl. 219—216

6 Claims

1. A fixing apparatus comprising:
 - a heat generating element for generating heat upon electric power supply thereto;
 - a temperature detecting element for detecting a temperature of said heat generating element;



TIME	ROTARY SPEED	POWER RATED
100 min	1000 RPM	60%
80 min	800 RPM	80%
60 min	600 RPM	75%
40 min	400 RPM	80%

power application control means for controlling the power to said heat generating element so that the temperature detected by said temperature detecting element maintains a fixing temperature; and

power setting means for pre-applying power to said heat generating element to detect a rate of temperature rise during the pre-application of power, before power is applied to start up said heat generating element to the fixing temperature, and for setting the power to be applied during the start-up period, in accordance with the detected rate of temperature rise.

5,801,361

CERAMIC IGNITER WITH HOT ZONE THICKNESS OF 0.019 INCHES OR LESS

Craig A. Willkens, Worcester, and Linda S. Bateman, Spencer, both of Mass., assignors to Saint-Gobain/Norton Industrial Ceramics Corporation, Worcester, Mass.

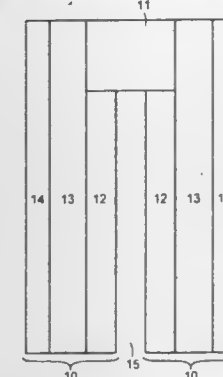
Continuation of Ser. No. 592,157, Jan. 26, 1996, abandoned.

This application Feb. 20, 1997, Ser. No. 816,949

Int. Cl.⁶ H05B 3/00; H01B 1/18

U.S. Cl. 219—270

20 Claims



1. A ceramic igniter comprising:

- (i) a pair of conductive ends, and
- (ii) a hot zone disposed between the conductive ends, the hot zone comprising:
 - (a) between about 50 and about 80 vol % of an electrically insulating material selected from the group consisting of aluminum nitride, boron nitride, silicon nitride, and mixtures thereof;
 - (b) between about 10 and about 45 vol % of a semiconductive material selected from the group consisting of silicon carbide and boron carbide, and mixtures thereof, and
 - (c) between about 5 and about 25 vol % of a metallic conductor selected from the group consisting of molybdenum disilicide, tungsten disilicide, tungsten carbide, titanium nitride, and mixtures thereof,

wherein at least a portion of the hot zone has a thickness of no more than 0.019".

5,801,362

PORTABLE ELECTRIC OVEN WITH FAN AND MOTOR ARRANGEMENT FOR IMPROVED HEATED AIR FLOW AND MOTOR COOLING

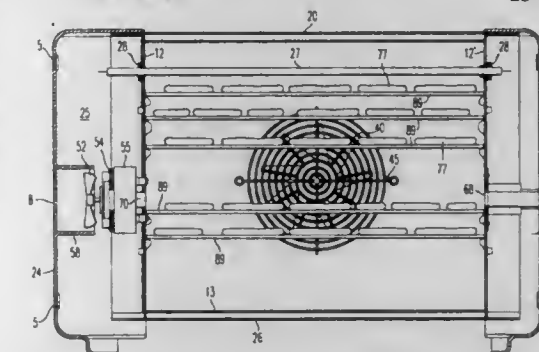
Theodore Pearlman, Holmdel, and Wade Pearlman, Lincroft, both of N.J., assignors to Hudson Standard Corporation, Newark, N.J.

Continuation of Ser. No. 318,168, Oct. 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 181,555, Jan. 14, 1994, abandoned. This application Nov. 13, 1995, Ser. No. 555,894

Int. Cl.⁶ A47J 37/04; F27D 7/04

U.S. Cl. 219—400

23 Claims



1. An electrically heated convection oven for baking, rotisserie roasting, broiling, defrosting, and dehydrating a foodstuff, comprising:

- a heating chamber surrounded by an outer housing, said heating chamber having a top wall, two side walls, a rear wall, and a bottom wall, said housing comprising a rear wall spaced from said rear wall of said chamber to form an air duct, two side walls and a front door configured to be a front wall of said heating chamber;
 - a second housing attached to the exterior of said rear wall of said housing;
 - a first electric motor positioned in said second housing comprising a shaft inserted through said rear wall of said heating chamber, said shaft carrying a first radial fan impeller rotatable inside and in front of said rear wall of said heating chamber for moving heated air in said chamber, and a second radial fan impeller on the back of said rear wall for circulating air for cooling said motor inside said second housing;
 - at least one electric heating element mounted inside said chamber and close to and along its top wall; and
 - a control circuit for operating said first electric motor and said at least one heating element;
- wherein at least one of said rear wall, said top wall and said bottom wall of said heating chamber is curved along substantially the entire length thereof to create a parabolically deflective surface for minimizing resistance from the interior of said heating chamber to movement of said heated air by said first radial fan impeller, said deflective surface having an inner concave surface facing said first radial fan impeller for enhancing movement of said heated air, said heating chamber not including a heated element located adjacent to said first radial fan impeller.

5,801,363

MICROWAVE OVEN WITH BUILT-IN FOOD COVERING MECHANISM

Mitchell Michaluk, III, 17501 Mulvaney, Manchester, Mich. 48158

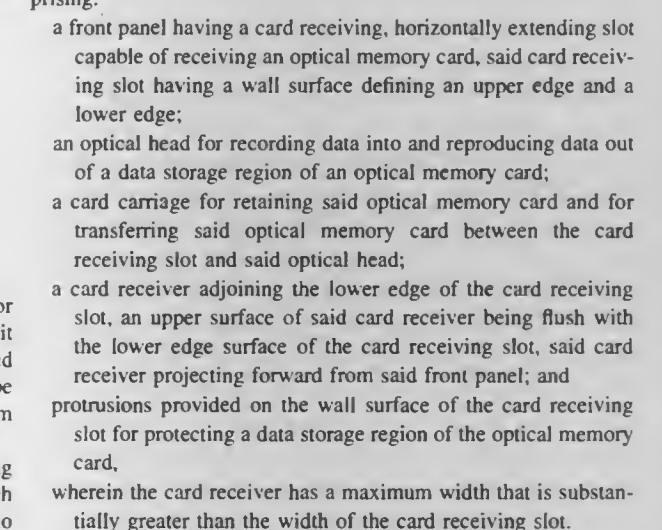
Continuation-in-part of Ser. No. 599,678, Feb. 12, 1996, Pat. No. 5,660,755, which is a continuation-in-part of Ser. No. 262,922, Jun. 20, 1994, Pat. No. 5,550,356. This application May 6, 1997, Ser. No. 852,183

Int. Cl.⁶ H05B 6/80

U.S. Cl. 219—734

11 Claims

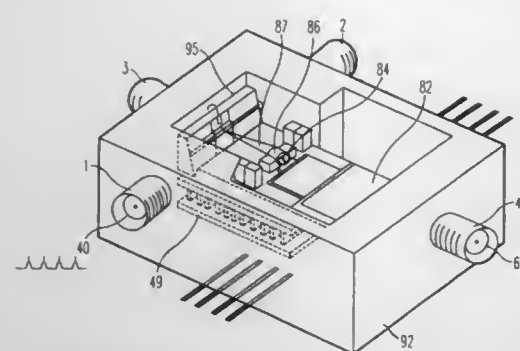
1. A microwave oven with a built-in food covering mechanism, the microwave oven having a body with an open interior defined by a top, a bottom and at least one side, a door hingedly attaching



UMI

15 Claims

- a laser diode (LD) driver circuit that receives input laser-drive sampling pulse signals from an external source and supplies short electric pulses by employing a gain switching method;
- a laser diode that receives said short electric pulses from said LD driver circuit and generates optical probe pulse light as said irradiated short-pulse laser light;



a sampling photoconductor, permanently optically pre-aligned with said laser diode, and that performs switching in accordance with said generated optical probe pulse light and samples said input signals;

a condenser lens, permanently optically pre-aligned with said laser diode and said photoconductor, and that focuses the optical probe pulse light from said laser diode onto said photoconductor; and

cooling temperature control means that maintains temperature of said laser diode at a fixed temperature;

wherein said sampler module is permanently optically pre-aligned at a time of fabrication.

5,801,376

PHOTOELECTRIC BARRIER AND METHOD FOR OPERATION

Paul Haberl, München; Werner Lehner, Gröbenzell, and Hermann Haberl, München, all of Germany, assignors to Leuze lumiflex GmbH & Co., Munich, Germany

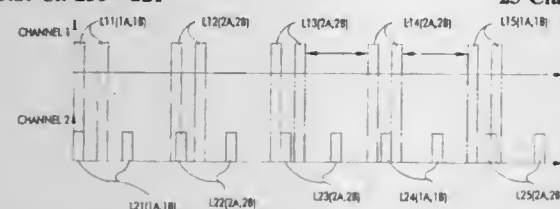
Filed Mar. 21, 1997, Ser. No. 822,639

Claims priority, application Germany, Mar. 21, 1996, 196 11 195.1

Int. Cl.⁶ G01V 9/04

U.S. Cl. 250—221

23 Claims



1. A method for operation of a photoelectric barrier that comprises at least two pairs of transmitters/receivers each operating synchronously, wherein each of the two transmitters transmits a light signal having a specific identifier, said signal being in the form of a double pulse separated by a pause b and/or d, said double pulse consisting of two pulse groups each separated by a pause a and/or c, respectively, and each receiver receiver and evaluates a light signal of the associated transmitter as correctly received when at least one of the two pulse groups is recognized as valid by means of the associated identifier, in which the duration p of the pulse groups and the pauses a and/or c between them are established so that at most one pulse group of one double pulse of the one transmitter is superimposed with one pulse group of one double pulse of the other transmitter.

5,801,377

REDUCING DITHER INDUCED ERRORS FROM PATH LENGTH CONTROL RESETS IN A RING LASER GYRO

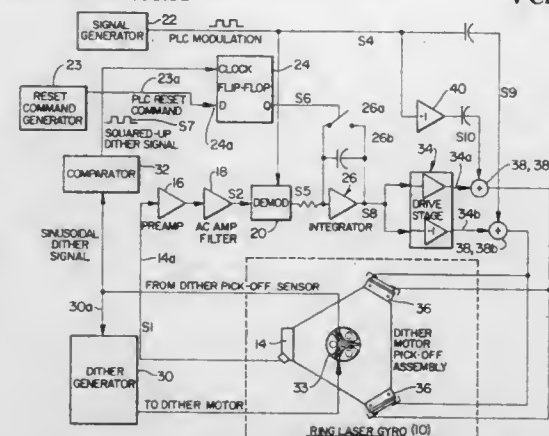
Andrew J. Karpinski, Jr., Clearwater, Fla.; Steven C. Albers, Coon Rapids, and Timothy J. Callaghan, Roseville, both of Minn., assignors to Honeywell Inc.

Filed Feb. 20, 1997, Ser. No. 801,387

Int. Cl.⁶ G01C 19/66

U.S. Cl. 250—231.12

4 Claims



1. A ring laser gyro comprising path length reset means for resetting a gyro path length control and dithering means for dithering the gyro in response to a dithering signal, characterized by: the reset means comprising means for integrating a DC signal which represents the path length to produce an integrated DC signal and varying the path length in response to the integrated DC signal; and

synchronizing means responsive to a reset signal for setting the DC signal at a specific level if the reset signal is present and the dithering signal is at a pre-selected state.

5,801,378

OPTICAL ENCODER DIFFRACTION GRATINGS FOR ELIMINATING DIFFRACTED LIGHT COMPONENTS

Kazuhiro Hane, Sendai; Atsushi Ieki, and Keiji Matsui, both of Niwa-gun, all of Japan, assignors to Okuma Corporation, Nagoya, Japan

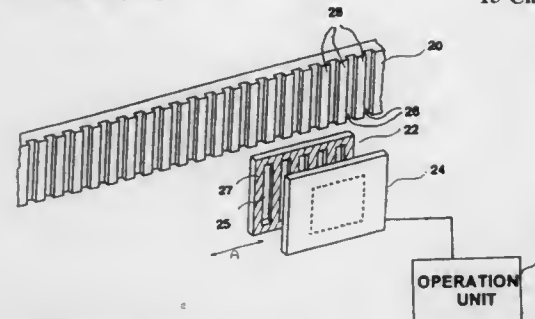
Filed Mar. 17, 1997, Ser. No. 818,451

Claims priority, application Japan, Mar. 19, 1996, 8-062823

Int. Cl.⁶ H01J 3/14

U.S. Cl. 250—237 G

13 Claims



1. An optical encoder comprising:

two diffraction gratings superimposed together for changing the light intensity depending on the relative position, at least one diffraction grating being a phase grating alternately disposed with groove portions and ridge portions to furnish a different phase change for each incident light beam, said phase change being an elimination of the zeroth-order component of diffracted light created by the phase grating;

a light receiving unit for detecting light intensity that has passed said two diffraction gratings and for outputting an electric signal in proportion to the light intensity; and

an operation unit for calculating the relative displacement of said two diffraction gratings based on the output of said light receiving unit.

5,801,379

HIGH VOLTAGE WAVEFORM GENERATOR

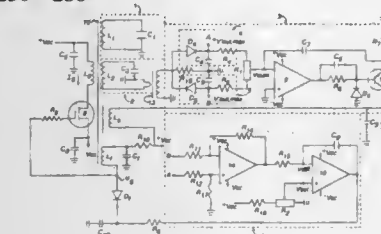
Viktor Kouznetsov, Mars, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Mar. 1, 1996, Ser. No. 609,531

Int. Cl.⁶ H01J 49/00; B01D 59/44

U.S. Cl. 250—286

20 Claims



1. An electrical circuit for generating a periodically varying electrical signal for creating a periodically varying electrical field between electrodes of an ion mobility spectrometer, comprising:

- (A) a first electromagnetic transformer electrically connected to an external power source for converting electrical power input from the external power source to a periodically varying magnetic field;
 - (B) a controller electrically connected to the first transformer for controlling the electrical power input to the first transformer;
 - (C) first and second oscillating circuits electromagnetically coupled to each other and to the first transformer for creating the periodically varying electrical field,
- wherein each oscillating circuit comprises:
- (i) an inductance for converting the periodically varying magnetic field to the periodically varying electrical signal; and
 - (ii) a capacitance electrically connected to the inductance for converting the periodically varying electrical signal to the periodically varying electrical field;
- wherein the capacitance of one of the oscillating circuits is formed by the electrodes of the ion mobility spectrometer; and
- wherein the periodically varying electrical signal comprises a first and second frequency component defined by:
- (a) the inductances and capacitances which comprise the first and second oscillating circuits; and
 - (b) the extent of the electromagnetic coupling between the inductances which comprise the first and second oscillating circuits.

5,801,380

ARRAY DETECTORS FOR SIMULTANEOUS MEASUREMENT OF IONS IN MASS SPECTROMETRY

Mahadeva P. Sinha, Temple, Calif., assignor to California Institute of Technology, Pasadena, Calif.

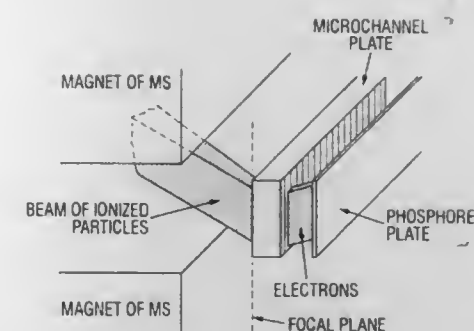
Filed Feb. 9, 1996, Ser. No. 600,861

Int. Cl.⁶ H01J 49/00; B01D 59/44

U.S. Cl. 250—299

29 Claims

1. A focal plane type ion imaging system which images ions that are indicative of a material to be imaged, said ions having masses, said system comprising:



an ion separator which separates ions according to their masses, and produces output ions at an exit area thereof, the ions exiting in a first direction;

a microchannel plate which produces electrons having a characteristic indicative of an amplified ion intensity, the microchannel plate having channels which amplify the ion intensity and output the electrons indicating an amplified intensity, and wherein a direction of the channels is substantially parallel to the first direction, wherein an entrance of the microchannel plate is located under an influence of a fringe field of said particle separator; and

a phosphor plate located to receive electrons that are output from the microchannel plate, said phosphor plate being substantially parallel to the first direction.

5,801,381

METHOD FOR PROTECTING A PROBE TIP USING ACTIVE LATERAL SCANNING CONTROL

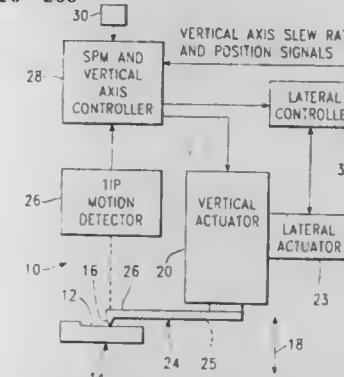
Edwin Flecha; Kenneth Gilbert Roessler, both of Boca Raton, Fla., and Robert Marshall Stowell, West Linn, Oreg., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1997, Ser. No. 861,118

Int. Cl.⁶ H01J 37/26

U.S. Cl. 250—306

17 Claims



1. A method for controlling relative lateral movement between a scanning microscope probe tip and a sample surface, with said relative lateral movement occurring in a direction perpendicular to said sample surface by means of a lateral actuator, wherein said method comprises steps of:

- a) developing a feedback signal indicating a level of movement, in a first direction perpendicular to said sample surface, required to satisfy a pre-determined condition of engagement between said probe tip and said sample surface;
- b) comparing said feedback signal with a stored threshold value, wherein said stored threshold value corresponds to a maximum distance through which said probe tip can be driven in said first direction away from said sample surface during an incremental portion of said relative lateral movement;
- c) moving said probe tip in said first direction in accordance with said feedback signal;

- d) driving said lateral actuator through said incremental portion only if said feedback signal is less than said stored threshold value, as determined in said step b); and
e) returning to said step a).

5,801,382

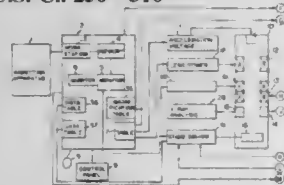
METHOD OF ANALYZING FOREIGN MATERIALS
Osamu Noda, and Setsuo Norioka, both of Tokyo, Japan, assignors to Jeol Ltd., Tokyo, Japan

Filed Jul. 8, 1997, Ser. No. 889,659

Claims priority, application Japan, Jul. 9, 1996, 8-179416

Int. Cl.⁶ H01J 37/00

U.S. Cl. 250—310



10 Claims

1. A method of analyzing foreign materials or contaminants by placing a material on a specimen stage of a scanning electron microscope emitting an electron beam and equipped with an x-ray analysis mechanism and by making elemental analysis of any contaminant on the material with the x-ray analysis mechanism, said method comprising the steps of:

- producing a relative movement between said specimen stage and said electron beam according to data about the position of the contaminant that is at a distance from the center of the electron beam;
then scanning said material containing the contaminant by the electron beam to produce charged particles;
detecting a signal representing said produced charged particles;
finding from said signal the distance between said contaminant and the center of an optical axis of said electron beam; and
producing a relative movement between said specimen stage and said electron beam according to said found distance.

5,801,383

VOX FILM, WHEREIN X IS GREATER THAN 1.875 AND LESS THAN 2.0, AND A BOLOMETER-TYPE INFRARED SENSOR COMPRISING THE VOX FILM

Hideo Wada; Mitsuhiro Nagashima; Naoki Oda; Tokuhito Sasaki, and Toru Mori, all of Tokyo, Japan, assignors to Masahiro Ota, Director General, Technical Research and Development Institute, Japan Defense Agency, and NEC Corporation, both of Tokyo, Japan

Filed Nov. 22, 1996, Ser. No. 754,140

Claims priority, application Japan, Nov. 22, 1995, 7-304226; Mar. 27, 1996, 8-071983

Int. Cl.⁶ H01L 25/00; G01J 5/00

U.S. Cl. 250—332



18 Claims

1. A method of controlling electric characteristics of a vanadium oxide film, comprising the steps of reducing a vanadium oxide precursory film at a heat treatment temperature in a reducing atmosphere into said vanadium oxide film and selecting said heat treatment temperature in a predetermined temperature range to control a specific resistance of said vanadium oxide film.

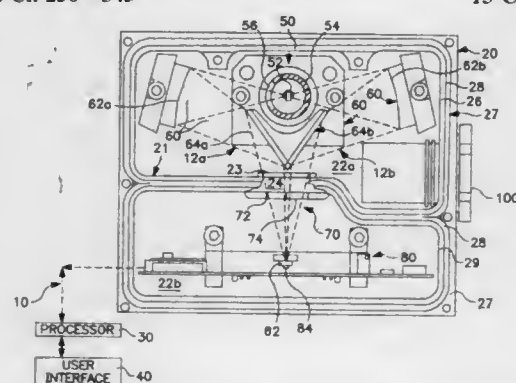
5,801,384
INFRARED GAS SPECTROMETER HAVING SEALED SECTIONS FOR IMPROVED SAFETY
G. Lamar Kirchhevel, Westminster, Colo., assignor to Ohmeda Inc., Liberty Corner, N.J.

Filed Aug. 29, 1997, Ser. No. 921,429

Int. Cl.⁶ G01N 21/01; 21/35

U.S. Cl. 250—345

13 Claims



1. A respiratory gas analyzer for determining the concentration of one or more predefined components of a respiratory gas sample, comprising:

- a housing assembly defining a primary containment section and a secondary containment section wherein said primary containment section and said secondary containment section share a partition wall in said housing assembly;
an infrared radiation source positioned within said primary containment section of said housing assembly whereby said infrared radiation source generates a plurality of beams of infrared radiation;
a sample gas chamber having opposing transparent walls and being positioned within said secondary containment section of said housing assembly for receiving a respiratory gas sample;
a detector assembly positioned within said secondary containment section for receiving said plurality of beams of infrared radiation which pass through said transparent walls of said sample gas chamber and for generating a signal indicative of the concentration of said one or more predefined components of said respiratory gas sample;
a partition window in said partition wall for allowing the transmission of infrared radiation from said primary containment section to said secondary containment section; and
means for sealing said primary containment section from said secondary containment section so as to prevent said respiratory gas sample from entering said primary containment section in the event said respiratory gas sample leaks from said sample gas chamber.

5,801,385

X-RAY IMAGE PICKUP DEVICE

Tadao Endo, Atsugi; Noriyuki Kaifu, Hachioji; Shinichi Takeda, Atsugi; Kazuaki Tashiro, Hadano; Isao Kobayashi, Atsugi, and Toshio Kameshima, Sagami, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1996, Ser. No. 725,319

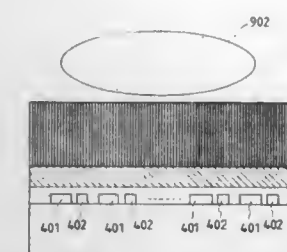
Claims priority, application Japan, Oct. 6, 1995, 7-259625

Int. Cl.⁶ H05G 1/64

U.S. Cl. 250—370.11

14 Claims

1. An X-ray image pickup device comprising:



- a two-dimensional image reading device constituted by two-dimensionally forming a plurality of photoelectric conversion elements on an insulating substrate;
a wavelength converter which is formed to be substantially in tight contact with a surface of said two-dimensional image reading device and converts a wavelength of irradiated X-rays into a wavelength in a photosensitive wavelength range of said two-dimensional image reading device; and
a grid plate which is formed between said wavelength converter and an X-ray source and comprises X-ray transmitting material and material for limiting X-ray transmission arranged alternately in a pitch smaller than that of said photoelectric conversion elements, to guide X-rays from a specific direction to said wavelength converter.

5,801,386

APPARATUS FOR MEASURING PLASMA CHARACTERISTICS WITHIN A SEMICONDUCTOR WAFER PROCESSING SYSTEM AND A METHOD OF FABRICATING AND USING SAME

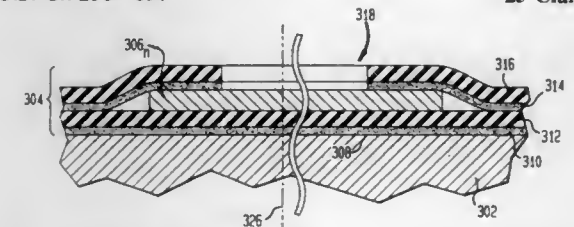
Valentin N. Todorov, Fremont; Yoshi Tanase, Campbell; Xue-Yu Qian, Milpitas; Arthur H. Sato; Peter Loewenhardt, both of Santa Clara; Yan Ye, Campbell; Shaoh X. Pan, San Jose, and Dragan Podlesnik, Palo Alto, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 570,184, Dec. 11, 1995, abandoned. This application May 28, 1996, Ser. No. 653,212

Int. Cl.⁶ H01J 37/244

U.S. Cl. 250—397

25 Claims



1. Apparatus for measuring plasma characteristics comprising:
a planar first insulator layer;
a collector pad supported by said planar first insulator layer; and
a second insulator layer, affixed to said planar first insulator layer and said collector pad, defining an aperture that opens to said collector pad and permits plasma to contact said collector pad.

5,801,387

METHOD OF AND APPARATUS FOR THE ELECTRON BEAM TREATMENT OF POWDERS AND AGGREGATES IN PNEUMATIC TRANSFER

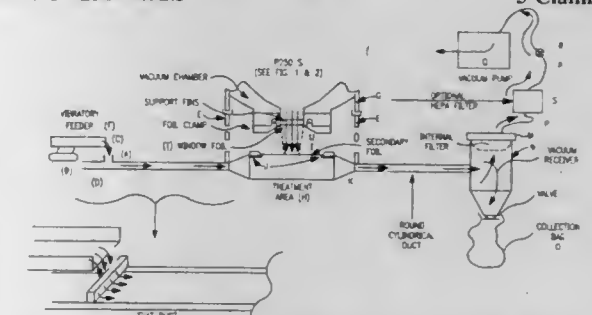
Samuel V. Nablo, and James C. Wood, Jr., both of Lexington, Mass., assignors to Electron Processing Systems, Inc., N. Billerica, Mass.

Filed Mar. 26, 1997, Ser. No. 824,529

Int. Cl.⁶ H01J 37/30

U.S. Cl. 250—492.3

5 Claims



1. Method of irradiating powders or aggregates with electrons, which method comprises the following steps: producing a beam of low-energy electrons, and pneumatically transferring said powders or aggregates through said beam at atmospheric pressure as a thin layer moving at high velocity.

5,801,388

PARTICLE BEAM, IN PARTICULAR IONIC OPTIC IMAGING SYSTEM

Gerhard Stengl, Wernberg; Alfred Chalupka, Vienna, and Herbert Vonach, Klosterneuburg, all of Austria, assignors to IMS-Ionen Mikropfabrikations Systeme GmbH, Vienna, Austria

PCT No. PCT/AT95/00003, § 371 Date Sep. 17, 1996, § 102(e) Date Sep. 17, 1996, PCT Pub. No. WO95/19637, PCT Pub. Date Jul. 20, 1995

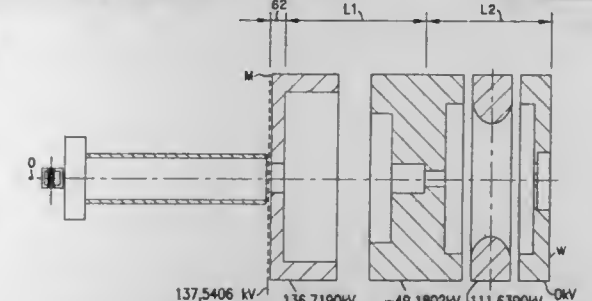
PCT Filed Jan. 12, 1995, Ser. No. 669,481

Claims priority, application Austria, Jan. 13, 1994, A 47/94

Int. Cl.⁶ H01J 37/30

U.S. Cl. 250—492.21

11 Claims



1. A particle beam imaging system, comprising:
a masking foil;
a particle source projecting a representation of a structure onto a wafer along a beam path, the structure being formed on the masking foil and having at least one transparent portion; and
at least two electrostatic lenses having an optical axis there-through and being positioned between the wafer and the particle source, a first lens of the at least two electrostatic lenses including a grating lens formed by a first tube electrode and a first plate, the first plate being positioned perpendicular to the optical axis, wherein the masking foil forms the first plate, and wherein the masking foil is positioned downstream of the first electrode in a direction of the beam path.

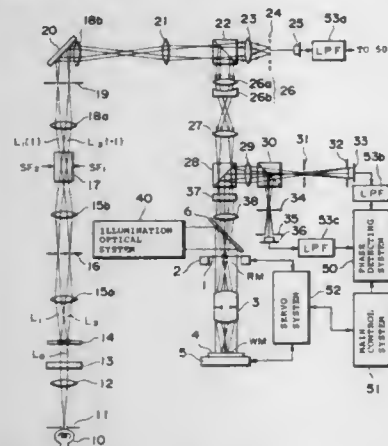
5,801,389

ACOUSTO-OPTIC MODULATOR, POSITION DETECTOR USING IT, AND PROJECTION EXPOSURE APPARATUS
Hideo Mizutani, Yokohama, and Kazuya Ota, Tokyo, both of Japan, assignors to Nikon Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 470,889, Jun. 6, 1995, Pat. No. 5,569,929, and a continuation-in-part of Ser. No. 452,362, May 30, 1995, abandoned, and a continuation-in-part of Ser. No. 616,993, Mar. 14, 1996, abandoned. This application Jul. 31, 1996, Ser. No. 688,800

Int. Cl.⁶ G01N 21/86

U.S. Cl. 250—548

45 Claims



an intrinsic amorphous silicon buffer pad pattern formed at a temperature below 450 degrees Celsius on said oxide film; and
a metal pattern formed on said intrinsic amorphous silicon buffer pad pattern.

5,801,396

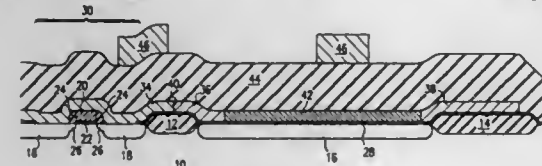
INVERTED FIELD-EFFECT DEVICE WITH POLYCRYSTALLINE SILICON/GERMANIUM CHANNEL
Tslu Chiu Chan, Carrollton; Yu-Pin Han, Dallas; Elmer H. Guritz, Roanoke, all of Tex., and Richard A. Blanchard, Los Altos, Calif., assignors to STMicroelectronics, Inc., Carrollton, Tex.

Continuation-in-part of Ser. No. 460,494, Jun. 2, 1995, which is a continuation of Ser. No. 218,700, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 798,615, Nov. 26, 1991, abandoned, which is a division of Ser. No. 531,014, May 31, 1990, Pat. No. 5,135,888, which is a continuation-in-part of Ser. No. 298,530, Jan. 18, 1989, Pat. No. 5,196,233. This application Jun. 7, 1995, Ser. No. 488,398

Int. Cl.⁶ H01L 29/04

U.S. Cl. 257—65

22 Claims



1. An integrated circuit, comprising:
a first field-effect transistor, having source and drain diffusions of a first conductivity type located in and defining a channel region therebetween in a monocrystalline semiconductor body, and a gate electrode, formed in a first thin-film layer of polycrystalline semiconductor material, which is capacitively coupled to said channel region through a first gate dielectric layer;
a second field-effect transistor, having source and drain diffusions of a second conductivity type located in and defining a channel region therebetween in a second thin-film layer of polycrystalline semiconductor material, and a gate electrode, formed in said monocrystalline body, which is capacitively coupled to said channel region through a second gate dielectric layer;
wherein said first and second gate dielectric layers have different thicknesses at all locations.

5,801,397

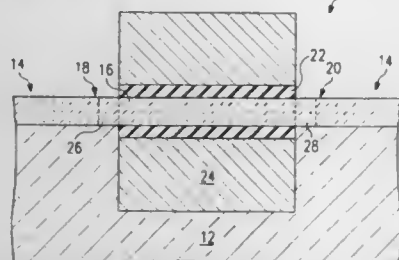
DEVICE HAVING A SELF-ALIGNED GATE ELECTRODE WRAPPED AROUND THE CHANNEL

James A. Cunningham, Saratoga, Calif., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.
Division of Ser. No. 315,955, Sep. 30, 1994, This application May 30, 1995, Ser. No. 452,893

Int. Cl.⁶ H01L 29/76;31/036;27/01;27/12

U.S. Cl. 257—66

18 Claims



1. A semiconductor device, comprising:
an insulating support having a cavity disposed therein;

a strip of semiconductor material having two end regions contacting said insulating support and having a midsection that bridges said cavity;
a layer of dielectric material wrapped around said midsection; and
a layer of conductive material wrapped around said dielectric layer, a first portion of said conductive layer disposed within said cavity, a second portion of said conductive layer disposed outside of said cavity, said first portion being self-aligned with said second portion.

5,801,398

FIELD EFFECT TRANSISTOR

Hiroyuki Hebiguchi, Miyagi-ken, Japan, assignor to Frontec Corporation, Japan

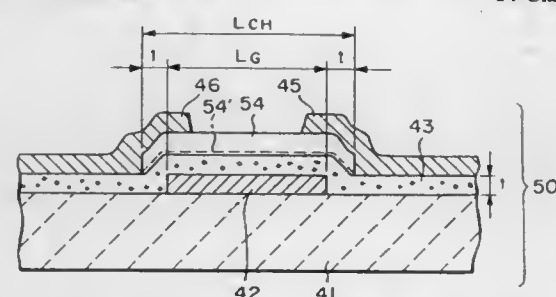
Filed Oct. 17, 1995, Ser. No. 543,980

Claims priority, application Japan, Oct. 18, 1994, 6-252520

Int. Cl.⁶ H01L 29/76;29/04;29/94;31/062

U.S. Cl. 257—66

14 Claims



1. A field effect transistor including a substrate, a source electrode, a drain electrode and a gate electrode, the gate electrode being separated from said source electrode and said drain electrode by an insulating film;
wherein a semiconductor region is provided between said source electrode and said drain electrode, a channel generating region for providing a conductive path through the semiconductor region depending on a voltage of the gate electrode is formed in a portion of said semiconductor region which is closest to said gate electrode, and end regions of the channel generating region directly contacts said drain electrode and said source electrode, and
wherein a width of the semiconductor region is wider than a width of the gate electrode and a difference between the width of said semiconductor region and the width of said gate electrode is less than two times a thickness of the insulating film.

5,801,399

SEMICONDUCTOR DEVICE WITH ANTIREFLECTION FILM

Atsuo Hattori, and Satoshi Hibino, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Continuation of Ser. No. 543,163, Oct. 13, 1995, abandoned.

This application Aug. 5, 1997, Ser. No. 906,511

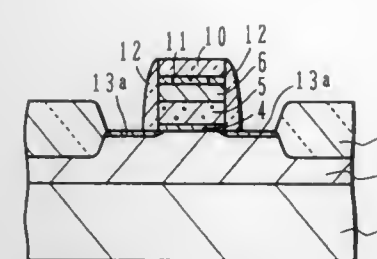
Claims priority, application Japan, Oct. 13, 1994, 6-247776

Int. Cl.⁶ H01L 27/108;29/04;31/0232;29/00

U.S. Cl. 257—69

4 Claims

1. A semiconductor device comprising:
a semiconductor substrate having an uneven surface;
a first layer made of conductive material and formed on the semiconductor substrate in a predetermined pattern;
a second layer formed directly on the first layer, and having the same predetermined pattern as the first layer; and
a third layer formed directly on the second layer, and having the same predetermined pattern as the first and second layers, the third layer being an antireflection film made of material different from the first and second layers, the composition and



arrangement of the antireflection film being such as to lower an intensity of light incident to and reflected from the first layer,
wherein the second layer has a composition different from the first and third layers, the composition and arrangement of the second layer being such as to cause relaxing of any stress generated between the first and third layer, the first layer comprising WSi, the second layer comprising amorphous silicon or polycrystalline silicon, and the third layer comprising SiNx.

5,801,400

ACTIVE MATRIX DEVICE

Toshihiko Nishihata, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

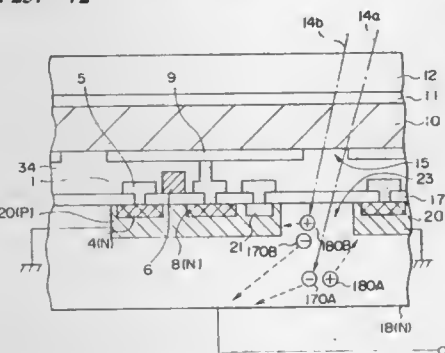
Filed Jan. 11, 1996, Ser. No. 585,427

Claims priority, application Japan, Jan. 10, 1995, 7-018426

Int. Cl.⁶ H01L 27/14

U.S. Cl. 257—72

5 Claims



1. An active matrix device comprising:
a plurality of switching transistors arranged into a matrix pattern on a semiconductor substrate of a first conductivity type;
signal lines for supplying data to sources of the transistors;
gate lines for controlling turn on and turn off operation of the transistors;
pixel electrodes connected to drains of the transistors; and
semiconductor regions of a second conductivity type opposite to the first conductivity type, formed into wells in the semiconductor substrate so that the semiconductor regions are separated from each other by portions of the semiconductor substrate, the transistors being formed in the semiconductor regions, the semiconductor substrate and the semiconductor regions being reversed-biased with respect to each other.

5,801,401

FLASH MEMORY WITH MICROCRYSTALLINE SILICON CARBIDE FILM FLOATING GATE

Leonard Forbes, Corvallis, Oreg., assignor to Micron Technology, Inc., Boise, Id.

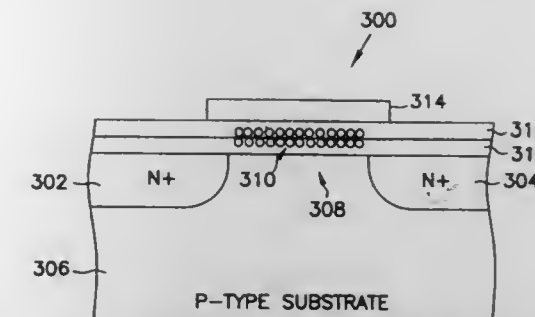
Filed Jan. 29, 1997, Ser. No. 790,603

Int. Cl.⁶ H01L 29/00

U.S. Cl. 257—77

10 Claims

1. An integrated circuit memory cell comprising:



a transistor having a source, drain, control gate and a floating gate, the floating gate comprising a film of microcrystalline silicon carbide particles, the microcrystalline silicon carbide particles being in contact to form a conductive film.

5,801,402

VCSEL LIGHT OUTPUT APPARATUS HAVING A MONITORING PHOTODETECTOR AND AN OPTICAL PICKUP APPARATUS EMPLOYING THE SAME

Hyun-kuk Shin, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

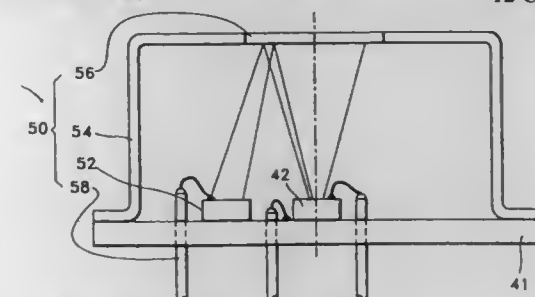
Filed Nov. 7, 1996, Ser. No. 744,320

Claims priority, application Rep. of Korea, Jan. 23, 1996, 96-1396

Int. Cl.⁶ H01L 27/15

U.S. Cl. 257—80

12 Claims



1. A light output apparatus, comprising:
a base;
a vertical cavity surface emitting laser (VCSEL) directly installed on the base for emitting light in a direction normal to the base; and
light output controlling means for controlling the light output of the VCSEL,
wherein said light output controlling means is comprised of:
a housing enclosing the VCSEL, said housing having a projector window for transmitting most of the light emitted from the VCSEL and reflecting some of the light back onto said base;
a monitoring photodetector installed on the base for receiving some of the light emitted from the VCSEL and reflected from the projector window, and converting the light into an electrical signal; and
a plurality of lead pins, connected to the VCSEL and the monitoring photodetector, for connecting the apparatus to a power supply and transmitting the electrical signal from the photodetector.

5,801,403

LOW DIVERGENCE LASER DIODE

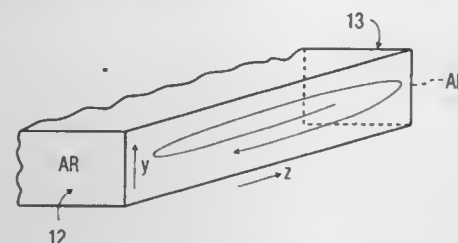
Xiaoguang He, Tucson, Ariz., assignor to Opto Power Corporation, Tucson, Ariz.

Filed Apr. 4, 1997, Ser. No. 832,646

Int. Cl.⁶ H01L 33/00

U.S. Cl. 257—94

4 Claims



1. Apparatus comprising a laser diode having an emitting facet, said apparatus including an optical fiber having an end coupled to said facet, said diode having defined therein a resonant cavity having front and rear faces, said faces having a partially reflective and an anti-reflective coating thereon respectively, said cavity having a calculable length L_m equal to a length for maximum efficiency and having an associated depth of focus said cavity having an actual length greater than L_m which said efficiency is lower than that at which a maximum efficiency occurs and said depth of focus is longer than said associated depth of focus.

5,801,404

HIGH EFFICIENCY, ALUMINUM GALLIUM ARSENIDE LED ARRAYS UTILIZING ZINC-STOP DIFFUSION LAYERS

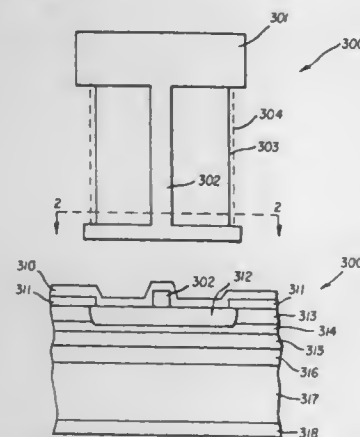
Keith Brian Kahen, Rochester, and Gopalan Rajeswaran, Fairport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 29, 1996, Ser. No. 655,052

Int. Cl.⁶ H01L 33/00

U.S. Cl. 257—101

4 Claims



1. A light emitting diode (LED) having an n-GaAs semiconductor substrate, comprising:

- a) an n-AlGaAs cladding layer deposited on the semiconductor substrate;
- b) an active layer formed on the n-AlGaAs cladding layer;
- c) a p-type conductivity layer deposited on the active layer having an Al content greater than 90% and being doped with p-type materials at a concentration range of 2.5×10^{17} to 1×10^{18} atoms/cm³ in order to form a Zn-stop diffusion layer;
- d) a p-AlGaAs cladding layer deposited on the Zn-stop diffusion layer, having an Al content between 55 and 75% and being doped with p-type materials at a concentration range of 1×10^{16} to 2.5×10^{16} atoms/cm³; and

e) electrodes selectively deposited on the substrate and cladding layers.

5,801,405

FIELD EFFECT TRANSISTOR

Tatsuo Nakayama, and Hironobu Miyamoto, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 575,079, Dec. 19, 1995, abandoned.

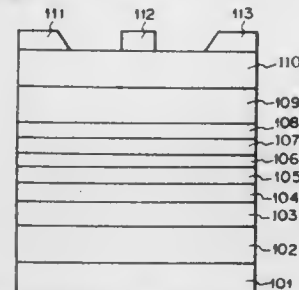
This application Sep. 3, 1997, Ser. No. 923,067

Claims priority, application Japan, Dec. 21, 1994, 6-335835

Int. Cl.⁶ H01L 31/0328; 31/0336; 31/072; 31/109

U.S. Cl. 257—192

20 Claims



1. A field effect transistor disposed on a substrate, comprising: a carrier supply layer; and an active layer, positioned between said substrate and said carrier supply layer, said active layer comprising a first InGaAs layer, a second InGaAs layer, and an InAs layer positioned therebetween having a thickness of more than 1 nm and less than 10 nm, said first InGaAs layer being positioned closer to said substrate than said InAs layer and having a thickness of more than 2 nm and less than 6 nm and a composition represented by a formula $\text{In}_x\text{Ga}_{1-x}\text{As}$ (wherein $0.55 < x < 1$), said second InGaAs layer being positioned farther away from said substrate than said InAs layer and having a thickness of more than 1 nm and less than 4 nm and a composition represented by a formula $\text{In}_y\text{Ga}_{1-y}\text{As}$ (wherein $0.55 < y < 1$).

5,801,406

VARIABLE SIZE INTEGRATED CIRCUIT, MASK PROGRAMMABLE GATE ARRAY

Ray N. Lubow, and Kashmira Singh Johal, both of San Jose, Calif., assignors to Asic Technical Solutions, San Jose, Calif.

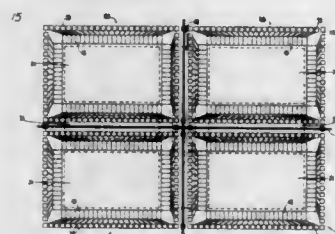
Continuation of Ser. No. 183,691, Jan. 18, 1994, abandoned.

This application Jun. 28, 1995, Ser. No. 496,037

Int. Cl.⁶ H01L 27/10

U.S. Cl. 257—202

16 Claims



1. An semiconductor wafer for constructing customized integrated circuits of various sizes from the wafer comprising: at least two base arrays fabricated on the wafer, each of said at least two base arrays comprising a plurality of transistors and a plurality of input/output buffers surrounding said plurality of transistors, a first of said at least two base arrays formed adjacent a second of said at least two base arrays, said plurality of transistors adaptable to form logic gates; and bridging circuitry fabricated between each of said at least two base arrays, said bridging circuitry comprising a plurality of transistors which can be adapted to form logic gates or which

can be cut through to form at least two discrete integrated circuit dice from said at least two base arrays.

5,801,407

SEMICONDUCTOR INTEGRATED CIRCUIT USING STANDARDIZED ANALOG CELLS

Hideyuki Yamada, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

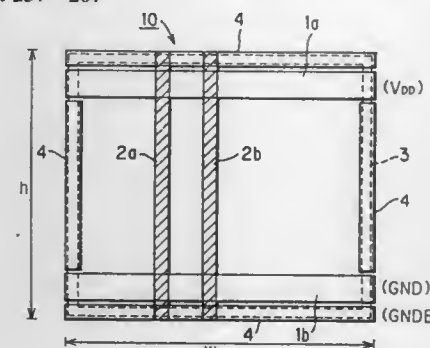
Filed Mar. 26, 1996, Ser. No. 622,084

Claims priority, application Japan, Mar. 27, 1995, 7-093081

Int. Cl.⁶ H07L 27/10

U.S. Cl. 257—207

15 Claims



1. A semiconductor integrated circuit comprising: an analog circuit block that is configured by a plurality of analog cells, each of the analog cells being standardized with respect to height thereof; at least two power source wires arranged such that the two power source wires are commonly used by the plurality of analog cells; and input/output wires provided for each analog cell and arranged in a direction perpendicular to the power source wires, wherein each analog cell is surrounded by a guard-ring diffusion layer and a plurality of guard-ring wires are provided to contact with the guard-ring diffusion layer.

semiconductor layer, said second semiconductor layer having a low impurity concentration;

a third semiconductor layer of the first conductivity type which is disposed on a surface of said second semiconductor layer;

a fourth semiconductor layer of the second conductivity type which is selectively disposed on a portion of a surface of said third semiconductor layer;

a groove-shaped inner wall being at least one in number defining an opening which opens in a surface of said fourth semiconductor layer so as to extend in a direction along said surface of said fourth semiconductor layer, said groove-shaped inner wall extending along a depth direction thereof from said surface of said fourth semiconductor layer to said second semiconductor layer;

a fifth semiconductor layer of the first conductivity type which is disposed on said surfaces of said third and said fourth semiconductor layers to extend across said third and said fourth semiconductor layers, a junction between said fifth semiconductor layer and said fourth semiconductor layer being exposed to a surface, a bottom surface of said fifth semiconductor layer being located at a shallower position than a bottom surface of said fourth semiconductor layer, said fifth semiconductor layer having a higher impurity concentration than said fourth semiconductor layer;

an insulation film covering said inner wall and a surface of said fourth semiconductor layer which is continuous to said inner wall and is in the vicinity of said opening;

a control electrode which is disposed on a surface of said inner wall through said insulation film;

a first major electrode which is disposed on said surfaces of said fourth and said fifth semiconductor layers; and

a second major electrode which is disposed on said second major surface of said first semiconductor layer.

5,801,409

MULTIPHASE CHARGE COUPLED DEVICE SOLID-STATE IMAGE SENSORS

Jung-hyun Nam, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

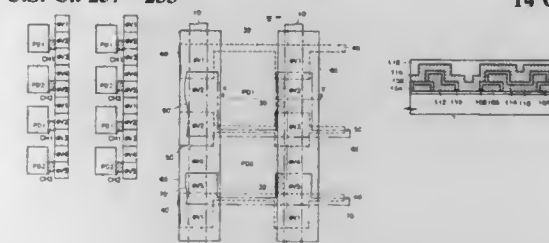
Filed Dec. 18, 1996, Ser. No. 768,802

Claims priority, application Rep. of Korea, Dec. 30, 1995, 1995 69744

Int. Cl.⁶ H01L 27/148

U.S. Cl. 257—233

14 Claims



1. A charge coupled device solid-state image sensor, comprising: a substrate having a face;

a plurality of photodiode groups in the substrate, each photodiode group consisting of N photodiodes arranged along the face in a predetermined direction; and

a plurality of transfer electrode groups on the substrate, a respective one of which is associated with a respective one of the plurality of photodiode groups, each transfer electrode group consisting of 2N+1 transfer electrodes, where N is at least two.

5,801,408

INSULATED GATE SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME

Hideki Takahashi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

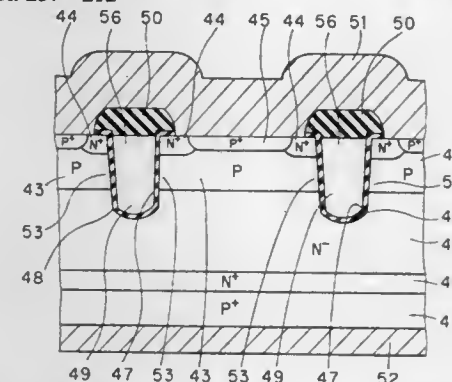
Filed Feb. 13, 1996, Ser. No. 601,161

Claims priority, application Japan, Jul. 21, 1995, 7-185783

Int. Cl.⁶ H01L 23/58; 27/148

U.S. Cl. 257—212

24 Claims



1. An insulated gate semiconductor device, comprising: a first semiconductor layer of a first conductivity type, said first semiconductor layer including a first major surface and a second major surface;

a second semiconductor layer of a second conductivity type which is disposed on said first major surface of said first

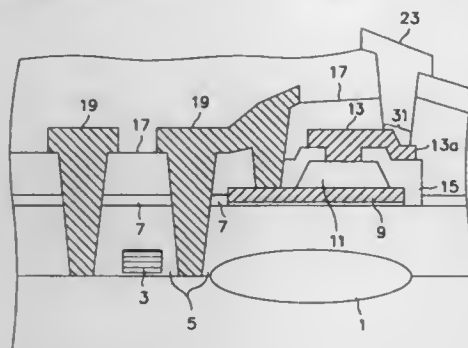
5,801,410

FERROELECTRIC CAPACITORS INCLUDING EXTENDED ELECTRODESYun-Gi Kim, Kangwon-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed May 20, 1997, Ser. No. 859,345

Claims priority, application Rep. of Korea, Jun. 29, 1996, 1996-26446

Int. Cl.⁶ H01L 29/78; 29/44; 29/52; 29/92
U.S. Cl. 257—295

14 Claims



1. A ferroelectric capacitor comprising:
 - a substrate;
 - a first capacitor electrode on said substrate;
 - a ferroelectric layer on said first capacitor electrode;
 - a first insulating layer on said ferroelectric layer opposite said substrate wherein said first insulating layer has a first contact hole therein exposing a portion of said ferroelectric layer;
 - a second capacitor electrode on said first insulating layer, wherein said second capacitor electrode makes contact with said ferroelectric layer through said first contact hole, wherein said second capacitor electrode includes an extension thereof, and wherein said second capacitor electrode extension extends across said first insulating layer away from said first contact hole;
 - a second insulating layer on said second capacitor electrode opposite said substrate wherein said second insulating layer has a second contact hole therein exposing a portion of said second capacitor electrode extension opposite said first insulating layer; and
 - a conductive line on said second insulating layer opposite said substrate, wherein said conductive line makes contact with said exposed portion of said second capacitor electrode extension opposite said insulating layer through said second contact hole.

5,801,411

INTEGRATED CAPACITOR WITH REDUCED VOLTAGE/TEMPERATURE DRIFT

Kevin Mark Klughart, Addison, Tex., assignor to Dallas Semiconductor Corp., Dallas, Tex.

Filed Jan. 11, 1996, Ser. No. 585,059

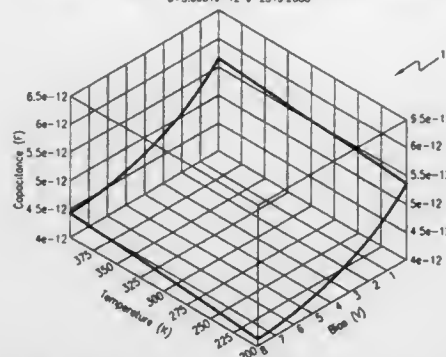
Int. Cl.⁶ H03K 19/12

U.S. Cl. 257—296

28 Claims

1. An integrated monolithic capacitor with reduced voltage/temperature drift, comprising:
 - at least one n-channel MOSFET capacitor, said at least one n-channel MOSFET capacitor including a drain connection, a gate connection, a source connection, and a bulk connection;
 - at least one p-channel MOSFET capacitor, said at least one p-channel MOSFET capacitor including a drain connection, a gate connection, a source connection, and a bulk connection;
 - means for electrically connecting said gate connection of said at least one n-channel MOSFET capacitor with said gate connection of said at least one p-channel MOSFET capacitor;
 - means for connecting said drain connection, said source connection and said bulk connection of said at least one n-channel MOSFET capacitor; and

Reverse Bipolar Capacitance
Rank 1 (Fig. 215) $r=0.9199223$ $F(SUM)=0.311495e-14$ $Ftot=4016.5989$
 $r=0.96224226$ DF Adj. $r=0.9199223$ $F(SUM)=0.311495e-14$ $Ftot=4016.5989$
 $c=1.884434e-12$ $u=3.3801e-12$ $a=2319.2563$



means for electrically connecting said drain connection, said source connection and said bulk connection of said at least one p-channel MOSFET capacitor; wherein said at least one n-channel MOSFET capacitor and said at least one p-channel MOSFET capacitor are doped to generate generally offsetting capacitance characteristics in a determined range.

5,801,412

SEMICONDUCTOR DEVICE HAVING A CAPACITANCE ELEMENT WITH EXCELLENT AREA EFFICIENCY

Yuuichi Tobita, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

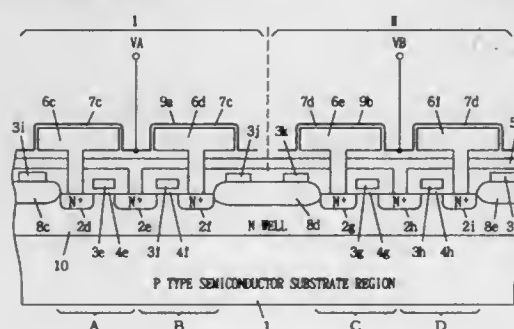
Filed Jul. 23, 1996, Ser. No. 681,442

Claims priority, application Japan, Sep. 4, 1995, 7-226451

Int. Cl.⁶ H01L 27/108; 29/76; 29/94; H01G 9/06

U.S. Cl. 257—206

26 Claims



1. A semiconductor device including a capacitance having one and another electrodes, said capacitance comprising:
 - a first capacitance element and a second capacitance element connected in series between said one and another electrodes;
 - said first capacitance element including
 - (a) a first group of a plurality of first impurity regions of a first conductivity type arranged at a surface of a first semiconductor substrate region of the first conductivity type and spaced apart from each other and electrically connected with an electrically conductive path connected to each other through the first semiconductor substrate region;
 - (b) a first group of a plurality of first conductive layers, each conductive layer electrically connected to a predetermined corresponding first impurity region of said first group, formed having predetermined shapes on the surface of said first semiconductor substrate region and separated from each other; and
 - (c) a second conductive layer arranged to face the first conductive layers of said first group with a first insulating layer interposed therebetween; and
 - said second capacitance element comprising
 - (d) a second group of a plurality of first impurity regions of a second conductivity type arranged at a surface of a second

semiconductor substrate region of the first conductivity type and spaced apart from each other and electrically connected to each other through the second semiconductor substrate region,

- (e) a second group of a plurality of first conductive layer, each conductive layer electrically connected to a predetermined corresponding first impurity region of said second group, formed having predetermined shapes on the surface of said second semiconductor substrate region, and separated from each other; and
- (f) a third conductive layer arranged to face the first conductive layers of said second group with a second insulating film interposed therebetween.

5,801,413

CONTAINER-SHAPED BOTTOM ELECTRODE FOR INTEGRATED CIRCUIT CAPACITOR WITH PARTIALLY RUGGED SURFACE

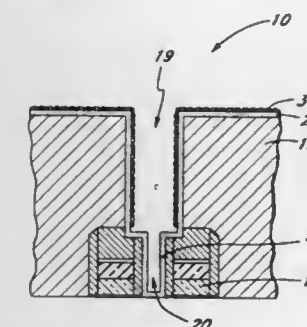
Pai-Hung Pan, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Dec. 19, 1995, Ser. No. 575,120

Int. Cl.⁶ H01L 27/108

U.S. Cl. 257—301

5 Claims



1. A container structure formed within an integrated circuit, the container comprising:
 - an insulating layer covering a semiconductor substrate and at least two gate electrodes, the insulating layer having a cavity therethrough, the cavity defined by an upper sidewall, a lower sidewall, and the substrate, the lower sidewall confined between the gate electrodes;
 - a lower conductive layer conformally coating the lower sidewall and the substrate between the two gate electrodes, the lower conductive layer having a smooth inner surface;
 - an upper conductive layer conformally coating substantially all of the upper sidewall, the upper conductive layer having a rugged inner surface; and
 - a capacitor dielectric layer conformally coating each of the smooth inner surface and the rugged inner surface.

5,801,414

NON-VOLATILE SEMICONDUCTOR MEMORY HAVING PROGRAMMING REGION FOR INJECTING AND EJECTING CARRIERS INTO AND FROM A FLOATING GATE

Masahiro Shinmori, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 422,931, Apr. 17, 1995, Pat. No. 5,656,838, This application Dec. 24, 1996, Ser. No. 772,899

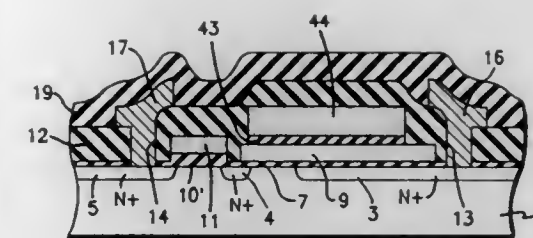
Claims priority, application Japan, Apr. 19, 1994, 104421/1994

Int. Cl.⁶ H01L 29/788

U.S. Cl. 257—315

2 Claims

1. A semiconductor memory device comprising:



a semiconductor substrate and a plurality of memory cells, each of said memory cells including a first region, a second region and a programming region selectively formed in said semiconductor substrate;

a first gate insulating film covering a part of said first region, a second gate insulating film covering a part of said programming region;

said first gate insulating film and said second gate insulating film, wherein carriers move between a floating gate and said programming region, being of substantially equal thickness;

said floating gate having a first portion overlapping said part of said first region to form a first capacitance therebetween and a second portion overlapping said part of said programming region to form a second capacitance, an area of said first portion being larger than an area of said second portion, such that said first capacitance is larger than said second capacitance; and

an additional gate provided on an insulating layer covering said floating gate, said additional gate being connected to said first region.

5,801,415

NON-VOLATILE-MEMORY CELL FOR ELECTRICALLY PROGRAMMABLE READ ONLY MEMORY HAVING A TRENCH-LIKE COUPLING CAPACITORS

Jin-Yuan Lee, and Mong-Song Liang, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan

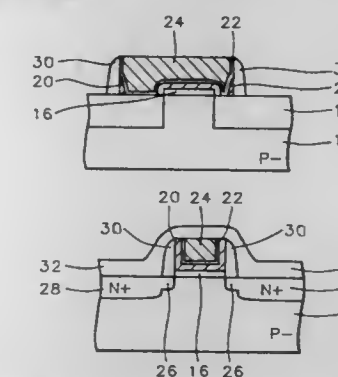
Division of Ser. No. 649,977, May 16, 1996, Pat. No.

5,707,897. This application Oct. 8, 1997, Ser. No. 947,832

Int. Cl.⁶ H01L 29/788; 29/76

U.S. Cl. 257—316

3 Claims



1. An array of non-volatile memory cells having enhanced capacitive coupling, comprising:
 - trenches in a silicon substrate having planar field oxide regions therein formed by depositing a first insulating layer and etching back said first insulating layer to said silicon substrate surface;
 - said planar field oxide regions electrically isolating an array of column device areas and an array of row device areas in and on said substrate surfaces said array of row device areas orthogonal to and intersecting said array of column device areas;
 - an array of FET gate electrodes extending across said row device areas and over said adjacent planar field oxide regions

a first semiconductor region of a second conductivity type on said semiconductor substrate;
a semiconductor device;
said semiconductor device including a well region of said first conductivity type in a surface portion of said first semiconductor region;
a second region of said second conductivity type being more heavily doped than said first region of said second conductivity type;
said second region being positioned between said first region and said semiconductor substrate and being effective to prevent punch-through between said well region and said semiconductor substrate;
a first main electrode on said well region;
a second main electrode on said well region;
a control electrode disposed above said well region;
a first electrode region of said first conductivity type making contact with said first main electrode;
a buffer region of said second conductivity type surrounding said first electrode region;
a third region of said second conductivity type beneath said buffer region; and
said buffer region being doped more heavily than said second region.

5,801,421

STAGGERED CONTACT PLACEMENT ON CMOS CHIP

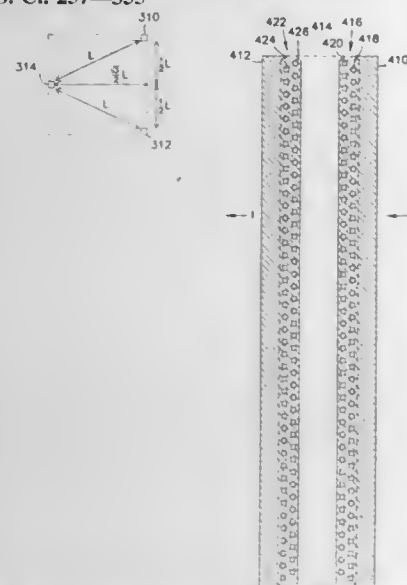
Joseph C. Sher, Manny K. F. Ma, and Stephen L. Casper, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Continuation of Ser. No. 559,184, Nov. 13, 1995, abandoned.

This application May 5, 1997, Ser. No. 850,278

Int. Cl.⁶ H01C 29/41

U.S. Cl. 257—355

10 Claims



I. An electrostatic discharge protection circuit comprising:
a first conductive layer formed of doped silicon having a low sheet resistance and comprising the active area of a CMOS transistor;
a second unitary metallic conductive layer having a portion overlapping the first conductive layer;
a third insulative layer disposed between the first conductive layer and the second conductive layer;
a first row of contacts formed between the conductive layers through the insulative layer to provide electrically conductive paths between said first conductive layer and said second conductive layer for carrying a first part of a single high current flowing in a direction generally perpendicular to the row; and

a second row of contacts formed between the conductive layers through the insulative layer to provide electrically conductive paths between said first conductive layer and said second conductive layer for carrying a second part of the same single high current, said second row of contacts being substantially parallel to and offset from said first row of contacts so as to reduce the width of the overlapping portion required to conduct the single high current during an electrostatic discharge event,

wherein the distance between the first and second rows of contacts is less than the distance between adjacent contacts in the first row and;

wherein the distance between adjacent contacts in the first row is the minimum distance allowed by the design rules of the circuit, and the distance between the first row contacts and the nearest contacts in the second row of contacts is approximately the same as the distance between adjacent contacts in the first row.

5,801,422

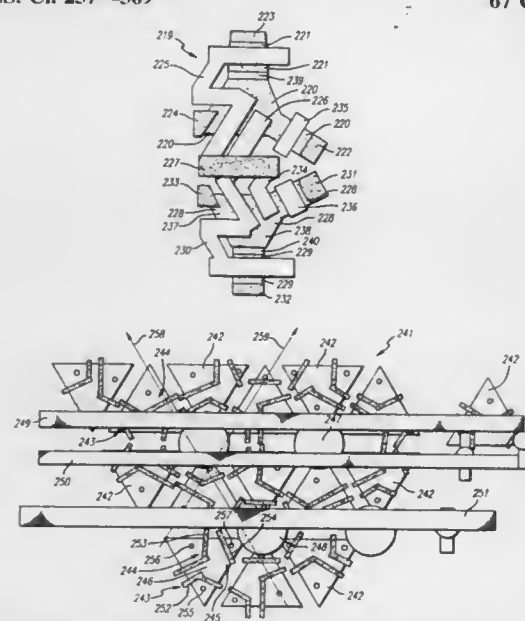
HEXAGONAL SRAM ARCHITECTURE

Michael D. Rostoker, Boulder Creek; James S. Koford, Mountain View; Ranko Scepanovic, San Jose; Edwin R. Jones; Gobi R. Padmanabhan, both of Sunnyvale; Ashok K. Kapoor, Palo Alto, all of Calif.; Valeriy B. Kudryavtsev, Moscow, Russian Federation; Alexander E. Andreev, Moskovskaya Oblast, Russian Federation; Stanislav V. Aleshin, and Alexander S. Podkolzin, both of Moscow, Russian Federation, assignors to LSI Logic Corporation, Milpitas, Calif.
Continuation-in-part of Ser. No. 333,367, Nov. 2, 1994. This application Aug. 21, 1995, Ser. No. 517,266

Int. Cl.⁶ H01L 29/78

U.S. Cl. 257—369

67 Claims



I. A hexagonal memory cell architecture, comprising:
a plurality of closely packed triangular transistor structures on a semiconductor substrate;
wherein at least some of said triangular transistor structures each comprise a plurality of separate transistors.

5,801,423

APPARATUS FOR IMPROVING LATCHUP IMMUNITY

IN A DUAL POLYSILICON GATE PROCESS

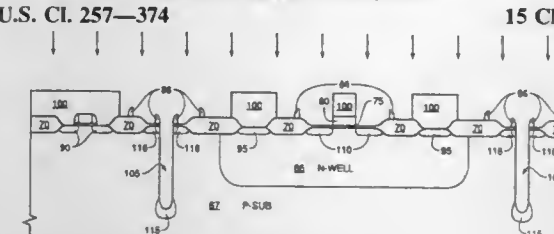
Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 390,605, Feb. 17, 1995, abandoned, which is a division of Ser. No. 106,179, Aug. 13, 1993, Pat. No. 5,420,061. This application Dec. 10, 1996, Ser. No. 762,741

Int. Cl.⁶ H01L 27/092;29/00

U.S. Cl. 257—374

15 Claims



I. A semiconductor device, comprising:
a substrate;
a first conductive region of said substrate having a first type conductivity;
a second conductive region of said substrate doped to a second type conductivity opposite said first conductivity;
a first active device of said second type conductivity formed within said first conductive region;
a second active device of said first type conductivity formed within said second conductive region, wherein said second active device is a nearest neighbor device of said first active device;
a field oxidation region formed overlying a portion of said substrate between said first and second active devices; and
a trench disposed from a surface of said substrate in said substrate at a position between and separating said first active device from said second active device, and outside the portion of said substrate underlying said field oxidation region and disposed without abutting said second conductive region.

5,801,424

MOSFET WITH REDUCED LEAKAGE CURRENT

Thomas Luich, Puyallup, Wash., assignor to National Semiconductor Corporation, Santa Clara, Calif.

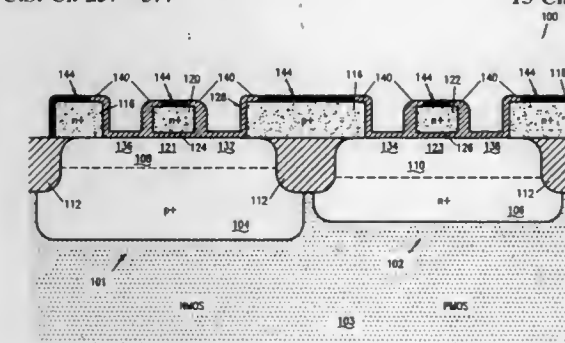
Continuation of Ser. No. 389,720, Feb. 16, 1995, abandoned.

This application Jul. 31, 1996, Ser. No. 690,596

Int. Cl.⁶ H01L 29/76;29/94;31/062

U.S. Cl. 257—377

13 Claims



I. An integrated circuit including a metal-oxide-semiconductor field effect transistor (MOSFET) with reduced leakage current, said MOSFET comprising:
a drain region with a top surface;
a drain terminal, with a top surface, disposed on and in direct contact with a first portion of said top drain region surface;
a first silicide layer disposed on said top drain terminal surface;
a first oxide layer disposed on and in direct contact with a second portion of said top drain region surface;
a source region with a top surface;

a source terminal with a top surface disposed on a first portion of said top source region surface;
a channel region between said drain and source regions;
a gate terminal with a top surface disposed opposite said channel region; and
a second silicide layer disposed on said top gate terminal surface;
wherein either said top drain terminal surface or said top gate terminal surface is wider than said first silicide layer or said second silicide layer, respectively.

5,801,425

SEMICONDUCTOR DEVICE HAVING A WIRING LAYER INCLUDING A TISL2 FILM OF THE C49 OR C54 STRUCTURE

Takashi Kuroi, and Hidekazu Oda, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 589,941, Jan. 23, 1996, abandoned.

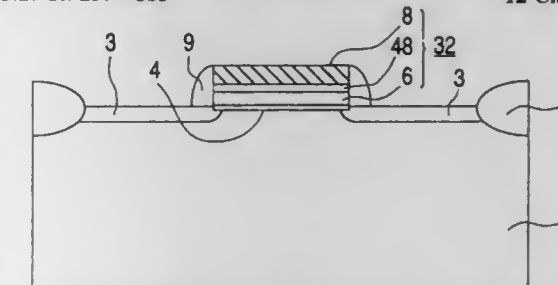
This application Aug. 8, 1997, Ser. No. 907,458

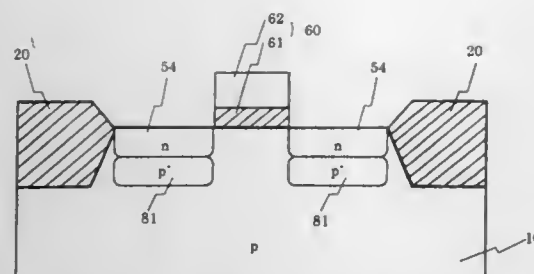
Claims priority, application Japan, Jul. 6, 1995, 7-170969; Sep. 22, 1995, 7-244444

Int. Cl.⁶ H01L 29/76;29/47;29/12

U.S. Cl. 257—383

12 Claims





drain diffusion regions being provided separately from one another so as to define, between said source/drain diffusion regions, a channel region over which a gate electrode is provided through a gate insulating film;

separate capacitance reduction layers provided under said respective source/drain diffusion regions so as to be in contact with entire bottoms of said source/drain diffusion regions, said capacitance reduction layers being doped with an impurity of said second conductivity type at a third impurity concentration which is at least lower than said second impurity concentration of said semiconductor bulk region thereby to reduce a parasitic capacitance between said source/drain diffusion regions and said semiconductor bulk region.

5,801,427
SEMICONDUCTOR DEVICE HAVING A POLYCIDAL STRUCTURE

Shigeru Shiratake; Kaoru Motonami, and Satoshi Hamamoto, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

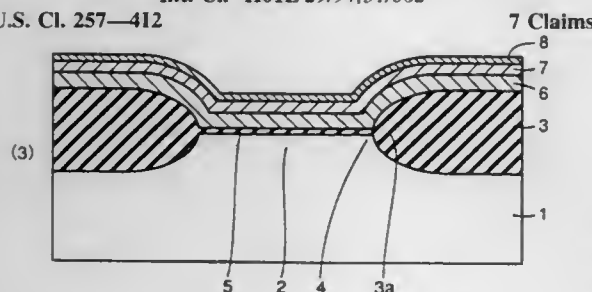
Continuation of Ser. No. 563,421, Nov. 28, 1995, abandoned.

This application Jun. 11, 1997, Ser. No. 873,027

Claims priority, application Japan, May 26, 1995, 7-128066

Int. Cl.⁶ H01L 29/94; 31/062

U.S. Cl. 257—412



1. A semiconductor device comprising:

a stepped portion formed on a semiconductor substrate;

a first polycrystalline silicon layer having a first portion and a second portion located on and elevated by said stepped portion with respect to the first portion;

a high-melting-point metal silicide layer formed on said first polycrystalline silicon layer; and

an upper layer formed on said high-melting-point metal silicide layer and formed of one layer selected from the group consisting of an amorphous silicon layer, a polycrystalline silicon layer, a TiN layer and a TiW layer, wherein

said first polycrystalline silicon layer, said high-melting-point metal silicide layer and said upper layer form a gate electrode layer of a three-layer structure,

said stepped portion is located at a side end of an element isolating and insulating film formed on a main surface of said semiconductor substrate,

a side wall insulating film is formed in contact with at least side surfaces of said polycrystalline silicon layer and said high-melting-point metal silicide layer in a section along a channel length direction of said gate electrode layer, and

a concavity is formed in the main surface of said semiconductor substrate located outside said side wall insulating film.

5,801,428
MOS TRANSISTOR FOR BIOTECHNICAL APPLICATIONS

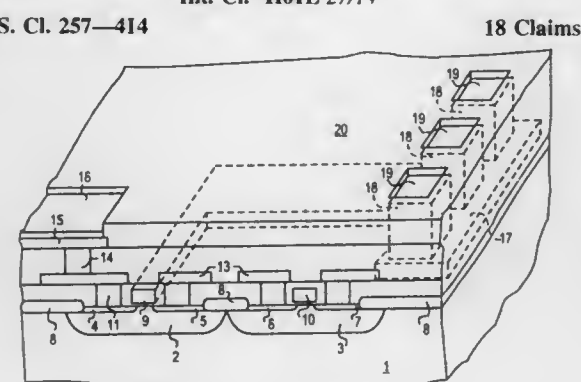
Andreas Vom Felde; Emmerich Bertagnoli, and Martin Kerber, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 29, 1997, Ser. No. 864,822

Claims priority, application Germany, Jun. 12, 1996, 196 23 517.0

Int. Cl.⁶ H01L 27/14

U.S. Cl. 257—414



1. An MOS transistor comprising:

a gate electrode and a contact area which is electrically conductively connected to said gate electrode;

said contact area being electrochemically corrosion-resistant;

said contact area having a difference in height of at most 200 nm relates to an outer surface surrounding the contact area; and

said surface surrounding the contact area having a passivating covering layer.

5,801,429
SEMICONDUCTOR DEVICE

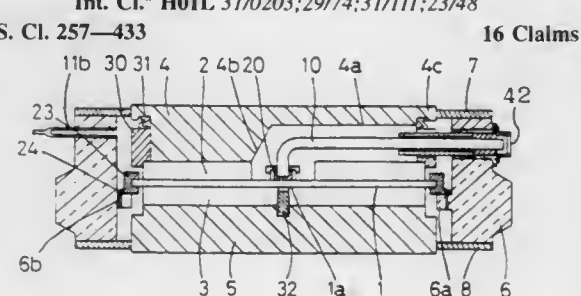
Yuzuru Konishi; Kyotaro Hirasawa, and Kazunori Taguchi, all of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 407,637, Mar. 21, 1995, Pat. No. 5,621,237. This application Nov. 12, 1996, Ser. No. 746,415

Claims priority, application Japan, Apr. 12, 1994, 6-073128

Int. Cl.⁶ H01L 31/0203; 29/74; 31/111; 23/48

U.S. Cl. 257—433



8. A light trigger type semiconductor device, comprising a semiconductor substrate, an insulation tube surrounding the semiconductor substrate and a light guide transmitting a light signal to said semiconductor substrate, wherein a part of said light guide is accommodated in a tubular body and attached to said insulation tube.

5,801,430
SOLID STATE PHOTODETECTOR WITH LIGHT-RESPONSIVE REAR FACE

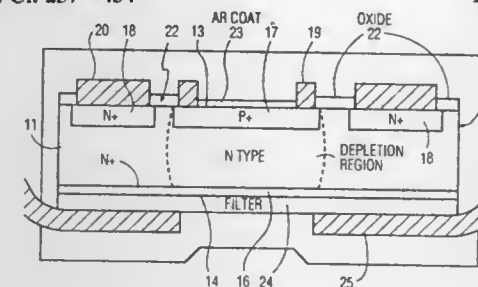
Roger W. Forrest, Thousand Oaks, and Harold S. Melkonian, Ventura, both of Calif., assignors to Advanced Photonix, Inc., Camarillo, Calif.

Division of Ser. No. 357,703, Dec. 16, 1994, Pat. No. 5,477,075. This application Dec. 15, 1995, Ser. No. 572,935

Int. Cl.⁶ H01L 31/0203

U.S. Cl. 257—434

10 Claims



9. A photodiode device, said photodiode device comprising:

a photodiode including a semiconductor substrate defining a PN junction, a front face and a rear face, said photodiode including first and second electrodes on said front face and an optical filter on said rear face; and

a support structure upon which said photodiode is mounted, said support structure having therein an aperture aligned with said rear face for permitting light to reach said rear face through said aperture.

5,801,431
MOS GATED SEMICONDUCTOR DEVICE WITH SOURCE METAL COVERING THE ACTIVE GATE

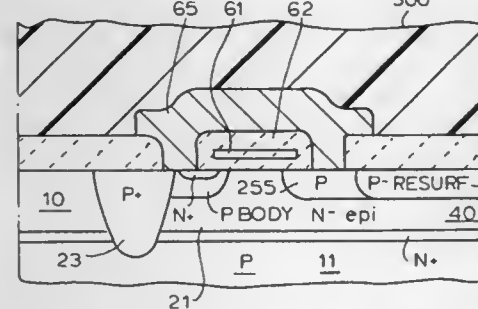
Niraj Ranjan, El Segundo, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.

Division of Ser. No. 783,667, Jan. 15, 1997. This application Feb. 20, 1997, Ser. No. 803,071

Int. Cl.⁶ H01L 23/552; 23/58; 29/167

U.S. Cl. 257—659

16 Claims



1. A semiconductor device formed in a silicon substrate and enclosed in a plastic housing; said device comprising:

an epitaxial layer of a first conductivity type deposited on said substrate;

a first body region of second conductivity type, which is of opposite type to said first conductivity type, formed in a surface of said epitaxial layer;

a source region of said first conductivity type formed in said first body region and defining a channel region located between a boundary of said source region and said first body region and a boundary of said first body region and said epitaxial layer;

a gate insulation layer formed atop said channel region;

a conductive gate layer formed atop said gate insulation layer;

an overlying insulation layer formed atop said conductive gate layer;

a conductive metal layer contacting said source region and extending over said overlying insulation layer and said gate region.

conductive layer to shield said channel region against the migration of ionic contaminants present in said plastic housing;

a second body region of said second conductivity type formed in said surface of said epitaxial layer and being laterally spaced away from said first body region; and

a resurf region of said second conductivity type formed in said top surface of said epitaxial layer and contacting said second body region and being more lightly doped than said second body region, said resurf region being laterally spaced further away from said channel region than said second body region.

5,801,432
ELECTRONIC SYSTEM USING MULTI-LAYER TAB TAPE SEMICONDUCTOR DEVICE HAVING DISTINCT SIGNAL, POWER AND GROUND PLANES

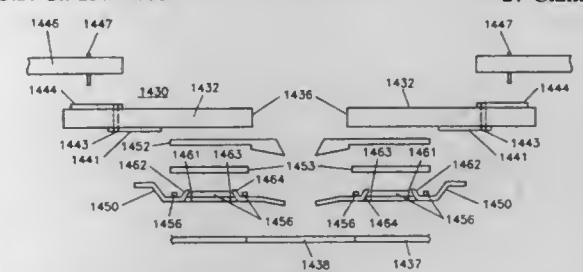
Michael D. Rostoker, Boulder Creek; Kurt Raymond Raab, San Jose, and John McCormick, Redwood City, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Continuation-in-part of Ser. No. 470,741, Jun. 6, 1995, Pat. No. 5,639,385, and Ser. No. 299,022, Aug. 31, 1994, which is a continuation-in-part of Ser. No. 894,031, Jun. 4, 1992, abandoned. This application Apr. 16, 1996, Ser. No. 632,962

Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—666

27 Claims



1. An electronic system, comprising:

at least one semiconductor device assembly comprising:

a first insulating layer having first and second substantially parallel surfaces, a first central opening adapted to receive a semiconductor die, a first outside perimeter, and at least one first intermediate opening between the first central opening and the first outside perimeter;

a first conductive layer having a plurality of conductive traces disposed on the first surface of said first insulating layer, across the at least one first intermediate opening, extending within the first central opening and extending from the first outside perimeter of said first insulating layer, wherein each of the plurality of conductive traces of said first conductive layer has a proximate end in the first central opening and a distal end extending from the first outside perimeter of said first insulating layer;

a second conductive layer disposed on the second surface of said first insulating layer and extending within the first central opening of said first insulating layer, said second conductive layer having portions covering the at least one first intermediate opening of said first insulating layer and having a plurality of second intermediate openings between the portions and substantially aligned with the at least one first intermediate opening;

a second insulating layer having third and fourth substantially parallel surfaces, a second central opening adapted to receive the semiconductor die and smaller than the first central opening of said first insulating layer, a plurality of third intermediate openings substantially aligned with the plurality of second intermediate openings of said second conductive layer, and a second outside perimeter, said second insulating layer disposed on an opposite side of said second conductive layer from the first insulating layer;

and a third conductive layer disposed on a side of said second insulating layer opposite the second conductive layer, said third conductive layer having a plurality of conductive traces disposed on the third surface of said second insulating layer, across the at least one third intermediate opening, extending within the second central opening and extending from the second outside perimeter of said second insulating layer, wherein each of the plurality of conductive traces of said third conductive layer has a proximate end in the second central opening and a distal end extending from the second outside perimeter of said second insulating layer.

across the plurality of third intermediate openings and extending within the second central opening of said second insulating layer;

a semiconductor die having a plurality of contact pads connected to electronic circuits within said die, the proximate ends of the plurality of conductive traces are connected to the contact pads of the semiconductor die within the first central opening of said first insulating layer;

selected ones of the plurality of conductive traces connected to the contact pads of the semiconductor die are cut within the first central opening and are connected to said second conductive layer;

said selected ones of the plurality of conductive traces connected to the distal ends of the plurality of conductive traces of said first conductive layer are cut within the at least one first intermediate opening and are connected to said second conductive layer;

selected other ones of the plurality of conductive traces connected to the contact pads of the semiconductor die are cut within the second central opening and are connected to said third conductive layer; and

said selected other ones of the plurality of conductive traces connected to the distal ends of the plurality of conductive traces of said first conductive layer are cut within the plurality of third intermediate openings and are connected to said third conductive layer;

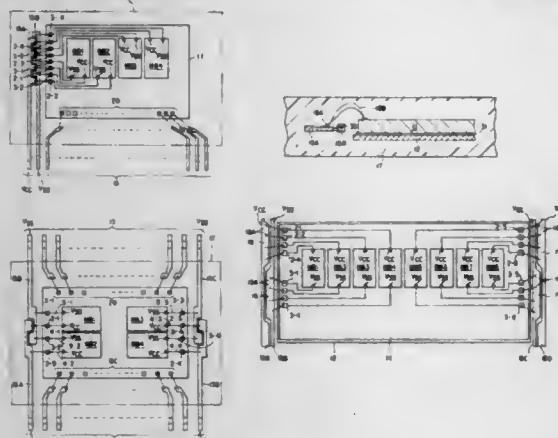
wherein said second and third conductive layers connect together all of the proximate and distal ends of said selected ones and said selected other ones, respectively, of the plurality of conductive traces of said first conductive layer.

5,801,433

SEMICONDUCTOR DEVICE WITH SMALLER PACKAGE
Mitsuhiro Nakao, Yokohama; Toshimitsu Ishikawa, Kawaguchi, and Kazunori Hayashi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Division of Ser. No. 462,564, Jun. 5, 1995, Pat. No. 5,592,020, which is a continuation of Ser. No. 219,717, Mar. 29, 1994, abandoned. This application Dec. 2, 1996, Ser. No. 759,007
Claims priority, application Japan, Apr. 16, 1993, 5-090032
Int. Cl.⁶ H01L 23/48; 23/495

U.S. Cl. 257—666

24 Claims



1. A semiconductor device comprising:

a bed;

a semiconductor chip on said bed, said semiconductor chip having first, second and third pad groups, said first pad group being arranged along a first side portion of said chip, said second pad group being arranged along a second side portion of said chip opposite to said first side portion, said third pad group being arranged along a third side portion of said chip between said first side portion and said second side portion;

a package packaging said bed and chip;

a first lead member having one end located out of said package and another end located in said package, said first lead mem-

ber including a first extending portion extending substantially in parallel with said first side portion of said chip, and at least one first projected portion projecting from said first extending portion to said first side portion of said chip;

a second lead member having one end located out of said package and another end located in said package, said second lead member including a second extending portion located between said chip and said first lead member in said package so as to extend substantially in parallel with said first side portion of said chip, and at least one second projected portion projecting from said second extending portion toward said first extending portion of said first lead member, said first and second projected portions being offset from each other;

at least one first connection member connecting said first projected portion and at least one first power source pad included in said first pad group and to which one voltage is applied; and

at least one second connection member connecting said second projected portion and at least one second power source pad included in said first pad group and to which another voltage, different from said one voltage, is applied.

5,801,434

TAB TAPE AND SEMICONDUCTOR DEVICE INCLUDING TAB TAPE

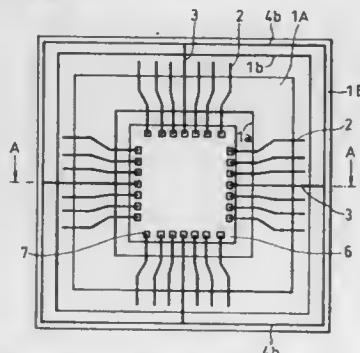
Kenji Sugahara, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jul. 31, 1996, Ser. No. 690,126

Claims priority, application Japan, Aug. 30, 1995, 7-221897
Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—668

23 Claims



1. A tape automated bonding tape comprising:

a first film having a first open space therewithin;

a second film having a second open space therewithin, said first film being located in said second open space;

a closed-loop wiring formed on said second film;

at least one signal wiring formed on said first film; and

at least one ground wiring formed on said first film, said ground wiring outwardly extending from said first film to connect with said closed-loop wiring.

5,801,435

RESIN SEALING TYPE SEMICONDUCTOR DEVICE AND METHOD OF MAKING THE SAME

Tetsuya Otsuki, Nagano-ken, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 607,139

Claims priority, application Japan, Feb. 27, 1995, 7-038776;
Nov. 16, 1995, 7-323847

Int. Cl.⁶ H01L 23/495; 23/28; 23/29

U.S. Cl. 257—675

19 Claims

1. A resin sealing type semiconductor device comprising:

a semiconductor element, said semiconductor element having a plurality of electrodes and a fixing surface for bonding to another member;

5,801,437

THREE-DIMENSIONAL WARP-RESISTANT INTEGRATED CIRCUIT MODULE METHOD AND APPARATUS

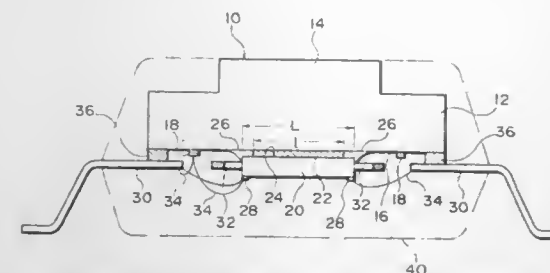
Carmen D. Burns, Austin, Tex., assignor to Staktek Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 280,968, Jul. 27, 1994, Pat. No. 5,581,121, which is a division of Ser. No. 037,830, Mar. 29, 1993, Pat. No. 5,369,056. This application Aug. 11, 1995, Ser. No. 514,294

Int. Cl.⁶ H01L 21/60; 23/02

U.S. Cl. 257—685

2 Claims



a heat radiator for cooling said semiconductor element, said heat radiator having a mounting surface for mounting said semiconductor element;

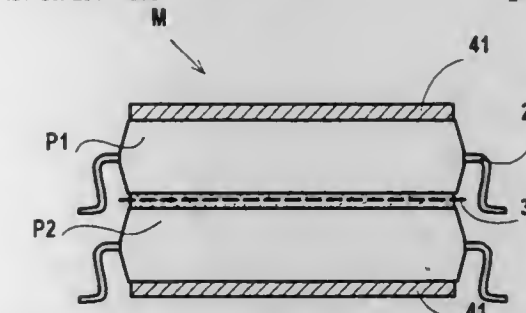
a bonding layer existing between said fixing surface of said semiconductor element and said mounting surface of said heat radiator, said bonding layer being disposed on said mounting surface, and said bonding layer being smaller than said fixing surface wherein said bonding layer has higher thermal conductivity than said heat radiator;

an adhesive layer bonding said semiconductor element to said bonding layer the adhesive layer disposed at a periphery of the bonding layer;

a plurality of leads;

a plurality of wires, at least one of said wires connecting one of said leads to one of said electrodes of said semiconductor element; and

a resin package sealing said semiconductor element, said heat radiator, said wires, and parts of said leads.



1. A three-dimensional warp-resistant integrated circuit module, comprising:

a plurality of thin integrated circuit packages, each having two external major surfaces, wherein said plurality of packages are stacked to form a three-dimensional module;

a layer of material mounted to one of said package external major surfaces, wherein the dimensions, location and composition of said layer of material is selected such that the vectorial summation of warp inducing moments around a selected neutral axis for the entire module and attributable to all layers of materials forming said module is minimized, where

$$m = E(h)(t)\Delta(a)\Delta(T)$$

with: m being the moment of the layer of material being calculated; E being the Young's modulus of elasticity of the material layer; h being the moment-arm distance of the center of the layer from said selected neutral axis; $\Delta(a)$ being the difference in CTE of the layer and of the material containing said selected neutral axis; and $\Delta(T)$ being the temperature difference between assembling bonding temperature, operation and storage temperature.

5,801,436

LEAD FRAME FOR SEMICONDUCTOR DEVICE AND PROCESS FOR PRODUCING THE SAME

Seiichi Serizawa, 64-6, Higashi-Omiya 6 Chome, Omiya-Shi, Saitama-Ken, Japan

Continuation of Ser. No. 717,064, Sep. 20, 1996, abandoned.

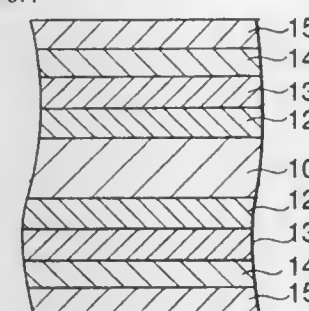
This application Nov. 10, 1997, Ser. No. 967,056

Claims priority, application Japan, Dec. 20, 1995, 7-349077;
May 15, 1996, 8-143488

Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—677

2 Claims



1. A lead frame for a semiconductor device, comprising: a lead frame material; a nickel or a nickel alloy plating as a first intermediate layer formed on said lead frame; a palladium or a palladium alloy plating as a second intermediate layer provided on the first intermediate layer; and an uppermost layer formed of a palladium oxide and gold formed on said second intermediate layer, and wherein the thickness of the uppermost layer formed of palladium oxide and gold is 0.005 to 0.05 μm.

5,801,438

SEMICONDUCTOR DEVICE MOUNTING AND MULTI-CHIP MODULE

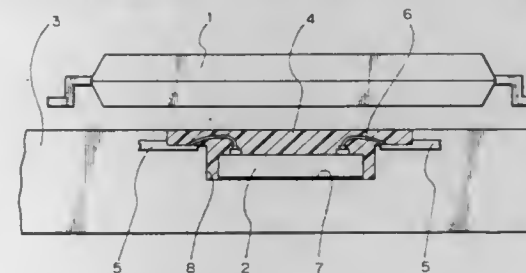
Hirotsugu Shirakawa; Yasunori Tanaka, and Tsunenobu Kouda, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 14, 1996, Ser. No. 663,941

Claims priority, application Japan, Jun. 16, 1995, 7-150467
Int. Cl.⁶ H01L 23/02; 23/34

U.S. Cl. 257—685

9 Claims



1. A multi-chip module comprising:
a surface mounting part as represented by a packaged semiconductor device;

a bare-chip semiconductor device;
a laminate wiring board;
wherein said laminate wiring board is formed with a recess;
wherein said bare-chip semiconductor device is mounted in said recess and sealed by resin;
wherein said recess has a depth about 200 μ m greater than a thickness of said bare-chip semiconductor device; and
wherein said packaged semiconductor device is mounted to said laminate wiring board.

5,801,439

SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE UNIT FOR A STACK ARRANGEMENT

Tetsuya Fujisawa; Mitsutaka Sato; Junichi Kasai; Masataka Mizukoshi; Kosuke Otokita; Hiroshi Yoshimura; Katsuhiko Hayashida; Akira Takashima; Masahiko Ishiguri, and Michio Sono, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 401,682, Mar. 10, 1995, abandoned.

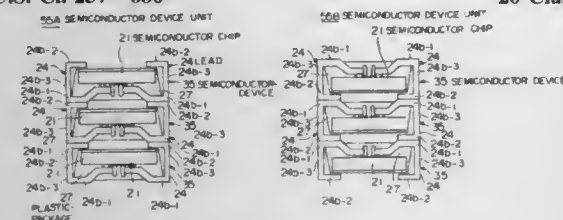
This application Feb. 21, 1997, Ser. No. 804,270

Claims priority, application Japan, Apr. 20, 1994, 6-081933; Jul. 20, 1994, 6-168449

Int. Cl.⁶ H01L 23/48; 23/50; 27/10

U.S. Cl. 257—686

20 Claims



1. A semiconductor device comprising:

a semiconductor element;

a package, formed by transfer mold resin, sealing the semiconductor element; and

leads for passing signals between the semiconductor element and an external device, each of the leads having:

leads for passing signals between the semiconductor element and an external device, each of the leads having:

an inner-lead part sealed within the package and connected with said semiconductor element; and

an outer-lead part which extends along an external form of said package from a bottom of the package toward a top of the package, and is to be connected to said external device, said outer-lead part including:

a first-port part arranged along a bottom face of said package, one-side face of the first-port part being buried in the package, and the other-side face being exposed from the package;

a second-port part at an upper side of the package; and

a third-port part at a side of said package between the first-port part and the second-port part, each third-port part being supported by only said first-port part at substantially one point;

wherein said first-port part, second-port part, and third-port part are formed by bending the outer-lead part, a pair of the first-port part and the third-port part is shaped like an L shape and a pair of the second-port and the third-port part is shaped like an L shape.

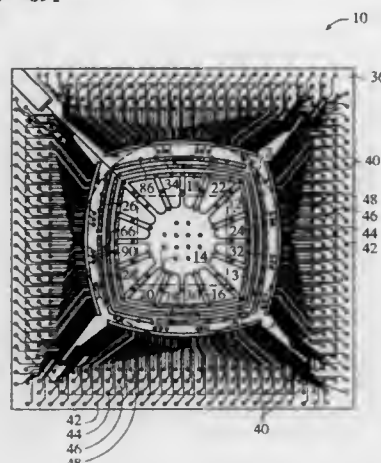
5,801,440
CHIP PACKAGE BOARD HAVING UTILITY RINGS
Edwin Chu, Cupertino, and Hu-Kong Lai, San Jose, both of Calif., assignors to ACC Microelectronics Corporation, Santa Clara, Calif.

Filed Oct. 10, 1995, Ser. No. 541,423

Int. Cl.⁶ H01L 23/52; 23/48

U.S. Cl. 257—691

22 Claims



1. A substrate for an integrated circuit package comprising:
an insulative member having opposed first and second sides and having a semiconductor die-attach region on said first side;
a pattern of signal members arranged on said first side in spaced relationship to said die-attach region for electrical connection to a semiconductor die within said die-attach region by an array of conductive members;

a ground trace extending longitudinally on said first side in a utility region between said signal members and said die-attach region;

a power trace extending longitudinally on said first side in said utility region, said power trace being adjacent to said ground trace;

at least one around connection means for connecting to electrical ground, said around connection means disposed on said second side;

at least one power connection means for connecting to a power source, said power connection means disposed on said second side;

at least one ground via extending through said insulative member electrically coupling said around trace to said ground connection means; and

at least one power via extending through said insulative member electrically coupling said power trace to said power connection means.

5,801,441

MICROELECTRONIC MOUNTING WITH MULTIPLE LEAD DEFORMATION AND BONDING

Thomas H. DiStefano, Monte Sereno, and John W. Smith, Palo Alto, both of Calif., assignors to Tessera, Inc., San Jose, Calif.

Division of Ser. No. 271,768, Jul. 7, 1994, Pat. No. 5,518,964.

This application May 15, 1995, Ser. No. 440,665

Int. Cl.⁶ H01L 23/48; 23/52; H01R 9/09; 4/58

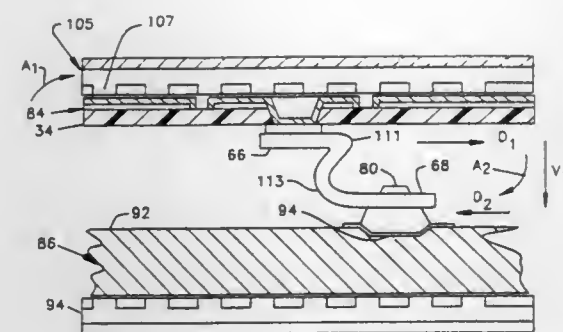
U.S. Cl. 257—696

16 Claims

1. A component for making microelectronic connections comprising:

(a) a first dielectric element having a first surface and a plurality of conductive terminal structures adapted for connection to an external substrate; and

(b) a plurality of elongated, flexible leads overlying and extending in proximity and substantially parallel to said first surface of said first element, each said lead having a terminal end secured to said first element and a tip end remote from said terminal end, the tip end of each said lead being offset from



the terminal end of such lead in a horizontal direction parallel to said first surface, the tip end of each said lead being movable in a direction away from said first surface, said leads being electrically connected to said terminal structure.

5,801,442

MICROCHANNEL COOLING OF HIGH POWER SEMICONDUCTOR DEVICES

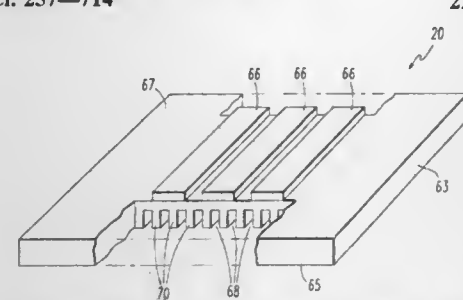
Robin E. Hamilton, Millersville; Paul G. Kennedy, Grasonville; John Ostrop, Severna Park; Martin L. Baker, Sykesville; Gregory A. Arlow, Eldersburg; John C. Golombek, Gambrills, all of Md., and Thomas J. Fagan, Jr., Pittsburgh, Pa., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Jul. 22, 1996, Ser. No. 681,207

Int. Cl.⁶ H01L 23/34

U.S. Cl. 257—714

22 Claims



1. A microchannel cooled semiconductor structure, comprising:
a die of semiconductor material and wherein said semiconductor material is silicon or silicon carbide;
a plurality of semiconductor devices formed in one region of said die; and
a plurality of close-ended forced convection cooling microchannel slots formed in another region of said; and
wherein said microchannel slots have a width ranging between about 0.001 in. and about 0.004 in., a depth ranging between about 0.004 in. and about 0.01 in., and a spacing therebetween ranging between about 0.001 in. and about 0.005 in.

5,801,443

SEMICONDUCTOR DEVICE WITH SHORT CIRCUIT PREVENTION AND METHOD OF MANUFACTURING THEREOF

Yoshikazu Ohno, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 30, 1997, Ser. No. 885,819

Claims priority, application Japan, Aug. 19, 1996, 8-217439

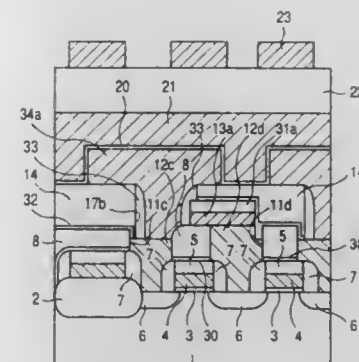
Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—758

9 Claims

1. A semiconductor device comprising:

a first wiring layer formed on a main surface of a semiconductor substrate,



a first insulating film layer formed on said first wiring layer having a first and a second contact hole which reach said main surface of said semiconductor substrate,
a second wiring layer formed on said first insulating film layer, a first electric conductor, electrically connected to said semiconductor substrate, formed in said first contact hole, self-aligned with respect to said first wiring layer and electrically isolated from said first wiring layer,
a second electric conductor, electrically connecting said second wiring layer to said semiconductor substrate, in said second contact hole, self-aligned with respect to and is electrically isolated from said first wiring layer,
a second insulating film layer formed on said first insulating layer and on said second wiring layer and having a third contact hole which reaches said first contact hole, and
one of a first electrode and a third wiring layer, formed on said second insulating film layer and in said third contact hole, self-aligned with respect to said second wiring layer, electrically connected to said first electric conductor and electrically isolated from said second wiring layer.

5,801,444

MULTILEVEL ELECTRONIC STRUCTURES CONTAINING COPPER LAYER AND COPPER-SEMICONDUCTOR LAYERS

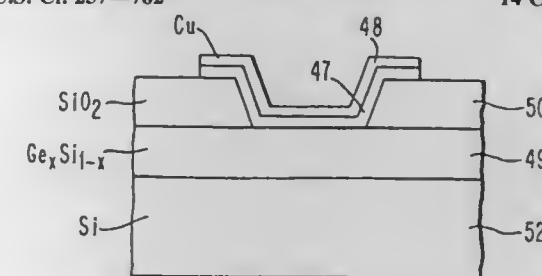
Mohamed Osama Aboelfotoh, Poughkeepsie; Lia Krusin-Elbaum, Dobbs Ferry, and Yuan-Chen Sun, Katonah, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 200,832, Feb. 18, 1994, abandoned, which is a continuation of Ser. No. 818,027, Jan. 6, 1992, abandoned, which is a continuation of Ser. No. 561,045, Aug. 1, 1990, abandoned, which is a continuation-in-part of Ser. No. 416,331, Sep. 29, 1989, abandoned. This application Nov. 20, 1996, Ser. No. 756,829

Int. Cl.⁶ H01L 23/48

U.S. Cl. 257—762

14 Claims



1. A structure comprising:
a semiconductor body
a body of copper having a surface thereon; and
a layer of a low resistivity Cu_{1-x} semiconductor_x compound interposed between the semiconductor body and the body of copper on at least a part of said surface to substantially prevent diffusion of copper into the semiconductor body, wherein said layer is produced by the steps comprising:

creating an interface at said surface with a surface of the semiconductor body; and
treating said interface by maintaining it at a temperature \leq about 200° C. to form the low resistivity Cu_x semiconductor_{1-x} layer thereat.

5,801,445

SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SAME

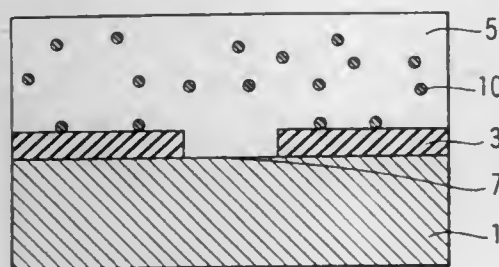
Yasuo Ishihara, Kariya; Haruo Kawakita, Okazaki, and Naoto Okabe, Chita, all of Japan, assignors to Denso Corporation, Kariya, Japan

Filed Mar. 14, 1997, Ser. No. 818,729

Claims priority, application Japan, Mar. 15, 1996, 8-058783
Int. Cl.⁶ H01L 23/48; 23/52; 29/40; 29/76

U.S. Cl. 257—771

10 Claims



1. A semiconductor device comprising:
a semiconductor substrate in which an element is formed;
an insulation film provided on said semiconductor substrate;
an electrode provided on said insulation film so as to be connected to said element, said electrode consisting of aluminum as a main component and fine-grained silicon, said electrode having a silicon concentration of from 0.1 wt % to 0.5 wt %; and
a wire bonded to said electrode.

5,801,446

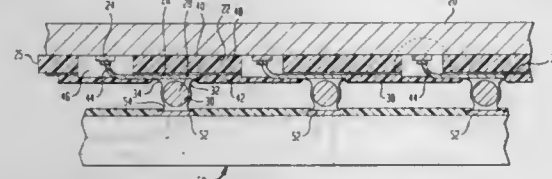
MICROELECTRONIC CONNECTIONS WITH SOLID CORE JOINING UNITS

Thomas H. DiStefano, Monte Sereno, and Vernon Solberg, Saratoga, both of Calif., assignors to Tesser, Inc., San Jose, Calif.

Filed Mar. 28, 1995, Ser. No. 411,472

Int. Cl.⁶ H01L 23/12; 23/50; 23/14
U.S. Cl. 257—778

27 Claims



1. A microelectronic assembly comprising:
(a) a microelectronic component having electrical contacts;
(b) a plurality of terminals adjacent said component, each said terminal being connected to at least one contact of the component but movable relative to said component; and
(c) a plurality of joining units, each said unit including a solid core disposed on one said terminal and extending upwardly therefrom; and
(d) a unit bonding material having a first melting temperature securing each core to the terminal.

5,801,447

FLIP CHIP MOUNTING TYPE SEMICONDUCTOR DEVICE

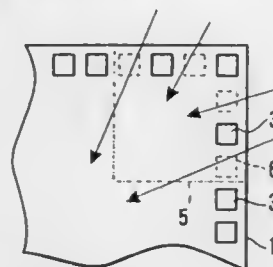
Naohiko Hirano; Kazuhide Doi, both of Kawasaki; Chiaki Takubo, Yokohama; Hiroshi Tazawa, Ichikawa; Eiichi Hosomi, Kawasaki; Yoichi Hiruta, Kashiwa; Takashi Okada, and Koji Shibasaki, both of Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 24, 1996, Ser. No. 637,242

Claims priority, application Japan, Apr. 25, 1995, 7-124313
Int. Cl.⁶ H01L 23/48

U.S. Cl. 257—778

5 Claims



1. A semiconductor device comprising:
a semiconductor element having a plurality of projection electrodes formed along each side of a peripheral portion on a major surface;
a circuit board having a major surface on which a plurality of pad electrodes are formed, said pad electrodes joining said projection electrodes of said semiconductor element; and
a sealing member filled between said semiconductor element and said circuit board;
wherein a gate region in which said sealing member is injected is formed on a corner portion of said semiconductor element, and
wherein said plurality of projection electrodes are arranged at predetermined intervals on the major surface of said semiconductor element, and the predetermined interval of the projection electrodes in said gate region is larger than the predetermined interval of the projection electrodes in another region.

5,801,448

CONDUCTIVE LINES ON THE BACK SIDE OF WAFERS AND DICE FOR SEMICONDUCTOR INTERCONNECTS

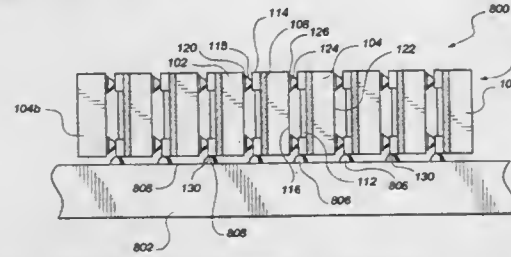
Michael B. Ball, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 650,741, May 20, 1996, abandoned.
This application Apr. 30, 1997, Ser. No. 846,954

Int. Cl.⁶ H01L 23/48

U.S. Cl. 257—778

19 Claims



1. A semiconductor configuration, comprising:
a discrete semiconductor element having a first active exterior surface and a second opposing exterior surface;
said first active exterior surface including integrated circuitry thereon with at least one flip chip connection protruding therefrom; and
said second opposing exterior surface carrying at least one conductive trace extending thereover and including a contact area, wherein said at least one conductive trace lacks direct electrical communication with said discrete semiconductor element.

5,801,449

PROCESS AND SUBSTRATE FOR CONNECTING AN INTEGRATED CIRCUIT TO ANOTHER SUBSTRATE BY MEANS OF BALLS

Gérard Dehaine, Châtillon, and Yves Stricot, Les Clayes Sous Bois, both of France, assignors to Bull S.A., Louveciennes, France

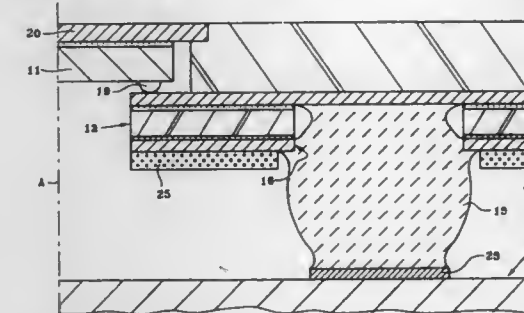
PCT No. PCT/FR95/01670, § 371 Date Jun. 19, 1996, § 102(e)
Date Jun. 19, 1996, PCT Pub. No. WO96/19013, PCT Pub. Date Jun. 20, 1996

PCT Filed Dec. 14, 1995, Ser. No. 666,389

Claims priority, application France, Dec. 16, 1994, 94 15202
Int. Cl.⁶ H01L 23/48; 23/52

U.S. Cl. 257—780

18 Claims



1. A substrate (12) for connecting to an integrated circuit (11), comprising an insulating film (13) having first and second sides opposite to each other, said first side of said insulating film having conductors (14), said conductors having first portions adapted to be connected to the integrated circuit and having second portions, said second side of said film having a conductive plane (18), and via holes (16) extending through said film and through said conductive plane to expose said second portions of said conductors, and balls (15) fixed directly in said via holes to the respective second portions of said conductors exposed in said via holes, said balls forming terminals of the substrate which are intended to be bonded to connection board means, and wherein said conductive plane is electrically connected to at least a first ball of said balls.

5,801,450

VARIABLE PITCH STAGGER DIE FOR OPTIMAL DENSITY

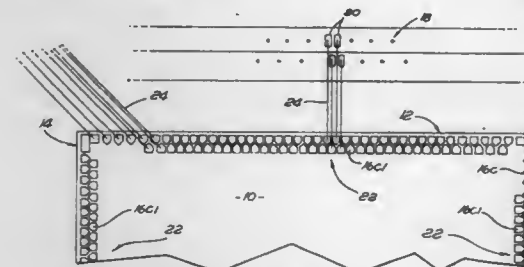
Michael Barrow, El Dorado Hills, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Oct. 18, 1996, Ser. No. 733,518

Int. Cl.⁶ H01L 23/48

U.S. Cl. 257—784

7 Claims



1. An integrated circuit, comprising:
a die which has a plurality of sides that each have a center portion and intersect at a plurality of corners of said die, each side of said die includes a plurality of bond pads that include a first set of bond pads that are located at said center portion and which contain bond pads that have a first spacing pitch, said first set of bond pads being arranged into two rows and two second sets of bond pads that are located at two corners of said die and which each contain bond pads that have a second spacing pitch.

179-290 O.G.-98-23:QL 3

5,801,451

SEMICONDUCTOR DEVICE INCLUDING A PLURALITY OF INPUT BUFFER CIRCUITS RECEIVING THE SAME CONTROL SIGNAL

Tadaaki Yamauchi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

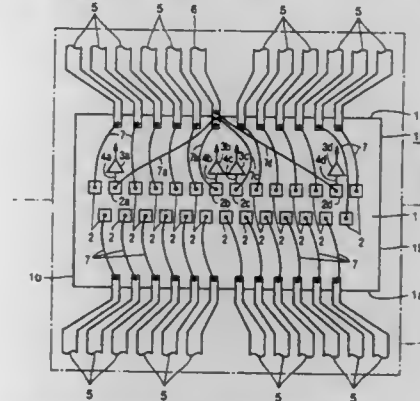
Continuation of Ser. No. 589,513, Jan. 22, 1996, abandoned.

This application Nov. 26, 1997, Ser. No. 978,972

Claims priority, application Japan, Feb. 14, 1995, 7-025340
Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—786

31 Claims



1. A semiconductor device comprising:
a semiconductor chip including
a plurality of bonding pads formed on an insulating layer on a surface of a semiconductor substrate, each bonding pad receiving the same control signal,
a plurality of input buffer circuits provided corresponding to said plurality of bonding pads and formed on the surface of said semiconductor substrate, each for receiving said control signal at an input node and providing a signal according to said control signal to an output node thereof,
a plurality of input interconnection layers provided corresponding to said plurality of input buffer circuits and formed on the insulating layer on the surface of said semiconductor substrate, each input interconnection layer electrically connecting an input node of a corresponding input buffer circuit with a corresponding bonding pad, and
an output interconnection layer of a metal wire formed on the insulating layer on the surface of said semiconductor substrate for electrically connecting output nodes of said plurality of input buffer circuits,
a lead terminal provided corresponding to said plurality of bonding pads for receiving said control signal, and
a plurality of metal wires provided corresponding to said plurality of bonding pads, each metal wire electrically connecting a corresponding bonding pad with said lead terminal.

5,801,452

MULTI CHIP MODULE INCLUDING SEMICONDUCTOR WAFER OR DICE, INTERCONNECT SUBSTRATE, AND ALIGNMENT MEMBER

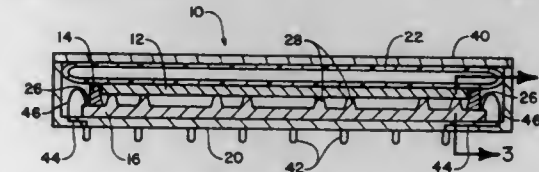
Warren M. Farnworth, Nampa, and Salman Akram, Boise, both of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Oct. 25, 1996, Ser. No. 736,998

Int. Cl.⁶ G01R 1/02; H05K 3/02; H01L 23/34

U.S. Cl. 257—797

36 Claims



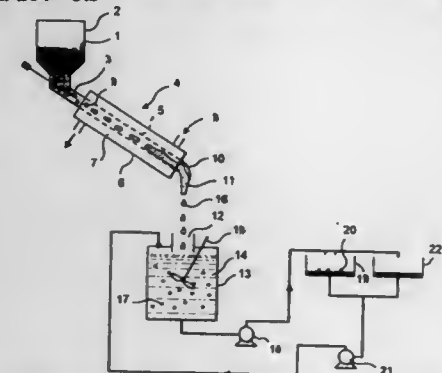
1. A multi chip module comprising:
a semiconductor wafer;
a substrate having a plurality of contact members;

a silicon alignment plate with an etched opening configured to align the wafer with the substrate; and
a force applying member for biasing the wafer against the substrate with the contact members on the substrate in electrical communication with contact locations on the wafer.

5,801,453
PROCESS FOR PREPARING SPHERICAL ENERGETIC COMPOUNDS
John Guimont, Cupertino, Calif., assignor to United Technologies Corporation, Hartford, Conn.
Filed Jun. 11, 1996, Ser. No. 661,437
Int. Cl.⁶ C06B 21/00

U.S. Cl. 264—3.5

10 Claims

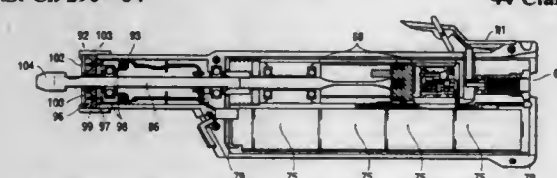


1. A method for producing a substantially spherical energetic compound comprising:
providing a solid energetic compound;
feeding the solid energetic compound in a rate controlled continuous stream to a heating means;
melting the energetic compound in the heating means;
providing a non-solvent cooling liquid maintained at a temperature below the solidification temperature of the energetic compound;
adding the melted energetic compound at a rate which corresponds substantially to the solid feed rate into the cooling liquid; and
controllably agitating the cooling liquid to disperse the melted energetic material into droplets of controlled size; such that the droplets are solidified in the cooling liquid into substantially spherical particles, the particles size corresponding to the droplet size.

5,801,454
AIR TOOL
Jon J. Leininger, 7026 Empire Central, Houston, Tex. 77040
Continuation of Ser. No. 353,244, Dec. 2, 1994, Pat. No. 5,525,842. This application Jun. 10, 1996, Ser. No. 661,173
Int. Cl.⁶ F03B 13/00

U.S. Cl. 290—54

44 Claims



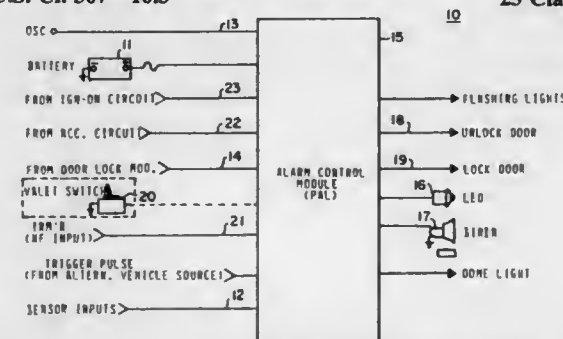
1. An air tool having a working end and comprising:
A. a tool housing;
B. a compressed air inlet; and
C. an integrated air motor and electrical generator, for powering the tool and positioned within the housing and including:
1. a shaft mounted on a bearing, for rotation within the housing;
2. a rotor body attached to the shaft;

3. a plurality of vanes connected to the rotor body;
4. a plurality of magnetic elements disposed in the rotor body; and
5. a stator positioned within the housing coaxially with the rotor body, on a side of the rotor body opposite the working end of the air tool and between the compressed air inlet and the rotor body such that compressed air flows across the stator, wherein the stator interacts with the magnetic elements to generate electricity when the rotor body is rotated by the compressed air.

5,801,455
APPARATUS AND METHOD FOR DISARMING AUTOMOBILE ALARM SYSTEM
Michael J. Borch, 2745 N. Mildred Ave., Chicago, Ill. 60614; Edward G. Karnig, 35 Midland Rd., East Hills, N.Y. 11577, and Chau Ho Chen, Taichung, Taiwan, assignors to Edward G. Karnig, and Michael J. Borch, both of Chicago, Ill.
Filed Feb. 2, 1996, Ser. No. 595,847
Int. Cl.⁶ B60R 25/10

U.S. Cl. 307—10.3

25 Claims



1. A method for disarming an alarm system having a programmed override code for a vehicle of the type having power-applying switches for respectively applying power to power wires, including an ignition switch which is movable among plural power-applying switch positions, each of which positions applies power to a different arrangement of one or more power wires, the method comprising the steps of:
generating a sequential pulse code responsive to the shifting of one or more of the power applying switches for selectively applying power to at least two different power wires;
monitoring the at least two different power wires to detect the sequential pulse code; and
disarming the alarm system when said pulse code is the same as the programmed override code.

5,801,456

Patent Not Issued For This Number

5,801,457
UNIT FOR MAINTAINING INFORMATION REGARDING THE STATE OF A DEVICE DURING BATTERY POWER
Chang Hee Hong, Fremont, and John H. Pasternak, Campbell, both of Calif., assignors to Waferscale Integration, Inc., Fremont, Calif.

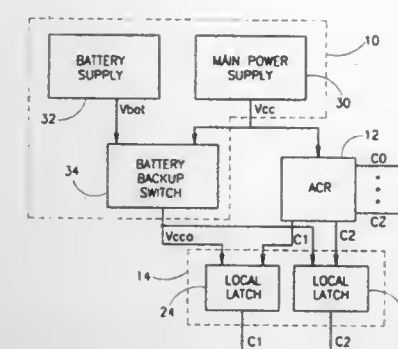
Filed Nov. 18, 1996, Ser. No. 749,615

Int. Cl.⁶ H02J 1/00

U.S. Cl. 307—80

9 Claims

1. A configuration unit comprising:
an architecture configuration register powered by a main power supply and storing at least one battery backable configuration bit; and



one local latch per battery backable configuration bit powered by a switched power supply which switches between main and battery power supplies, for latching the value of said battery backable configuration bit during main power and for maintaining said value during battery operation.

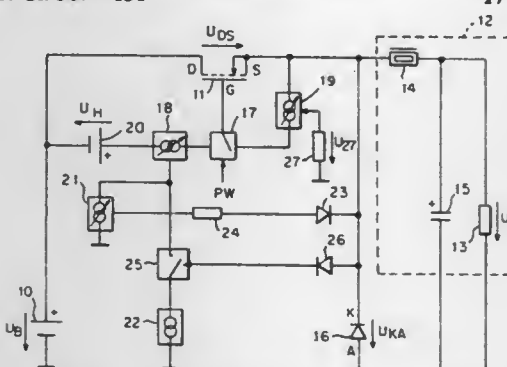
5,801,458
DIRECT CURRENT CONTROL CIRCUIT
Walter Marks, Buchweg 2, 74653 Kunzelsau, Germany
PCT No. PCT/EP95/01371, § 371 Date Jul. 23, 1996, § 102(e)
Date Jul. 23, 1996, PCT Pub. No. WO95/28767, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 12, 1995, Ser. No. 640,779
Claims priority, application Germany, Apr. 19, 1994, 44 13 546.7

Int. Cl.⁶ H01H 47/22

U.S. Cl. 307—131

17 Claims



1. A control circuit for turning off a flow of direct current through a load (12) to ground, the load being at least partly an inductive load (14); the control circuit comprising:

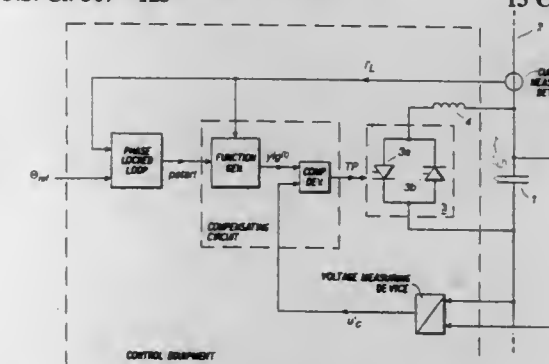
a semiconductor switch (11) having a first terminal (D), a control terminal (G), and a second terminal (S) coupled to the load;
a semiconductor freewheel component (16) coupled between the second terminal and ground in parallel with the load, the freewheel component having a current-conducting state and a current non-conducting state;
a switching-off current source (19), coupled between the second terminal and the control terminal, comprising means to reduce a magnitude of switching control current ($-I_{GS}$) flowing through the control terminal of the switch as a function of voltage at the second terminal of the switch;

the function including a minimum value ($-I_{GSmin}$) of the switching control current being reached when the voltage at the second terminal of the switch is at ground potential; whereby when the load is disconnected the control current is reduced from a higher initial value so as to open the semiconductor switch completely only when the freewheel component is in the current-conducting state.

5,801,459
CONTROL EQUIPMENT FOR A SERIES CAPACITOR CONNECTED INTO AN ELECTRIC POWER LINE
Lennart Ångquist, Enköping, Sweden, assignor to Asea Brown Boveri AB, Västerås, Sweden
Filed May 17, 1995, Ser. No. 443,308
Claims priority, application Sweden, May 30, 1994, 9401845
Int. Cl.⁶ H02J 3/24

U.S. Cl. 307—125

13 Claims



1. Control equipment for a series capacitor connected into an electric transmission line for carrying a current having a fundamental component having a fundamental tone frequency, said equipment comprising:

a semi-conductor valve and an inductor connected in series with each other and in parallel with said capacitor, said semi-conductor valve being controllable in both directions, and said inductor forming, together with said capacitor and said semi-conductor valve an oscillating circuit in which the capacitor has a voltage (u_c) exhibiting periodic zero-crossing times (t_p); control members responsive to the current in the transmission line and voltage across the capacitor for firing the semi-conductor valve at controllable firing times (t_f) such that the periodic zero crossing times of the capacitor voltage are substantially equidistant, thereby causing the apparent impedance of the oscillating circuit to appear inductive with respect to components having a frequency below the frequency of the fundamental component;
means producing equidistant short pulses as a function of the phase of the line frequency;
means for producing a firing time signal for firing semiconductor in dependence on the line current and the capacitor voltage such that the time between the short pulses and zero crossings of the capacitor voltage becomes substantially constant.

5,801,460
ELECTRICAL POWER TRANSMITTING SYSTEM WITH REDUCED FEEDER SIZE AND METHOD OF OPERATION

John W. Diemer, Rockford, and Jack B. Miller, Caledonia, both of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Jul. 18, 1996, Ser. No. 683,833

Int. Cl.⁶ G05F 1/70

U.S. Cl. 307—129

21 Claims

1. An electrical power transmitting system comprising:
an alternating current electrical power generator for producing alternating current on an output having a specified maximum; at least one electrical load which is coupled to a point of regulation in the electrical power transmitting system;

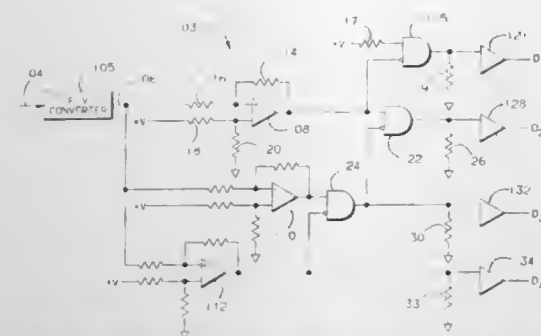
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a feeder having a specified maximum voltage drop, a length extending between the output and the point of regulation for transmitting the alternating current to the point of regulation, an inductance having an inductive reactance at a fundamental frequency of the alternating current, a capacitance in series with the inductance having a capacitive reactance at the fundamental frequency of the alternating current which cancels at least part of the inductive reactance at the fundamental frequency of the alternating current to provide a reduced impedance in the feeder at the fundamental frequency of the alternating current to produce a reduced voltage drop which is less than the specified maximum voltage drop; and wherein the feeder has a minimum weight per unit length providing a maximum real current carrying capacity equal to the specified maximum at the reduced voltage drop.

5,801,461

DEVICE FOR MONITORING THE OPERATION SAFETY OF POWER SWITCHES

Nils Anger; Werner Rehnert, both of Berlin, and Johannes Hilpert, Strullendorf, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE95/00296, § 371 Date Feb. 5, 1997, § 102(e) Date Feb. 5, 1997, PCT Pub. No. WO95/24725, PCT Pub. Date Sep. 14, 1995

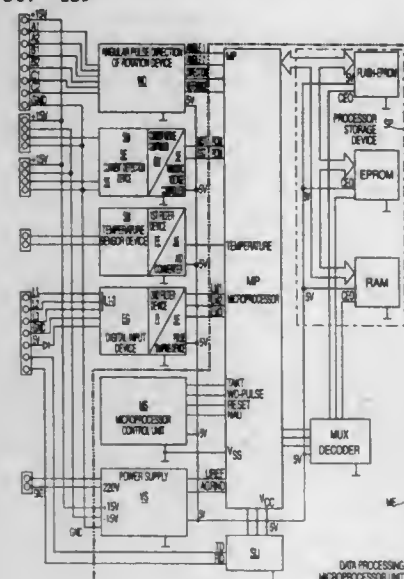
PCT Filed Feb. 22, 1995, Ser. No. 702,642

Claims priority, application Germany, Mar. 9, 1994, 44 08 631.8

Int. Cl.⁶ G08B 21/00

U.S. Cl. 307—139

6 Claims



1. A device for monitoring at least one power switch having a movable part, comprising:

at least one data-processing microprocessor unit including a microprocessor, a microprocessor control device and a memory device;

at least one current detection device for detecting a first current of the power switch and for detecting and controlling a second current driving the movable part of the at least one power switch;

a current detection device including a current converter, a current-voltage converter and a parasitic voltage filter coupled downstream from the current converter, an angle pulse and rotation direction detection device connected to the at least one data-processing microprocessor unit, the angle pulse and rotation direction detection device converting a movement of the movable part of the power switch into data for processing by the microprocessor device;

a first filter unit;

an analog-to-digital converter;

a sensor device for detecting an ambient temperature in the power switch, the sensor device having an output signal which is provided via the first filter unit and the analog-to-digital converter to the microprocessor unit;

a digital input device for detecting if the power switch changes from a first state to a second state using one or more input signals, the digital input device being connected to the microprocessor unit;

a second filter device;

a pulse-shaping device, wherein the one or more input signals applied to the digital input device are provided to the microprocessor unit via at least one of the second filter device and the pulse-shaping device the pulse-shaping device being capable of modifying the one or more input signals as a function of a predetermined pulse-shaping characteristic; and an interface conversion unit connected to the microprocessor unit and receiving input control signals.

5,801,462

LINEAR MOTOR AND IMAGE READING APPARATUS

Mitsutoshi Yagoto; Hideyuki Kurahashi, both of Toyokawa; Masanori Murakami, Toyohashi; Katsuhiko Nanba, Okazaki; Masamitsu Ishiyama, and Toshikazu Suzuki, both of Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

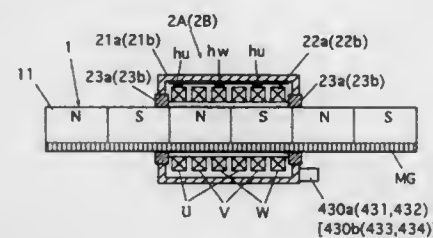
Filed Mar. 28, 1996, Ser. No. 623,934

Claims priority, application Japan, Mar. 31, 1995, 7-075313; Mar. 31, 1995, 7-076570; Dec. 29, 1995, 7-353012

Int. Cl.⁶ H04N 1/047; H02K 41/02

U.S. Cl. 310—12

22 Claims



1. A linear motor comprising:

a rod-like stator formed of a magnetizable rod-like member provided by magnetization with both a drive field magnet and a plurality of magnet portions providing multiple kinds of position information; and

a movable piece being movable along said stator and having an armature coil opposed to said field magnet and a sensor reading the position information from said plurality of magnet portions.

5,801,463

DYNAMOELECTRIC MACHINE

Yuzuru Suzuki, Shizuoka-ken; Sakae Fujitani, Hamakita, and Kenichi Makino, Shizuoka-ken, all of Japan, assignors to Minebea Co., Ltd., Nagano-ken, Japan

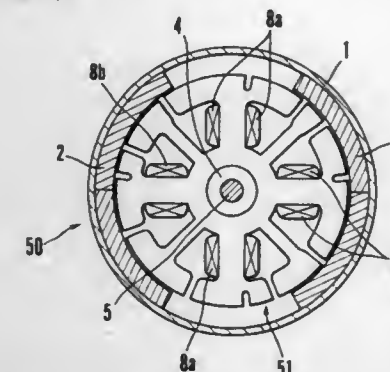
Filed Jun. 17, 1997, Ser. No. 877,490

Claims priority, application Japan, Jun. 26, 1996, 8-166466

Int. Cl.⁶ H02K 1/16

U.S. Cl. 310—51

13 Claims



4. A dynamoelectric machine comprising a rotor assembly and a stator assembly, the rotor assembly having winding slots, auxiliary slots, main poles, and auxiliary poles; the improvement comprising the winding slots and auxiliary slots being spaced at unequal radial intervals between the main poles and the auxiliary poles.

5,801,464

PRESSURIZED AIR-IONIZATION GROUND FOR AN AIR BEARING SPINDLE

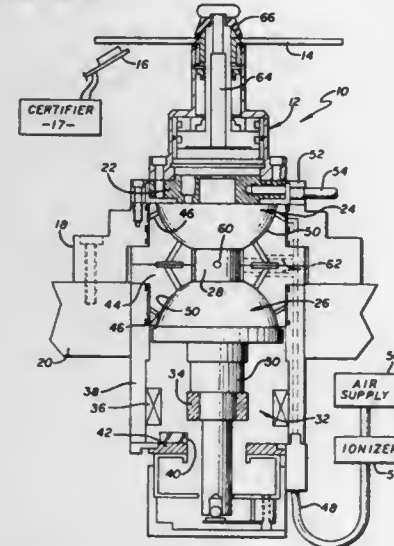
Blasius Brezoczky, San Jose, Calif., assignor to Phase Metrics, San Diego, Calif.

Filed Dec. 13, 1996, Ser. No. 766,899

Int. Cl.⁶ H02K 23/00; 23/66; 7/08

U.S. Cl. 310—67 R

9 Claims



1. A spindle motor, comprising:

a housing;

a spindle located within said housing;

a motor that rotates said spindle relative to said housing;

an air bearing that allows relative movement between said spindle and said housing, wherein said air bearing contains a pressurized fluid;

an air supply that provides a flow of air to said air bearing; and, an ionizer that ionizes the flow of air from said air supply and the pressurized fluid within said air bearing to provide an electrically conductive path so that an electrical current flows between said spindle and said housing.

5,801,465

UNDERWATER MOTOR WITH WATER-PROOF CONNECTOR

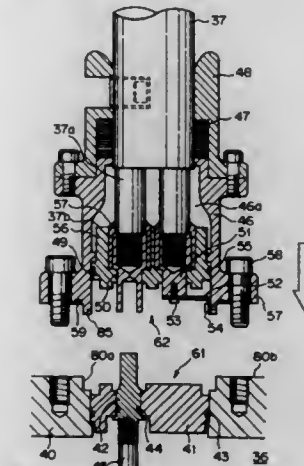
Yoshiyuki Yamada, Kanagawa-ken, Japan, assignor to Ebara Corporation, Tokyo, Japan

Filed Jul. 13, 1996, Ser. No. 675,086

Int. Cl.⁶ H02K 11/00

U.S. Cl. 310—71

12 Claims



1. Equipment comprising:

a body to which electric power is supplied through a cable;

said body having a first connector including a first insulation member, a support surface disposed around said first insulation member, and a first contact member supported by said first insulation member and connected to a lead wire of said equipment;

said cable having at an end thereof a second connector including a cylindrical connector body having a first end secured to and sealed with an outer surface of said cable and a second end having a second insulation member supporting a second contact member connected to a core wire of said cable;

said first and second contact members having complementary shapes to conductively engage each other when said first and second connectors are connected; and

said first connector having a cylindrical recess disposed between said first insulation member and said support surface, said second end of said cylindrical connector body having a cylindrical portion and a flange surrounding said cylindrical portion, said cylindrical portion fitting into said cylindrical recess and said flange being liquid-tightly sealed to said support surface when said first and second connectors are connected.

5,801,466

VIBRATOR ATTACHING STRUCTURE

Takashi Odagiri, and Hiroki Ohno, both of Chiba, Japan, assignors to Uniden Corporation, Japan

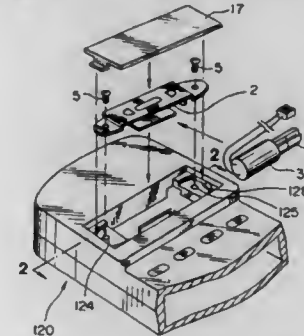
Filed Jun. 7, 1995, Ser. No. 472,236

Claims priority, application Japan, Dec. 27, 1994, 6-326200

Int. Cl.⁶ H02K 7/06; 5/00; H04B 3/36

U.S. Cl. 310—81

27 Claims



1. A vibrator attaching structure comprising:

a housing of a portable communication terminal device, said housing defining a substantial exterior portion of the portable communication terminal device;

a vibrator accommodating section formed in said housing, said vibrator accommodating section comprising a recess formed in an exterior portion of the housing distinct from a portion of the housing containing structure and circuitry relating to the portable communication terminal device;

a vibrator for vibrating said housing, said vibrator being inserted in said recess; and

a vibrator holder holding said vibrator and fitted into said vibrator accommodating section.

5,801,467

ELECTRIC MOTOR FOR A DRIVE MECHANISM IN PARTICULAR, A PUMP

Peter Volz, Darmstadt; Hans-Dieter Rehnartz, Frankfurt, and Dieter Dinkel, Eppstein, all of Germany, assignors to ITT Automotive Europe GmbH, Frankfurt, Germany

PCT No. PCT/EP95/03730, § 371 Date Aug. 20, 1996, § 102(e) Date Aug. 20, 1996, PCT Pub. No. WO96/09681, PCT Pub. Date Mar. 28, 1996

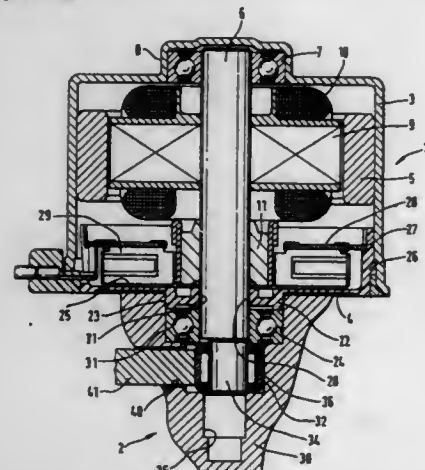
PCT Filed Sep. 21, 1995, Ser. No. 649,641

Claims priority, application Germany, Sep. 23, 1994, 44 33 970.4

Int. Cl.⁶ H02K 5/16; 5/15

U.S. Cl. 310—89

8 Claims



1. An electric motor for use with a drive mechanism, the motor comprising:

- a shaft including an armature fixed thereto;
- a motor housing in which the shaft and armature are rotatably disposed, said housing having a base, said base supporting the shaft on a first side of the armature, and the housing having an open end opposite the base through which a portion of the shaft on a second side of the armature extends;
- a first anti-friction bearing disposed in the base and supporting the shaft on the first side of the armature; and
- a plastic end cover plate disposed over the opening and having a central opening therein, said central opening being approximately equal in diameter to the shaft and being coaxial with respect to the shaft such that an inner surface of said central opening is in contact with any surface of the shaft and is a slide bearing formed on the end cover plate by an annular protrusion receiving the shaft on the second side of the armature wherein the slide bearing rotatably supports the shaft on the second side of the armature to enable testing the motor and a front surface of the annular protrusion is configured to contact an outer ring of a main anti-friction bearing in a drive mechanism.

5,801,468
REAR BEARING CREEP PREVENTION APPARATUS
FOR VEHICLE AC GENERATOR

Myung-Shick Choi, Kyongsangbuk-do, Rep. of Korea, assignor to Mando Machinery Corporation, Kyonggi-do, Rep. of Korea

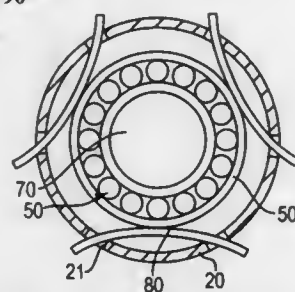
Filed Sep. 20, 1996, Ser. No. 716,956

Claims priority, application Rep. of Korea, Apr. 17, 1996, 1996 11607

Int. Cl.⁶ H02K 7/08; F16C 27/00

U.S. Cl. 310—90

13 Claims



1. A rear bearing creep prevention apparatus for a vehicle AC generator, the vehicle AC generator comprising a stator fixedly supported at front and rear brackets, and a rotor mounted on a shaft opposite a core of the stator, the shaft being supported by front and rear bearings in the front and rear brackets respectively, the rotor being rotatable by a driving force transferred from an engine, the rear bearing creep prevention apparatus comprising:

- a plurality of elastic plates spaced-apart by a predetermined interval elastically supporting an outer circumferential portion of the rear bearing in the rear bracket, the elastic plates being formed of an elastic plastic having desired thermal characteristic and a low thermal deformation coefficient.

5,801,469

SUPERCONDUCTING BEARING DEVICE

Ryoichi Takahata, Yamatotakada; Motoaki Shibayama, Takamatsu, and Hiroshi Takaichi, Tokyo, all of Japan, assignors to Koyo Seiko Co., Ltd. and Shikoku Research Institute Inc., both of Japan

PCT No. PCT/JP92/00301, § 371 Date Feb. 8, 1994, § 102(e) Date Feb. 8, 1994, PCT Pub. No. WO92/16762, PCT Pub. Date Oct. 1, 1992

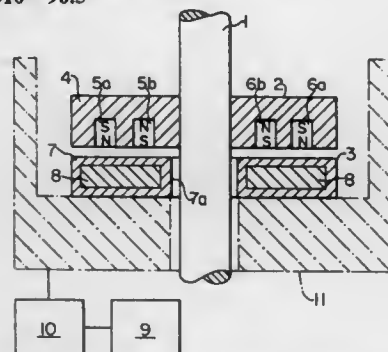
PCT Filed Mar. 13, 1992, Ser. No. 117,088

Claims priority, application Japan, Mar. 15, 1991, 3-051430; Jul. 16, 1991, 3-175356

Int. Cl.⁶ H02K 7/09

U.S. Cl. 310—90.5

3 Claims



1. A superconducting bearing device comprising:

- a rotary body;
- an annular permanent magnet portion disposed concentrically with the rotary body, the permanent magnet portion having an outer periphery, the permanent magnet portion being provided

on the rotary body such that the magnetic flux distribution does not alter around the axis of the rotary body, the permanent magnet portion comprising a disk fixedly mounted on the rotary body and a plurality of annular permanent magnets arranged on the disk at a spacing axially of the rotary body, each of the permanent magnets having radially opposite ends magnetized to polarities opposite to each other, the permanent magnets adjacent to each other being magnetized to polarities opposite to each other at their same sides with respect to the radial direction, and the permanent magnets being spaced from each other 0.2 to 1.0 times their width as measured radially; and

a superconductor opposed to the outer periphery of the permanent magnet portion and spaced apart therefrom radially of the rotary body, the superconductor being arranged at a position spaced apart from the permanent magnet portion and permitting a specified quantity greater than zero of magnetic flux of the permanent magnet portion to penetrate thereto.

5,801,471

MULTIPHASE ELECTRIC MACHINE WITH A WINDING MADE OF FLAT-SHAPED STRUCTURAL CONDUCTOR PARTS

Wolfgang Hill, Ortenbergstrasse 3, D-76135 Karlsruhe, Germany

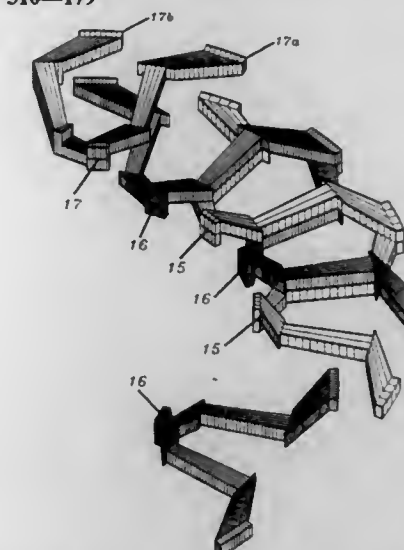
Filed Dec. 18, 1995, Ser. No. 574,297

Claims priority, application Germany, Jun. 26, 1993, 43 21 236.0

Int. Cl.⁶ H02K 1/00; 3/28

U.S. Cl. 310—179

17 Claims



1. A multi-phase electric machine comprising at least one stator and at least one moving part and having an air gap between the stator and the moving part of said machine and at least one winding with a face side the conductor lanes of said winding are running in layers parallel to said air gap and are assembled from structural conductor parts without bending radii, said conductor lanes being partially arranged in grooves of a soft magnetic body, said grooves consisting of a width, a height, and a depth, and said conductor lanes running in winding overhangs simultaneously parallel to the groove length and to the groove width, and where in said winding each conductor lane changes the layer with each pass through the winding overhang and two successive said structural conductor parts are connected when changing the layer.

5,801,470

ROTORS WITH RETAINING CYLINDERS AND REDUCED HARMONIC FIELD EFFECT LOSSES

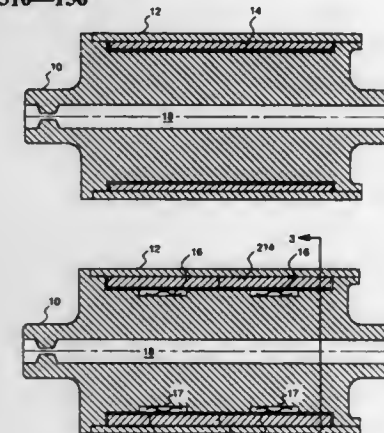
Roger Neal Johnson, Hagaman; Gerald Burt Kliman, Niskayuna, both of N.Y.; Yuefeng Liao, Brookfield, Wis., and Wen Liang Soong, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 19, 1996, Ser. No. 770,215

Int. Cl.⁶ H02K 21/12

U.S. Cl. 310—156

14 Claims



1. A rotor comprising:

- a rotor shaft;
- a permanent magnet layer having an inner diameter which is greater than an outer diameter of the rotor shaft, the permanent magnet layer and the shaft having a radial clearance therebetween;
- a retainer comprising a metallic, low magnetic permeability material, the permanent magnet layer being positioned between the rotor shaft and the retainer, the retainer being bound to the rotor shaft, the permanent magnet layer comprising a material less stiff than a material of the retainer so as to expand to remain in contact with the retainer as a speed of the rotor is increased.

5,801,472

MICRO-FABRICATED DEVICE WITH INTEGRATED ELECTROSTATIC ACTUATOR

Yasuo Wada, Tokyo; Munehisa Mitsuya, Sakado; Tsuneo Ichiguchi, Hatoyama-Machi; Tomihiro Hashizume, Hatoyama-Machi; Seiji Helke, Hatoyama-Machi; Mark Lutwyche, Higashi-Matsuyama, and Satoshi Watanabe, Wako, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 13, 1996, Ser. No. 696,089

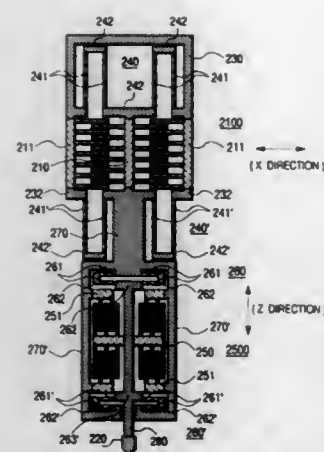
Claims priority, application Japan, Aug. 18, 1995, 7-210406; Dec. 18, 1995, 7-328707; Apr. 12, 1996, 8-090778

Int. Cl.⁶ H02N 1/00; G01N 23/00

U.S. Cl. 310—309

32 Claims

1. An electromechanical transducer comprising an actuator a plurality of which are arranged and the relative amount of movement of which is controlled by controlling electrostatic force operating between its opposite fixed portion and movable portion; wherein the electrode of said fixed portion or said movable portion is constituted by a dielectric; and wherein the electrode of said movable portion or said fixed portion consists of a pair of positive and negative electrodes



formed so that said dielectric electrode is substantially put between them.

5,801,473

OPEN STATOR AXIAL FLUX ELECTRIC MOTOR

Andreas Helwig, Via Toowoomba, Australia, assignor to Queensland Rail, Brisbane, Australia

PCT No. PCT/AU95/00586, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO96/09680, PCT Pub. Date Mar. 28, 1996

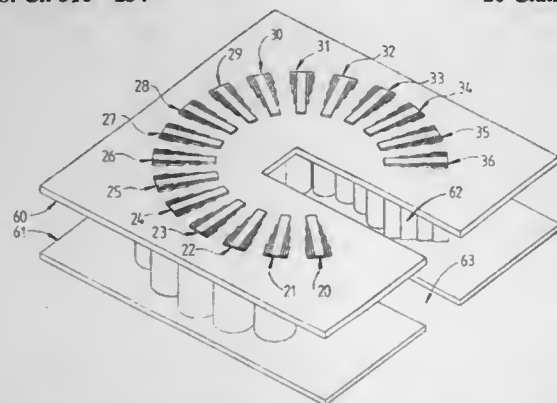
PCT Filed Sep. 7, 1995, Ser. No. 637,705

Claims priority, application Australia, Sep. 20, 1994, PM8270

Int. Cl.⁶ H02K 1/12; 1/18; 17/00; 17/12

U.S. Cl. 310—254

20 Claims



1. An open stator axial flux asynchronous induction electric motor comprising:

an open stator including two spaced non-magnetic insulating supports with a slot extending from a periphery of each of the supports to an inner location thereof, a plurality of poles with pole pieces extending between the supports and secured thereto, the pole pieces being constructed of magnetically permeable material and arranged along a circular path around the supports, the stator having windings associated with at least some of the pole pieces with an opening between adjacent pole pieces in the region of the slots in the supports;

a rotor having a shaft located in and extending through the slots and extending at right angles to the supports, two spaced rotor discs on the shaft with a respective said disc located on the shaft and either side of the stator, each disc being constructed of magnetically permeable material and having either an inner face of electrically conductive material, or an inner face with conductive paths providing rotor windings, the shaft being supported for rotation relative to the rotor.

5,801,474
SURFACE ACOUSTIC WAVE (SAW) DEVICE
Natsuhiko Sakai, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

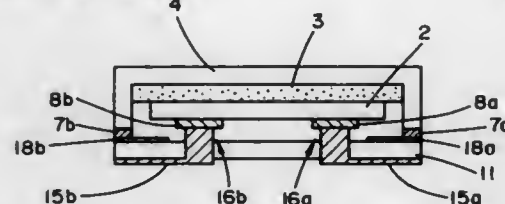
Filed Dec. 6, 1995, Ser. No. 567,921

Claims priority, application Japan, Dec. 6, 1994, 6-302216

Int. Cl.⁶ H03H 9/25

U.S. Cl. 310—313 R

5 Claims



1. A method of forming a surface acoustic wave (SAW) device comprising the steps of:

forming at least one hole through a substrate;
forming an electrode pattern on a first surface of said substrate, said electrode pattern having projections filling said at least one hole to extend above a second surface of said substrate, said second surface being opposite said first surface;
positioning a SAW element having bonding pads over said substrate such that said bonding pads are in electrical and physical contact with said projections;
positioning an elastic member over said SAW element; and
positioning a cap over said elastic member and attaching side-wall of said cap to said substrate;
wherein said elastic member pushes said SAW element toward said substrate 11 to maintain said electrical and physical contact.

5,801,475

PIEZO-ELECTRICITY GENERATION DEVICE

Mitsuteru Kimura, Miyagi, Japan, assignor to Mitsuteru Kimura, Miyagi, and Ricoh Selki Company, Ltd., Tokyo, both of Japan

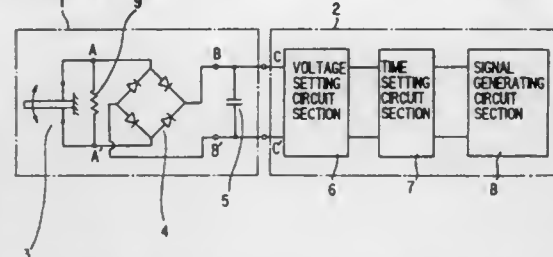
Continuation of Ser. No. 573,913, Dec. 18, 1995, abandoned, which is a continuation-in-part of Ser. No. 207,122, Mar. 8, 1994, abandoned. This application Mar. 6, 1997, Ser. No. 812,070

Claims priority, application Japan, Sep. 30, 1993, 5-268317

Int. Cl.⁶ H01L 41/08

U.S. Cl. 310—319

27 Claims



1. A signal generator, including a piezo-electricity generation device having a rectifying means for rectifying an AC voltage generated by free-vibration of at least one piezo-electric plate and an accumulating means for accumulating therein electric charge outputted through said rectifying means, comprising:

a voltage setting means, powered only by the piezo-electricity generation device, for setting a prespecified voltage and generating a signal when the electric charge accumulated in the accumulating means exceeds the prespecified voltage; and
a signal output means, powered only by the piezo-electricity generation device, for receiving substantially all of the electric charge accumulated in said accumulating means when an output voltage of said accumulating means exceeds the prespecified voltage set by said voltage setting means and applying only the received charge to generate a signal.

5,801,476

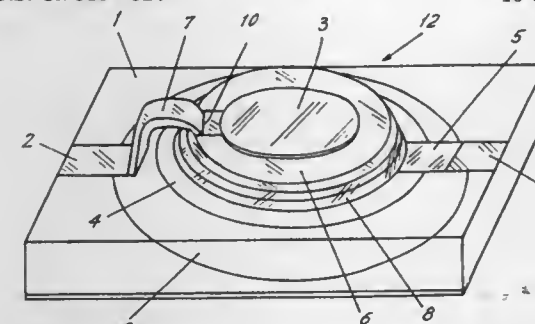
THICKNESS MODE ACOUSTIC WAVE RESONATOR
Dana J. Sturzebecher, Mullica; John A. Kosinski, Wall; Arthur Ballato, Oceanport; Paul W. Cooke, Hazlet, and Hong-Liang Cul, Hoboken, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 9, 1996, Ser. No. 694,890

Int. Cl.⁶ H01L 41/08

U.S. Cl. 310—324

16 Claims



1. A monolithic microwave integrated circuit, semiconductor device, comprising:

a substrate and an air via, the substrate flanking the air via and being selected from the group of GaAs and AlGaAs;
a piezoelectrically active, semi-insulating GaAs thin film region located over the air via;
a piezoelectrically active element in the piezoelectrically active region;
a pair of electrodes flanking the piezoelectrically active element and effective for carrying a signal which excites the piezoelectrically active element; and
a transmission line over the substrate for carrying a signal to the electrodes.

5,801,477

GATED FILAMENT STRUCTURES FOR A FIELD EMISSION DISPLAY

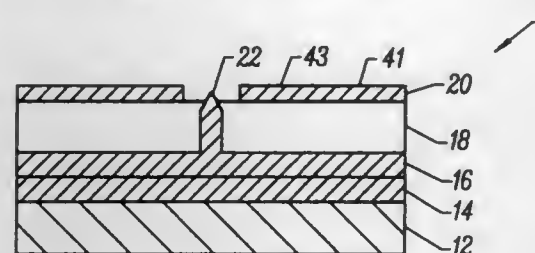
John M. Macaulay, Palo Alto, Calif., assignor to Candescant Technologies Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 269,229, Jun. 29, 1994, Pat. No. 5,565,959, which is a continuation-in-part of Ser. No. 158,102, Nov. 24, 1993, Pat. No. 5,559,389, which is a continuation-in-part of Ser. No. 118,490, Sep. 8, 1993, Pat. No. 5,462,467. This application Jan. 31, 1995, Ser. No. 383,410

Int. Cl.⁶ H01J 1/02

U.S. Cl. 313—309

15 Claims



1. A gated filament structure for a field emission display including a plurality of filaments, comprising:

a substrate;
an insulating layer positioned adjacent to the substrate;
a metal gate layer, with a plurality of gates, the metal gate layer being positioned adjacent to the insulating layer and having an average thickness "s" and a top metal gate layer planar surface substantially parallel to a bottom metal gate layer planar surface, the metal gate layer including a plurality of apertures extending through the metal gate layer, each aperture having an average width "r" along a bottom planar surface of the aperture, each aperture defining a midpoint

plane positioned parallel to and equally distant from the top metal gate layer planar surface and the bottom metal gate layer planar surface; and

a plurality of filaments each with a filament tip terminating at a point "A" and a filament axis extending along a length of the filament through filament tip, each filament positioned in an aperture, an intersection of the filament axis and the midpoint plane defining a point "O" with a majority of all filament tips of the display having a length "L" between each filament tip at point A and point O along the filament axis where,

$$L \leq (s+r)/2.$$

5,801,478

RELUCTANCE TYPE SYNCHRONOUS MOTOR

Masayuki Nashiki, Niwa, Japan, assignor to Okuma Corporation, Nagoya, Japan

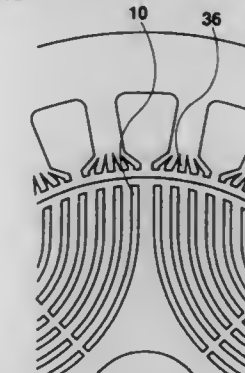
Filed May 1, 1995, Ser. No. 431,839

Claims priority, application Japan, May 2, 1994, 6-093195

Int. Cl.⁶ H02L 1/22

U.S. Cl. 310—261

7 Claims



1. A reluctance type synchronous motor comprising:

a) a stator for generating a rotating field, wherein the stator includes magnetic poles;
b) a rotor being capable of rotating in synchronization with the rotating field;
c) a plurality of magnetic steel plates stacked in an axial direction of the rotor;
d) a plurality of magnetic paths formed on the plurality of steel plates;
e) where said magnetic poles includes tips divided into portions which diverge at the interface between the stator and the rotor; and
f) wherein an interval between the divided portions of the tips differs from an interval between the magnetic paths of the rotor.

5,801,479

COLOR CATHODE-RAY TUBE AND METHOD OF MANUFACTURING THE SAME

Masaki Shinoda, Aichi, Japan, assignor to Sony Corporation, Japan

Filed Jul. 23, 1996, Ser. No. 681,333

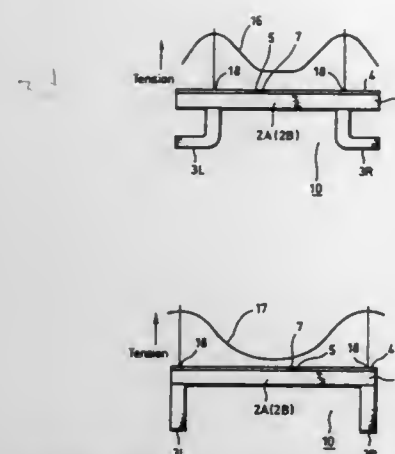
Claims priority, application Japan, Jul. 26, 1995, 7-190725

Int. Cl.⁶ H01J 29/06

U.S. Cl. 313—402

11 Claims

1. A color cathode-ray tube, comprising:
a frame including a plurality of frame members wherein at least one of said frame members is lateral-U-shaped, each of said lateral-U-shaped members further including end portions on each corresponding leg that are bent perpendicular to said legs, wherein at least one of said frame members is fixedly attached to said end portions; and
an aperture grill including a plurality of electrode elements stretched across and fixedly attached to said frame such that a



maximum tensile force within the range from 30% to 85% of tensile strength of said electrode elements is placed on each of said electrode elements.

5,801,480

COLOR CRT DEVICE WITH DEFLECTION YOKE

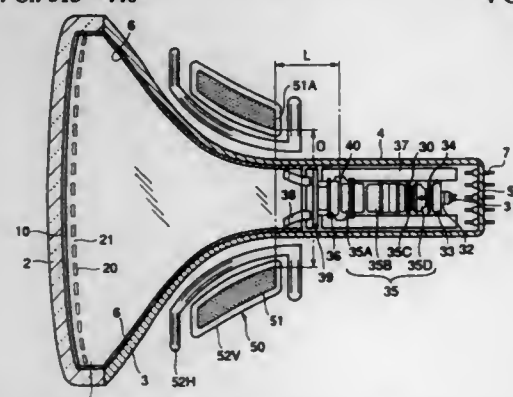
Takeo Kawaguchi; Hisanobu Tokunaga; Makoto Iwagami, and Masumi Yuasa, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Electric Engineering Co., Ltd., both of Tokyo, Japan

Filed Feb. 12, 1997, Ser. No. 798,800

Claims priority, application Japan, Feb. 15, 1996, 8-027811
Int. Cl.⁶ H01J 29/70

U.S. Cl. 313-440

4 Claims



1. A color CRT device comprising a cathode ray tube and a deflection coil:

said cathode ray tube comprising:

- a panel provided with a phosphor surface which is approximately rectangular, has a diagonal diameter of 45 cm or more, and has an aspect ratio greater than 4/3;
- a funnel connected to said panel;
- a neck connected to said funnel;
- a stem connected to said neck; and
- an electron gun, which is positioned inside said neck, including a high-voltage electrode, and a focusing electrode which is mounted between said high-voltage electrode and said stem and disposed in proximity to said high-voltage electrode across a gap; and

said deflection yoke comprising:

- a core which cross-section perpendicular to a tube axis of said cathode ray tube is approximately annular;
- a first deflection coil for deflecting in a horizontal direction an electron beam emitted by said electron gun, a winding type of said first deflection coil being a saddle type; and
- a second deflection coil for deflecting in a vertical direction said electron beam emitted by said electron gun, a winding type of said second deflection coil being a toroidal type;

wherein said color CRT device satisfies a following relational expression:

$$\frac{0.113\theta + 0.563}{0.0075\theta - 0.025} - 2.5 \sqrt{\frac{1}{1+K^2}} \leq \frac{L}{D} \leq \frac{\sqrt{\frac{1}{1+K^2}}}{2.0 - 2.5 \sqrt{\frac{1}{1+K^2}}}$$

where

- L mm denotes a distance between a central position of said gap and an end surface of said core on a side of said stem,
- D mm denotes an inner diameter of said core on the side of said stem,
- θ denotes a maximum deflection angle of said cathode ray tube, and
- K denotes said aspect ratio.

5,801,481

CATHODE RAY TUBE

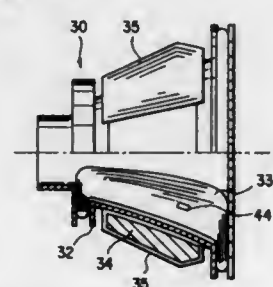
Masahiro Yokota, Kumagaya, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 25, 1997, Ser. No. 845,467

Claims priority, application Japan, Apr. 26, 1996, 8-107415
Int. Cl.⁶ H01J 29/70

U.S. Cl. 313-440

4 Claims



1. A cathode ray tube comprising:

an envelope including a face panel having a substantially rectangular effective portion and a funnel fixed to the face panel, the funnel having a cylindrical small-diameter neck at one end portion thereof and a large-diameter cone at the other end portion, the cone having a substantially rectangular cross sectional shape corresponding to the external shape of the face panel; and

a deflection yoke including a substantially trumpet-shaped separator having one end portion, smaller in diameter, and the other end portion, larger in diameter, and a deflecting coil provided at least on the inner surface of the separator, and mounted in a region near the boundary between the neck and the cone of the funnel;

the region near the boundary between the neck and the cone of the funnel being shaped so that the external shape thereof gradually changes from a circular shape on the neck side into a substantially rectangular shape on the cone side,

the separator including:

the inner surface having a shape resembling the external shape of the region near the boundary between the neck and the cone of the funnel so that the cross-sectional shape of the inner surface is circular at the one end portion of the separator and noncircular at the other end portion and gradually changes from the circular shape on the one end side into the noncircular shape on the other end side,

a plurality of first hooks provided on the inner surface at the one end portion and extending along a central axis of the separator, and

a plurality of second hooks provided on the inner surface at the other end portion, directed toward the other end of the separator and extending away from the central axis of the separator,

the deflecting coil including a winding mounted on the inner surface of the separator with being wound around the first and second hooks,

the separator including third hooks located on those parts of the inner surface thereof in which the cross section of the noncircular portion has a minimum radius of curvature, and engaged with those parts of the winding of the deflecting coil which extend across regions having the minimum radius of curvature, for preventing the winding from being lifted off the inner surface of the separator.

5,801,482

LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP

Henricus C.G. Verhaar; Henriëtte J. Talen-Van Der Mheen; Christianus J. Roozkrans, and Wilhelmus M.P. Van Kernenade, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

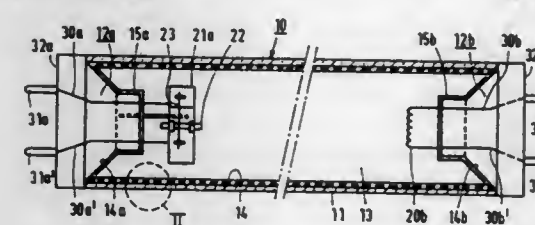
Filed Aug. 17, 1995, Ser. No. 516,417

Claims priority, application European Pat. Off., Aug. 25, 1994, 94202435; Nov. 8, 1994, 94203249

Int. Cl.⁶ H01J 01/62; 63/04; 17/26; 17/04

U.S. Cl. 313-483

10 Claims



1. A low-pressure mercury vapour discharge lamp provided with a discharge vessel (10) having a tubular portion (11) which transmits radiation generated in the discharge vessel (10) and having a first and a second end portion (12a, 12b), which discharge vessel (10) encloses a discharge space (13) provided with a filling of mercury and a rare gas in a gastight manner, while the end portions (12a, 12b) each support an electrode (20b) arranged in the discharge space (13) and current supply conductors (30a, 30a'; 30b, 30b') issue from the electrodes (20b) through the end portions (12a, 12b) to outside the discharge vessel (10), the tubular portion (11) of the discharge vessel (10) being provided with a metal oxide layer (15) on a surface (14) which faces the discharge space, wherein the first and the second end portions each have a surface facing the discharge space, which surfaces are each provided with a yttrium oxide layer (15a, 15b).

5,801,483

FLUORESCENT LAMP HAVING VISIBLE AND UV RADIATION

Miho Watanabe; Hisashi Honda; Keiji Hatakeyama; Yuichi Sakakibara, and Akiko Saitou, all of Kanagawa-ken, Japan, assignors to Toshiba Lighting and Technology Corp., Tokyo, Japan

Filed Feb. 28, 1996, Ser. No. 608,496

Claims priority, application Japan, Feb. 28, 1995, 7-40782; Mar. 30, 1995, 7-73727; Jul. 11, 1995, 7-175075; Jan. 12, 1996, 8-4155

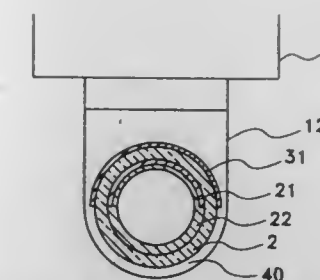
Int. Cl.⁶ H01J 1/62

U.S. Cl. 313-485

22 Claims

1. A fluorescent lamp comprising:

- a light-transmitting envelope;
- means for generating a discharge within the envelope;
- a discharge sustaining fill contained in the envelope for emitting ultraviolet rays during the lamp operation;



a phosphor layer coated on an inner surface of the envelope, the phosphor layer converting the ultraviolet rays into visible light and ultraviolet radiation only in a wavelength range of 320 nm to 410 nm so as to have radiant flux of ultraviolet radiation that is 5 to 50 percent of the entire radiant flux of the lamp.

5,801,484

COMPACT FLUORESCENT LAMP DISCHARGE TUBE AND METHOD FOR CLOSING

Laszlo Bankuti, Budapest; Peter Ormal; Karoly Talosi, both of Nagykanizsa; Jozsef Tokes, Budapest; Zoltan Vamos, Budapest; Istvan Wursching, Budapest, and Zsolt Micsinal, Nagykanizsa, all of Hungary, assignors to General Electric Company, Schenectady, N.Y.

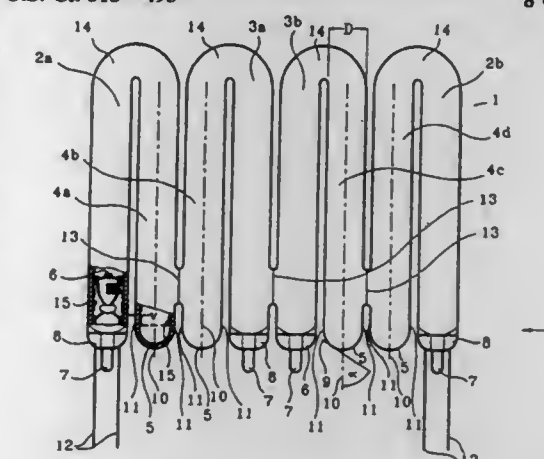
Filed Jun. 28, 1996, Ser. No. 671,916

Claims priority, application Hong Kong, Jul. 5, 1995, 95 02047

Int. Cl.⁶ H01J 1/62; 63/04; 17/16; 61/30

U.S. Cl. 313-493

8 Claims



5. A compact fluorescent lamp comprising:

- a base;
- a hermetically sealed discharge tube extending outwardly from the base and having first and second tube portions;
- electrodes provided in first and second ends of the discharge tube;
- a fill in the discharge tube;
- lead wires extending through the first and second ends and electrically connected to the electrodes for exciting the fill to a discharge state; and
- at least one of the first and second tube portions being closed by a curved surface having tangents which, starting from an axis of the at least one tube portion and extending to the cylindrical wall thereof, forms a monotonously decreasing angle with the axis of the at least one tube portion.

5,801,485

DISPLAY DEVICE

Gerardus N. A. Van Veen; Remko Horne; Dirk W. Harberts, and Siebe T. De Zwart, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 20, 1995, Ser. No. 492,827

Claims priority, application European Pat. Off., Jun. 30, 1994, 94201887

Int. Cl.⁶ H01J 31/12

U.S. Cl. 313—495

9 Claims



8. A display device comprising a first substrate means which is provided with means for generating and means for modulating electron beams and a second substrate means which is parallel to the first substrate means and is provided with a fluorescent layer disposed in a predefined area for producing an image in response to impingement by the electron beams on the fluorescent layer;

said first substrate means comprising a plurality of adjacent substantially coplanar sub-substrates, each of the sub-substrates being approximately arranged opposite a corresponding sub-area of the fluorescent layer, and each of said sub-substrates generating a plurality of the electron beams for impingement upon the sub-area of the fluorescent layer corresponding thereto;

said first substrate means including a first side facing the second substrate means and a second side remote from the first side and facing away from the second substrate means, said display device further including a rear plate spaced apart from the second side of the first substrate means, thereby defining a space between the second side and the plate.

5,801,486

HIGH FREQUENCY FIELD EMISSION DEVICE

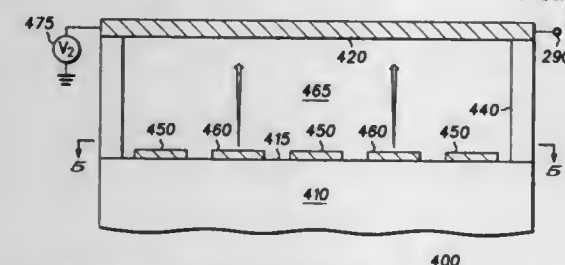
Scott V. Johnson, and James E. Jaskie, both of Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 31, 1996, Ser. No. 741,590

Int. Cl.⁶ H01J 1/02

U.S. Cl. 313—495

3 Claims



1. A high frequency field emission device comprising:

a cathode having a major surface; a field emissive film being deposited on the major surface of the cathode for emitting electrons;

an anode spaced from the field emissive film and designed to receive electrons emitted by the field emissive film; and

a control electrode disposed in operable spaced relationship with respect to the field emissive film so that an inter-electrode capacitance therebetween is suitable for realizing electron emission which is responsive to a high frequency input signal acting at the control electrode, the high frequency input signal having a frequency within a range of 10^6 – 10^{10} Hertz, and wherein the distance between the field emissive film and the control electrode is greater than 50 micrometers.

5,801,487

FLUORESCENT DISPLAY PANEL WITH PHOTO-SHIELD PLATE FOR DECREASING LIGHT REFLECTED ON FRIT

Toshiya Shinohara, Tokyo, and Masaharu Satonaka, Kagoshima, both of Japan, assignors to NEC Corporation, Tokyo, Japan

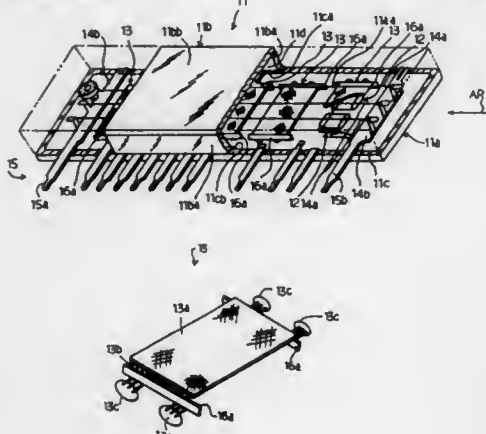
Filed Mar. 27, 1997, Ser. No. 824,613

Claims priority, application Japan, Mar. 29, 1996, 8-075055

Int. Cl.⁶ H01J 1/88

U.S. Cl. 313—495

5 Claims



1. A fluorescent display panel comprising:

an insulating substrate having a major surface elongated in a first direction;

a cover member bonded to said insulating substrate so as to form an inner space therebetween by means of frit, at least one layer of said frit extending along a boundary between said insulating substrate and said cover member in said first direction in said inner space;

a cathode provided in said inner space for radiating electrons;

a luminescent structure having an anode and a fluorescent layer provided on said major surface of said insulating substrate;

a grid structure provided between said cathode and said luminescent structure; and

at least one photo-shield member provided between said luminescent structure and said at least one layer of said frit, and having a photo-shielding surface opposed to said luminescent structure and directed substantially in parallel to said at least one layer of said frit so as to block a light component radiated in a second direction perpendicular to said first direction.

5,801,488

VARIABLE ENERGY RADIO-FREQUENCY TYPE CHARGED PARTICLE ACCELERATOR

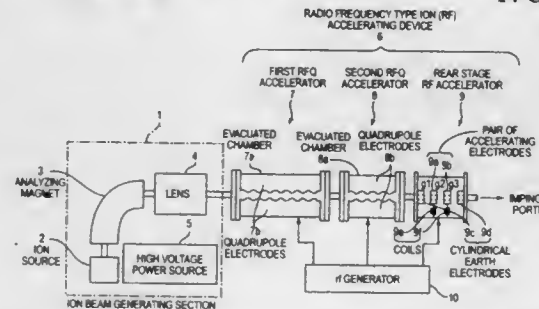
Hiroshi Fujisawa, Kyoto, Japan, assignor to Nissin Electric Co., Ltd., Kyoto-fu, Japan

Filed Feb. 29, 1996, Ser. No. 608,738

Int. Cl.⁶ H05H 9/00

U.S. Cl. 315—5.41

14 Claims



1. A radio-frequency type charged particle accelerator, comprising:

a radio-frequency power source comprising at least one variable power amplifier;

first RFQ accelerating means, including quadrupole electrodes positioned along a traveling path of a charged particle beam, for bunching and accelerating the charged particle beam by receiving a first radio-frequency power from said radio-frequency power source and resonating;

rear stage RF means disposed in the path of said charged particle beam downstream from the first RFQ accelerating means for optionally changing the energy of the charged particle beam by receiving a second radio-frequency power from said radio-frequency power source and resonating;

second RFQ accelerating means disposed between the first RFQ accelerating means and the rear stage RF means along the traveling path of the charged particle beam, including quadrupole electrodes positioned along the traveling path of the charged particle beam, for optionally accelerating the charged particle beam by receiving a third radio-frequency power from said radio-frequency power source and resonating; and

means for switching between an accelerating mode by supplying a predetermined accelerating radio-frequency power as the third radio-frequency power to said second RFQ accelerating means and a passing-through mode by supplying a predetermined non-accelerating radio-frequency power as the third radio-frequency power to the second RFQ accelerating means, wherein said means for switching comprises a control unit configured to output control signals to said variable power amplifier of said radio-frequency power source that cause said variable power amplifier to switch between a first state, for outputting the predetermined accelerating radio-frequency power, and a second state, for outputting the predetermined non-accelerating radio-frequency power.

5,801,489

THREE-PHASE ALTERNATING CURRENT PLASMA GENERATOR

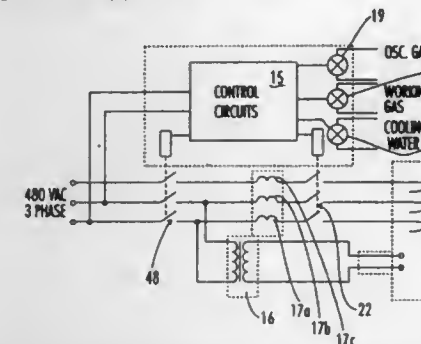
Paul E. Chism, Jr., Rte. 7, Box 69, Decatur, Ala. 35603; Hugh W. Greene, West Main St., Somerville, Ala. 35670; Philip G. Rutberg, St. Petersburg, Russian Federation; Alexei A. Safronov, St. Petersburg, Russian Federation, and Vasil N. Shliaev, St. Petersburg, Russian Federation, assignors to Paul E. Chism, Jr., Huntsville, and Hugh W. Greene, Somerville, both of Ala.

Filed Feb. 7, 1996, Ser. No. 597,870

Int. Cl.⁶ H05H 1/36

U.S. Cl. 315—111.21

17 Claims



1. A system for generation of a high temperature gas stream comprising:

a. a plasma generator unit having a housing, an arcing chamber inside the housing, first, second and third stationary primary electrodes spaced circumferentially around the inside of the housing to define an arcing region between the electrodes within the arcing chamber, and an opening at one end of the housing for exhausting the gas stream;

b. power supply means to connect each of the first, second, and third electrodes to a separate phase of a three-phase alternating current supply voltage;

c. oscillator means to inject an ionized oscillator gas into the arcing region;

d. working gas supply means to deliver a working gas into the chamber; and

e. control unit means to control the plasma generator unit, the power supply means, the oscillator means, and the working gas supply means.

5,801,490

FIRE-SAFE HALOGEN TORCHIERE LAMP

Chan K. Fai, Kowloon, Hong Kong, assignor to Catalina Lighting, Inc., Miami, Fla.

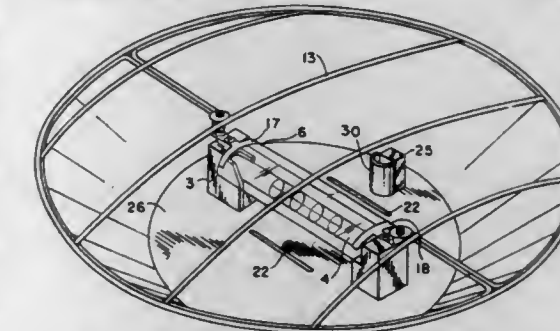
Filed Jun. 10, 1997, Ser. No. 872,416

Claims priority, application China, Oct. 29, 1996, 96 1 20428.1

Int. Cl.⁶ H01J 7/24

U.S. Cl. 315—118

27 Claims



1. A fire-safe halogen torchiere lamp, wherein said lamp comprises a lampshade mounted at one end of a stem and having an opening facing upward, a halogen bulb mounted within said lampshade and a shield at least partially covering said bulb, the improvements comprising:

a guard mounted across the opening of said lampshade to prevent fabrics or other flammable materials from contacting said shield or said bulb; and

a temperature sensor mounted within said lampshade in close proximity to said bulb and electrically coupled thereto, wherein said sensor further comprises a shield mounted between said sensor and said bulb for preventing direct illumination of said sensor by said bulb;

whereby, when said lampshade opening is covered by a material thereby forming an enclosed air space, the ambient temperature within said enclosed air space sensed by said sensor will rise, and, at a pre-set temperature, said sensor will cause the output of said bulb to be restricted to a safe level.

5,801,491

SUPPLY CIRCUIT FOR DISCHARGE LAMPS WITH MEANS FOR PREHEATING THE ELECTRODES

Antonio Canova, Montevarchi, Italy, assignor to Magnetek S.p.A., Siena, Italy

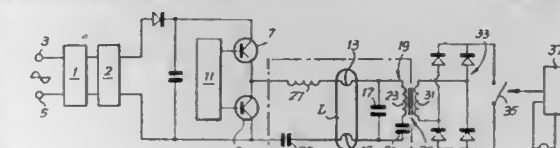
Filed Jul. 2, 1996, Ser. No. 674,536

Claims priority, application European Pat. Off., Jul. 5, 1995, 95830286

Int. Cl.⁶ H05B 37/02

U.S. Cl. 315—224

20 Claims



1. Circuit for firing and supplying a discharge lamp, comprising: a load circuit, with at least one discharge lamp with heating electrodes;

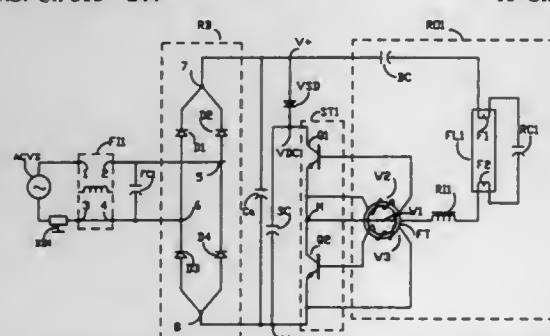
supply voltage means for supplying said discharge lamp with voltage;
circuit means having a total impedance value in parallel with said lamp said circuit means including a circuit comprising at least one arrangement of capacitors;
impedance modification means for modifying the value of said total impedance in parallel with said lamp when said heating electrodes of the lamp have been heated, said impedance modification means including an inductive impedance which can be varied in a controlled manner, said inductive impedance being in parallel with said lamp.

5,801,492
ELECTRONIC BALLAST FOR GAS DISCHARGE LAMP
HAVING PRIMARY AND AUXILIARY RESONANT
CIRCUITS

Andrzej Bobel, 201 Norman Ct., Des Plaines, Ill. 60016
Filed May 30, 1996, Ser. No. 657,647
Int. Cl.⁶ H05B 37/00

U.S. Cl. 315—244

15 Claims



1. An electronic energy converter to supply a high frequency signal to a load and adapted to operate from a low frequency alternating voltage source, the device comprising:

rectifier means having unidirectional devices connected to form AC input terminals, and a positive DC terminal, and a negative DC terminal, and the unidirectional devices exhibit a switching action characterized by an ON-time period when conducting electrical current, and characterized by OFF-time period when not conducting electrical current;

auxiliary resonant capacitance means operable to provide between the DC terminals a variable DC voltage having absolute peak magnitude higher than or equal to absolute peak magnitude of the rectified voltage of the low frequency voltage source;

energy-storage means having DC input terminals and connected with a diode means in a series circuit which is connected between the DC terminals, the diode means having its anode electrode connected to the positive DC terminal, and the diode means being operative, in conjunction with the energy-storage means, to develop between the DC input terminals a constant DC voltage separated from the variable DC voltage, and the energy-storage means being operative to receive the energy from the auxiliary resonant capacitance means during the OFF-time period and whenever an instantaneous magnitude of the variable DC voltage is higher than an instantaneous magnitude of the constant DC voltage;

semiconductor switching means coupled to the energy-storage means and having two alternately conduction transistors connected to form a common junction therebetween; and

primary resonant oscillator means coupled to the positive DC terminal and to the common junction of the semiconductor switching means, the resonant oscillator means operating to draw from the DC terminals a pulsating current conducted by the unidirectional devices and the diode means, and the primary resonant oscillator comprising: (i) a primary resonant inductor and a primary resonant capacitor connected in series and being adapted to power the load effectively connected in parallel with said capacitor, and (ii) a feedback transformer being responsive to an instantaneous magnitude of the pulsat-

ing current and operable to deliver to the semiconductor switching means a switching signal proportional to the instantaneous magnitude of the pulsating current, and to cause the resonant oscillator means to oscillate with a frequency automatically maintained in proportion to an instantaneous amplitude of a voltage equal to a difference of instantaneous amplitude of the constant DC voltage and instantaneous amplitude of the voltage supplied by the rectified low frequency alternating voltage source;

wherein the primary resonant circuit having frequency dependent impedance being substantially inductive in its character and exhibits an auxiliary inductance which interacts with the auxiliary resonant capacitance means to store and release energy during the ON-time and OFF-time periods proportional to a time period of half-cycle associated with the frequency of oscillation of the primary resonant oscillator means; the auxiliary resonant capacitance means and auxiliary resonant inductance are operable to resonantly interact and have a resonant frequency near or equal to the frequency of oscillation of the primary resonant oscillator means; each of the alternately conducting transistors having a duty cycle associated with the conduction and said duty cycle is automatically modulated in proportion to the instantaneous amplitude of a voltage equal to the difference of instantaneous amplitude of the constant DC voltage and instantaneous amplitude of the voltage supplied by the rectified low frequency alternating voltage source; the frequency of oscillation of the primary resonant oscillator means is considerably faster than half-cycle frequency of the alternating voltage source;

whereby an instantaneous magnitude of a current drawn from the alternating voltage source is substantially proportional to an instantaneous magnitude of the voltage of the alternating voltage source.

5,801,493
ELECTRODELESS LOW PRESSURE DISCHARGE LAMP
WITH IMPROVED HEAT TRANSFER FOR SOFT
MAGNETIC CORE MATERIAL

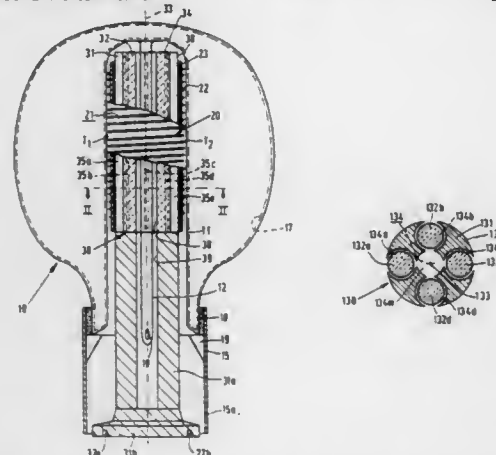
Petrus H. Antonis; Gibbo J. Abrahamse; Hendrik J. Eggink, and Marcellus H. Smulders, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 9, 1996, Ser. No. 767,598

Int. Cl.⁶ H05B 41/16

U.S. Cl. 315—248

11 Claims



1. An electrodeless low-pressure discharge lamp provided with a discharge vessel (10) which is closed in a gastight manner, which has a cavity (11), which encloses a discharge space, and which is provided with an ionizable filling, while a coil (20) with a winding (21) of an electric conductor and an assembly (30) of a heat conductor (31) with one or several elongate cores (32) of soft-magnetic material are accommodated in said cavity (11), which cores (32) are arranged along a longitudinal axis (33) of the assembly (30) in one or several recesses (34) of the heat conductor (31) which issue into a circumferential surface (36) of the assem-

bly (30), characterized in that the heat conductor (31) occupies at least half the circumference of the assembly (30) in a cross-section (II-II) perpendicular to the longitudinal axis (33).

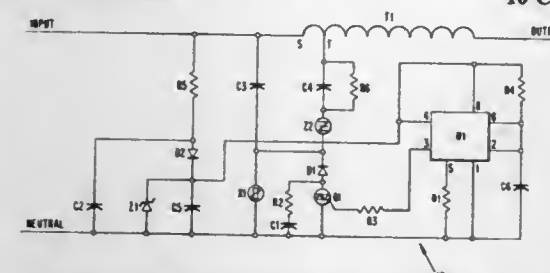
5,801,494
RAPID RESTRIKE WITH INTEGRAL CUTOFF TIMER
Donald C. Herres, Fayetteville, and John Harry Gold, Blinghamton, both of N.Y., assignors to Cooper Industries, Inc., Houston, Tex.

Filed May 21, 1996, Ser. No. 651,906

Int. Cl.⁶ H05B 37/00

U.S. Cl. 315—289

16 Claims



1. An electronic circuit for illuminating a HID lamp, including a hot HID lamp, wherein a hot HID lamp has a temperature that is at or substantially equal to an operating temperature of an illuminated HID lamp, said circuit comprising:

a restrike ignitor circuit that generates a plurality of restrike pulses for illuminating a hot HID lamp, and
a digital timer cutoff that prevents said restrike ignitor circuit from generating said plurality of restrike pulses after a time-out period elapses,
wherein said restrike ignitor circuit and said digital timer cutoff are combined into a single, integral circuit.

5,801,495
LOW-PRESSURE DISCHARGE LAMP CONTAINING
PARTITIONS THEREIN

Ernst Smolka, Speyer; Franz Schilling, Maintal; Anke Schnabl, Hammersbach, and Beate Herter, Stuttgart, all of Germany, assignors to Heraeus Noblelight GmbH, Hanau, Germany

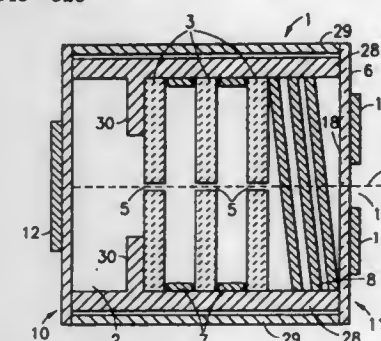
Filed Dec. 19, 1996, Ser. No. 769,551

Claims priority, application Germany, Dec. 20, 1995, 195 47 813.4

Int. Cl.⁶ H01J 61/30; H05B 37/00

U.S. Cl. 315—326

25 Claims



1. A low-pressure discharge lamp comprising:
a lamp envelope having a first sealed end portion and a second sealed end portion, said lamp envelope having a gas fill sealed therein, said gas fill forming a plasma in response to an application of a high-frequency electromagnetic field, said lamp envelope including: (i) a side wall defining an interior space and (ii) at least two partition members made of a high temperature-resistant material and extending inwardly from the side wall, said at least two partition members disposed between said first sealed end portion and said second sealed end portion to divide said interior space into a plurality of subspaces, each of said at least two partitions having an aperture therethrough, said aperture having a cross-sectional size which is substantially smaller than a cross-sectional size of said lamp envelope at least at said first sealed end portion or said second sealed end portion, thereby constricting the plasma such that radiation generated by the plasma is emitted from said lamp envelope along an optical axis which coincides with an optical axis of each of said apertures, at least one radiation emission window mounted on at least one of said first sealed end portion and said second sealed end portion for sealing said gas fill in said lamp envelope, said at least one radiation emission window being pervious to radiation generated by the plasma, and an electrode disposed at each of said first sealed end portion and said second sealed end portion, at least one of electrodes being disposed on said at least one radiation emission window, said at least one of said electrodes having an opening which coincides with said optical axis of said lamp envelope and is in registration with said optical axis of each aperture.

said side wall, said at least two partition members disposed between said first sealed end portion and said second sealed end portion to divide said interior space into a plurality of subspaces, each of said at least two partitions having an aperture therethrough, said aperture having a cross-sectional size which is substantially smaller than a cross-sectional size of said lamp envelope at least at said first sealed end portion or said second sealed end portion, thereby constricting the plasma such that radiation generated by the plasma is emitted from said lamp envelope along an optical axis which coincides with an optical axis of each of said apertures, at least one radiation emission window mounted on at least one of said first sealed end portion and said second sealed end portion for sealing said gas fill in said lamp envelope, said at least one radiation emission window being pervious to radiation generated by the plasma, and an electrode disposed at each of said first sealed end portion and said second sealed end portion, at least one of electrodes being disposed on said at least one radiation emission window, said at least one of said electrodes having an opening which coincides with said optical axis of said lamp envelope and is in registration with said optical axis of each aperture.

5,801,496
COLOR CATHODE RAY TUBE DISPLAY DEVICE AND
METHOD OF ADJUSTING COLOR PURITY IN THE
DISPLAY DEVICE

Hidenori Takita, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

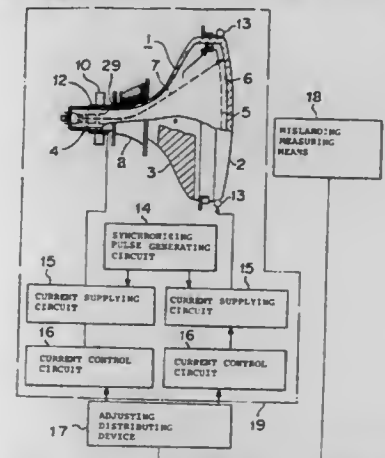
Filed Feb. 1, 1996, Ser. No. 595,208

Claims priority, application Japan, Aug. 9, 1995, 7-203562

Int. Cl.⁶ G09G 1/28; H01J 31/26

U.S. Cl. 315—368.11

14 Claims



1. A color cathode ray tube display device comprising:
a color cathode ray tube having a panel portion on which a picture image is projected and a neck portion disposed at the rear side of the panel portion, which includes three electron guns corresponding respectively to three colors of R, G and B and which is attached with a convergence purity assembly at its outer portion;
a deflection signal generating circuit for supplying a horizontal deflection signal and a vertical deflection signal to the color cathode ray tube;
a two pole coil unit which comprises two coils disposed rear the convergence purity assembly so as to face each other so that the direction of magnetic lines of force generated from them is in perpendicular to a plane including the three electron guns;
a purity coil wound around the panel portion; and
a current supplying circuit for supplying a current of saw-tooth-like waveform or a current of parabolic waveform, which has the same period as either the horizontal deflection signal or the vertical deflection signal of the color cathode ray tube display device, to the two pole coil unit and the purity coil.

5,801,497

POWER OUTPUT APPARATUS

Sumikazu Shamoto, Nagoya, and Kaoru Kubo, Aichi-ken, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

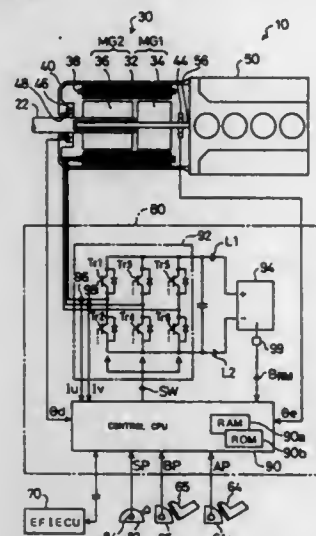
Filed Apr. 14, 1997, Ser. No. 843,173

Claims priority, application Japan, Jul. 2, 1996, 8-192827

Int. Cl.⁶ H02K 16/02; B60L 11/02

U.S. Cl. 318—139

9 Claims



1. A power output apparatus for outputting power to a drive shaft, said power output apparatus comprising:

an engine having an output shaft;

a complex motor comprising a stator having multi-phase coils wound thereon, a first rotor connecting with said output shaft of said engine, and a second rotor connecting with said drive shaft, wherein said stator and said first rotor constitute a first motor that can carry out a regenerative operation and said stator and said second rotor constitute a second motor, at least either one of said first motor and said second motor being constructed as a non-synchronous motor;

a motor-driving circuit for regulating an exciting electric current flown through said multi-phase coils wound on said stator of said complex motor, thereby driving said first motor and said second motor in said complex motor; and

control means for driving and controlling said first motor and said second motor via said motor-driving circuit, so as to enable at least part of power output from said engine to be output to said drive shaft.

9. A power output apparatus for outputting power to a drive shaft, said power output apparatus comprising:

an engine having an output shaft;

a complex motor comprising a stator having multi-phase coils wound thereon, a first rotor connecting with a rotating shaft, and a second rotor connecting with either one of said output shaft of said engine and said drive shaft, wherein said stator and said first rotor constitute a first motor that can carry out a regenerative operation and said stator and said second rotor constitute a second motor, at least either one of said first motor and said second motor being constructed as a non-synchronous motor;

three-shaft-type input and output means having three shafts respectively connecting with said output shaft, said rotating shaft, and said drive shaft, said three-shaft-type input and output means determining powers input into and output from a residual one shaft based on predetermined powers input into and output from any two shafts among said three shafts;

a motor-driving circuit for regulating an exciting electric current flown through said multi-phase coils wound on said stator of said complex motor, thereby driving said first motor and said second motor in said complex motor; and

control means for driving and controlling said first motor and said second motor via said motor-driving circuit, so as to enable said three-shaft-type power input and output means

and said first motor and said second motor in said complex motor to output at least part of power output from said engine to said drive shaft.

5,801,498

CONTROL SYSTEM FOR ELECTRIC VEHICLE

Katsuyuki Kusano; Hisahiro Ito, and Tomoyuki Itoh, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

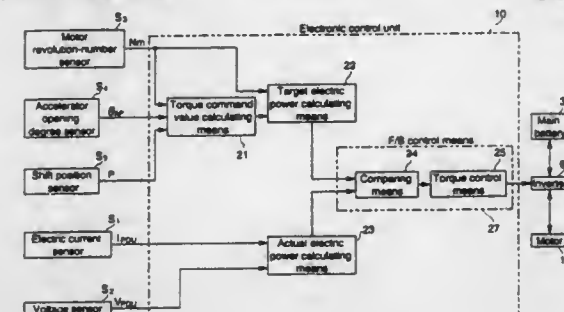
Filed Apr. 29, 1996, Ser. No. 639,475

Claims priority, application Japan, Apr. 28, 1995, 7-105435

Int. Cl.⁶ B60L 3/00; H02P 5/41

U.S. Cl. 318—139

7 Claims



1. A control system for an electric vehicle, comprising: an inverter which is disposed between a battery and a motor, and which converts a DC electric power of the battery into an AC electric power to supply it to said motor during driving of said motor and converts an AC electric power generated by said motor into a DC electric power to supply it to said battery during regenerative operation of said motor;

a motor control means for controlling the driving and regenerative operation of said motor through said inverter and for conducting a field weakening control in a high revolution range of said motor;

a first power source circuit for supplying an electric power to said motor control means by closing a power source switch operated by a driver;

a motor revolution-number sensor for detecting the number of revolutions of said motor; and

a second power source circuit for supplying an electric power to said motor control means when the number of revolutions of said motor detected by said motor revolution-number sensor is equal to or larger than a predetermined value.

5,801,499

CONTROL SYSTEM FOR A VEHICULAR DRIVE UNIT
Shigeo Tsuzuki, Takahama; Takeshi Hara, Chiryu; Manabu Watanabe, Toyota; Kenji Omote, and Satoru Tanaka, both of Nishio, all of Japan, assignors to Aisin AW Co., Ltd., Anjo, Japan

Filed Jul. 8, 1996, Ser. No. 676,807

Claims priority, application Japan, Jul. 11, 1995, 7-197142; Aug. 3, 1995, 7-198778

Int. Cl.⁶ H02P 5/20

U.S. Cl. 318—141

12 Claims

1. A control system for a vehicular drive unit, comprising: an engine;
a motor-generator connected to the output shaft of said engine for acting as a motor and a generator;
a battery for storing the energy recovered by said motor-generator as electric power and for feeding electric power to drive said motor-generator;
a first clutch for connecting said motor-generator and the wheels;
stop state detecting means for detecting the stopped state of the vehicle; and

5,801,501

ARRANGEMENT FOR MOVING WINDOW PANES IN A MOTOR VEHICLE

Harald Redelberger, Kuernach, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

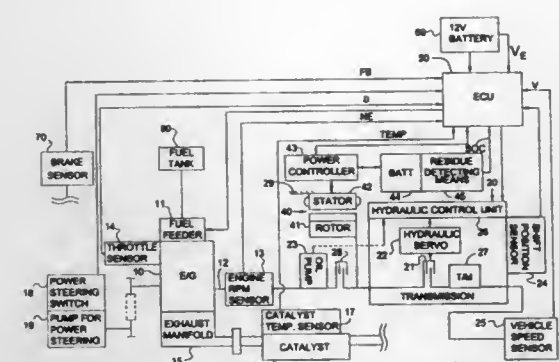
Filed Jun. 27, 1996, Ser. No. 672,696

Claims priority, application Germany, Jun. 30, 1995, 295 10 688 U; Sep. 14, 1995, 295 14 786 U

Int. Cl.⁶ H02P 7/00

U.S. Cl. 318—283

10 Claims



control means for controlling said engine, said motor-generator and said first clutch, wherein when the stopped state of the vehicle is detected by said stop state detecting means, said control means releases said first clutch, interrupts the feed of fuel to said engine, and feeds the electric power to said motor-generator to drive said motor-generator thereby to hold the rotation of said engine substantially at an idling RPM.

5,801,500

MOTOR/COMPRESSOR COMBINATION HAVING A CONTROL ARRANGEMENT FOR STARTING THE MOTOR WITH ASYNCHRONOUS AND THEN SYNCHRONOUS COMMUTATION

Finn Jensen; Jan Carøe Aarestrup, both of Nordborg, and Finn Visgaard Nielsen, Sønderborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

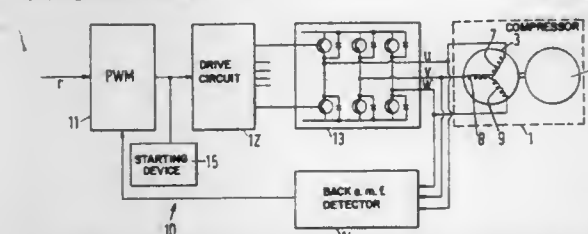
Filed Mar. 18, 1996, Ser. No. 616,966

Claims priority, application Germany, Mar. 18, 1995, 195 09 914.1

Int. Cl.⁶ H02P 6/20

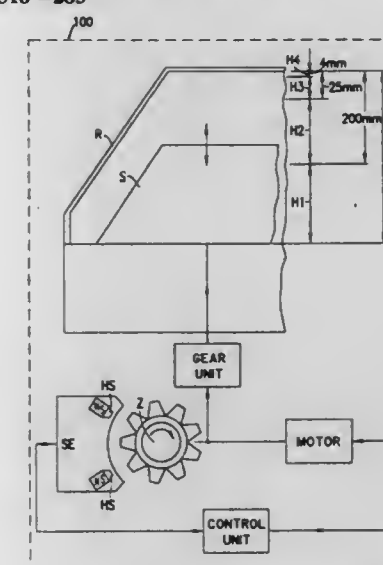
U.S. Cl. 318—254

15 Claims



1. Method for operating a motor/compressor combination having a brush-less motor, comprising the steps of, for starting, subjecting the motor to asynchronous and then synchronous commutation of its stator windings, employing a compressor having a periodically operating displacement element wherein output from the compressor is intermittent, turning the rotor of the motor by asynchronous commutation from its rest position to a starting position that facilitates start-up, and then starting the motor from that starting position.

9. Motor/compressor combination, for hermetically-encapsulated small refrigerating machines, comprising a brushless motor which has a stator having at least two windings and a rotor having permanent magnet poles, and a control arrangement having means for applying current to the windings in successive patterns and, for starting, means for effecting asynchronous and then synchronous commutation of those current-application patterns, the compressor having a periodically operating displacement element such that output from the compressor is intermittent and the means for effecting being formed such that current-application patterns succeed one another in asynchronous commutation in such a manner that the rotor is turned from a rest position to a starting position that facilitates start-up so that the motor can then be started from that starting position.



1. An arrangement for moving a window pane in a motor vehicle along a path between a closed position and an opened position, comprising:

an electric motor-gear drive unit driving the window pane along the path using at least three displacement speeds; and
a control device connected to the electric motor-gear drive unit for controlling the at least displacement speeds,

wherein the path includes a first path range extending from the opened position, a last path range extending from the closed position and an intermediate path range arranged between the first path range and the last path range, the intermediate path range including at least a first intermediate path range and a second intermediate path range, the first intermediate path range being positioned at a first predetermined distance from the closed position, the second intermediate path range being positioned at a second predetermined distance from the closed position, the first predetermined distance being smaller than the second predetermined distance,

wherein the window pane is driven at a first displacement speed in the first path range, the window pane being driven at a second displacement speed when the window pane is in the first intermediate path range, the window pane being driven at a third displacement speed when the window pane is in the second intermediate path range, the window pane being driven at a fourth displacement speed in the last path range, wherein the second and third displacement speeds are smaller than the first and fourth displacement speeds and are determined as a function of a detected position of the window pane along the path, and

wherein a closing force applied by the window pane on an obstruction does not exceed a predetermined maximum allowable closing force defined by safety standards, the closing force resulting from a driving force of the electric motor-gear drive unit and a stored kinetic energy of the arrangement, and the obstruction being encountered in the first and second intermediate path ranges.

5,801,502
MANUAL TO POWER CONTROLLER FOR VEHICLE DOOR MOVEABLE BETWEEN OPEN AND CLOSED POSITIONS

Tomoaki Monzen, Yokohama, Japan, assignor to Ohl Sakusho Co., Ltd., Yokohama, Japan

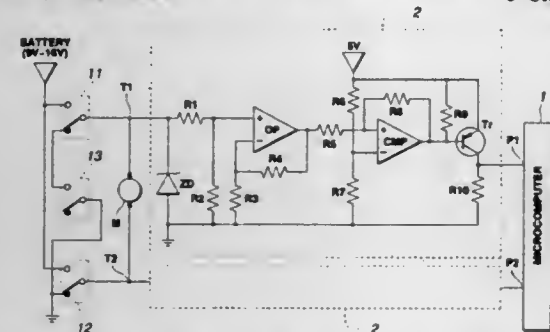
Filed Sep. 18, 1996, Ser. No. 715,408

Claims priority, application Japan, Oct. 2, 1995, 7-254992

Int. Cl.⁶ G60J 5/06; G05B 19/28; H02P 3/00

U.S. Cl. 318—286

5 Claims



1. A manual to power controller for a power-moveable object of an automotive vehicle, comprising:

- a direct-current electric motor for power-moving a power-moveable object mounted on an automotive vehicle;
- detection means for detecting both a magnitude and a direction of an electromotive force induced in a coil of said motor; said induced electromotive force resulting from a movement of said power-moveable object relative to a vehicle body with said motor de-energized; and
- control means for rotating said motor in a desired rotational direction depending upon both the magnitude and the direction of said induced electromotive force to power move said power-moveable object with said motor energized.

5,801,503
TEMPERATURE-COMPENSATING OVERCURRENT DETECTION CIRCUIT FOR DC MOTOR

Yong-Ho Kim, Seoul, and Hyun-Min Jo, Kyungki-do, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

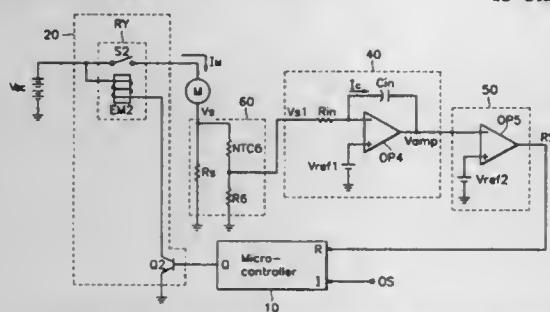
Filed Jul. 2, 1996, Ser. No. 674,871

Claims priority, application Rep. of Korea, Jul. 3, 1995, 1995 19296

Int. Cl.⁶ H02H 7/085

U.S. Cl. 318—434

13 Claims



1. A temperature-compensating overcurrent detection circuit for a DC motor, comprising:

- a converter for compensating a current signal flowing in a motor, adapted to adjust the signal by an amount proportional to an operation temperature of the motor and converting the adjusted signal to a corresponding voltage signal;
- an integrator for comparing the voltage signal inputted from the converter with a first reference voltage, detecting overcurrent and integrating the detected value; and
- an overcurrent detector for comparing the integrated value inputted from the integrator with a second reference voltage, deter-

mining that overcurrent flows when the integrated value from the integrator is greater than the second reference voltage, and outputting a corresponding signal.

5,801,504
CONTROL APPARATUS FOR ELECTRIC POWER STEERING SYSTEM

Shuji Endo, Yusuke Itakura, and Hideyuki Kobayashi, all of Maebashi, Japan, assignors to NSK Ltd., Tokyo, Japan

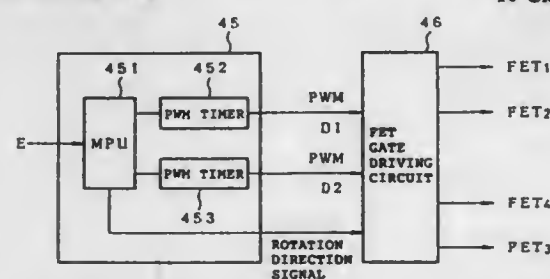
Filed Sep. 16, 1996, Ser. No. 713,105

Claims priority, application Japan, Sep. 25, 1995, 7-269041; Sep. 25, 1995, 7-269042

Int. Cl.⁶ H02P 7/14; B62D 5/04

U.S. Cl. 318—434

10 Claims



1. A control apparatus for an electric power steering system comprising a feedback control means to control an output of a motor for giving a steering assisting force to a steering mechanism in accordance with a value of a current control signal calculated from a steering force assisting command value which is calculated on the basis of a steering torque signal generated at least on a steering shaft and a detected motor current value, said control apparatus for an electric power steering system comprising:

- motor driving means connecting a power supply across the input terminals of an H bridge circuit formed by connecting four semiconductor elements and connecting said motor across the output terminals of said H bridge, in which two semiconductor elements form a pair constituting a first arm and a second arm; and
- control means for driving semiconductor elements of said first arm by the PWM signal having a first duty ratio determined on the basis of said current control value and semiconductor elements of said second arm by the PDM signal having a second duty ratio defined by the function of said first duty ratio.

5,801,505
DISK DRIVE STICTION RELEASE SYSTEM

Jia-Kuen Jerry Lee, San Jose; Hong Tian, Milpitas; Martin Smullen, La Honda, and Mike Workman, Saratoga, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 370,445, Jan. 9, 1995, abandoned.

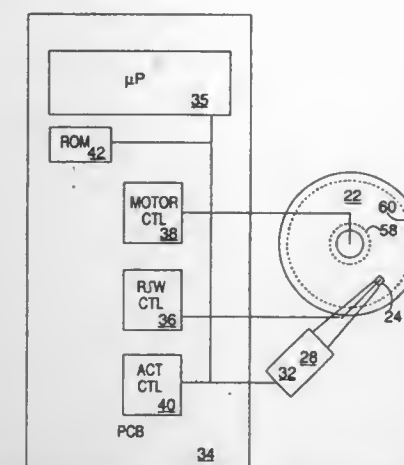
This application Apr. 23, 1997, Ser. No. 835,837

Int. Cl.⁶ H02K 23/16

U.S. Cl. 318—437

34 Claims

1. For use in a disk drive comprising a storage disk having data tracks and a landing zone, a spindle motor for rotating storage disk, a head for transferring data to and from the data tracks and arranged to fly above the data tracks during a period of operation of the disk drive and to contact the landing zone during a period of non-operation of the disk drive, an actuator for controllably positioning the head at preselected radial positions of the disk including the data tracks and the landing zone, and control electronics to control operation of the spindle motor and the actuator by transmitting control signals, a method for overcoming stiction between the head and the landing zone upon transition from non-operation to operation of the disk drive by operating the control electronics,



during transition from non-operation to operation of the disk drive, to generate control signals, comprising the steps of:

- i) pulsing the spindle motor at a first preselected frequency to apply a force that frets the motion of the storage disk in the circumferential direction,
- ii) pulsing the actuator at a second preselected frequency to apply a force that frets the motion of the actuator in the radial direction, and
- iii) coordinating the pulsing of the spindle motor and the actuator to cause a resulting force acting upon the head at the contact between the head and the landing zone that changes angular direction and includes a direction of least stiction between the head and the landing zone.

5,801,506
METHOD AND DEVICE FOR CONTROL OF AGV
Göran Netzler, Asa, Sweden, assignor to Apogee AB, Saro, Sweden

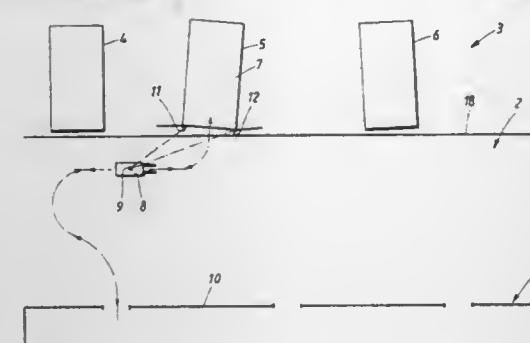
PCT No. PCT/SE94/00696, § 371 Date Feb. 23, 1996, § 102(e) Date Feb. 23, 1996, PCT Pub. No. WO95/03567, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 18, 1994, Ser. No. 581,538

Claims priority, application Sweden, Jul. 22, 1993, 9302475 Int. Cl.⁶ G05D 1/00; 1/02; 1/03

U.S. Cl. 318—587

8 Claims



1. A method for guiding an AGV over a supporting surface between a stationary work area and a mobile work area, and utilizing a computer-controlled navigation system for determining the relative location of the AGV, said method including the steps of:

- a) detecting from the AGV a first set of reference objects including at least two non-identity instruments arranged in predetermined, fixed locations relative to the stationary work area;
- b) electronically determining the location of the AGV in the stationary work area relative to the location of said first set of reference objects;
- c) detecting from the AGV in the stationary work area a second set of reference objects including at least two non-identity

- instruments arranged in predetermined, fixed locations relative to the mobile work area;
- d) electronically determining the location of the second set of reference objects of the mobile work area relative to the stationary work area; and
- e) automatically guiding the AGV from the stationary work area to the mobile work area utilizing location information determined in steps (b) and (d).

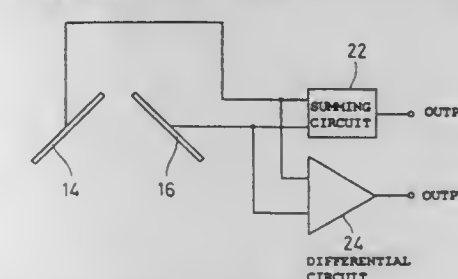
5,801,507
ACCELERATION SENSOR
Takeshi Nakamura, Uji, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed May 24, 1996, Ser. No. 653,378

Claims priority, application Japan, May 26, 1995, 7-152465 Int. Cl.⁶ G05B 11/12

U.S. Cl. 318—648

9 Claims



1. An acceleration sensor comprising:

- a first acceleration sensor and a second acceleration sensor both disposed neither parallel nor perpendicularly to a plumb plane, said first acceleration sensor and said second acceleration sensor being disposed such that they are symmetrical to each other with reference to said plumb plane;
- a summing circuit for obtaining the sum of an output signal of said first acceleration sensor and an output signal of said second acceleration sensor, and a differential circuit for obtaining the difference between the respective output signals of said first acceleration sensor and said second acceleration sensor,
- wherein acceleration in the horizontal direction is obtained from one of the output signals of said summing circuit and said differential circuit, and the gravitational acceleration is obtained from the other of the output signals of said summing circuit and said differential circuit.

5,801,508
APPARATUS FOR CONTROLLING A POLYPHASE AC MOTOR IN QUICK-TORQUE AND HIGH-EFFICIENCY MODES

Kazuyoshi Obayashi, Kariya, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 2, 1996, Ser. No. 691,592

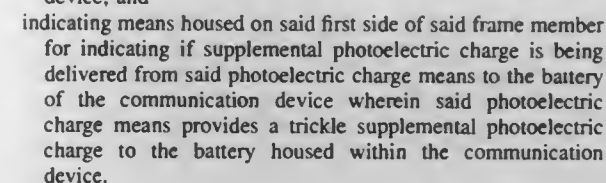
Claims priority, application Japan, Aug. 4, 1995, 7-199536 Int. Cl.⁶ H02P 7/00

U.S. Cl. 318—801

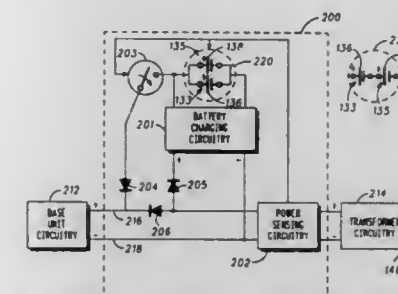
7 Claims

- 1. A control apparatus for a polyphase ac motor, comprising: a battery;
- an inverter circuit, connected to the battery, said inverter including a plurality of sets of switches, each of said sets of switches having a series combination of two switching elements, wherein two ends of each of said sets of switches are connected to the battery, and a junction between the two switching elements in each of said sets of switches is electrically connected to a respective terminal of the polyphase ac motor; and
- a vector controller for controlling the inverter circuit on the basis of a torque-current command value and a magnetizing-current command value;

UMI



4 Claims

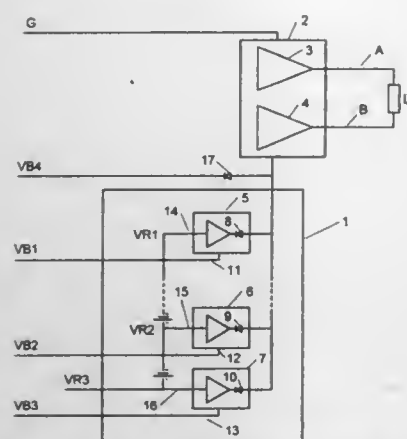


electrical circuitry disposed within said housing, said electrical circuitry operative to recharge the first and the second batteries when received on said housing and to provide electrical energy from the main power supply to the electronic system for operation when the electrical energy is available, said electrical circuitry operative to serially couple the first and the second batteries and to provide electrical energy from the first and the second batteries to the electronic system for operation in response to a power failure at the main power supply.

UMI

6 Claims

a number of analog series regulators having respective supply voltage connection terminals to be connected to an individual one of said supply voltages and having respective output terminals to be connected to the load to individually conduct current to/from the load in one and the same direction, and having respective reference voltage input terminals to be



supplied with an individual reference voltage in response to the voltage demand of the load in such a manner that a series regulator connected to a supply voltage of a larger absolute value is adapted to be supplied with a reference voltage of a smaller absolute value than a series regulator connected to a supply voltage of a smaller absolute value and, thereby, strive to output an output voltage on its output terminal that is of a smaller absolute value than the output voltage which a series regulator connected to a supply voltage of a smaller absolute value strives to output.

5,801,521

PLANAR MAGNETIC ELEMENT

Tetsuhiko Mizoguchi; Toshiro Sato; Masashi Sahashi; Michio Hasegawa, all of Yokohama; Hiroshi Tomita, Tokyo, and Atsubito Sawabe, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

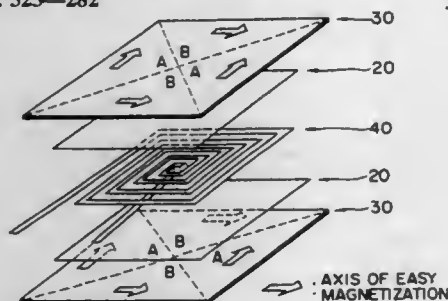
Division of Ser. No. 248,679, May 25, 1994, Pat. No. 5,583,474, which is a continuation of Ser. No. 708,881, May 31, 1991, abandoned. This application Sep. 3, 1996, Ser. No. 707,291

Claims priority, application Japan, May 31, 1990, 2-139989; Oct. 9, 1990, 2-269397; Oct. 9, 1990, 2-269398; Mar. 29, 1991, 3-91614; Mar. 30, 1991, 3-93434; Mar. 30, 1991, 3-93717

Int. Cl.⁶ G05F 1/40; H01F 27/30; 41/00

U.S. Cl. 323-282

3 Claims



1. A planar magnetic element comprising:
a substrate;
a first magnetic layer arranged over said substrate;
a first insulation layer arranged over said first magnetic layer;
a planar coil formed of a conductor, having a plurality of turns, arranged over said first insulation layer;
wherein said first magnetic layer is a quadrilateral having four triangular sections with each section having an axis of easy magnetization which extends parallel to at least one of the four sides of the quadrilateral, wherein the axis of easy magnetization of each triangular section intersects at right angles with magnetic fluxes generated by said coil, and wherein said triangular sections each have a base corresponding to each side of said quadrilateral and wherein ones of said triangular sections having immediately adjacent bases have their respective axes of easy magnetization perpendicular to

each other, whereby said magnetic layer has no readily saturated magnetic regions.

5,801,522

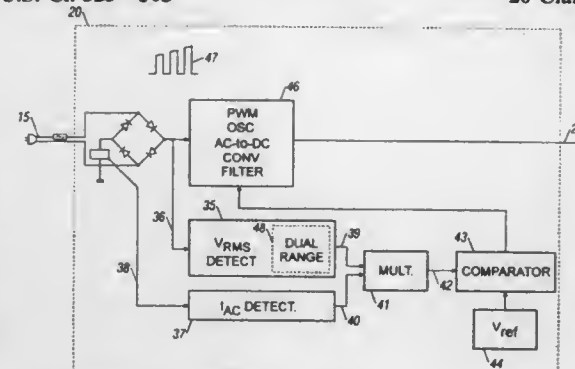
POWER LIMIT CIRCUIT FOR COMPUTER SYSTEM
Philip James McKenzie, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Sep. 26, 1996, Ser. No. 720,211

Int. Cl.⁶ G05F 5/08

U.S. Cl. 323-303

20 Claims



1. A computer system comprising:
(a) a computer system unit;
(b) a plurality of power-consuming elements connected to said computer system unit;
(c) a source of AC power input;
(d) a power supply circuit connected to receive said AC power input and furnishing operating voltage to said computer system unit and to said elements; said power supply circuit having a power limit function including:
a power limit control circuit responsive to said source to alter available power supplied to said computer system;
and a range selector to change the relative magnitude of said available power in response to said AC source exceeding a selected level, to thereby create a first control range for lower AC input levels and a second control range for higher AC input levels.

5,801,523

CIRCUIT AND METHOD OF PROVIDING A CONSTANT CURRENT

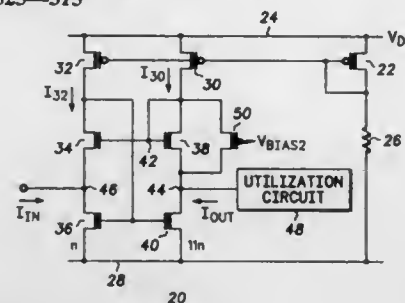
Byron Glen Bynum, Gilbert, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 11, 1997, Ser. No. 799,680

Int. Cl.⁶ G05F 3/16

U.S. Cl. 323-315

14 Claims



1. A current source, comprising:
a current mirror having an input coupled for receiving a first reference current;
a first transistor serially coupled in the input of the current mirror;
a second transistor having a first conduction terminal coupled for receiving a second reference current, and a second conduction terminal coupled to an output of the current mirror,

where the first conduction terminal of the second transistor is coupled to common control inputs of the first and second transistors; and
a third transistor having a first conduction terminal coupled to the output of the current mirror, a control terminal coupled for receiving a bias voltage, and a second conduction terminal for providing an output current of the current source.

5,801,524

VOLTAGE CONTROLLED CURRENT SOURCE FOR LOW VOLTAGE APPLICATIONS

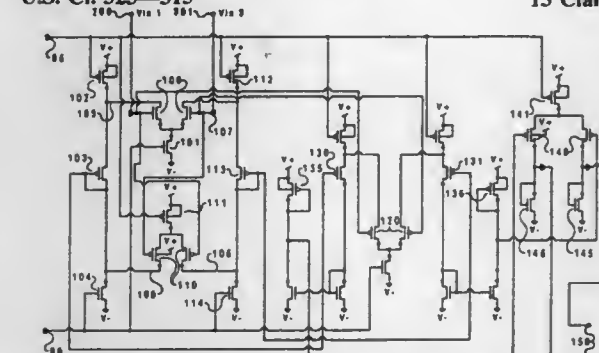
David Boerstler, Round Rock, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 27, 1997, Ser. No. 863,151

Int. Cl.⁶ G05F 3/26

U.S. Cl. 323-315

13 Claims



1. A voltage controlled current source utilizing a low supply voltage and a differential input voltage comprising:
a first and a second differential amplifier coupled to a differential input voltage for producing a differential current which is a function of said differential input voltage and independent of a common mode input voltage, said differential current having a first current and a second current;
a first floating current mirror responsive to said first current;
a second floating current mirror responsive to said second current; and
wherein said first and said second floating current mirrors are coupled independently of said first and second differential amplifier to said low supply voltage, allowing utilization of low voltage technology.

5,801,525

FREQUENCY DISCRIMINATING POWER SENSOR

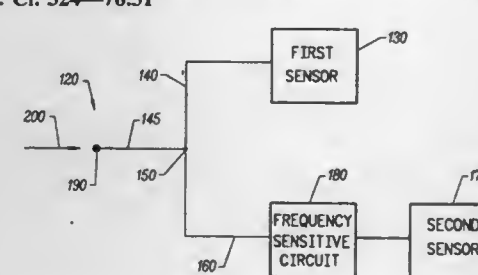
William Oldfield, Redwood City; Russell Brown, San Jose, and Michael Osborne, Morgan Hill, all of Calif., assignors to Wiltron Company, Morgan Hill, Calif.

Filed Jun. 12, 1996, Ser. No. 662,052

Int. Cl.⁶ G01R 23/16

U.S. Cl. 324-76.31

5 Claims



1. A power sensor for determining the frequency of a microwave signal received at a signal input node, comprising:
a path divider having an input providing the input signal node, a first output and a second output;

a first sensor having an input coupled to the first output of the path divider, the first sensor for producing a first output corresponding to the power of said microwave signal at said frequency;
a second sensor having an input coupled to the second output of the path divider, the second sensor for producing a second output corresponding to the power of said microwave signal at said frequency; and
a length of transmission line coupling the second output of the path divider to the second sensor providing greater attenuation between the second output of the path divider and the second sensor than attenuation provided from the first output of the path divider to the first sensor, and distinguishing said second output from said first output so that a ratio of said outputs produces a unique value at said frequency.

5,801,526

RATE ADJUSTABLE FAULTED CIRCUIT INDICATOR MODULE

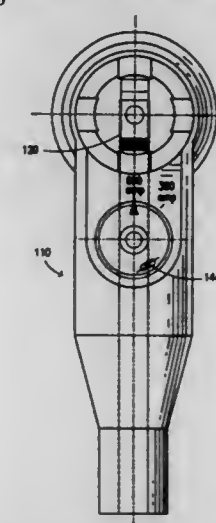
Hendrik Horstmann, Ratingen, Germany, assignor to Dipl.-Ing. H. Horstmann GmbH, Germany

Filed Aug. 1, 1996, Ser. No. 690,934

Int. Cl.⁶ G01R 1/64; 19/14

U.S. Cl. 324-133

20 Claims



19. A termination connector for indicating the occurrence of a fault current in an electrical conductor of an alternating current distribution power system, comprising:
recessed housing means formed in said termination connector; and
trip setting means responsive to a magnetic field and being rotatably disposed in said recessed housing means.

5,801,527

APPARATUS AND METHOD FOR TESTING SEMICONDUCTOR DEVICE

Takao Ishii, Tokyo; Shuji Akiyama, Kofu, and Hiroki Hosaka, Yamanashi-ken, all of Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Filed Jul. 25, 1995, Ser. No. 506,819

Claims priority, application Japan, Jul. 26, 1994, 6-193691; Aug. 16, 1994, 6-215314

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-158.1

15 Claims

1. A tester apparatus for carrying a large number of semiconductor devices to a test position, subsequently executing an electric test with respect to the semiconductor devices at the test position, and then carrying the semiconductor devices away from the test position, said tester apparatus comprising:

VOL

1
2
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4

ISS

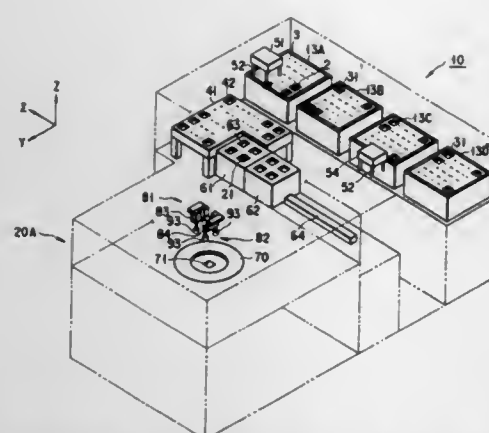
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- a loader/unloader unit including a loader section in which the semiconductor devices are housed before testing, and an unloader section in which the semiconductor devices are housed after testing;
- a tester unit, detachably coupled to the loader/unloader unit, for supplying a test signal to the semiconductor devices when the semiconductor devices are at the test position, to thereby determine whether or not the semiconductor devices are defective;
- a first aligning section, located between the tester unit and the loader/unloader unit, for aligning the semiconductor devices before testing;
- a second aligning section, located between the tester unit and the loader/unloader unit, for aligning the semiconductor devices after testing;
- first conveyance means for conveying the semiconductor devices from the loader section to the first aligning section before testing, and for conveying the semiconductor devices from the second aligning section to the unloader section after testing; and
- second conveyance means for conveying the semiconductor devices from the first aligning section to the test position before testing, and for conveying the semiconductor devices from the test position to the second aligning section after testing.

5,801,528
SEMICONDUCTOR ELEMENT EVALUATING APPARATUS

Takayuki Katoh, and Hiroto Matsubayashi, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

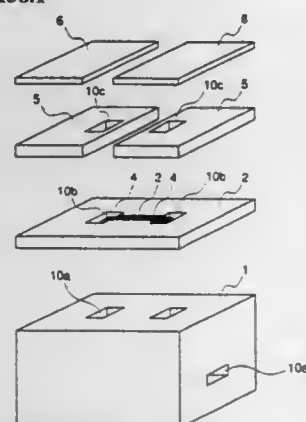
Filed Mar. 11, 1996, Ser. No. 613,988

Claims priority, application Japan, Jul. 12, 1995, 7-176076

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—158.1

8 Claims



1. A semiconductor element evaluating apparatus for evaluating an electrical characteristic of a semiconductor element used in a microwave band comprising:

- a pedestal having a front surface and first and second hollow waveguides for exchanging signals with external devices, each hollow waveguide penetrating the pedestal and having inner wall surfaces;
- a mode converting carrier member having a first surface, placed, on the pedestal, having a region where a semiconductor element is to be mounted, having first and second hollow waveguide parts having inner wall surfaces aligned with the respective first and second hollow waveguides of the pedestal, and having first and second microstrip lines sandwiching the region where a semiconductor element is mountable and connectable to the semiconductor element, each microstrip line converting a signal propagation mode between the microstrip line and one of the first and second hollow waveguides; and
- waveguide terminal structures placed on the mode converting carrier member, respectively having first and second waveguide terminal parts for terminating the respective first and second hollow waveguide parts of the mode converting carrier member, signals input to the first hollow waveguide propagating successively through the first hollow waveguide, the first microstrip line, a mounted semiconductor element, the second microstrip line, and the second hollow waveguide for evaluating the semiconductor element.

5,801,529

MAGNETORESISTANCE SENSING DEVICE WITHOUT HYSTERESIS INFLUENCE

Hideki Umemoto; Naoki Hiraoka; Wataru Fukui; Yutaka Ohashi, and Masahiro Yokotani, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

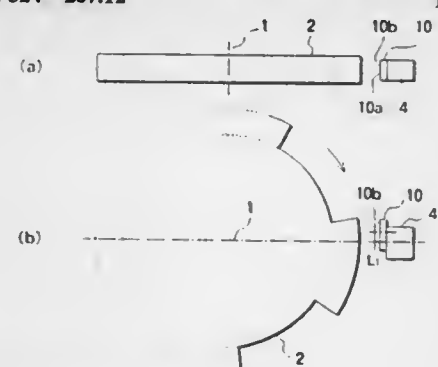
Filed Oct. 31, 1996, Ser. No. 740,623

Claims priority, application Japan, Jun. 10, 1996, 8-147554

Int. Cl.⁶ G01B 7/14; G01R 33/06; F62B 53/06

U.S. Cl. 324—207.12

14 Claims



1. A sensing device comprising:
- magnetic field generation means for generating a magnetic field;
- magnetic field variation inducing means for changing the magnetic field generated by said magnetic field generation means, said magnetic field variation inducing means being disposed at a predetermined distance apart from said magnetic field generation means;
- a giant magnetoresistance device for detecting said varying magnetic field, said giant magnetoresistance device exhibiting hysteresis in terms of resistance versus allied magnetic field and having an operating range which is set so that the change in resistance of said giant magnetoresistance device is uniform over the entire operating range in both directions of change in the magnetic field induced by said magnetic field variation inducing means,
- wherein said giant magnetoresistance device is disposed in such a manner that the center of the magnetic field sensing plane of said giant magnetoresistance device deviates by a predetermined distance from the center of said magnetic field generation means in a direction parallel to a plane containing the displacement direction of said magnetic field variation inducing means so that the center of the magnetic field generation means is located a position corresponding to a peak in the characteristic curve of the giant magnetoresistance device in

terms of resistance versus magnetic field thereby eliminating effects of the hysteresis.

5,801,530

PROXIMITY SENSOR HAVING A NON-FERROUS METAL SHIELD FOR ENHANCED SENSING RANGE
Robert J. Crosby, Wickliffe, and Harold W. Everson, Jr., Mentor, both of Ohio, assignors to Namco Controls Corporation, Cleveland, Ohio

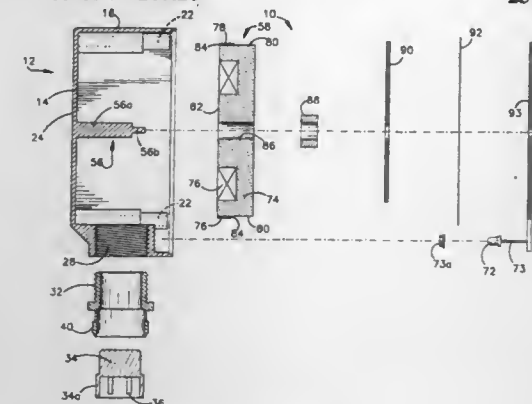
Continuation of Ser. No. 423,160, Apr. 17, 1995, abandoned.

This application Jan. 23, 1997, Ser. No. 787,887

Int. Cl.⁶ G01B 7/14

U.S. Cl. 324—207.26

25 Claims



1. A proximity sensor comprising:
- a) a magnetic member having a top surface, a bottom surface, and a side surface having a width between the top and the bottom surfaces of the magnetic member, said top surface being generally planar and wherein the magnetic member defines a cavity that extends into the magnetic member from the top surface;
- b) a sensing coil positioned within the cavity of the magnetic member;
- c) circuitry, coupled to the sensing coil, for energizing the sensing coil to define a sensing region in relation to the sensing coil and for sensing an object in the sensing region;
- d) a sensor housing supporting the circuitry and the magnetic member with the sensing coil; and
- e) a non-ferrous metal shield positioned inside the sensor housing and disposed around at least a portion of an outer perimeter of the magnetic member such that at least a portion of the side surface of the magnetic member is between the sensing coil and the non-ferrous metal shield,
- the non-ferrous metal shield having a top substantially aligned with the generally planar top surface of the magnetic member and having a width less than the width of the side surface of the magnetic member.

5,801,531

APPARATUS AND METHOD FOR TESTING MAGNETIC HEADS USING TRANSLATIONAL SLIDES AND A ROTATABLE ARM

Elliot Viches, Sunnyvale; Mostafa Mahmoudian, San Carlos; Jagdeep S. Buttar, Union City; Oleg A. Gergel, Mountain View; Patrick A. Weber, Sunnyvale; Victor Rudman, Palo Alto, and Harry Ray Duer, Boulder Creek, all of Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

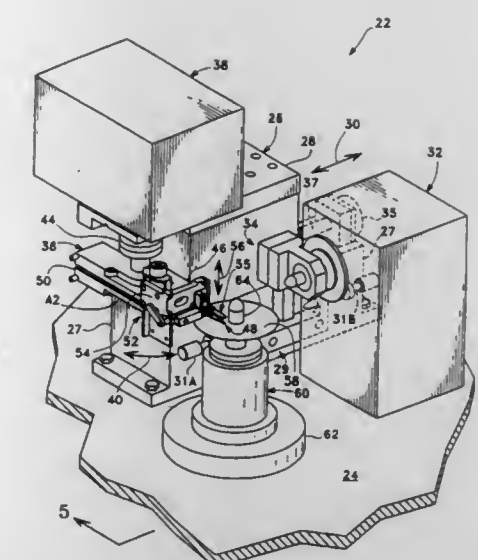
Filed Jan. 18, 1996, Ser. No. 544,090

Int. Cl.⁶ G01R 33/12; G11B 5/54; 21/14

U.S. Cl. 324—212

45 Claims

1. A testing apparatus for testing components of a disk drive including a magnetic head that interacts with a magnetic disk which includes a plurality of concentric data tracks magnetized thereon comprising:



- a base;
- translational means disposed above said base, said translational means being slidable in a longitudinal direction substantially parallel to the surface of said magnetic disk; a rotatable arm having a distal end attached to said magnetic head, and a proximal end pivotally connected to said translational means; wherein said translational means and said rotatable arm respectively are operationally slidable and rotatable above said base, such that during testing, while accessing different data tracks on said magnetic disk, said translational means slides said rotatable arm and causes said magnetic head to rotate to different positions relative to the data tracks on said magnetic disk; and
- elevating means slidably connected to said distal end of said rotatable arm, said elevating means being slidable in a direction other than said longitudinal direction and substantially vertical to the surface of said magnetic disk, wherein said magnetic head is connected to said distal end of said rotatable arm by said elevating means, thereby allowing said elevating means to adjustably move said magnetic head relative to said magnetic disk.

5,801,532

HAND-HOLDABLE EDDY-CURRENT PROBE

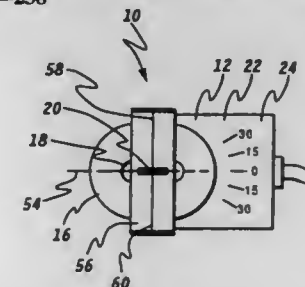
Thadd Clark Patton, Clifton Park; Robert John Filkins, Fonda; James Paul Fulton, Clifton Park; Kristina Helena Valborg Hedengren, and John David Young, both of Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 21, 1997, Ser. No. 803,613

Int. Cl.⁶ G01R 33/12; G01N 27/82; 27/72

U.S. Cl. 324—238

18 Claims



1. An eddy current probe comprising:
- a) a support member;
- b) a generally-toroidal-shaped first resilient member having a first coefficient of elasticity, a generally longitudinal axis, and an exterior surface, wherein said exterior surface includes a

5,801,538

TEST PATTERN GROUP AND A METHOD OF MEASURING AN INSULATION FILM THICKNESS UTILIZING THE SAME

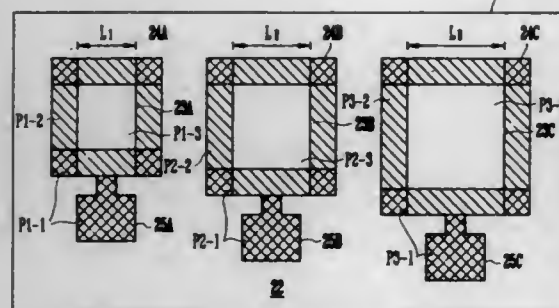
Oh Jung Kwon, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea
Filed Aug. 22, 1996, Ser. No. 702,835

Claims priority, application Rep. of Korea, Aug. 22, 1995, 1995-25865

Int. Cl.⁶ G01R 27/26; H01L 21/66

U.S. Cl. 324-671

7 Claims



1. A method for electrically measuring a capacitance of an insulation film applied to a semiconductor device and converting the measured capacitance to a thickness of the insulating film, comprising the steps of:

- providing a test pattern group having at least 3 (three) test patterns, each of said test patterns having an active region defined in a silicon substrate by forming a field oxide film, an insulation film formed on said active region, a conductive layer formed on said insulation film, and a pad integrated with said conductive layer, wherein each of said active regions of each test pattern having a different size from each other;
- measuring the capacitance of each test pattern by making an accumulation mode for each test pattern by applying voltage to each pad and applying ground voltage to said substrate;
- deriving each coefficient given to each term of an equation given below by substituting the capacitance value measured on each test pattern and each length of said insulation film comprising each test pattern to said equation according to each test pattern;

$$C = a + bL + cL^2 \text{ (equation)}$$

(Where, "C" is the capacitance of the test pattern, "a" is the coefficient of the constant term, "b" is the coefficient of the first power term, "c" is the coefficient of the second power term, and "L" is the length of the insulation film)

taking a value of second power term as the capacitance value for each insulation film by applying a second power term coefficient among the derived coefficients to said second power term; and

converting the capacitance value at each insulation film to the thickness of each insulation film.

5,801,539

MOISTURE SENSOR FOR A WINDSHIELD

Hans-Joachim Schröder, Wiesbaden, Germany, assignor to VDO Adolf Schindling AG, Frankfurt, Germany
Filed Oct. 30, 1996, Ser. No. 739,560

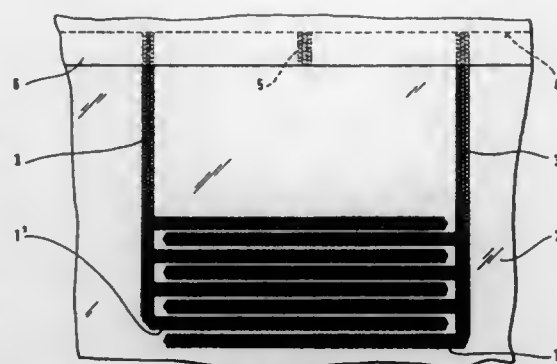
Claims priority, application Germany, Dec. 20, 1995, 195 47 681.6

Int. Cl.⁶ B60S 11/08

U.S. Cl. 324-694

15 Claims

1. A moisture sensor comprising:
two spaced-apart main electrodes which are arranged on the outer side of the windshield of a motor vehicle in a region



which is passed over by the windshield wiper, the two main electrodes being connectable to an evaluation circuit on the motor vehicle for determining resistance of the moisture sensor as a function of a degree of moisture on the windshield: an auxiliary electrode arranged between the two main electrodes and outside a region which is passed over by the windshield wiper, the auxiliary electrode being connectable to the evaluation circuit; and wherein the auxiliary electrode, in conjunction with the two main electrodes, serve to determine a shunt resistance formed by residues on the windshield in the region of the moisture sensor.

5,801,540

ELECTRONIC CIRCUIT TESTER AND METHOD OF TESTING ELECTRONIC CIRCUIT

Kazuhiro Sakaguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 524,433, Sep. 6, 1995, Pat. No. 5,659,244.

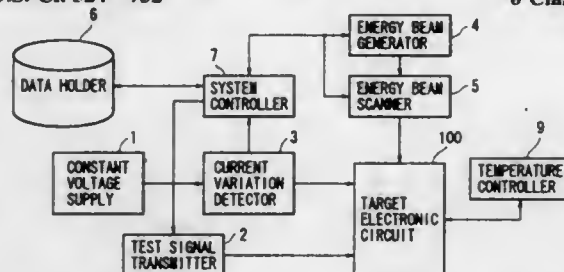
This application Apr. 25, 1997, Ser. No. 840,701

Claims priority, application Japan, Sep. 21, 1994, 6-226314; Feb. 27, 1995, 7-38253

Int. Cl.⁶ G01R 31/28

U.S. Cl. 324-752

6 Claims



1. A failure analysis equipment for an electronic circuit, comprising:

- (a) a voltage source for supplying a voltage to a wiring of a circuit to be analyzed;
- (b) an energy beam irradiator for irradiating an energy beam to said wiring to vary an electrical resistance of said wiring;
- (c) a current detector for detecting a difference between a first current running when said energy beam is irradiated to said wiring and a second current running when said energy beam is not irradiated to said wiring, and for producing first data indicative of said difference;
- (d) a data holder for storing second data indicative of said wiring; and
- (e) a controller for responding to said first and second data, and calculating a third current actually running through said wiring to determine whether said wiring is in failure.

5,801,541

STACKED TEST BOARD APPARATUS WITH MATCHED IMPEDANCE FOR USE IN ELECTRONIC DEVICE TEST EQUIPMENT

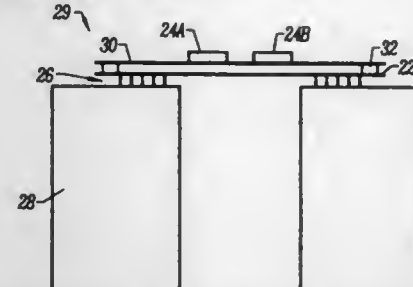
Salid Rezvani, Los Gatos, Calif., assignor to Altera Corporation, San Jose, Calif.

Filed Oct. 31, 1996, Ser. No. 743,463

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-754

11 Claims



1. An apparatus for use with electronic device test equipment, comprising:

- a mother test board with a top surface with a first set of pins extending therefrom, and a bottom surface for connection to a plurality of pin electronic cards of electronic device test equipment;
- a daughter test board with a top surface with a connection mechanism to receive an electronic device, and a bottom surface with a second set of pins extending therefrom; and
- an impedance matching structure positioned between said mother test board and said daughter test board, said impedance matching structure defining a plurality of apertures positionally aligned with said first set of pins and said second set of pins such that said first set of pins and said second set of pins physically mate within said apertures, said first set of pins, said second set of pins, and said apertures being configured to establish a predetermined constant impedance connection between said mother test board and said daughter test board.

5,801,542

DISPLAY PANEL INSPECTION SOCKET

Yasushi Kajiwara, and Michihiko Tezuka, both of Kawaguchi, Japan, assignors to Enplas Corporation, Saitama, Japan

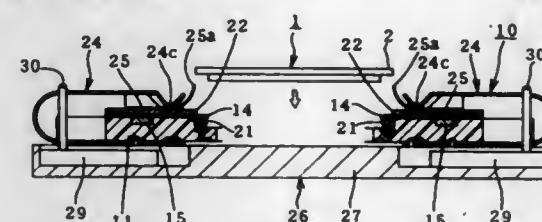
Filed Apr. 22, 1996, Ser. No. 636,350

Claims priority, application Japan, Apr. 20, 1995, 7-119402; Jul. 6, 1995, 7-194170; Jul. 6, 1995, 7-194171

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-755

18 Claims



1. A display panel inspection socket comprising:
a socket body for holding a display panel wherein a large number of electrode terminals are arranged at sides of a surface of an insulating base plate;

a film attachment plate, attached to the socket body in a way that positional adjustment thereof can be carried out along a direction of arrangement of the electrode terminals of the display panel;

contact films attached to the socket body via the film attachment plates and provided with contacts for contact with the electrode terminals of the display panel on the surface;

an elastic supporting member which is attached to the socket body and extends along a direction of arrangement of the

electrode terminals of the display panel and supports the back surfaces of the contact films; and
a clip member which is mounted on one side of the socket body so as to grip the socket body and the insulating base plate of the display panel and is mounted to slide between a pressing position for pressing the back surface of the insulating base plate of the display panel and a releasing position for releasing the display panel.

5,801,543

DEVICE FOR TESTING PRINTED CIRCUIT BOARDS AND/OR FLAT MODULES

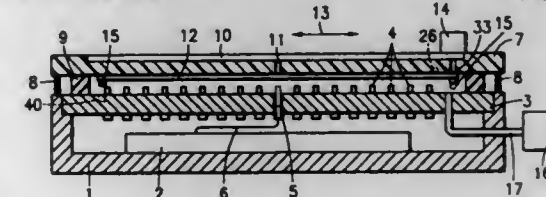
Andreas Keune, Celle, and Uwe Kellermann, Hanover, both of Germany, assignors to ke Kommunikations-Elektronik GmbH & Co., Germany

Filed Jan. 17, 1996, Ser. No. 587,921

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-761

6 Claims



1. A device for testing printed circuit boards and/or flat modules for electrical circuits, in which a housing contains at least one support plate (3) equipped with contact pins (4, 4') of different lengths, said pins able to move in an axial direction within plate (3), where a cover plate (7) is positioned above the support plate and contains at least one receptacle (10) for a test sample in the form of a printed circuit board or flat module, wherein said pins are positioned on the support plate so as to substantially extend throughout the entire area of said receptacle (10) and thereby be able to contact the complete underside of a printed circuit board and/or flat module placed thereon, where a unit (16, 17) is provided to produce a partial vacuum for pulling the test sample against the contact pins, and where a slide (12) is provided, which can move between two end positions (28, 30) crosswise to the movement of the test sample, and has spacers (15) protruding at right angles from one side of the slide, to restrict the path of the test sample moving by means of the partial vacuum from its resting position, to two different planes in accordance with the different lengths of the contact pins, characterized in that the slide (12) is located on the underside of the cover plate (7) containing the receptacle (10) and wherein the slide (12) has at least one slotted hole (24) and the cover plate (7) has at least one depending restraining pin (26) for sliding engagement with the slotted hole so as to limit movement of the slide between the two end positions (28, 30), wherein a motor (14) is positioned on the cover plate (7), said motor having means (32, 34, 36, 38) for slidably engaging slide (12) so as to cause it to be movable between the two end positions (28, 30).

5,801,544

SPRING PROBE AND METHOD FOR BIASING

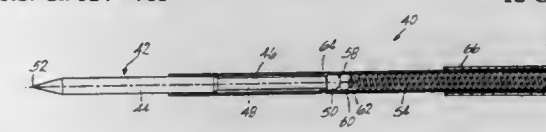
Mark A. Swart, Anaheim Hills, and Gordon A. Vinther, Ontario, both of Calif., assignors to Delaware Capital Formation, Inc., Wilmington, Del.

Filed Jan. 16, 1997, Ser. No. 783,467

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-761

12 Claims



1. A contact probe for performing tests on an electrical device comprising a plunger having a convex end portion positioned within a barrel and means for biasing the plunger against a side of the barrel by making a single point contact with the convex end portion at a location away from a midpoint of the convex end portion.

5,801,545

LCD TESTING APPARATUS

Kiyoshi Takekoshi; Tetsuji Ono, both of Yamanashi, and Hiro-michi Fujihara, Kofu, all of Japan, assignors to Tokyo Elec-tron Limited, Tokyo, Japan

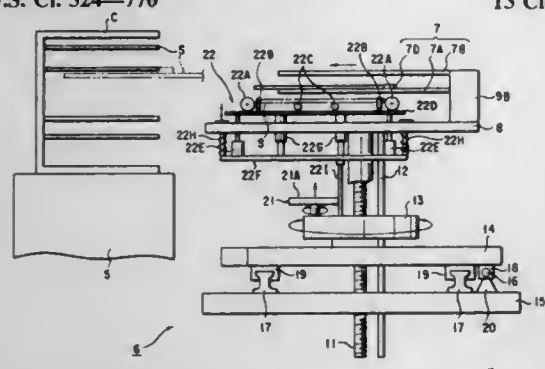
Filed Jul. 12, 1996, Ser. No. 679,115

Claims priority, application Japan, Jul. 14, 1995, 7-201401; Jul. 14, 1995, 7-201402; Jul. 14, 1995, 7-201403

Int. Cl.⁶ G01R 31/00

U.S. Cl. 324-770

13 Claims



1. An LCD testing apparatus comprising:

- a table configured to support an LCD assembly and to apply light to the back of the LCD assembly; and
- a transport mechanism configured to take the LCD assembly out from a cassette and transport the LCD assembly onto said table, said transport mechanism comprising, an arm configured to hold the LCD assembly, a first lift mechanism configured to vertically move the arm, and a pre-alignment mechanism configured to receive the LCD assembly and preliminarily align the LCD assembly with the table,

wherein said pre-alignment mechanism comprises, a plurality of support rollers configured to support the LCD assembly in a substantially horizontal position, four pairs of positioning rollers located above said support rollers and configured to allow the LCD assembly to fall under the force of gravity onto said support rollers and configured to hold corners of the LCD assembly; and a second lift mechanism configured to move said positioning rollers and said support rollers upwards as said first lift mechanism moves said arm downwards.

5,801,546

INTERCONNECT ARCHITECTURE FOR FIELD PROGRAMMABLE GATE ARRAY USING VARIABLE LENGTH CONDUCTORS

Kerry M. Pierce, Canby, Oreg.; Charles R. Erickson, Fremont, Calif.; Chih-Tsung Huang, Burlingame, Calif., and Douglas P. Wieland, Sunnyvale, Calif., assignors to Xilinx, Inc., San Jose, Calif.

Division of Ser. No. 368,692, Jan. 4, 1995, Pat. No. 5,581,199.

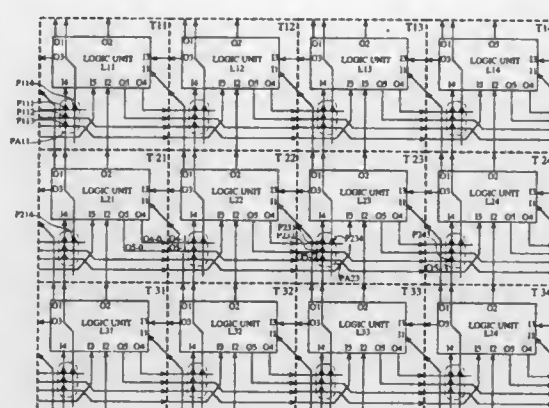
This application Jun. 21, 1996, Ser. No. 667,571

Int. Cl.⁶ H03K 7/38; 19/177

U.S. Cl. 326-39

5 Claims

1. An FPGA comprising:



a plurality of logic elements, each logic element receiving logic element input signals from a plurality of logic element input lines and providing a plurality of logic element output signals; a plurality of output lines formed to propagate selected ones of the logic element output signals in a single direction, including at least a first output line and a second output line, said first output line being of a length sufficiently different from a length of said second output line as to extend past a different number of logic elements from said second output line; and for each output line,

a plurality of programmable interconnection points (PIPs) that may be programmed to apply one of said logic element output signals to said output line; and at least one programmable interconnection point (PIP) that may be programmed to apply a signal on said output line to one of said logic element input lines.

5,801,547

EMBEDDED MEMORY FOR FIELD PROGRAMMABLE GATE ARRAY

Thomas A. Kean, Edinburgh, Scotland, assignor to Xilinx, Inc., San Jose, Calif.

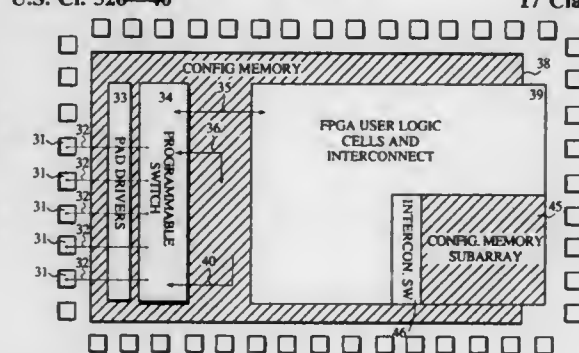
Filed Oct. 23, 1996, Ser. No. 735,830

Claims priority, application United Kingdom, Mar. 1, 1996, 9604496

Int. Cl.⁶ H03K 19/177

U.S. Cl. 326-40

17 Claims



1. A programmable logic device, comprising:

- a plurality of input/output cells;
- a configurable logic array of configurable logic cells and interconnect structures;
- a memory array of memory elements coupled with the configurable logic array such that memory elements in the memory array store data to program the configurable logic array, said memory array including a subarray of addressable memory elements coupled with a corresponding subarray of the configurable logic array;
- memory access logic coupled with the memory array and the plurality of input/output cells, the memory access logic including address decode logic configurable to receive

address signals from the plurality of input/output cells and memory data path logic configurable to receive data signals from and supply data signals to the plurality of input/output cells;

- a subarray decoder coupled to the configurable logic array, the subarray decoder coupled to said subarray of the memory array and decoding address signals from the interconnect structures of the configurable logic array to address memory elements in said subarray; and
- a subarray I/O path coupled to the configurable logic array, the subarray I/O path coupled to said subarray of the memory array and providing input and output data signals between the interconnect structures of the configurable logic array and addressed memory elements in said subarray.

5,801,548

CONFIGURABLE PERFORMANCE-OPTIMIZED PROGRAMMABLE LOGIC DEVICE

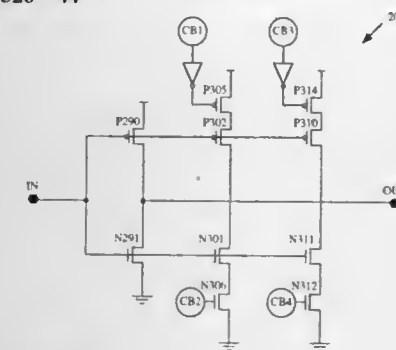
Napoleon W. Lee, 435 Arbor Way, Milpitas, Calif. 95035, and Derek R. Curd, 373 River Oaks Cir. #702, San Jose, Calif. 95134

Filed Apr. 11, 1996, Ser. No. 630,321

Int. Cl.⁶ H03K 19/0185

U.S. Cl. 326-44

18 Claims



1. A programmable logic device comprising:

- an input pin for receiving an input signal;
- a function block including an input terminal which is programmably coupled to the input pin, the function block including circuitry which is programmable to implement a desired logic function; and
- a configurable input buffer including: an input terminal connected to the input pin; a first transistor having a gate connected to the input terminal, a first terminal connected to a voltage source, and a second terminal; a second transistor having a gate connectable to the voltage source, a first terminal connected to the voltage source, and a second terminal; a third transistor having a gate connected to the input terminal, a first terminal connected to the second terminal of the second transistor, and a second terminal; and an output terminal connected to the second terminals of the first and third transistors.

5,801,549

SIMULTANEOUS TRANSMISSION BIDIRECTIONAL REPEATER AND INITIALIZATION MECHANISM
Tai Anh Cao, and Tom Tein-Cheng Chiu, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

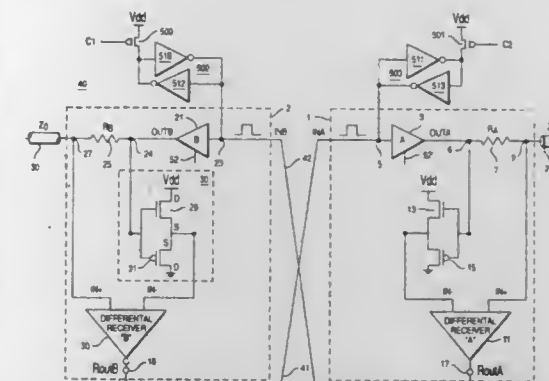
Filed Dec. 13, 1996, Ser. No. 766,642

Int. Cl.⁶ H03K 19/0185

U.S. Cl. 326-83

19 Claims

1. A repeater system for simultaneously and bidirectionally transmitting logic signals between a first and a second transmission line, comprising:



a first transceiver, including a first driver and a first differential receiver which is connected to said first transmission line; a second transceiver, including a second driver and a second differential receiver which is connected to said second transmission line;

first means, coupled to an output of said first driver and said first transmission line, for generating a first nonzero reference voltage to be input to said first differential receiver;

second means, coupled to an output of said second driver and said second transmission line, for generating a second nonzero reference voltage to be input to said second differential receiver; and

means for providing an output from said first differential receiver as an input to said second driver, and for providing an output from said second differential receiver as an input to said first driver.

5,801,550

OUTPUT CIRCUIT DEVICE PREVENTING OVERSHOOT AND UNDERSHOOT

Yasunori Tanaka, Yokosuka, and Ikue Yamamoto, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

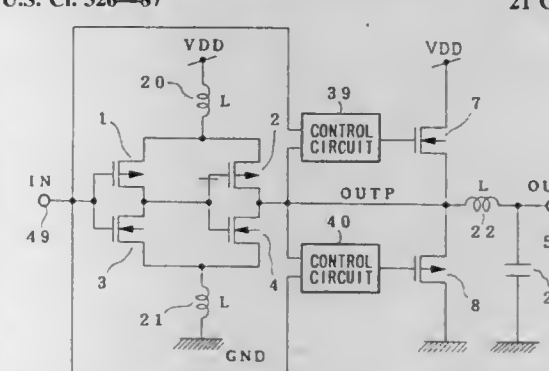
Filed Nov. 29, 1995, Ser. No. 564,499

Claims priority, application Japan, Nov. 30, 1994, 6-297177

Int. Cl.⁶ H03K 17/16; 19/0175

U.S. Cl. 326-87

21 Claims



1. An output device comprising:

- an input terminal;
- an output terminal;
- a buffer having a buffer input terminal connected to said input terminal and a buffer output terminal connected to said output terminal, for outputting an output pulse through the buffer output terminal in response to an input pulse applied to said input terminal;
- an N-channel transistor and a P-channel transistor, a drain of said N-channel transistor being connected to a high potential supply voltage, a source of said N-channel transistor being connected to a source of said P-channel transistor, a drain of said P-channel transistor being connected to a low potential supply voltage, and a junction point between the source of

said N-channel transistor and the source of said P-channel transistor, the junction point being connected to the buffer output terminal;

a first control circuit having a first input terminal connected to said input terminal, a second input terminal connected to the buffer output terminal, and a first output terminal connected to a gate of said N-channel transistor;

wherein whenever a level of the input pulse changes, the first control circuit outputs a first control signal for first turning on said N-channel transistor and then turning off said N-channel transistor after a predetermined time has elapsed, wherein said predetermined time is determined on the basis of inputs applied to the first and second input terminals of the first control circuit; and

a second control circuit having a third input terminal connected to said buffer output, a fourth input terminal connected to the input terminal, and a second output terminal connected to a gate of said P-channel transistor;

wherein whenever the level of the input pulse changes, the second control circuit outputs a second control signal for first turning on said P-channel transistor and then turning off said P-channel transistor after a predetermined time has elapsed, wherein said predetermined time is determined on the basis of inputs applied to the third and fourth input terminals of the second control circuit,

wherein said buffer comprises

an input buffer, connected to said input buffer terminal, and an output buffer, connected in series between said input buffer and said output buffer terminal.

5,801,551

DEPLETION MODE PASS GATES WITH CONTROLLING DECODER AND NEGATIVE POWER SUPPLY FOR A PROGRAMMABLE LOGIC DEVICE

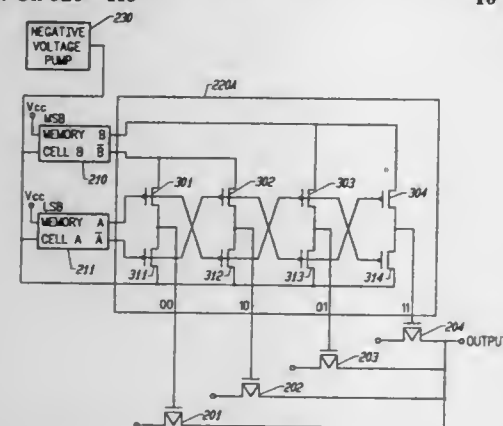
Jonathan Lin, Milpitas, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Aug. 1, 1996, Ser. No. 690,768

Int. Cl.⁶ H03K 19/082; 19/20

U.S. Cl. 326—113

10 Claims



1. An apparatus comprising a multiplexer comprising: depletion mode pass gate transistors having source to drain paths connected together on a first end to form a data output of the multiplexer, wherein a second end of the source to drain path of each of the depletion mode pass gates forms a data input of the multiplexer; and
- a decoder having outputs connected to gates of the depletion mode pass gates and having inputs forming select inputs of the multiplexer.

5,801,552 VOLTAGE DETECTOR CIRCUIT

David Moore, Carp, Canada, assignor to Motorola, Inc., Schaumburg, Ill.

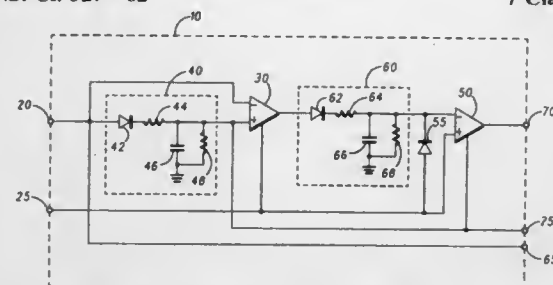
Filed Apr. 30, 1997, Ser. No. 841,705

Claims priority, application United Kingdom, May 30, 1996, 9611283

Int. Cl.⁶ G11C 7/06

U.S. Cl. 327—62

7 Claims



1. A voltage detector circuit for detecting voltage levels of a digital data bitstream, the detector circuit comprising: an input terminal coupled to receive the digital data bitstream; a first peak detector circuit coupled to the input terminal, for detecting a positive peak voltage thereof, and for providing a first peak signal; a first differential amplifier coupled to the input terminal and further coupled to receive the first peak signal, for providing a first difference signal; and a second peak detector circuit coupled to receive the first difference signal from the first differential amplifier, for detecting a peak voltage in the first difference signal and for providing a second peak signal, wherein the first peak signal indicates the value of logical 1 levels in the bitstream, and the second peak signal indicates the relative value of logical 0 levels in the bitstream with respect to the logical 1 levels.

5,801,553

COMPARATOR WITH BUILT-IN HYSTERESIS

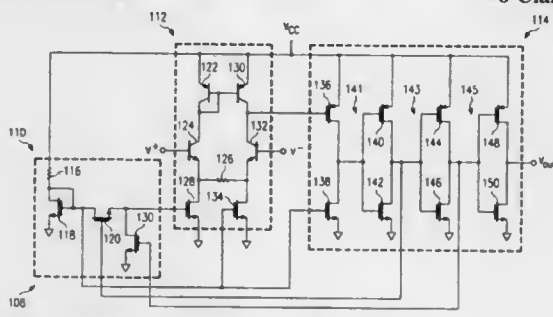
Eric J. Danstrom, Farmington Hills, Mich., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Continuation of Ser. No. 418,558, Apr. 7, 1995, Pat. No. 5,587,674, which is a continuation-in-part of Ser. No. 366,492, Dec. 30, 1994, abandoned. This application Sep. 5, 1996, Ser. No. 709,478

Int. Cl.⁶ H03K 5/22

U.S. Cl. 327—67

6 Claims



1. A comparator circuit comprising: a differential input stage having a V⁺ input for receiving a first voltage, a V⁻ input for receiving a second voltage, having a first bias voltage input, having a second bias voltage input, and having an output; an output stage having an input for receiving the output of the differential input stage and having an output, the output stage comprising at least one inverter; and a bias circuit having a bias voltage connected to the first bias voltage input of the differential input stage and having a hysteresis circuit wherein the hysteresis circuit comprises:

a means for selectively applying the bias voltage to the second bias voltage input of the differential amplifier, wherein the means for selectively applying the bias voltage comprises: a first transistor having a current path between the bias voltage and the second bias voltage input of the differential input stage and having a control element connected to the input of the at least one inverter of the output stage, and

a second transistor having a current path connected between the second bias voltage input and a supply voltage, and having a control element connected to the output of the at least one inverter of the output stage.

5,801,554

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE FOR HANDLING LOW AMPLITUDE SIGNALS

Atsuko Momma, Hamura; Miki Matsumoto, Ome, and Kanji Oishi, Koganei, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

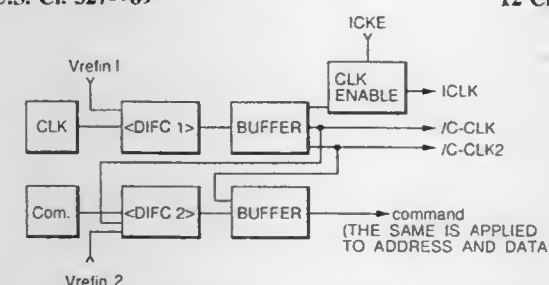
Filed Jul. 3, 1996, Ser. No. 674,917

Claims priority, application Japan, Jul. 6, 1995, 7-194229

Int. Cl.⁶ H03K 5/135; 19/0185

U.S. Cl. 327—89

12 Claims



1. A semiconductor integrated circuit device comprising: a first input circuit which receives a low amplitude external clock signal supplied from an external clock unit, said first input circuit including a first differential circuit having a first input which receives the low-amplitude external clock signal and a second input which receives a first reference voltage set to about a middle potential between a high level and a low level of said external clock signal and a current source which is coupled to the first differential circuit, wherein the first differential circuit substantially continuously operates to generate a low-amplitude internal clock signal with an amplitude corresponding to a power supply voltage, and
- a second input circuit which receives a low-amplitude external input signal inputted synchronously with the low amplitude external clock signal, including a second differential circuit having a first input which receives the low-amplitude external input signal and a second input which receives a second reference voltage set to about a middle potential between a high level and a low level of said low amplitude external input signal, a second current source which is coupled to the second differential circuit, wherein the second input circuit is intermittently operated in accordance with the low-amplitude internal clock signal generated by the first input circuit, wherein the second differential circuit is an input section which generates a low-amplitude internal input signal with an amplitude corresponding to the power supply voltage, and a buffer circuit which samples the low-amplitude internal input signal generated by the input section in accordance with the internal clock signal while the input section is operated and which holds the sampled signal while the input section is not operated.

5,801,555

CORRELATIVE DOUBLE SAMPLING (CDS) DEVICE

Hyeok-chul Kwon, Puchon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

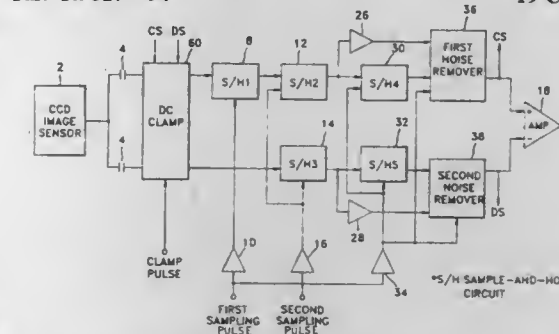
Filed Dec. 11, 1996, Ser. No. 763,734

Claims priority, application Rep. of Korea, Dec. 15, 1995, 1995-50684

Int. Cl.⁶ G11C 27/02

U.S. Cl. 327—94

19 Claims



10. A correlative double sampling device comprising: a clamping circuit for DC-clamping an input video signal and supplying a DC-clamped signal to both first and second sample-and-hold circuits, wherein said first and second sample-and-hold circuits sample said DC-clamped signal and output a respective first and second predetermined DC level signal; first and second re-sample-and-hold circuits for re-sampling said predetermined DC level signals of said first and second sample-and-hold circuits respectively and outputting first and second re-sample outputs, a third re-sample-and-hold circuit for re-sampling the output of said first re-sample-and-hold circuit and outputting a third re-sample output; first and second level correcting circuits for adjusting a portion of said first re-sample output and said second predetermined DC level signal respectively and outputting respective first and second corrected outputs, wherein the DC level of said first and second corrected outputs equals the DC level of said third and second re-sample outputs respectively; a first noise remover circuit alternately passing said third re-sample output and said first corrected output; a second noise remover circuit alternately passing said second re-sample output and said second corrected output; and a differential amplifier for outputting a difference signal between the outputs of said first and second noise remover circuits.

5,801,556

LOW VOLTAGE CMOS FPA INTERFACE

David LeFevre, Redondo Beach, Calif., assignor to Hughes Electronics, El Segundo, Calif.

Filed Feb. 11, 1997, Ser. No. 798,261

Int. Cl.⁶ H02M 11/00

U.S. Cl. 327—103

17 Claims

1. An interface circuit for connection to an input voltage comprising: first and second input terminals for receiving said input voltage; means for converting the voltage at said first terminal and the voltage at said second terminal to first and second input currents, respectively; and means for subtracting a common mode current component from each of said first and second input currents to produce first and second output current signals, said means for subtracting including a first current source means for providing a first output current for combination with said first input current to produce a third current and a second current source means for providing a second output current for combination with said second input current to produce a fourth current, said means for subtracting further including current mirror amplifier

VOL

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2
1
4

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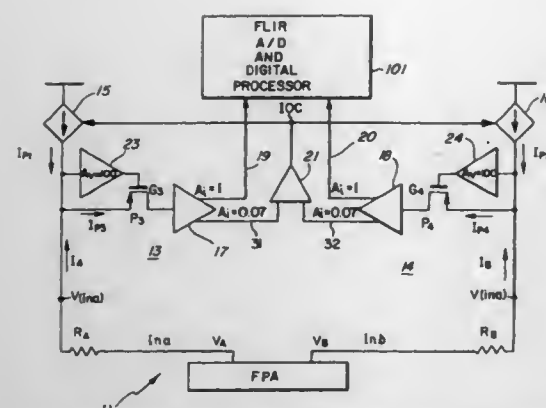
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means receiving said third and fourth currents for producing said first and second output current signals and for producing first and second sample currents, said means for subtracting further including means for generating a current control signal from said first and second sample currents and supplying said current control signal to each of said first and second current source means.

5,801,557

HIGH VOLTAGE DRIVERS WHICH AVOID $-V_S$ FAILURE MODES

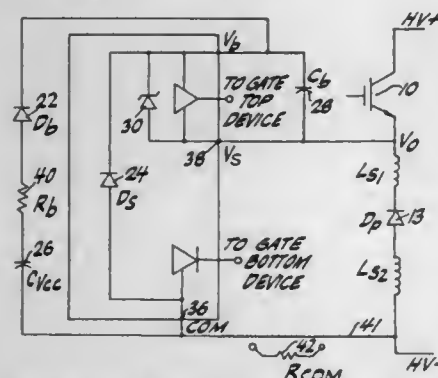
Ajit Dubhashi, El Segundo, and Leon Aftandilian, Thousand Oaks, both of Calif., assignors to International Rectifier Corp.

Filed Oct. 9, 1996, Ser. No. 728,309

Int. Cl.⁶ H03B 1/00

U.S. Cl. 327—108

7 Claims



1. A driving circuit for high power devices, the circuit comprising:

a MOSgate driver and a power switching circuit, the power switching circuit including a first MOSgate transistor and a second MOSgate transistor, the MOSgate driver being connected to and serving to alternately turn on the first and second MOSgate transistors;

the power switching circuit having a voltage output node between the first MOSgate transistor and the second MOSgate transistor, and the second MOSgate transistor having associated therewith a recovery diode and inherent inductances L_{S1} and L_{S2} ;

the MOSgate driver comprising an integrated circuit and including an external capacitor C_g connected between a circuit node V_g , and a circuit node V_s of the MOSgate driver circuit, the MOSgate driver circuit further including a common node and a series circuit including a charging capacitor C_{VCC} , a resistor R_g , and a diode D_g connected between the common node and the V_g node; and

the MOSgate driver circuit and the power switching circuit being connected as close as possible to one another to obtain short conductor lengths between the node V_s and output node V_o and between the common node and another common node

of the power switching circuit, to thereby reduce the values of the inductances L_{S1} and L_{S2} .

5,801,558

CONTROLLED TRANSITION TIME DRIVER CIRCUIT

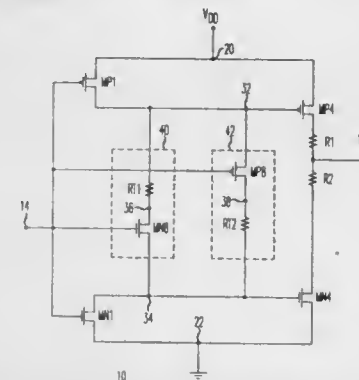
Ronald Lamar Freyman, Bethlehem; Paul David Hendricks, Whitehall, and Richard Muscavage, Gilbertsville, all of Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 26, 1996, Ser. No. 757,059

Int. Cl.⁶ H03K 17/16

U.S. Cl. 327—112

32 Claims



1. An integrated circuit including an output driver circuit, the output driver circuit comprising:

first and second input transistors coupled to an input node at which data is adapted to be received;

first and second output transistors coupled to an output node at which the data is adapted to be presented when the output driver is enabled, the first input transistor coupled to the first output transistor at a first node, the second input transistor coupled to the second output transistor at a second node;

a first switching circuit coupled between the first node and the second node, first switching circuit comprising a resistor having a first magnitude, the first switching circuit switchable between a first state that isolates the first node from the second node and a second state that couples the first node to the second node, the first switching circuit exhibiting a characteristic, that upon being switched from one of the first and second states to the other, impacts turn-on time of one of the first and second output transistors; and

a second switching circuit coupled between the first node and the second node, the second switching circuit switchable between a first state that isolates the first node from the second node and a second state that couples the first node to the second node, the second switching circuit exhibiting a characteristic that, upon being switched from one of the first and second states to the other, impacts turn-on time of the other of the first and second output transistors.

5,801,559

CLOCK GENERATING CIRCUIT, PLL CIRCUIT, SEMICONDUCTOR DEVICE, AND METHODS FOR DESIGNING AND MAKING THE CLOCK GENERATING CIRCUIT

Katsunori Sawai, and Yukihiko Shimazu, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1996, Ser. No. 588,934

Claims priority, application Japan, Sep. 6, 1995, 7-229453

Int. Cl.⁶ H03L 7/00

U.S. Cl. 327—116

10 Claims

1. A circuit for generating a clock having a multiplied frequency, comprising:

a plurality of delay lines connected in cascade to which a first clock is to be inputted;

5,801,561

POWER-ON INITIALIZING CIRCUIT

Keng L. Wong; Gregory F. Taylor; Roshan J. Fernando, all of Portland, and Jeffrey E. Smith, Aloha, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

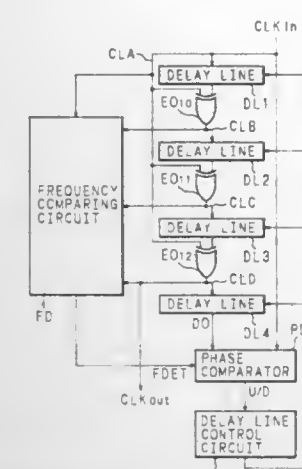
Continuation of Ser. No. 431,897, May 1, 1995, abandoned.

This application Apr. 21, 1997, Ser. No. 842,501

Int. Cl.⁶ H03K 17/22

U.S. Cl. 327—143

17 Claims



logic circuits to which the first clock and a second clock outputted from each of the delay lines are to be inputted, the logic circuits being alternately connected in cascade to the delay lines;

a frequency comparing circuit to which the outputs from each of said logic circuits are to be inputted;

a phase comparator to which the first clock and the second clock outputted from the delay line in the last stage are to be inputted; and

a control circuit for controlling the delay time of the delay lines on the basis of an output signal of the phase comparator,

wherein the control circuit controls the delay time of the delay lines on the basis of an output signal of the phase comparator when the output signal of the frequency comparing circuit is at a predetermined logic level.

5,801,560

SYSTEM FOR DETERMINING TIME BETWEEN EVENTS USING A VOLTAGE RAMP GENERATOR

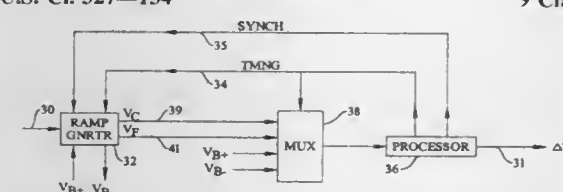
Vincent K. McDonald; Jack R. Olson; Barbara J. Sotirin, and Robert B. Williams, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 13, 1995, Ser. No. 527,740

Int. Cl.⁶ H03K 4/06

U.S. Cl. 327—134

9 Claims



1. A system for determining the time between the receipt of two different signals, comprising:

a voltage ramp generator which generates a time dependent voltage ramp signal upon receipt of each one of a series of timing pulses, and provides the instantaneous value of said voltage ramp signal when said voltage ramp generator receives an input signal having a predetermined threshold value; and

a data processor for generating said timing pulses at a periodicity T , and using said instantaneous value of said voltage ramp signal to determine a time difference ΔT between generation of one of said timing pulses at time T_1 and receipt of said input signal by said voltage ramp generator at a time T_2 , where $\Delta T = T_2 - T_1$, and $0 \leq \Delta T \leq T$.

5,801,562

VARIABLE DELAY CIRCUIT

Haruhiko Fujii, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan

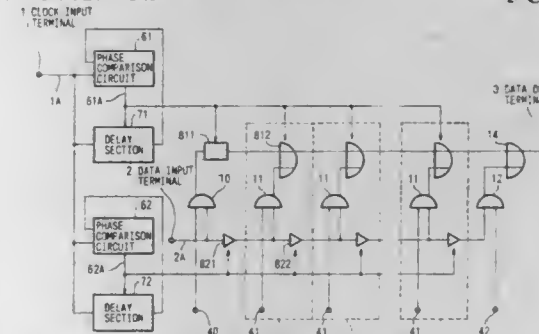
Filed Jul. 25, 1996, Ser. No. 687,037

Claims priority, application Japan, Jul. 28, 1995, 7-212378

Int. Cl.⁶ H03K 5/00

U.S. Cl. 327—149

5 Claims



1. A variable delay circuit comprising:
a plurality of clock delay means for delaying a clock signal by a delay time to generate a plurality of delayed clock signals;
a plurality of phase comparison means for detecting respective phase differences between the clock signal and the plurality of delayed clock signals and for supplying a plurality of delay control signals indicating the respective phase differences to the respective clock delay means so as to equalize the respec-

tive delay times of the plurality of clock delay means to a period of the clock signal;

a plurality of data delay means for respectively delaying data signals obtained from a data input terminal and outputting delayed data signals to a data output terminal, respective delay times of the plurality of data delay means being controlled based on the respective delay control signals so as to be proportional to the period of the clock signal; and

route switch means for selecting, based on a delay designating data, one among a plurality of routes extending from the data input terminal through the respective data delay means to the data output terminal.

5,801,563

OUTPUT DRIVER CIRCUITRY HAVING A SINGLE SLEW RATE RESISTOR

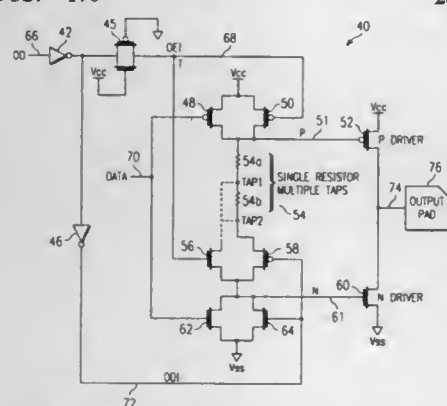
David Charles McClure, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jan. 19, 1996, Ser. No. 588,988

Int. Cl.⁶ H03K 5/12; 17/687

U.S. Cl. 327—170

28 Claims



1. An output driver circuit having a single slew rate resistive element, comprising:

- a first power supply voltage;
- a second power supply voltage;
- a first driver element, having a control terminal, a first terminal coupled to the first power supply voltage and a second terminal;
- a second driver element, having a control terminal, a first terminal coupled to the second terminal of the first driver element to define an output signal and a second terminal coupled to the second power supply voltage;
- a resistive element having a first terminal, a second terminal and a tap;
- a first transistor element having a first terminal connected to the first power supply, a second terminal connected to the first terminal of the resistive element, and a control terminal supplied with a data signal;
- a second transistor element having a first terminal connected to the first power supply, a second terminal connected to the second terminal of the first transistor element, the first terminal of the resistive element and the control terminal of the first driver element, and a control terminal supplied with an output enable signal;
- a third transistor element having a first terminal connected to the tap of the resistive element and a control terminal supplied with the output enable signal;
- a fourth transistor element having a first terminal connected to the second terminal of the resistive element, a second terminal connected to a second terminal of the third transistor element, and a control terminal supplied with a control bar signal;
- a fifth transistor element having a first terminal connected to the second terminal of the third transistor element, the second terminal of the fourth transistor element and the control terminal of the second driver element, a second terminal

connected to the second power supply voltage, and a control terminal supplied with the data signal;

a sixth transistor element having a first terminal connected to the first terminal of the fifth transistor element, a second terminal of the third transistor element, a second terminal of the fourth transistor element and the control terminal of the second driver element, a second terminal connected to the second power supply voltage, and a control terminal supplied with control bar signal.

5,801,564

REDUCED SKEW DIFFERENTIAL RECEIVER

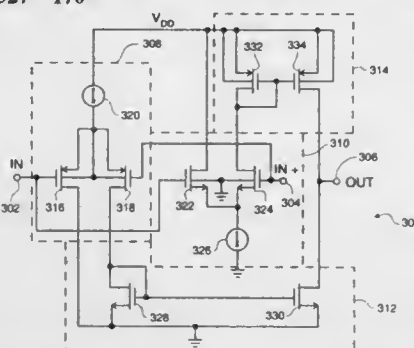
Frank Gasparik, Monument, Colo., assignor to Symbios, Inc.

Filed Jun. 28, 1996, Ser. No. 671,850

Int. Cl.⁶ H03F 3/45; H03K 5/12

U.S. Cl. 327—170

30 Claims



1. An apparatus for receiving input signals and generating an output signal comprising:

- a first input configured to receive a first signal;
- a second input configured to receive a second signal;
- an output;
- a first signal path having a first end connected to the first input and the second input and a second end connected to the output, wherein the first signal path includes a first number of devices and generates a first transition in the output signal generated at the output in response to a first type of potential difference between the first signal received at the first input and the second signal received at the second input; and
- a second signal path having a first end connected to the first input and the second input and a second end connected to the output, wherein the second signal path includes a second number of devices equal in number to the first number of devices and generates a second transition in the output signal generated at the output in response to a second type of potential difference between the first signal received at the first input and the second signal received at the second input, wherein the devices within the first signal path and the second signal path are configured to limit skew between the first type of transition and the second type of transition of the output signal at the output to less than about one nanosecond.

5,801,565

HIGH SPEED DIFFERENTIAL DATA LATCH

James R. Kuo, Cupertino, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Mar. 7, 1996, Ser. No. 612,100

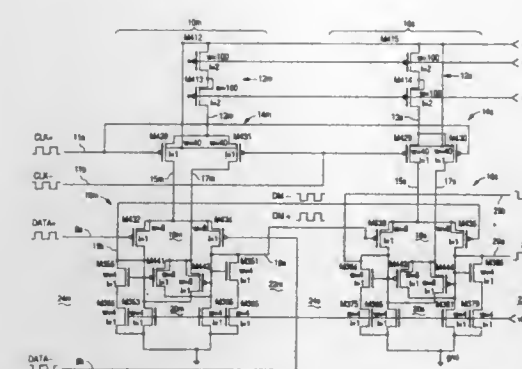
Int. Cl.⁶ H03K 3/289

U.S. Cl. 327—202

40 Claims

1. An apparatus including a high speed differential data latch, said data latch comprising:

- a first differential data amplifier for receiving a first phase only of a differential clock signal which includes said first phase and a second phase, a differential input data signal and a first feedback signal and in accordance therewith providing a first differential output data signal; and



a first differential feedback amplifier, coupled to said first differential data amplifier, for receiving said second phase only of said differential clock signal and said first differential output data signal and in accordance therewith providing said first feedback signal;

wherein said differential clock signal includes first and second differential clock states, and said first differential output data signal follows said differential input data signal during said first differential clock state and remains latched during said second differential clock state.

5,801,566

SYSTEM CLOCK GENERATING CIRCUIT FOR A SEMICONDUCTOR DEVICE

Nobuhiko Tanaka, Hyogo, Japan, assignor to Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

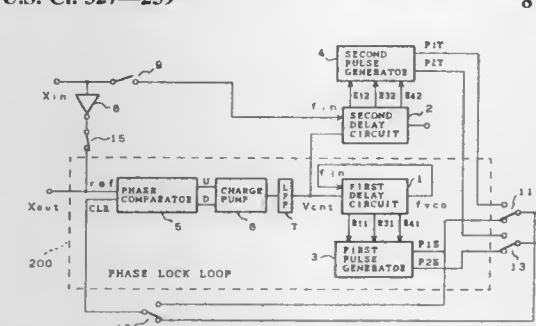
Filed Aug. 5, 1996, Ser. No. 691,928

Claims priority, application Japan, Apr. 3, 1996, 8-081490

Int. Cl.⁶ H03L 7/06; 7/08; H03K 5/06

U.S. Cl. 327—259

8 Claims



1. A system clock generating circuit for generating two-phase clock signals and preventing high periods of the two-phase clock signals from overlapping, the circuit comprising:

- a phase lock loop including:
 - a first delay circuit for generating a first clock signal with a frequency according to a control voltage depending upon a phase difference between a reference clock signal and a feedback clock signal and for delaying and outputting the first clock signal;
 - a first pulse generator coupled to the first delay circuit for generating first and second two-phase clock signals and preventing high periods of the first and second two-phase clock signals from overlapping, in response to the first clock signal delayed by the first delay circuit;
- a second delay circuit structurally similar to the first delay circuit and receiving the control voltage, for generating a second clock signal with a frequency according to the control voltage and for delaying and outputting the second clock signal;
- a second pulse generator coupled to the second delay circuit for generating third and fourth two-phase clock signals and preventing high periods of the third and fourth two-phase clock

signals from overlapping, in response to the second clock signal delayed by the second delay circuit;

first switching means for switching between a first state in which a first input clock signal is fed to the phase lock loop and the second delay circuit is open-circuited and a second state in which a second input clock signal is fed to the phase lock loop and a third input clock signal is fed to the second delay circuit; and

second switching means for selecting at least one of:

- (a) the first and second two-phase clock signals generated by the first pulse generator and
- (b) the third and fourth two-phase clock signals generated by the second pulse generator and for outputting the selected two-phase clock signals as system clock signals.

5,801,567

CIRCUIT AND METHOD FOR GENERATING A DELAYED OUTPUT SIGNAL

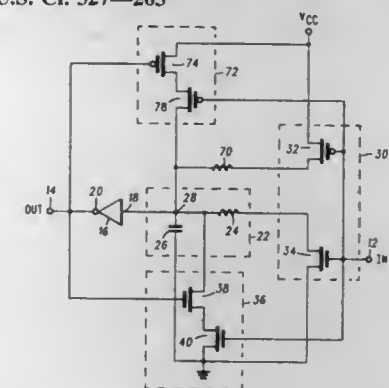
Jeannie Han Kosiec, Schaumburg, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 539,497, Oct. 6, 1995, abandoned, which is a continuation of Ser. No. 150,653, Nov. 9, 1993, abandoned. This application Dec. 17, 1996, Ser. No. 768,903

Int. Cl.⁶ H03K 5/13

U.S. Cl. 327—263

6 Claims



1. A delay element having an input to receive an input signal and an output to generate an output signal, said delay element comprising:

- a capacitor;
- an inverter coupled to said capacitor at a first node and said output;
- a first transistor having a control electrode coupled to receive said input signal and a path of controllable conductivity between a first potential and said first node and coupled in series with a first resistor for providing a first path between said first potential and said first node to charge said capacitor at a first charging rate;
- a second transistor providing a second path, responsive to said input signal, between said first node and a second potential to discharge said capacitor at a first discharging rate which is different from said first charging rate; and
- a third transistor having a third control electrode coupled to said input and in series with a fourth transistor having a fourth control electrode coupled to said output, said third transistor and said fourth transistor providing a third path, responsive to said input signal and said output signal for providing a current path separate from said second path, between said first node and said second potential to discharge said capacitor.

VOL

1
2
1
4

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1

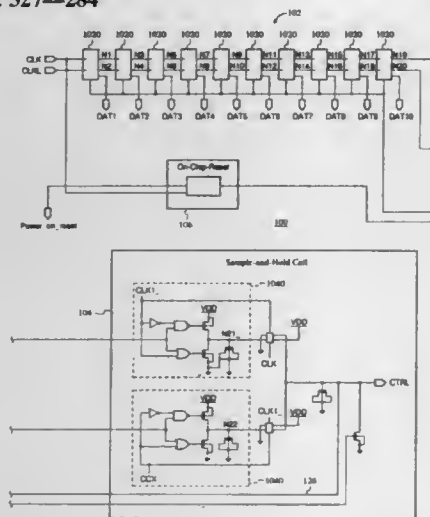
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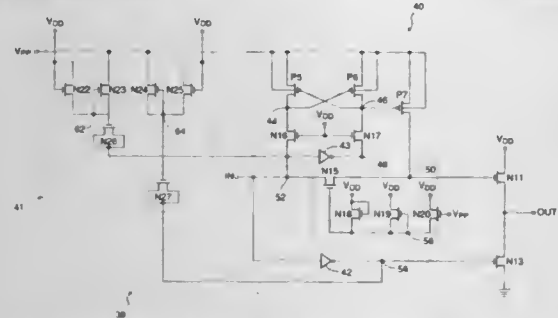
UMI

5,801,568
**PRECISE DELAY LINE CIRCUIT WITH
PREDETERMINED RESET TIME LIMIT**
David Young, San Jose, Calif., assignor to Advanced Micro
Devices, Inc., Sunnyvale, Calif.
Continuation of Ser. No. 214,897, Mar. 17, 1994, Pat. No.
5,539,348. This application Dec. 6, 1995, Ser. No. 567,979
Int. Cl.⁶ H03H 11/26
U.S. Cl. 327—284 14 Claims



1. A delay line circuit comprising:
a delay stage for receiving a clock signal, the delay stage including a plurality of delay cells, the delay cells being coupled together to provide a delayed clock signal;
a sample and hold circuit coupled to the delay stage for sampling the delayed clock signal and the clock signal to determine a phase difference therebetween; and
a reset limiting circuit coupled to the delay stage and the sample and hold circuit for receiving an external system reset signal, the external system reset signal comprising a power on reset signal externally input to the reset limiting circuit, and the clock signal and for resetting the sample and hold circuit and issuing a reset signal at a transition edge of the external system reset signal for a predetermined period of time based on the clock signal without monitoring the delay line circuit operation.

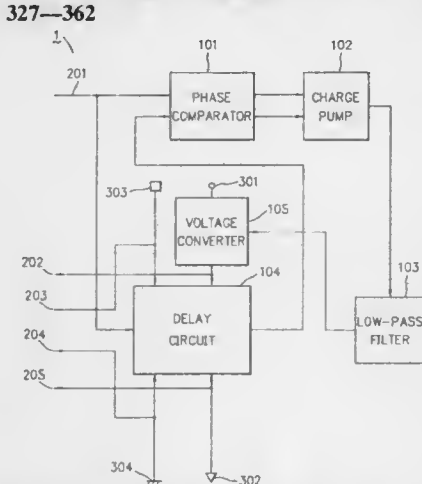
5,801,569
**OUTPUT DRIVER FOR MIXED SUPPLY VOLTAGE
SYSTEMS**
Ray Pinkham, San Jose, Calif., assignor to Hyundai Electronics America, San Jose, Calif.
Continuation of Ser. No. 550,586, Oct. 31, 1995, abandoned.
This application Jun. 2, 1997, Ser. No. 867,465
Int. Cl.⁶ H03L 5/00
U.S. Cl. 327—333 13 Claims



1. An output driver for mixed voltage systems, comprising:
an input line for receiving an input signal at a first voltage;

an overvoltage generator, coupled between said input line and an output stage, for switching an output signal at a node of said output stage, said output signal having a second, higher voltage than said input signal; and
a restore circuit, coupled to said overvoltage generator and said output stage, for restoring said second voltage with every low to high and every high to low transition of said input signal.

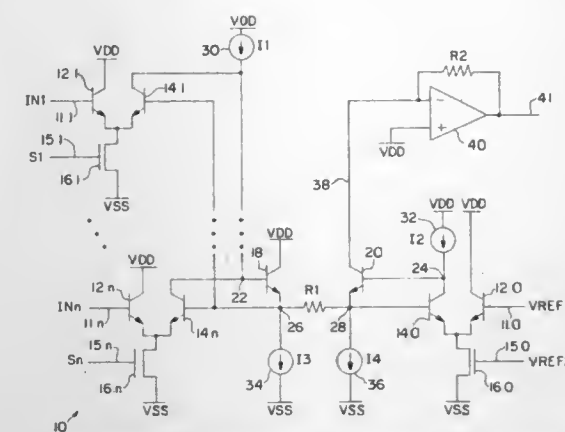
5,801,570
**SEMICONDUCTOR INTEGRATED CIRCUIT WITH
MOS TRANSISTORS COMPENSATED OF
CHARACTERISTIC AND PERFORMANCE DEVIATIONS
AND DEVIATION COMPENSATION SYSTEM THEREIN**
Masayuki Mizuno, and Masakazu Yamashina, both of Tokyo,
Japan, assignors to NEC Corporation, Tokyo, Japan
Division of Ser. No. 597,582, Feb. 2, 1996, Pat. No. 5,742,195.
This application May 20, 1997, Ser. No. 859,089
Claims priority, application Japan, Feb. 10, 1995, 7-46484
Int. Cl.⁶ G06G 7/12
U.S. Cl. 327—362 7 Claims



1. A semiconductor integrated circuit comprising:
a plurality of MOS transistors connected to each other at a substrate electrode thereof to have a substrate potential;
a power source having a power source potential independent from the substrate potential;
a power supply line connected to a source electrode of each of the MOS transistors;
a sample circuit comprising a sampled one of the MOS transistors;
detection means for detecting an output of the sample circuit to provide a detection signal representing a difference between the detected output of the sample circuit and a reference output thereof; and
a voltage generator connected between the power source and the power supply line, the voltage generator generating a voltage depending on the detection signal.

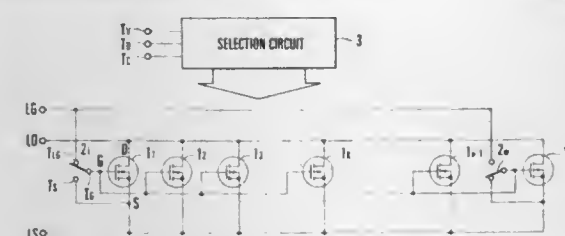
5,801,571
CURRENT MODE ANALOG SIGNAL MULTIPLEXOR
Max J. Allen, Cupertino; Richard E. Colbeth, Los Altos, both of Calif., and Martin Mallinson, British Columbia, Canada, assignors to Varian Associates, Inc., Palo Alto, Calif.
Filed Nov. 29, 1996, Ser. No. 758,528
Int. Cl.⁶ H03K 17/56; H03F 3/68
U.S. Cl. 327—407 21 Claims

1. An apparatus including a current mode analog signal multiplexor for steering an output current signal having a magnitude which varies in relation to a selected input signal magnitude, said current mode analog signal multiplexor comprising:
a plurality of input signal amplifiers configured to receive a plurality of multiplex control signals and a plurality of input



- signals, and in accordance with a selected one of said plurality of input signals which corresponds to one of said plurality of multiplex control signals, receive and conduct a first portion of a first source current and a first portion of a first output current, wherein said first portion of said first source current and said first portion of said first output current each have a magnitude which varies in a respective relation to said magnitude of said selected one of said plurality of input signals;
a reference amplifier configured to receive a reference voltage and a control voltage and in accordance therewith receive and conduct a first portion of a second source current and a first portion of a second output current, wherein said first portion of said second source current and said first portion of said second output current each have a magnitude which varies in a respective relation to a magnitude of said reference voltage; and
an output current amplifier, coupled between said plurality of input signal amplifiers and said reference amplifier, configured to receive and conduct a second portion of said first source current, provide said first output current including said first portion thereof and a second portion thereof, receive and conduct a second portion of said second source current, provide said second output current including said first portion thereof and a second portion thereof, and conduct a third output current, wherein said second portions of said first and second source currents, said second portions of said first and second output currents and said third output current each have a magnitude which varies in a respective relation to said magnitude of said selected one of said plurality of input signals, wherein said third output current is said output current signal.

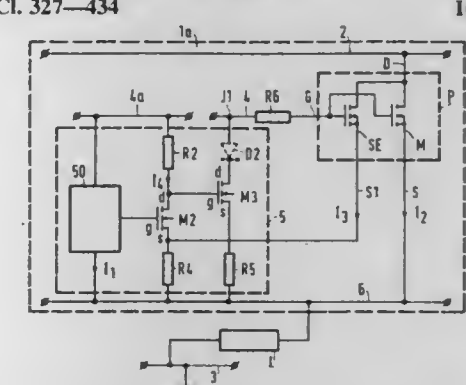
5,801,572
POWER MOSFET
Hidetake Nakamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Feb. 22, 1996, Ser. No. 604,891
Claims priority, application Japan, Feb. 24, 1995, 7-036674
Int. Cl.⁶ H03K 17/687
U.S. Cl. 327—434 2 Claims



1. A power MOSFET comprising:
common source and drain terminals to which sources and drains of a plurality of insulated gate field-effect transistors are respectively connected in parallel; and

selection means for selectively connecting gates of said insulated gate field-effect transistors to one of a common gate terminal and said common source terminal, wherein each of said plurality of insulated gate field-effect transistors receives a common gate signal applied to said common gate terminal.

5,801,573
**PROTECTED SWITCH HAVING A POWER
SEMICONDUCTOR DEVICE**
Brendan P. Kelly, and Royce Lewis, both of Stockport,
England, assignors to U.S. Philips Corporation, New York,
N.Y.
Continuation of Ser. No. 540,520, Oct. 10, 1995, abandoned.
This application Jun. 27, 1997, Ser. No. 884,104
Claims priority, application United Kingdom, Oct. 12, 1994,
9420572
Int. Cl.⁶ H03K 17/687
U.S. Cl. 327—434 16 Claims



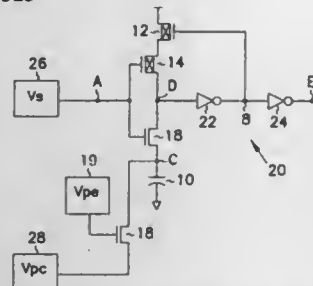
1. A protected switch comprising a power semiconductor device having first and second main electrodes for coupling a load between first and second voltage supply lines, a control electrode coupled to a control voltage supply line, and a sense electrode for providing in operation of the power semiconductor device a sense current that flows along a sense current path between the first and second main electrodes, the sense current path having an on-state resistance in operation of the power semiconductor device, the switch further comprising a control arrangement comprising a sense resistance coupled to the sense electrode and across which a sense voltage is developed by the sense current, the sense resistance having a lower resistance value than the on-state resistance of the sense current path, a control semiconductor device having first and second main electrodes coupled between the control electrode and the second main electrode of the power semiconductor device and a control electrode, a further semiconductor device having first and second main electrodes and a control electrode, one of said first and second main electrodes being coupled to the sense resistance, and the other of said first and second main electrodes being directly coupled to the control electrode of the control semiconductor device, and voltage-bias reference means coupled to the control electrode of said further semiconductor device for providing a biasing voltage for the control electrode of said further semiconductor device to cause said further semiconductor device to conduct sufficiently to cause the control semiconductor device to be non-conducting until the sense voltage reaches a reference voltage determined by the biasing voltage when said further semiconductor device becomes less conducting and causes the control semiconductor device to start to conduct, thereby reducing the voltage at the control electrode of the power semiconductor device and thus reducing the current through the power semiconductor device.

5,801,574
CHARGE SHARING DETECTION CIRCUIT FOR ANTI-FUSES

Chris G. Martin, and Stephen L. Casper, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Oct. 7, 1996, Ser. No. 727,797
Int. Cl.⁶ G11C 17/16

U.S. Cl. 327—525

17 Claims



1. A detection circuit for detecting first and second conditions for a programmable logic device, said detection circuit comprising:
a detection node;
a precharge circuit for applying a precharge voltage to the programmable logic device during a precharge time interval; and
a circuit for coupling the programmable logic device to said detection node after a predetermined discharge time interval after said precharge time interval to provide a voltage at said detection node that is indicative of the ability of the programmable logic device to retain a charge for the duration of said predetermined discharge time interval.

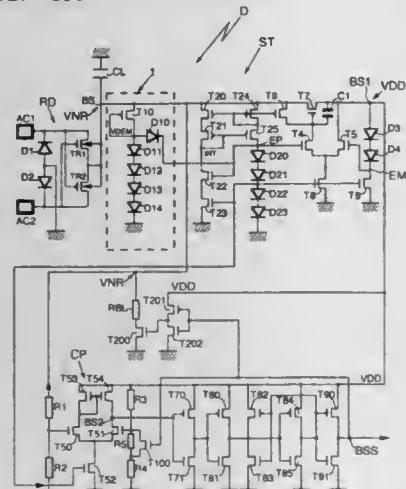
5,801,575
PROCESS AND DEVICE CONTROLLING THE OPERATION OF A PORTABLE ELECTRONIC OBJECT SUPPLIED VIA ITS ANTENNA

Jacky Bouvier, Meylan, France, assignor to France Telecom, France
PCT No. PCT/FR96/00012, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO96/21906, PCT Pub. Date Jul. 18, 1996

PCT Filed Jan. 4, 1996, Ser. No. 696,959
Claims priority, application France, Jan. 11, 1995, 95 00272
Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—530

16 Claims



1. Process for controlling the operation of an electronic circuit of a portable object equipped with an antenna, wherein
a primary DC voltage is generated from energy received by the antenna,
a stabilized voltage is generated from said primary DC voltage, said primary DC voltage is compared with a first prespecified voltage threshold derived from said stabilized voltage,

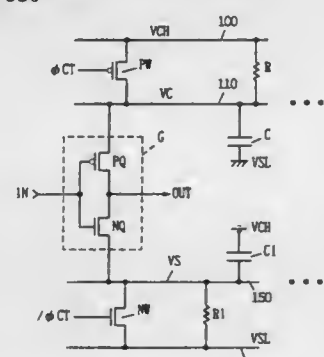
a load with a prespecified impedance is connected between the primary DC voltage and earth so long as the primary DC voltage remains below said first prespecified voltage threshold, the electronic circuit then being inactive, and
when the primary DC voltage reaches said first prespecified voltage threshold, said load is disconnected from said primary DC voltage and the electronic circuit is supplied with said stabilized voltage and is thereby activated.

5,801,576
SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING A HIERARCHICAL POWER SOURCE CONFIGURATION

Tsukasa Ooishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 546,747, Oct. 23, 1995, Pat. No. 5,751,651.
This application Oct. 24, 1997, Ser. No. 957,341
Claims priority, application Japan, Nov. 7, 1994, 6-272592
Int. Cl.⁶ G11C 7/00

U.S. Cl. 327—530

12 Claims



1. A semiconductor integrated circuit device comprising:
a main voltage transmission node for supplying a voltage of a first logic level;
a sub voltage transmission node;
a voltage supply node for supplying a voltage of a second logic level;
a logic gate receiving a voltage on said sub voltage transmission node and a voltage on said voltage supply node both as operating source voltages to perform a predetermined logic process on a received signal for outputting; and
a variable conductance element connected between said sub voltage transmission node and said main voltage transmission node and coupled to have a conductance value thereof increased in accordance with a transition of a signal outputted from said logic gate being to the first logic level.

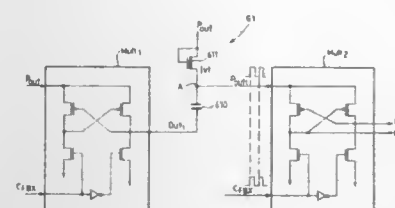
5,801,577
HIGH VOLTAGE GENERATOR
François Tailliet, Le Tholonet, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France
Filed Dec. 11, 1996, Ser. No. 762,677

Claims priority, application France, Dec. 26, 1995, 95 15501
Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—536

43 Claims

1. A circuit for generating a voltage having a peak amplitude that is greater than a voltage level of a supply voltage, comprising:
a network of capacitors having an output node; and
a control circuit, for controlling a plurality of switching transistors having two modes of functioning, a first mode for isolating all the capacitors in the network and simultaneously charging them to the voltage level of the supply voltage, and a second mode for connecting all the capacitors in the network in series between the supply voltage and the output node of the network to instantaneously increase a voltage level of

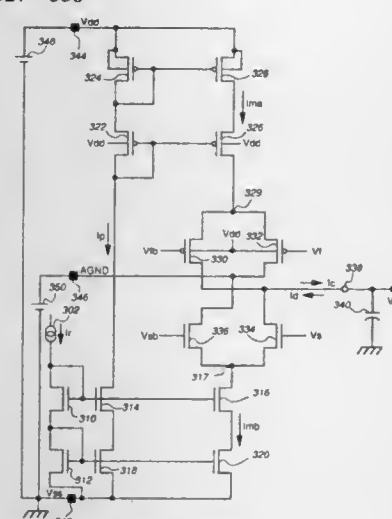


the output node to a voltage level that is greater than the voltage level of the supply voltage;
wherein switching transistors that are placed between each capacitor in the network so as to connect all the capacitors in series are controlled by a first signal having a peak voltage that is greater than the voltage level to be switched to the output node of the network.

5,801,578
CHARGE PUMP CIRCUIT WITH SOURCE-SINK CURRENT STEERING
William Bereza, Nepean, Canada, assignor to Northern Telecom Limited, Montreal, Canada
Filed Dec. 16, 1996, Ser. No. 766,095
Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—536

13 Claims



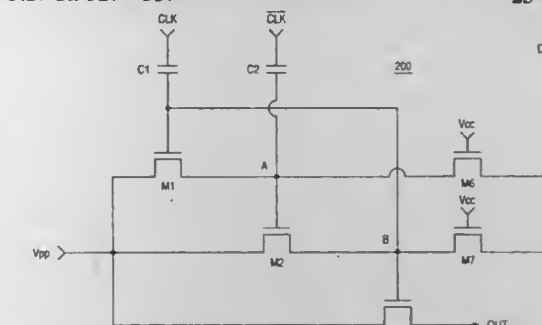
1. A charge pump circuit comprising:
first, second and third voltage terminals for receiving first, second and third voltages, respectively, the third voltage being at a level between the first and the second voltages;
series-connected first and second transistors responsive to an input signal to provide first and second driving signals, respectively;
first current means including third, fourth, fifth and sixth transistors which are connected in series between the first and the second voltage terminals, the fifth and sixth transistors being responsive to the first and second driving signals, respectively, so that the first current means causes current to flow in the series-connected transistors in response to the input signal;

first and second current terminals;
second current means comprising seventh, eighth, ninth and tenth transistors, the seventh and eighth transistors being connected in series between the first voltage terminal and the first current terminal, the ninth and tenth transistors being connected in series between the second current terminal and the second voltage terminal, the ninth and tenth transistors being responsive to the first and second driving signals, respectively, the second current means being for providing mirrored current of the current flowing in the first current means;
a load terminal for connection to a load; and
current steering means connected to the third voltage terminal, the load terminal, the first current terminal and the second current terminal, the current steering means operable: (i) in a current-source mode, to direct current from the first current terminal to the load terminal and to direct current from the third voltage terminal to the second current terminal; and (ii) in a current-sink mode, to direct current from the load terminal to the second current terminal and to direct current from the first current terminal to the third voltage terminal.

5,801,579
HIGH VOLTAGE NMOS PASS GATE FOR INTEGRATED CIRCUIT WITH HIGH VOLTAGE GENERATOR
Binh Quang Le, Santa Clara; Pau-Ling Chen, Saratoga; Shane Hollmer, San Jose; Shoichi Kawamura, Sunnyvale; Michael Chung, San Jose; Vincent Leung, Mountain View, and Masaru Yano, Sunnyvale, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Feb. 28, 1997, Ser. No. 808,237
Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—537

25 Claims



1. A high voltage switch having an input and an output, comprising:
a first NMOS boost transistor having a source, a drain, and a gate;
a second NMOS boost transistor having a source, a drain, and a gate;
a first NMOS coupling capacitor having first and second terminals;
a second NMOS coupling capacitor having first and second terminals;
first NMOS pass transistor having a source, a drain, and a gate;
a first NMOS discharge transistor having a source; and
a second NMOS discharge transistor having a source;
wherein the first NMOS boost transistor drain is connected to the second NMOS boost transistor gate and the second coupling capacitor second terminal;
wherein the second NMOS boost transistor drain is connected to the first NMOS boost transistor gate, the first coupling capacitor second terminal, and the first NMOS pass transistor gate;
wherein the high voltage switch input is coupled to the first NMOS pass transistor source, the first NMOS boost transistor source, and the second NMOS boost transistor source;
wherein the first NMOS coupling capacitor first terminal is connected to a first clock input, and the second NMOS coupling capacitor first terminal is connected to a second clock input;

wherein the NMOS transistor drain is connected to the high voltage switch output;
wherein the first NMOS discharge transistor source is connected to the first NMOS boost transistor drain; and
wherein the second NMOS discharge transistor source is connected to the second NMOS boost transistor drain.

5,801,580 SELF-BIASED VOLTAGE-REGULATED CURRENT SOURCE

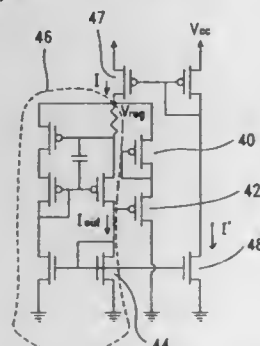
Chuan-Yu Wu, Keelung, Taiwan, assignor to Powerchip Semiconductor Corp., Hsinchu, Taiwan

Filed Nov. 26, 1996, Ser. No. 756,792

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—538

5 Claims



1. A self-biased voltage-regulated current source comprising:
a current source circuit for generating a constant output current;
a voltage source for supplying a voltage for said current source circuit, the potential of said voltage source fluctuating;
regulating means for generating a regulated voltage, said regulating means being coupled to said current source circuit; and
bias means, coupled to said regulating means, for generating a bias current to said regulating means and said current source circuit in response to the constant output current of said current source circuit, said bias current being greater than the output current of said current source circuit.

5,801,581 COMPARISON DETECTION CIRCUIT

Toru Koizumi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

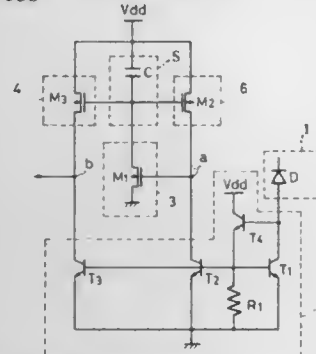
Filed Jan. 23, 1997, Ser. No. 786,335

Claims priority, application Japan, Jan. 31, 1996, 8-015674

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—538

31 Claims



1. A detection circuit, comprising:
a current mirror circuit having an input terminal connected to signal supply means, and first and second output terminals through which electric currents corresponding to an electric current supplied to the input terminal flow;

a first active load connected to the first output terminal and having a control electrode;
a second active load connected to the second output terminal and to an external output terminal and having a control electrode; and
a control circuit for controlling an electrical potential of the control electrode of the second active load on the basis of a voltage value or the current value at the first output terminal.

5,801,582 ACTIVATABLE/DEACTIVATABLE CIRCUIT ARRANGEMENT FOR PRODUCING A REFERENCE POTENTIAL

Stephan Weber, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

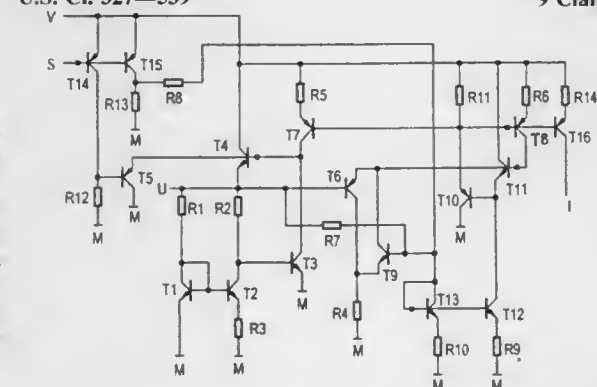
Filed May 23, 1997, Ser. No. 862,239

Claims priority, application Germany, May 24, 1996, 196 21 110.7

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—539

9 Claims



1. An activatable/deactivatable circuit arrangement for producing an output reference voltage at an output terminal, the circuit being provided with a reference potential and a supply potential, comprising:

a first transistor whose emitter is connected with the reference potential and whose base and collector are connected with one another;
a second transistor whose base is connected with the base of said first transistor;
a first resistor connected between the collector of said first transistor and an output terminal for supplying the output reference voltage;
a second resistor connected between the collector of said second transistor and said output terminal;
a third resistor connected between the emitter of said second transistor and the reference potential;
a third transistor whose base is connected with the collector of said second transistor and whose emitter is connected with the reference potential;
a controlled current source connected between the supply potential and the output terminal and having an input coupled with the collector of said third transistor, and
a fifth transistor having a collector-emitter path connected in parallel with the collector-emitter path of said third transistor and a base of said fifth transistor being driven by a switching signal.

5,801,583 COILLESS BUS COUPLER FOR AN ON-BOARD POWER SUPPLY

Hermann Zlerhut, Neutraubling, Germany, assignor to Siemens Aktiengesellschaft, München, Germany

PCT No. PCT/DE95/00854, § 371 Date Jul. 25, 1997, § 102(e) Date Jul. 25, 1997, PCT Pub. No. WO96/02982, PCT Pub. Date Feb. 1, 1996

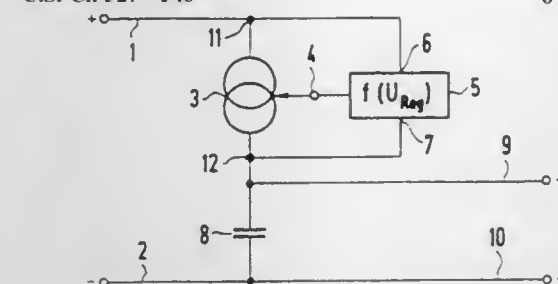
PCT Filed Jun. 30, 1995, Ser. No. 776,139

Claims priority, application Germany, Jun. 30, 1995, 44 24 907.1

Int. Cl.⁶ H04B 3/54

U.S. Cl. 327—540

6 Claims



1. A device for supplying an on-board system voltage in a bus coupler without a repeater for coupling to an information and power carrying bus of a bus system, the device comprising:
a triggering circuit having inputs for a control criterion;
a coupling circuit having a control input connected to the triggering circuit, wherein at communications frequencies the coupling circuit operates as a constant current source and wherein at lower frequencies the coupling circuit operates as a control circuit in combination with the triggering circuit, the coupling circuit including:
a transistor with an emitter coupled to
a first terminal of the coupling circuit, a collector coupled to a second terminal of the coupling circuit and a base coupled to said control input of the coupling circuit, and
a capacitor connected between the first terminal and the control input of the coupling circuit; and
a reservoir capacitor for tapping the on-board system voltage effectively coupled in series with the coupling circuit, wherein the series combination of the reservoir capacitor and the coupling circuit is effectively connected to the bus.

5,801,584 CONSTANT-CURRENT CIRCUIT USING FIELD-EFFECT TRANSISTOR

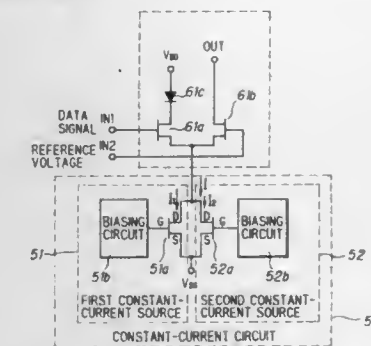
Kazuyuki Mori, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 374,047, Jan. 18, 1995, abandoned. This application, application Japan, Feb. 10, 1994, 6-016200

Int. Cl.⁶ H03K 3/02

U.S. Cl. 327—543

3 Claims



1. A constant-current circuit, comprising:

a first constant-current source having a first field-effect transistor which has a source terminal, a drain terminal connected to a load circuit and a gate terminal, and a biasing circuit connected to a power supply for setting a power-supply voltage characteristic in which the drain current increases in dependence upon an increase in power-supply voltage and a temperature characteristic in which drain current increases in dependence upon an increase in temperature; and
a second constant-current source having a second field-effect transistor which has a source terminal, a drain terminal connected to the load circuit and a gate terminal, and a biasing circuit connected to the power supply for setting a power-supply voltage characteristic in which drain current decreases in dependence upon an increase in power-supply voltage and a temperature characteristic in which drain current is rendered substantially constant even if temperature fluctuates;
wherein: said first and second constant-current sources are connected in parallel by interconnecting the drain terminals and interconnecting the source terminals of the first and second field-effect transistors in said first and second constant-current sources and said constant-current circuit has a power-supply voltage characteristic in which the drain current as an output current is rendered substantially constant even if power-supply voltage fluctuates, and a temperature characteristic in which the drain current increases in dependence upon an increase in temperature.

5,801,585 INTEGRATED CIRCUIT OPERABLE IN A MODE HAVING EXTREMELY LOW POWER CONSUMPTION

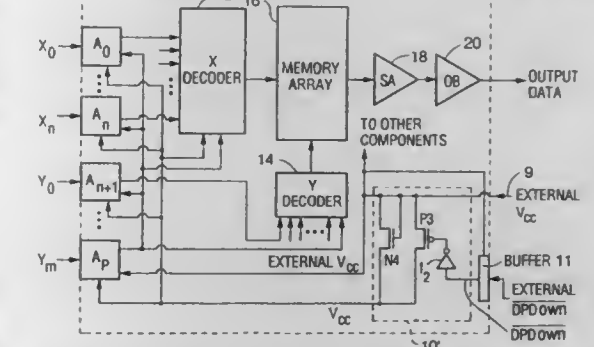
Fariborz F. Roohparvar, Cupertino, Calif., assignor to Micron Technology, Inc., Santa Clara, Calif.

Continuation of Ser. No. 498,530, Jul. 5, 1995, Pat. No. 5,670,906. This application Mar. 11, 1997, Ser. No. 814,218

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—544

48 Claims



1. An integrated circuit which operates in an active mode in response to a first state of a control signal and operates in a deep power down mode in response to second state of the control signal, said integrated circuit comprising:
at least one MOS transistor having a body, a source, and a drain;
a supply voltage circuit having a first input for receiving a reference voltage, a second input for receiving the control signal, a first output connected to the body of each said MOS transistor, and a second output connected to the source of each said MOS transistor, wherein the supply voltage circuit also includes:
a first holding circuit configured to hold the first output at the reference voltage, thereby supplying said reference voltage to the body in both the active mode and the deep power down mode; and
a second holding circuit configured to hold the second output at a first voltage substantially equal to the reference voltage in response to said first state of the control signal, and to decouple the second output from the first voltage in response to a transition of the control signal from the first state to the second state, whereby the second holding circuit

allows the source at least initially to float in response to said transition of the control signal from the first state to the second state.

5,801,586

CIRCUIT FOR SUPPLYING A REFERENCE LEVEL TO A DIFFERENTIAL SENSE AMPLIFIER IN A SEMICONDUCTOR MEMORY

Nobuhiko Ishizuka, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

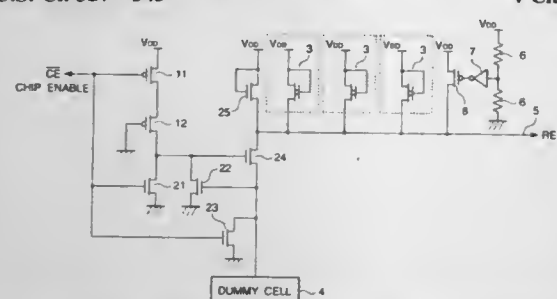
Filed Feb. 20, 1996, Ser. No. 603,777

Claims priority, application Japan, Feb. 17, 1995, 7-053272

Int. Cl.⁶ G05F 1/10

U.S. Cl. 327—545

4 Claims



1. A circuit for supplying a reference level to a differential sense amplifier in a semiconductor memory circuit, the circuit including a first circuit for detecting an external power supply voltage, and a second circuit controlled by said first circuit, for controlling said reference level to be supplied to said differential sense amplifier, on the basis of the result of the detection of said external power supply voltage;

wherein said first circuit includes a voltage divider connected between said external power supply voltage and ground and wherein said second circuit includes at least one load transistor connected in the form of a load between said external power supply voltage and a reference level output node, an inverter having an input connected to an intermediate tap of said voltage divider, and at least one reference level adjusting transistor connected between said external power supply voltage and said reference level output node and having a control electrode connected to an output of said inverter,

so that when said external power supply voltage is a first power supply voltage, said at least one reference level adjusting transistor is turned on, so that a load circuit is constituted of said at least one load transistor and said at least one reference level adjusting transistor, and therefore said load circuit has an increased current driving capacity to maintain such a relation that a difference between said reference level and a high level of a sense level is substantially equal to the difference between said reference level and a low level of said sense level, and

when said external power supply voltage is a second power supply voltage lower than said first power supply voltage, said at least one reference level adjusting transistor is turned off, so that said load circuit is constituted of only said at least one load transistor, and therefore said load circuit has a decreased current driving capacity to lower said reference level, whereby the difference between said reference level and said high level of said sense level is clearly larger than the difference between said reference level and said low level of said sense level.

5,801,587

VARIABLE GAIN PEAK DETECTOR

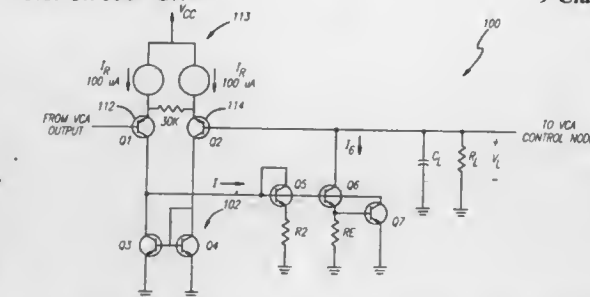
Derek Bray, Los Altos, Calif., assignor to Exar Corporation, Fremont, Calif.

Filed Sep. 26, 1996, Ser. No. 730,841

Int. Cl.⁶ H03G 3/30

U.S. Cl. 330—279

9 Claims



1. In an audio limiting circuit for an input audio signal, the audio limiting circuit comprising a controllable gain controlled amplifier having a control node to control the gain of the amplifier responsive to a signal at the control node and response to the input audio signal and outputting a gain controlled version of the audio input signal, and a peak detector responsive to the gain controlled version of the audio input signal to determine the peak of the gain controlled version of the audio signal with a resistive capacitive load, the peak detector being coupled to the control node of the gain controlled amplifier such that the controllable gain controlled amplifier performs an audio limiting function, wherein the improvement comprises:

the transconductance gain of the peak detector varies non-linearly over a range of differences proportional to the difference of the signal at the control node and the gain controlled version of the audio signal; and

the peak detector includes circuitry providing a signal that varies substantially linearly with the difference and includes circuitry that sources or sinks current to the load proportional to the differences for differences greater than a first threshold and less than a second threshold.

5,801,588

PREAMPLIFIER FOR OPTICAL COMMUNICATION
Naoki Nishiyama, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

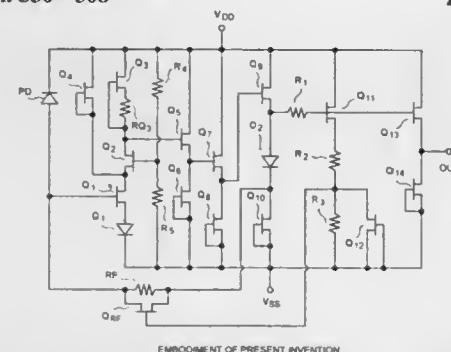
Filed Feb. 21, 1997, Ser. No. 804,185

Claims priority, application Japan, Feb. 23, 1996, 8-036879; Mar. 25, 1996, 8-068708

Int. Cl.⁶ H03F 3/08

U.S. Cl. 330—308

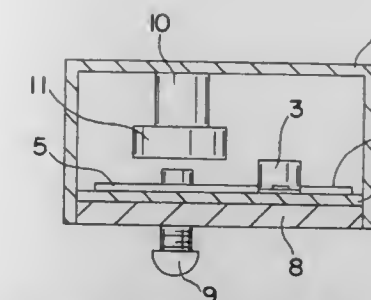
12 Claims



1. A preamplifier for optical communication for receiving a current signal from a light receiving device and converting thus received current signal into a voltage signal, said light receiving device receiving an optical signal and generating the current signal corresponding to said optical signal, said preamplifier comprising:

a first field effect transistor of an enhancement type having a gate terminal electrically connected to a terminal for receiving said current signal; and

a source bias provider for setting a source terminal of said first field effect transistor to a potential being at least 0 V but not higher than +1 V with respect to a reference potential, wherein, when said preamplifier is operated, a voltage between said gate terminal and said source terminal is not lower than a threshold voltage of said first field effect transistor but not greater than 0.45V in a state of no optical input to said light receiving device.



a micro strip line provided on said dielectric substrate, one end of said micro strip line connected with a gate terminal of said field effect transistor for microwave oscillation and the other end grounded to said metal plate via a terminal resistor;

a shield case for shielding the circuit on said dielectric substrate;

a dielectric resonator having a band rejection characteristic secured by an adhesive on an inner wall of said shield case; and

a tuning screw coupled to said screw hole of said metal plate, said tuning screw penetrating said dielectric substrate; wherein said micro strip line on said dielectric substrate and said dielectric resonator are coupled and an oscillation frequency output is obtained from the source terminal of said field effect transistor for microwave oscillation and the oscillation frequency is adjusted by rotating said tuning screw and varying a distance between said tuning screw and said dielectric resonator.

5,801,589

FREQUENCY SYNTHESIZER WHICH SUPPRESSES A SPURIOUS

Kenichi Tajima; Kenji Itoh; Shuji Nishimura; Masayuki Doi, and Akio Iida, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

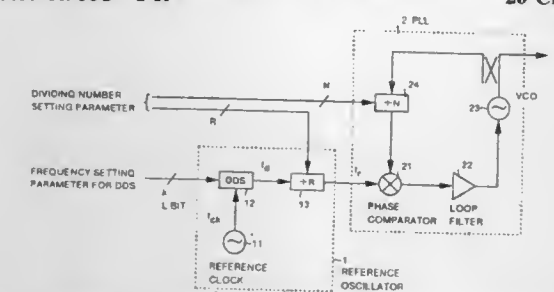
Filed Jan. 9, 1997, Ser. No. 781,519

Claims priority, application Japan, Jun. 28, 1996, 8-169949

Int. Cl.⁶ H03L 7/00; H03B 27/00

U.S. Cl. 331—1 R

20 Claims



1. A frequency synthesizer comprising:

a first frequency synthesizer having a direct digital synthesizer synchronizing to a reference clock and outputting signals at a frequency based on a frequency setting parameter;

a frequency converter for converting an output frequency from said direct digital synthesizer according to a conversion function setting parameter and outputting the converted frequency; and

a second frequency synthesizer for converting an output frequency from said frequency converter according to a conversion function setting parameter and outputting the converted frequency; wherein the frequency setting parameter for said direct digital synthesizer, the conversion function setting parameter for said frequency converter, and the conversion function setting parameter for said second frequency synthesizer can be set according to the output frequency from said second frequency synthesizer.

5,801,590

DIELECTRIC RESONATOR OSCILLATOR AND DOWN CONVERTER USING THE SAME

Yukihiro Kashima, and Takayoshi Morino, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 31, 1996, Ser. No. 690,499

Claims priority, application Japan, Jul. 31, 1995, 7-195536

Int. Cl.⁶ H03B 5/18; H04B 1/28

U.S. Cl. 331—68

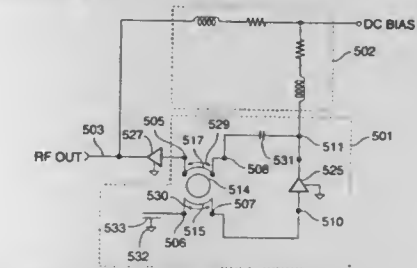
7 Claims

1. A microwave oscillation circuit comprising:

a metal plate, said metal plate having a screw hole;

a dielectric substrate having a surface securely contacting said metal plate;

a field effect transistor for microwave oscillation mounted on said dielectric substrate, a drain-terminal of said field effect transistor grounded in terms of high frequency by an open stub;



1. A tunable oscillator apparatus comprising:

a ferrite resonating element disposed in a magnetic circuit;

a current source;

an output port;

an active element having a first active element port and a second active element port and providing a negative resistance at said first active element port;

a first inductive coupling structure disposed adjacent to said ferrite resonating element, said first inductive coupling structure having a first coupling structure port and a second coupling structure port, said first coupling structure port connected to said current source and said second coupling structure port connected to said first active element port; and

a second inductive coupling structure also disposed adjacent to said ferrite resonating element, said second inductive coupling structure being geometrically arranged such that a first resonant current in said first inductive coupling structure is at substantially 180 degrees phase difference relative to a second resonant current in said second inductive coupling structure, said second inductive coupling structure having a third coupling structure port and a fourth coupling structure port, said

third coupling structure port connected to said second active element port and said fourth coupling structure port connected to said output port.

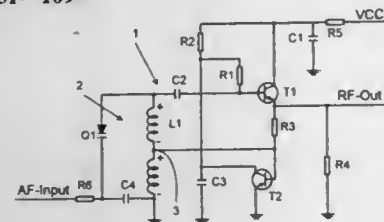
5,801,592

AMPLITUDE STABILIZED OSCILLATOR CIRCUIT
Wolfgang Mann, Isernhagen, and Horst Schaefer, Barsinghausen, both of Germany, assignors to Sennheiser electronic GmbH & Co. KG, Wedemark, Germany
Filed May 21, 1997, Ser. No. 858,611

Claims priority, application Germany, May 23, 1996, 196 20 760.6

Int. Cl.⁶ H03B 5/12; H03C 3/22; H03L 5/00
U.S. Cl. 331—109

5 Claims



VCC = 7V RF-Out F = 2.3 MHz

R1 = 100k C1 = 22nF O1 = 88 020
R2 = 47k C2 = 18pF T1 = BFS 19
R3 = 820R C3 = 100nF T2 = BFS 19
R4 = 1.5k C4 = 1nF
R5 = 1k L1 = 120uH
R6 = 4.7k

1. An oscillator circuit for stabilizing the amplitude of a high frequency oscillation, comprising:

- a resonant circuit which is coupled with a first transistor having a base terminal, an emitter contact, and a collector contact; said first transistor developing an output voltage at the emitter contact which is fed back into a base circuit of the first transistor;
- said collector contact of the first transistor being coupled to a supply voltage source;
- said supply voltage source being coupled to the base terminal of the first transistor via a resistor;
- said emitter contact of said first transistor being coupled with the base terminal of a second transistor; and
- said second transistor having a collector contact being connected to the base terminal of the first transistor for controlling the voltage at the base terminal of the first transistor.

5,801,593

VOLTAGE-CONTROLLED OSCILLATOR CAPABLE OF OPERATING AT LOWER POWER SUPPLY VOLTAGES
Phong Thanh Nguyen, Pleasanton, Calif., assignor to Exar Corporation, Fremont, Calif.

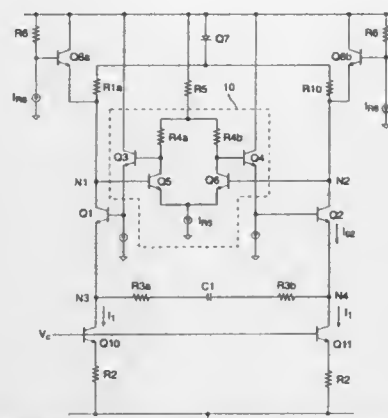
Filed Dec. 16, 1996, Ser. No. 766,058

Int. Cl.⁶ H03B 5/24; 5/04

U.S. Cl. 331—113 R

8 Claims

1. A voltage controlled oscillator circuit comprising:
 - a first and a second gain element each having an input terminal, an output terminal and a bias terminal;
 - a first voltage controlled current source coupled to said bias terminal of said first gain element;
 - a second voltage controlled current source coupled to said bias terminal of said second gain element;
 - a differential gain stage having first and second differential input terminals and first and second differential output terminals, said first and second differential input terminals being coupled to said output terminals of said first and second gain elements, respectively, and said first and second differential output terminals being coupled to said first and second input terminals of said first and second gain elements, respectively;



a timing capacitor coupled between said bias terminals of said first gain element and said second gain element;
first and second clamp circuits coupled to said output terminals of said first and second gain elements, respectively;
a first resistor coupled between said timing capacitor and said bias terminal of said first gain element; and
a second resistor coupled between said timing capacitor and said bias terminal of said second gain element,

wherein, said differential gain stage comprises:
a differential pair of input transistors having input terminals coupled to said first and second differential input terminals;
a pair of load devices coupling said differential pair of input transistors to a power supply voltage, respectively; and
a current source device coupled to said differential pair of input transistors for biasing said differential gain stage, and wherein said differential gain stage further comprises a first output buffer transistor coupled to said first differential output terminal and a second output buffer transistor coupled to said second differential output terminal.

5,801,594

QUARTZ OSCILLATOR DEVICE AND ITS ADJUSTING METHOD

Masaki Muto, Katano; Yoshihisa Mochida, Ikoma; Ryuji Mizukoshi, Shimoshakujii-machi, and Chikao Maeda, Kunitachi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

PCT No. PCT/JP95/01285, § 371 Date Mar. 7, 1997, § 102(e) Date Mar. 7, 1997, PCT Pub. No. WO96/32775, PCT Pub. Date Oct. 17, 1996

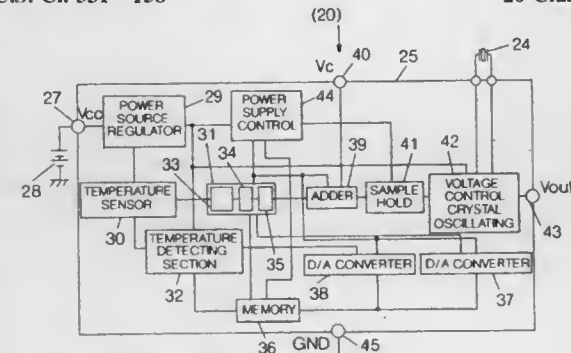
PCT Filed Jun. 28, 1995, Ser. No. 750,827

Claims priority, application Japan, Apr. 14, 1995, 7-089331

Int. Cl.⁶ H03B 5/32; 1/00; H03L 1/00

U.S. Cl. 331—158

20 Claims



1. A crystal oscillation apparatus comprising:
 - a crystal oscillating circuit,
 - a frequency adjusting element electrically coupled with the crystal oscillating circuit, and
 - a control circuit for controlling the frequency adjusting element based on a temperature of the crystal oscillating circuit, wherein said control circuit comprises:

- (1) a temperature sensor;
- (2) a memory device having up to 8 control voltage setting groups, wherein each of the control voltage setting groups stores temperature detection data, amplitude setting data and offset voltage data;
- (3) a first digital-analog converter for converting the output signal of said memory device;
- (4) temperature detection means for comparing the output signal of said first digital-analog converter with up to 8 control voltage setting groups stored in said memory device, selecting and outputting one of control voltage setting groups corresponding to the output of said temperature sensor;
- (5) a second digital-analog converter for converting and outputting the data stored in the control voltage setting group selected at said temperature detecting section; and
- (6) an amplifier for receiving the data output from said temperature detecting section and said second digital-analog converter and for compensating the output of said temperature sensor.

5,801,595

DEVICE AND METHOD FOR DIGITAL VESTIGIAL SIDEBAND MODULATION

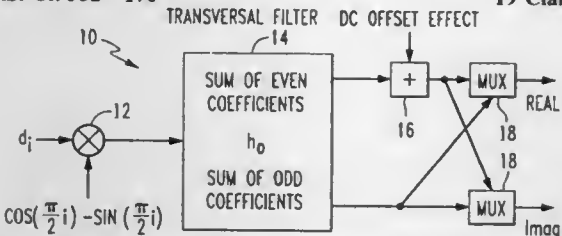
Robert C. Davis, Indialantic, Fla., and Edwin R. Twitchell, Quincy, Ill., assignors to Harris Corporation, Melbourne, Fla.

Filed Jan. 10, 1997, Ser. No. 781,629

Int. Cl.⁶ H03C 1/60; H04L 27/04

U.S. Cl. 332—170

19 Claims



1. A method of vestigial sideband modulation for a digital signal, the method comprising the steps of:

- (a) multiplying a digital signal with data symbols d_i input at rate $R=1/T$, times $(\cos(\pi i/2) - \sin(\pi i/2))$;
- (b) providing the product to a transversal filter with impulse response h_0 which provides separate sums of even and odd transversal filter coefficient terms;
- (c) multiplexing the sums of even and odd coefficient terms to provide a baseband signal with real and imaginary portions $\text{Re}(S_{bb}(kT))$ and $\text{Im}(S_{bb}(kT))$, where

$$S_{bb}(kT) = \sum_i (d_i + b) \left(\cos\left(\frac{\pi}{2} i\right) - j \sin\left(\frac{\pi}{2} i\right) \right) h_0((k-i)T).$$

5,801,596

TEMPERATURE COMPENSATION TYPE QUARTZ OSCILLATOR

Yasuhiro Sakurai, Sayama, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01501, § 371 Date Jan. 23, 1997, § 102(e) Date Jan. 23, 1997, PCT Pub. No. WO96/03799, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 27, 1995, Ser. No. 765,459

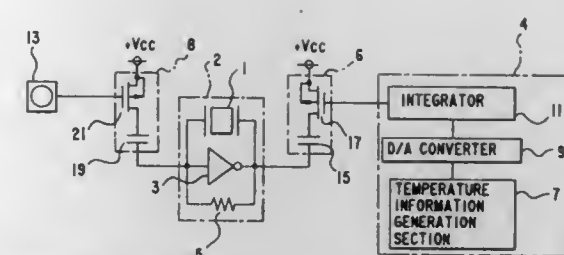
Claims priority, application Japan, Jul. 27, 1994, 6-174652; Nov. 4, 1994, 6-271033

Int. Cl.⁶ H03L 7/00; H03B 5/32

U.S. Cl. 331—176

12 Claims

1. A temperature compensation type quartz oscillator comprising:



quartz oscillation means,
temperature compensation control means connected between one terminal of the quartz oscillation means and a power supply;
temperature compensation voltage generation means connected to a control terminal of the temperature compensation control means; and
an external voltage input terminal connected to a control terminal of the external frequency control means, wherein the temperature compensation control means is constituted by connecting a variable capacitor for temperature compensation and a voltage controlled variable resistor for temperature compensation in series between one terminal of the quartz oscillation means and the power supply,
the external frequency control means is constituted by connecting a fixed capacitor for external frequency control and a voltage controlled variable resistor for external frequency control in series between another terminal of the quartz oscillation means and the power supply,
the temperature compensation voltage generation means outputs an output voltage of a voltage output type D/A converter as a temperature compensation voltage and applies the temperature compensation voltage to a control terminal of the temperature compensation variable resistor, and
voltage input through the external input terminal is applied to a control terminal of the external frequency control variable resistor.

5,801,597

PRINTED-CIRCUIT BOARD-MOUNTABLE FERRITE EMI FILTER

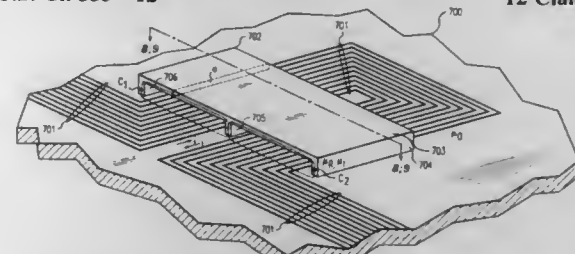
Galen L. Carter, Longmont; David A. Norte, and Woong K. Yoon, both of Westminster, all of Colo., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 5, 1997, Ser. No. 795,431

Int. Cl.⁶ H03H 7/09; H04B 3/28

U.S. Cl. 333—12

12 Claims



1. A circuit pack comprising:
 - a PC board having a first portion defining a surface of the first portion at least one planar conductor extending in a first direction and having a second portion defining a surface of the second portion said at least one conductor extending in a second direction substantially opposite to said first direction, and
 - a ferrite EMI filter having a ferrite body mounted on the PC board and defining a pair of passageways substantially parallel to each other and to the surfaces of the first and the second portion, the first portion of the PC board and the at least one planar conductor defined thereby extending through one of the passageways and the second portion of the PC board and the at least one planar conductor defined thereby extending through another of the passageways.

5,801,598

HIGH-POWER RF LOAD

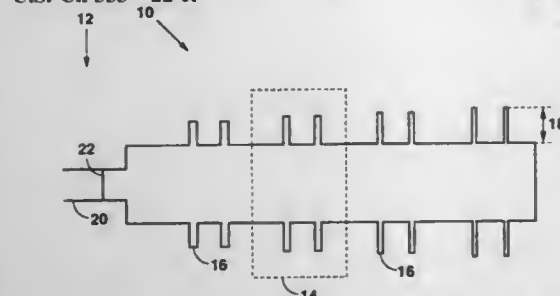
Sami G. Tantawi, San Mateo, and Arnold E. Vlieks, Livermore, both of Calif., assignors to Stanford University, Stanford, Calif.

Filed May 1, 1997, Ser. No. 845,986

Int. Cl.⁶ H01P 1/26

U.S. Cl. 333—22 R

10 Claims



1. A radio frequency load for absorbing RF signals, the load comprising a cylindrical waveguide composed of a metallic material, and a sequence of low-Q circular chokes for absorbing RF power, wherein the chokes are positioned coaxially within the circular waveguide, wherein each of the chokes has a resonator width, and wherein the resonator widths of the sequence of chokes decrease such that power is absorbed uniformly by the sequence of chokes.

5,801,599

RF WAVEGUIDE TO MICROSTRIP BOARD TRANSITION INCLUDING MEANS FOR PREVENTING ELECTROMAGNETIC LEAKAGE INTO THE MICROSTRIP BOARD

Stephen John Flynn, and Andrew Patrick Baird, both of Ayrshire, Scotland, assignors to Cambridge Industries Limited, United Kingdom

PCT No. PCT/GB93/01369, § 371 Date Mar. 28, 1995, § 102(e) Date Mar. 28, 1995, PCT Pub. No. WO94/02970, PCT Pub. Date Feb. 3, 1994

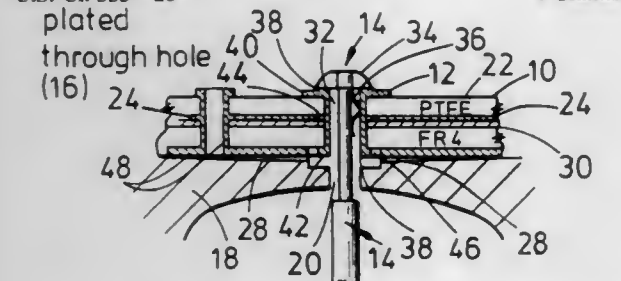
PCT Filed Jun. 30, 1993, Ser. No. 373,299

Claims priority, application United Kingdom, Jul. 23, 1992, 9215707

Int. Cl.⁶ H01P 5/107

U.S. Cl. 333—26

4 Claims



1. A waveguide to microstrip circuit transition comprising a circuit board disposed between the waveguide and the microstrip circuit, a plated probe hole formed in the circuit board, a waveguide probe passing through the plated probe hole and projecting therefrom and being coupled to a signal conductor of the microstrip circuit, and a plurality of plated holes disposed in the circuit board around the waveguide probe, the plated holes being coupled to ground and being arranged to reduce leakage of electromagnetic energy propagating on the waveguide probe from leaking into the circuit board.

5,801,600

VARIABLE DIFFERENTIAL PHASE SHIFTER PROVIDING PHASE VARIATION OF TWO OUTPUT SIGNALS RELATIVE TO ONE INPUT SIGNAL

Roger John Butland, and William Emil Heinz, both of Wellington, New Zealand, assignors to Deltec New Zealand Limited, Wellington, New Zealand

PCT No. PCT/NZ94/00107, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/10862, PCT Pub. Date Apr. 20, 1995

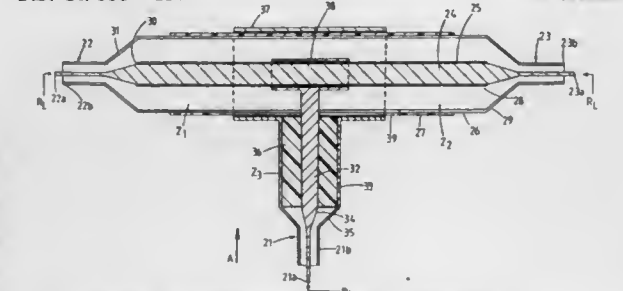
PCT Filed Oct. 14, 1994, Ser. No. 628,646

Claims priority, application New Zealand, Oct. 14, 1993, 248947

Int. Cl.⁶ H01P 1/18; 5/04

U.S. Cl. 333—127

20 Claims



1. A variable differential phase shifter comprising: a coaxial line comprising an inner conductive rod and an outer conductive tube coupled at ends thereof to first and second outputs; an inner sleeve capacitively coupled to the inner conductive rod and slideable therealong; and an outer sleeve capacitively coupled to the outer conductive tube and slideable therealong; the inner and outer sleeves being connected to an input and being slideable along said coaxial line in fixed relationship relative to each other to vary the phase relationship of the signals output at the first and second outputs with respect to a signal supplied to the input.

5,801,601

RADIO FREQUENCY DELAY LINE ADJUSTMENT CIRCUIT

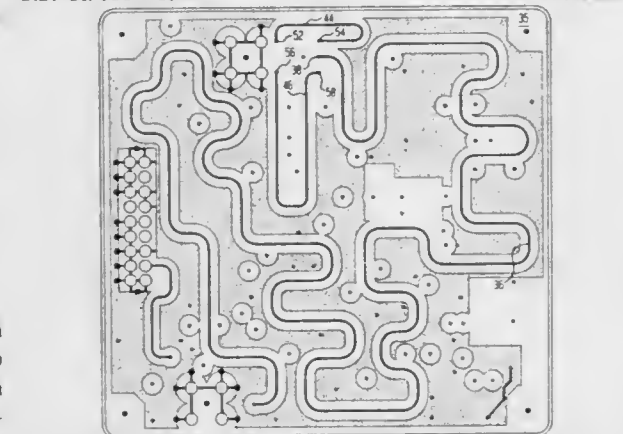
Christopher R. Gayle, Arlington, Mass., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jan. 27, 1997, Ser. No. 789,749

Int. Cl.⁶ H01P 1/18

U.S. Cl. 333—156

4 Claims



1. Radio frequency variable length delay line circuitry comprising: a substrate; a circuit path on said substrate, said circuit path having a gap and a respective one of a pair of circuit path terminals on each side of said gap;

5,801,603

LADDER-TYPE FILTER COMPRISING STACKED PIEZOELECTRIC RESONATORS

Takashi Yamamoto, Ishikawa-ken, and Tetsuo Takeshima, Toyama, both of Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

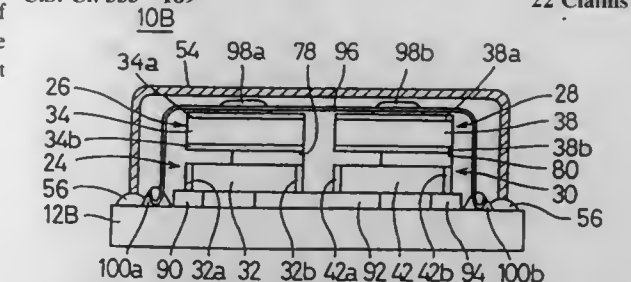
Filed Oct. 4, 1996, Ser. No. 726,245

Claims priority, application Japan, Apr. 1, 1996, 8-106231

Int. Cl.⁶ H03H 9/10; 9/205; 9/54

U.S. Cl. 333—189

22 Claims



10. A ladder type filter comprising: a first resonator including a first substantially rectangular piezoelectric substrate having a first upper major surface and a first lower major surface and a plurality of first side surfaces extending between said first upper major surface and said first lower major surface; a first electrode disposed on a first of said first side surfaces of said first piezoelectric substrate; a second electrode disposed on a second of said first side surfaces of said first piezoelectric substrate; a second resonator including a second substantially rectangular piezoelectric substrate having a second upper major surface and a second lower major surface and a plurality of second side surfaces extending between said second upper major surface and said second lower major surface; a third electrode disposed on said second upper major surface; and a fourth electrode disposed on said second lower surface of said second piezoelectric substrate; and a substrate having an upper major surface and a lower major surface and a plurality of side surfaces connecting said upper and lower major surfaces, said first and second resonators being disposed on said upper major surface of said substrate such that said first electrode extends in a direction that is substantially perpendicular to said upper major surface of said substrate and said third electrode extends in a direction that is substantially parallel to said upper major surface of said substrate; wherein said first and second resonators are stacked on each other and arranged such that said third electrode disposed on said second upper major surface of said second piezoelectric substrate faces said first lower major surface of said first resonator and said first electrode disposed on said first of said first side surfaces of said first piezoelectric substrate is mechanically and electrically connected to said third electrode.

5,801,602

ISOLATION AND SIGNAL FILTER TRANSFORMER

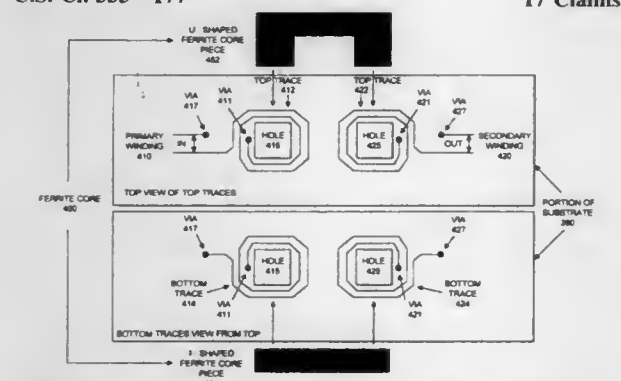
Marwan Ahmad Fawal, Santa Clara; Anthony Liem Pan, Fremont; Eric Roger Davis, San Jose, and Richard Sidney Reid, Mountain View, all of Calif., assignors to 3Com Corporation, Santa Clara, Calif.

Filed Apr. 30, 1996, Ser. No. 641,375

Int. Cl.⁶ H03H 7/09

U.S. Cl. 333—177

17 Claims



16. A transformer for electrically isolating and filtering a network communications signals, said transformer comprising: a substrate having a plurality of metal traces positioned in said substrate, said plurality of metal traces being part of a first layer of said substrate, said substrate having a first hole and a second hole; a closed loop of ferrite core disposed through said first hole and said second hole; a first metal trace, of said plurality of metal traces, positioned in a spiral around said first hole, at least a first end of said first metal trace coupled to receive said network communications signals; a second metal trace, of said plurality of metal traces, positioned in a spiral around said second hole, at least a first end of said second metal trace coupled to transmit filtered network communications signals generated from said network communications signals; and wherein said first metal trace is positioned to at least increase the coupling capacitance of said first metal trace to cause said transformer to have a frequency response where said filtered network communication signals are not attenuated by more than three dB at frequencies near one hundred MHz and are attenuated by more than three dB at frequencies greater than three hundred MHz.

5,801,604

MAGNETOSTATIC WAVE DEVICE WITH INDIUM/TIN IN THE MAGNETIC GARNET

Masaru Fujino, Otsu, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto, Japan

Filed Jan. 10, 1997, Ser. No. 781,701

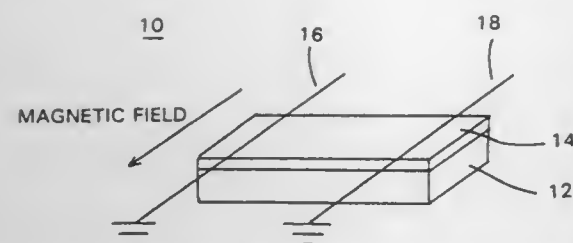
Claims priority, application Japan, Jan. 11, 1996, 8-022146; Jan. 11, 1996, 8-022147

Int. Cl.⁶ H03H 9/24

U.S. Cl. 333—202

8 Claims

1. A magnetostatic wave device comprising a single-crystal thin film of iron-containing magnetic garnet characterized in that the magnetic garnet has added therein an amount of about 10 to 3000



ppm by weight of at least one member of the group consisting of indium and tin.

5,801,605

DISTRIBUTED TEM FILTER WITH INTERDIGITAL ARRAY OF RESONATORS

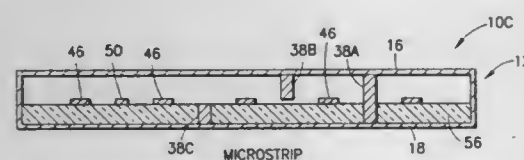
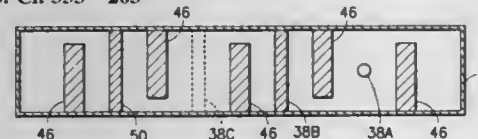
John Gene Filakovsky, Trumbull, Conn., assignor to Microphase Corporation, Norwalk, Conn.

Filed Aug. 26, 1996, Ser. No. 701,774

Int. Cl.⁶ H01P 1/201; 1/203; 1/205

U.S. Cl. 333—203

11 Claims



I. A distributed TEM resonator bandpass microwave structure comprising:

a housing of electrically conductive material, said housing comprising a plurality of walls including first and second opposed walls extending in a longitudinal dimension of said housing; a first set of resonators located within said housing and being arranged serially along the longitudinal dimension, resonators of said first set extending from and being grounded to said first wall, and being spaced apart from and capacitively coupled to said second wall;

a second set of resonators located within said housing and being arranged serially along the longitudinal dimension, resonators of said second set being grounded to said second wall, and being capacitively coupled to said first wall, wherein the resonators of said first and said second sets are positioned relative to each other serially along the longitudinal dimension in an interdigital arrangement; and

a set of partitions located within said housing and being positioned between successive ones of the resonators of said interdigital arrangement, each of said partitions being grounded to said housing and, in conjunction with a wall of said housing, defining an aperture for coupling electromagnetic radiation between successive ones of said resonators; wherein, for each of said partitions, there is a ratio of area of the coupling aperture to the total area of coupling aperture and partition, the ratio being in excess of approximately 10% for reduction of intensity of surface currents within walls of said housing; and

said first set of resonators and said second set of resonators are constructed as a microstrip.

5,801,606 PSEUDO-ELLIPTICAL FILTER FOR THE MILLIMETER BAND USING WAVEGUIDE TECHNOLOGY

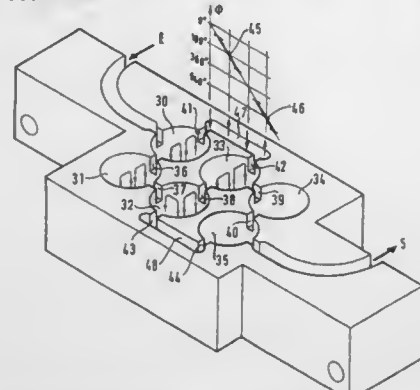
Jean-Denis Schubert, Verneuil/Seine, and Jean-Claude Cru-chon, Bouffemont, both of France, assignors to Alcatel Tel-space, Nanterre, France

Filed Dec. 11, 1996, Ser. No. 763,130

Claims priority, application France, Dec. 12, 1995, 95 14703 Int. Cl.⁶ H01P 1/208

U.S. Cl. 333—208

16 Claims



1. A pseudo-elliptical filter comprising positively coupled resonant cavities, the signal input and the signal output of each cavity being at 90° to each other, and at least one negative retro-coupling constituted by a waveguide between two of said cavities, the phase difference of the signals at the extremities of said waveguide being approximately a multiple of $k \cdot 180^\circ$, with k being odd.

5,801,607

STARTER CONTACTOR HAVING IMPROVED FIXED CONTACTS, AND A MOTOR VEHICLE STARTER HAVING SUCH A CONTACTOR

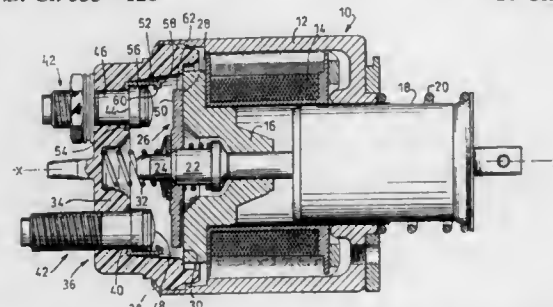
Jean Duverger, Riorges, France, assignor to Valeo Equipments Electriques Moteur, Creteil, France

Filed Oct. 9, 1996, Ser. No. 727,941

Claims priority, application France, Oct. 12, 1995, 95 12076 Int. Cl.⁶ H01H 67/02

U.S. Cl. 335—126

10 Claims



I. A motor vehicle starter contactor comprising: a body; a pair of power contact terminals fixed in the body and each having a contact head; an electrically conductive movable contact element having rest, intermediate and active positions; and means in the body for mounting said movable contact element for displacement in a longitudinal direction in said body between said rest position, in which the movable contact element is out of contact with said fixed power contact terminals, and said active position in which said movable contact element engages said fixed power contact terminals whereby to connect said fixed power contact terminals electrically together, the contactor further having a fixed auxiliary contact member connected electrically to at least a respective one of said fixed power contact terminals, with said auxiliary contact member extending beyond an associated one of said fixed power contact terminals to selectively engage said movable contact element in said intermediate position of said movable contact element between said rest and active positions, whereby the movable con-

tact element is selectively connected electrically with said associated fixed power contact terminal through said auxiliary contact member when in said intermediate position.

5,801,608

ELECTROMAGNETIC RELAY WITH COMBINED CONTACT/RESET SPRING

Leopold Mader, Moedling, Austria, assignor to EH-Schrack Components-AG, Vienna, Austria

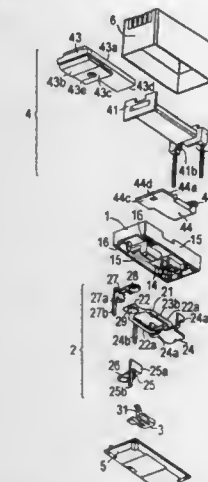
Filed Feb. 24, 1997, Ser. No. 804,608

Claims priority, application Germany, Feb. 23, 1996, 196 06 883.5

Int. Cl.⁶ H01H 67/02; 51/22; 51/08

U.S. Cl. 335—128

18 Claims



18. An electromagnetic relay comprising:

a magnet system comprising a coil, a stationary yoke and a pivotally mounted armature, the armature comprising a pole end,

a contact arrangement comprising an elongated switching spring having a movable contact, the contact arrangement further comprising at least one contact bearer having a fixed contact, an actuator having an upper hook element coupled to the pole end of the armature and a lower foot portion coupled to the switching spring, the lower foot portion including two opposing sides

the switching spring comprising a contact spring comprising a clamped end and a contact end with two opposing sides disposed therebetween,

the switching spring further comprising a reset spring, the reset spring being coupled to the actuator, the reset spring further comprising two spaced-apart reset arms and a base portion, the base portion of the reset spring being connected to the clamp end of the contact spring, each reset arm being disposed generally parallel to a side of the contact spring,

each reset arm comprising a longitudinal axis and a guide tab extending transversely from the longitudinal axis of its respective reset arm, the guide tabs engaging guide grooves disposed in the actuator,

the reset spring being disposed in a common plane with the contact spring and the foot portion of the actuator.

5,801,609

MRI HEAD MAGNET

Evangelos Trifon Laskaris, Schenectady, and Michele Dollar Ogle, Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

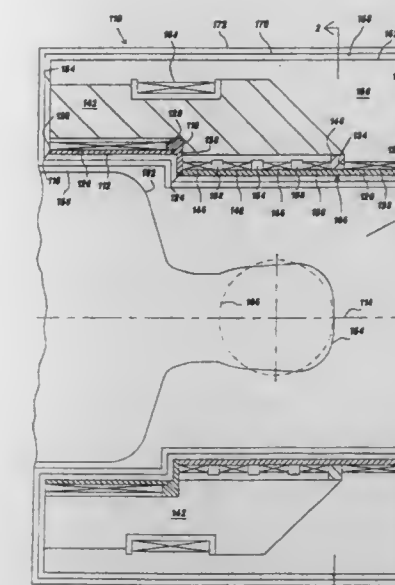
Filed Apr. 25, 1997, Ser. No. 837,881

Int. Cl.⁶ G01V 3/00; H01F 6/06

U.S. Cl. 335—216

10 Claims

I. A magnetic resonance imaging magnet comprising:



a) a generally annularly-cylindrical-shaped first coil form segment having a generally longitudinally extending axis, having a first longitudinal end, having a second longitudinal end, and having a generally constant outer diameter;

b) a generally annularly-cylindrical-shaped second coil form segment generally coaxially aligned with said axis, having a first longitudinal end, having a second longitudinal end disposed longitudinally proximate said second longitudinal end of said first coil form segment, and having a generally constant outer diameter which is less than said outer diameter of said first coil form segment;

c) a first superconductive coil generally coaxially aligned with said axis, circumferentially wound around said first coil form segment, having a first lateral side, and having a second lateral side longitudinally disposed proximate said first longitudinal end of said first coil segment;

d) a second superconductive coil generally coaxially aligned with said axis, circumferentially wound around said second coil form segment, having a first lateral side, and having a second lateral side longitudinally disposed proximate said first longitudinal end of said second coil form segment;

e) a first spacer ring generally coaxially aligned with said axis, attached to said first coil form segment, and longitudinally abutting said first lateral side of said first superconductive coil;

f) a second spacer ring generally coaxially aligned with said axis, circumferentially surrounding and attached to said second coil form segment, and longitudinally abutting said first lateral side of said second superconductive coil; and

g) a plurality of circumferentially-spaced-apart plate members attached to and extending radially outward from said first and second spacer rings and disposed radially outward from and spaced apart from said first and second superconductive coils.

5,801,610

PHASE SHIFTING TRANSFORMER WITH LOW ZERO PHASE SEQUENCE IMPEDANCE

Michael I. Levin, 33 Bayhampton Court, North York, Ontario, Canada, M3H 5L5

Filed Apr. 20, 1994, Ser. No. 230,466

Int. Cl.⁶ H01F 33/00

U.S. Cl. 336—12

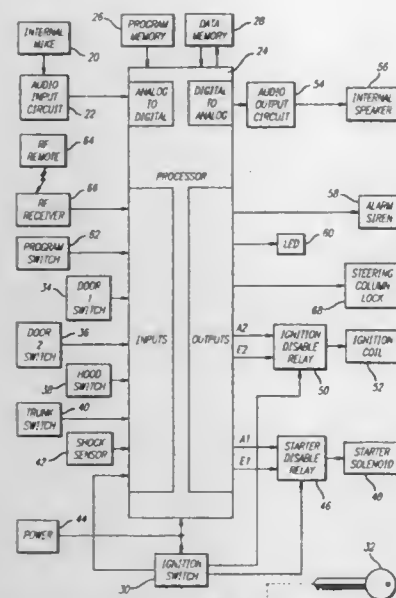
24 Claims

1. A phase shifting transformer or autotransformer for a three-phase power distribution network, comprising three core legs, and

for each phase, a secondary winding comprising a plurality of windings electrically connected in series and distributed amongst the core legs, each secondary winding having at least

UMI

1. A voice actuated vehicle security system, comprising:
a microphone for transducing spoken expressions into electronic signals corresponding to said spoken expressions, said microphone being adapted for mounting inside a vehicle;
an audio input circuit for conditioning said electronic signals from said microphone;
a memory storage for storing speech templates;
means for selectively generating an input signal for use to passively arm said vehicle security system, the generation of said input signal being indicative of at least one predetermined condition associated with the vehicle;
a processor for processing said conditioned electronic signals and for comparing the processed, conditioned electronic signals with said speech templates stored in said memory storage, said processor generating a disarming signal when said processed, conditioned electronic signals are substantially similar to one of said speech templates, said processor monitoring said input signal and producing an arming signal when said input signal indicates the presence of said at least one predetermined condition; and
an electrical interlock mechanism operated by said processor, said electrical interlock mechanism for placement in series with the ignition system of the vehicle to positively inhibit the engine of the vehicle from running by preventing the spark-



generating ignition system of the vehicle from operating when said processor produces said arming signal, said electrical interlock mechanism allowing the vehicle to be started when said processor produces said disarming signal.

5,801,617

DEVICE FOR DETERRING TAMPERING OF ANTI-THEFT EQUIPMENT, METHOD FOR DETERRING TAMPERING OF ANTI-THEFT EQUIPMENT

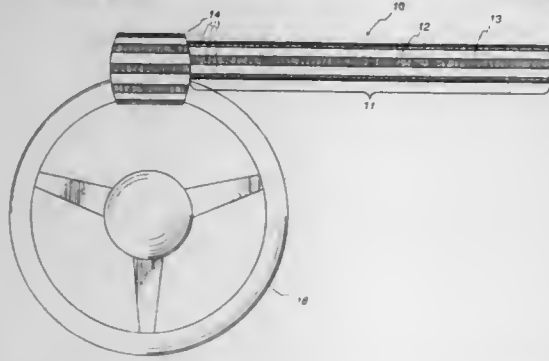
Richard F. Langner; Thomas P. Smith, and Malcolm W. Sherman, all of Scottsdale, Ariz., assignors to Air Taser, Inc., Scottsdale, Ariz.

Filed Jan. 6, 1997, Ser. No. 779,112

Int. Cl.⁶ G08B 13/14

U.S. Cl. 340-426

18 Claims



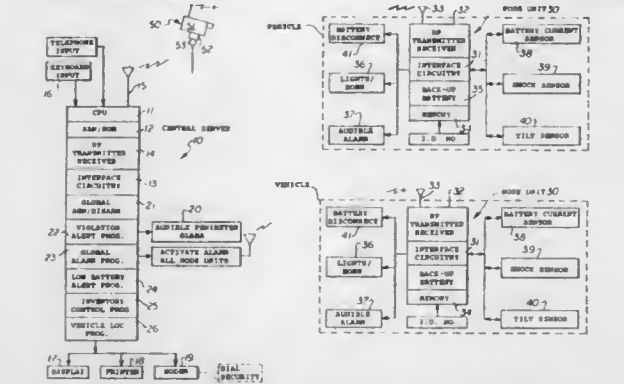
1. A device for deterring tampering of an anti-theft instrument comprising:

- a means for generating an electric arc upon a surface of said anti-theft instrument wherein said electric arc generating means comprises a surface with at least a pair of alternately charged electrodes, wherein the electric arc acts as a visual deterrent to an unauthorized person;
- a means for imparting an electric pulse to the person contacting said anti-theft instrument, wherein said electric pulse imparting means operates in conjunction with said electric arc generating means; and
- a means for containing said electric arc generating means and said electric pulse imparting means within said anti-theft instrument.

5,801,618 VEHICLE ALARM AND LOT MONITORING SYSTEM Mark Jenkins, P.O. Box 37, Brooks, Alberta, Canada, T1R 1B2 Filed Feb. 7, 1997, Ser. No. 797,533 Int. Cl.⁶ B60R 25/10

U.S. Cl. 340-426

24 Claims



13. A system for monitoring a plurality of individual vehicles which are congregated together in a given area comprising:

a central monitoring unit including: monitoring unit RF transceiver means operable for transmitting and receiving RF signals through the atmosphere; a programmable microprocessor and CPU with memory storage means, data input means, and display means operatively connected through associated circuitry with said monitoring unit RF transceiver means and programmed to cause said monitoring unit RF transceiver means to transmit and receive RF signals through the atmosphere;

a plurality of individual programmable RF transponder units, each individual RF transponder unit comprising: attachment means for attaching said RF transponder unit to a respective one of said individual vehicles;

sensor means operable to sense the condition of said respective individual vehicle and to produce a sensor signal upon sensing a change in the condition of said respective individual vehicle;

alarm means connected with said sensor means for producing a perceivable alarm responsive to said sensor signal;

transponder unit RF transceiver means operable for transmitting and receiving RF signals through the atmosphere; and

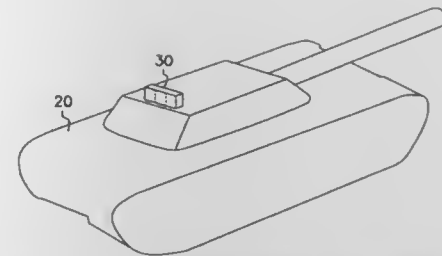
a programmable microprocessor with memory storage means and associated circuitry operatively connected with said sensor means, said alarm means, and said transponder unit RF transceiver means and programmed to cause said transponder unit RF transceiver means to transmit an RF violation signal through the atmosphere responsive to said sensor signal;

an arm/disarm software program stored in said monitoring unit memory storage means for controlling the operation of said central monitoring unit microprocessor and CPU and said monitoring unit RF transceiver means in response to data input by a user to cause said monitoring unit RF transceiver means to transmit an RF arming signal to activate said individual RF transponder units to sense a change in the condition of the respective individual vehicles, and to assume a standby monitoring status ready to receive an RF violation signal from any of said activated individual RF transponder units;

a global alarm software program stored in said monitoring unit memory storage means for controlling the operation of said central monitoring unit microprocessor and CPU and said monitoring unit RF transceiver means to cause said monitoring unit RF transceiver means to transmit an RF global alarm signal to all of said activated individual RF transponder units upon receiving a said RF violation signal from any one of said individual RF transponder units;

said RF transceiver means of each said individual RF transponder unit configured to receive an RF global alarm signal transmitted through the atmosphere from said central monitoring unit; and

said alarm means of each said individual RF transponder unit is configured to produce said perceivable alarm responsive to a received said RF global alarm signal; whereby upon said sensor means of any one of said activated individual RF transponder units sensing a change in the condition of the respective individual vehicle on which it is installed, its said alarm means will produce a perceivable alarm and its said transponder unit RF transceiver means will transmit said RF violation signal through the atmosphere to be received by said central monitoring unit; and upon said central monitoring unit RF transceiver means receiving said transmitted RF violation signal it will transmit said RF global alarm signal to all of said activated individual RF transponder units such that all of the individual RF transponder units on the respective individual vehicles will produce a perceivable alarm simultaneously.



a second set of colored signal lights located inside the vehicle, said second set of colored lights having colors which correspond to the colors in the first set of colored lights;

a set of switches, each switch for signaling a specific firing condition wherein some of the switches of said set of switches control the illumination of a combination of selected colors of the first set of colored lights and the same combination of selected colors of the second set of colored lights to signal the specific firing condition inside and outside the vehicle.

5,801,619 ANALOG SIGNAL PROCESSING SYSTEM AND DECISION LOGIC FOR CONTROLLING AIRBAG DEPLOYMENT

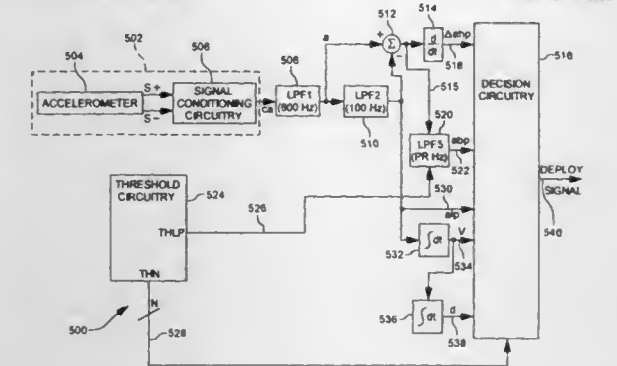
Jiyao Liu, and Jon Paul Kelley, both of Kokomo, Ind., assignors to Delco Electronics Corp., Kokomo, Ind.

Continuation-in-part of Ser. No. 610,021, Mar. 4, 1996. This application Sep. 11, 1997, Ser. No. 927,588

Int. Cl.⁶ B60Q 1/00

U.S. Cl. 340-436

40 Claims



1. Circuitry for generating an airbag deployment signal from an analog acceleration signal comprising:

- a first filter circuit receiving an analog acceleration signal and providing a first filtered analog signal as a first predefined frequency band thereof;
- a differentiation circuit receiving said first filtered analog signal and providing a differentiated analog signal therefrom;
- a second filter circuit receiving said first filtered analog signal and providing a second filtered analog signal as a second predefined frequency band thereof; and
- a decision circuit receiving said differentiated analog signal and said second filtered analog signal, and providing an airbag deployment signal therefrom.

5,801,620 FIRING RANGE SAFETY SIGNALING DEVICE Patrick John Ready, Raleigh, N.C., assignor to Ready Architectural Associates, Inc., Minneapolis, Minn.

Filed Jun. 6, 1996, Ser. No. 660,744

Int. Cl.⁶ B60Q 1/00

U.S. Cl. 340-438

16 Claims

1. A safety apparatus for use with an armored vehicle having attached guns, said safety apparatus comprising: a first set of colored signal lights located on the outside of the vehicle, each of said lights visually distinguishable from one another across the firing range, and;

1. A method for reinitializing vehicle parameters stored in memory of a controller in a motor vehicle after a power loss to the controller, said method comprising the steps of: determining whether predetermined conditions are right for transferring, at least one vehicle parameter stored in a volatile memory of a controller; transferring the vehicle parameter stored in the volatile memory to a non-volatile memory of the controller if the predetermined conditions are right for transferring the vehicle parameter; determining whether predetermined conditions are right for re-initializing the vehicle parameter after a power loss to the controller; performing a validity check of the vehicle parameter stored in the non-volatile memory by determining whether a predetermined number of vehicle parameters stored in the non-volatile memory is equal to a predetermined number of vehicle parameters stored in a read only memory;

transferring the vehicle parameter from the non-volatile memory to the volatile memory if the predetermined conditions are right for re-initializing the vehicle parameter and the validity check is valid; and
initializing the vehicle parameter with a predetermined initial value stored in the non-volatile memory to the volatile memory if the predetermined conditions are not right for re-initializing the vehicle parameter and the validity check is not valid.

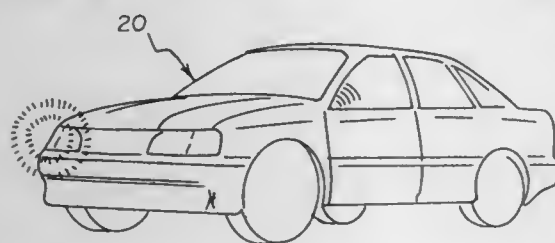
5,801,622 SIGNAL ALARM

Richard A. Chunick, 938 Pacific Drive, Delta, British Columbia, Canada, V4M 2K3

Filed Mar. 28, 1997, Ser. No. 828,047
Int. Cl.⁶ B60Q 1/00

U.S. Cl. 340—457

5 Claims



1. A signal alarm for use with a vehicle turn signal timer can circuit comprising:
a sound generating means for generating sound;
an electronic control means for activating and deactivating the sound generating means, the control means adapted for being operatively coupled to the vehicle turn signal timer can circuit;
wherein the control means for activating and deactivating the sound generating means further includes a contact means, the contact means being adapted for electrical connection of said signal alarm to a signal light; and
wherein the contact means includes a radio activation means for alternatively activating and deactivating a vehicle radio, such that the vehicle radio is deactivated when the sound generating means is activated.

5,801,623

METHOD OF DETECTING A LAMP OUTAGE CONDITION IN A VEHICLE FLASHER SYSTEM

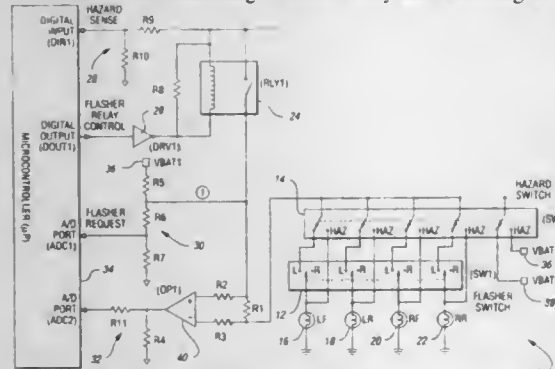
Bor-Dong Chen, Dearborn; William Gary Majorana, Plymouth, and Thomas E. Klauke, Dearborn, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jun. 30, 1997, Ser. No. 885,894
Int. Cl.⁶ B60Q 11/00

U.S. Cl. 340—458

10 Claims

1. A method of controlling a flasher relay and detecting a lamp



outage condition in a vehicle flasher system including a plurality of lamps, the method comprising:

- initializing an adaptive flasher current variable when the vehicle flasher system is powered on;
- monitoring the vehicle flasher system to detect a driver flasher signal request;
- measuring the flasher current in the flasher system to determine whether a lamp outage condition exists and altering flasher relay on-off frequency if a driver flasher signal request is detected;
- continuing step c) until the driver flasher request is removed;
- updating the adaptive flasher current variable based upon the measured flasher current to compensate for system resistance changes over time for accurate lamp outage detection;
- returning to step b).

5,801,624

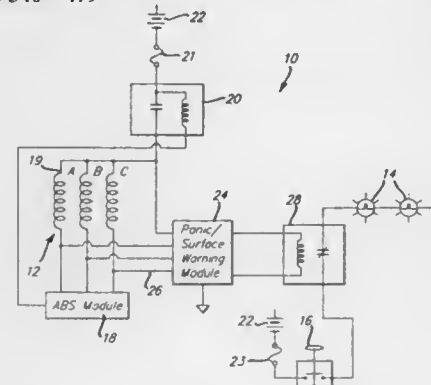
BRAKE INDICATING APPARATUS AND METHOD

Lynn K. Tilly, Oxford; Robert C. Kittle, Lake Orion; Paul E. Olinzock, Clinton Township, and Jeffrey C. Vogel, Royak Oak, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Oct. 10, 1997, Ser. No. 949,158
Int. Cl.⁶ B60Q 1/44

U.S. Cl. 340—479

19 Claims



1. A brake indicating apparatus for indicating braking of a vehicle having an anti-lock braking system (ABS) and brake lights powered upon actuation of a vehicle brake pedal comprising:
an ABS input for sensing ABS actuation during braking of a vehicle and for producing an ABS signal;
a warning switch for receiving a flash signal and for temporarily interrupting power to the brake lights;
a warning module for receiving the ABS signal and for producing the flash signal to activate the warning switch; and
said warning module including a delay circuit and a severity circuit for delaying activation of said warning switch for a predetermined time after reception of the ABS signal.

5,801,625

AUXILIARY CONTROL DEVICE FOR SECURITY ALARM SYSTEM

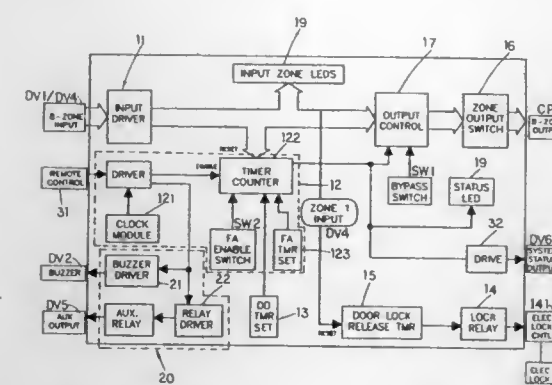
Randall Wang, 5209 N. Tyler Ave., Temple City, Calif. 91780

Filed Apr. 4, 1997, Ser. No. 835,124
Int. Cl.⁶ G08B 29/00

U.S. Cl. 340—506

17 Claims

1. An auxiliary control device of a security alarm system, which is installed in a commercial facility, having an alarm control panel and a plurality of security devices including a plurality of motion detectors, at least a door motion sensor and a plurality of electrical appliances, comprising
an input driving circuitry for input connecting with said plurality of security devices of said security alarm system;
a counter circuitry for generating pulses mad computing a programmed period of predetermined dynamic delay time so as to set said security alarm system to a standby condition that



when said motion detectors of said security alarm system detect a human activity occurred during said computing of said period of dynamic delay time, said counter circuitry is activated via the driving circuitry to reset and compute said period of dynamic delay time initially again;

a timing circuitry having a timer clock for sending a signal to activate said counter circuitry to begin said computing of said period of dynamic delay time at a function time preset in said timer clock;

a relay driver circuitry having a lock control for ensuring said door lock control to lock a door of said commercial facility during said standby condition;

a lock releasing circuitry for activating said door lock control to temporary release the locking of said door for a predetermined period of lock releasing time when a human activity is detected by said door motion sensor which is installed near said door during said standby condition;

an output circuitry for output connecting to said control panel of said security alarm system;

an output control circuitry for circuit bypassing the electrical connection between said control panel and said security devices during a predetermined period of opening time of said commercial facility and said standby condition, and for switching said security alarm system to an arming condition from said standby condition by releasing said circuit bypassing between said control panel and said security devices after said predetermined period of dynamic delay time is computed by said counter circuitry;

a protecting circuitry for preventing any high potential difference occurred between said input driving circuitry and said output circuitry of said auxiliary control device;

a driver control circuitry, which is connected to said buzzer and a plurality of electrical appliances of said commercial facility, for deactivating said buzzer and cutting a power supply to said electrical appliances during said standby condition for energy saving; and

a display circuitry for indicating a plurality of status of said security alarm system;

whereby, before said function time, said auxiliary control device is activated to bypass said electrical connection between said alarm control panel and said plurality of security devices of said security alarm system installed in said commercial facility so as to set said security alarm system to a disarming condition during a predetermined period of time; and that when said function time preset in said timing circuitry is reached, said timing circuitry activates said counter circuitry beginning to generate pulses and compute said predetermined period of dynamic delay time, wherein said security alarm system is set to said standby condition;

during said standby condition, said output control circuitry of said auxiliary control device being activated for continuing to bypass said electrical connection between said alarm control panel and said security devices, said driver control circuitry deactivating said buzzer of said security alarm system and cutting off said power supply to said predetermined electrical appliances, said lock control of said relay driver circuitry being activated to lock said door, said motion detectors of said security alarm system detecting whether there is a human

activity inside said commercial facility and resetting said predetermined period of dynamic delay time to compute initially again when said human activity is detected by said motion detectors, said door motion sensor of said security alarm system detecting whether there is a human activity near said locked door and unlocking said door for said predetermined period of lock releasing time by said lock releasing circuitry when said human activity is detected by said door sensor; and

after said predetermined period of dynamic delay time being computed by said counter circuitry, said output control circuitry connecting said electrical connection between said alarm control panel and said security devices by releasing said bypassing between said alarm control panel and said security devices, in order to set said security alarm system to an arming condition.

5,801,626

ALARM COMMUNICATIONS SYSTEM WITH SUPERVISION SIGNAL RSSI ANALYSIS

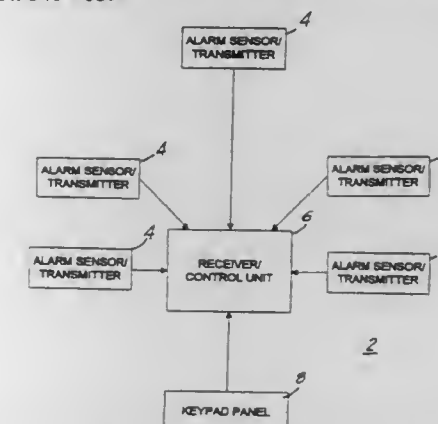
Kenneth L. Addy, Massapequa, N.Y., assignor to Pitway Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 650,292, May 20, 1996. This application Jul. 24, 1996, Ser. No. 685,539

Int. Cl.⁶ G08B 1/08

U.S. Cl. 340—539

9 Claims



9. A receiving station for use in a data communications system comprising a plurality of remote devices, each of said remote devices having a transmitter for transmitting supervision signals and non-supervision signals, said receiving station comprising:

- means for receiving said supervision signals and said non-supervision signals;
- means for generating an RSSI signal indicative of the signal strength of the received signal;
- signal type determination means for determining if said received signal is a supervision signal type or a non-supervision signal type;
- comparison means for comparing said RSSI signal to a predetermined threshold; and
- means for disallowing further processing of said received signal when said signal type determination means indicates that said received signal is a supervision type signal and when said comparison means indicates that said RSSI signal is below said predetermined threshold.

5,801,627

PORTABLE LOSS-PROTECTION DEVICE

Dudley B. Hartung, 32 Clifton St., Somerville, Mass. 02144

Filed Mar. 27, 1995, Ser. No. 411,440
Int. Cl.⁶ G08B 13/14

U.S. Cl. 340—568

9 Claims

1. A system with two units, the first for generating distance determining signals and the second for receiving these signals and

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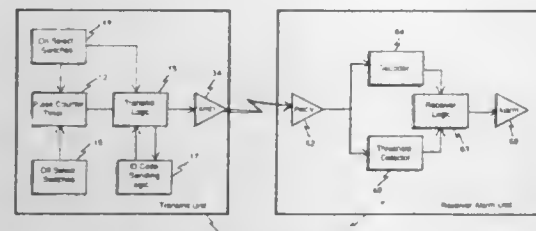
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determining that the two units are separated by a certain distance and then causing an action command signal where said distance determining signals are activated and deactivated according to predetermined criteria, the system including:

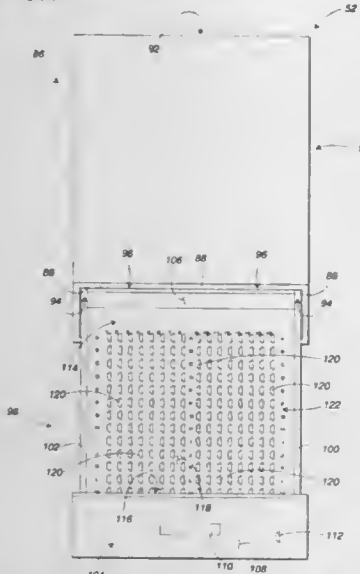
- said first and second units;
- a transmitter in said first unit to transmit a distance determining signal;
- switching means in said first unit to turn on and turn off said distance determining signal;
- encoding means in said first unit to send a coded message at the beginning and another coded message at the end of said distance determining signal;
- a receiver in said second unit to receive transmissions from the first unit;
- a decoder in said second unit to recognize the coded messages at the beginning and end of said transmission;
- signal strength determination means in said second unit to ascertain when received transmission strength is below a predetermined level; and
- a controller in said second unit to trigger the action command signal when the decoder has recognized a coded beginning message and has not yet recognized a coded ending message and the signal strength determination is below the predetermined level.

5,801,628
INVENTORIAL-OBJECT CONTROL AND TRACKING SYSTEM
William C. Maloney, Marietta, Ga., assignor to Key-Trak, Inc., Oviedo, Fla.

Filed Sep. 5, 1996, Ser. No. 708,617
Int. Cl.⁶ G08B 13/14

U.S. Cl. 340—568

6 Claims



1. An object tracking system for tracking the removal of an object from a location and the replacement of the object at the location, said object tracking system comprising:
- a trackable unit associated with the object to be tracked, said trackable unit carrying electronic memory means storing data uniquely identifying said trackable unit and its associated

object, said electronic memory means having first and second electrically conducting surfaces for transmission of its stored data;

a panel defining a row and column matrix of receptacles, said trackable unit being selectively insertable in and removable from any of said receptacles of said matrix;

an electrical connector associated with each of said receptacles of said matrix for operatively engaging said memory means of said trackable unit when said trackable unit is inserted into the receptacle;

each electrical connector having a first contact associated with the column of its receptacle for engaging said first surface of said memory means and a second contact associated with the row of its receptacle for engaging said second surface of said memory means;

said first contact of each electrical connector in one column of said matrix being electrically connected to a common column data line and said second contact of each electrical connector on one row of said matrix being electrically connected to a common row data line, said row data lines and said column data lines defining a row and column matrix of data lines;

a pull-up resistance connected between each column data line and a voltage source;

a bleeder resistance connected between each row data line and a grounding potential, said pull-up resistances and said bleeder resistances preventing false triggering of memory devices located in said receptacles as a result of cross-talk; and

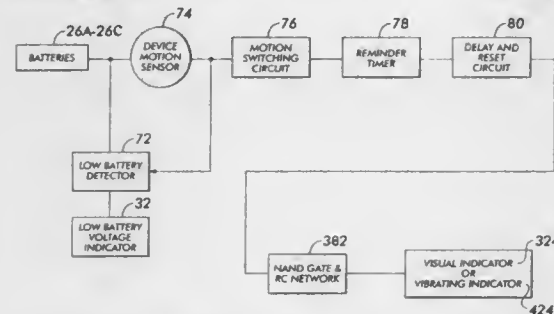
control means coupled to said row and column data lines for accessing and processing the data stored in said electronic memory means of said trackable unit when said trackable unit is present in one of said receptacles to determine the presence or absence of said trackable unit.

5,801,629
MOTION SENSITIVE REMINDER
Roger W. Lehmann, 808 Ashley Ave., Brielle, N.J. 08730, and Michael I. Satten, 26 Cow La., Kings Point, N.Y. 11024
Continuation-in-part of Ser. No. 801,447, Feb. 18, 1997, which is a continuation-in-part of Ser. No. 764,823, Dec. 12, 1996, Pat. No. 5,721,532. This application May 13, 1997, Ser. No. 855,562

Int. Cl.⁶ G08B 13/14

U.S. Cl. 340—571

61 Claims



1. An motion sensitive reminder apparatus being adaptable for coupling to any item that is movable, said motion sensitive reminder comprising:

- a housing;
- means for releasably coupling said housing to the movable item;
- said housing comprising:
 - a visual indicator for emitting a visible indication;
 - a motion sensor for detecting movement of the movable item;
 - electronic control means, electrically coupled to said visual indicator and to said motion sensor, for controlling said visual indicator emission, said electronic control means activating said visual indicator to emit said visible indication for a predetermined period of time whenever the movable item is initially moved and thereafter deactivating said visual indicator during further motion of the movable item and resetting said visual indicator to prepare to emit

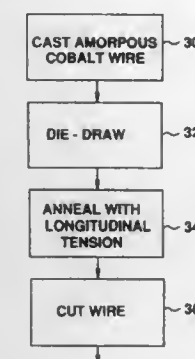
said visible indication again whenever the movable item has remained stationary for a certain amount of time.

5,801,630
ARTICLE SURVEILLANCE MAGNETIC MARKER HAVING AN HYSTERESIS LOOP WITH LARGE BARKHAUSEN DISCONTINUITIES AT A LOW FIELD THRESHOLD LEVEL
Wing K. Ho, Boynton Beach, Fla., and Jiro Yamasaki, Fukuoka, Japan, assignors to Sensormatic Electronics Corporation, Boca Raton, Fla.

Filed Nov. 8, 1996, Ser. No. 745,683
Int. Cl.⁶ G08B 13/14

U.S. Cl. 340—572

36 Claims



1. A marker for use in an article surveillance system in which an alternating magnetic field is established in a surveillance region and an alarm is activated when a predetermined perturbation to said field is detected, said marker comprising a body of magnetic material with retained stress and having a magnetic hysteresis loop with a large Barkhausen discontinuity such that exposure of said body to an external magnetic field, whose field strength in the direction opposing the magnetic polarization of said body exceeds a predetermined threshold value, results in regenerative reversal of said magnetic polarization, and means for securing said body to an article to be maintained under surveillance, characterized in that said predetermined threshold level is less than 0.04 Oe.

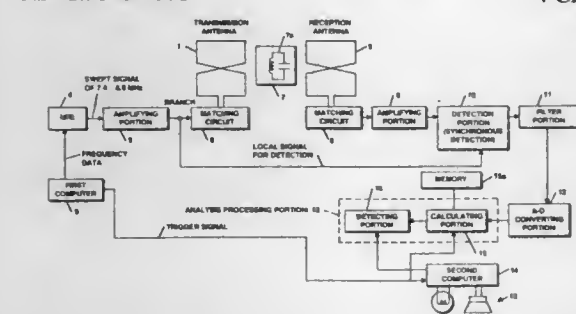
5,801,631
THEFT CHECKING SYSTEM
Michinari Hayashi, Nisshin, Japan, assignor to Maspro Denkoh Co., Ltd., Nisshin, Japan

PCT No. PCT/JP96/02349, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO97/08671, PCT Pub. Date Mar. 6, 1997

PCT Filed Aug. 22, 1996, Ser. No. 836,117
Claims priority, application Japan, Aug. 23, 1995, 7-214972
Int. Cl.⁶ G08B 13/14

U.S. Cl. 340—572

4 Claims



1. A theft checking system wherein a tag incorporating a resonance circuit is attached to a monitor object article, and if the tagged article passes between transmission and reception antennas

disposed facing each other, the resonance circuit receives electromagnetic waves transmitted from the transmission antenna and undergoes resonance and re-radiates resonance electromagnetic waves, so that the reception antenna receives the resonance electromagnetic waves, thereby detecting passage of the tagged article, said theft checking system comprising analysis means for causing the transmission antenna to output electromagnetic waves of a constant amplitude in which a periodical sweep is made between predetermined frequencies, and for extracting a signal that substantially agrees with the period of a model waveform of a re-radiated electromagnetic waves pre-registered as a reference signal, from the signals received by the reception antenna, and for comparing its waveform with a predetermined value to recognize passage of the article;

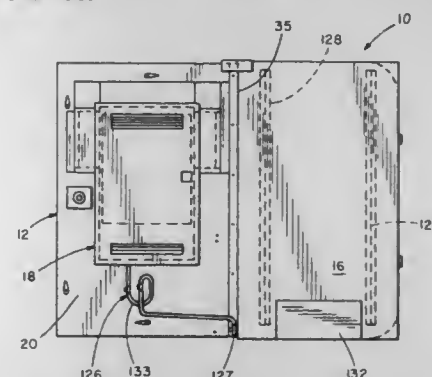
the waveform that agrees with the reference signal is detected by sampling a waveform of a received signal in a fixed length of time, dividing the sampled waveform data of the fixed length of time, and registered reference signal respectively into portions by equal pitch with respect to the time axis, multiplying the value of the reference signal at each point separately by the data corresponding to that point, calculating the sum of the products, and comparing the calculated value with a predetermined value.

5,801,632
CLIMATE CONTROLLED OUTDOOR ENCLOSURE
Anthony P. Opal, Glen Ellyn, Ill., assignor to Telco Services, Inc., Itasca, Ill.

Continuation-in-part of Ser. No. 300,009, Sep. 6, 1994, abandoned. This application Sep. 19, 1996, Ser. No. 715,802
Int. Cl.⁶ G08B 19/00

U.S. Cl. 340—585

15 Claims

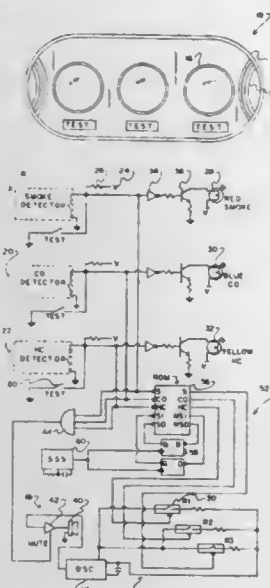


1. An enclosure for providing a secure and climate controlled environment for electronic equipment, the enclosure comprising:
- a box including at least one door, the box including an interior for providing a sealed environment for electronic equipment, the box precluding substantial entry of outside air when the door is closed and locked;
 - the box including an air conditioner and a closed loop heat exchanger, the closed loop heat exchanger transferring heat from air inside the box to ambient air that has been cooled by the air conditioner;
 - means for bleeding condensation from inside the box without introducing ambient air into the box;
 - a heater disposed inside the box for heating air inside the box;
 - communication means for sending alarm signals to a remote control station;
 - a low temperature alarm for generating low temperature alarm signals when the air inside the box drops below a first predetermined temperature, the communication means sending low temperature alarm signals to the remote control station;
 - a high temperature alarm for generating high temperature alarm signals when the air inside the box exceeds a second predetermined temperature, the communication means sending high temperature alarm signals to the remote control station;
 - an intrusion alarm for generating an intrusion alarm signal a predetermined time period after the door is opened.

5,801,633
COMBINATION SMOKE, CARBON MONOXIDE, AND
HYDROCARBON DETECTOR
Govind Soni, 4559 N. Bernard #2, Chicago, Ill. 60625
Filed Apr. 24, 1997, Ser. No. 842,223
Int. Cl.⁶ G08B 17/10

U.S. Cl. 340—628

1 Claim



1. A combination smoke, carbon monoxide and hydrocarbon detector comprising, in combination:

a housing with a generally rectangular configuration having a front face, a rear face, a top face, a bottom face, and a pair of arcuate side faces defining an interior space, the bottom face having a plurality of apertures formed therein, the front face having three circular linearly aligned cut outs formed therein, the housing further including a pair of sound vents for allowing the uninhibited transmission of sound from the interior space of the housing;

smoke detection means situated within the interior space of the housing, the smoke detection means adapted to transmit a smoke signal upon the detection of smoke through the apertures of the housing;

carbon monoxide detection means situated within the interior space of the housing, the carbon monoxide detection means adapted to transmit a carbon monoxide signal upon the detection of carbon monoxide through the apertures of the housing; hydrocarbon detection means situated within the interior space of the housing, the hydrocarbon detection means adapted to transmit a hydrocarbon signal upon the detection of hydrocarbon through the apertures of the housing;

a smoke indication lamp of a first color positioned in one of the cut outs of the housing and connected to the smoke detection means, the smoke indication lamp adapted to illuminate upon the receipt of the smoke signal thereby giving a visual alert of the presence of smoke in a local area;

a carbon monoxide indication lamp of a second color positioned in one of the cut outs of the housing and connected to the carbon monoxide detection means, the carbon monoxide indication lamp adapted to illuminate upon the receipt of the carbon monoxide signal thereby giving a visual alert of the presence of carbon monoxide in the local area;

a hydrocarbon indication lamp of a third color positioned in one of the cut outs of the housing and connected to the hydrocarbon detection means, the hydrocarbon indication lamp adapted to illuminate upon the receipt of the hydrocarbon signal thereby giving a visual alert of the presence of hydrocarbon in the local area;

audio alarm means situated within the housing and connected to the each detection means, the audio alarm means adapted to emit a high intensity audio alarm upon the receipt of an activation signal, whereby the frequency of the audio alarm is dependent on a frequency of the activation signal;

tone control means situated within the housing and connected to the audio alarm means for deploying a first activation signal having a first unique frequency only upon the receipt of the smoke signal, a second activation signal having a second unique frequency upon the receipt of the carbon monoxide signal, and a third activation signal having a third unique frequency only upon the receipt of the hydrocarbon signal;

state control means situated within the housing and connected between the smoke, carbon monoxide, and hydrocarbon detector and the tone control means, the state control means adapted to continuously transmit the smoke signal to the tone control means upon the receipt of the smoke signal and coincident lack of receipt of the carbon monoxide signal and hydrocarbon signal, the state control means adapted to continuously transmit the carbon monoxide signal to the tone control means upon the receipt of the carbon monoxide signal and coincident lack of receipt of the smoke signal and hydrocarbon signal, the state control means adapted to continuously transmit the hydrocarbon signal to the tone control means upon the receipt of the hydrocarbon signal and coincident lack of receipt of the smoke signal and carbon monoxide signal, the state control means further adapted to alternatively transmit the signals received from the detection means to the tone control means upon the coincident receipt of at least two signals from the detection means thereby effecting an alternating multi-tone audio alarm with each tone having a predetermined frequency of oscillation;

a plurality of test buttons including a smoke test button situated below the corresponding indication lamp and adapted to effect the transmission of the smoke signal from the smoke detection means upon the depression thereof, a carbon monoxide test button situated below the corresponding indication lamp and adapted to effect the transmission of the carbon monoxide signal from the carbon monoxide detection means upon the depression thereof, and a hydrocarbon test button situated below the corresponding indication lamp and adapted to effect the transmission of the hydrocarbon signal from the hydrocarbon detection means upon the depression thereof; and

battery power monitoring means connected to a battery, the battery monitoring means adapted to transmit a battery low signal upon power delivered by the battery falling below a predetermined level.

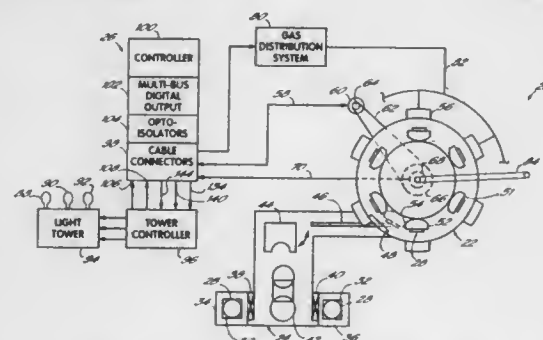
5,801,634
SIGNAL TOWER CONTROLLER
Joseph R. Young; Benjamin Garcia Rodriguez, and James R. Barry, all of San Antonio, Tex., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Sep. 8, 1997, Ser. No. 925,232

Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—635

17 Claims



1. An apparatus for monitoring a deposition process in which a workpiece is supported on a movable chuck within a deposition chamber, the apparatus comprising:

a first state switch operating in response to an initiation of the deposition process within the deposition chamber;

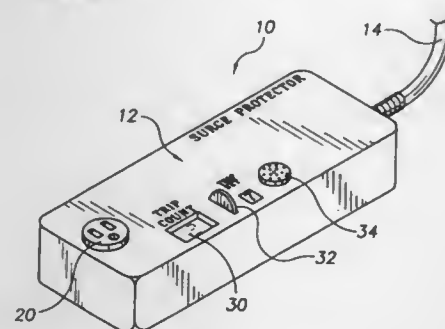
a second state switch operating in response to an initiation of a flow of a reactive process gas into the deposition chamber; a third state switch operating in response to detecting motion of the chuck; and

providing an alarm signal in response to the operation of the first, second and third state switches, whereby the alarm signal is produced upon detecting the simultaneous occurrences of the initiation of the deposition process, the initiation of the flow of the reactive process gas into the deposition chamber and, motion of the chuck.

5,801,635
POWER INTERRUPTION DETECTOR
Glenn L. Price, 1622 Scott St., Clearwater, Fla. 34615
Filed Feb. 14, 1997, Ser. No. 800,788
Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—656

3 Claims



1. A power interruption detector comprising:

a housing;
a power input cord;
a multi-volt transformer having a 120-208-240 primary winding and a 24 volt secondary winding;
a power contactor with an actuating coil;
a power plug receptacle;
a delay timer;
a counting circuit;
an alarm circuit;
a thumb-wheel switch;
a digital trip counter display driver;
a display output device;
an audible alarm enunciator; and
a battery;

said power input cord coupling line power to said primary winding of said multi-volt transformer and to a first terminal side of said power contactor, a second terminal side of said power contactor being wired to receptacle terminals of said power plug receptacle;

said power contactor having normally open contacts that close to complete an electrical circuit between said power input cord and said power plug receptacle when said actuating coil is energized;

said secondary winding being coupled to said delay timer;
said delay timer having a delay timer output coupled to said actuating coil of said contactor;

said delay timer having internal circuitry that causes said delay timer output to energize said actuating coil of said contactor a predetermined delay period after said delay timer input detects current flow through said secondary winding;

said counting circuit having a counting input coupled to an actuating coil terminal of said actuating coil in a manner such that each time said actuating coil is energized said counting

circuit increments one increment on a plurality of counter output lines, said counter output lines being connected to a like plurality of data input lines of said digital trip counter display driver;

said digital trip counter display driver driving said display output device in a manner such that said display output device visually displays in Arabic numerals the binary value of said plurality of counter output lines minus one;

said alarm circuit having an alarm output connected to an activation input of said audible alarm enunciator and an alarm input connected to an output of said thumb wheel switch;

said alarm output activating said audible alarm enunciator when one more than a numeric value dialed on said thumb wheel switch is reached by said plurality of counter output lines; said battery powering said counting circuit, said alarm circuit, said thumb-wheel switch, said digital trip counter display driver, said display output device, and said audible alarm enunciator.

5,801,636
METHOD AND APPARATUS FOR SEISMIC TORNADO
DETECTION

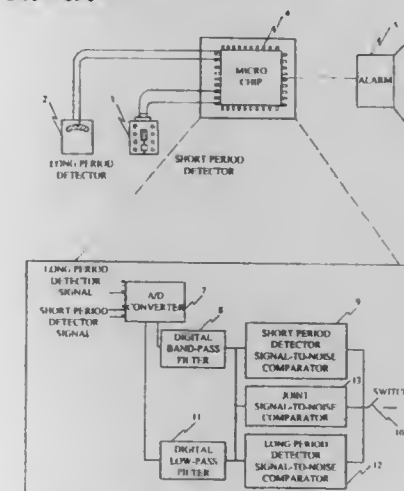
Frank B. Tatom, 3062 Dupree Dr., Huntsville, Ala. 35801, and Stanley J. Vitton, 329 Mason Ave., Hancock, Mich. 49930

Filed Jan. 8, 1997, Ser. No. 779,494

Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—690

17 Claims



1. A tornado warning system having means for monitoring seismic waves of a predetermined frequency range including long-period seismic waves and short-period seismic waves, said seismic waves being associated with and produced in the ground as a result of an approaching tornado, said warning system comprising:

means for detecting said seismic waves including said long-period seismic waves and said short-period seismic waves and for providing an electrical output indicative thereof;

circuit means for processing said electrical output to provide an output signal indicative of said long-period seismic waves and said short-period seismic waves; and

alarm means for receiving said output signal from said circuit means to provide an alarm to warn of the presence of a tornado.

cable with the connecting block when the exploration modules are lowered in the well.

5,801,643

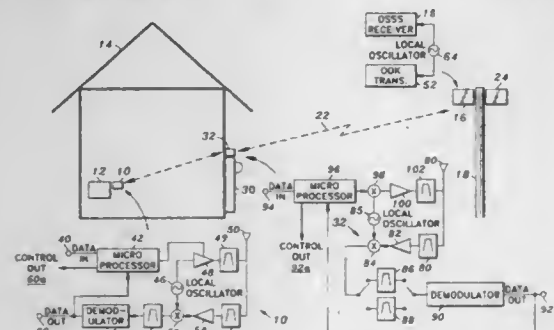
REMOTE UTILITY METER READING SYSTEM

Roger B. Williams, Lake Zurich; Thomas E. Szmurlo, Palatine; Warren E. Guthrie, Wheaton, and James Jensen, Palatine, all of Ill., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 667,896, Jun. 20, 1996. This application Feb. 20, 1997, Ser. No. 801,407
Int. Cl.⁶ G08C 15/06; 19/20

U.S. Cl. 340—870.02

10 Claims



1. A method for transmitting a desired parameter from a base station to a remote location, the method comprising the steps of:
a) transmitting a first radio signal via pulse position modulation from the base transmitter to a relay transceiver disposed at a location intermediated the base station and the remote location;

b) receiving the first radio signal with the relay transceiver; and
c) relaying the data via direct sequence spread spectrum modulation from the relay transceiver to the remote location.

5,801,644

APPARATUS FOR MEASUREMENT OF TORQUE ON A ROTATING SHAFT

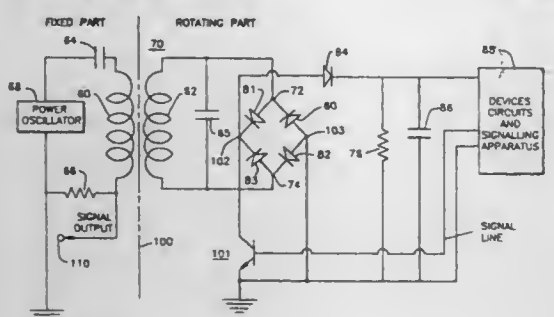
Clyde L. Ruthroff, One Brook La., Holmdel, N.J. 07733

Continuation-in-part of Ser. No. 337,852, Nov. 14, 1994. This application Dec. 2, 1996, Ser. No. 758,908

Int. Cl.⁶ G08C 19/06

U.S. Cl. 340—870.31

7 Claims



1. A combination comprising:
utilization apparatus;

first means, including an electrical power oscillator, for transmitting electrical power from a first location towards a second location;

second means, at said second location, responsive to electrical power received from said first means, for operating said utilization apparatus;

third means coupled to said utilization apparatus for generating a signal indicative of performance thereat, and for transmitting said signal to said first means via said second means;

with said first means being stationary in operation, and with said second means being mechanically rotational in operation;
with said second means being devoid of any source of operating power thereon; and
with there being an absence of mechanical interconnection between said first means and said second means;
wherein said first means also includes a fixed electrical coil;
wherein said second means includes an electrical coil on a rotating mechanical shaft; and
wherein said fixed electrical coil and said rotating electrical coil are both tuned to form a critically-coupled transformer resonating at the frequency of said oscillator.

5,801,645

AUTOMATIC PAIRED LVDT PROBE BALANCING

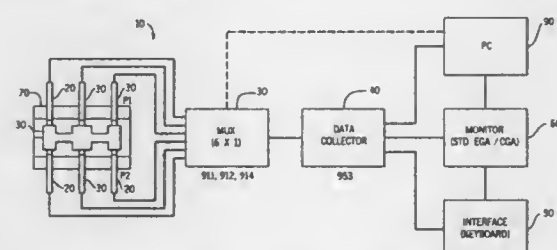
Steven D. Erickson, Plymouth, and Cecil Nelson, Chanhassen, both of Minn., assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Filed Jul. 18, 1996, Ser. No. 685,896

Int. Cl.⁶ G08C 19/06

U.S. Cl. 340—870.36

6 Claims



1. An improved method for balancing paired LVDT probes in an LVDT gauging system comprising a fixture and at least two LVDT probes, said method comprising the steps of:

displacing a part within a fixture such that a first LVDT probe and a second paired LVDT probe are displaced an equal physical distance;

generating a first analog output from said first LVDT probe;

generating a second analog output from said second, paired LVDT probe;

converting said first analog output into a first digital signal having a first signal magnitude;

converting said second analog output into a second digital signal having a second signal magnitude;

computing a balance correction factor as said first signal magnitude over said second signal magnitude; and

multiplying said second digital signal by said balance correction factor.

5,801,646

TRAFFIC ALERT SYSTEM AND METHOD FOR ITS USE

Martin R. Pena, 11039 Painted Tree Rd., Charlotte, N.C. 28226

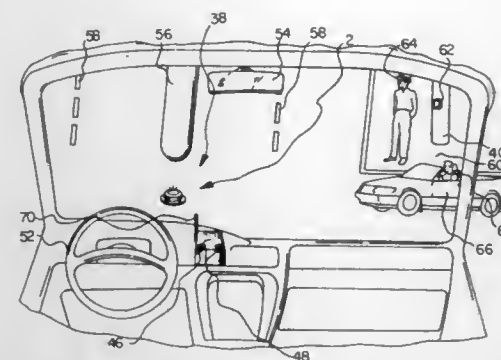
Filed Aug. 22, 1997, Ser. No. 917,628

Int. Cl.⁶ G08G 1/00; B60Q 7/00

U.S. Cl. 340—902

19 Claims

1. A traffic alert system to warn motorists and pedestrians of approaching emergency vehicles, said system comprising a plurality of wireless transmitting units and a plurality of ground-based assemblies, each of said transmitting units comprising a transmitter housing having a hollow interior, wireless signal emitting means for emitting a signal at a designated frequency, said signal emitting means being positioned within said transmitter housing, a transmitter antenna, a transmitter power source, and a first quantity of electrical wiring to interconnect said antenna with said signal emitting means and said power source, and each of said ground-based assemblies comprising a dome, an outer housing positioned beneath said dome, an inner housing positioned within said outer housing, an upper movable housing positioned within said inner



housing, said upper movable housing having an upper portion and being connected to said dome, at least one upper strobe light positioned within said dome, a plurality of side strobe lights positioned within said upper portion of said upper movable housing, mechanical lifting means positioned underneath said upper movable housing between said upper movable housing and said inner housing, said mechanical lifting means capable of lifting said dome between a raised position and a lowered position, a signal receiver able to receive signals emitted by said wireless signal emitting means, an antenna connected to said signal receiver, a controller connected between said antenna, said signal receiver, said upper strobe light, said side strobe lights, said mechanical lifting means, and said power supply, wherein when one of said transmitting units is positioned within each emergency vehicle within a community and at least one of said ground-based assemblies are centrally positioned with the roadway surface of each intersection commonly traveled by said emergency vehicles, each of said transmitting units can automatically initiate said upper strobe light, said side strobe lights, and vertical movement of said movable housing within said ground-based assembly to warn motorists and pedestrians of the approach of said emergency vehicles.

5,801,647

METHOD AND APPARATUS FOR MEASURING ROAD SURFACE CONDITIONS

Petteri Survo, and Taisto Haavasoja, both of Helsinki, Finland, assignors to Vaisala Oy, Helsinki, Finland

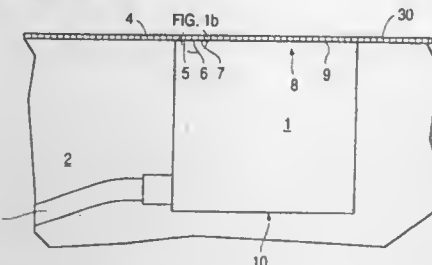
Filed Sep. 6, 1996, Ser. No. 706,715

Claims priority, application Finland, Sep. 8, 1995, 954198

Int. Cl.⁶ G08B 21/00

U.S. Cl. 340—905

16 Claims



1. A method of measuring conditions of a road surface comprising:
transmitting an optical signal from a fiber optic transmitter inside a sensor head through a medium outside the fiber optic transmitter adjacent the road surface, said sensor head being aligned substantially flush with the road surface;

receiving reflection and back scatter of the optical signal moving from a surface of and through the medium spaced apart from the road surface through the medium by a plurality of fiber optic receivers inside said sensor head; and

calculating at least one of weather and driving conditions prevailing on the road surface from the reflected and back scatter optical signal received from said plurality of fiber optic receivers.

5,801,648

DATA COMPRESSING METHOD, DATA COMPRESSING APPARATUS, DATA DECOMPRESSING METHOD AND DATA DECOMPRESSING APPARATUS

Noriko Satoh; Yoshiyuki Okada; Shigeru Yoshida, and Hironori Yahagi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

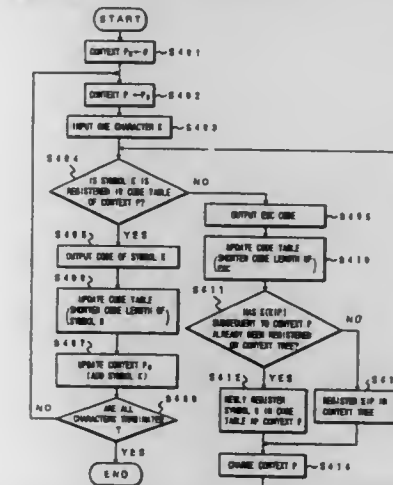
Filed Dec. 15, 1995, Ser. No. 574,436

Claims priority, application Japan, Feb. 21, 1995, 7-032597; Oct. 19, 1995, 7-271577

Int. Cl.⁶ H03M 7/30

U.S. Cl. 341—50

44 Claims



1. A data compressing method comprising:

a data string new registering step of, when a character and a context occur a first time, newly registering the character and the context, occurring for the first time, in a data string registering unit;

a code information new registering step of, when the character and the context occur a second time, newly registering coding information into the code for the current character following the context in the code information registering unit;

a code outputting step of outputting the code following the code information registered in the code information registering unit; and

a code information updating step of updating the code information registering unit.

5,801,649

MATCHED SPECTRAL NULL ENCODER/DECODER

Lisa Fredrickson, Ojai, Calif., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

PCT No. PCT/US96/12680, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO97/06624, PCT Pub. Date Feb. 20, 1997

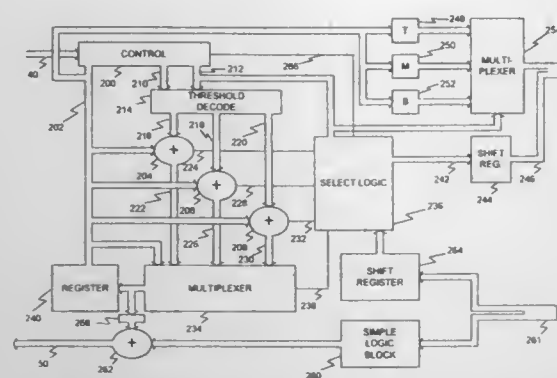
PCT Filed Aug. 2, 1996, Ser. No. 817,865

Int. Cl.⁶ H03M 13/00

U.S. Cl. 341—58

10 Claims

1. A method of encoding an input value as an encoded value, the method comprising:
accessing at least two preset values by applying at least two values derived from the input value to at least two accessing means, respectively, each accessed preset value from a respective set of preset values, each set of preset values representing portions of a trellis code, the trellis code defined by allowed states for a running-digital sum, which increases by one with



each binary one in the encoded value and which decreases by one with each binary zero in the encoded value, the number of possible encoded values that the trellis code can create being more than the number of possible input values, at least one possible preset value excluded from a set of preset values because its concatenation with at least one preset value from at least one other respective set of preset values creates an encoded value that violates a coding constraint and concatenating the accessed preset values to form the encoded value, the method characterised by: choosing the sets of preset values, from which the preset values are accessed, based on the entire input value.

5,801,650

DECODING APPARATUS AND METHOD

Tadayoshi Nakayama, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

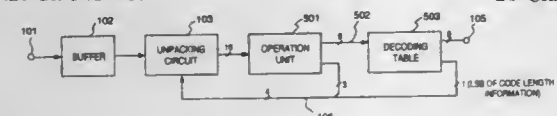
Filed Nov. 28, 1995, Ser. No. 566,583

Claims priority, application Japan, Nov. 29, 1994, 6-295281

Int. Cl.⁶ H03M 7/40

U.S. Cl. 341-67

20 Claims



1. A decoding device comprising: computing means for obtaining a part of code length information of an input code which has plural bits and a predetermined code number corresponding to said input code; and transformation means for transforming the code number obtained by said computing means into a fixed-length code and a rest of said code length information.

5,801,651

MANCHESTER DECODER WITH RECEIVED SIGNAL BLANKING

Charles J. Nehoda, Broadview Heights, Ohio, assignor to Allen Bradley Company, Inc., Milwaukee, Wis.

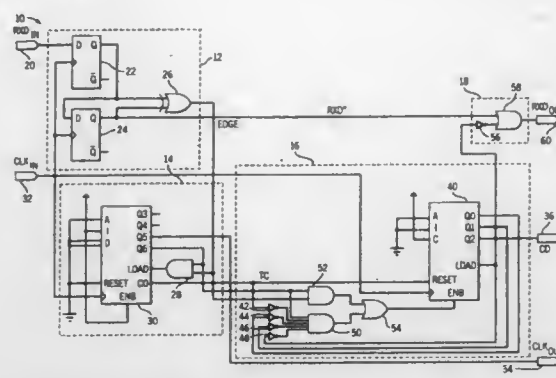
Filed Jun. 27, 1996, Ser. No. 671,288

Int. Cl.⁶ H03M 5/12

U.S. Cl. 341-70

24 Claims

1. A method of filtering a data output of a decoder, the method comprising the steps of: receiving an input signal at a data input of said decoder; determining that said input signal is a valid data signal; and blanking said data output of said decoder until said determining step is complete, and approximately then discontinuing said blanking, said blanking of said data output comprising the step of causing said data output of said decoder to output an



output signal having a predetermined pattern which is recognizable as being devoid of transmitted data.

5,801,652

PATTERN DEPENDENT NOISE REDUCTION IN A DIGITAL PROCESSING CIRCUIT UTILIZING IMAGE CIRCUITRY

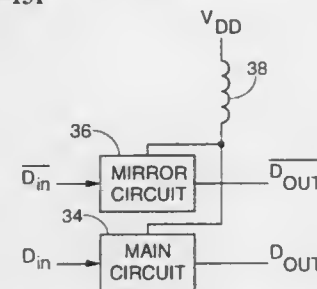
Xue Mei Gong, Austin, Tex., assignor to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 307,520, Sep. 16, 1994, abandoned, which is a continuation-in-part of Ser. No. 273,473, Jul. 8, 1994, abandoned. This application Oct. 23, 1996, Ser. No. 735,573

Int. Cl.⁶ H03M 1/00; 1/36

U.S. Cl. 341-131

43 Claims



1. A digital signal processor for processing digital data, comprising: a main digital processing circuit comprised of main logic elements for receiving and processing the digital data to provide a digital output; and a mirror digital processing circuit that mirrors at least a portion of said main digital processing circuit, said mirror digital processing circuit comprised of the complement of the main logic elements in said portion and operable to receive and process the complement of the signals processed by said portion of said main digital processing circuit and at the same time, and provide a digital output therefrom, such that the true and complement functions associated with said portion of said main digital processing circuit and said mirror digital processing circuit, respectively, are being processed simultaneously.

5,801,653

CURRENT CELL OF A DIGITAL-TO-ANALOG CONVERTER

Ding-Jeng Liu; Ying-Tzung Wang, and Wen-Hsin Cheng, all of Hsinchu, Taiwan, assignors to United Microelectronics Corporation, Taiwan

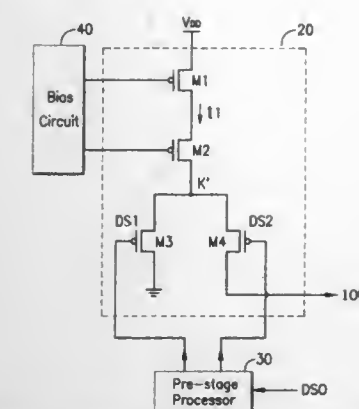
Filed Oct. 10, 1996, Ser. No. 728,561

Int. Cl.⁶ H03M 1/66

U.S. Cl. 341-136

6 Claims

1. A current cell for transforming a digital signal from a pre-stage processor into an analog current signal, comprising a first



PMOS transistor including a source, a gate receiving the digital signal from the pre-stage processor and a grounded drain; a second PMOS transistor having a source connected to the source of the first PMOS transistor, a gate receiving an inverse signal of the digital signal from the pre-stage processor, and a drain for providing the analog current signal; a third PMOS transistor connected between a voltage source and the source of the first PMOS transistor, the third PMOS transistor having a gate to which a first reference voltage is applied; wherein the pre-stage processor comprising a first CMOS inverter, including a fourth PMOS transistor and a first NMOS transistor, having an input end, and output end, a positive end, and a negative end, wherein the input end receives an original digital signal, the input end is grounded; a second CMOS inverter, including a fifth PMOS transistor and a second NMOS transistor, having an input end, an output end, a positive end, and a negative end, wherein the input end receives an inverse signal of the original digital signal, the output end provides an inverse signal of the digital signal, and the negative end is grounded; a third NMOS transistor having a drain connected to the voltage source, a gate for applying a second reference voltage, and a source connected to the positive end of the first CMOS inverter; and a fourth NMOS transistor having a gate connected to the gate of the third NMOS transistor, a drain being connected to the voltage source, and a source connected to the positive end of the second CMOS inverter.

5,801,654

APPARATUS AND METHOD FOR FREQUENCY TRANSLATION IN A COMMUNICATION DEVICE

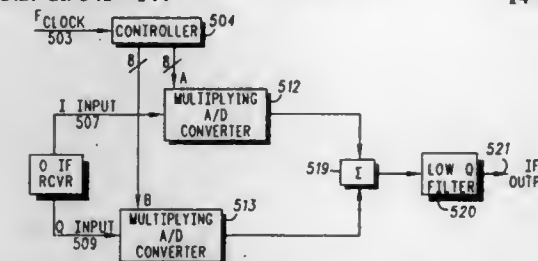
Kevin Bruce Traylor, North Richland Hills, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 80,247, Jun. 21, 1993, abandoned. This application Mar. 20, 1995, Ser. No. 407,546

Int. Cl.⁶ H03M 1/64

U.S. Cl. 341-144

14 Claims



1. An apparatus for converting a baseband modulated in phase (I) component, and a baseband modulated quadrature (Q) component to an intermediate frequency (IF) signal, the apparatus comprising: a controller, having an input for receiving a clock signal with a predetermined clock cycle rate, operable for outputting a first

and a second predetermined control signal based on a predetermined number of clock cycles; a first multiplying digital to analog conversion (MDAC) unit receiving the first predetermined control signal and the baseband modulated I component, being operable for stepping the baseband modulated I component by a stepped sine wave having predetermined step sizes to output a sine wave modulated I signal based on the first predetermined control signal; a second MDAC unit receiving the second predetermined control signal and the baseband modulated Q component, being operable for stepping the baseband modulated Q component by a stepped cosine wave having predetermined step sizes to output a cosine wave modulated Q signal based on the second predetermined control signal; and a summing unit receiving the first and the second MDAC output signals and being operable for summing the output signals to form the IF signal.

5,801,655

MULTI-CHANNEL D/A CONVERTER UTILIZING A COARSE D/A CONVERTER AND A FINE D/A CONVERTER

Makoto Imamura, Tokyo, Japan, assignor to Yokogawa Electric Corporation, Tokyo, Japan

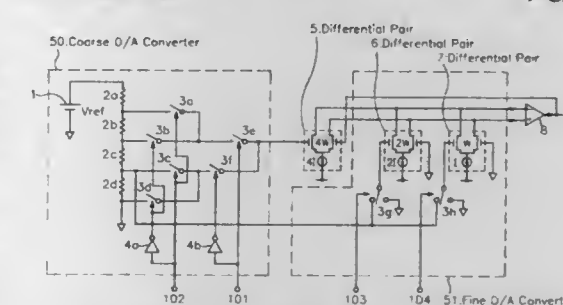
Filed Dec. 2, 1996, Ser. No. 759,006

Claims priority, application Japan, Dec. 19, 1995, 7-330728

Int. Cl.⁶ H03M 1/36

U.S. Cl. 341-145

9 Claims



1. A D/A converter which improves resolution by separating an upper-bit conversion circuit from a lower-bit conversion circuit and by adding output from said upper-bit conversion circuit to output from said lower-bit conversion circuit, said converter comprising: said upper-bit conversion circuit that converts an upper-bit digital input signal to an analog output signal; said lower-bit conversion circuit that converts a lower-bit digital input signal by controlling differential pairs, the number of which is the same as the number of lower bits, and in which transconductances are weighted respectively based on the lower-bit digital input signal; and an addition circuit which adds the output from said upper-bit conversion circuit to the output from said lower-bit conversion circuit.

5,801,656

DIGITAL-TO-ANALOG CONVERTER USING A CCD HAVING CHARGE SOURCE REGIONS CORRESPONDING TO DIGITAL DATA

Yong Gwan Kim, Kyungki-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Jun. 6, 1995, Ser. No. 466,206

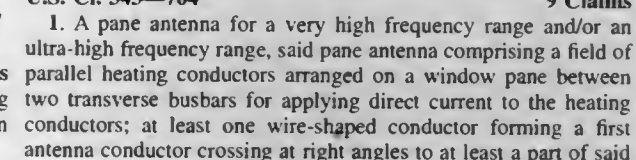
Int. Cl.⁶ H03M 1/66

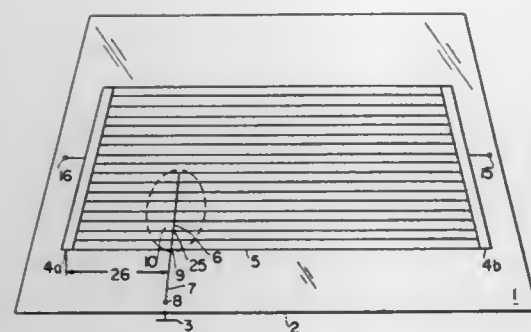
U.S. Cl. 341-150

2 Claims

1. A digital-to-analog (D/A) converter using a charge coupled device (CCD) for converting digital data to analog data, the CCD comprising: a semiconductor substrate having a first-conductivity type well;

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heating conductors at crossing points between the first antenna conductor and the heating conductors of said part, said first antenna conductor and said parallel heating conductors being coupled by galvanic connection at a low impedance for an effective frequency range in the region of said crossing points to create a capacitive antenna region adjoining said crossing points; an antenna terminal provided on said window pane outside said field of heating conductors; another at least one wire-shaped conductor forming a second antenna conductor connected at one end thereof to said antenna terminal and, at the other end thereof, being coupled at a low impedance for said effective frequency range to said first antenna conductor, so that said first antenna conductor is coupled to said antenna terminal only through said second antenna conductor and to said heating conductors while said second antenna conductor and said antenna terminal and means for supplying direct current to the busbars without additional network means for increasing impedance connected between the busbars and the vehicle body; and wherein said two transverse busbars are arranged so that each of said heating conductors extends between and is connected with said busbars, said heating conductors have a relatively large inductive impedance per length unit and a distance from said first antenna conductor to each of said busbars is sufficiently large so that said busbars are sufficiently decoupled for said very high frequency range and/or said ultra-high frequency range from said capacitive antenna region.

5,801,664

SYSTEM AND METHOD FOR TRANSMITTING DATA FROM A COMPUTER TO A PORTABLE INFORMATION DEVICE USING RF EMISSIONS FROM A COMPUTER MONITOR

Robert B. Seidensticker, Woodinville, and William E. Kim, Seattle, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

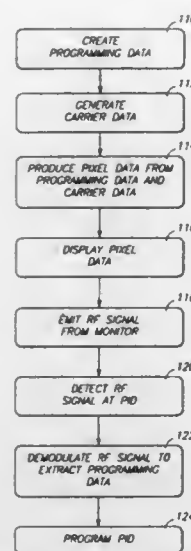
Filed Feb. 12, 1996, Ser. No. 600,410

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-2

30 Claims

1. A data transmission system, comprising:
 - a programmable portable information device having an RF receiver;
 - a frame-scanning graphics display device to display a sequence of changing optical patterns;
 - a display device controller connected to cause the frame-scanning graphics display device to depict a particular changing optical pattern that produces energy fluctuation in the frame-scanning graphics display device, the energy fluctuation defining an RF signal representing a digital data stream that can be detected by the RF receiver when the programmable portable information device is within a transmission range; and



the portable information device receiving the RF signal to obtain the digital data stream.

5,801,665

FORMAT CONVERTER FOR THE CONVERSION OF CONVENTIONAL COLOR DISPLAY FORMAT TO FIELD SEQUENTIAL

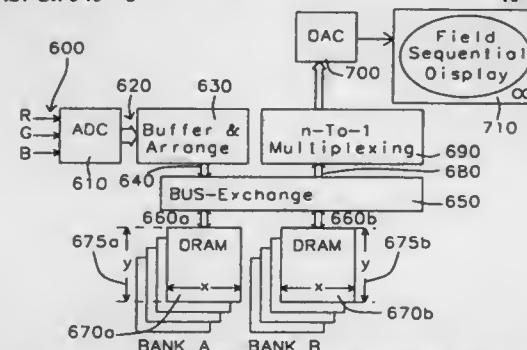
Yee-Lu Zhaog, Taoyuan, and Yen-Chen Chen, Hsinchu, both of Taiwan, assignors to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Filed Oct. 30, 1995, Ser. No. 549,983

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-3

40 Claims



1. A display format converter for the transformation of color video signals to a format for a field sequential color display comprising:
 - a) a video input means for the receiving of video signals representing a plurality of component colors;
 - b) a digital video bus means operably connected to the video input means;
 - c) a buffer and arrange means connected to the video input bus means for buffering of a set of digital video codes to retain the set of digital video codes during the arranging of the set of digital video codes;
 - d) an input bus connected to the output of the buffer and arrange means;
 - e) a bus exchange means connected to the input bus, wherein the input bus operably couples the buffer and arrange means to the bus exchange means;
 - f) a plurality of Input/Output busses connected the bus exchange means;
 - g) a plurality of dynamic random access memories connected to the plurality of Input/Output busses, to store a set of the multiple sets of digital video codes and to retrieve and reorder

said set of the multiple sets of digital video codes in a specific component color order to form specifically ordered digital video codes;

- h) an output bus connected to the bus exchange means;
- i) an n-to-one multiplexing means to convert the specifically ordered digital video codes to a serial stream of said specifically ordered digital video codes;
- j) a digital-to-analog converter connected to the output of the n-to-one multiplexor for the conversion of the serial stream of the specifically ordered digital video codes to an analog signal of the format acceptable as the input for a field sequential display; and
- k) a field sequential color display analog input means to operably couple the digital-to-analog converter to the field sequential display.

5,801,666

THREE-DIMENSIONAL MONITOR

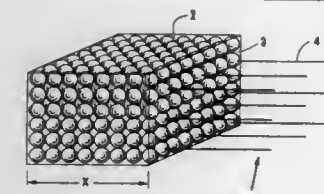
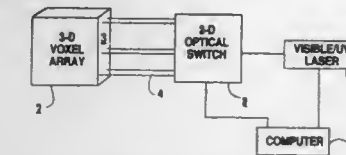
Duncan L. MacFarlane, Dallas, Tex., assignor to Board of Regents, The University of Texas System, Austin, Tex.

Filed Feb. 10, 1993, Ser. No. 4,734

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-6

42 Claims



6. A monitor for displaying electronically generated images in three-dimensional space, comprising:
 - a three-dimensional array of discrete volumetric optical voxels;
 - a plurality of transmitting conductors, each transmitting conductor coupled to a respective voxel; and
 - an energy source coupled to the transmitting conductors, adapted to provide energy that causes the voxels to emit visible light when the energy is conducted to them through the transmitting conductors.

5,801,667

VEHICLE DISPLAY WHICH REDUCES DRIVER'S RECOGNITION TIME OF ALARM DISPLAY

Yoji Shimizu, Yokohama; Takayuki Yanagishima, Yokosuka; Tomio Jindo, Yokohama, and Wataru Yagihashi, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 12, 1995, Ser. No. 439,782

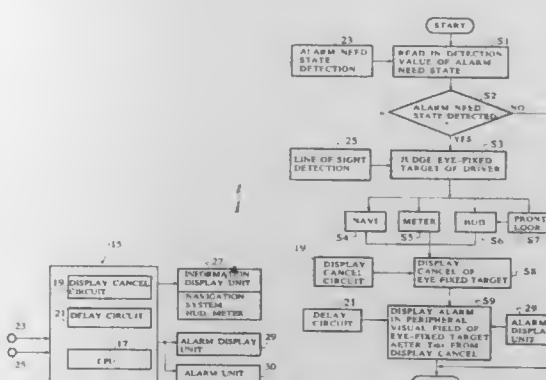
Claims priority, application Japan, Jun. 2, 1994, 6-121374

Int. Cl.⁶ G09G 5/00; G08G 1/16; B60Q 1/00; H04N 7/00

U.S. Cl. 345-7

17 Claims

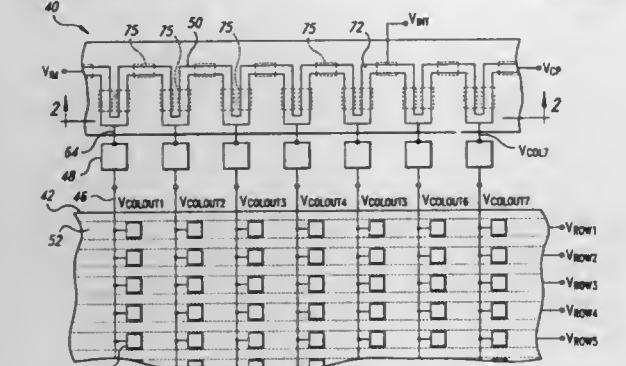
1. A vehicle display system, comprising:
 - a first information display;
 - an alarm display;
 - an alarm state detector;
 - a circuit responsive to detection of an alarm state by the alarm state detector, for canceling the first information display and activating the alarm display after a predetermined time has elapsed after the cancellation of the first information display;
 - a second information display; and
 - a target detector for determining whether a driver's eyes are fixed on the first or the second information display.



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5,801,669
HIGH PERMEABILITY TAPPED TRANSMISSION LINE
Garrett W. Hall, Boise, Id., assignor to Micron Display Technology, Inc., Boise, Id.
Filed Nov. 19, 1996, Ser. No. 752,610
Int. Cl.⁶ G09G 3/22

U.S. Cl. 345-74 9 Claims

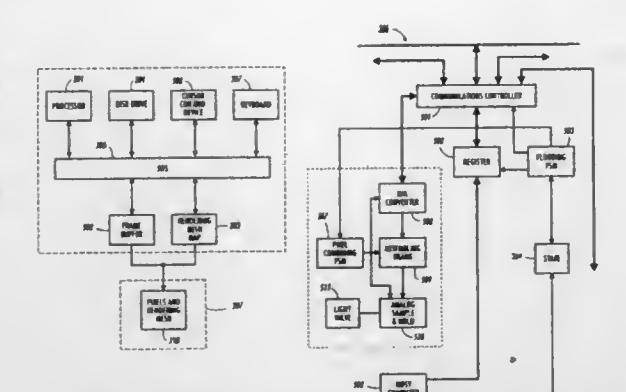


1. A matrix addressable display, comprising:
a display panel including a plurality of signal lines;
an input signal source producing a plurality of input signals, each input signal being produced at a respective starting time;
a delay line coupled to receive the input signals from the input signal source at a first input terminal, the delay line including a first conductor coupled to respective ones of the signal lines at respective spaced-apart locations along the delay line, each of the spaced-apart locations corresponding to a respective desired delay time between the starting time of the respective input signal and a respective arrival time of the respective input signal at the spaced-apart locations, the first conductor having a first conductive portion having a relative permeability greater than 1, the relative permeability of the first conductive portion being selected such that actual delay times between arrivals of the input signals at respective signal lines substantially equal the respective desired delay times; and
a control pulse source coupled to the delay line at a second input terminal on the delay line that is spaced-apart from the first input terminal, the permeability of the first conductive portion being selected such that control pulses from the control pulse source and input signals from the input signal source constructively interfere at selected ones of the spaced apart locations.

5,801,670
IMAGE GENERATION SYSTEM HAVING A HOST BASED RENDERING ELEMENT FOR GENERATING SEED PIXEL VALUES AND MESH ADDRESS VALUES FOR DISPLAY HAVING A RENDERING MESH FOR GENERATING FINAL PIXEL VALUES
Daniel H. Greene, Sunnyvale, and J. Craig Mudge, Palo Alto, both of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Jun. 6, 1995, Ser. No. 468,170
Int. Cl.⁶ G09G 3/20

U.S. Cl. 345-90 14 Claims

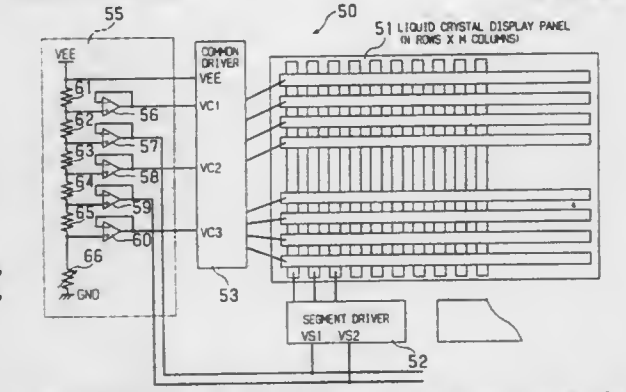
1. A graphical display system comprising:
a display having a display substrate, said display substrate having defined therein a plurality of pixels and a rendering mesh, said rendering mesh comprised of a plurality of addressable processing elements organized into a plurality of pixel rendering groups, each of said plurality of pixel rendering groups for generating a pixel value for a corresponding one of said plurality of pixels; and
a host processing system for providing display information to said display, said host processing system further comprising:
a rendering means for generating a plurality of pixel data for an original image;



a frame buffer coupled to said rendering means, said frame buffer for storing said plurality of pixel data for said original image;
a transformation means coupled to said frame buffer, said transformation means for transforming pixel addresses of said original image to processing element addresses based on a manipulation of said original image,
a rendering mesh map coupled to said transformation means, said rendering mesh map for storing said processing element addresses generated by said transformation means; and
a transmission means coupled to said frame buffer and said rendering mesh map, said transmission means for transmitting said display information to said display, said display information comprising pairs of an associated one of said plurality of pixel data from said frame buffer and a corresponding one of said processing element addresses from said rendering mesh map.

5,801,671
LIQUID CRYSTAL DRIVING DEVICE
Masakazu Kobayashi, Osaka; Tatsuya Nakai, Minoo; Hiroyuki Hirashima, Kitakatsuragi-gun; Masahiko Monomohshi, and Yoshiki Sano, both of Kashihara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Apr. 12, 1996, Ser. No. 630,991
Claims priority, application Japan, Apr. 12, 1995, 7-087168
Int. Cl.⁶ G09G 3/36

U.S. Cl. 345-95 30 Claims

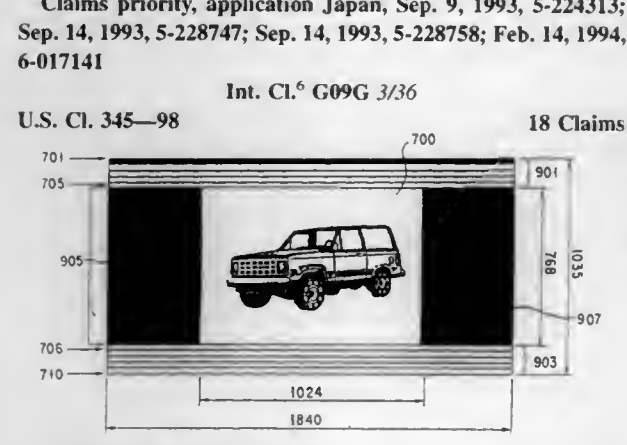


1. A liquid crystal driving device for driving liquid crystal of a simple matrix type liquid crystal display panel having segment side and common side electrodes disposed in two directions orthogonal to each other, by time sharing average voltage method using a semiconductor integrated circuit, comprising:
a low voltage driving circuit for driving electrodes arranged in one direction on the basis of two predetermined different voltages VS1, VS2,
a high voltage driving circuit for driving electrodes arranged in another direction on the basis of three predetermined different voltages VC1, VC2, VC3, wherein the voltages VC1, VC3 are respectively the highest and the lowest among the three voltages VC1, VC2, VC3, and the absolute value of potential

difference of the highest voltage VC1 and the lowest voltage VC3 is greater than the absolute value of potential difference of the two voltages VS1, VS2, and the intermediate voltage VC2 is set as a voltage between the two voltages VS1 and VS2, and
a modulation circuit for modulating the output voltage waveform from the low voltage driving circuit according to a signal for gradation display.

5,801,672
DISPLAY DEVICE AND ITS DRIVING METHOD
Youichi Masuda; Nozomu Harada, both of Yokohama, and Hiroki Nakamura, Chigasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
PCT No. PCT/JP94/01502, § 371 Date May 8, 1995, § 102(e) Date May 8, 1995, PCT Pub. No. WO95/07493, PCT Pub. Date Mar. 16, 1995
PCT Filed Sep. 9, 1994, Ser. No. 432,165
Claims priority, application Japan, Sep. 9, 1993, 5-224313; Sep. 14, 1993, 5-228747; Sep. 14, 1993, 5-228758; Feb. 14, 1994, 6-017141

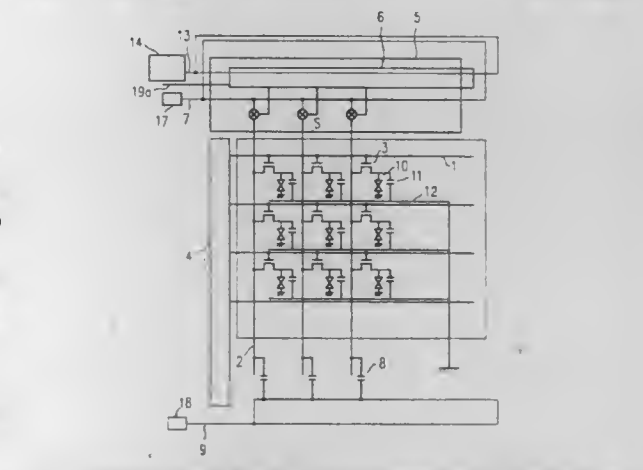
U.S. Cl. 345-98 18 Claims



1. A display device comprising:
a display panel having a display screen constructed by a plurality of signal lines and a plurality of scanning lines arranged in a matrix, switching elements electrically connected to said signal lines and scanning lines and pixel electrodes connected to said switching elements;
a select control circuit section for generating an n-bit input numeral signal, n being a positive integer equal to or greater than 2, and an inverted replica of the input numeral signal and for controlling the n-bit input numeral signal so as to locate a display area at a position variable within the display screen; and
a video signal supplying circuit section for selecting, in predetermined timings, input video signals based on the input numeral signal and the inverted replica of the input numeral signal from said select control circuit section, and supplying selected video signals to said signal lines as video data, wherein said video signal supplying circuit section includes:
an input connection line group having sets of input connection lines for receiving bits of the input numeral signal and bits of the inverted replica of the input numeral signal,
a plurality of logic circuit sections, fewer in number than said scanning lines, for responding to combinations of the input numeral signal and the inverted replica of the input numeral signal, and
output distributing means for assigning an output from one logic circuit section to at least two signal lines.

5,801,673
LIQUID CRYSTAL DISPLAY DEVICE AND METHOD FOR DRIVING THE SAME
Takayuki Shimada, Ikoma-gun; Toshihiro Yamashita, Nara; Yutaka Takafuji, Nara, and Toshio Matsumoto, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Aug. 29, 1994, Ser. No. 297,219
Claims priority, application Japan, Aug. 30, 1993, 5-214500; Nov. 30, 1993, 5-300537
Int. Cl.⁶ G09G 3/34

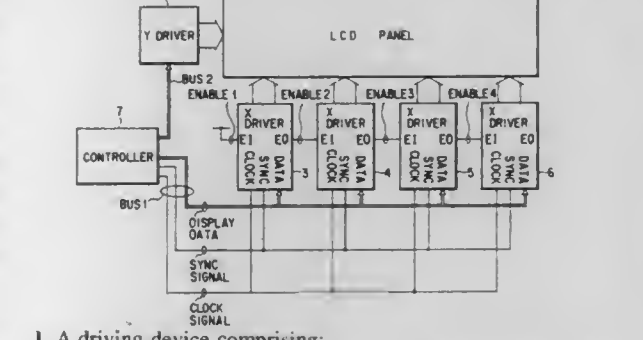
U.S. Cl. 345-100 24 Claims



1. A liquid crystal display device comprising: a plurality of source bus lines in parallel with each other; a plurality of gate bus lines in parallel with each other, crossing the source bus lines; a switching element connected to one of the plurality of source bus lines and one of the plurality of gate bus lines; a pixel portion connected to the switching element; and a source drive circuit for supplying a data signal to the plurality of source bus lines, wherein the source drive circuit has a data signal line connected to the respective source bus lines, and the data signal line forms a closed circuit, thereby making a delay time of the data signal supplied to the plurality of source bus lines uniform.

5,801,674
DISPLAY DEVICE AND DRIVING DEVICE THEREFOR
Kan Shimizu, Urawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 27, 1995, Ser. No. 534,590
Claims priority, application Japan, Mar. 22, 1995, 7-062238
Int. Cl.⁶ G09G 3/36

U.S. Cl. 345-103 14 Claims



1. A driving device comprising:
a first driving unit and a second driving unit for driving a first electrode group and a second signal electrode group formed by dividing signal electrodes of a display device, respectively;
a signal bus for supplying display data and a clock signal to the first driving unit and the second driving unit, simultaneously; and
means for supplying an external enable signal to the first driving unit.

wherein the first driving unit comprises:

first control means for sampling the external enable signal to generate a first internal start signal and a first internal enable signal; and

first data holding means for fetching the display data corresponding to the first driving unit on the signal bus for a preset period according to the first internal start signal;

the second driving unit comprises:

second control means for sampling the first internal enable signal to generate a second internal start signal; and
second data holding means for fetching the display data corresponding to the second driving unit on the signal bus for the present period according to the second internal start signal; and

the first driving unit and the second driving unit include means for driving the first signal electrode group and the second electrode group according to the display data fetched in the first data holding means and the second data holding means, respectively.

5,801,675

PROCESS FOR SCROLLING A PLURALITY OF RASTER LINES IN A WINDOW OF A PERSONAL COMPUTER DISPLAY SCREEN RUN IN GRAPHIC MODE

Greg Paley, Mountain View, Calif., and Wolf Bauer, Cologne, Germany, assignors to Vobis Microcomputer AG, and Award Software Int. Inc., both of Wurselen, Germany

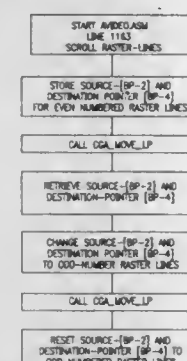
PCT No. PCT/DE95/00205, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO95/22814, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 17, 1995, Ser. No. 537,801

Claims priority, application Germany, Feb. 21, 1994, 44 05 330.4

Int. Cl.⁶ G09G 5/34

U.S. Cl. 345—123



5. Procedure for scrolling successive raster scan lines, namely a first, a second, a third and subsequent raster scan lines, in a window of a screen, operated in the graphic-mode, of a personal computer, which has a processor and a program memory allocated to it including a video card, connected with the processor via an external bus, said video card having a video memory (RAM), whose memory contents can be displayed on the screen, where the first line of the raster scan lines to be scrolled, to be moved in a raster scan line within the window, is marked with a source-pointer and such raster scan line within a window, in which this line is to be moved into, is marked with a destination pointer, subsequently a scroll is performed and repeated until all lines to be scrolled are in the raster scan lines of the window, characterized by the fact that at the same time with the first line there is also at least said third line scrolled in raster scan lines of the screen window, then said second line and at the same time at least a fourth line of the said some raster lines to be scrolled is scrolled in raster scan lines of the screen window until all lines to be scrolled are scrolled into raster scan lines of the window.

5,801,676 IMAGE DISPLAY APPARATUS FOR PROCESSING GRAPHICS INSTRUCTIONS FROM A STORAGE DEVICE

Toshihiro Maruyama, Kawasaki, and Kazuo Hikawa, Yokohama, both of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

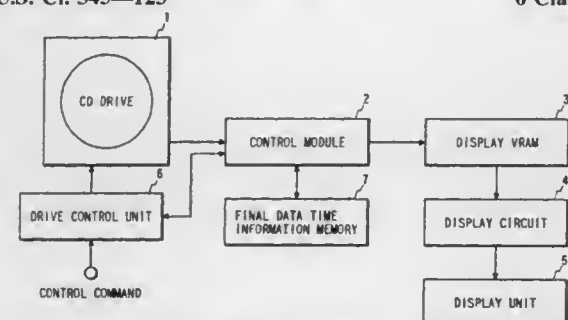
Filed Aug. 16, 1995, Ser. No. 515,901

Claims priority, application Japan, Aug. 29, 1994, 6-226032; Aug. 29, 1994, 6-226032

Int. Cl.⁶ G09G 5/34

U.S. Cl. 345—123

6 Claims



1. An image display apparatus processing graphics instructions stored in a compact disc, said apparatus comprising:
judging means for making a judgement, when a new instruction from said compact disc is either a Soft Scroll Screen with Preset instruction or a Soft Scroll Screen with Copy instruction, as to whether or not a designated scroll dot number of said newly entered instruction is smaller than a predetermined number; and
control means for canceling processing of said newly entered instruction when said judging means judges that said designated scroll dot number is smaller than said predetermined number.

5,801,677

SHARED DOCUMENT DISPLAY SYSTEM

Akihiko Ohata, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

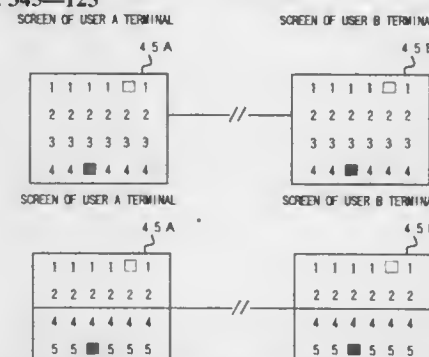
Continuation of Ser. No. 247,968, May 23, 1994, abandoned.

This application Feb. 16, 1996, Ser. No. 602,676

Claims priority, application Japan, Sep. 30, 1993, 5-245349; Int. Cl.⁶ G09G 5/34

U.S. Cl. 345—123

12 Claims



1. A shared document display system for allowing a plurality of users to edit a document in a window showing said document on at least one display, said shared document display system comprising:
cursor movement means for moving a plurality of cursors within said window according to cursor movement commands given by said users, wherein each of said cursors belongs to a corresponding one of said users;
scrolling means for scrolling said document according to a movement of one of said cursors so as to keep said one of said cursors from moving out of said window when said one of said cursors changes a position thereof in said document while being positioned in a proximity of an edge of said window, wherein the other of said cursors staying at the same

position in said document moves in said window by following a scrolling of said document; and
dividing means for automatically dividing said window into a plurality of divided windows wherein a first one of said divided windows including said one of said cursors keeps scrolling according said movement of said one of said cursors, while a second one of said divided windows stops scrolling such that said other of said cursors staying at the same position in said document stays in said second one of said divided window.

5,801,678

FAST BI-LINEAR INTERPOLATION PIPELINE

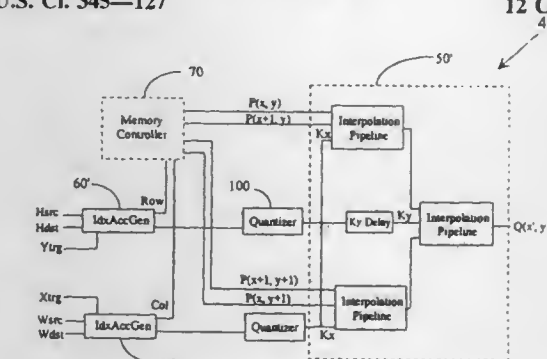
Wei-Lun Huang, Taichung; Kimbo Hsiao, Taipei, and Hung-Yih Hsieh, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsin chu, Taiwan

Filed Apr. 26, 1996, Ser. No. 638,258

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—127

12 Claims



5,801,681

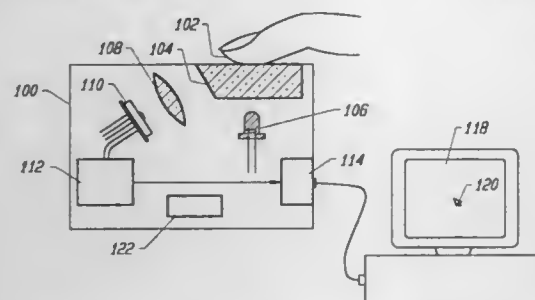
METHOD AND APPARATUS FOR GENERATING A CONTROL SIGNAL

Michel Sayag, 1820 Hackett Ave., Mountain View, Calif. 94043
Continuation-in-part of Ser. No. 669,651, Jun. 24, 1996, abandoned. This application Jul. 30, 1996, Ser. No. 692,831

Int. Cl.⁶ G09G 5/08

U.S. Cl. 345—157

42 Claims



1. An apparatus for generating a control signal for controlling movement of a first object, the control signal corresponding to movement of a second object in contact with a first surface, comprising:

- a platen comprising the first surface, the platen being characterized by a critical angle beyond which light incident upon the first surface is not transmitted;
- a source of electromagnetic radiation for emitting electromagnetic radiation through the platen which is diffused by the second object;
- a lens for transmitting a portion of the electromagnetic radiation beyond the critical angle;
- a single detector having a plurality of adjacent sectors for receiving the portion of the electromagnetic radiation and generating charge in response thereto; and
- conversion circuitry for converting the charge generated in the detector to the control signal, the control signal representing a speed and a direction of movement of the first object, the speed and direction of movement corresponding to a relationship between charge generated in each of the plurality of sectors.

5,801,682

TACTILE DESIGNATION DEVICE WITH HIGH-RESOLUTION TRANSPARENT CAPACITIVE SURFACE

Philippe Coni, St Jean D'Illac, and Pierre Fagard, Elancourt, both of France, assignors to Sextant Avionique, Velizy Villacoublay, France

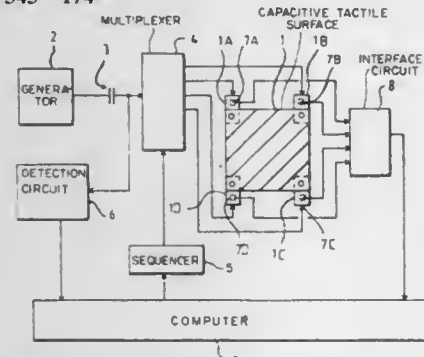
Filed Mar. 15, 1996, Ser. No. 616,251

Claims priority, application France, Mar. 24, 1995, 95 03501

Int. Cl.⁶ G09G 3/02; G08C 21/00

U.S. Cl. 345—174

16 Claims



1. A tactile designation device with a transparent capacitive surface whose precision is independent of how contact is made with said surface and whose precision does not depend on a drift or on characteristics of components comprising:

a substantially rectangular glass plate having a continuous transparent metal deposit, said plate being supported at corners thereof by flexible strips configured to be fixed to strain gauges, said strips being configured to connect the metal deposit of the glass plate to an electronic circuit comprising high-frequency supply circuits and a computer, via a series capacitor; and

a detection circuit having a pair of poles one of which is connected to a first corner of the metal deposit and the other pole being connected to an opposite corner of the detection circuit, and third and fourth corners being unconnected.

5,801,683

IMAGE FORMING AND TRANSFORMING METHODS AND DEVICES FOR SAME

Ivanov Anatoly Gennadievich, 690005 Vladivostok, Lugovaya 41/46, Russian Federation

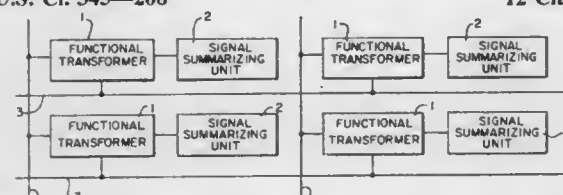
Filed Feb. 26, 1996, Ser. No. 605,510

Claims priority, application Russian Federation, Sep. 1, 1993, 93043508; Dec. 14, 1993, 93055637

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—208

12 Claims



1. A method for forming from a compressed data signal an image on a display device which includes an array of display elements spaced along row and column lines, comprising the steps of:

- (a) applying a first signal corresponding to said compressed data value to each said display element;
- (b) applying a second signal of a predetermined value to each said display element;
- (c) multiplying said first and said second signal applied to each of said display elements to obtain a resultant signal for each display element proportional to the multiplication of said first signal and said second signal; and
- (d) activating the corresponding display element with said resultant signal to display the data for the display element.

5,801,684

ELECTRONIC DEVICE WITH DISPLAY AND DISPLAY DRIVER AND METHOD OF OPERATION OF A DISPLAY DRIVER

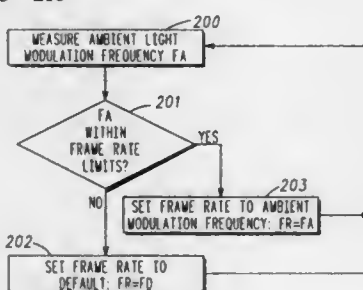
Robert George Uskali, Schaumburg, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 29, 1996, Ser. No. 609,755

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—213

15 Claims



1. An electronic device comprising:
a display;

5,801,686

COMPUTER DISPLAY SYSTEMS

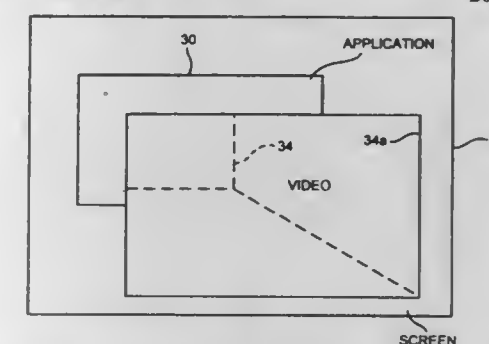
Nicholas Heinrich Jurascheck, Hertfordshire, and Raymond Malcolm Livesley, Berkshire, both of United Kingdom, assignors to Videologic Limited, Hertfordshire, United Kingdom

Filed Feb. 28, 1996, Ser. No. 612,600

Int. Cl.⁶ G06T 1/00

U.S. Cl. 345—302

20 Claims



1. A computer display system for displaying a sequence of video images in at least a portion of a graphic display comprising:
means for receiving the sequence of video images;
means for receiving data defining a predetermined size and position of the portion of the graphic display in which the video images are to be displayed;
means for selectively intercepting the data defining the size and position of the video image said portion of the graphic display;
means for selectively modifying the intercepted data defining the size and position of the video image portion of the graphic display;
means for scaling the video images to a modified size defined by the modified data defining the size of the video image; and
means for inserting the scaled video images into a portion of the graphic display based on the modified data defining the size and position of the video image in the graphic display.

5,801,685

AUTOMATIC EDITING OF RECORDED VIDEO ELEMENTS SYNCHRONIZED WITH A SCRIPT TEXT READ OR DISPLAYED

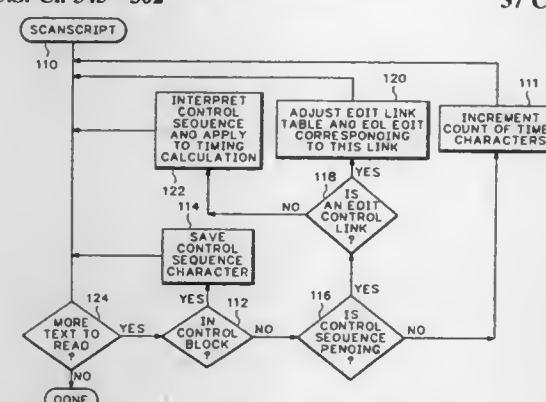
Robert E. Miller, Monona; Randall T. Wiggins, Madison, and Daniel P. Desjardins, Middleton, all of Wis., assignors to Tektronix, Inc., Wilsonville, Oreg.

Filed Apr. 8, 1996, Ser. No. 629,034

Int. Cl.⁶ G06F 17/20

U.S. Cl. 345—302

37 Claims



1. A text based video editing system, comprising:

- (a) an editing system computer including an editing system display including a text window and a video window;
- (b) a script editor computer program including word processor means for adding and deleting timed text characters to make changes to a script displayed in the text window of the editing system display;
- (c) video clip selection means for selecting video clips from a source of video clips and for playing the video clips in the video window of the editing system display;
- (d) means for linking the selected video clips and the script text including means for embedding computer readable link control sequence characters into the script text at locations in the text where the video clip is to be located and means for generating a computer readable edit decision list including edits wherein each edit defines a video clip linked to an embedded control sequence in the script text, a starting time for the video clip based on an automatically determined estimated reading time from the beginning of the script text to the location of the embedded control sequence in the script text, and a play time duration of the linked video clip; and
- (e) means for automatically updating the edit decision list in response to a change in the timed text characters of the script text to maintain synchronization between the video clips defined by the edit decision list edits and the script text, including means for adjusting the starting time of clips defined by edits linked to embedded link control sequences after the change to the text such that the starting times for the video clips defined by the edits are still based on an estimated reading time from the beginning of the script text to the locations of the embedded control sequences in the script text after the change in the script text.

5,801,687

AUTHORING TOOL COMPRISING NESTED STATE MACHINES FOR USE IN A COMPUTER SYSTEM

Alan R. Peterson, Palo Alto, and James C. Spohrer, Santa Clara, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

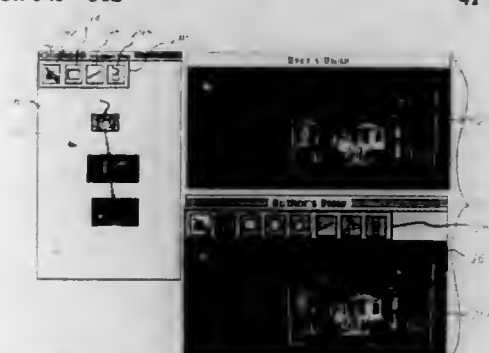
Continuation of Ser. No. 316,591, Sep. 30, 1994, abandoned.

This application Sep. 25, 1996, Ser. No. 719,738

Int. Cl.⁶ G06F 17/00

U.S. Cl. 345—302

41 Claims



1. An apparatus for authoring nested graphic state machines, wherein said apparatus has a processor and at least one storage medium, said apparatus comprising:

- a state machine module for creating a plurality of nested graphic state machines, each graphic state machine representing one or more states of an arbitrary graphic object, wherein at least a portion of said state machine module is stored in said at

least one storage medium, and wherein each state machine has one or more arbitrarily arranged states and one or more transitions with each transition interconnecting a first state to a second state, and wherein each state machine has a full view associated to it and each state has a full view associated to it thereby allowing said state machine module to create at least one sub-state machine within a first state machine by containing the full view of the second state machine within the full view of the first state machine; and

a user interface module capable of interacting with said state machine module, wherein said user interface module displays a full view of a state machine and receives user input, wherein said user input can activate a sub-state machine nested within the full view of the state machine being displayed, and wherein said activating causes a full view of the state within the activated sub-state machine to be displayed.

5,801,688

CONTROLLING AN ABSTRACTION LEVEL OF VISUALIZED DATA

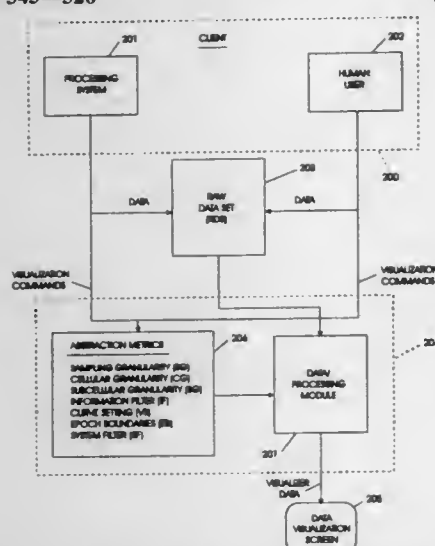
Charles N. Mead, St. Louis, and Dale Bryan Frye, Florissant, both of Mo., assignors to Smart ClipBoard Corporation, St. Louis, Mo.

Continuation of Ser. No. 195,932, Feb. 14, 1994, Pat. No. 5,608,861. This application Dec. 12, 1996, Ser. No. 764,739

Int. Cl. G06F 3/14

U.S. Cl. 345—326

13 Claims



1. A processing system for generating an output data set for display on a data visualization device, said processing system comprising:

- a first input port for receiving an input data set, said input data set comprised of one or more datum;
- a second input port for receiving an input command from a client, said input command operable to control processing of said input data set;
- a first processing module, selectively responsive to said input command, operable to delineate a circumscribed, context-sensitive data subset within said input data set; and
- a second processing module, responsive to said input command, operable to enable selected ones of a plurality abstraction metrics algorithms and filters, and to process each datum of said input data set utilizing said enabled abstraction metrics algorithms and filters to generate said output data set.

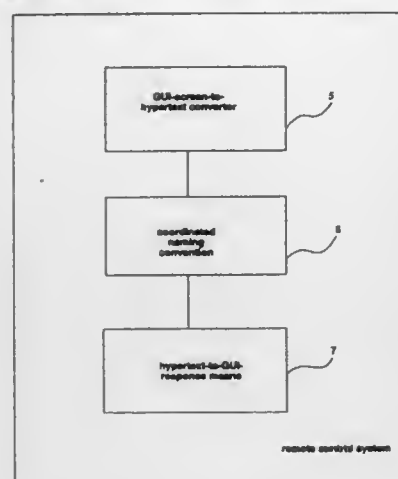
5,801,689
HYPertext BASED REMOTE GRAPHIC USER INTERFACE CONTROL SYSTEM
Robert A. Huntsman, Boise, Id., assignor to Extended Systems, Inc., Boise, Id.

Filed Jan. 22, 1996, Ser. No. 599,458

Int. Cl. G06F 3/00

U.S. Cl. 345—329

18 Claims



3. A remote control system for controlling a GUI program on a first computer with a hypertext browser program on one or more second computers comprising:

- a GUI-screen-to-hypertext converter for converting a GUI screen to hypertext further comprising:
 - a GUI-screen-reading means for retrieving and converting a GUI screen into screen image data,
 - a GUI-screen-to-hypertext-translating means for converting screen image data into hypertext,
 - the GUI-screen-reading means is software coupled to the GUI-screen-to-hypertext-translating means, allowing screen image data to pass from the GUI-screen-reading means to the GUI-screen-to-hypertext-translating means whereby the GUI screen is retrieved and converted to hypertext,
 - a hypertext-to-GUI-response means for converting a hypertext data request to a GUI control command further comprising:
 - a hypertext-reception means for receiving the hypertext data request,
 - a hypertext-to-GUI-control-interpretation means for interpreting hypertext data requests as the GUI control command, and
 - a programmatic-GUI-control-execution means for executing the GUI control command,
 - the hypertext-reception means is software coupled to the hypertext-to-GUI-control-interpretation means,
 - the hypertext-to-GUI-control-interpretation means is software coupled to the programmatic-GUI-control-execution means,
 - whereby the hypertext-reception means receives the hypertext data request and presents the hypertext data request to the hypertext-to-GUI-control-interpretation means, the hypertext-to-GUI-control-interpretation means interprets the hypertext data request as the GUI control commands and executes the interpreted GUI control commands using the programmatic-GUI-control-execution means, and
 - a coordinated naming convention,
- whereby program on said first computer is remotely controlled by hypertext browser program of said second computer, and information contained on GUI screen of said first computer is reflected on the screen of the hypertext viewer on the second computer.

5,801,690
METHOD FOR MANAGING TERMINATION OF A MULTI-PROCESSING SOFTWARE APPLICATION
Ramy P. Ayoub, Arlington Heights; Arthur L. Fumarolo, Schaumburg, and John William Maher, Woodstock, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

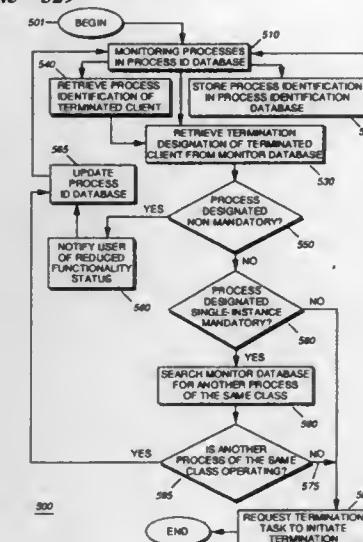
Continuation of Ser. No. 427,513, Mar. 24, 1995, abandoned.

This application Dec. 23, 1996, Ser. No. 772,238

Int. Cl. G06F 3/00

U.S. Cl. 345—329

12 Claims



10. In a computer system having a multi-processing software application, the multi-processing software application having a plurality of client processes concurrently operating as components thereof, at a first client process selected from the plurality of client processes, a method of determining when to terminate, the method comprising the steps of:

- monitoring an execution status for a second client process selected from among the plurality of client processes;
- determining that the second client process is not executing in a normal executing mode;
- continuing operation of the first client process when the second client process is a designated non-mandatory client process, such that the multi-processing software functions in a reduced functionality mode;
- terminating operation of the first client process when the second client process is a designated mandatory client process, such that the first client process no longer executes;
- terminating operation of the first client process when the second client process is a designated single-instance mandatory client process and is of a particular class, and there is no other single-instance mandatory client process operating that is of the particular class.

5,801,691
METHOD AND APPARATUS FOR MOBILE DEVICE SCREEN REFORMATTING UTILIZING HYPertext
Scott S. Dahl, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

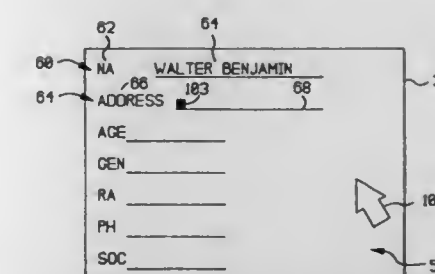
Filed Dec. 31, 1996, Ser. No. 777,896

Int. Cl. G06F 3/00

U.S. Cl. 345—339

13 Claims

- 1. A method of operating a mobile data processing device with a relatively small display screen to facilitate utilization of an application which includes a plurality of screens which have been written for use in a data processing system having a relatively large display screen, comprising the method steps of:
 - loading said application into said mobile data processing device;
 - calling for display at least a portion of a particular one of said plurality of screens of said application on said relatively small display of said mobile data processing device;



determining whether or not display items from said particular one of said plurality of screens cannot be fully displayed within said relatively small display of said mobile data processing device;

if it is determined that said display items from said particular one of said plurality of screens cannot be fully displayed within said relatively small display of said mobile data processing device, automatically generating a substitute screen for said particular one of said plurality of screens of said application which:

- (1) relocates said display items to render them visible on said relatively small display of said mobile data processing device; and
- (2) particular fields of said display items are converted from a full-text display status to a hypertext display status.

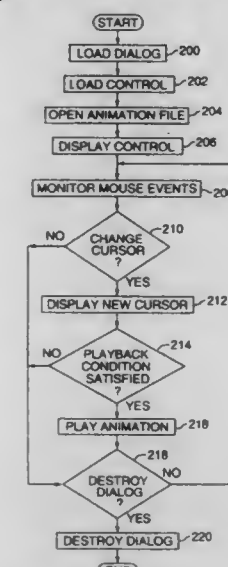
5,801,692
AUDIO-VISUAL USER INTERFACE CONTROLS
Simon C. Muzio; Randall R. Omel, and Barry J. Linnett, all of Seattle, Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Nov. 30, 1995, Ser. No. 564,977

Int. Cl. G06F 3/00

U.S. Cl. 345—339

25 Claims



1. A method for providing an interactive user interface control in a graphical user interface of a programmed computer system, including a pointing device, a display device, and an audio device, the method comprising:

- displaying a control upon which a user positions a cursor to enter input;
- the control having a set of predefined user input events, wherein the set of predefined user input events includes a user input event that properly actuates the control and a plurality of user input events that do not properly actuate the control;
- the control having a set of visual and audio responses that are played in response to the set of predefined user input events, wherein the set of visual and audio responses provides graphi-

cal and audio feedback to indicate to the user when the user is properly actuating the control and when the user is improperly actuating the control;

monitoring position of a cursor associated with the pointing device or state of the pointing device to detect the set of predefined user input events;

in response to detecting a user input event that properly actuates the control while the control is active, simultaneously displaying a corresponding visual response in the control and playing a corresponding audio response from memory of the programmed computer system to indicate to the user that the user is properly positioning the cursor on the control; and

in response to detecting a user input event that does not properly actuate the control while the control is active, displaying a corresponding visual response in the control or playing a corresponding audio response from memory of the programmed computer system to indicate to the user that the user is not properly positioning the cursor on the control.

5,801,693

"CLEAR" EXTENSION TO A PASTE COMMAND FOR A CLIPBOARD FUNCTION IN A COMPUTER SYSTEM

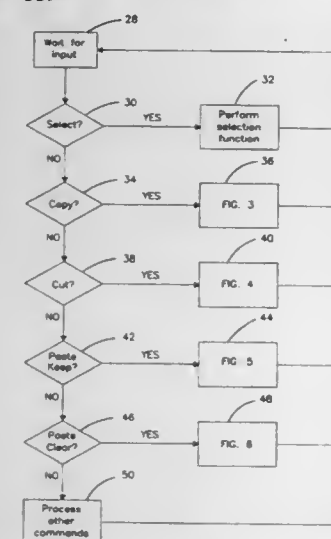
John H Bailey, Aptos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 3, 1996, Ser. No. 676,857

Int. Cl.⁶ G06T 11/00

U.S. Cl. 345—339

21 Claims



1. A method of manipulating displayed data on a monitor attached to a computer, comprising the steps of:

- displaying data on the monitor;
- receiving one or more commands from an operator to select an insertion point in the data displayed on the monitor, to paste the contents of a clipboard memory in the computer to the selected insertion point in the data displayed on the monitor, and to selectively keep or clear the contents of the clipboard memory after the contents of the clipboard memory have been pasted to the selected insertion point;
- selecting the insertion point in the data displayed on the monitor in response to the commands;
- pasting the contents of the clipboard memory to the selected insertion point in response to the commands; and
- selectively keeping or clearing the contents of the clipboard memory in accordance with the commands.

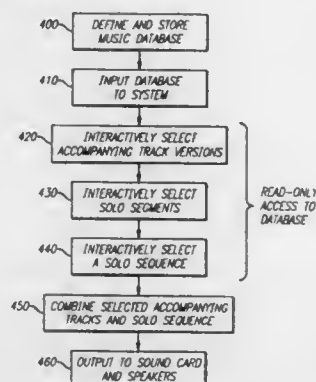
5,801,694 METHOD AND APPARATUS FOR INTERACTIVELY CREATING NEW ARRANGEMENTS FOR MUSICAL COMPOSITIONS

Joseph S. Gershen, 1819 11th St., Santa Monica, Calif. 90404
Filed Dec. 4, 1995, Ser. No. 567,370

Int. Cl.⁶ G06F 3/00; G09B 15/02; G10G 3/00

U.S. Cl. 345—339

24 Claims



1. A method for creating a new arrangement of a musical work, said method for use with a digital processor and comprising the following steps:

- storing a musical database defining a plurality of fixed musical sequences representing the musical work, and a musical template defining a plurality of fixed sequence positions with reference to time, said template representing the musical work;
- providing the musical database and the musical template as an input to the digital processor;
- interactively selecting a plurality of the fixed musical sequences, as desired by an end-user;
- interactively allocating the selected musical sequences among the fixed sequence positions of the template, as desired by the end-user; and
- combining the selected musical sequences in accordance with the desired allocation, thereby creating the new arrangement of the musical work.

5,801,695

HIGH SPEED COMMUNICATIONS SYSTEM FOR ANALOG SUBSCRIBER CONNECTIONS

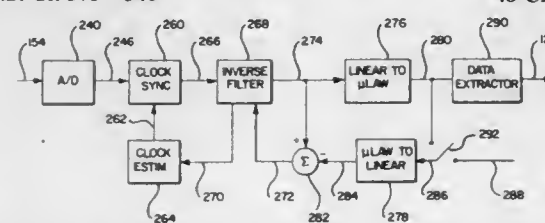
Brent Townshend, 156 University Dr., Menlo Park, Calif. 94025
Continuation of Ser. No. 352,651, Dec. 9, 1994, abandoned.

This application Sep. 6, 1996, Ser. No. 709,023

Int. Cl.⁶ H04L 27/06; H04B 14/04

U.S. Cl. 375—340

48 Claims



1. A high speed data transfer decoder for recovering a digital data stream from an analog signal transmitted to said decoder from a digital telephone network interface via an analog local loop connected to said decoder, comprising:

- an interface to said local loop, said interface producing an input signal in response to said analog signal;

means for recovering a clock from said input signal;

means for producing an equalized signal from said input signal; and

means for generating a sequence of codewords from said equalized signal, wherein each codeword in said recovered sequence of codewords is associated with a codeword utilized by said digital telephone network.

transfer means (395) for transferring control of queues in said second set (370) between the various windows as requested by the applications with which said windows are associated.

5,801,697

METHOD & APPARATUS FOR PREVENTING UNINTENTIONAL PERUSAL OF COMPUTER DISPLAY INFORMATION

Shrikant N. Parikh, Mesquite; George C. Manthuruthil, Coppell, and Hari N. Reddy, Colleyville, all of Tex., assignors to International Business Machine Corp., Armonk, N.Y.

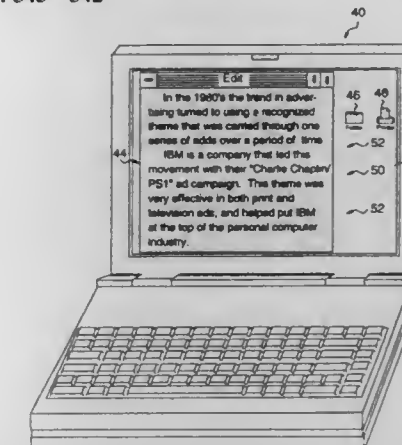
Continuation of Ser. No. 135,871, Oct. 12, 1993, abandoned.

This application Sep. 3, 1996, Ser. No. 709,234

Int. Cl.⁶ G06T 5/30

U.S. Cl. 345—342

12 Claims



1. A method of reducing a likelihood of unauthorized observation of data on a computer screen upon which at least one software application is running in a panel having a pre-sized area for viewing the data on an active window, comprising the steps of:

- forming, upon an optional selection by a user, a predefined user visible area on the active window which is adjustably moveable by said user within the pre-sized area for viewing the data on the active window, said user visible area containing at least a portion of the data on the active window clearly visible to said user; and
- forming an obscured but not invisible area on the active window comprising the pre-sized area for viewing the data other than said user visible area, wherein said user controls what data appears on the active window in said user visible area by moving said user visible area within the pre-sized area for viewing.

5,801,698

DYNAMIC INFORMATION DISPLAY DURING BUSY

David Bruce Lection, Raleigh, and David Allen Schell, Durham, both of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 19, 1997, Ser. No. 859,808

Int. Cl.⁶ G06F 3/14

U.S. Cl. 345—347

27 Claims

1. A method of displaying information to a user of a computer system during performance of an application program on the computer system, the method comprising the step of:

- providing a predefined set of busy cursor formats;

5,801,696

MESSAGE QUEUE FOR GRAPHICAL USER INTERFACE

David Roberts, Stockton, United Kingdom, assignor to International Business Machines Corp.

PCT No. PCT/GB95/01780, § 371 Date Oct. 11, 1997, § 102(e) Date Oct. 11, 1997, PCT Pub. No. WO96/30830, PCT Pub. Date Oct. 3, 1996

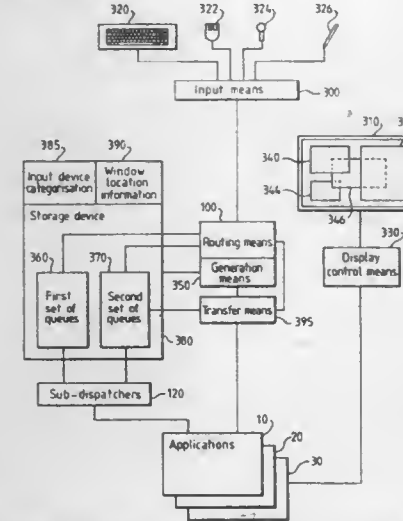
PCT Filed Jul. 27, 1995, Ser. No. 737,037

Claims priority, application United Kingdom, Mar. 25, 1995, 9506142

Int. Cl.⁶ G06F 3/00

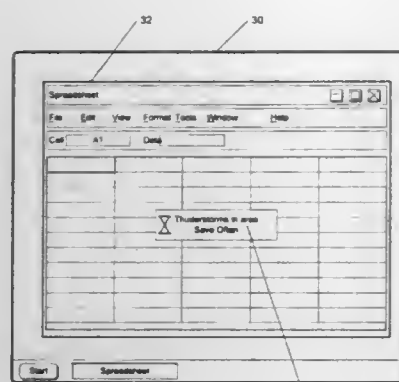
U.S. Cl. 345—340

14 Claims



1. A data processing system arranged to run a plurality of applications (10, 20, 30), each application being associated with one or more windows, each window being under the control of a user interface provided by the system, the system comprising:

- a display means (330) for displaying the windows to a user on a display device (310);
 - an input means (300) for receiving events entered by a user from a plurality of input devices (320, 322, 324, 326) connectable to the system;
 - a storage device (380) for storing the user events received by the input means (300) in queues for subsequent processing by the applications;
 - a queue control means for creating the queues in the storage device (380) and for directing the user events received by the input means (300) to selected queues in the storage device (380);
- the system being characterised in that each input device connected to the input means is categorised as either a pointing device (322, 326) or a non-pointing device (320, 324), and the queue control means comprises:
- generation means (350) for creating first (360) and second (370) sets of queues in said storage device, each queue in the first set (360) being associated with a specific one of said windows, and each queue in the second set (370) being associated with a non-pointing device from said plurality of input devices;
 - routing means (100) for directing each event entered via a pointing device (322, 326) to the queue in said first set (360) which is associated with the window identified by that pointing device, and for directing each event entered via a non-pointing device (320, 324) to the queue in the second set (370) which is associated with that non-pointing device; and



obtaining information to be displayed to a user from a source other than the application program on the computer system; selecting one of the predefined set of busy cursor formats based upon the information to be displayed; and formatting the busy cursor utilizing the selected one of the predefined set of busy cursor formats.

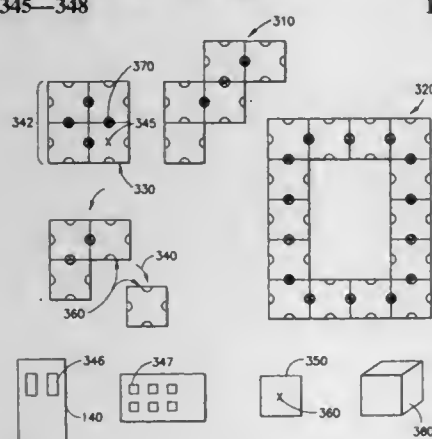
5,801,699

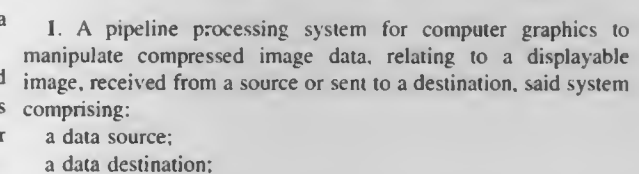
ICON AGGREGATION ON A GRAPHICAL USER INTERFACE

Michael David Hocker, Staatsburg; Neal Martin Keller, Hartsdale, both of N.Y.; James Gordon McLean, Fuquay-Varina, N.C.; Clifford Alan Pickover, Yorktown Heights, N.Y., and Daniel James Winarski, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 26, 1996, Ser. No. 592,250
Int. Cl.⁶ G06F 3/14

U.S. Cl. 345—348

14 Claims





a data compressor/expander to convert image pixel data into compressed image data, and to convert compressed image data into image pixel data, said data compressor/expander being located between said data source and said data destination to modify the form of data passed from said data source to said data destination; and

a pixel data manipulator to manipulate the image pixel data, said manipulator being connected to said compressor/expander to receive therefrom and send thereto, image pixel data, and said manipulator being sized to retain a band of all the image pixel data from which the displayable image is formed, the image pixel data including bitmap data and rendered graphics data, and to permit manipulation of individual ones of the image pixel data, at least one of the bands of the image pixel data being manipulated in turn by said manipulator and then forwarded to said data destination.

5,801,717

METHOD AND SYSTEM IN DISPLAY DEVICE INTERFACE FOR MANAGING SURFACE MEMORY

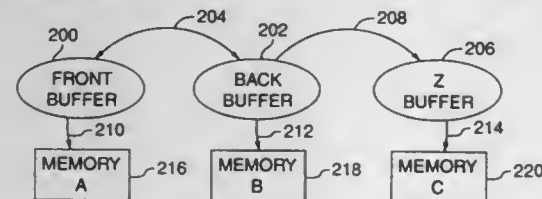
G. Eric Engstrom, and Craig G. Eisler, both of Kirkland, Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Apr. 25, 1996, Ser. No. 641,015

Int. Cl.⁶ G06F 13/00

U.S. Cl. 345—508

17 Claims



1. In a display device interface implemented in a computer that includes a system memory, a video memory and a display controller, a method for managing surface memory in either the system or video memory, the method comprising:

in response to receiving a create surface function call in the display device interface, allocating first and second regions in video or system memory, creating a surface structure that includes front and back buffer structures, storing a front buffer reference to the first region and a back buffer reference to the second region in the front and back buffer structures, respectively;

prior to a flip function where the display interface changes the front and back buffer references, controlling accesses to the second region in response to a first call from an application to modify the back buffer, wherein the first call specifies the back buffer structure but does not specify a memory address in the second region;

in response to a call to the flip function, changing the front buffer reference to refer to the second region, and changing the back buffer reference to refer to a third region in the video memory; and

after the call to the flip function, manipulating the third region in response to a second call from the application to modify the back buffer, wherein the second call specifies the back buffer structure but does not specify a memory address in the third region.

**5,801,718
VIDEO SIGNAL PROCESSING CIRCUIT FOR MONITORING ADDRESS PASSING BETWEEN WRITE ADDRESSES AND READ ADDRESSES IN A BUFFER MEMORY**

Yutaka Shimizu, Ota, and Seiya Ota, Ama-gun, both of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

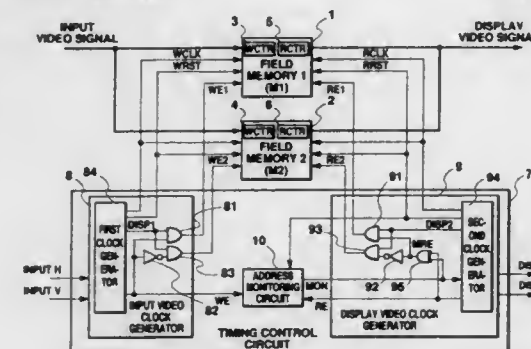
Filed Oct. 15, 1996, Ser. No. 732,844

Claims priority, application Japan, Oct. 16, 1995, 7-267105

Int. Cl.⁶ G06F 13/00

U.S. Cl. 345—508

10 Claims



1. A video signal processing circuit for obtaining a display video signal based on a second synchronizing clock from an input video signal based on a first synchronizing clock, said processing circuit comprising:

first and second buffer memories in which is written an input video signal in compliance with a write clock synchronized to a first synchronizing clock and from which is read out a display video signal in compliance with a read clock synchronized to a second synchronizing clock;

an input video clock generator for outputting the write clock and a write select signal with an alternately inverting signal level synchronized to a vertical synchronizing signal of an input video signal; and

a display video clock generator for outputting the read clock and a read select signal with an alternately inverting signal level synchronized to a vertical synchronizing signal of an input video signal; and wherein

in accordance with a signal level of the write select signal, either of first and second buffer memories is selected and an input video signal is written in the selected buffer memory starting at a predetermined time after inversion of the write select signal; and

in accordance with a signal level of the read select signal, a display video signal is read out from either of first and second buffer memories;

said processing circuit further including a detecting circuit for detecting whether or not the signal levels of the write select signal and the read select signal match when the reading operation from the first and second buffer memories commences; wherein

address passing between read and write addresses of the first and second buffer memories is then predicted according to a detection result of the detecting circuit.

**5,801,719
MICROPROCESSOR WITH GRAPHICS CAPABILITY FOR MASKING ALIGNING AND EXPANDING PIXEL BANDS**

Amandeep Jabbi, Mountain View, and Stephen K. Howell, Santa Clara, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

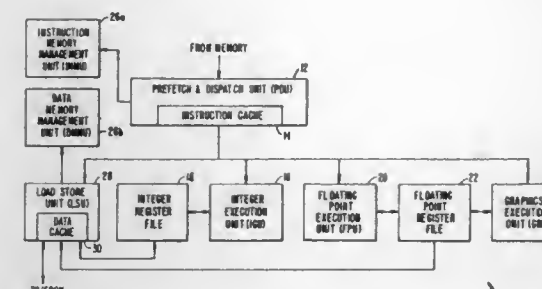
Filed Nov. 27, 1995, Ser. No. 563,089

Int. Cl.⁶ G06F 13/00

U.S. Cl. 345—524

4 Claims

1. A method for performing a selected operation on a first source image formed from a first plurality of pixel data and a second source image formed from a second plurality of pixel data to



produce a destination image formed of a plurality of destination pixel data, said first plurality of pixel data having a plurality of bands, the method comprising the steps of:

determining a size of said destination image, including a height and a width in destination pixels, each of said plurality of destination pixels having at least a first set of band data; aligning said first and second pluralities of pixel data with said destination pixel data;

masking said first plurality of pixel data to select only certain bands to form a first masked plurality of pixel data;

expanding each of said first masked and second pluralities of pixel data from a first length to an expanded length;

performing said arithmetic operation on said first masked and second pluralities of pixel data to create an expanded result;

packing said expanded result to create a destination pixel having said first length; and

creating a mask table with entries corresponding to different pixel formats.

5,801,720

DATA TRANSFER FROM A GRAPHICS SUBSYSTEM TO SYSTEM MEMORY

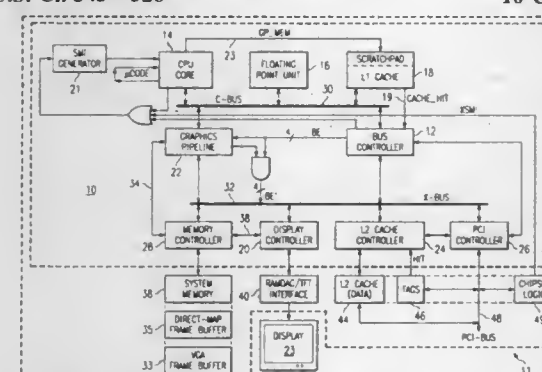
Forrest E. Norrod; Willard S. Briggs, both of Boulder; Christopher G. Wilcox, Ft. Collins; Brian D. Falardeau, Boulder, and Sameer Y. Nanavati, Longmont, all of Colo., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Feb. 20, 1996, Ser. No. 604,008

Int. Cl.⁶ G06F 13/00

U.S. Cl. 345—526

10 Claims



10. In a computer having a motherboard, a central processing unit, a subsystem, and system memory external to the central processing unit, a method of performing a primitive in a graphics subsystem comprising steps of:

(a) from an application program, providing size and location information of the primitive to the graphics subsystem;

(b) from the application program, setting raster operation, color or monochrome pattern, color expansion, and transparency in the graphics subsystem;

(c) setting the graphics subsystem to write data to system memory; and

(d) without using a frame buffer as intermediate storage, recursively moving a block of data from the graphics subsystem to system memory while performing protection and privilege

checking with the central processing unit for each virtual-to-physical address being written within the system memory.

5,801,721

APPARATUS FOR PRODUCING AN IMAGE ON A FIRST SIDE OF A SUBSTRATE AND A MIRROR IMAGE ON A SECOND SIDE OF THE SUBSTRATE

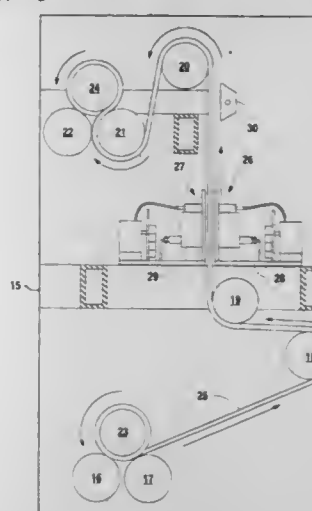
James Gandy; Jubayer Ahmed, and Don Ray Janysek, all of San Antonio, Tex., assignors to Signtech U.S.A. Ltd., San Antonio, Tex.

Filed Sep. 9, 1994, Ser. No. 303,701

Int. Cl.⁶ H04N 1/034; B41J 29/38

U.S. Cl. 347—3

5 Claims



1. An apparatus for producing an image on a first side of a substrate and a mirror image on a second side of the substrate, comprising:

a computer that converts signals representing each pixel of the image in gray scale into signals representing each pixel of the image with a uniform density;

a first printhead driven relative to the first side of the substrate for applying ink to the first side of the substrate;

a second printhead driven relative to the second side of the substrate for applying ink to a second side of the substrate;

a substrate suspension system that supports a substrate feed roll, that drives the substrate relative to said first and second printhead from the substrate feed roll to a substrate rewind roll, and that tensions the substrate to maintain the substrate taut during the application of ink by said first and second printhead; and

a print control system that inputs the signals representing each pixel of the image with a uniform density and utilizes those signals to control said first printhead to produce the image on the first side of the substrate and said second printhead to produce the mirror image on the second side of the substrate.

5,801,722

IMAGE PRINTING DEVICE

Masashi Ueda, and Ryohei Komiya, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Sep. 27, 1996, Ser. No. 722,568

Claims priority, application Japan, Sep. 27, 1995, 7-249157

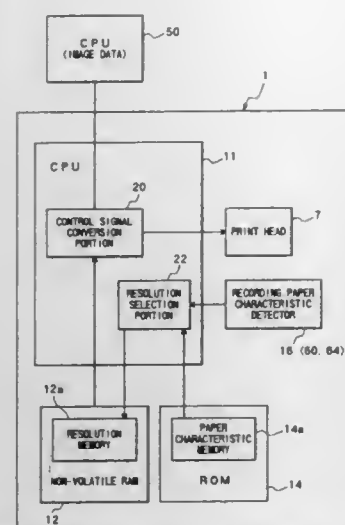
Int. Cl.⁶ B41J 29/38

U.S. Cl. 347—16

15 Claims

1. An image printing device for printing an image on a recording medium, the device comprising:

input means for receiving image information;



judging means for judging a characteristic of a recording medium to be printed with the image information to generate a judged result indicative of the characteristic; resolution setting means for setting, based on the judged result, a resolution at which the information is to be printed on the recording medium; and print means for printing the image information on the recording medium at the set resolution.

5,801,723

STREAK DETECTOR FOR INK JET PRINTER

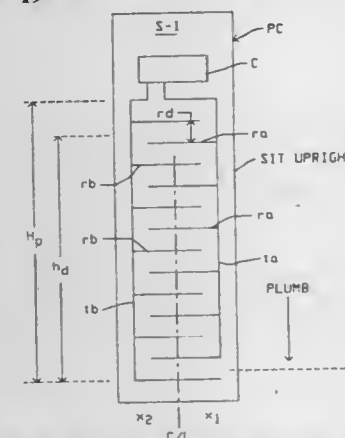
Andrew J. Balousek, Berkeley, Mich., assignor to Unisys Corp, Blue Bell, Pa.

Division of Ser. No. 265,054, Jun. 24, 1994, Pat. No. 5,583,546, which is a continuation of Ser. No. 883,620, May 12, 1992, abandoned. This application Dec. 3, 1996, Ser. No. 760,012

Int. Cl.⁶ B41S 2/01; G01N 27/06

U.S. Cl. 347—19

5 Claims



1. Apparatus for detecting streaking and other erroneous print operations by a malfunctioning ink jet in a jet printing arrangement arranged to project one or more jets of conductive ink droplets along a prescribed locus of jet axes, onto selected portions of a subject document, the document being transported along a transport path past said axis, said apparatus comprising: non-conductive substrate means for supporting conductor segments disposed in line with said locus, behind said path of a subject passing document; at least one pair of spaced conductor segments disposed on a first surface of said substrate means, opposite said jets to intersect all said jet axes, and beyond said transport path therefrom, said segments being spaced and arranged so that opposed portions thereof will intercept droplets resulting from said erroneous operations of said jets and will be ohmically connected thereby; and detect means coupled to said pairs of segments to detect and

register the ohmic connection thereof by a said malfunctioning jet, and so indicate said malfunctioning; said detect means being arranged to include means for filtering brief bridging pulses such as pulse spikes.

5,801,724

CIRCUIT FOR PREVENTING INK CLOGGING IN PRINT NOZZLES OF A PRINT HEAD IN AN INK JET PRINTER

Young-Bok Ju, Sungnam, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

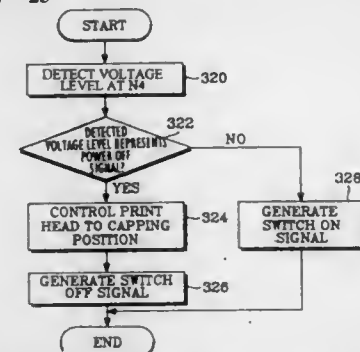
Filed Oct. 10, 1996, Ser. No. 728,695

Claims priority, application Rep. of Korea, Oct. 18, 1995, 35971/1995

Int. Cl.⁶ B41J 2/165

U.S. Cl. 347—23

19 Claims



7. An apparatus for controlling a printhead of a printer, comprising:

a power supply source for supplying first and second power voltages;

controller means for generating a control signal to move the printhead to a capping position after each printing operation and cutting off the supply of said first and second power voltages after the printhead is positioned at said capping position;

driver means for moving the printhead to said capping position in response to said control signal; and

power regulator means for regulating the supply of said first and second power voltages to said controller means and said driver means in response to operation of a power switch, said power switch being operable in one of an "on" mode and an "off" mode for enabling an operator to supply said first and second power voltages to said controller means and said driver means.

5,801,725

SLIDABLE WIPING AND CAPPING SERVICE STATION FOR INK JET PRINTER

David A. Neese; William Goloboff, both of San Diego; Jeffrey J. Rhine, Poway; Gary Graham, and Richard A. Murray, both of San Diego, all of Calif., assignors to Encad, Inc., San Diego, Calif.

Filed May 3, 1995, Ser. No. 433,147

Int. Cl.⁶ B41J 2/165

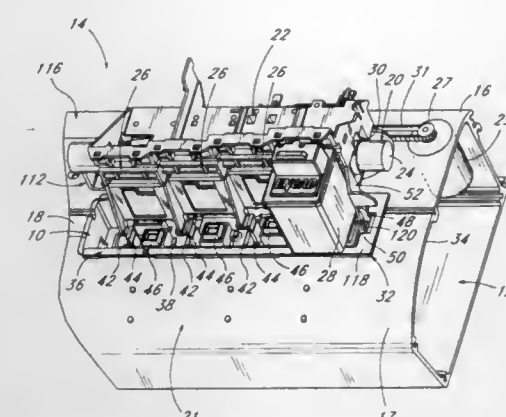
U.S. Cl. 347—32

14 Claims

1. A service station for an ink jet printer including a movable carriage supporting at least one ink jet cartridge having an ink jet plate located in juxtaposition with a printing path of said printer and wherein mechanical force for providing functions of the service station is provided by the movable carriage, said service station comprising:

a base unit mounted substantially in-line with said printing path of said printer and;

a sled having a plank, wherein said sled is retained in slidable contact with said base unit, wherein said sled has a wiper blade and a sealing cap attached thereto such that sled motion causes motion of both said wiper blade and said sealing cap,



and wherein said sled has three operational positions: (1) a deactivated position, (2) a wiping position in which the sled is temporarily mechanically retained in place by said plank of said sled which temporarily engages said base unit to retain said sled in place when said sled is in said wiping position and wherein said ink jet plate of said at least on ink jet cartridge is wiped by said wiper blade to remove excess ink therefrom, and (3) a capping position in which said ink jet plate is sealed by said sealing cap, said sled being moved into each of said operational positions substantially entirely by said mechanical force supplied by said moveable carriage.

5,801,726

SERVICE STATION SUPPORT BRACKET FOR PRINTERS

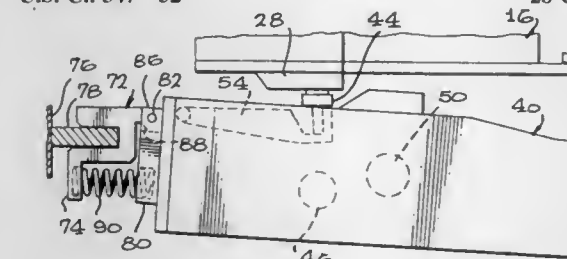
Richard Freudenberger, Fountain Valley, Calif., assignor to CalComp Inc.

Filed Dec. 22, 1995, Ser. No. 577,409

Int. Cl.⁶ B41J 2/165

U.S. Cl. 347—32

28 Claims



1. An improved service station for a printer having a print head comprising:

service means; and

bracket means coupled to said service means and rotatable supporting said service means along an extended pivot for restricting movement of said service means to a first selected direction, whereby proper alignment and positioning of said service means with said print head is maintained.

5,801,727

APPARATUS AND METHOD FOR PRINTING DEVICE

Peter A. Torpey, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

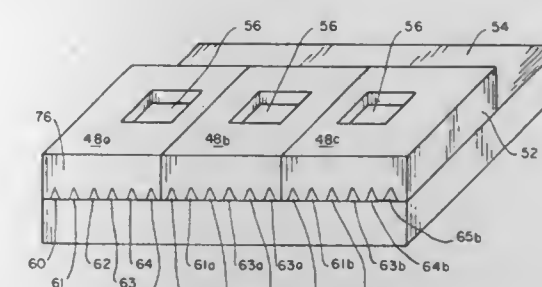
Filed Nov. 4, 1996, Ser. No. 740,743

Int. Cl.⁶ B41J 2/145; 2/15; 2/05

U.S. Cl. 347—40

15 Claims

11. A method of printing comprising the steps of: providing a recording medium adjacent to an elongated printing member having at least two generally linearly aligned printheads, said printheads being comprised of a plurality of generally linearly aligned ink jets, and



selectively providing a firing signal to said aligned ink jets to print on said recording medium, wherein adjacent printheads fire said ink jets in directionally opposed sequences, such that adjacent ink jets on adjacent printheads fire substantially closest in time to one another.

5,801,728

INFORMATION PROCESSING APPARATUS AND ELASTIC MEMBER PROVIDED IN ELECTRICAL CONNECTION EMPLOYED THEREIN

Haruyuki Yanagi, Machida; Tetsuo Suzuki, Yokohama; Soichi Hiramatsu, Hachioji; Masahiro Taniguro, Ushiku; Hiroyuki Inoue; Hiroyuki Saito, both of Yokohama; Koichi Tanno, Kawasaki; Makoto Kawamura, Kawasaki; Hiroyuki Kinoshita, Kawasaki; Masaya Shinmachi, Kawasaki, and Tan Ai Ming, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

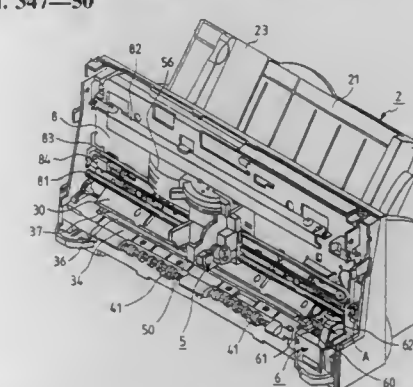
Filed Aug. 4, 1995, Ser. No. 511,229

Claims priority, application Japan, Aug. 4, 1994, 6-183682; Aug. 1, 1995, 7-196608

Int. Cl.⁶ B41J 29/02

U.S. Cl. 347—50

15 Claims



1. An elastic member for use in an electrical connecting portion for effecting electrical connection by pressing at least one of mutually opposed conductive contact portions together, comprising:

a sheet portion having first and second opposite faces;

pressing portions for pressing the conductive contact portions together, said pressing portions protruding from said first and second faces of said sheet portion; and

a protruding portion protruding from either one or both of said first and second faces of said sheet portion, with said protruding portion having a protruding height smaller than that of said pressing portion protruding from said same face of said sheet portion.

5,801,729
IMAGE FORMING DEVICE WITH APERTURE
ELECTRODE BODY

Tetsuya Kitamura, Gifu, and Tomoaki Hattori, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

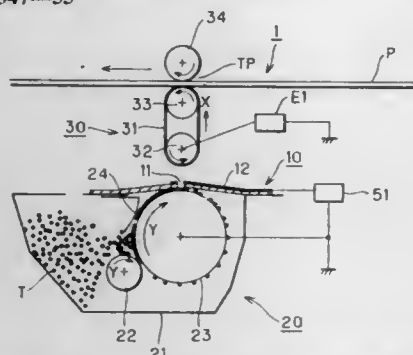
Filed Sep. 26, 1995, Ser. No. 533,783

Claims priority, application Japan, Sep. 30, 1994, 6-237324; Oct. 26, 1994, 6-287250; Oct. 26, 1994, 6-287251; Nov. 18, 1994, 6-309783

Int. Cl.⁶ G03G 15/16

U.S. Cl. 347—55

32 Claims



1. An image forming device for forming a toner image on an image recording medium, the device comprising:
an aperture electrode body formed with a plurality of apertures and having an electrode for each aperture of the plurality of apertures;
a toner supply unit for supplying toner to the plurality of apertures of the aperture electrode body;
a toner controller for controlling passage of toner through the apertures by individually controlling a voltage supplied to each electrode of the aperture electrode body;
an intermediate recording medium provided on an opposite side of the aperture electrode body than the toner supply unit, toner having passed through the apertures of the aperture electrode body adhering to the intermediate recording medium to form a toner image on the intermediate recording medium, the intermediate recording medium transporting the toner image to a predetermined transfer position; and
a transfer device for heating the toner image while the intermediate recording medium is in contact with the image recording medium at the transfer position, thereby simultaneously transferring and fixing the toner image to the image recording medium.

5,801,730
INK JET PRINT HEAD HAVING A PROJECTING
EJECTION ELECTRODE

Kazuo Shima; Junichi Suetsugu; Ryosuke Uematsu; Hitoshi Minemoto, and Yoshihiro Hagiwara, all of Tokyo, Japan, assignors to NEC Corporation, Japan

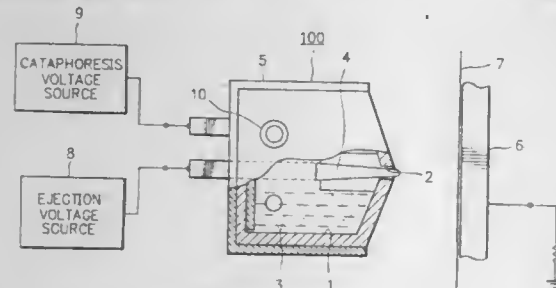
Filed Dec. 12, 1996, Ser. No. 763,838

Claims priority, application Japan, Dec. 14, 1995, 7-325321

Int. Cl.⁶ G01D 15/16

U.S. Cl. 347—55

7 Claims



5. An ink jet print head, comprising:

an ink chamber for containing ink including charged toner particles;
an ejection opening establishing a connection between the ink chamber and an external space;
an ejection electrode slightly projecting from the ejection opening;
a cataphoresis electrode disposed on a side of the ink chamber;
an opposing electrode opposite the ejection electrode with a recording media capable of being disposed therebetween;
a cataphoresis voltage source for applying a predetermined voltage to the cataphoresis electrode; and
an ejection voltage source for applying a predetermined pulse voltage to the ejection electrode.

5,801,731
INK DROPLET EJECTING DEVICE WITH A
CONTINUOUS ELECTRODE

Yoshikazu Takahashi, Kasugai, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

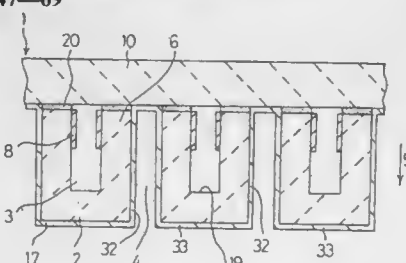
Filed Nov. 21, 1994, Ser. No. 344,672

Claims priority, application Japan, Dec. 24, 1993, 5-326997

Int. Cl.⁶ B41J 2/045

U.S. Cl. 347—69

11 Claims



1. An ink droplet ejecting device, comprising:
a plurality of adjacent partition wall structures extending in a longitudinal direction and defining a plurality of channels, said partition wall structures fabricated from a piezoelectric ceramic material and disposed apart from one another, each partition wall structure having a pair of outer sidewall surfaces whereby said outer sidewall surfaces of the adjacent partition wall structures are arranged in a facially opposing relationship with each other;
a plurality of longitudinally extending voids, each void being formed between said facially opposing outer sidewall surfaces of the adjacent partition wall structures;
a cover connected to said plurality of partition wall structures to cover said channels thereby forming longitudinally extending ink-ejecting chambers;
a pair of electrodes disposed in each of said ink-ejecting chambers, each electrode being connected to a respective one of a pair of facially opposing inner sidewall surfaces of each partition wall structure; and
a continuous electrode extending continuously across said plurality of partition wall structures in a crossing direction transverse to the longitudinal direction and disposed in said voids and exteriorly of said ink-ejecting chambers, the continuous electrode connected to at least the outer sidewall surfaces of said partition wall structures and said cover.

5,801,732
PIEZO IMPULSE INK JET PULSE DELAY TO REDUCE
MECHANICAL AND FLUIDIC CROSS-TALK

Dennis H. Pengelly, Southbury, Conn., assignor to Dataproducts Corporation, Simi Valley, Calif.

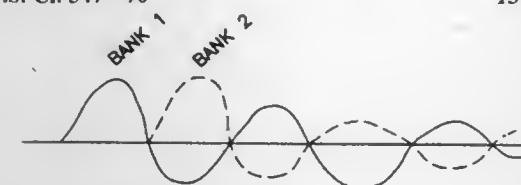
Continuation-in-part of Ser. No. 530,946, Sep. 20, 1995, which is a continuation-in-part of Ser. No. 310,967, Sep. 23, 1994.

This application Nov. 2, 1995, Ser. No. 556,768

Int. Cl.⁶ B41J 2/045; 29/38

U.S. Cl. 347—70

13 Claims



1. An ink jet apparatus comprising:
a linear array of impulse ink jets, each of said jets including a chamber having at least an orifice and a transducer coupled to said chamber;
signal generating means for applying firing signals to each said transducer for ejecting droplets of ink through said orifices; and
control means for preventing simultaneous application of said firing signals to adjacent ink jets in said array, wherein said transducers are characterized by a natural ringing cycle and the firing signals applied to said adjacent jets are offset in time by a portion of said ringing cycle.

5,801,733
INK JET RECORDING DEVICE

Joseph R.R. Pankert, Aachen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 566,528, Dec. 4, 1995, abandoned.

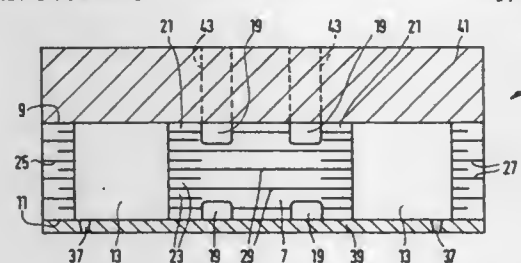
This application Sep. 11, 1997, Ser. No. 928,012

Claims priority, application European Pat. Off., Dec. 5, 1994, 94203526

Int. Cl.⁶ B41J 2/045

U.S. Cl. 347—72

17 Claims



1. A recording head for an ink jet recording device comprising:
a chamber plate having oppositely situated first and second faces,
means for supplying ink to at least one of the faces of the chamber plate,
a plurality of pressure chambers being formed as through holes extending from the first and second faces of the chamber plate, the pressure chambers each having a volume, and being arranged in substantially parallel first and second rows,
a plurality of ducts for communicating ink between said ink supply means and the pressure chambers, each duct communicating with at least one of the pressure chambers, and each pressure chamber communicating with only one of said ducts,
a nozzle plate attached to one of the faces of the chamber plate, said nozzle plate comprising a number of nozzle openings corresponding to the number of pressure chambers, each

nozzle opening communicating with one of the pressure chambers for emitting droplets of ink,
a piezoelectric actuator element integral to the chamber plate and surrounding each pressure chamber,
said actuator element having an active direction,
said actuator element comprising:
at least one layer of piezoelectric material having an active dimension, and
at least two electrode layers,
said piezoelectric material and electrode layers being arranged such that, upon application of an electric voltage between the electrode layers, the active dimension of the piezoelectric material is varied in the active direction,
and the actuator element is arranged in cooperative relationship with the surrounded pressure chamber so as to cause a change of volume of the pressure chamber when the active dimension of the actuator element is varied in the active direction.

5,801,734
TWO ROW FLAT FACE CHARGING FOR HIGH
RESOLUTION PRINTING

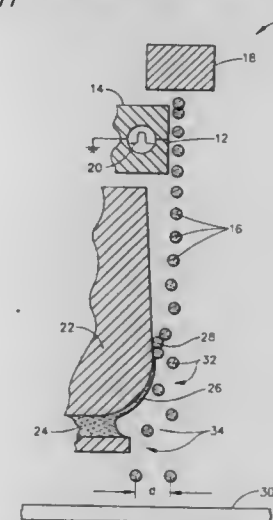
John M. Schnelder, Dayton, Ohio, assignor to Scitex Digital Printing, Inc., Dayton, Ohio

Filed Dec. 22, 1995, Ser. No. 577,223

Int. Cl.⁶ B41J 2/09

U.S. Cl. 347—77

18 Claims



1. A continuous ink jet system comprising:
a linear array of multiple rows of orifices fluidically connected to a fluid supply;
pressurization means to produce a linear array of a single row of jets;
stimulation means for stimulating jets of the array of jets for regular break-up of each jet into a plurality of uniform streams of drops;
planar charging means having a linear array of planar conducting elements disposed along a path of motion of the array of jets; and
means for situating the planar charging means at a predefined angle with the motion of the print medium to affect print resolution.

5,801,735

AUTOMATED SYSTEM FOR REFILLING INK JET CARTRIDGES

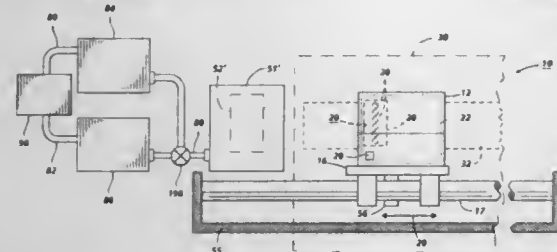
Robert V. Lorenze, Jr., Webster, and Renato P. Apollonio, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 5, 1995, Ser. No. 524,355

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—85

6 Claims



1. An automated system for refilling ink jet cartridges in an ink jet printing system wherein a printhead and associated ink supply reservoir comprising the cartridge are moved on a carriage through a print zone with ink being ejected from nozzles formed in a nozzle face of the printhead, the system further including:

- means for moving said cartridge to a refill station located outside of said print zone,
- means at said refill station for sealingly engaging an ink refill container with said nozzle face,
- means to force ink from said refill container through said printhead nozzles and into the associated ink supply reservoir thereby refilling said reservoir and
- means for moving said cartridge out of said refill station.

5,801,736

INK JET PRINTER WITH CARTRIDGE HAVING INTEGRAL INK STORAGE CHAMBER

Masatoshi Ikkatai, Yokohama; Hitoshi Fujimoto, Kawasaki, and Tsuyoshi Mikoshiba, Sagami, all of Japan, assignors to Canon Aptex Inc., Ibaraki, Japan

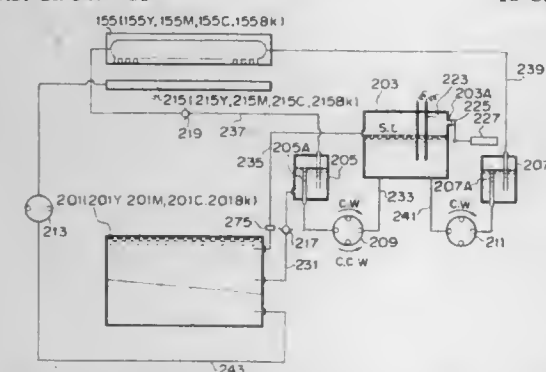
Filed Nov. 6, 1995, Ser. No. 553,867

Claims priority, application Japan, Nov. 7, 1994, 6-272767; Nov. 7, 1994, 6-272774

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—86

18 Claims



18. An ink cartridge for storing an ink to be used by a printer for performing printing on a printing medium, characterized in that ink supply for said printer and introduction of discharge of ink from said printer is performed by a supply needle inserted within said ink cartridge, and an absorbing member is provided outside of said ink cartridge at least at a portion where said supply needle is to be inserted, said absorbing member allowing said supply needle to penetrate therethrough.

5,801,737

INK CONTAINER WITH INTERNAL AIR PRESSURE ADJUSTMENT

Yohei Sato, Yokohama; Kazuaki Masuda, Kawasaki; Torachika Osada, Yamato; Masahiko Higuma, Tohgan; Jun Kawai, Tokyo; Masaaki Izumida, Kawasaki; Yoichi Taneya, Yokohama, and Masaru Iketani, Zama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

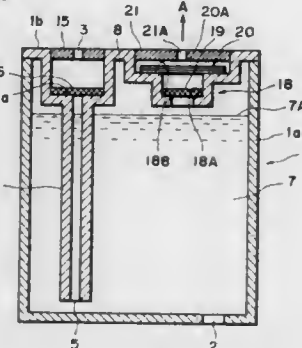
Division of Ser. No. 488,315, May 23, 1995, abandoned. This application Feb. 10, 1997, Ser. No. 797,042

Claims priority, application Japan, May 25, 1994, 6-111026; Jan. 13, 1995, 7-004264

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—86

12 Claims



1. A liquid container detachably mountable relative to an ink jet recording apparatus having sucking means for removing air, said container having an interior for containing liquid at a predetermined level for recording, said container having a lower portion including a liquid outlet for fluid communication with a recording head and having an upper portion with a layer of air formed therein, said container comprising:

- a fine hollow tube having one end in fluid communication with ambient through an air vent provided above the level of the liquid in said interior of said liquid container; and
- a one-way valve, disposed in said upper portion, which permits only discharge of air from the layer of air to the ambient, wherein the air is discharged through said one-way valve by said sucking means of said recording apparatus.

5,801,738

PROCESS FOR ALLEVIATING BLEED AND IMPROVING COLOR IN PRINTED ELEMENTS

John Lawrence Stoffel, San Diego, Calif.; Arthur Charles Shor, Concordville, Pa.; Harry Joseph Spinelli, Wilmington, Del.; Sheau-Hwa Ma, Chadds Ford, Pa.; Howard Matrick, Highlands, N.J.; Mark Leland Choy, Escondido, Calif., and Loren Eugene Johnson, Corvallis, Ore., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 223,787, Apr. 6, 1994, Pat. No. 5,555,008, which is a continuation-in-part of Ser. No. 85,782, Jul. 6, 1993, abandoned. This application Feb. 15, 1996, Ser. No. 601,900

Int. Cl.⁶ B41J 2/21; C09D 11/02

U.S. Cl. 347—100

18 Claims

1. A process for creating a multicolor printed element having reduced color bleed, comprising the steps, in any order, of:

- (a) applying an anionic ink to an element, said anionic ink comprising an aqueous medium and a colorant and being free of polymer; and
- (b) applying a cationic ink to said element and in contact with said anionic ink, said cationic ink comprising an aqueous carrier medium and a pigment dispersion, wherein said pigment dispersion comprises a pigment and about 0.1 to 30% by weight of a cationic polymer dispersant.

5,801,739

HIGH SPEED DIGITAL FABRIC PRINTER

Kia Silverbrook, Leichhardt, Australia, assignor to Eastman Kodak Company, Rochester, N.Y.

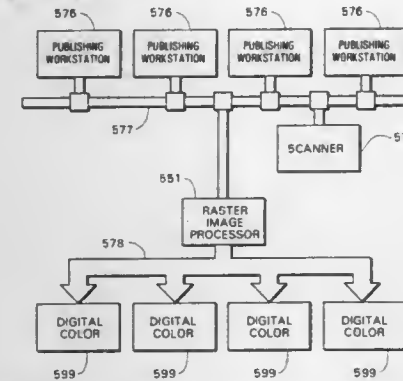
PCT No. PCT/US96/04778, § 371 Date Dec. 3, 1996, § 102(e) Date Dec. 3, 1996, PCT Pub. No. WO96/32282, PCT Pub. Date Oct. 17, 1996

PCT Filed Apr. 10, 1996, Ser. No. 750,439

Claims priority, application Australia, Apr. 12, 1995, PN2333 Int. Cl.⁶ B41J 2/155

U.S. Cl. 347—106

9 Claims



1. A digital printing system for printing on fabric material, said printing system comprising:

- (1) means for moving a fabric web of uniform width along a transport path from a supply to a take up station;
- (2) a digital print head assembly located along said transport path, said print head assembly including:
 - (a) a plurality of drop-emitter nozzles extending across the web transport path,
 - (b) a body of ink associated with said nozzles,
 - (c) a pressurizing device adapted to subject ink in said body of ink to a pressure of at least 2% above ambient pressure, at least during drop selection and separation to form a meniscus with an air/ink interface,
 - (d) drop selection apparatus operable upon the air/ink interface to select predetermined nozzles and to generate a difference in meniscus position between ink in selected and non-selected nozzles, and
 - (e) drop separation apparatus adapted to cause ink from selected nozzles to separate as drops from the body of ink, while allowing ink to be retained in non-selected nozzles; and
- (3) a control adapted to operate said print head assembly, in timed relation with the movement of said web and under the control of pattern data, to print predetermined fabric patterns.

5,801,740

IMAGE RECORDING APPARATUS CAPABLE OF ADJUSTING AN IMAGE RECORDING SPEED

Koichi Isono; Thouru Yonezawa, both of Hikone, and Masami-cho, Kyoto, all of Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Apr. 19, 1996, Ser. No. 635,307

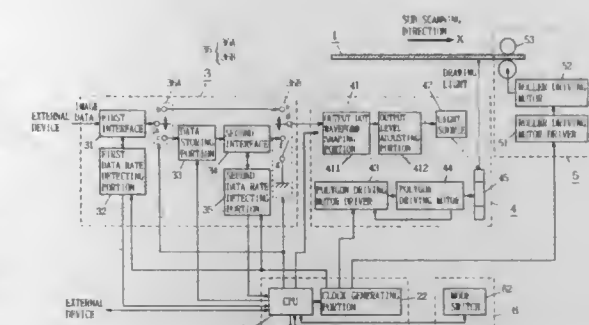
Claims priority, application Japan, Apr. 28, 1995, 7-106623 Int. Cl.⁶ B41J 2/385; G03G 15/01; 13/04

U.S. Cl. 347—129

25 Claims

1. An image recording apparatus for scanning a photosensitive recording medium with a light beam to record an image on the recording medium, comprising:

- an electric-photo converting device converting inputted image data into a modulated light beam;
- a reflection device reflecting said light beam;
- first driving force generating means generating a driving force to displace said reflection device to change an angle of incidence of said light beam thereby to scan said recording medium with said light beam in a main scanning direction;



a sub-scanning feed mechanism moving a main scanning position on said recording medium in a sub-scanning direction; second driving force generating means generating a driving force to drive said sub-scanning feed mechanism; rate detecting means for detecting an input rate of the image data into the electric-photo converting device by monitoring the image data inputted into said electric-photo converting device; and control means for determining an image recording speed onto said recording medium on the basis of the input rate detected by said rate detecting means and controlling the driving forces generated by said first and second driving force generating means according to the determined image recording speed.

5,801,741

ELECTROSTATIC RECORDING APPARATUS

Akihito Ikegawa, Sakai, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

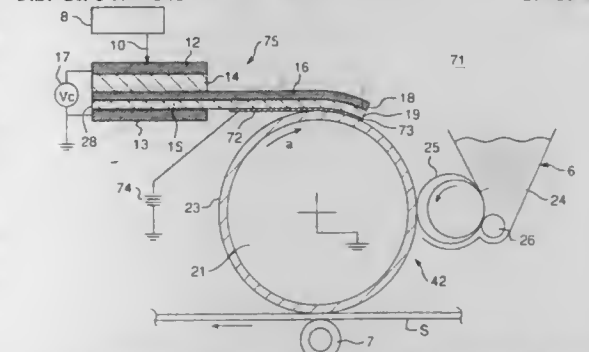
Filed Apr. 23, 1997, Ser. No. 842,066

Claims priority, application Japan, Apr. 24, 1996, 8-102152; May 22, 1996, 8-126986

Int. Cl.⁶ B41J 2/39; 2/395

U.S. Cl. 347—141

13 Claims



1. An electrostatic recording apparatus for forming an electrostatic image on an electric charge carrying member, comprising: a photoelectric transfer member which generates carrier when being exposed to light; a pair of bias electrodes between which the photoelectric transfer member is interposed, one of the bias electrodes being transparent; an electric power supply for applying a voltage between the bias electrodes; a floating electrode having a first area which comes into contact with the photoelectric transfer member and a second area which is opposed to the electric charge carrying member, the floating electrode being in no electrical connection with the bias electrodes; and an exposure means for exposing the photoelectric transfer member through the transparent bias electrode so that a carrier is generated in the photoelectric transfer member, thereby an electric discharge is caused from the second area of the floating electrode to the electric charge carrying member to form an electrostatic image on the electric charge carrying member.

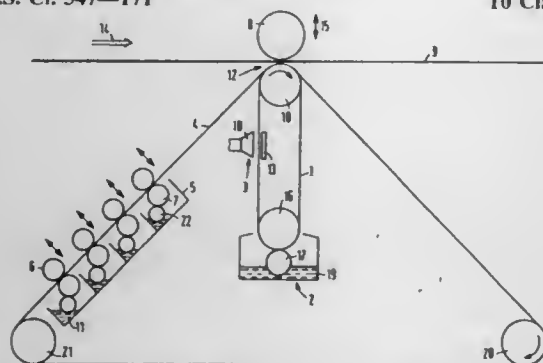
5,801,742

THERMAL TRANSFER PRINTING DEVICE FOR TRANSFERRING A PRINTING IMAGE ONTO A RECORDING MEDIUM

Manfred Wiedemer, Ismaning, Germany, assignor to Océ Printing Systems GmbH, Poing, Germany
PCT No. PCT/DE94/01418, § 371 Date Aug. 20, 1996, § 102(e)
Date Aug. 20, 1996, PCT Pub. No. WO95/23065, PCT Pub. Date Aug. 31, 1995

PCT Filed Nov. 29, 1994, Ser. No. 700,503

Claims priority, application Germany, Feb. 23, 1994, 44 05 840.3

U.S. Cl. 347—171 Int. Cl.⁶ B41J 2/32 10 Claims

1. A thermal transfer printing device for transferring a printing image onto a recording medium in a printer or copier, comprising:
- a first fabric tape, means for wetting said first fabric tape with a liquid;
 - a printing image transfer means for partially evaporating the liquid out of said first fabric tape according to predetermined printing information;
 - a second fabric tape, means for transferring printing ink onto said second fabric tape in an inking station; and
 - a transfer printing point including a heating device,
- means for jointly guiding said first fabric tape and said second fabric tape, one on top of the other, over said heating device, said first fabric tape being in touch contact with said heating device, with a result that liquid contained in said first fabric tape evaporates, and
- a pressure element operable to press the recording medium relative to said second fabric tape in a direction of said heating device.

5,801,743

IMAGE FORMATION METHOD USING A REVERSIBLE THERMOSENSITIVE RECORDING MATERIAL

Akihito Itoh, Mishima; Toru Nogiwa, Numazu; Yoshihiko Hotta; Akira Suzuki, both of Mishima, and Atushi Kutami, Numazu, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 618,333, Mar. 19, 1996, abandoned, which is a continuation of Ser. No. 452,526, May 30, 1995, abandoned, which is a division of Ser. No. 158,319, Nov. 29, 1993, Pat. No. 5,614,461. This application Feb. 21, 1997, Ser. No. 804,419

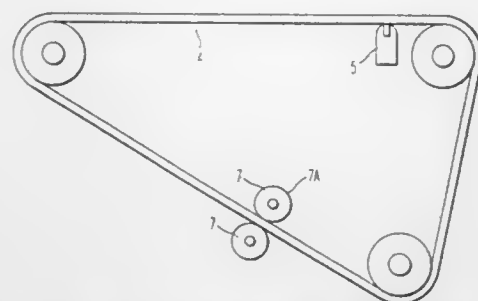
Claims priority, application Japan, Nov. 30, 1992, 4-345422; Apr. 28, 1993, 5-124987

Int. Cl.⁶ B41J 2/32

U.S. Cl. 347—171 10 Claims

1. An image formation apparatus using a reversible thermosensitive recording material capable of reversibly switching transparency or color tone depending on the temperature thereof, comprising:

means for recording an image on a surface of said reversible thermosensitive recording material at a predetermined image-forming temperature;



means for erasing said recorded image from said surface at a predetermined image erasing temperature; and

wet cleaning means for cleaning the surface of said reversible thermosensitive recording material, wherein said wet cleaning means is selected from the group consisting of a water jet, a cleaning roller, a cleaning brush, a cleaning belt, and a cleaning block, said wet cleaning means being controlled to the same temperature as said image erasing temperature, and wherein said wet cleaning means applies a cleaning liquid to the surface of said reversible thermosensitive recording material.

5,801,744

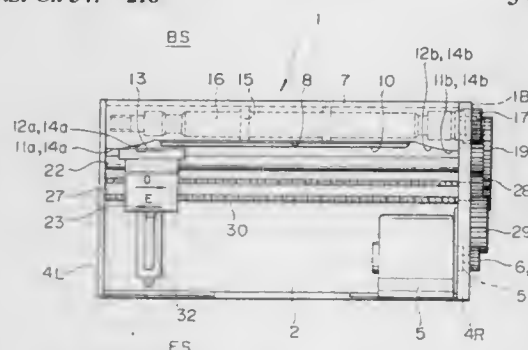
THERMAL PRINTER

Jun Taniguchi; Masahiko Mori, and Yasuhiko Iwane, all of Iwate-ken, Japan, assignors to Alps Electric Co., Ltd., Japan
Filed Jan. 31, 1996, Ser. No. 594,931

Claims priority, application Japan, Feb. 3, 1995, 7-017199; Jul. 26, 1995, 7-190421

Int. Cl.⁶ B41J 2/32; 25/304

U.S. Cl. 347—218 3 Claims



1. A thermal printer comprising:
- a carriage capable of reciprocally moving along a platen when a carriage drive shaft is rotated;
 - a thermal head provided for said carriage to oppose said platen;
 - an urging member for urging said thermal head to said platen;
 - a cam portion for separating said thermal head from said platen against the urging force of said urging member when said thermal head has passed a printable range as a result of movement of said carriage;
 - conveyance rollers to be rotated when a roller drive shaft is rotated and arranged to convey a recording medium;
 - a drive motor for rotating said carriage drive shaft and said roller drive shaft;
 - a drive-force transmission means which always transmits the drive force of said drive motor to said carriage drive shaft and which transmits the drive force of said drive motor to said roller drive shaft only when said carriage is moved in either direction and when said thermal head has passed the printable range wherein said drive-force transmission means further includes:
- an output gear provided for an output shaft of said drive motor;
 - a carriage drive gear provided for said carriage drive shaft;
 - and a rotative idle gear capable of always transmitting rotations of said output gear to said carriage drive gear;

5,801,746

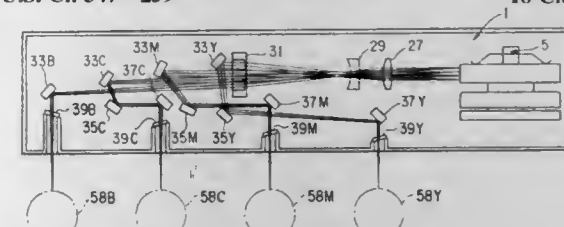
IMAGE FORMING APPARATUS HAVING A PLURALITY OF MIRROR MEMBERS EACH CAPABLE OF MOVING IN A PARALLEL OR ROTARY DIRECTION

Masao Yamaguchi, Kawaguchi, and Takashi Shiraishi, Sagami-hara, both of Japan, assignors to Kabushiki Kaisha Toshiha, Kawasaki, Japan

Filed May 17, 1996, Ser. No. 649,238

Claims priority, application Japan, May 18, 1995, 7-119806 Int. Cl.⁶ G02B 26/08

U.S. Cl. 347—259 18 Claims



6. An optical exposer unit comprising:
- means for scanning a plurality of laser beams to an object to be scanned; and

image-forming means for image-forming said laser beams scanned by said scanning means at a predetermined position of said scanning object.

said image-forming means including:

- optical means, having a group of lenses, for providing a predetermined optical characteristic to each of said laser beams;
- a plurality of reflecting means provided between said optical means and said scanned object so as to correspond to each of said laser beams; and
- a plurality of glass plates provided to parallel-displace a corresponding one of said laser beams reflected by said reflecting means by a predetermined distance, said plurality of glass plates being provided at a final stage where said laser beams pass and being arranged such that the corresponding one of said laser beams is crossed at the predetermined angle with respect to others of said laser beams by the corresponding one of said glass plates.

5,801,747

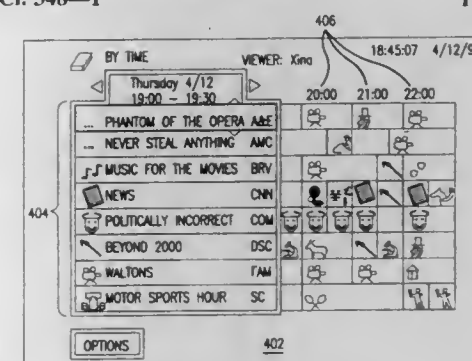
METHOD AND APPARATUS FOR CREATING A TELEVISION VIEWER PROFILE

Karen Bedard, San Jose, Calif., assignor to Hyundai Electronics America, San Jose, Calif.

Filed Nov. 15, 1996, Ser. No. 751,537

Int. Cl.⁶ H04N 7/17

U.S. Cl. 348—1 17 Claims



1. A method of monitoring television viewing behavior to determine viewer preferences, comprising the steps of:
- establishing a viewer profile listing for storing a predetermined number of preferred viewing statuses;
 - calculating a time duration of a first viewing status;

- a roller drive gear provided for said roller drive shaft through a one-way clutch;
- a rotative transmission gear capable of transmitting the drive force of said carriage drive gear to said roller drive gear; wherein said roller drive gear includes a tooth portion and a tooth-omitted portion structured in such a manner that the quantity of rotation of said roller drive gear is made to be different depending upon the position of said carriage for the purpose of making the quantity of rotation of said roller drive shaft to be the same regardless of the position of said carriage when the drive force of said roller drive gear is transmitted to said roller drive shaft through said one-way clutch.

5,801,745

APPARATUS AND METHOD FOR PERFORMING A PHOTOGRAPHIC PRINTING

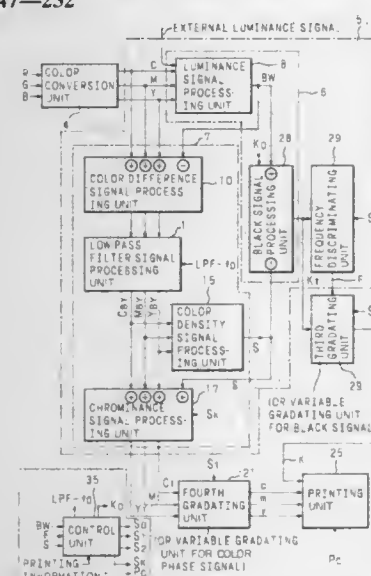
Ryukichi Wada; Fumio Suzuki, and Yoshisuke Ohtsuru, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 21, 1995, Ser. No. 492,757

Claims priority, application Japan, Jun. 30, 1994, 6-149754

Int. Cl.⁶ B41J 2/47

U.S. Cl. 347—232 42 Claims



1. A photographic printing method comprising the steps of:
- (a) color converting an input image signal into a photographic signal;
 - (b) processing said photographic signal to generate a black signal representing black components of said photographic signal;
 - (c) processing said photographic signals to generate a chrominance signal;
 - (d) discriminating a frequency of said black signal;
 - (e) gradating said black signal in accordance with a resolution and a gradation level set based on said discriminated frequency output from said step (d);
 - (f) gradating said chrominance signal;
 - (g) printing an image based on output of said steps (e) and (f).

determining whether said first viewing status is included in said viewer profile listing;
adding the time duration of said first viewing status to a total viewing time counter for said first viewing status in said viewer profile listing if said first viewing status is included in said viewer profile listing; and
adding said first viewing status and said time duration of said first viewing status to said viewer profile listing if said first viewing status is not included in said viewer profile listing.

5,801,748

APPARATUS FOR STORING PICTURE INFORMATION DISPLAYED ON A MONITOR

Thomas Hohenacker, Wilhelmstrasse 4, Muenchen, Germany, D-80801

PCT No. PCT/EP94/01161, PCT Pub. No. WO94/24785, PCT Pub. Date Oct. 27, 1994

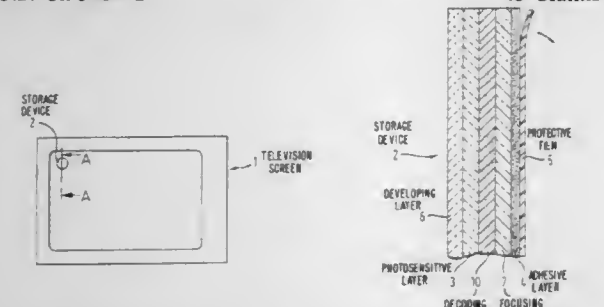
PCT Filed Apr. 14, 1994, Ser. No. 532,737

Claims priority, application Germany, Apr. 14, 1993, 43 12 185.3

Int. Cl.⁶ H04N 5/00; 5/44; 5/46; 5/10

U.S. Cl. 348—2

45 Claims



1. Device for storing picture information shown on a part area of a video monitor comprising a storage medium of photosensitive material responsive to a display appearing on the video monitor for forming a lasting record of the display, an adhesive layer on a side of the material facing the video monitor, and means coupled to the photosensitive material and adapted for transporting the device including the record to a location remote from the video screen.

5,801,749

UNIVERSAL AUDIO/VIDEO SIGNAL CONVERTER

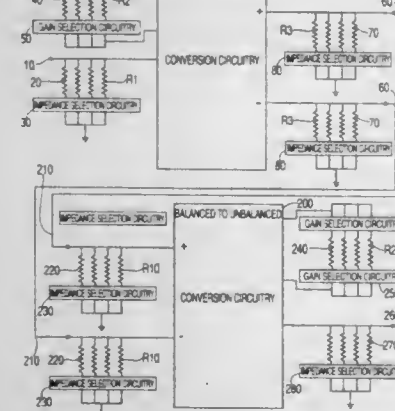
Loi Ninh, Foothill Ranch, and Barry D. Hackworth, Cerritos, both of Calif., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Dec. 13, 1995, Ser. No. 572,283

Int. Cl.⁶ H04N 7/10

U.S. Cl. 348—6

28 Claims



1. An audio/video signal converter for converting balanced and unbalanced signals based on a desired signal conversion, comprising:

- first conversion means for converting a balanced signal to an unbalanced signal;
 - second conversion means for converting an unbalanced signal to a balanced signal;
 - first adjustment means for adjusting an input impedance of said first conversion means;
 - second adjustment means for adjusting an input impedance of said second conversion means;
 - third adjustment means for adjusting an output impedance of said first conversion means;
 - fourth adjustment means for adjusting an output impedance of said second conversion means;
 - first gain adjustment means for adjusting a gain of said first conversion means;
 - second gain adjustment means for adjusting a gain of said second conversion means; and
 - selection means for selecting said first conversion means and said second conversion means,
- wherein said first adjustment means, said second adjustment means, said third adjustment means, said fourth adjustment means, said first gain adjustment means, said second gain adjustment means and said selection means may be independently adjusted as required to achieve any desired signal conversion.

5,801,750

INFORMATION OFFERING SYSTEM

Akira Kurihara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

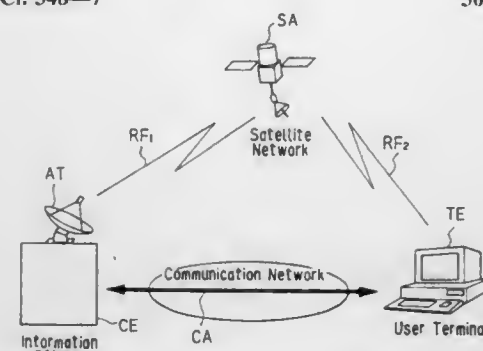
Filed Jun. 20, 1995, Ser. No. 492,794

Claims priority, application Japan, Jun. 24, 1994, 6-142721

Int. Cl.⁶ G06F 13/00

U.S. Cl. 348—7

30 Claims



28. An information service center for supplying information to a terminal, comprising:

- storage means for storing whole information and partial information being stored in advance of supplying said information to said terminal, said whole information to be supplied to said terminal, and said partial information including an ID indicating a storage location of said whole information in said storage means, a file name of said whole information and a sample information created by cutting out information from said whole information;
- first transmitting means for transmitting said partial information to said terminal in a first communication mode; and
- second transmitting means for transmitting said whole information specified by said terminal based on said partial information to said terminal in a second communication mode.

5,801,751

DISTRIBUTION OF SATELLITE TELEVISION PROGRAMS TO PASSENGERS IN AN AIRCRAFT WHEN IT IS OUT OF RANGE OF THE SATELLITES

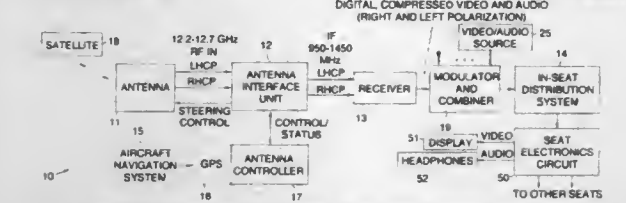
Richard E. Sklar, Huntington Beach, and Lawrence E. Girard, Westminster, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Jun. 19, 1996, Ser. No. 667,224

Int. Cl.⁶ H04N 7/16

U.S. Cl. 348—8

22 Claims



1. A satellite television system that distributes television programs to passengers on an aircraft derived from direct broadcast satellites, said system comprising:

- an antenna that comprises steering means for steering the antenna toward the satellites in response to control signals supplied thereto;
- antenna control means for providing the control signals to the antenna and for processing status signals derived from the antenna to steer the antenna so that it is locked onto encoded RF signals transmitted by the satellite, and for downconverting the encoded RF signals to provide encoded left hand and right hand circularly polarized RF signals that correspond to a plurality of encoded television channels;
- a receiver coupled to the antenna control means for processing the downconverted encoded RF signals to provide encoded video and audio output signals corresponding to at least one television channel;
- a storage medium coupled to the receiver for storing the encoded video and audio signals;
- a modulator coupled to the receiver for selectively modulating the downconverted encoded video and audio signals when the aircraft is within a coverage area of the satellites, and the stored encoded video and audio signals when the aircraft is outside the coverage area of the satellites; and
- a video and audio distribution system coupled to the modulator for distributing the modulated and encoded video and audio signals for viewing by the passengers.

5,801,752

Patent Not Issued For This Number

5,801,753

METHOD AND APPARATUS FOR PROVIDING AN INTERACTIVE GUIDE TO EVENTS AVAILABLE ON AN INFORMATION NETWORK

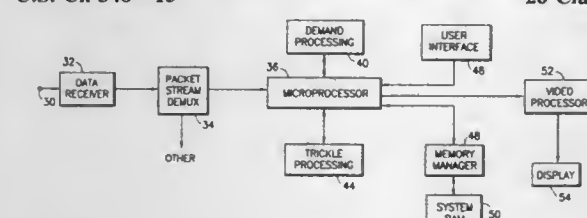
Mark K. Eyer, and Zicheng Guo, both of San Diego, Calif., assignors to General Instrument Corporation of Delaware, Horsham, Pa.

Filed Aug. 11, 1995, Ser. No. 502,774

Int. Cl.⁶ H04N 7/14; 7/08; 7/084; 7/087

U.S. Cl. 348—13

26 Claims



1. A decoder for providing an interactive program guide (IPG) from data received via an information network on which events listed in the program guide are available, comprising:

- means for recovering IPG trickle data from said information network at a first data rate, said trickle data comprising current schedule information for a current time period for storage in a memory of said decoder and substantially instantaneous display at any time during said current time period;
- means for selectively retrieving IPG demand data from said information network at a second data rate that is faster than said first data rate, said demand data being provided in pages and comprising future schedule information, each of said pages containing demand data for different future time slots for a future time period;
- an interface for receiving a user command which designates a user-selected time period which is a subset of said future time period;
- wherein said means for selectively retrieving is responsive to said user command for selectively retrieving only particular ones of said pages of demand data which correspond to said userselected time period; and
- means for storing said selectively retrieved pages of IPG demand data for display after the retrieval thereof from said information network.

5,801,754

INTERACTIVE THEATER NETWORK SYSTEM

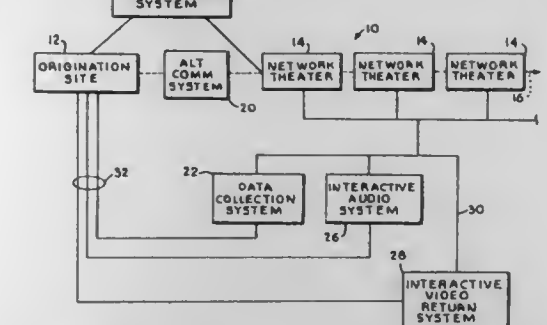
Edward James Ruybal, Arapahoe; Timothy Leo Rust, Highlands Ranch, and Michael David Aisner, Boulder, all of Colo., assignors to United Artists Theatre Circuit, Inc., Englewood, Colo.

Filed Nov. 16, 1995, Ser. No. 559,566

Int. Cl.⁶ H04N 7/14

U.S. Cl. 348—13

31 Claims



1. An interactive theater network system for linking a plurality of motion picture theater auditoriums to conduct live, interactive events with theater audiences throughout the theater network, the theater network system comprising:

- an origination site for broadcasting information relating to the interactive event;
- a plurality of network theater auditoriums interactively linked with the origination site, each of the theaters including a full-motion picture projection system configured to receive the interactive event information from the origination site and present the information to theater audiences;
- a broadcast communication system for transmitting the interactive event information from the origination site to the plurality of network theaters; and
- an audience response system for providing interactive communication between the origination site and audience members from the plurality of network theaters, the audience response system including data collection means for collecting and processing data relating to the interactive event generated from audience members in the plurality of theaters, and interactive communication means for providing two-way audio and video communications during the interactive

best-estimate-selection circuitry for selecting best estimates from said respective estimated symbol decoding results to generate final symbol decoding results at times between those times when synchronization codes occur, the selection of said best estimates depending on the departures from said first estimated symbol decoding results of other estimated symbol decoding results.

5,801,760

STEREOSCOPIC IMAGE PICKUP AND DISPLAY APPARATUS

Kenya Uomori, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

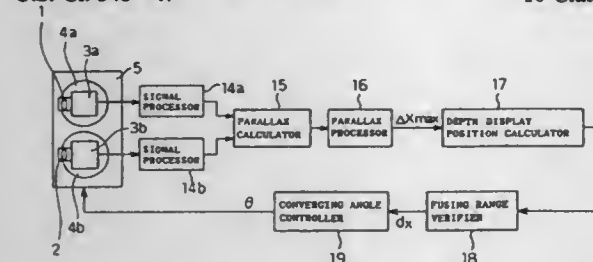
Continuation of Ser. No. 297,307, Aug. 26, 1994, abandoned. This application Mar. 31, 1997, Ser. No. 832,603

Claims priority, application Japan, Aug. 26, 1993, 5-211531; Oct. 21, 1993, 5-263753

Int. Cl.⁶ H04N 13/00

U.S. Cl. 348—47

10 Claims



I. A stereoscopic image pickup apparatus comprising:

an image pickup device for capturing pairs of images of an object from a plurality of viewpoints, each of said pairs of images referred to as a left image and a corresponding right image;

a converging angle moving mechanism for varying a converging angle of said image pickup device;

a signal processor for generating image data for said images captured by said image pickup device;

a parallax calculator for calculating a parallax of said object for individual pairs of images by directly using said image data from said signal processor relating only to a respective pair of images, free of the use of a pointer, and using a block-matching technique;

a parallax processor for detecting the smallest value of parallax, representing a parallax of a nearest object to said image pickup device, calculated by said parallax calculator;

a depth display position calculator for calculating from said smallest value of parallax detected by said parallax processor a depthwise position of said nearest object to be reproduced at a nearest point when a captured image is displayed by a stereoscopic image display device;

a fusing range verifier for verifying whether said depthwise position of said nearest object calculated by said depth display position calculator is within a fusional range of a viewer when the viewer views a reproduced image; and

a converging angle controller for controlling said converging angle moving mechanism, when said fusing range verifier determines that said depthwise position of said nearest object is not within the fusional range of the viewer, in order to change said converging angle so that said depthwise position of said nearest object is near a boundary of the fusional range of the viewer, thereby minimizing three-dimensional distortion of the image display device while maximizing display area that a viewer can fuse.

5,801,761

METHOD AND APPARATUS FOR PRODUCING THREE-DIMENSIONAL PICTURE

Balogh Tibor, Ady Endre ÚT 8., H-1191 Budapest, Hungary

PCT No. PCT/HU93/00018, § 371 Date Sep. 25, 1995, § 102(e) Date Sep. 25, 1995, PCT Pub. No. WO94/23541, PCT Pub. Date Oct. 13, 1994

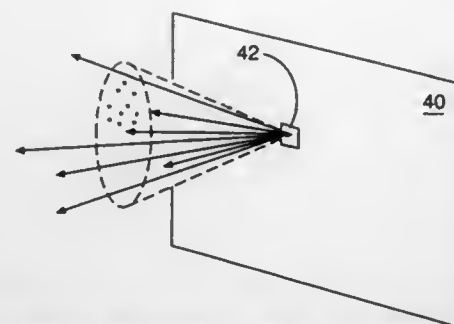
PCT Filed Mar. 26, 1993, Ser. No. 525,724

Int. Cl.⁶ H04N 13/00

U.S. Cl. 348—51

13 Claims

1. A method for producing a three-dimensional picture, comprising the steps of:



modulating a coherent light beam by a three-dimensional video signal to obtain light rays containing picture information and each associated with a view direction; and directing the modulated light beam to pixels arranged to define a light emitting surface; wherein each light ray of the modulated coherent light beam is emitted from an associated pixel in the associated view direction.

5,801,762

DIGITALLY MEASURING SCOPES USING A HIGH RESOLUTION ENCODER

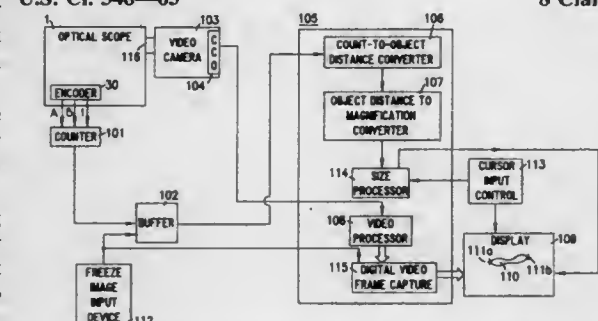
Andreas E. Dianna, Walnut Port, Pa., and James G. Costello, Huntington, N.Y., assignors to Olympus America, Inc., Melville, N.Y.

Filed Jul. 17, 1995, Ser. No. 502,984

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—65

8 Claims



I. A system for determining a dimension of a feature, the system comprising:

an optical scope for gathering an image of the feature, the optical scope including:

i) a focusing device for adjusting a focal position of the image of the feature,

ii) a device for detecting a position of the focusing device and for providing a focus position signal based on the position of the focusing device, and

iii) an image-to-video converter for producing a video signal of the feature from the image of the feature having its focal position adjusted by the focusing device;

b) an image scaling device for providing a scaled image size; and

c) a processor, the processor
i) converting the focus position signal into at least one of an object distance signal and a magnification signal, and

ii) determining the dimension of the feature based on the scaled image size and based on the at least one of the object distance signal and the magnification signal, wherein the dimension of the feature includes at least one of a depth and height of the feature,

wherein the device for detecting a position of the focusing device and for providing a focus position signal includes an optical encoder which includes:

an encoder disk having apertures arranged around its circumference, the encoder disk being mechanically coupled with the focusing device such that it rotates when the focusing device is adjusted;

a light source for directing light towards a first side of the encoder disk; and

a detection device arranged on a second side of the encoder disk, the detection device generating a pulse when light from the light source passes through an aperture of the encoder disk, whereby pulses generated by the encoder correspond to relative adjustments of the focusing device.

5,801,763

FACE IMAGE TAKING DEVICE

Hiroyoshi Suzuki, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

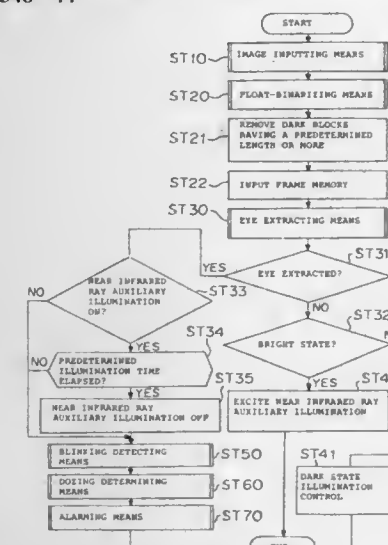
Filed Dec. 20, 1995, Ser. No. 575,487

Claims priority, application Japan, Jul. 6, 1995, 7-170977

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—77

24 Claims



I. A face image taking device comprising:

a two-dimensional image taking means for taking an image of a predetermined region including a face of a person to be detected;

an optical filter having a pass band passing at least an infrared ray in a predetermined wavelength region and arranged on an optical axis of the two-dimensional image taking means;

an eye detecting means for detecting eyes of the person to be detected based on the image of the face of the person to be detected which has been taken by the two-dimensional image taking means, said eye detecting means outputting a signal indicative of whether at least one eye has been detected;

an infrared ray illuminating means for illuminating at least the face of the person to be detected by an infrared ray which has passed through the optical filter, said infrared ray illuminating means being arranged such that an angle made by the optical axis of the two-dimensional image taking means and an optical axis of the infrared ray is a predetermined angle or more; and

an exciting means for exciting the infrared ray illuminating means based on said signal output by said eye detecting means indicating a failure to detect an eye of said person.

5,801,764

MONITOR DEVICE AND MONITOR METHOD

Hiroyoshi Koizumi, Yamanashi-ken, and Hidehito Yokomori, Nirasaki, both of Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Continuation of Ser. No. 499,950, Jul. 10, 1995, abandoned.

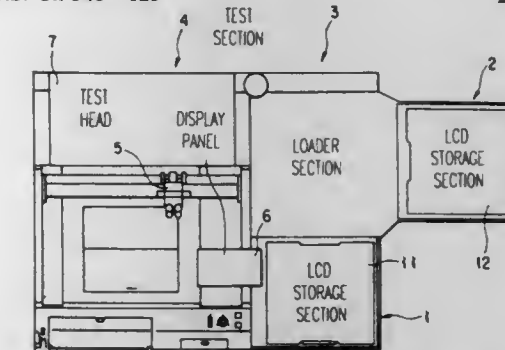
This application Aug. 18, 1997, Ser. No. 912,647

Claims priority, application Japan, Jul. 11, 1994, 6-158943; Jul. 11, 1994, 6-158944

Int. Cl.⁶ H04N 7/18; 9/47

U.S. Cl. 348—125

27 Claims



1. A monitor device for monitoring an object to be processed in a processing apparatus for performing predetermined processing for the object and wherein said object is one of an LCD substrate and a semiconductor substrate, said device comprising:

detecting means for detecting a position of the object in said processing apparatus; and

display means for displaying an image of an interior of said processing apparatus and of an object disposed in said interior of said processing apparatus, and wherein said image of said interior includes a test section, an object storage section and a transfer section, such that said image displayed by said display means provides position information of the object detected by said detecting means with respect to the interior of said processing apparatus.

5,801,765

SCENE-CHANGE DETECTION METHOD THAT DISTINGUISHES BETWEEN GRADUAL AND SUDDEN SCENE CHANGES

Yukie Gotoh, Hirakata-shi; Toshikazu Tatsumi, Higashi-Iosakashi, and Hiroshi Akahori, Hirakata-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

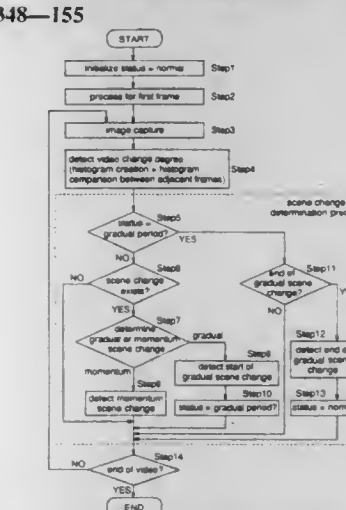
Filed Oct. 30, 1996, Ser. No. 739,995

Claims priority, application Japan, Nov. 1, 1995, 7-284769

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—155

4 Claims



a first step in which a comparison result between a frame picture of input video signals and another frame picture of input video signals, the frames being adjacent to each other, is detected as a video change degree and, if the video change degree is great, it is determined a scene-change exists, wherein the first step determines that there is a scene-change when a time differential of the video change degree exceeds a prescribed threshold value;

a second step that distinguishes the scene-change determined in the first step between a momentum scene-change and a gradual scene-change, based on a continuity of the video change degree; and

a third step in which for the momentum scene-change determined in the second step, its determined point is detected as the momentum scene-change, and for the gradual scene-change determined in the second step, a period from its determined point to a point at which the video change degree is stable, is detected as a gradual scene-change period.

5,801,766

SECURITY SYSTEM FOR USE AT A ROULETTE TABLE
John Robin Alden, North Humberside, England, assignor to Aristocrat (Europe) Limited, London, England

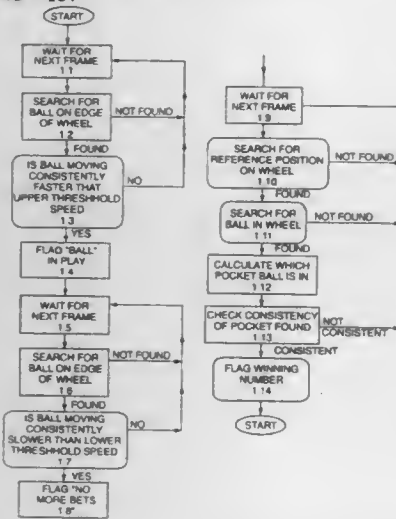
PCT No. PCT/GB94/02282, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/11067, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 19, 1994, Ser. No. 633,806
Claims priority, application United Kingdom, Oct. 19, 1993, 9321501; Sep. 23, 1994, 9419208

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—157

19 Claims



9. A method for detecting cheating at a roulette table comprising the steps of:

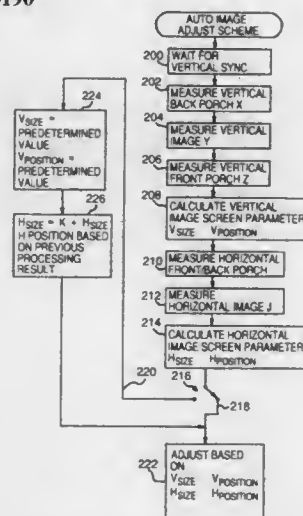
- monitoring the roulette wheel of said roulette table with a video camera;
- processing each video frame obtained from the video camera so as to detect the presence of a ball on the roulette wheel;
- comparing the information obtained from each video frame to determine the relative speed of rotation of the ball around the roulette wheel;
- detecting when the speed of rotation has dropped below a predefined threshold signifying the end of a game;
- processing each video frame obtained from the video camera to detect movement within the betting area of the roulette table;
- indicating when movement within the betting area coincides with the end of the game.

**5,801,767
IMAGE SCREEN AUTOMATIC ADJUSTMENT
APPARATUS FOR VIDEO MONITOR**
Trans Wu, Taipei Hsien, China, assignor to Amtran Technology Co., Ltd., Taipei, Taiwan

Filed Jun. 11, 1996, Ser. No. 661,927
Int. Cl.⁶ H04N 3/22; 17/00

U.S. Cl. 348—190

6 Claims



1. An image screen automatic adjustment apparatus for a video display monitor device comprising:

a microprocessor means for handling the operation of said monitor device and for implementing said image screen adjustment;

and image screen automatic adjustment enable switch means provided on said monitor device;

a push button processor circuitry coupled between said image screen automatic adjustment enable switch means and said microprocessor means, said push button processor circuitry signalling to said microprocessor means when said enable switch means is enabled; and

and image inspection circuitry coupled to said microprocessor means, the image inspection circuitry for outputting horizontal and vertical image signals and horizontal front-back porch signals;

wherein when said image screen automatic adjustment enable switch means is enabled, said image inspection circuitry provides the horizontal and vertical image signals and said horizontal front-back porch signals to said microprocessor means for implementing an optimization analysis processing to obtain a set of optimized control parameters including a vertical size parameter V_{size} , a vertical position parameter $V_{position}$, a horizontal size parameter H_{size} , and a horizontal position parameter $H_{position}$, and said microprocessor means automatically adjusts said image screen based on said set of optimized control parameters.

5,801,768

PURITY ADJUSTING APPARATUS USING BEAM POSITION SIMULATION

Yasunobu Sudo, and Toshimi Kobori, both of Utsunomiya, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

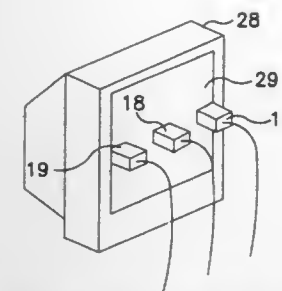
Filed Jun. 24, 1996, Ser. No. 669,612

Claims priority, application Japan, Jun. 24, 1995, 7-180862
Int. Cl.⁶ H04N 17/00; 17/02

U.S. Cl. 348—191

5 Claims

1. An apparatus for adjusting color purity of a color cathode ray tube using beam position simulation comprising:
time measuring means for measuring a conducting time from a time when a conduction starts to a time when the purity of the color cathode ray tube of a color television receiver is adjusted;



reference drift data calculating means for storing data indicating a relation between a landing position deviation of an electron beam due to a thermal expansion of a shadow mask inside said color cathode ray tube by heat generated when the electron beam passes through said shadow mask and said conducting time and calculating reference drift data for a reference temperature and a reference brightness on an electron beam landing position at the time when the purity is adjusted from the conducting time data supplied from said time measuring means;

temperature/brightness measuring means for measuring a temperature and a brightness on a faceplate of said color cathode ray tube;

computing means for calculating an optimum beam landing position for the electron beam to strike phosphor of a designated color when the purity is adjusted and for converting the data of the calculated optimum beam landing position into (X, Y) coordinates data, being inputted with the temperature data and the brightness data supplied from said temperature/brightness measuring means and the reference drift data supplied from said reference drift data calculating means; and display means for displaying an aiming position on the (X, Y) coordinates indicating the optimum beam landing position supplied from said computing means and displaying a marker on the (X, Y) coordinates indicating the beam landing position; wherein purity is adjusted corresponding to said designated color by making said marker coincide with said aiming position.

5,801,769

VIBRATION COMPENSATOR WITH CORRECTS FOR VIBRATION ERRORS BASED ON SERVO CONTROL UNIT ERRORS

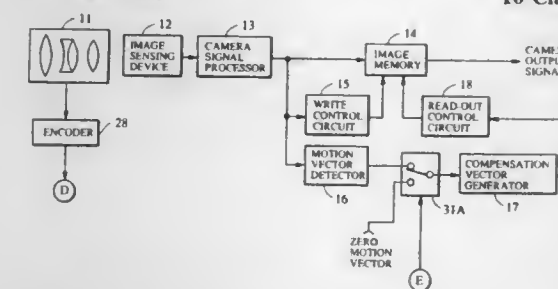
Hisataka Hirose, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 462,797, Jun. 5, 1995, abandoned, which is a division of Ser. No. 172,379, Dec. 22, 1993, Pat. No. 5,493,333. This application Jun. 16, 1997, Ser. No. 876,592

Claims priority, application Japan, Dec. 28, 1992, 4-361628
Int. Cl.⁶ H04N 5/225

U.S. Cl. 348—208

10 Claims



1. An image processing apparatus, comprising:

- image sensing means for receiving light from an object, and for providing video signals;
- reproducing means for reproducing the video signals recorded on a recording medium;
- an image memory for storing the video signals;

- a clock oscillator for outputting clock signals;
- memory control means for controlling writing and reading operations of said image memory;
- vibration compensation means for compensating image vibrations and in the jitter components video signals stored in said image memory by controlling said memory control means, said vibration compensation means controlling said memory control means to write the input video signals in said image memory synchronizing with synchronous signals of the input video signals and clock signals of said clock oscillator, and to read-out the video signals from said image memory synchronizing to the clock signals of said clock oscillator;
- mode switching means for selectively switching modes between an image sensing mode where said image sensing means outputs the video signals, and a reproducing mode where said reproducing means outputs the video signals reproduced from the recording medium, and for supplying the video signals output from said image sensing means to said vibration compensation means in said image sensing mode and supplying the reproduced video signals to said vibration compensation means in said reproducing mode.

5,801,770

SURVEILLANCE APPARATUS WITH ENHANCED CONTROL OF CAMERA AND LENS ASSEMBLY

Robert Paff, Boca Raton; Carl Kupersmit, Lake Worth; Lawrence R. Mills, Coral Springs, and Edwin Thompson, Loxahatchee, all of Fla., assignors to Sensormatic Electronics Corporation, Deerfield Beach, Fla.

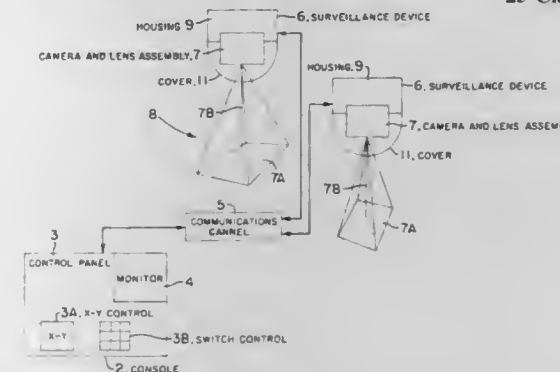
Continuation of Ser. No. 48,582, Apr. 14, 1993, which is a continuation of Ser. No. 739,119, Jul. 31, 1991, abandoned.

This application Sep. 15, 1994, Ser. No. 306,535

Int. Cl.⁶ H04N 5/232

U.S. Cl. 348—211

25 Claims

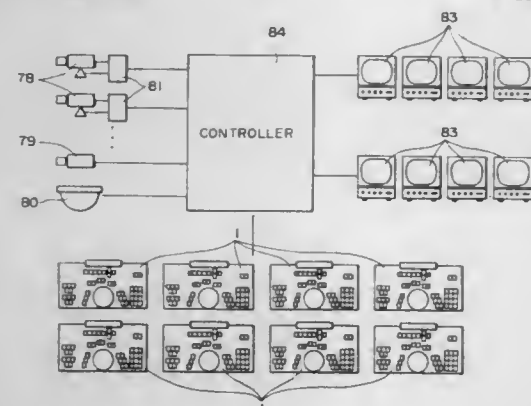


1. Apparatus comprising:

- a central processing unit for receiving commands for controlling a camera and lens assembly means of a CCTV system, said commands being from a remote operator control means of said CCTV system;
- camera and lens assembly means, said camera and lens assembly means including at least first, second, third, fourth and fifth movable parts for controlling the pan, tilt, zoom, focus and iris conditions, respectively, of said camera and lens assembly means;
- a first closed loop digital motion control means responsive to said first movable part and to said central processing unit for controlling said first movable part so as to control said pan condition, said first closed loop digital motion control means including a first dedicated digital signal processor responsive to said first movable part and to said central processing unit for exclusive control of said first movable part, said first dedicated digital signal processor exercising no control over any other movable part for controlling any other condition of said camera and lens assembly;
- second, third, fourth and fifth closed loop digital motion control means responsive to said central processing unit and to the positional state of said second, third, fourth and fifth movable

parts, respectively, for controlling said second, third, fourth and fifth movable parts, respectively, so as to control said tilt, zoom, focus and iris conditions, respectively, said second closed loop digital motion control means including a second dedicated digital signal processor responsive to said second movable part and to said central processing unit for exclusively controlling said second movable part;
a further central processing unit responsive to said central processing unit;
and said third, fourth and fifth closed loop digital motion control means and said second dedicated digital signal processor of said second closed loop digital motion control means being responsive to said further central processing unit for controlling said third, fourth, fifth and second movable parts, respectively.

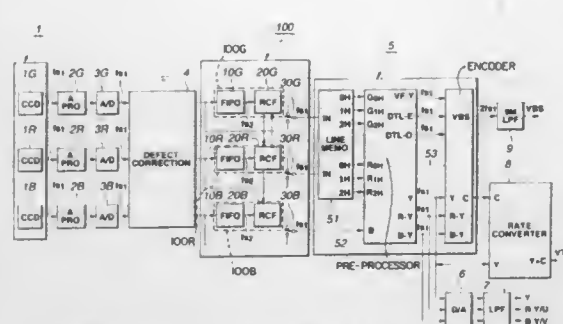
5,801,771
KEYBOARD AND VIDEO CAMERA CONTROL SYSTEM
Hirotugu Ohwaki, and Kiyoshi Yoneda, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jul. 17, 1996, Ser. No. 682,161
Claims priority, application Japan, Jul. 20, 1995, 7-205072
Int. Cl.⁶ H04N 5/232; G09G 5/08
U.S. Cl. 348—211 6 Claims



1. A keyboard comprising:
a joyball operable by an operator with a hand;
a plurality of operation keys operable by a plurality of fingertips of the operator;
said joyball being disposed in a central position relative to said operation keys and said operation keys being disposed in a substantially semicircular array around said joyball; and
a joystick mounted on an upper panel of said keyboard and tiltable in a plurality of biaxial directions, said joystick being detachably inserted into said joyball;
said upper panel having a stopper limit hole defined therein, said joyball having a stopper mounted on a lower surface thereof and loosely fitted in said stopper limit hole.

5,801,772
DIGITAL VIDEO CAMERA APPARATUS AND ASPECT RATIO CONVERTING APPARATUS
Takashi Asada, and Takashi Kameyama, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation of Ser. No. 600,947, Feb. 21, 1996, Pat. No. 5,659,356. This application Apr. 4, 1997, Ser. No. 835,114
Claims priority, application Japan, Jun. 29, 1994, 6-148305
Int. Cl.⁶ H04N 5/228; H1/20

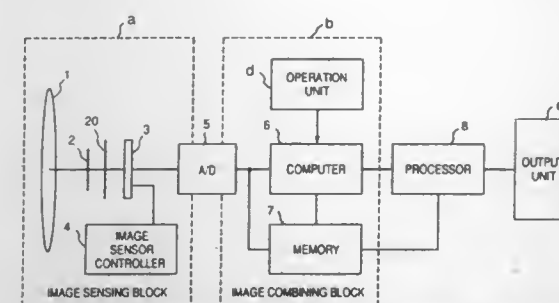
U.S. Cl. 348—222 1 Claim
1. A video camera comprising:
imaging means for receiving red, blue and green input digital picture signals as an input digital picture signal;
aspect ratio converting means for converting said input digital picture signal of a first data rate having a first aspect ratio of



16:9 into a digital picture signal of a second data rate different from the first data rate having a second aspect ratio of 4:3 different from the first aspect ratio; and
data rate converting means for implementing data rate conversion to the digital picture signal of said second data rate delivered from the aspect ratio converting means to generate an output digital picture signal of the first data rate having the second aspect ratio,
wherein the aspect ratio converting means includes time axis converting means for implementing time axis conversion for the input digital picture signal by thinning said input digital picture signal at a rate of one to four clock pulses so as to form the digital picture signal of the second data rate having the second aspect ratio at $\frac{1}{4}$ the first data rate;
wherein the data rate converting means substantially processes over-sampling of $4n$ times in which n is a positive integer and down-sampling of $\frac{1}{4n}$ times with respect to the digital picture signal delivered from the time axis converting means, thereby converting said input digital picture signal at said second data rate and second aspect ratio to said output digital picture signal at said first data rate and said second aspect ratio; and
wherein said red and blue input digital picture signals of the first data rate have a first spatial sampling phase and said green input digital picture signal of the first data rate has a second spatial sampling phase different by a spatial sampling position from the red and blue input digital picture signals,
wherein the aspect ratio converting means converts the red and blue input digital picture signals into first output digital picture signals having the second aspect ratio at the second data rate having a third spatial sampling phase, and converts the green input digital picture signal into a second output digital picture signal having the second aspect ratio at the second data rate having a fourth spatial sampling phase such that a phase difference between the third and fourth spatial sampling phases corresponds to a difference of the spatial sampling position between the red and blue input digital picture signals and the green input digital picture signals.

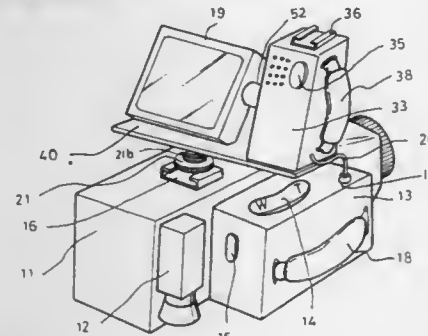
5,801,773
IMAGE DATA PROCESSING APPARATUS FOR PROCESSING COMBINED IMAGE SIGNALS IN ORDER TO EXTEND DYNAMIC RANGE
Eiichiro Ikeda, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 26, 1994, Ser. No. 329,538
Claims priority, application Japan, Oct. 29, 1993, 5-271940; Oct. 29, 1993, 2-271941; Oct. 29, 1993, 5-271942; Oct. 29, 1993, 5-271943; Oct. 29, 1993, 5-272117; Nov. 10, 1993, 5-281008
Int. Cl.⁶ H04N 5/235; H04N 5/22; H04N 5/27

U.S. Cl. 348—229 8 Claims
1. An image pickup apparatus comprising:
(a) image pickup means for forming a plurality of image signals having different exposure conditions;
(b) combining means for combining said plurality of image signals to form a combined image signal having an extended dynamic range based on a predetermined algorithm; and



(c) recording means for recording said combined image signal and information regarding said algorithm in a predetermined recording medium.

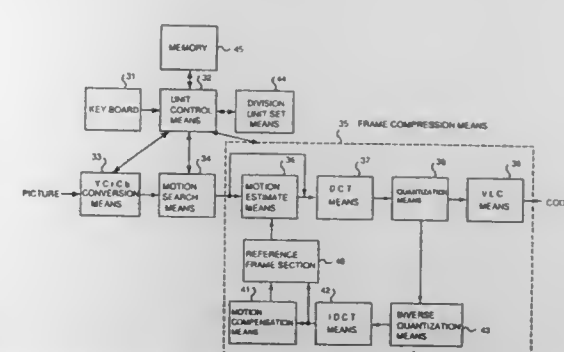
5,801,774
CAMCORDER WITH DETACHABLE AND ROTATABLE VIEWFINDER ASSEMBLY
Jin-Woo Seo, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea
Filed Nov. 24, 1995, Ser. No. 562,518
Claims priority, application Rep. of Korea, Nov. 25, 1994, 31338/1994
Int. Cl.⁶ H04N 5/225 37 Claims
U.S. Cl. 348—333



1. A camcorder comprising:
a camcorder body a first strap body disposed at a side of said camcorder body, and a first operating unit provided with a camcorder function control, and
a viewfinder assembly detachably mounted on said camcorder body, comprising:
a support plate detachably mounted on said camcorder body such that said support plate is rotatable relative to said camcorder body,
a second strap body fixedly mounted on said support plate, and
a tiltable rotatable viewfinder mounted on said second strap body.

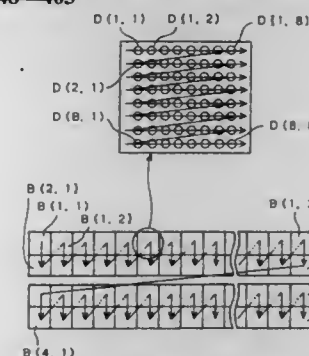
5,801,775
MOVING PICTURE COMPRESSION USING CACHE MEMORY FOR STORING CODING INSTRUCTIONS
Hiroaki Ueda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Jul. 17, 1996, Ser. No. 682,315
Claims priority, application Japan, Jul. 17, 1995, 7-179756
Int. Cl.⁶ H04N 7/32 18 Claims
U.S. Cl. 348—402

1. A moving picture compression unit for compression coding, using a program comprising a plurality of smaller sized programs, a moving picture based on an in-frame code and an inter-frame code, where said in-frame code is high efficiency coded through dividing a picture image into small blocks, discrete cosine transforming each of said divided blocks, quantizing a transformation result, and where said inter-frame code is high efficiency coded



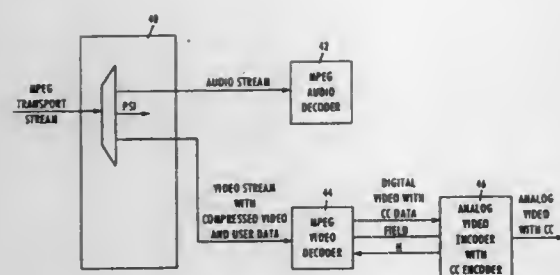
through dividing a picture image into small blocks, motion searching at each block between a current frame and a past/future frames, calculating a difference value between a block of a current frame and a block of said motion searched frame, discrete cosine transforming said difference value, quantizing said transformation result, said moving picture compression unit comprising:
a cache memory for temporarily storing one of the smaller sized programs for compression coding said moving picture;
set means for setting at least one of division unit of a number of frames, a number of lines and a number of block lines for dividing compression coding processing based on a capacity of said cache memory; and
moving picture compression means for executing compression coding at every division unit set by said set means using the one program stored in said cache memory.

5,801,776
IMAGE PROCESSING SYSTEM
Tsuyoshi Tamura, Toshiki Miyane, and Teruhisa Ishikawa, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Division of Ser. No. 217,114, Mar. 24, 1994. This application Mar. 16, 1995, Ser. No. 405,348
Claims priority, application Japan, Mar. 25, 1993, 5-066828; Mar. 25, 1993, 5-066829
Int. Cl.⁶ H04N 7/30 9 Claims
U.S. Cl. 348—403



1. An image decoding system for decoding compression data to video data, said compression data being generated by dividing original video data constituting one screen page of video data into a plurality of pixel blocks and coding said video data on a block by block basis, each block consisting of an array of M by N pixels with M and N being integers greater than 2, said image decoding system comprising:
compression data input means for inputting said compression data which was previously coded on a block by block basis, along a predetermined direction of an image;
decoding means for decoding said input compression data to video data corresponding to each said block at a first timing;
memory means for storing and arranging said decoded video data, said memory means including two memory elements working alternately, the combined memory storage capacity of said two memory elements being smaller than the memory capacity required to store one full screen page of video data, each of said memory elements being large enough to store a block line of video data which corresponds to only a portion

a video decoder that receives the video stream and generates decompressed video and closed caption data therefrom; and



an analog video encoder that receives the decompressed video and closed caption data and generates an analog video output signal with encoded closed caption data.

5,801,783

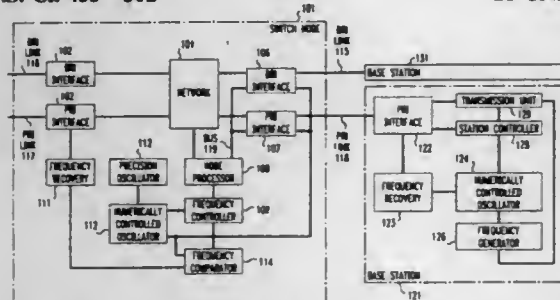
REMOTE ACCURATE FREQUENCY GENERATION USING A NUMERICALLY CONTROLLED OSCILLATOR
Michael R. Ross, Westminster, Colo., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Oct. 31, 1996, Ser. No. 740,593

Int. Cl.⁶ H04L 7/08

U.S. Cl. 455-502

21 Claims



1. An apparatus for generating a frequency in a system having a controller connected to subunits via communication links, comprising:

- a first oscillator for generating a first frequency signal;
- a second oscillator for generating a second frequency signal in response to the first frequency signal;
- means for generating a third frequency signal;
- means for calculating a number based on the difference between the first frequency signal and the third frequency signal;
- the second oscillator further responsive to the number for generating the second frequency signal so as to minimize the difference;
- the controller transmitting the number to one of the subunits via one of the communication links;
- means in the one of the subunits for deriving a fourth frequency signal from the communication link where the fourth frequency signal is the transmission frequency of the communication link; and
- a third oscillator in the one of subunits responsive to the derived fourth frequency signal and the transmitted number to generate a fifth frequency signal that is equal to first frequency signal within a predefined limit.

5,801,784

DATA STORAGE DEVICES

Robert G. Harrison, and Robert D. Lamson, both of Seattle, Wash., assignors to Coach Master International, Seattle, Wash.

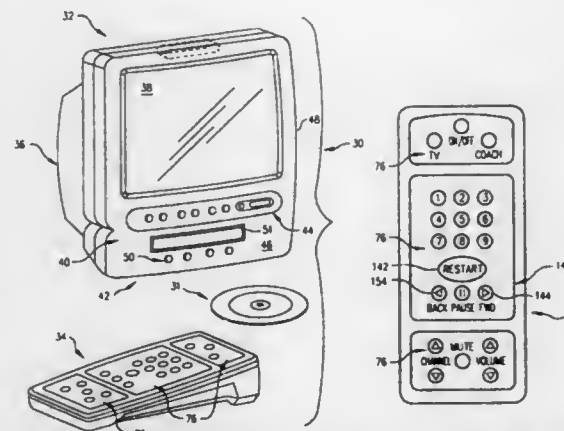
Continuation-in-part of Ser. No. 569,310, Dec. 8, 1995. This application Mar. 29, 1996, Ser. No. 624,984

Int. Cl.⁶ H04N 7/00

U.S. Cl. 348-552

21 Claims

1. An encoded data storage device which has stored thereon in digital form:



data constituting information for coaching a user of an appliance equipped with the storage device in accomplishing at least one of the steps of a task which is extraneous to the operation of said storage device or any system in which said storage device is employed; and

data comprising an instruction set which enables said user to access in a sequence selected by the user the information for accomplishing each of those steps of a multi-step task on which information is available;

said instruction set having user-retrievable commands for switching an appliance equipped with the data storage device between: (a) an information retrieving and displaying mode of operation, and (b) a television signal receiving mode of operation.

5,801,785

METHOD AND SYSTEM FOR PROCESSING TWO ANALOG COMPOSITE VIDEO SIGNALS

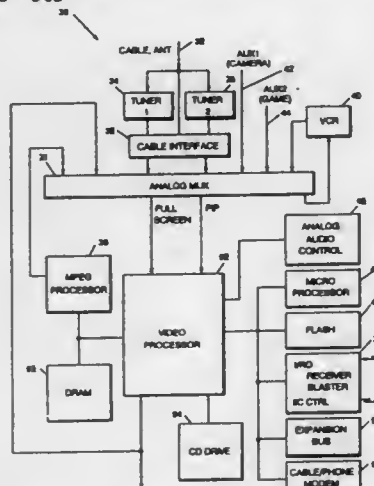
Dwayne Thomas Crump, Apex, N.C.; Jonathan James Hurd, Lexington, Ky.; Steven Taylor Pancoast, Raleigh, N.C., and Thomas K. Worthington, Maul, Hi., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 13, 1996, Ser. No. 600,711

Int. Cl.⁶ H04N 5/445

U.S. Cl. 348-563

27 Claims



1. A video display system comprising:

- a central processing unit (CPU),
- at least a first, second and third video source for generating first, second and third analog composite video signals respectively,
- an analog multiplexer coupled to said first, second and third video sources and having first, second and third independent analog video outputs, said third independent analog video output coupled to said third video source, said analog multiplexer being operative under the control of said CPU to receive said first, second and third analog composite video

signals and supply (1) either said first, second or third analog composite video signal on said first analog video output and independently and simultaneously supply (2) either said first, second or third analog composite video signal on said second analog video output and independently and simultaneously supply (3) either said first, second or third analog composite video signal on said third analog video output,

a video display device for displaying visual images to a human observer,

a video processor operatively coupled to said CPU, said first and second analog video outputs and said video display device for receiving said first and second analog video output signals from said multiplexer and producing an output analog composite video signal, said video processor being operative under control of said CPU to deliver to said video display device said output analog composite video signal which will produce a full screen image on said display device of an analog video signal on said multiplexer's first analog video output and a picture-in-picture (PIP) image on said display device of an analog video signal on said multiplexer's second analog video output, said PIP image overlaying said full screen image, and

a system random access memory coupled to said CPU and said video processor for receiving, storing and delivering system data and video data.

5,801,786

PICTURE PAUSE SELECTING APPARATUS AND METHOD FOR A DOUBLE-WIDE TELEVISION

Kwon-eul Song, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

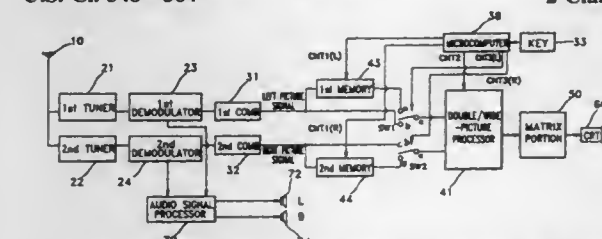
Filed May 15, 1996, Ser. No. 647,661

Claims priority, application Rep. of Korea, Jun. 9, 1995, 95-15190

Int. Cl.⁶ H04N 5/445

U.S. Cl. 348-564

2 Claims



1. A picture pause selecting apparatus of a double-wide television for selectively processing left and right picture signals introduced via an antenna, comprising:

- a controller for outputting first through fifth control signals according to the input of a key input portion;
- first memory for receiving said left picture signal, storing a frame of said left picture signal according to the first control signal from said controller and reading out said stored frame of said left picture signal;
- second memory for receiving said right picture signal, storing a frame of said right picture signal according to the second control signal from said controller and reading out said stored frame of said right picture signal;
- a first switch selecting between 1) a paused picture signal of a frame output from said first memory and 2) a broadcast picture signal as an input signal according to the third control signal from said controller;
- a second switch selecting between 1) a paused picture signal of a frame output from said second memory and 2) a broadcast picture signal as an input signal according to the fourth control signal from said controller;
- a double-wide-picture processor for receiving the signals output from said first and second switches and processing said signals into double pictures or a wide-picture according to the fifth control signal from said controller and outputting a processed signal; and

a matrix portion for converting the processed signal output from said double-wide-picture processor into RGB signals.

5,801,787

TELEVISION SCHEDULE SYSTEM AND METHOD OF OPERATION FOR MULTIPLE PROGRAM OCCURRENCES

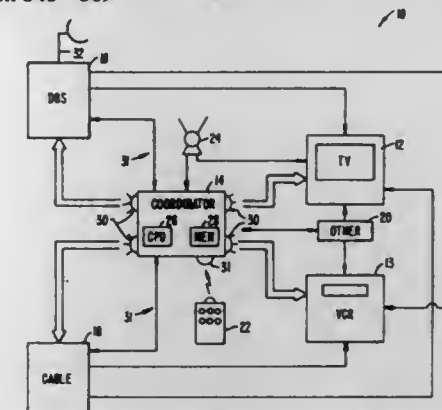
Steven M. Schein, Menlo Park; David P. Warden, Belmont; Molly K. King; Theresa A. Alba, both of Fremont, and Robert E. Russman, Pleasanton, all of Calif., assignors to Starsight Telecast, Inc., Fremont, Calif.

Filed Jun. 14, 1996, Ser. No. 665,216

Int. Cl.⁶ H04N 5/50

U.S. Cl. 348-569

29 Claims



1. A method of generating television guide information for a viewer comprising the steps of:

- inputting schedule guide information into a guide system, said schedule guide information is input from multiple television signal sources;
- merging the guide information from said multiple television signal sources;
- receiving user input to identify a particular show in said schedule guide information; and
- identifying for said user other times when said particular show will be shown.

5,801,788

VIDEO DISPLAY APPARATUS FOR DISPLAYING PLURAL IMAGES SIMULTANEOUSLY ON A SCREEN
Eiichi Ashida; Kinya Kanno, both of Sulta, and Sholchi Goto, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 6, 1996, Ser. No. 709,551

Claims priority, application Japan, Sep. 8, 1995, 7-231143

Int. Cl.⁶ H04N 5/45

U.S. Cl. 348-588

8 Claims



1. A video display apparatus for displaying plural images on a screen simultaneously, comprising:

means for converting an input video signal of a first image into a first component signal if the input video signal is a composite signal,

separation means for separating vertical and horizontal synchronizing signals from the input video signal, the input video signal having a field type,

first field type judging means for receiving signals from the separation means for the input video signal and for judging the field type of the input video signal,

a circuit for converting a plurality of subsequent video signals into component signals when the subsequent video signals are composite signals and further converting said plurality of subsequent video signals into digital signals,

means for separating vertical and horizontal synchronizing signals from the plurality of subsequent video signals,

field memory for storing the digital signals,

subsequent field type judging means for receiving the signals from the vertical and horizontal synchronizing signal separation means for the subsequent video signals and judging the field type of the plurality of subsequent video signals to provide a field judging flag,

writing counters for generating counting values corresponding to the vertical synchronizing signals from the separation means for the plurality of subsequent video signals,

means for storing each field judging flag and for storing each of the respective component signals into said field memory responsive to the counting values from said writing counters, and

retrieval and display means for retrieving and displaying the component signals from said field memory responsive to the counting values from said writing counters and the first field type judging means.

5,801,789

METHOD AND APPARATUS FOR OVERLAYING DIGITALLY GENERATED GRAPHICS OVER AN ANALOG VIDEO SIGNAL

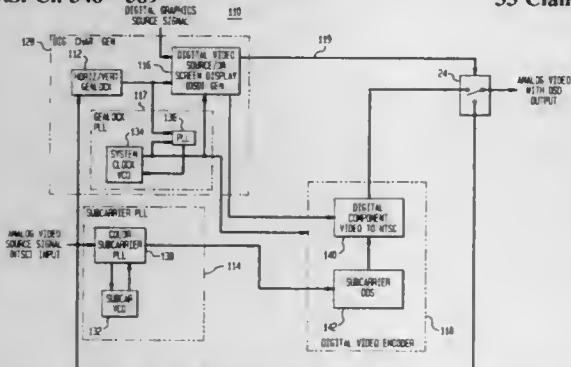
David E. Zeidler, Warrington; Robert M. Simons, Lansdale, both of Pa., and Qiang Zhu, Columbus, N.J., assignors to General Instrument Corporation, Horsham, Pa.

Continuation-in-part of Ser. No. 271,026, Jul. 6, 1994, This application Mar. 22, 1996, Ser. No. 620,924

Int. Cl.⁶ H04N 5/262

U.S. Cl. 348—589

33 Claims



1. A system for overlaying digital characters on an analog video source signal that includes a predetermined color subcarrier comprising:

- digital character generating means for detecting timing of pixel locations in the analog video source signal, and for generating digital character signals that are to be overlaid in predetermined pixel locations of the analog video source signal;
- a digital video encoder responsive to the predetermined color subcarrier signal which is locked to the predetermined color subcarrier signal, and for converting the digital character signals from the digital character generating means into an analog video output signal that includes the color subcarrier generated in the digital video encoder; and

switching means for switching to an output of the system (a) the analog video source signal during time periods when pixels of the digital character are not to be overlaid on the analog video source signal, and (b) the analog video output signal from the digital video encoder during time periods when pixels of the digital character are to be overlaid on the analog video source signal.

5,801,790

USING VIDEO SIGNALS FROM AUXILIARY ANALOG TV RECEIVERS FOR DETECTING NTSC INTERFERENCE IN DIGITAL TV RECEIVERS

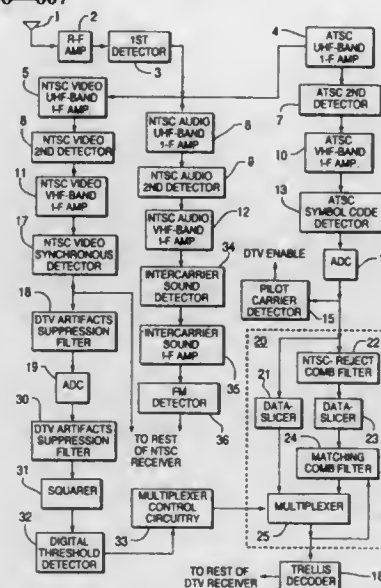
Allen LeRoy Limberg, Fairfax County, Va., assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 21, 1997, Ser. No. 821,944

Int. Cl.⁶ H04N 5/21

U.S. Cl. 348—607

9 Claims



1. A receiver for receiving a digital television signal susceptible to being accompanied by co-channel interfering NTSC analog television signal, said receiver comprising:

- a tuner for selecting said digital television signal from one of channels at different locations in a frequency band;
- digital signal detection circuitry for detecting baseband symbol code signal responsive to said digital television signal selected by said tuner, which baseband symbol code signal includes artifacts of said co-channel interfering NTSC analog television signal when it accompanies said digital television signal selected by said tuner;
- analog signal detection circuitry for detecting at least a first component of said co-channel interfering NTSC analog television signal and suppressing artifacts of said digital television signal tending to accompany said first component of said digital television signal;
- decision circuitry, responsive to said first component of said digital television signal after said accompanying artifacts of said digital television signal have been suppressed therefrom, for supplying a decision signal indicative of whether or not said co-channel interfering NTSC analog television signal has sufficient energy to be likely to prevent symbol decoding of said baseband symbol code signal with less than a prescribed bit error rate; and
- symbol decoding circuitry for decoding said baseband symbol code signal, said symbol decoding circuitry responsive to said decision signal for comb filtering said baseband symbol code signal to suppress said artifacts of said co-channel interfering NTSC analog television signal only when said decision signal indicates said co-channel interfering NTSC analog television signal has sufficient energy to be likely to prevent symbol

decoding of said baseband symbol code signal with less than a prescribed bit error rate.

5,801,791

METHOD FOR DISPLAYING AN IMAGE HAVING A MAXIMAL BRIGHTNESS

Shunepi Yamazaki, Tokyo; Akira Mase, Aichi; Masaaki Hiroki, and Yasuhiko Takemura, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

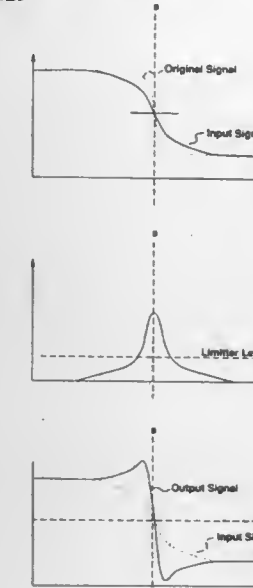
Continuation of Ser. No. 462,796, Jun. 5, 1995, abandoned, which is a division of Ser. No. 836,800, Feb. 18, 1992. This application Apr. 8, 1997, Ser. No. 835,510

Claims priority, application Japan, Feb. 16, 1991, 3-77315; Feb. 5, 1992, 4-0154320

Int. Cl.⁶ H04N 5/21

U.S. Cl. 348—629

9 Claims



1. A method for displaying an image comprising: calculating gradients of brightness in an original image from original image data; correcting the original image data by increasing absolute values of the gradients when the absolute values of the gradients are maximal in the original image.

5,801,792

HIGH RESOLUTION, HIGH INTENSITY VIDEO PROJECTION CATHODE RAY TUBE PROVIDED WITH A COOLED REFLECTIVE PHOSPHOR SCREEN SUPPORT

Ceil E. Smith, Los Angeles, Calif.; Philip L. Writer, Marietta, Ga., and Frank A. Campbell, Pacific Palisades, Calif., assignors to SWZ Engineering Ltd., Stamford, Conn.

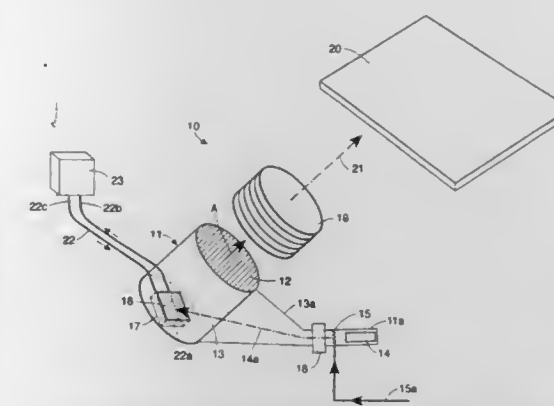
Filed Dec. 13, 1995, Ser. No. 572,165

Int. Cl.⁶ H04N 9/31; H01J 61/52

U.S. Cl. 348—749

22 Claims

1. A single-gun projection cathode ray tube for generating a projected high resolution, high light output video image, the cathode ray tube having an axis, a glass faceplate transverse to said axis, an electron gun for generating a high intensity electron beam, a control grid positioned across the path of the electron beam out of said electron gun and connected for receiving video signals, and a phosphor screen interposed between the electron gun and the faceplate and adapted, when impinged upon by the electron beam, to generate optical images for transmission through said faceplate; wherein the improvement comprises:



- (a) said electron gun is arranged to initially direct said high intensity electron beam along a path transverse to and intersecting said axis at a location remote from said faceplate of the cathode ray tube;
 - (b) a thermally conductive metal plate-like member is arranged in the cathode ray tube at a location remote from said faceplate and has an optically reflective first surface directed toward both said electron gun and said faceplate;
 - (c) the phosphor screen is supported by said metal plate-like member on said first surface thereof in a position to be struck by said high intensity electron beam and to generate resultant corresponding optical images, and said optically reflective first surface of said metal plate-like member serves to reflect said optical images developed on said phosphor screen toward said faceplate of the cathode ray tube for passage there-through to a display screen; and
 - (d) cooling means are provided in heat exchange relation with said metal plate-like member for conducting heat, generated in said phosphor screen by said high intensity electron beam, away from said phosphor screen;
- whereby the arrangement allows a very high intensity electron beam to be used in the cathode ray tube without permitting the electron beam to impinge upon and heat said faceplate and without any risk of overheating or burning of said phosphor screen.

5,801,793

BACKLIGHTING CONSTRUCTION FOR USE IN COMPUTER-BASED DISPLAY SYSTEMS HAVING DIRECT AND PROJECTION VIEWING MODES OF OPERATION

Sadeg M. Faris, Pleasantville, and Carl Tung, Ossining, both of N.Y., assignors to Reveo, Inc., Hawthorne, N.Y.

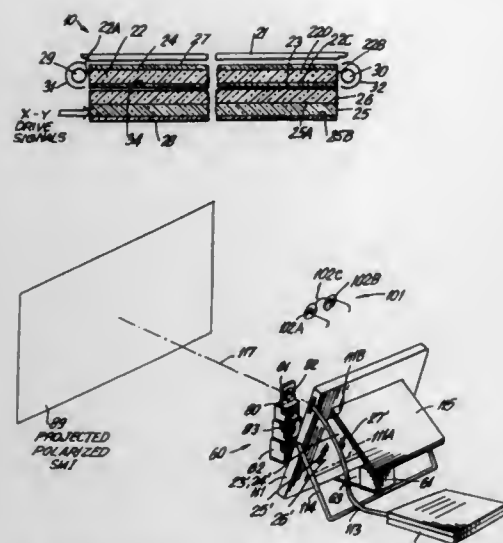
Continuation-in-part of Ser. No. 230,779, Apr. 21, 1994. This application Oct. 13, 1994, Ser. No. 322,219

Int. Cl.⁶ G02F 1/1335; 1/1347; G02B 21/56; 21/132

U.S. Cl. 349—5

36 Claims

1. A reconfigurable backlighting construction installed in a computer-based system having a transportable housing, first and second modes of operation, and first and second light transmission apertures formed in said transportable housing, said backlighting construction comprising:
 - light producing means installed in said transportable housing, for producing light in the direction of a projection axis during said first mode;
 - a thin lens panel mounted in said transportable housing along said projection axis;
 - a light guiding panel having first and second end portions, and first and second light guiding surfaces between which said produced light can be totally internally reflected;
 - first support means mounted to said first end portion of said light guiding panel, for pivotally supporting said light guiding panel adjacent said thin lens panel during said first mode, and at a preselectable angle with respect to said thin lens panel during said second mode;



a rear housing panel having an interior surface and first and second end portions and a spatial extent sufficient for covering a substantial portion of said first light transmission aperture during said first mode;

a light reflective surface adjacent the interior surface of said rear housing panel;

second support means connected between said second end portion of said light guiding panel and said first end portion of said rear housing panel, for pivotally supporting said rear housing panel adjacent said light guiding panel and said light guiding panel adjacent said thin lens panel during said first mode, and for supporting said rear housing panel adjacent said light guiding panel and said light reflective surface at said preselected angle with respect to said thin lens panel during said second mode;

a light diffusing structure operably associated with said light guiding panel, for scattering light within said light guiding panel during said first mode;

wherein during said first mode, light is produced from said light producing means and is reflected and scattered within said light guiding panel and a portion of said scattered light is transmitted through said first light guiding surface of said light guiding panel along said projection axis, and

wherein during said second mode, light is produced from an external source and is reflected off said light reflective surface and transmitted through said thin lens panel along said projection axis.

5,801,794

COLOR DISPLAY DEVICE IN WHICH THE AREA OF A SPHERICAL LENS EQUALS THE AREA OF A SET OF RGB SUB-PIXELS

Jean-Claude Lebeureau, Ste Genevieve Des Bois, Brigitte Loiseaux, Yvette, and Cecile Joubert, Paris, all of France, assignors to Thomson-CSF, Paris, France

PCT No. PCT/FR95/00851, § 371 Date Mar. 8, 1996, § 102(e) Date Mar. 8, 1996, PCT Pub. No. WO96/02112, PCT Pub. Date Jan. 25, 1996

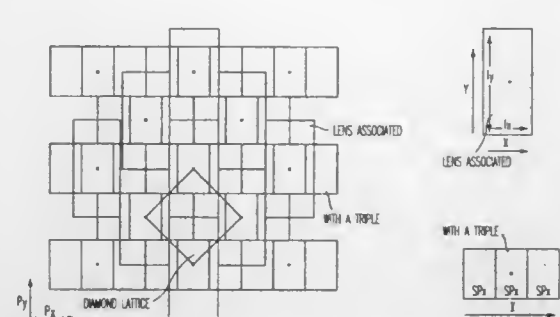
PCT Filed Jun. 27, 1995, Ser. No. 605,069

Claims priority, application France, Jul. 8, 1994, 94 08476 Int. Cl.⁶ G02F 1/1335; G03B 21/00; 21/26; G02B 27/10

U.S. Cl. 349—5

16 Claims

1. Color display device comprising a light source simultaneously emitting several ranges of chromatic components and a spatial light modulator comprising a set of triples of sub-pixels aligned along an axis x, each sub-pixel having a dimension s_x along this axis x, and each sub-pixel corresponding to a chromatic component to be displayed, said device further including between the light source and the spatial light modulator;



at least one chromatic separator angularly separating along different directions the light of the various chromatic ranges; an array of spherical lenses enabling the light of each chromatic range to be focused substantially on a sub-pixel, the said array of lenses having dimensions substantially equal to those of the spatial light modulator and each lens having a cross section defined by the dimensions l_x and l_y with l_y being a dimension along an axis y perpendicular to the axis x, the axes x and y corresponding to the axes of a plane (Px, Py) defined by the spatial light modulator, said cross section having the same area as that of said set of triples and wherein said dimension l_x along the axis x is smaller than $3s_x$.

5,801,795

SINGLE PLATE COLOR LIQUID CRYSTAL DISPLAY APPARATUS

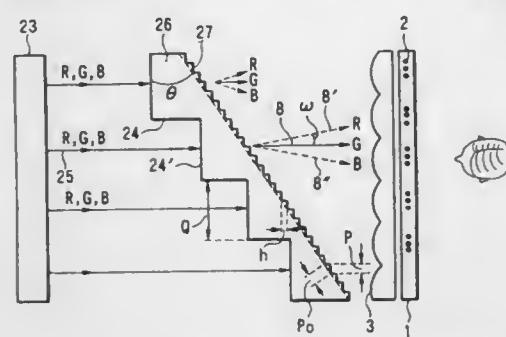
Masanori Ogino, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 10, 1997, Ser. No. 838,831

Claims priority, application Japan, Apr. 17, 1996, 8-095036 Int. Cl.⁶ G02F 1/1335

U.S. Cl. 349—5

10 Claims



1. A single plate type color liquid crystal display apparatus having light source means, collimator means, and single plate type liquid crystal panel means, comprising:

light diffracting means arranged between said collimator means and said single plate liquid crystal panel means; and three-position means,

wherein said light diffracting means is, at a macroscopic level, in a three-dimensional unflat plate form with a macro periodic structural pitch and additionally has at least either a macro-prism shape or a macro lenticular shape, and also includes a multi-stepped diffraction gratings at a microscopic level, wherein the macro periodic pitch is larger than $53 \mu\text{m}$, wherein input white light is, when it becomes diffraction output, decomposed into three primary color rays traveling in three different directions, wherein a separation angle ω between a red ray and a green ray in said three primary color rays is larger than 0.05 rad , wherein about L (L is an integer out of 1, 2 and 3) times a specific optical wavelength λ_0 is selected for at least the principal ray an effective unit optical path difference at a unit step of said multi-stepped diffraction grating, wherein an array pitch projection P of said unit step in the direction at right angles with an advancing direction of said green output ray is arranged so as to be substantially

equal to a value obtained by dividing about L times a red-green wavelength difference (about 80 nm) by said red-green separation angle ω , more specifically, $80 \text{ nm}/\omega$, and wherein said three primary color rays as diffraction output, traveling in three different directions are converged to specified three color positions.

5,801,796

STACKED PARALLAX-FREE LIQUID CRYSTAL DISPLAY CELL

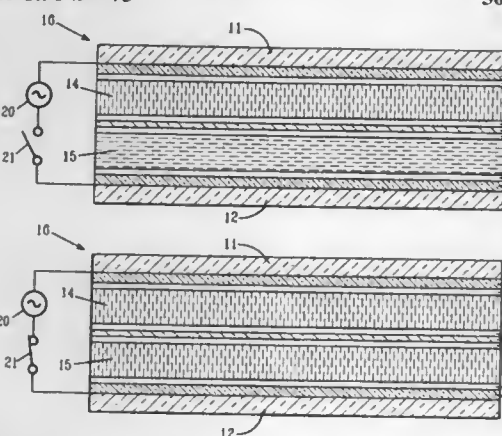
Anthony Cyril Lowe, Braishfield, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 10, 1996, Ser. No. 644,556

Int. Cl.⁶ G02F 1/133; 1/1347; 1/1339

U.S. Cl. 349—73

30 Claims



1. A liquid crystal display cell exhibiting liquid crystal effect comprising:

at least two compartments, each separated by means of a thin transparent membrane held in tension by at least one peripheral adhesive seal, and maintained in precise spatial separation by means of accurately positioned spacers and in which the membrane is substantially thinner than the thickness of each of said compartments, such that no parallax exists between the images formed in the separate compartments; and liquid crystal material disposed in said compartments.

5,801,797

IMAGE DISPLAY APPARATUS INCLUDES AN OPPOSITE BOARD SANDWICHED BY ARRAY BOARDS WITH END PORTIONS OF THE ARRAY BOARDS BEING OFFSET

Atsuko Iida, Tatsuro Uchida, Akira Kinno, Masayuki Saito, Yukio Kizaki, all of Yokohama; Takeshi Miyagi, Fujisawa; Miki Mori, and Yumi Fukuda, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

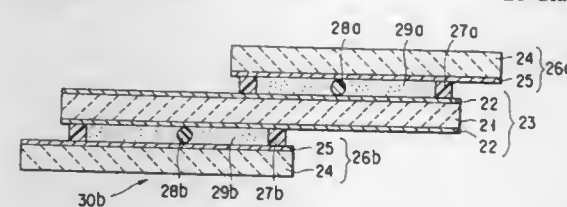
Filed Mar. 13, 1997, Ser. No. 816,725

Claims priority, application Japan, Mar. 18, 1996, 8-061517

Int. Cl.⁶ G03F 1/133; G02F 1/1347; 1/1343; 1/1339

U.S. Cl. 349—73

21 Claims



1. An image display apparatus comprising: an opposite board in which common electrodes are respectively formed on both surfaces of a transparent substrate; array boards in each of which a semiconductor element and a signal line are formed on a transparent substrate, said array

boards being arranged on both of the surfaces of said opposite board such that display regions of end portions of said array boards are offset from each other with said opposite board therebetween;

frame-like sealing members made of transparent resin and inserted respectively in clearances between said opposite board and said array boards; and

liquid crystal enclosed in each of spaces surrounded by said frame-like sealing members, between said opposite board and said array boards.

5,801,798

FAST SPEED LIQUID CRYSTAL PHASE SPATIAL LIGHT MODULATOR FOR ENHANCED DISPLAY RESOLUTION

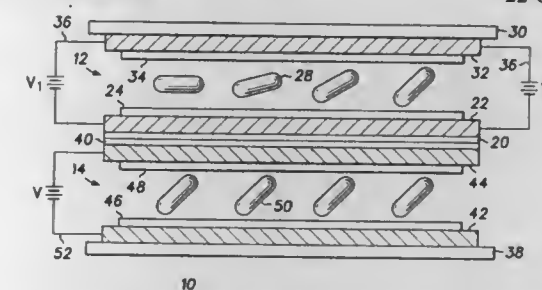
Diana Chen, Gilbert, Phil Wright, and Thomas B. Harvey, III, both of Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 23, 1996, Ser. No. 773,538

Int. Cl.⁶ G02F 1/1347; 1/13

U.S. Cl. 349—74

22 Claims



1. A liquid crystal phase spatial light modulator comprising: a liquid crystal polarization switch capable of rotating the polarization of light passing therethrough in response to an external stimulus; and

at least one non-pixelated liquid crystal cell including a plurality of continuous layers of conductive material and at least one molecular liquid crystal alignment layer, the at least one liquid crystal cell capable of creating a liquid crystal phase prism under the influence of an external voltage, electrically adjustable to deflect light impinging thereon in at least two different deflection angles dependent upon the external voltage applied thereto, the at least one liquid crystal cell optically positioned so as to allow light passing through the liquid crystal polarization switch and having undergone a change in polarization, to pass therethrough the at least one liquid crystal cell and undergo optical deflection according to the electrically adjustable phase prism.

5,801,799

MULTI-DIRECTIONAL LIQUID CRYSTAL PHASE SPATIAL LIGHT MODULATOR FOR ENHANCED DISPLAY RESOLUTION

Diana Chen, Gilbert, Phil Wright, Scottsdale, and Rong-Ting Huang, Gilbert, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 23, 1996, Ser. No. 773,539

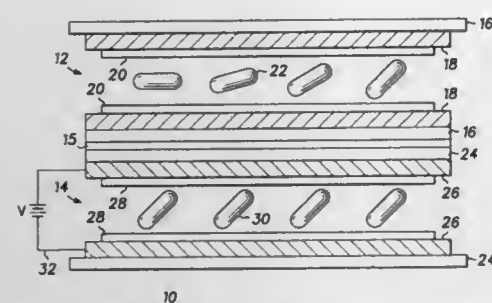
Int. Cl.⁶ G02F 1/1347; 1/13

U.S. Cl. 349—74

23 Claims

1. A liquid crystal phase spatial light modulator comprising: a liquid crystal polarization switch capable of rotating the polarization of light passing therethrough in response to an external stimulus; and

at least one liquid crystal memory cell having phase information recorded therein, the at least one liquid crystal memory cell optically positioned so as to allow light passing through the liquid crystal polarization switch and having undergone a change in polarization, to pass therethrough the at least one



liquid crystal memory cell and undergo optical deflection according to the recorded phase information.

5,801,800

VISUAL DISPLAY SYSTEM FOR DISPLAY RESOLUTION ENHANCEMENT

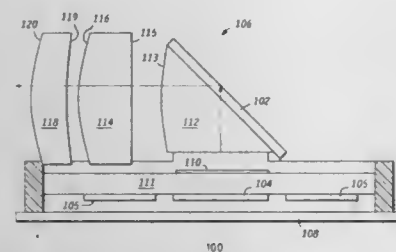
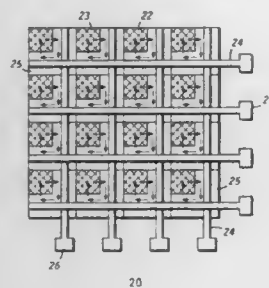
Phil Wright, Scottsdale; Diana Chen, Gilbert; Fred V. Richard, Scottsdale; Karen E. Jachimowicz, Laveen, and Rong-Ting Huang, Gilbert, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 29, 1996, Ser. No. 638,709

Int. Cl.⁶ G02F 1/1347; 1/1335

U.S. Cl. 349—77

19 Claims



1. A visual display system comprising:

an image source, comprised of a plurality of light emitting devices, each of the light emitting devices capable of emitting light;

a liquid crystal phase spatial light modulator scanner, defining an array of liquid crystal scanner pixels, positioned to receive and scan the light emitted by the plurality of light emitting devices, the array of liquid crystal scanner pixels defined by a layer of liquid crystal material contained within the liquid crystal phase spatial light modulator scanner in a continuous layer across the entire array, each of the control circuits for each liquid crystal scanner pixel formed in the array includes one contact formed of a reflective metal, thereby allowing the liquid crystal phase spatial light modulator scanner to operate in a reflective mode, the array further including an optically clear contact positioned on an opposite surface of the continuous layer with the one contact and the optically clear contact defining a pixel within the continuous layer, the liquid crystal phase spatial light modulator scanner including a substrate, an electrically conductive material positioned on the substrate, at least one molecular orientation layer positioned in overlying relationship to the electrically conductive material, a tubular glass spacer positioned in overlying relationship to the at least one molecular orientation layer, a glass plate positioned in

overlying relationship to the tubular glass spacer, and a liquid crystal material positioned within the tubular glass spacer; and a plurality of driver/control circuits connected to the plurality of light emitting devices and a plurality of driver/control circuits connected to the liquid crystal phase spatial light modulator scanner for delivering a voltage across the scanner, thereby modulating in phase the light emitted by the light emitting devices, passing therethrough, and generating a resultant integrated image viewable by an observer.

5,801,801

DISTORTED-HELIX FERROELECTRIC LIQUID-CRYSTALLINE OPTICAL MODULATION DEVICE AND DISPLAY WITH ALIGNMENT LAYERS HAVING DIFFERENT ENERGIES

Gerard Cnossen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 15, 1996, Ser. No. 731,625

Claims priority, application European Pat. Off., Oct. 16, 1995, 95202785

Int. Cl.⁶ G02F 1/141; 1/13

U.S. Cl. 349—128

10 Claims



1. Optical modulation device comprising a first substrate and a second substrate which are positioned substantially parallel to each other and the facing surfaces of which are provided, in succession, with an electrode layer and an orientation layer, an optically active layer of distorted-helix ferroelectric liquid-crystalline material being present between the two substrates, characterized in that the surface energy of the orientation layer of the first substrate differs from the surface energy of the orientation layer of the second substrate, and in that said difference in surface energy is at least 5 mN/m.

5,801,802

LIQUID CRYSTAL DISPLAY PANEL WITH TWO ALIGNMENT DOMAINS

Hiroyasu Inoue; Minoru Otani, and Tadashi Hasegawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 9, 1996, Ser. No. 716,558

Claims priority, application Japan, Dec. 8, 1995, 7-320590; Jul. 8, 1996, 8-178187

Int. Cl.⁶ G02F 1/1337

U.S. Cl. 349—129

12 Claims

1. A liquid crystal display panel comprising: a pair of substrates disposed facing each other by a gap interposed therebetween; electrodes formed on said pair of substrates on the sides facing each other, said electrodes each defining one of a plurality of pixels; and

5,801,804

LINEARLY ADJUSTABLE SUNGLASSES

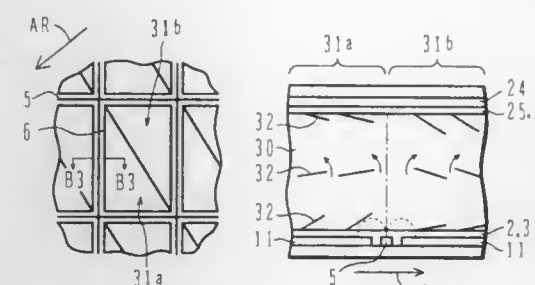
Robert Pennise, 7580 Ferry Rd. Box 413, Point Pleasant, Pa. 18950

Filed Apr. 17, 1997, Ser. No. 842,764

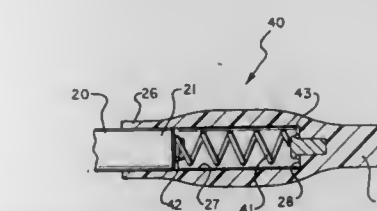
Int. Cl.⁶ G02C 7/10; 5/04

U.S. Cl. 351—44

14 Claims



an alignment film formed on each of said pair of substrates on the sides facing each other, and covering each of said electrodes, said alignment films including: a first domain for each pixel having a first pre-tilt angle on the side of one substrate and a second pre-tilt angle different from said first pre-tilt angle on the side of the other substrate; a second domain for each pixel having a third pre-tilt angle larger than said first pre-tilt angle on the side of said one substrate and a fourth pre-tilt angle smaller than said second pre-tilt angle on the side of the other substrate; and a third domain for each pixel having a fifth pre-tilt angle smaller than said third pre-tilt angle on the side of said one substrate and a sixth pre-tilt angle smaller than said second pre-tilt angle on the side of the other substrate.



1. A sunglass lenses assembly for use with a pair of eyeglasses including a frame, a pair of lenses mounted to said frame, and a pair of temple pieces extending from opposite sides of said frame, said sunglass lenses assembly comprising:

a first-half frame member;
a second-half frame member linearly adjustably coupled to said first-half frame member;
a first lens secured to said first-half frame member;
a second lens secured to said second-half frame member;
said first lens and said second lens positioned between said pair of temple pieces of said pair of eyeglasses rearward said pair of lenses of said pair of eyeglasses;
said first lens and said second lens each have a top edge and an outer side edge;
said first lens secured to said first-half frame member along said top edge of said first lens;
said second lens secured to said second-half frame member along said top edge of said second lens; and
said outer side edge of said first lens abutting a first of said pair of temple pieces and said outer side edge of said second lens abutting a second of said pair of temple pieces.

5,801,803

Patent Not Issued For This Number

5,801,805

SPORT SUNGLASSES RESISTANT TO FOGGING

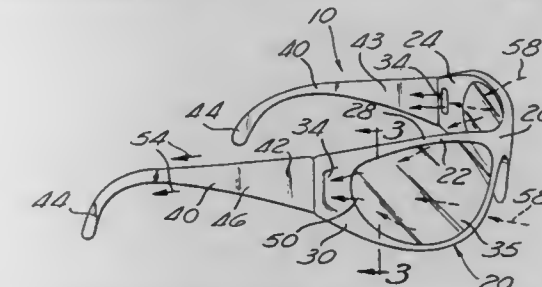
Jérôme Jacques Marie Mage, Carlsbad, Calif., assignor to Spy Optic, Inc., Carlsbad, Calif.

Continuation of Ser. No. 565,623, Nov. 28, 1995, Pat. No. 5,610,668. This application Dec. 5, 1996, Ser. No. 760,469

Int. Cl.⁶ G02C 11/08

U.S. Cl. 351—62

9 Claims



1. Protective eyeglasses resistant to fogging while being worn by a wearer, said eyeglasses comprising:
a frame front which spans across the wearer's face;

at least one lens attached to the frame front and positioned over the wearer's eyes, said lens defining front and back surfaces; and
 at least one aperture disposed within the frame front, said aperture being forwardly directed and defining a ventilation channel for facilitating air flow through the frame front adjacent the lens;
 wherein the ventilation channel defined by the aperture is sized and configured to facilitate the circulation of air over the back surface of the lens to resist the fogging thereof.

5,801,806

EYEGLASS FRAMES WITH RESILIENT BRIDGE

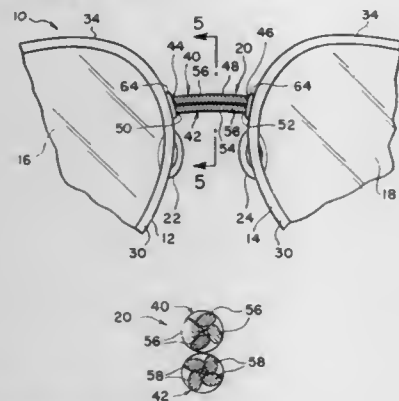
Carmino S. DiChiara, 23 Gregory La., Warren, N.J. 07059

Filed May 5, 1997, Ser. No. 841,784

Int. Cl.⁶ G02C 5/06

U.S. Cl. 351—126

35 Claims



1. A frame comprising:
 first and second securing members for receiving lenses;
 a retaining device coupled to said first and second securing members for positioning said frame over the user's eyes; and
 a first bridge coupled between said first and second securing members and having first and second resilient elements for allowing said first and second securing members to pivot about said first bridge between an original position and displaced positions while biasing said first and second securing members toward said original position,
 each of said first and second resilient elements having first and second ends and a body section extending in a longitudinal direction between said first and second ends, each of said first ends being rigidly coupled to said first securing member and each of said second ends being rigidly coupled to said second securing member,
 each of said first and second resilient elements having a first torsional resistance to a torsional force applied in a first torsional direction that is transverse to said longitudinal direction of said body section, and a second torsional resistance to the torsional force applied in a second, opposite torsional direction that is transverse to said longitudinal direction of said body section, and said first torsional resistance being greater than said second torsional resistance.

5,801,807

OPHTHALMIC ILLUMINATION DEVICE HAVING ADJUSTABLE TRANSMITTANCE MEMBER AND MICROSCOPE FOR OPERATION USING THE SAMEEiji Satake, Masanobu Kaneko, and Ken Tomioka, all of Yokohama, Japan, assignors to Nikon Corporation, Tokyo, Japan
 Filed Aug. 7, 1996, Ser. No. 693,402

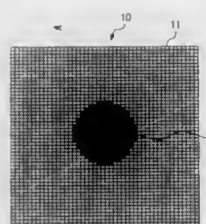
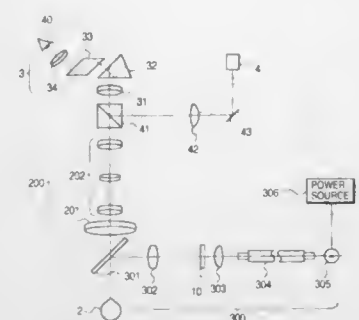
Claims priority, application Japan, Aug. 8, 1995, 7-222676; Sep. 28, 1995, 7-251204; Dec. 22, 1995, 7-335186

Int. Cl.⁶ A61B 3/10

U.S. Cl. 351—221

16 Claims

1. An ophthalmic illumination device comprising:



an illuminating optical system for illuminating an eye to be examined;
 a light transmitting member disposed in the optical path of said illuminating optical system and having a light transmitting surface variable in the transmission factor for illuminating light; and
 a control unit for varying the transmission factor of a predetermined area of the light transmitting surface of said light transmitting member.

5,801,808

METHOD AND APPARATUS FOR DETERMINING SPECTRAL SENSITIVITY PARAMETERS OF COLOUR-SENSITIVE RECEPTORS IN THE EYE

György Ábrahám, Pipiske u. 1-i/5i, fsz. 28, H-1121 Budapest, and Gottfriedné Wenzel, Sashegyi út 14, H-1124 Budapest, both of Hungary

PCT No. PCT/HU95/00009, § 371 Date Oct. 15, 1996, § 102(e) Date Oct. 15, 1996, PCT Pub. No. WO95/28125, PCT Pub. Date Oct. 26, 1995

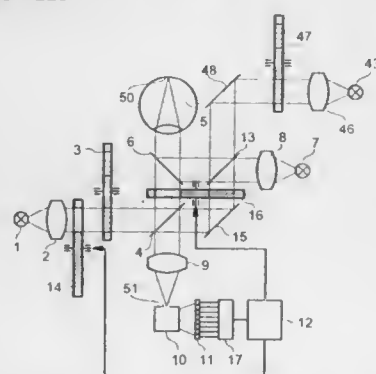
PCT Filed Apr. 14, 1995, Ser. No. 727,645

Claims priority, application Hungary, Apr. 15, 1994, P9401083

Int. Cl.⁶ A61B 3/10; 3/00

U.S. Cl. 351—221

20 Claims



1. A method for determining spectral sensitivity parameters of color-sensitive receptors in the eye, comprising introducing at least one testing light beam onto an area of the retina of an eye to be

tested, introducing at least one auxiliary light beam of a wavelength falling outside the spectral sensitivity wavelength range of at least one color-sensitive receptor to be measured at least onto said area of the retina, said at least one auxiliary light beam reducing the sensitivity of at least one color-sensitive receptor not to be measured, and determining at least one sensitivity parameter by detecting a light beam reflected from the retina or by using color perception of the person tested.

5,801,809

EYE CHART WITH COLOR VISION SCREENING

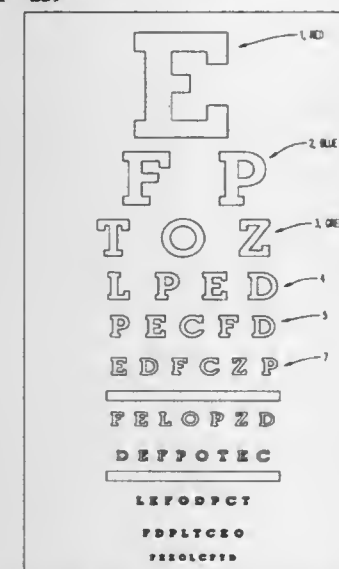
Abbas M. Husain, 8 Bunning Dr., Voorhees, N.J. 08043

Filed Nov. 6, 1996, Ser. No. 743,701

Int. Cl.⁶ A61B 3/02

U.S. Cl. 351—239

6 Claims



1. An eye chart for the measurement of visual acuity comprised of objects of multiple colors and decreasing sizes wherein the improvement comprises the use of colored objects of decreasing sizes to test color perception and visual acuity simultaneously.

5,801,810

METHOD AND APPARATUS FOR TESTING VISUAL ATTENTION CAPABILITIES OF A SUBJECT

Daniel L. Roenker, Bowling Green, Ky., assignor to Visual Resources, Inc., Bowling Green, Ky.

Filed Oct. 11, 1996, Ser. No. 726,898

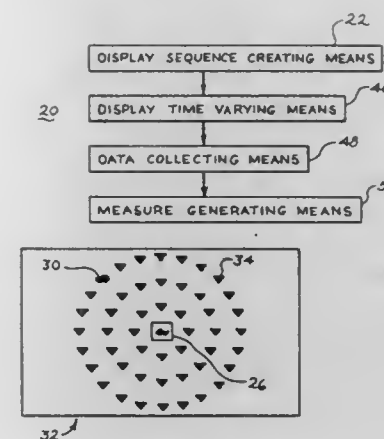
Int. Cl.⁶ A61B 3/00; 3/02

U.S. Cl. 351—246

33 Claims

1. A method for testing visual attention capabilities of a subject, said method comprising the following steps:

- presenting a sequence of visual displays to the subject, each visual display comprising a respective foveal target visual element and a respective peripheral target visual element, each visual display presented for a respective display time;
- varying the display time within the sequence;
- determining a test display time based on the subjects' responses in recognizing selected characteristics of the foveal target visual elements and in locating the peripheral target visual elements in the visual displays of the sequence;



(d) using the test display time determined in step (c) as an assessment of visual attention capabilities of the subject.

5,801,811

3D PHOTOGRAPHIC PRINTER USING A MATRIX DISPLAY FOR EXPOSURE

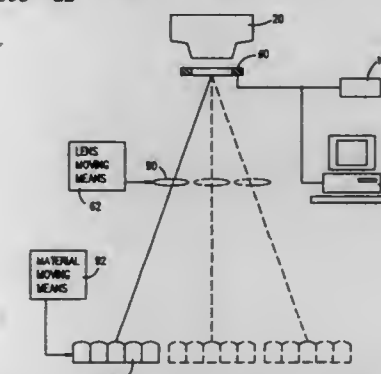
Allen K Wah Lo, Dunwoody, Ga., and Kenneth Quochuy Lao, Westfield, N.J., assignors to Image Technology International, Inc., Norcross, Ga.

Continuation-in-part of Ser. No. 349,481, Dec. 2, 1994, Pat. No. 5,625,435, Ser. No. 602,663, Feb. 16, 1996, abandoned, and Ser. No. 418,016, Apr. 6, 1995, Pat. No. 5,572,633, which is a continuation-in-part of Ser. No. 333,201, Nov. 2, 1994, Pat. No. 5,583,971, which is a continuation-in-part of Ser. No. 1,025, Jan. 9, 1993, abandoned, said Ser. No. 349,481 is a continuation-in-part of Ser. No. 140,681, Oct. 21, 1993, abandoned, which is a continuation-in-part of Ser. No. 602,663, which is a continuation-in-part of Ser. No. 333,201. This application Jul. 17, 1996, Ser. No. 682,106

Int. Cl.⁶ G03B 27/32

U.S. Cl. 355—22

23 Claims



1. A filmless printing method for printing 3D and animation pictures on lenticular print material comprising a multiplicity of lenticules from a plurality of different 2D views of at least one scene, said method comprising the steps of:

- sequentially displaying said 2D images of different 2D views of a scene on a matrix display; and
- projecting said display 2D images onto lenticular print material through a projection lens at different projection angles which is focused on said matrix display and at desired locations on said print material so as to expose said 2D images onto the lenticular print material.

- (c) a second circuit remotely located from said first end of said transmission line, said second circuit being interconnected with said second end of said transmission line so as to detect said first signal;
- (d) said second circuit in response to detection of said first signal produces a second signal;
- (e) said second end of said transmission line being interconnected with said second circuit so as to receive said second signal;
- (f) said first circuit being interconnected with said first end of said transmission line so as to detect said second signal; and
- (g) said first circuit in response to detection of said second signal determines the length of said transmission line.

5,801,819

DISTINGUISHING NATURAL FROM SYNTHETIC DIAMOND

Paul Martyn Spear, Maidenhead, and Christopher Welbourn, Waltham St Lawrence, both of United Kingdom, assignors to Gersan Establishment, Liechtenstein
PCT No. PCT/GB95/01968, § 371 Date May 5, 1997, § 102(e)
Date May 5, 1997, PCT Pub. No. WO96/07894, PCT Pub. Date Mar. 14, 1996

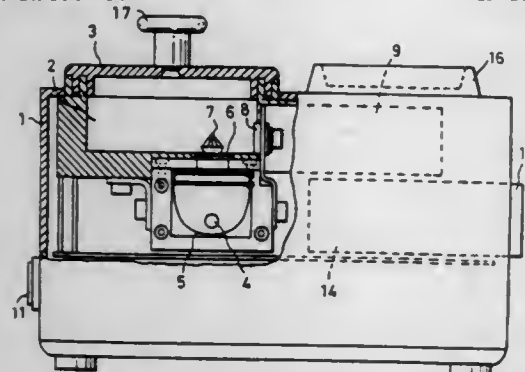
PCT Filed Aug. 18, 1995, Ser. No. 793,727

Claims priority, application United Kingdom, Sep. 19, 1994, 9417665

Int. Cl.⁶ G01N 21/87

U.S. Cl. 356—30

19 Claims



1. Apparatus for distinguishing natural colorless or near-colorless diamond from synthetic colorless or near-colorless diamond, comprising:

means for locating a diamond;

means for irradiating the diamond with light which has a substantial component of its intensity in the form of ultraviolet light of a wavelength below about 250 nm;

means responsive to the intensity of phosphorescence radiation emitted by the diamond, for producing a signal which varies with time and depends upon the intensity of phosphorescence radiation emitted by the diamond; and

processing means responsive to said signal, for giving an indication dependent upon the relationship of the intensity of phosphorescence radiation and the time elapsed since the cessation of irradiation, thereby enabling the diamond to be classified.

5,801,820

FLOW-INJECTION GRADIENT DILUTION FOR OBTAINING UV SPECTRA OF CONCENTRATED SOLUTIONS

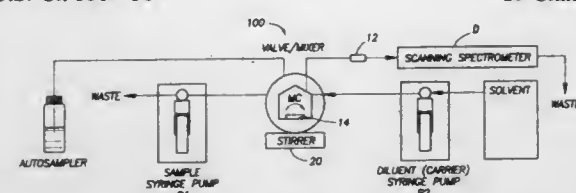
Stephen Robert Bysouth, and Victor Pak-Ling Tong, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 19, 1996, Ser. No. 618,181

Int. Cl.⁶ G01N 1/00

U.S. Cl. 356—36

10 Claims



1. A dilution system for obtaining original concentrations of solutions by gradient dilution, without prior calibration of the dilution system or having prior knowledge of parameters on which concentration depends, comprising:

an injection valve for controlling fluid flow, said injection valve incorporating a chamber;

a first pump for pumping a sample of a concentrated solution through said valve and into said chamber;

a second pump for pumping a diluent through said valve and into said chamber at a constant flow rate;

means for continuously mixing said sample and said diluent within said chamber;

means for continuously diluting said sample with said diluent, thereby forming a solution having a continuously decreasing concentration-versus-time;

monitoring means for measuring a characteristic property of said sample which property is dependent on concentration, for continuously receiving said continuously decreasing concentration-versus-time solution from said chamber and continuously collecting data for determining said characteristic property of said solution;

means for determining the dilution parameter of the ratio of flow rate and chamber volume from said data; and

means for calculating the original, undiluted concentration, or property related to concentration, of said concentrated solution using said parameter and said data.

5,801,821

PHOTOLITHOGRAPHY METHOD USING COHERENCE DISTANCE CONTROL

Yan Borodovsky, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Jun. 30, 1995, Ser. No. 497,321

Int. Cl.⁶ G01B 9/00

U.S. Cl. 356—124

13 Claims

1. A method for determining varying coherence conditions of a stepper field exposure tool comprising:
- determining a plurality of coherence values at a plurality of locations on a test field of said stepper field exposure tool; and

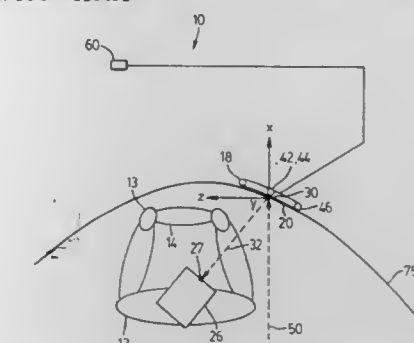
5,801,823

DRIVER'S EYES LOCATION DETERMINING APPARATUS AND METHOD

Börje A. Brandin, Route du Port 12A, 1009 Pully, Switzerland
Filed Feb. 21, 1997, Ser. No. 806,023

Int. Cl.⁶ G01B 11/26; G01N 21/00; G05B 1/06; G02B 5/08
U.S. Cl. 356—139.03

17 Claims



- mapping at least one of said plurality of coherence values to its corresponding location on said test field.

1. Apparatus for determining the location of the eyes of a driver of a vehicle having a directly adjustable proximate rearview mirror, comprising:

(a) distance sensing means for sensing the distance between the proximate mirror and the driver's head and generating distance signals correlatable therewith;

(b) orientation detecting means for detecting the orientation of the proximate mirror after adjustment by the driver to achieve a desired rearview sightline, and generating orientation signals correlatable therewith; and

(c) signal processing means coupled to the distance sensing means and the orientation detecting means for processing the distance signals and the orientation signals and for generating output signals indicative of a current location for the driver's eyes based upon an equation for a parabola having a focus located at the driver's eyes.

5,801,822

OPHTHALMIC LENS INSPECTION SYSTEM

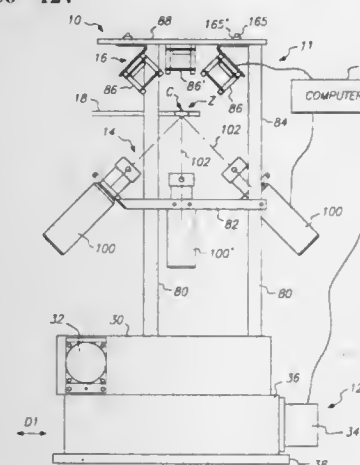
W. Michael Lafferty, Leucadia; Charles S. Slemon, Encinitas, and W. James Frandsen, San Diego, all of Calif., assignors to PBH, Inc., Sunnyvale, Calif.

Filed Feb. 6, 1997, Ser. No. 796,740

Int. Cl.⁶ G01B 9/00

U.S. Cl. 356—124

13 Claims



1. An apparatus for inspecting ophthalmic lenses, comprising:
- at least one illumination device to generate an extended diffuse light to be transmitted through an ophthalmic lens disposed in an inspection position;
- a support to position an ophthalmic lens at said inspection position; and
- at least one imaging system to generate a set of signals representing at least one selected portion of said diffuse light transmitted through said ophthalmic lens in said inspection position, said at least one imaging system including a non-diffraction limited aperture, wherein said extended diffuse light of said at least one illumination device fills an image cone of said at least one imaging system.

5,801,824

LARGE AREA DEFECT MONITOR TOOL FOR MANUFACTURE OF CLEAN SURFACES

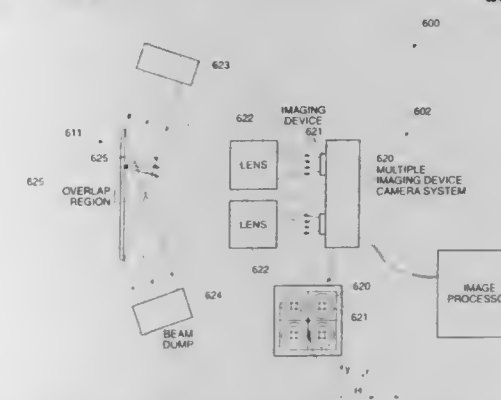
Francois J. Henley, Los Gatos, Calif., assignor to Photon Dynamics, Inc., San Jose, Calif.

Filed Nov. 25, 1996, Ser. No. 756,305

Int. Cl.⁶ G01N 21/00

U.S. Cl. 356—237

26 Claims



1. A display fabrication method comprising a method for observing defects on a surface by optically scattered energy, the method for observing comprising:
- providing a portion of a display device, said portion comprising a surface under inspection (SUS);
- directing generally collimated illumination from a source at an angle to said SUS to produce scattered nonspecular energy substantially normal to said SUS; and

observing said scattered nonspecular energy in one of a plurality of fractional windows of a viewed image of the SUS via a plurality of focussing elements at a plurality of remote focal planes having a detection arrangement, said focal planes being mounted adjacent one another arranged in an array arrangement adjacent one another, said detection arrangement corresponding to said array arrangement;

wherein said observing and directing steps occur simultaneously and are performed substantially without any relative motion between said SUS and said detection arrangement to substantially reduce a possibility of any scanning noise and light source fluctuations.

5,801,825
SOLDER REFLOW FURNACE HAVING A BOROSCOPE VIEWING ASSEMBLY

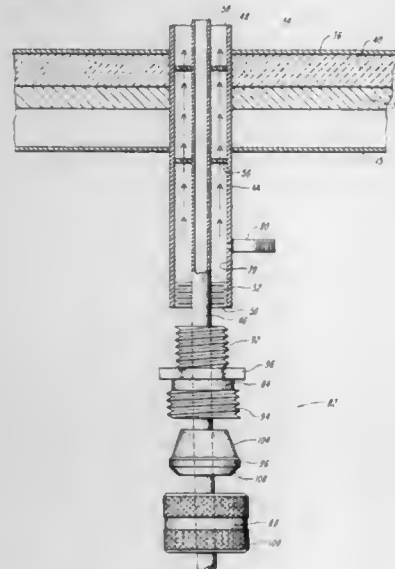
Francis C. Nutter, Methuen, Mass., and David A. Bloom, Hudson, N.H., assignors to BTU International, Inc., North Billerica, Mass.

Filed Apr. 24, 1996, Ser. No. 637,486

Int. Cl.⁶ G01N 21/00

U.S. Cl. 356—241

21 Claims



1. A solder reflow convection furnace having a process chamber viewing assembly for viewing a process therein, comprising:
- a furnace housing having an insulated wall, a process chamber disposed within the housing;
 - a tubular viewing port fixedly disposed through and sealed to the insulated wall to seal the process chamber from ambient, and having an open inner end located within the process chamber and an outer end located outside of the furnace housing;
 - a boroscope assembly comprising a boroscope removably mounted by a mounting member concentrically within the tubular viewing port and annularly spaced from the interior surface of the viewing port, the boroscope assembly including an eyepiece disposed at one end of the boroscope; and
 - a sealing assembly located to provide a seal between the boroscope and the interior surface of the viewing port to seal the process chamber from ambient.

5,801,826
SPECTROMETRIC DEVICE AND METHOD FOR RECOGNIZING ATOMIC AND MOLECULAR SIGNATURES

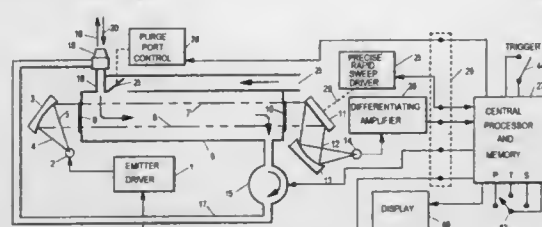
Richard Ernest Williams, Lake Mary, Fla., assignor to Williams Family Trust B, Corvallis, Ore.

Filed Feb. 18, 1997, Ser. No. 802,169

Int. Cl.⁶ G01J 3/06; 3/32

U.S. Cl. 356—307

12 Claims



1. A method of generating a recognition pattern of a target substance in a rapidly sweeping spectrometer comprising the steps of:
- (a) differentiating each spectral sweep signal;
 - (b) generating a first differentiated signal from a sweep of background devoid of said target substance;
 - (c) generating a second differentiated signal from a sweep of said background plus said target substance; and
 - (d) subtracting said first differentiated signal from said second differentiated signal to create said recognition pattern for said target substance.

5,801,827
ANALYSIS DEVICE USING CHEMICAL COMBUSTION FLAME

Kazuo Moriya, Yasushi Terui, both of Hitachinaka; Hayato Tobe, Mito; Yoshisada Ebata, and Hisashi Kimoto, both of Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

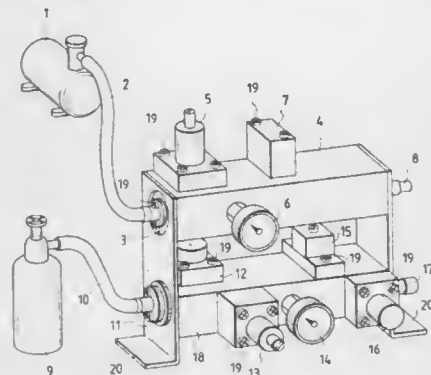
Filed May 5, 1997, Ser. No. 851,291

Claims priority, application Japan, May 7, 1996, 8-112525

Int. Cl.⁶ G01N 21/72

U.S. Cl. 356—315

11 Claims



1. An analysis device using chemical combustion flame in which chemical combustion flame is formed by making use of combustible gas and auxiliary gas, a sample is introduced into the thus formed chemical combustion flame and the photo emission and/or the photo absorption caused by the sample are measured, wherein the analysis device is provided with a combustible gas use plate having a gas flow passage for the combustible gas and an auxiliary gas use plate having a gas flow passage for the auxiliary gas which is independent and separated from said combustible gas use plate, and said combustible gas use plate being provided with controlling elements for controlling the combustible gas flow passing through said combustible gas flow passage in said combustible gas use plate and said auxiliary gas use plate being provided with controlling elements for controlling the auxiliary gas flow passing through said auxiliary gas flow passage in said auxiliary gas use plate.

5,801,828
APPARATUS AND METHOD FOR FLUORESCENCE SPECTROSCOPY OF REMOTE SAMPLE

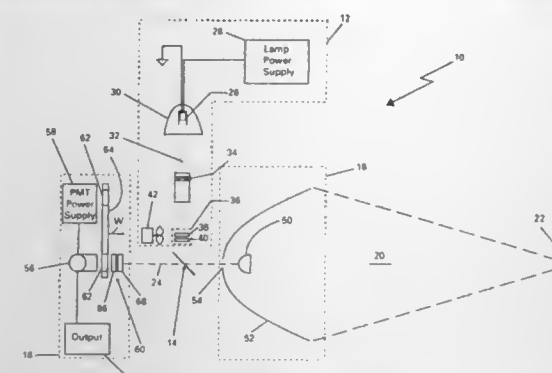
Russell L. Collins, Austin, Tex., assignor to Detections Unlimited, Inc., Austin, Tex.

Filed Nov. 14, 1996, Ser. No. 748,763

Int. Cl.⁶ G01N 21/64

U.S. Cl. 356—318

25 Claims



1. A fluorescence spectrometer comprising:
- (a) an excitation light source;
 - (b) an excitation light input mirror for reflecting excitation light produced by the excitation light source and directing the excitation light along a spectrometer light path, the excitation light input mirror adapted to allow at least a portion of a target fluorescence spectrum to pass therethrough;
 - (c) a paraboloidal mirror positioned on the spectrometer light path to receive the excitation light reflected by the excitation light input mirror;
 - (d) an ellipsoidal mirror having the focus of the paraboloidal mirror at a near focal point thereof, the ellipsoidal mirror being in position to receive excitation light reflected by the paraboloidal mirror and focus the excitation light to a distant focal point; and
 - (e) returned light detecting means positioned on the spectrometer light path in position to receive returned light and providing an output indicating the intensity of a desired wavelength constituent of the returned light, the returned light including light within the target fluorescence spectrum which is reflected by the ellipsoidal mirror and paraboloidal mirror back along the spectrometer light path and passed through the excitation light input mirror.

5,801,829
METHOD FOR MEASUREMENT AND COMPENSATION OF STRAY LIGHT IN A SPECTROMETER

Beno Mueller, Ettlingen, and Roland Martin, Karlsruhe, both of Germany, assignors to Hewlett-Packard Company

Filed Feb. 8, 1996, Ser. No. 598,363

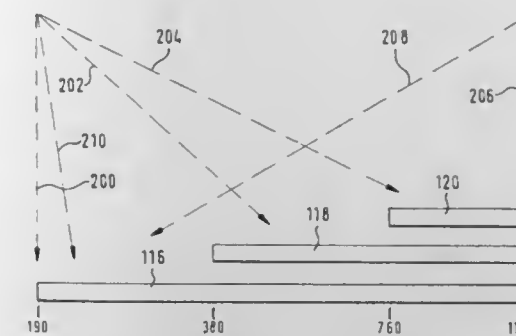
Claims priority, application European Pat. Off., Feb. 25, 1995, 95102729

Int. Cl.⁶ G01J 3/28

U.S. Cl. 356—326

7 Claims

1. A method of improving accuracy of a spectrometer within a particular band of wavelengths, the method comprising the following steps:
- (a) illuminating a photosensitive device with a light source having a source spectrum of wavelengths;
 - (b) blocking the particular band of wavelengths within the source spectrum, but not the entire source spectrum;
 - (c) measuring a sample compensation spectrum as the response of the photosensitive device while the particular band of wavelengths are blocked, with a sample present, the response of the photosensitive device at wavelengths within the particular band of wavelengths being a measure of aggregate offset, including the effects of stray light;
 - (d) measuring a sample intensity spectrum without the particular band of wavelengths being blocked;



- (e) computing the area of the sample intensity spectrum for all wavelengths outside the particular band of wavelengths;
- (f) computing the area of the sample compensation spectrum for all wavelengths outside the particular band of wavelengths;
- (g) computing an insertion loss multiplier as the area of step (e) divided by the area of step (f);
- (h) multiplying the sample compensation spectrum of step (c) by the insertion loss multiplier of step (g) and;
- (i) subtracting the sample compensation spectrum as modified in step (h) from the sample intensity spectrum of step (d), within the particular band of wavelengths, to obtain an improved sample intensity spectrum.

5,801,830
APPARATUS AND ASSOCIATED METHODS OF DETECTING OPTICAL CARRIERS AND MEASURING CHARACTERISTICS THEREOF

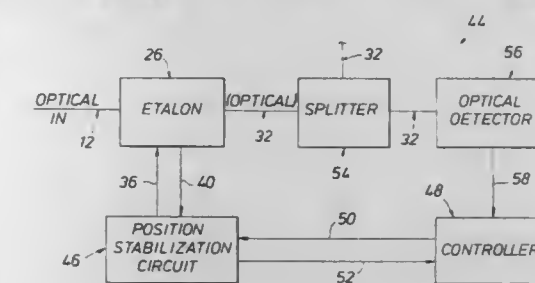
James D. Seago, Plano, Tex., and John M. Hughes, Gladstone, Mo., assignors to Wavelinq, Inc., Plano, Tex.

Filed Feb. 14, 1996, Ser. No. 601,171

Int. Cl.⁶ G01J 3/26

U.S. Cl. 356—346

20 Claims



1. Apparatus for analyzing an optical signal having a path and a plurality of wavelength portions, the apparatus comprising:
- filter means positionable in the path of the optical signal, said filter means being adjustable to permit first selected ones of the plurality of wavelength portions to pass therethrough;
 - means for stabilizing and adjusting said filter means;
 - means for controlling said stabilizing and adjusting means, said controlling means being capable of directing said stabilizing and adjusting means to adjust said filter means, such that said filter means permits said first selected ones of the plurality of wavelength portions to pass therethrough; and
 - detecting means positionable in the path of the optical signal, said detecting means being connected to said controlling means and further being capable of measuring an intensity of each of said first selected ones of the plurality of wavelength portions,
- said controlling means being capable of directing said stabilizing and adjusting means, in response to said detecting means measuring said intensity of each of said first selected ones of the plurality of wavelength portions, to adjust said filter means to permit second selected ones of the plurality of wavelength portions to pass therethrough.

5,801,831

FABRY-PEROT SPECTROMETER FOR DETECTING A SPATIALLY VARYING SPECTRAL SIGNATURE OF AN EXTENDED SOURCE

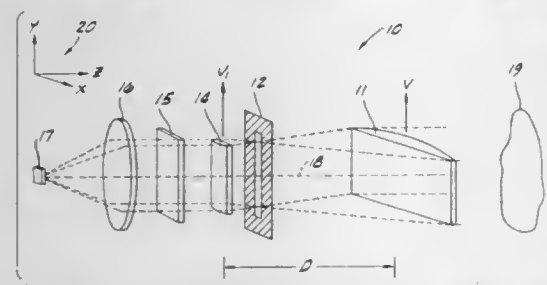
Stoyan Ivanov Sargoytchev, Toronto, Canada, assignor to Institute For Space And Terrestrial Science, Ontario, Canada

Filed Sep. 20, 1996, Ser. No. 717,288

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—346

20 Claims



1. A Fabry-Perot spectrometer for detecting a spatially varying spectral signature of an extended source, comprising:

- a focusing lens for placement in a path of light from said extended source;
- a detector at a focal plane of said focusing lens;
- a Fabry-Perot etalon having two parallel working surfaces, said etalon in said light path between said focusing lens and said extended source when said focusing lens is placed in said light path;

at least two cylindrical optical elements arranged for directing light from said extended source along said light path to said Fabry-Perot etalon, each of said at least two cylindrical optical elements having a vertex extending in a vertex direction which is transverse of said light path such that said at least two cylindrical optical elements are arranged for smearing said directed light in a first linear direction across said focal plane perpendicular to said vertex direction wherein an image is formed in said focal plane with spectral information in said first direction and spatial resolution of said spectral information in said vertex direction.

5,801,832

METHOD OF AND DEVICE FOR REPETITIVELY IMAGING A MASK PATTERN ON A SUBSTRATE USING FIVE MEASURING AXES

Marinus A. Van Den Brink, Eindhoven, Netherlands, assignor to ASM Lithography, Veldhoven, Netherlands

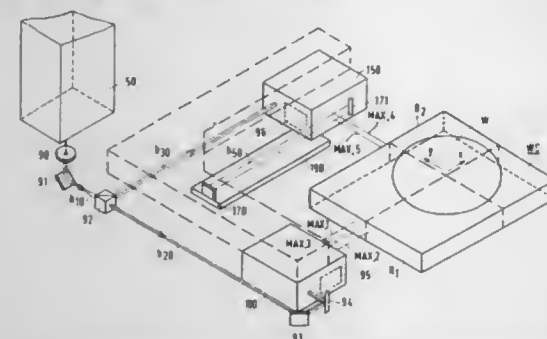
Continuation of Ser. No. 174,740, Dec. 29, 1993, abandoned, which is a continuation of Ser. No. 42,894, Apr. 5, 1993, abandoned, which is a continuation of Ser. No. 732,514, Jul. 18, 1991, abandoned. This application May 9, 1995, Ser. No. 437,490

Claims priority, application Netherlands, Feb. 7, 1991, 9100215

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—358

17 Claims



1. A method of repetitively imaging, by means of a projection system, a mask pattern present in a mask plate each time on a

different sub-area of an area on a substrate arranged on a substrate support, whereby before the mask pattern is imaged on an individual sub-area, this sub-area is accurately positioned with respect to the mask pattern, which positioning comprises global alignment of the substrate with respect to the mask pattern by two alignment marks located in the mask plate outside the mask pattern and at least two substrate alignment marks located on the substrate outside said area, said global alignment being realized by:

- imaging mask alignment marks and substrate alignment marks onto each other by the projection system;
- observing the extent of overlap between an alignment mark image and the alignment mark on which the image must be formed;
- displacing along a first, X axis and a second, Y axis of a three-axes system of coordinates and rotation about the third, Z axis of the system of coordinates of the mask pattern and the substrate relative to each other until a sufficient degree of overlap is obtained;
- positioning each individual sub-area with respect to the mask pattern by displacing the substrate and the mask pattern relative to each other from the global-aligned position while measuring the displacement along at least one of said X and Y axis, the rotation about the Z axis and tilts about the X and Y axis of the substrate; and
- using all measuring results to realize the ultimate positioning of the relevant sub-area in an X-Y plane with respect to the mask pattern.

5,801,833

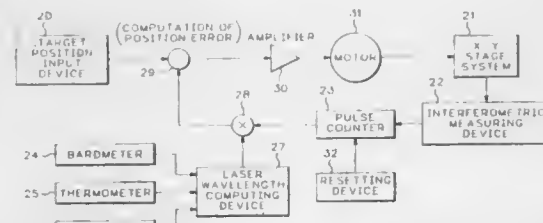
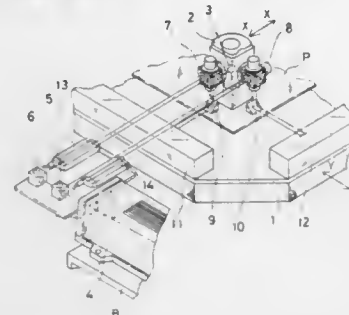
METHOD OF PRODUCING MASTER AND WORKING PATTERN PLATES FOR ETCHING AND PHOTOLITHOGRAPHIC APPARATUS THEREFOR

Kei Kobayashi, and Yoichi Shiraisbi, both of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan Division of Ser. No. 67,340, May 25, 1993, Pat. No. 5,500,326, which is a continuation of Ser. No. 666,351, Mar. 8, 1991, abandoned. This application Dec. 29, 1995, Ser. No. 580,637

Int. Cl.⁶ G01B 9/02

U.S. Cl. 356—358

2 Claims



1. A photolithographic apparatus which is arranged to prepare individual pattern data required for an etching pattern plate comprising an alignment mark pattern, a hole pattern, a frame pattern, etc., prepare single synthetic pattern data by subjecting each of said individual pattern data to a logical operation, and effect continuous and collective exposure to a photosensitive glass plate by use of said synthetic pattern data to form a latent image corresponding to said synthetic pattern data, and which has a device that controls the movement of a moving mirror of a Michelson interferometer from its origin by counting the number of interference fringes, or Dop-

pler shift frequency, from said interferometer with a counter, thereby controlling the relative position of an exposure head and a photosensitive plate, wherein the improvement comprises a position controller that sets the origin of said moving mirror at a distance from a beam splitter of said Michelson interferometer, moves said moving mirror to the origin to reset the count of said counter to zero and then feedback-controls the position of said moving mirror on the basis of the difference between a value obtained by multiplying the count of said counter by the wavelength in the air at the present time and a target position of said moving mirror, said position controller having a memory means for storing the wavelength in the air at the time when said moving mirror is moved to the origin and said counter is reset to zero, and said position controller being arranged such that a value obtained by dividing the distance between said beam splitter and the origin by the wavelength stored in said memory means is added to the count of said counter; the resulting sum is multiplied by the wavelength in the air at the present time; the distance between said beam splitter and the origin is subtracted from the resulting product; and the position of said moving mirror is feedback-controlled on the basis of the difference between the result of said subtraction and a target position of said moving mirror.

5,801,834

VEHICLE STRAIGHTENER MEASURING UNIT, MEASURING APPARATUS RELIANT ON REFLECTED BEAM(S), AND SOURCE, TARGETS AND METHOD

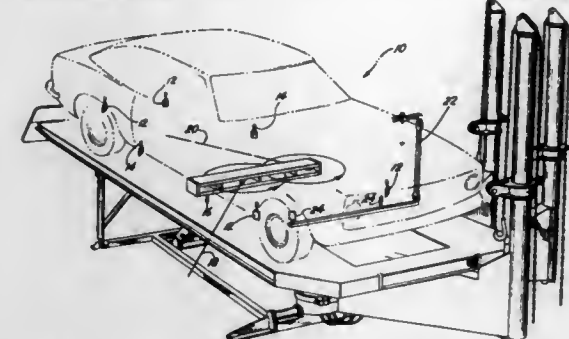
Glen C. Danielson, 1619 Gretchen Ave., Grand Island, Nebr. 68803, and Thomas M. Westhoff, 716 NW. 8th St., Willmar, Minn. 56201

Continuation of Ser. No. 233,615, Apr. 22, 1994, abandoned, which is a division of Ser. No. 6,677, Mar. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 619,294, Nov. 28, 1990, Pat. No. 5,251,013, which is a continuation-in-part of Ser. No. 359,921, May 31, 1989, Pat. No. 4,997,283, which is a continuation-in-part of Ser. No. 329,010, Mar. 27, 1989, abandoned. This application May 17, 1996, Ser. No. 650,895

Int. Cl.⁶ G01C 5/00

U.S. Cl. 356—375

44 Claims



1. A method of determining frame alignment of a vehicle having reference points and having associated alignment specifications expressed as the positions of the respective reference points relative to a vehicle reference, said method comprising the steps of:

- (a) establishing a pair of reference origins spaced from the vehicle and spaced a known distance apart;
 - (b) determining the respective angles from each of said origins to a vehicle reference point; and
 - (c) using said known distance and said angles as a basis for determining the position of said reference point relative to the vehicle reference,
- step (b) further including the steps of
- placing a beam-reflective target in known relationship with the reference point,
 - producing a reflected beam emanating from said target to at least one of said origins,
 - detecting said reflected beam at said one origin for determining the beam reflection angle of said reflected beam relative

to said one origin, said beam reflection angle being one of said respective angles,

modulating said reflected beam in the manner indicative of the spacing between said reference point and said reflected beam relative to said target, and

demodulating said reflected beam to determine said spacing, step (c) including the step of using said spacing for determining the position of said reference point relative to the vehicle reference.

5,801,835

SURFACE POSITION DETECTION APPARATUS AND METHOD

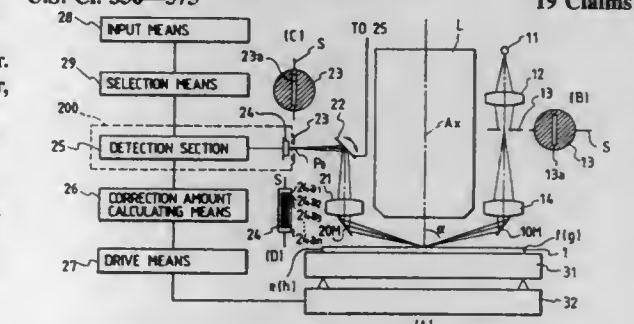
Hideo Mizutani, Naoyuki Kobayashi, both of Yokohama, and Nobutaka Magome, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 723,512, Sep. 30, 1996, abandoned, which is a division of Ser. No. 239,847, May 9, 1994, Pat. No. 5,587,794, which is a continuation of Ser. No. 802,197, Dec. 4, 1991, abandoned. This application Sep. 30, 1997, Ser. No. 940,818

Claims priority, application Japan, Dec. 13, 1990, 2-401880 Int. Cl.⁶ G01B 11/14

U.S. Cl. 356—375

19 Claims



1. A surface position detection apparatus, comprising:

- an optical system disposed to illuminate a detection surface with light and to receive the light from said detection surface;
- a designation unit arranged to designate a plurality of different parts of said detection surface, in accordance with a stepped structure including high and low portions along a direction within an area on said detection surface that is illuminated by said optical system; and
- a detection unit arranged to detect, based on information of the light received by said optical system and information of said different parts of said detection surface designated by said designation unit, positions corresponding to said designated parts of said detection surface.

5,801,836

DEPLETION REGION STOPPER FOR PN JUNCTION IN SILICON CARBIDE

Mietek Bakowski, Skultuna, and Ulf Gustafsson, Linköping, both of Sweden, assignors to ABB Research Ltd., Zurich, Switzerland

Filed Jul. 16, 1996, Ser. No. 680,921

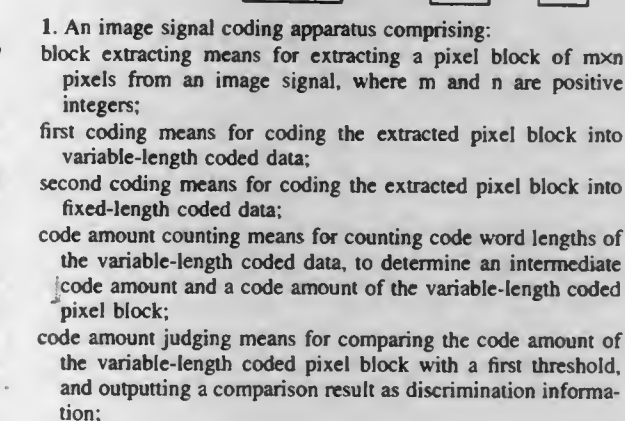
Int. Cl.⁶ H01L 23/58; 29/861

U.S. Cl. 257—487

8 Claims

1. A semiconductor component comprising a pn junction having a first conductivity type layer and a second conductivity type layer, both being doped layers of silicon carbide (SiC), the first conductivity type layer being lower doped and being provided with a depletion region stopper (DRS) located outside the pn junction, when fully depleted said depletion region stopper (DRS) having stepwise or continuously increasing effective sheet charge density

UMI



plurality of memory areas for storing the image information, an operation start command means for triggering writing operation of the memory, and interface unit for communication with an external device and for transmission of the image information, comprising the steps of:

- reading the memory according to an internal data access in response to the operation start command means;
- receiving a trigger for an external data access via the interface unit;
- inhibiting the execution of the external data access to any of the plurality of memory areas of the memory for continuing the internal data access; and
- starting the reading or writing operation according to the external data access after the internal data access has been completed.

5,801,848

PROCESS FOR TRANSMITTING AND/OR STORING INFORMATION

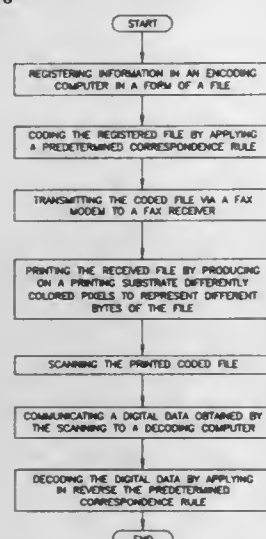
Oded Kafri, Beer-Sheva, Israel, assignor to Fontech Ltd., Beer-Sheva, Israel

Continuation of Ser. No. 1,076, Jan. 6, 1993. This application Jun. 5, 1995, Ser. No. 461,131

Int. Cl.⁶ H04N 1/40

U.S. Cl. 358—470

19 Claims



1. A process for transmitting information, comprising the steps of:

- (i) embodying said information in a first computer file including a number of bytes, wherein each of the bytes is an array comprising digital values to which a definite meaning is attributed when the digital values are taken together;
- (ii) generating a coded file by applying a predetermined correspondence rule to each byte in the first computer file, wherein the coded file is comprised of coded bytes and wherein each of the coded bytes is comprised of at least one digital value;
- (iii) transmitting said coded file by fax modem and receiving said coded file by a fax;
- (iv) printing the received coded file on a material backing wherein each said coded byte is represented by a grid comprising black and white cells, wherein said black and white cells correspond to digital values 0 and 1 constituting said coded byte;
- (v) scanning the printed coded file by means of a scanner;
- (vi) communicating results of said scanning to a decoding computer; and
- (vii) decoding said results of said scanning into a second computer file including bytes by applying the predetermined correspondence rule in reverse to said results of said scanning, wherein each of said bytes of the second computer file is an

array of digital values to which a definite meaning is attributed when the digital values are taken together.

5,801,849

IMAGE READING DEVICE AND DOCUMENT SCANNING SYSTEM

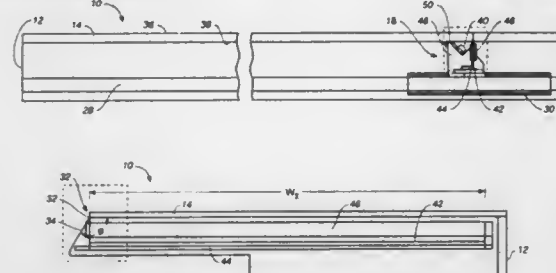
Yakov G. Soloveychik, Palo Alto; Alexander I. Gilevich, Sunnyvale, and Bryan E. Loucks, Los Altos, all of Calif., assignors to TeleSensory Corporation, Sunnyvale, Calif.

Filed Oct. 21, 1996, Ser. No. 734,801

Int. Cl.⁶ G03G 21/00

U.S. Cl. 358—474

20 Claims



1. A scanner, comprising:

an optically transparent support adapted to receive a document against one side thereof within a viewing area extending in first and second directions thereacross, said first and second directions being orthogonal to each other,

a reading assembly positioned on an opposite side of the document support and elongated to extend across the viewing area in the first direction,

means for moving the reading assembly across the document support viewing area in the second direction, thereby to scan and read the entire viewing area,

said reading assembly including:

a light source elongated in said first direction and positioned to illuminate through the document support a document held against said support one side,

a photodetector structure that is elongated in the first direction with a length at least equal to that of a maximum extent of the viewing area in said first direction, and

an optical system that is elongated in the first direction with a length in excess of the maximum extent of the viewing area in said first direction and positioned to image onto the photodetector an area of the document within the viewing area.

5,801,850

LINEAR SENSOR HAVING A PLURALITY OF SENSOR ROWS

Yasuhiro Maki, Kanagawa; Motoaki Abe, Shizuoka; Tadakuni Narabu, and Hideo Nomura, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 33,364, Mar. 18, 1993, Pat. No. 5,539,536. This application Jul. 10, 1996, Ser. No. 677,471

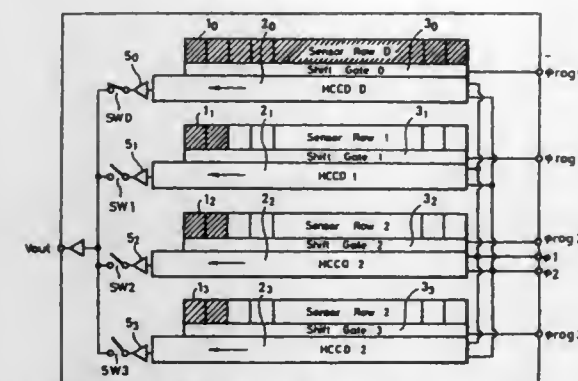
Claims priority, application Japan, Mar. 19, 1992, 4-093386; Mar. 19, 1992, 4-093387

Int. Cl.⁶ H04N 5/335

U.S. Cl. 358—483

7 Claims

1. A sensor for sampling pixels of a plurality of vertically arranged sensor rows substantially at a same time comprising:
 - a plurality of sensor rows vertically arranged, each sensor row having a plurality of horizontally arranged pixels;
 - a plurality of horizontal transfer registers provided to oppose said plurality of sensor rows for transferring signal charges in the horizontal direction;



a plurality of shift gates for transferring said signal charges accumulated in the pixels of said plurality of sensor rows to said plurality of horizontal transfer registers substantially at a same time;

a charge/voltage converter unit provided at the output of each horizontal transfer register;

drive means for driving said shift gates, and said horizontal transfer registers;

at least one sensor row of said plurality of sensor rows, being optically shielded; and

a switch means provided at the output of each charge/voltage converter, wherein said switch means are controlled to operate so that said signal charges accumulated in said vertically opposed pixels of said plurality of vertically arranged sensor rows are sequentially output in a repetitive manner.

5,801,851

FLAT BED IMAGE SCANNER

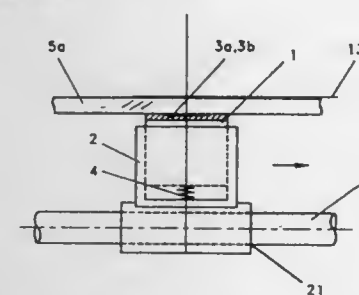
Thomas Sheng, Hsin-Chu, Taiwan, assignor to Avison Inc., Hsin-Chu, Taiwan

Filed Aug. 29, 1996, Ser. No. 705,170

Int. Cl.⁶ H04N 1/04

U.S. Cl. 358—497

8 Claims



1. A flat bed image scanner for scanning a document to obtain data for digital processing comprising:

- a glass window for placing said document;
- a contact image sensor for scanning said document;
- two durable lubricating plastic pads placed at two ends of said contact image sensor between said contact image sensor and said glass window to reduce friction when said contact image sensor slides along said glass window;
- a nest for recessing said contact image sensor; and
- an elastic element placed in said nest so the contact image sensor can scan said document.

5,801,852

POSITIVE SLEEVING SYSTEM FOR PHOTOGRAPHIC NEGATIVES

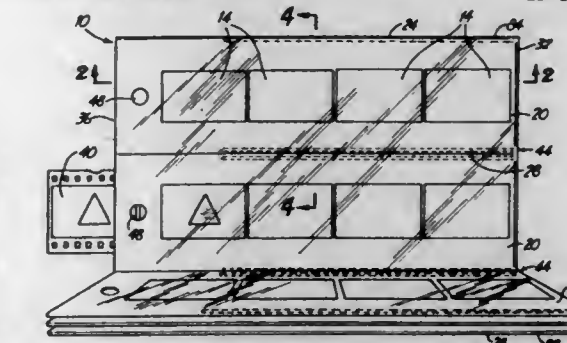
James A. Truc, Eden Prairie; Douglas B. Peterson, White Bear Lake, and James G. Hogenson, Mounds View, all of Minn., assignors to Pakon, Inc., Minnetonka, Minn.

Division of Ser. No. 305,686, Sep. 13, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 473,199

Int. Cl.⁶ H04N 1/04; 1/23; B65D 85/00

U.S. Cl. 358—502

15 Claims



1. A method for obtaining a positive image of a photographic negative and placing a representation of the positive image onto a storage medium in which the photographic negative is stored, the method comprising:

- deriving from the photographic negative electronic data representing the photographic negative;
- electronically processing the electronic data representing the photographic negative to obtain electronic data representing a positive image of the photographic negative; and
- printing a representation of the positive image onto the storage medium in which the photographic negative is stored, wherein the storage medium is fabricated from a non-photosensitive material.

5,801,853

COLOR IMAGE PROCESSING METHOD AND APPARATUS WHICH CALIBRATES CORRECTION DATA FOR IMAGE DATA

Osamu Yamada, Tokyo; Toshihiko Nakazawa, Yokohama; Yasutomo Suzuki, Yokohama, and Hirokazu Uchio, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

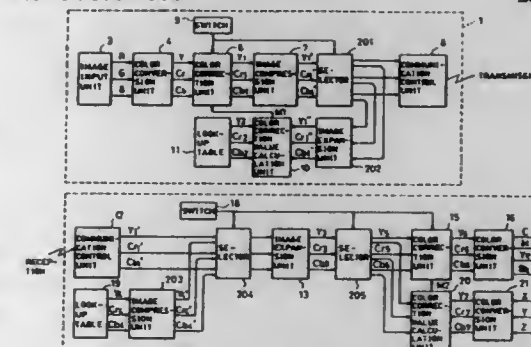
Division of Ser. No. 376,376, Jan. 23, 1995, Pat. No. 5,489,998, which is a continuation of Ser. No. 206,266, Mar. 7, 1994, abandoned, which is a continuation of Ser. No. 841,580, Feb. 26, 1992, abandoned. This application Nov. 15, 1995, Ser. No. 558,157

Claims priority, application Japan, Mar. 4, 1991, 3-037416; Mar. 4, 1991, 3-037423

Int. Cl.⁶ H04N 1/46

U.S. Cl. 358—504

28 Claims



1. A color image processing method having a normal mode of operation and a calibration mode of operation, said normal mode comprising the steps of:

correcting image data by using color correction data, the color correction data correcting for errors in the image data caused by a predetermined encoding method; encoding corrected image data by using the predetermined encoding method to produce encoded image data; and outputting the encoded image data; and said calibration mode comprising the steps of: encoding a standard color signal by using the predetermined encoding method to produce an encoded standard color signal; decoding the encoded standard color signal to produce a decoded standard color signal; and generating the color correction data in accordance with the decoded standard color signal.

5,801,854

COLOR CONVERSION METHOD

William Clark Naylor, Jr., Santa Clara, Calif., assignor to Canon Information Systems Research Australia Pty Ltd, North Ryde, Australia

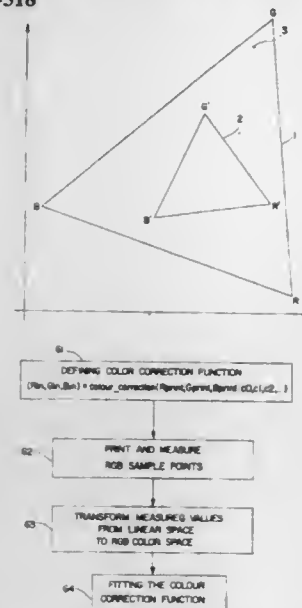
Filed Feb. 12, 1996, Ser. No. 601,069

Claims priority, application Australia, Feb. 14, 1995, PN1133

Int. Cl.⁶ G03F 3/00

U.S. Cl. 358—518

22 Claims



1. A method of displaying colour images, intended to be displayed on a first colour display device, on a second colour display device having a colour gamut different from the first colour display device, said method including the steps of:

- determining a plurality of input extrema colour values, within the colour gamut of said first colour display device and at the extrema of the gamut of said first colour display;
- determining a plurality of output extrema colour values corresponding to said input extreme colour values, within the colour gamut of said second colour display and at the extrema of the gamut of said second colour display; and
- determining a mapping for substantially all the values within the colour gamut of the first colour display to substantially all the values within the gamut of the second colour display, said mapping substantially preserving the relative value of differences between colour values relative to the extent of the gamut of said first colour space and differences between corresponding colour values in the gamut of said second colour space relative to the extent of the gamut of said second colour space;

wherein said mapping includes determining a colour correction function mapping colour gamut values within the gamut of said second colour display to colour gamut values within the colour gamut of said first colour display, and said colour

correction function includes a number of free parameters, the values of which are determined by measurement of output colour values of said second colour display device.

5,801,855

COLOR IMAGE PROCESSING METHOD AND APPARATUS UTILIZING THE SAME

Ken-ichi Ohta, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 412,583, Mar. 29, 1995, abandoned.

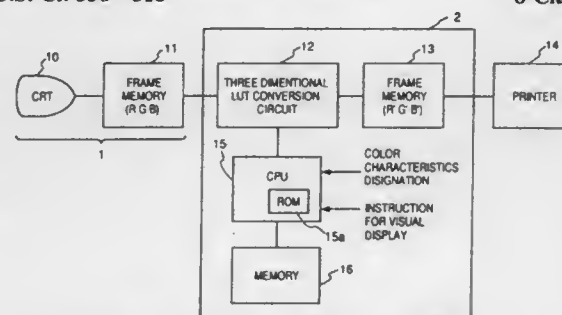
This application Aug. 25, 1997, Ser. No. 917,296

Claims priority, application Japan, Mar. 31, 1994, 6-063405; Mar. 31, 1994, 6-063408

Int. Cl.⁶ H04N 1/40

U.S. Cl. 358—518

8 Claims



1. A color image processing apparatus comprising:

input means for inputting input color image data from an input unit, the input color image data having characteristics depending on the input unit;

selection means for selecting, based on an instruction from a user, a mode for color processing from at least first and second modes;

creation means for creating a color processing composed function corresponding to the selected mode by composing a plurality of color processing functions;

color processing means for performing color processing on the input color image data using the color processing composed function created by said creation means, and for outputting output color image data processed for an image formation unit, the output color image data having characteristics depending on the image formation unit; and

output means for outputting the output color image data to the image formation unit,

wherein, when the first mode is selected, said creation means composes a first color processing function corresponding to color characteristics of the input unit, a second color processing function relating to gamut mapping based on a gamut of the image formation unit and a third color processing function corresponding to color characteristics of the image formation unit, and

when the second mode is selected, said creation means composes the first color processing function and the third color processing function and not the second color processing function.

5,801,856

SECURE PHOTOGRAPHIC SYSTEMS

Omid A. Moghadam, Rochester; Majid Rabbani, Pittsford, and Kevin A. Townsend, Brockport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 24, 1996, Ser. No. 687,127

Int. Cl.⁶ H04N 1/04; G03F 3/10; G03B 17/24; 27/32

U.S. Cl. 358—527

19 Claims

1. A secure photographic system, comprising:

- a photographic original such as photographic film or paper bearing an image and indicia representing a desired digital

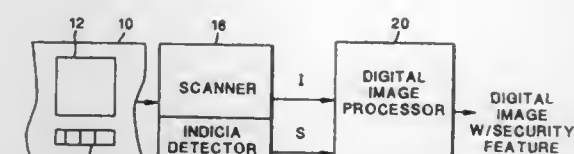


image security feature to be applied to a digital image produced by scanning the image;

b. a scanner for scanning the image on the photographic original to generate a digital image;

c. means for detecting the indicia on the photographic original to generate a security feature control signal; and

d. digital image processing means responsive to the security feature control signal and the digital image for applying the desired digital image security feature to the digital image.

5,801,857

DATA CARRIER HAVING AN OPTICALLY VARIABLE ELEMENT AND METHODS FOR PRODUCING IT

Christoph Heckenkamp, Munich; Wittich Kaule, Emmering, and Gerhard Stenzel, Munich, all of Germany, assignors to GAO Gesellschaft für Automation und Organisation mbH, Munich, Germany

Continuation of Ser. No. 12,979, Feb. 1, 1993, abandoned,

which is a continuation of Ser. No. 590,351, Sep. 28, 1990,

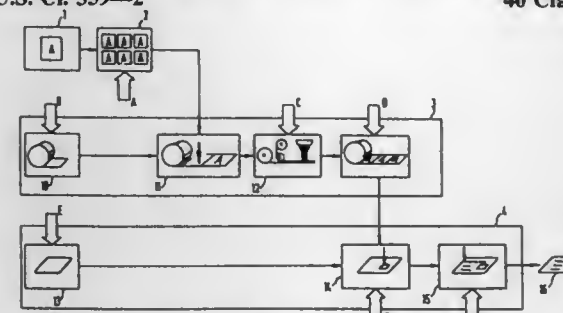
abandoned. This application Sep. 2, 1994, Ser. No. 300,728

Claims priority, application Germany, Sep. 28, 1989, 39 32 505.9

Int. Cl.⁶ G02B 5/18; G03H 5/18; B42D 15/00

U.S. Cl. 359—2

40 Claims



1. A system comprising a series of data carriers which are manufactured and thereafter issued for use, each of the data carriers having a body provided with only a single, multilayer, optically variable element, said optically variable element comprising diffraction structures which are combined with a reflective layer impermeable in the visual spectral range, the diffraction structures presenting visually recognizable information which is identical for all data carriers of the system, the appearance of said information visually changing depending on the angle from which the optically variable element is viewed, the appearance changes comprising an authenticity feature which can be recognized visually by the unaided human eye, each of the data carriers of the system being provided with an alteration in a portion of the optically variable element, the remaining portions of the optically variable element being unaltered so that said unaltered portion and said altered portion may be separately but simultaneously viewed, said alteration comprising the partial removal or destruction of all layers of the optically variable element, said alteration providing an irreversible and visually recognizable change of the optically variable element and the appearance of the information presented by the diffraction structures which can be visually recognized by the unaided human eye, said change being recognizable under all viewing angles of the optically variable element and remaining constant regardless of the angle from which the optically variable element is viewed, said alteration being effected prior to issuance of the data carrier.

5,801,858

OPTICAL TRANSMISSION SYSTEMS USING OPTICAL AMPLIFIERS AND WAVELENGTH DIVISION MULTIPLEXING

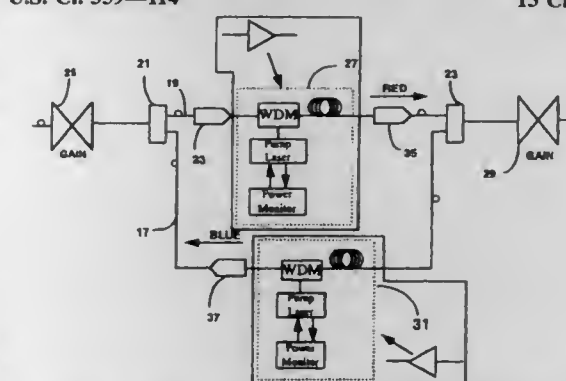
Kim Byron Roberts, Herts, Great Britain; Maurice Stephen O'Sullivan, and Gregory Dean May, both of Ottawa, Canada, assignors to Northern Telecom Limited, Ottawa, Canada

Filed Jun. 25, 1996, Ser. No. 669,929

Int. Cl.⁶ H04B 10/17; H04J 14/02

U.S. Cl. 359—114

13 Claims



1. A multi-channel telecommunication system comprising:

- (K) first band transmitters at a first site;
- (K) first band receivers at a second site;
- (M) second band receivers at said first site;
- (M) second band transmitters at said second site;

an optical working fiber (W) connecting said first site and said second site for transporting (K) first band optical signals in a forward direction between said (K) first band transmitters at said first site and said (K) first band receivers at said second site and for transporting (M) second band optical signals in a reverse direction between said (M) second band transmitters at said second site and said (M) second band receivers at said first site;

a first splitter element at said first site for routing said (K) first band optical signals from said (K) first band transmitters to a first end of said working fiber (W) and for routing said second band optical signals from said first end to a respective one of said (M) second band receivers, according to wavelength;

a second splitter element for routing said (M) second band optical signals from said (M) second band transmitters to a second end of said optical working fiber (W) and for routing said (K) first band optical signals from said second end to a respective one of said (K) first band receivers, according to wavelength;

a WDM optical amplifier module series connected on said optical working fiber (W) for amplifying said (K) first band optical signals and said (M) second band optical signals, said WDM optical amplifier module series having

a first peripheral gain region for amplifying said first band optical signals and said second band optical signals;

a first three-port WDM splitter connected to said first peripheral gain region for spatially separating said first band optical signals from said second band optical signals, according to wavelength;

a central gain region for receiving said first band optical signals and said second band optical signals, separately amplifying same;

a second three-port WDM splitter connected to said central region for spatially separating said first band optical signals from said second band optical signals; and

a second peripheral gain region connected to said second three-port WDM splitter for amplifying said second band optical signals.

5,801,859

NETWORK SYSTEM HAVING TRANSMISSION CONTROL FOR PLURAL NODES DEVICES WITHOUT ARBITRATION AND TRANSMISSION CONTROL METHOD THEREFOR

Mitsuru Yamamoto, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 579,737, Dec. 28, 1995, abandoned.

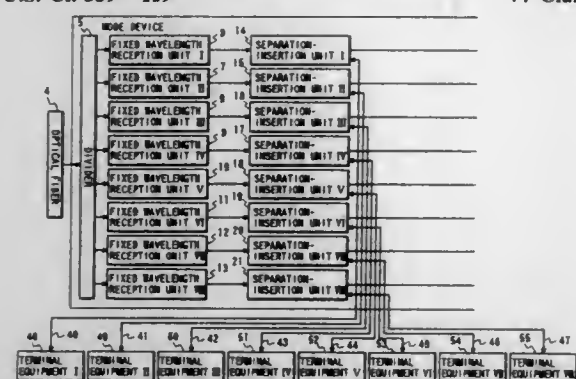
This application Jul. 21, 1997, Ser. No. 897,707

Claims priority, application Japan, Dec. 28, 1994, 6-327496; Dec. 14, 1995, 7-325632

Int. Cl.⁶ H04B 10/20; H04J 14/00

U.S. Cl. 359—119

77 Claims



1. A network system for connecting a plurality of node devices for signal transmission through N numbered channels comprising: a first node device including:

- N numbered buffer means for temporarily storing signals to be transmitted;
- transmission means for sending each signal from each of the N numbered buffer means through the N numbered channels;
- channel alteration control means for controlling said transmission means to alter the channels through which the signals from said buffer means can be sent in accordance with a predetermined pattern to prevent the signals from two or more of said N numbered buffer means from being sent to the same channel at the same time; and
- buffer control means, operating synchronously with the alteration of channels by said channel alteration control means, for controlling said buffer means to read out the signals through desired channels; and
- a second node device for receiving signals from said first node device comprising: reception means for receiving the N numbered channels respectively.

5,801,860

WAVELENGTH DIVISION MULTIPLEXING TRANSMISSION SYSTEM COMPRISING A FEEDBACK SECTION FOR TRANSMITTING A LIGHT POWER LEVEL SIGNAL FROM A LIGHT RECEIVER TO A LIGHT TRANSMITTER

Kenichi Yoneyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 692,280

Claims priority, application Japan, Aug. 8, 1995, 7-202367

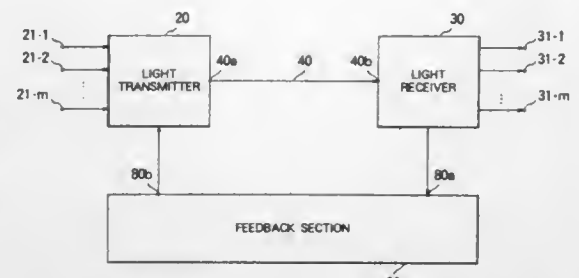
Int. Cl.⁶ H04J 14/02

U.S. Cl. 359—124

19 Claims

1. A wavelength division multiplexing transmission system comprising a light transmitter of a first side, a light receiver of a second side opposite to the first side, and an optical transmission path for connecting said light transmitter of the first side and said light receiver of the second side, said optical transmission path having transmission characteristics dependent on wavelength,

said light transmitter of the first side comprising: first through m-th light sources for emitting first through m-th original light signals with first through m-th controllable



original light power levels, respectively, where m represents a positive integer which is not less than two, the first through m-th original light signals having first through m-th wavelengths, respectively, which are different from each other; and

an optical multiplexer, connected to said first through said m-th light sources and to an end of said optical transmission path, for multiplexing the first through the m-th original light signals into a multiplexed light signal;

said optical transmission path transmitting the multiplexed light signal as a transmission light signal from said light transmitter of the first side to said light receiver of the second side,

said light receiver of the second side being for receiving the transmission light signal as a received light signal and comprising:

- an optical demultiplexer, connected to the other end of said optical transmission path, for demultiplexing the received light signal into first through m-th demultiplexed light signals as replicas of the first through the m-th original light signals, respectively, the first through the m-th demultiplexed light signals having first through m-th received light power levels, respectively; and
- first through m-th light reception units, connected to said optical demultiplexer, for receiving the first through the m-th demultiplexed light signals, respectively,

said wavelength division multiplexing transmission system further comprising feedback means for connecting said light receiver of the second side and said light transmitter of the first side,

said light receiver of the second side further comprising:

- power level detecting means, connected to said optical demultiplexer, for detecting the first through the m-th received light power levels of the first through the m-th demultiplexed light signals to produce first through m-th detected light power level signals indicative of the first through the m-th received light power levels; and
- power level outputting means, connected to said power level detecting means and to an end of said feedback means, for outputting, in response to the first through the m-th detected light power level signals, an output light power level signal corresponding to the first through the m-th detected light power level signals to the end of the said feedback means, thereby making said feedback means transmit the output light power level signal as a transmission light power level signal from said light receiver of the second side to said light transmitter of the first side,

said light transmitter of the first side further comprising:

- power level inputting means, connected to the other end of said feedback means, for inputting the transmission light power level signal from said feedback means as a received light power level signal to produce first through m-th input light power level signals as replicas of the first through the m-th detected light power level signals; and
- power control means, connected to said power level inputting means and said first through said m-th light sources, for controlling, in response to the first through the m-th input light power level signals, said first through said m-th light sources to change the first through the m-th controllable original light power levels of the first through the m-th original light signals so that the first through the m-th demulti-

plexed light signals have the first through the m-th received light power levels each of which becomes a predetermined light power light.

5,801,861

COMMUNICATION SYSTEM FOR PERFORMING WAVELENGTH DIVISION MULTIPLEXING COMMUNICATIONS, AND WAVELENGTH CONTROL METHOD USED IN THE SYSTEM

Masao Majima, Isehara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

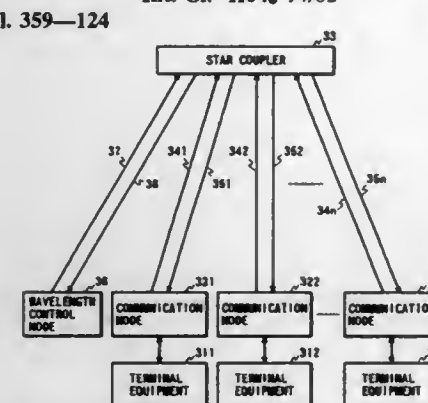
Filed Sep. 19, 1996, Ser. No. 707,485

Claims priority, application Japan, Sep. 19, 1995, 7-239703; Sep. 19, 1995, 7-239706; Sep. 20, 1995, 7-241730; Sep. 10, 1996, 8-238999

Int. Cl.⁶ H04J 14/02

U.S. Cl. 359—124

51 Claims



1. A communication system comprising:

- a first communication system for performing a wavelength division multiplexing communication;
- a second communication system for performing a communication independently of said first communication system: a plurality of communication nodes for performing a communication via at least said first communication system, wherein said communication nodes are adapted to terminate output of light outputted to said first communication system when the communication has been completed; and
- a wavelength control unit for detecting an arrangement of a plurality of wavelengths outputted from said plurality of communication nodes in said first communication system and for transmitting to said plurality of communication nodes via said second communication system, a wavelength control signal for control of intervals of the wavelengths based on the detected wavelength arrangement.

5,801,862

SYNCHRONOUS MODULATION METHOD AND APPARATUS FOR IN-LINE REGENERATION OF A WDM SOLITON SIGNAL, AND AN OPTICAL TELECOMMUNICATIONS SYSTEMS USING THE METHOD

Emmanuel Desurvire, Bruyeres le Chatel; José Chesnoy, Paris, and Olivier Leclerc, Savigny sur Orge, all of France, assignors to Alcatel Submarine Networks, Clichy, France

Filed Jan. 22, 1997, Ser. No. 787,215

Claims priority, application France, Jan. 23, 1996, 96 00732

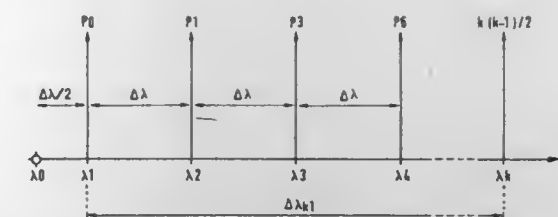
Int. Cl.⁶ H04J 14/02; H04B 10/00

U.S. Cl. 359—124

17 Claims

5. An optical transmission system for transmitting optical signals in the form of bit streams represented by solitons characterized in particular by a propagation wavelength and a bit rate, said system comprising:

- a transmitter;
- a receiver;



an optical fiber interconnecting the transmitter and the receiver; one or more optical regenerator apparatuses, each optical regenerator apparatus including a clock recovery circuit; and one or more optical modulators, each optical modulator being together with a spectral filter;

said transmitter transmitting the solitons at a plurality of wavelengths lying in a spectrum band having ends λ_1 and λ_n , respectively being the shortest and the longest wavelengths of said plurality of wavelengths;

said different wavelengths being associated with respective different group propagation times $\tau_g(\lambda_1)$, $\tau_g(\lambda_n)$, said group propagation times being characterized by a group propagation time difference $\delta\tau_g = \tau_g(\lambda_n) - \tau_g(\lambda_1)$;

one of said one or more optical regenerator apparatuses being disposed at a distance Z_R between said transmitter and one of said one or more optical modulators, or between two successive ones of said one or more optical modulators, said distance Z_R being selected such that its product when multiplied by the group propagation time difference $\delta\tau_g = \tau_g(\lambda_n) - \tau_g(\lambda_1)$ satisfies:

$$(kT - T/4) < \delta\tau_g Z_R < (kT + T/4)$$

where:

- k is an integer, and
- T is the bit time for Z_R .

5,801,863

MAINTENANCE OF OPTICAL NETWORKS

Mohammad T. Fatehi, Middletown, and Fred Ludwig Heilmann, Tinton Falls, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

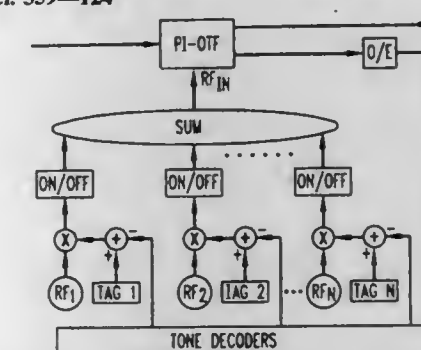
Division of Ser. No. 579,529, Dec. 27, 1995. This application

Feb. 28, 1997, Ser. No. 808,231

Int. Cl.⁶ H04J 14/02; H04B 10/16

U.S. Cl. 359—124

9 Claims



1. A method of monitoring performance and signal routing in a multi-wavelength all-optical network, comprising the steps of: modulating a unique low-frequency identifier tone to each individual optical carrier before entering the network; detecting the identifier tones of the multiplexed optical carrier simultaneously at various locations in the network; regenerating the identifier tones within the network; and removing the identifier tones at exit nodes of the network.

5,801,864

OPTICAL FREQUENCY DIVISION MULTIPLEXING NETWORK

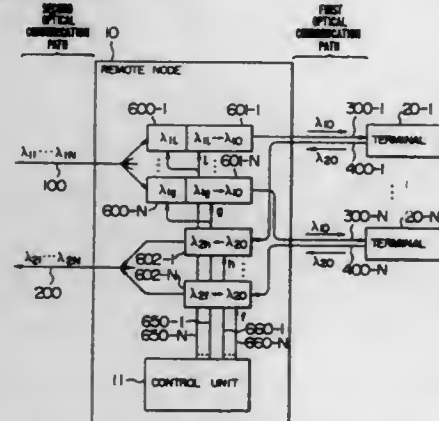
Atsushi Takai; Ryoji Takeyari, both of Kokubunji, and Akihiko Takase, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 233,974, Apr. 28, 1994, Pat. No. 5,510,921, which is a continuation of Ser. No. 800,255, Nov. 29, 1991, Pat. No. 5,321,540. This application Feb. 29, 1996, Ser. No. 608,725

Claims priority, application Japan, Nov. 30, 1990, 2-337118 Int. Cl.⁶ H04J 14/02

U.S. Cl. 359—125

21 Claims



1. A method for transmitting optical signals to terminals comprising the steps of:
receiving first optical signals in optical frequency division multiplexing fashion through an optical communication path;
demultiplexing said first optical signals in optical frequency division multiplexing fashion to second optical signals having a first common optical frequency; and
distributing said second optical signals having the first common optical frequency to the corresponding terminals.

5,801,865

RADIO-TELECOMMUNICATION DEVICE IN VEHICLES

Bernd Weis, Korntal-Münchingen, and Heinz Schlesinger, Mundelsheim, both of Germany, assignors to Alcatel N.V., Amsterdam, Netherlands

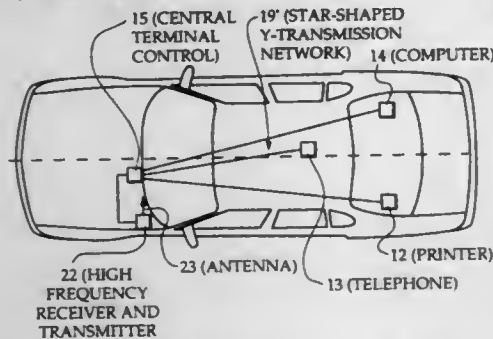
Continuation of Ser. No. 563,559, Nov. 28, 1995, abandoned, which is a continuation of Ser. No. 184,588, Jan. 21, 1994, abandoned. This application May 21, 1997, Ser. No. 861,185

Claims priority, application Germany, Jan. 23, 1993, 43 01 816.5

Int. Cl.⁶ H04B 10/00

U.S. Cl. 359—145

9 Claims



1. A radio-telecommunication device (11) for vehicles, comprising:
an HF-transmitting and receiving device (22),
a plurality of terminals each having user specific parts (12, 13, 14) for providing respective user interfaces, the plurality of terminals having different input-output means (32-36) that are

interconnected to perform different telecommunication services, including services associated with a printer, a facsimile, a telephone, and a personal computer, and

a central terminal control (15) having radio-telecommunication specific parts for providing control and signal processing functions for the plurality of terminals, the radio-telecommunication specific parts being physically separated from the user specific parts (12, 13, 14) and being interconnected thereto by a transmission network (19), and the central terminal control (15) being connected to the HF-transmitting and receiving device (22),

wherein the central terminal control (15) has an interface unit (18) that interfaces with the transmission network (19) to perform the different telecommunication services, as well as has units for selecting services (17) and for data formatting (21), for controlling an exchange of signalling data between the telecommunication-specific parts and the user specific parts (12, 14) to perform one of the different telecommunication services with one of the input-output means (32-36) of the respective user specific parts (12, 13, 14).

5,801,866

LASER COMMUNICATION DEVICE

Victor Chan, San Diego; Michael Rivers, Santee; James Menders, and Scott Bloom, both of San Diego, all of Calif., assignors to Trex Communications Corporation, San Diego, Calif.

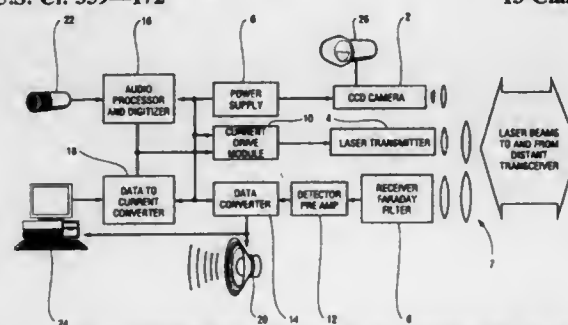
Continuation-in-part of Ser. No. 935,899, Aug. 27, 1992, Ser. No. 199,115, Feb. 22, 1994, and Ser. No. 221,527, Apr. 1, 1994.

This application Jun. 21, 1996, Ser. No. 667,400

Int. Cl.⁶ H04B 10/00

U.S. Cl. 359—172

13 Claims



1. A laser communication transceiver for transmitting information via laser beams to another laser communication transceiver and for receiving information via laser beams from said another laser communication transceiver, said transceiver comprising:

- A) a laser transmitter system comprising:
 - 1) at least one laser operable to produce a signal laser beam of a selected range of wavelengths;
 - 2) a signal modulator disposed relative to said laser and configured to modulate said signal laser beam to impose a digital communication signal on said signal laser beam;
- B) a laser receiver disposed relative to said laser transmitter system and configured to receive a laser beam having a selected range of wavelengths from said another laser communication transceiver comprising:
 - 1) an optical filter closely matched to at least one wavelength of said received laser beam,
 - 2) a signal detector operable to receive and detect communication signals that are transmitted by said another laser communication transceiver through said optical filter;
- C) a telescopic viewing device operable to locate said another similar laser communication transceiver and to facilitate pointing said transceiver in a direction of said another laser communication transceiver; and
- D) a laser ranging unit, a GPS unit and an electronic compass.

5,801,867

DC-COUPLED RECEIVER FOR SHARED OPTICAL SYSTEM

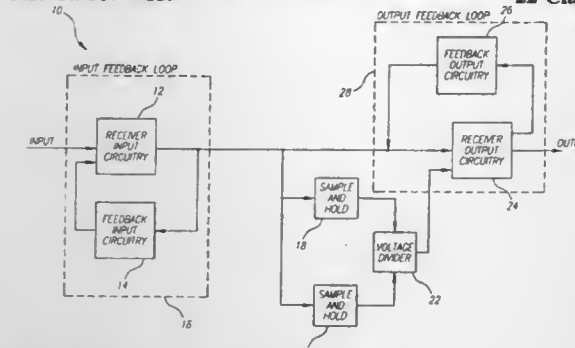
William L. Geller, Foster City; David M. Arstein, Scotts Valley, and William F. Ellersick, Redwood City, all of Calif., assignors to Ericsson Raynet, Menlo Park, Calif.

Filed Mar. 20, 1996, Ser. No. 619,851

Int. Cl.⁶ H04B 10/06

U.S. Cl. 359—189

22 Claims



1. A digital data receiver, comprising:
a dc-coupled feedback amplifier circuit;
a first sample-and-hold circuit electrically connected to said dc-coupled feedback amplifier circuit;
a second sample-and-hold circuit electrically connected to said dc-coupled feedback amplifier circuit; and
means for generating a signal with an amplitude equal to half of the difference between a first voltage level generated by said first sample-and-hold circuit and a second voltage level generated by said second sample-and-hold circuit, said means for generating connected to said first and second sample-and-hold circuits to receive signals therefrom.

5,801,868

APPARATUS FOR AND METHOD OF LASER MAKING

Kazuhiko Hayasaka, and Masashi Ichihara, both of Hiratsuka, Japan, assignors to Komatsu Ltd., Tokyo, Japan

PCT No. PCT/JP94/01928, § 371 Date May 20, 1996, § 102(e) Date May 20, 1996, PCT Pub. No. WO95/13899, PCT Pub. Date May 26, 1995

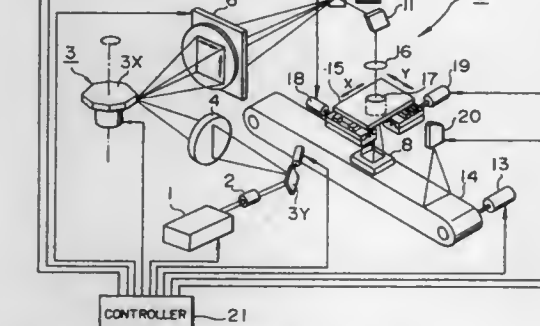
PCT Filed Nov. 15, 1994, Ser. No. 648,031

Claims priority, application Japan, Nov. 19, 1993, 5-312875

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—202

17 Claims



1. A laser marking apparatus comprising:
a laser generator,
a first deflector for deflecting a laser beam from said laser generator to perform raster scanning,
a mask capable of selectively allowing transmission of the laser beam from said first deflector for raster scanning to thereby display a predetermined pattern, and
a second deflector for further deflecting the laser beam transmitted through said mask to apply it to a surface of a workpiece for marking.

wherein said second deflector includes a reflective mirror device, for reflecting the laser beam transmitted through said mask, and movable lenses, for receiving the laser beam from this reflective mirror device to apply the thus received laser beam to the surface of the workpiece for marking, with the movable lenses being mounted on a moving mechanism which moves in synchronism with the speed at which the workpiece is conveyed,

wherein said reflective mirror device comprises:

- a first mirror for receiving and reflecting the laser beam transmitted through said mask,
 - a second mirror for reflecting the reflected beam from the first mirror to said movable lenses,
 - a third mirror for receiving and reflecting the laser beam transmitted through said mask,
 - a fourth mirror for receiving and reflecting the reflected beam from the third mirror, and
 - a fifth mirror for reflecting the reflected beam from the fourth mirror to said movable lenses,
- with the first through fifth mirrors being secured to a movable base, and the application of the laser beam transmitted through said mask being switchable, through displacement of said movable base, to the first mirror or to the third mirror.

5,801,869

OPTICAL SCANNER, IMAGE FORMING APPARATUS AND IMAGE READING APPARATUS

Motonobu Yoshikawa; Yoshiharu Yamamoto, and Kazutake Boku, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

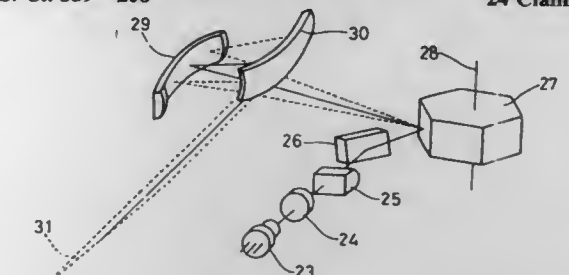
Division of Ser. No. 604,058, Feb. 20, 1996, Pat. No. 5,751,464. This application Jun. 27, 1997, Ser. No. 884,116

Claims priority, application Japan, Feb. 20, 1995, 7-031065

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—208

24 Claims



1. An optical scanner comprising a light source unit, an optical deflector to scan a light beam from the light source unit, a first image formation optical system disposed between the light source unit and the optical deflector, and a second image formation optical system disposed between the optical deflector and a surface to be scanned, wherein the second image formation optical system comprises a first curved mirror having a toric surface with a concave shape in a main scanning direction, which is a direction a light beam is scanned in, and a convex shape in a sub scanning direction, which is a direction perpendicular to the main scanning direction, to reflect the light beam from the optical deflector, and a second curved mirror having one of a toric surface, and a cylindrical surface, which has no refractive power, or has a concave shape in the main scanning direction, and with a concave shape in the sub scanning direction to focus the light beam from the first curved mirror on the surface to be scanned.

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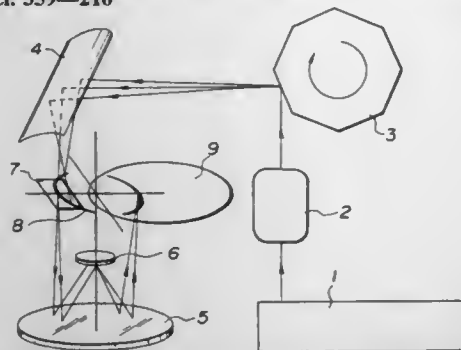
UMI

5,801,870

LIGHT EXPOSURE AND ILLUMINATING APPARATUS
 Michio Oka, Kanagawa, and Hiroshi Suganuma, Ibaragi, both of Japan, assignors to Sony Corporation, Tokyo, Japan
 Continuation of Ser. No. 502,460, Jul. 14, 1995, Pat. No. 5,673,134. This application Mar. 26, 1997, Ser. No. 824,310
 Claims priority, application Japan, Jul. 15, 1994, 6-163948
 Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—216

1 Claim



1. A light exposure illuminating apparatus for conducting a light beam source to an object to be exposed to light comprising:
 - harmonics light generating means for continuously radiating the light of harmonics;
 - a scanning optical system for sweeping the light of harmonics continuously radiated from said harmonics generating means, said scanning system comprising a scanning lens which sets the diameter of the light harmonics to a scanning beam diameter and a mirror with at least one moving reflector surface which reflects the light of harmonics from the scanning lens in a sweeping motion;
 - a patterned mask irradiated in a sweeping motion with the light of harmonics swept by the scanning optical system;
 - a cylindrical mirror which receives the light of harmonics reflected by the mirror with the moving reflection surface and which reflects said light onto said patterned mask; and
 - an imaging optical system for forming an image of the light of harmonics transmitted through said pattern in the object to be exposed to light,
 wherein, said pattern and said object to be exposed to light are configured to be moved in synchronism with said scanning optical system,
 - wherein, said mirror with a moving reflection surface comprises a rotating polygonal mirror having a plurality of reflector surfaces defining the sides of the polygon,
 - the rotating polygonal mirror has more than four reflector surfaces, and
 - the light generated by the harmonics light generating means is a fourth harmonics light.

5,801,871

WIDE BAND AND LOW DRIVING VOLTAGE OPTICAL MODULATOR WITH IMPROVED CONNECTOR PACKAGE

Rangaraj Madabhushi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

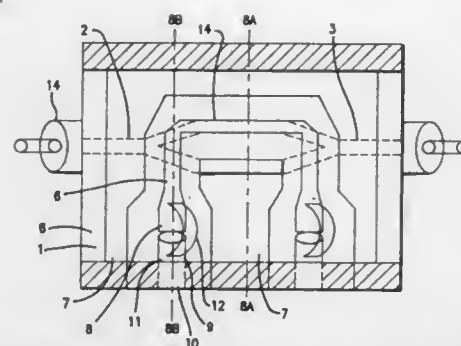
Filed May 12, 1997, Ser. No. 855,888

Claims priority, application Japan, May 10, 1996, 8-116436
 Int. Cl.⁶ G02F 1/03

U.S. Cl. 359—245

60 Claims

1. A connector for connecting to a pad of a signal electrode selectively formed over a dielectric buffer layer which extends over a crystal substrate of an optical device,
 - wherein a recess is selectively formed in an upper region of said crystal substrate so that said recess is positioned in the vicinity of said pad, and



wherein said dielectric buffer layer and said signal electrode are not formed over said recess so that said connector is received securely in said recess whereby a side face of said connector is made into direct contact with a side face of said pad, and a top of said connector has substantially the same level as a top of said pad to allow a majority of microwave energy to travel between top surface regions of said pad and said connector without substantial loss.

5,801,872

SEMICONDUCTOR OPTICAL MODULATION DEVICE
 Masayoshi Tsuji, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

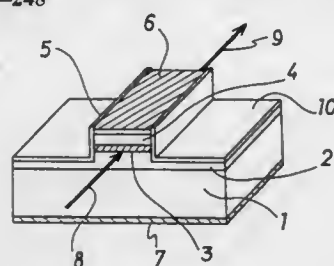
Filed Feb. 7, 1996, Ser. No. 598,099

Claims priority, application Japan, Feb. 9, 1995, 7-021427

Int. Cl.⁶ G02F 1/025; H01L 31/107

U.S. Cl. 359—248

4 Claims



1. A semiconductor optical modulation device for modulating input light by a change in absorption of light when an electric field is applied thereto, comprising:
 - a semiconductor substrate; and
 - a first clad layer of a first conduction type, a guide layer of the first conduction type, and a second clad layer of a second conduction type layered on said semiconductor substrate,
 wherein said guide layer includes a multiple layer formed from a plurality of semiconductor layers layered with each other, and wherein each of the plurality of semiconductor layers (a) has an energy gap, (b) is formed such that, as viewed from a first side to a second side in a thickness-wise direction, the content of an element of a first semiconductor composition on the first side gradually decreases until the second side exhibits a second semiconductor composition substantially void of the element, and (c) the energy gap exhibits a variation with a substantially linear slope, whereby the multiple layer formed from a plurality of semiconductor layers has a periodic potential that varies linearly.

5,801,873

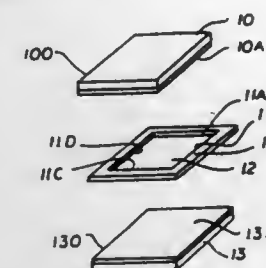
VARIABLE REFLECTANCE AUTOMOBILE MIRROR
 Harlan J. Byker, Holland, Mich., assignor to Gentex Corporation, Zeeland, Mich.

Continuation of Ser. No. 874,175, Apr. 23, 1992, which is a continuation of Ser. No. 760,877, Sep. 16, 1991, abandoned, which is a division of Ser. No. 422,601, Oct. 17, 1989, abandoned, which is a division of Ser. No. 846,354, Mar. 31, 1986, Pat. No. 4,902,108. This application Dec. 30, 1993, Ser. No. 175,781

Int. Cl.⁶ G02F 1/153

U.S. Cl. 359—272

25 Claims



1. A variable reflectance rearview mirror for an automobile, wherein the variable reflectance is provided by a component of reversibly variable transmittance, which component is an electrochromic device comprising a medium of reversibly variable transmittance which is a gel comprising at least one electrochromic compound, and wherein there is an highly reflecting layer which reflects through the medium of reversibly variable transmittance of the electrochromic device light which reaches the highly reflecting layer after passing through the medium of reversibly variable transmittance of the electrochromic device.

5,801,874

OPTICAL SCANNING SYSTEM HAVING MULTI-PASS ACOUSTIC TRAVELING WAVE LENS

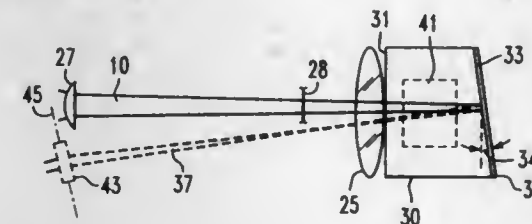
Robert M. Montgomery, Indialantic; Greg K. Daugherty, Melbourne; Reeder N. Ward, and Pat O. Bentley, both of Palm Bay, all of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Jun. 25, 1996, Ser. No. 668,665

Int. Cl.⁶ G02F 1/33

U.S. Cl. 359—305

26 Claims



1. A light beam scanning system comprising:
 - a light beam deflector disposed in the path of said light beam and being operative to spatially deflect said light beam in accordance with a control signal applied thereto;
 - an acoustic traveling wave lens having a first surface and a second surface upon which reflective material is provided;
 - a lens arrangement disposed in the path of said deflected light beam so as to direct said deflected light beam along a first light beam path onto said first surface of an acoustic traveling wave lens, such that said deflected light beam incident upon said first surface of said acoustic traveling wave lens travels through said acoustic traveling wave lens, is reflected from said second surface thereof and travels through said acoustic traveling wave lens, to emerge from said first surface thereof along a second light beam separated from said first light beam path; and

a light beam correction element disposed in said second light beam path.

5,801,875

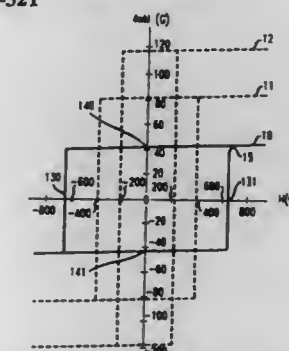
ARTICLE COMPRISING A MAGNETO-OPTIC MATERIAL HAVING LOW MAGNETIC MOMENT
 Charles David Brandle, Jr.; Vincent Jerome Fratello, both of Basking Ridge, and Steven Joy Licht, Bridgewater, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 498,099, Jul. 5, 1995, Pat. No. 5,608,570. This application Jun. 12, 1996, Ser. No. 653,085

Int. Cl.⁶ G02F 1/00

U.S. Cl. 359—321

15 Claims



1. An article comprising a body of magneto-optic garnet material having a nominal composition, a major surface and a magnetization $4\pi M$ in a direction normal to said major surface;

CHARACTERIZED IN THAT the nominal composition of the body is selected to comprise less than 1.0, 2.1 and 2.5 atoms per formula unit of, respectively, gadolinium, terbium and dysprosium, with $Gd+(Tb/2.1)+(Dy/2.5)<1.0$, where Gd, Tb and Dy are the concentrations, in atoms per formula unit, of gadolinium, terbium and dysprosium, respectively, and the nominal composition is furthermore selected such that the body has, at any temperature within a predetermined operating temperature range of the body that includes room temperature, a substantially rectangular magnetization loop, with $H_s > 4\pi M_s$ Oe, in a magnetic field H applied parallel to said direction normal to the major surface, where H_s is the switching magnetic field of the magnetization loop, and $4\pi M_s$ is the saturation magnetization, said saturation magnetization being less than 100 G in absolute value throughout said operating temperature range, whereby said body exhibits latching behavior at any temperature within said operating temperature range.

5,801,876

LASER-BEAM WAVELENGTH CONVERSION DEVICE AND ULTRAVIOLET BEAM GENERATOR USING THE DEVICE

Hikaru Kouta, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

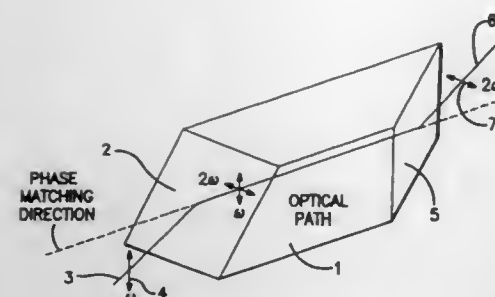
Filed Dec. 4, 1996, Ser. No. 758,822

Claims priority, application Japan, Dec. 5, 1995, 7-316189
 Int. Cl.⁶ G02F 1/35

U.S. Cl. 359—326

8 Claims

1. A laser-beam wavelength conversion device made of a borate crystal, comprising:
 - an incoming plane formed on said borate crystal so as to have a first Brewster's angle according to a first wavelength of an incoming laser beam; and
 - an outgoing plane formed on said borate crystal so as to have a second Brewster's angle according to a second wavelength of a converted beam produced inside, wherein said first Brew-



ster's angle and said second Brewster's angle are different from each other, and formed in different polarization directions.

5,801,877

OPTICAL FIBER AMPLIFIER FOR SUPERIMPOSING A SUB-SIGNAL

Kenichi Yoneyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

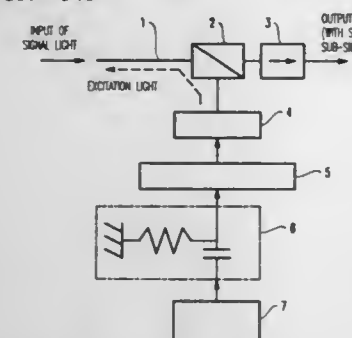
Filed Jun. 27, 1996, Ser. No. 672,701

Claims priority, application Japan, Jul. 6, 1996, 7-170578

Int. Cl.⁶ H04B 10/17; H04S 3/17

U.S. Cl. 359—341

18 Claims



1. An optical fiber amplifier comprising:
an amplification medium for amplifying signal light by absorption of excitation light;
an excitation light source which generates the excitation light to excite said amplification medium;
photocoupling means for inputting said excitation light into said amplification medium;
sub-signal generating means for generating a sub-signal;
modulating means for modulating said excitation light based on said sub-signal; and
a frequency filter for converting a frequency characteristic of said sub-signal to input it to said modulating means,
wherein said frequency filter includes a high-frequency component modulator for previously emphasizing high-frequency components of the sub-signal.

5,801,878

CIRCUIT HAVING TWO OPTICAL AMPLIFIERS, IN PARTICULAR FOR A REPEATER IN AN UNDERSEA TELECOMMUNICATIONS SYSTEM

Gérard Bourret, La Ville du Bois, and Bernard Gherardi, Lisses, both of France, assignors to Alcatel Submarine Networks, Clichy, France

Filed Apr. 16, 1997, Ser. No. 840,761

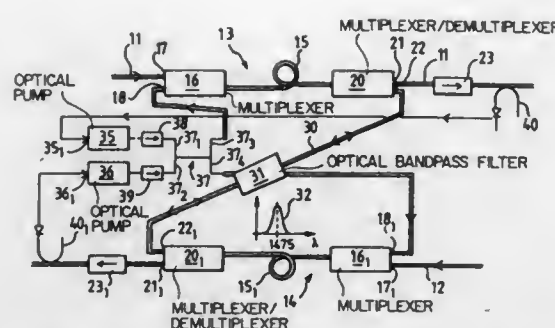
Claims priority, application France, Apr. 18, 1996, 96 04869

Int. Cl.⁶ H01S 3/00

U.S. Cl. 359—341

12 Claims

1. A circuit having two optical amplifiers each amplifying a respective optical signal, each amplifier comprising:
an active medium for carrying the optical signal;



a pump source for injecting main pump energy into the active medium; and
means for recovering unused pump energy in the active medium; wherein said means for recovering reinjects said unused pump energy into the other amplifier in a direction opposite to the direction in which the main pump energy is injected into said other amplifier.

5,801,879

DEVICE AND METHOD TO SUPPRESS Q-SWITCHING IN AN OPTICAL AMPLIFYING DEVICE

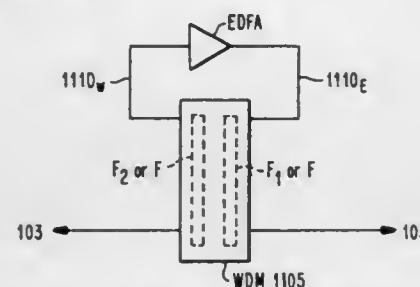
Clement Dowd Burton, Elmira, and Douglas Warren Hall, Corning, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Jun. 18, 1997, Ser. No. 878,262

Int. Cl.⁶ H04B 9/00

U.S. Cl. 359—341

14 Claims



1. A four-port WDM device including a dichroic filter for substantially reflecting a first wavelength band input to the device to an output of the device for said first wavelength band and for substantially transmitting a second wavelength band input to the device to an output of the device for the second wavelength band, wherein some of a first 3 dB wavelength in the first wavelength band is transmitted by said filter and some of a second 3 dB wavelength in the second wavelength band is reflected by said filter, comprising:

a first other dichroic filter having a filter function providing an insertion loss for at least one of the first and the second 3 dB wavelengths sufficient to reflect and transmit, respectively, substantially all of the first and second 3 dB wavelengths.

5,801,880

CONFOCAL MICROSCOPE WITH OPTICAL RECORDING AND REPRODUCING APPARATUS

Osamu Matsuda, and Masato Doi, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 21, 1995, Ser. No. 532,037

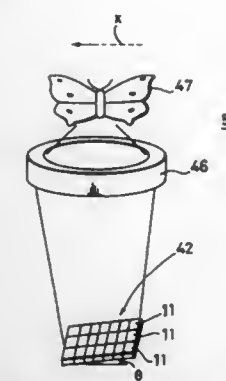
Claims priority, application Japan, Sep. 21, 1994, 6-227040

Int. Cl.⁶ G01B 21/06; H01S 3/18

U.S. Cl. 359—385

14 Claims

1. A confocal microscope comprising:
an array of optical coupling devices arranged on a common substrate, said array operatively positioned for confocal scan-



ning of a target such that the target and array are moved relative to one another along a scanning direction during confocal scanning; and
an objective lens;

wherein,
each of said optical coupling devices comprises a light-emitting portion and a light-receiving portion operatively disposed closely on said common substrate in such a way that light originating from said light-emitting portion is emitted through said objective lens to said target and light reflected from said target is reflected back through said objective lens and is received and detected near a confocal position by said light-receiving portion, at least part of said light-receiving portion being located within a light diffraction limit of said light emitting portion,

said objective lens converging said emitted light onto said target and converging said reflected light onto said light receiving portion, and
said array produces signals providing at least two-dimensional information about said target.

5,801,881

FIELD SYNTHESIS AND OPTICAL SUBSECTIONING FOR STANDING WAVE MICROSCOPY

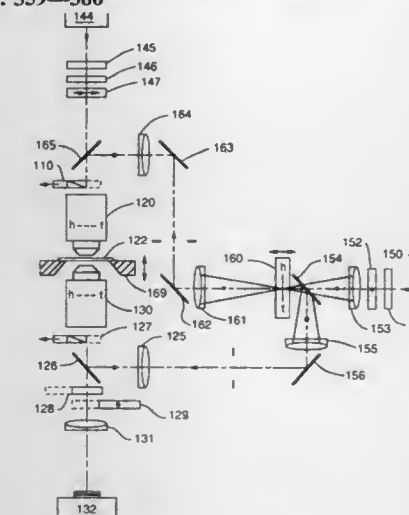
Frederick Lanni; D. Lansing Taylor, and Brent Bailey, all of Pittsburgh, Pa., assignors to Carnegie Mellon University, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 14,328, Feb. 5, 1993, Pat. No. 5,394,268. This application Feb. 23, 1995, Ser. No. 392,496

Int. Cl.⁶ G02B 21/06; 21/00

U.S. Cl. 359—386

20 Claims



1. An apparatus comprising:
an extended incoherent light source;

a moveable beam splitter positioned such that light from said light source is imaged onto said beam splitter and split into an upper beam and a lower beam traveling in respective optical paths;

two objective lenses positionable to cause light beams passing through said lenses to form standing wave fields identically positioned relative to a plane of focus; and,

a plurality of reflective surfaces positioned to orient and balance the respective optical paths of said upper and lower beams from the beam splitter to said plane to within the coherence length of said light beams with respect to each other and reflect said upper and lower beams through separate ones of said two objective lenses to generate a multiplicity of standing wave fields relative to said plane.

5,801,882

REAL IMAGE MODE FINDER OPTICAL SYSTEM

Yuji Miyauchi, Hachioji, Japan, assignor to Olympus Optical Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 328,530, Oct. 25, 1994, abandoned.

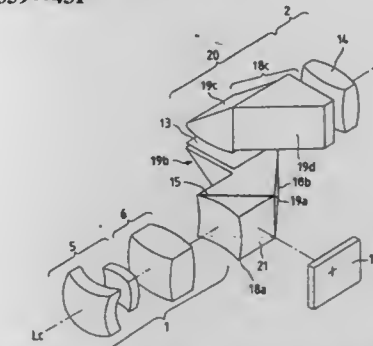
This application Jun. 4, 1997, Ser. No. 868,576

Claims priority, application Japan, Oct. 28, 1993, 5-270506; Mar. 17, 1994, 6-047186

Int. Cl.⁶ G02B 23/00; 5/04

U.S. Cl. 359—431

19 Claims



1. A real image mode finder optical system in which a finder optical path is formed independent of a photographing optical path formed by a photographing optical system, comprising:

an objective system for forming an object image;
an image erecting prism system including a reflecting means, said reflecting means being arranged between an entrance surface and an exit surface of said image erecting prism system for erecting the object image formed by said objective system;

an optical path splitting means for dividing a photometric optical path from the finder optical path by splitting a beam of light emergent from said objective system into a reflected split beam of light and a transmitted split beam of light, said optical path splitting means being disposed such that it is independent of said reflecting means and between said entrance surface and said exit surface of said image erecting prism system;

a photometric means for receiving a split beam of light in the photometric optical path;

an eyepiece system disposed behind said exit surface of said image erecting prism system; and

a medium which faces said optical path splitting means on a photometric optical-path side thereof having a refractive index greater than 1 and being shaped as a prism component for introducing the split beam of light in the photometric optical path into said photometric means.

5,801,883

HIGH VISIBILITY REFLECTIVE TUBING FOR BICYCLE WHEELS

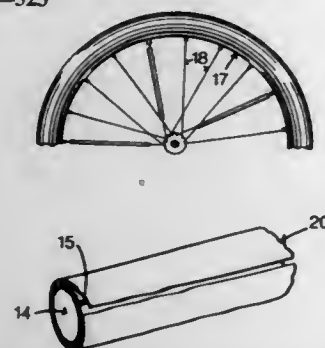
Robert V. Peters, 2310 Hwy. 101 North, Minneapolis, Minn. 55447

Filed Dec. 4, 1996, Ser. No. 759,398

Int. Cl.⁶ G02B 5/12

U.S. Cl. 359—523

2 Claims U.S. Cl. 359—630



1. A resilient and flexible elongated hollow tubular highly visually reflective attachment for use in combination with the spokes of a bicycle wheel and comprising, in combination:

- (a) an elongated hollow tubular plastic member having a hollow central core defining means for attachment to the spoke of a bicycle wheel and defining an axis, and being fabricated of synthetic resin, said tubular member further having a wall defining inner and outer coaxial surfaces;
- (b) a layer of a highly retro-reflective substance consisting of a covering of enclosed lens reflective sheeting secured to said outer surface and providing a source of visible reflected light from incident light energy striking said elongated hollow tubular member;
- (c) said elongated hollow tubular member being adapted for attached coupling to the spokes of a bicycle wheel along the entire length thereof; and
- (d) said retro-reflective substance having a coefficient of retro-reflectivity greater than about 60.

5,801,884

OPTICAL DEVICE AND PROCESS FOR PRODUCING THE SAME

Heihachi Sato, Yokosuka; Seichiro Hayakawa, and Iwao Seo, both of Ibaraki-ken, all of Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

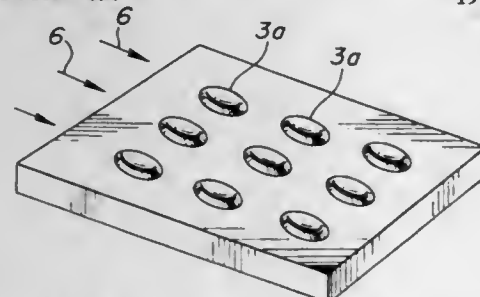
Filed Oct. 8, 1996, Ser. No. 727,087

Claims priority, application Japan, Oct. 9, 1995, 7-261381; Nov. 28, 1995, 7-309220

Int. Cl.⁶ G02B 27/10

U.S. Cl. 359—620

19 Claims



1. An optical device comprising a plurality of microlenses, each having a light transmittance of not less than 80% when measured with a light beam having a wavelength within a visible light range, and produced by subjecting a photocurable monomer composition to two-stage light irradiation comprising a partial irradiation and a whole irradiation.

5,801,885

HEAD MOUNT TYPE IMAGE DISPLAY UNIT

Takayoshi Togino, Koganei, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

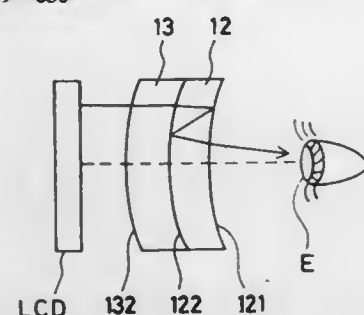
Filed Oct. 25, 1995, Ser. No. 547,871

Claims priority, application Japan, Oct. 26, 1994, 6-262653

Int. Cl.⁶ G02B 27/14

U.S. Cl. 359—630

12 Claims



1. A head mount type of image display unit including an image display unit body having an image display device for displaying an image and an ocular system for guiding an image displayed on said image display device to the eyeballs of a viewer, and a support member mounted over the head of the viewer while it is in contact therewith, so that said image display unit body is held just before the face of the viewer, characterized in that:

- said ocular system includes, in order from the eye side of the viewer along the visual axis,
 - a first prism having a first surface concave on the eye side and a second surface located on the side of said first prism opposite to the first surface thereof and concave on the eye side with a medium having a refractive index (n) larger than 1 (n>1) interposed therebetween, and
 - a second prism having a third surface concave on the eye side and located on the side of said second prism opposite to the eye side and a medium having a refractive index (n) larger than 1 (n>1),
- said first prism being designed such that a beam of rays leaving said image display device is reflected at at least said first surface and then propagates through the medium of said first prism in a direction opposite to the eye side, while a beam of rays reflected at said second surface propagates through the medium of said first prism and then transmits through said first surface,

wherein said first and said second prisms are cemented together.

5,801,886

IMAGE MAGNIFICATION APPARATUS

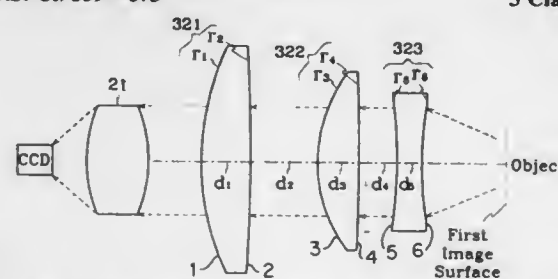
Chun-Gon Lee, Kyeongsangnam-do, Rep. of Korea, assignor to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea

Filed Feb. 21, 1997, Ser. No. 802,995

Int. Cl.⁶ G02B 3/00; 15/02; 9/12

U.S. Cl. 359—675

3 Claims



1. An image magnifying apparatus, for use in a video display system that displays an image of an object, comprising: a connecting means for connecting the image magnifying apparatus to a lens module of the video display system;

an objective lens system for forming an optical image of the object; and

a conversion optical system for magnifying the optical image formed by the objective lens system, wherein the conversion optical system includes a first biconvex lens unit having a positive refractive power, a second biconvex lens unit having a positive refractive power, and a third biconcave lens unit having a negative refractive power,

wherein the conversion optical system satisfies the following conditions:

$$0.48 < D/f < 0.51, \text{ and}$$

$$0.37 < fb/f < 0.4,$$

where:

D represents a length of the conversion optical system;
f represents a focal length of the conversion optical system; and
fb represents a back focal length of the conversion optical system.

5,801,887

WIDE-ANGLE ZOOM LENS SYSTEM

Haruo Sato, Saitama-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

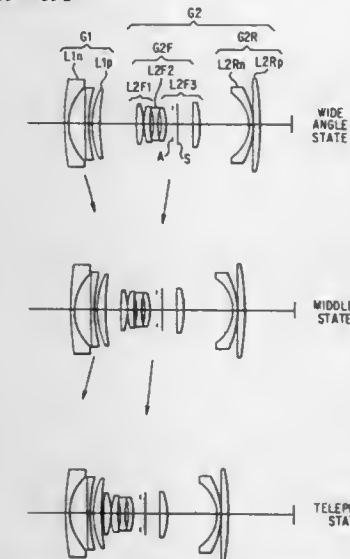
Filed Jan. 17, 1997, Ser. No. 785,597

Claims priority, application Japan, Jan. 31, 1996, 8-037169

Int. Cl.⁶ G02B 15/14

U.S. Cl. 359—691

21 Claims



1. A zoom lens system comprising from an object to an image side:

- a first lens group of negative refractive power including at least a negative lens component and a positive lens component arranged closer to the image side than the negative lens component; and
- a second lens group including, from the object to the image side, a front lens subgroup including, from the object to the image side, at least a first lens component of positive refractive power, a second lens component of negative refractive power separated from said first lens component with air spacing, and a third lens component of positive refractive power separated from said second lens component with air spacing, and a rear lens subgroup including at least a negative lens component and a positive lens component, wherein the zoom lens system performs zooming operation by changing an air spacing between the first lens group and the second lens group, and a focal length f2R of the rear lens subgroup of the second group and a focal length fW of the entire system in a wide-angle state satisfy

$$-3 < f2R/fW \leq -1.33.$$

5,801,888

HIGH MAGNIFICATION ZOOM LENS BARREL INCLUDING A DRIVE RING HAVING A SHORT LENGTH TO PROVIDE A COMPACT CAMERA

Kiyosada Machida, Urawa, and Junichi Omi, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

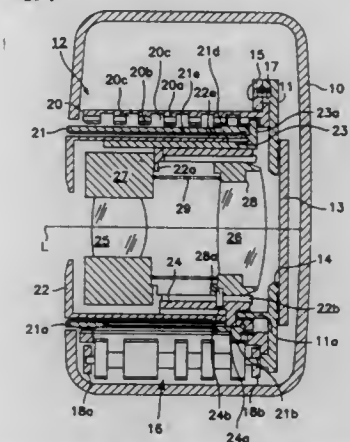
Filed Jan. 11, 1996, Ser. No. 584,148

Claims priority, application Japan, Feb. 8, 1995, 7-020768

Int. Cl.⁶ G02B 15/14

U.S. Cl. 359—694

18 Claims



- 1. A zoom lens system having multiple lens groups, comprising:
 - a first lens group;
 - a first lens group support member to support the first lens group, the first lens group support member being movable in an optical axis direction;
 - a second lens group;
 - a second lens group support member to support the second lens group such that the second lens group is movable in the optical axis direction relative to the first lens group;
 - a first drive ring operably coupled to the first lens group support member and rotatable around the optical axis to advance and withdraw the first lens group support member in the optical axis direction; and
 - a cam ring having cam grooves, operably coupled to the first drive ring and to the second lens group support member via the cam grooves, the cam ring being rotated around the optical axis by the rotation of the first drive ring to advance and withdraw the cam ring in the optical axis direction, wherein the second lens group support member includes guide pins which fit in the cam grooves of the cam ring to advance and withdraw only the second lens group support member in the optical axis direction relative to the first lens group support member by rotation of the cam ring,

wherein the first drive ring advances and withdraws in the optical axis direction as the first drive ring rotates around the optical axis.

5,801,889

TECHNIQUE TO ELIMINATE SCATTERED LIGHT IN DIFFRACTIVE OPTICAL ELEMENTS

Mark M. Meyers, Hamlin, and Richard E. Albrecht, Honeoye Falls, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

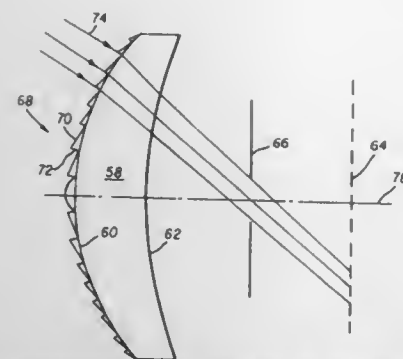
Filed Apr. 29, 1996, Ser. No. 639,645

Int. Cl.⁶ G02B 3/08; 5/12

U.S. Cl. 359—743

24 Claims

- 1. A method of making a diffractive optical element on a surface, which element diffracts light incident on said surface at certain angles of incidence and for a certain diffractive order at a certain angle of diffraction to said surface, so as to reduce the amount of light which is scattered by said element with respect to the amount of light which is diffracted, said method comprising the steps of forming a surface relief profile on said surface of portions which increase in height to peaks spaced from said surface and decrease in steps extending from said peaks toward said surface, and con-



trolling the transmission of light incident on said surface via said steps at other than said angles of incidence.

5,801,890

TAKING LENS SYSTEM

Hiroshi Yamada, Saitama-ken, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama-Ken, Japan

Continuation of Ser. No. 356,585, Dec. 15, 1994, abandoned.

This application May 27, 1997, Ser. No. 863,602

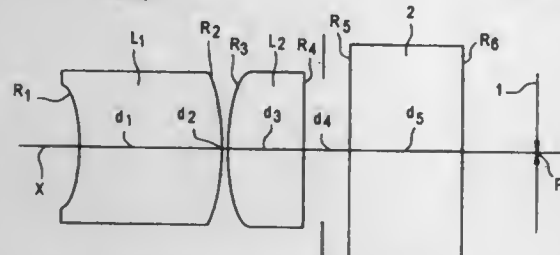
Claims priority, application Japan, Dec. 15, 1993, 5-314649

Int. Cl.⁶ G02B 9/04

U.S. Cl. 359—793

OBJECT

19 Claims



1. An image pickup lens system for a solid state video frame pickup device, consisting of first and second lens elements arranged in this order from the object side to an image plane containing the solid state video frame pickup device, the first lens element being a meniscus lens having a refractive power and concave toward the object side and the second lens element having a positive refractive power wherein the formula

$$0.19 \leq d_1/f \leq 1.7$$

is satisfied wherein d_1 represents the central thickness of the first lens element and f represents the focal length of the overall lens system.

5,801,891

FLAT MIRROR MOUNTING FLEXURE

Carl A. Lloyd, Bloomfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 14, 1997, Ser. No. 834,063

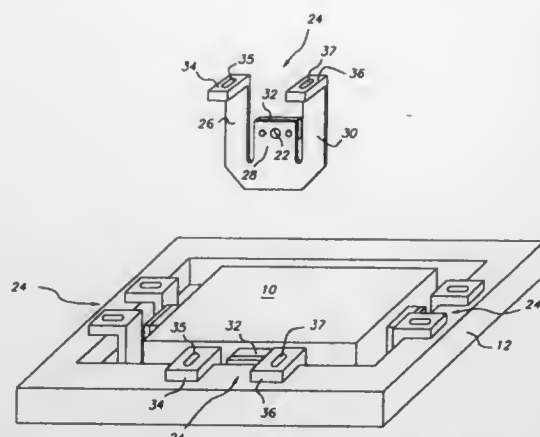
Int. Cl.⁶ G02B 7/182; A47F 7/14

U.S. Cl. 359—871

7 Claims

1. A flexure structure for mounting an element to a frame, comprising:

- a flexure blade defining a fork having three coplanar tines;
- first mounting means located on a center tine for attaching the flexure blade between the frame and the element;
- second mounting means located on outside tines for attaching the flexure blade between the frame and the element;



d) the relative sizes of the tines being such that zero moment is applied to the element by the flexure structure when the element is displaced relative to the frame.

5,801,892

OPTICAL DEVICE HAVING AN OPTICAL FILM WITH AN INCIDENT ANGLE THEREUPON VARIABLE

Norihisa Naganuma, Sapporo, and Nobuhiro Fukushima, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

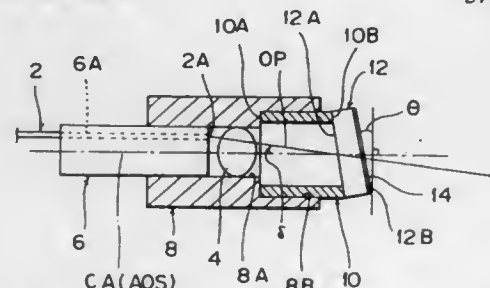
Filed Jul. 2, 1996, Ser. No. 674,515

Claims priority, application Japan, Oct. 31, 1995, 7-282981

Int. Cl.⁶ G02B 5/22; 6/26; 6/38

U.S. Cl. 359—892

37 Claims



1. An optical device comprising:
a collimating means for converting light emitted from an excitation port into a parallel beam and outputting said parallel beam onto an optical path;
an optical film provided so as to pass said parallel beam output from said collimating means; and
a supporting means having an axis inclined with respect to said optical path, for supporting said optical film so that said optical film is rotatable about said axis, wherein said axis is not perpendicular to said optical path, and said optical film is inclined with respect to a plane perpendicular to said axis and is not parallel to said axis.

5,801,893

METHOD FOR ADAPTIVELY DETECTING TAPEWRAP IN CASSETTE TAPE PLAYER

Kenneth Christopher Miller, Canton; Max Cannon Chapman, Plymouth, and Daniel Thomas Donaldson, Canton, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

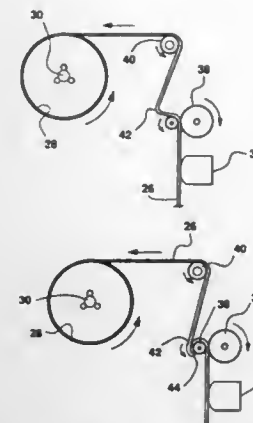
Filed Jul. 1, 1996, Ser. No. 673,549

Int. Cl.⁶ G11B 15/48

U.S. Cl. 360—74.2

6 Claims

1. A method for adaptively detecting when a portion of a magnetic tape is wrapped around a capstan of a magnetic tape cassette player, the method comprising the steps of:



transferring the magnetic tape from a supply reel to a take-up reel for a first rotation of the take-up reel;
passing the magnetic tape across the capstan when the magnetic tape is being transferred;
measuring a first set of pulses of a signal during the first rotation of the take-up reel;
measuring a subsequent set of pulses during each subsequent rotation of the take-up reel;
stopping the rotation of the take-up reel when the subsequent set of pulses varies from the subsequent set of pulses immediately proceeding to prevent the magnetic tape from wrapping around the capstan; and
establishing stopping limits for each pulse in each of the subsequent sets based on each respective pulse from the subsequent set immediately proceeding wherein the step of stopping occurs when any of the pulses in the subsequent set exceed one of the stopping limits therefor.

5,801,894

POWER-SAVING HIGH PERFORMANCE DATA STORAGE SYSTEM

Zine-Eddine Boutaghou, Rochester, Minn., and Huey-Ming Tzeng, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

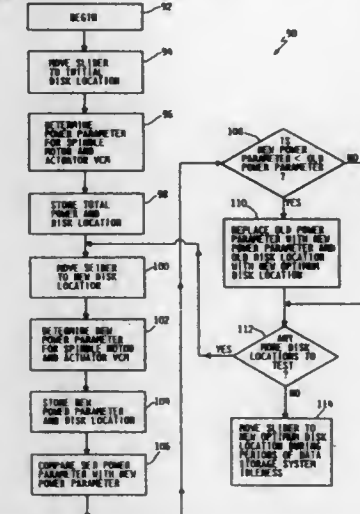
Continuation of Ser. No. 321,166, Oct. 11, 1994, abandoned.

This application Mar. 25, 1997, Ser. No. 823,860

Int. Cl.⁶ G11B 15/18; 21/02

U.S. Cl. 360—72.1

20 Claims



1. A method of minimizing power consumption performed by a data storage device enclosed by a housing and having a data storage disk for storing data mounted to a spindle motor for rotating the data storage disk, a transducer for transferring data to and from the disk, an actuator and actuator motor for moving the transducer across the disk, a controller for coordinating the transfer

of data to and from the disk, the method of minimizing the power consumption comprising the steps of:

- rotating the data storage disk so as to create airflow patterns within the housing, wherein the data storage disk is subjected to an air shear force, resulting from the airflow patterns, which dominates viscous drag forces between the transducer and the disk;
- moving the actuator to a plurality of locations over the data storage disk, wherein the actuator location changes the air shear force acting on the data storage disk;
- determining a parameter indicative of the power consumed by the spindle motor at each of the plurality of data storage disk locations;
- establishing a target data storage disk location associated with a minimum amount of power consumed by the spindle motor, the minimum amount of power consumed by the spindle motor being determined using the plurality of power consumption parameters; and
- positioning the actuator at the target data storage disk location during periods of actuator idleness, thereby minimizing the contribution of the air shear force to the power consumption of the spindle motor.

5,801,895

DISK DRIVE SERVO DEMODULATION SYSTEM WHICH SUPPRESSES NOISE ON THE POSITION ERROR SIGNAL

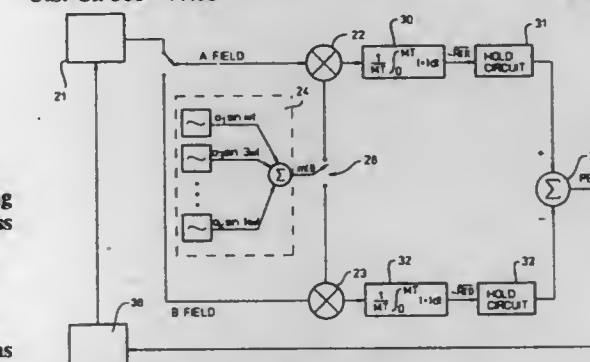
Daniel Y. Abramovich, Palo Alto, Calif., assignor to Hewlett Packard Company, Palo Alto, Calif.

Filed May 28, 1996, Ser. No. 653,898

Int. Cl.⁶ G11B 5/596

U.S. Cl. 360—77.08

12 Claims



- A magnetic recording device comprising:
a rotatably mounted disk having a surface containing recording tracks, each track comprising a plurality of first reference position dibits at selected positions along the track and, spaced apart from the first reference position dibits, a plurality of second reference position dibits at selected positions along the track;
- a transducer coupled to the surface for following a track and producing a first dibit burst signal when the transducer passes by the first reference position dibits along the track and a second dibit burst signal when the transducer passes by the second reference position dibits along the track, the amplitude of each dibit burst signal dependent on the position of the transducer with respect to the track;
- mixing signal means for generating a first mixing signal comprising a finite integer number of sinusoids coherent with the first dibit burst signal and a second mixing signal comprising a finite integer number of sinusoids coherent with the second dibit burst signal;
- a mixer means for multiplying the first mixing signal by the first dibit burst signal to provide a first multiplied output and the second mixing signal by the second dibit burst signal to provide a second multiplied output;
- means for generating a position error signal according to any difference between the first and second multiplied outputs; and

means responsive to the position error signal to adjust the position of the transducer with respect to the track so as to minimize the position error signal.

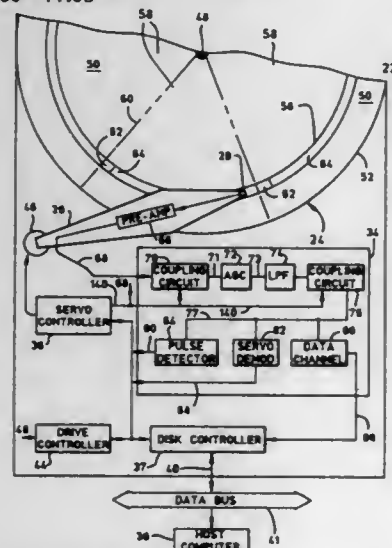
5,801,896
METHOD AND APPARATUS FOR SERVO PULSE DETECTION WITH HIGH AC COUPLING AND LARGE PULSE ASYMMETRY

David Anthony Freitas, Morgan Hill, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 397,593, Mar. 2, 1995, abandoned.
This application Jun. 5, 1997, Ser. No. 869,378

Int. Cl.⁶ G11B 5/596

U.S. Cl. 360—77.08

31 Claims



1. A servo control circuit comprising:

a preamplifier circuit that receives a pulsed readback signal and blocks the DC content and restores a predetermined signal baseline, thereby producing a conditioned readback signal, wherein the pulsed readback signal is generated by a device read head that transduces a servo pattern recorded in a servo track of a storage medium, the servo pattern comprises an authentic gain control (AGC) field of repeated first and second paired transitions having opposite polarity followed by one or more identification fields having opposite polarity paired transitions, and the pulsed readback signal includes an opposite polarity pulse pair corresponding to each opposite polarity transition pair of the servo pattern;

an automatic gain control circuit that receives the conditioned readback signal and automatically adjusts the signal magnitude to maintain the conditioned readback signal substantially within a predetermined amplitude range and thereby produce a gain adjusted readback signal; and

a pulse detector circuit that receives the gain adjusted readback signal, detects opposite polarity pulse pairs, and produces a binary track information signal by decoding track information encoded in the readback signal such that the presence of an opposite polarity pulse pair results in a track information signal "one" bit and the absence of an opposite polarity pulse pair results in a track information signal "zero" bit, wherein the pulse detector circuit determines the polarity of the last readback signal pulse of the AGC field and produces a one bit if it detects a pulse of a readback signal opposite polarity pulse pair having a magnitude greater than a predetermined threshold value and having a polarity that is the same as the last readback signal pulse of the AGC field, which indicates it is the second pulse of the pulse pair, thereby producing a one bit of the track information signal regardless of the magnitude of the first pulse of the pulse pair, and otherwise produces a zero bit of the track information signal, which it then provides to a servo controller for position control of the device read head.

5,801,897
HEAD POSITIONING CONTROL SYSTEM FOR USE IN A DISK STORAGE SYSTEM

Hiroyuki Kanda; Tatsuharu Kusumoto, and Masahide Yatsu, all of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

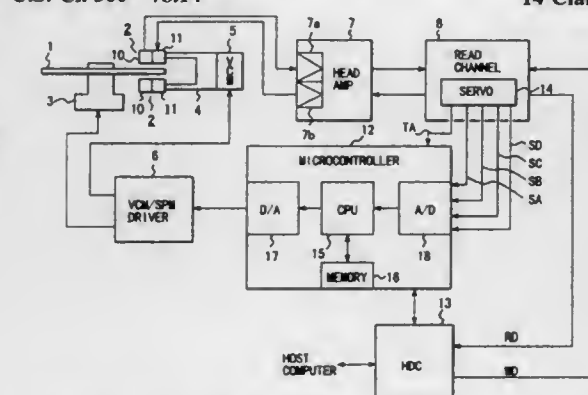
Filed Dec. 6, 1996, Ser. No. 761,713

Claims priority, application Japan, Apr. 11, 1996, 8-089585; Sep. 20, 1996, 8-250551

Int. Cl.⁶ G11B 5/596

U.S. Cl. 360—78.14

14 Claims



1. A head positioning control system for a disk drive, comprising:

a disk with a plurality of tracks for recording data, each track having servo areas in a plurality of places on it, the servo areas being areas on which not only the track addresses for identifying the track when the head is moved to a specified track and the servo burst data for sensing the position of said head in the track range but also redundant data for identifying adjacent tracks have been recorded;

read means for reading said track address and said redundant data from the track on which said head is positioned;

detecting means for reading said servo burst data from the track on which said head is positioned and sensing the position of said head in the range of the track corresponding to said track address read by said read means; and

control means for providing moving control of said head from the present position of said head to the specified track and determining the position of said head in the track range including the track corresponding to said track address and its adjacent tracks on the basis of said redundant data read by said read means, when the present position of said head is determined on the basis of said track address read by said read means.

5,801,898
LOADING MECHANISM OF MAGNETIC RECORDING-REPRODUCTION APPARATUS AND METHOD OF ASSEMBLING THE MECHANISM

Takahiro Okule, Nara; Osamu Takao, Kobe, and Haruhiko Yoneda, Daito, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Mar. 27, 1996, Ser. No. 624,798

Claims priority, application Japan, Apr. 10, 1995, 7-083566; Apr. 11, 1995, 7-085023; Apr. 12, 1995, 7-086586

Int. Cl.⁶ G11B 15/665; 15/61

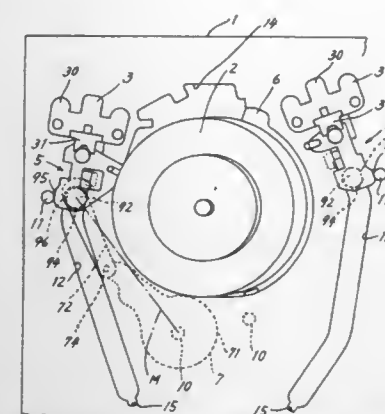
U.S. Cl. 360—85

7 Claims

1. A tape loading mechanism comprising:

a pair of leading guide blocks slidably fitted in respective guide slots formed in a chassis for withdrawing a tape from a cassette;

loading links pivotally movable provided on the chassis for slidably moving the respective guide blocks along the guide slots; and



catchers mounted on the chassis at a loading completed position for the respective guide blocks to come into pressing contact therewith,

each of the loading links including:

a pivotal lever having a base end rotatably supported by a pivot on the chassis; and

a link plate connected by a pivot pin to a free end of the pivotal lever and rotatably engaged at a forward end portion thereof with a respective one of the guide blocks,

the chassis being formed with apertures permitting insertion of the respective guide blocks therein, each of the apertures covered with each of the catchers and each of the apertures having a portion communicating with each of the guide slots,

wherein when a first center line connecting the pivot on the chassis and the pivot pin on the pivotal lever and a second center line connecting the pivot pin and the portion of connection between the respective guide block and the respective link plate extend toward the loading completed position in alignment with each other, the respective portion of the aperture communicating with the respective guide slot is positioned at a greater distance from the pivot than the forward end portion of the link plate rotatably engaged with the guide block, and the portion of the catcher to be contacted by the guide block being provided by a portion of a holder disposed closer to a loading wait position than the portion of the aperture communicating with the guide slot.

5,801,899
MECHANICAL SHOCK PROTECTION FOR A DISC DRIVE

Stephen R. Genheimer, Mustang, Okla., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jun. 6, 1996, Ser. No. 659,338

Int. Cl.⁶ G11B 17/00; 33/08

U.S. Cl. 360—97.01

5 Claims

1. A disc drive assembly, comprising:

a base deck;

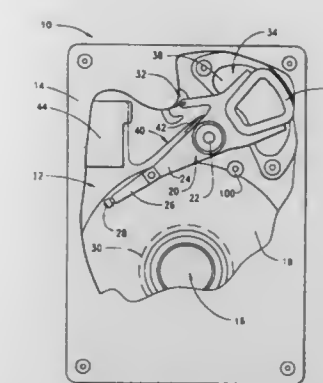
a spindle motor mounted to the base deck;

a disc mounted to the spindle motor for rotation about a vertical axis, the disc having an inner radius and an outer radius;

an actuator assembly mounted to the base deck adjacent the disc and controllably rotatable with respect to the disc;

a snubber adjacent the disc, the snubber comprising:

a body portion having a central axis, the body portion rigidly affixed with respect to the vertical axis of the disc; and snubber arms connected to the body portion, the snubber arms transversely extending from the body portion and symmetrically disposed about the central axis of the body portion, the snubber arms disposed above and below the disc, and each snubber arm having a circumferential portion located at a position adjacent the disc between the inner and the outer radii of the disc and towards the outer radius of the disc, wherein the snubber arms limit deflection of the disc at the outer radius of the disc as a result of



mechanical shock forces applied to the disc drive assembly, minimizing damage to the disc drive assembly wherein the symmetrical disposition of the snubber arms about the central axis of the body portion provides for the extension of the snubber arms over a portion of the disc surfaces irrespective of the rotational positioning of the snubber arms about the central axis when the snubber is mounted to the base deck of the disc drive assembly.

5,801,900
DISK STORAGE DEVICE, WITH HUB AND DRIVE MOTOR ROTOR FEATURES

Dieter Elsässer, St. Georgen; Johann Von Der Heide, Schramberg, and Rolf Müller, Munich, all of Germany, assignors to Papst Licensing GmbH, Spaichingen, Germany

Continuation of Ser. No. 227,645, Apr. 14, 1994, Pat. No.

5,422,769, which is a continuation of Ser. No. 47,308, Apr. 19,

1993, Pat. No. 5,446,610, which is a continuation of Ser. No.

883,478, May 15, 1992, Pat. No. 5,216,557, which is a continu-

ation of Ser. No. 682,495, Apr. 9, 1991, Pat. No. 5,128,819,

which is a continuation of Ser. No. 259,132, Oct. 18, 1988,

Pat. No. 5,006,943, which is a continuation of Ser. No. 32,954,

Mar. 31, 1987, Pat. No. 4,779,165, which is a continuation of

Ser. No. 733,231, May 10, 1985, abandoned, which is a

continuation-in-part of Ser. No. 412,093, Aug. 27, 1982, aban-

doned, which is a continuation-in-part of Ser. No. 244,971,

Mar. 18, 1981, abandoned, which is a continuation-in-part of

Ser. No. 326,559, Dec. 2, 1981, Pat. No. 4,519,010. This appli-

cation Jun. 6, 1995, Ser. No. 466,702

Claims priority, application Germany, Sep. 7, 1981, 31 35

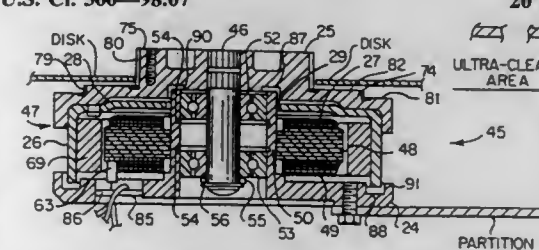
385.1; Switzerland, Mar. 30, 1985, 01 374/85; Jan. 6, 1994, 2

680/84

Int. Cl.⁶ G11B 17/08

U.S. Cl. 360—98.07

20 Claims



1. A disk storage device, comprising in combination:
a clean chamber formed within a housing;
a support member forming part of said housing;

at least one storage disk having a central opening with a first diameter;

at least one data head mounted on said housing for movement in operative relation to said at least one disk within said clean chamber;

a hub member which extends through the central opening of said at least one disk to mount said at least one disk for rotation about a disk rotation axis in said clean chamber; and

a brushless direct current motor for moving said at least one disk in operative relation to said at least one data head to allow information to be stored on and retrieved from said at least one disk, said motor including a stator having a stator lamination affixed to said support member, a stator winding disposed on said stator lamination, a bearing and shaft assembly also affixed to said support member and rotatably supporting said hub member, said shaft being aligned on said disk rotation axis and said bearings being affixed to said shaft, and a rotor contiguous with said hub member and having a cylindrical surface upon which a magnetically conducting member is mounted, said motor further including a motor magnet mounted on said magnetically conducting member such that a cylindrical air gap is defined between adjacent surfaces of said motor magnet and said stator, said motor, said at least one disk, and said hub member being positioned on the same side of said support member and the outside diameter of said magnetically conducting member being greater than said first diameter.

5,801,901
DISC DRIVE CLAMP FASTENER INCLUDING A CLAMP DISC INDENTATION

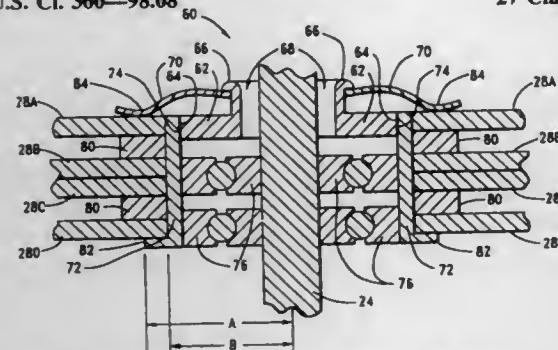
William J. Bryan, Boulder, and Richard K. Thompson, Berthoud, both of Colo., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed May 8, 1996, Ser. No. 646,883

Int. Cl.⁶ G11B 17/08

U.S. Cl. 360—98.08

27 Claims



4. An actuator assembly for a disc drive, comprising:

an actuator shaft;

an actuator shaft bearing housing mounted to the actuator shaft such that the actuator shaft bearing housing is capable of rotation around the actuator shaft;

a plurality of actuator arms coupled to the actuator shaft bearing housing such that the actuator shaft bearing housing is inserted into an opening in each of the actuator arms whereby the actuator arms are stacked around the actuator shaft bearing housing;

a clamp fastener cylinder coupled to the actuator shaft bearing housing; and

a clamp disc protruding in a radial direction from the clamp fastener cylinder, the clamp disc including an indentation at a radius beyond the radius of the spindle motor hub such that the clamp disc does not contact the spindle motor hub and wherein an exterior surface of the clamp fastener cylinder is attached to an interior surface of the actuator shaft bearing housing sufficiently to exert a clamping force, via the inden-

tation, onto the plurality of actuator arms, the clamping force holding the plurality of actuator arms against the actuator shaft housing.

5,801,902
SETTING BEARING PRELOAD UTILIZING THERMAL EXPANSION/CONTRACTION

Klaus Dieter Koepfel, Watsonville; Robert Michael Pelstring, Santa Cruz; Alan Lyndon Grantz, Aptos, and Steven Craig Knoche, Corralitos, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

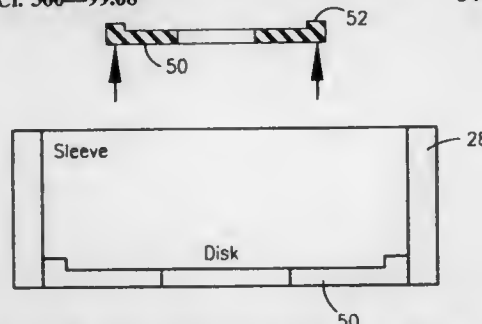
Continuation of Ser. No. 311,194, Sep. 23, 1994, abandoned.

This application Feb. 29, 1996, Ser. No. 613,827

Int. Cl.⁶ G11B 17/02; F16C 33/04

U.S. Cl. 360—99.08

34 Claims



1. A spindle motor comprised of a hub rotating with a central shaft, said shaft rotating within a sleeve, and a bearing arranged radially between said shaft and said sleeve, said bearing including a pair of bearing members each with inner and outer races and spherical bearings therebetween, said bearing members being arranged with a predetermined axially defined space therebetween, and retainer means pressed against one of said pair of bearing members to retain both of said pairs of bearing members in their location along said shaft and to preload said bearing members to maintain said shaft in a fixed orientation relative to said sleeve, said retainer means comprising a single piece unitary preload spacer having a slip fit tolerance of its outer surface relative to an inner surface of said sleeve being fixed solely by an interference fit within said sleeve by virtue of having been cold shrunk to a smaller diameter than a diameter defined by said sleeve, and after having been located within said sleeve and against one of said pair of bearing members, being allowed to return to substantially the same temperature as said sleeve such that the preload spacer expands providing an adhesiveless interference fit between the preload spacer and the sleeve.

5,801,903
CONTACT RECORDING SLIDER FOR USE IN A LUBRICANT CONTAINING INFORMATION STORAGE SYSTEM

Dallas W. Meyer, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 998,103, Dec. 29, 1992, abandoned.

This application May 18, 1994, Ser. No. 245,518

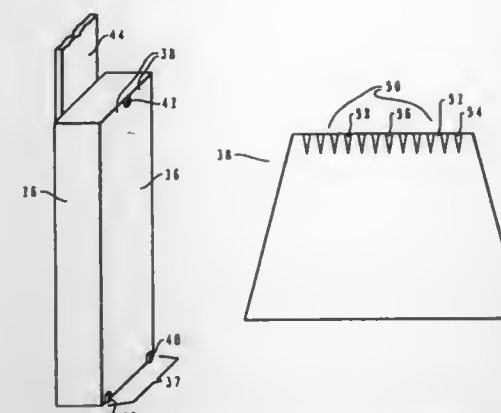
Int. Cl.⁶ G11B 5/60; 17/02

U.S. Cl. 360—103

6 Claims

1. An improved slider for an information storage system having an information storage medium including an exposed surface at least partly covered with an incompressible fluid, the improved slider comprising:

a face region which is exposed to the incompressible fluid located on the exposed surface of the information storage medium during operation of the information storage system, the face region having a length, a width, a pair of opposing sides extending across the length of the face region, two opposite ends which extend across the width of the face region and perpendicular to the opposing sides;



at least one of the opposite ends having a partially controlled, textured surface with a patterned roughness extending lengthwise across the width of the face region; and

at least one bearing pad having a length and a width and located at least partially within at least one end and having at least a partially controlled, textured surface with a patterned roughness comprising a plurality of triangle shaped grooves extending lengthwise across substantially the entire width of the bearing pad each of said triangle shaped grooves having a vertex extending into said bearing pad.

5,801,904
ACTUATOR ARM WITH MAGNETIC FLUX RESPONSE TO BIAS ARM TO A STOP POSITION

Yoshihiko Kinoshita, Hiratsuka; Hiroshi Nishida, Naka-gun; Tatsuya Ishigaki, Yokohama; Kenjiro Kai, Chigasaki, and Atsushi Ito, Ashigarakami-gun, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan

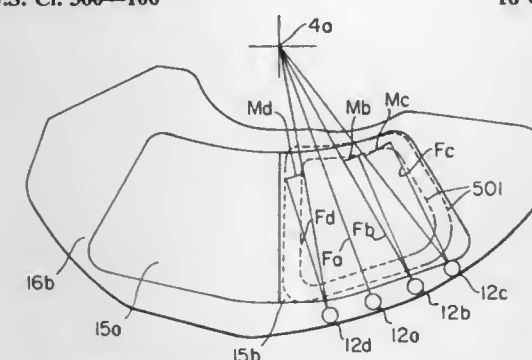
Continuation of Ser. No. 375,164, Jan. 18, 1995, Pat. No. 5,541,792, which is a continuation of Ser. No. 16,533, Feb. 11, 1993, abandoned. This application May 2, 1996, Ser. No. 641,746

Claims priority, application Japan, Mar. 18, 1992, 4-061779

Int. Cl.⁶ G11B 5/54

U.S. Cl. 360—106

18 Claims



10. A magnetic disk apparatus, comprising:

a carriage supporting a magnetic head and pivoting about an axis, the carriage being capable of pivoting over a magnetic disk for a predetermined range, wherein the predetermined range is such that the magnetic head can be positioned over an entire data recording region of the magnetic disk to perform recording/reproducing;

a yoke supporting a permanent magnet; and

magnetic means for providing a force causing the carriage to pivot about the axis when the magnetic head ceases recording/reproducing regardless of the position of the magnetic head in the predetermined range;

wherein the magnetic means for providing a force includes a magnetic member fixed on the carriage and interacting with leakage magnetic flux of the permanent magnet supported by the yoke to bias the carriage in a predetermined direction.

5,801,905
ACTUATOR ARM WITH CUTOUTS AND MEANS FOR FILLING OR BLOCKING THE CUTOUTS

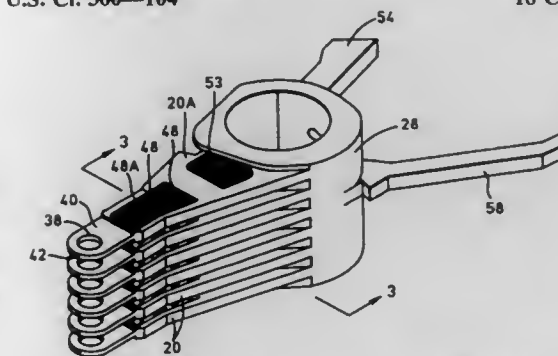
Neal Bertram Schirle, Morgan Hill, and Huey Ming Tzeng, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 15, 1996, Ser. No. 749,257

Int. Cl.⁶ G11B 5/48

U.S. Cl. 360—104

18 Claims



1. An actuator assembly for supporting a magnetic head in a disk drive assembly, comprising:

an actuator body;

at least one actuator arm connected to the actuator body, the at least one actuator arm including a head end for supporting a head thereon, the at least one actuator arm including at least one cutout extending therethrough and defining a passageway; a blocking member engaged with the at least one actuator arm and having a lower density than the at least one actuator arm for preventing airflow through the passageway; and

the at least one actuator arm including a top surface and a bottom surface, the at least one cutout extending from the top surface to the bottom surface and the blocking member including a first layer of material on the top surface over the at least one cutout and second layer of the material on the bottom surface over the at least one cutout.

5,801,906
MAGNETIC HEAD DEVICE INCORPORATING A FERROELECTRIC THIN FILM

Masahiro Yanagisawa, Akinobu Sato, and Ken Ajiki, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

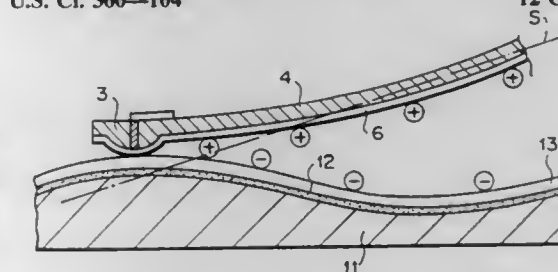
Filed Dec. 12, 1996, Ser. No. 764,459

Claims priority, application Japan, Dec. 13, 1995, 7-324264

Int. Cl.⁶ G11B 5/48

U.S. Cl. 360—104

12 Claims



1. A magnetic head device comprising:

a magnetic head which is relatively shifted in close contact with the surface of a magnetic recording medium to read/write information from/on the magnetic recording medium;

a support spring for pressing said magnetic head against the surface of the magnetic recording medium; and

a ferroelectric thin film coupled to the magnetic head and coupled to the support spring, the ferroelectric thin film being

deformed in connection with deformation of said support spring from a reference state, said deformation electrostatically charging said ferroelectric thin film.

5,801,907

MAGNETIC DISK DRIVE WITH AUTOMATIC ACTUATOR AND LOCKING STRUCTURE

Norio Yagi; Kunihiko Shimada; Takehiko Katoh; Kenichi Myokan; Takashi Matsumoto, and Kazuhiko Takaishi, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 317,034, Oct. 3, 1994, abandoned.

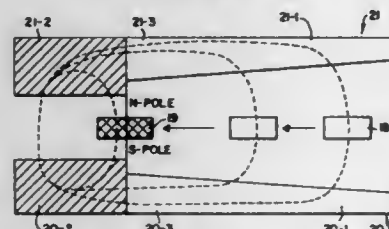
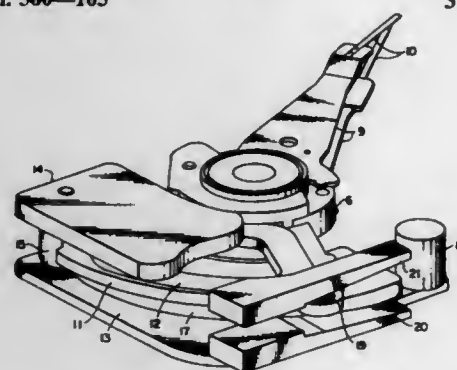
This application Jan. 31, 1997, Ser. No. 791,626

Claims priority, application Japan, Dec. 17, 1993, 5-343979

Int. Cl.⁶ G11B 5/54; 21/22

U.S. Cl. 360—105

37 Claims



1. A magnetic disk drive comprising:
 - at least a single piece of magnetic disk;
 - a rotary mechanism for rotating said magnetic disk;
 - a rotary actuator rotating about a shaft;
 - a coil, provided at one end of said rotary actuator, for rotating said rotary actuator;
 - a magnetic head attached to the other end of said rotary actuator;
 - a yoke of a main magnetic circuit for giving a driving force for driving said coil;
 - at least one magnet provided on said rotary actuator;
 - a pair of fixed yoke members forming a magnetic circuit for said magnet in all or a part of a movable range of said rotary actuator and including a first end at one limit of said movable range and a second end at the other limit of said movable range, said first and second ends being separated from each other via an air gap; and
 - a stopper member for setting a rotation stop position of said rotary actuator at a position so that torque produced by said fixed yoke members and said magnet is maximized, wherein said rotary actuator has one side that is provided with said magnet and another side, that is not provided with said magnet, for defining said rotation stop position by colliding with said stopper member.

5,801,908

MAGNETIC DISK DRIVE COMPRISING ROTARY ACTUATOR ARM HAVING OPTIMAL ARM LENGTH FOR MINIMIZING TRACK MISREGISTRATION

Junichi Akiyama, Kawasaki, and Tetsuo Inoue, Ichikawa, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 328,340, Oct. 21, 1994, abandoned,

which is a continuation of Ser. No. 19,875, Feb. 19, 1993,

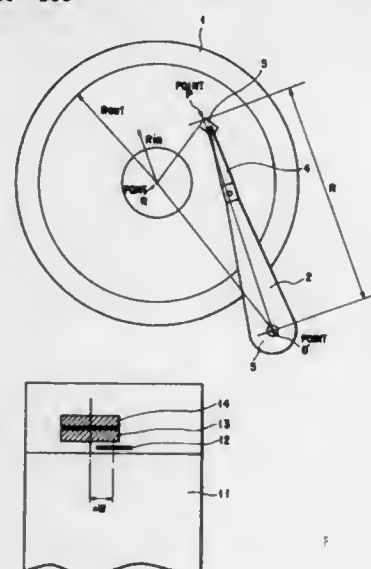
abandoned. This application Oct. 7, 1996, Ser. No. 720,918

Claims priority, application Japan, Feb. 21, 1992, 4-034952

Int. Cl.⁶ G11B 5/33; 5/55

U.S. Cl. 360—106

12 Claims



9. A magnetic disk drive that records and reproduces data onto and from a magnetic disk with a plurality of recording tracks including an innermost track and an outermost track, comprising:
 - a rotary actuator;
 - a magnetic head unit having a magnetic gap structure; and
 - a rotary actuator arm with a first end connected to said rotary actuator and a second end connected to said magnetic head unit, wherein
 said rotary actuator arm has a fixed length which is determined to minimize a variation of a skew angle created between a magnetic gap length direction of said magnetic gap structure and a rotating direction of said magnetic disk as said magnetic head unit passes over said plurality of tracks so that said skew angle is substantially constant as said magnetic head passes between said innermost and said outermost track, wherein said magnetic head unit comprises a composite head having a read head including a read magnetic gap and a write head including a write magnetic gap, said composite magnetic head, when located in a data read/write area of said magnetic disk, meets both conditional formulas $r_{W0} \leq r_{W1}$ and $r_{R0} \leq r_{R1}$ simultaneously where r_{W0} is a length of a segment O-W, r_{W1} is a length of a segment O-W', r_{R0} is a length of a segment O-R, and r_{R1} is a length of segment O-R', when a center of said magnetic disk is O, ends of said magnetic write gap in said write head on the magnetic disk outer and inner circumference sides points are W and W', respectively and ends of said magnetic read gap in said read head on the magnetic disk outer and inner circumference sides points are R and R', respectively.

5,801,909

THIN FILM MAGNETIC HEAD INCLUDING DURABLE WEAR LAYER AND NON-MAGNETIC GAP STRUCTURES

G. Robert Gray, Fremont, and Arun Malhotra, San Jose, both of Calif., assignors to AIWA Research and Development, Inc., Fremont, Calif.

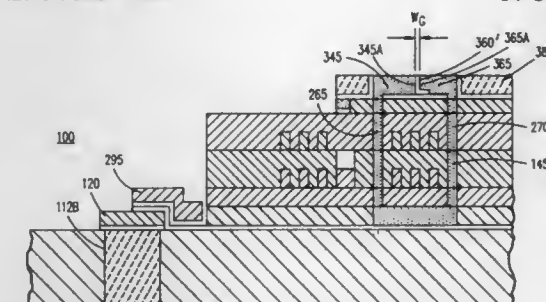
Continuation of Ser. No. 296,821, Aug. 26, 1994, abandoned.

This application May 20, 1996, Ser. No. 650,587

Int. Cl.⁶ G11B 5/127; 5/147

U.S. Cl. 360—126

14 Claims



1. A thin film magnetic head comprising:
 - a substrate having a substantially planar surface;
 - a lower pole member of a magnetic material situated on the substrate surface and having first and second ends;
 - first and second side pole members of the magnetic material situated at the first and second ends, respectively, of the lower pole member, the first and second side pole members being built up from a plurality of layers of the magnetic material deposited layer upon layer in a direction perpendicular to the substrate surface, the layers overlying a common seed layer, the individual layers of the plurality of layers of the magnetic material being the same size and shape and stacked so that the plurality of layers form a column, and directly connected with a preceding layer, the first and second side pole members both including a top surface and a bottom surface, the common seed layer being common to each layer of the plurality of layers of the magnetic material;
 - an insulative body situated about the first and second side poles and built up from a plurality of layers of an electrically insulative material, the layers of the insulative material being built up in the insulative body alternately with a build-up of the layers of the magnetic material in the side pole members;
 - a conductor coil having a plurality of coil layers mutually insulated by the layers of electrically insulative material within the insulative body, the individual coil layers of the plurality of coil layers being stacked so that the plurality of coil layers form columns in the direction perpendicular to the substrate surface and the columns being separated by the electrically insulative material of the insulative body, the plurality of coil layers being wound around one of the first and second side pole members, the plurality of coil layers being built up alternately with the build-up of layers of the insulative body and layers of the magnetic material in the side pole members;
 - an insulative pedestal disposed in a plane substantially parallel to the planar surface of the substrate, the insulative pedestal generally overlying the first and second pole members and extending laterally so that top surfaces of the first and second side pole members are completely enclosed within an exterior boundary of the insulative pedestal, the insulative pedestal having a first aperture overlying the first side pole member and a second aperture overlying the second side pole member so that the top surfaces of the first and second pole members are exposed through the insulative pedestal;
 - a first magnetic pole and a second magnetic pole deposited from the magnetic material and situated atop the pedestal, the first magnetic pole being integrally, physically, and magnetically coupled to the first side pole and extending from the first side pole toward the second side pole, the second magnetic pole being integrally, physically, and magnetically coupled to the

second side pole and extending from the second side pole toward the first magnetic pole;
 a gap region separating the first and second magnetic poles, the gap region being filled with a non-magnetic material; and
 a diamond-like carbon (DLC) frame extending laterally in a plane substantially parallel to the planar surface of the substrate and overlying the insulative pedestal, the DLC frame laterally enclosing the first and second magnetic poles, the DLC frame, the first and second magnetic poles, and the gap region having a substantially flush upper surface so that the DLC frame supplies structural integrity to the head and wear protection for the enclosed magnetic poles and gap region.

5,801,910

LONG SATURATION ZONE MAGNETIC WRITE HEAD

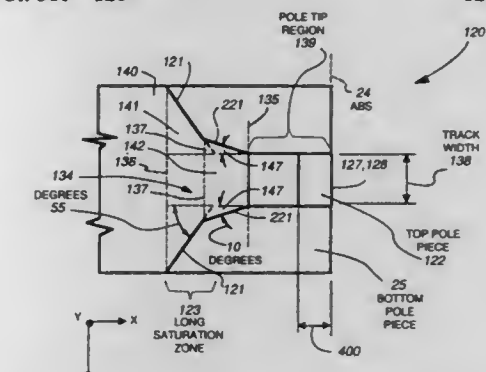
Michael Mallory, Berlin, Mass., assignor to Quantum Corporation, Milpitas, Calif.

Filed Jun. 2, 1997, Ser. No. 867,240

Int. Cl.⁶ G11B 5/147

U.S. Cl. 360—126

12 Claims



1. In a magnetic recording head having:
 - a bottom yoke member having a first relatively wide and planar tip area;
 - a top yoke member having a second relatively narrow and planar tip area;
 - said first and second planar tip areas being coplanar and defining a generally planar recording gap;
 - said generally planar recording gap being adapted to move relative to generally planar magnetic recording media;
 - coil means associated with said bottom and top yoke members; and
 - current energizing means for energizing said coil means with current of a magnitude Iw;
 said current energization of said coil means causing magnetic flux to flow, and to produce a given magnetic flux gap field Bg at said magnetic recording gap, said top yoke member comprising:
 - a first yoke portion having a generally large cross-sectional area; said first yoke portion being directly associated with said coil means;
 - a second yoke portion having a first generally large cross-sectional area connected to said first yoke portion, and having a first generally smaller cross-sectional area that is spaced from said first generally large cross-sectional area;
 - said second yoke portion having a cross-sectional area that reduces at a first rate when considered from said first generally large cross-sectional area to said first generally smaller cross-sectional area;
 - a third yoke portion having a second generally large cross-sectional area connected to said first generally smaller cross-sectional area; and having a second generally smaller cross-sectional area that is spaced from said second generally large cross-sectional area;
 - said third yoke portion having a cross-sectional area that reduces at a second rate that is less than said first rate when considered from said second generally large cross-sectional area to said second generally smaller cross-sectional area; and

a throat yoke portion having a generally constant cross-sectional area;
 said throat yoke portion having one end connected to said second generally smaller cross-sectional area, and having an opposite end defining said second relatively narrow and planar tip area;
 said first and second rates of cross-sectional area reduction being selected to cause said third yoke portion to uniformly saturate along its length as a result of said energization of said coil means, to thereby provide said given magnetic flux gap field B_g at said magnetic recording gap.

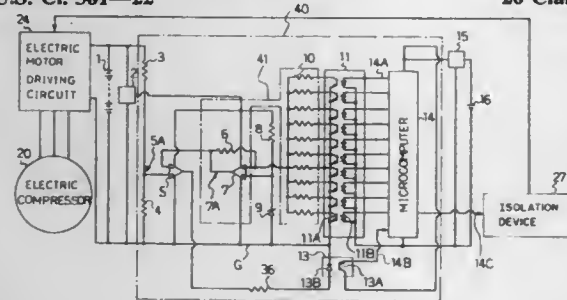
5,801,911
ELECTRIC COMPRESSOR DRIVING APPARATUS FOR AUTOMOBILE

Naomi Goto, Kurita-gun, and Makoto Yoshida, Kusatsu, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Nov. 21, 1995, Ser. No. 560,769

Claims priority, application Japan, Dec. 6, 1994, 6-302037
 Int. Cl.⁶ H02H 7/00

U.S. Cl. 361—22 20 Claims



1. A driving apparatus for an automobile electric compressor comprising:

first voltage source means for supplying electric power to an electric compressor driven by said electric compressor driving apparatus;

second voltage source means electrically isolated from said first voltage source means;

voltage detection means for detecting a first DC voltage of said first voltage source means, the voltage detection means comprising:

computer means electrically isolated from the first voltage source means and connected to said second voltage source means to receive electric power, the computer means having plural output ports for issuing output signals and an input port for receiving an input signal,

photocoupler means having a plural number of light emission means connected to each output port of said computer means, and the same plural number of light sensing means connected to the ground at one terminals thereof and respectively coupled with said light emission means,

plural resistors connected to said light sensing means at one terminal respectively, and connected in common at the other terminal thereof,

a voltage amplifier for outputting a comparison voltage, connected to said terminal connected in common of said resistors by the invert input (-) thereof, and to a direct-current power source having a constant reference voltage by the noninvert input (+) thereof, and having a resistor connected across the invert input (-) and the output terminal thereof,

a comparator connected to said output terminal of said voltage amplifier by the invert input (-) thereof and to said first voltage source means through resistors for dividing the voltage of said first voltage source means by the noninvert input (+) thereof; and

a photocoupler having light emission means connected between the output terminal of said comparator and the ground, and light sensing means coupled with said light

emission means and connected between said second voltage source means and said input port of said computer means; and

an electric motor driving circuit for driving said electric compressor, connected to an output port of said computer means through an electrical insulation means.

5,801,912
SHOCK HAZARD PROTECTION SYSTEM
 Bernard Gershen, Centerport; Saul Rosenbaum, East Meadow, and James N. Pearce, Dix Hills, all of N.Y., assignors to Leviton Manufacturing Co., Inc., Little Neck, N.Y.
 Continuation of Ser. No. 524,140, Sep. 6, 1995, Pat. No. 5,583,730, which is a continuation of Ser. No. 410,952, Mar. 27, 1995, which is a continuation of Ser. No. 138,889, Oct. 19, 1993, Pat. No. 5,402,298, which is a continuation of Ser. No. 979,759, Nov. 23, 1992, abandoned, which is a continuation of Ser. No. 758,173, Sep. 11, 1991, Pat. No. 5,166,853, which is a continuation of Ser. No. 618,271, Sep. 6, 1990, abandoned, which is a continuation of Ser. No. 471,258, Jan. 26, 1990, abandoned, which is a continuation of Ser. No. 352,077, May 15, 1989, abandoned, which is a continuation of Ser. No. 185,571, Apr. 25, 1988, abandoned, which is a continuation of Ser. No. 82,259, Aug. 6, 1987, abandoned, which is a continuation of Ser. No. 1,715, Jan. 9, 1987, Pat. No. 4,709,293, which is a continuation of Ser. No. 880,396, Jun. 30, 1986, abandoned, which is a continuation of Ser. No. 558,260, Dec. 5, 1983, abandoned. This application Oct. 4, 1996, Ser. No. 726,252
 Int. Cl.⁶ H02H 3/00

U.S. Cl. 361—50 5 Claims



1. A circuit interrupting device for interrupting an electrical circuit between a source of AC energy and an electrical load upon the detection of an electrically conductive medium related shock hazard condition contained within said load comprising:

a) a first shock hazard detection conductor having a supply end and a first free end located in said load;

b) a second shock hazard detection conductor having a supply end and a second free end located in said load, said second shock hazard detection conductor being spaced apart from said first shock hazard detection conductor;

c) shock hazard detecting means connected to said first shock hazard detection conductor and said second shock hazard detection conductor and responsive to the presence of an electrically conductive medium on said first free end and said second free end to generate a shock hazard signal at an output terminal;

d) a first service conductor connected between a source of AC energy and said supply end of said first shock hazard detection conductor and said load;

e) a second service conductor between said source of AC energy and said load;

f) a conductor connected to said supply end of said second shock hazard detection conductor;

g) first switch means in said first source conductor having a first movable contact arm with a first movable contact thereon, said first movable contact arm movable between a first closed position where said first movable contact engages a first fixed contact and AC energy can pass along said first service conductor and a second open position where said first movable contact does not engage said first fixed contact and AC energy cannot pass along said first service conductor;

h) second switch means in said second source conductor having a second movable contact arm with a second movable contact thereon, said second movable contact arm movable between a first closed position where said second movable contact engages a second fixed contact and AC energy can pass along said second service conductor and a second open position where said second movable contact does not engage said second fixed contact and AC energy cannot pass along said second service conductor;

i) gate means having a first input terminal, a first output terminal coupled to said second service conductor and a control terminal coupled to said output terminal of said shock hazard detection means;

j) coil means having a first end coupled to said first source conductor and a second end coupled to said first input terminal of said gate means whereby current will flow through said coil means and said gate means from said first service conductor to said second service conductor when a shock hazard signal at the output terminal of said shock hazard detecting means is applied to said control terminal of said gate means;

k) plunger means coupled to said coil means;

l) bias means engaging said plunger means to position said plunger means in a first position remote from said coil means;

m) the presence of current in said coil means drawing said plunger means closer to said coil means against said bias means;

n) a first latch means engaging said first movable contact arm to hold said first movable contact in engagement with said first fixed contact when in a first position and allowing said first movable contact to separate from said first fixed contact when in a second position;

o) a second latch means engaging said second movable contact arm to hold said second movable contact in engagement with said second fixed contact when in a first position and allowing said second movable contact to separate from said second fixed contact when in a second position;

p) rack means coupled to said plunger means for movement with said plunger means, said rack means having a pair of tripping dogs thereon, one adjacent said first latch means and the other adjacent said second latch means whereby when current is present in said coil means said plunger overcomes said bias means and moves closer to said coil means and operates said rack means to move each of said tripping dogs into contact with an associated one of said first and second latch means displacing them from said first position to said second position to open said first and said second switch means to prevent the flow of AC energy to said load through said first and second service conductors.

5,801,913
ISOLATION CIRCUITRY
 Arkady Pittel, Brookline, Mass., assignor to Kiddie-Fenwal, Inc., Ashland, Mass.
 Filed Apr. 29, 1996, Ser. No. 641,030
 Int. Cl.⁶ H02H 3/00

U.S. Cl. 361—71

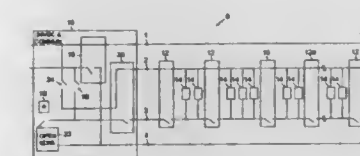
18 Claims

1. Isolation circuitry for automatically disconnecting a load from a source upon detecting a short and for automatically reconnecting the load to the source after the short circuit clears, said circuitry comprising,

a first node connected to a second node via a first transmission path,

a third node connected to a fourth node via a second transmission path maintained at a different voltage than said first transmission path,

a switch between said nodes on said first transmission path,



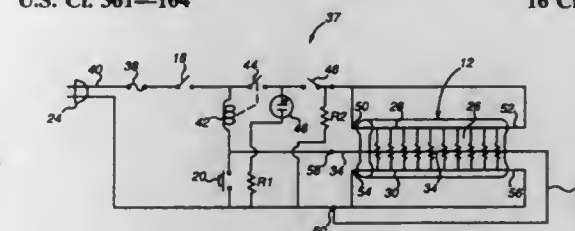
a sensing circuit connected between said first and second transmission paths that includes a current generator that induces a fault indicating current into a load between said first and second transmission paths and monitors the fault indicating current for an increase over a threshold when the load impedance falls below a lower limit indicating a short circuit, said sensing circuit providing a control signal to said switch to open if a short circuit is detected and to close if a short circuit is not detected, and

wherein said current generator of said sensing circuit includes short responsive capacitance in the current generator that charges up in the absence of a short circuit impedance between said first and second transmission paths and discharges in the presence of said fault indicating current and a control element that provides said control signal depending upon the charge condition of said capacitance.

5,801,914
ELECTRICAL SAFETY CIRCUIT WITH A BREAKABLE CONDUCTIVE ELEMENT
 Joseph L. Thrash, Hattiesburg, Miss., assignor to Sunbeam Products, Inc., Delray Beach, Fla.
 Filed May 23, 1996, Ser. No. 652,898
 Int. Cl.⁶ H02H 5/04

U.S. Cl. 361—104

16 Claims



1. An electrical safety circuit for an electrical device having circuit elements that are energized by an operating power, the safety circuit comprising:

a conductive element in thermal proximity to at least one of the circuit elements that are energized by the operating power, said conductive element structured for breaking in response to high temperatures; and

a switching circuit coupled to said conductive element and the operating power, said switching circuit responding to a break in said conductive element by discontinuing the operating power to the electrical device.

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5,801,915

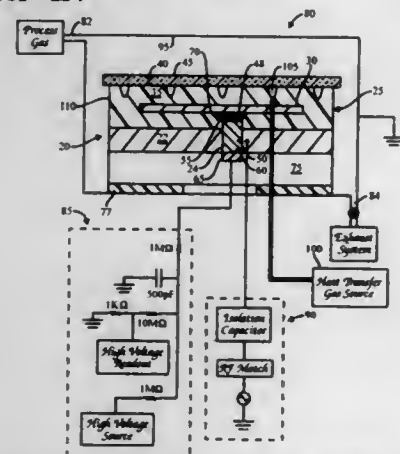
ELECTROSTATIC CHUCK HAVING A UNIDIRECTIONALLY CONDUCTING COUPLER LAYER
Arnold Kholodenko, San Francisco; Alexander M. Veytser, Mountain View, and Shamouil Shamoullian, San Jose, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 381,786, Jan. 31, 1995, which is a continuation-in-part of Ser. No. 189,562, Jan. 31, 1994, abandoned, and Ser. No. 410,449, Mar. 24, 1995, which is a continuation-in-part of Ser. No. 278,787, Jul. 19, 1994, abandoned. This application Mar. 28, 1997, Ser. No. 829,711

Int. Cl.⁶ H02N 13/00

U.S. Cl. 361—234

14 Claims



1. An electrostatic chuck for holding a substrate in a process chamber having a voltage supply terminal for charging the chuck, the electrostatic chuck comprising:

- (a) an electrostatic member including (i) an electrode, (ii) an electrically insulated holding surface, and (iii) an electrical contact surface for conducting charge to the electrode; and
- (b) a unidirectionally conducting coupling layer bonded to the contact surface to conduct a charge in substantially only a single direction from the voltage supply terminal to the contact surface to charge the electrode.

5,801,916

PRE-PATTERNED CONTACT FILL CAPACITOR FOR DIELECTRIC ETCH PROTECTION

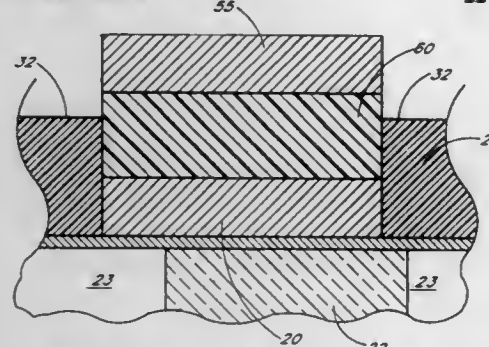
Daryl C. New, Meridian, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 559,186, Nov. 13, 1995, Pat. No. 5,631,804. This application May 17, 1996, Ser. No. 650,915

Int. Cl.⁶ H01G 4/06

U.S. Cl. 361—321.4

22 Claims



21. A capacitor structure in an integrated circuit comprising: a bottom electrode having an upper surface, a lower surface, and a sidewall connecting the upper surface to the lower surface; a dielectric layer having an upper surface, a lower surface, and a sidewall connecting the upper surface to the lower surface, the

lower surface of the dielectric layer is over and directly contacting the upper surface of the bottom electrode; and a top electrode over and directly contacting the upper surface of the dielectric layer,

wherein

a silicon nitride layer completely surrounds the sidewall of the bottom electrode and surrounds a part of the sidewall of the dielectric layer, and the dielectric layer partially protrudes above the silicon nitride layer.

5,801,917

CAPACITOR FOR AN IMPLANTABLE CARDIAC DEFIBRILLATOR

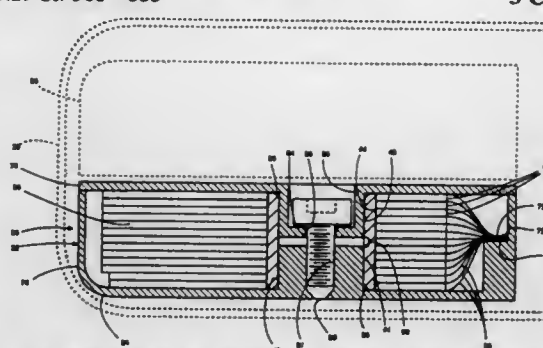
William H. Elias, Six Mile, S.C., assignor to Pacesetter, Inc., Sunnyvale, Calif.

Filed Jun. 3, 1996, Ser. No. 657,086

Int. Cl.⁶ H01G 2/10

U.S. Cl. 361—535

3 Claims



1. A capacitor for an implantable cardiac defibrillator comprising:

- a conductive housing defining a chamber and including a housing step extending into said chamber at a peripheral portion of said chamber;
- a plurality of planar charge storing layers within said chamber, each layer including at least a cathode sheet, a separator and an anode foil;
- each of said cathode sheets including a cathode tab extending from said cathode foil; and
- said cathode tabs being joined together and to said housing step.

5,801,918

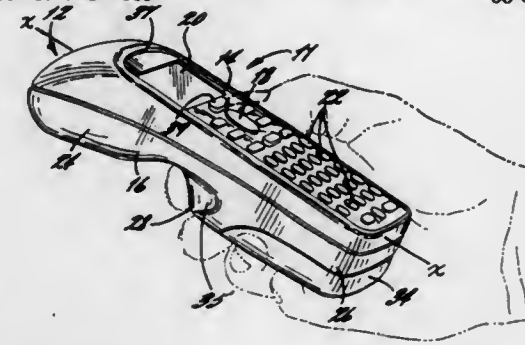
ERGONOMIC HOUSING FOR A MICRO COMPUTER
Kevin J. Ahearn, Matthews; Lawrence R. Ober, Pineville, and Michel Reinier Auems, Charlotte, all of N.C., assignors to Hand Held Products, Inc., Charlotte, N.C.

Filed Jul. 12, 1996, Ser. No. 679,307

Int. Cl.⁶ G06F 1/16; H05K 5/02

U.S. Cl. 361—683

68 Claims



1. An ergonomic housing for a micro computer comprising: an upper surface for positioning at least one interface component thereon; and

5,801,920

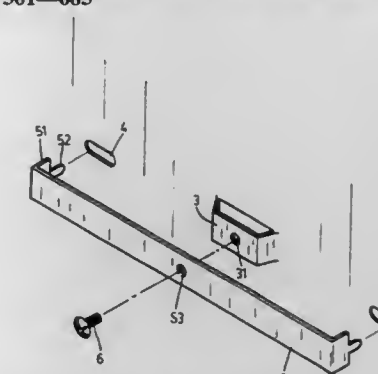
POSITIONING DEVICE FOR COMPUTER READ-WRITE DEVICES

Guay Shang Lee, No. 4, Alley 104, Hualian City, Taiwan
Filed Jun. 13, 1997, Ser. No. 874,555

Int. Cl.⁶ G06F 1/16; G11B 33/02; H05K 7/14

U.S. Cl. 361—685

3 Claims



1. A positioning device for computer read-write devices, said positioning device comprises a slightly bulging block with a central threaded hole at one of the side walls of a housing having a space for receiving a read-write device, two ends of said slightly bulging block corresponding to positioning threaded holes at the sides of said read-write device being provided with through holes; and a fastening plate with two bent ends such that when the read-write device is slid along slide rails of said space into said space and positioned therein, fastening ends at two ends of said fastening plate may pass through said through holes into said positioning threaded holes of said read-write device and be positioned, and a screw is passed through a central hole of said fastening plate into said central threaded hole of said slightly bulging block so that a disk drive may move to lie against the other side and hence position the read-write device, accomplishing easy, quick, and simple installation and removal of the read-write device.

5,801,919

ADJUSTABLY MOUNTED CAMERA ASSEMBLY FOR PORTABLE COMPUTERS

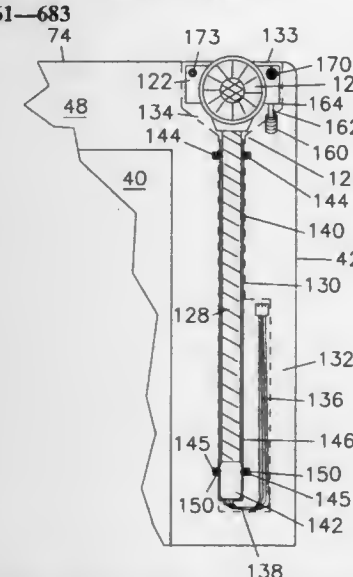
Richard W. Griencewic, McCook Lake, S. Dak., assignor to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed Apr. 4, 1997, Ser. No. 832,940

Int. Cl.⁶ G06F 1/16

U.S. Cl. 361—683

10 Claims



1. A portable computer having a main body section, a display screen carried by said main body section, and an adjustable camera assembly carried by said portable computer, wherein:

- said camera assembly is moveably and adjustably joined to said portable computer; and
- said camera assembly has a limited field of view and a discernable viewing direction, said camera assembly being moveable such that said viewing direction is adjustable without moving said main body section or said display screen;
- said display screen comprises a perimeter bezel having at least a top member and a side member, said camera assembly being moveably joined to said bezel;
- said camera assembly is further moveable between a storage position and an operational position, said camera assembly being received within a recess in said bezel when in said storage position and extends from said recess when in said operational position;
- said recess comprises a channel extending internally within said side member of said bezel and opening into said top member of said bezel,
- said channel being unexposed to an outside surface of the display screen.

5,801,921

INTEGRATED DATA, VOICE, AND VIDEO COMMUNICATION NETWORK

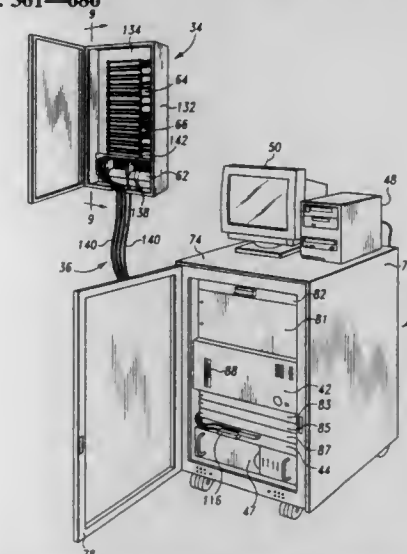
Steven K. Miller, Indianapolis, Ind., assignor to Symex, Inc., Indianapolis, Ind.

Filed Nov. 19, 1996, Ser. No. 754,505

Int. Cl.⁶ G06F 1/16; H05K 5/02

U.S. Cl. 361—686

20 Claims



1. A communication network assembly, comprising: a cabinet having a first set of connectors secured thereto;

179-290 O.G.- 98 - 28 : OL 3

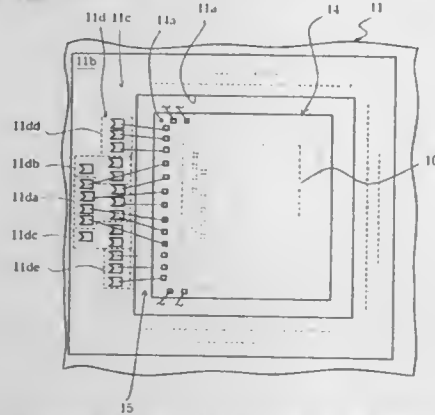
between said engagement surface of each foot of said second ejector lever providing said extraction force within said plane of any one of the number of circuit cards.

5,801,927
CERAMIC PACKAGE USED FOR SEMICONDUCTOR CHIPS DIFFERENT IN LAYOUT OF BONDING PADS
Kazutoshi Watanabe, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Aug. 21, 1996, Ser. No. 701,232
Claims priority, application Japan, Aug. 30, 1995, 7-221876
Int. Cl.⁶ H05K 7/06

U.S. Cl. 361-777

4 Claims



1. An insulating package for mounting one of different kinds of semiconductor chip thereon, comprising:

- a first area formed in a central area of a ceramic body, and assigned to said different kinds of semiconductor chip, said first area comprising a rectangular recess;
- a second area provided on said ceramic body, and extending along a periphery of said rectangular recess so as to be contiguous to said first area; and
- a plurality of conductive stitches formed on said second area, and divided into a first group shared between said different kinds of semiconductor chip for forming electrical paths between said one of different kinds of semiconductor chip and an external electrical component and second groups provided on both sides of said first group and selectively used for said different kinds of semiconductor chip so as to form other electrical paths between said one of different kinds of semiconductor chip and said external electrical component.

5,801,928
ELECTRONIC ASSEMBLY CIRCUIT BOARD INSTALLATION APPARATUS

Douglas C. Burstedt; Aaron J. Palumbo; Robert S. Haider, and Tony A. Reyes, all of San Diego, Calif., assignors to Hughes Electronics Corporation, El Segundo, Calif.

Filed Feb. 14, 1996, Ser. No. 601,559

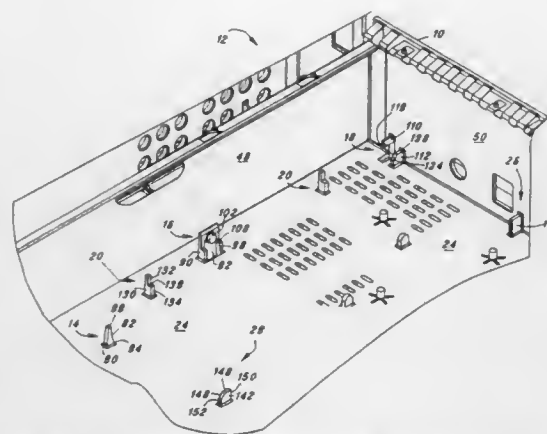
Int. Cl.⁶ H05K 7/14

U.S. Cl. 361-801

25 Claims

1. A circuit board guide and retaining apparatus comprising: an electronic assembly chassis having a base; a circuit board having an upper surface, and a pair of side edges, said circuit board having an alignment notch on at least one of said side edges;

alignment structures disposed on said base of said electronic assembly chassis aligning said circuit board within said electronic assembly chassis and in a prescribed orientation parallel to said base of said electronic assembly chassis; and a plurality of retention structures extending from said base of said electronic assembly chassis, said retention structures retaining said circuit board in a prescribed position within said electronic assembly chassis and preventing displacement



of said circuit board in one or more prescribed directions during and after the installation of said circuit board, said retention structures including a retaining assembly disposed on said base of said electronic assembly chassis and cooperating with said alignment notch on said at least one of said side edges when said circuit board is aligned within said electronic assembly chassis and further engaging at least one of said side edges, thereby restraining said circuit board from substantial displacement in the lateral direction, and also further engaging said upper surface when said circuit board is installed, thereby restraining said circuit board from substantial displacement in the vertical direction, wherein said side retaining assembly is an upright rigid projection having a lateral retaining wall extending from said base of said electronic assembly chassis, a ledge laterally extending from a lower section of said lateral retaining wall, and a nub laterally extending from an upper section of said lateral retaining wall, the arrangement of said nub, said lateral retaining wall, and said ledge defining a retaining channel which receives and retains said circuit board in the lateral and vertical directions.

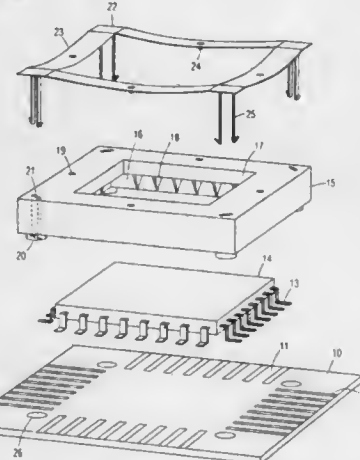
5,801,929
CLIP-ON IC RETAINING APPARATUS
Kan Cheng, 40100 San Carlos Pl., Fremont, Calif. 94539

Filed Nov. 5, 1996, Ser. No. 740,987

Int. Cl.⁶ H05K 7/02

U.S. Cl. 361-807

6 Claims



1. An IC retaining apparatus for retaining a rectangular IC having a plurality of pins extending from at least two opposite sides thereof, comprising:

a circuit board having a rectangular trace pad with a plurality of traces; four registration holes arranged on said circuit board at four corners of said trace pad;

a housing having an open rectangular cavity on a bottom side thereof, said cavity having four vertical walls, said cavity being adapted for securely receiving said IC therein;

four registration fingers projecting downwardly from a bottom side of said housing at four corners thereof, said registration fingers mating with said registration holes on said circuit board for precisely positioning said pins in contact and registration with said traces of said trace pad;

four slots positioned at said four corners of said housing, each of said slots extending vertically between a top side of said housing and a lower end of a corresponding registration finger; and

a retaining clip positioned on said top side of said housing, said retaining clip comprising four downwardly curved flat springs connected in a rectangular pattern, and four hooks extending downwardly from four corners of said retaining clip, each of said hooks extending through a corresponding slot in said housing, each of said hooks extending out said lower end of a corresponding registration finger, a tip of each of said hooks engaging a bottom rim of a corresponding registration hole so as to retain said housing on said circuit board.

5,801,930
PRINTED CIRCUIT BOARD RELAY HAVING PUSH-IN CONNECTIONS

Michael Dittmann, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE95/00384, § 371 Date Sep. 24, 1996, § 102(e)

Date Sep. 24, 1996, PCT Pub. No. WO95/26036, PCT Pub.

Date Sep. 28, 1995

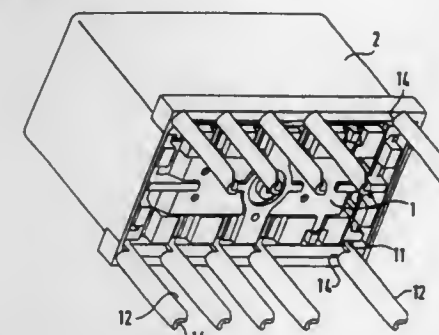
PCT Filed Mar. 21, 1995, Ser. No. 716,262

Claims priority, application Germany, Mar. 24, 1994, 44 10 285.2

Int. Cl.⁶ H05K 7/00

U.S. Cl. 361-819

8 Claims



1. A connecting arrangement in a printed circuit board relay, comprising: a base body defining a base plane of the relay; connecting elements which are cut from a sheet-metal panel being embedded in said base body essentially parallel to said base plane of the relay, said connecting elements projecting sideways from said base body and being bent downwards on its outer side;

push-in posts connected to said outer side of said connecting elements which are at right angles to said base plane, said push-in posts each including a channel-shaped sections having a bend along a longitudinal axis, the push-in posts are each linked at a top end to said outer side of the respective connecting element, said longitudinal axis of each of said push-in posts being at right angles to the base plane, a center of each of said push-in posts being offset with respect to said outer side of said connecting element, and at least one portion of said channel-shaped sections being located outside a contour of said base body, a pushing-in shoulder at an upper edge of said channel-shaped sections.

5,801,931
DC POWER SOURCE APPARATUS THAT SUPPRESSES HARMONICS

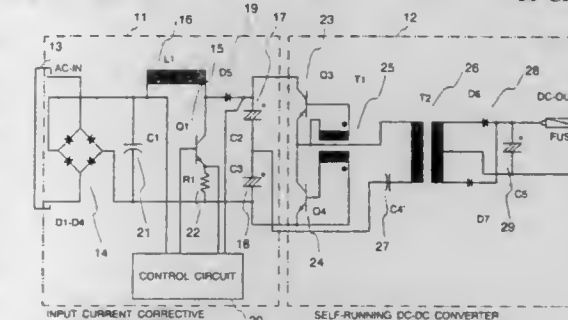
Jiro Kino, Seto; Takashi Tabei, Owariasahi, and Masami Takabashi, Nagoya, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 5, 1995, Ser. No. 567,661

Claims priority, application Japan, Dec. 6, 1994, 6-301818
Int. Cl.⁶ H02M 3/335

U.S. Cl. 363-17

10 Claims



1. A DC power source apparatus for receiving an AC voltage and delivering a DC voltage, comprising:

an AC-DC converter including a rectifier circuit for full-wave rectifying the input AC voltage, a chopper circuit having a reactor and a first transistor, and a drive control circuit for receiving a pulsating DC voltage subject to rectification by said rectifier circuit, an emitter current of said first transistor and an output voltage of said chopper circuit and controlling on and off periods of said first transistor to cause a waveform of the emitter current of said first transistor to approximate a waveform of the input AC voltage and to make the output voltage of said chopper circuit constant; and

a self-running inverter including a group of second transistors and a circuit for driving said second transistor group, an insulating transformer for receiving an output of said second transistor group and performing transform of voltage value, and a circuit for rectifying and smoothing an output of said insulating transformer.

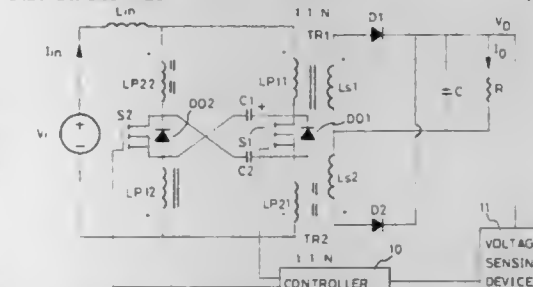
5,801,932
INTERLEAVED CURRENT-FED FORWARD CONVERTER
Juoo-Bin Hwang, and Te-Ping Tsai, both of Taoyuan Hsien, Taiwan, assignors to Chun-Shan Institute of Science and Technology, Taoyuan Hsien, Taiwan

Filed May 20, 1997, Ser. No. 859,164

Int. Cl.⁶ H02M 3/335

U.S. Cl. 363-21

7 Claims



1. An interleaved current-fed forward converter apparatus comprising:

a first transformer and a second transformer each comprising a first primary winding, a second primary winding and a secondary winding connected to a load;

a first power switch being connected between the first primary windings of the first transformer and the second transformer, and a second power switch being connected between the second primary windings of the first transformer and the second transformer, the first power switch and the second

power switch being alternately turned on and off in response to two pulse signals which are substantially complementary; and

- a first capacitor being connected between the first primary winding and the second primary winding of the first transformer, and a second capacitor being connected between the first primary winding and the second primary winding of the second transformer.

5,801,933 HIGH EFFICIENCY VOLTAGE CONVERTER AND REGULATOR CIRCUIT

Arie Ravid, Palo Alto, Calif., assignor to Abbott Laboratories, Abbott Park, Ill.

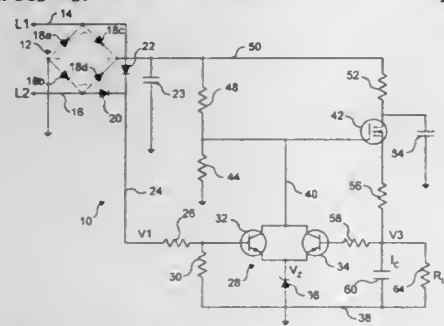
Continuation of Ser. No. 310,289, Sep. 21, 1994, abandoned.

This application Mar. 18, 1997, Ser. No. 819,079

Int. Cl.⁶ H02M 5/42

U.S. Cl. 363—89

23 Claims



1. A voltage converter for converting an AC line signal to a DC output signal, comprising:

- a rectifier that is coupled to the AC line signal and which produces a rectified signal;
- a capacitor that is coupled to an output line that is adapted to supply a current to a load;
- a first switching device that is controlled by a turn on voltage and a turn off voltage applied to a control terminal of the first switching device, said first switching device being coupled to the rectifier to receive the rectified signal at said control terminal, and to the capacitor, said first switching device enabling a current flow from the rectifier to charge the capacitor when the rectified signal at said control terminal reaches the turn on voltage that causes the first switching device to conduct;
- a voltage limiter that includes a regulator for establishing a predetermined reference voltage; and
- a second switching device that is coupled to:
 - the voltage limiter, said voltage limiter being coupled between the second switching device and the rectifier, to receive the rectified signal; and
 - the rectifier to receive the rectified signal; and
- said second switching device having a control terminal coupled to the rectifier to receive the rectified signal and to the load to receive the DC output signal, a second switching device turn on voltage applied by the rectifier and the load to said control terminal determining if said second switching device conducts, said second switching device turn on voltage varying as a function of the predetermined reference voltage, the rectified signal, and the DC output signal from the load, so that said second switching device turn on voltage at the control terminal of the second switching device causes said second switching device to conduct, and thereby to apply the turn off voltage to the control terminal of the first switching device, said turn off voltage being regulated by the voltage limiter so as to control a voltage level of the DC output signal on the load.

5,801,934 CHARGE PUMP WITH REDUCED POWER CONSUMPTION

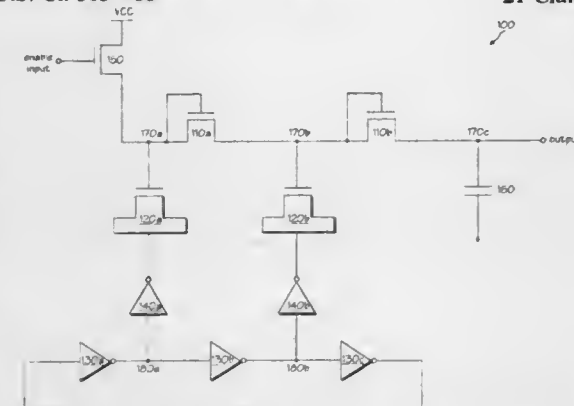
Timothy M. Lacey, San Jose, and Aaron Yip, Milpitas, both of Calif., assignors to Cypress Semiconductor Corp., San Jose, Calif.

Filed Dec. 12, 1996, Ser. No. 762,871

Int. Cl.⁶ H02M 3/18

U.S. Cl. 363—60

21 Claims



1. An apparatus for charging up a voltage signal comprising:
- at least one diode configured to receive a first voltage signal;
 - at least one capacitor having a constant capacitance and configured to couple charge onto said at least one diode; and
 - an oscillating circuit coupled to at least one of said capacitors, said oscillating circuit configured to provide at least one of said capacitors with an oscillating signal that alternates between a first voltage level and a second voltage level at a predetermined frequency, wherein said oscillating circuit comprises N inverters coupled in a ring, wherein N is an odd number of three or more, each of said N inverters has an input and an output, an output of a first inverter is coupled to an input of a second inverter, and so forth until an output of an (N-1)th inverter is coupled to an input of an Nth inverter and an output of said Nth inverter is coupled to an input of said first inverter, each of said N inverters is capable of anticipating a voltage level switch on its input, and wherein each of said N inverters is coupled to a first voltage conduit via a first power switch and coupled to a second voltage conduit via a second power switch such that each of said N inverters is coupled to one of said first and said second voltage conduits and decoupled from the other one of said first and said second voltage conduits in response to a control signal received by said first and said second power switches, each of said N inverters is capable of being powered "off" before an input signal of each of said N inverters switches voltage levels.

5,801,935

DIGITAL POWER FACTOR CORRECTION CIRCUIT

David M. Sugden, Leeds, United Kingdom; Phillip G. Langhorst, St. Louis, Mo.; Joseph G. Marcinkiewicz, Ripon, and James C. R. Smart, Horsforth, both of United Kingdom, assignors to Emerson Electric Co., St. Louis, Mo., and Switched Reluctance Drives, Ltd., Harrogate, United Kingdom

Filed Sep. 9, 1996, Ser. No. 708,804

Claims priority, application United Kingdom, Apr. 30, 1996, 9608832

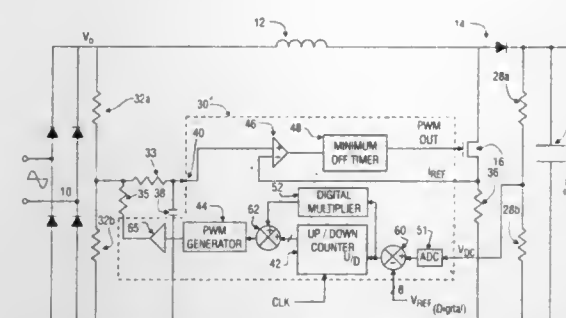
U.S. Cl. 363—89

Int. Cl.⁶ H02M 7/217

22 Claims

14. A circuit for controlling the power factor of an electric circuit that operates from a DC bus powered by an AC line, the circuit comprising:

- a rectifier coupled to the AC line for providing a rectified voltage signal, the rectifier having a positive output and a reference output;



- a first switching device that, when closed, provides a current path from the positive output of the rectifier to the reference output of the rectifier;
- a current sensor for sensing the current flowing through the switching device;
- a controlled attenuator coupled to the output of the rectifier, wherein the controlled attenuator provides an attenuated version of the rectified voltage signal that has a magnitude corresponding to a pulse width modulation control signal; and
- a digital power factor correction chip, formed as a single integrated circuit, comprising:
 - a digital comparator for comparing a voltage corresponding to the desired DC bus voltage with a voltage corresponding to the actual DC bus voltage;
 - an up/down counter having an up/down control input coupled to the output of the digital comparator and a clock input adapted to receive a fixed frequency clock signal; and
 - a digital pulse width modulation generator coupled to receive the output of the up/down counter, for generating the pulse width modulation control signal, where the duty cycle of the pulse width modulation control signal corresponds to the output of the up/down counter; and
- a current controller coupled to receive the output of the current sensor and the controlled attenuator for controlling the switching device such that the current flowing through the switching device is substantially in phase with the attenuated version of the rectified voltage signal and has a magnitude corresponding to the magnitude of the attenuated version of the rectified signal.

5,801,936

SEMICONDUCTOR MODULE FOR A POWER CONVERSION DEVICE

Mutsuhiro Mori; Ryuichi Saito; Shin Kimura, all of Hitachi; Kiyoshi Nakata, Ibaraki-ken; Syuuji Saitoo; Akira Horie, both of Katsuta; Yoshihiko Koike, and Shigeki Sekine, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 947,544, Sep. 21, 1992, Pat. No. 5,459,655, which is a continuation-in-part of Ser. No. 631,289, Dec. 20, 1990, Pat. No. 5,274,541, and a continuation-in-part of Ser. No. 971,567, Nov. 5, 1992, Pat. No. 5,278,443, which is a continuation of Ser. No. 833,706, Feb. 11, 1992, Pat. No. 5,166,760, which is a continuation of Ser. No. 660,872, Feb. 26, 1991, Pat. No. 5,101,244. This application Jun. 7, 1995, Ser. No. 480,399

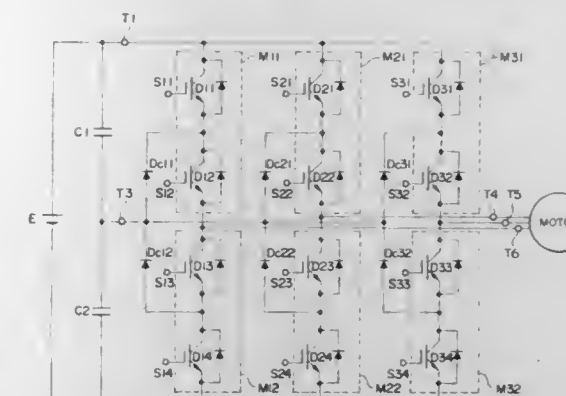
Claims priority, application Japan, Sep. 20, 1991, 3-241681; Jan. 29, 1992, 4-013684

Int. Cl.⁶ H02M 7/5387

U.S. Cl. 363—132

19 Claims

1. A power conversion device having a predetermined number of phases comprising:
- an intermediate node at a potential intermediate between potentials of a pair of d.c. terminals;
 - a.c. terminals equal in number to the number of phases of the power conversion device;
 - a plurality of arms each connected between one of said d.c. terminals and one of said a.c. terminals, each of said arms comprising two parallel circuits connected in series, each



- parallel circuit including a switching device and a diode opposite in conductive direction to said switching device; and a plurality of diodes each connected between said intermediate node and a node between said two parallel circuits, wherein different lifetimes are set for said switching device and said diode of each of said parallel circuits to decrease power loss in the power conversion device, wherein lifetimes of said diodes and said switching devices are set to equalize recovery losses and forward voltage losses for said diodes, or switching losses and on-state voltage losses for said switching devices in the power conversion device.

5,801,937

UNINTERRUPTIBLE POWER SUPPLIES HAVING COOLED COMPONENTS

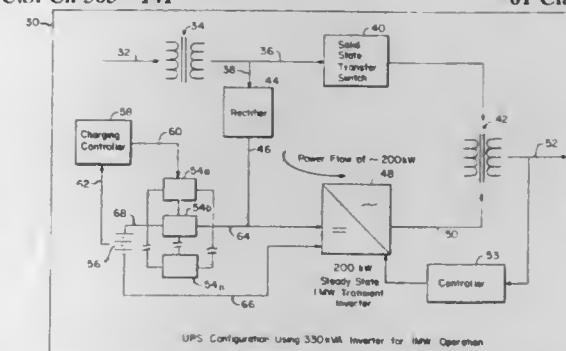
Calman Gold, Londonderry, N.H., and Richard J. Gran, Northborough, Mass., assignors to American Superconductor Corporation, Westborough, Mass.

Filed Oct. 16, 1996, Ser. No. 732,029

Int. Cl.⁶ H02M 1/10

U.S. Cl. 363—141

61 Claims



1. An uninterruptible power supply system, comprising:
- a primary AC power supply;
 - an input transformer connected to the primary AC power supply;
 - a transfer switch connected to the input transformer;
 - an output transformer connected to the transfer switch and connected to deliver a first portion of the primary AC power supply to a load under predetermined conditions;
 - rectification means connected to the input transformer;
 - an inverter connected to the rectification means and connected to deliver a second portion of the primary AC power supply to a load through the output transformer under predetermined conditions;
 - cooling means for maintaining the inverter within a predetermined temperature range;
 - at least one electronic switch connected to the inverter; and
 - energy storage means connected to the at least one electronic switch and connected to deliver power to the inverter under predetermined conditions.

5,801,938
DATA PROCESSING METHOD AND APPARATUS FOR
PARALLEL DISCRETE EVENT SIMULATION
Nasser Kalantary, 100 Roseberry Gardens, London N4 1JL,
United Kingdom, assignor to Nasser Kalantary, London,
United Kingdom

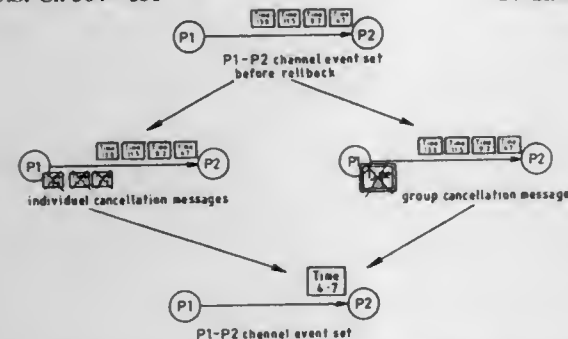
Filed Oct. 3, 1995, Ser. No. 538,248

Claims priority, application United Kingdom, Oct. 3, 1994,
9419892

Int. Cl. G06F 9/46; 9/44

U.S. Cl. 364-131

14 Claims



1. Data processing apparatus comprising distributed processors for the parallel discrete event simulation of physical processes by the parallel execution of virtual-time-stamped logical processes scheduled by the transmission of virtual-time-stamped messages on logical channels between the processors, each processor having a clock representing virtual time and ordering forward processing, and a memory for storing a state queue, representative of the physical state at different times of the system upon which the physical processes operate, and each processor being programmed with an operating system supporting optimistic time warp management of the message scheduling and message transmission and of the state queue, allowing interruption of forward processing for local rollback to an earlier virtual time and to earlier states and allowing cancellation of messages upon recognition by the processor of a sequence error in messages received at that or another processor; wherein the memory of each processor maintains a hierarchical list of time-stamped messages which have been received and buffered, and the processor is programmed, in response to a message on a given input channel indicative that rollback to a specified virtual time is required, to cancel as a group every message in its hierarchical list which is associated with that given input channel and whose virtual time is coincident with or after the specified virtual time; to rollback its clock to that earlier virtual time and to adjust the state queue accordingly; and to output a group cancellation message, indicative that rollback is required to a time corresponding to its new virtual time, to any destination to which the processor has already sent a message since that new virtual time, thereby propagating the rollback to other processors which may have been affected.

5,801,939
PRECISION POSITIONING CONTROL APPARATUS AND
PRECISION POSITIONING CONTROL METHOD
Yuichi Okazaki, Tsuchiura, Japan, assignor to Agency of
Industrial Science & Technology, Ministry of International
Trade & Industry, Tokyo, Japan

Filed Mar. 1, 1996, Ser. No. 609,611

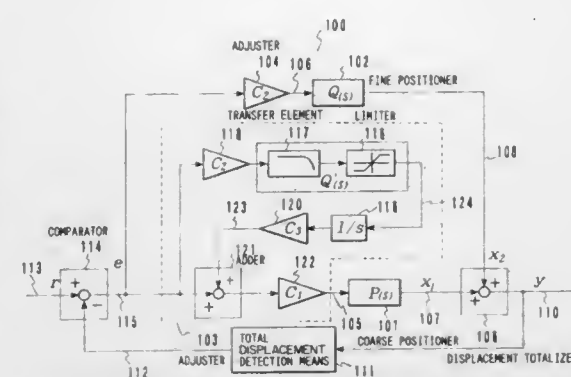
Claims priority, application Japan, Mar. 3, 1995, 7-070798

Int. Cl. G05B 1/18

U.S. Cl. 364-167.01

3 Claims

1. A precision positioning control apparatus comprising:
a coarse positioner displaced by a first adjusted command signal;
a fine positioner displaced together with the coarse positioner by a second adjusted command signal and having a smaller range of displacement but a higher positioning resolution than the coarse positioner;



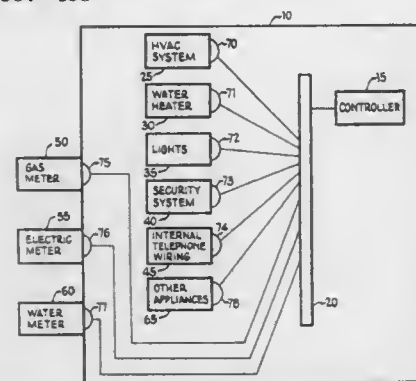
a displacement totalizer for totaling a displacement of the fine positioner and a displacement of the coarse positioner;
total displacement detection means for producing a total displacement signal based on an output of the displacement totalizer;
a comparator for producing an error signal representing a difference between the total displacement signal and an original command signal;
a coarse positioner adjuster for adjusting the error signal output by the comparator and inputting the first adjusted signal to the coarse positioner, the coarse positioner adjuster including a gain element which imparts gain to the error signal, a transfer element responsive to an output of the gain element for simulating a frequency characteristic of the fine positioner, a limiter responsive to an output of the transfer element for simulating a displacement limit of the fine positioner, an integrator for integrating an output signal of the transfer element, a gain adjuster for adjusting an integrated output signal from the integrator and an adder which adds an output of the gain adjuster to the error signal and outputs the first adjusted command signal; and
a fine positioner adjuster for adjusting the error signal from the comparator and inputting the second adjusted signal to the fine positioner, the fine positioner adjuster being constituted as a constant gain element.

5,801,940
FAULT-TOLERANT HVAC SYSTEM
Robert M. Russ, Los Altos Hills, Calif.; William W. Bassett, Wheaton, Ill.; Charles A. Glorioso, Castro Valley, Calif.; Nir Merry, Mountain View, Calif., and Larry A. Lincoln, Milpitas, Calif., assignors to Gas Research Institute, Chicago, Ill.
Continuation-in-part of Ser. No. 375,481, Jan. 19, 1995. This application Feb. 12, 1996, Ser. No. 598,561

Int. Cl. G06F 19/00

U.S. Cl. 364-138

3 Claims



1. An HVAC system capable of continued operation following a thermostat malfunction, the HVAC system comprising:
a thermostat having an output signal indicative of air temperature of a conditioned space proximate the thermostat;
an HVAC unit having a heat exchanger, a blower for drawing air through the heat exchanger, and at least one of a heating unit

and a cooling unit for modifying the temperature of air circulating through the heat exchanger;
a discharge air plenum coupling the HVAC unit to the conditioned space, the discharge air plenum providing a path for air discharged from the HVAC unit to be expelled into the conditioned space;
a return air plenum coupling the conditioned space to the HVAC unit, the return air plenum providing a path for return air from the conditioned space to an inlet port of the HVAC unit;
a temperature sensor having an output signal indicative of return air temperature;
an HVAC controller coupled to the thermostat, the temperature sensor, and the HVAC unit;
means within the HVAC controller for sensing the output signal of the thermostat and for modifying air temperature within the conditioned space based upon the output signal of the thermostat;
means within the HVAC controller for detecting a malfunction of the thermostat; and
means within the HVAC controller for sensing the output of the temperature sensor and for modifying air temperature within the conditioned space based upon the output signal of the temperature sensor, in response to detecting a malfunction of the thermostat.

5,801,941
MOBILE CLIENT COMPUTER PROGRAMMED TO
ESTABLISH SOFT KEYBOARD TARGETING
SENSITIVITY

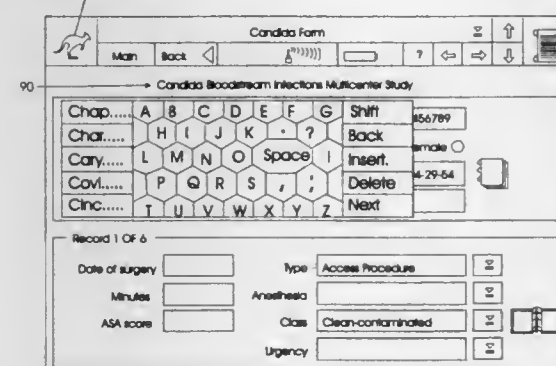
Randal Lee Bertram, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 12, 1996, Ser. No. 700,606

Int. Cl. G05B 00/00

U.S. Cl. 364-188

27 Claims



1. A mobile client computer which compensates for user keying errors comprising:
a housing sized to be held in and manipulated by the hand of a user;
a processor mounted within the housing and processing digital data;
memory mounted within the housing for storing digital data and coupled to the processor;
a display mounted in the housing and coupled to the processor and the memory to display information derived from digital data processed by the processor;
an input digitizer mounted in the housing and disposed over the display, the digitizer being coupled to the processor and enabling input of digital data by a user; and
a control program stored in the memory and accessible by the processor to direct the processing of digital data by the processor;
the control program and the processor cooperating, when the control program is executing on the processor;

(a) in displaying a plurality of user selectable elements, each defining (i) a determinable center point, (ii) a zone about the center point, and (iii) an entry corresponding to the zone and selectable by a user targeting the zone; and
(b) in executing an offset test by (i) recording an entry selected by a user targeting a selectable element and (ii) calculating any displacement of the user's targeted point from the center point of the targeted selectable element; and
(c) thereafter adjusting entries by the user in accommodation of the calculated displacement to assure that misplaced user targeting of a selectable element is recognized as the desired selectable element.

5,801,942
PROCESS CONTROL SYSTEM USER INTERFACE
INCLUDING SELECTION OF MULTIPLE CONTROL
LANGUAGES

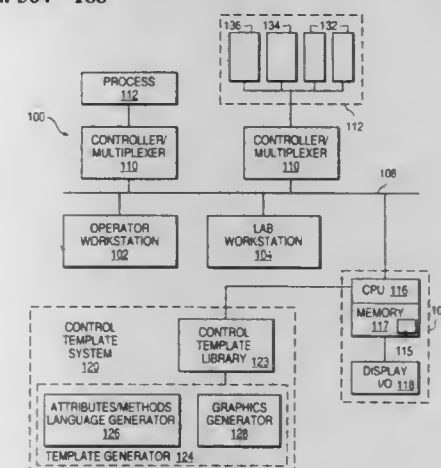
Mark Nixon, Round Rock; Robert B. Havekost, Austin; Larry O. Jundt; Dennis Stevenson, both of Round Rock; Michael G. Ott, Austin, all of Tex.; Arthur Webb, and Mike Lucas, both of Leicestershire, England, assignors to Fisher-Rosemount Systems, Inc., Austin, Tex.

Filed Apr. 12, 1996, Ser. No. 631,517

Int. Cl. G05B 19/42

U.S. Cl. 364-188

21 Claims



1. A process control system for controlling a process according to a control strategy, the process control system comprising:
a computer system including a processor, an input interface and a display coupled to the processor;
a field device coupled to the process;
a controller coupled to the field device and communicatively coupled to the computer system; and
a software system including:
an interactive, user-directed process configuration program including a plurality of control language editors for selecting the control strategy using a control language selected from a plurality of control languages, the process configuration program creating an executable control module and downloading the executable control module selectively among the computer system, the field device, and the controller; and
an executable control module selectively created, downloaded and executed, the control module being configurable by the process configuration program to configure a control language execution engine.

5,801,943
TRAFFIC SURVEILLANCE AND SIMULATION
APPARATUS

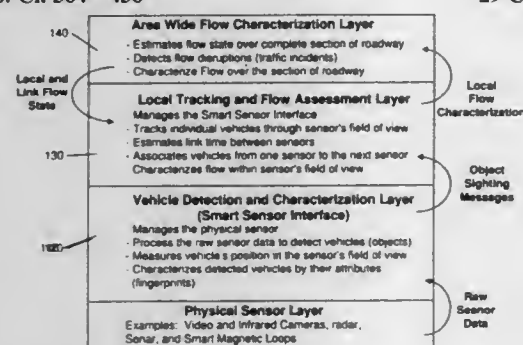
Robert E. Nasburg, Palos Verdes Estates, Calif., assignor to
Condition Monitoring Systems, Long Beach, Calif.

Continuation-in-part of Ser. No. 96,769, Jul. 23, 1993. This
application Mar. 6, 1995, Ser. No. 398,770

Int. Cl.⁶ G08G 1/01

U.S. Cl. 364-436

29 Claims



1. A traffic surveillance system comprising:
 - a first sensor positioned to sense vehicular traffic in a predetermined first field;
 - a first local traffic processor coupled to the first sensor for identifying vehicles within the field of the first sensor by periodically sampling the first sensor and extracting vehicle locations and identification information;
 - a second sensor positioned to sense vehicular traffic in a second predetermined field where said second predetermined field is separated from said first predetermined field;
 - a second local traffic processor coupled to the second sensor for identifying vehicles within the field of the second sensor by periodically sampling the second sensor and extracting vehicle locations and identification information; and
 - a wide area traffic flow processor coupled to each local traffic processor for receiving the vehicle location and identification information from each local traffic processor and tracking the identified vehicles;
- wherein the wide area traffic flow processor utilizes a predictor algorithm to predict each identified vehicle's location, and utilizes the vehicle location and identification information to correct the predictor model thereby functioning to monitor traffic consisting of all the identified vehicles.

5,801,944
SYSTEM AND METHOD FOR PRINTING POSTAGE
INDICIA DIRECTLY ON DOCUMENTS

Salim G. Kara, Houston, Tex., assignor to E-Stamp Corporation, Houston, Tex.

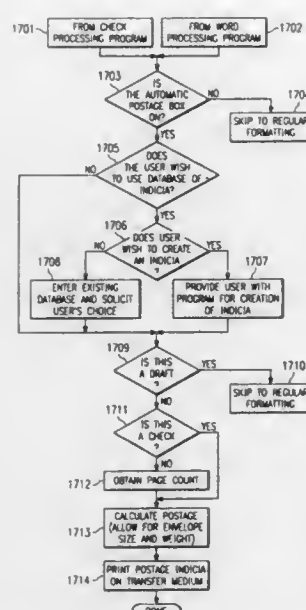
Continuation-in-part of Ser. No. 540,658, Oct. 11, 1995. This
application Nov. 21, 1995, Ser. No. 561,417

Int. Cl.⁶ G06F 17/00; G07B 17/02

U.S. Cl. 364-464.2

29 Claims

21. An automated system for generating a document, said system comprising:
 - means for interfacing with a user to generate selected documents;
 - means for determining the correct postage for mailing each said selected document;
 - means for generating a personalized postage indicia for each said selected document, wherein said generating means includes means for selecting one of a plurality of graphical configurations of a postage indicia;
 - means for printing said selected document; and



means for generating and printing said personalized postage indicia including said correct postage together with said printing of said selected document.

5,801,945
SCHEDULING METHOD FOR ROBOTIC
MANUFACTURING PROCESSES

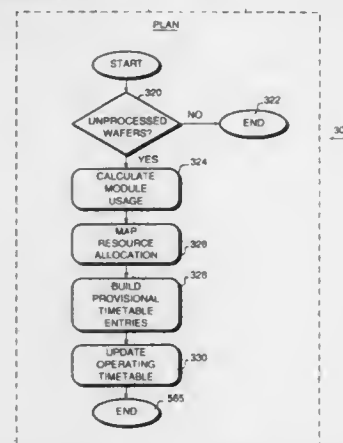
Michael R. Comer, Sunnyvale, Calif., assignor to Lam
Research Corporation, Fremont, Calif.

Filed Jun. 28, 1996, Ser. No. 673,419

Int. Cl.⁶ G06F 19/00; G06G 7/64; 7/66

U.S. Cl. 364-468.06

12 Claims



1. A method for planning and controlling a processing of a group of objects by a cluster tool, the cluster tool having resources that respectively include each of a plurality of process modules, each of the process modules performing a desired process on selected objects of the group of objects while each of the selected objects are located in each of the process modules, the resources further including a manipulator that, on a plurality of respective carrying paddles, carries and moves the objects into and out of the process modules in a series of discrete movements, the carrying paddles and the process modules each defining a single respective object location, each object location being constructed and arranged to have located thereat only one object of the group of objects at any time, operations being performed by the resources on the objects, wherein the operations each occur to a single one of the objects using predetermined resources of the resources and occurring at corresponding predetermined of the object locations, the operations each having an operation time period defined by a predetermined

operation start time and an operation time duration, each object having a sequence of operations performed thereupon including (a) an initial operation of moving the related object to one of the paddles from an initial location, (b) a final operation of moving the related object to a final location from one of the paddles and (c) intervening operations between the initial operation and the final operation, wherein there are a plurality of sets of the operations each respectively performed upon each related object and, by each of the sets of the operations, each related object is moved from one of the paddles on which it is located to a desired process module, the related object is processed by the desired process module and the related object is moved from the desired process module to one of the paddles, the object locations being occupied by respective objects for a respective occupancy time period, each occupancy time period starting at a start of an operation that moves an object to the object location and ending at an end of an earliest subsequent operation that moves the object from the object location, the method comprising the steps of:

1. planning discrete movements and processing each object of the group of objects, in turn, in desired process modules, the step of planning, for each of the object, including:
 - A. assigning operation start times for operations in a sequence of operations related to the object, including:
 - i. setting each operation start time for the related object so that the operation start time follows an immediately preceding operation time period for the related object;
 - ii. setting each operation start time for the related object so that, for each resource to be used for the respective operation, the operation time period is free of overlap with all previously set operation time periods for operations using the same resource for other objects;
 - iii. setting each operation start time for the related object so that, for each specific operation location for a respective operation, the operation time period is free of overlap with any previously set occupancy time period for the specific operation location for operations performed upon other objects, and
 - iv. setting each operation start time to start as early as possible based upon each of steps 1A(i) and 1A(ii) and 1A(iii);
 - B. i. interrupting each of steps 1A(i), 1A(ii), 1A(iii) and 1A(iv) when an operation start time (T), for a respective operation-to-be-set (OP2), for the related object that includes a sequence of operations having at least a first operation (OP1) through a last operation (OP2), wherein OP1 is a movement of a selected object (O) to a selected object location (L) and OP2 is a subsequent removal of O from L, is set so that an operation time period for a prior operation at L for another object overlaps any time from an end of OP1 to a start of OP2, and thereafter,
 - ii. restarting step 1A from OP1 with the operation start time of OP1 not less than T;
- C. after all desired operation start times are set in steps A and B, revising the operation start times for all previously set operations in reverse order from a next-to-last operation to a first operation by adding the lesser of:
 - i. a time duration from the end of the operation time period of an operation start time being revised to an operation start time of a earliest subsequent operation time period for the related object and
 - ii. a time duration from an end of the operation time period of the operation start time being revised to the operation start time of an earliest subsequent operation time period for a previously planned operation for another object using any of the same resources as used by the operation with the revised operation start time;
- D. repeating steps 1A, 1B, and 1C, each time setting the operation start time of the first operation for the related object to be greater than the operation start time of the first operation set in an immediately preceding set of steps 1A, 1B, and 1C until the operation start time for the last operation for the related object changes relative to the operation start time for the last operation in the immediately preceding set of steps 1A, 1B and 1C, and setting each of the operation start times in the sequence of opera-

tions for the next related object as the corresponding operation start times from the immediately preceding steps 1A, 1B and 1C; and

2. controlling the sequence of operations related to each of the objects in the group of objects including:
 - A. initiating each of the operations in the sequence in an order of the operation start time assigned in step 1 and initiating the operations simultaneously if respective assigned operation start times thereof are the same as each other; and
 - B. if the assigned operation start times of respective operations are different from each other, then initiating the operations with different operation start times, free of dependence upon the respective assigned operation start times, when both of (a) all preceding operations on the same object have ended and (b) all preceding operations using the same resource have ended.

5,801,946
ASSEMBLY PROMPTING SYSTEM

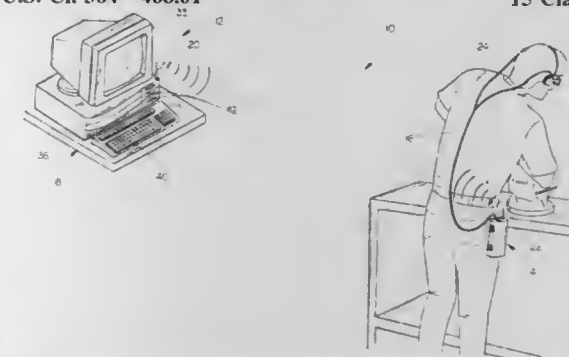
Lanny Nissen, and Takehiko Sacki, both of Lincoln, Nebr.,
assignors to Kawasaki Motors Mfg. Co., Lincoln, Nebr.

Filed Oct. 19, 1995, Ser. No. 545,302

Int. Cl.⁶ G06F 19/00

U.S. Cl. 364-468.01

15 Claims



1. A method for prompting the assembly of a product, comprising the steps of:
 - recording a first list of tasks for an operator to complete in sequential order to assemble a product;
 - a first operator playing each individual recorded task of the first list as a prompt to assemble the product;
 - said recording step including recording said first list of tasks at a central control apparatus having a transceiver;
 - said step of playing the recorded tasks including the additional steps of:
 - the first operator activating a first switch on a remote module spaced from the central control apparatus;
 - said remote module including a transceiver operable to transmit a first signal to the central control apparatus in response to each activation of the first switch;
 - said central control apparatus transmitting an informational signal corresponding to one of the individual tasks to the remote module in sequential order in response to each receipt of the first signal; and
 - said remote module transceiver receiving said informational signals and playing the individual task for the operator; and
 - the operator repeating the playing of any of the individual tasks as necessary during the assembly of the product.

5,801,947

Patent Not Issued For This Number

5,801,948
UNIVERSAL CONTROL SYSTEM WITH ALARM
HISTORY TRACKING FOR MOBILE MATERIAL
DISTRIBUTION APPARATUS

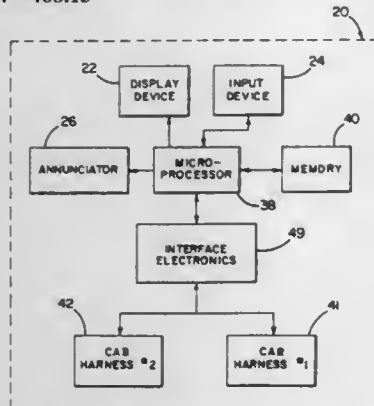
John E. Wood, Franklin, and Joel T. Morton, Springfield, both of Ill., assignors to Dickey-John Corporation, Auburn, Ill.

Filed Aug. 22, 1996, Ser. No. 697,311

Int. Cl.⁶ G06F 11/00

U.S. Cl. 364-468.15

23 Claims



22. Apparatus for controlling a mobile material distribution device comprising:

a microprocessor having at least one input port and at least one output port arranged to form at least one feedback loop for controlling the distribution of material, the microprocessor being adapted to identify errors;

a memory associated with the microprocessor for storing error identification information received from the microprocessor; and

a user interface having a display for displaying a visual error message to the user based upon the stored error identification information, including the time at which an error was identified and a description of the error.

5,801,949
TEXTILE MACHINE WITH A CENTRAL CONTROL
DEVICE AND LOCAL CONTROL DEVICES AT THE
WORK STATIONS

Hans Raasch, Mönchengladbach; Johan Remmerie, Kortrijk, and Gerhard Rienas, Heinsberg, all of Germany, assignors to W. Schlafhorst AG & Co., Mönchengladbach, Germany

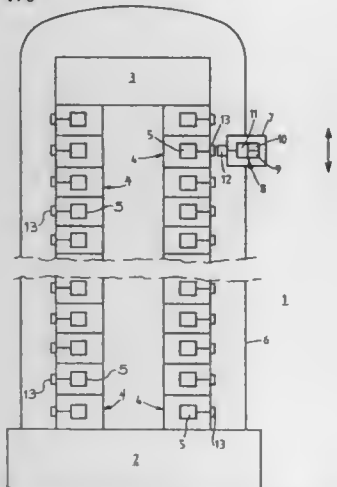
Filed Feb. 7, 1996, Ser. No. 597,827

Claims priority, application Germany, Feb. 15, 1995, 195 05 023.1

Int. Cl.⁶ G06F 19/00; G06G 7/64; 7/66

U.S. Cl. 364-470

7 Claims



1. A textile machine having a plurality of identical machine work stations at which textile machine operations are performed,

the textile machine comprising a traveling service unit arranged to move along the work stations and a system for supplying control data to and deriving operational data from the work stations, the data system comprising a central control device for controlling all work stations associated with the textile machine and having data processing means, a central memory for data storage unit associated with the textile machine, and a data input device, the central control device being disposed on the traveling service unit, a plurality of local control devices each being disposed at a respective one of the plural work stations and each having data processing means and memory means for data storage, and means for individually connecting each of the local control devices with the central control device for data exchange therebetween when the traveling service unit is disposed at a respective work station, the connecting means comprising a first data transmitting and receiving device disposed on the service unit and operatively connected with the central control device and a plurality of second data transmitting and receiving devices each disposed at a respective one of the work stations and operatively connected with the respective local control device thereof, the first and second data transmitting and receiving devices being compatible for transferring control and operational data between the central and local control devices.

5,801,950

Patent Not Issued For This Number

5,801,951
PRECISION 2-PART EPOXY DISPENSING APPARATUS
AND METHOD

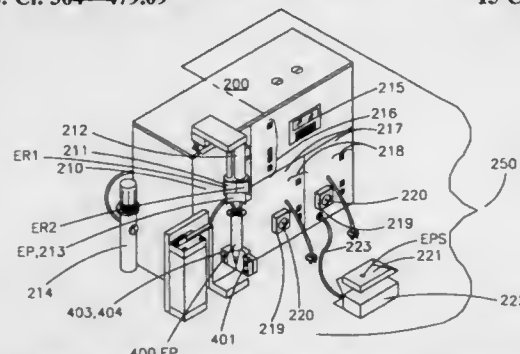
Arthur Edward Burns, II; Peter Michael Davis, both of Santa Cruz, and Dean Albert Tarrant, San Jose, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Mar. 18, 1997, Ser. No. 820,714

Int. Cl.⁶ G06F 19/00

U.S. Cl. 364-479.09

15 Claims



1. A method for dispensing a 2(two)-part epoxy resin compound onto a workpiece, said method comprising the steps of:

(a) providing a liquid dispensing system, said system comprising:

at least one portable liquid compound dispenser arrangement, said dispenser arrangement comprising a mechanical carriage, a container and dispenser member and a semiconductor memory device; a first station means for mixing and loading an amount of said 2-part epoxy resin compound into said container and dispenser member;

a second station means for calibrating a dispense time and a dispense force for said 2-part epoxy resin compound utilizing a sample from said 2-part epoxy resin compound loaded into said container and dispenser member; and

a third station means for verifying dispense suitability of said 2-part epoxy resin compound that was sampled at said second station means and contained in said container and dispenser member, determining a set of dispense parameters that compensate for changing viscosity of said 2-part

- epoxy resin compound, and dispensing an amount of said 2-part epoxy resin compound onto a provided workpiece;
- (h) providing chemical substances for producing a 2-part epoxy resin compound;
- (c) mixing said chemical substances and producing a 2-part epoxy resin compound at said first station means;
- (d) loading an amount of said produced 2-part epoxy resin compound into said container and dispenser member;
- (e) electronically storing in said semiconductor memory device an initial mixing time and a worklife time of said loaded 2-part epoxy resin;
- (f) calibrating, at said second station means, said loaded 2-part epoxy resin by establishing a set of calibrated dispense data from a sample of said loaded 2-part epoxy resin, said data including weight of said sample, number of shots forming said sample, and time taken per shot;
- (g) further electronically storing said set of calibrated dispense data in said semiconductor memory device;
- (h) determining, at said third station means, a set of dispense parameters for dispensing a pre-determined amount of said loaded 2-part epoxy resin onto a workpiece during said work-life time, said set of dispense parameters comprising dispense time and dispense force information compensated for viscosity changes that have occurred in said loaded 2-part epoxy resin since said initial mix time; and
- (i) dispensing said pre-determined amount of said loaded 2-part epoxy resin onto a workpiece.

5,801,952
APPARATUS AND METHOD FOR POWER
DISTURBANCE ANALYSIS AND STORAGE OF UNIQUE
IMPULSES

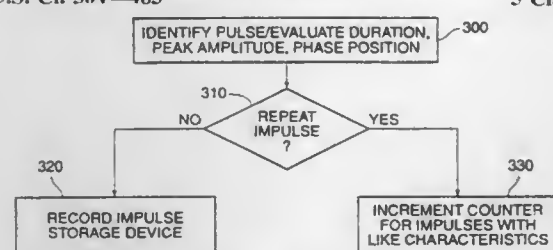
Robert E. Moore, San Jose; Frederic W. Nitz, Boulder Creek, and Michael A. Gipe, Saratoga, all of Calif., assignors to Reliable Power Meters, Inc., Los Gatos, Calif.

Division of Ser. No. 245,779, May 19, 1994, abandoned. This application Aug. 21, 1996, Ser. No. 700,938

Int. Cl.⁶ G01R 27/28

U.S. Cl. 364-483

5 Claims



1. A method for recording impulses superimposed on an alternating current electrical signal, said method comprising steps of: identifying a plurality of impulses superimposed on the alternating-current electrical signal; evaluating for each one of said plurality of impulses, an amplitude, a duration, and a phase position, the phase position being relative to the alternating-current electrical signal; and recording, on a storage device, impulses selected from said plurality of impulses for which the amplitude, duration, and phase position are not substantially similar to the amplitude, duration, and phase position of an impulse on an immediately preceding cycle of the alternating-current electrical signal.

5,801,953
MEASUREMENT APPARATUS AND METHOD FOR THE
ADJUSTMENT OF TEST/MEASUREMENT PARAMETERS
Peter Thoma, Rottenberg; Alf Clement, Aidlingen; Juergen Sang, Gechingen; Peter Hoffmann, Boeblingen, and Robert Jahn, Jettingen, all of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

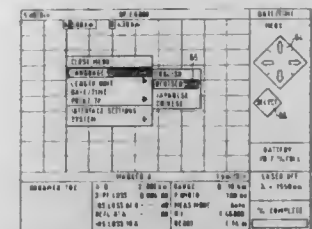
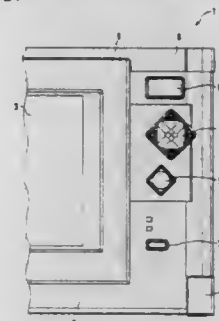
Filed Oct. 4, 1996, Ser. No. 720,935

Claims priority, application European Pat. Off., Jun. 21, 1996, 96110044

Int. Cl.⁶ G01R 13/00

U.S. Cl. 364-487

24 Claims



1. Apparatus for the measurement of optical and/or electrical signals, comprising:

a housing;

a display for depicting a waveform representative of measured signals, said display showing a menu and/or a submenu with one or more entries for at least enabling adjustment of test/measurement parameter settings;

a manually actuated keying device for causing a pop-up said of said menu and/or submenu;

a pointing device for moving a cursor to select an entry in said menu, said pointing device comprising a function key block in a form of a unitary crosswise tiltable switch, including four arrows showing up, down, left, right and for generating electrical signals to move a cursor in directions shown by said arrows or diagonal if actuated between two arrows;

said keying device enabled to activate a submenu being indicated by said entry; and for deactivating said submenu correlated to said entry after adjustment of a parameter, said keying device triggering a data processor to restore initial background contents seen prior to popping-up said menu.

5,801,954
PROCESS FOR DESIGNING AND CHECKING A MASK
LAYOUT

Chin Aik Le, and Christophe Pierrat, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

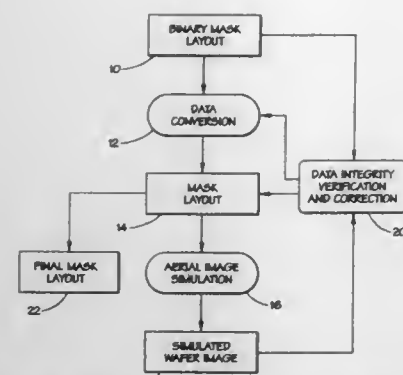
Filed Apr. 24, 1996, Ser. No. 637,307

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-488

6 Claims

1. A process for checking a mask layout comprising: obtaining a binary mask layout design; generating a phase shifting mask layout having multiple layers that are printed using a voting technique to correspond to said binary mask layout design; calculating an aerial image of said mask layout using simulation software; and



comparing said aerial image to said binary mask layout design.

5,801,955

METHOD AND APPARATUS FOR REMOVING TIMING HAZARDS IN A CIRCUIT DESIGN

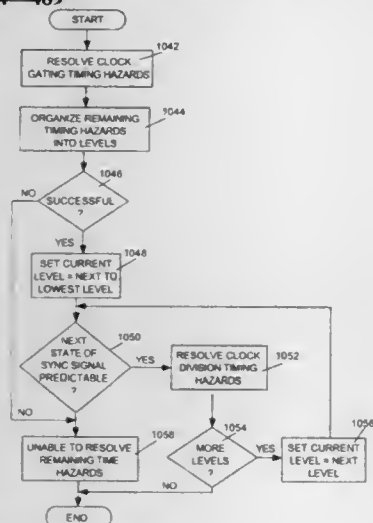
Luc Burgun, Creteil; Olivier LePape, Paris, and Frederic Reblewski, Les Molières, all of France, assignors to Mentor Graphics Corporation, Wilsonville, Oreg.

Filed May 31, 1996, Ser. No. 655,843

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-489

26 Claims



1. An apparatus comprising:

an execution unit for executing programs;

a storage unit coupled to said execution unit, and having stored therein a program for execution by said execution unit during operation, wherein when executing,

the program enables the apparatus to identify certain storage circuit elements in a circuit design, said certain storage circuit elements being controlled by synchronization signals that can cause timing hazards by virtue of these synchronization signals' potential skews with respect to a reference signal of the circuit design not being ensured to be within a design tolerance limit, the synchronization signals being generated by gating combinatorial logic based on at least the reference signal;

the program further enables the apparatus to automatically transform said certain storage circuit elements to be controlled by synchronization signals that do not have potential skews with respect to the reference signal not being ensured to be within the design tolerance limit, without altering functionality of the circuit design, thereby removing the timing hazards that can be caused, the program determining the appropriate transformations for each of said certain storage circuit elements employing a boolean function corresponding to the gating combinatorial logic, and determining at least a first and a second co-factor value of a logical decomposition of the synchronization signal using the corresponding boolean function.

5,801,956

METHOD FOR DECIDING THE FEASIBILITY OF LOGIC CIRCUIT PRIOR TO PERFORMING LOGIC SYNTHESIS

Hajime Kawamura, Tokyo; Takeharu Nemoto, and Takuo Nakaki, both of Kanagawa, all of Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 357,286, Dec. 13, 1994, abandoned.

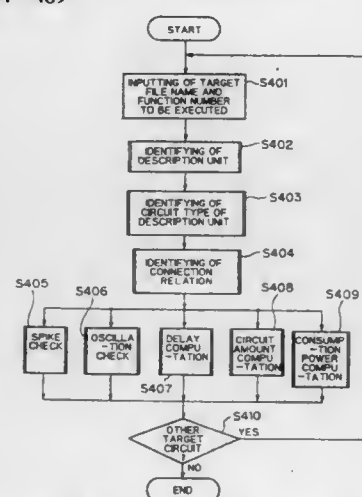
This application Jun. 20, 1996, Ser. No. 667,334

Claims priority, application Japan, Dec. 13, 1993, 5-311815

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-489

12 Claims



1. A method for designing a logic circuit by using hardware description language (HDL), said logic circuit comprising sequential circuits and combinational circuits, said method comprising steps of:

producing an HDL description of said logic circuit;

performing a feasibility decision by using said HDL description, said feasibility decision comprising:

a first decision for determining whether at least one of a clock signal and a reset signal of any of said sequential circuits is output from any of said combinational circuits; and

a second decision for determining whether an output signal of any of said combinational circuits is recursively input thereto without passing through one of said sequential circuits; and

performing logic synthesis for said HDL description which passes said feasibility decision;

wherein said feasibility decision further comprises the steps of: identifying description units in said HDL description, each of said description units comprising a startup condition description starting with changes of a variable representative of a signal and a procedure description comprising a condition decision statement and an assignment statement; identifying each of said description units as one of a sequential circuit description unit and a combinational circuit description unit; and

identifying connection relationships of said description units based on input signals and output signals of said description units.

5,801,957

IMPLICIT TREE-MAPPING TECHNIQUE

Eric Lehman, Marlborough; Joel Joseph Grodstein, Arlington; Heather Harkness, and Kolar Kodandapani, both of Shrewsbury, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Nov. 1, 1995, Ser. No. 551,504

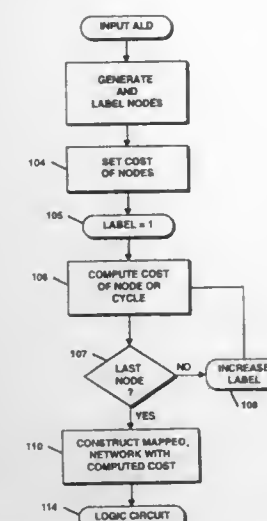
Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-489

9 Claims

1. A method comprising the steps of:

deriving a logic circuit for a given function, said logic circuit capable of being implemented in a standard library, said step of deriving further comprising the steps of:



translating said function into a network comprising a plurality of sub-trees, each of said sub-trees representing a portion of said function, each of said sub-trees including a plurality of logically equivalent representations for said portion of said function;

mapping said network into a logic circuit comprising gates from said standard library, said step of mapping including the step of selecting, at each of said sub-trees, responsive to a desired optimization criteria, one of said plurality of logically equivalent representations for said corresponding portion of said function;

wherein each one of said plurality of logically equivalent representations is stored in a corresponding alternative logic data structure, and

wherein said alternative logic data structure further comprises a plurality of u-gates.

5,801,958

METHOD AND SYSTEM FOR CREATING AND VALIDATING LOW LEVEL DESCRIPTION OF ELECTRONIC DESIGN FROM HIGHER LEVEL, BEHAVIOR-ORIENTED DESCRIPTION, INCLUDING INTERACTIVE SYSTEM FOR HIERARCHICAL DISPLAY OF CONTROL AND DATAFLOW INFORMATION

Carlos Dangelo, Los Gatos; Daniel Watkins, Los Altos, and Doron Mintz, Sunnyvale, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 196,337, Feb. 10, 1994, Pat. No. 5,555,201, which is a continuation-in-part of Ser. No. 77,304, Jun. 14, 1993, abandoned, which is a continuation-in-part of Ser. No. 76,729, Jun. 14, 1993, Pat. No. 5,544,066, which is a continuation-in-part of Ser. No. 76,738, Jun. 14, 1993, Pat. No. 5,557,531, which is a continuation-in-part of Ser. No. 76,728, Jun. 14, 1993, Pat. No. 5,541,849, which is a continuation-in-part of Ser. No. 77,403, Jun. 14, 1993, Pat. No. 5,553,002. This application Sep. 10, 1996, Ser. No. 707,918

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-489

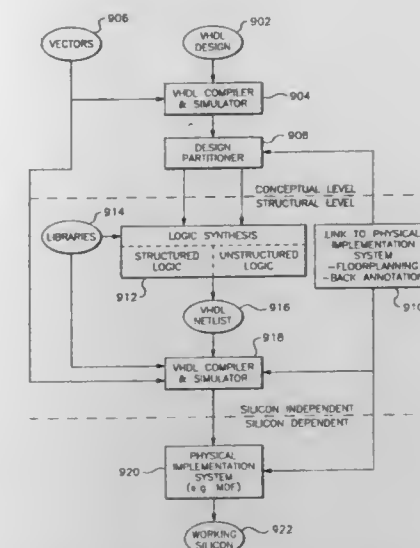
40 Claims

1. An interactive system for hierarchical display of control and dataflow information, on a system including a computer processor, information storage means, and graphical display means, comprising:

a design description entry device for a user to enter a high-level design description on said system, wherein said design description is stored on said information storage means;

an analyzer for analysis of the high-level design description, identification of modules according to a first predetermined criteria, and organization of said modules according to a second predetermined criteria;

a synthesizer for synthesizing one or more detailed electronic designs from the high-level design description;



a graphical control indicator for graphically representing control and data flow between graphical objects representing modules on said graphical display means, said graphical control and data flow indications representing control and data flow between the modules represented by the graphical objects; a selector for selecting a level of hierarchical abstraction for any displayed graphical object; and an indicator for indicating that a displayed graphical object represents a module having progeny modules associated therewith at a lower level of abstraction.

5,801,959

INTEGRATED CIRCUIT LAYOUT

Cheng-Liang Ding, San Jose, and Jiabi J. Zhu, Fremont, both of Calif., assignors to Silicon Valley Research, Inc., San Jose, Calif.

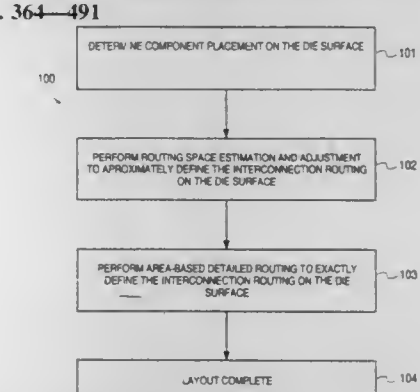
Continuation of Ser. No. 385,157, Feb. 7, 1995, abandoned.

This application Sep. 12, 1996, Ser. No. 713,597

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-491

28 Claims



1. A method for determining an integrated circuit layout on a surface of a semiconductor die, the integrated circuit including a plurality of components, at least two of the components including at least one pin, the type and structure of the components and the interconnections between pins of various components being pre-defined, the method comprising the steps of:

determining a first component placement on the die surface, wherein:

each component is represented as a block or one of a plurality of cells in a row of cells;

a distance between adjacent cells within a row defines a cell spacing; and
a region between defined locations of adjacent blocks and/or cell rows defines a channel having a channel height; and
routing each interconnection, the step of routing further comprising the steps of:

performing routing space estimation and adjustment to approximately define the routing demand, wherein, after the routing space estimation and adjustment step, the area of the die surface, each channel height and each cell spacing have a particular magnitude that together define a second component placement; and
performing area-based detailed routing to exactly define the path of each interconnection, the magnitude of the die surface area after the detailed routing step remaining unchanged from the magnitude of the die surface area before the detailed routing step.

5,801,960

LAYOUT METHOD OF WIRING PATTERN FOR SEMICONDUCTOR INTEGRATED CIRCUIT

Midori Takano, Tokyo; Fumihito Minami, and Mutsunori Igarashi, both of Kanagawa, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 452,087, May 26, 1995, abandoned.

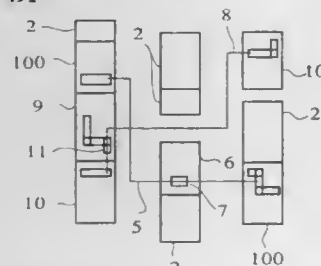
This application Nov. 3, 1997, Ser. No. 963,311

Claims priority, application Japan, May 27, 1994, 6-114951

Int. Cl.⁶ G06F 17/50

U.S. Cl. 364-491

18 Claims



1. A layout method of a circuit pattern for a semiconductor integrated circuit (IC), comprising the steps of:

- a first step of laying out cells by tentatively placing a plurality of movable cells and permanently fixing a plurality of immovable cells, in predetermined positions, each movable and immovable cell having an internal wiring pattern for forming a circuit element, respectively;
- a second step of preparing wiring obstruction data for searching a wiring path for a specific signal with respect to the cell layout results of said first step, comprising including in the obstruction data the internal wiring patterns of said immovable cells and including only a portion or none of the internal wiring patterns of said movable cells;
- a third step of searching and fixing the wiring path for the specific signal with reference to the prepared wiring obstruction data so as to avoid design rule violations in said immovable cells while enabling the wiring path to pass through said immovable and movable cells;
- a fourth step of removing any short circuit between said wiring path and said internal wiring pattern in one or more of said movable cells or removing design rule violations by repositioning corresponding ones of said movable cells; and
- a fifth step of deciding wiring paths of remaining signals.

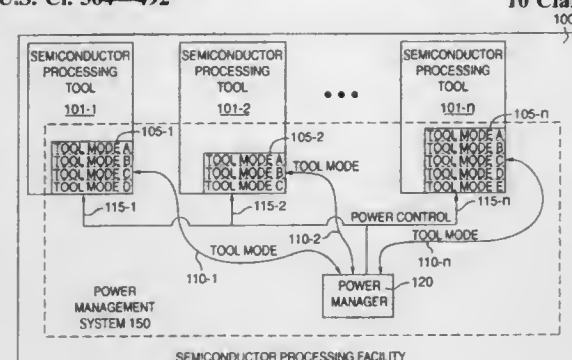
5,801,961
POWER MANAGEMENT SYSTEM FOR A SEMICONDUCTOR PROCESSING FACILITY
Gary M. Moore, Monte Sereno; Michael Peterson, Hayward, and Steven C. Beese, Tracy, all of Calif., assignors to Moore Epitaxial, Inc., San Jose, Calif.

Filed Dec. 3, 1996, Ser. No. 757,697

Int. Cl.⁶ H02J 1/00; 3/00; 3/46; G01R 19/30

U.S. Cl. 364-492

10 Claims



1. A method of operating a semiconductor processing facility comprising:

monitoring power consumption of a plurality of semiconductor processing tools in said semiconductor processing facility wherein each semiconductor processing tool has a plurality of tool modes, and each tool mode defines a different state of power consumption; and

limiting power consumption of said semiconductor processing facility by enabling a tool mode in said plurality of tool modes of one semiconductor processing tool in said plurality of semiconductor processing tools only when power consumption of said one semiconductor processing tool in said tool mode in combination with power consumption of other semiconductor processing tools in said plurality of semiconductor processing tools is less than a predefined maximum power consumption.

5,801,962

METHOD AND APPARATUS FOR CALIBRATING IMAGE SYSTEM

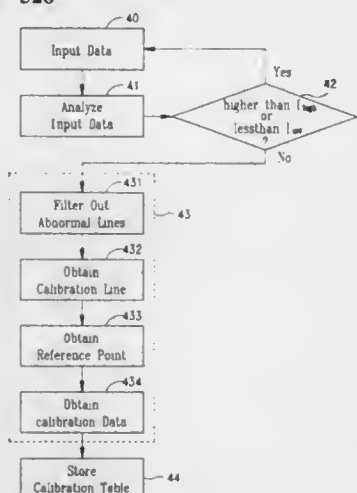
Rich Sheu; Ming-Song Wang, and Jung-Fu Wu, all of Hsinchu, Taiwan, assignors to Must System Inc., Hsinchu, Taiwan

Filed Apr. 5, 1996, Ser. No. 626,141

Int. Cl.⁶ H04N 1/00

U.S. Cl. 364-526

4 Claims



1. A method for generating calibration data in an image system, comprising:

inputting data by scanning a plurality of lines into a computer;

analyzing said input data for generating intensity of the scanned lines;
repeating the inputting step when the intensity is less than a low threshold value or the intensity is higher than a high threshold value;
filtering out any scanned line that includes at least a special point;
averaging the corresponding points of the scanned lines not filtered out to generate a calibration line;
averaging a predetermined number of points of the calibration line to generate a reference point, said predetermined number of points of the calibration line are brighter than other points of the calibrated line; and
obtaining the calibration data by taking ratio of the reference point to each of the points of the calibration line.

5,801,963

METHOD OF PREDICTING OPTIMUM MACHINING CONDITIONS

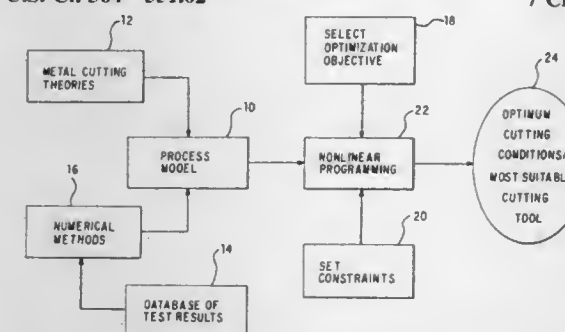
John P. Sadler; Ibrahim S. Jawahir; Zhongjie Da, and Seog S. Lee, all of Lexington, Ky., assignors to The University of Kentucky Research Foundation, Lexington, Ky.

Filed Nov. 8, 1996, Ser. No. 744,907

Int. Cl.⁶ G06F 19/00; G06G 7/66

U.S. Cl. 364-551.02

7 Claims



1. A computer implemented method for predicting optimum machining performance criteria in finish turning operations, said computer implemented method comprising the steps of:

- developing a process model, said model relating performance variables for said operation with process parameters for said anticipated operation;
- selecting one of the performance variables for optimization, the other performance variables and the process parameters acting as constraints on the optimization;
- applying non-linear programming techniques to said process model, whereby optimum cutting conditions may be determined for a given tool insert or an optimum tool insert may be selected for given machining performance requirements.

5,801,964

ELECTRONIC MONITORING APPARATUS FOR CYCLIC MACHINES

Harold McCarthy, 6 Prospect St., New Milford, Conn. 06776

Filed Jan. 8, 1997, Ser. No. 780,512

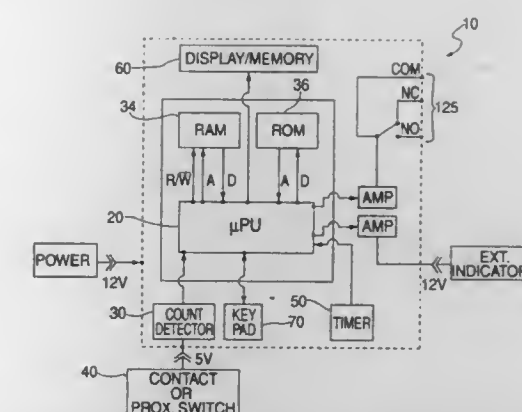
Int. Cl.⁶ G01B 17/00

U.S. Cl. 364-551.02

6 Claims

1. An electronic apparatus for monitoring the operation of a cyclic machine, said apparatus comprising:

- a sensor switch for providing a machine-related signal indicative of each successive cycle of a cyclic machine;
- a first counter memory, a second counter memory and a third counter memory, each coupled to said microprocessor for receiving and storing machine-related signals from said microprocessor;



a random access memory device having first second and third memory address locations corresponding to the said first, second and third counter memories;

a microprocessor having access to each of said first, second and third counter memories for storing signals therein and receiving signals therefrom representative of the count in each counter memory;

a timer connected to said microprocessor for providing elapsed time signals thereto;

a manually operable keypad coupled to said microprocessor for sending to said microprocessor signals selected by a human operator;

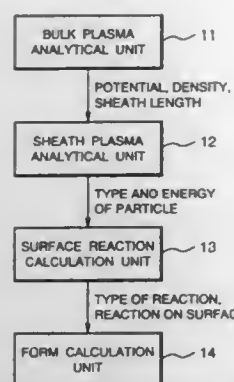
a display device coupled to said microprocessor for displaying indicia corresponding to signals provided by said microprocessor;

said microprocessor being programmed to perform the following functions:

- receive signals corresponding to numerical values entered onto said keypad by an operator, store certain signals and numerical values selectively in said first second and third counter memories and produce indicia signals corresponding to those certain signals and numerical values for display by said display device; in response to a separate "enter" signal transmitted from said keypad;
- receive machine generated signals from said sensor switch, through said microprocessor, representing sequential operations of a monitored machine and store a count number representing the total number of cycles of said machine in said first counter memory, and increase said count number by one for each successive received signal;
- determine the elapsed time between the last two successive machine-generated signals from said sensor switch, store a signal representing said time and produce a corresponding "time per piece" indicia signal, for display by said display device;
- determine the count number accumulated in said first counter, multiply said count number by the value of the said "time per piece" signal, and produce a corresponding "pieces to go" indicia signal for display by said display device;
- produce an indicia signal corresponding to the value of the count recorded in said first counter for display by said display device as a "total count";
- store a signal in said second counter representing the number of machine generated signals counted from said sensor switch since the time said second counter was last reset to zero;
- produce an indicia signal corresponding to the value of the count recorded in said second counter for display by said display device as an "up count".

UMI

U.S. Cl. 364—578 **13 Claims**
1. A form simulation device analyzing form of material which is etched by plasma etching, comprising:



a bulk plasma analytical means making an analysis of a bulk plasma region and calculating potential, density of particle and change of sheath length with time within plasma when RF bias is given there;

a sheath plasma analytical means deciding the type of incident particle which is incident on the material to be etched from the plasma by the use of random numbers on the basis of the particle density obtained by the analysis of said bulk plasma analytical means;

a surface reaction calculation means deciding absorbed material on the surface of the material to be etched, which the incident particle absorbs, on the basis of the state on the surface of the material to be etched, by the use of the Monte Carlo method, and deciding the type of reaction between the absorbed material and the incident particle decided by said sheath plasma analytical means, on the basis of reaction constant for every type of reaction, by the use of the Monte Carlo method; and a form calculation means calculating the form of the material to be etched depending on the type of reaction decided by said surface reaction calculation means.

5,801,972

INDIVIDUAL TEST PROGRAM PRODUCING SYSTEM

Yoshihiro Konno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

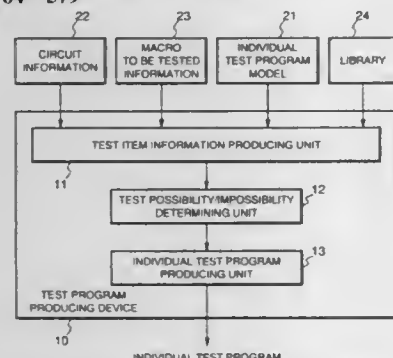
Filed Aug. 4, 1997, Ser. No. 905,997

Claims priority, application Japan, Aug. 2, 1996, 8-220398

Int. Cl.⁶ G06F 11/28

U.S. Cl. 364-579

15 Claims



1. In a test of an LSI, a test program producing device for producing a test program for use in an individual test of an LSI to be examined, comprising:

test item information producing means for reading at least circuit information including information regarding concrete circuit specifications of an LSI to be examined, macro to be tested information which describes test items for each macro, and a necessary library, to produce necessary information regarding test items for said LSI to be examined;

test possibility/impossibility determining means for calculating a total capacity of an object of a test pattern in a test program to be produced and comparing the total capacity of the object with a memory capacity of a testing device which executes a test for said LSI to be examined to determine whether the test is possible or not based on the comparison results; and individual test program producing means for, when determination is made by said test possibility/impossibility determining means that a test is possible, embedding information regarding test items produced by said test item information producing means in a model of a test program prepared in advance to produce a test program for an individual test of said LSI to be examined.

5,801,973

VIDEO DECOMPRESSION

Adrian P. Wise, Frenchay; Kevin D. DeWar, Bristol, and William P. Robbins, Gloucestershire, all of United Kingdom, assignors to Discovision Associates, Irvine, Calif.

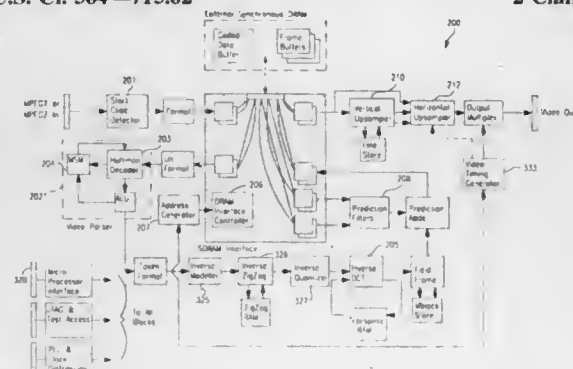
Division of Ser. No. 473,813, Jun. 7, 1995. This application

Jun. 7, 1995, Ser. No. 481,561

Int. Cl.⁶ G06F 17/00

U.S. Cl. 364-715.02

2 Claims



1. A method for operating a state machine, comprising the steps of:

providing an arithmetic core having a data stream flowing there-through;

providing a memory linked to said arithmetic core and installing a plurality of microcode instructions in said memory;

controlling the operation of the arithmetic core according to the microcode instructions to modify the data stream;

addressing the memory to select said microcode instructions for execution thereof by providing an address word having a predetermined fixed number of bits;

defining the fixed width word with an address field and a substitution field;

defining the address field with a plurality of bits defining the address of the data;

defining a variable width substitution field with at least one substitution bit;

the substitution field having at least one bit to serve as a termination marker between the address field and the substitution field;

using the substitution field to indicate substituted bits from a separate addressing source; and

maintaining the fixed width word while inversely varying the width of the address field and the width of the substitution field.

5,801,974

CALCULATION METHOD AND CIRCUIT FOR OBTAINING A LOGARITHMIC APPROXIMATION VALUE

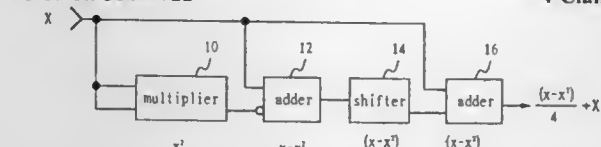
Byung-Chul Park, Puch'eon-city, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Oct. 10, 1996, Ser. No. 731,208

Claims priority, application Rep. of Korea, Oct. 13, 1995, 95 35263

Int. Cl.⁶ G06F 7/52

U.S. Cl. 364-722

4 Claims



1. The calculation method for obtaining a logarithmic approximation value, which utilizes a circuit to implement the method, comprising the steps of:

obtaining a square value of an input data value, utilizing a means for obtaining a square value, which is greater than or equal to 0 and less than 1;

subtracting, utilizing a subtracting means for subtracting the square value of the input data value from the input data value and obtaining a first output result from said subtracting means;

dividing said first output result by 4, utilizing a dividing means and obtaining a second output result from said dividing means; and

adding, utilizing an adding means for adding the input data value to the second output result and obtaining a third output result.

5,801,975

COMPUTER MODIFIED TO PERFORM INVERSE DISCRETE COSINE TRANSFORM OPERATIONS ON A ONE-DIMENSIONAL MATRIX OF NUMBERS WITHIN A MINIMAL NUMBER OF INSTRUCTION CYCLES

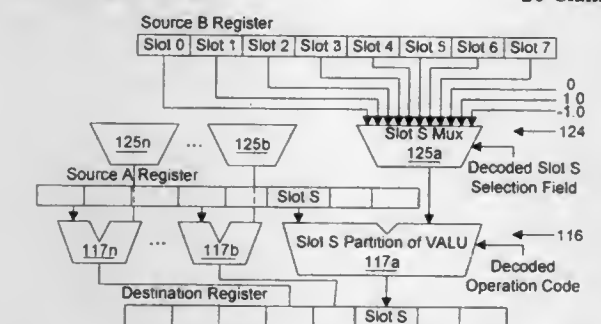
John S. Thayer, Houston, Tex.; John G. Favor, Scotts Valley, and Frederick D. Weber, San Jose, both of Calif., assignors to Compaq Computer Corporation and Advanced Micro Devices, Inc.

Filed Dec. 2, 1996, Ser. No. 759,045

Int. Cl.⁶ G06F 17/14

U.S. Cl. 364-725.03

20 Claims



1. A method for concerting a matrix of input values to a matrix of output values within a computer incoming, comprising:

loading an incoming signal represented as a matrix of input values into a first source register and a second source register, each of which are partitioned into a plurality of first source slots and second source slots, respectively;

changing the order in which the input values are arranged within said second source slots; and

performing a plurality of concurrent arithmetic operations on respective pairs of said input values stored within the first and second source slots to convert the matrix of input values to a matrix of output values.

5,801,976

Patent Not Issued For This Number

5,801,977

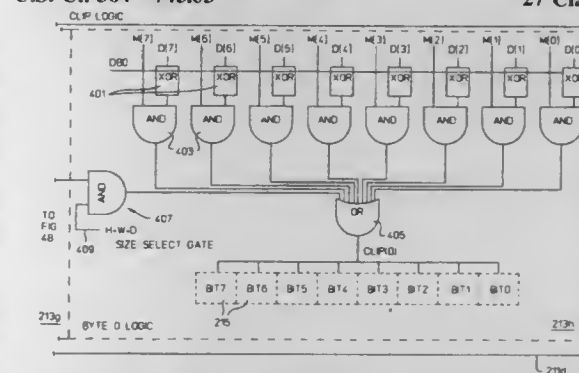
SYSTEM AND METHOD FOR CLIPPING INTEGERS
Alan H. Karp, Palo Alto, Calif.; Dennis Brzezinski, Austin, Tex., and Rajiv Gupta, Los Altos, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 373,739, Jan. 17, 1995, abandoned. This application Apr. 7, 1997, Ser. No. 826,817

Int. Cl.⁶ G06F 7/38

U.S. Cl. 364-745.03

27 Claims



1. A method of operating a digital processor to clip binary input integers to a specified range using one instruction, comprising the steps of:

(a) defining a clip instruction having a mask field;

(b) accepting a mask from said mask field wherein a bit is set in said mask for each out-of-range bit and not set for in-range bits;

(c) determining from the mask bits and data bits whether the input is out-of-range for the output;

(d) using a defined boolean relationship, applying said mask to said input integers so that any input integers outside of said range is clipped to the quantity in the range closest to said integer, thereby producing output integers within a range specified by said mask.

5,801,978

OVERFLOW DETECTION FOR INTEGER-MULTIPLY INSTRUCTION

Yair Baydatch, Ramat Hasharon, Israel, assignor to National Semiconductor Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 310,473, Sep. 22, 1994, abandoned. This application Feb. 26, 1996, Ser. No. 606,650

Int. Cl.⁶ G06F 7/38

U.S. Cl. 364-745.04

8 Claims

1. An arithmetic logic unit, comprising:

a first register having n bits,

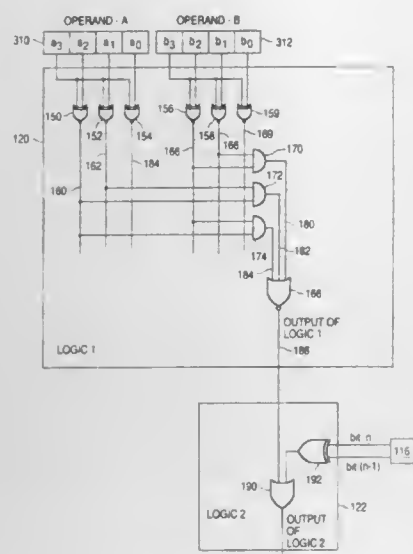
a second register having n bits,

a third register having n+1 bits,

means for loading a first value into the first register, for loading a second value into the second register, for multiplying the first and second values together, and for storing a result of the multiply operation into the third register,

first means for comparing a leading bit of each register to successive bits of the register and for generating a discrete count signal for each comparison so long as the successive bit equals the leading bit,

second means for comparing bit n of the third register with bit n-1 of the third register, and



means for generating an overflow signal if the number of count signals generated by the first comparing means is less than n or if the comparison by the second comparing means is true.

5,801,979

CARRY LOGIC THAT PRODUCES A CARRY VALUE FROM NLSBS FOR A ROM ACCUMULATOR IN AN INVERSE DISCRETE COSINE TRANSFORM PROCESSOR

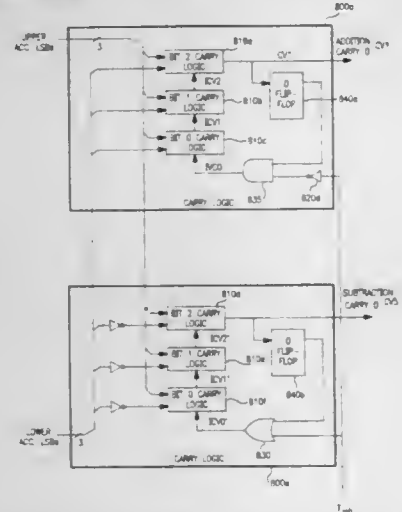
Larry Phillips, Collingswood, N.J., assignor to Matsushita Electric Corporation of America, Secaucus, N.J.

Filed Oct. 20, 1995, Ser. No. 546,469

Int. Cl.⁶ G06F 7/50; 17/14

U.S. Cl. 364-768

15 Claims



1. An apparatus for producing a carry value for an M-bit value which is a sum of at least two values, the at least two values having M more significant bits (MSBs) and N less significant bits (LSBs), where M and N are integers and N is greater than zero, the apparatus comprising:

means for receiving the N LSBs of the at least two values; carry means for producing a carry value from the N LSBs of the at least two values without producing a sum value for the N LSBs, which carry value is the carry value which would be produced if the N LSBs of the at least two accumulated values were added; and

means for adding or subtracting the M MSBs of the at least two accumulated values without adding or subtracting the N LSBs of the at least two accumulated values.

5,801,980 TESTING OF AN ANALOG MEMORY USING AN ON-CHIP DIGITAL INPUT/OUTPUT INTERFACE

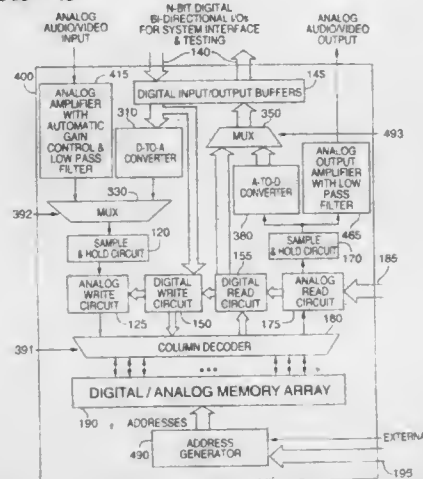
Sau C. Wong, Hillsborough, and Hock C. So, Redwood City, both of Calif., assignors to Invox Technology, Campbell, Calif.

Division of Ser. No. 535,441, Sep. 28, 1995, Pat. No. 5,745,409. This application May 1, 1997, Ser. No. 847,236

Int. Cl.⁶ G11C 27/00

U.S. Cl. 365-45

4 Claims



1. A method for testing an analog memory, comprising: writing a binary value to each memory cell in the memory, wherein binary values are written through a digital write circuit in the analog memory; reading a binary value from each memory cell in the memory, wherein binary values are read through a digital read circuit in the analog memory; and comparing a binary value read from a memory cell to a binary value written to the memory cell to determine whether the memory cell is defective.

5,801,981

SERIAL ACCESS MEMORY WITH REDUCED LOOP-LINE DELAY

Itsuro Iwakiri, Miyazaki, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 627,108, Apr. 3, 1996, abandoned.

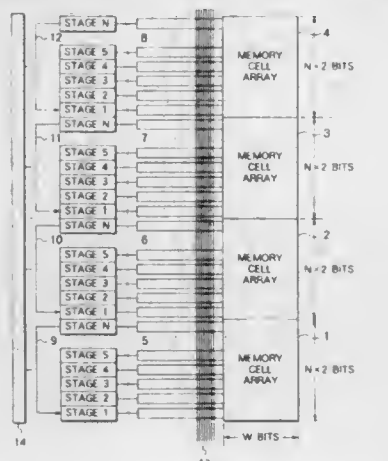
This application Jul. 28, 1997, Ser. No. 901,680

Claims priority, application Japan, May 16, 1995, 7-117065

Int. Cl.⁶ G11C 13/00

U.S. Cl. 365-73

22 Claims



1. A serial access memory having an array of memory cells and providing simultaneous access to B of said memory cells at a time in response to a clock signal, where B is an integer greater than one, comprising:

P shift registers clocked simultaneously by said clock signal, each shift register among said P shift registers having N stages, and each stage among said N stages controlling access to Q of said memory cells at a time, where P, Q, and N are integers, $B=P \times Q$, and P and N are greater than one; and a resetting circuit coupled to said P shift registers, for initializing all of said P shift registers simultaneously to a state such that in each of said P shift registers, access to Q of said memory cells is enabled by one of said N stages and disabled by all other of said N stages.

5,801,982

TEMPERATURE SENSITIVE OSCILLATOR CIRCUIT

Greg A. Blodgett, Nampa, Id., assignor to Micron Technology, Inc., Boise, Id.

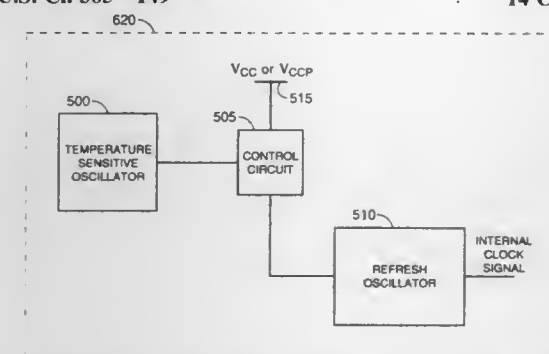
Division of Ser. No. 710,490, Sep. 18, 1996, which is a division of Ser. No. 504,939, Jul. 20, 1995, which is a continuation-in-part of Ser. No. 275,576, Jul. 15, 1994, Pat. No. 5,455,801.

This application Jan. 30, 1997, Ser. No. 790,539

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365-149

14 Claims



5. A method of operating a dynamic random access memory device, comprising the following steps:

- internally providing a periodic signal having a duty cycle variable relative to temperature; and
- sourcing current between a supply node and an oscillator in response to said periodic signal, wherein an amount of current sourced in each period of the periodic signal varies relative to said duty cycle.

5,801,983

SEMICONDUCTOR MEMORY DEVICE HAVING MEMORY CELLS DESIGNED TO OFFSET BIT LINE PARASITIC CAPACITANCE

Takanori Saeki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 29, 1996, Ser. No. 590,516

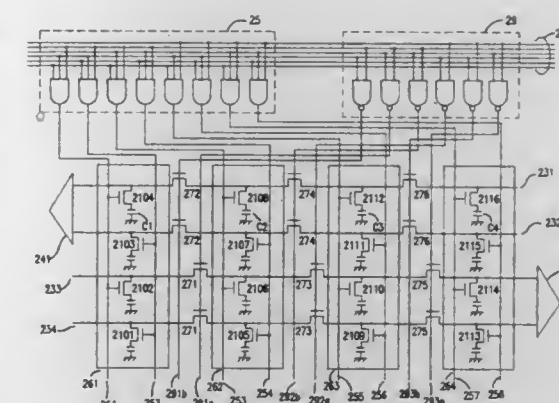
Claims priority, application Japan, Jan. 30, 1995, 7-012257

Int. Cl.⁶ G11C 11/24

U.S. Cl. 365-149

7 Claims

1. A semiconductor device including: a first and second bit lines; a sense amplifier including an input node coupled to said first bit line; a switch circuit connected between said first and second bit lines; a first memory cell connected to said first bit line, said first memory cell including a first transistor connected between said first bit line and a first node and a first storage element connected between said first node and a reference potential line; and a second memory cell connected to said second bit line, said second memory cell including a second transistor connected between said second bit line and a second node and a second



storage element connected between said second node and said reference potential line; and

a control circuit operable in a first state to render said first transistor conductive and to render said switch circuit and said second transistor non-conductive and in a second state to render said second transistor and said switch circuit conductive and to render said first transistor non-conductive;

said first storage element having a storage capacity different from said second storage element such that a first access time for accessing said first memory cell is substantially equal to a second access time for accessing said second memory cell.

5,801,984

MAGNETIC TUNNEL JUNCTION DEVICE WITH FERROMAGNETIC MULTILAYER HAVING FIXED MAGNETIC MOMENT

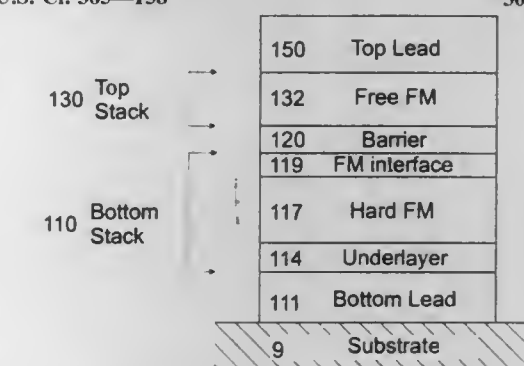
Stuart Stephen Papworth Parkin, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 27, 1996, Ser. No. 757,175

Int. Cl.⁶ G11C 11/00; 11/14; 11/15

U.S. Cl. 365-158

30 Claims



1. A magnetic tunnel junction device for connection to electrical circuitry that detects a change in electrical resistance of the device in the presence of an applied magnetic field, the device comprising:

a multilayer of two ferromagnetic layers, the multilayer comprising a first ferromagnetic layer having a coercivity substantially higher than applied magnetic fields in the range of interest of the device and an interface ferromagnetic layer formed on and in contact with the first ferromagnetic layer, the interface layer having a magnetization substantially higher than the magnetization of the first ferromagnetic layer and being sufficiently thin relative to the thickness of the first ferromagnetic layer so that the multilayer does not have a coercivity substantially less than the coercivity of the first ferromagnetic layer, whereby the multilayer has a magnetic moment that is fixed in a preferred direction in the presence of an applied magnetic field in the range of interest;

a free ferromagnetic layer whose magnetic moment is free to rotate in the presence of an applied magnetic field in the range of interest;

an insulating tunneling layer located between and in contact with the interface ferromagnetic layer in said multilayer and the free ferromagnetic layer for permitting tunneling current in a direction generally perpendicular to the multilayer and free ferromagnetic layers; and

a substrate, wherein the multilayer, tunneling layer and free ferromagnetic layer are formed on the substrate.

5,801,985

MEMORY SYSTEM HAVING PROGRAMMABLE CONTROL PARAMETERS

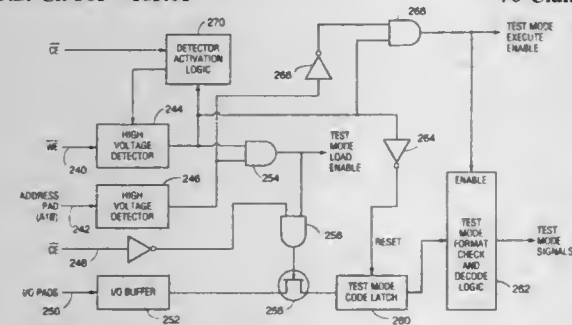
Frankie F. Roohparvar; Darrell D. Rinerson, both of Cupertino; Christophe J. Chevallier, Palo Alto, and Michael S. Briner, San Jose, all of Calif., assignors to Micron Technology, Inc., Boise, Id.

Filed Jul. 28, 1995, Ser. No. 508,828

Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—185.01

70 Claims



1. A memory system comprising:

an array of memory cells arranged in a multiplicity of rows and a multiplicity of columns, with each cell located in one of the rows and one of the columns;

a memory controller, operably coupled to the array, said memory controller configured to control memory operations, with the memory operations comprising memory programming operations wherein the memory cells are programmed and memory reading operation wherein the memory cells are read;

a plurality of non-volatile data storage units, with the data storage units storing control parameter data used by the memory controller to control the memory operations; and switching mode circuitry configured to switch the memory system between a normal operating mode wherein the cells of the array may be programmed and read and an alternative operating mode wherein the control parameter data in the data storage units can be either modified or accessed.

5,801,986

SEMICONDUCTOR MEMORY DEVICE HAVING BOTH REDUNDANCY AND TEST CAPABILITY AND METHOD OF MANUFACTURING THE SAME

Osamu Matsumoto, Kawasaki; Eishiro Take, Yokohama; Tadashi Yabuta, Tokyo, and Kenjiro Kanayama, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 12, 1996, Ser. No. 679,712

Claims priority, application Japan, Jul. 15, 1995, 7-201535

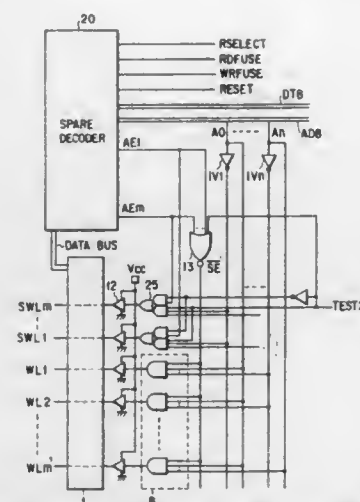
Int. Cl.⁶ G11C 16/04

U.S. Cl. 365—185.09

14 Claims

1. A semiconductor memory device comprising:

a memory section having a plurality of row lines, a plurality of spare row lines, a plurality of memory cells arranged in rows and connected to the row lines, and a plurality of spare cells arranged in rows and connected to the spare row lines;



a nonvolatile memory storing at least one defective address representing a row line including at least one defective memory cell, and storing data for allowing at least one spare row line to replace said at least one row line;

a first register connected to store the data read from said non-volatile memory;

a second register connected to store defective addresses supplied from an external device and representing defective ones of said row lines and storing the data read from said nonvolatile memory; and

a selecting circuit connected to select one of signals output from said first and second registers, in accordance with a selection signal;

wherein, in a first mode, other than a test mode, any row line including at least one defective memory cell is replaced by one of said spare row lines in accordance with the data stored in said first register, and in a second mode, which is a test mode, any row line including at least one defective memory cell is replaced by one of said spare row lines in accordance with the data stored in said second register.

5,801,987

AUTOMATIC TRANSITION CHARGE PUMP FOR NONVOLATILE MEMORIES

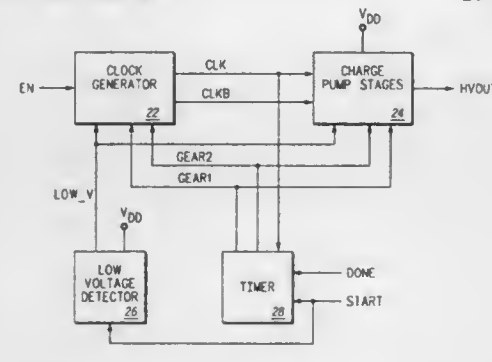
Khoi Van Dinh, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 17, 1997, Ser. No. 818,273

Int. Cl.⁶ G11C 11/34

U.S. Cl. 365—185.18

28 Claims



1. A charge pump system for providing a high voltage output set for use in programming and erasing non-volatile memory comprising:

a low voltage detector generating a low voltage signal;

a clock generator receiving the low voltage signal and a first control signal and generating a first clock signal, wherein: frequency of the first clock signal generated by the clock generator is responsive to the low voltage signal; and

a charge pump receiving the low voltage signal and the first control signal and generating the high voltage output set, wherein:

the charge pump has a plurality of stages, and a number of stages enabled in the charge pump is responsive to the low voltage signal.

5,801,988

CIRCUIT FOR THE GENERATION OF A VOLTAGE AS A FUNCTION OF THE CONDUCTIVITY OF AN ELEMENTARY CELL OF A NON-VOLATILE MEMORY

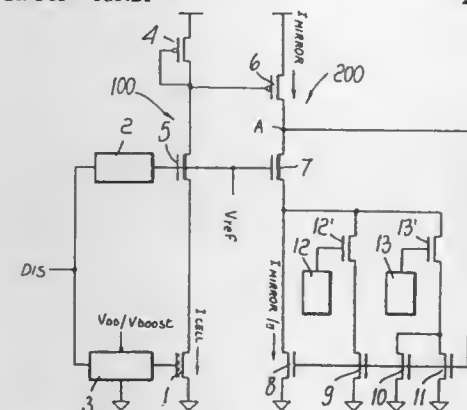
Luigi Pascucci, Sesto San Giovanni, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Israel
Filed Mar. 27, 1997, Ser. No. 835,031

Claims priority, application European Pat. Off., Mar. 29, 1996, 96830168

Int. Cl.⁶ G11C 16/06

U.S. Cl. 365—185.21

25 Claims



1. A circuit for the generation of an output voltage as a function of conductivity of a non-volatile cell of a memory matrix, the cell having a gate terminal, a drain terminal and a source terminal, the circuit comprising:

a structure for biasing the drain terminal of said non-volatile cell;

a branch for sensing the current that flows through said non-volatile cell; and

a branch for mirroring the current sensed by said current sensing branch, said mirroring branch containing at least one transistor having a gate terminal controlled by a first voltage produced by said mirroring branch, the value whereof is a function of the current that flows through said non-volatile cell, sensed by said current sensing branch, said biasing structure producing a second voltage that is substantially constant and is used as a reference voltage for comparison with said first voltage, the first voltage being the output voltage.

5,801,989

METHOD AND APPARATUS FOR OPTIMIZING ERASE AND PROGRAM TIMES FOR A NON-VOLATILE MEMORY DEVICE

Sung-Soo Lee, and Jin-Ki Kim, both of Seoul, Rep. of Korea, assignors to Samsung Electronics, Co., Ltd., Suwon-City, Rep. of Korea

Filed Dec. 9, 1996, Ser. No. 762,495

Claims priority, application Rep. of Korea, Dec. 11, 1995, 48347/1995

Int. Cl.⁶ G11C 16/04; 16/06

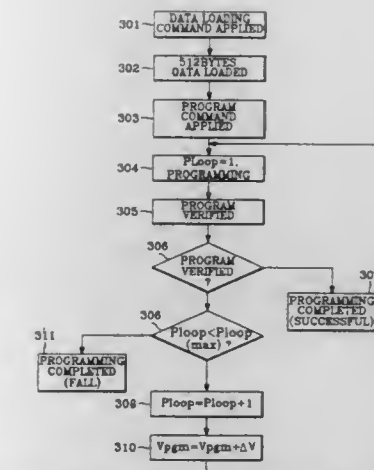
U.S. Cl. 365—185.22

22 Claims

1. A method for programming a nonvolatile semiconductor memory cell comprising:

applying a programming signal having a relatively low voltage to the cell;

checking the state of the cell;



(a) changing the voltage of the programming signal;
(b) applying the changed programming signal to the cell;
(c) rechecking the state of the cell;
repeating steps (a), (b) and (c) responsive to the state of the cell; and
limiting the number of times the voltage is changed including incrementing a counter each time the voltage is changed and repeating steps (a), (b) and (c) until the counter reaches a maximum value.

5,801,990

Patent Not Issued For This Number

5,801,991

DESELECTED WORD LINE THAT FLOATS DURING MLC PROGRAMMING OF A FLASH MEMORY

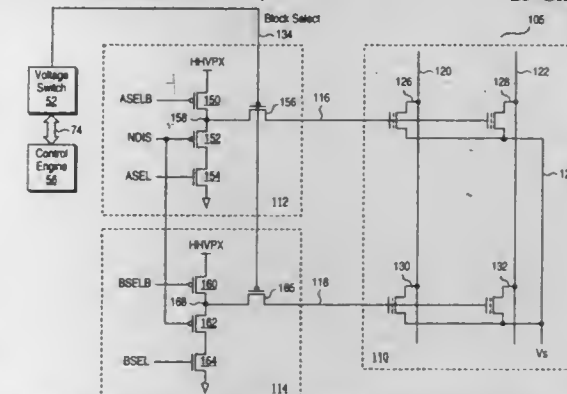
Stephen N. Keeney, San Jose; Albert Fazio, Los Gatos; Ken Wojciechowski, Rancho Cordova, and Mark Bauer, Cameron Park, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Mar. 31, 1997, Ser. No. 829,245

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—185.23

23 Claims



1. In a memory device having a decoder receiving a select signal and coupled to a first word line and a second word line, a first memory cell coupled to the first word line, and a second memory cell coupled to the second word line, a method of programming the first memory cell comprising the steps of:

asserting the select signal to a first voltage such that the decoder selects the first word line and the first memory cell and deselects the second word line and the second memory cell; asserting the select signal to a second voltage such that the decoder couples a programming voltage to the first word line and floats the second word line; and

programming the first memory cell while the second word line is floating.

5,801,992

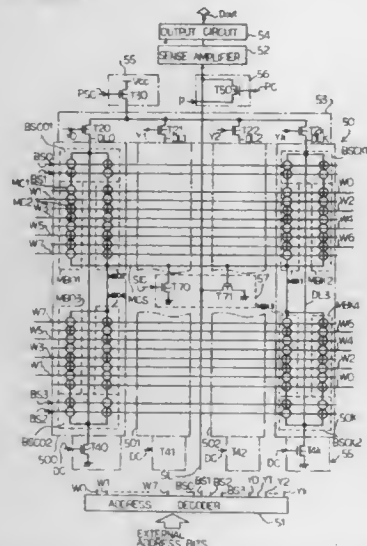
HIGH SPEED LOW-POWER CONSUMPTION SEMICONDUCTOR NON-VOLATILE MEMORY DEVICE
Masanori Hirano, Kanagawa, Japan, assignor to NEC Corporation, Japan

Filed Jul. 28, 1997, Ser. No. 901,811

Claims priority, application Japan, Jul. 30, 1996, 8-200642
Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—185.25

10 Claims



1. A semiconductor non-volatile memory device comprising:
a plurality of memory cells having respective first nodes connectable to a common node, and respectively storing data bits;
a plurality of digit lines selectively connectable to second nodes of said plurality of memory cells;
a plurality of word lines selectively connected to said plurality of memory cells, and selectively changed to an active level so as to select one of said plurality of memory cells;
a current source for supplying current to the second node of said one of said plurality of memory cells;
a sense amplifier for checking a potential level at said common node to determine whether said one of said plurality of memory cells provides a current path to said common node for determining the logic level of one of said data bits stored therein;
a selector connected between said plurality of memory cells, said plurality of digit lines and said current source so as to connect said current source to said one of said plurality of memory cells; and
a potential transferring circuit for transferring said potential level at said common node from said common node to said sense amplifier.

5,801,993

NONVOLATILE MEMORY DEVICE
Woong Lim Choi, Chungcheongbuk-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea
Filed Aug. 7, 1997, Ser. No. 911,373

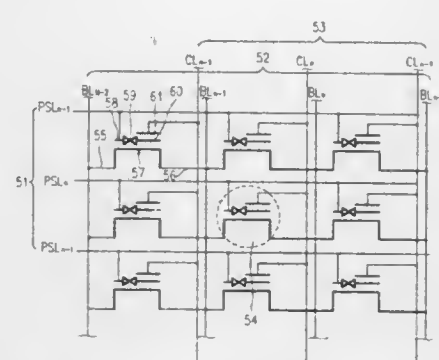
Claims priority, application Rep. of Korea, Oct. 1, 1996, 1996 43434

Int. Cl.⁶ G11C 11/34

U.S. Cl. 365—185.28

25 Claims

1. A non-volatile memory device comprising:
a plurality of program/select lines arranged in a row direction spaced apart from each other at first prescribed intervals;



- a plurality of bit lines arranged in a column direction spaced apart from each other in second prescribed intervals to form a matrix of a plurality of square areas; and
a plurality of control lines disposed in the column direction and adjacent to the bit lines in a one-to-one correspondence;
a plurality of cells, each disposed in one of the square areas and including a source, a drain, a channel region, a select/program gate for selecting a cell for programming and conducting the programming by means of charge carriers, a floating gate for storing the charge carriers by means of tunneling through the channel region in erasure of a tunneling diode and providing the stored charge carriers to the program/select gate through the tunneling diode in programming, and a control gate for controlling an amount of the charge carriers provided from the floating gate to the program/select gate,
wherein the program/select gates in the cells disposed on the same row are connected to one of the program/select lines in common, the control gates in the cells disposed on the same column are connected to one of the control lines in common, and the sources(or drains) in the cells disposed on the same row are connected to one of the bit lines in common, together with one of the drains and sources of the cells disposed on an adjacent row.

5,801,994

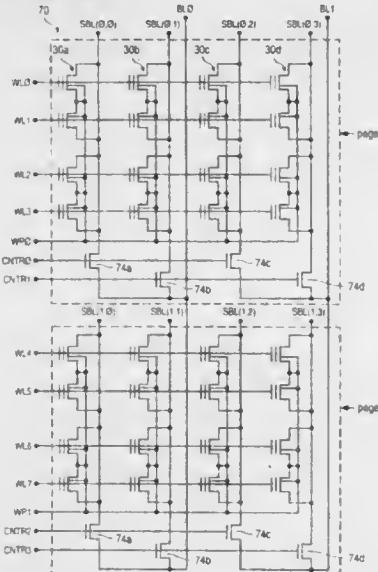
NON-VOLATILE MEMORY ARRAY ARCHITECTURE
Shang-De Ted Chang, Fremont; Chinh D. Nguyen, and Guy S. Yuen, both of San Jose, all of Calif., assignors to Programmable Microelectronics Corporation, San Jose, Calif.

Filed Aug. 15, 1997, Ser. No. 911,968

Int. Cl.⁶ G11C 16/04

U.S. Cl. 365—185.29

24 Claims



1. A memory array comprising a plurality of pages, where each of said pages comprises:
an n- well region;

a plurality of word lines defining rows of said page; and
a plurality of PMOS Flash EEPROM memory cells formed in said n- well region, each of said memory cells comprising a p+ source, a p+ drain, a floating gate, and a control gate, said p+ sources of said memory cells electrically coupled to said n- well region and said control gates of said memory cells in a common row of said page coupled to an associated one of said word lines, wherein upon selection of a page during erasing operations a selected one of said n- well regions, within which are formed the memory cells of said selected page, is held at a first potential, while the other n- well regions, within which are formed the respective memory cells of the un-selected pages, is held at a second potential, said first potential, being different from said second potential, such that said un-selected pages are unaffected by said erasing operations of said selected page.

5,801,995

OPTION SETTING CIRCUIT AND AN INTEGRATED CIRCUIT APPARATUS INCLUDING THE OPTION SETTING CIRCUIT

Hiroaki Masumoto, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 957,838, Oct. 8, 1992, abandoned.

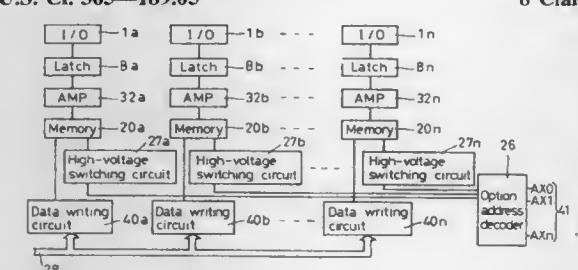
This application May 12, 1994, Ser. No. 241,669

Claims priority, application Japan, Oct. 9, 1991, 3-290966

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—189.05

8 Claims



1. An option setting circuit for selectively setting a condition of an input/output circuit outputting a first signal having a value of 1 and a second signal having a value of 0 in accordance with an input signal, said option setting circuit comprising:

- a transistor provided in said input/output circuit;
- a non-volatile memory storing option data only for said transistor, said option data showing whether said transistor is activated or disabled, said non-volatile memory storing said option data even after power is turned OFF and said non-volatile memory outputting the option data when the power is turned ON; and
a latch means, connected between said non-volatile memory and said transistor, for latching the option data supplied from the non-volatile memory when the power is turned ON and for supplying the latched data to the transistor while the power is ON,

wherein a plurality of said circuits, transistors, non-volatile memories and latch means are provided in groups, and wherein each group of said circuit, transistor, non-volatile memory and latch means is formed separately of one another, and wherein the option data is simultaneously supplied to the latch means of each group from the non-volatile memory of each group.

5,801,996

DATA PATH FOR HIGH SPEED HIGH BANDWIDTH DRAM

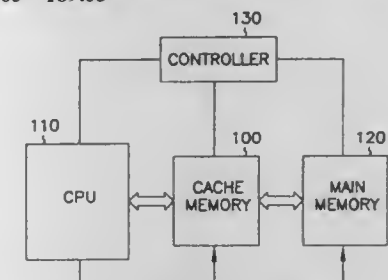
Mirmajid Seyyedy, and Paul S. Zagar, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Feb. 26, 1997, Ser. No. 806,206

Int. Cl.⁶ G11C 13/00

U.S. Cl. 365—189.05

18 Claims



1. A dynamic memory device comprising:
a plurality of dynamic memory cells;
a plurality of bit lines;
a plurality of access devices coupled to the plurality of dynamic memory cells and the plurality of bit lines for selectively coupling one of the plurality of dynamic memory cells to one of the plurality of bit lines;
a plurality of global bit lines coupled to the plurality of bit lines; addressing circuitry to electrically connect the plurality of global bit line pairs to a plurality of latch circuits, the plurality of latch circuits each including a write circuit; and
a multiplex circuit coupled to the plurality of latch circuits and an input/output connection for coupling one of the plurality of latch circuits to the input/output connection.

5,801,997

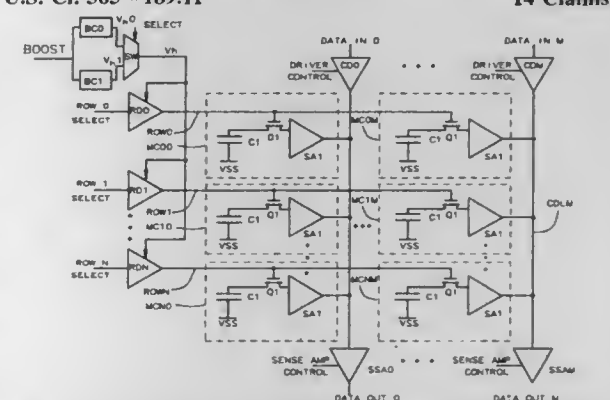
PING-PONG BOOST CIRCUIT

Chung-Wei Hsieh, Luo-dong; Yung-Ching Hsieh, and Tah-Kang Joseph Ting, both of Hsin-Chu, all of Taiwan, assignors to Etron Technology, Inc., Hsin-Chu, Taiwan
Filed Jun. 24, 1997, Ser. No. 881,603

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—189.11

14 Claims



12. A dynamic random access memory system to read and store digital data, comprising:

- a) an array of memory storage cells arranged in rows and columns, wherein each memory storage cell will retain an electrical charge representing said digital data;
- b) a row address decoder to select a row of memory storage cells of the array of storage cells for reading and storing;
- c) a row driver circuit connect to the row address decoder to activate a selected row of memory storage cells;
- d) a column address decoder to select one column of memory storage cells of the array of storage cells for reading and storing;

- e) a column driver circuit coupled to the column address decoder and to a digital data input terminal to connect the digital data to the memory storage cells selected by the column address decoder for storing;
- f) a sense amplifier coupled to the column address decoder to detect the electrical charge stored upon one memory storage cell selected by said column decoder and to amplify and convert said electrical charge to the digital data and to transfer said digital data to external circuitry;
- g) a row signal line to connect each memory storage cell of a row of memory storage cells to the row driver circuit; and
- h) a ping-pong boost circuit connected to said row driver to supply a row driver boost voltage to restore a boost voltage to the row signal line to minimize a row cycle time of said dynamic random access memory system, whereby ping-pong circuit comprises:
- a first boost circuit coupled between a power supply voltage source and a ground reference point to generate a first instance of said boost voltage;
- a second boost circuit coupled between a power supply voltage source and a ground reference point to generate a second instance of said boost voltage;
- a switching circuit connected between the first and second boost circuits and said signal line of said integrated circuit to alternately apply the first and second instances of the boost voltage to said signal line; and
- a boost control circuit connected to said switching circuit to provide a select signal that will control the alternate application of said first and second instances of the boost voltage and connected to said first and second boost circuits to provide a boost signal to control the generating of said first and second instances of the boost voltage.

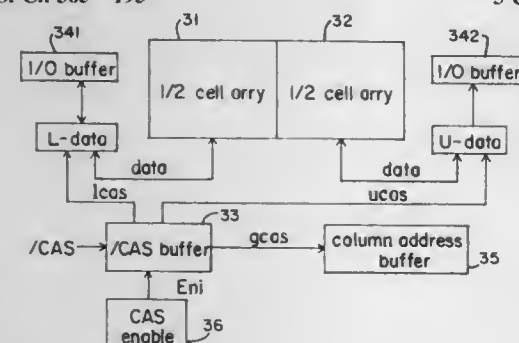
5,801,998

DYNAMIC RANDOM ACCESS MEMORY
Jae Myoung Choi, Kyungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Rep. of Korea
Filed Nov. 5, 1996, Ser. No. 740,951
Claims priority, application Rep. of Korea, Nov. 6, 1995, 1995-39981

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—193

3 Claims



1. A dynamic random access memory comprising:
- a cell array for storing data therein;
- a column address strobe bar buffer for generating at least one internal column address strobe signal in response to one external column address strobe bar signal to select data from said cell array; and
- control means for generating at least one internal column address strobe enable signal to control the number of internal column address strobe signals from said column address strobe bar buffer;
- wherein said column address strobe bar buffer is adapted to receive said external column address strobe bar signal through one external package pin and to combine the received signal with said at least one internal column address strobe enable signal from said control means to generate said at least one internal column address strobe signal;

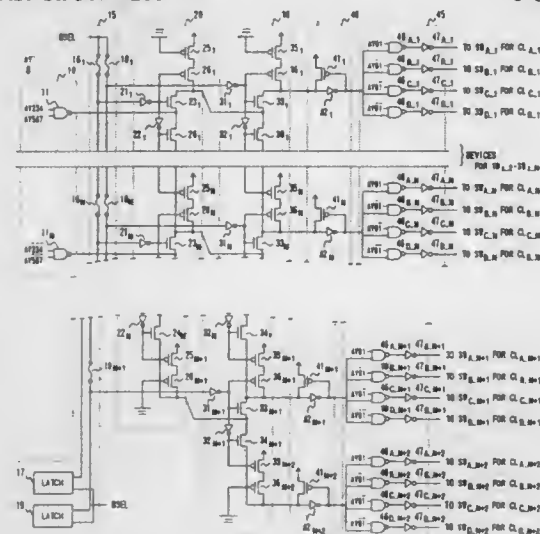
wherein said control means is adapted to generate said at least one internal column address strobe enable signal in response to said external column address strobe bar signal, a row address strobe bar signal, a write enable signal and input/output signal.

5,801,999

SEMICONDUCTOR MEMORY
Kenji Satou, and Yuichi Matsushita, both of Miyazaki, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Dec. 18, 1996, Ser. No. 769,158
Claims priority, application Japan, Feb. 23, 1996, 8-036189
Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—200

8 Claims



1. A semiconductor memory, comprising:
- a address decoder for outputting first through Nth control signals, one of which assumes a first potential level and the rest of which assume a second potential level, on the basis of inputted address signals;
- a primary selection signal outputting circuit, capable of setting a value of P, for outputting first through Pth primary selection signals with the first potential level, and outputting (P+1)th through Nth primary selection signals with the second potential level;
- a secondary selection signal outputting circuit, capable of setting a value of Q, for outputting first through Qth secondary selection signals with the first potential level, and outputting (Q+1)th through (N+1)th secondary selection signals with the second potential level;
- a primary switchover circuit, having first through (N+1)th primary control signal output nodes and first through Nth primary control signal input nodes to which the first through Nth control signals are inputted from said address decoder, for electrically connecting the first through Pth primary control signal input nodes respectively to the first through Pth primary control signal output nodes, and for outputting a signal with the second potential level on the (P+1)th primary control signal output node in accordance with the first through Nth primary selection signals given from said primary selection signal outputting circuit;
- a secondary switchover circuit, having first through (N+2)th secondary control signal output nodes and first through (N+1)th secondary control signal input nodes connected to the first through (N+1)th primary control signal output nodes of said primary switchover circuit, for electrically connecting the first through Qth secondary control signal input nodes respectively to the first through Qth secondary control signal output

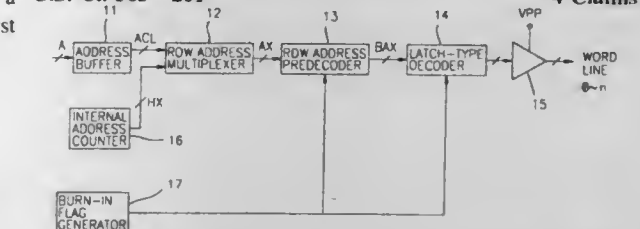
5,802,001

BURN-IN CHECKING APPARATUS FOR SEMICONDUCTOR MEMORY DEVICE
Tae-Hyoung Kim, Kyungki-Do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-Do, Rep. of Korea
Filed Aug. 5, 1997, Ser. No. 905,955
Claims priority, application Rep. of Korea, Aug. 6, 1996, 32702/1996

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—201

4 Claims



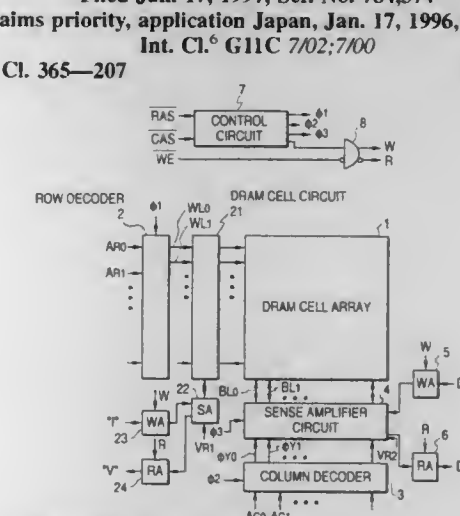
1. A burn-in checking apparatus for a semiconductor memory device, comprising:
- a row address predecoder for selectively decoding internal and external addresses;
- a plurality of word line driving units, each of said word line driving units being connected to a different word line unit to enable the word line unit, wherein each word line unit comprises a plurality of word lines;
- a burn-in flag signal generator for providing a burn-in flag signal; and
- a latch-type decoder for receiving the decoded internal and external addresses and the burn-in flag signal and for sequentially selecting the word line driving units to cause the sequential enabling of the word line units.

5,802,002

CACHE MEMORY DEVICE OF DRAM CONFIGURATION WITHOUT REFRESH FUNCTION
Takashi Ienaga, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Jan. 17, 1997, Ser. No. 784,374
Claims priority, application Japan, Jan. 17, 1996, 8-005898
Int. Cl.⁶ G11C 7/02; 7/00

U.S. Cl. 365—207

14 Claims



1. A cache memory device comprising:
- a plurality of word lines;
- a plurality of bit lines;
- a DRAM cell array having first memory cells at intersections between said word lines and said bit lines;
- sense amplifier means, connected to said bit lines, for sensing data from said DRAM cell array;
- a DRAM cell circuit having second memory cells connected to said word lines;
- writing means, connected to said DRAM cell circuit, for writing a certain data signal into one of said second memory cells connected to a selected one of said word lines;

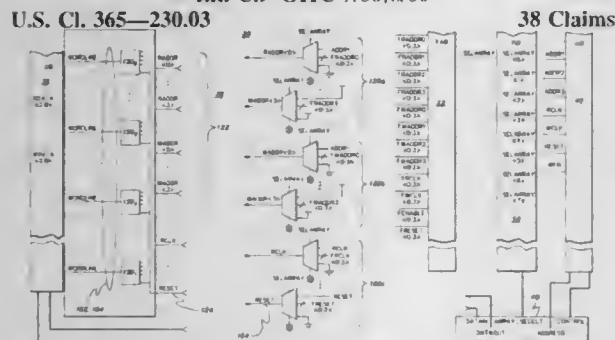
reading means, connected to said DRAM cell circuit, for reading data from one of said second memory cells connected to a selected one of said word lines to generate a validity signal for showing whether or not the data sensed by said sense amplifier means is valid or invalid.

5,802,003
SYSTEM FOR IMPLEMENTING WRITE, INITIALIZATION, AND RESET IN A MEMORY ARRAY USING A SINGLE CELL WRITE PORT

Joseph Andrew Iadanza, Hinesburg; Frank Ray Keyser, III, Colchester; Ralph David Kilmoyr, and Michael Joseph Laramie, both of Essex Jct., all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1995, Ser. No. 575,422
Int. Cl.⁶ G11C 7/00; 8/00

U.S. Cl. 365—230.03



38 Claims

1. A memory array having a plurality of memory cells, the plurality of memory cells comprising first and second portions of memory cells, the memory array comprising:

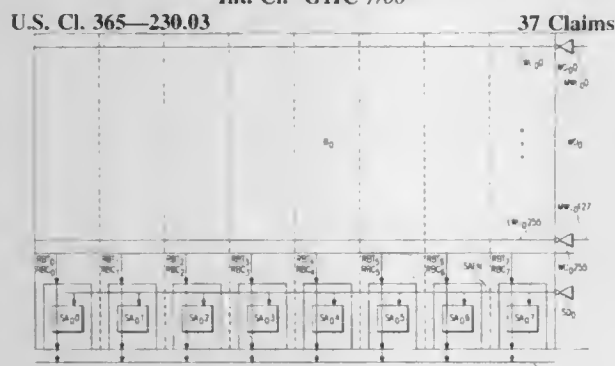
- a first address bus for carrying first address information;
- a second address bus for carrying second address information;
- a first programmable selection circuit disposed between the first address bus, the second address bus, and the first portion of memory cells, the first programmable selection circuit being programmable to propagate address information from either the first address bus or the second address bus to the first portion of memory cells; and
- a second programmable selection circuit disposed between the first address bus, the second address bus, and the second portion of memory cells, the second programmable selection circuit being programmable to propagate address information from either the first address bus or the second address bus to the second portion of memory cells.

5,802,004
CLOCKED SENSE AMPLIFIER WITH WORDLINE TRACKING

David C. McClure, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jan. 19, 1996, Ser. No. 587,728
Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—230.03



37 Claims

1. A memory having a plurality of memory cells arranged in rows and columns, wherein said rows and columns of said primary memory cells are grouped into at least one block, each memory cell having one or more first transistors each having a gate, each block comprising:

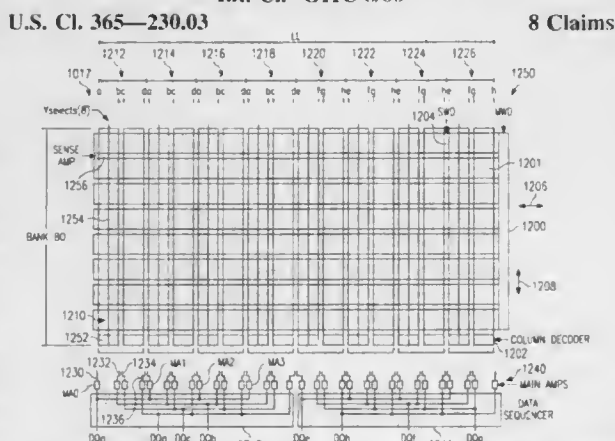
- a plurality of local wordlines, each having a first conductive structure, each coupled to a wordline driver and to a plurality of memory cells, with each one of said local wordlines coupled to a plurality of said gates;
- one or more read circuits, each having a first read input coupled to a read bus true line coupled to a plurality of said memory cells, a second read input coupled to a read bus complement line coupled to a plurality of said memory cells, and a sense amplifier; and
- a sense amplifier enable line having said first conductive structure, said sense amplifier enable line coupled to said sense amplifier.

5,802,005
FOUR BIT PRE-FETCH SDRAM COLUMN SELECT ARCHITECTURE

Masayuki Nakamura, Tokyo, Japan; Jeffrey E. Koelling; Paulette Thurston, both of Plano, Tex., and Hugh P. McAdams, McKinney, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 23, 1996, Ser. No. 717,540
Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—230.03



8 Claims

2. A memory device receiving row address signals and column address signals, comprising:

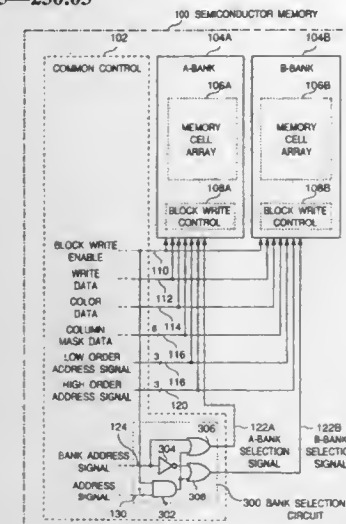
- a. arrays of memory cells formed on a semiconductor substrate, the memory cells occurring at the intersections of word lines and bit lines in each array and the arrays being arranged in groups extending parallel one another, each group including plural arrays, the groups of arrays being arranged in sets with a certain number of groups of arrays being in each set;
- b. Y select generator circuitry for each group of arrays, each Y select generator circuitry having Y select leads that extend across its respective group of arrays and producing one of two possible Y select signals on the Y select leads for each received column address signals;
- c. four main I/O lines extending alongside each group of arrays and extending beyond each group, there being one main I/O line on either side of each group and two lines between the arrays in the middle of each group, the main I/O lines connecting to data lines extending from each array to carry data signals to and from the arrays;
- d. bond pads carried on the semiconductor substrate, there being one bond pad for each bit of a word of data received or sent by the memory device; and
- e. data circuitry connecting the main I/O lines to the data bond pads, the data circuitry connecting respective the main I/O lines in each set of group of arrays to one bond pad.

5,802,006
SEMICONDUCTOR MEMORY OF MULTIPLE-BANK STRUCTURE HAVING BLOCK WRITE FUNCTION
Ken Ohta, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 20, 1997, Ser. No. 803,248
Claims priority, application Japan, Feb. 21, 1996, 8-033882
Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—230.03

5 Claims



1. A semiconductor memory of a multiple-bank structure having a block write function in which a specific data can be written to a specific block included in a memory cell array and designated by an address signal, comprising:

- a plurality of memory banks, each of which includes a memory cell array and an associated block write control means for controlling a block writing to said memory cell array in response to a corresponding one of a plurality of bank selection signals and a block write enable signal generated at the time of the block writing in accordance with a block write command supplied from an external device and designating the block writing, for realizing the block writing to the memory cell array designated by the address signal; and
- a bank selection means controlled at the time of the block writing by a simultaneous write control signal generated in response to the block write command, for simultaneously generating at least a first bank selection signal and a second bank selection signal from among said plurality of bank selection signals, each of which is supplied to the respective block write control means of a corresponding one of said plurality of said banks, so that the block writing is simultaneously executed in at least two of said banks,

wherein said plurality of banks comprise a first memory bank and a second memory bank, and

wherein said bank selection means comprises a decoder means receiving said block write enable, said simultaneous write control signal and a bank address signal, for outputting said first bank selection signal to said block write control means of said first memory bank, and said second bank selection signal to said block write control means of said second memory bank, and

wherein said decoder means outputs said first bank selection signal and said second bank selection signal such that when at least one of said block write enable signal and said simultaneous write control signal is inactive, said decoder means activates only said first bank selection signal if said bank address signal is active, and only said second bank selection signal if said bank address signal is inactive, and when both of said block write enable signal and said control signal are active, said decoder means simultaneously activates both said first bank selection signal and said second bank selection signal, so that the active first bank selection signal and the active second bank selection signal are simultaneously sup-

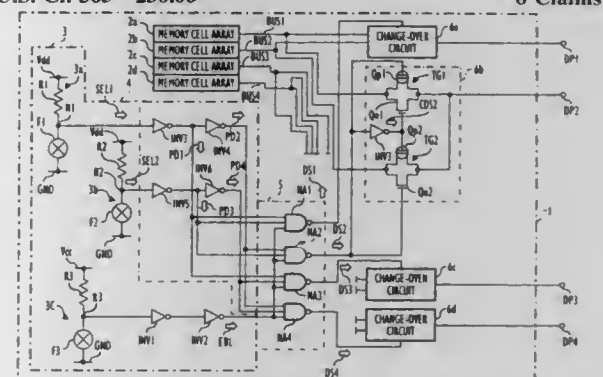
plied to said block write control means of said first memory bank and said block control means of said second memory bank, respectively.

5,802,007
SEMICONDUCTOR DEVICE HAVING REDUNDANCY CONTROLLING CIRCUIT FOR SELECTIVELY CONNECTING SIGNAL PATHS TO PIN
Yasuo Kondo, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 18, 1996, Ser. No. 751,729
Claims priority, application Japan, Nov. 17, 1995, 7-323628
Int. Cl.⁶ H01L 27/04; G01R 31/26

U.S. Cl. 365—230.06

8 Claims



1. A semiconductor device fabricated on a semiconductor substrate, comprising:

- an internal circuit connected to a plurality of signal lines;
- a plurality of signal pins for communicating with an external device through electric signals;
- a plurality of change-over circuits respectively associated with said plurality of signal pins, and responsive to control signals for selectively connecting said plurality of signal lines to the associated signal pins, each of said plurality of change-over circuits being connected between two of said plurality of signal lines and associated one of said plurality of signal pins; and
- a control signal generating means storing pieces of control data information representative of at least one of said plurality of signal lines to be disconnected from said plurality of signal pins for supplying said control signals to said plurality of change-over circuits, thereby causing said plurality of change-over circuits to connect said plurality of signal lines except for said at least one of said plurality of signal lines to said plurality of signal pins.

5,802,008
WORD LINE DRIVER IN SEMICONDUCTOR MEMORY DEVICE USING A MAIN DECODER AND A PLURALITY OF MIDDLE AND SUB-DECODERS

Kee Woo Park, and Sang Ho Shin, both of Ichon, Rep. of Korea, assignors to Hyundai Electronics-Industries Co., Ltd., Ichon, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 777,201
Claims priority, application Rep. of Korea, Dec. 29, 1995, 95-66074

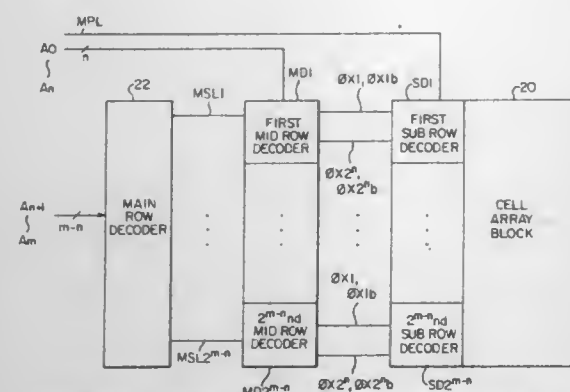
U.S. Cl. 365—230.06

Int. Cl.⁶ G11C 8/00

5 Claims

1. A word line driver for minimizing a capacitive effect of word lines in a semiconductor memory device formed with a cell array block having 2^m word lines, the word line driver comprising:

- a first through (2^{m-1}) th middle decoding means for commonly receiving an n-bit address signal, each of the middle decoding means constituting means for outputting 2^n metal control



signals on 2^n respective metal control lines so that the (2^{m-n}) middle decoding means selectively drive the 2^m word lines in groups of 2^n ;

- b) main decoding means, coupled to the first to (2^{m-n}) th middle decoding means, for selectively driving the first to $(m-n)$ -bit th middle decoding means by a $(m-n)$ -bit address signal; and
- c) first through (2^{m-n}) th sub decoding means, coupled with 2^n word lines of the 2^m word lines of the cell array block, and coupled with respective ones of the first to (2^{m-n}) th middle decoding means via the 2^n metal control lines, the sub decoding means including:
- c1) means for commonly inputting a high voltage via a metal power line; and
- c2) means for selectively applying the high voltage to the 2^n word lines to selectively drive them according to logic signals on the 2^n metal control lines.

5,802,009

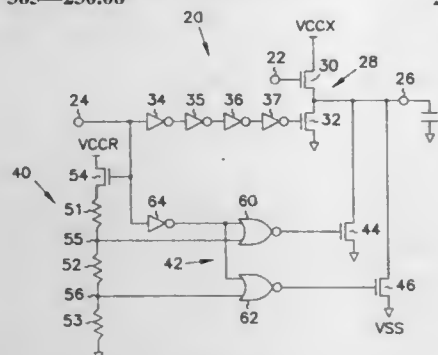
VOLTAGE COMPENSATING OUTPUT DRIVER CIRCUIT
Stephen L. Casper, and Joseph C. Sher, both of Boise, Id.,
assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 28, 1997, Ser. No. 848,122

Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—230.06

29 Claims

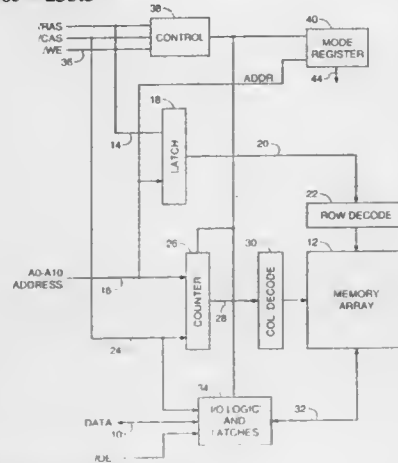


6. An output driver circuit comprising:
- a first pull down device coupled to an output node;
- a plurality of further pull down devices coupled to the output node;
- a gating circuit coupled to the further pull down devices; and
- a reference coupled to a supply voltage and to the gating circuit for enabling selected further pull down devices as a function of supply voltage level when the first pull down device is enabled.

5,802,010
BURST EDO MEMORY DEVICE
Paul S. Zagar, Boise; Brett L. Williams, Eagle, and Troy A. Manning, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.
Continuation of Ser. No. 370,761, Dec. 23, 1994, Pat. No. 5,526,320. This application Jun. 10, 1996, Ser. No. 661,478
Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—233.5

2 Claims



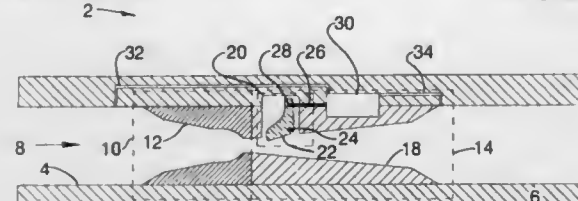
2. A Memory Module comprising:
- a memory device;
- a plurality of address signal lines coupled to the memory device to provide an address to the memory device;
- an address generation circuit within the memory device, coupled to an address latch signal line, for receiving and advancing the address, to provide multiple data accesses of the memory device in synchronization with multiple transitions of a signal on the address latch signal line after only one address is received; and
- at least one data node for transferring data to and from the memory module, wherein data from a first address received from the plurality of address signal lines is driven from the memory module offset in time from when the first address is received, by a predetermined number of transitions of the signal on the address latch signal line.

5,802,011

PRESSURE SIGNALLING FOR FLUIDIC MEDIA
Warren J. Winters, Tulsa, and Tommy M. Warren, Coweta, both of Okla., assignors to Amoco Corporation, Chicago, Ill.
Filed Oct. 4, 1995, Ser. No. 539,186
Int. Cl.⁶ G01V 1/40

U.S. Cl. 367—83

18 Claims

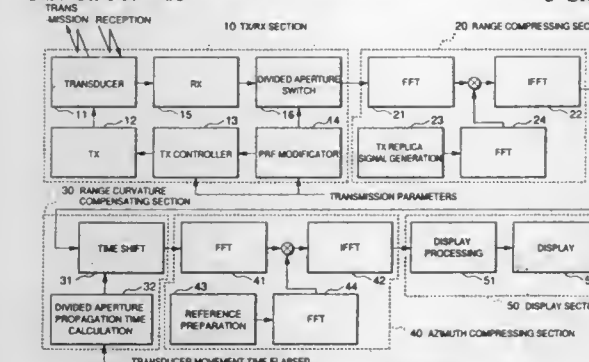


1. A method of generating pressure signals through a fluidic medium, comprising the steps of:
- accelerating a flow stream of said fluidic medium to increase the kinetic energy of said flow stream;
- diffusing said accelerated flow stream to substantially decrease the kinetic energy of said flow stream; and
- periodically generating turbulence affecting said diffusion that creates said pressure signals for said flow stream upstream from said generated turbulence by extending a protuberance into said flow stream.

5,802,012
SYNTHETIC-APERTURE SONAR SYSTEM
Isao Yamaguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Nov. 5, 1997, Ser. No. 964,713
Claims priority, application Japan, Nov. 6, 1996, 8-293896
Int. Cl.⁶ G01S 15/89

U.S. Cl. 367—88

5 Claims



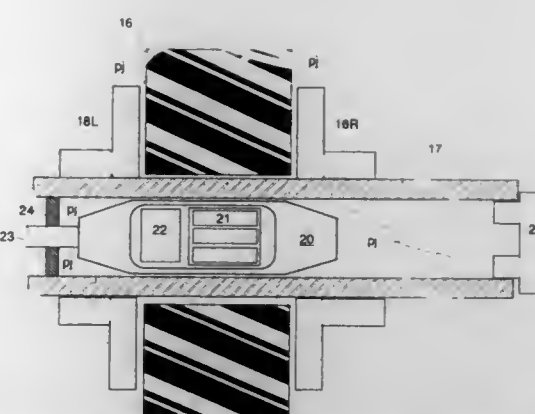
1. A synthetic-aperture sonar system comprising:
- a transmission/reception section comprising:
- a transducer having an aperture divided into a plurality of divided apertures one of which is assigned to transmission and reception of a sound wave and the others of which are assigned to reception of a sound wave;
- a PRF modifier for adjusting, based on at least one of a platform speed and a divided aperture length, a pulse repetition frequency and for controlling switching of the divided apertures assigned to reception;
- a transmitter;
- a transmitter controller for controlling said transmitter in accordance with control parameters of said PRF modifier, said transmitter generating a sound wave to be transmitted in response to a command output from said transmitter controller and outputting said sound wave signal to said divided aperture assigned to transmission and reception;
- a receiver for amplifying a received sound wave signal output from said transducer, digitizing said received sound wave signal, and outputting a resultant digital signal; and
- a divided aperture switch for temporarily holding outputs of said transducer, switching, under control of said PRF modifier, the output of said transducer corresponding to any particular divided aperture, and outputting a resultant sum;
- a range compressing section for compressing a pulse width of the received sound signals in a direction of transmission;
- a range curvature compensating section for synchronizing receipt times of said divided apertures with respect to outputs of said range compressing section; and
- an azimuth compressing section for compressing pulse widths of outputs of said range curvature compensating section in a direction of platform movement.

5,802,013
MOBILE SENSOR FOR GROUND PENETRATING SONAR
Ronald Lee Earp, Burlington, N.C., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed Jun. 9, 1997, Ser. No. 871,159
Int. Cl.⁶ H04R 1/28; G01V 1/16

U.S. Cl. 367—178

9 Claims

1. A rolling acoustic transducer for detecting echoes from insonified buried objects comprising: a substantially cylindrical body of elastomeric material providing a substantially uniform acoustic transmission medium, said body being rotatably mounted on a hollow axle and a piezoelectric pickup mounted within said axle, the rotational clearance between the inside diameter of said body and the outside diameter of said, axle and the interior of said hollow axle being filled with a lubricant to exclude air gaps, the

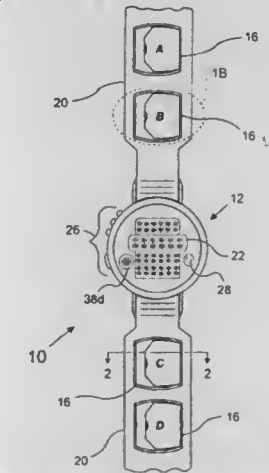


characteristic impedance of said elastomeric material being adapted to form an approximate match between the characteristic impedance of said piezoelectric pickup and the characteristic impedance of the ground.

5,802,014
PORTABLE TABLET REMINDER AND DISPENSING SYSTEM
Delicia R. Danko, 4289 Ironwood Ave., Seal Beach, Calif. 90740
Filed Sep. 23, 1996, Ser. No. 717,888
Int. Cl.⁶ G04B 47/00; A44C 11/00

U.S. Cl. 368—10

8 Claims



1. A portable strap-on tablet dispensing system to hold a plurality of tablets and indicate to a wearer the proper times to ingest at least one of the tablets, the system comprising:
- (a) a programmable system unit arranged to issue one or more predetermined prompts to the wearer at predetermined time intervals, the prompts issued to indicate to the wearer that at least one of the plurality of tablets is to be ingested;
- (b) a strap means arranged to enable the tablet dispensing system to be strapped on the wearer; and
- (c) a plurality of accessible tablet containers attached to the strap means and configured to hold a plurality of tablets therein, each tablet container assigned a designation and having an internal compartment to securely hold tablets and further including an access arrangement providing access to the internal compartment to remove at least one tablet therefrom; and
- (d) a plurality of microswitches, one installed on each of the tablet containers, operatively coupled to the programmable system unit so as to indicate thereto when at least one of the tablet containers are accessed, and thereby provide a verification means to verify that the indicated and correct tablet container is accessed;
- (e) the system unit programmed to issue prompts to indicate to the wearer at least one designated tablet container to access tablets therefrom, and the number of tablets to ingest;

(f) the system unit further programmed to indicate to the wearer when at least one of the wrong tablet containers is being accessed as indicated by at least one the plurality of microswitches, after a prompt has been issued.

5,802,015

INTELLIGENT LABEL

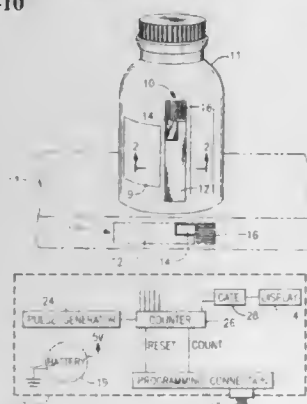
Alan W. Rothschild, Cazenovia; James P. Romano, and Richard A. Bozogian, both of Syracuse, all of N.Y., assignors to Rothschild Technology, L.L.C., Syracuse, N.Y.

Filed May 5, 1997, Ser. No. 851,206

Int. Cl.⁶ G04B 47/00; 23/12; F21Q 3/00

U.S. Cl. 368—10

16 Claims



1. An electronic timing label for indicating the expiration of a time period associated with an article, said label comprising:
a pulse generator, configured to generate a series of pulses at a predetermined pulse rate;

a first binary counter having a clock input to which the series of pulses from said pulse generator are operatively coupled, said first counter having a most significant bit output;

a second binary counter having a clock input to which the most significant bit output of said first counter is operatively coupled, said second counter having a most significant bit output;

said first and said second counters being configured together as a two-stage binary counter which counts from an initial count number to a final count number in response to the series of pulses, the number of counts between the initial and final count numbers and the pulse rate being chosen to establish a counting time which corresponds to the time period associated with the article, the two-stage counter being configured to generate an expiration signal at the most significant bit output of said second counter upon reaching the final count number; indicator means, operatively coupled to the most significant bit of said second counter, for indicating the expiration of the time period in response to the expiration signal;

a programming port, operatively coupled to the clock input of said first binary counter, for directing programming pulses to said first counter to preset the number of counts in the two-stage counter between the initial and final count numbers; and

means for affixing said electronic timing label to an application surface associated with the article.

5,802,016

ELECTRONIC WATCH

Masaru Kubota; Takashi Kawaguchi; Hidehiro Akahane; Yoshitaka Iijima; Keiichi Oguchi; Mikiko Ito; Youichi Hayashi, and Ildenori Makiba, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

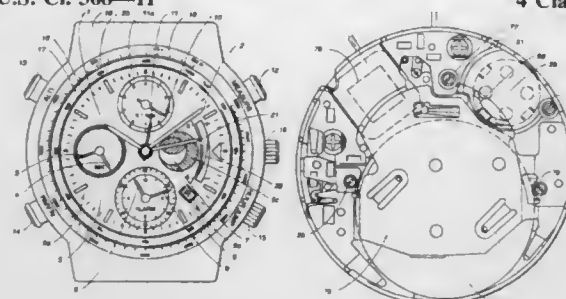
Filed Jun. 30, 1994, Ser. No. 269,453

Claims priority, application Japan, Jul. 1, 1993, 5-163650; Dec. 14, 1993, 5-313643

Int. Cl.⁶ G04B 47/06

U.S. Cl. 368—11

4 Claims



1. An electronic watch comprising:

a watch body having an upper surface, a lower surface, a side surface;

a sensor for measuring environmental data, wherein said sensor comprises a measurement surface;

an environmental data indication means for indicating the environmental data measured by said sensor comprising an environmental data indication pointer arranged towards the upper surface for indicating the environmental data;

time indication means for indicating time comprising a movement;

a controller for controlling said environmental data and said time indication means;

a power source for said sensor, said environmental data indication means; said time indication means, and said controller; wherein said controller is arranged in a non-overlapping manner with respect to said sensor and said power source when viewed in a direction substantially perpendicular to the upper surface of said watch body;

wherein said sensor is arranged in a non-overlapping manner with respect to said power source when viewed in a direction substantially perpendicular to the upper surface of said watch body;

wherein said measurement surface faces one of said upper surface and said lower surface of said watch body;

wherein said watch body comprises:

a base frame in which said sensor, said environmental data indication means, and said time indications means are mounted; and

a cover case to enclose said sensor, said environmental data indication means, and said time indication means, said base frame comprising, on a side of said base frame:

a sensor containment portion for housing said sensor having an inside area, a first gasket means to secure waterproofness between the inside area of said sensor containment portion and said sensor, and a first through hole formed in a raised portion of said base frame and leading from an end of said raised portion to said sensor containment portion, and comprises, on the side of said cover case,

a concave portion for receiving said raised portion, a second gasket means for securing waterproofness between said concave portion and said raised portion, and a second through hole which connects a sensing face of said sensor with the outside of said cover case by being in communication to said first through hole having said raised portion housed in said concave portion.

5,802,017

INFORMATION-SIGNAL RECORDING APPARATUS AND RECORDING MODE INQUIRING/SPECIFYING METHOD

Makoto Sato, and Harumi Kawamura, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

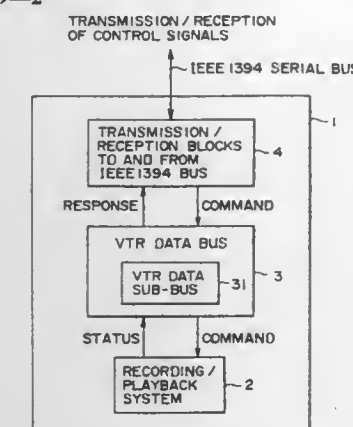
Filed Oct. 29, 1996, Ser. No. 738,616

Claims priority, application Japan, Nov. 2, 1995, 7-310097

Int. Cl.⁶ H04B 1/20

U.S. Cl. 369—2

8 Claims



1. An information-signal recording apparatus employed in a system for communicating information signals and control signals among a plurality of pieces of electronic equipment connected to each other to compose said system by communication-control buses capable of mixing said control signals and said information signals, said information-signal recording apparatus comprising:

first means for recording an information signal;

second means for controlling operations of said first means and monitoring the status of said first means; and

third means for transmitting responses and receiving commands to and from said communication-control buses,

wherein said third means transmits along said communication control buses a response indicating an audio-recording mode to other electronic equipment employed in said system in response to an inquiry command transmitted along said communication control buses from said other equipment inquiring said status of said first means, and said second means sets an audio-recording mode of said first means to record audio information in accordance with a recording-mode specifying command received by said information-signal recording apparatus from other electronic equipment employed in said system.

5,802,018

METHOD FOR REPRODUCING MULTIPLE OPTICAL DISKS BASED ON THE DETERMINATION OF A REPRODUCTION ORDER

Bum Ki Kim, and Kyung Chan Park, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Nov. 13, 1996, Ser. No. 747,895

Claims priority, application Rep. of Korea, Feb. 27, 1996, 1996-4828

Int. Cl.⁶ G11B 17/22

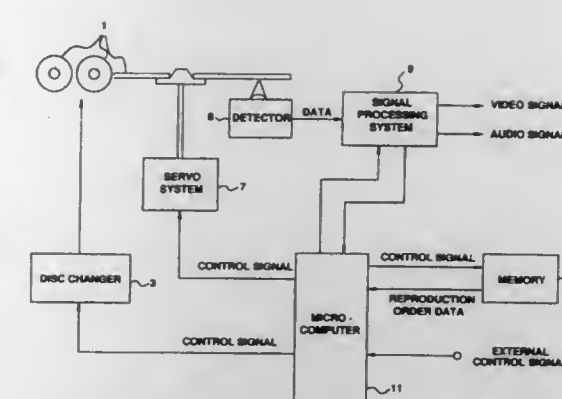
U.S. Cl. 369—30

17 Claims

1. A method for sequentially reproducing optical discs in a multidisc player, wherein said multidisc player comprises a disc changer for holding a plurality of optical discs, a memory, and a microcomputer for controlling said multidisc player and wherein said method comprises the steps of:

(a) reproducing information data recorded on said plurality of optical discs;

(b) determining a reproduction order of said plurality of optical discs based on said information data; and



(c) sequentially reproducing said plurality of optical discs in accordance with said reproduction order.

5,802,019

ACCESS CONTROL SYSTEM FOR OPTICAL DISK DEVICE

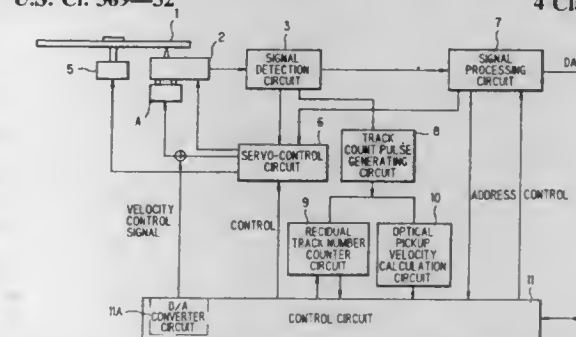
Minoru Yamada, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 24, 1997, Ser. No. 899,822

Int. Cl.⁶ G11B 17/22

U.S. Cl. 369—32

4 Claims



1. An access control system for an optical disk device, comprising:

a residual track number counter circuit which counts the number of residual tracks from a current position of an optical pickup to a target position;

an optical pickup velocity calculation circuit which calculates a current velocity of said optical pickup at intervals of a predetermined time period; and

a control circuit which comprises a reference velocity calculation means which a reference velocity from said number of residual tracks to be counted by said residual track number counter circuit, a velocity error calculation means which calculates a velocity error between said reference velocity and said current velocity, a current acceleration calculation means which calculates a current acceleration based on a variation of said current velocity and an acceleration error calculation means which calculates an acceleration error between said current acceleration and a predetermined reference acceleration;

wherein said control circuit further comprises a control means which moves said optical pickup to said target position while controlling the velocity of said optical pickup by using said velocity error or using a value obtained by adding a correction value determined by said velocity error, said current acceleration and said acceleration error to said velocity error as a driving signal of said optical pickup.

5,802,020
OPTICAL DISK DEVICE HAVING A PLURALITY OF RECORD AND PLAYBACK UNITS

Hisaharu Kaneko, Yokohama, and Masatoshi Sato, Machida, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

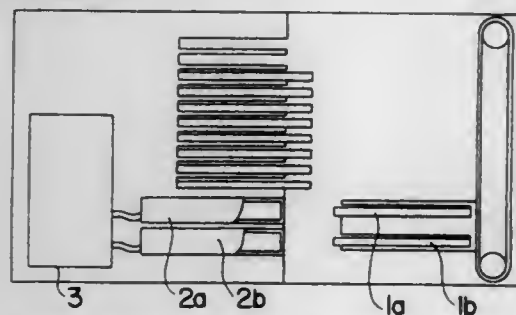
Filed Nov. 8, 1996, Ser. No. 745,835

Claims priority, application Japan, Nov. 9, 1995, 7-290960; Sep. 20, 1996, 8-249984

Int. Cl.⁶ G11B 17/22

U.S. Cl. 369—34

12 Claims



1. An optical disk recording device, comprising:

- a plurality of recording units to record data on at least two optical disks, respectively; and
- a control unit to divide data to be recorded, for use with said optical disks, to send the divided data to the plurality of recording units, and to control a recorded amount of data per unit time onto said optical disks by the plurality of recording units being substantially constant.

5,802,021
DISC RECORDING AND/OR REPRODUCING APPARATUS AND DISC RECORDING MEDIA EXCHANGE APPARATUS

Kumio Mukaida, Saitama, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 549,669, Nov. 30, 1995, abandoned.

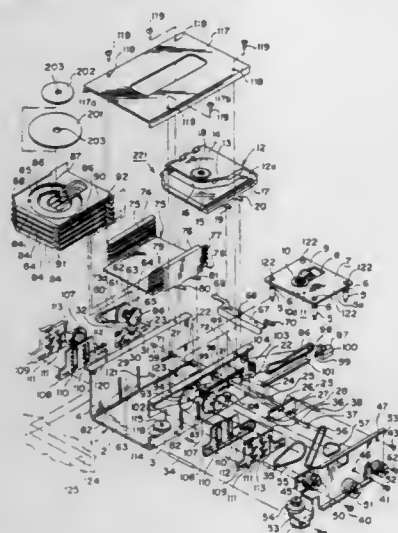
This application Aug. 19, 1997, Ser. No. 917,042

Claims priority, application Japan, Apr. 14, 1994, 6-099112

Int. Cl.⁶ G11B 17/22

U.S. Cl. 369—34

26 Claims



1. A disc recording and/or reproducing apparatus, comprising: an apparatus body with an opening formed in a front side thereof;

- an accommodating unit within which a plurality of trays formed so that disc-shaped recording media can be respectively mounted are accommodated in parallel relation to each other and separated from each other by a predetermined distance,

said accommodating unit disposed within and toward the front side of said apparatus body, said accommodating unit including a support pin extending from a side surface thereof;

vertical displacement means for displacing said accommodating unit in a direction perpendicular to a major surface of said disc-shaped recording media, said vertical displacement means comprising:

- a first cam plate in facing relation to said side surface of said accommodating unit, said first cam plate including a driving slot, said support pin extending through said driving slot, said driving slot having a plurality of inclined portions arranged alternately with a plurality of horizontal portions in a vertically extending zig-zag pattern, the vertical displacement between each of said horizontal portions corresponding to said predetermined distance between said trays,

- a second cam plate arranged in facing relation to said first cam plate and including a holding slot, said support pin extending through said holding slot, said holding slot having an open area to accommodate vertical motion of said support pin and a plurality of supporting segments arranged to support said support pin in one of a plurality of predetermined vertical positions, and

reciprocal cam driving means for driving said first and second cam plates horizontally along a direction parallel to said side surface of said accommodating unit with a predetermined phase difference therebetween, wherein when said second cam plate is driven in a first direction to disengage said support pin from said supporting segments and said first cam plate is driven in a second direction to move said support pin along said inclined portions of said driving slot said accommodating unit is raised or lowered by a distance equal to said predetermined distance between said trays, and when said second cam plate is driven in said second direction a one of said supporting segments supports said accommodating unit at a predetermined vertical position;

taking-out means for selectively drawing out one of said plurality of trays accommodated within the accommodating unit to take out the disc-shaped recording medium mounted on said taken out tray;

recording and/or reproducing means for carrying out recording and/or reproduction of information signals with respect to the disc-shaped recording medium taken out by the taking-out means, said recording and/or reproducing means disposed within and toward a rear side of said apparatus body; and

eject means for drawing out a remaining tray accommodated within the accommodating unit through the opening in the front side of the apparatus body, while the recording and/or reproducing means disposed toward the rear side of the apparatus body is recording on or reproducing from the taken-out disc-shaped recording medium.

5,802,022
DISK CHANGER FOR CHECKING THE POSITION OF DISKS ON A ROULETTE WITHOUT DRAWING A TRAY OUT OF THE DISK CHANGER

Chang Seok Kim; Seong Yeon Park, both of Suwon; Jae Hyun Yoon, Seoul, and Ho Han Ryu, Kyunggi-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Feb. 25, 1997, Ser. No. 805,719

Claims priority, application Rep. of Korea, Feb. 29, 1996, 96-5316; Feb. 29, 1996, 96-5320

Int. Cl.⁶ G11B 17/00; 33/02

U.S. Cl. 369—37

3 Claims

1. A disk changer in which it is possible to check the position of disks seated on a roulette without drawing a tray out from the disk changer, said disk changer comprising: a housing including a top cover;

5,802,024
INFORMATION RECORDING-REPRODUCING APPARATUS PROVIDED WITH A SPRING-SUPPORTED TYPE ONE-STAGE ACTUATOR

Yoshihiro Saga, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

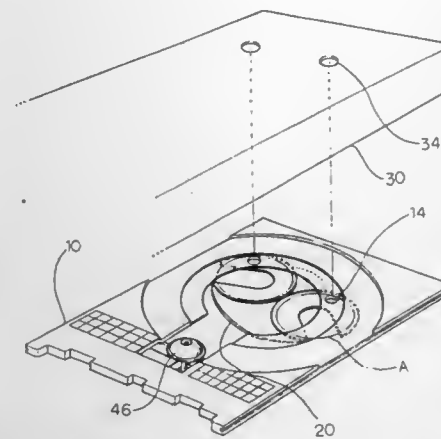
Filed Jun. 6, 1996, Ser. No. 659,524

Claims priority, application Japan, Jun. 7, 1995, 7-140608; May 29, 1996, 8-134890

Int. Cl.⁶ G11B 7/09

U.S. Cl. 369—44.29

8 Claims



a tray disposed for movement in and out of said housing, said tray having an opening substantially in a center of said tray and at least one hole to one side of the opening;

a roulette supported below said tray, said roulette having at least two disk receiving portions each for supporting a disk, said roulette being disposed to rotate under the tray to load and unload a selected disk, wherein

said top cover has at least one viewing hole which is substantially aligned with said at least one hole in said tray when said tray is disposed inside said housing, and wherein one of said disk receiving portions of said roulette is aligned with said at least one viewing hole in said top cover and said at least one hole in said tray when said tray is disposed inside said housing and said roulette is in a predetermined position.

5,802,023
METHOD AND CIRCUIT FOR UNIFORMLY CONTROLLING SLED VELOCITY OF A DISK DRIVE
Young-Ok Gob, and Do-Soo Lee, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

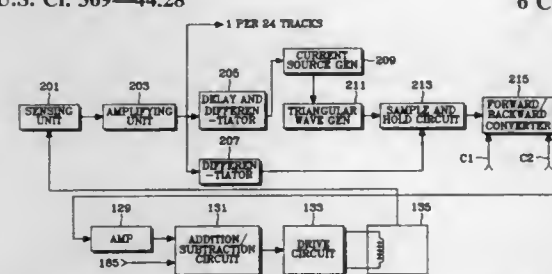
Filed Sep. 30, 1996, Ser. No. 723,536

Claims priority, application Rep. of Korea, Nov. 20, 1995, 1995 42256

Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—44.28

6 Claims



1. A circuit for uniformly controlling a sled velocity of a disk drive, comprising:

- means for representing the sled velocity as a frequency signal;
- means for converting said frequency signal, corresponding to the sled velocity, to a voltage variation signal;
- means for selecting and maintaining values of said voltage variation signal;
- means for forwardly and backwardly inverting said selected and maintained values in response to first and second control signals; and
- means for carrying out subtraction between the inverted voltage variation values and a shift control signal to drive a sled motor.

5,802,025
TRACK DETECTION METHODS AND APPARATUS FOR SIMULTANEOUS MONITORING OF MULTIPLE ADJACENT TRACKS OF AN OPTICAL DISK

Paul Suni, Los Gatos, Calif., assignor to Zen Research N.V., Curacao, Netherlands Antilles

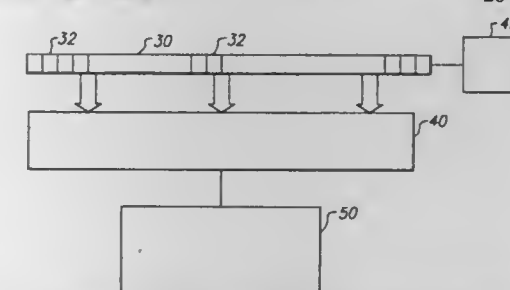
Continuation of Ser. No. 559,778, Nov. 15, 1995, abandoned.

This application Aug. 15, 1997, Ser. No. 921,459

Int. Cl.⁶ G11B 7/095

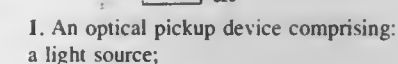
U.S. Cl. 369—44.41

20 Claims



1. A method of tracking multiple data tracks in apparatus for simultaneously reading multiple data tracks of an optical disk, the apparatus including a light source providing illumination that covers the multiple data tracks and an image detector for generating signals corresponding to data stored in the multiple data tracks, the method comprising:

a pulse selector responsive to said detected data signals for selecting said programmed pulse power and duration pattern write codes from said programmable pattern registers, said pulse selector responsive to said PPM mode to select a single mark pulse-power and a single mark duration pattern write code from said programmable pattern registers for said detected data signals, and responsive to said PWM mode to select a sequence of at least one said pulse power and duration pattern write codes from said programmable pattern registers for alternate ones of said detected data signals, whereby said alternate PWM sequences comprise mark signals; and



receiving call set-up signals in a broadband call processor; the broadband call processor converting the call set-up signals to narrowband signaling format; the broadband call processor delivering the converted call set-up signal to a designated narrowband server; the designated narrowband server establishing a narrowband voice path to a synchronous-to-asynchronous converter (SAC) in response to receiving the call set-up signals; the broadband call processor establishing a broadband segment corresponding to the narrowband voice path established by the designated narrowband server to form a composite voice path interconnecting a subscribing broadband line to the designated narrowband server; and the designated narrowband server providing service features to the subscribing broadband line over the composite voice path.

5. An inter-LAN connecting device for connecting multiple subnetworks in a larger network, said device comprising:
a plurality of physical LAN ports connected to respective host apparatuses;

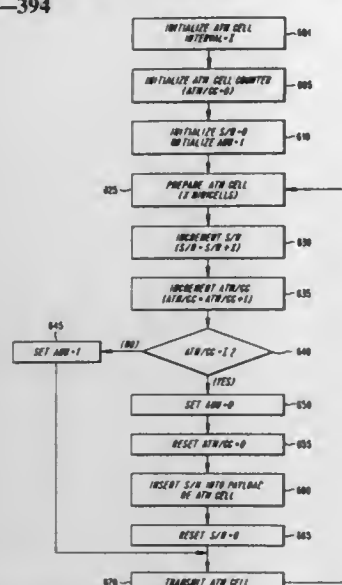
```
graph TD; START([START]) --> S201{POINT-TO-POINT OR  
POINT-TO-MULTIPOINT}; S201 -- "p-to-p" --> S202[SELECTING ROUTE HAVING  
SMALLEST FREE BAND IN  
SWITCHES AT SECOND STAGE]; S201 -- "p-to-mp" --> S203[SELECTING ROUTE HAVING  
LARGEST FREE BAND IN  
SWITCHES AT SECOND STAGE]; S202 --> END([END]); S203 --> END;
```

The flowchart illustrates the process for selecting a route. It begins at a START terminal, leading to a decision diamond S201 labeled "POINT-TO-POINT OR POINT-TO-MULTIPOINT". If the route is point-to-point (p-to-p), the process proceeds to block S202, "SELECTING ROUTE HAVING SMALLEST FREE BAND IN SWITCHES AT SECOND STAGE". If the route is point-to-multipoint (p-to-mp), the process proceeds to block S203, "SELECTING ROUTE HAVING LARGEST FREE BAND IN SWITCHES AT SECOND STAGE". Both paths converge and lead to an END terminal.

5. A cell switch, provided with a plurality of routes between an input highway and an output highway, for copying a cell in a routing module in the cell switch, comprising:
determining means for determining whether a path in the input highway or output highway is processed for a point-to-point connection or for a point-to-multipoint connection;

detecting means for detecting a free band in the routing module; selecting means for selecting a smallest free band for the point-to-point connection and a largest free band for the point-to-multipoint connection.

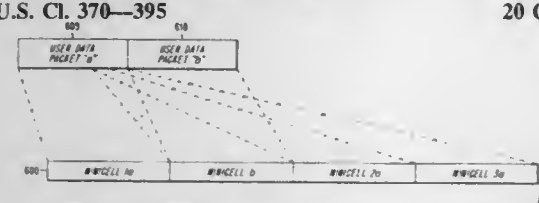
5,802,050
MINICELL SEQUENCE NUMBER COUNT
Lars-Göran Petersen, Tumba, and Lars Göran Wilhelm Eneroth, Tyresö, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Jun. 10, 1996, Ser. No. 661,161
Int. Cl.⁶ H04J 3/24
U.S. Cl. 370—394 32 Claims



3. In a telecommunication system that transports data packets from a sending station to a receiving station, a method for detecting lost data, comprising the steps of:

- generating a data packet sequence number that represents a number of data packets transmitted via data cells to the receiving station;
- inserting the data packet sequence number into a select data cell as a function of a predefined and adjustable transmission interval;
- transporting the data cell containing the data packet sequence number to a receiving station; and
- at the receiving station, determining whether data has been lost as a function of the data packet sequence number.

5,802,051
MULTIPLEXING OF VOICE AND DATA MINICELLS
Lars-Göran Petersen, Tumba, and Lars Göran Wilhelm Eneroth, Tyresö, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Jun. 10, 1996, Ser. No. 660,824
Int. Cl.⁶ H04J 3/24
U.S. Cl. 370—395 20 Claims



1. In a telecommunication system, a method of multiplexing user data packets into a data stream prior to transmission from a sending station to a receiving station, the method comprising the steps of:

dividing a first user data packet into a first plurality of segments if the first user data packet is greater in length than a first predefined length, wherein the first user data packet has associated with it a first data type and a first transmission priority based on the first data type;

dividing a second user data packet into a second plurality of segments if the second user data packet is greater in length than the first predefined length, wherein the second user data packet has associated with it a second data type and a second transmission priority based on the second data type;

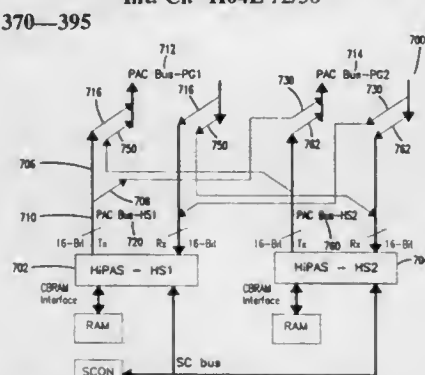
generating a minicell header for each segment associated with the first plurality of segments, wherein each minicell header contains a code which identifies the first data type, the first transmission priority, and a position of the corresponding segment in the first user data packet;

generating a minicell header for each segment associated with the second plurality of segments, wherein each minicell header contains a code which identifies the second data type, the second transmission priority, and a position of the corresponding segment in the second user data packet;

appending each minicell header to its corresponding segment to form a first plurality of minicells associated with the first user data packet and a second plurality of minicells associated with the second user data packet; and

multiplexing the minicells associated with the first plurality of minicells and the minicells associated with the second plurality of minicells into a data stream, wherein the minicells associated with the first plurality of minicells and the minicells associated with the second plurality of minicells are interleaved relative to one another as a function of transmission priority.

5,802,052
SCALABLE HIGH PERFORMANCE SWITCH ELEMENT FOR A SHARED MEMORY PACKET OR ATM CELL SWITCH FABRIC
Krishnan Venkataraman, Folsom, Calif., assignor to Level One Communication, Inc., Sacramento, Calif.
Filed Jun. 26, 1996, Ser. No. 673,236
Int. Cl.⁶ H04L 12/56
U.S. Cl. 370—395 81 Claims



5,802,056

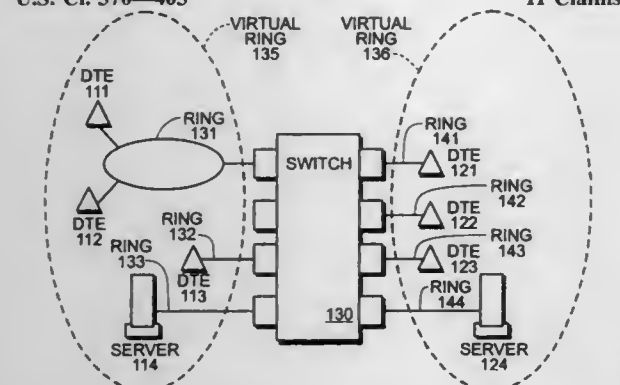
CONFIGURATION OF VIRTUAL RINGS IN A TOKEN RING LOCAL AREA NETWORK

H. Earl Ferguson, Sunnyvale; Bobby R. Johnson, Jr., San Jose, and Randy Ryals, Menlo Park, all of Calif., assignors to Bay Networks, Inc., Santa Clara, Calif.

Filed Jul. 12, 1996, Ser. No. 679,090

Int. Cl.⁶ H04L 12/28

U.S. Cl. 370-403 11 Claims



1. A virtual token ring network, comprising:

a first physical token ring segment and a second physical token ring segment, said first physical token ring segment coupled to a first port of a central device, said second physical token ring segment coupled to a second port of said central device, said central device grouping said first physical token ring segment and said second physical token ring segment as a single virtual token ring by assigning an identical token ring number to the first and second ports.

5,802,057

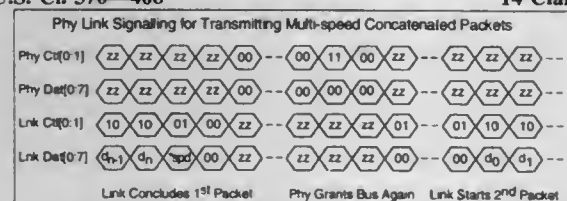
FLY-BY SERIAL BUS ARBITRATION

William S. Duckwall, Santa Cruz, and Michael D. Teener, La Selva, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Dec. 1, 1995, Ser. No. 565,690

Int. Cl.⁶ H04J 3/22; H04L 12/417

U.S. Cl. 370-408 14 Claims



1. In an electronic system, a method of transmitting data packets on a serial bus configured in accordance with the IEEE-1394 Serial Bus Standard by a first node of the bus, the method comprising the steps of:

transmitting a first speed signal for a first data packet to be transmitted on the serial bus by the first node;
transmitting the first data packet at the first speed on the serial bus by the first node;
transmitting a second speed signal for a second data packet to be transmitted on the serial bus by the first node; and
transmitting the second data packet at the second speed on the serial bus by the first node.

5,802,058

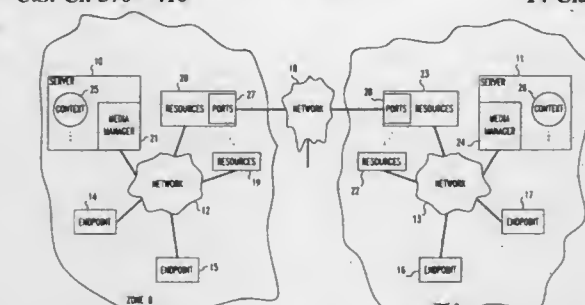
NETWORK-INDEPENDENT CONNECTION MANAGEMENT

Phillip E. Harris, Lafayette, and Kurt H. Haserodt, Westminster, both of Colo., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 3, 1996, Ser. No. 650,120

Int. Cl.⁶ H04J 3/12

U.S. Cl. 370-410 14 Claims



12. A method of managing communications connections in a telecommunications system that includes a plurality of communications endpoints, a set of communications resources, a communications medium interconnecting the endpoints and the resources, and a communications-connection manager, the method comprising the steps of:

sending an offer of a communication between a first and a second endpoint and attributes of the communication desired by the first endpoint from the first endpoint to the manager;
in response to receipt of the offer by the manager, sending the offer from the manager to the second endpoint;
in response to receipt of the offer by the second endpoint, sending an acceptance of the offer and attributes of the communication desired by the second endpoint from the second endpoint to the manager;
in response to receipt of the acceptance by the manager, determining at the manager any resource that is required to bridge any differences between the attributes of the offer and the attributes of the acceptance and to effect the communication;
in response to the determination, marshaling any determined resource for the communication by the manager;
in response to the marshaling, sending instructions for one of the first endpoint and the second endpoint to set up the communication between the one endpoint and another of the first endpoint and the second endpoint through any marshaled resources from the manager to the one endpoint; and
in response to receipt of the instructions by the one endpoint, the one endpoint setting up the communication between the first and second endpoints through any marshaled resource on the medium according to the received instructions.

5,802,059

SIGNAL RECEIVING APPARATUS

Minobu Hayashi, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 499,457, Jul. 7, 1995, Pat. No. 5,640,392.

This application Mar. 18, 1997, Ser. No. 820,315

Claims priority, application Japan, Jul. 15, 1994, 6-186285

Int. Cl.⁶ H04L 12/54

U.S. Cl. 370-429 4 Claims

1. A method for receiving a communication signal transmitted from a transmitting appliance to a receiving appliance, said signal including an isochronous data packet and an asynchronous data packet, comprising the steps of:
receiving said communication signal;
separating from said communication signal said isochronous packet and said asynchronous packet;
confirming that a first memory is capable of storing said isochronous packet;
storing said isochronous packet in said first memory;

5,802,061

METHOD AND APPARATUS FOR NETWORK ACCESS CONTROL WITH IMPLICIT RANGING AND DYNAMICALLY ASSIGNED TIME SLOTS

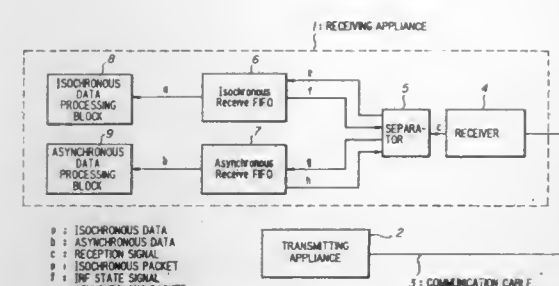
Rajeev Agarwal, Dover, N.H., assignor to Cabletron Systems, Inc., Rochester, N.H.

Filed Oct. 19, 1995, Ser. No. 545,501

Int. Cl.⁶ H04J 3/02

U.S. Cl. 370-461

23 Claims



determining if a second memory is capable of storing said asynchronous packet;
if said second memory is capable of storing said asynchronous packet then:
storing said asynchronous packet in said second memory; and
transmitting an acknowledgment signal to said transmitting appliance; and
if said second memory is not capable of storing said asynchronous packet then:
discarding said asynchronous packet; and
transmitting a non-acknowledgment signal to said transmitting appliance.

5,802,060

DATA NETWORK AND A PROCESS FOR REAL TIME TRANSMISSION OF DATA PACKETS IN A DATA NETWORK

Juergen Fischbach, Biberach; Harald Greiner, Schwaikheim, and Beate Kuhn-Wettemann, Kornwestheim, all of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

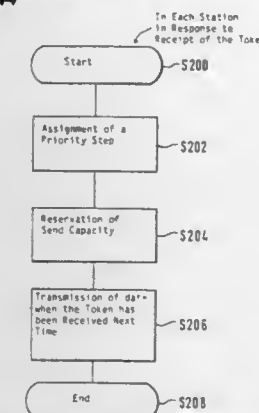
Filed Dec. 1, 1995, Ser. No. 565,968

Claims priority, application European Pat. Off., Dec. 23, 1994, 94120517

Int. Cl.⁶ H04J 3/02

U.S. Cl. 370-444

10 Claims



1. A process for real-time transmission of data packets in a data network comprising a plurality of spatially distributed stations whose access to the data network is controlled by a token, the following steps being carried out in each of said stations:

1.1 assigning a priority step (0...N-1) to each data packet to be transmitted depending on a dwell time of the data packet in a station and summing up data amounts of respective data packets having a same priority step;
1.2 reserving in the token, send capacity required for transmitting of data packets to be transmitted, said reserving being effected in dependence upon an available send capacity, the priority and a data amount of the data packets to be transmitted from this station, and information which is contained in the token and which concerns the priority and the data amount of data packets to be transmitted from other stations; and
1.3 transmitting the data packets to be transmitted corresponding to the reserved send capacity when the token has been received a next time.

5,802,062

PREVENTING CONFLICTS IN DISTRIBUTED SYSTEMS

Narain H. Gehani, Summit; Alex Kononov, Bridgewater, and Michael Rabinovich, Gillette, all of N.J., assignors to AT&T Corp., Middletown, N.J.

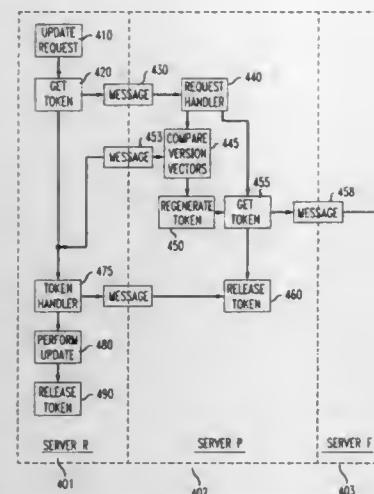
Filed Jun. 19, 1996, Ser. No. 666,772

Int. Cl.⁶ G06F 13/376

U.S. Cl. 370-465

14 Claims

14. A distributed system having a database comprising a plurality of data items, the system comprises:
a plurality of servers;
a plurality of replicas of the database wherein the replicas have copies of the plurality of data items, the plurality of replicas corresponding to the plurality of servers;
a plurality of tokens associated with the plurality of data items, wherein possession of a token granted to one of the plurality



of servers, referred to as a possessor, grants the possessor permission to update a data item corresponding to the token; and

a plurality of token pointers provided in the plurality of servers, the plurality of token pointers corresponding to the plurality of tokens, the plurality of token pointers being updated in the plurality of servers to provide a nexus to the possessor of the corresponding token.

5,802,063

CONDITIONAL ACCESS FILTER AS FOR A PACKET VIDEO SIGNAL INVERSE TRANSPORT SYSTEM

Michael Scott Deiss, Zionsville, Ind., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

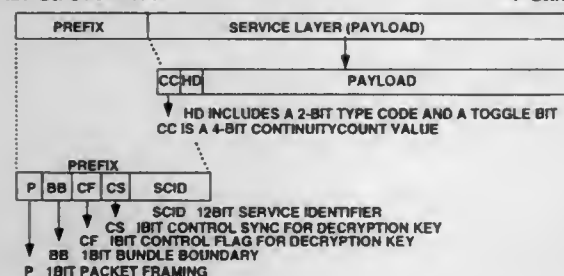
Division of Ser. No. 232,794, Apr. 22, 1994, Pat. No. 5,619,501.

This application Oct. 8, 1996, Ser. No. 727,689

Int. Cl.⁶ H04K 1/00

U.S. Cl. 370-476

4 Claims



4. A method of transmitting conditional access information comprising:

providing entitlement management data;

providing a plurality of N-byte conditional access codes N an integer and each said conditional access code being equal in Length to an MPEG start code, and one of said N-byte conditional access codes is defined by all bits having a like logic state;

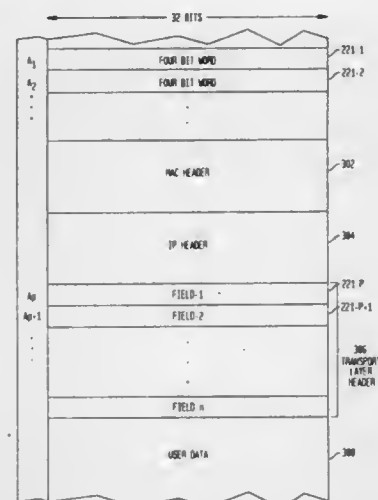
concatenating an integer number, greater than one, of N-byte conditional access codes;

forming a transport packet having a header and a payload including concatenated said integer number of N-byte conditional access codes and said entitlement management data.

5,802,064 PROTOCOL HEADER ALIGNMENT Bruce L. Lieberman, Los Altos, Calif., assignor to Starlight Networks, Inc., Mountain View, Calif. Filed Mar. 14, 1996, Ser. No. 616,104 Int. Cl.⁶ H04J 3/16

U.S. Cl. 370-469

10 Claims



1. A method for transmitting properly aligned packets from a transmitting host to a receiving host in a network, wherein said receiving host determines a sequence for properly aligning said packets and said transmitting host implements said sequence, said packets having a physical layer header, a network layer header, a transport layer header, and user data, said method comprising the steps of:

- (1) receiving at said receiving host a particular packet for a particular connection;
- (2) at said receiving host, determining from said particular packet a number of padding bytes required to be added to the transport layer headers of subsequent packets belonging to said connection, such that the transport layer headers in said subsequent packets are properly aligned in a queue defined in a memory of said receiving host;
- (3) transmitting said number of padding bytes from said receiving host to said transmitting host; and
- (4) at said transmitting host, inserting said number of padding bytes at the beginning of the transport layer header of each packet belonging to said connection which is subsequently transmitted to said receiving host.

5,802,065

DATA RECEIVING DEVICE

Tetsuo Ogawa, Kunitachi, and Hiroshi Satoh, Suginami, both of Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Oct. 22, 1996, Ser. No. 734,777

Claims priority, application Japan, Oct. 23, 1995, 7-274029

Int. Cl.⁶ H04J 3/22

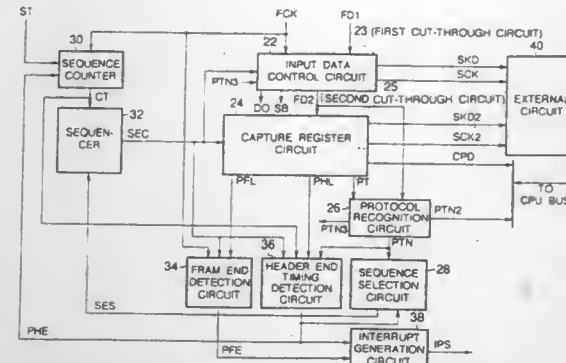
U.S. Cl. 370-469

11 Claims

1. A data receiving device for receiving from a network data frame based on any arbitrary protocol in a plurality of protocol hierarchies which are defined from a physical layer to upper layers, comprising:

an input data control circuit for receiving the frame data from the network together with its synchronizing signal and storing them in a register;

a capture register circuit for storing/holding in accordance with information such as a protocol type code, a header length, a frame length, source/destination addresses or source/destination port numbers or socket numbers included in a header for each protocol hierarchy constituting the frame data;



a protocol recognition circuit for identifying a protocol type of each protocol hierarchy from a protocol type code stored in the capture register circuit;

a sequence selection circuit for generating a sequence selection signal used to select a process for each protocol hierarchy of the received frame data in accordance with a result of identification by the protocol recognition circuit and for changing over the sequence selection signal in accordance with a header end signal;

a sequence counter for counting pulse signals of the frame data synchronizing signal;

a sequencer having a function to operate in accordance with a value of the sequence counter and the sequence selection signal, direct to the capture register circuit a timing for storing/holding the information included in the header for each protocol hierarchy and output a second header end timing for directing an end timing for the header when a protocol which is directed by the sequence selection signal and is currently processed has a header having a fixed length; and

a header end timing detection circuit which selects either the first header end timing obtained by comparing a value of the sequence counter with a header length of the currently-received protocol hierarchy or the second header end timing output by the sequencer to generate the header end signal.

5,802,066

MULTIPLEX BROADCAST RECEIVING METHOD AND RECEIVER WITH PROGRAM TYPE MEMORY

Takashi Miyake; Shoji Suenaga; Mutsuro Tanoue; Jun Miyamura; Shinichi Abe, and Kazuhiro Kamiya, all of Kawagoe, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

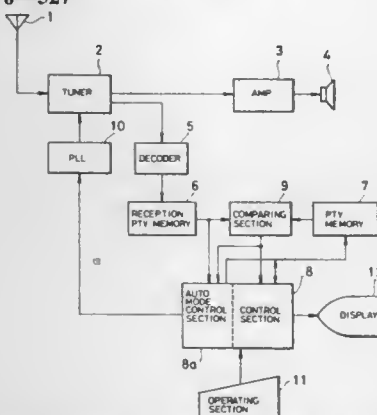
Filed Apr. 21, 1995, Ser. No. 426,611

Claims priority, application Japan, Apr. 27, 1994, 6-089553

Int. Cl.⁶ H04J 3/12; H04B 1/18

U.S. Cl. 370-527

7 Claims



2. A multiplex broadcast receiver for selecting a station transmitting a multiplex broadcast wave in which the classification

information is superimposed on a main signal, on the basis of classification information which has previously been stored, comprising:

a program type memory for storing classification information pieces each representing a program type to be received; memory control means for storing classification information demodulated from a multiplex broadcast wave being received into said program type memory;

station selecting means for reading out said classification information from said program type memory and executing a station selecting operation to select a multiplex broadcast wave according to said classification information.

5,802,067

FM MULTIPLEX BROADCAST RECEIVING CIRCUIT FOR DETECTING PRESENCE OR ABSENCE OF MULTIPLEX INFORMATION

Kazuhiro Kimura, Fukaya; Shigeaki Hayashibe, Gunma-ken; Yutaka Hirakoso, Gyoda; Takahiko Masumoto, Gunma-ken; Shizuka Ishimura, Gunma-ken; Toshiyuki Ozawa, Ota, and Munehiro Suka, Katsushika-ku, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

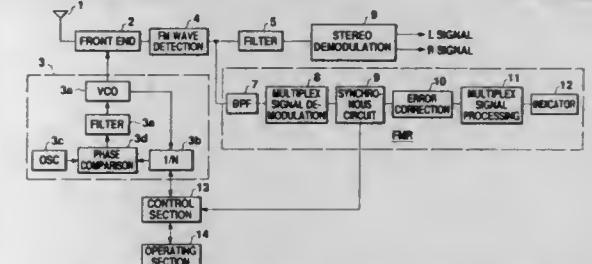
Filed Mar. 12, 1996, Ser. No. 614,466

Claims priority, application Japan, Mar. 16, 1995, 7-057394

Int. Cl.⁶ H04J 3/12

U.S. Cl. 370-527

36 Claims



1. An FM multiplex broadcast receiving circuit for receiving an FM broadcast signal in which a digital information signal is superimposed on the FM broadcast signal, the FM multiplex broadcast receiving circuit comprising:

means for extracting a predetermined frequency band signal from an FM-wave-detected signal of the FM broadcast signal; means for demodulating the predetermined frequency band signal so as to obtain a demodulated signal; and means for detecting, in response to the demodulated signal, whether the digital information is multiplexed in accordance with the predetermined frequency band signal by synchronously processing the demodulated signal to determine the presence of a code signal by comparing number of error bits in the code signal to a predetermined error number, wherein the means for detecting outputs a synchronization signal when the error bits are less than the predetermined error number which signifies the presence of the digital information signal multiplexed with the FM broadcast signal.

5,802,068

MULTIPLEXING APPARATUS OF A PLURALITY OF DATA HAVING DIFFERENT BIT RATES

Yoshinobu Kudo, Tokyo, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

Filed Jun. 25, 1996, Ser. No. 668,328

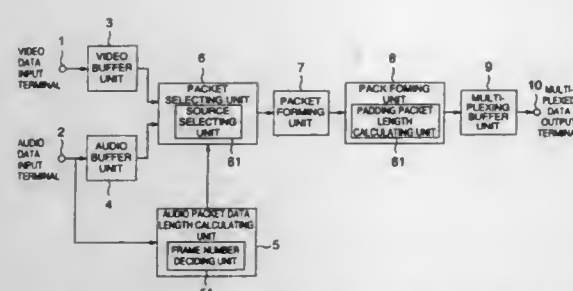
Claims priority, application Japan, Jun. 30, 1995, 7-188251

Int. Cl.⁶ H04J 3/07; 3/22

U.S. Cl. 370-538

15 Claims

1. A multiplexing apparatus in which a plurality of set assemblies are constructed by a first set part including at least first data having a high bit rate and a second set part including at least second data having a low bit rate, and said first data and said second data are multiplexed, comprising:



means for detecting whether a data length of said second data is smaller than a maximum data length of said second set part or not; and

means for constructing one of said plurality of set assemblies from a redundancy data set part, which includes redundancy data of a data length that is equal to a difference between the maximum data length of said second set part and the data length of said second data, and said second set part when said detecting means judges that the data length of said second data is smaller than the maximum data length of said second set part.

5,802,069

IMPLEMENTING MASS STORAGE DEVICE FUNCTIONS USING HOST PROCESSOR MEMORY

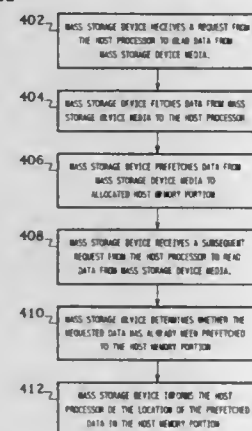
Richard Coulson, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Mar. 28, 1996, Ser. No. 627,939

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371—21.1

39 Claims



1. A mass storage device for use with a computer system, wherein:

the computer system comprises a host processor, host memory, and a data bus;

an operating system and a driver for the mass storage device are implemented on the host processor; and

the mass storage device is capable of being connected to the computer system via the data bus, such that:

a portion of the host memory is allocated for use by the mass storage device;

the mass storage device uses the host memory portion for one or more particular mass storage device operations; and

the operating system and the driver are unaware of how the mass storage device uses the host memory portion.

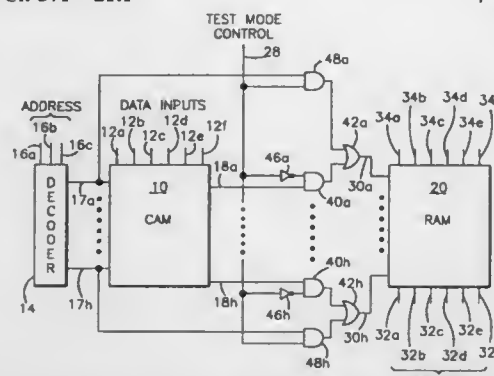
5,802,070
TESTING ASSOCIATIVE MEMORY
Robert Dean Adams, Essex Junction; Kevin Arthur Batson, Williston; George Maria Bracer, Calchester, and Fred John Towler, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 3, 1996, Ser. No. 725,390

Int. Cl.⁶ G11C 29/00

U.S. Cl. 371—21.1

7 Claims



1. A method of testing a first memory having a data storage at a plurality of individually addressable storage locations, each location having an individual address, and at least a portion of the individual addresses for the storage locations to be accessed during a normal read/write cycle being supplied as an output from a second memory, and wherein said second memory has a decoder associated therewith to provide decoded addresses as input signals to said second memory, comprising the steps of: during a testing cycle:

providing first memory specific addresses as inputs to said decoder;
decoding each said first memory specific address in said decoder; and
providing the output of said decoder as input signals representing/as said at least a portion of the individual addresses to be accessed to said first memory;
wherein said step of providing the output of said decoder comprising using said decoder to generate input signals directly, not through the second memory to said first memory during the testing cycle.

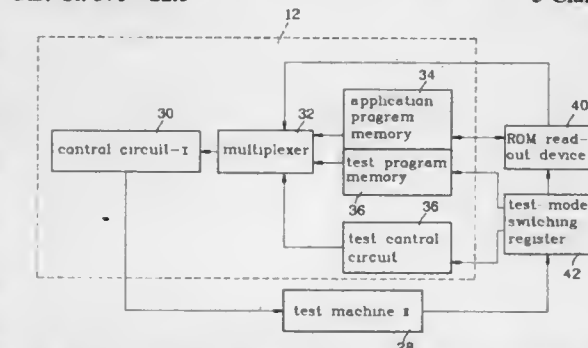
5,802,071
MICRO-CONTROLLER WITH A BUILT-IN TEST CIRCUIT AND METHOD FOR TESTING THE SAME
I. Liang Fang, and Kuo Cheng Yu, both of No. 5, Creation Rd. II. Science-Based Industrial Park, Hsinchu, Taiwan

Filed Nov. 17, 1995, Ser. No. 560,311

Int. Cl.⁶ G01R 31/28; G11C 29/00; G06F 11/00

U.S. Cl. 371—22.1

5 Claims



1. A test method for testing a micro-controller sending test results to a test instrument comprising the steps of:
(a) obtaining a micro-controller which contains:

- a program memory containing an application program memory and a test program memory, and a test control circuit which is separate from said program memory;
 - a test-mode switching register in cooperation with a multiplexer for selecting either said application program memory or said test program memory for execution, or bypassing said program memory by selecting said test control circuit; and
- (b) using a test instrument to send an instruction so as to subject said micro-controller to a test procedure according to an internal test mode, an external test mode, or an application-program-read mode, wherein:
- during said external test mode, said test control circuit is selected so that said test is conducted externally in said test instrument;
 - during said internal test mode, said test program memory is selected such that said test conducted is internally within said micro-controller;
 - after said external and internal tests are conducted, said application-program-read mode is selected so that said application will be executed.

5,802,072

Patent Not Issued For This Number

5,802,073

BUILT-IN SELF TEST FUNCTIONAL SYSTEM BLOCK FOR UTOPIA INTERFACE

Alfred Platt, Cupertino, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

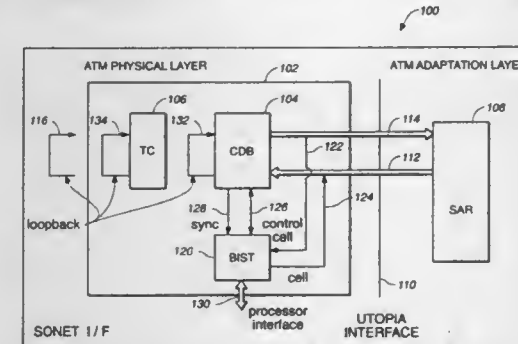
Continuation of Ser. No. 311,623, Sep. 23, 1994, abandoned.

This application Jun. 4, 1997, Ser. No. 868,853

Int. Cl.⁶ G01R 31/28

U.S. Cl. 371—22.5

2 Claims



1. A method of self-testing a network interface integrated circuit having a Universal Test & Operations PHYInterface for ATM (UTOPIA) interface using a built-in self test block, comprising the steps of:

- generating in a built-in self test block a sequence of user cells with random content, said generated sequence of user cells having a signature;
- transmitting said sequence of generated user cells from a transmitter contained in said built-in self test block of the network interface integrated circuit and having a state machine contained in the built-in self test block of the network interface integrated circuit wait until the receiving of the transmitted sequence of user cells is synchronized with the transmitted sequence of generated user cells;
- receiving the transmitted sequence of user cells with a receiver also contained in the built-in self test block of the network interface integrated circuit;
- compressing the received sequence of user cells into a received sequence signature;
- comparing in the built-in self test block of the network interface integrated circuit the received sequence signature

- with the signature of the generated sequence of user cells to determine an error in transmission through the network interface integrated circuit;
- generating a signal indicating that the network interface integrated circuit has passed a self test if the received sequence signature is the same as the signature of the generated sequence of user cells;
- controlling the operation of the steps of generating, transmitting receiving, compressing, and comparing with a state machine contained within the built-in self test block of the network interface integrated circuit.

5,802,074

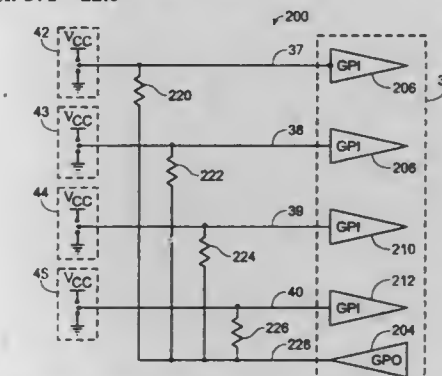
METHOD AND APPARATUS FOR THE NON-INVASIVE TESTING OF PRINTED CIRCUIT BOARD ASSEMBLIES
Jerald N. Hall, Scappoose, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 19, 1996, Ser. No. 715,857

Int. Cl.⁶ H05K 1/00

U.S. Cl. 371—22.6

30 Claims



13. A printed circuit board assembly including a plurality of configuration selectors selectively configurable into a plurality of configuration positions, each one of the plurality of configuration positions having an associated output, the printed circuit board assembly comprising:

- a processor;
- a first plurality of traces, correspondingly coupled to the plurality of configuration selectors;
- a first plurality of ports, coupled to the first plurality of traces and the processor, the processor operative to place thereon electrical signals of a first state at a first time and a second state at a second time; and
- a second plurality of traces, correspondingly coupled to the first plurality of traces and the processor, for receiving the associated output at the first time and the second time from the plurality of configuration selectors, wherein the processor is operative to identify misconfigured or malfunction ones of the plurality of configuration selectors based, at least in part on the associated output of each of the plurality of configuration selectors.

5,802,075

DISTRIBUTED TEST PATTERN GENERATION
Shawn R. Carpenter, Minneapolis, and Samuel J. Lewis, Andover, both of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

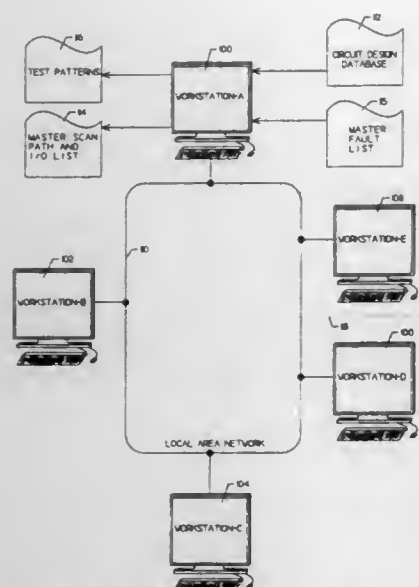
Filed Jan. 16, 1997, Ser. No. 783,344

Int. Cl.⁶ G06F 11/00

U.S. Cl. 371—27.1

38 Claims

1. A method for generating a number of test patterns for a circuit design, wherein each of the number of test patterns include a number of test bits, the circuit design having a number of controllable locations and a number of observable locations wherein selected ones of the number of controllable and observable loca-



tions corresponds to one of the number of test bits of each of the number of test patterns, the test patterns being generated on a number of data processing elements including a master data processing element, the method comprising the steps of:

- partitioning the circuit design into a number of partitions using the master data processing element, wherein each of the number of partitions include selected ones of the number of controllable and observable locations;
- sending a first selected set of the number of partitions to a first one of the number of data processing elements;
- sending a second selected set of the number of partitions to a second one of the number of data processing elements;
- generating a number of first local test patterns for the first selected set of the number of partitions on the first one of the number of data processing elements, wherein each of the number of first local test patterns include a number of first local test bits, and each of the first local test bits correspond to a selected one of the number of controllable and observable locations that are associated with the first selected set of the number of partitions;
- generating a number of second local test patterns for the second selected set of the number of partitions on the second one of the number of data processing elements, wherein each of the number of second local test patterns include a number of second local test bits, and each of the second local test bits correspond to a selected one of the number of controllable and observable locations that are associated with the second selected set of the number of partitions; and
- merging the number of first local test patterns and the number of second local test patterns to provide selected ones of the number of test patterns for the circuit design.

5,802,076

AUDIO ERROR MITIGATION TECHNIQUE FOR A TDMA COMMUNICATION SYSTEM

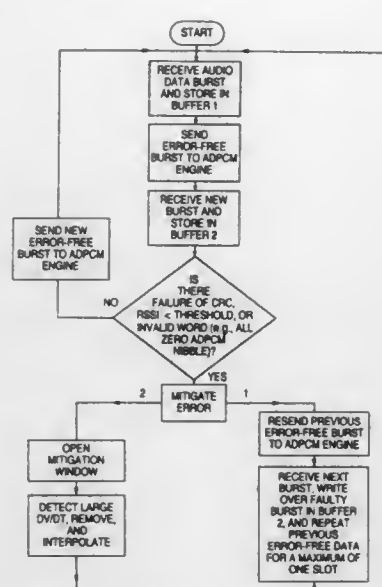
David L. Weigand, Sunnyvale, Calif.; Charles J. Malek, Crystal Lake, Ill.; Gerard G. Socci, Palo Alto, Calif.; Fatih Unal, Sunnyvale, Calif., and S. Dilip, San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.
Filed May 24, 1996, Ser. No. 653,531
Int. Cl. H04L 1/20

U.S. Cl. 371—31

15 Claims

1. An audio error mitigation method for a TDMA communication system, said system transmitting and receiving bursts of data within slot times, said method comprising the steps of: receiving a burst of data containing audio data within a slot time in said TDMA system;

detecting whether any one of the following criteria is met for said burst: a Cyclic Redundancy Check (CRC) error, a



received signal strength below a threshold level, or an invalid code word in said burst; and upon detection that any one of said criteria is met, performing an audio mitigation routine on said burst.

5,802,077

METHOD AND APPARATUS FOR OBTAINING HIGH INTEGRITY AND AVAILABILITY IN A MULTI-CHANNEL SYSTEM

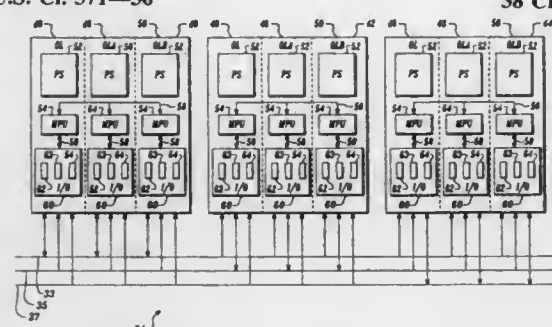
Ying Chin Yeh, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 15, 1995, Ser. No. 441,580

Int. Cl. G06F 11/00

U.S. Cl. 371—36

38 Claims



34. A method for detecting transmitter faults in a control system having a plurality of control channels coupled to a global communication medium, wherein each channel contains a plurality of lanes for processing data, the method comprising:

for each channel:

- (a) generating a lane opinion in each lane which indicates whether the lane has detected a transmitter fault;
- (b) performing a cross-consolidation in each lane of the lane opinions to produce a lane majority opinion which indicates whether a majority of the lanes of the channel have detected the transmitter fault; and
- (c) performing a cross-consolidation in each lane of the lane majority opinions for each channel to produce a channel majority opinion which indicates whether a majority of the channels coupled to the global communication medium have detected the transmitter fault.

5,802,078

ERROR DETECTOR FOR ERROR DETECTING CODES

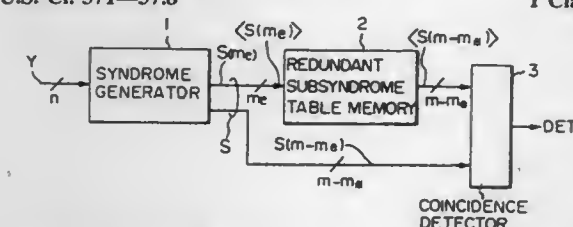
Kenzo Urabe, Sendai; Gibo Makino, Tokyo; Syunji Tochihara, Tokyo; Yasuhiro Murayama, Tokyo, and Atsushi Hoshi, Tokyo, all of Japan, assignors to Kokusai Electric Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 504,326, Jul. 19, 1995, abandoned, which is a continuation of Ser. No. 982,467, Nov. 27, 1992, abandoned. This application Oct. 24, 1996, Ser. No. 736,260

Int. Cl. G06F 11/00

U.S. Cl. 371—37.8

1 Claim



1. An error detector for error correcting block codes comprising: a syndrome generator receptive of received words of n (a natural number) bits for computing and outputting an m -bit receiving syndrome depending on an algebraic structure of an error correcting block code which has a code length of n bits and a parity length of m (a natural number, $n > m$) bits;

a redundant subsynonme table memory, for receiving as address data, a relevant m_e -bit representative subsynonme (m_e : natural number, $m > m_e$), the m_e bits being included in an m -bit acceptable syndrome for error with a predetermined number of error bits equal to or less than e (a natural number) and being established for locating the positions of the predetermined number of error bits, and for prestoring as memory data, an $(m-m_e)$ -redundant subsynonme, which is a redundant remainder obtained from said m -bit acceptable syndrome by excluding said m_e -bit representative subsynonme, used for the address data; and

a coincidence detector for receiving said prestored $(m-m_e)$ bit redundant subsynonme from said redundant subsynonme table memory by only one time accessing thereto and an $(m-m_e)$ -bit received subsynonme obtained by selecting those bits corresponding to the $(m-m_e)$ -bit redundant subsynonme from the m -bit received syndrome supplied by said generator, for detecting whether or not both inputs thereto coincide with each other by only one time comparing mutually said both inputs, and for outputting the detected result in binary form.

5,802,079

TRANSMISSION SYSTEM FOR DIGITAL AUDIO BROADCASTING

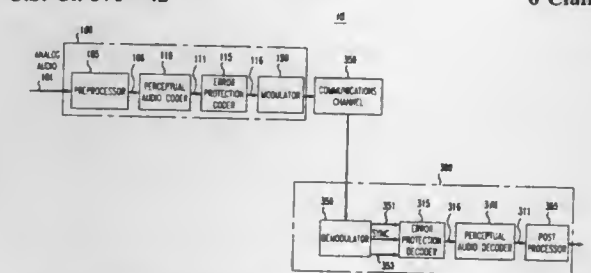
Jin-Der Wang, Ocean, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 4, 1996, Ser. No. 628,118

Int. Cl. H04L 7/00

U.S. Cl. 371—42

6 Claims



1. An apparatus for use in a communications receiver, the apparatus comprising: a frame detector for providing a frame synchronization signal that is representative of whether a received frame is valid or invalid;

said frame detector having a correlator for processing a first signal to provide a correlated signal, the first signal being representative of a sequence of frames, each frame comprising a plurality of symbols and further divided into a header portion and a data portion;

a matching circuit for comparing the correlated signal to at least one predetermined signal pattern indicative of the header portion of each frame and for generating the frame synchronization upon detection of the header portion; and error correcting circuitry that is inhibited by the frame synchronization signal from correcting an invalid received frame.

5,802,080

CRC CHECKING USING A CRC GENERATOR IN A MULTI-PORT DESIGN

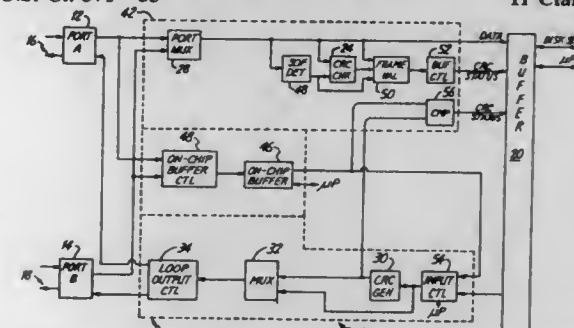
Judy Lynn Westhy, Bloomington, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Mar. 28, 1996, Ser. No. 623,508

Int. Cl. G06F 11/00; H03M 13/00

U.S. Cl. 371—53

11 Claims



9. In a module for connection to a computer network and having a plurality of ports for exchanging data with the network, the module including an error code generator for generating an error code associated with data to be transmitted, the received data including an error code, the module having first and second buffers for storing data received through separate ones of the ports and an error checker to verify the integrity of data received by one of the ports and stored in the first buffer, the process of verifying the integrity of data received by another one of the ports and stored in the second buffer comprising:

operating the error code generator to generate an error code based on the received data stored in the second buffer, and comparing the generated error code to the error code stored in the second buffer.

5,802,081

DIGITAL INFORMATION MODULATING APPARATUS

Takeo Ohishi, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Jun. 27, 1995, Ser. No. 495,071

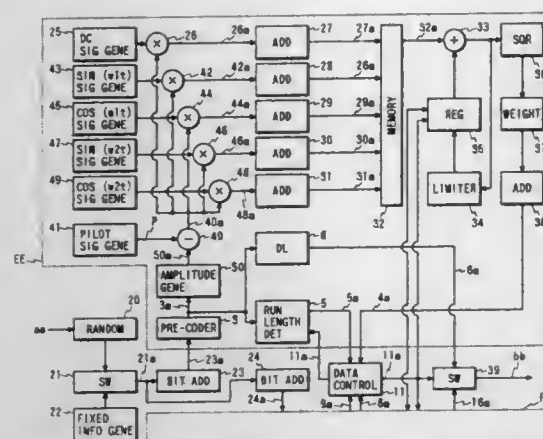
Claims priority, application Japan, Jun. 29, 1994, 6-170211

Int. Cl. G11B 20/08

U.S. Cl. 371—55

14 Claims

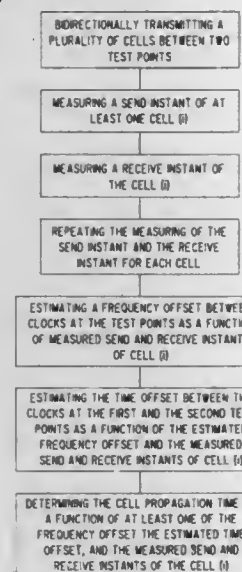
1. A digital information modulating apparatus comprising: means for dividing information into first blocks each having m bits, where m denotes a predetermined natural number; means for adding n bit or bits in each of S different states to a head of each of the first blocks to change the first block into S second blocks each having $m+n$ bits, where n denotes a predetermined natural number and S denotes a predetermined natural number equal to or smaller than 2^n ; means for pre-coding each of the S second blocks into S pre-coded information blocks respectively; means for selecting one of the S pre-coded information blocks as a modulation-resultant information signal in response to error signals related to the S pre-coded information blocks respectively.



tively, the modulation-resultant information signal having q different notch frequencies;
means for converting the S pre-coded information blocks into S amplitude signals representing amplitude values respectively;
means for generating $2q$ different waveform signals grouped into a set of q first waveform signals and a set of q second waveform signals, the q first waveform signals representing waveforms related to the q notch frequencies respectively, the q second waveform signals being different in phase from the q first waveform signals by 90° respectively;
means for multiplying each of the S amplitude signals and the $2q$ waveform signals into $2q$ multiplication-resultant signals;
means for adding and accumulating the $2q$ multiplication-resultant signals into $2q$ addition-resultant signals respectively with respect to each of the S pre-coded information blocks; and
means for generating an error signal in response to the $2q$ addition-resultant signals, and thereby generating the S error signals related to the S pre-coded information blocks respectively.

5,802,082
METHOD AND DEVICE FOR MEASURING CELL PROPAGATION TIME IN ATM NETWORKS
Carsten Roppel, Ronshausen, Germany, assignor to Deutsche Telekom AG, Bonn, Germany
Filed Jul. 25, 1996, Ser. No. 687,239
Claims priority, application Germany, Jul. 25, 1995, 195 27 061.4

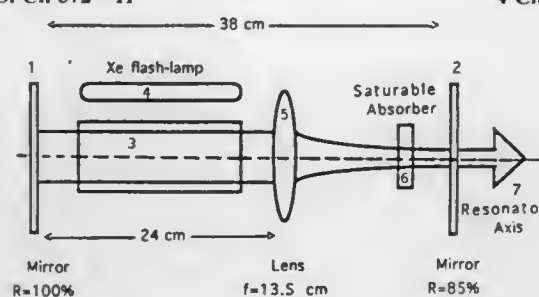
U.S. Cl. 371—62 Int. Cl. G06F 11/00



9 Claims

5,802,083
SATURABLE ABSORBER Q-SWITCHES FOR 2- μ M LASERS
Milton Birnbaum, 4904 Elkridge Dr., Rancho Palos Verdes, Calif. 90275, assignor to Milton Birnbaum, Rancho Palos Verdes, Calif.
Filed Dec. 11, 1995, Ser. No. 570,719
Int. Cl. H01S 3/113

U.S. Cl. 372—11 4 Claims



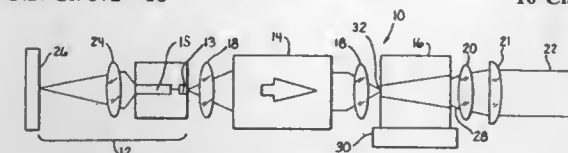
Passive Q-switching experimental setup.

1. A laser system, comprising:
a laser resonator cavity having a resonant axis;
a lasing element within the laser resonator cavity, said lasing element selected from group of materials consisting essentially of: Cr:Tm:yttrium aluminum garnet (YAG), Tm:YAG, Tm:silicate glass, Ho³⁺:YVO₄, Ho³⁺:LiYF₄, Co²⁺:MgF₂, Ho³⁺:silicate glass, Ho³⁺:BaYb₂F₈, Ho³⁺:fluorozirconate glass, Ho³⁺:YAlO₃, or U³⁺:CaF₂;
means for optically pumping the lasing element; and
a saturable-absorber Q-switch lying along the resonant axis within the laser resonator cavity, the saturable absorber Q-switch comprising a host material selected from a group consisting essentially of: Ho³⁺:YLF, Ho³⁺:YVO₄, Ho³⁺:CaF₂, Cr²⁺:fosterite (Mg₂SiO₄), Co²⁺:MgAl₂O₄, Ni²⁺:ZnS, ZnSe, ZnTe, ZnS_{1-x}Se_x, and ZnSe_{1-x}Te_x, to thereby produce a 2 micron Q-switch laser.

5,802,084
GENERATION OF HIGH POWER OPTICAL PULSES USING FLARED MODE-LOCKED SEMICONDUCTOR LASERS AND OPTICAL AMPLIFIERS
John E. Bowers, Santa Barbara; Alan Mar, Arcadia, both of Calif.; Roger J. Helkey, Webster, Mass., and Judy Karin, Goleta, Calif., assignors to The Regents of the University of California, Oakland, Calif.
Filed Nov. 14, 1994, Ser. No. 337,985
Int. Cl. H01S 3/098

U.S. Cl. 372—18

10 Claims

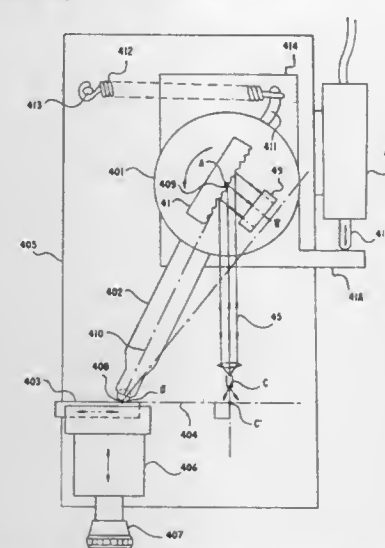


1. A pulsed laser assembly comprising:
a mode-locked semiconductor laser; and
a tapered semiconductor optical amplifier having an input optically coupled to an output of said mode-locked semiconductor laser,
wherein said mode-locked laser is a two-segment laser with a gain section and an absorber section, said gain section being flared, and
wherein said flared gain section is flared toward said absorber section,
whereby increased power output is realized.

5,802,085
SINGLEMODE LASER SOURCE TUNABLE IN WAVELENGTH WITH A SELF-ALIGNED EXTERNAL CAVITY
Hervé Lefevre, Paris; Philippe Martin, Pontchartrain; Bernard LaLoux, Villepreux; Philippe Graindorge, Chevigny-St-Sauveur, and Laurent Disdier, Marly-Le-Roi, all of France, assignors to Photonics S.A., Marly-Le-Roy, France
Division of Ser. No. 432,021, May 1, 1995, Pat. No. 5,594,744.
This application Nov. 13, 1996, Ser. No. 748,915
Claims priority, application France, Sep. 13, 1994, 94 10925
Int. Cl. H01S 3/10

U.S. Cl. 372—20

1 Claim



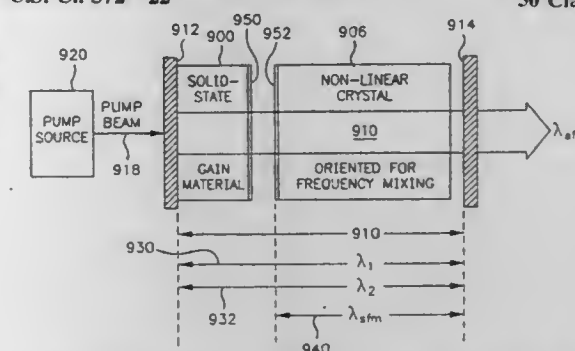
1. Singlemode laser source tunable in wavelength with a self-aligned external cavity, comprising:
a resonant cavity having a partially reflecting output face and a retroreflecting dispersive device defining a main collimating axis and a secondary collimating axis; and
an amplifier wave guide disposed inside the resonant cavity, wherein the retroreflecting dispersive device comprises a plane diffraction grating having dispersion planes and an orthogonal

reflecting dihedral whose line of intersection is parallel to the dispersion plane of the diffraction grating containing the collimating axes, and wherein the diffraction grating and the dihedral each have an orientation; said laser source further comprising adjustment means for adjusting the orientation of at least one of the elements including the diffraction grating and the dihedral.

5,802,086
SINGLE CAVITY SOLID STATE LASER WITH INTRACAVITY OPTICAL FREQUENCY MIXING
David E. Hargis, La Jolla, and Maurice A. Pessot, San Diego, both of Calif., assignors to Laser Power Corporation, San Diego, Calif.
Filed Jan. 29, 1996, Ser. No. 593,094
Int. Cl. H01S 3/10

U.S. Cl. 372—22

50 Claims



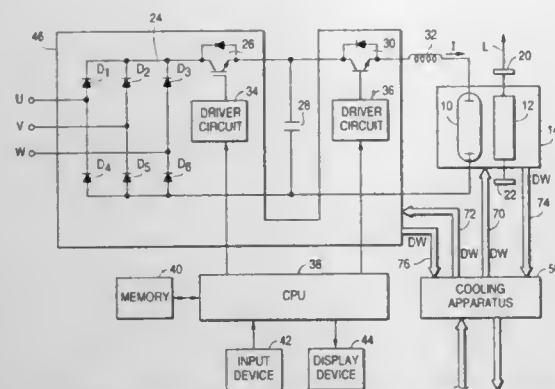
1. An intracavity-mixed continuous wave (cw) solid state laser device that is optically pumped by a pump beam, comprising:
an optically resonant cavity that defines a single beam path for a first and a second wavelength, including a first reflective surface and a second reflective surface that are substantially reflective at said second wavelengths said first reflective surface being substantially transmissive to said pump beam;
a solid state gain material disposed within said optically resonant cavity and within said single beam path, said gain material having a first gain transition at the first wavelength and a second gain transition at the second wavelength different from said first wavelength, said solid state gain material defining a first lasing polarization direction for said first gain transition and a second lasing polarization direction for said second transition, said solid state gain material being closely positioned to said first reflective surface; and
a nonlinear crystal disposed within said optically resonant cavity and oriented with respect to said solid state gain material to optically mix laser radiation at said first and second wavelengths to provide a third, frequency-mixed wavelength.

5,802,087
LASER APPARATUS
Kohji Takaichi, Chiba-ken, Japan, assignor to Miyachi Technologies Corporation, Noda, Japan
Filed Jan. 11, 1996, Ser. No. 584,691
Claims priority, application Japan, Jan. 11, 1995, 7-018732
Int. Cl. H01S 3/04

U.S. Cl. 372—35

15 Claims

1. A laser apparatus comprising:
a laser oscillator having a first fluid flow passage extending there through;
an electric power supply electrically connected to said laser oscillator for supplying electric power thereto, said electric power supply comprising a plurality of electrical components; a heat-conductive heat sink having at least some of said electrical components of said electric power supply mounted thereon so as to be thermally coupled to said heat sink and



having a second fluid flow passage extending there through so as to be electrically isolated from said electrical components; and
a cooling water supply communicating through piping with said first and second fluid flow passages so as to be capable of supplying common cooling water to both said laser oscillator and said heat sink.

5,802,088

STACK TYPE SEMICONDUCTOR LASER DEVICE
Yoshinori Otsuka; Kinya Atsumi, both of Okazaki, and Yuji Kimura, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

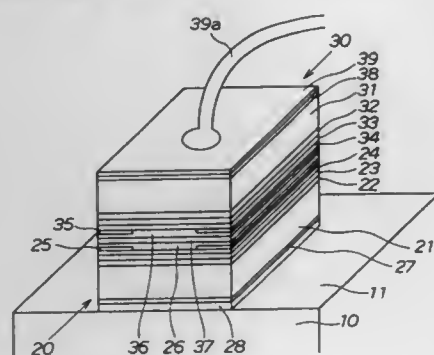
Filed Sep. 25, 1996, Ser. No. 719,210

Claims priority, application Japan, Sep. 28, 1995, 7-251495

Int. Cl.⁶ H01S 3/04; 3/19; 3/091; 3/097

U.S. Cl. 372—36

11 Claims



1. A stack type semiconductor laser device comprising:
 - a first semiconductor laser element which comprises a first conductivity type substrate, a first semiconductor layer including a first light emitting layer and disposed on a primary surface of said first conductivity type substrate, a first electrode disposed on said first semiconductor layer, and a second electrode disposed on a secondary surface of said first conductivity type substrate;
 - a first connector, connected to said second electrode, for supplying operational current to said laser device;
 - a second semiconductor laser element which comprises a second conductivity type substrate, a second semiconductor layer including a second light emitting layer and disposed on a primary surface of said second conductivity type substrate, a third electrode disposed on said second semiconductor layer, and a fourth electrode disposed on a secondary surface of said second conductivity type substrate;
 - a second connector, connected to said fourth electrode, for receiving operational current supplied by said first connector; and
 - a pedestal to which said second electrode of said first semiconductor laser element is bonded, wherein said second semiconductor laser element is stacked on said first semiconductor element with said first electrode of

said first semiconductor element and said third electrode of said second semiconductor laser element being conductively bonded to each other in such a manner that both beam irradiation directions of said first and second semiconductor laser elements are the same.

5,802,089

LASER DIODE DRIVER HAVING AUTOMATIC POWER CONTROL WITH SMOOTH ENABLE FUNCTION

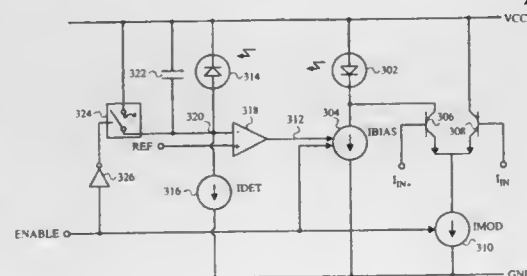
Garry N. Link, Aloha, Oreg., assignor to Maxim Integrated Products, Inc., Sunnyvale, Calif.

Filed Oct. 22, 1996, Ser. No. 731,889

Int. Cl.⁶ H01S 3/00; 3/10; 3/13

U.S. Cl. 372—38

21 Claims



1. A laser diode driver for driving a laser, comprising:
 - a light sensing device coupled between a voltage supply and a node, said light sensing device senses optical power of the laser;
 - a current source coupled to said light sensing device at the node;
 - an amplifier having an inverting input and a non-inverting input and producing a bias control signal, the inverting input being coupled to the node and the non-inverting input being coupled to receive a reference voltage, and the bias control signal being used to control the driving of the laser;
 - a capacitor coupled between the voltage supply and the node; and
 - holding means for holding the bias control signal below a predetermined level during a start-up period.

5,802,090

ROOM TEMPERATURE DIODE LASER EMITTING IN THE 2-5 MICROMETER WAVELENGTH RANGE

Pamela Kay York, Yardley, Pa., and Ramon Ubaldo Martinelli, Hightstown, N.J., assignors to David Sarnoff Research Center, Inc., Princeton, N.J.

Continuation of Ser. No. 545,181, Oct. 19, 1995, abandoned.

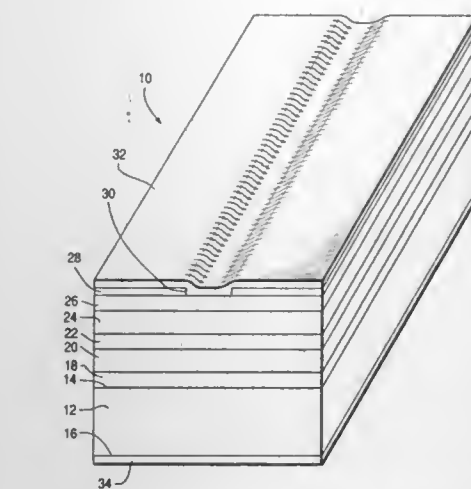
This application May 13, 1997, Ser. No. 854,988

Int. Cl.⁶ H01S 3/19

U.S. Cl. 372—45

9 Claims

1. A semiconductor diode laser which emits radiation in the 2-5 micron wavelength regime comprising:
 - an active layer of InGaAsSb; and
 - a cladding layer on each side of the active layer with one of the cladding layers being of n-type conductivity and the other cladding layer being of p-type conductivity and with at least



the n-type conductivity cladding layer being of either InAlPb or InGaPb.

5,802,091

TANTALUM-ALUMINUM OXIDE COATINGS FOR SEMICONDUCTOR DEVICES

Utpal Kumar Chakrabarti, Allentown, Pa.; William Henry Grodkiewicz, Glen Gardner, and Ping Wu, Berkeley Heights, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 27, 1996, Ser. No. 758,630

Int. Cl.⁶ H01S 3/19

U.S. Cl. 372—49

13 Claims



1. An active optical device comprising:
 - an active region of semiconductor material,
 - a coating disposed over said region, and
 - a medium adjacent said coating and through which optical radiation propagates, characterized in that said coating comprises a single layer of an oxide of tantalum and aluminum.

5,802,092

DIODE LASER SOURCE WITH CONCURRENTLY DRIVEN LIGHT EMITTING SEGMENTS

John Endriz, Belmont, Calif., assignor to SDL, Inc., San Jose, Calif.

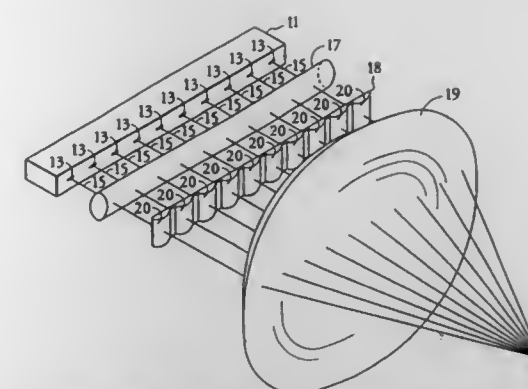
Continuation of Ser. No. 269,358, Jun. 30, 1994, Pat. No. 5,594,752, which is a continuation-in-part of Ser. No. 986,207, Dec. 7, 1992, Pat. No. 5,745,153. This application Oct. 25, 1996, Ser. No. 738,216

Int. Cl.⁶ H01S 3/18; 3/19; G02B 27/10

U.S. Cl. 372—50

35 Claims

1. A multibeam optical unit comprising:
 - a plurality of laser elements formed in a monolithic laser diode array, each laser element comprising a plurality of laser emitters addressable as an emitter group providing an output of plural light beams;
 - means for electrically addressing said laser elements independently of one another;
 - beam optics disposed in front of each of said laser elements, said beam optics including a lens system disposed in front of and aligned with a corresponding one of said laser emitter groups



to converge the light beams emitted from the plural emitters of an emitter group into a single overlapping spot for that group to preserve their overall brightness;

said emitter groups forming with said beam optics a plurality of high intensity, single overlapped light spots, each of which comprises light beams from all of the emitters of an emitter group so that, at a focal plane of said beam optics, a plurality of spatially aligned high intensity overlap spots is formed substantially aligned in a plane of said laser elements, failure of any one or emitters in any particular emitter group will cause only a slight decrease in optical power and brightness with substantially no size change in its single overlapped light spot.

5,802,093

CONTINUOUS WAVE PHOTOLYTIC IODINE LASER

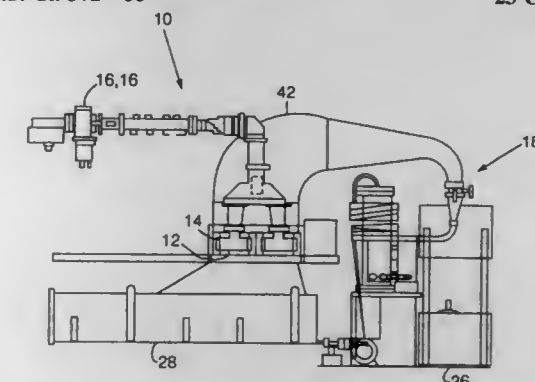
Sallie S. Townsend, 119 Coleman Rd., Manchester, Conn. 06040-3310, and Philip R. Cunningham, 2004A NM333, Edgewood, N. Mex. 87015

Filed May 22, 1996, Ser. No. 651,471

Int. Cl.⁶ H01S 3/22; 3/223

U.S. Cl. 372—55

23 Claims



1. A continuous wave photolytic iodine laser comprising:
 - a gain cell for receiving a continuous supply of gaseous fuel, having an optical axis; beam transfer optics, a laser resonator for shaping a laser beam, a lamp positioned along the optical axis, and a fuel inlet and exit;
 - a microwave subsystem in communication with the gain cell for driving the lamp, such that, a laser gain medium is pumped through the gain cell causing a lasing process to occur; and
 - a closed-loop fuel system for continuously presenting gaseous fuel to the gain cell, including:
 - a fuel inlet member in communication with the gain cell for receiving and presenting gaseous fuel to the gain cell inlet;
 - a condenser in communication with the fuel cell outlet for converting the gaseous fuel to a liquid;
 - a scrubber in communication with the condenser for removing any by-products of the lasing process from the liquefied fuel thereby purifying and preparing the fuel for recycling back to the gain cell;

pumping means interposed between the scrubber and the condenser for pressurizing and pumping the liquefied fuel; an evaporator in communication with the scrubber for receiving and converting the purified liquid fuel to a gas, thereby causing a further increase in pressure which forces the gaseous fuel through the gain cell; said closed loop fuel system pressure causes the gaseous fuel to flow through the gain cell at such a rate as to entrain substantially all of the by-products of the lasing process and transport them out of the gain cell thereby preventing quenching of the lasing process.

5,802,094

NARROW BAND EXCIMER LASER

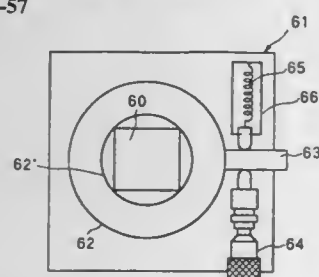
Osamu Wakabayashi, Masahiko Kowaka, and Yukio Kobayashi, all of Hiratsuka, Japan, assignors to Kabushiki Kaisha Komatsu, Seisakusho, Japan

Continuation-in-part of Ser. No. 573,593, Dec. 15, 1995, Pat. No. 5,596,596, which is a continuation of Ser. No. 164,613, Dec. 8, 1993, abandoned, which is a continuation of Ser. No. 775,998, Nov. 14, 1991, abandoned. This application Oct. 10, 1996, Ser. No. 728,448

Int. Cl.⁶ H01S 3/22

U.S. Cl. 372—57

7 Claims



1. A narrow band excimer laser comprising:
a laser chamber filled with a laser gas;
a laser beam output coupling mirror provided to one side of the laser chamber;
a grating having a plurality of grooves provided to another side of the laser chamber, for acting as a wavelength-selecting element; and
a beam expander provided between the laser chamber and the grating,
whereby a laser beam of narrowed bandwidth is output through the laser beam output coupling mirror by irradiating a laser beam generated by the electric discharge excitation in the laser chamber onto the grating via the beam expander,
wherein the narrow band excimer laser further comprises:
an optical element provided between the laser chamber and the grating on an optical axis of the laser beam, for rotating the laser beam about the optical axis thereof; and
supporting means for supporting the optical element and rotating the optical element about the optical axis of the laser beam, wherein the laser beam is rotated by the rotation of the optical element by using the supporting means to make adjustments such that a plane containing a direction in which a width of the laser beam incident upon the beam expander is narrower is parallel with a plane containing a direction of beam-expansion by the beam expander, and the beam expansion direction of the laser beam incident upon the grating is perpendicular to a direction of the plurality of grooves of the grating.

5,802,095

OXYGEN-IODINE LASER

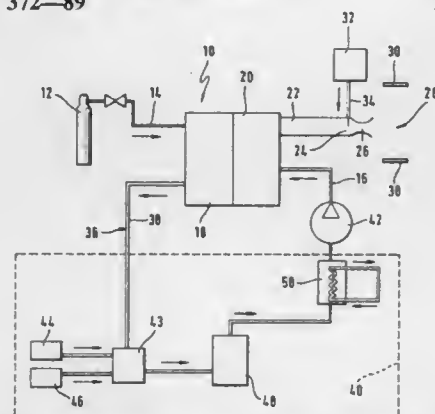
Wolfgang Schall, Waldenbuch, Germany, assignor to Deutsche Forschungsanstalt fuer Luft-und Raumfahrt e.V., Germany
Filed Jun. 13, 1996, Ser. No. 663,357

Claims priority, application Germany, Jun. 14, 1995, 195 21 688.1

Int. Cl.⁶ H01S 3/095

U.S. Cl. 372—89

25 Claims



1. An oxygen-iodine laser having a laser resonator with a laser-active gas mixture of excited oxygen and iodine flowing therethrough, comprising:
a reaction unit in which a chemical reaction between a reaction liquid and a reaction gas occurs to generate a gas stream comprising excited oxygen and entrained steam;
a steam trap with a condensation chamber through which the gas stream flows;
said steam trap comprising cold surfaces for separating the steam from the gas stream by condensation;
said cold surfaces being formed by surfaces of a condensation liquid moving in the condensation chamber; and
an iodine injector which injects iodine into the gas stream to generate the laser-active gas mixture.

5,802,096

DISTRIBUTED FEED BACK LASER WITH A GRATING STRUCTURE ADJUSTED FOR A REDUCED INTERMODULATION DISTORTION IN AN ANALOG AMPLITUDE MODULATION AND METHOD FOR FABRICATING THE SAME

Tetsuro Okuda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

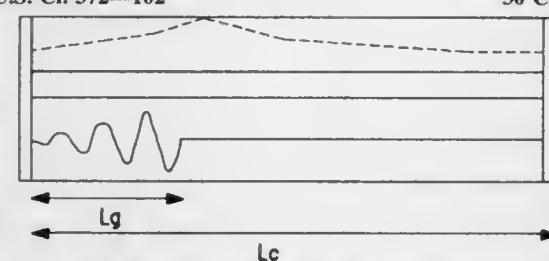
Filed Mar. 25, 1996, Ser. No. 621,946

Claims priority, application Japan, Mar. 23, 1995, 7-064067; Apr. 8, 1995, 7-107919

Int. Cl.⁶ H01S 3/08; 3/19

U.S. Cl. 372—102

30 Claims



1. A grating structure partially provided in a semiconductor laser device having a first facet of a first reflectivity and a second facet of a second reflectivity being larger than said first reflectivity, said grating structure extending within a half area near said first facet, wherein said grating structure has a grating length in a cavity direction of not more than one third of a cavity length defined as a distance between said first and second facets, wherein said grating structure has an integrated coupling coefficient value in the range of 0.4–0.6, said integrated coupling

coefficient value being obtained by integrating coupling coefficient of said grating structure with positions in said cavity direction,
wherein said grating structure comprises a single grating which continuously extends from said first facet toward a center of said semiconductor laser device, wherein said single grating has amplitudes which are continuously varied over positions over positions in said cavity direction,
wherein said amplitudes are linearly varied over positions in said cavity direction, and
are proportionally decreased toward said first facet.

5,802,097

MELTING METHOD FOR AN ELECTRIC ARC FURNACE WITH ALTERNATIVE SOURCES OF ENERGY AND RELATIVE ELECTRIC ARC FURNACE WITH SPECIAL BURNER POSITIONING

Gianni Gensini, Buia; Matteo Losciale, Udine, and Corrado De Cecco, Ragogna, all of Italy, assignors to Danieli & C. Officine Meccaniche s.p.a., Buttrio, Italy

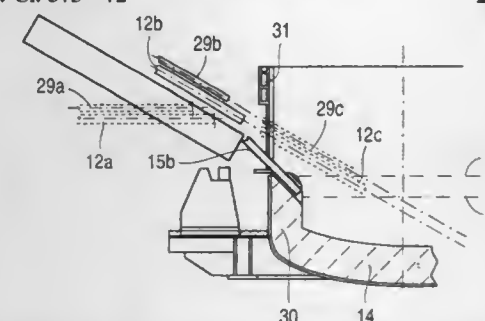
Filed Jan. 17, 1996, Ser. No. 583,727

Claims priority, application Italy, Jan. 17, 1995, UD95A0003

Int. Cl.⁶ F27D 1/00

U.S. Cl. 373—72

21 Claims



1. Melting method for an electric arc furnace with alternative sources of energy for melting of iron-based alloys, the electric furnace including oxygen tuyeres positioned on the bottom to deliver oxygen, at least one coal dust tuyere to deliver carbonaceous substances in about the area of contact between the bath of molten metal and the layer of slag, at least one supersonic oxygen lance for delivering oxygen and cooperating with a coal dust lance for delivering carbonaceous substances and positioned at the side of or above the supersonic lance, the supersonic oxygen lance and the coal dust lance having at least one waiting position outside the furnace, a working position in which the supersonic lance is positioned in close proximity to the surface of the layer of slag, and a path of introduction between the at least one waiting position and the working position, a plurality of burners positioned on cooled sidewalls of the furnace in the vicinity of the upper edge of underlying refractory material of the furnace and downwardly oriented for delivering oxygen-based gases and combustible substances, whereby action of one burner of at least two first burners supports action of the next one, the furnace being charged with one or more charges, a refining step and a tapping step being conducted after melting of the last charge, which method comprises:

a first step of start-up melting of each charge,
a second step of melting each charge,
in the first step of start-up of the melting, operating at least one second burner for freeing quickly the path of introduction of the supersonic lance and of the coal dust lance into the furnace so as to bring these lances quickly to their working positions,
directing at least one third burner towards the center of the furnace in cooperation with at least part of an area at which oxygen delivered by an oxygen tuyere emerges to the surface of the bath,
using the plurality of burners in the first step as burners and in the second step as subsonic oxygen lances and in a third step are substantially shut off,

delivering carbonaceous substances into the furnace and directing delivery of the carbonaceous substances towards the center of the furnace so as to take action in cooperation with the slab both above the slag and between the slag and the molten metal,
causing the reactions $Fe+O=FeO$, $FeO+C=Fe+CO$ to take place within the bath of molten metal just above the surface of the molten metal and at about a thickness of the slag, which is processed to become foamy slag, and
causing the reaction $CO+O=CO_2$ to take place just above the surface of the molten metal and at about the thickness of the slag so as to carry out the post-combustion process with a maximum transfer of heat to the metal within the furnace.

5,802,098

MELTING VESSEL WITH FASTENING, MOUNTING AND TILTING DEVICES

Alfons Birrenbach, Oberhausen, Germany, assignor to MAN Gutehoffnungshütte Aktiengesellschaft, Oberhausen, Germany

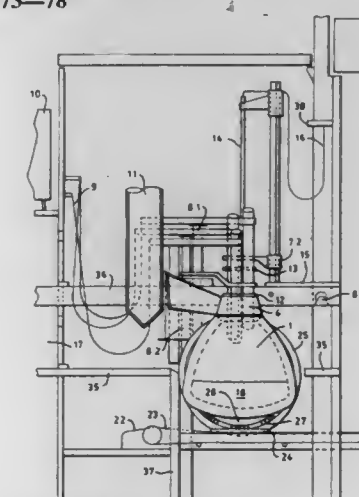
Filed Mar. 15, 1996, Ser. No. 616,435

Claims priority, application Germany, Mar. 15, 1995, 195 09 285.6

Int. Cl.⁶ F27D 23/00

U.S. Cl. 373—78

12 Claims



1. A melting apparatus comprising:
a framework;
a melting vessel positioned on said framework;
a running rail mounted on said framework;
an inner rim mounted on said melting vessel;
an outer rim rotatably mounted on said inner rim, said outer rim being rollable on said running rail;
cable means located on said framework and in contact with said outer rim, said cable means is for moving said melting vessel along said running rail;
rim locking means for locking said inner rim to said outer rim;
a blast lance positionable in said melting vessel;
lance lifting and pivoting means connected to said blast lance and said framework, said lance pivoting and lifting means moving said blast lance into and out of said melting vessel;
an electrode positionable in said melting vessel;
electrode holder means connected to said electrode and said framework, said electrode holder means moving said electrode into and out of said melting vessel.

UMI

1. In a communication system in which digital information is transmitted at variable rates over a communication channel, a method for measuring a performance of said communication channel comprising the steps of:

- transmitting a test sequence of frames of digital data at one or more of a plurality of selectable rates over said communication channel wherein said rate of each of said frames is selected in accordance with a model of human speech;

a post filter for receiving the synthetic sound signal and the linear predictive coefficient and outputting a sound signal; and a power controller for receiving the quantized power, the VOX mode information and the sound signal outputted from said post filter and controlling the power of the sound signal to be outputted from said post filter when the VOX mode information represents a sound absent interval and background noise is to be produced.

5,802,110

WIRELESS MOBILE SYSTEM

Masatoshi Watanabe, Tokyo; Kazuyuki Miya, Machida, and Osamu Kato, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

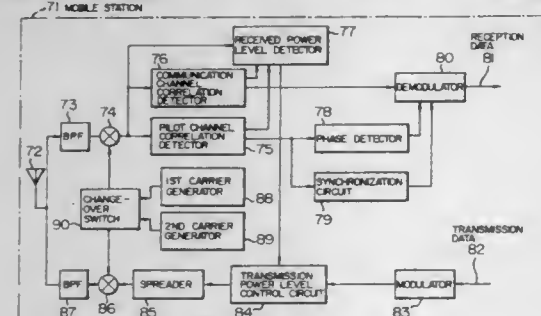
Filed Feb. 9, 1995, Ser. No. 385,961

Claims priority, application Japan, Feb. 16, 1994, 6-019367

Int. Cl.⁶ H04L 27/00; H04K 1/00

U.S. Cl. 375-259

18 Claims



1. A wireless mobile system having a base station and a mobile station wherein:

said base station comprises

means for transmitting a first transmission signal to said mobile station over a first communication channel at a second carrier frequency during a first interval of time and at a first carrier frequency during a second interval of time, said second interval of time not overlapping said first interval of time; and

pilot channel generator means for generating a pilot channel output signal synchronized with said first communications channel, the output signal of said pilot channel generating means comprising a fixed data pattern wherein all of the bits are either "0" or "1"; and

said mobile station comprises

means for transmitting a second transmission signal to said base station over a second communication channel allocated to the mobile station, said second transmission signal being transmitted at said first carrier frequency during said first interval of time and at said second carrier frequency during said second interval of time;

communication channel correlation detector means for performing a first correlation detection to separate said second communication channel from said first communication channel transmitting a reception signal, said reception signal being the first transmission signal received by said mobile station;

pilot channel correlation detector means for performing a second correlation detection to separate a pilot channel from said first communication channel;

received power level detector means for detecting a received power level of said pilot channel detected by said pilot channel correlation detector means at the first and second carrier frequencies of said first transmission signal, and for responding to the output of the communication channel correlation means; and

transmission power level control means for controlling, based on the received power level of said pilot channel, a transmission power level at the time of transmission of said second transmission signal at a carrier frequency equal to a frequency of said received first transmission signal

whereby a received power level of said second transmission signal at said base station is maintained at a predetermined constant value.

5,802,111

COMPLEX CONSTITUTION POINT MULTIPLIER

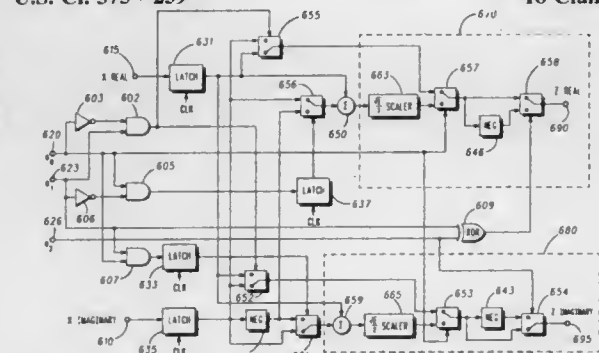
John W. Diehl, Elmhurst, and Henry L. Kazecki, Arlington Heights, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 24, 1997, Ser. No. 804,866

Int. Cl.⁶ H04K 27/00; G06F 7/52

U.S. Cl. 375-259

18 Claims



5,802,116

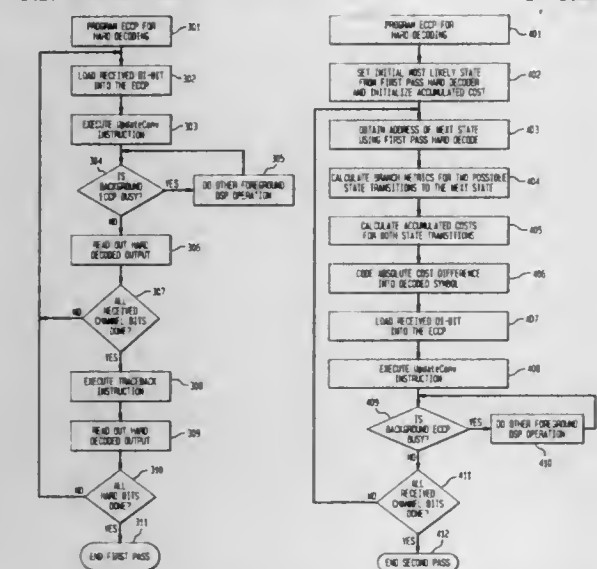
SOFT DECISION VITERBI DECODING WITH LARGE CONSTRAINT LENGTHS

Thomas W. Baker, North Whitehall Township, Pa., and Mohammed S. Mobin, Old Bridge, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 4, 1996, Ser. No. 628,072
Int. Cl.⁶ G06F 11/10; H03M 13/12

U.S. Cl. 375—341

17 Claims



1. A method for soft-symbol decoding a received set of digital signals, comprising the steps of:
performing a first pass Viterbi operation on said set of digital signals for a hard bit decoded output; and
using said hard bit decoded output indicating a best path estimate of said received set of digital signals, on which to perform a second pass Viterbi operation for a soft symbol decoded output.

5,802,117

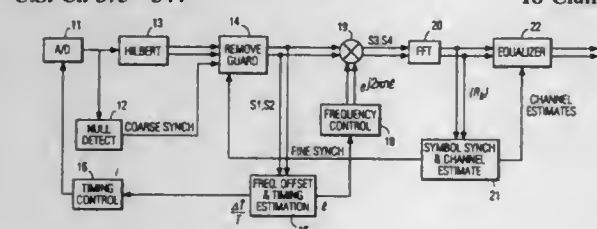
METHOD AND APPARATUS FOR JOINT FREQUENCY OFFSET AND TIMING ESTIMATION OF A MULTICARRIER MODULATION SYSTEM

Monisha Ghosh, Mohegan Lake, N.Y., assignor to Philips Electronics North America Corporation, New York, N.Y.

Filed Feb. 8, 1996, Ser. No. 605,318
Int. Cl.⁶ H04L 27/06

U.S. Cl. 375—344

18 Claims



1. A transmitter-receiver system for transmitting and receiving multicarrier modulated digital signals, comprising:
a transmitter for transmitting data as a multicarrier modulated signal, said transmitter including means for transmitting at least a first single tone signal and a second single tone signal to precede said multicarrier modulated data signal, said multicarrier modulated data signal and said preceding single tone signals comprising a data structure; and
a receiver for receiving said data structure, and compensating for a frequency offset and a timing mismatch prior to demodulating said multicarrier modulated signal, said receiver comprising:

a sampler for symbol detection of said multicarrier modulated signal and appended single tone signals wherein said sampler detects N samples of each of said distinct tone signals over a symbol interval, each of said single tone signals having a frequency equal to an even multiple of the inverse of said symbol interval;

a frequency offset and timing estimator for retrieving said distinct single tone signals prior to demodulating said multicarrier modulated signal, and estimating said frequency offset and said timing mismatch of said sampler, and wherein said frequency offset and timing estimator further comprises:

means for dividing each of said distinct tone signals into a first and second sample vector, for a total of four sample vectors, each of said first sample vectors comprising a first part of said samples of said single tone signal, respectively, and each of said second sample vectors comprising a second part of said samples of said single tone signal, respectively;

means for computing a first inverse tangent of the ratio of an imaginary part to a real part of the product of the transform of said second sample vector of said first single tone signal and said first sample vector of said first single tone signal, and means for computing a second inverse tangent of the ratio of an imaginary part to a real part of the product of the transform of said second sample vector of said second single tone signal and said first sample vector of said second single tone signal;

means for computing said estimated frequency offset as the ratio of the difference between the product of said first inverse tangent and said second multiple and the product of said second inverse tangent to said multiple, to the sum of the product of n and the difference between said first and second inverse tangents; and

means for computing said estimated timing mismatch as the ratio of the difference between said first and second inverse tangents, to the product of n and the difference between said first and second multiples;

a timing control mechanism for receiving said estimated timing mismatch and adjusting said sampler accordingly; and

a frequency control mechanism for receiving said estimated frequency offset and adjusting said detected multicarrier modulated signal accordingly.

5,802,118

SUB-SAMPLED DISCRETE TIME READ CHANNEL FOR COMPUTER STORAGE SYSTEMS

William G. Bliss, Thornton; David E. Reed, Westminster, and Richard T. Behrens, Louisville, all of Colo., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Jul. 29, 1996, Ser. No. 681,578

Int. Cl.⁶ H04B 1/10

U.S. Cl. 375—350

42 Claims

1. A sampled amplitude read channel for reading binary data from a sequence of interpolated discrete time sample values generated by sampling pulses in an analog read signal from a read head positioned over a disk storage medium, the binary data recorded at a predetermined baud rate, the read channel comprising:

(a) a sampling device for sub-sampling the analog read signal at a sampling rate less than or equal to 1/10 the baud rate to generate sub-sampled values;

(b) an interpolator, responsive to the sub-sampled values, for generating the interpolated sample values; and

5,802,120

RECEPTION CIRCUIT FOR A BASEBAND PROCESSING AND OPERATION

Shinya Muraoka, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

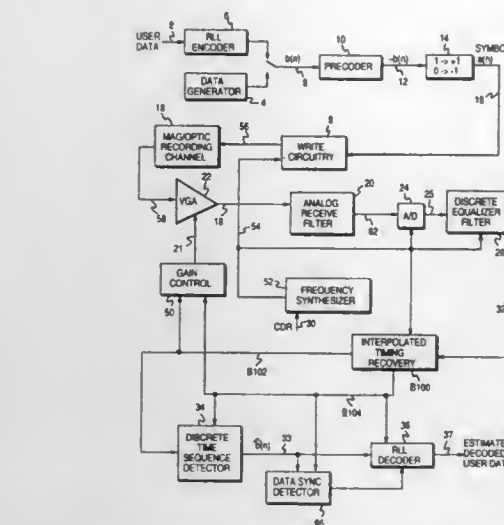
Filed Dec. 20, 1994, Ser. No. 359,578

Claims priority, application Japan, Dec. 28, 1993, 5-350400

Int. Cl.⁶ H04L 7/03; 27/38; 7/08; H04J 3/06

U.S. Cl. 375—362

8 Claims



(c) a discrete time detector for generating a detected sequence from the interpolated sample values.

5,802,119

ADAPTIVE CLOCK RECOVERY APPARATUS FOR SUPPORTING MULTIPLE BIT TRANSMISSION RATES

Dong Bum Jung, and Hun Kang, both of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, and Korea Telecommunication Authority, Seoul, both of Rep. of Korea

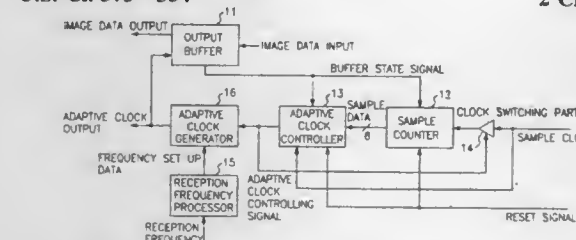
Filed Nov. 20, 1996, Ser. No. 754,093

Claims priority, application Rep. of Korea, Dec. 22, 1995, 95-53953

Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—354

2 Claims



1. An adaptive clock recovery apparatus comprising:
a clock switching unit for switching a sample clock to be input from outside according to an adaptive clock controlling signal;

a sample counting unit for inputting both a reset signal from said outside and an output from said clock switching unit, and outputting sample data by an operation depending upon a buffer state signal;

an adaptive clock controlling unit for inputting said sample clock, said buffer state signal, said reset signal, and said sample data from said sample counting unit, and outputting said adaptive clock controlling signal to said clock switching unit;

a reception frequency processing unit for inputting reception frequency from outside, and outputting frequency set up data; an adaptive clock generating unit for inputting both said frequency set up data from said reception frequency processing unit and said adaptive clock controlling signal from said adaptive clock controlling unit, and outputting adaptive clock to said outside; and

a buffering unit for outputting image data input from outside to said outside according to said adaptive clock of said adaptive clock generating unit, and also outputting said buffer state signal to said adaptive clock controlling unit and said sample counting unit, respectively.

5,802,121

SYNCHRONIZATION DEVICE FOR DIGITAL COMMUNICATIONS

Katsuhiko Hiramatsu, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

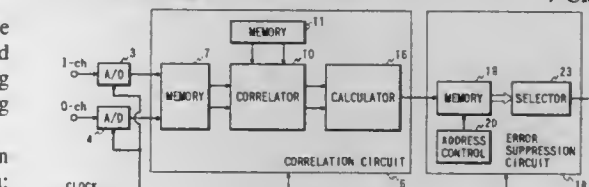
Filed Nov. 14, 1996, Ser. No. 749,209

Claims priority, application Japan, Dec. 30, 1995, 7-353782

Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—368

7 Claims



1. A synchronization device comprising:
first means for generating a predetermined signal;
second means for detecting a correlation between a received signal and the predetermined signal generated by the first means for every sample interval; and
third means for selecting a correlation from among correlations detected by the second means for sample intervals of equal time positions in successive symbol intervals respectively, wherein the correlation selected by the third means has a

1. A device for protecting an in-core monitor tube, comprising:
 - a channel having a top end and a bottom end;
 - a support member having a top end and a bottom end, said bottom end of said support member being connected to said top end of said channel;
 - a hooking subassembly connected to said top end of said support member; and
 - a nosepiece assembly connected to said bottom end of said channel, wherein said nosepiece assembly comprises first and second nosepieces, said first nosepiece being laterally spaced from said second nosepiece.

5,802,128

DEVICE FOR RECOVERY OF FLUID CONTAINED IN THE COOLANT CIRCUIT OF A NUCLEAR REACTOR
Michel Couturier, Croissy sur Seine, France, assignor to Framatome, Courbevoie, France

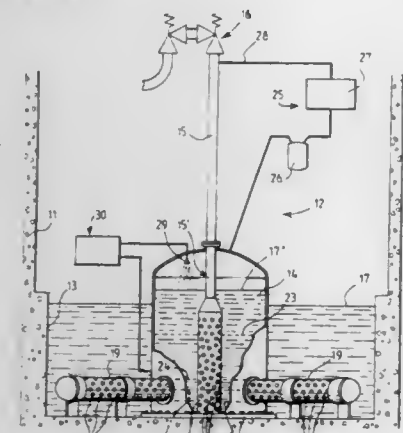
Filed May 13, 1997, Ser. No. 855,576

Claims priority, application France, May 17, 1996, 96 06161

Int. Cl.⁶ G21C 9/004

U.S. Cl. 376—283

10 Claims



1. In a water-cooled nuclear reactor comprising a safety containment and, inside the safety containment, a vessel, a reactor core enclosed in the vessel and a coolant circuit connected to the vessel, a device for recovering fluid contained in the coolant circuit comprising, within the safety containment of the reactor:

- a first tank containing a volume of water open in an inner space of the safety containment;
- a second tank isolated from the inner space of the safety containment, said second tank having dimensions which are smaller than the dimensions of the first tank and being at least partially immersed in the water contained in the first tank, and second tank being in the form of a bell comprising a cylindrical wall having a closed end located above an upper level of the volume of water within the first tank and an opposite end secured to a bottom of the first tank;
- means for bringing the inner volume of an immersed part of the second tank into communication with the volume of water contained in the first tank; and
- a discharge pipe connected at one of its ends to a discharge point of the coolant circuit of the reactor and having an end part opposite to the discharge point of the coolant circuit opening within the second tank.

5,802,129

MECHANICALLY JOINED REPLACEMENT SHROUD FOR BOILING WATER NUCLEAR REACTOR

Gerald A. Deaver, and Barry H. Koepke, both of San Jose, Calif., assignors to General Electric Company, Schenectady, N.Y.

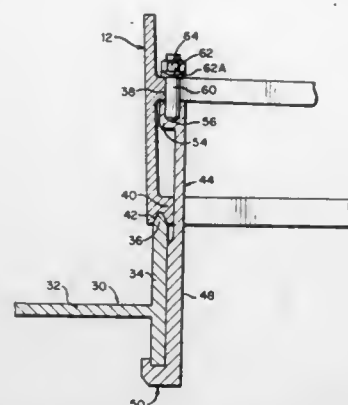
Filed Jan. 11, 1996, Ser. No. 584,544

Int. Cl.⁶ G21C 15/00

U.S. Cl. 376—287

12 Claims

1. In a pressure vessel of a nuclear reactor containing a core assembly enclosed within a core shroud, the core shroud spaced radially inwardly of a pressure vessel wall, supported by an annular shroud support plate, the improvement wherein a lower end of the shroud is seated on an upper annular edge of the support plate to create a joint interface therebetween; and a plurality of brackets



at a lower end of said shroud are secured between the lower end of the shroud and the shroud support plate, spanning the joint interface.

5,802,130

ZIRCONIUM-BASED ALLOY TUBE FOR A NUCLEAR REACTOR FUEL ASSEMBLY

Jean-Paul Mardon, Caluire; Jean Sevenat, Saint-Brevin-les-Pins, and Daniel Charquet, Ugué Cédex, all of France, assignors to Framatome, Courbevoie, and Compagnie Generale des Matières Nucléaires, Velizy-Villacoublay, both of France

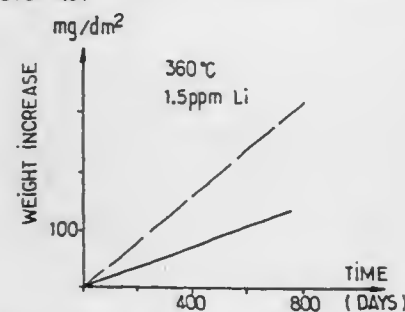
Division of Ser. No. 593,869, Jan. 30, 1996, Pat. No. 5,702,544.

This application Jun. 27, 1997, Ser. No. 880,440

Int. Cl.⁶ G21C 3/07

U.S. Cl. 376—457

2 Claims



1. A zirconium-based alloy tube constituting at least part of a cladding or guide tube for a nuclear fuel assembly, containing, by weight, 0.4% to 0.6% of tin, 0.5% to 0.8% of iron, 0.35% to 0.75% of vanadium, 0.10% to 0.18% of oxygen, and carbon and silicon amounts which are controlled and respectively in the range 100 ppm to 180 ppm and in the range 50 ppm to 120 ppm, the balance being zirconium and unavoidable impurities, the alloy being completely recrystallized.

5,802,131

MULTI-PORT SERIAL ACCESS SELF-QUEUEING MEMORY SWITCH

Christopher K. Morzano, Boise, Id., assignor to Micro Technology, Inc., Boise, Id.

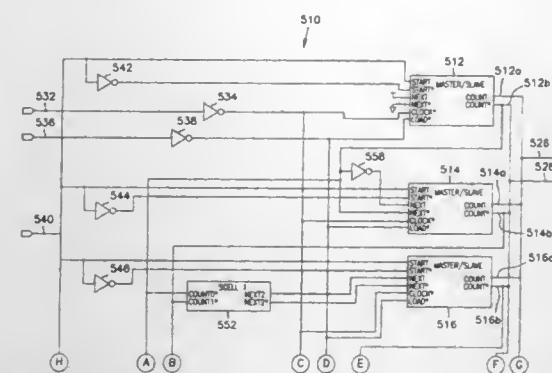
Continuation of Ser. No. 535,662, Sep. 28, 1995, Pat. No. 5,680,425. This application Aug. 11, 1997, Ser. No. 909,451

Int. Cl.⁶ G06M 3/00

U.S. Cl. 377—26

22 Claims

1. A multiport serial access memory switch coupled to an output channel for transferring data thereon, comprising: a plurality of ports coupled to the output channel, each port comprising a counter for counting transfers of data from the port to the output channel; and



a controller coupled to the counter of each port for controlling each port to output data in accordance with its counter, and for controlling the counter to count when any port coupled to the output channel is transferring data.

5,802,132

APPARATUS FOR GENERATING BUS CLOCK SIGNALS WITH A 1/N CHARACTERISTIC IN A 2/N MODE CLOCKING SCHEME

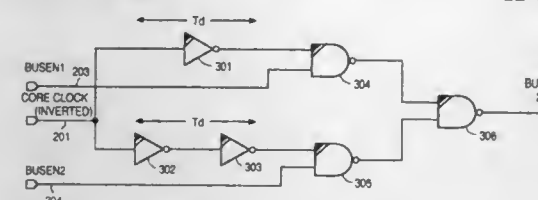
Chakrapani Pathikonda; Matthew A. Fisch, and Michael W. Rhodehamel, all of Beaverton, Ore., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 581,400, Dec. 29, 1995, abandoned. This application Sep. 6, 1996, Ser. No. 708,928

Int. Cl.⁶ H03K 21/00

U.S. Cl. 377—48

22 Claims



1. A processor for use in a system, said processor comprising: a clock generator to generate a core clock signal and first and second bus clock signals, wherein a ratio of each of the first or second bus clock signals to the core clock signal is 2/N where N is an odd integer greater than 2, wherein each pulse of the second bus clock signal is aligned with a distinct pulse of the core clock signal;

a core coupled to the clock generator; and an interface coupled to the core and having a first and second portions operable in response to the first and second bus clock signals respectively, the first portion interfacing the processor to a system external to the processor and the second portion interfacing the core to the first portion, where information transfer between the core and the first portion occur according to the second bus clock signal.

5,802,133

METHOD AND APPARATUS OF X-RAY COMPUTERIZED TOMOGRAPHY

Hiroyuki Kawai, Tokyo, and Kensuke Sekihara, Musashimurayama, both of Japan, assignors to Hitachi Medical Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,996

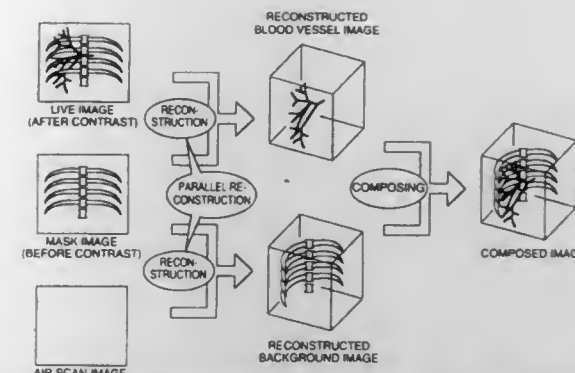
Claims priority, application Japan, Dec. 1, 1995, 7-314196

Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—4

17 Claims

1. A method of X-ray computerized tomography whereby a scanner in which an X-ray source for irradiating an X-ray in a cone-beam shape to an object and a two-dimensional detector for detecting the X-ray transmitted through said object are installed is



rotated around said object and a projection angle is changed and a distribution of X-ray attenuation coefficients of said object is reconstructed from transmitted X-ray images obtained at a plurality of said projection angles, comprising the steps of:

- measuring a first transmitted X-ray image measured in a state in which a contrast medium is injected into said object, a second transmitted X-ray image measured in a state in which no contrast medium is injected into said object, and a third transmitted X-ray image measured in a state in which no object is positioned in the apparatus, all at the same projection angle;
- calculating a first projection image from a difference between logarithms of said first and second transmitted X-ray images obtained at said same projection angle, calculating a second projection image from a difference between logarithms of said second and third transmitted X-ray images obtained at said same projection angle, and simultaneously reconstructing a first reconstructed image from said first projection image and a second reconstructed image from said second projection image in parallel; and
- composing said first and second reconstructed images, thereby forming a composed image.

5,802,134

NUTATING SLICE CT IMAGE RECONSTRUCTION APPARATUS AND METHOD

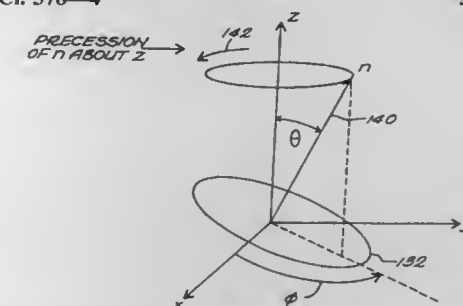
Gregory L. Larson, Newton; Christopher C. Ruth, Danvers, and Carl R. Crawford, Brookline, all of Mass., assignors to Analogic Corporation, Peabody, Mass.

Filed Apr. 9, 1997, Ser. No. 831,558

Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—4

49 Claims



1. A method of reconstructing image data for a region having a longitudinal axis, said method comprising: scanning the region with an array of detectors to generate scan data representative of the region; defining a plurality of image data slices corresponding to a plurality of positions along the longitudinal axis of the region, successive image data slices being non-parallel with each other; and using the scan data, generating image data for the plurality of image data slices.

5,802,135 ARITHMETIC UNIT FOR A COMPUTED TOMOGRAPHY APPARATUS

Juergen Wohlrab, Forchheim, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

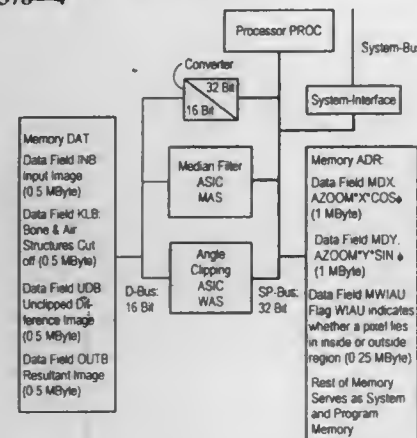
Filed Apr. 17, 1997, Ser. No. 840,885

Claims priority, application Germany, Apr. 23, 1996, 196 16 199.1

Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—4

3 Claims



1. An arithmetic unit for a computed tomography apparatus comprising:
a processor;
at least one median filter means for producing a median filtered difference image;
at least one angle clipping means for producing a resultant image from said median filtered difference image; and
at least one memory accessible by said processor, said median filter means and said angle clipping means for artifact reduction in said resultant image, said at least one memory having a maximum access bandwidth which is completely utilized in the artifact reduction.

5,802,136 METHOD AND APPARATUS FOR CONFORMAL RADIATION THERAPY

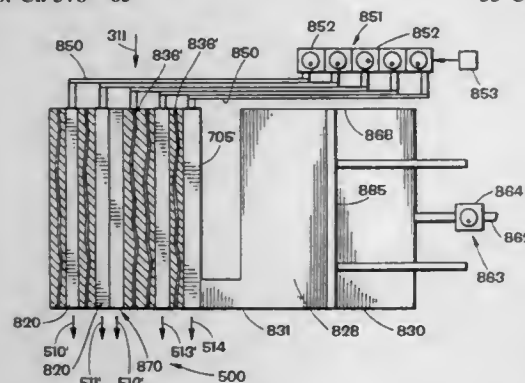
Mark P. Carol, Sewickley, Pa., assignor to Nomos Corporation, Sewickley, Pa.

Continuation-in-part of Ser. No. 245,626, May 17, 1994, Pat. No. 5,596,619. This application Apr. 19, 1996, Ser. No. 634,785

Int. Cl.⁶ A61N 5/10

U.S. Cl. 378—65

33 Claims



1. An apparatus for use in conformal radiation therapy of a tumor, comprising:
(a) a radiation beam source for producing a radiation beam having a predetermined, constant beam intensity;

(b) at least a 3x3 checkerboard array having alternating radiolucent and radiopaque compartments, for separating the radiation treatment beam into an array of a plurality of beam segments; and

(c) means for independently modulating the beam intensity of the radiation beam segments to spatially modulate the beam intensity of the radiation treatment beam across the tumor.

5,802,137 X-RAY OPTICS, ESPECIALLY FOR PHASE CONTRAST IMAGING

Stephen W. Wilkins, Blackburn, Australia, assignor to Commonwealth Scientific and Industrial Research, Campbell, Australia

PCT No. PCT/AU94/00480, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO95/05725, PCT Pub. Date Feb. 23, 1995

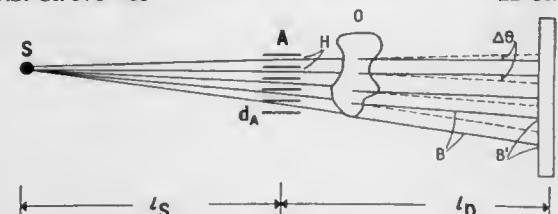
PCT Filed Aug. 16, 1994, Ser. No. 596,188

Claims priority, application Australia, Aug. 16, 1993, PM0583; Sep. 29, 1993, PM1519; Oct. 4, 1993, PM1597; Mar. 8, 1994, PM4298

Int. Cl.⁶ G21K 1/02

U.S. Cl. 378—85

22 Claims



1. Apparatus for imaging of an object, including:
a source of radiation,
a detector for the radiation sufficiently spaced from the source for radiation from the source to be substantially or highly laterally coherent or nearly so in an object when such is disposed for irradiation by the radiation and detection thereafter by the detector;
wherein the detector is configured for detection of the transverse location of one or more sub-beam(s) of the radiation, and there is further provided one or more means each defining one or more apertures for forming said sub-beam(s), which apertures are sufficiently small with respect to the relative location in use of said source and detector for said transverse location to be sensitive to refractive angular deviation of the radiation by the object, whereby to provide information about a constituent of the object causing said deviation.

5,802,138 MULTISECTION IMAGING DEVICE

Francis Glasser, Eybens, and Olivier Peyret, Le Fontanil, both of France, assignors to Commissariat à l'Energie Atomique, Paris, France

Filed Jan. 30, 1997, Ser. No. 792,176

Claims priority, application France, Feb. 29, 1996, 96 02548

Int. Cl.⁶ G01T 1/29

U.S. Cl. 378—98.8

16 Claims

1. Multisection imaging device comprising an ionizing radiation source having a focus and an array of bidimensional semiconductor detectors each adapted to receive said radiation along an associated axis perpendicular thereto after the radiation has traversed a means, said bidimensional semiconductor detectors being planar, joined together so as to form a continuous array, arranged in such a way that the perpendicular axis to each of them passes through the focus of the source, and being formed of elementary semiconductor detectors joined together, so as to provide several detection rings able to rotate about said means in order to permit

5,802,140 X-RAY GENERATING APPARATUS WITH INTEGRAL HOUSING

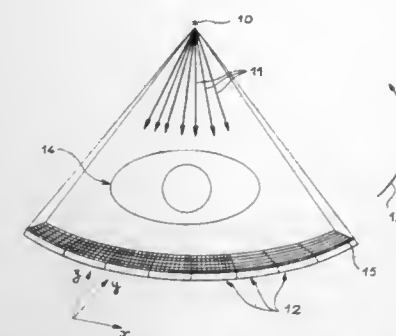
Gary F. Virshup, Cupertino, Calif.; Christopher F. Artig, Summit Park, and John E. Richardson, Salt Lake City, both of Utah, assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Aug. 29, 1997, Ser. No. 920,747

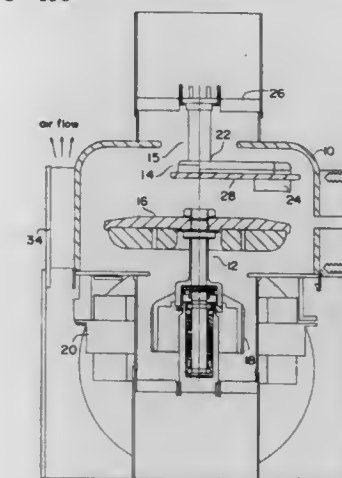
Int. Cl.⁶ H01J 35/06

U.S. Cl. 378—136

20 Claims



the simultaneous acquisition of several imaging sections, wherein each elementary semiconductor detector is provided with a blocking contact.



5,802,139 X-RAY EXPOSURE APPARATUS WITH A DIGITAL FILTER FOR REDUCING IMAGE UNSHARPNESS

Jochen Kusch, Effeltrich, and Detlef Koertge, Nuremberg, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

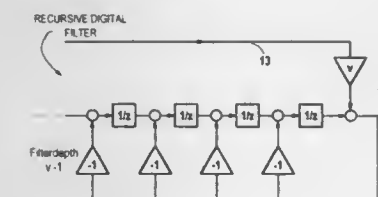
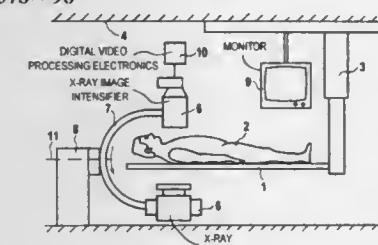
Filed May 22, 1997, Ser. No. 861,440

Claims priority, application Germany, May 28, 1996, 196 21 387.8

Int. Cl.⁶ H05G 1/64

U.S. Cl. 378—98

1 Claim



1. In an X-ray exposure apparatus having an X-ray exposure system, formed by an X-ray source and an X-ray image intensifier which produces image signals, rotated during an image exposure having an exposure time, the improvement comprising a digital video processor chain supplied with said image signals and having a digital filter means for using the exposure time and the rotation of the X-ray exposure system, reconstructing a sharp video image free of motion artifacts by back-transformation of a transfer function employing the following recursive differential equation:

$$x_{k+1} = v \cdot y_k - \sum_{u=0}^{v-1} x_{k-u}$$

wherein

x_k = a k^{th} pixel of the reconstructed video image,
 v = a plurality of image pixels that are swept during the exposure time of a subject,
 y_k = a k^{th} pixel of the unsharp video image, and
 u = a run variable of the sum expression, with u running from 1 to $v-1$.

5,802,141 ELECTRONIC PRIVATE BRANCH EXCHANGE

Masayuki Kobayashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 649,547

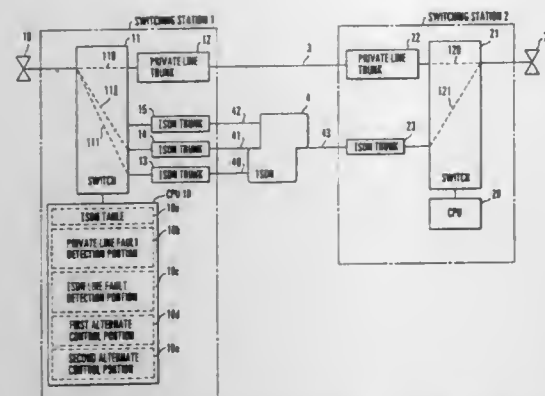
Claims priority, application Japan, May 17, 1995, 7-117582

Int. Cl.⁶ H04M 1/24; 3/08; 3/22

U.S. Cl. 379—22

5 Claims

1. An electronic private branch exchange comprising:
first fault detection means for detecting occurrence of a fault on a private line for connection to a remote electronic private branch exchange (EPBX);
first alternate control means for selecting one of a plurality of integrated services digital network (ISDN) lines registered in advance after said first fault detection means detects occurrence of the fault on the private line, thereby forming a first alternate communication path for alternate connection to said remote EPBX;
second fault detection means for detecting occurrence of a fault on said first alternate line formed by said first alternate control means; and
second alternate control means for selecting one of said ISDN lines registered in advance, except for the ISDN line forming said first alternate communication path on which occurrence



of a fault has been detected after said second fault detection means detects occurrence of the fault, thereby forming a second alternate communication path for alternate connection to said remote EPBX.

5,802,142 DATA CORRECTION SYSTEM FOR COMMUNICATIONS NETWORK

John Martin Browne, Surrey, United Kingdom, assignor to British Telecommunications public limited company, London, England

PCT No. PCT/GB94/00705, § 371 Date Mar. 6, 1995, § 102(e) Date Mar. 6, 1995, PCT Pub. No. WO94/23529, PCT Pub. Date Oct. 13, 1994

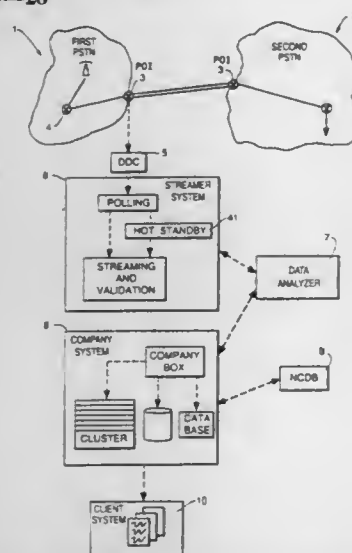
PCT Filed Mar. 31, 1994, Ser. No. 392,975

Claims priority, application United Kingdom, Mar. 31, 1993, 9306724; Mar. 31, 1993, 9306725; Aug. 24, 1993, 9317619

Int. Cl.⁶ H04M 3/08; 3/22; 15/00

U.S. Cl. 379—28

32 Claims



1. A billing data analyzer for use in a communications network, which network is connected to one or more other networks, the billing data analyzer comprising:

an input for billing data collected with respect to billable aspects of communication instances in said communications network, said billing data having been initially rejected as unbillable by validating means associated with said network, means for assessing the type of invalidity arising in the billing data, and means for dealing with the billing data accordingly by attempting to correct it into billable data,

said means for dealing with the billing data comprising means for applying default values, means for applying amended values, and means for appending data to files in a temporary data store.

5,802,143 IDENTIFICATION OF DAMAGED CABLE PAIRS IN A TELECOMMUNICATIONS NETWORK AND RESTORATION OF TELEPHONE SERVICE TO SUBSCRIBERS

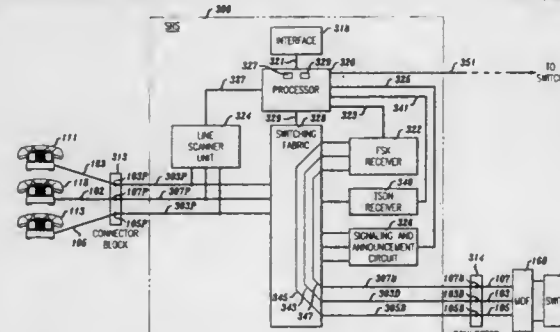
James William Borchering, West Chicago; William Jackson Bushnell; T.A. Kleinheksel, both of St. Charles, and William Henry Werber, Palatine, all of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 14, 1995, Ser. No. 572,457

Int. Cl.⁶ H04M 1/24; 3/08; 3/22

U.S. Cl. 379—32

14 Claims



7. In a telecommunications system utilizing a distribution cable including a plurality of indistinguishable subscriber cable pairs, wherein the distribution cable terminates at a cross connection box at one end, and terminates at a main distributing frame of a switch that serves the plurality of subscriber cable pairs at another end, a method for restoring service to individual damaged cable pairs comprises the steps of:

attaching a proximal end of a damaged cable pair to a port on a first connector block of a service restoration system (SRS); attaching a distal end of the damaged cable pair to a port on a second connector block; receiving in the SRS directory number information from the switch over the distal end of the damaged cable pair; receiving in the SRS subscriber-provided directory number information over the proximal end of the damaged cable pair; the SRS establishing a call path between the proximal end of the damaged cable pair and the distal end of the damaged cable pair end using the directory number information provided by the subscriber and the switch; generating a status report identifying the port on the first connector block at which the proximal end of the damaged cable pair is attached, and the port on the second connector block at which the distal end of the damaged cable pair is attached; and

splicing together the proximal and distal ends of the damaged cable pair based on the port information.

5,802,144 MINIMUM COMMON SPAN NETWORK OUTAGE DETECTION AND ISOLATION

Robert Laird; William D. Croslin; Craig Hayes, and Bruce Stewart, all of Colorado Springs, Colo., assignors to MCI Corporation, Washington, D.C.

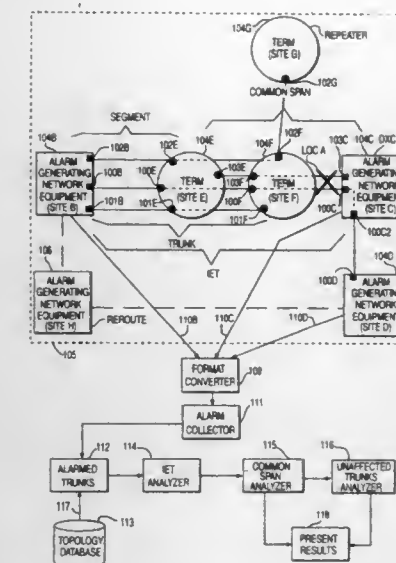
Filed Apr. 15, 1996, Ser. No. 632,198

Int. Cl.⁶ H04M 1/24; 3/08; 3/22

U.S. Cl. 379—32

10 Claims

1. A telecommunication system for dynamically determining the location of a network outage comprising: a telecommunications network;



a plurality of alarm generating network equipments located at spaced sites along the network for generating alarms upon the detection of problems with a signal passing therethrough; a plurality of continuous signal trunks connected between the alarm generating network equipments; means for collecting alarm data from the alarm generating network equipments at a single point; a topology database defining the relative locations of the alarm generating network equipments in the network and their respectively connected trunks; means connected between the topology database and the collecting means for correlating alarmed equipment ports with respective connected alarmed trunk; means for analyzing the alarmed trunks for identifying the corresponding minimum number of alarm generating network equipments that exist between the alarmed trunks thereby defining effected inter-equipment trunks; and analyzing means for

a) determining all the alarmed trunks passing through a particular inter-equipment trunk; and
b) establishing a minimum common span of all alarmed trunks that pass through the inter-equipment trunk, and along which the outage occurs.

5,802,145 COMMON CHANNEL SIGNALING EVENT DETECTION AND CONTROL

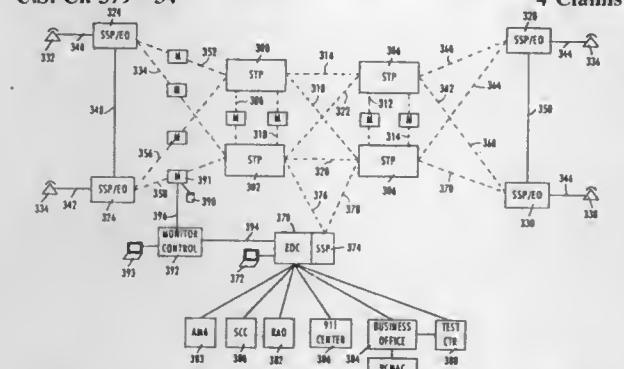
Robert D. Farris, Sterling; Mary Chacanas, Gainesville, and Christine D. McDermott, Reston, all of Va., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Filed Aug. 3, 1995, Ser. No. 510,931

Int. Cl.⁶ H04M 1/24; 3/08; 3/22; 3/00

U.S. Cl. 379—34

4 Claims



3. In a communication system comprising a telephone company (Telco) operated switched telecommunications network serving

subscriber terminals, said telecommunications network having a business office connected thereto and including trunked together program controlled switches (PCSS) controlled by a data switched common channel signaling (CCS) network including signal transfer points (STPs) connected to said program controlled switches at signal switching points (SSPs) via links between said SSPs and STPs, a first subscriber terminal served by an end office switch associated with an SSP (SSP/EO switch), and monitors associated with the links connected to said SSP/EO switch;

a method comprising the steps of:

- connecting from one of said subscriber terminals to said business office and identifying to said business office said first subscriber terminal served by said SSP/EO switch and a directory number to which calls attempted from said first subscriber terminal are to be blocked when the number of said calls attempted within a specified time period exceeds a specified total;
- identifying the links connected to said SSP/EO switch serving said first subscriber terminal and the addresses of the monitors on said links;
- responsive to direction from said business office setting said monitors having said identified addresses to trap data signals on said identified links which are caused by the dialing from said first subscriber terminal of said directory number;
- going off-hook at said first subscriber terminal to establish connection of said first subscriber terminal to said SSP/EO switch and dialing said directory number;
- responsive to said dialing transmitting from said SSP/EO switch common channel signaling message signals including identification of the digits of said directory number dialed;
- detecting in said monitors having said identified addresses said common channel signaling message signals including said identification of said digits;
- processing in a first processor said detected signals and outputting signals to a second processor;
- totalizing in said second processor the number of times within a time period directed from said business office that said directory number has been dialed by said first subscriber station and calls completed from said first subscriber station to said directory number, comparing said totalized call completions to a number directed from said business office and, if said totalized call completions equals said number directed by said business office, responding to said dialing of said directory number by said first subscriber station by;
- transmitting to said SSP/EO switch signals from said second processor responsive to said signals from said first processor causing said SSP/EO switch to disconnect said first subscriber terminal.

5,802,146 MAINTENANCE OPERATIONS CONSOLE FOR AN ADVANCED INTELLIGENT NETWORK

Scott P. Dulman, Arlington, Va., assignor to Bell Atlantic Network Services, Inc., Arlington, Va.

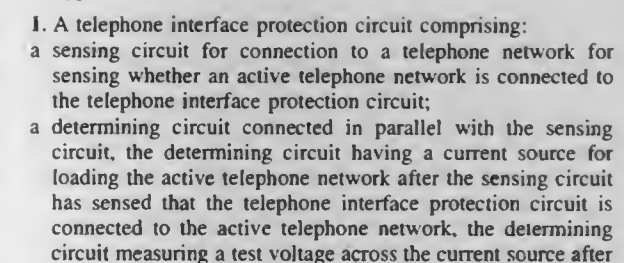
Filed Nov. 22, 1995, Ser. No. 562,330

Int. Cl.⁶ H04M 1/24; 3/08; 3/22

U.S. Cl. 379—34

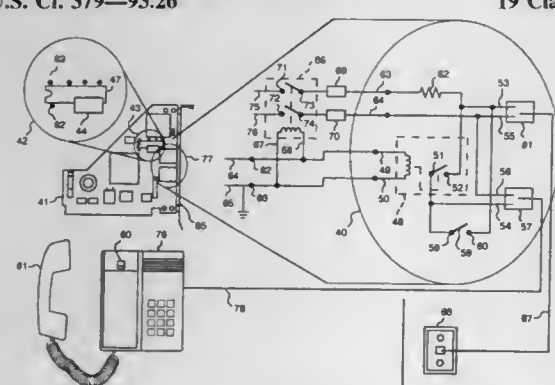
9 Claims

1. A system comprising:
a plurality of program-controlled nodes of a public communications network, each node including at least an operating software subsystem, an application software subsystem, a communications subsystem, and a monitoring subsystem that identifies errors in each of the subsystems, the communications subsystem outputting objects of a standardized network management message format that represent a status of the identified errors;



loading the active telephone network, and for determining if the test voltage is greater than a pre-determined safe voltage and for signaling as to whether the test voltage is greater than the pre-determined safe voltage; and
a microcontroller connected to the sensing circuit and the determining circuit, the microcontroller disposed to control and receive signals from the sensing circuit and the determining circuit and to inhibit a hook switch from closing if the determining circuit indicates that the test voltage is greater than the pre-determined safe voltage.

5,802,152
MODEM SPEED DIALER CIRCUIT
Phillip M. DeLaine, Jr., P.O. Box 1513, Lowell, Mass. 01853
Filed Jul. 13, 1995, Ser. No. 501,994
Int. Cl.⁶ H04M 11/00
U.S. Cl. 379-93.26

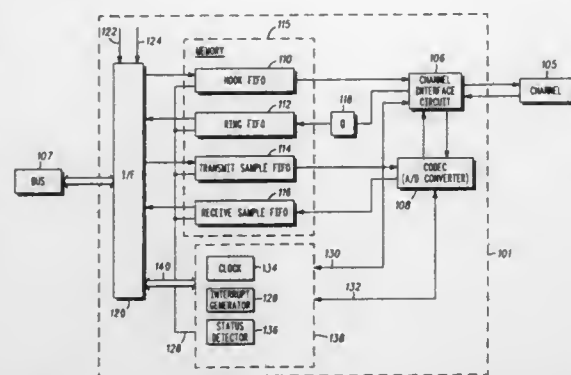


1. A modem speed dialer circuit, comprising:
a telephone jack for receiving a cable connected to a telephone;
a line jack for receiving a cable connected to a telephone wall jack; and
a first switch, interposed between said telephone jack and said line jack, said switch being responsive to an on/off hook signal of a modem, wherein said telephone jack is placed in an off hook state in response to said signal indicating that the modem is in an off hook state and said telephone jack is placed in an on hook state in response to said signal indicating that the modem is in an on hook state.

5,802,153
APPARATUS AND METHOD FOR INTERFACING BETWEEN A COMMUNICATIONS CHANNEL AND A PROCESSOR FOR DATA TRANSMISSION AND RECEPTION
Manickam R. Sridhar, Holliston; Minh Hoang, Stoughton; John Wortman, Jr., West Roxbury, and Timothy A. Lis, Framingham, all of Mass., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 28, 1996, Ser. No. 607,911
Int. Cl.⁶ H04M 11/00
U.S. Cl. 379-98

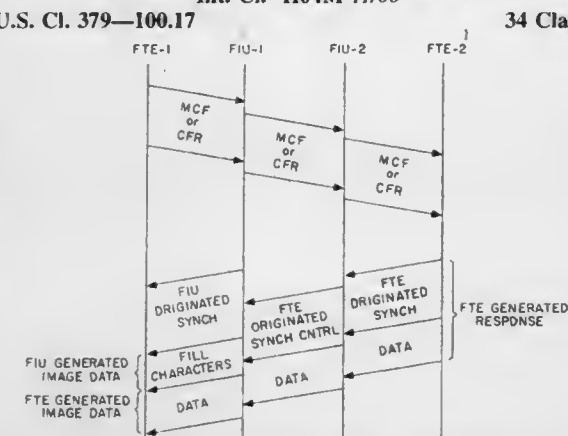
7. A method of interfacing between a processor and a communications channel for data reception, the processor operable in data terminal equipment having a communications application program, capable of performing modem functions of training, equalization, encoding, the decoding, the communications application program being responsive to interrupt signals, the method comprising the steps of:

- receiving a data signal from the communications channel to form a received data signal;
- periodically sampling the received data signal at a first frequency to form a sequence of received sampled data;
- storing the sequence of received sampled data in a memory;



- generating an interrupt signal to the processor, the generating steps including:
(d1) generating the interrupt signal at a first interrupt frequency during a portion of a training mode; and
(d2) generating the interrupt signal at a second interrupt frequency during a data mode; and
(e) periodically transferring at a second frequency the received sampled data from the memory to the processor.

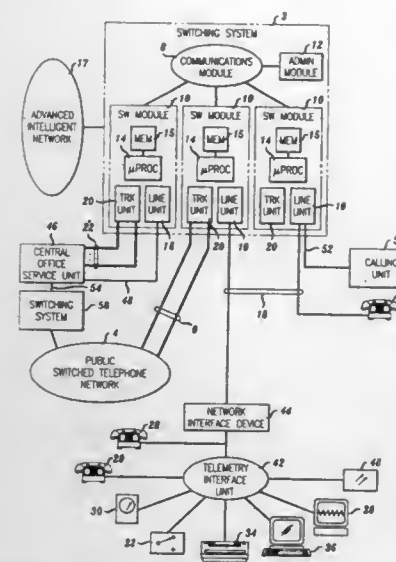
5,802,154
PROVISION OF PROPRIETARY AND ENHANCED CAPABILITIES IN GROUP 3 FACSIMILE FOR MOBILE SATELLITE COMMUNICATIONS
Spiros Dimolitsas, Gaithersburg, and Jack H. Rieser, Middletown, both of Md., assignors to COMSAT Corporation, Clarksburg, Md.
Filed Aug. 10, 1994, Ser. No. 303,107
Int. Cl.⁶ H04M 11/00
U.S. Cl. 379-100.17



21. A facsimile communication method, comprising:
receiving baseband facsimile signals, and converting the received baseband signals to voiceband facsimile signals; and
generating, in anticipation of receiving a high speed message signal, a synchronizing sequence followed by FILL characters.

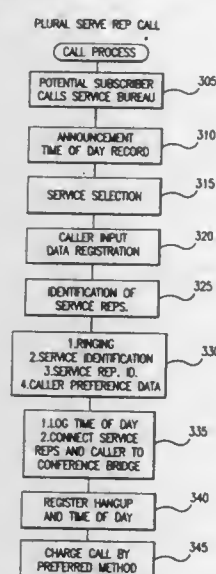
5,802,155
METHOD AND APPARATUS FOR CONTROLLING REGULAR AND SUPPRESSED RINGING CONNECTIONS IN A TELECOMMUNICATIONS NETWORK
Stuart Mandel Garland, Morton Grove, and David B. Smith, Hinsdale, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.
Filed Nov. 15, 1995, Ser. No. 559,512
Int. Cl.⁶ H04M 3/42; 11/00
U.S. Cl. 379-106.09

1. A system for controlling connections in a telecommunications network comprising:



a switching system for hosting a plurality of local lines and for switching calls to and from said local lines, customer premise equipment being connected to said lines;
means for establishing a suppressed ringing connection over a selected one of said plurality of lines to a particular customer premise equipment connected to said selected one of said lines;
means for disconnecting said suppressed ringing connection when a request for a regular connection over said selected one of said plurality of lines is made, said means for disconnecting operating in response to a service profile defining how the suppressed ringing connection is to be handled; and
means for reestablishing said suppressed ringing connection when use of said regular connection is ended.

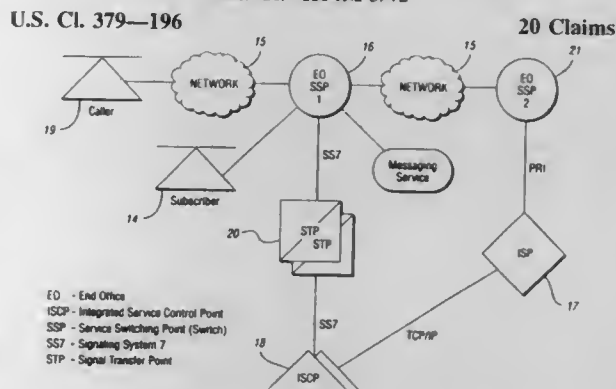
5,802,156
METHOD FOR BILLING AND CONTROLLING FRAUD IN PROVIDING PAY INFORMATION SERVICES
David Felger, 7731 Mandarin Dr., Boca Raton, Fla. 33433, assignor to David Felger, Boca Raton, Fla.
Filed Jun. 5, 1996, Ser. No. 658,378
Int. Cl.⁶ H04M 15/00; 11/00
U.S. Cl. 379-112



1. A method for initiating fraud control features used in billing calls comprising the steps of:

establishing call limit criteria for a call;
determining the identity of a caller;
retrieving call history data from memory for said identified caller;
comparing the call history data with the call limit criteria;
limiting one of the duration or the number of calls of said identified caller;
identifying the caller's telephone number;
receiving caller requested telephone number input data;
comparing the requested telephone number input data with the identified caller's telephone number; and
blocking such calls if the requested telephone number input data does not match said caller's identified telephone number.

5,802,157
METHOD AND APPARATUS FOR CONTROLLING OUTGOING CALLS ON A TELEPHONE LINE
Gail L. Clarke; Karen A. Siegel-Jacobs, both of Boulder, Colo.; Lorraine M. Vienneau, Phoenix, Ariz., and Robert J. Cuthbertson, Lafayette, Colo., assignors to U S West Technologies, Inc., Boulder, Colo.
Continuation of Ser. No. 429,420, Apr. 26, 1995, abandoned.
This application Nov. 13, 1996, Ser. No. 749,901
Int. Cl.⁶ H04M 3/42
U.S. Cl. 379-196



1. A method for controlling an outgoing telephone call from a telephone line associated with a subscriber to a called telephone number, the method comprising:
detecting a trigger point on the line indicative of a screening service;
determining whether the screening service is active or inactive including comparing a time of day and a day of week at which the outgoing call is attempted to a preset active schedule, wherein the preset active schedule is modifiable by the subscriber;
routing the outgoing call through a Public Switched Telephone Network (PSTN) if the service is inactive;
comparing the called number to at least one telephone number on an authorized outgoing numbers list if the service is active, the at least one telephone number having at least seven digits;
routing the outgoing call through the PSTN if the called number is on the authorized outgoing numbers list; and
advising the subscriber via the line that the outgoing call cannot be completed if the called number is not on the authorized outgoing numbers list.

5,802,158

METHOD AND APPARATUS FOR PROVIDING AN ALARM CALL TO A REMOTELY LOCATED USER USING A DISA LINE IN A PRIVATE EXCHANGE

Jong-Geal Jeong, Taegu, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

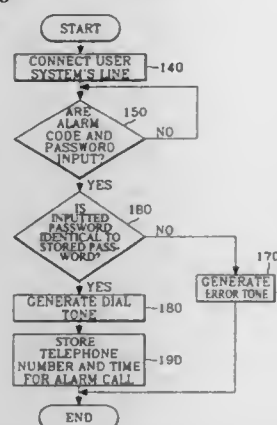
Filed Jun. 10, 1996, Ser. No. 660,942

Claims priority, application Rep. of Korea, Jun. 12, 1995, 1995/15396

Int. Cl.⁶ H04M 3/42

U.S. Cl. 379—198

6 Claims



1. A method for providing an alarm call to a remotely located user using a DISA (direct inward system access) line in a private exchange, comprising the steps of:

- storing a password to be used for authorizing use of the DISA line by the remotely located user;
- externally connecting the DISA line to thereby receive an alarm call request from the remotely located user;
- inputting an alarm call function request code and password when the remotely located user is connected to the DISA line so as to make an alarm call request;
- storing a time and telephone number to which the alarm call is to be sent, if the password input by the remotely located user is identical to the stored password and a proper alarm call function request code has been input, the time and telephone number being input by the remotely located user;
- periodically comparing the stored time with a current time; and
- dialing the stored telephone number to provide the requested alarm call to the user, if the current time is identical to the stored time.

5,802,159

METHOD AND APPARATUS FOR PROVIDING A CUSTOMIZED TELECOMMUNICATION SERVICE

André Smolentzov, Järfälla, and Rolf Staffan Eugen Karlberg, Ålvsjö, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jun. 1, 1995, Ser. No. 457,471

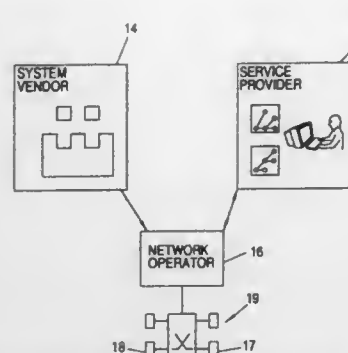
Claims priority, application Sweden, Jun. 13, 1994, 9402050
Int. Cl.⁶ H04M 3/42

U.S. Cl. 379—201

34 Claims

18. An apparatus for providing a customized telecommunication service, comprising:

- a service shell, stored in a telecommunication network, adapted to be inserted in a local exchange, and
- at least one service customization part stored on a computer readable medium, wherein said service shell comprises at least one customization point at which the customization part, in run time and after a call is made to the customization part, is added to the service shell, said customization point comprising a run time interface and an individual customization interface defining the scope of the actions possible for said



customization part by means of a first set of call associated parameters and a second set of primitives, said parameters and primitives being the only parameters and primitives available at said customization point, said service customization part comprising customer logic (i) generated from a subset of said second set of primitives comprised in said customization interface and (ii) acting on a subset of said first set of parameters defined by said customization interface, the customer logic being provided in the form of data only.

5,802,160

MULTI-RING TELEPHONE METHOD AND SYSTEM

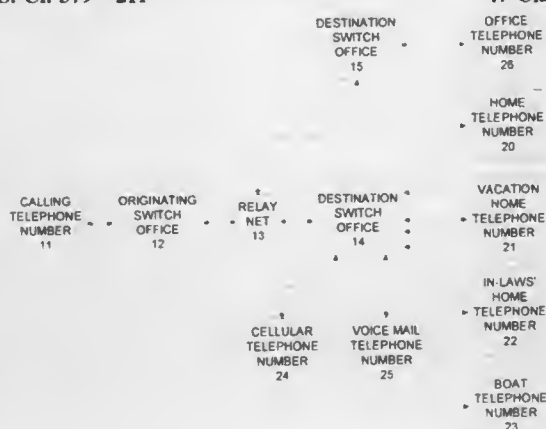
Stanley Kugell, Newton Highlands, and David Silver, Cambridge, both of Mass., assignors to Pilgrim Telephone, Inc., Cambridge, Mass.

Filed Jan. 19, 1996, Ser. No. 590,110

Int. Cl.⁶ H04M 3/46;3/56

U.S. Cl. 379—211

47 Claims



1. A method for providing telephone service comprising the steps of:

- associating a list of telephone numbers with a representative telephone number;
- detecting a call to the representative telephone number from a calling telephone number;
- simultaneously signalling at a plurality of telephone numbers on the list; and
- thereafter terminating the signalling at remaining ones of the plurality of telephone numbers in response to an off-hook indication at more than one of the plurality of telephone numbers.

**5,802,161
METHOD AND SYSTEM FOR OPTIMIZED SCHEDULING**

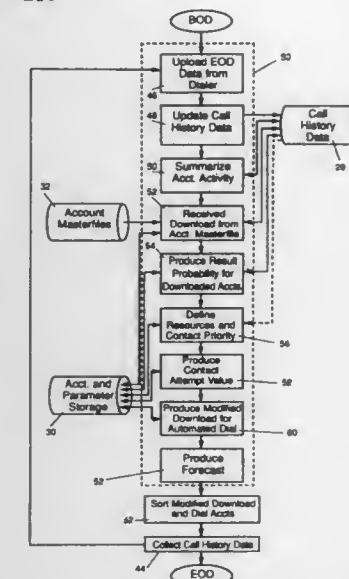
Alexander Svoronos, and Daniel N. Duncan, both of Austin, Tex., assignors to Austin Logistics Inc., Austin, Tex.

Filed Mar. 22, 1996, Ser. No. 620,601

Int. Cl.⁶ H04M 3/42;3/00

U.S. Cl. 379—216

20 Claims



1. A method of optimizing the allocation of resources to perform a plurality of task attempts in light of a variant which comprises a plurality of permissible variations, the method comprising the steps of:

- (a) computing an action result probability for each task attempt and each permissible variation of the variant;
- (b) producing a priority value for each task attempt;
- (c) determining a quantity of resources available within a time period for accomplishing the plurality of task attempts;
- (d) determining resource costs associated with each task attempt;
- (e) for each task attempt, producing a task attempt value, each task attempt value comprising a numerical value representing a relative desirability of performing the task attempt for the respective permissible variation considering the priority value for each task attempt, the probability of positive result for each task attempt and each permissible variation, the quantity of resources available for making the task attempts, and the resource costs associated with each task attempt; and
- (f) performing the task attempts within each permissible variation in order of descending task attempt value.

5,802,162

METHOD FOR SELECTIVELY CHANGING THE CALL HANDLING CAPACITY OF A TELECOMMUNICATIONS SWITCH

Frank Santo Beltrano, Wheaton, Ill.; Kevin John McNeley, Succasunna, N.J.; Roberto Garcia Rizo, Naperville, Ill.; Tushar Ramesh Shah, Lombard, Ill., and Ivy Hui-Fen Ying, Naperville, Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 549,360, Oct. 27, 1995, abandoned.

This application Mar. 24, 1997, Ser. No. 824,660

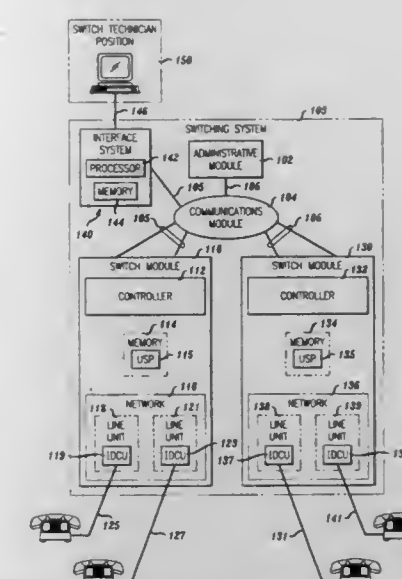
Int. Cl.⁶ H04M 3/00;5/00

U.S. Cl. 379—242

4 Claims

1. In a telecommunications switch comprising a central processing unit, a communications module, an interface system and at least one switch module which serves a customer line, a method comprising the steps of:

- accessing a database maintained by an external source to obtain an upgrade authorization code for changing the call handling capacity of the telecommunications switch; and



entering the upgrade authorization code obtained from the database via the interface system, the interface system identifying from the authorization code selected portions of hardware within the switch module, and causing said selected portions of hardware to be activated.

5,802,163

METHODS AND APPARATUS FOR IMPLEMENTING AN OUTBOUND NETWORK CALL CENTER

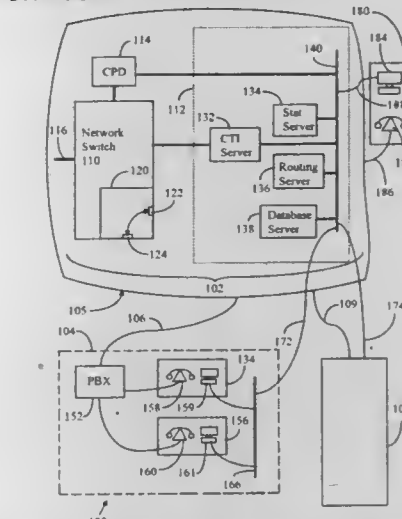
Alec Miloslavsky, San Carlos, Calif., assignor to Genesys Telecommunications Laboratories, Inc., San Francisco, Calif.

Filed Apr. 5, 1996, Ser. No. 628,837

Int. Cl.⁶ H04M 7/00

U.S. Cl. 379—265

3 Claims



1. A method for connecting telephony calls from a first telephony station to a remote agent at a second telephony station, the first station having a telephony switch coupled by a high bandwidth telephony trunk to a telephony network and a plurality of station-side ports to which incoming calls may be switched, the method comprising steps of:

- (a) receiving a first call from the remote agent at the second telephony station;
- (b) connecting the first call at a point in the telephony switch in a continuous manner requiring that the first call may be disconnected only from the second station;
- (c) receiving a second call from the network; and
- (d) connecting the second call to the point within the telephony switch where the first call is connected, thereby connecting

the second call to the second telephony station immediately without requiring call set up or ring signal.

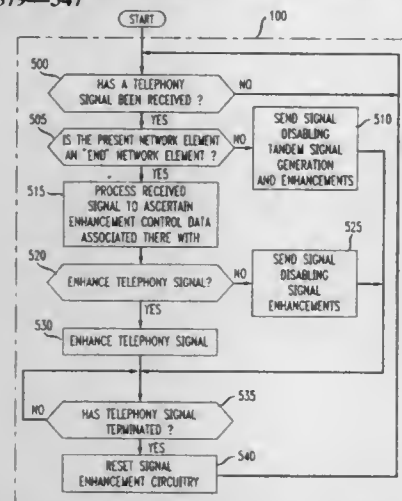
5,802,164
SYSTEMS AND METHODS FOR CONTROLLING
TELEPHONE SOUND ENHANCEMENT ON A PER CALL
BASIS

Beth J. Clancy, Westfield, N.J.; Richard L. Else, Glen Ellyn, Ill.; Richard E. Le Cronier, New Monmouth; Dario L. Parola, Matawan, both of N.J.; Roger E. Stone, Naperville, Ill., and Nancy Y. Tai, Middletown, N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Dec. 22, 1995, Ser. No. 575,759
Int. Cl.⁶ H04M 1/00; 3/00; 7/00; 9/00

U.S. Cl. 379—347

23 Claims



1. In a communication system having a plurality of network elements, the communication system containing signal enhancement circuitry capable of selectively enhancing a plurality of signals carried on a corresponding plurality of channels through said enhancement circuitry, a system for controlling enhancement on a per call basis, comprising:

command generation circuitry for generating an enhancement command for transmission of said signal enhancement circuitry, wherein the command generation circuitry is operative to make a determination as to whether a particular network element of the plurality of network elements is an end network element of the plurality of network elements; and command reception circuitry, associated with said signal enhancement circuitry, for receiving said enhancement command from said command generation circuitry and selectively enhancing signals based on the end network element determination on said per call basis according to said enhancement command.

5,802,165
DIAL INFORMATION STORING AND REDIALING
METHOD FOR USE IN A TELEPHONE
Hyun-Suck Kim, Gumi-City, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jun. 5, 1996, Ser. No. 658,795

Claims priority, application Rep. of Korea, Jun. 9, 1995, 1995/15220

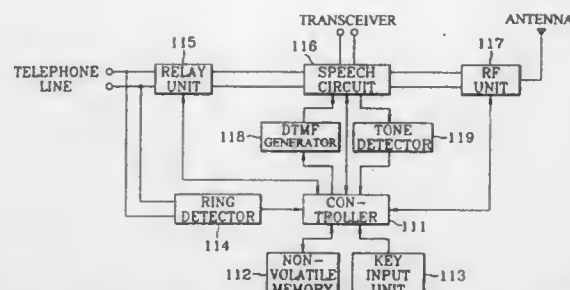
Int. Cl.⁶ H04M 1/27

U.S. Cl. 379—356

20 Claims

1. A method of storing dial information and redialing said dial information in a telephone system, said method comprising the steps of:

determining whether said telephone system having at least a redial buffer and a non-volatile memory incorporated therein and a keypad comprising a plurality of discrete keys including



a redial key that are independently operable by manual depression by a caller to generate at least a telephone number of a called subscriber, is in an originating speech mode; storing dial information representing a telephone number of a currently called subscriber in said redial buffer, when said telephone system is in the originating speech mode; and storing said dial information of said redial buffer at said non-volatile memory so that, when said redial key is depressed by the caller, said dial information stored in said non-volatile memory is automatically accessed for performing a redial function, said dial information stored in said non-volatile memory being accessed by the steps of:

determining whether said redial key is depressed by the caller; when said redial key is depressed by the caller, determining whether there is any dial information stored at said redial buffer;

when there is said dial information stored at said redial buffer, storing said dial information stored at said redial buffer in a key buffer for automatically redialing said dial information representing a previously dialed telephone number of a called subscriber;

when there is no dial information stored at said redial buffer, determining whether there is any dial information stored at said non-volatile memory;

when there is said dial information stored at said non-volatile memory, storing said dial information stored at said non-volatile memory in said redial buffer; and

storing said dial information stored at said redial buffer in said key buffer for automatically redialing said dial information representing said previously dialed telephone number of a called subscriber.

5,802,166
DUAL SIGNAL TRIGGERED MESSAGE WAITING
NOTIFICATION SYSTEM FOR INDICATING STORAGE
OF DIFFERENT TYPES OF MESSAGES AWAITING
RETRIEVAL

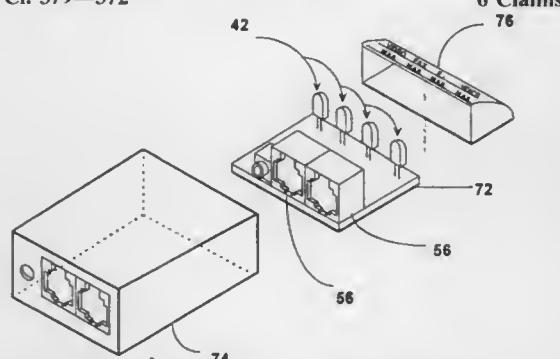
Rosanna Garcia, and Paul Rummel, both of Lynn, Mass., assignors to SNI Innovation, Inc., Waltham, Mass.

Filed Nov. 30, 1994, Ser. No. 347,581

Int. Cl.⁶ H04M 1/64

U.S. Cl. 379—372

6 Claims



1. A message waiting notification system comprising:
a telephone provider's off premise central switching office for transmitting predetermined asynchronous Frequency Shift Keying (FSK) signals and/or audible tones over a telephone

line indicating different types of electronically stored communication messages awaiting retrieval, said different message types including voice mail, E-mail, fax mail and video mail; and

a Dual Signal Triggered Message Waiting Indicator (DSTMWI) circuit connected to said central switching office via said telephone line, said DSTMWI circuit comprising notification means for providing visual notification of any combination of said different message types in response to receiving FSK signals and/or audible tones indicative of said combination from said central switching office over said telephone line.

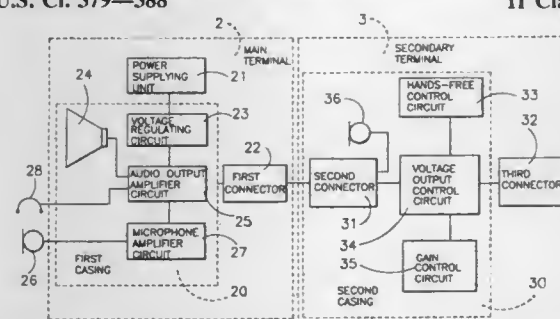
5,802,167
HANDS-FREE DEVICE FOR USE WITH A CELLULAR
TELEPHONE IN A CAR TO PERMIT HANDS-FREE
OPERATION OF THE CELLULAR TELEPHONE
Chu-Chai Hong, 2F, No. 83, Min-Chuan Rd., Hsin-Tien City, Taipei Hsien, Taiwan

Filed Nov. 12, 1996, Ser. No. 745,493

Int. Cl.⁶ H04M 9/00

U.S. Cl. 379—388

11 Claims



1. A hands-free device adapted for use with a cellular telephone in a car to permit hands-free operation of the cellular telephone, said hands-free device comprising:

a main terminal including:

a first casing;

a power supplying unit provided on said first casing and adapted to be connected electrically to a power source of the car;

a voltage regulating circuit disposed in said first casing and connected electrically to said power supplying unit so as to generate a stable voltage signal therefrom;

a first connector provided on said first casing and connected electrically to said voltage regulating circuit so as to receive said voltage signal therefrom;

an audio output amplifier circuit disposed in said first casing and connected electrically to said voltage regulating circuit so as to receive said voltage signal therefrom, said audio output amplifier circuit being further connected electrically to said first connector for amplifying an audio signal received by said first connector; and

a sound output unit connected electrically to said audio output amplifier circuit for reproducing said audio signal from said audio output amplifier circuit;

a secondary terminal including:

a second casing;

a second connector provided on said second casing and connected removably to said first connector;

a third connector provided on said second casing and adapted to connect removably with the cellular telephone;

a hands-free control circuit disposed in said second casing and connected electrically to said third connector, said hands-free control circuit being adapted to control hands-free operation of the cellular telephone;

a voltage output control circuit disposed in said second casing and connected electrically to said second and third connectors, said voltage output control circuit adjusting said voltage signal received by said first connector from said volt-

age regulating circuit and being adapted to provide said voltage signal to the cellular telephone via said third connector; and

a gain control circuit disposed in said second casing and connected electrically to said second and third connectors, said gain control circuit being adapted to adjust level of said audio signal received from the cellular telephone via said third connector prior to supplying said audio signal to said audio output amplifier circuit via said first and second connectors; and

a microphone provided on one of said main terminal and said secondary terminal for picking up voice signals to be supplied to the cellular telephone by said secondary terminal.

5,802,168
ISDN CAPACITY EXPANSION FOR REMOTE
TERMINAL SITES

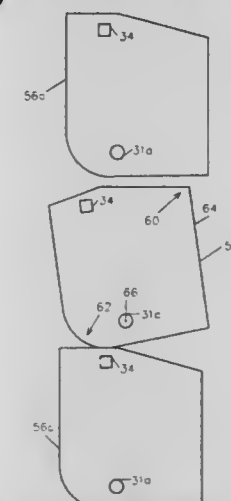
John C. Mantovani, Suwannee; David B. Milliron, Woodstock, and Joseph F. Zimmerman, Newnan, all of Ga., assignors to Conklin Instrument Corp., Pleasant Valley, N.Y.

Filed Jan. 26, 1996, Ser. No. 592,578

Int. Cl.⁶ H04M 7/00

U.S. Cl. 379—329

7 Claims



1. A method for increasing the capacity of a remote terminal cabinet for providing ISDN Basic Rate Interfaces comprising the steps of

identifying, in said remote terminal cabinet, a space previously designated and lacking protection block equipment,

installing in said space ISDN Basic Rate Interface equipment, including securing said equipment physically in place and connecting said equipment for communication with a T1 carrier service on first communications interface and a plurality of ISDN BRI interfaces to customers at a second communications interface, and

leaving any other preexisting remote cabinet communications unaffected.

5,802,169
SYSTEM AND METHOD FOR TRANSMISSION SYSTEM
AUTOMATIC IMPEDANCE MATCHING

Robert H. Frantz, Plano, and John C. Honeycutt, Dallas, both of Tex., assignors to InterVoice Limited Partnership, Reno, Nev.

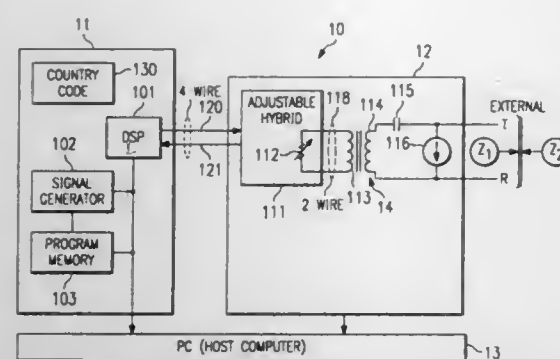
Filed Apr. 11, 1996, Ser. No. 629,840

Int. Cl.⁶ H04M 7/04; H04B 1/38

U.S. Cl. 379—398

14 Claims

1. A method under the control of a processor, for automatically matching the impedance of an analog telecommunications inter-



face circuit with the impedance of an actual telecommunications line, the impedance of which is unknown, said method comprising the steps of:

- selecting an impedance model which is anticipated to fit the impedance model of said telecommunications line;
- performing a number of return loss measurements at a selected number of frequencies;
- matching the measurements obtained from said performing step against a set of calculated expected values at the same frequencies and using said selected impedance model; and
- adjusting said analog telecommunications interface circuit in accordance with the results of said matching step.

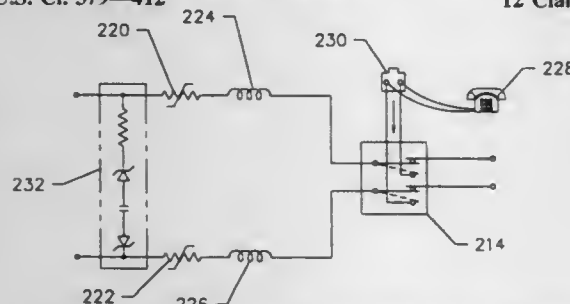
5,802,170

CUSTOMER BRIDGE MODULE

Thomas J. Smith, Bayshore, and Nisar A. Chaudhry, Babylon, both of N.Y., assignors to TII Industries, Inc., Copiague, N.Y. Continuation-in-part of Ser. No. 638,487, Apr. 26, 1996, Pat. No. 5,637,011, which is a division of Ser. No. 576,398, Dec. 21, 1995, Pat. No. 5,553,136, which is a continuation of Ser. No. 245,974, May 19, 1994, abandoned. This application Nov. 13, 1996, Ser. No. 747,655

Int. Cl.⁶ H04M 1/00

U.S. Cl. 379-412



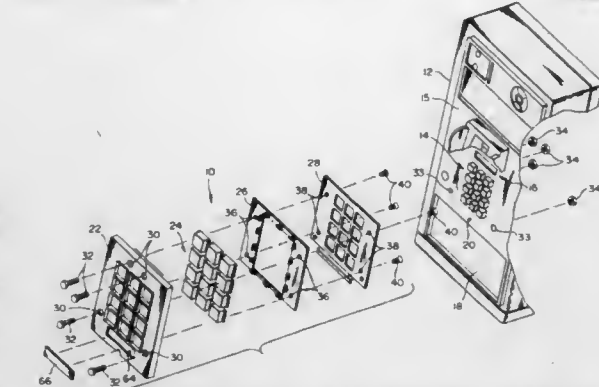
1. A customer bridge module for connecting telephone company wires and subscriber wires comprising:

- a socket having an electrical switch, the switch having two sets of first, second and third contacts the first and second contacts of each set having a greater current carrying capacity than the third contacts of each set;
- an overcurrent protection circuit having an input and an output, the output being connected to the first contacts of each set and the input for being connected to the telephone company wires; and
- the first and second contacts of each set being normally connected in the absence of a plug in the socket, thereby connecting the telephone company and subscriber wires, the first contacts of both sets being disconnected from the second contacts of both sets and being connected to the third contacts of both sets when a plug is inserted in the socket, thereby disconnecting the telephone company wires from the subscriber wires and connecting the telephone company wires to the third contacts of each set which in turn connect with contacts in the plug and provide a demarcation point between the telephone company and subscriber wires.

5,802,171
KEYPAD ENLARGER KIT
Brian M. Deutsch, Maple Valley, Wash., assignor to APC/Foursun, Kent, Wash.
Filed Dec. 15, 1995, Ser. No. 573,281
Int. Cl.⁶ H04M 1/00

U.S. Cl. 379-419

9 Claims



1. A keypad enlarger kit for use in combination with a telephone keypad having a plurality of pushbuttons, comprising a plurality of large pushbuttons, each having a front surface area greater than the front surface area of a telephone pushbutton, each large pushbutton adapted to at least partially overlay a telephone pushbutton, so that depression of a large pushbutton causes depression of a corresponding telephone pushbutton, and

a cover plate for mounting to the telephone, the cover plate adapted to keep the large pushbuttons, as they are depressed, in position over their corresponding telephone pushbuttons; wherein the telephone includes a recessed telephone number display panel and the cover plate includes a raised block having a height and width to closely fit with the recessed telephone number display panel.

5,802,172

ELECTRONIC LOCK FOR COIN TELEPHONES

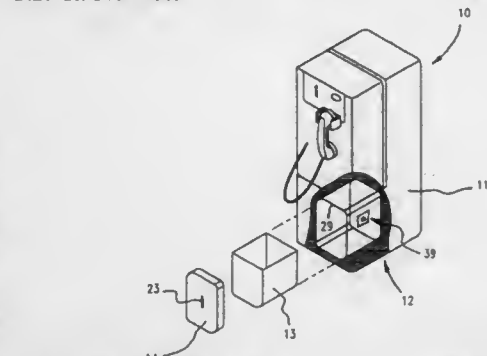
David L. Ingalsbe, Paynesville, Minn., and Henry L. Smith, Blair, Nebr., assignors to Independent Technologies, Inc., Omaha, Nebr.

Filed Dec. 5, 1994, Ser. No. 349,431

Int. Cl.⁶ H04M 1/00; 17/00

U.S. Cl. 379-445

3 Claims



1. A coin box vault door lock for a coin telephone, comprising an electrically actuatable latch including a solenoid, a locking plate having a predetermined configuration and being for locking engagement with the coin box vault door, and a biased connector connecting said locking plate to said solenoid; a latch connection bracket for connecting said latch to the coin telephone; and a latch control circuit connected to said solenoid and to a telephone line connected to the coin telephone, said latch control circuit storing charge from the telephone line and combining stored voltage with direct telephone line voltage for solenoid actuation, whereby said solenoid removes said locking plate from locking engagement with the coin box vault door.

5,802,173

RADIOTELEPHONY SYSTEM

Nicholas Francis Hamilton-Piercy, Aurora; Donald Graham Monteith, Stouffville; Roger David Keay, North York; George Maynard Hart, Newmarket; Meng Yee, Mississauga; Peter Oldfield, North York; Philip Leighton, Pickering, and Edward O'Leary, Ajax, all of Canada, assignors to Rogers Cable Systems Limited, Toronto, Canada

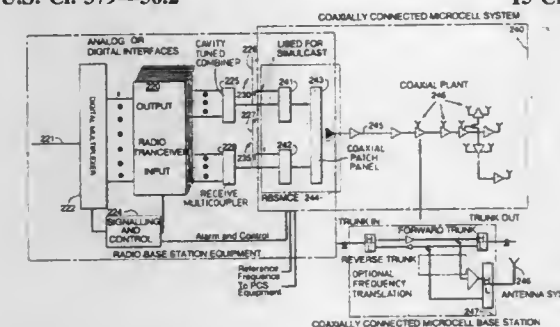
Filed Jan. 14, 1992, Ser. No. 820,491

Claims priority, application United Kingdom, Jan. 15, 1991, 9100774; Sep. 9, 1991, 9119229

Int. Cl.⁶ H04Q 7/30

U.S. Cl. 379-56.2

15 Claims



1. A radiotelephony system which reutilizes channels within at least one radio frequency block to establish bi-directional wireless communication between multiple mobile frequency-agile transceiver units and a switching network over a service area divided into multiple cells of which adjacent cells are allocated different groups of channels according to a reuse pattern, said system incorporating a radiotelephony interface, said interface comprising:

- plural base stations at least one first location and capable of transmitting and receiving multiple communication channels within at least one defined frequency block, each particular base station from among the plural base stations including:
 - at least one receiver for each channel allocated to that particular base station for reception;
 - at least one transmitter for each channel allocated to that particular base station for transmission; and
 - means to assign a transmitter and receiver to each mobile transceiver unit in communication with that particular base station;
- bi-directional coupling means, between said radio base stations and a fixed wideband signal transportation network, for transferring blocks of signals between frequency blocks available on the wideband signal transportation network and those used by the base stations;
- said fixed wideband signal transportation network, interposed between said base stations and multiple active antennas, and having available bandwidths sufficient to transport signals within at least one frequency block; and
- said multiple active antennas, located at multiple second locations within a plurality of said cells, said active antennas including:
 - antennas; and
 - bi-directional amplification means, associated with respective antennas, and disposed between said wideband signal transportation network and said antennas, for block transferring signals between:
 - frequency blocks available on said wideband signal transportation network, and
 - each frequency block utilized by the radiotelephony system,the transferring being over a wide enough band to accommodate the channel associated with the transmitter and the channel associated with the receiver assigned to a mobile transceiver unit by any of the base stations.

5,802,174

DATA RECORDING MEDIUM

Yoichiro Sako, Chiba; Hideo Owa, Kanagawa; Yoshitomo Osawa, Kanagawa; Akira Kurihara, Kanagawa, and Isao Kawashima, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

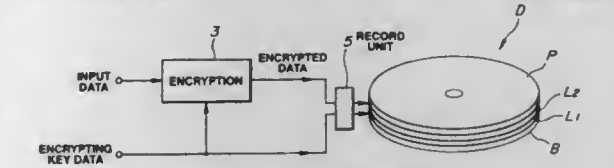
Filed Jun. 27, 1996, Ser. No. 670,535

Claims priority, application Japan, Jun. 30, 1995, 7-166645

Int. Cl.⁶ H04L 9/00

U.S. Cl. 380-4

28 Claims



1. A medium for recording data comprising:
a plurality of working areas, at least a first of said working areas being adapted to record encrypted data in a first recording format, at least a second of said working areas being adapted to record at least part of key data used for decoding said encrypted data in a second recording format.

5,802,175

COMPUTER FILE BACKUP ENCRYPTION SYSTEM AND METHOD

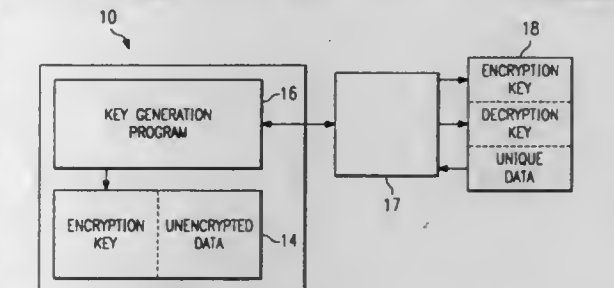
Salim G. Kara, 17 Bayview Forest La., Markham, Ontario, Canada, L3T7S4

Filed Sep. 18, 1996, Ser. No. 718,154

Int. Cl.⁶ H04L 9/08; 9/00

U.S. Cl. 380-21

31 Claims



1. A processor-based system for generating, storing, and retrieving cryptographic keys, said system comprising:
means for removably coupling a portable memory to said system thereby providing a coupled portable memory, said coupling means providing data communication between said coupled portable memory and said system;
means for reading information from a portable memory removably coupled to said system thereby providing read information, said read information being unique to said coupled portable memory;
means for selecting information within said system;
means for combining said read information with said selected information, said combined information being a single data string;
means for generating at least one cryptographic key set utilizing said combined information, said cryptographic key set comprising at least one encryption key and at least one decryption key;
means for storing said cryptographic key set in said coupled portable memory removably coupled to said system;
means for storing said encryption key in a data storage means within said system;
means for encrypting selected information utilizing said encryption key;
means for reading said decryption key from said coupled portable memory removably coupled to said system; and
means for decrypting said encrypted information utilizing said decryption key read from said coupled portable memory.

UMI

said right surround audio signal into said first and second channels under control of said first pilot control signal;

VOL

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1998

UMI

second separating means for separating said left surround audio signal into the second pilot control signal and the second audio signal;

second volume control means for controlling the distribution of said left surround audio signal into said third and fourth channels under control of said second pilot control signal.

5,802,182

AUDIO PROCESS DISTORTION

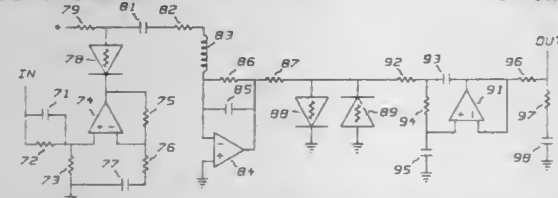
Eric K. Pritchard, Rte. 1 Box 536, Berkeley Springs, W. Va. 25411

Continuation-in-part of Ser. No. 281,019, Jul. 27, 1994. This application Dec. 2, 1996, Ser. No. 759,128

Int. Cl.⁶ H03G 3/00

U.S. Cl. 381—61

27 Claims



1. A solid state distortion enhancement means having an input, an output, and a frequency response for creating a distortion enhanced audio signal, said distortion having a frequency spectrum, and comprising:

a plurality of filters connected in series from said input to said output to produce said frequency response which is approximately flat over a substantial portion of the audio range; and one or more solid state distortion devices interconnecting said filter means; wherein

the frequency spectrum of said distortion at the output is substantially different than said frequency response;

and wherein at least one of said distortion devices does not have the exponential character of a shunting diode and does not have the symmetrical exponential character of anti-parallel shunting diodes.

5,802,183

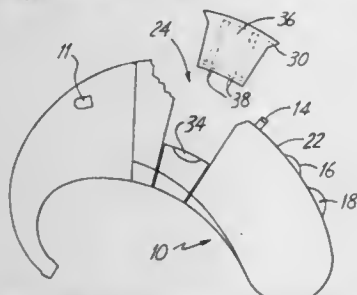
BTE ASSISTIVE LISTENING RECEIVER WITH INTERCHANGEABLE CRYSTALS

Tom Scheller, Fridley; Scott Posner, Eden Prairie; Art Johnson, Lakeville; Pat Henry, Eagan; Irene Teske, Farmington, all of Minn., and Mark A. Gilbertson, Sauk City, Wis., assignors to Telex Communications, Inc., Minneapolis, Minn.

Filed Dec. 6, 1995, Ser. No. 567,942
Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—69

19 Claims



1. A behind-the-ear assistive listening receiver comprising: a housing having a size and shape adapted to fit behind the outer ear of a user, the housing defining a radially outwardly open cavity at least a substantial portion of which is generally visible to others when the receiver is worn by the user; two or more crystal carriers removably insertable into the cavity, each such crystal carrier containing an oscillation crystal removably with the crystal carrier and tuned to a particular

frequency corresponding to an RF frequency desired to be received by the user and including electrical contacts detachably electrically engageable, without requiring soldering, with complementary contacts carried by the housing when such crystal carrier is inserted into the housing cavity;

an RF receiver disposed substantially within the housing for receiving RF transmissions desired to be received by the user; and

a switch for selectively electrically connecting the complementary contacts engaged with one of the oscillation crystals to the RF receiver when the crystal carriers are disposed in the cavity, thereby permitting the receiver to receive the desired RF transmissions on the desired RF frequency.

5,802,184

ACTIVE NOISE AND VIBRATION CONTROL SYSTEM

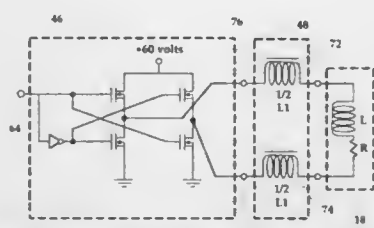
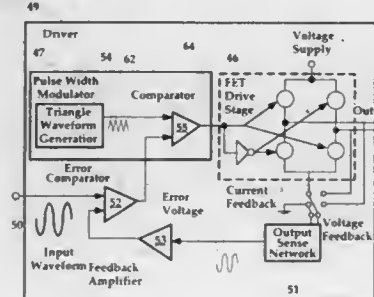
Michael C. Heath, Cary, N.C., assignor to Lord Corporation, Cary, N.C.

Filed Aug. 15, 1996, Ser. No. 698,544

Int. Cl.⁶ A61F 11/06

U.S. Cl. 381—71.4

7 Claims



1. A control system for controlling vibrational energy in a first frequency range to a vehicle from a vibrational energy source, comprising:

a) a sensor for monitoring said vibrational energy to be controlled;

b) a vibrational energy control circuit responsive to said sensor having a first output pole and a second output pole for providing a drive signal between said first output pole and said second output pole which contains high frequency energy transients at frequencies outside said first frequency range and at least one frequency component in said first frequency range;

c) an actuator electrically connected to said first output pole and said second output pole and responsive to said at least one frequency component in said first frequency range of said drive signal for generating forces to control said vibrational energy;

d) an actuator power dissipation reduction circuit electrically connected between said vibrational energy control circuit and said actuator for preferentially reducing an amplitude of said high frequency energy transients in said drive signal to reduce power dissipation in said actuator from said high frequency energy transients, said actuator power dissipation reduction circuit including a first inductor serially electrically connecting said first output pole to said actuator and a second inductor serially electrically connecting said second output pole to said active vibration control actuator; and

wherein said vibrational energy control circuit generates current and substantially all of said current from said vibrational energy control circuit is provided to said actuator.

5,802,185

SLIDE CONTROL SYSTEM

Albert Frederick Hansen, 156 Lower Dent Street, Whangarei, New Zealand

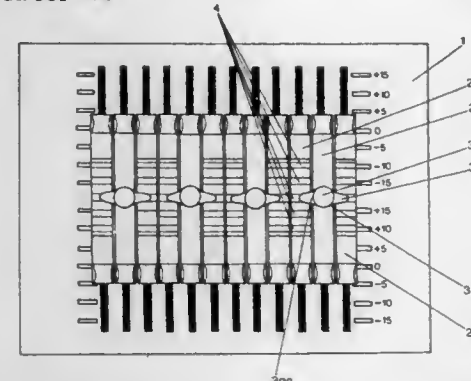
Filed Jul. 19, 1995, Ser. No. 504,239

Claims priority, application New Zealand, Jul. 19, 1994, 264046

Int. Cl.⁶ H03G 5/00

U.S. Cl. 381—98

9 Claims



1. A slide control system comprising at least one slide control set comprising at least two manually operable parallel slide controls each controlling related characteristics, bridge means mounted on a first slide control and extending transversely to releasably engage one or more adjacent slide control/controls to couple all the slide controls of the set for movement together in a single operation, and means to enable said bridge means to be temporarily lifted out of engagement with said adjacent slide control/controls to allow separate movement of said slide control relative to one another wherein each adjacent slide control includes spaced apart grooves or notches along the length of each slide control, and wherein an arm portion of the bridge means engages one of said grooves or notches on each adjacent slide control.

5,802,186

AUDIO SIGNAL PROCESSING APPARATUS

Kazunobu Kubota, Saitama, Japan, assignor to Sony Corporation, Tokyo, Japan

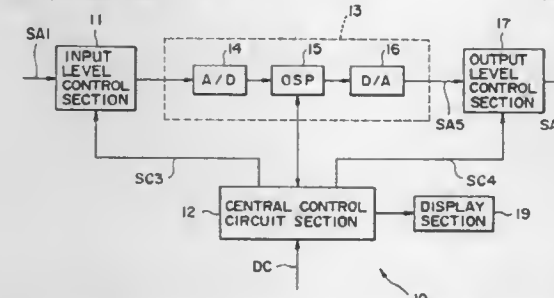
Filed Dec. 3, 1996, Ser. No. 759,811

Claims priority, application Japan, Dec. 6, 1995, 7-344350

Int. Cl.⁶ H03G 3/00

U.S. Cl. 381—107

4 Claims



1. An audio signal processing apparatus wherein an input analog audio signal successively inputted thereto is arithmetically processed by a selected one of a plurality of arithmetic processes, said apparatus comprising:

input level control means for controlling a signal level of the input analog audio signal;

analog to digital converting means for converting the controlled input analog audio signal to a digital audio signal;

digital signal processing means for arithmetically processing the digital audio signal from said analog to digital conversion means according to the selected one of the arithmetic processes and for providing processing time data;

digital to analog converting means for converting the processed digital audio signal to an analog signal;

output level control means for controlling the signal level of the audio signal output from said digital to analog converting means in an interlocking relationship with a signal level controlled by said input level control means;

delay calculation means for calculating a delay time equal to a time required to process the input analog signal in the analog to digital converting means and the processed digital audio signal in the digital to analog converting means plus the time required for the processing of the signal based on the processing time data; and

control means for delaying control of the output level control means in accordance with the calculated delay time.

5,802,187

TWO-CHANNEL PROGRAMMABLE SOUND GENERATOR WITH VOLUME CONTROL

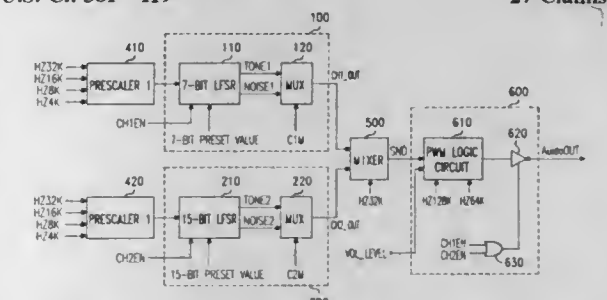
Jerry Hsu, Tainan, Taiwan, assignor to United Microelectronics Corp., Hsinchu, Taiwan

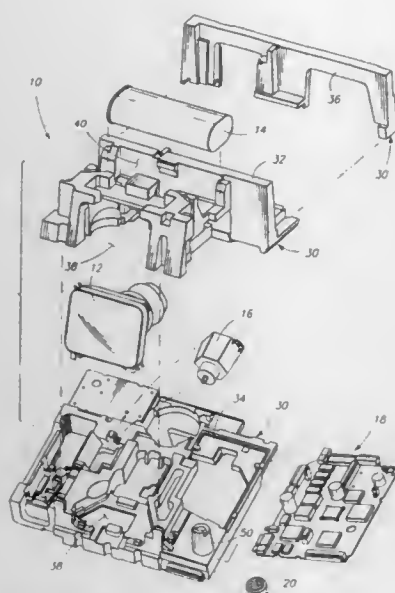
Filed Jan. 26, 1996, Ser. No. 592,128

Int. Cl.⁶ H04B 1/00

U.S. Cl. 381—119

27 Claims





a non-supporting chassis component integrally formed along with and as part of the chassis to define a resonance chamber, the resonance chamber having an elongated tube extending along a longitudinal axis from a proximal end positioned adjacent to the speaker to a distal end and a partial shielding wall continuing from the distal end of the tube along the longitudinal axis to shield an opening at the distal end of the tube from occlusion; and wherein the chassis and non-supporting chassis component are integrally formed of expanded polypropylene.

5,802,189

SUBWOOFER SPEAKER SYSTEM

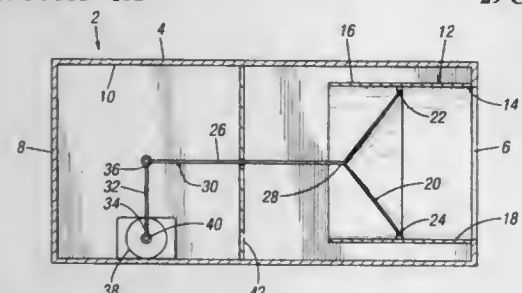
Clifford L. Blodgett, Sugarland, Tex., assignor to Samick Music Corporation, Industry, Calif.

Filed Dec. 29, 1995, Ser. No. 581,706

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—182

29 Claims



13. An electromechanical transducer for producing sound in response to an audio signal comprising:

- a generally rectangular enclosure having a longitudinal axis, a first end, a second end, and an inside surface, said first end defining an opening therein;
- a diaphragm attached to said first end of the enclosure, said diaphragm being positioned adjacent to said opening;
- a substantially linear drive shaft having a first end and a second end, said first end being connected to said diaphragm;
- a lever means having a lower end and an upper end, said upper end being rotatable attached to the second end of the drive shaft;
- a motor means having an output shaft, said output shaft being connected to the lower end of the lever means, said motor having the characteristic of rotating in response to the application of electric current from an audio source, said characteristic of rotating being limited to an arc having an angle of

less than 180 degrees and said motor means further comprising a non-commutated moving coil motor.

5,802,190

LINEAR SPEAKER ARRAY

Bran Ferren, East Hampton, N.Y., assignor to The Walt Disney Company, Burbank, Calif.

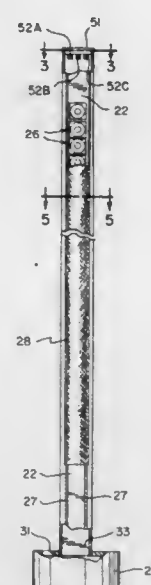
Continuation of Ser. No. 334,627, Nov. 4, 1994, abandoned.

This application Apr. 17, 1997, Ser. No. 839,324

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—182

7 Claims



1. A public address sound delivery system, comprising at least one elongated speaker mounting element; a multiplicity of individual speakers mounted in said mounting element to form a vertical linear array of speakers with each speaker adapted to radiate sound in a direction transverse to the array, the number of speakers and the spacing between them being selected so as to focus the sound emanated by the speakers by reducing dispersion of sound in the direction of the linear array; and

means for coupling audio signals containing voice signals to said speakers, said means including means for separating the audio signals into at least a first signal containing said voice signals and a second signal in which a substantial part of said voice signals is not present, said first signal being connected to an upper group of speakers and said second signal being connected to an entire lower group of speakers whereby the likelihood of positive feedback between a microphone in proximity to said lower group of speakers and said lower group of speakers is substantially reduced.

5,802,191

LOUDSPEAKERS, SYSTEMS, AND COMPONENTS THEREOF

Goehard A. Guenther, 75 Folsom St., San Francisco, Calif. 94105

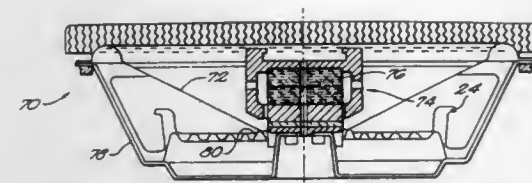
Filed Jan. 6, 1995, Ser. No. 369,736

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—188

16 Claims

1. A loudspeaker comprising: a cone-shaped acoustic diaphragm; a driver including first and second rare earth magnets at least one of which is centrally disposed within electromagnetic shielding material;



- a frame to which the driver and cone-shaped diaphragm are mounted, wherein the driver is mounted to an inner surface of the frame such that the driver is disposed within the cone-shaped diaphragm;
- a second acoustic diaphragm mounted onto the driver coaxially and substantially coplanar with a forward edge of the cone-shaped diaphragm.

5,802,192

SPEAKER WATERPROOF STRUCTURE FOR ELECTRICAL EQUIPMENT

Yukinori Katakawa, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

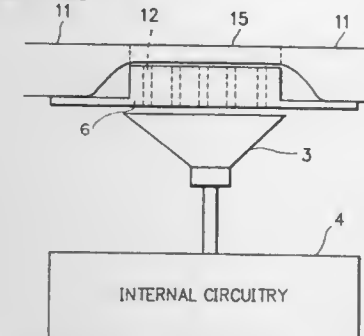
Filed Jul. 12, 1996, Ser. No. 679,483

Claims priority, application Japan, Jul. 13, 1995, 8-177019

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—188

3 Claims



1. A speaker waterproof structure for electrical equipment comprising:

- a speaker installed inside a housing of the electrical equipment;
- a vibratory plate member installed outside the housing for externally transmitting vibrations of said speaker as a sound and for preventing intrusion of water from outside the housing; and
- a plurality of sound release holes formed through the housing, inside said vibratory plate member, for transmitting a sound from said speaker to said vibratory plate member, wherein the housing includes a reinforcer member for a reinforcement thereof to withstand water pressures, and said sound release holes are formed through said reinforcer member, and wherein said vibratory plate member is integrally formed with the housing.

5,802,193

OUTDOOR LOUDSPEAKER SYSTEM

William J. Kielyka, 18 Meredith Dr., Brunswick, Me. 04011

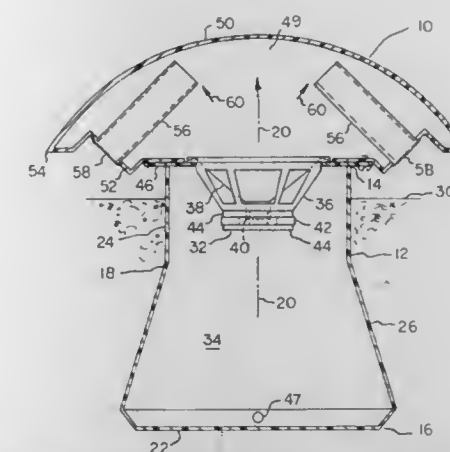
Filed Apr. 8, 1997, Ser. No. 826,951

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—188

13 Claims

1. An outdoor loudspeaker assembly comprising: an upstanding tubular enclosure having an upper end and a lower end, said enclosure being adapted for in-ground installation so that its upper end is located above ground level; a loudspeaker located within said tubular enclosure for directing sound waves upwardly away from ground level; an impermeate dome mounted on said enclosure directly above the loudspeaker, to form an above-ground chamber; and



a plurality of sound port tubes located within said above-ground chamber below said dome for dispersing acoustic energy out of said above-ground chamber; each said tube having a first open end located within said above-ground chamber, and a second open end communicating with the exterior space surrounding said chamber.

5,802,194

STEREO LOUDSPEAKER SYSTEM WITH TWEETERS MOUNTED ON ROTATABLE ENLONGATED ARMS

Makoto Yamagishi, Tokyo; Yutaka Kagawa, Kanagawa; Akihiro Akiyama, Kanagawa, and Kazuo Ichikawa, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP94/01649, § 371 Date Jun. 26, 1995, § 102(e)

Date Jun. 26, 1995, PCT Pub. No. WO95/10163, PCT Pub.

Date Apr. 13, 1995

Continuation of Ser. No. 424,506, Jun. 26, 1995, abandoned.

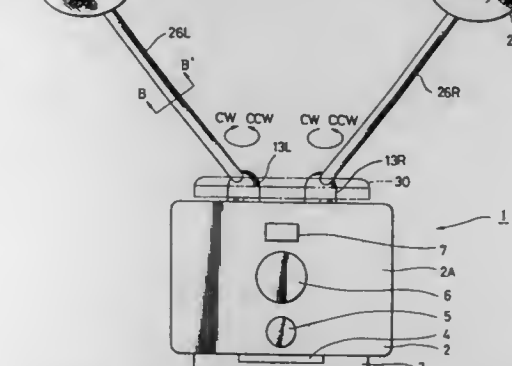
This PCT application Oct. 3, 1994, Ser. No. 914,497

Claims priority, application Japan, Oct. 1, 1993, 5-247141

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—188

9 Claims



1. A stereo speaker system comprising: a first baffle supporting a first speaker unit for producing sounds in a first frequency range; a plurality of second baffles each supporting a respective second speaker unit for producing sounds in a second frequency range, said second frequency range being higher than the first frequency range, said second baffles being smaller than said first baffle; said plurality of second baffles being spaced a predetermined distance from said first baffle; and a plurality of non-metallic hollow pipes each angularly movably connected at a first end to said first baffle and at a second opposite end pivotally connected to one of said second baffles so that each of said second baffles is attached to said first

baffle for independent relative movement, said pipes having a length so that sounds from said first speaker unit and sounds from each second speaker unit do not interfere and so that sounds from said second speaker units cooperate to produce a stereophonic effect.

wherein said plurality of second baffles can be independently moved toward and away from a listener, and wherein said pipes are tapered decreasing gradually in diameter from said first end to said second end and are integrally formed of a material made of epoxy resin mixed with carbon fibers so that the pipes have a resistance of at least 170 Ω /m and propagate sound at a velocity of at least 5000 m/sec with a sharpness of resonance of at most 500 Hz.

5,802,195

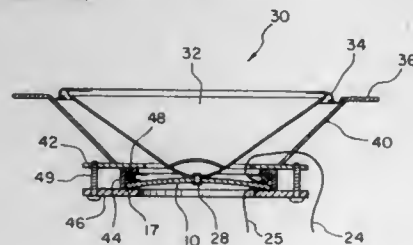
HIGH DISPLACEMENT SOLID STATE FERROELECTRIC LOUDSPEAKER

Curtis R. Regan, Norfolk; Antony Jalink, Jr., Newport News; Richard F. Hellbaum, Hampton, and Wayne W. Rohrbach, Yorktown, all of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C. Continuation-in-part of Ser. No. 326,804, Oct. 11, 1994, abandoned. This application Jan. 13, 1997, Ser. No. 782,851

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—190

13 Claims



1. A loudspeaker, comprising:

- (a) a speaker membrane;
- (b) a speaker frame;
- (c) a solid state integral monomorph dome shaped internally prestressed ferroelectric actuator having a spherical curvature, said solid state integral monomorph dome shaped actuator having a rim and an apex, and a dome height measured from a plane through said rim to said apex that varies with an electric voltage applied between an inside and an outside surface of said dome shaped actuator; and
- (d) means for mounting said actuator between said speaker frame and said speaker membrane so that said dome height determines an axial distance between said speaker frame and said speaker membrane, wherein said actuator is sandwiched between said speaker membrane and said speaker frame and a predetermined prestress force is applied between said speaker membrane and said speaker frame for mechanically biasing said actuator and said speaker membrane so that the responsiveness of the loudspeaker to lower levels of voltage is increased.

5,802,196

SPEAKER FOR RADIATING SOUND WAVES IN ALL DIRECTIONS RELATIVE TO A SPEAKER SUPPORTING SURFACE

Takeshi Nakamura, Uji, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto, Japan

Filed Dec. 4, 1996, Ser. No. 760,639

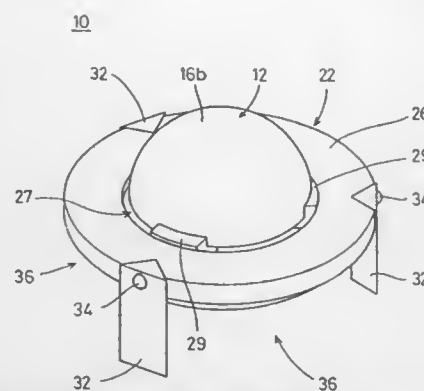
Claims priority, application Japan, Dec. 14, 1995, 7-347884

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—202

20 Claims

1. A speaker comprising:
a hemispherical oscillating body;



- a driver for driving the oscillating body;
a horn arranged to extend from a curved inner surface of the oscillating body toward an installation surface which is not part of the speaker and upon which the speaker is supported such that the horn is spaced away from the installation surface, the horn having a hole gradually expanding from the curved inner surface of the oscillating body toward the installation surface;
a cavity communicating with the hole of the horn and being defined between the oscillating body and the horn; and
a sound transmission path defined by an area located between the horn and the installation surface upon which the speaker is supported, the sound transmission path arranged to communicate with the hole of the horn and to radiate sound waves in substantially all directions toward the installation surface.

5,802,197

AUDIO DECOY

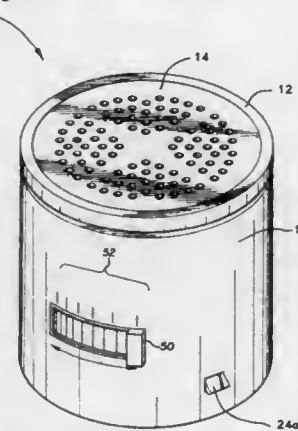
Daniel B. Fulcher, 3231 Big Oak Lake Rd., Spring Hill, Tenn. 37174

Filed Mar. 18, 1997, Ser. No. 819,776

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—205

5 Claims



1. An audio decoy device for selectively reproducing sounds representative of animals comprising:
a cylindrical housing having a top and an accessible bottom compartment, said top having a sealing rim;
an axially displaceable speaker positioned at the top of said cylindrical housing, said speaker being retained by said sealing rim;
circuit means located in said housing for producing digital audio signals and presenting said signals to said speaker;
conductor means coupling said circuit means to said speaker;
spring biased switch means selectively operable for actuating said circuit means causing said circuit means to produce said signals, said switch means being operatively coupled to said speaker upon depression of said speaker within said housing;
selector switch means for selecting one of a plurality of predetermined sounds representative of animals; and

power supply means positioned in said accessible bottom compartment and electrically coupled to said circuit means for providing power thereto.

5,802,198

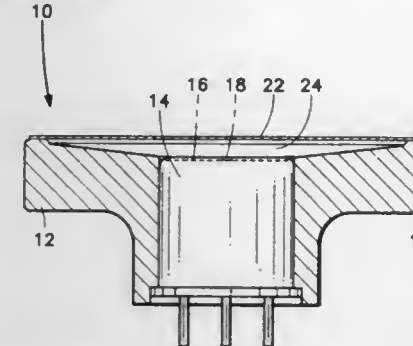
HERMETICALLY SEALED CONDENSER MICROPHONE
Bob Ray Beavers, Vista, and Michael DeAngelo, Anaheim, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Feb. 25, 1997, Ser. No. 805,962

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—344

20 Claims



1. A hermetically sealed condenser microphone, comprising:
(a) a case comprising a hollow interior, a sealed end and an open end;
(b) an electroacoustic transducer disposed within the hollow interior of the case and having an active diaphragm; and
(c) a sealing diaphragm, comprised of the same materials as the active diaphragm so as to increase the sensitivity of the microphone, disposed over the top of the open end of the case such that the hollow interior of the case is completely sealed from the outside environment, and wherein,
(d) an acoustic signal first impinges upon the sealing diaphragm causing deflections therein which in turn recreate the acoustic signal undiminished in an air space within the case between the sealing diaphragm and the active diaphragm; and
(e) the recreated acoustic signal impinges on the active diaphragm of the electroacoustic transducer causing deflections therein that are converted to an electrical signal outputable from the microphone.

5,802,199

USE SENSITIVE IDENTIFICATION SYSTEM

David Ferrin Pare, Jr.; Ned Hoffman, and Jonathan Alexander Lee, all of Berkeley, Calif., assignors to SmartTouch, LLC, Berkeley, Calif.

Continuation-in-part of Ser. No. 442,895, May 17, 1995, Pat. No. 5,613,012, which is a continuation-in-part of Ser. No. 345,523, Nov. 28, 1994, Pat. No. 5,615,277. This application Mar. 17, 1997, Ser. No. 818,872

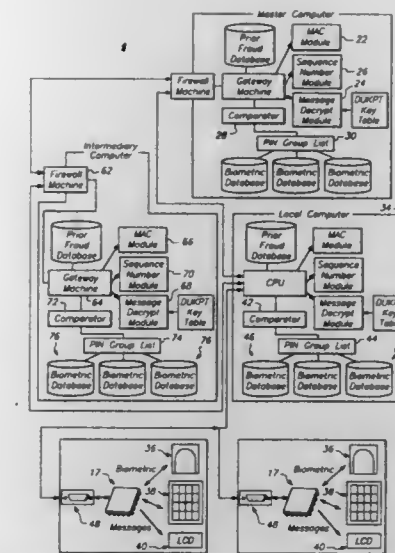
Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—115

21 Claims

1. An identification computer system which is sensitive to use or decrease use, for determining an individual's identity from comparison of previously recorded biometric samples and personal identification codes with a bid biometric sample and a bid identification code, said system comprising:

- a. a master computer further comprising a master computer comparator, a master comparator biometric database containing the biometric samples of all users registered with the identification computer system, and a user personal identification code group database containing the personal identification codes of said users;
- b. at least two local computers, physically remote from each other, each local computer further comprising:
 - i) a biometric scanner;



- ii) a local comparator;
 - iii) a data entry device;
 - iv) a local user biometric database containing a subset of the biometric samples contained in the master biometric database; and
 - v) a personal identification code database;
- c. first interconnecting means for interconnecting each local computer to the master computer; wherein
- i) the user presents their bid biometric sample and bid personal identification code to a first local computer, the first local computer comparator compares the bid biometric sample and bid personal identification code with biometric samples and personal identification codes contained in the first local computer database to produce either a failed or successful first identification result;
 - ii) wherein if the first local computer returns a failed identification result, the bid biometric sample and bid personal identification code are transmitted to the master computer for comparison of the entered bid biometric sample and bid personal identification code to personal identification codes and biometric samples stored in the master computer for producing either a failed or successful second identification result; and
- d. at least one display unit wherein said first or second identification result is externalized.

5,802,200

METHOD FOR DETERMINING A REFERENCE AUTOGRAPH CHARACTER STRING ON THE BASIS OF A SET OF SAMPLE AUTOGRAPH CHARACTER STRINGS FROM THE SAME WRITER

Brigitte Wirtz, Holzkirchen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

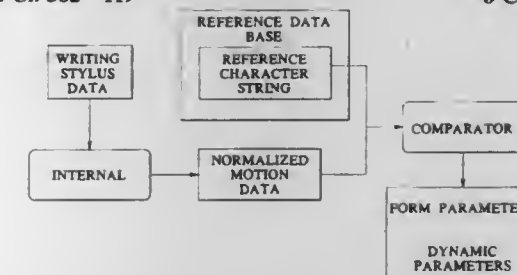
Filed Mar. 12, 1996, Ser. No. 615,051

Claims priority, application Germany, Mar. 29, 1995, 195 11 470.1

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—119

8 Claims



1. A method for determining at least one reference autograph character string as a reference set based on a sample set of sample autograph character strings from a same writer, comprising the steps of:

through a writing by hand of a predetermined text, producing at least three sample character strings by a same writer for formation of the sample set;

during the production of the sample character strings using a stylus, recording and retaining characteristic dynamic parameters describing motion of the stylus;

on the basis of the dynamic parameters, and in dependence on whether the stylus is pressed against a writing surface or not, decomposing each sample character string into at least a first and a second partial character string in the form of a first and a second stroke;

normalizing the dynamic parameters of all the character strings; determining and retaining differences in the dynamic parameters between a respective sample character string and all sample character strings from the sample set not as yet taken into account in the determination for each dynamic parameter as a parameter deviation;

carrying out the determining and retaining of the differences in the dynamic parameters strokewise such that strokes are compared via dynamic programming;

determining that sample character string as said at least one reference character string for the reference set which comprises a smallest parameter deviation from all other sample character strings with respect to all dynamic parameters;

during calculation of minimal distance between respective strokes, a combination of at least two normalized dynamic parameters is chosen, of which a first describes at least stylus position in dependence on time, so that strokewise a verification measure is obtained indicating similarity of the sample character string to the other sample character string; and wherein for the reference set $REF = \{REF_1, \dots, REF_n\}$ a form matrix of the form:

$$Form = \begin{bmatrix} m_form_{11} & m_form_{12} & \dots & m_form_{1n} \\ m_form_{21} & m_form_{22} & \dots & m_form_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ m_form_{n1} & m_form_{n2} & \dots & m_form_{nn} \end{bmatrix}$$

and a motion matrix of the form:

$$Bewegung = \begin{bmatrix} m_bewe_{11} & m_bewe_{12} & \dots & m_bewe_{1n} \\ m_bewe_{21} & m_bewe_{22} & \dots & m_bewe_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ m_bewe_{n1} & m_bewe_{n2} & \dots & m_bewe_{nn} \end{bmatrix}$$

are formed for all REF_i with $REF_i, i, j = 1 \dots n$ with

$$m_form = \sum_{i=1}^n w_{si} \cdot D(rs_i, ps_i),$$

as well as

$$w_{si} = \frac{1}{\text{mean_Form_}s_i \cdot \text{std_Form_}s_i},$$

and

$$m_bewe = \sum_{i=1}^n m_bewe_{si}(rs_i, ps_i)$$

$$g(i, j, k) = d(i, j, k) + \min \begin{bmatrix} g(i, j-1, k) \\ g(i-1, j, k) \\ g(i-1, j-1, k) \end{bmatrix},$$

for $I=2 \dots I(K)$, $j=2 \dots J(K)$ as a calculating rule for a verification measure within a stroke k , $k=1 \dots K$, and

$$g(i, j, k) = d(i, j, k) + \min \begin{bmatrix} g(i-1, j, k) \\ g(i, j-1, k) \\ g(i-1, j-1, k) \end{bmatrix}, k \in Pre(k),$$

for $I=2 \dots I(K)$, $j=2 \dots J(K)$ as a calculating rule for a verification measure at stroke borders with:

$$d(i, j, k) = w_1 \cdot d_1(i, j, k) + w_2 \cdot d_2(i, j, k)$$

$R(t) = \{PenUp/PenDown, x(t), y(t), p(t), t\}$ general feature vector x, y locus parameter, p pressure parameter, t time

$RN(t) = (zr(t), pr(t), vxr(t))$ feature vectors of a normalized reference signature

$PN(t) = (zp(t), pp(t), vxp(t))$ feature vectors of the normalized sample signature $z(t) x(t) + I^* y(t)$; $vx(t)$ speed in x direction

$R(t) = (rs_1; \dots; rs_n)$ the stroke sequence in the reference signature

$P(t) = (ps_1; \dots; ps_m)$ the stroke sequence in the sample signature (with $m = K$ at first)

m form Verification measure for agreement in writing motion

m bewe Verification measure for agreement of dynamic parameters

mean_Form_ s_i a mean value of a form measure of stroke i over an initial set of reference signatures

mean_Bewegung_ s_i a mean value of a motion measure of stroke i over an initial set of reference signatures

std_Form_ s_i a standard deviation of the form measure of stroke i over an initial set of reference signatures

std_Bewegung_ s_i a standard deviation of the motion measure of stroke i over an initial set of reference signatures

w_1 weighting factor derived at least from std_Form_ s_i

w_2 weighting factor derived at least from std_Bewegung_ s_i

$Pre(k)$ the possible set of allowable precursor strokes to stroke k

$Pre(k) = \{k-1; k-3; kNull; kPseudo\}, k = 1 \dots K$

stroke index in the reference

$kNull$ index of "missing strokes"

$kPseudo$ index of "superfluous strokes"

$(Pre(1) = \{kNull; kPseudo\})$

from which a following minimum is further formed:

$[MIN_index] = \min$

$(\text{sum}((Form \cdot Form) \cdot (Bewegung \cdot Bewegung)))$

where " \cdot " denotes element-element multiplication

whereby the reference signature occurs:

$Ref = \{O_{index}\}$.

5,802,201

ROBOT SYSTEM WITH VISION APPARATUS AND TRANSPARENT GRIPPERS

Shree K. Nayar, and Anton Nikolaev, both of New York, N.Y., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.

Filed Feb. 9, 1996, Ser. No. 598,378

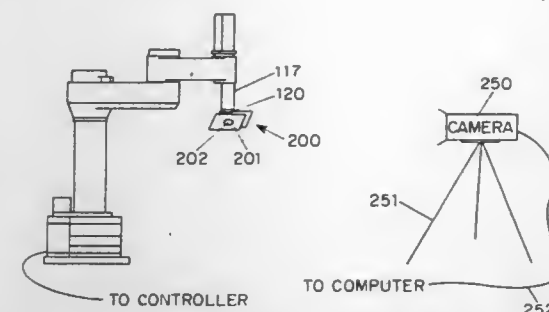
Int. Cl. G06T 5/00

U.S. Cl. 382—153

20 Claims

1. A robot for manipulating an object, comprising:

(a) an end effector forming a mechanical component of said robot;



- (b) a substantially entirely transparent gripper, mechanically coupled to said end effector, to grip said object being manipulated;
- (c) an optical image sensor, optically coupled to said transparent gripper, to sense an image of said object through a surface of said transparent gripper, and for converting a sensed image of said object into image data; and
- (d) image data processing apparatus, coupled to said sensor, for processing said image data to remove optical artifacts, including distortion due to refraction, introduced by said gripper therefrom.

5,802,202

METHOD OF DETERMINING THREE DIMENSIONAL POSITION OF OBJECT AND APPARATUS THEREFOR

Naoki Yamada; Kazumoto Tanaka, and Makoto Shinohara, all of Hiroshima-ken, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

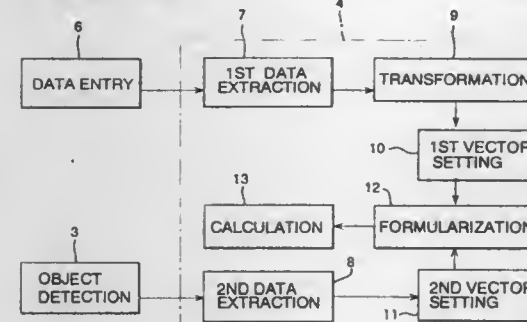
Filed Dec. 27, 1994, Ser. No. 364,184

Claims priority, application Japan, Dec. 24, 1993, 5-328060; Jun. 29, 1994, 6-147938

Int. Cl. G06K 9/00

U.S. Cl. 382—154

15 Claims



1. A method of determining a three-dimensional relative position of an object in a specific position with respect to a predetermined standard position comprising the steps of:

storing a position of a distinctive part of said object virtually located in said standard position which is expressed in a standard three-dimensional co-ordinate system;

formularizing a relation between said specific position and said standard position with respect to said standard three-dimensional co-ordinate system as an equation which includes a positional deviation of said object in said specific position from said standard position as an unknown;

determining a restrictive condition for said position of said distinctive part when said object is located in said specific position; and

solving said equation under a condition in which said position of said distinctive part in said specific position expressed by said equation satisfies said restrictive condition, thereby finding said positional deviation;

wherein said step of formularizing includes formularizing an equation defining a line passing through said distinctive part of said object and a center of a lens of a camera for picking up an image of said object, and said step of determining includes

determining a restrictive condition in which said distinctive part is on said line when said object is located in said specific position.

5,802,203

IMAGE SEGMENTATION USING ROBUST MIXTURE MODELS

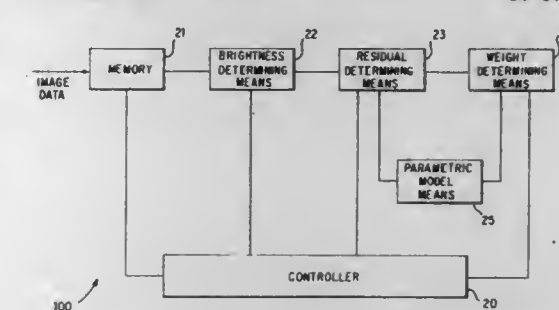
Michael Julian Black, Menlo Park, Calif., and Allan Douglas Jepson, Oakville, Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 7, 1995, Ser. No. 488,002

Int. Cl. G06K 9/00

U.S. Cl. 382—173

10 Claims



1. An image segmentation system for segmenting an image into a plurality of layers and a plurality of sets of weights, each set of weights corresponding to one of the plurality of layers, each of the plurality of layers comprising a plurality of layer pixels, each of the plurality of layer pixels corresponding to an image pixel in the image, the image segmentation system comprising:

image brightness means for determining an actual image pixel brightness for each image pixel in the image;

parametric model means for generating a layer pixel brightness model for each of the plurality of layers, each layer pixel brightness model describing a layer pixel brightness value for each layer pixel in the corresponding layer, each layer pixel brightness model generated based on the corresponding set of weights and the actual image pixel brightness of the image pixels in the image;

residual determining means for determining a plurality of sets of residual values, each set of residual values corresponding to one layer, each residual value in the corresponding set of residuals corresponding to a layer pixel in the corresponding layer, each residual value determined based on the corresponding layer pixel brightness value for the corresponding layer pixel determined by the parametric model means and the corresponding actual image pixel brightness of the corresponding image pixel;

weight determining means for determining the plurality of sets of weights, each weight in each set of weights corresponding to a layer pixel in the corresponding layer, each weight determined based on the residual value for the corresponding layer pixel in the corresponding layer; and

control means for controlling the image brightness means, the parametric model means, the residual determining means and the weight determining means.

5,802,204

HANDWRITTEN CHARACTER TRANSLATOR USING FUZZY LOGIC

Paul M. Basehore, Sanford, Fla., assignor to Microchip Technology Incorporated, Chandler, Ariz.

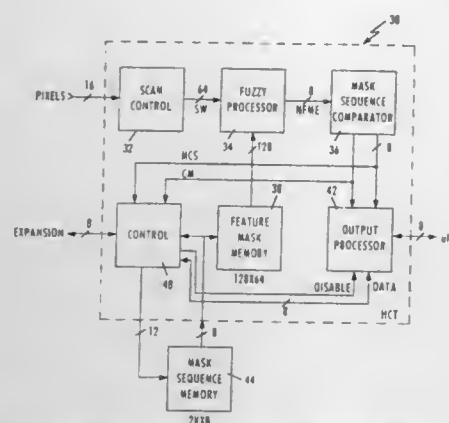
Filed Jun. 7, 1995, Ser. No. 481,168

Int. Cl. G06K 9/00

U.S. Cl. 382—186

27 Claims

1. A method for recognizing a handwritten symbol from a group of predetermined symbols, comprising the steps of:



storing in a memory at least one sequence of feature masks for each of the predetermined symbols;
supplying pixel information corresponding to a scan window to a plurality of fuzzifier circuits, said scan window including the handwritten symbol, each of said fuzzifier circuits corresponding to a membership function having a center corresponding to a selected pixel from one of said feature masks;
supplying feature mask pixel information to said fuzzifier circuits;
outputting from each of said fuzzifier circuits a weighted error signal calculated between the selected pixel of said one feature mask and the corresponding pixel information from said scan window;
accumulating said weighted error signals from each of said fuzzifier circuits to obtain a normalized feature mask error signal for each of said feature masks with respect to said scan window;
accumulating the normalized feature mask error signals for each stored sequence to obtain a normalized symbol error signal; and
comparing the normalized symbol error signals for the stored sequences to determine a minimum normalized symbol error signal corresponding to one of said predetermined symbols, said handwritten symbol being recognized as corresponding to said one predetermined symbol.

5,802,205

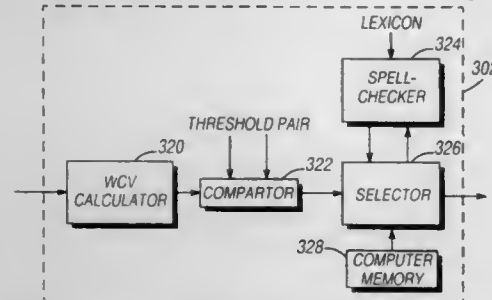
METHOD AND SYSTEM FOR LEXICAL PROCESSING
James H. Emico, Palatine, and Michael C. Murdock, Lake In The Hills, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 304,008, Sep. 9, 1994, abandoned. This application Dec. 18, 1995, Ser. No. 573,711

Int. Cl. G06K 9/00; 9/48; 9/03

U.S. Cl. 382-187

19 Claims



1. In a real-time handwriting recognition system, a method of lexical processing that produces a lexical output, the method comprising the following steps:
receiving an input word derived from non-scanned input data, the input word including a plurality of characters and a plurality of character confidence values;

generating a first result by comparing a rejection ratio, based on the plurality of character confidence values, to a reject character ratio threshold;
generating a second result by comparing the average of the plurality of character confidence values to an accept threshold; and
producing the lexical output according to the first result and the second result, wherein the lexical output is produced by a process step selected from the group consisting of:
accepting the input word without correction,
rejecting the input word as unidentifiable and including a rejection indicator in the lexical output, and
generating the lexical output as a function of the plurality of character confidence values and a confusion matrix.

5,802,206

METHOD FOR DETERMINING EDGE POSITIONS

Thomas Marold, Jena, Germany, assignor to Carl Zeiss Jena GmbH, Jena, Germany

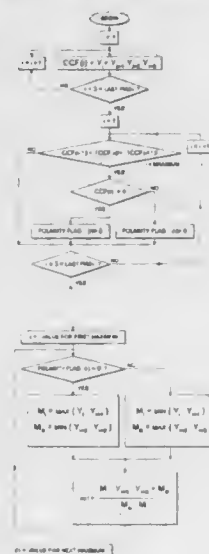
Filed Jan. 16, 1996, Ser. No. 585,666

Claims priority, application Germany, Jan. 13, 1995, 195 00 817.0

Int. Cl. G06K 9/48; 9/64; 9/36

U.S. Cl. 382-199

6 Claims



1. In a method for determining edge positions by evaluating digitized electrical signals which are obtained when scanning at least one light-dark structure by photoreceivers, the improvement comprising the steps of:

determining an edge which is located in the middle of the regions of four adjacent photoreceivers (i; i+1; i+2; i+3), which provide lightness signals Y_i , Y_{i+1} , Y_{i+2} , and Y_{i+3} , first determining said regions from the signals Y_i ;
determining the type of edge, light edge, dark edge or dark-light edge or white-black transition or black-white transition from the signals Y_i ;

forming a value M_i from the lightness signals of the first two photoreceivers (i; i+1) so that M_i is an extreme of Y_i and Y_{i+1} to be expected for the determined type of edge;

forming a value M_a from the signals of the two other photoreceivers (i+2; i+3) so that M_a is an extreme of Y_{i+2} and Y_{i+3} to be expected for the determined type of edge; and

determining the position x of the edge to be determined with reference to a dividing edge of the two photoreceivers i+1; i+2 in units of the photoreceiver dimensions according to the following equation:

$$\lambda = \frac{M_i - Y_{i+1} - Y_{i+2} + M_a}{M_a - M_i}$$

5,802,207

SYSTEM AND PROCESS FOR CONSTRUCTING OPTIMIZED PROTOTYPES FOR PATTERN RECOGNITION USING COMPETITIVE CLASSIFICATION LEARNING

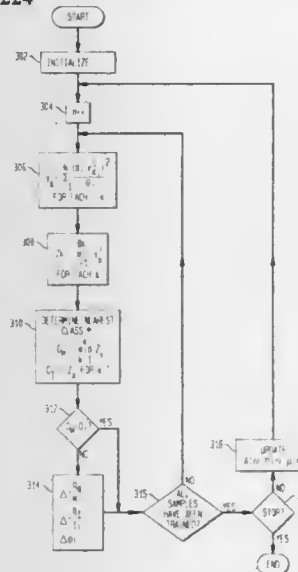
Yea-Shian Huang, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jun. 30, 1995, Ser. No. 497,030

Int. Cl. G06K 9/62

U.S. Cl. 382-224

10 Claims



1. A method for optimizing prototypes of model characters for character recognition, said prototypes including at least one prototype feature value vector selected for each true class 1 into which inputted training character samples, of said model characters, are organized, said method comprising the step of:

for each training character sample, iteratively:

using a processor, electronically determining the nearest class M containing the nearest prototype to said training character sample,

using said processor, if said nearest class M is different from said true class 1 of said training character sample, electronically updating the value of at least some of said prototypes by a value which depends on:

$$\frac{O_M - O_1}{O_M}$$

where:

n is the iteration number,

O_M is the distance from said training character sample to said nearest prototype of said nearest class M,

O_1 is the distance from said training character sample to the nearest prototype of said true class 1, and

$A(n)$ is a monotonically decreasing bandwidth parameter such that $0 < A(n+1) < A(n)$ for all n.

179-290 O.G.-98-31:QL3

5,802,208

FACE RECOGNITION USING DCT-BASED FEATURE VECTORS

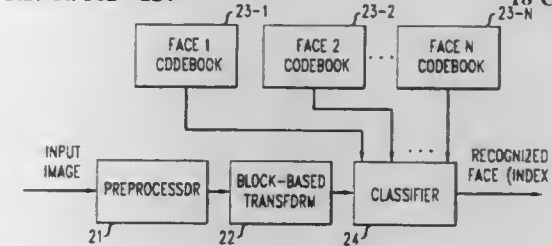
Christine Irene Podilchuk, Bridgewater, and Xiaoyu Zhang, Piscataway, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 6, 1996, Ser. No. 643,685

Int. Cl. G06K 9/62; 9/00; 9/46; 9/36

U.S. Cl. 382-224

18 Claims



1. A method of matching a given object comprised in an input image signal to one of a plurality of known objects, a representation of each of the known objects having been stored in a database and comprising a codebook corresponding thereto, each codebook comprising a plurality of codevectors having been generated based on one or more corresponding training image signals comprising the corresponding known object, the method comprising the steps of:

decomposing a portion of the input image signal which includes the given object into a plurality of blocks;

generating a plurality of input vectors corresponding to the plurality of blocks, each input vector based on the block corresponding thereto; and

matching the given object to one of the known objects based on one or more of the input vectors and on one or more of the codevectors comprised in one or more of the codebooks corresponding to the known objects,

wherein the step of matching the given object to the one of the known objects comprises:

generating a codebook corresponding to the given object based on one or more of the input vectors;

comparing the codebook corresponding to the given object with one or more of the codebooks corresponding to the known objects; and

matching the given object to the one of the known objects based on the comparison of the codebook corresponding to the given object with the codebooks corresponding to the known objects.

5,802,209

APPARATUS AND METHOD FOR COMPRESSING AND RESTORING BINARY IMAGE HAVING MULTITONE

Toshiyuki Hattori, Ryuji Oomoto, and Kiyooki Murai, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

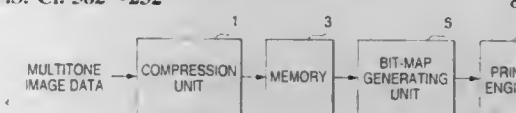
Filed Jun. 26, 1996, Ser. No. 672,044

Claims priority, application Japan, Jun. 27, 1995, 7-160554; Apr. 25, 1996, 8-105316

Int. Cl. G06K 9/00

U.S. Cl. 382-232

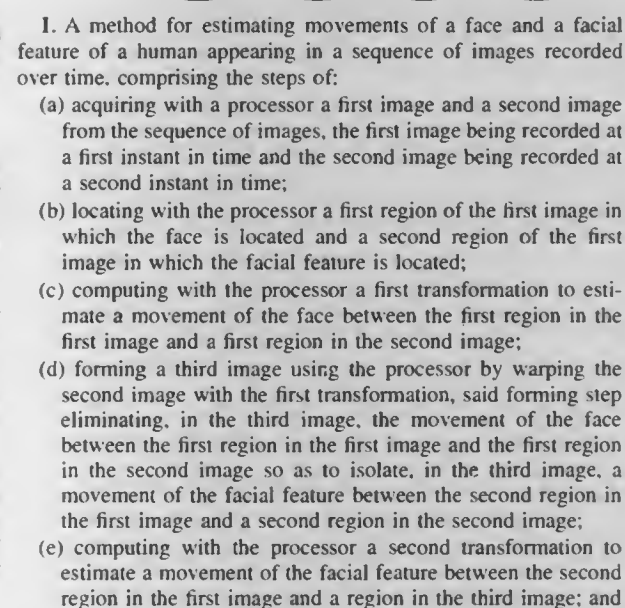
8 Claims



1. An apparatus for restoring a compressed multitone image, said apparatus comprising:

compressed code generating means for generating a compressed code representing a tone of each pixel in an image having N+1 tones, said compressed code having a depth of M bits, said M bits being capable of distinguishing among said N+1 tones; and

an adder for summing the bits of each sub-area within the area to create four sums, where the four sub-areas are created by



(f) combining with the processor the first transformation and the second transformation to estimate the movement of the facial feature between the second region in the first image and the second region in the second image.

5,802,221

VEHICLE STEERING SHAFT BEARING BOX AND PROCESS FOR ITS MANUFACTURING

Rudolf Lüthi, Niederwangen; Alex Wehrli, Spengelfried, and Hans Jöhr, Kehrsatz, all of Switzerland, assignors to Styner & Bienz AG, Niederwangen, Switzerland

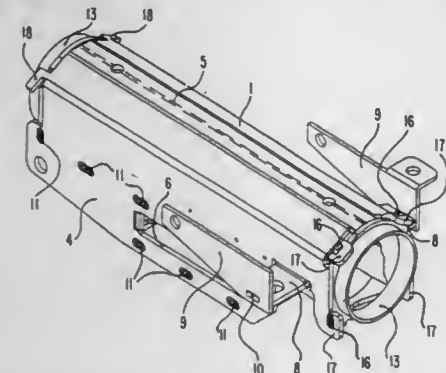
Filed Jun. 23, 1997, Ser. No. 880,874

Claims priority, application Switzerland, Jun. 27, 1996, 1615/96

Int. Cl.⁶ F16C 19/04

U.S. Cl. 384—537

8 Claims



1. A bearing box for the steering shaft of a steerable vehicle, said bearing box comprising a guiding piece for surrounding the steering shaft, said guiding piece being arranged to be fastened to the vehicle and comprising at its two ends each a seamless bearing mounting for the steering shaft.

5,802,222

COLOR IMAGE GENERATION SYSTEMS AND APPLICATIONS

Andreas Rasch; Matthias Rottschalk; Jens-Peter Ruske, and Volker Groeber, all of Jena, Germany, assignors to LDT GmbH & Co. Laser-Display-Technologie KG, Gera, Germany

PCT No. PCT/EP96/00494, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO96/25009, PCT Pub. Date Aug. 15, 1996

PCT Filed Feb. 6, 1996, Ser. No. 718,357

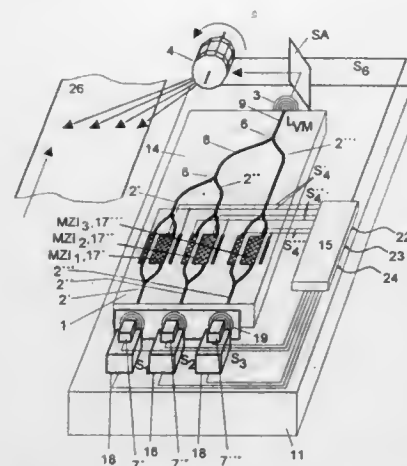
Claims priority, application Germany, Feb. 7, 1995, 195 03 929.7

Int. Cl.⁶ G02B 6/10

U.S. Cl. 385—1

25 Claims

1. A color image generation comprising:
at least one light source for emitting light of at least one wavelength or one wavelength range;
at least one optical waveguide responsive to said light emitted by said light source;
at least one controllable modulation device;
means for beam shaping and beam deflection;
one control unit being coupled to said at least one controllable modulation device for controlling at least one of intensity- or amplitude modulation and color modulation of said light as well as to said means for beam shaping and beam deflection; said means for beam shaping and beam deflection by which said at least one of intensity- or amplitude modulated and color modulated light is adapted to being deflected in at least one



spatial direction using said control unit in synchronism with modulation control, and an image field are adapted to being written to in digital fashion or in an analog fashion;
wherein, between said at least one light source and said means for beam shaping and beam deflection, a mount is arranged on which at least one optical waveguide is mounted such that a minimum of one optical waveguide capable of transmitting efficiently the wavelengths or wavelength ranges according to a predetermined application injects intensity- or amplitude modulated and/or color modulated light into said means for beam shaping and beam deflection.

5,802,223

OPTICAL DEFLECTING DEVICE

Keiichi Nashimoto, Minami-ashigara, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

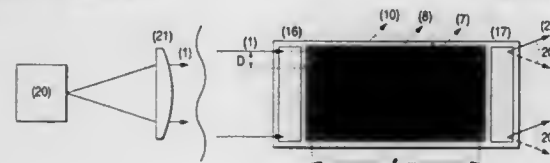
Filed Jun. 20, 1996, Ser. No. 667,864

Claims priority, application Japan, Jun. 21, 1995, 7-176939

Int. Cl.⁶ G02F 1/295

U.S. Cl. 385—8

20 Claims



1. An optical deflecting device comprising:
a conductive or semi-conductive monocrystalline substrate comprising a surface;
an optical waveguide comprising an epitaxial or oriented ferroelectric film provided on the surface of the monocrystalline substrate, the optical waveguide comprising a surface; and
an upper electrode disposed on the surface of the optical waveguide;
wherein the optical waveguide has at least one prism-shaped polarization domain reversal area having two sides which are not parallel to each other, and the at least one prism-shaped polarization domain reversal area is made to have a different refractive index from that of the other area of the optical waveguide by applying a voltage between the upper electrode and the monocrystalline substrate.

5,802,224

OPTICAL COUPLER FOR PERFORMING LIGHT BRANCHING AND LIGHT MIXING/BRANCH FILTERING IN A LIGHT COMMUNICATION NETWORK

Michitaka Okuta, Tokyo, and Kiyohiko Kuramoto, Hokkaido, both of Japan, assignors to Kyocera Corporation, Kyoto, Japan

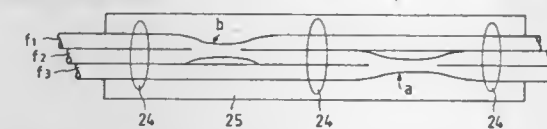
Filed May 22, 1995, Ser. No. 447,331

Claims priority, application Japan, May 23, 1994, 6-108211; Jun. 13, 1994, 6-129960; Dec. 27, 1994, 6-324730

Int. Cl.⁶ G02B 6/26

U.S. Cl. 385—51

15 Claims



5. An optical coupler, comprising:
at least three optical fibers arranged side by side, a plurality of coupling portions, each one of the coupling portions comprising at least two adjacent optical fibers that are fusion-welded and extended to each other, and a single mount member within which all the coupling portions are fixed, wherein all the coupling portions are substantially completely surrounded by the single mount member.

5,802,225

ARRANGEMENT FOR TRANSMITTING DIGITAL DATA OVER AN OPTICAL NETWORK OF OPTICAL WAVEGUIDES

Holger Kuhlmann, Krummendeich, Germany, assignor to Daimler-Benz Aerospace Airbus GmbH, Hamburg, Germany

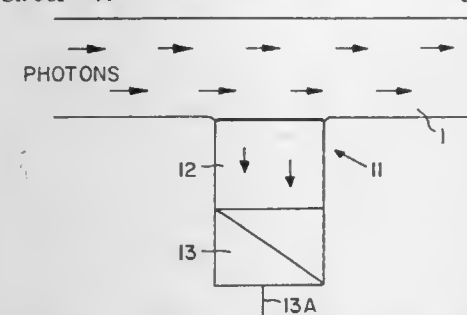
Filed Feb. 28, 1997, Ser. No. 808,243

Claims priority, application Germany, Mar. 4, 1996, 196 08 172.6

Int. Cl.⁶ G02B 6/26

U.S. Cl. 385—44

33 Claims



1. An optical network arrangement for transmitting a light signal therein, comprising
a first optical waveguide,
a second optical waveguide, and
a passive node joining an inlet end of said second waveguide to said first waveguide such that said second waveguide forms a branch extending from said first waveguide and said passive node is adapted to couple a portion of said light signal from said first waveguide into said second waveguide,
wherein said passive node comprises an optical coupling body arranged at said inlet end of said second waveguide,
wherein said coupling body has a flat surface on a first side thereof and a prismatic surface structure at a second side thereof opposite said first side, and
wherein said flat surface and said prismatic surface structure of said coupling body have a defined reflectivity characteristic such that a defined maximum proportion of said light signal that is present in said first waveguide just upstream of said passive node is transmitted to said first waveguide downstream of said passive node and such that a defined minimum

proportion of said light signal that is present in said first waveguide just upstream of said passive node is coupled into said second waveguide.

5,802,226

METHOD AND APPARATUS FOR VIDEO FADE EFFECT WITH A SINGLE VIDEO SOURCE

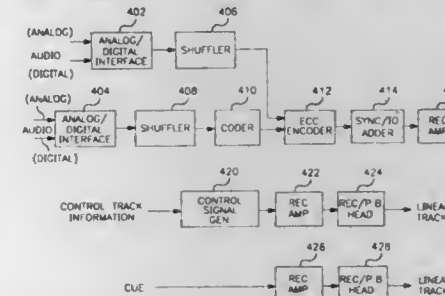
Lee Robert Dischert, Burlington, and Miles A. Kaspar, III, Riverside, both of N.J., assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 29, 1996, Ser. No. 623,650

Int. Cl.⁶ G11B 27/00

U.S. Cl. 386—53

6 Claims



1. An apparatus for mixing portions of a video signal produced by a single source, the apparatus comprising:
a recording section including:
a transform processor which converts the video signal from a first domain to a second domain to produce a transformed video signal;
a mixer which receives and combines the transformed video signal and a transformed playback video signal to produce a mixed video signal;
an encoder coupled to said mixer which encodes the mixed video signal to produce an encoded video signal; and
an output terminal which provides the encoded signal to a recorder for storing the encoded video signal on a recording medium;
said playback section including:
a reader which retrieves a further encoded video signal from said recording medium to produce an encoded playback video signal; and
a decoder which decodes the further encoded playback video signal to produce said transformed playback video signal.

5,802,227

FIBER OPTIC END COUPLING FOR A LIGHTING SYSTEM

Dennis C. Dunn, Thousand Oaks, and Richard L. Swain, Sun Valley, both of Calif., assignors to PacFab, Inc., Moorpark, Calif.

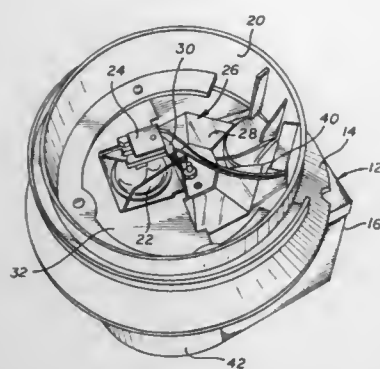
Filed Jan. 15, 1997, Ser. No. 784,205

Int. Cl.⁶ G02B 6/36

U.S. Cl. 385—53

17 Claims

1. An end coupling for releasably connecting one end of a bundle of axially aligned optical fibers to a housing for an illumination source, the optical fibers exposed in a region adjacent to the end of the bundle, the end coupling comprising:
a tubular body mounted concentrically about the bundle and having a forward end, the exposed end of the bundle of fibers out of contact with said body and extending axially forward from said forward end of said body in spaced concentric relation thereto;
a connector mounted on said body in releasable engagement with the housing to support the ends of the fibers in aligned closely spaced relation to the illumination source; and
a holder assembly mounted forward of said forward end of said body to locate the ends of the fibers in a position to receive the light emitted by the illumination source, the holder having



an arm extending to a predetermined location and spaced apart from the fibers to allow air flow adjacent to said fibers, and

an optical fiber holder mounted to the arm, said holder having an inner edge surface defining a hole sized to accept the bundle of optical fibers therein, the hole having a center-point located such that the bundle of fibers is positioned in the light emitted by the illumination source, the inner surface defining the hole being radially tapered so that only a portion of said inner surface contacts the bundle of optical fibers.

5,802,228

OPTICAL PACKAGE WITH REMOVABLE FIBER TERMINATION

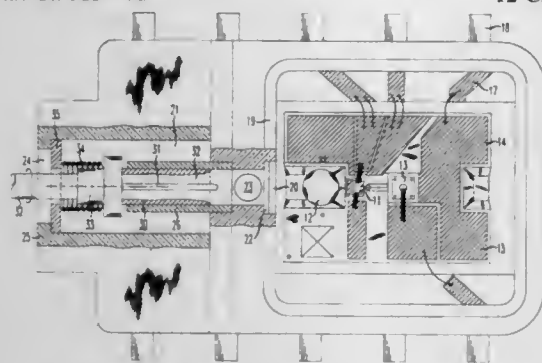
Timothy P. Bock, Greenwich Township, Berks County; Timothy Butrie, Orefield, Lehigh County, and Ghazi Mohamed Chaoui, Macungie, Lehigh County, all of Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 16, 1996, Ser. No. 767,011

Int. Cl.⁶ G02B 6/36

U.S. Cl. 385—78

12 Claims



1. An optical component package comprising:
an end wall of the package including an aperture formed therein;
an optical fiber termination inserted through said aperture, said termination comprising an optical fiber, a ferrule surrounding the fiber, and a spring surrounding a portion of the ferrule; and
a retaining clip located between the spring and an inner surface of the end wall, said clip having at least one dimension which is greater than a dimension of the aperture so as to engage the inner surface and thereby maintain the portion of the ferrule within the package while no portion of the clip extends beyond the end wall of the package.

5,802,229 FIBER OPTIC RADIATION TRANSMISSION SYSTEM CONNECTOR FOR AN OPTICAL FIBER AND METHODS OF USING SAME

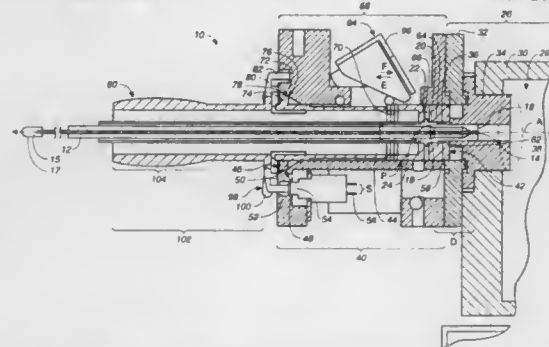
William James Evans; Thomas Henning, both of San Francisco, Calif.; Kelly Cox, Ithaca, N.Y.; Victor C. Esch, Sunnyvale, Calif.; Yefim Gelfond, San Ramon, Calif.; Stephanos Papademetriou, Sunnyvale, Calif., and Daren L. Stewart, Redwood City, Calif., assignors to Indigo, Medical, Inc., Palo Alto, Calif.

Continuation of Ser. No. 551,009, Oct. 31, 1995. This application Aug. 13, 1997, Ser. No. 915,546

Int. Cl.⁶ G02B 6/00; 6/36

U.S. Cl. 385—88

49 Claims



1. A fiber optic system for transmitting radiation from a radiation source, comprising:
a radiation source having a seating surface and associated with a connection port;
an optical fiber having a radiation-transmitting end and a connection end;
a ferrule having a shoulder, said ferrule circumferentially surrounding said optical fiber with the connection end thereof extending beyond the ferrule shoulder such that the connection end of said optical fiber is in optical communication with the radiation source when the shoulder is seated relative to the seating surface of said radiation source; and
a connector including a connecting portion, a biasing component and an open distal end, said connector carrying said ferrule coaxially therein such that the shoulder of said ferrule is accessible through the open distal end, said connector extendable toward the radiation source to bring the shoulder into seated relation with the radiation source and to bring the connecting portion into engaging relation with the connection port, the biasing component of a construction sufficient to provide biasing force sufficient to seat the shoulder relative to the radiation source and the connecting portion of a construction sufficient to engage the connection port.

5,802,230

OPTICAL SEMICONDUCTOR MODULE

Masaki Kuribayashi; Kazuhiko Kobayashi; Shunichi Sato, all of Sapporo, and Hironao Hakogi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

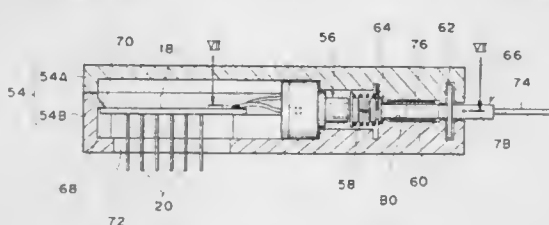
Filed Aug. 12, 1997, Ser. No. 912,983

Claims priority, application Japan, Mar. 5, 1997, 9-050420

Int. Cl.⁶ G02B 6/36

U.S. Cl. 385—92

12 Claims



1. An optical semiconductor module comprising:

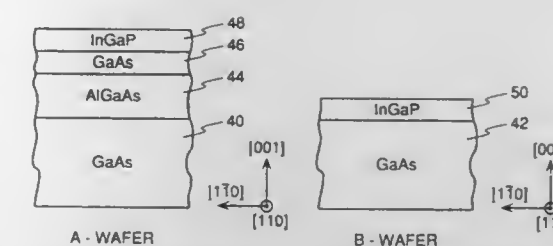
a housing having a hole into which a connector ferrule is inserted;
an optical semiconductor assembly accommodated in said housing;

an optical fiber having a first end and a second end;
means for supporting said first end of said optical fiber so that said first end is optically coupled to said optical semiconductor assembly;

a movable ferrule having a thin hole in which said second end of said optical fiber is inserted and fixed;

a sleeve accommodated in said hole of said housing, so as to align said movable ferrule and said connector ferrule with each other; and

means for biasing said movable ferrule so as to press said movable ferrule against said connector ferrule in said sleeve.



placing together first and second substrates having respective crystalline portions in a relative physical orientation such that said two substrates have substantially differing crystalline orientations;

bonding together said placed together substrates;

forming a patterned mask on top of at least a vertical part of said first substrate;

etching through said patterned mask through said first substrate to form an aperture exposing a part of said second substrate; and

epitaxially depositing on over exposed both portions of said first and second substrates one or more upper layers.

5,802,231

FLAT OPTICAL FIBER CABLE

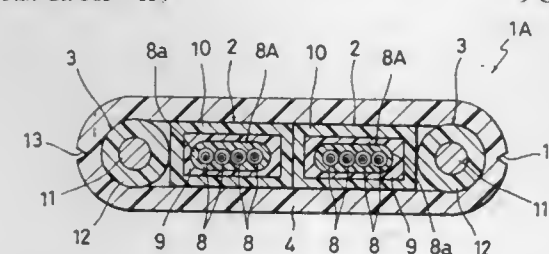
Ryuichiro Nagano, Tokyo; Yoichi Nagase, and Hajime Tamura, both of Gyoda, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, and Toyokuni Electric Cable Co., Ltd., both of Tokyo, Japan

Filed Nov. 19, 1996, Ser. No. 754,448

Int. Cl.⁶ G02B 6/44

U.S. Cl. 385—114

9 Claims



1. A flat optical fiber cable comprising:
at least one optical fiber ribbon cord including optical fiber cores disposed parallel one another in a row;
said at least one optical fiber ribbon cord having a tensile strength fiber covering having a quadrilateral shaped cross section fixedly encasing said row of said optical fiber cores, and a first sheath fixedly encasing said tensile strength fiber covering;
first and second tension members respectively disposed parallel to opposite sides of said at least one optical fiber ribbon cord and in a plane defined by said row of said optical fiber cores; and
a second sheath contacting and covering said first and second tension members and said at least one optical fiber ribbon cord and fixating said at least one optical fiber ribbon cord between said first and second tension members.

5,802,233

POLYSILANE OPTICAL DEVICE

Shinichiro Sugi; Keiji Kabeta; Shigeru Wakamatsu, and Takafumi Imai, all of Tokyo, Japan, assignors to Toshiba Silicone Co., Ltd., Tokyo, Japan

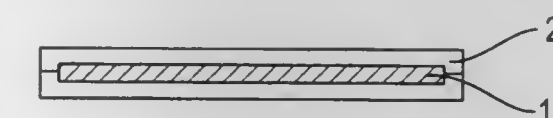
Filed Sep. 11, 1996, Ser. No. 712,386

Claims priority, application Japan, Sep. 13, 1995, 7-235653

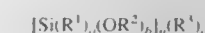
Int. Cl.⁶ G02B 6/00

U.S. Cl. 385—122

3 Claims



1. A polysilane optical device comprising a hydrocarbyloxy group-containing polysilane encapsulated with a light transmitting and air-impermeable material, wherein the hydrocarbyloxy group-containing polysilane is represented by following average formula (1):



(1)

wherein R^1 s, which may be the same or different, each represent a substituted or unsubstituted monovalent hydrocarbon group bonded to silicon atom; R^2 represents a monovalent hydrocarbon group having from 1 to 12 carbon atoms bonded to silicon atom via oxygen atom; R^1 represents a divalent substituted or unsubstituted hydrocarbon group or a substituted or unsubstituted heterocyclic group bonded to two silicon atoms; a and c each represent 0 or a positive number, b represents a positive number, provided that $b/(a+b) \geq 0.05$ and $n \geq 5$; and n is a number selected such that a weight average molecular weight of the polysilane is from 500 to 3,000,000.

5,802,232

BONDED STRUCTURE WITH PORTIONS OF DIFFERING CRYSTALLOGRAPHIC ORIENTATIONS, PARTICULARLY USEFUL AS A NON LINEAR OPTICAL WAVEGUIDE

Rajaram Bhat, Middletown; Catherine Genevieve Caneau, Red Bank; Mark A. Koza, Colonia, and Sung-Joo Yoo, Long Branch, all of N.J., assignors to Bell Communications Research, Inc., Morristown, N.J.

Filed Feb. 16, 1996, Ser. No. 602,391

Int. Cl.⁶ G02B 6/00

U.S. Cl. 385—122

22 Claims

1. A method of fabricating a sequence of domains of different crystallography, comprising the steps of:

5,802,234

DISPERSION COMPENSATING OPTICAL FIBER, AND COMMUNICATION SYSTEM COMPRISING SAME

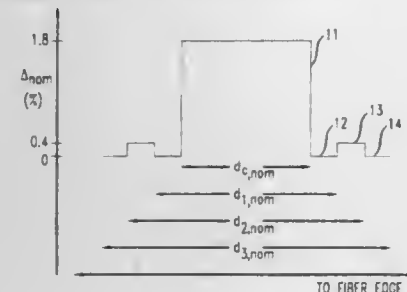
Ashish Madhukar Vengsarkar, Berkeley Heights, N.J., and Jefferson Lynn Wagener, Charlottesville, Va., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Mar. 21, 1997, Ser. No. 821,507

Int. Cl.⁶ G02B 6/10

U.S. Cl. 385—123

8 Claims



1. An article comprising a length of dispersion-compensating optical fiber that supports radiation of a predetermined wavelength λ_0 in a fundamental mode LP_{01} and a higher order mode, wherein the dispersion-compensating fiber has a nominal refractive index profile including

- a core of diameter $d_{c,nom}$ and maximum refractive index $n_{c,nom}$; and
- an inner cladding region that contactingly surrounds the core and has refractive index $n_{1,nom}$ less than $n_{c,nom}$ with $(n_{c,nom} - n_{1,nom})/n_{c,nom}$ designated Δ_{nom} ; where
- at least a portion of the length of dispersion-compensating fiber has a refractive index profile that differs from the nominal refractive index profile and includes a core of diameter d_c and maximum refractive index n_c , and further includes an inner cladding region that contactingly surrounds the core and has refractive index n_1 , with $(n_c - n_1)/n_c$ designated Δ , where at least one of d_c , n_c , and Δ differ from $d_{c,nom}$, $n_{c,nom}$ and Δ_{nom} respectively; and where
- the dispersion-compensating fiber having said nominal refractive index profile has nominal dispersion $D_{nom}(\lambda)$, and said portion of the length of dispersion-compensating fiber has dispersion $D(\lambda) \neq D_{nom}(\lambda)$, where λ is the wavelength;

CHARACTERIZED IN THAT the nominal refractive index profile is selected such that

- the length of dispersion-compensating fiber supports LP_{01} and at least a higher order mode LP_{02} at λ_0 , and $D_{nom}(\lambda)$ is more negative than -200 ps/nm.km over at least a wavelength range $\lambda_{max} \pm 50$ nm, where λ_{max} is the wavelength at which $|D_{nom}(\lambda)|$ is maximum;
- $|D(\lambda) - D_{nom}(\lambda)|$ is less than $10.5 D_{nom}(\lambda)$ at every wavelength λ in the range $\lambda_{max} \pm 50$ nm
 - for d_c that differs from $d_{c,nom}$ by 1% or less, or
 - for Δ that differs from Δ_{nom} by 2% or less, or
 - for d_c that differs from $d_{c,nom}$ by 1% or less and Δ that differs from Δ_{nom} by 2% or less, where the vertical bars before and after a quantity indicate the absolute value of the quantity between the vertical bars;
- λ_0 is a wavelength in the range $\lambda_{max} \pm 50$ nm; and
- the nominal refractive index profile is selected such that $D_{nom}(\lambda)$ is substantially all in LP_{01} .

5,802,235

DISPERSION COMPENSATING FIBER AND ITS MANUFACTURING METHOD

Yoshiaki Akasaka, B-241, Kyowayukashataku, 3, Tatsumidaihi-gashi 4-chome, Ichihara-shi, Chiba, Japan

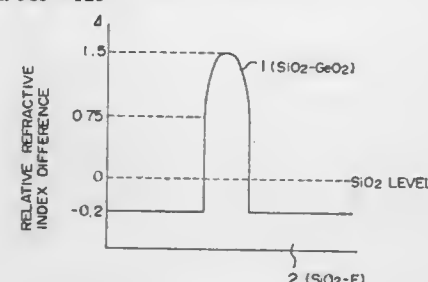
Filed Jun. 9, 1997, Ser. No. 871,811

Claims priority, application Japan, Jun. 10, 1996, 8-147619

Int. Cl.⁶ G02B 6/16

U.S. Cl. 385—123

3 Claims



1. A dispersion compensating fiber comprising a silica glass core doped with germanium and a silica glass cladding doped with fluorine, said cladding being provided to surround the core, wherein a variation in circumferential concentration of germanium at a periphery of a center core situated in a center of the silica glass core is 0.05% or smaller in refractive index difference value.

5,802,236

ARTICLE COMPRISING A MICRO-STRUCTURED OPTICAL FIBER, AND METHOD OF MAKING SUCH FIBER

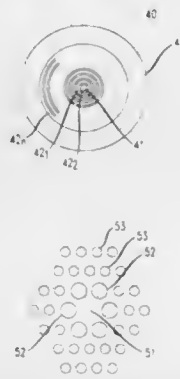
David John DiGiovanni, Montclair; Ashish Madhukar Vengsarkar, Berkeley Heights, both of N.J.; Jefferson Lynn Wagener, Charlottesville, Va., and Robert Scott Windeler, Bridgewater, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 14, 1997, Ser. No. 799,311

Int. Cl.⁶ G02B 6/22

U.S. Cl. 385—127

20 Claims



1. An article comprising a microstructured optical fiber having an axial direction and a cross section perpendicular to said axial direction, the optical fiber comprising a core region surrounded by a cladding region that comprises a multiplicity of spaced apart cladding features that are elongate in the axial direction and disposed in a first cladding material, the core region having an effective refractive index N_c , the cladding features having a refractive index that differs from a refractive index of the first cladding material, and the cladding region having an effective refractive index that is less than N_c .

CHARACTERIZED IN THAT

the cladding region comprises an inner cladding region surrounding the core region and an outer cladding region surrounding the inner cladding region, said inner and outer cladding regions having effective refractive indices N_{ci} and N_{co} , respectively, with $N_{ci} < N_{co}$; the cladding features in the

inner cladding region having a larger size in cross section than the cladding features in the outer cladding region.

5,802,237

OPTICAL FIBER ORGANIZER

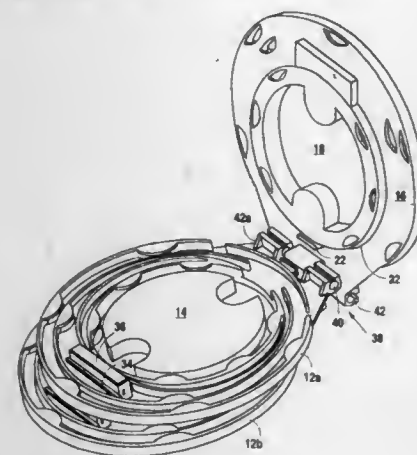
Jacqueline J. Pulido, Austin, Tex., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 18, 1997, Ser. No. 844,554

Int. Cl.⁶ G02B 6/00

U.S. Cl. 385—135

21 Claims



14. A plurality of optical fiber organizers for protecting and storing optical fibers comprising:

- a plurality of stacked housings, each housing having a first level separated from a second level, a first fiber port on the first level and a second fiber port on the second level, a plurality of eccentric fiber channels formed on the first level, each channel having a passage for communicating fiber with an adjacent channel, an outermost one of the concentric channels including a passage for communicating fiber with the first fiber port on the first level, an innermost one of the channels including a passage for communicating fiber to the second fiber port on the second level, and hinge means for interconnecting the housings.

5,802,238

CIRCUIT ARRANGEMENT FOR PROCESSING A COLOR SIGNAL AT A CARRIER FREQUENCY HIGHER THAN A CARRIER FREQUENCY AT WHICH THE COLOR SIGNAL HAD BEEN RECORDED

Herbert Heinemann, Pinneberg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

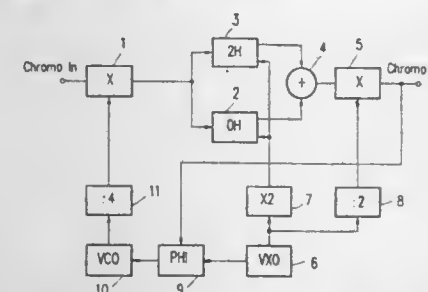
Filed Jul. 8, 1996, Ser. No. 677,002

Claims priority, application Germany, Jul. 7, 1995, 195 24 794.9

Int. Cl.⁶ H04N 9/79

U.S. Cl. 386—25

7 Claims



1. A circuit arrangement for processing a color subcarrier signal reproduced by a video recorder and modulated on a carrier at a first carrier frequency, characterized in that said circuit arrangement

comprises a first mixer to which the color subcarrier signal modulated on the first carrier frequency is applied, said first mixer converting the color subcarrier signal to a second carrier frequency which is higher than the first carrier frequency; a comb filter circuit having an input for receiving an output signal of the first mixer, said comb filter circuit suppressing crosstalk color signals from adjacent tracks in the color subcarrier signal; and a second mixer having an input for receiving an output signal of the comb filter circuit, said second mixer converting the output signal of the comb filter to a third carrier frequency which is higher than the second carrier frequency.

5,802,239

APPARATUS FOR REPRODUCING DATA NOT SUCCESSIVELY LOCATED ON A RECORDING MEDIUM

Yasushi Fujinami, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

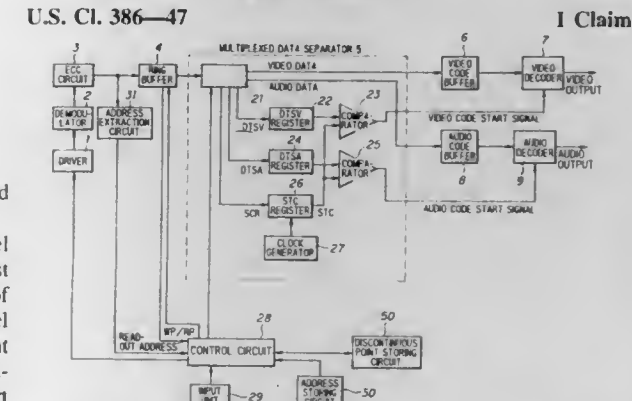
Continuation of Ser. No. 321,986, Oct. 12, 1994, Pat. No. 4,668,916. This application Apr. 7, 1997, Ser. No. 838,423

Claims priority, application Japan, Oct. 15, 1993, 5-257960

Int. Cl.⁶ H04N 5/76

U.S. Cl. 386—47

1 Claim



a control unit for controlling said processor, said control unit being input from the output of said signal processor and having its output connected to a control input of said signal processor.

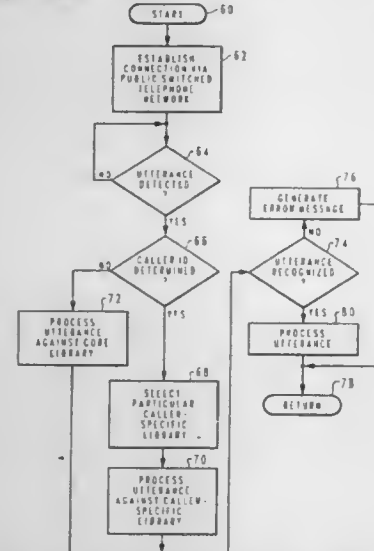
5,802,251

METHOD AND SYSTEM FOR REDUCING PERPLEXITY IN SPEECH RECOGNITION VIA CALLER IDENTIFICATION

Paul S. Cohen, Yorktown Heights; John M. Lucassen, New York, both of N.Y.; Elton B. Sherwin, Jr., Stamford, Conn., and Jorge L. Vizcaino, Parkland, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 175,707, Dec. 30, 1993, abandoned.
This application Sep. 5, 1995, Ser. No. 523,755
Int. Cl.⁶ G10L 3/00

U.S. Cl. 395—284

4 Claims



1. A method for enhancing the accuracy and efficiency of a speech recognition system which processes input frames of speech against stored templates representing speech utilizing a telephonic network, said method comprising the steps of:

- creating and storing a core library of speech templates;
- creating and storing a plurality of caller-specific libraries of speech templates which each include a vocabulary and pronunciation reflective of a specific geographic location;
- attempting to determine an identification of a caller location by utilizing a caller identification system within said telephonic network;
- processing an input speech utterance against said core library of speech templates in the event an identification of said caller location within said telephone network is not determined; and
- processing an input speech utterance against a particular one of said plurality of caller-specific libraries of speech templates in response to a determination of an identification of said caller location within said telephonic network.

5,802,252

Patent Not Issued For This Number

5,802,253

EVENT-DRIVEN RULE-BASED MESSAGING SYSTEM

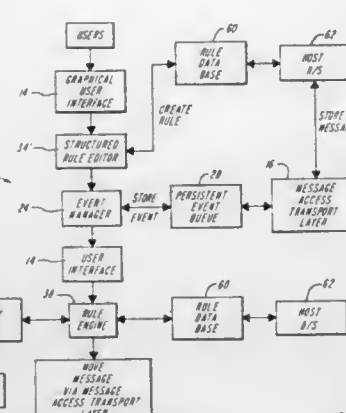
Kevin C. Gross, Belmont; Charles J. Digate, Boston, and Eugene H. Lee, Cambridge, all of Mass., assignors to Banyan Systems Incorporated, Westboro, Mass.

Continuation of Ser. No. 145,805, Oct. 29, 1993, abandoned, which is a division of Ser. No. 771,197, Oct. 4, 1991, Pat. No. 5,283,856. This application Feb. 26, 1996, Ser. No. 606,698
Int. Cl.⁶ G06F 15/18

U.S. Cl. 395—51

5 Claims

1. Apparatus for connection to a network for sending and receiving messages to and from said apparatus and at least one other network connected device in accordance with a plurality of rules, comprising:



a rule processor for processing messages at said apparatus in accordance with at least one of said plurality of rules; each of said rules having a first portion consisting of an event indicia, a second portion consisting of a condition indicia, and a third portion consisting of an action indicia; an event generator being operative to indicate an occurrence of one of a plurality of events;

said rule processor being operative to determine which of said rules have an event indicia corresponding to the occurrence of one of the plurality of events, to invoke only the rules for which the event portion corresponds to the occurrence of the event, and to evaluate the second portion of each invoked rule, to determine whether the condition indicia are met by the message;

an action processor operative to invoke an action with respect to any of said messages in accordance with said third portion of each of said invoked rules for which the condition indicia are met; and

an event manager having at least one event queue and operative to create event records in accordance with said plurality of events to store in said at least one event queue, and further operative to retrieve event records from said at least one event queue,

wherein said at least one event queue comprises a persistent event queue for storing events which persist across invocations of said rule processor and a non-persistent event queue for storing events that do not persist across invocations of said rule processor.

5,802,254

DATA ANALYSIS APPARATUS

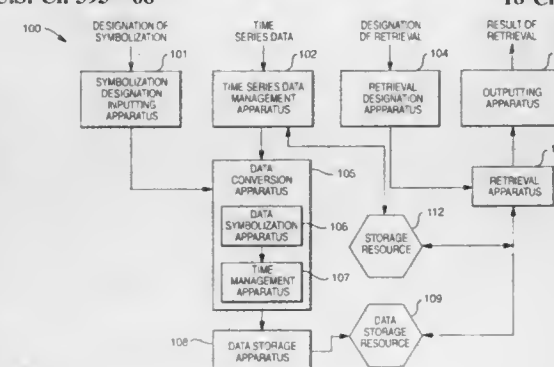
Yoshinori Satou; Akira Maeda; Hideyuki Maki, all of Yokohama, and Katsumi Omori, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 19, 1996, Ser. No. 684,392

Int. Cl.⁶ G06F 15/18

U.S. Cl. 395—68

18 Claims



1. A data analysis apparatus, comprising:
means for inputting time series data;

means for storing symbolization references and symbol values having a correspondence to values of the input time series data;

means for converting the time series data into at least one symbol value in accordance with the stored symbolization references; and

means for storing record data formed from the symbol values obtained by the means for converting and times at which the time series data were produced.

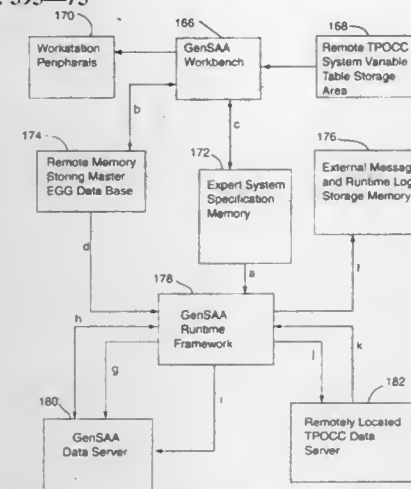
5,802,255

SYSTEM AND METHOD FOR CREATING EXPERT SYSTEMS

Peter M. Hughes, Kensington, and Edward C. Luczak, Silver Springs, both of Md., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Jun. 23, 1995, Ser. No. 493,983
Int. Cl.⁶ G06F 15/18

U.S. Cl. 395—75

49 Claims



1. A system for creating expert systems without the need for programming in code, comprising:

first means for creating a data interface by defining variables for input of appropriate data to drive an expert system using a direct manipulation style user-interface such that a user does not need to program in code;

second means for establishing conditions and actions to create rules of a rule base for the expert system using a direct manipulation style user-interface, the defined variables being usable to establish conditions which, when satisfied, produce corresponding established actions; and

third means for creating by using a direct manipulation style user-interface a dynamic, user-customized graphical user interface for the expert system resulting in Graphic Windows each containing graphical display elements including real-time data-driven graphical objects, so that a highly graphical expert system is created without the need for programming in code.

5,802,256

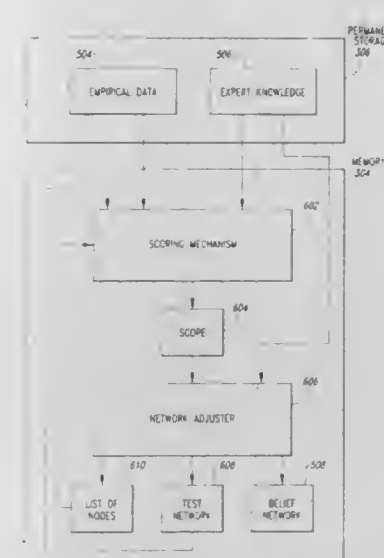
GENERATING IMPROVED BELIEF NETWORKS

David E. Heckerman, Bellevue, Wash.; Dan Geiger, Tivon, Israel, and David M. Chickering, Los Angeles, Calif., assignors to Microsoft Corporation, Redmond, Wash.
Division of Ser. No. 739,200, Oct. 30, 1996, which is a division of Ser. No. 240,019, May 9, 1994, Pat. No. 5,704,018. This application May 23, 1997, Ser. No. 862,564
Int. Cl.⁶ G06K 15/18

U.S. Cl. 395—75

15 Claims

1. A computer-based belief network generator comprising:



a scoring mechanism in memory for receiving empirical data and expert knowledge and for generating a score from the empirical data and the expert knowledge, the expert knowledge comprising a first belief network containing data received from an expert, the first belief network having nodes, each node being a state considered relevant to a decision making process by the expert, each node corresponding to a variable having a value for the state, one type of variable being a continuous type of variable having a value selected from a set of continuous values and one type of variable being a discrete type of variable having a value selected from a set of discrete values, the empirical data comprising a plurality of cases of observations of the nodes in the first belief network; a network adjuster in memory for determining when to rescore the nodes to obtain a better score in the first belief network, for invoking the scoring mechanism to obtain a better score when the network adjuster determines to rescore the nodes and for creating a second belief network when the network adjuster determines not to rescore the nodes and a processor for executing the scoring mechanism and the network adjuster.

5,802,257

INFORMATION PROCESSING APPARATUS, METHOD AND MEMORY MEDIUM THAT CONTROL A BOLD PROCESS IN ACCORDANCE WITH THE SETTING OF A FACSIMILE MODE

Takahiro Kato, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 561,823

Claims priority, application Japan, Nov. 25, 1994, 6-290877; Nov. 10, 1995, 7-292753

Int. Cl.⁶ G06T 5/00; H04N 1/387

U.S. Cl. 395—106

51 Claims

37. An image processing apparatus operable in one of a plurality of modes including a facsimile mode and a print mode, said apparatus comprising:

transmission means for, when the facsimile mode is designated, performing a correction process to image data including a character or a line so as to avoid deformation of the character or omission of the line in a subsequent printing process of the

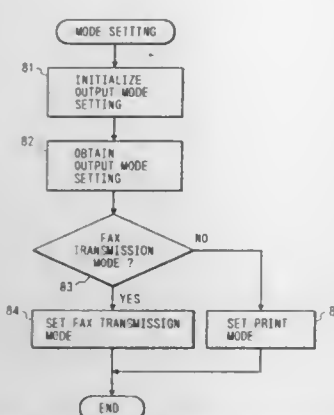


image data by a facsimile apparatus and for transmitting the image data, as corrected by the correction process, to the facsimile apparatus; and output means for, when the print mode is designated, outputting the image data uncorrected by the correction process to a printer.

5,802,258
LOOSELY COUPLED SYSTEM ENVIRONMENT
DESIGNED TO HANDLE A NON-DISRUPTIVE HOST
SWITCH AFTER DETECTION OF AN ERROR
CONDITION OR DURING A HOST OUTAGE OR
FAILURE

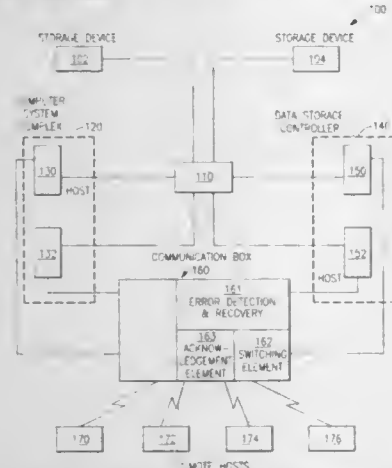
Shawfu Chen, New Milford, Conn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 3, 1996, Ser. No. 642,715

Int. Cl.⁶ H01J 13/00

U.S. Cl. 395—182.08

22 Claims



1. In a loosely coupled computer environment, a system for providing non-disruptive connection switch from a first host to a second host during said first host's outage, said system comprising: a plurality of hosts and a plurality of remote hosts, with at least one of said remote hosts being in processing communication with at least a first host through the use of a communication box; said communication box maintaining all information about all said hosts and said remote hosts connected to said system; said communication box having error detection and recovery mechanism, as to allow said communication box to detect an error condition associated with said first host in processing communication with one of said remote host; said communication box having a storage location for keeping all processing data and communication information between said first host and said remote host in which it was in communication with during first host's outage until a second replacing host re-establishes processing communication through said communication box with said remote host.

5,802,259
DATA PROCESSING DEVICE FOR PROCESSING PRINT
DATA

Toshimi Sugai, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

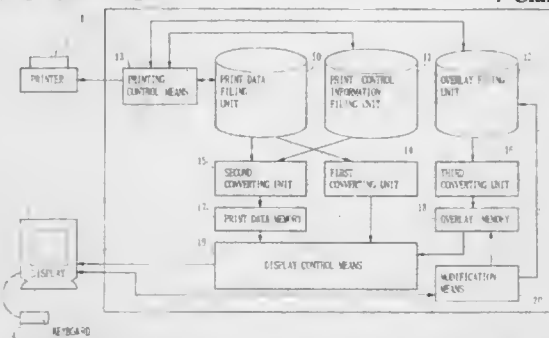
Filed Jun. 10, 1994, Ser. No. 258,229

Claims priority, application Japan, Jul. 29, 1993, 5-187892

Int. Cl.⁶ H04N 1/23

U.S. Cl. 395—112

7 Claims



1. A data processing device for processing print data based on print information and forms overlay definition data which is to be overlaid on said print data, said data processing device comprising: first converting a printer command form for the printer to match a display command form for the display, said printer command form being for a hard control command defined to correspond to said print data; second converting means for converting coordinates of said printer to match coordinates of said print data for the display according to print control information corresponding to said print data; a print data memory storing said print data from said second converting means; an overlay filing unit storing forms overlay definition data for the printer, indicative of a fixed data part of a document form, to be overlaid on said print data; third converting means for converting said forms overlay definition data for the printer to forms overlay definition data for the display, in dependence upon a resolution of the display; an overlay memory storing said forms overlay definition data for the display; and display control means for sending out said print data loaded into said print data memory, the hard control command converted by said first converting means, and said forms overlay definition data for the display loaded into said overlay memory, for overlaying said print data with said forms overlay definition data to produce overlaid data, and for displaying said overlaid data on the display with said display command form according to said printer form.

5,802,260
PRINTING SYSTEM

Takuya Shimakawa, Yokohama; Seiji Kageyama, Kawasaki; Satoru Matsumoto, Yokohama; Makoto Kitagawa, Fujisawa; Takahiro Shiotani, Kanagawa-ken, and Naomi Tamura, Ebina, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 562,181

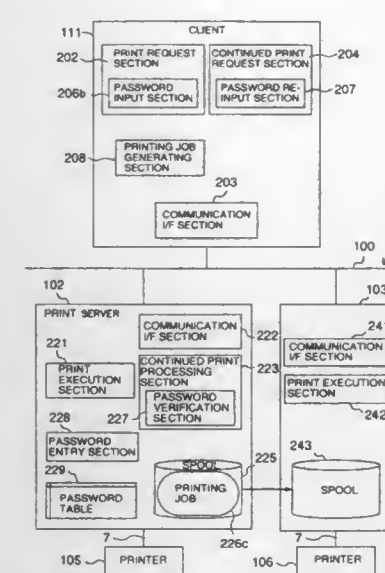
Claims priority, application Japan, Nov. 28, 1994, 6-293012

Int. Cl.⁶ G06K 15/00

U.S. Cl. 395—114

3 Claims

1. A printing system having a plurality of printers and a plurality of computers connected to each other through a communication network, comprising: a first computer including: means for generating a printing job and a print request signal for executing the printing job according to a print request designated by a user to a first printer; means for generating a continued print request signal containing information unique to the user according to a continued



print request issued by the user to a second printer to execute the printing job, and communication means for transmitting said printing job and each of said print request signal and said continued print request signal to said communication network; and a second computer including: means for receiving said printing job and each of said print request signal and said continued print request signal through said communication network, means for causing said first printer to execute the printing job designated by the user according to said print request signal, means for deciding that the information unique to the user belongs to the user who designated said printing job upon receipt of said continued print request signal containing said information unique to the user, and means for causing said second printer to execute said printing job according to said continued print request signal in the case where said continued print request signal containing said information unique to the user are determined to belong to said user; wherein said first computer further includes means for entering a password as information unique to said user, said password being entered in said means for entering when the print request and the continued print request are designated by the user, said communication means transmitting a selected one of said print request signal and said continued print request signal to said communication network together with said password entered; and wherein said second computer further includes file means for storing said password received together with said print request signal, said means for deciding causing said printing job to be executed on said second printer in the case where the password stored in said file means is coincident with the password received together with said continued print request signal.

5,802,261
FACSIMILE APPARATUS WITH IMPROVED PRINTER,
SCANNER AND COMMUNICATION FUNCTIONS
Hiroshi Yokoyama, Atsugi, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 31, 1996, Ser. No. 741,903

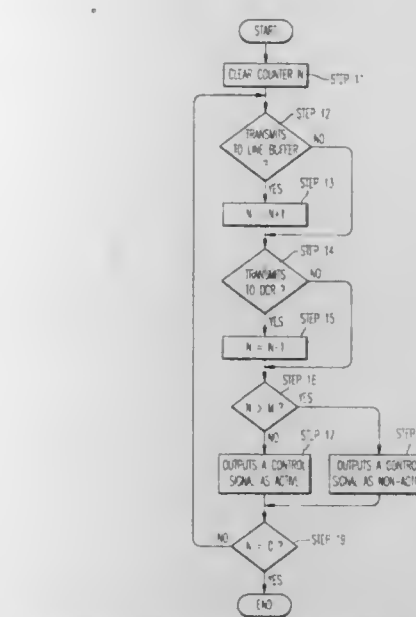
Claims priority, application Japan, Nov. 14, 1996, 7-319694

Int. Cl.⁶ H04N 1/21

U.S. Cl. 395—115

2 Claims

1. A facsimile apparatus having an image scanning function for producing an image of an original document and a printer function for printing out image data from a computer, comprising: a scanner device which reads the original document and produces corresponding image data;



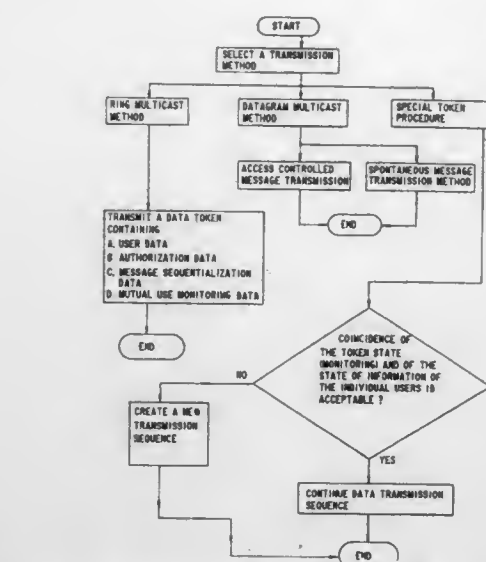
a printer control device which controls a connection with said computer to receive image data from the computer; a communication device capable of sending the image data in the form of facsimile data to a destination facsimile apparatus; an image processing memory which stores the image data from said scanner device and said printer control device, and outputs the stored image data to the communication device for transmission as said facsimile data; a buffer memory which stores image data from said scanner device and from said printer control device, and transmits the stored image data to said image processing memory; and a signal generation device which generates a signal indicating whether or not transmitting image data from said printer control unit is allowed, including: a control device which outputs a control signal to the printer control unit based on a condition of said buffer memory, including: a control mechanism which determines whether or not said buffer memory is full, and wherein said control device outputs said control signal to the printer control unit to delay outputting of image data if said control mechanism determines that said buffer memory is full.

5,802,262
METHOD AND APPARATUS FOR DIAGNOSING
LEXICAL ERRORS
Michael L. Van De Vanter, Mountain View, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.
Continuation of Ser. No. 305 220, Sep. 13, 1994, abandoned.
This application Oct. 15, 1997, Ser. No. 950,857
Int. Cl.⁶ G06F 17/27

U.S. Cl. 395—180

19 Claims

1. A lexical analyzer for diagnosing lexical errors in a stream of symbols, the stream of symbols containing symbols from an alphabet of a given language, the lexical analyzer comprising: a set of states including a first plurality of states and a second plurality of states; said set of states including an initial state, each state of said set of states being associated with a lexeme type of a set of lexeme types; said set of lexeme types including a first plurality of lexeme types and a second plurality of lexeme types, each lexeme type of said first plurality of lexeme types being a valid lexeme type in said given language, said second plurality of lexeme types including all possible invalid lexeme types that can be formed in said stream of symbols in said given language;

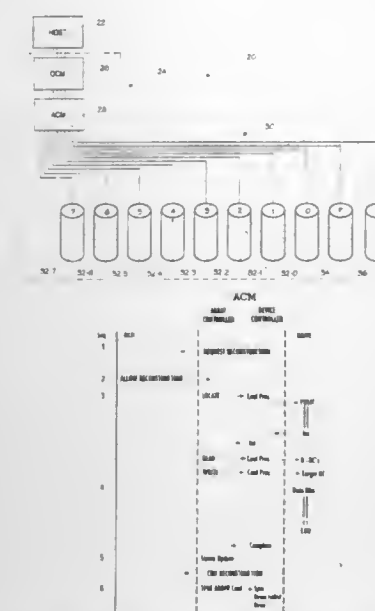


a lexeme type signal generator configured to generate a signal indicative of the lexeme type associated with the current state when said symbol is a terminating symbol.

carrying out the message transmission only from the respective user in possession of the check token, and

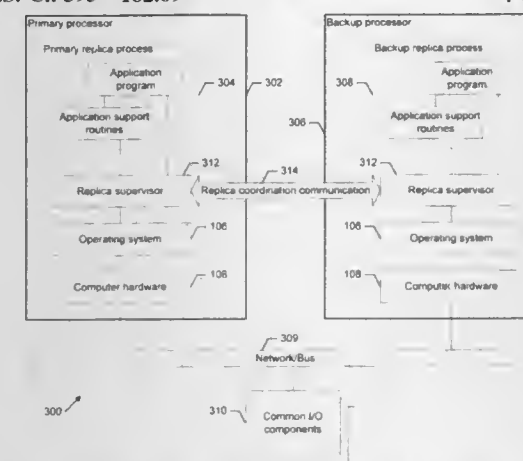
C) carrying out a special token procedure for all of the method versions (R-MC, D-MC) which is based on a coincidence of monitoring and information states of the users existing in the transmission procedure, with which a new transmission sequence being determined from a consecutive sequence number is carried out in the case of an error, without impairing data consistency.

occurring; and



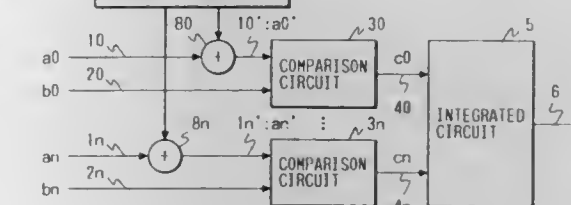
said array control means for conducting said write data transfer with the host system during said first reconstruction of data; wherein in conducting said write data transfer, said array control means, when writing prior to said reconstruction boundary, writes data of said first group to said spare storage device and, when writing after said reconstruction boundary, writes data of said first group to said first storage device.

4 Claims



1. In a fault-tolerant computer system having a primary processor and a backup processor, a method for executing a primary replica of a program (primary replica) on the primary processor and a backup replica of the program (backup replica) on the backup processor, the primary processor including a primary replica supervisor interposed between the primary replica and a primary operating system, the backup processor including a backup replica supervisor interposed between the backup replica and a

ORTHOGONAL WAVE-FORM
GENERATOR CIRCUIT



wherein the inherent waveforms assigned in advance to the respective output signals are waveforms that are not correlated to one another.

5,802,267
METHOD FOR CHECKPOINTING IN COMPUTER SYSTEM UNDER DISTRIBUTED PROCESSING ENVIRONMENT

Toshio Shirakihara; Tatsunori Kanai, and Hideaki Hirayama, all of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 10, 1996, Ser. No. 711,846

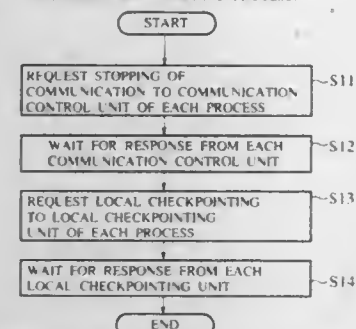
Claims priority, application Japan, Sep. 11, 1995, 7-232517; Aug. 6, 1996, 8-207339

Int. Cl.⁶ G26F 11/00

U.S. Cl. 395—182.13

22 Claims

(CHECKPOINT COMMAND PROCESS)



9. A method for checkpointing for a plurality of processes operating under a distributed processing environment while carrying out inter-process communications, the method comprising the steps of:

- commanding each process to stop the inter-process communications of each process while continuing a normal processing of each process; and
- commanding each process to execute a checkpointing processing for each process, when a stopping of the inter-process communications of all processes is confirmed.

5,802,268
DIGITAL PROCESSOR WITH EMBEDDED EEPROM MEMORY

Aaron Louis Fisher, Allentown; Alan Joel Greenberger, South Whitehall Township, Lehigh County, and Jay Patrick Wilshire, Pennsburg, all of Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

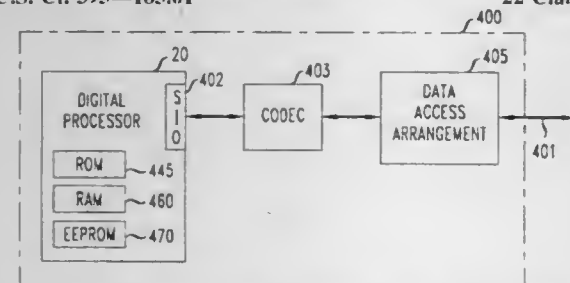
Continuation of Ser. No. 343,395, Nov. 22, 1994, abandoned.

This application May 14, 1997, Ser. No. 856,035

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.01

22 Claims



1. A method of programming memory locations of EEPROM on an integrated circuit in read-only memory space, the integrated circuit having a RAM, a RAM data bus, an address bus, and a digital processor with a core including a control register, the method comprising the steps of:

- reading data from the EEPROM to enable a particular word line at an address of a memory location that is to be programmed; latching the address into a register;
- writing data to RAM which causes data to be held on the RAM data bus;
- writing to a control register to enable an EEPROM write control; waiting a predetermined time period of sufficient duration to permit the write operation to be completed; and

writing to a control register to disable the write control.

5,802,269
METHOD AND APPARATUS FOR POWER MANAGEMENT OF DISTRIBUTED DIRECT MEMORY ACCESS (DDMA) DEVICES

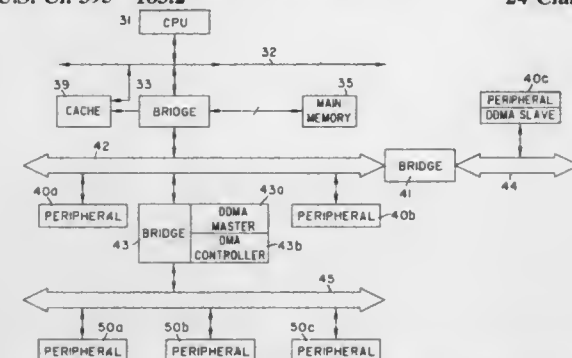
David Poisner, Folsom, and Rajesh Raman, Fair Oaks, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jun. 28, 1996, Ser. No. 672,869

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.2

24 Claims



1. A method of operating a computer system comprising a central processing unit, a Direct Memory Access (DMA) controller, a Distributed Direct Memory Access (DDMA) Master component and a peripheral device coupled together by at least one bus, when the peripheral device fails to respond to a DDMA transaction controlled by said DDMA Master component, the method comprising:

- generating an abort condition on the bus, when said peripheral fails to respond;
- storing an indication that said abort condition occurred because of the failure of said peripheral device to respond to said DDMA Master component;
- generating an interrupt to said central processing unit; and
- executing code in said central processing unit to determine the cause of the failure of said peripheral device to respond to said DDMA Master component.

5,802,270
INTEGRATED CIRCUIT HAVING AN EMBEDDED DIGITAL SIGNAL PROCESSOR AND EXTERNALLY TESTABLE SIGNAL PATHS

Uming U-Ming Ko, Plano; Bernhard Hans Andresen, Dallas; Glen Roy Balko, Richardson; Stanley Clifford Keeney, Dallas, and Joe Frank Sexton, Houston, all of Tex., assignors to Texas Instruments Incorporated

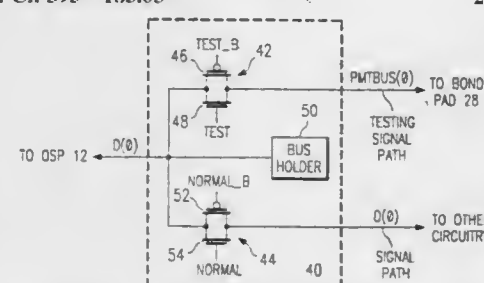
Continuation of Ser. No. 957,754, Oct. 7, 1992, abandoned, which is a continuation of Ser. No. 410,443, Sep. 21, 1989.

This application Mar. 14, 1997, Ser. No. 818,618

Int. Cl.⁶ G06F 11/267

U.S. Cl. 395—183.03

22 Claims



1. An integrated circuit formed on a surface of a semiconductor substrate comprising:

A. digital signal processor circuitry formed on a portion of the surface of the substrate;

B. a plurality of added circuits formed on a portion of the remainder of the surface of the substrate, the added circuits being coupled to the digital signal processor circuitry and operating in conjunction with the digital signal processor circuitry and external electronic components coupled to the integrated circuit;

C. a first signal path coupling the digital signal processor circuitry to at least one of the plurality of added circuits for carrying an operating signal between the digital signal processor circuitry and the at least one added circuit, the first signal path solely coupling circuitry resident on the substrate;

D. a first testing signal path for testing the digital signal processor circuitry; and

E. first multiplexing circuitry coupled to the first signal path and to the first testing signal path and responsive to a first test signal for selectively diverting the operating signal from the first signal path to the first testing signal path such that the digital signal processor circuitry may be tested.

5,802,271
TERMINAL DEVICE MANAGEMENT SYSTEM AND A METHOD FOR DETECTING A FAILED TERMINAL DEVICE USING THE SYSTEM

Yasuhiko Hashimoto; Masahiro Sako; Hiroyuki Inenaka, and Yuji Yamashita, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

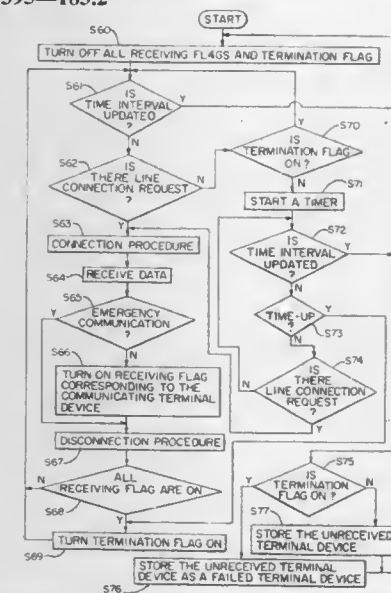
Filed Oct. 15, 1993, Ser. No. 137,590

Claims priority, application Japan, Oct. 20, 1992, 4-282049

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—183.2

4 Claims



1. A terminal device management system including a plurality of terminal devices and a remote management apparatus for remotely managing said plurality of terminal devices, said remote management apparatus being connected to said plurality of terminal devices via a line,

- each of said plurality of terminal devices comprising: data storing means for storing data to be transmitted; data transmitting means for transmitting said data stored in said data storing means to said remote management apparatus; transmission time interval storing means for storing a transmission time interval; and
- terminal device control means for requesting a line connection to said remote management apparatus in said transmission time interval stored in said transmission time interval storing means, and for, when said line connection is not attained, repeatedly requesting said line connection every predetermined first time period in said transmission time interval, said

predetermined first time period being shorter than said transmission time interval.

said remote management apparatus comprising:

data receiving means for receiving data transmitted from said terminal devices;

management table storing means for storing a management table including at least identification names of terminal devices which are previously set to transmit data in said transmission time interval and corresponding identifiers for said terminal devices having said identification names for identifying whether data has been sent from said terminal devices or not; timer means for measuring a time period during which said line is not connected in said transmission time interval; and

remote management apparatus control means for detecting whether or not the time period measured by said timer means reaches a predetermined second time period set to be longer than said first time period, and for, when it is detected that said predetermined second time period is reached by said measured time period, identifying a respective terminal device as a failed terminal device in the event said corresponding identifier in said management table stored in said management table storing means indicates data has not been received from said respective terminal device.

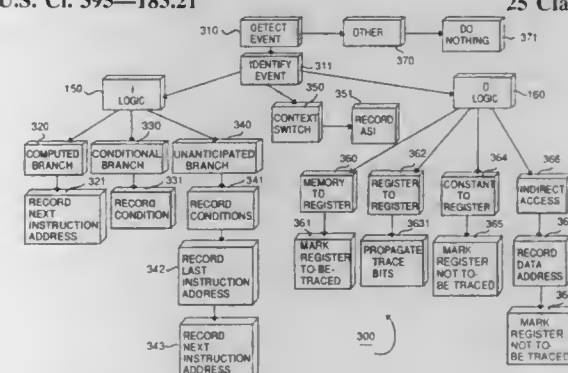
5,802,272
METHOD AND APPARATUS FOR TRACING UNPREDICTABLE EXECUTION FLOWS IN A TRACE BUFFER OF A HIGH-SPEED COMPUTER SYSTEM
Richard L. Sites, Menlo Park; Sharon E. Perl, Palo Alto; G. Michael Uhler, Redwood City, and David G. Conroy, El Granada, all of Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Dec. 19, 1994, Ser. No. 359,252

Int. Cl.⁶ G06F 11/34

U.S. Cl. 395—183.21

25 Claims



1. An apparatus for tracing execution flows during an operation of a processor, comprising:

- a memory storing instructions at addresses;
- means for fetching instructions from the memory to operate the processor;
- means, coupled to the means for fetching, for detecting the fetching of the instructions;
- means, responsive to the detecting of the fetching, for recording information related to only an unpredictable fetching of the instruction; and
- a trace buffer for storing the information to trace the execution flows while the instructions operate the processor.

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5,802,273

TRAILING EDGE ANALYSIS

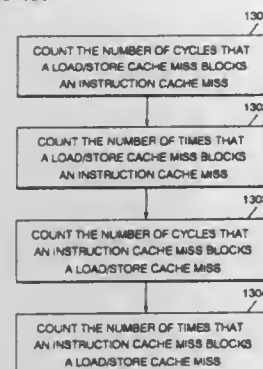
Frank Eliot Levine; Roy Stuart Moore; Charles Philip Roth, and Edward Hugh Welbon, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1996, Ser. No. 767,662

Int. Cl.⁶ G06F 11/34

U.S. Cl. 395—184.01

19 Claims



1. A method in a data processing system comprising the steps of: receiving signals associated with a load/store cache miss blocking an instruction cache miss; and counting signals associated with the load/store cache miss blocking the instruction cache miss.

5,802,274

CARTRIDGE MANUFACTURING SYSTEM FOR GAME PROGRAMS

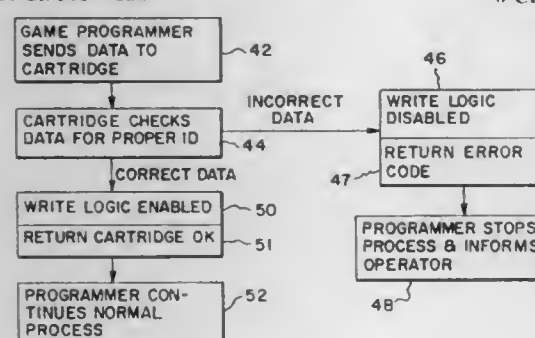
John Dorak, Boca Raton; Ross L. Cook, Boynton Beach; George G. Gruse, Deerfield Beach; Minhnam Nguyen, Delray Beach; James T. Tsevdos, Fort Lauderdale, and Susan Elizabeth Waefler, Delray Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 4, 1994, Ser. No. 237,741

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—186

6 Claims



1. A method controlled by a personal computer of manufacturing video game within a cartridge for insertion into a compatible video game machine for interactive play with a human, comprising the steps of:

- selecting a video game for manufacture of selected video game content corresponding to the selected video game within a host game computer or a game storage computer;
- identifying indicia for the selected video game;
- transmitting the identifying indicia corresponding to the selected video game for manufacture of the selected video game content within the cartridge to the game storage computer storing data, including game content data corresponding to the selected video game;
- transmitting to the personal computer transactional data, corresponding to an occurrence of the transmitting of the identifying indicia to the game storage computer;

downloading game content data corresponding to the identifying indicia of the selected video game from the game storage computer into memory within the cartridge; and interrupting downloading of the game content data from the storage computer prior to the content data of the selected video game being fully downloaded into the memory within the cartridge, upon the occurrence of a predetermined event as a function of a failure to transmit to the personal computer transactional data corresponding to the identifying indicia.

5,802,275

ISOLATION OF NON-SECURE SOFTWARE FROM SECURE SOFTWARE TO LIMIT VIRUS INFECTION

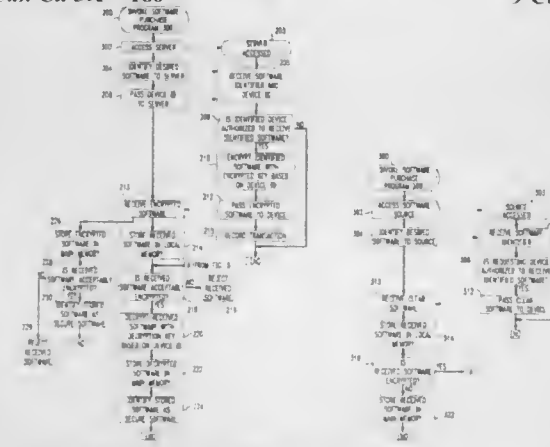
Greg E. Blonder, Summit, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 22, 1994, Ser. No. 263,850

Int. Cl.⁶ G06F 13/00; G11B 23/28

U.S. Cl. 395—186

9 Claims



1. A program-execution apparatus comprising: means for receiving both encrypted programs and unencrypted programs; means for storing the received programs; means for executing the stored programs; and means for selectively preventing the executing means from executing the stored programs that were received unencrypted, while allowing the executing means to execute the stored programs that were received encrypted.

5,802,276

INFORMATION HANDLING SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE INCLUDING A VAULT OBJECT FOR ENCAPSULATION OF OBJECT SECURITY CREDENTIALS

Messaoud Benantar, Poughkeepsie, N.Y.; George Robert Blakley, III, and Anthony Joseph Nadalin, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 3, 1996, Ser. No. 582,551

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—186

12 Claims

5. A computer readable medium comprising means for improving object services in an information handling system employing object oriented technology, comprising: means for creating one or more vault objects for encapsulating security relevant objects; means for retrieving security credentials associated with an owner of a process; means for examining retrieved security credentials against security relevant objects in the vault to determine if the owner of the process is authorized for access to data related to the encapsulated security relevant objects; and

5,802,278

BRIDGE/ROUTER ARCHITECTURE FOR HIGH PERFORMANCE SCALABLE NETWORKING

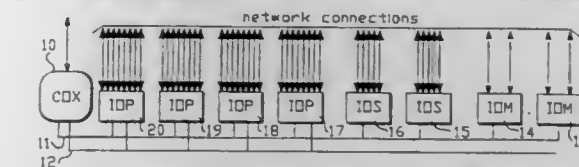
Mark S. Isfeld, San Jose; Tracy D. Mallory, Palo Alto; Bruce W. Mitchell, San Jose; Michael J. Seaman, Mountain View, and Nagaraj Arunkumar, San Jose, all of Calif., assignors to 3Com Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 438,897, May 10, 1995. This application Jan. 23, 1996, Ser. No. 599,473

Int. Cl.⁶ G06F 15/16; 13/14

U.S. Cl. 395—200.02

32 Claims



1. An apparatus of interconnecting a plurality of networks, comprising:

a plurality of input/output systems, having input/output ports for physical connections to a diversity of networks operating with a plurality of routed network protocols, said input/output systems having a plurality of variant sets of processing resources;

an interprocessor messaging system, coupled with the plurality of input/output systems, including a logical layer and a physical layer, for transferring data-in-transit and control signals among the plurality of input/output systems; and distributed processing services in the plurality of input/output systems, including for respective sets of routing decisions according to corresponding routed network protocols in the plurality of routed network protocols a central routing resource in a processor coupled to the interprocessor messaging system, and a distributed protocol module in a given input/output system in the plurality of input/output systems, in which the distributed protocol module supports a subset of the respective set of routing decisions for the corresponding routed network protocol and relies on communications across the interprocessor messaging system with the central routing resource for routing decisions not in the subset of the set of routing decisions for the corresponding routed network protocol.

5,802,279

Patent Not Issued For This Number

5,802,280

SECURITY APPARATUS AND METHOD

Christian Cotichini, and Fraser Cain, both of Vancouver, Canada, assignors to Absolute Software Corp., Vancouver, Canada

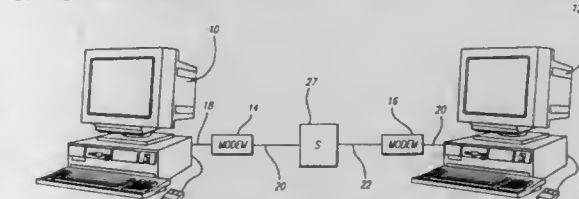
Continuation of Ser. No. 339,978, Nov. 15, 1994, Pat. No.

5,715,174. This application Feb. 12, 1997, Ser. No. 799,401

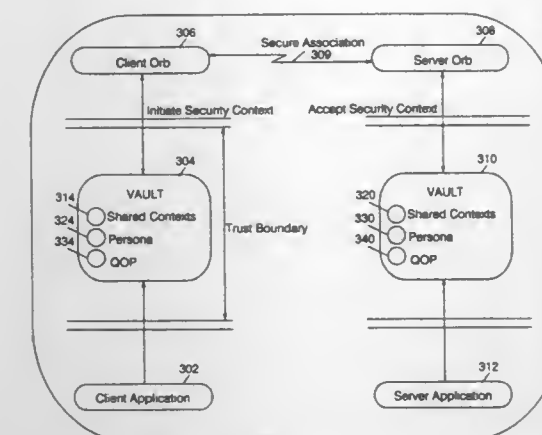
Int. Cl.⁶ H04M 3/00; G08B 13/22

U.S. Cl. 395—200.3

13 Claims



1. A method for tracing an electronic device having non-volatile memory and an agent disposed thereon, said agent for initiating communication with a host system to provide said host system with identifying indicia for said electronic device, said electronic device connectable to a telecommunications interface which is



means for creating a persona object, representing an authenticated identity, the persona object comprising pointers to privileges and capabilities of the owner.

5,802,277

VIRUS PROTECTION IN COMPUTER SYSTEMS

James Coward, Erskine, Great Britain, assignor to International Business Machines Corporation, Armonk, N.Y.

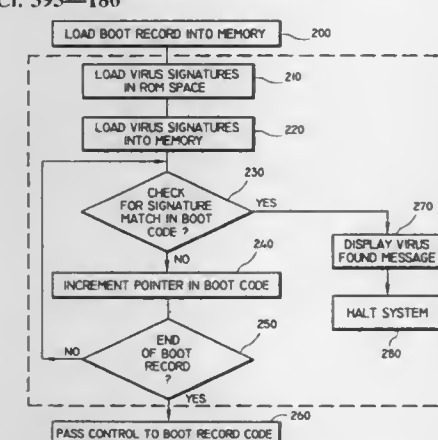
Filed Jul. 26, 1996, Ser. No. 686,897

Claims priority, application United Kingdom, Jul. 31, 1995, 9515686

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—186

8 Claims



1. A method for preventing the transfer of boot sector viruses to a computer system having a processor and memory in which is stored system microcode that is executed by the processor to initialize the system on system power-up and in which is further stored virus detection code, the system being operable after the system initialization to load a system boot program from a removable bootable media, the method comprising:

- upon completion of system initialization, loading the boot program from the removable bootable media into system memory;
- prior to execution of said boot program, executing said virus detection code to check said stored boot program for the presence of computer viruses, wherein the system memory includes virus signature data in addition to the virus detection code, said step of executing the virus detection code includes comparing the stored boot program with the virus signature data; and
- issuing a warning to the user of the computer system on a determination that the boot program includes a computer virus.

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connected to a telecommunications system, said telecommunications system connected to said host system, said method comprising the steps:

- disposing said agent within said non-volatile memory of said electronic device on ROM BIOS;
- establishing an interface between said electronic device and said telecommunications system through said telecommunications interface for communicating with said host system; and
- providing said host system with said unique identifying indicia for said electronic device to determine the identity of said electronic device.

5,802,281

PERIPHERAL AUDIO/VIDEO COMMUNICATION SYSTEM THAT INTERFACES WITH A HOST COMPUTER AND DETERMINES FORMAT OF CODED AUDIO/VIDEO SIGNALS

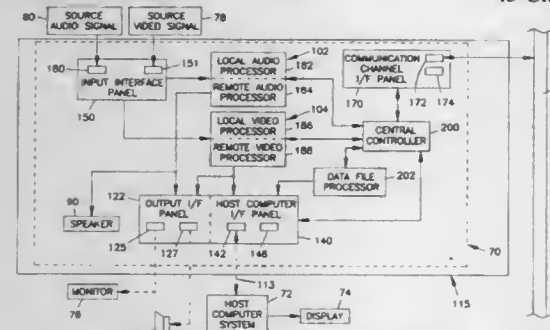
Doug Clapp, Edina, and David Mulder, St. Louis Park, both of Minn., assignors to RSI Systems, Inc., Edina, Minn.

Filed Sep. 7, 1994, Ser. No. 302,108

Int. Cl. G06F 13/00

U.S. Cl. 395—200.04

43 Claims



1. A system for communicating with a communication channel and a separate host processor, the separate host processor being housed within a computer system housing and being coupled to a display, the system comprising:

- a peripheral housing separate from the computer system housing; and
- an audio/visual communication system integral to the peripheral housing, the audio/visual communication system comprising:
 - a source input interface that receives a source audio signal and a source video signal;
 - a local transmission interface that selectively transmits a coded source audio signal and a coded source video signal to either one of an analog or a digital communication channel;
 - a local receive interface that receives a coded remote audio signal and a coded remote video signal transmitted over the either one of the analog or the digital communication channel and automatically determines the format of the coded remote audio and video signals; and
 - an output interface, comprising an output connector, that communicates the remote video signal between the local receive interface and the output connector;

wherein the output interface receives at the output connector a coordination instruction produced by the separate host processor and communicates the coordination instruction between the output connector and the local receive interface, and the separate host processor, when coupled to the output connector, receives the remote video signal in response to the coordination instruction for displaying a corresponding video image on the display.

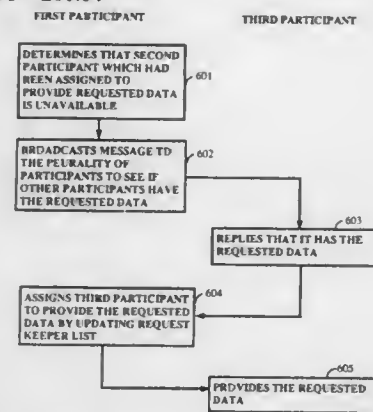
5,802,282 RECOVERING MISSING DATA DURING BACKGROUND DATA TRANSFER IN MULTIPOINT CONFERRING

Loyde W. Hales, II, and Tyler R. Thessin, both of Hillsboro, Oreg., assignors to Intel Corporation, Santa Clara, Calif.
Filed Dec. 28, 1995, Ser. No. 579,835

Int. Cl. G06F 17/00

U.S. Cl. 395—200.04

16 Claims



1. In an electronic conferencing system wherein data is shared between a plurality of participants during an electronic conference, a method of recovering shared teleconference object data during the electronic conference when one of the plurality of participants assigned to provide requested teleconference object data becomes unavailable, the method comprising the steps of:

- a) a first participant determining that a second participant is unavailable, the second participant having been assigned to provide requested teleconference object data to the first participant;
- b) the first participant broadcasting a message to the plurality of participants to determine if another participant has the requested teleconference object data;
- c) a third participant replying to the first participant that it has the requested teleconference object data, if the third participant has a copy of the requested teleconference object data; and
- d) the first participant assigning the third participant to provide the requested teleconference object data to the first participant.

5,802,283 METHOD AND SYSTEM FOR ACCESSING MULTIMEDIA DATA OVER PUBLIC SWITCHED TELEPHONE NETWORK

John Grady, Fairfax, Va.; Kenneth Hand, Silver Spring; John Modrowsky, Burtonsville, both of Md., and Arthur A. Richard, III, Springfield, Va., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Division of Ser. No. 455,782, May 31, 1995, Pat. No. 5,625,404, and Ser. No. 99,381, Jul. 30, 1993, Pat. No. 5,528,281, which is a continuation-in-part of Ser. No. 42,107, Apr. 1, 1993, abandoned, which is a continuation-in-part of Ser. No. 766,535, Sep. 27, 1991, Pat. No. 5,247,347. This application Mar. 29, 1996, Ser. No. 623,761

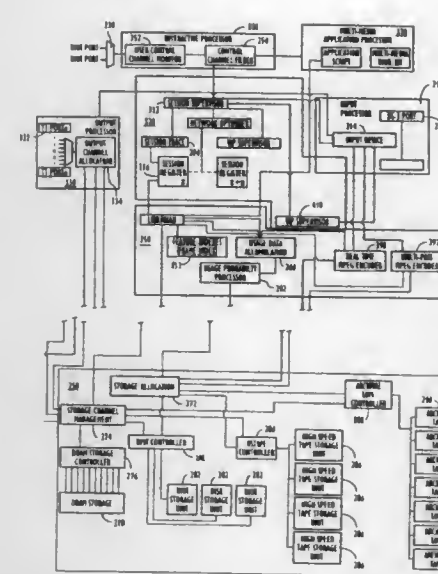
Int. Cl. G06F 13/00; 13/14

U.S. Cl. 395—200.12

14 Claims

1. A multimedia information server for providing compressed digital multimedia information over a public switched telephone network comprising:

- an input device for receiving multimedia data;
- a multimedia storage system for storing multimedia information and supplying said multimedia information in response to information retrieval data;
- a storage manager for managing said multimedia information stored in said multimedia storage system;
- a multimedia application processor for processing said multimedia information stored in said multimedia storage system;



a librarian for controlling said storage manager, said input device and said multimedia application processor;

a session manager, responsive to information request data, for supplying information retrieval data and output control data and for controlling communication sessions;

an output controller, responsive to output control data, for supplying multimedia information;

an interface having an external connection, responsive to subscriber request data, for supplying information request data; and

an interactive processor, connected to said session manager, said multimedia application processor and said interface, for causing multimedia information to be processed in accordance with control signals received via said interface;

wherein said librarian comprises feature indexes and a frame index, a usage data accumulation circuit, a usage probability processor, a real time MPEG encoder, and a multi-pass MPEG encoder.

5,802,284 SYSTEM AND METHOD USING COVER BUNDLES TO PROVIDE IMMEDIATE FEEDBACK TO A USER IN AN INTERACTIVE TELEVISION ENVIRONMENT

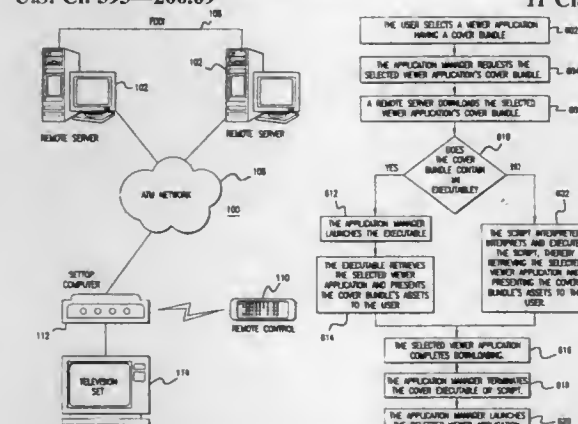
Philip L. Karlton, Cupertino; Robert K. Myers, Santa Cruz; Charles V. Rossi, San Jose, and Terry Weissman, Boulder Creek, all of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Filed Dec. 13, 1995, Ser. No. 572,298

Int. Cl. H04N 7/10

U.S. Cl. 395—200.09

11 Claims



1. An interactive television system, configured to provide immediate feedback to the user via cover bundles, comprising:

at least one remote server comprising at least one viewer application having a cover bundle, said cover bundle comprising at least one asset file,

presenting means for presenting said asset file to the user, and

retrieving means for retrieving said viewer application, and

at least one settop computer coupled to said remote server, configured to retrieve said cover bundle and execute said presenting means and said retrieving means when a user requests said viewer application.

5,802,285

WIDE AREA NETWORK (WAN) INTERFACE FOR A TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL (TCP/IP) IN A LOCAL AREA NETWORK (LAN)

Seppo Hirviniemi, Helsinki, Finland, assignor to ICL Personal Systems Oy, Helsinki, Finland

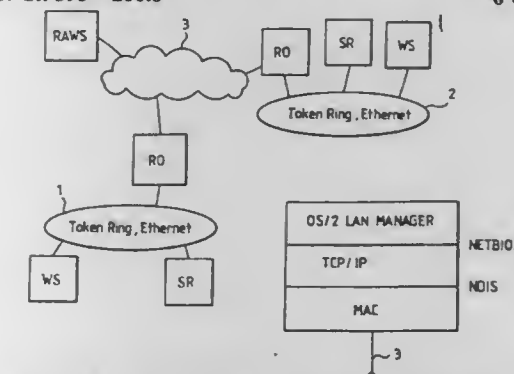
Continuation of Ser. No. 689,240, Aug. 6, 1996, abandoned, which is a continuation of Ser. No. 375,176, Jan. 18, 1995, abandoned, which is a continuation of Ser. No. 67,579, May 28, 1993, abandoned. This application Oct. 10, 1997, Ser. No. 948,602

Claims priority, application Finland, May 29, 1992, 922484

Int. Cl. G06F 13/00

U.S. Cl. 395—200.8

6 Claims



1. A method of interfacing a transmission control protocol/internet protocol (TCP/IP) software designed for a local area network (LAN) to a wide area network (WAN), the WAN having a media access control (MAC) manager, the TCP/IP software utilizing a lower-level address resolution protocol (ARP) to find physical network addresses corresponding to logical internet protocol (IP) addresses, and the TCP/IP utilizing a lower-level IP protocol to transfer useful traffic in IP data packets, comprising the steps of:

simulating, by said MAC manager, operation complying with the ARP protocol between said MAC manager and said TCP/IP software in the direction towards said TCP/IP software, and transmitting IP data packets over the WAN, from and to said MAC manager, in a manner appropriate to the WAN rather than the LAN, and wherein the simulating step comprises the following steps:

requesting, by said TCP/IP software, a physical address for a component of the WAN whose IP address is known by transmitting a request message complying with said ARP protocol to said MAC manager, said request message containing, as a physical source address, the physical address of a component of the LAN; and as an IP source address, the IP address of said component of the LAN; and as an IP destination address, said IP address of said component of the WAN, and

transmitting, by said MAC manager, to said TCP/IP software a reply message complying with said ARP protocol and containing, as a physical source address, an arbitrary constant corresponding to said physical address of said component of the WAN; as an IP source address, said IP address of said component of the WAN; as a physical destination address, said physical address of said component of the

LAN; and as an IP destination address, said IP address of said component of the LAN.

5,802,286

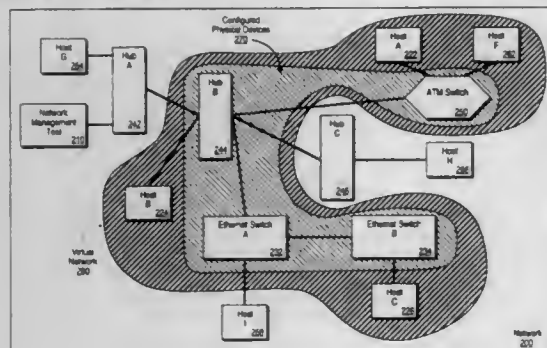
METHOD AND APPARATUS FOR CONFIGURING A VIRTUAL NETWORK

Judy Y. Dere, Saratoga; Leon Y. K. Leong, Monte Sereno; Daniel A. Simone, San Jose, and Allan Thomson, Cupertino, all of Calif., assignors to Bay Networks, Inc., Santa Clara, Calif.

Filed May 22, 1995, Ser. No. 447,066
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.5

31 Claims



1. A method of configuring a network, said method comprising the steps of:

- generating a set of leaf nodes, a first leaf node representing a first physical device being coupled to a first host on said network;
- generating an adjacency matrix for said set of leaf nodes;
- generating a set of virtual network nodes by using said adjacency matrix, said set of virtual network nodes connecting said set of leaf nodes;
- determining a resource availability for said set of virtual network nodes; and
- configuring said set of virtual network nodes in response to said determining said resource availability.

5,802,287

SINGLE CHIP UNIVERSAL PROTOCOL MULTI-FUNCTION ATM NETWORK INTERFACE

Michael D. Rostoker, Boulder Creek; D. Tony Stelliga, Pleasanton, both of Calif., and Paul Bergantino, Arlington, Mass., assignors to LSI Logic Corporation, Milpitas, Calif.

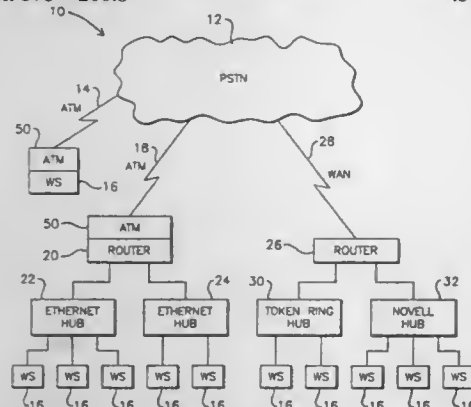
Continuation of Ser. No. 139,998, Oct. 20, 1993, abandoned.

This application Aug. 3, 1995, Ser. No. 510,643

Int. Cl.⁶ H04L 12/00

U.S. Cl. 395—200.8

43 Claims



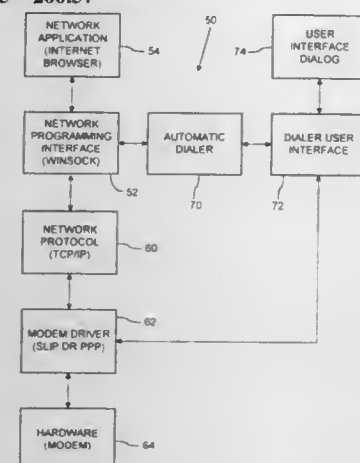
1. A client-server computer system comprising:
 at least one server computer coupled to a network for transferring and receiving data thereover, said server computer having at least one associated server mass storage device to which said data may be written and from which said data may be read; and
 at least one client computer coupled to said network for transferring and receiving said data thereover, said client computer having at least one associated client mass storage device to which said data may be written and from which said data may be read; .
 root files associated with said client computer and stored in said server mass storage device, wherein said client mass storage device is at least partially configurable as a local data cache for at least some of said root files.

5,802,304
AUTOMATIC DIALER RESPONSIVE TO NETWORK PROGRAMMING INTERFACE ACCESS
Jeremy Daniel Stone, Bellevue, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Apr. 18, 1996, Ser. No. 634,244
Int. Cl.⁶ G06F 9/44

U.S. Cl. 395—200.57

29 Claims



1. In a computer having a modem, a system for automatically dialing to establish a dial-up connection to a remote computer network, comprising:

a network programming interface having a set of application programming interfaces that can be invoked to provide communications services with the remote computer network; and an installable automatic dialer for hooking requests to the application programming interfaces, for determining based on the requests whether a network application is attempting to communicate with the remote computer network, and if so, for initiating dialing by the modem to establish the dial-up connection whereby the dial-up connection to the remote computer network is automatically established when the network application attempts to communicate with the remote computer network using the network programming interface.

5,802,305
SYSTEM FOR REMOTELY WAKING A SLEEPING COMPUTER IN POWER DOWN STATE BY COMPARING INCOMING PACKET TO THE LIST OF PACKETS STORING ON NETWORK INTERFACE CARD
Robert M. McKaughan, Bellevue; Forrest Foltz, Woodinville, and Rajasekhar Abburi, Bellevue, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

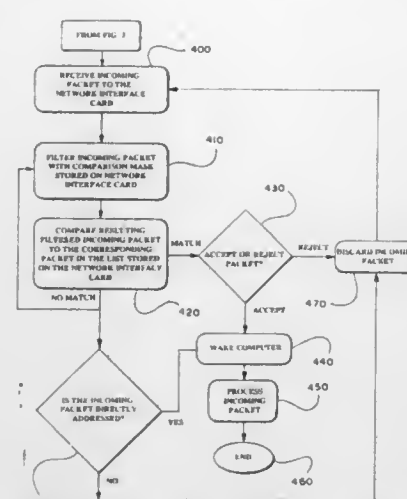
Filed May 17, 1996, Ser. No. 649,452
Int. Cl.⁶ G06F 1/32

U.S. Cl. 395—200.57

17 Claims

1. In a computer network including a plurality of interconnected computers, one of said computers being a sleeping computer in a power down state, a method of waking the sleeping computer from the computer network, said method comprising the steps of:

storing on a network interface card associated with the sleeping computer a list of packets to listen for while the sleeping computer is in the power down state;
transmitting an incoming packet of information from one of said plurality of computers in the computer network to the sleeping computer;
detecting the incoming packet in the network interface card associated with the sleeping computer;
comparing the incoming packet to the list of packets stored on the network interface card;
if the incoming packet matches one of the packets in the list of packets stored on the network interface card, then waking the



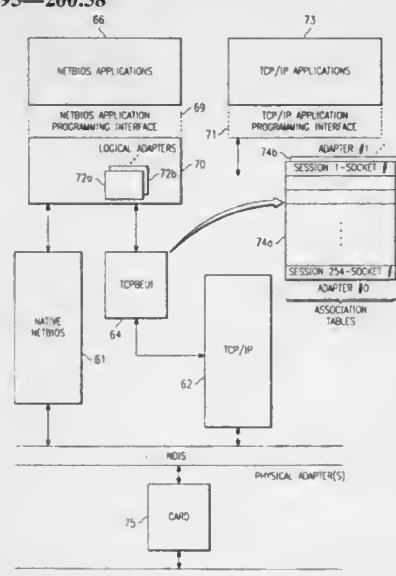
sleeping computer and processing the incoming packet; and otherwise, discarding the incoming packet.

5,802,306
SUPPORTING MULTIPLE CLIENT-SERVER SESSIONS FROM A PROTOCOL STACK ASSOCIATED WITH A SINGLE PHYSICAL ADAPTER THROUGH USE OF A PLURALITY OF LOGICAL ADAPTERS
Gary T. Hunt, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1995, Ser. No. 551,015
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.58

16 Claims



1. In a computer network, a method of supporting a number of sessions from a protocol stack having a physical adapter associated therewith, comprising the steps of:

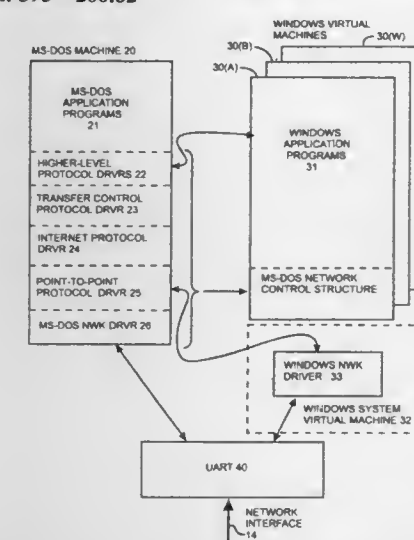
(a) associating at least two logical adapters to the physical adapter with each of the logical adapters being adapted to handle a subset of the number of sessions;
(b) allocating sessions to the at least two logical adapters in a sequential manner, wherein the sessions are allocated to a first one of the logical adapters until the subset of the number of sessions for that adapter is reached, whereupon the sessions are allocated to a second one of the logical adapters; and
(c) controlling routing to the at least two logical adapters through the physical adapter.

5,802,307
NETWORK COMMUNICATIONS SUBSYSTEM AND METHOD FOR DIGITAL COMPUTER SYSTEM EMPLOYING PROTOCOL STACK HAVING DIVERSE LOWER-LEVEL NETWORK DRIVER COMPONENTS OPTIMIZED FOR EACH OF BASE AND ENHANCED OPERATING SYSTEMS
Michael D. Melo, Billerica, Mass., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Nov. 24, 1995, Ser. No. 564,381
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.62

39 Claims



1. A communication subsystem for a digital computer system, the digital computer system processing application programs under a base operating system in a first processor operational mode, the digital computer system further processing application programs under an enhanced operating system during an enhanced operating system session under a second processor operational mode, the enhanced operating system during said enhanced operating system session making use of at least some selected elements of the base operating system, the communication subsystem enabling the digital computer system to transfer messages, each comprising a series of characters, over a communications network, the communication subsystem comprising:

an upper level communication driver and a base lower level communications driver both forming part of the base operating system and an enhanced lower level communications driver forming part of the enhanced operating system, the upper level communications driver and the base lower level communications driver forming part of a protocol stack which transmits and receives respective ones of said messages over the communications network while the digital computer system is operating under control of the base operating system, the upper level communications driver, while the protocol stack is transmitting one of said messages, iteratively providing characters of the message being transmitted to the base lower level communications driver for transmission, and the base lower level communications driver, while the protocol stack is receiving one of said messages, iteratively providing characters of the message being received to the upper level communications driver.

the upper level communications driver and the enhanced lower level communications driver forming at least part of another protocol stack which transmits and receives respective ones of said messages over the communications network during a session under which the digital computer system is operating under control of the enhanced operating system, the upper level communications driver, while the other protocol stack is transmitting one of said messages, providing a transmit buffer containing a plurality of characters of the message being transmitted to the enhanced lower level communications driver for transmission, and

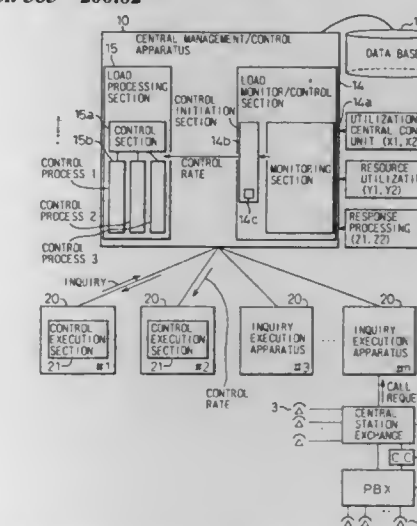
the enhanced lower level communications driver, while the other protocol stack is receiving a message, providing a receive buffer containing a plurality of characters of the message being received to the upper level communications driver.

5,802,308
LOAD CONTROL SYSTEM FOR CENTRALIZED MANAGEMENT/CONTROL TYPE NETWORK
Yayoi Itoh; Fumiya Ige, both of Yokohama, and Tadaaki Tanaka, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Apr. 19, 1996, Ser. No. 634,887
Claims priority, application Japan, Apr. 20, 1995, 7-094944
Int. Cl.⁶ G06F 17/00

U.S. Cl. 365—200.62

24 Claims



1. A load control apparatus, connected to at least one inquiry execution apparatus, for controlling a load of a central management/control apparatus by controlling inquiries issued from the inquiry execution apparatus to the central management/control apparatus responsible for processing and responding to the inquiries, comprising:

a load monitor/control section for monitoring the load of the central management/control apparatus, and for determining a variable control rate appropriate to the monitored load; and a load processing section for controlling the load by rejecting inquiries in a variable proportion in response to the control rate.

5,802,309
METHOD FOR ENCODING SNMP SUMMARY OBJECTS
John Cook, Southborough; Kathryn de Graaf, Northborough, both of Mass.; Shay Leshkowitz, Rehovot, Israel, and Paul Greizerstein, Hopkinton, Mass., assignors to 3Com Corporation, Santa Clara, Calif.

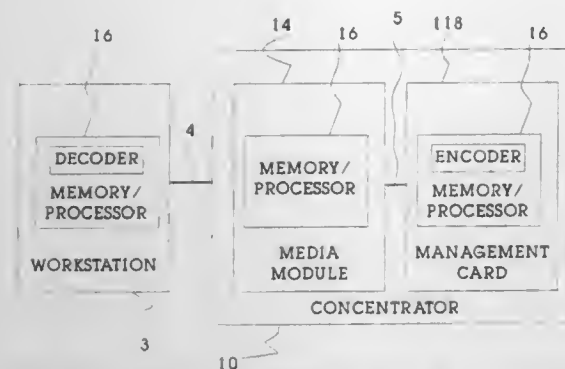
Filed Jun. 12, 1996, Ser. No. 662,350
Int. Cl.⁶ G06F 17/00

U.S. Cl. 395—200.62

22 Claims

1. A method for coding a communication between a workstation and a management agent in a computer network, the method comprising the steps of:

providing a computer network with a plurality of workstations and a management agent for managing communication between said plurality of workstations, said management agent operating said computer network based on a plurality of variables stored in said management agent, each variable including a object identifier and a data portion, each object identifier including a prefix, a suffix and an attribute;



providing a plurality of containment groups, each containment group representing one type of prefix of said plurality of variables;
placing said data portion, said attribute and said suffix of each of said variables having identical prefixes into a respective containment group;
providing a plurality of block groups in each of said containment groups, each block group representing one type of suffix of said variables in a corresponding containment group;
in said each containment group, placing said data portion and said attribute of each of said variables having identical suffixes into a respective block group;
combining each of said data portions according to respective block and containment groups into a summary variable;
transmitting said summary variable to one of said workstations to monitor status of said management agent and status of said network.

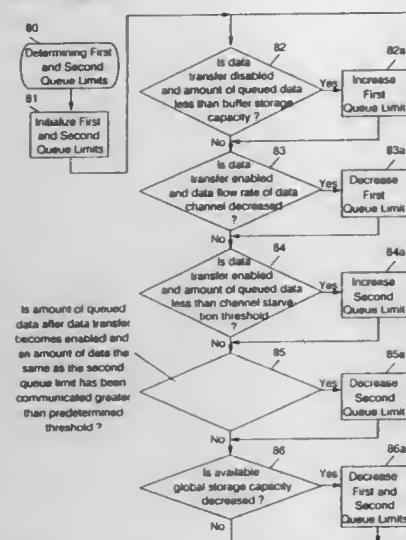
5,802,310
SYSTEMS AND METHODS FOR DATA CHANNEL
QUEUE CONTROL IN A COMMUNICATIONS NETWORK
Bala Rajaraman, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 30, 1996, Ser. No. 655,720

Int. Cl.⁶ G06F 13/38

U.S. Cl. 395—200.64

30 Claims



1. A system for controlling data transfer from an application resident at a node of a network to a queue for a data channel which communicates data from the node, the queue including an amount of queued data and occupying portions of a communications buffer having a buffer storage capacity, the data channel communicating queued data at a data flow rate, the system comprising:

application data transfer controlling means, responsive to the queue, for disabling data transfer from the application and the queue such that data transfer from the application to the queue when the amount of queued data in the queue is greater than a

first queue limit and for enabling data transfer from the application to the queue when the amount of queued data in the queue is less than a second queue limit;
queue limit determining means, responsive to the queue and to said application data transfer controlling means, for dynamically and automatically determining said first and second queue limits based upon multiple criteria including at least the amount of queued data queued in the queue, the data flow rate of the data channel, the buffer storage capacity and the state of said application data transfer controlling means.

5,802,311
USING ADAPTIVE REDUNDANT PACKET RETRIEVAL
TO IMPROVE RELIABILITY IN A UNIDIRECTIONAL
DATA BROADCASTING SYSTEM

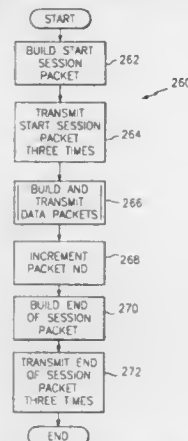
Daniel M. Wronski, Henniker, N.H., assignor to David Hall, and Patricia Gallup, both of Gilsum, N.H.

Filed Jun. 14, 1996, Ser. No. 664,085

Int. Cl.⁶ H04J 3/00; H04L 29/00

U.S. Cl. 395—200.66

31 Claims



31. A method of transmitting data, comprising:
constructing a segment that includes one or more data packets wherein each of the data packets is assigned a unique identifier;

superimposing repetitive copies of control information and multiple copies of the segment and control information onto a video signal to provide a combined signal wherein a first repetitive portion of the control information precedes the multiple copies of the segment on the video signal and indicates that the segment is to follow and wherein a second repetitive portion of the control signal follows the multiple copies of segment and indicates that transmission of the multiple copies of the segment is complete; and
transmitting the combined signal.

5,802,312
SYSTEM FOR TRANSMITTING DATA FILES BETWEEN
COMPUTERS IN A WIRELESS ENVIRONMENT
UTILIZING A FILE TRANSFER AGENT EXECUTING ON
HOST SYSTEM

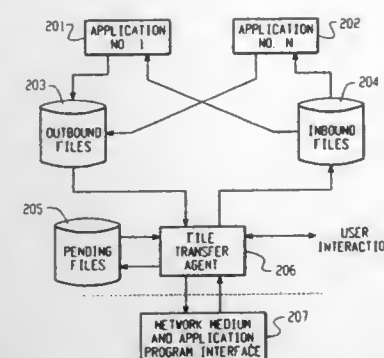
Mihal Lazaridis, Waterloo; Allan Lewis, Kitchener; Barry Gihuly, and Gary Mousseau, both of Waterloo, all of Canada, assignors to Research in Motion Limited, Waterloo, Canada
Filed Sep. 27, 1994, Ser. No. 312,835

Int. Cl.⁶ G06F 9/00; 15/16

U.S. Cl. 395—200.68

60 Claims

1. A method for transmitting one or more source transmission files between a computer and one or more transmission destinations via a communication network, wherein the computer is executing one or more application programs that generate the source transmission files, the method comprising the steps of:



the one or more application programs storing the one or more source transmission files in an outbound file area in the computer;

scanning the outbound file area to detect the one or more source transmission files and if detected, then selecting one or more selected transmission files from among the one or more source transmission files;

deriving for each selected transmission file and associating with such selected transmission file at least one destination address for each of one or more target destinations to which the selected transmission file is to be transmitted, wherein each target destination is selected from among the one or more transmission destinations; and

transmitting each selected transmission file to each target destination associated with such selected transmission file based on the destination address of the target destination.

5,802,313
EXTENDED DLUR/APPN SUPPORT FOR NON-APPN SNA
DEVICES

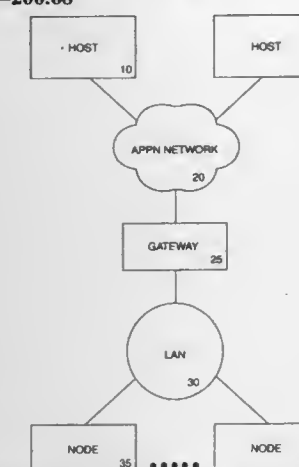
John Orville Mitchell, Raleigh; Suvas Manubhai Shah, Cary, both of N.C.; John Hoon Shin, Austin, Tex., and Gary Michael Weichinger, Apex, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 14, 1996, Ser. No. 702,392

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.68

3 Claims



1. A computer telecommunications network system having at least one APPN host in at least one APPN network connecting to at least one sub-area SNA peripheral node through an SNA gateway, said telecommunications network comprising:

means for connecting said at least one sub-area SNA peripheral node through said SNA gateway using APPN DLUR;

means at said gateway for translating an address representing said peripheral node between an APPN address and a subarea address such that said peripheral node can receive first information from said APPN network; and

means at said host for receiving second information from the gateway using DLUS.

5,802,314
METHOD AND APPARATUS FOR SENDING AND
RECEIVING MULTIMEDIA MESSAGES

Thomas S. Tullis, Easton, Mass.; Loren A. Wood, Lakewood, and James A. Fontana, Mission Viejo, both of Calif., assignors to Canon Kabushiki Kaisha, Tokyo, Japan

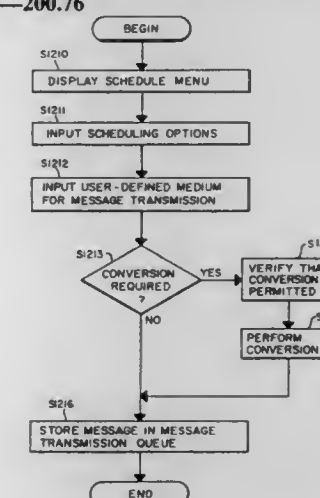
Continuation of Ser. No. 808,757, Dec. 17, 1991, abandoned.

This application Jun. 5, 1995, Ser. No. 461,759

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.76

320 Claims



1. Apparatus for transmitting a multimedia message to a recipient, the multimedia message including first type information mixed together with second type information different from the first type information, said apparatus comprising:

a memory for storing at least one of a plurality of different media types which correspond to a receiving mechanism of the recipient, for storing the multimedia message comprising the first type information mixed together with the second type information, and for storing a plurality of different conversion instructions, each one of the conversion instructions for converting the first and second type information into a respective one of the plurality of different media types; and

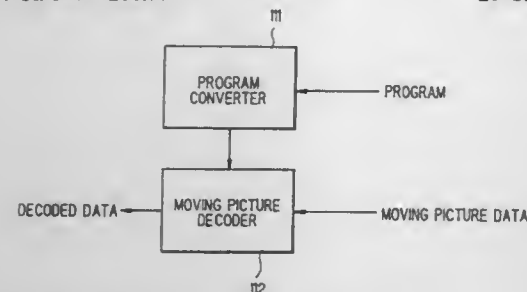
a processor adapted to execute instructions for mixing the first type information and the second type information so as to generate a multimedia message in which the first type information and the second type information are separately identifiable, and adapted to determine whether conversion of the first and/or second type information is necessary based on the at least one media type stored in the memory, and, in a case that conversion is necessary, to select one of the plurality of different conversion instructions for automatically converting the first and/or second type information to one of the plurality of different media types that corresponds to the recipient's receiving mechanism, the selected one of the plurality of different conversion instructions being selected based on a table of permissible and impermissible conversion capabilities and based on the at least one media type stored in the memory, wherein the table of permissible and impermissible conversion capabilities indicates an extent to which it is possible to convert each one of the plurality of different media types into another, different one of the plurality of different media types.

5,802,315
PICTURE REPRODUCING APPARATUS
 Tadashi Uchiumi; Akira Iwamoto, and Masahiro Shioi, all of Chiba, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 4, 1996, Ser. No. 707,378
 Claims priority, application Japan, Sep. 4, 1995, 7-226777;
 Sep. 12, 1995, 7-234183; Nov. 29, 1995, 7-310668
 Int. Cl.⁶ H04N 1/43

U.S. Cl. 395—200.77

26 Claims



1. A picture reproducing apparatus comprising:
 - a receiver for receiving coded picture data and a decoding program which describes a decoding algorithm used to reproduce the coded picture data;
 - a program converter for converting the decoding program into decoder reconfiguration data;
 - a decoder for reproducing picture data from the coded picture data received by said receiver, said decoder including:
 - an inverse quantizer, the contents of which are changeable, for inversely quantizing quantized picture data, and
 - an inverse transformer, the contents of which are changeable, for inversely transforming transformed picture data; and
 - a controller for controlling said receiver, said program converter, and said picture decoder,
- wherein the contents of the inverse quantizer and the inverse transformer of said decoder are changed in accordance with the decoder reconfiguration data obtained by said program converter.

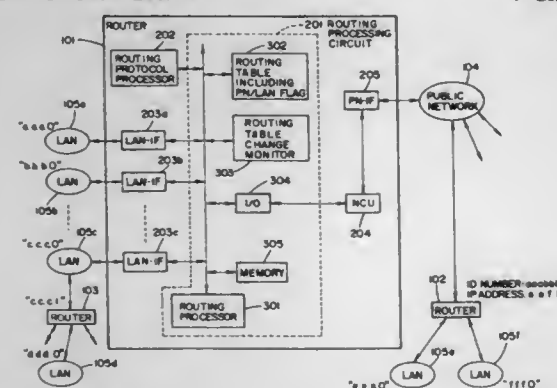
5,802,316
ROUTERS CONNECTING LANS THROUGH PUBLIC NETWORK

Yuji Ito, c/o NEC Shizuoka, Ltd., 4-2, Shimomata, Kakegawa-shi, Shizuoka, and Minoru Sekine, c/o NEC Corporation, 7-1, Shiba 5-chome, Minato-ku, Tokyo, both of Japan

Filed Jan. 26, 1996, Ser. No. 592,581
 Claims priority, application Japan, Jan. 26, 1995, 7-010505
 Int. Cl.⁶ H04L 12/28; 12/66

U.S. Cl. 395—200.79

9 Claims



1. A router for connecting a local-area network (LAN) with a public network comprising:
 - a first interface for transmitting and receiving packets to and from a plurality of LANs;
 - a second interface for transmitting and receiving packets to and from said public network;

a routing table containing a plurality of routing information sets corresponding to destinations, respectively, each of said routing information sets including a next node address and a flag, said next node address indicating a second router following said router in a route from said router to a destination through one of said LAN and said public network, and said flag representing one of a LAN side and a public network side; and

a routing processor for searching said routing table for said second router when a change of said routing information sets is monitored and for determining a path for a packet received from one of said LAN and said public network based on a specified destination of said packet such that said packet is forwarded to said second router through said LAN according to said next node address corresponding to said specified destination when said flag corresponding to said specified destination represents said LAN side and said packet is forwarded to said second router through said public network according to said next node address corresponding to said specified destination when said flag corresponding to said specified destination represents said public network side.

5,802,317
ELECTRONIC CIRCUIT HAVING PHASED LOGIC BUSSES FOR REDUCING ELECTROMAGNETIC INTERFERENCE

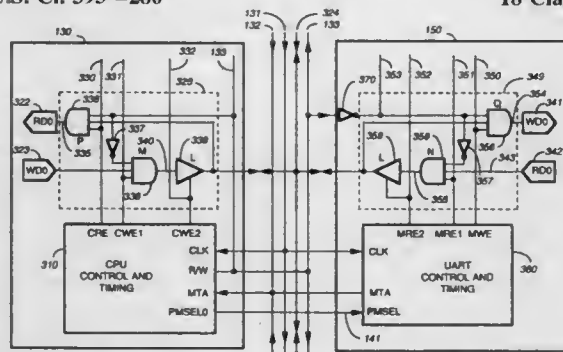
Carl Donald Wiseman; Naji Chafic Naufel; Sang Quan, and Yong Hyon Kim, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 4, 1996, Ser. No. 707,675

Int. Cl.⁶ G06F 13/14; 1/04

U.S. Cl. 395—280

18 Claims



13. An electronic circuit capable of reducing electromagnetic interference, comprising:

a plurality of circuit elements to which a set of bussed logic signals generated by a first circuit element is distributed by a logic clock having a clock cycle and a clock period; and a plurality of cascaded busses including a last cascaded bus having a last enablement phase corresponding thereto,

wherein each of said plurality of cascaded busses couples a set of amplified logic signals from a previous one of the plurality of circuit elements to a next one of the plurality of circuit elements, and

wherein said set of amplified logic signals of each of said plurality of cascaded busses is enabled during a corresponding enablement phase of an enable period, wherein the enable period lasts beyond an end of the last enablement phase, and wherein an enablement transition time of at least one of the set of amplified logic signals is a substantial portion of a duration of a corresponding enablement phase which occurs during the corresponding enable period, and wherein no corresponding enablement phase overlaps another corresponding enablement phase.

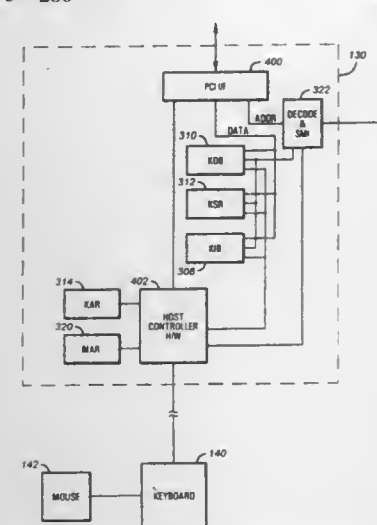
5,802,318
UNIVERSAL SERIAL BUS KEYBOARD SYSTEM
 David E. Murray, Houston; David R. Wooten, Spring; Randall L. Hess, Cypress; Christopher C. Wanner, Tomball, and Jeff W. Wolford, Spring, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jul. 25, 1995, Ser. No. 506,884

Int. Cl.⁶ G06F 3/00; 9/46

U.S. Cl. 395—280

33 Claims



1. A serial bus host controller for coupling a serial bus keyboard to a computer system via a standardized serial bus which transfers data in a packetized protocol, the serial bus host controller for sending and receiving serial bus packets, the serial bus host controller comprising:

- a keyboard controller emulator for generating and receiving data, status and commands pertaining to the serial bus keyboard, said keyboard controller emulator including:
 - a serial bus address register for storing the serial bus address of the serial bus keyboard;
 - a data buffer; and
 - a status register;
- a detector for detecting when said data buffer and said status register are accessed; and
- an interrupt generator for providing a system management interrupt to the computer system when said data buffer and said status register are accessed.

5,802,319
METHOD AND APPARATUS FOR EMPLOYING AN INTELLIGENT AGENT TO CAUSE A PACKET TO BE SENT TO UPDATE A BRIDGE'S FILTERING DATABASE WHEN A STATION IS MOVED IN A NETWORK

Robert L. Faulk, Jr.; Robert M. McGuire, both of Roseville, and Karen E. Kimball, Sacramento, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

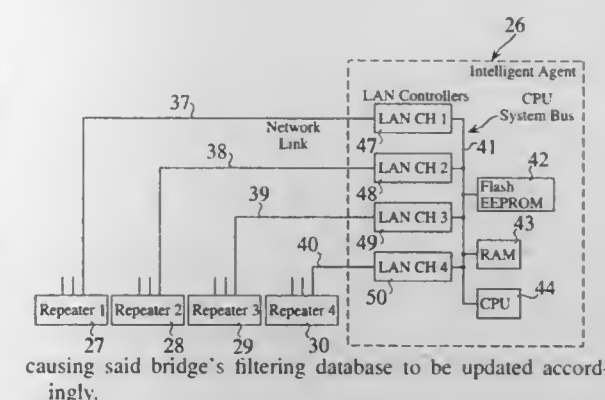
Filed Oct. 23, 1996, Ser. No. 740,047

Int. Cl.⁶ H01J 00/00

U.S. Cl. 395—200.79

51 Claims

1. A method for maintaining uninterrupted network operation when stations are moved, comprising the steps of:
 - providing an intelligent agent, said intelligent agent causing a packet to be sent by, or on behalf of, a station when said station is first moved via a new network segment;
 - causing an associated bridge to learn said station's new location; and



causing said bridge's filtering database to be updated accordingly.

5,802,320
SYSTEM FOR PACKET FILTERING OF DATA PACKETS AT A COMPUTER NETWORK INTERFACE

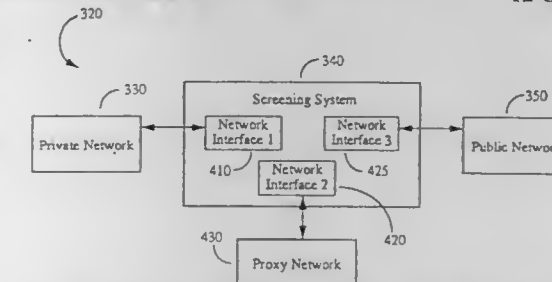
Geoffrey G. Bachr, Menlo Park; William Danielson, Mountain View; Thomas L. Lyon, Palo Alto; Geoffrey Mulligan, Fremont, all of Calif.; Martin Patterson, Grenoble, France; Glenn C. Scott, Tehachapi, and Carolyn Turbyfill, Los Gatos, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed May 18, 1995, Ser. No. 444,351

Int. Cl.⁶ G06F 13/00; 15/163

U.S. Cl. 395—200.79

12 Claims



4. A method for screening data packets arriving at a screening system connected between a first computer network and a second computer network and for executing actions in a proxy system connected to the screening system, including the steps of:

- (1) receiving a first data packet directed from the first network to the second network as a current packet;
- (2) determining from contents of the first data packet a requested operation, a source address and a destination address for the first data packet;
- (3) determining, based upon at least one predetermined criterion, an action to be taken in response to the requested operation;
- (4) passing the current packet to a proxy host substituting for said destination address, the proxy host residing in the proxy system; and
- (5) in the proxy system, taking the determined action.

5,802,321
SYNCHRONOUS SERIAL COMMUNICATION NETWORK FOR CONTROLLING SINGLE POINT I/O DEVICES

Paul Robert Buda, and Gary Lynn Dowdy, both of Raleigh, N.C., assignors to Square D Company, Palatine, Ill.

Continuation of Ser. No. 32,218, Dec. 21, 1991, abandoned.

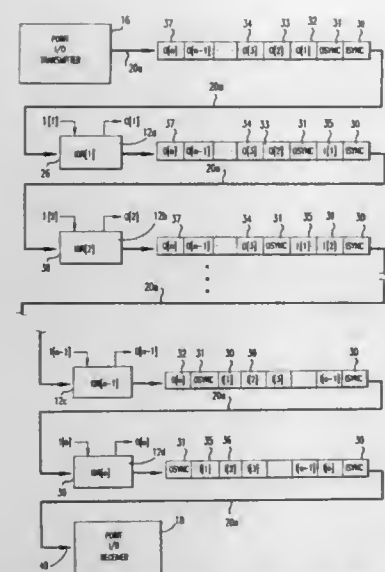
This application Jun. 20, 1996, Ser. No. 667,286

Int. Cl.⁶ G08B 21/00; H04J 3/14

U.S. Cl. 395—200.81

9 Claims

1. A control system for transferring data between devices connected on a synchronous serial communications network comprising:



(A) a first microprocessor based device having a data bus, a central processing unit (CPU) coupled to said data bus, a transmitter module coupled to said data bus and to said network, and a receiver module coupled to said data bus and to said network;

(B) a plurality of second devices consisting of remote input/output (IOR) modules connected in series on said network, each of said plurality of IOR modules having a serial input for receiving a data packet from a preceding device on said network, said preceding device being either said transmitter module or one of said plurality of IOR modules, a serial output for sending a modified data packet to a succeeding device on said network, said succeeding device being either said receiver module or one of said plurality of IOR modules having a serial input for receiving a data packet from a preceding device on said network, said preceding device being either said transmitter module or one of said plurality of IOR modules, an input terminal for connecting an input device, and an output terminal for connecting an output device;

(C) wherein said CPU executes a program, said program for controlling a plurality of output devices connected to said plurality of IOR modules by generating a plurality of output bytes in sequence, each of said output bytes respective for each of said plurality of IOR modules, and by coupling said output bytes over said data bus to said transmitter module for inclusion in said data packet without unique addressing of said output bytes, and wherein said transmitter module precedes a first of said plurality of IOR modules connected in series on said network and sends said data packet to said first IOR module;

(D) wherein each of said plurality of IOR modules extracts its respective output byte from said received data packet, said output byte for controlling energization and deenergization of an output device coupled to said output terminal, modifies said data packet by inserting an input byte representing a status of an input device coupled to said input terminal into said data packet, and sends said modified data packet to said succeeding device connected in series on said network;

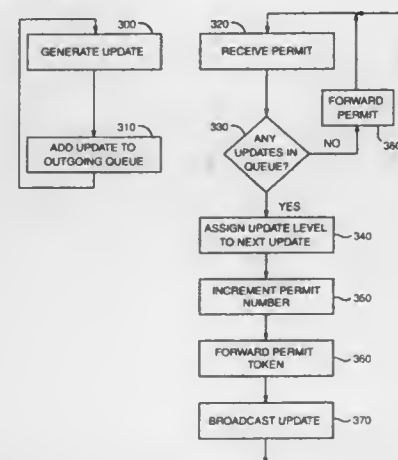
(E) wherein said receiver module succeeds a last of said plurality of IOR modules connected in series on said network, and said last IOR module sends said modified data packet to said receiver module, said modified data packet containing said input bytes representing the state of each input device connected to said plurality of IOR modules; and

(F) wherein said receiver module extracts each of said input bytes from said modified data packet and sends said input bytes representing said status of each input device connected to said plurality of IOR modules and sends said input bytes

over said data bus to said CPU for use in execution of said program for controlling said output devices.

5,802,322
METHOD AND APPARATUS FOR THE SERIALIZATION OF UPDATES IN A DATA CONFERENCING NETWORK
Peter David Niblett, Whitchurch, United Kingdom, assignor to International Business Machines Corp., Armonk, N.Y.
Filed Jun. 27, 1996, Ser. No. 672,203
Claims priority, application United Kingdom, Dec. 16, 1994, 94254293

Int. Cl. G06F 15/16
U.S. Cl. 395—200.81 7 Claims

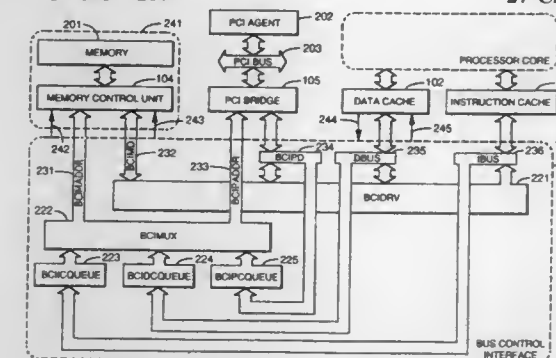


1. A method for serializing updates to shared data in a data conferencing network between a plurality of computer workstations each constituting a node with each node possessing a copy of said shared data, wherein update requests to the shared data originating from any one node are transmitted to and performed by all the other nodes in said network, said method comprising the steps of:

- defining a communication path that links all the nodes in a given sequence relative to one another;
- circulating a permit-token around said communication path, said permit-token having a permit number associated therewith, wherein there is a single permit number shared between all the nodes in the network;
- placing each update request originating at a node in a first queue at said node;
- receiving said permit-token at said node, assigning an update level to the update request in said first queue dependent on the current value of said permit number, and incrementing said permit number;
- forwarding the permit-token containing the incremented permit number to the next sequential node in said defined communication path;
- broadcasting the update request to which the update level was assigned to all the nodes in the network;
- receiving the update request at all the nodes in the network;
- placing the received update request at each receiving node in a second queue;
- maintaining a current update level value reflecting the update level of the last update request to be applied to the shared data set at that receiving node; and
- checking the update level of the update requests in the second queue against said current update level to determine whether the next update request to be applied is in the second queue, and if so, removing that update request from said second queue, updating the shared data in accordance with the update, and incrementing the value of the current update level.

5,802,323
TRANSPARENT BURST ACCESS TO DATA HAVING A PORTION RESIDING IN CACHE AND A PORTION RESIDING IN MEMORY
Norman Bujanos, Austin, Tex., and Joseph P. Geisler, West Lafayette, Ind., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 14, 1996, Ser. No. 663,968
Int. Cl. G06K 13/00
U.S. Cl. 395—287 27 Claims



1. In a computer system having a memory subsystem, a cache, and a bus agent, wherein the memory subsystem represents data associated with a plurality of addressable memory locations, wherein the cache represents cached data associated with certain of the addressable memory locations, and wherein the bus agent initiates access to a data block at least a portion of which is represented in the cache, a bus control interface comprising:

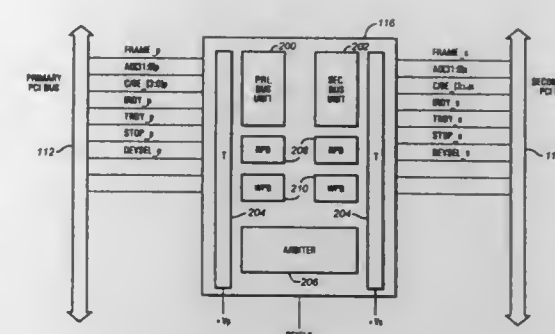
- a first address receiving port and a first data providing port respectively coupled to receive a first memory address from, and provide data to, the bus agent;
- a first address providing port and a first data receiving port each coupled to the cache;
- a second address providing port and a second data receiving port each coupled to the memory subsystem;
- memory transaction supplying logic coupled between the first address receiving port and the second address providing port; control logic coupled to the cache and to the memory subsystem, the control logic responsive to an intervention signal from the cache, wherein the control logic discontinues a burst memory access at the memory subsystem in response to an assertion of the intervention signal and continues the burst memory access at the memory subsystem in response to a deassertion of the intervention signal;
- bus driver logic responsive to the intervention signal, the bus driver logic selectively coupling the first data receiving port to the first data providing port in response to the assertion of the intervention signal and selectively coupling the second data receiving port to the first data providing port in response to the deassertion of the intervention signal.

5,802,324
COMPUTER SYSTEM WITH PCI REPEATER BETWEEN PRIMARY BUS AND SECOND BUS
Russell J. Wunderlich, and Khaldoun Alzien, both of Houston, Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Dec. 24, 1996, Ser. No. 773,037
Int. Cl. G06F 13/00
U.S. Cl. 395—281 24 Claims

1. A method of transparently decoding a transaction in a computer system, the computer system including a first bus coupled to a second bus by a first subtractive decode agent, the first bus having devices coupled thereto, the second bus having a second subtractive decode agent and devices coupled thereto, one of the devices being an initiator, the method comprising the steps of:

- (a) said initiator starting a transaction on the second bus to a target device;
- (b) echoing the transaction on the first bus;

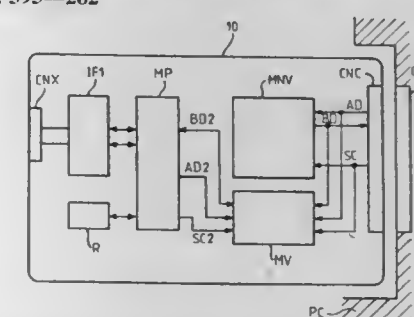


- (c) halting operation of the second bus while devices on the first bus decode the transaction and before the second subtractive decode agent subtractively decodes the transaction; and
- (d) continuing the transaction on said second bus.

5,802,325
MASS MEMORY CARD WITH INPUT/OUTPUT FUNCTION
Jean-Yves Le Roux, Bouc Bel Air, France, assignor to Gemplus Card International, France

PCT No. PCT/FR93/00705, § 371 Date Mar. 20, 1995, § 102(e) Date Mar. 20, 1995, PCT Pub. No. WO94/01822, PCT Pub. Date Jan. 20, 1994
PCT Filed Jul. 7, 1993, Ser. No. 373,241
Claims priority, application France, Jul. 9, 1992, 92 08554
Int. Cl. H01J 13/00

U.S. Cl. 395—282 21 Claims



- 9. A communication card designed to be plugged into a microcomputer, the communication card comprising: an internal microprocessor in communication with an external device;
- a non-volatile memory, the non-volatile memory being directly accessible by the microcomputer by way of a first address bus, a first data bus, and a first control bus on which the non-volatile memory and the microcomputer are commonly disposed, and the non-volatile memory storing executable programs and format data relating to organizational structure of files stored in the communication card;
- dual access volatile memory;
- the dual access volatile memory being directly accessible by the microcomputer by way of the first address bus, the first data bus, and the first control bus on which the dual access volatile memory is also commonly disposed with the non-volatile memory and the microcomputer, and
- the dual access volatile memory being directly accessible by the internal microprocessor by way of a second address bus, a second data bus, and a second control bus on which the dual access volatile memory and the internal microprocessor are commonly disposed;
- a first connector which connects the microcomputer to the first address bus, the first data bus, and the first control bus; and
- a communication device which permits the communication between the internal microprocessor and the external device.

5,802,326

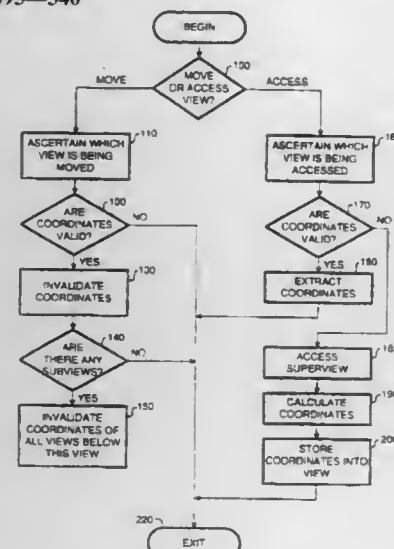
METHOD AND APPARATUS FOR EFFICIENTLY UPDATING COORDINATES OF HIERARCHICAL VIEWS
Thomas W. Becker, Cupertino, and Steven R. Friedrich, Placerville, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 5, 1995, Ser. No. 435,738

Int. Cl.⁶ G06F 3/14

U.S. Cl. 395—340

14 Claims



1. In a display system wherein a plurality of views are organized into a hierarchy, each view containing a set of linkage information specifying how the view is linked to other views in the hierarchy, a set of display information, and a set of global coordinates representing the position of the view in a common coordinate system for the display system, a method for efficiently managing the global coordinates in said views, comprising the steps of: determining whether one of said views is being moved; in response to a determination that one of said views is being moved, accessing the view being moved; determining whether the global coordinates stored in the view being moved are currently valid; in response to a determination that the global coordinates in the view being moved are currently valid, invalidating the global coordinates in the view being moved; maintaining, within the view being moved, an indication of the invalidity of the global coordinates; determining whether the view being moved has a subview below it in the hierarchy; in response to a determination that there is a subview below the view being moved, determining whether the global coordinates stored in the subview are currently valid; and in response to a determination that the global coordinates stored in the subview are currently valid, invalidating the global coordinates stored in the subview.

5,802,327

DEVICE FOR SCSI EXPANSION

Brian N. Hawley, Michael C. Saunders, both of Riverside, and Arthur R. Tolsma, Redlands, all of Calif., assignors to Lumindex Software Incorporated, Riverside, Calif.

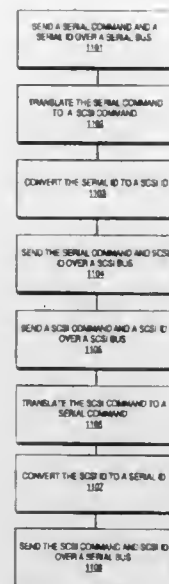
Filed Nov. 13, 1995, Ser. No. 558,961

Int. Cl.⁶ G06F 1/00

U.S. Cl. 395—281

15 Claims

1. A method for transmitting data over a Small Computer System Interface (SCSI) network, comprising: receiving a first address having a first SCSI identifier and a first logical unit number (LUN); receiving a first SCSI command for a first device at the first address;



converting the first address to a second address having a second SCSI identifier and a second LUN; translating the first SCSI command to a second SCSI command for a second device; and transmitting the second SCSI command to the second device at the second address.

5,802,328

APPARATUS FOR DETECTING CORRECT INSERTION OF A PC CARD IN AN INFORMATION PROCESSING SYSTEM

Yoshimasa Yoshimura, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

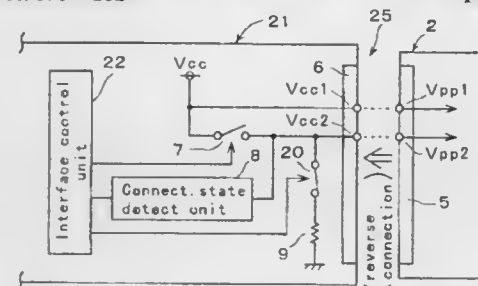
Filed Dec. 2, 1996, Ser. No. 759,000

Claims priority, application Japan, May 30, 1996, 8-136597

Int. Cl.⁶ G06F 13/00; H01R 9/09; 13/642; H05K 7/10

U.S. Cl. 395—282

14 Claims



1. A PC card system device comprising a PC card in conformity with the PCMCIA/JEIDA PC card standard and an information processing device to which said PC card is to be connected, further comprising:

a card connector means, provided in said PC card, for connecting said PC card to said information processing device; a device connector means, provided in said information processing device, in conformity with said PC card standard, for connecting said card connector means of said PC card; a connection state detecting means for detecting the connection state of said PC card according to the signal level of at least one contact of said device connector means; and an interface control means for controlling the signal transfer from said device connector means according to the determination of said connection state detecting means, said interface control means prohibiting any signal transfer from said device connector means if said connection state detecting means determines that said PC card is incorrectly connected to said information processing device.

5,802,329

DEVICENET ADDRESS VERIFICATION

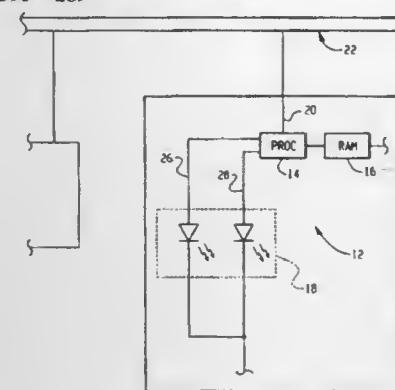
Pamela S. Combs, Horse Shoe, and Mark E. Innes, Asheville, both of N.C., assignors to Eaton Corporation, Cleveland, Ohio

Filed Aug. 3, 1995, Ser. No. 510,720

Int. Cl.⁶ G06F 13/40

U.S. Cl. 395—289

4 Claims



1. In an electronic display for visually indicating a unique identification number for a device interconnected by an electronic communication network to at least one other such device, said unique identification number corresponding to an address for said device on said communication network, said device including means for communicating electronically over said network, a method of providing a visual indication of said unique number comprising the following steps:

providing a bi-color light emitting diode (LED) externally on said device;

electrically coupling a nonvolatile random access memory (RAM) to said LED;

storing said unique identification number in said RAM; and electrically coupling a microprocessor to said LED and to said RAM, said microprocessor being programmed to illuminate said LED, said microprocessor:

illuminating a first color of said LED a number of flashes equal to the digit in the tens place of said unique identification number;

turning off said LED for a predetermined time period; and illuminating a second color of said LED a number of flashes equal to the digit in the ones place of said unique identification number.

5,802,330

COMPUTER SYSTEM INCLUDING A PLURALITY OF REAL TIME PERIPHERAL DEVICES HAVING ARBITRATION CONTROL FEEDBACK MECHANISMS
Drew J. Dutton, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

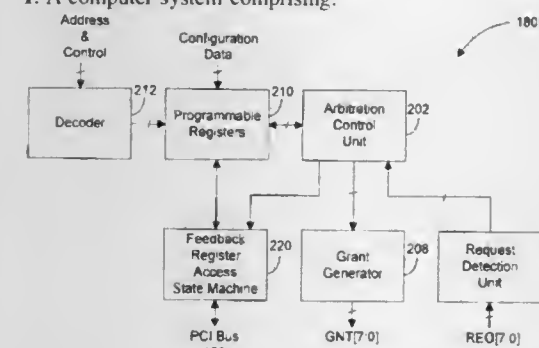
Filed May 1, 1996, Ser. No. 644,405

Int. Cl.⁶ G06F 13/18

U.S. Cl. 395—296

23 Claims

1. A computer system comprising:



a first master coupled to a bus; a bus arbiter coupled to said bus for controlling and prioritizing ownership of said bus and including an arbitration control unit configured to adjust a level of arbitration priority given to said first master depending upon a feedback signal generated by said first master following a bus transaction effectuated by said first master; wherein said feedback signal is indicative of an average performance associated with a pre-determined number of previous transactions of said first master.

5,802,331

DATA PROCESSING SYSTEM COMPRISING AN ASYNCHRONOUSLY CONTROLLED PIPELINE
Cornelis H. Van Berkel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

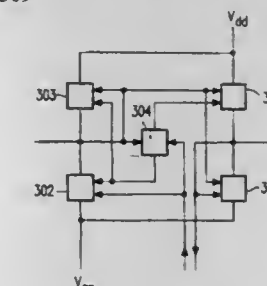
Filed Aug. 23, 1996, Ser. No. 702,305

Claims priority, application European Pat. Off., Aug. 23, 1995, 95202279

Int. Cl.⁶ G06F 13/42; 13/14

U.S. Cl. 395—309

20 Claims



1. A data processing system which comprises a pipeline of successive stages, each of which capable of being switched between a data hold mode and a data transparent mode, which stages are coupled in cascade by couplings for the transmission of data and handshakes through the pipeline, in which each handshake comprises a request signal and an acknowledge signal, in which each successive stage returns, if or as soon as it is in the data transparent mode, an acknowledge signal after reception of a request signal and passes on the request signal through the pipeline, and in which each stage is switched to the data hold mode upon passing on of the request signal and is switched to the data transparent mode upon reception of the returned acknowledge signal, such that synchronization circuits are arranged to exchange the request signal and the acknowledge signal on at least one of the couplings as mutually opposed transitions in a level of a potential on one and the same conductor.

5,802,332

SINGLE-CHIP MICROCOMPUTER AND ELECTRONIC DEVICE USING THE SAME

Hideaki Yokouchi, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Sep. 4, 1996, Ser. No. 706,233

Claims priority, application Japan, Sep. 6, 1995, 7-229537; Aug. 19, 1996, 8-235894

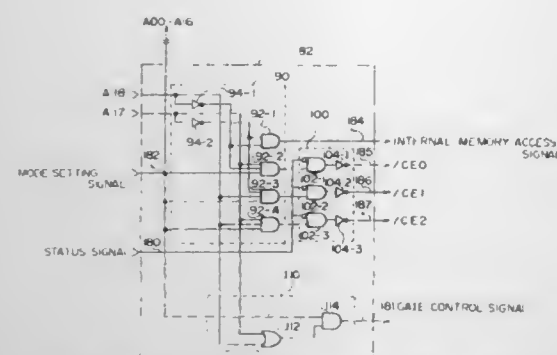
Int. Cl.⁶ G06F 13/40; 9/40

U.S. Cl. 395—311

13 Claims

1. A single-chip microcomputer to which is connected a plurality of externally connected devices any one of which is able to be selected by a chip select signal to execute program instructions, comprising:

a chip select signal output terminal which makes active and outputs a chip select signal selecting one of said plurality of externally connected devices, wherein said plurality of externally connected devices are a plurality of external memory devices;



standby state setting means for outputting a standby state setting signal to temporarily halt the execution of said program instructions;

control means for changing said active chip select signal to be inactive based on said standby state setting signal from said standby state setting means, while the execution of said program instructions is halted temporarily;

a memory address signal output terminal outputting a memory address signal supplied to one of said plurality of external memory devices selected by said chip select signal; and

an input and output terminal inputting and outputting a memory data signal to said one of said external memory devices according to said memory address signal from said memory address signal output terminal.

5,802,333

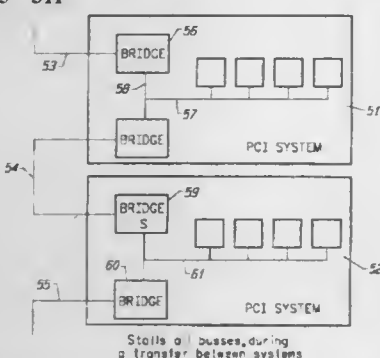
NETWORK INTER-PRODUCT STACKING MECHANISM IN WHICH STACKED PRODUCTS APPEAR TO THE NETWORK AS A SINGLE DEVICE

Bruce W. Melvin, Roseville, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 22, 1997, Ser. No. 785,940
Int. Cl.⁶ G06F 13/00; 13/38

U.S. Cl. 395—311

41 Claims



1. An apparatus for high speed interconnection of devices on an electronic network, comprising:

a plurality of switches, wherein each switch incorporates two bridges;

an interconnect bus for interconnecting each switch via a first of said bridges; and

a local bus associated with each switch, wherein said local bus is isolated from said interconnect bus via a second of said bridges;

wherein said switches are interconnected as a stack of switches that appear to said network as one switch without impeding the transmission of information between individual switches within said stack.

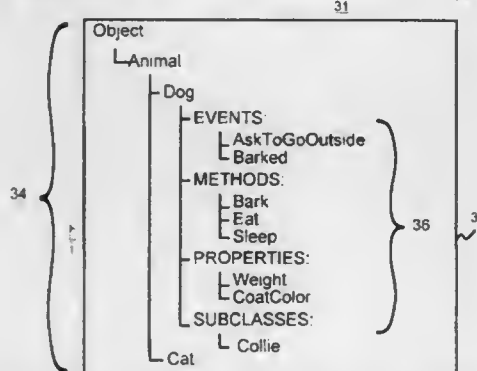
5,802,334 METHOD FOR DISPLAYING OBJECT ORIENTED CLASS INFORMATION AND CONTENT INFORMATION

Stewart Earle Nickolas, and Bruce Alan Tate, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 5, 1996, Ser. No. 583,348
Int. Cl.⁶ G06F 3/14

U.S. Cl. 395—357

14 Claims



1. A method for displaying object oriented class information and content information, wherein a user interacts with an object oriented system on a computer display, the method comprising the steps of:

(a) combining a class browser and a content browser into a hybrid browser, the class browser displaying class information and the content browser displaying content information;

(b) organizing the class information and the content information into a single outline control; and

(c) allowing the user to switch between a display of the class information only, and a display of both the class information and the content information, wherein the single outline control reduces the amount of display space used.

5,802,335

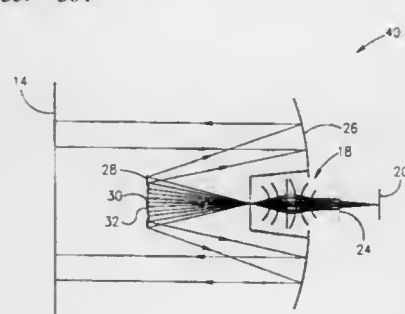
CATADIOPTRIC OPTICS FOR STARING ARRAY DETECTOR SYSTEM

Doron Sturlesi, Timrat, and Shimon Peled, Kiryat Bialik, both of Israel, assignors to State of Israel-Ministry of Defence, Rafael-Armament Development Authority

Filed Mar. 21, 1996, Ser. No. 620,070
Claims priority, application Israel, Apr. 12, 1995, 113350
Int. Cl.⁶ G02B 17/00; 21/00; 23/00; 5/08

U.S. Cl. 359—364

2 Claims



1. A FLIR staring array detector system for imaging an object scene, the system comprising:

(a) catadioptric optics for providing a full format image of the object scene, said catadioptric optics including reflective objective optics for providing an intermediate image of the object scene, refractive relay optics for providing said full format image, a cold shield with a cold shield opening and a cold shield efficiency, and a cold focal plane, said reflective objective optics including an annular primary mirror and an annular secondary mirror with a central inactive area, said

central inactive area including a reflective concave front surface with a radius of curvature substantially equal to the distance between said intermediate image and said central inactive area, such that said staring detector detects a reflection of said cold focal plane; and

(b) a staring detector for receiving said full format image, the system characterized by having the cold shield efficiency approaching unity.

5,802,336

MICROPROCESSOR CAPABLE OF UNPACKING PACKED DATA

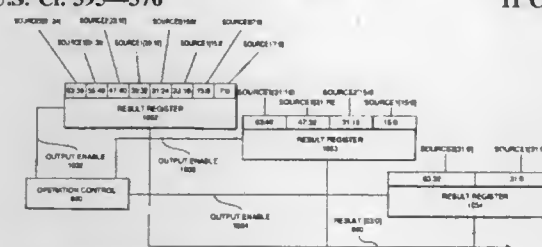
Alexander Peleg; Yaakov Yaari, both of Haifa, Israel; Millind Mittal, South San Francisco; Larry M. Menemeier, Boulder Creek, both of Calif., and Benny Eitan, Haifa, Israel, assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 349,047, Dec. 2, 1994, abandoned.
This application Jan. 27, 1997, Ser. No. 791,003

Int. Cl.⁶ G06F 9/30

U.S. Cl. 395—376

11 Claims



1. A processor comprising:

a storage area to store a first packed data and a second packed data respectively including a first plurality of data elements and a second plurality of data elements, wherein each data element in said first plurality of data elements corresponds to a different data element in said second plurality of data elements, in a respective position;

a decoder to decode an unpack instruction; and

a circuit, coupled to said storage area and said decoder, said circuit simultaneously copies less than all data elements from said first plurality of data elements and corresponding data elements from the second plurality of data elements into said storage area as a third plurality of separate data elements in a third packed data in response to the unpack instruction.

5,802,337

METHOD AND APPARATUS FOR EXECUTING LOAD INSTRUCTIONS SPECULATIVELY

Kent G. Fielden, Sunnyvale, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 580,749, Dec. 29, 1995, abandoned.
This application Jul. 9, 1997, Ser. No. 890,182

Int. Cl.⁶ G06F 9/312

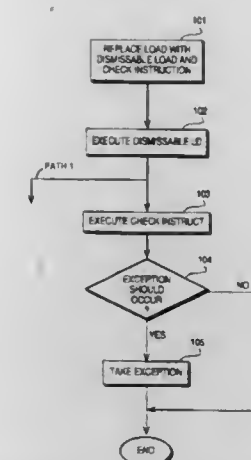
U.S. Cl. 395—392

14 Claims

1. A method for speculatively executing a load having an original position in a series of executable instructions and having a load address, said method comprising the steps of:

converting the load instruction into a dismissible load instruction;

moving the dismissible load instruction to a location prior to the original position of the load in the series of executable instructions;



placing a check instruction at the original position of the load wherein the check instruction includes the load address of the load;

executing the dismissible load instruction;

executing the check instruction to determine whether to take an exception for the dismissible load instruction.

5,802,338

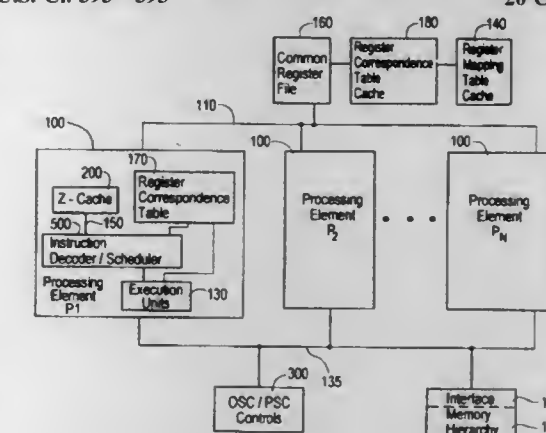
METHOD OF SELF-PARALLELIZING AND SELF-PARALLELIZING MULTIPROCESSOR USING THE METHOD

Rudolph Nathan Rechtschaffen, Scarsdale, and Kattamuri Ekanadham, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 1, 1996, Ser. No. 724,633
Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—393

20 Claims



1. A computer processing apparatus comprising:

a memory for storing sequences of instructions;

a plurality of execution units; and

parallel instruction generation means for generating an alternate encoding of a first sequence of said sequences of instructions stored in said memory concurrent with execution of said first sequence of said sequences of instructions stored in said memory, wherein said alternate encoding is executable in parallel asynchronously by said plurality of execution units, and wherein said plurality of execution units interface through a common register file.

5,802,339

PIPELINE THROUGHPUT VIA PARALLEL OUT-OF-ORDER EXECUTION OF ADDS AND MOVES IN A SUPPLEMENTAL INTEGER EXECUTION UNIT

Elliot A. Sowadsky, Santa Clara; Larry Widigen, Salinas; David L. Puziol, Sunnyvale, and Korbin S. Van Dyke, Fremont, all of Calif., assignors to Advanced Micro Devices, Sunnyvale, Calif.

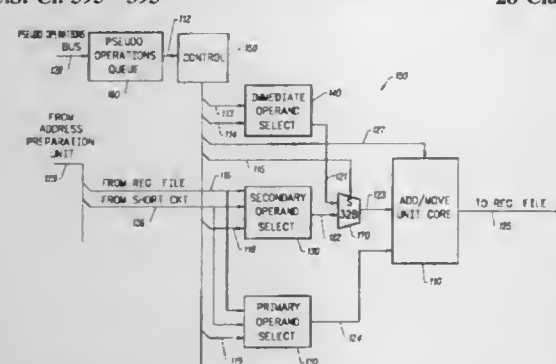
Division of Ser. No. 340,183, Nov. 15, 1994. This application

Feb. 14, 1997, Ser. No. 801,709

Int. Cl.⁶ G06F 9/30; 9/38

U.S. Cl. 395—393

28 Claims



1. A digital processor comprising:

an operations bus;

a decoder for issuing an operation onto the operations bus;

an integer execution unit coupled to receive the operation from the operations bus, wherein the integer execution unit executes integer operations based upon the operation;

an address preparation unit coupled to receive the operation from the operations bus, wherein the address preparation unit calculates linear and physical addresses according to the operation based upon the operation; and

an add/move unit coupled to receive the operation from the operations bus, and coupled to directly access a register in the address preparation unit without passing through the operations bus, wherein the add/move unit, operates in parallel, and out-of-order, with the integer execution unit.

5,802,340

METHOD AND SYSTEM OF EXECUTING SPECULATIVE STORE INSTRUCTIONS IN A PARALLEL PROCESSING COMPUTER SYSTEM

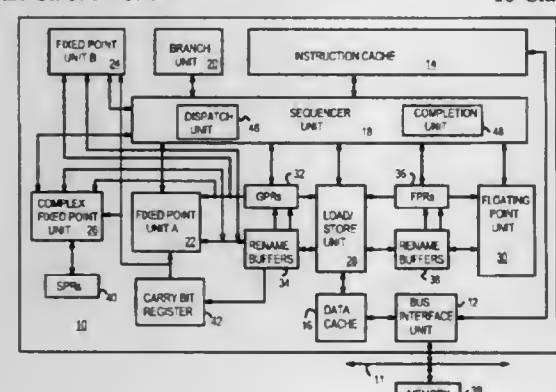
Soumya Mallick, and Rajesh B. Patel, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 22, 1995, Ser. No. 518,000

Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—394

10 Claims



1. A method for speculatively performing store instructions in a parallel processing computer system, the computer system including a completion buffer unit, the method comprising:

comparing a plurality of statuses between a first store instruction and at least one second instruction in a completion buffer unit, the statuses further comprising a plurality of status bit fields in a table of bit fields, the plurality of status bit fields including at least one general purpose register (GPR) status bit field, a speculative status field, and an exception field, the at least one second instruction scheduled for completion before the first store instruction and being capable of being other than a second store instruction; and

speculatively completing the first store instruction before the at least one second instruction when the plurality of statuses of the first store instruction do not conflict with the plurality of statuses of the at least one second instruction.

5,802,341

METHOD FOR THE DYNAMIC ALLOCATION OF PAGE SIZES IN VIRTUAL MEMORY

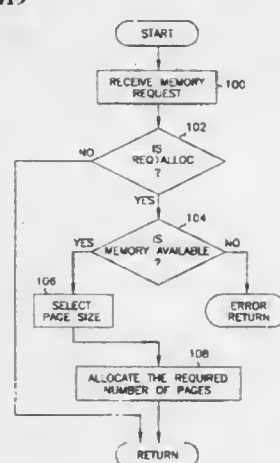
J. Bradley Kline, Little Canada; David Wagner, Apple Valley, both of Minn., and Ahmed K. Ezzat, Cupertino, Calif., assignors to Cray Research, Inc., Eagan, Minn.

Filed Dec. 13, 1993, Ser. No. 166,451

Int. Cl.⁶ G06F 12/10

U.S. Cl. 395—419

15 Claims



1. In a virtual memory system having a plurality of page sizes, including a first and a second page size, wherein the first page size is smaller than the second page size, a method of allocating memory comprising the steps of:

establishing a first threshold memory size, wherein the first threshold memory size is greater than the first page size but less than the second page size;

receiving a memory allocation request for a first block of memory, wherein the memory allocation request includes a requested memory size;

comparing the requested memory size to the first threshold memory size;

if the requested memory size is less than the first threshold

memory size, allocating at least one first page size page; and

if the requested memory size is greater than the first threshold memory size, allocating at least one larger page size page.

5,802,342

IMAGE CREATING DEVICE LOADABLE WITH EXTERNAL MEMORY MEDIUM CAPABLE OF STORING AN IMAGE CREATING PROGRAM AND CREATED IMAGE DATA

Masaki Yoneoka; Toshitaka Izumida; Norio Kawamoto; Takuji Kaneko; Takako Ohmichi, and Hiromichi Okazaki, all of Kobe, Japan, assignors to Konami Co., Ltd., Hyogo-ken, Japan

Continuation of Ser. No. 131,804, Oct. 5, 1993, abandoned.

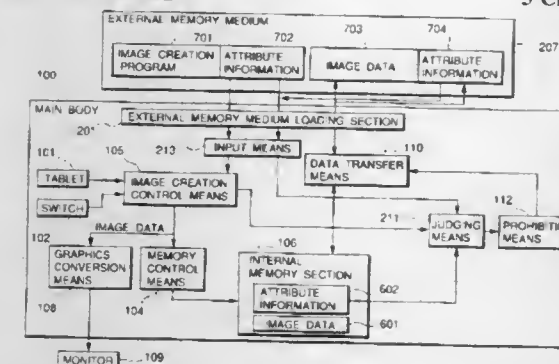
This application May 30, 1995, Ser. No. 453,311

Claims priority, application Japan, Oct. 13, 1992, 4-274407; Sep. 6, 1993, 5-221336

Int. Cl.⁶ G06F 12/14

U.S. Cl. 395—442

5 Claims



1. An image creating device capable of being selectively loaded with one of a plurality of external program memory mediums, each storing a different image creation program, and one of a plurality of external image data memory mediums, each external image data memory medium being able to store a plurality of image data created in accordance with different image creation programs, the image creating device comprising:

an image data transfer device connected between an internal memory medium and the loaded external image data memory medium for transferring one of the plurality of said image data from said loaded external image data memory medium to an internal memory medium of the image creating device, the internal memory medium storing the transferred image data;

an image creation portion connected with said loaded external program memory medium and said internal memory medium, for reading the image creation program from said loaded external program memory medium and for reading the stored image data from the internal memory medium, and for changing the read image data to create a new image data in accordance with the loaded image creation program, on the basis of instructions from an operator;

an image data transfer controller connected with said loaded external image data memory medium and said image creation portion, for determining whether said one of the plurality of image data stored in said loaded external image data memory medium has been created in accordance with an image creation program which is the same as the loaded image creation program when transferring said one of the plurality of said image data from said loaded external image data memory medium to the internal memory medium, and for prohibiting the transfer of said one of the plurality of said image data from said loaded external image data memory medium to the internal memory medium if the said one of said plurality of said image data has not been created in accordance with an image creation program which is the same as the loaded image creation program;

each image creation program having attribute information indicative of an identification of the image creation program and each image data having attribute information indicative of the image creation program which the image data has been created in accordance with, and the image data transfer controller includes:

a judging portion connected with said image creation portion and said loaded external image data memory medium, and operable to determine, based on the attribute information of

5,802,343

METHOD OF PRIORITIZING SUBSEQUENTLY RECEIVED PROGRAM AND ERASE COMMANDS DURING A BLOCK OPERATION FOR A NONVOLATILE SEMICONDUCTOR MEMORY

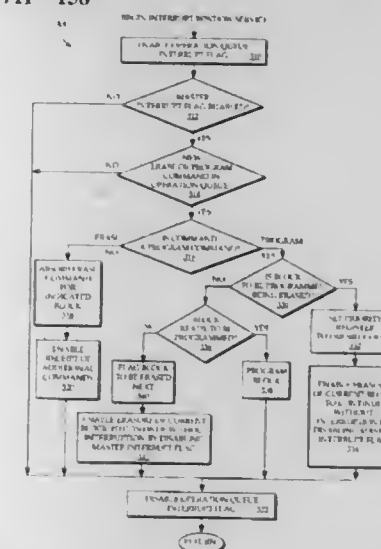
Mickey Lee Fandrich, Placerville; Richard Joseph Durante, Citrus Heights; Geoffrey Alan Gould, El Dorado Hills, and Timothy Wade Goodell, Elk Grove, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Division of Ser. No. 143,293, Oct. 26, 1993. This application Oct. 16, 1995, Ser. No. 543,320

Int. Cl.⁶ G06F 12/00; 9/46; G11C 16/02

U.S. Cl. 711—158

17 Claims



5,802,344

METHOD AND APPARATUS FOR DYNAMIC SEGMENT ALLOCATION IN LOG STRUCTURE ARRAYS

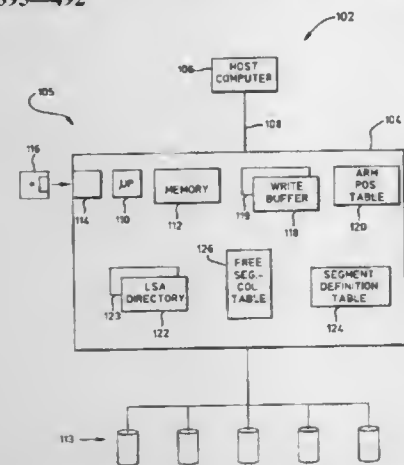
Jaishankar Moothedath Menon, San Jose, and Richard Lewis Mattson, Pacific Grove, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 3, 1995, Ser. No. 552,681

Int. Cl.⁶ G06F 12/00

U.S. Cl. 395—492

45 Claims



1. An array controller that records data into segments of storage locations in a plurality of disk drive storage devices organized as a log structured array having segment-columns, each storage device having one or more disk platters, the array controller comprising: a write buffer in which data received from a host computer for recording into the storage locations of the disk drive storage devices is temporarily stored; a log structured array (LSA) directory containing disk locations that define segments of the disk drive storage devices comprising log structured array segments; a segment definition table that contains a storage device location definition for each segment of the LSA directory; and a control processor that dynamically modifies the segment definition table so as to define a new segment into which data is recorded by selecting sufficient segment-columns independently from each disk drive storage device of the array to define a new segment, and maintains the segment definition table accordingly.

5,802,345

COMPUTER SYSTEM WITH A REDUCED NUMBER OF COMMAND END INTERRUPTS FROM AUXILIARY MEMORY UNIT AND METHOD OF REDUCING THE NUMBER OF COMMAND END INTERRUPTS

Naoto Matsunami, Matsuba Heights A-202, Nakada-cho 643-1, Izumi-ku, Yokohama-shi, Kanagawa-ken, Japan; Masayuki Kan, 20350 Stevens Creek Blvd., Apt. #501, Cupertino, Calif. 95014; Yasunori Kaneda, Hitachi, Seciria Nagatadai 320, Nagatadai 9-3, Minami-ku, Yokohama-shi, Kanagawa-ken, Japan; Ikuya Yagisawa, Hitachi Fujimi-ryo 508, Yoshida-cho 1545, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan; Takashi Oeda, Dai 2 Yoshihara Heights 15, Shimokurata-cho 1223, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan, and Hiroshi Arakawa, Hatachi Keimei-ryo 258, Maioka-cho 850, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan

Filed Mar. 28, 1995, Ser. No. 411,991

Claims priority, application Japan, Mar. 28, 1994, 6-057197

Int. Cl.⁶ G06F 13/00; 13/12

U.S. Cl. 395—500

51 Claims

1. A computer system comprising: a host machine having a memory and a CPU which includes interrupt handling feature; an auxiliary memory unit for recording and reproducing data; and

an input/output unit for permitting data input and output between said host machine and said auxiliary memory unit; said CPU of said host machine includes: means for generating a plurality of commands for designating access to said auxiliary memory unit, and relation means, responsive to at least one command, for grouping a plurality of said commands according to type for designating access to said auxiliary memory unit, into at least one group and for supplying said input/output unit with said commands independently of one another; said input/output unit includes: access execution means for executing access to said auxiliary memory unit as designated by each of the commands of one group of said at least one group supplied independently of one another by said CPU, and notification means for notifying said CPU by a single interruption that execution of the commands of said one group has been terminated when the accesses designated by all commands belonging to said one group are found to have been terminated.

5,802,346

METHOD AND SYSTEM FOR MINIMIZING THE DELAY IN EXECUTING BRANCH-ON-REGISTER INSTRUCTIONS

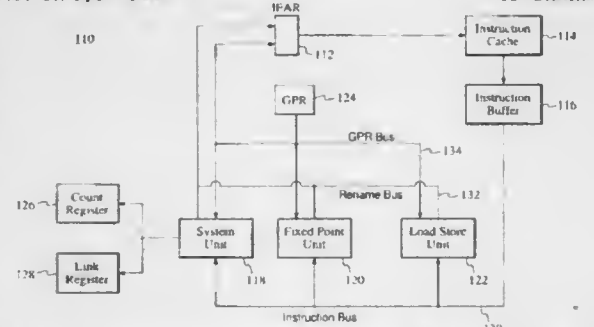
Robert Thaddeus Golla, and Christopher Hans Olson, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 2, 1995, Ser. No. 457,714

Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—500

13 Claims



9. A method for minimizing the delay associated with executing a register dependent instruction sequence in a processor that has sequential processor cycles, wherein the register dependent instruction includes a target operand that is provided as a result of a preceding instruction, the method including the steps of:

- connecting an instruction fetch register to a functional unit and to a general register with a first bus;
- connecting the instruction fetch register to the functional unit with a second bus;
- dispatching the preceding instruction;
- if either the first bus or the second bus contains the target operand for the preceding instruction,
 - reading the target operand into the instruction fetch register from the corresponding bus during a first cycle, and
 - fetching the target operand during a second cycle,
- if either the first bus or the second bus does not contain the target operand for the preceding instruction,
 - waiting until the target operand is placed on the second bus, wherein the target operand is placed on the second bus during cycle N-1, and reading the target operand into the instruction fetch register from the second bus during cycle N-1, and
 - fetching the target operand during cycle N; and
- executing the preceding instruction in a cycle that occurs after reading the operand into the instruction fetch register.

5,802,347

EMULATOR WITH FUNCTION FOR DETECTING ILLEGAL ACCESS TO SPECIAL FUNCTION REGISTER

Masahiro Yabumoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

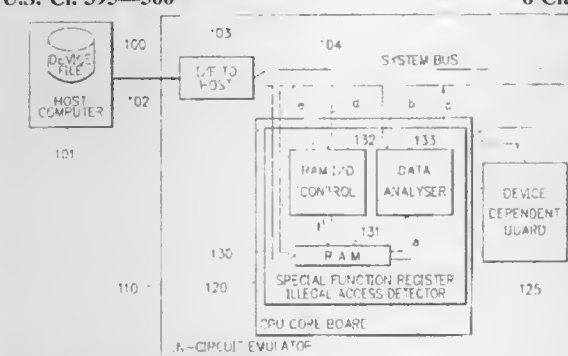
Filed Sep. 12, 1995, Ser. No. 527,201

Claims priority, application Japan, Sep. 12, 1994, 6-216919

Int. Cl.⁶ G06F 9/455

U.S. Cl. 395—500

6 Claims



1. An emulator comprising: a CPU core board means for emulating a core section of a central processing unit of a microcomputer; a device dependent board means for emulating a peripheral device of the central processing unit; and an interface means for interfacing the CPU core board means and the device dependent board means with the microcomputer; wherein the interface means transfers necessary data including address information and comparison information, for detecting an illegal access to a special function register by an object device which is subject to emulation by at least one of said CPU board means and said device dependent board means, said interface means transferring the necessary data from the microcomputer to the CPU core board means; and wherein the CPU core board means comprises a special function register illegal access detector means for storing therein the address information of the necessary data transferred from the microcomputer, for processing the address information and comparison information to determine whether access by the object device is legal or not, and for outputting a signal indicative of the legality of the access of the object device via the interface means to the microcomputer, wherein the special function register illegal access detector means comprises:

5,802,348

LOGIC ANALYSIS SYSTEM FOR LOGIC EMULATION SYSTEMS

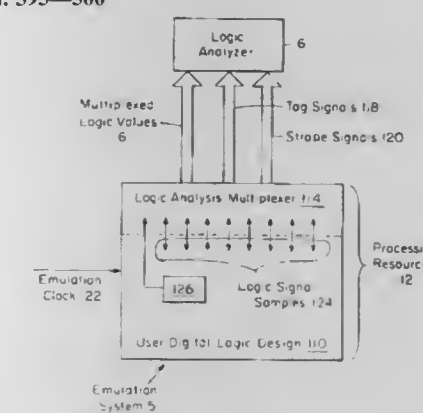
Kem Stewart, Lexington; Charles W. Selvidge, Charlestown; Kenneth Crouch, Cambridge; Marina Wong, Wilmington, and Mark Seneski, Jamaica Plain, all of Mass., assignors to Virtual Machine Works, Inc., Cambridge, Mass.

Filed Dec. 18, 1995, Ser. No. 574,259

Int. Cl.⁶ G06F 11/25

U.S. Cl. 395—500

5 Claims



1. A logic analysis system for a digital logic emulation system configured to model a digital system and operating in response to at least one emulation clock signal, the logic analysis system comprising:

- a clock signal generator for generating a multiplexing clock signal; and
- a multiplexing subsystem for transmitting logic values of logic signals from the digital logic emulation system to a logic analyzer, the multiplexing subsystem multiplexing multiple logic values on channels of the logic analyzer for cycles of the emulation clock in response to the multiplexing clock signal, the multiplexing subsystem comprising: a plurality of multiplexing circuits, each multiplexor circuit for sampling multiple logic values within a cycle of the emulation clock and then transmitting the logic values on a single channel of the logic analyzer, and a controller for controlling the multiplexing circuits to sample the logic signals to obtain the logic values and to transmit the logic values.

5,802,349

METHOD FOR GENERATING AN OPTIMIZED INTEGRATED CIRCUIT CELL LIBRARY

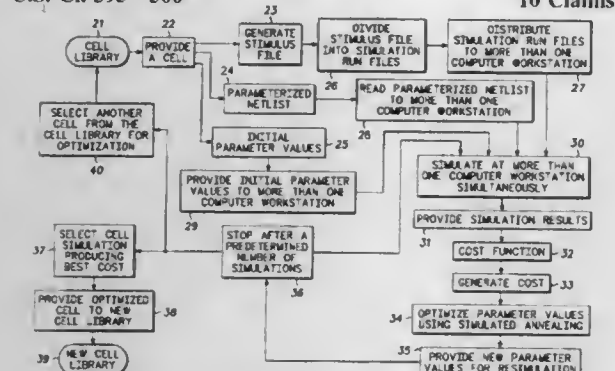
Dana M. Rigg, Chandler; Sleiman Chamoun, Phoenix; James H. Tolar, II, Mesa; Mark Chase, Peoria, and Supamas Siri-chotiyakul, Tempe, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 22, 1996, Ser. No. 589,240

Int. Cl.⁶ G06F 9/455; 17/50

U.S. Cl. 395—500

10 Claims



1. A method for generating an integrated circuit cell library optimized for specific operating characteristics, the method comprising the steps of:

- providing a cost function;
- using simulated annealing to generate parameter values for simulation of a cell of the integrated circuit cell library;
- simulating said cell in parallel with more than one computer work station wherein said more than one computer work station simultaneously runs a transistor level simulation of said cell; wherein said simulating step comprises the steps of: generating a parameterized netlist of said cell; and reading said parameterized netlist to said more than one computer work station;
- providing simulation results from said more than one computer work station to said cost function;
- calculating a cost which corresponds to a quality of said cell relative to the specific operating characteristics;
- providing said cost for a simulated annealing process to generate new parameter values for simulation;
- resimulating said cell with said new parameter values;
- providing simulation results from simulations with said new parameter values to said cost function; and
- calculating a cost from said simulation results with said new parameter values.

5,802,350

SYSTEM AND METHOD FOR SELECTING AN INTERRUPT SYSTEM BASED UPON THE OPERATING SYSTEM OF A MULTIPROCESSOR SYSTEM

Keenan Wynn Franz, Austin; John David Purcell, Pflugerville, both of Tex., and Kevin E. Reick, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

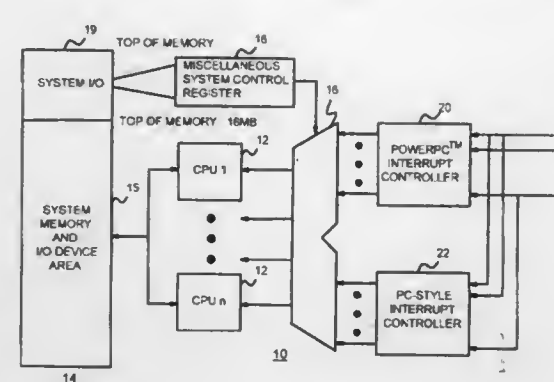
Filed Jan. 18, 1996, Ser. No. 591,245

Int. Cl.⁶ G06F 9/46

U.S. Cl. 395—500

15 Claims

1. A system for allowing different operating systems to be utilized in a multiprocessing system, each of the different types of operating systems requiring different types of interrupt controllers, the system comprising:



means for detecting which of the different operating systems is utilized within the multiprocessing system; and means responsive to the detecting means for selecting the appropriate interrupt controller from the different types of interrupt controllers.

5,802,351

DATA INTERFACE

Simon Frampton, Surrey, England, assignor to Nokia Mobile Phones Limited, Salo, Finland

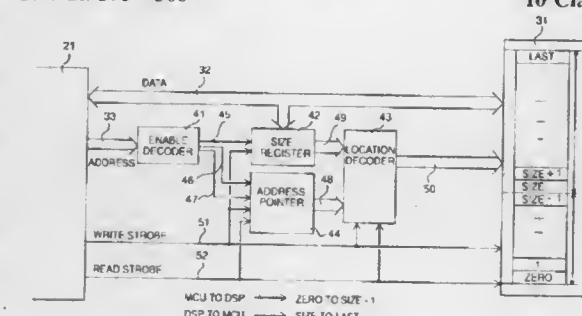
Filed Feb. 5, 1996, Ser. No. 596,720

Claims priority, application United Kingdom, Feb. 14, 1995, 9502823

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—500

10 Claims



1. A data buffer positionable between a first processing means and a second processing means, comprising: storage means arranged to buffer data signals generated by each of said processing means for reception by the other of said processing means, and programmable storage allocation means arranged to adjust an amount of storage provided by said storage means for buffering data signals generated by each of said processing means; wherein said programmable storage allocation means is comprised of address generating means for generating addressing signals for the writing of data to said storage means or the reading of data from said storage means; and wherein said address signal generating means is arranged to generate addressing signals initiated from a predetermined value, said address signal generating means further including decoding means for selectively applying an offset to said addressing signals, depending upon whether a writing operation or a reading operation is being performed.

5,802,352

METHOD FOR SEPARATING DATA RETRIEVAL AND PRESENTATION IN AN OBJECT-ORIENTED REPORTING SYSTEM

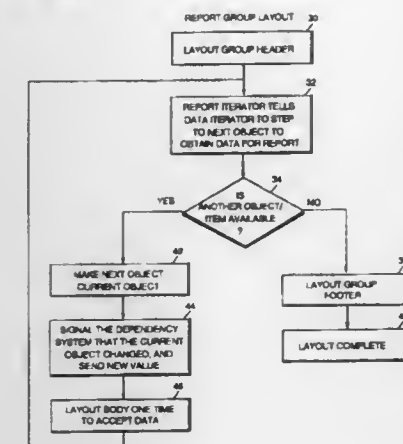
Jenny Ming Chow; Susan Franklin Griffin; Martin Paul Nally, all of Raleigh, and Lawrence Scott Rich, Apex, all of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Mar. 18, 1996, Ser. No. 619,948

Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—500

13 Claims



1. A method of generating a report in an object-oriented software environment, comprising the steps of: laying out a report iterator including a report group header, a report group body having at least one report field, and a report group footer; enabling communication between said report iterator and a data iterator; creating a dependency between contents of said at least one report field and an attribute of a current object; stepping sequentially through a plurality of objects including said current object as a result of said communication; signalling a dependency system that said current object of said plurality of objects has changed; and sending a new value each time said current object has changed to a report field of said report group body.

5,802,353

HAPTIC COMPUTER MODELING SYSTEM

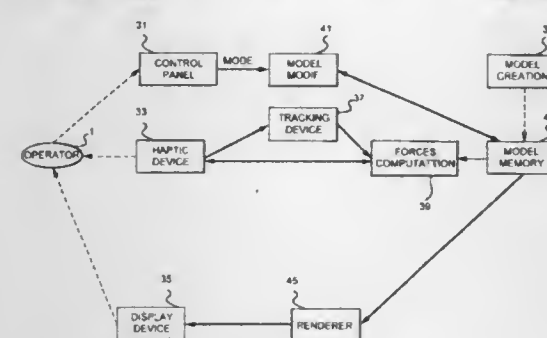
Ricardo Scott Avila, and Lisa Marie Sobierajski, both of Niskayuna, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 12, 1996, Ser. No. 662,544

Int. Cl.⁶ G06F 9/455; 19/00

U.S. Cl. 395—500

10 Claims



1. A haptic computer modeling system comprising:

- a movable haptic input/output ("I/O") device capable of providing force feedback to an operator;
- tracking device coupled to the haptic I/O device for tracking the position of at least one point on the haptic I/O device;

- a model memory for storing information defining structure and properties of a computer model;
- a force computation device coupled to the tracking device model memory and haptic I/O device capable of reading the location of the haptic I/O device and the computer model and for computing a feedback force based upon the location of the haptic I/O device relative to portions of the computer model and causing the haptic I/O device to provide the feedback force to the operator; and
- a control panel for providing an operator/selected mode; and
- a model modification device coupled to the control panel, the model memory and the tracking device for modifying parameters of the computer model at the location of the I/O device according to the mode received from the control panel.

5,802,354

METHOD AND APPARATUS FOR SYNCHRONIZING SELECTED LOGICAL PARTITIONS OF A PARTITIONED INFORMATION HANDLING SYSTEM TO A TEST DATESOURCE

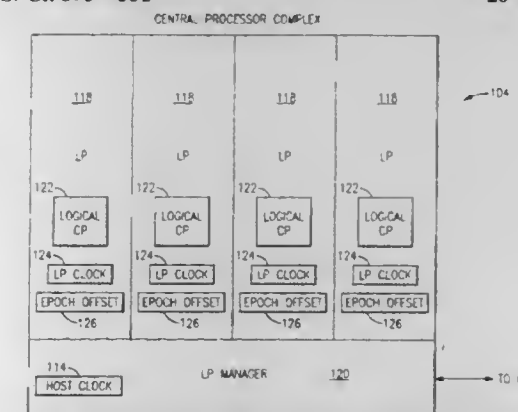
Jeffrey P. Kubala, Poughquag; Thomas B. Mathias, Vestal; Ira G. Siegel, New Paltz, and David E. Whitney, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 9, 1997, Ser. No. 871,429

Int. Cl.⁶ G06F 1/12

U.S. Cl. 395—551

20 Claims



1. In an information handling system in which a single physical machine is divided into a plurality of logical partitions, each of which functions as a logical machine having access to specified resources of said physical machine, each of said logical partitions having a clock capable of being synchronized to an external time reference, a method of synchronizing selected ones of said logical partitions to a test clock value, comprising the steps of: specifying a production clock value and a test clock value; specifying a first subset of said logical partitions constituting production partitions; specifying a second subset of said logical partitions constituting test partitions; synchronizing said production partitions to said production clock value; and synchronizing said test partitions to said test clock value.

5,802,355

MULTI-PROCESSOR SYSTEM USING PROCESSORS OF DIFFERENT SPEEDS

Ronald Xavier Arroyo, and Khuong Huu Pham, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

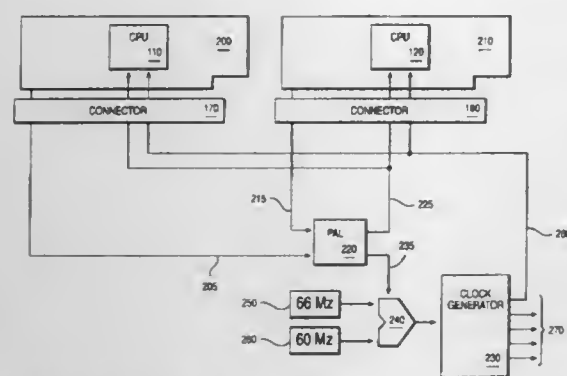
Filed Dec. 10, 1996, Ser. No. 762,907

Int. Cl.⁶ G06F 15/16; 1/04

U.S. Cl. 395—553

18 Claims

1. An apparatus for allowing processors of different maximum speeds to be used in a multi-processor system comprising:



means for detecting each processor's maximum speed; and means, responsive to said detecting means, for selecting the lowest maximum speed of said processors as operating speed of said multi-processor system.

5,802,356

CONFIGURABLE DRIVE CLOCK

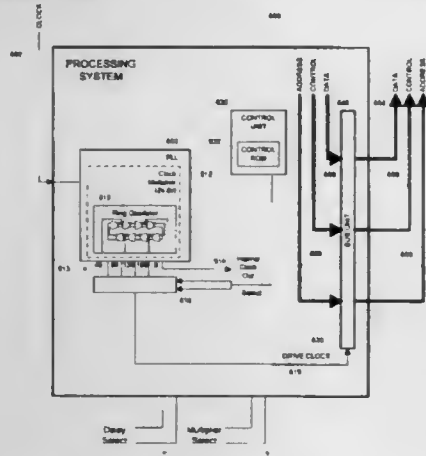
Darius Gaskins, and James R. Lundberg, both of Austin, Tex., assignors to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Nov. 13, 1996, Ser. No. 748,567

Int. Cl.⁶ G06F 1/10

U.S. Cl. 395—555

35 Claims



1. A computer processing system, the processing system communicating with devices external to the processing system, the processing system comprising:

- an external clock signal, for establishing a time reference for said processing system, and for the devices external to said processing system;
- a clock multiplier, connected to said external clock signal, for generating an internal clock signal which is a multiple of said external clock signal;
- an internal bus, for transmitting information within said processing system;
- an external bus, for transmitting said information to the devices external to said processing system;
- a bus unit, connected to said internal bus, and to said external bus, for transmitting said information between said internal bus and said external bus; and
- a configurable clock adjust system, connected to said clock multiplier, and to said bus unit, for providing a drive clock signal to said bus unit, said drive clock signal providing configurable hold time for said information transmitted by said bus unit from said internal bus to said external bus.

5,802,357 SYSTEM AND METHOD FOR PERFORMING AN EFFICIENT JOIN OPERATION

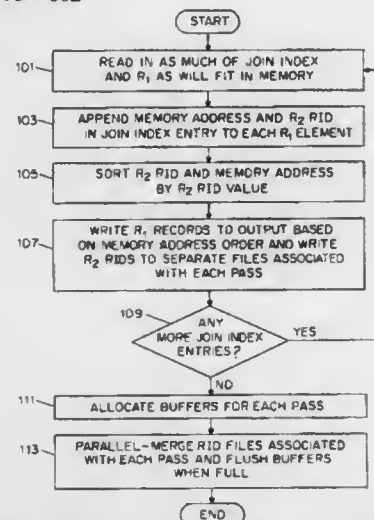
Zhe Li, Berkeley, Calif., and Kenneth A. Ross, New York, N.Y., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.

Continuation-in-part of Ser. No. 531,789, Sep. 21, 1995. This application Apr. 16, 1996, Ser. No. 632,958

Int. Cl.⁶ G06F 17/30; 7/22

U.S. Cl. 395—602

66 Claims



1. A method for joining in a database system a first and second input table each comprised of records stored in a first memory using a join index, wherein said join index is indicative of records to be joined and has an index entry for each record to be included in an output resulting from said join, said method comprising the ordered steps of:

- (a) reading a portion of said join index and said first input table's records identified by said read join index into a second, relatively fast main memory;
- (b) sorting said first table's records by said second table's index entry in said read join index;
- (c) writing said read records from said first input table to separate first output files and writing said second table's index entries to separate second files;
- (d) repeating steps (a) through (c) until all portions of said join index are read;
- (e) merging said second files to identify a lowest second table index entry from said second files, wherein said lowest index entry has not yet been previously been identified during said joining method, and reading a record from said second input table that corresponds to said lowest index entry;
- (f) placing said read record in an appropriate output buffer; and
- (g) repeating steps (e) and (f) until all the join index identifiers are processed.

5,802,358

DIGITAL AUDIO DATA PHASE SHIFTING APPARATUS

Toshiharu Konomi, Kasuya-gun, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 14, 1995, Ser. No. 572,494

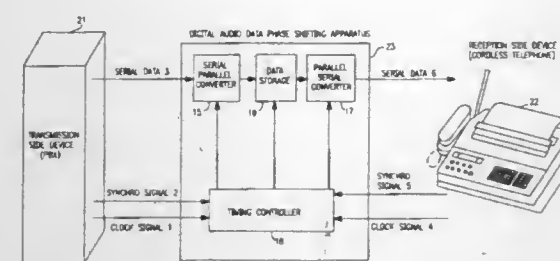
Claims priority, application Japan, Dec. 16, 1994, 6-313408

Int. Cl.⁶ G06F 1/04; 1/12

U.S. Cl. 395—558

13 Claims

1. A digital audio data phase shifting apparatus comprising: serial-parallel converting means for receiving audio data entered from a transmission side as serial data and converting into parallel data, data storing means for writing in and storing temporarily the audio data as parallel data from the serial-parallel converting means,



parallel-serial converting means for i) reading out the audio data as parallel data from the data storing means, ii) converting again into serial data and iii) sending out to a reception side, and

timing control means for

- i) receiving a first clock signal and a first synchro signal from the transmission side and a second clock signal and second synchro signal from the reception side,
- ii) controlling a writing timing of the audio data to the data storing means based on at least one of the first clock signal and the first synchro signal, and
- iii) controlling a reading timing of the audio data from the data storing means based on at least one of the second clock signal and the second synchro signal.

5,802,359

MAPPING PROCESSOR STATE INTO A MILLICODE ADDRESSABLE PROCESSOR STATE REGISTER ARRAY

Charles Franklin Webb, Poughkeepsie, and Mark Steven Farrell, Pleasant Valley, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

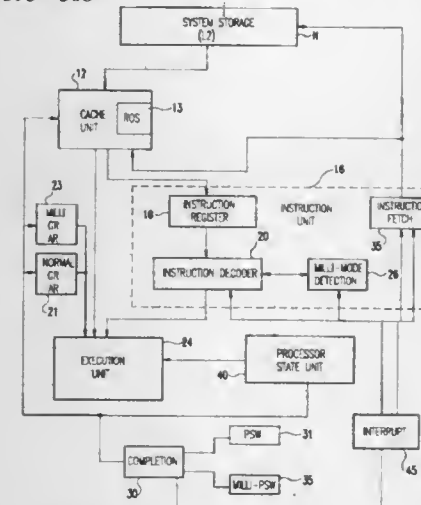
Continuation of Ser. No. 414,812, Mar. 31, 1995, abandoned.

This application Jul. 14, 1997, Ser. No. 892,068

Int. Cl.⁶ G06F 9/00

U.S. Cl. 395—568

2 Claims



1. In a computer processor that executes a relatively simple instruction set in a hardware controlled execution unit and executes a relatively complex instruction set in a milli-mode architected state with a millicode sequence of simple instructions in said hardware controlled execution unit, a method to provide operational access, in said milli-mode architected state, to the entire architected state of said computer processor, including the steps of: providing register space in a processor state unit into which register space general access registers and millicode access registers which make up the entire architected state can be mapped;

organizing said millicode access registers into functional sub-blocks with registers in a functional sub-block assigned contiguous physical addresses;

organizing said general access registers into functional sub-blocks with registers in a functional sub-block assigned contiguous physical addresses;

assigning sub-blocks of registers respectively to groups of facilities in the computer processor's instruction set architecture; mapping facility registers in the computer processor's instruction set architecture to millicode access registers such that a facility register number matches the low-order bits of the millicode access register address;

providing millicode instructions that specify a pair of operands, one of which addresses a millicode access register in said register space and the other one of which addresses a millicode general register in said register space, including instructions to read and write the millicode access register to or from the millicode general register, to perform logical operations on the millicode access register as one operand and using the millicode general register as the other operand and writing the result to the millicode access register.

5,802,360

DIGITAL MICROPROCESSOR DEVICE HAVING DYNAMICALLY SELECTABLE INSTRUCTION EXECUTION INTERVALS

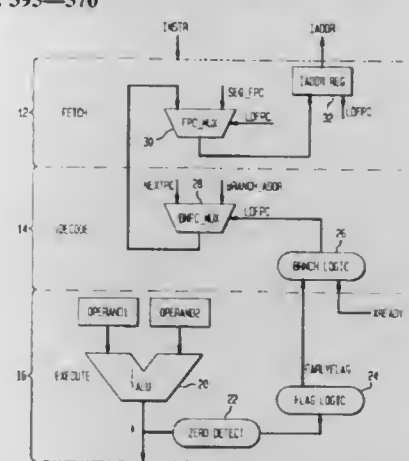
John Susantha Fernando, Coopersburg, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 1, 1996, Ser. No. 640,590

Int. Cl.⁶ G06F 9/00

U.S. Cl. 395—570

26 Claims



1. An integrated circuit including a digital processor implementing an instruction set which includes flag-modifying and flag-reading instructions, said integrated circuit comprising:

- a decode stage for decoding an instruction from said instruction set;
- an execute stage coupled to said decode stage for executing said instruction; and
- a mode input coupled to said execute stage, wherein said execute stage is operable to execute a flag-modifying instruction present in said execute stage during an interval determined as a first integer multiple of a clock cycle for said processor when said mode input is enabled and a flag-reading instruction, which follows said flag-modifying instruction, is present in said decode stage, said flag-modifying instruction being executable during an interval determined as a second integer multiple of said processor clock cycle, said first integer multiple being greater than said second integer multiple, when said mode input is disabled.

5,802,361

METHOD AND SYSTEM FOR SEARCHING GRAPHIC IMAGES AND VIDEOS

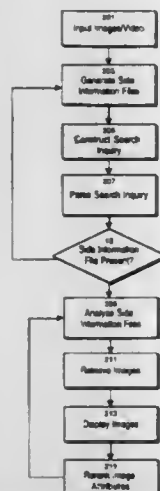
Katherine Wang, San Jose, and James Normile, Woodside, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Sep. 30, 1994, Ser. No. 315,965

Int. Cl.⁶ G06F 3/14; 3/147

U.S. Cl. 395—600

36 Claims



1. A computer implemented method for retrieving selected images from a plurality of images using a graphically defined inquiry, the method comprising the steps of:

analyzing each of the plurality of images to produce image data for each image;

receiving at least one input specifying an inquiry containing at least one image attribute;

analyzing the image data for the images by comparing the image attributes to the image data to determine selected images that are substantially similar to the image attributes in the inquiry; and

retrieving the selected images from the plurality of images.

5,802,362

SYSTEM AND METHOD FOR ENABLING ADAPTERS IN A COMPUTER SYSTEM

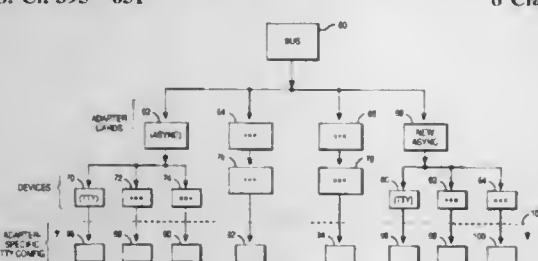
Walter Manfred Lipp, Georgetown, and Chris Alan Schwendiman, Round Rock, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 31, 1996, Ser. No. 656,151

Int. Cl.⁶ G06F 9/06

U.S. Cl. 395—651

8 Claims



1. For use in a computer system including a database, at least one first-level device, at least one second-level device, and second-level device configuration program code, a method for enabling said at least one first-level device in said system, comprising:

generating a load module including

functions relating to attributes of said at least one second-level device specific to said at least one first-level device, said functions including

generating a minor number for each said at least one second-level device; and

generating a device-dependent data structure for each said at least one first-level device; and

a load module stored in said database wherein said database is an object database manager; and

linking said load module to said program code at runtime; said linking comprising:

accessing said load module attribute from said object database manager; and

locating said load module in response to said accessing; wherein said load module attribute is a second level component of said object database manager and includes a oath and name for said load module;

wherein said at least one first level device is an asynchronous adapter; and said at least one second-level device is a tty device;

wherein said method further includes executing said functions to generate said minor number and said device dependent data; and

wherein said program code includes

system configuration program code; and

vendor configuration program code; and

wherein said method further includes

providing an exit from said system configuration program code;

invoking said system configuration program code;

detecting said exit; and

executing said vendor configuration program code in response to said detecting.

5,802,363

BIOS DYNAMIC EMULATION OF MULTIPLE DISKETTES FROM A SINGLE MEDIA

Donald D. Williams, Boca Raton; Stanley L. Merkin, Lakewood, and Charles R. Dart, II, Boca Raton, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

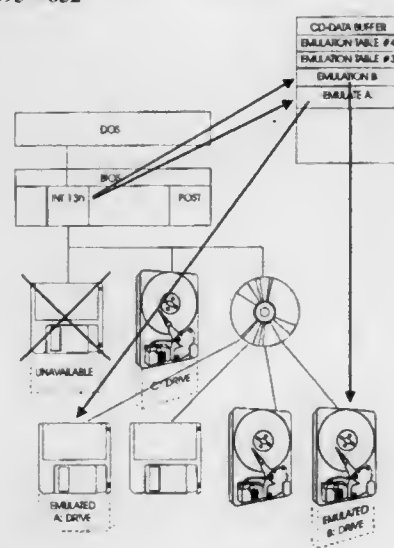
Continuation of Ser. No. 313,710, Sep. 27, 1994, abandoned.

This application Feb. 20, 1997, Ser. No. 803,289

Int. Cl.⁶ G06F 9/445

U.S. Cl. 395—652

8 Claims



1. A data processing system, comprising:

a central processing unit (CPU);

a system memory for storing data in electrical signal form;

a first port for receiving an input device generating electrical input signals;

at least one second port for supplying electrical output signals to output devices;

a BIOS included within the CPU for carrying out prescribed functions including converting operating signals developed by an operating system executed by the CPU into electrical

signals compatible with devices that are responsive to other signals applied by the CPU;

a non-volatile mass storage medium storing in different partitions of the medium multiple independent applications in the form of data on respective BIOS emulated images;

a medium drive for receiving the non-volatile mass storage medium;

a system bus logically interconnecting the CPU, the system memory, the first and second ports and the medium drive for the non-volatile mass storage medium; and

the BIOS configured to initially boot the data processing system from the non-volatile mass storage medium from an initial partition included in the different partitions of the non-volatile mass storage medium and the BIOS including multiple emulation tables, each dynamically associated with a logical drive, for maintaining emulations of multiple images simultaneously active upon calling another logical drive different from the logical drive associated with the initial partition to provide multiple drive images accessible to the data processing system at the same time through the initial booting process.

5,802,364

METADEVICE DRIVER RENAME/EXCHANGE TECHNIQUE FOR A COMPUTER SYSTEM INCORPORATING A PLURALITY OF INDEPENDENT DEVICE DRIVERS

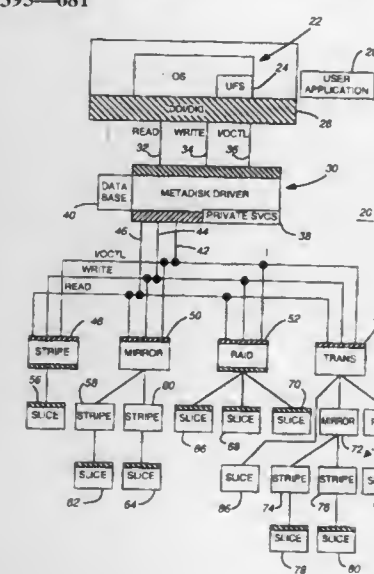
Steven T. Senator; Dale R. Passmore, both of Colorado Springs, and Robert S. Gittins, Woodland Park, all of Colo., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Apr. 15, 1996, Ser. No. 632,006

Int. Cl.⁶ G06F 15/163; 9/00; 9/46

U.S. Cl. 395—681

9 Claims



1. A method for altering a prior-established driver hierarchy in a computer system including a plurality of drivers having individual and interrelational attributes with respect to others of said plurality of drivers, said method comprising the steps of:

providing for instructing a particular one of said drivers to alter its individual attribute;

providing for locking service to said particular one of said drivers and relatives of said particular one of said drivers;

providing for altering said individual attribute of said particular one of said drivers and said interrelational attributes of each of said relatives of said particular one of said drivers; and

providing for unlocking service to said particular one of said drivers and said relatives of said particular one of said drivers.

5,802,365

DYNAMIC DEVICE MATCHING USING DRIVER CANDIDATE LISTS

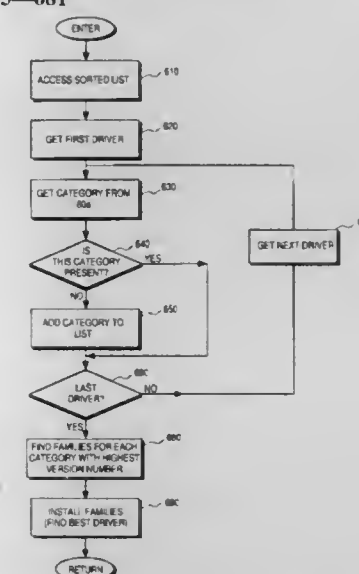
Pradeep Kathail, Santa Clara; Thomas E. Saulpaugh, San Jose; Holly Knight, La Honda; Jano Banks, San Jose, and Ron Hochsprung, Los Gatos, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Continuation-in-part of Ser. No. 435,676, May 5, 1995, Pat. No. 5,630,076. This application May 2, 1996, Ser. No. 648,305

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—681

22 Claims



1. In a computer system having a processor coupled to a communication bus, a memory unit coupled to said communication bus, and devices coupled to said communication bus, a method for configuring a particular device of said devices with a device driver, said method comprising the computer implemented steps of:

reporting a device name associated with said particular device;

scanning a first set of available drivers within said computer system to determine a second set of drivers individually having a driver name that matches with said device name;

for each individual driver of the second set of drivers, scanning a first set of families available within the computer system to determine a second set of families comprising at least one family, each family of the second set of families having category information which matches category information associated with the individual driver of the second set of drivers;

installing at least one family of the second set of families;

sequentially attempting installation of individual drivers of said second set of drivers with said particular device to determine a matching driver of said second set of drivers that properly configures said particular device; and

reporting said matching driver of said set of drivers that properly configures said particular device upon an indication by said step of sequentially attempting installation.

5,802,366

PARALLEL I/O NETWORK FILE SERVER
ARCHITECTURE

Edward John Row, Mountain View; Laurence B. Boucher, Saratoga; William M. Pitts, Los Altos, and Stephen E. Blightman, San Jose, all of Calif., assignors to Auspex Systems, Inc., Santa Clara, Calif.

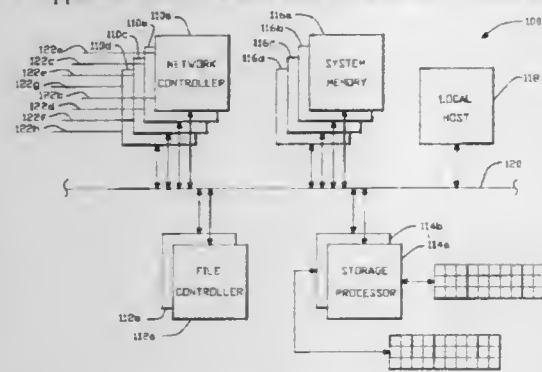
Continuation of Ser. No. 959,746, Oct. 13, 1992, Pat. No. 5,355,453, which is a continuation of Ser. No. 404,959, Sep. 8, 1989, Pat. No. 5,163,131. This application Oct. 11, 1994, Ser. No. 320,451

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—683

20 Claims

1. Apparatus for use with a data network and a mass storage



device, comprising the combination of first and second processing units,

said first processing unit being coupled to said network and performing procedures for satisfying requests from said network which are within a predefined non-NFS class of requests,

and said second processing unit being coupled to said network and to said mass storage device and decoding NFS requests from said network, performing procedures for satisfying said NFS requests, and encoding NFS reply messages for return transmission on said network, said second processing unit not satisfying any requests from said network which are within said predefined non-NFS class of requests.

5,802,367

METHOD AND SYSTEM FOR TRANSPARENTLY
EXECUTING CODE USING A SURROGATE PROCESS

Andrew F. Held, Kirkland; Edward K. Jung, Bellevue; Paul Leach, City of Seattle; Pradyumna K. Misra, Issaquah; Richard K. Sailor, Bellevue; Michael R. C. Seaman, Kirkland, and Nathaniel S. Brown, Bellevue, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 499,417, Jul. 7, 1995. This application Jan. 16, 1996, Ser. No. 585,511

Int. Cl.⁶ G06F 9/40

U.S. Cl. 395—685

56 Claims

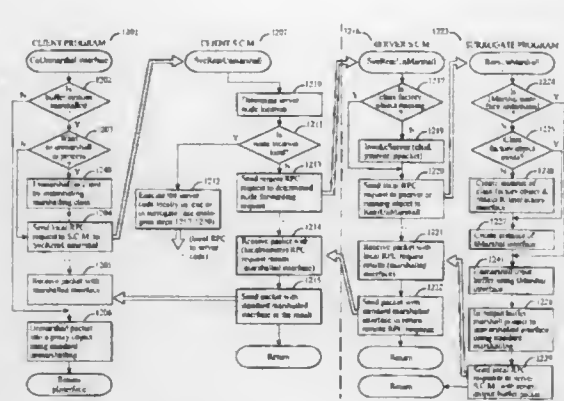
1. A method in a computer system for invoking server code that is stored in a dynamically linkable library, the computer system having a client process that requests invocation of the server code, the method comprising:

receiving from the client process a request to invoke the server code;

in response to the received request, invoking a surrogate process with a reference to the dynamically linkable library that stores the server code, wherein the surrogate process is an independently executable process for loading server code that is stored in a dynamically linkable library and that can instantiate an object;

loading the referenced dynamically linkable library into the invoked surrogate process;

executing the server code stored in the loaded dynamically linkable library; and



returning to the client process a reference to the executing server code, the returned reference being used by the client process to invoke the server code executing in the surrogate process by executing the same client code that is used to invoke the server code when the server code is executing in the client process.

5,802,368

DYNAMIC LIBRARY TASK SWITCHING

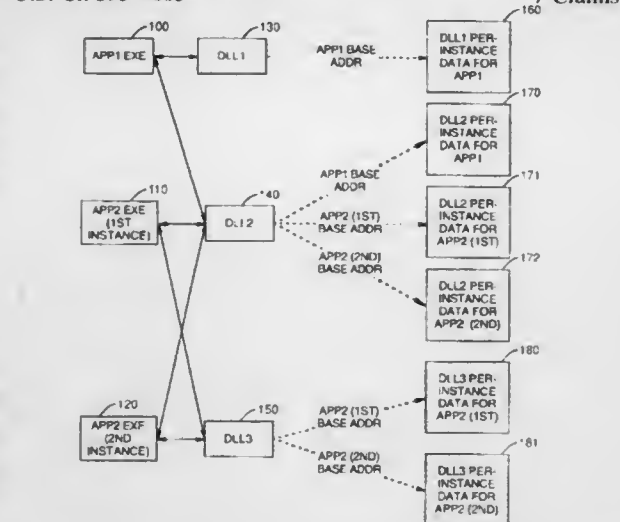
Kenneth B. Grigsby, San Jose, and Aleksander L. Smundak, Cupertino, both of Calif., assignors to Informix Software, Inc., Menlo Park, Calif.

Filed Sep. 29, 1995, Ser. No. 537,235

Int. Cl.⁶ G06F 12/02

U.S. Cl. 395—685

7 Claims



1. A method for providing per-instance data memory in a dynamic link library (DLL) having multiple segments including a segment containing global variables, the DLL being loaded in a random access memory (RAM) address space both as part of a first task and as part of a second task loaded in the RAM address space simultaneously, in a computer having memory management hardware including a local descriptor table (LDT) to map selectors to RAM base addresses, the computer running an operating system that uses a single LDT that is shared among the operating environment and all applications and that loads the DLL so that the segment containing global variables is initially shared by each task accessing the DLL, the method comprising:

providing a task switch enhancer DLL (the TSE);
providing in the TSE a DLL registration routine to register a DLL with the TSE when the DLL is loaded;
providing in the particular DLL a call to the DLL registration routine;
providing in the TSE a task registration routine to register a task with the TSE when the task is started;

5,802,370

TOOL FOR GENERATING AND EXECUTING
GRAPHICAL INTERFACE COMMANDS

Gérard Sitbon, Vitry; Didier Champeval, Plaisir; Jean-François Bassier, Sucy En Brie, and Olivier Levillain, Garancieres, all of France, assignors to Bull S.A., Louveciennes, France

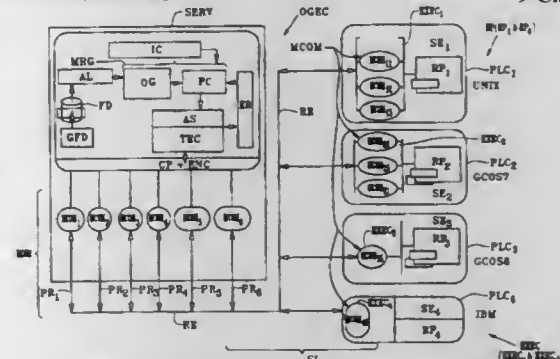
Filed Jan. 31, 1996, Ser. No. 595,002

Claims priority, application France, Feb. 2, 1995, 95 01236

Int. Cl.⁶ G06F 9/44

U.S. Cl. 395—701

9 Claims



1. A tool for generating and executing graphical interface commands (OGEC) for an information system (SI) including a plurality of heterogeneous platforms (PLC1 through PLC4) connected through a network (RE) which supports a plurality of communications protocols (PR1 through PR6), comprises:

a descriptor file (FD) containing a description of a graphical interface to be produced in a heterogeneous platform grammar,

grammar verification means (AL) for assuring lexical consistency of the descriptor file (FD),

generating means (MRG) for generating a graphical representation and connected to the verification means and to the tool for the graphical interface,

syntax checking means (AS) for checking the syntax of data entered by a user into the graphical representation,

a converter (CP) for sending commands to the various heterogeneous platforms (PLC1 through PLC4) through a plurality of different communication means (MCOM) according to predetermined criteria,

encapsulation means (ENC) associated with the converter for encapsulating attributes of each command to be executed in the platform(s) (PLC1 through PLC4), for a plurality of communications protocols (PR1 through PR6), and

means (EXEC1 through EXEC4) for receiving the attributes of each command and for executing the command in accordance with said attributes.

5,802,371

METHOD OF WALKING-UP A CALL STACK FOR A
CLIENT/SERVER PROGRAM THAT USES REMOTE
PROCEDURE CALL

Michael S. Meier, Newark, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 314,838, Sep. 29, 1994, abandoned.

This application Jun. 6, 1997, Ser. No. 870,750

Int. Cl.⁶ G06F 9/455

U.S. Cl. 395—704

4 Claims

1. A method for debugging a distributed computer program comprising a client program executing on a first portion of a distributed data processing system and a server program executing on a second portion of the distributed data processing system, said method comprising the steps of:

(a) determining a first call stack on the first portion of the distributed data processing system of the client program;

providing in the first task and in the second task a call to the task registration routine;

providing in the TSE a routine requesting the operating system to provide the TSE a switching notification whenever execution of any task is about to begin or end and whenever any task is about to cease to exist;

providing in the TSE a segment allocation routine for allocating a memory segment for storing per-instance data of a DLL for a task, which allocated segment is a substitute for an original per-instance data segment for that task, the original segment being referenced through a selector in the particular DLL referencing an LDT entry, the segment allocation routine maintaining a substitute base address being a base address for the allocated segment in the LDT entry and maintaining an original base address being the original base address of the original segment in the LDT entry;

calling the TSE segment allocation routine for a per-instance data segment of the particular DLL for the first task during initialization of the first task and calling the TSE segment allocation routine for a per-instance data segment of the particular DLL for the second task during initialization of the second task;

providing in the TSE a base address setup routine to store in the LDT entry the substitute base address of a per-instance segment of a task before that task begins execution; and

invoking the base address setup routine for the substitute base address for the first task in response to a switching notification received by the TSE that the first task is about to begin execution.

5,802,369

ENERGY-BASED WAVELET SYSTEM AND METHOD
FOR SIGNAL COMPRESSION AND RECONSTRUCTION

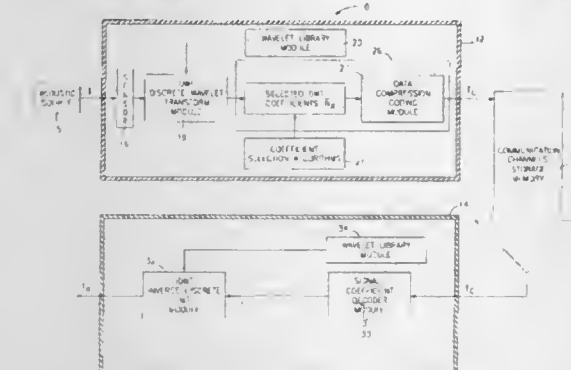
Chidambar Ganesh; Chung T. Nguyen, both of Bristol; Sherry E. Hammel, Little Compton, and Margaret Marafino, Middletown, all of R.I., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 22, 1996, Ser. No. 641,135

Int. Cl.⁶ G06K 9/36

U.S. Cl. 395—200.77

20 Claims



1. A signal processing system, comprising:

means for generating a wavelet decomposition tree modeling said signal, wherein said tree includes a plurality of levels of wavelet coefficients representative of said signal;

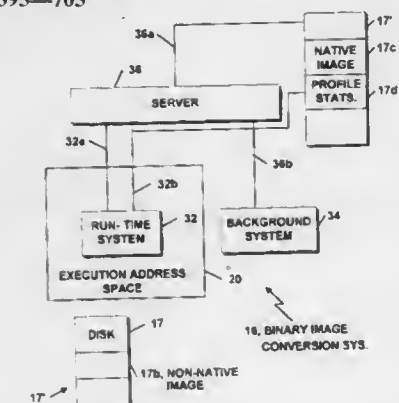
means for determining the number of wavelet coefficients available at each of said plurality of levels;

means for measuring mean energy for each of said plurality of levels;

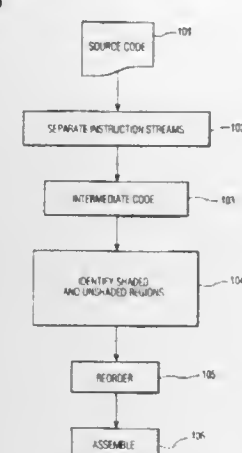
means for determining a number of wavelet coefficients to be retained for each of said plurality of levels based on said measured mean energy, wherein said mean energy measured for each of said plurality of levels is indicative of said number of wavelet coefficients selected from each of said plurality of levels; and

means for retaining said number of wavelet coefficients and forming a compressed representation of said signal.

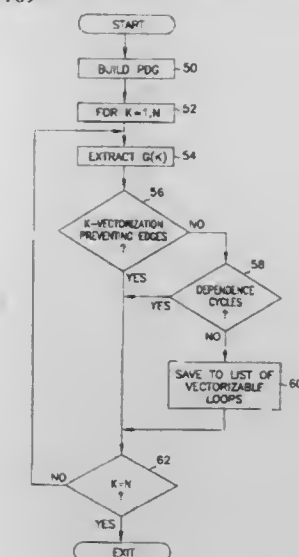
1. A language processing system comprising:
parsing means for inputting a source program described by a high-level language, analyzing, and generating an intermediate code file on the basis of the analysis;
code generating means for generating an object program corresponding to said source program analyzed by said parsing means, said code generating means including:
parameter analyzing means for analyzing data length of external parameter information contained in said source program; and
parameter assigning means for assigning the external parameter information to a predetermined data region in descend



providing said second index, associated with a second instruction of said first instruction type, to said dispatch table; and accessing a second entry, associated with said second instruction of said first instruction type, in said dispatch table, identified by said second index, said second entry providing a second instruction length value and a second address of a second routine of said second instruction type, while accessing said first routine.

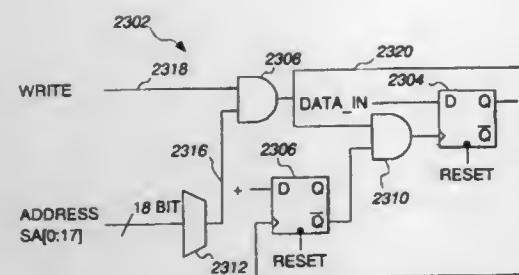


providing signals for maintaining synchronization between the first and second processors during execution of said first and second streams of instructions in parallel so that the first processor exits the second shaded region only after the second processor has completed execution of the instructions in the fourth unshaded region, or so that the second processor exits the fifth shaded region only after the first processor has completed execution of the instructions in the first unshaded region.



if more than one iterative loop is vectorizable, applying a selection criteria to select an optimal iterative loop from the plurality of iterative loops.

1. A write once read only register system for use in a computer system having a central processing unit (CPU), the CPU adapted to



be reset in response to a predetermined system reset signal which results in a reset condition of said computer system wherein firmware has control of the system after the reset, the reset condition occurring only after a power-up following removal of power from said computer system, the register system comprising:

means for detecting a first write signal to said register after each reset signal;

means for storing data, said data storing means responsive to read and write signals for enabling said data storing means to be read and written; p1 means for blocking all write signals to said register subsequent to said first write signal being stored in said storing means;

means for enabling the firmware to store data into said register after system reset, said enabling means also for enabling the firmware to prevent said register from being written to after said first write after reset until the system is reset again, and said enabling means further including means for preventing any writes to said register subsequent to said first write; and means for clearing said storing means in response to said reset signal.

5,802,377
METHOD AND APPARATUS FOR IMPLEMENTING MULTIPLE INTERRUPT CONTROLLERS IN A MULTI-PROCESSOR COMPUTER SYSTEM

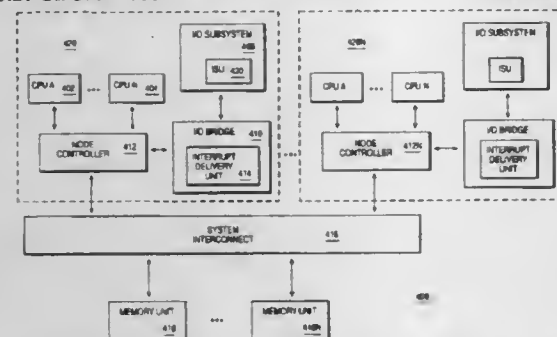
Sanjay Raghunath Deshpande, Austin, Tex., assignor to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 22, 1996, Ser. No. 734,806

Int. Cl.⁶ G06F 9/46

U.S. Cl. 395—733

20 Claims



1. In a multi-processor computer having a plurality of central processor units, an apparatus for processing interrupts to each one of the processor units, the apparatus comprising:

a plurality of interrupt source means, each one for creating and transmitting interrupt signals having an indication of the status of the interrupt source means, each interrupt source means including:

means for altering, in response to receiving a reset interrupt control signal, the status of the interrupt source means;

a primary interrupt delivery means for receiving and processing interrupt signals, the primary interrupt delivery means including:

means for altering, in response to receiving a reset signal, the status of the primary interrupt delivery means;

means for transmitting, in response to receiving the reset signal, the reset interrupt control signal;

means for transmitting, in response to receiving the reset signal, a master reset interrupt control signal;

means for discarding received interrupt signals that indicate a status different from that of the primary interrupt delivery means;

a plurality of secondary interrupt delivery means for receiving and processing interrupt signals, each one of the secondary interrupt delivery means including:

means for altering, in response to receiving the master interrupt control signal, the status of the secondary interrupt delivery means to that of the primary interrupt delivery means;

means for discarding received interrupt signals that indicate a status different from that of the primary interrupt delivery means; and

means for transmitting to each one of the interrupt source means under the control of the secondary interrupt delivery means the reset interrupt control signal.

5,802,378
PERFORMANCE MONITORING IN MULTIPROCESSOR SYSTEM WITH INTERRUPT MASKING

Richard Louis Arndt; Frank Eliot Levine; Edward John Silha, and Edward Hugh Welbon, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

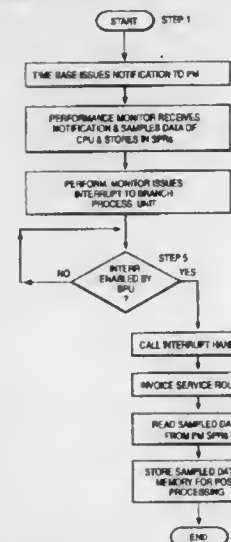
Continuation of Ser. No. 358,220, Dec. 16, 1994, abandoned.

This application Jun. 26, 1996, Ser. No. 675,427

Int. Cl.⁶ G06F 7/00

U.S. Cl. 395—740

13 Claims



1. A system for providing state information for each CPU in a multiprocessor system, comprising:

means for issuing a notification signal to retrieve said state information at a predetermined point in time, synchronized across each said CPU in the multiprocessor system;

means, in each said CPU, for receiving said notification signal, and for placing said state information in at least one register regardless of whether interrupts are masked or not;

means, in each said CPU for issuing a transfer request signal to transfer said state information from said register to a memory in said multiprocessor system; and

an interrupt handling mechanism, in each said CPU, which initiates a substantially immediate transfer of said state information, in response to said transfer request signal, from said register to said memory when interrupt masking is not present, and which defers transfer of said state information, irrespective of said transfer request signal, from said register to said memory when interrupt masking is present;

wherein said state information corresponding to said predetermined point in time is maintained, independent of whether

any of said interrupt handling mechanisms are responding to said transfer request signal.

5,802,379
BATTERY DEPLETION MANAGEMENT IN PORTABLE COMPUTING DEVICES HAVING PCMCIA CARD LOADING

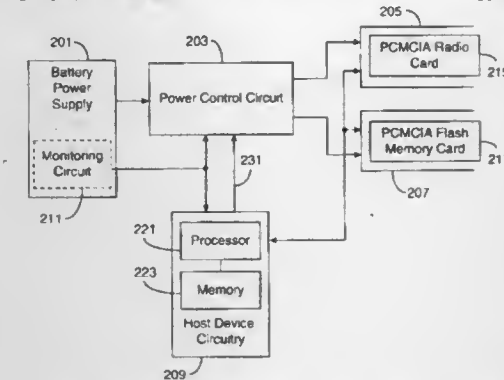
Darrell L. Boatwright, and Rickey G. Austin, both of Cedar Rapids, Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Filed Aug. 23, 1996, Ser. No. 701,439

Int. Cl.⁶ G06F 1/26; 1/32

U.S. Cl. 395—750.06

13 Claims



1. A battery powered device having one or more receptacles for receiving cards, the battery powered device comprising:

a power supply that generates battery power;

a monitoring circuit coupled to the power supply that generates an output signal indicative of an onset of a depletion of the battery power;

a power control circuit that only attempts to prevent the power supply from delivery battery power to the one or more receptacles in response to the generation of the output signal of the monitoring circuit;

a processing circuit that receives battery power without interference from the power control circuit even after the generation of the output signal of the monitoring circuit;

a memory that stores program code that is executable by the processing circuit relating to depletion processing safety measures; and

the processing circuit couples with the memory to read and execute depletion processing safety measures in response to the generation of the output signal of the monitoring circuit.

5,802,380
METHOD AND SYSTEM FOR UNIFORM ACCESS OF TEXTUAL DATA

David L. Bangs, Kirkland; Alexander G. Gounares, Redmond; James J. O'Neill, Issaquah; Murray Sargent, III, Kirkland, and Igor Y. Zaika, Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 612,654, Mar. 8, 1996, abandoned.

This application May 24, 1996, Ser. No. 653,281

Int. Cl.⁶ G06F 17/22

U.S. Cl. 395—777

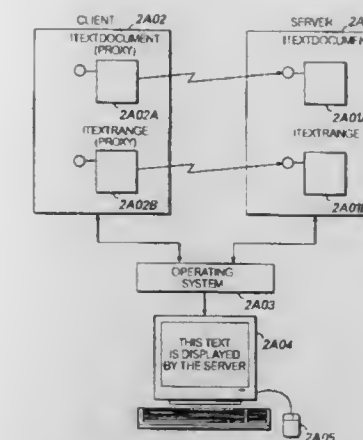
23 Claims

13. A computer system for providing clients with uniform access to text of servers, the text having a plurality of characters, comprising:

within each server,

document object means for receiving an indication of a range of characters of the text and for creating a range object that identifies the indicated range and that provides a member function for accessing the characters in the identified range; and

within each client,



means for sending the indication of the range of characters of the text to a server;

means for receiving an indication of the created range object; and

means for using the received indication of the created range object to invoke the member function to access the characters in the identified range.

5,802,381
TEXT EDITOR FOR CONVERTING TEXT FORMAT TO CORRESPOND TO AN OUTPUT METHOD

Fumitaka Matsumoto, and Yasuko Toju, both of Nakai-machi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

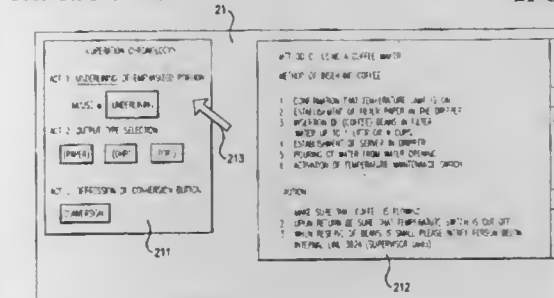
Filed Feb. 20, 1996, Ser. No. 603,391

Claims priority, application Japan, Feb. 21, 1995, 7-055276

Int. Cl.⁶ G06T 11/00

U.S. Cl. 395—779

21 Claims



5. A text editor comprising:

text data holding means for holding text data comprising text elements, which are portions of text, and structure data having a hierarchical relationship between said text elements;

input indication receiving means for receiving an indication of an output type of said text data;

conversion rule holding means for holding multiple conversion rules for converting said text data wherein each conversion rule corresponds to an output type; and

text data conversion means for, following the indication of the output type received from said input indication means, selecting one of said multiple conversion rules corresponding to the output type, and for converting said text data on the basis of the selected conversion rule.

5,802,388

SYSTEM AND METHOD FOR CORRECTION AND CONFIRMATION DIALOG FOR HAND PRINTED CHARACTER INPUT TO A DATA PROCESSING SYSTEM
John Mark Zetts, Falls Church, Va.; Mario Jose Galliano, Boynton Beach, Fla.; Alan R. Tannenbaum, Lighthouse Point, Fla.; William J. Tracey, Boynton Beach, Fla.; Keun J. Lee, Boca Raton, Fla.; and Moe R. Desrosiers, Viera, Fla., assignors to IBM Corporation, Armonk, N.Y.

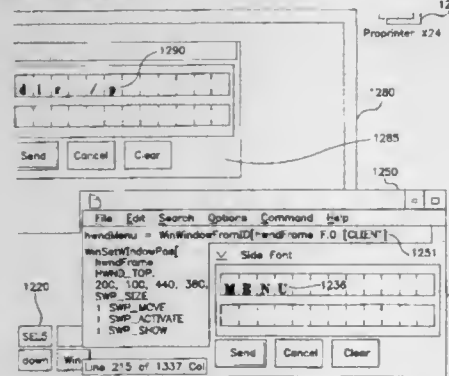
Continuation of Ser. No. 434,239, May 4, 1995, abandoned.

This application Dec. 19, 1996, Ser. No. 767,137

Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—804

7 Claims



The diagram illustrates the internal architecture of the Computer System 100, enclosed in a dashed rectangular boundary. At the top left, a box labeled '101 CPU' contains two sub-components: 'TLB 102' and 'DAT 103'. To its right is a vertical box labeled '105 STORAGE CONTROLLER'. Below the CPU is a box labeled '104 CHANNEL SUBSYSTEM'. To the right of the storage controller is a large box labeled '106 MAIN STORAGE' which contains three sub-components: 'PAGE TABLE 107', 'SYSTEM CONTROL PROGRAM 113', and 'I/O BUFFERS 114'. Below the storage controller is a box labeled '111 PROTECTION CHECK'. At the bottom center is a box labeled '110 I/O STORAGE PROTECTION ARRAY'. Four vertical arrows point upwards from the bottom of the diagram into the channel subsystem (104). At the very bottom, four small square boxes are labeled '112-0', '112-1', '112-2', and '112-3', with the text 'I/O DEVICES' centered below them.

5,802,398

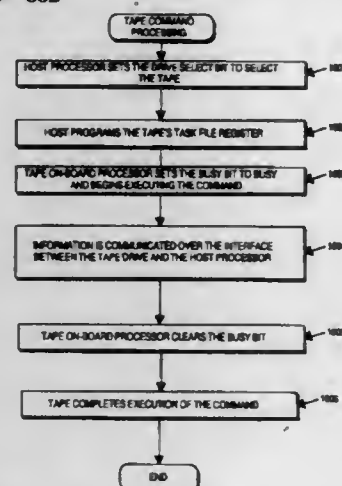
METHOD AND APPARATUS FOR ALLOWING COMMUNICATION BETWEEN A HOST COMPUTER AND AT LEAST TWO STORAGE DEVICES OVER A SINGLE INTERFACE

Faan-Hoan Liu, and Jorge Gustavson, both of Santa Cruz, Calif., assignors to Synchro Technology, Inc., Santa Cruz, Calif.

Division of Ser. No. 265,494, Jun. 23, 1994, Pat. No. 5,446,877, which is a continuation of Ser. No. 105,478, Aug. 12, 1993, which is a continuation of Ser. No. 612,540, Nov. 13, 1990. This application Jun. 7, 1995, Ser. No. 484,949
Int. Cl.⁶ G06F 13/10

U.S. Cl. 395—882

30 Claims

**1. A computer system comprising:**

- (a) an interface for interfacing with at least a disk drive and a tape drive, wherein data can be transmitted over said interface by only one of said tape drive and said disk drive at any give time;
- (b) said disk drive coupled with said interface;
- (c) first indicator means coupled with said disk drive, said first indicator means having a first state for indicating said disk drive is executing a command and having a second state for indicating said disk drive is not executing a command;
- (d) said tape drive further coupled with said interface;
- (e) second indicator means coupled with said tape drive having a first state for indicating said tape drive is receiving information over said interface and having a second state for indicating said tape drive is not receiving information over said interface, wherein said interface is busy when either of said first and second indicator means are in said first state, and said interface is not busy when both said first and second indicator means are in said second state.

5,802,399

DATA TRANSFER CONTROL UNIT FOR REDUCING MEMORY REQUIREMENTS IN AN INFORMATION PROCESSOR BY CONVERTING BIT WIDTH OF DATA BEING TRANSFERRED BETWEEN MEMORY AND PROCESSING PARTS

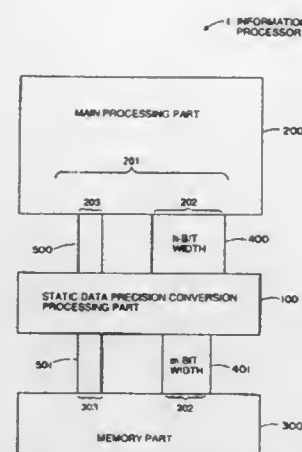
Manabu Yumoto; Tsuyoshi Muramatsu, and Souichi Miyata, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 12, 1996, Ser. No. 679,147
Claims priority, application Japan, Sep. 22, 1995, 7-244573
Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—886

13 Claims

- 1. A data transfer control unit having a bit width control part for controlling the bit width of data being transferred between a memory part and a processing part executing information processing, said memory part and said processing part being in an information processor, said bit width control part matching a first bit width of a port for inputting/outputting said data on said processing



part side with a second bit width, being narrower than said first bit width, of a port for inputting/outputting said data on said memory part side,

said bit width control part comprising:

- first conversion means for converting the bit width of said data to said second bit width in case of transferring said data from said processing part to said memory part, and
- second conversion means for converting the bit width of said data to said first bit width in case of transferring said data from said memory part to said processing part.

5,802,400

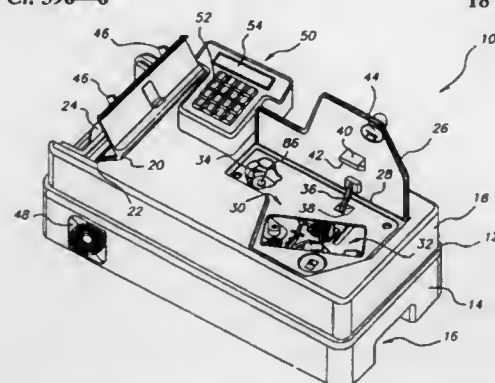
APPARATUS FOR LOADING AND UNLOADING PHOTOGRAPHIC FILM INTO OR FROM A CAMERA

Eric Peschan Hochreiter, Bergen; Bradley S. Bush; Stephen Michael Granby, both of Hilton, and Dennis Roland Zander, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 8, 1995, Ser. No. 569,464
Int. Cl.⁶ G03B 17/02; 1/00

U.S. Cl. 396—6

18 Claims



- 1. A photographic film loading and unloading apparatus for guiding film into or from a film guide track within a camera, the camera being of a type including an external housing having a movable closure giving access to the film guide track extending between an unexposed film chamber and an exposed film chamber, the film having opposing longitudinal edges, said apparatus comprising:

a frame;

- means supported by said frame for defining a first pair of opposed guide slots for receiving said longitudinal edges as said film is driven into said camera; and
- means supported by said frame for guiding said film from said first guide slots into said film guide track to load said camera and from said film guide track to unload said camera.

5,802,401

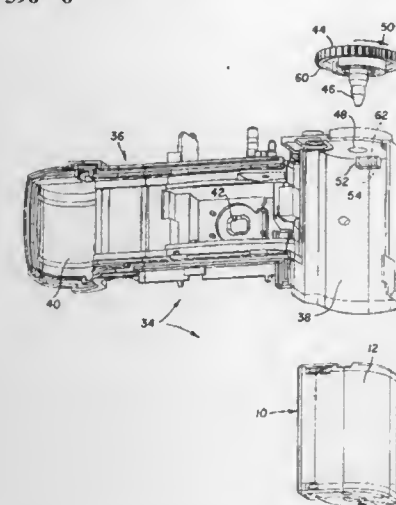
METHOD OF REMANUFACTURING ONE-TIME-USE CAMERA

Jude A. Sangregory, Spencerport; Edgar G. Earnhart, Hilton, and Joseph C. Weiser, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 22, 1997, Ser. No. 861,585
Int. Cl.⁶ G03B 17/02; 17/26

U.S. Cl. 396—6

12 Claims



- 1. A method of remanufacturing a one-time-use camera including (a) a modified cartridge that has a recess which is not on a standard cartridge and (b) a main body part having a blocking protuberance that projects into a chamber in the main body part to fit in the recess when the modified cartridge is located in a predetermined position within the chamber, but which will abut the standard cartridge to prevent it from being located in the predetermined position within the chamber if one attempts to substitute the standard cartridge for the modified cartridge, and which has a hollowed-out space that will allow ambient light to leak into the chamber should one cut the protuberance off the main body part at the hollowed-out space in order to permit the standard cartridge to be located in the predetermined position within the chamber, said method comprising the steps of:

- cutting the protuberance off the main body part at the hollowed-out space in order to permit the standard cartridge to be located in the predetermined position within the chamber;
- closing a hole in the chamber, resulting from the protuberance being cut off the main body part at the hollowed-out space, to prevent ambient light from leaking into the chamber through the hole; and
- locating the standard cartridge in the predetermined position within the chamber.

5,802,402

CAMERA BACK INCLUDING IMPROVED FILM ASSEMBLY

Irving S. Lippert, Lexington; Thomas H. Campbell, Jr., Dedham, and Edward H. Coughlin, Norwood, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

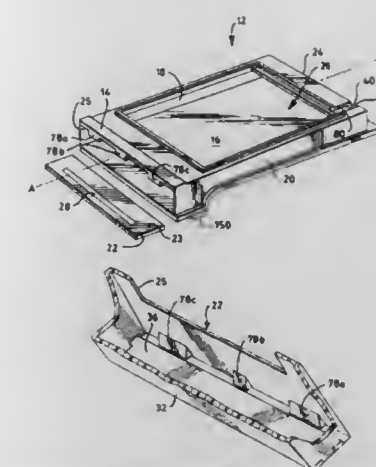
Continuation-in-part of Ser. No. 710,181, Sep. 13, 1996. This application Apr. 15, 1997, Ser. No. 834,451
Int. Cl.⁶ G03B 17/50

U.S. Cl. 396—42

10 Claims

- 1. A film cassette for use in housing film units to be exposed in an imaging device having spread rollers, the film units being of the self-developing type each having a photosensitive area, a pod of processing fluid adjacent a leading edge and a trailing edge, said film cassette comprising:

- a chamber defined by forward and bottom walls, a pair of side walls, and leading and trailing end walls, wherein said leading end wall defines an egress through which one of the film units may be advanced from said film cassette;



means for resiliently supporting the film units within said chamber;

first spread control means on an interior surface of said top wall for applying compressive forces on the film unit for spreading processing fluid in the film unit when the film unit exits the egress; and

second spread control means on an exterior surface of said bottom wall for applying compressive forces on the film unit for spreading processing fluid in the film unit so that the film unit engages said second spread control means after the film unit exits said egress and travels a curvilinear film path.

5,802,403

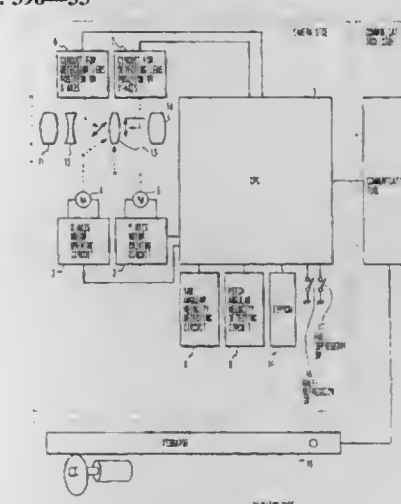
APPARATUS FOR INSPECTING BLUR CORRECTION CAMERA, BLUR CORRECTION CAMERA, AND METHOD OF INSPECTING BLUR CORRECTION CAMERA

Sueyuki Ohishi, Tokyo, and Tadao Kai, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 377,786, Jan. 24, 1995, abandoned. This application Feb. 25, 1997, Ser. No. 805,759
Claims priority, application Japan, Mar. 18, 1994, 6-047594; Mar. 18, 1994, 6-048057Int. Cl.⁶ G03B 7/08

U.S. Cl. 396—53

3 Claims

**1. A blur correction camera comprising:**

an optical axis changing unit to change an optical axis of a photographing optical system to correct a blur generated by vibration;

a displacement detecting unit to detect displacement of said photographing optical system by said optical axis changing unit;

5,802,410
METHOD AND APPARATUS FOR PRODUCING COMPOSITE IMAGES WITH A MASKED IMAGING DEVICE

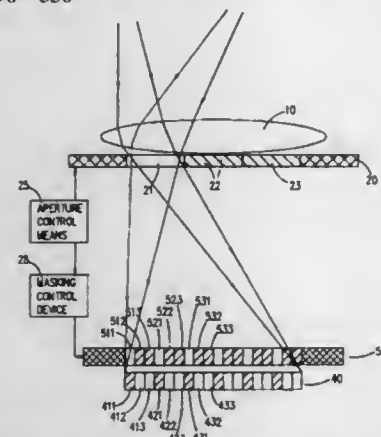
Allen Kwok Wah Lo, 5022 Hidden Branches Dr., Dunwoody, Ga. 30338, and Kenneth Ouochuy Lao, 650 Glen Ave., Westfield, N.J. 07090

Filed Feb. 18, 1997, Ser. No. 801,991

Int. Cl.⁶ G03B 35/00

U.S. Cl. 396—330

15 Claims



3. An apparatus for making a composite image comprising:
 - a) a taking lens having a number of aperture sections;
 - b) means for controlling said aperture sections so as to allow only one of said aperture sections to open at a time;
 - c) a photosensitive medium disposed in the image plane of said taking lens to acquire a plurality of 2D images with each 2D image being formed through an opened aperture section of said taking lens, each of said 2D images comprising a plurality of linear segments each segment having a number of linear bands each band corresponding to one of the aperture sections of said taking lens; and
 - d) means for masking said photosensitive medium so as to allow in each linear segment of each of said 2D images only the linear band corresponding to the opened aperture section to form a part of said composite image.

5,802,411
CAMERA HAVING A LOAD PREVENTION MEMBER CAPABLE OF CONTROLLING FILM CARTRIDGE LOADING BASED ON WHETHER THE FILM IS NEW OR USED

Tsutomu Wakabayashi, Nohoru Akami, both of Yokohama, and Noriyasu Kotani, Okegawa, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

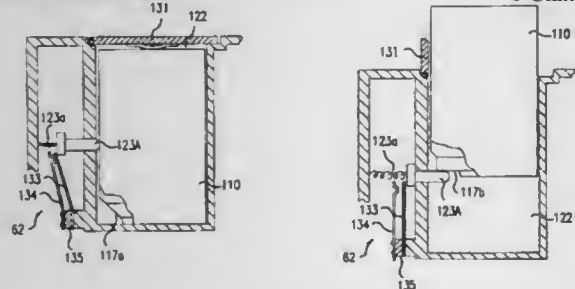
Division of Ser. No. 467,835, Jun. 6, 1995, Pat. No. 5,640,634, which is a division of Ser. No. 221,994, Apr. 1, 1994, abandoned, which is a continuation of Ser. No. 924,626, Aug. 3, 1992, abandoned. This application Feb. 13, 1997, Ser. No. 800,031

Claims priority, application Japan, Aug. 5, 1991, 3-219243; Oct. 15, 1991, 3-296362; Nov. 12, 1991, 3-295907

Int. Cl.⁶ G03B 19/02

U.S. Cl. 396—389

6 Claims



1. A camera having a cartridge chamber, which is formed as a hole in a body of the camera, into which a film cartridge is insertable along its axial direction through an access opening of said hole, said cartridge having identifying means for indicating at least that film in said cartridge has been used, the camera comprising:

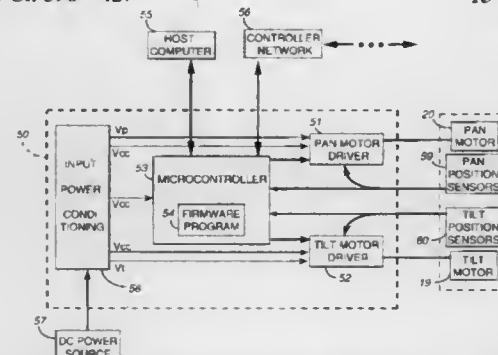
- a prevention member provided in said chamber that engages the identifying means of said cartridge and prevents insertion of said cartridge into said chamber when the identifying means indicates that the film has been used; and
- detection means for detecting whether said cartridge is loaded into or unloaded from said cartridge chamber by detecting retraction of said prevention member from said chamber.

5,802,412
MINIATURE PAN/TILT TRACKING MOUNT
Philip Kahn, 1451 Capuchino Ave., Burlingame, Calif. 94010
Continuation of Ser. No. 549,912, Oct. 30, 1995, abandoned, which is a division of Ser. No. 449,257, May 24, 1995, Pat. No. 5,463,432, which is a continuation of Ser. No. 66,672, May 24, 1993, abandoned. This application Apr. 11, 1997, Ser. No. 827,843

Int. Cl.⁶ G03B 17/24

U.S. Cl. 396—427

15 Claims



1. A method for one or more host computers to dynamically control and query the precise position, speed, and state of one or more pan/tilt mounts, comprising the steps of:

- providing a pan/tilt controller, including a dedicated embedded processor for executing real-time pan/tilt control functions and processing of communications and commands from said one or more distinct and separate host computers, said embedded pan/tilt controller processor sharing no computational resources with said one or more host computers;
- providing a motorized pan/tilt mount with minimal drivetrain backlash, motors and gearing that can precisely rotate the pan and tilt axes over a wide speed and acceleration range, and incorporating pan and tilt limit position detection sensors that are precise and highly repeatable; said pan-tilt mount is electrically connected to the pan/tilt controller;

- regulating either the current or voltage to windings of a pan motor and a tilt motor of said pan/tilt mount using said controller, and said controller receiving a set of pan and tilt position sensor feedback signals from said pan/tilt mount;
- communicating between each of a set of one or more pan/tilt controllers and said one or more host computers, where each said host computer electrically is connected by a standard digital communications interface to provide a bi-directional communications link to each said pan-tilt controller; wherein each of said one or more host computers can issue command signals to said controller to effect desired pan/tilt mount movement, and each of said one or more host computers can issue command signals to said one or more controllers to query current pan/tilt mount movement, position, status, and configuration;

- calibrating absolute pan and tilt mount positions relative to a pan/tilt mounting point so that absolute pan and tilt positions may be precisely repeated; wherein said calibrating step is initiated by at least one of the following events: upon power

5,802,414
DEVELOPING APPARATUS
Yoshihiko Nakashima, and Togo Kinoshita, both of Wakayama, Japan, assignors to Noritsu Koki Co., Ltd., Wakayama-Ken, Japan

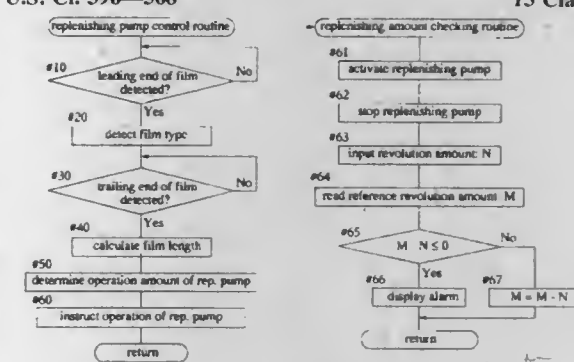
Filed Oct. 25, 1996, Ser. No. 738,313

Claims priority, application Japan, Oct. 26, 1995, 7-279015

Int. Cl.⁶ G03D 00/00

U.S. Cl. 396—568

13 Claims



1. A developing apparatus comprising:
 - a developing tank for developing photosensitive material;
 - detecting for detecting a processed amount of the photosensitive material relating to the length for the material;
 - determining means for determining arrival of a cumulative value of the detected processed amount of the photosensitive material at a reference processed amount;
 - notifying means for notifying the arrival of the detected processed amount at the reference processed amount; and
 - a replenishing container for replenishing processing liquid to the developing tank;
- wherein a plurality of the reference processed amounts are set in correlation with a plurality of different liquid levels in the replenishing container.

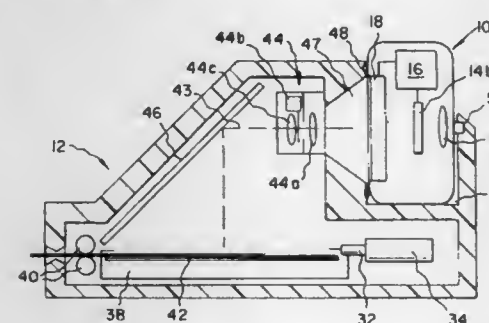
5,802,413
PRINTER RECEIVING ELECTRONIC CAMERA
Stanley W. Stephenson, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 18, 1997, Ser. No. 933,323

Int. Cl.⁶ G03B 29/00; 17/50

U.S. Cl. 396—429

5 Claims



1. Apparatus for capturing and printing images on photosensitive sheets, comprising:

- a) an electronic camera having
 - i) a display; and
 - ii) image sensor means for producing a digital image of a subject;
- iii) means responsive to the digital image for displaying an image on the display;
- b) a printer including light tight storage means for receiving the photographic sheets and means for receiving the electronic camera; and
- c) optical means for imaging the display image onto a photosensitive sheet at an exposure position including:
 - i) a shutter member having a shutter aperture and means for controlling the aperture to cause light from the display image to illuminate the photosensitive sheet.

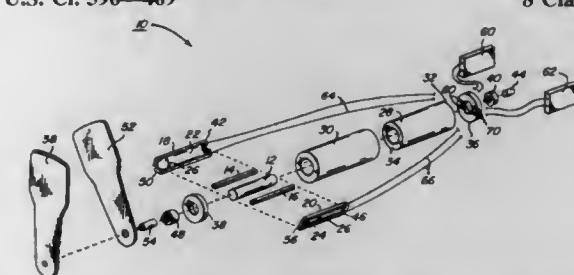
5,802,415
DUAL COIL ACTUATOR
Robert C. Bryant, Honeoye Falls; Michael J. O'Brien, Rochester, and Edward P. Furlani, Lancaster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 7, 1997, Ser. No. 834,973

Int. Cl.⁶ G03B 9/08

U.S. Cl. 396—469

8 Claims



1. A dual coil actuator comprising a pair of independently moveable electrically conductive coils, is characterized in that:
 - a single magnet core generates a single magnetic field; and
 - said coils are positioned around said single magnet core, spaced from each other and from the core, and are supported to be independently rotated coaxially in the single magnetic field about the single magnet core.

5,802,416

PHOTOGRAPHIC PROCESSING APPARATUS

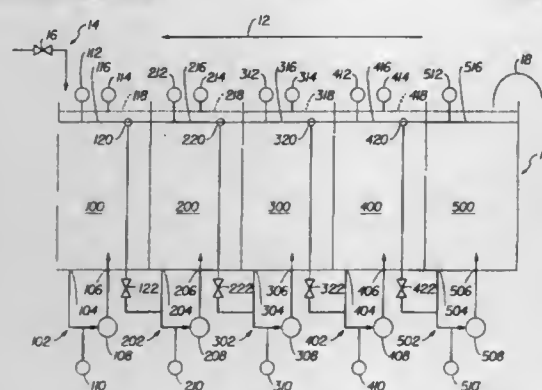
Anthony Earle, Middlesex, and Leslie Wells, London, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 25, 1997, Ser. No. 881,834

Int. Cl.⁶ G03D 3/06

U.S. Cl. 396—578

3 Claims



1. A countercurrent multi-stage washing stage for photographic processing apparatus, the washing stage comprising: a plurality of washing tanks having at least a first washing tank and a last washing tank with intermediate washing tanks located between the first and the last tanks, the first washing tank being upstream from the last and intermediate washing tanks, each washing tank having a recirculation system for circulating the washing solution therethrough; an inlet through which fresh washing solution is added to the last tank of the washing stage; an outlet from which washing solution is overflowed out of the first tank of the washing stage; means for providing fluid connection between each washing tank and its adjacent upstream washing tank; level sensing means for sensing a first level of washing solution in each of the washing tanks; and control means for receiving an output signal from the level sensing means for controlling the level of washing solution in each washing tank and also for controlling the recirculation system of each washing tank; characterized in that the last and each intermediate washing tank further includes an outlet port therein, the outlet port being connectable to the recirculation system of an adjacent upstream washing tank via valve means, and further level sensing means for sensing a second level of washing solution which is greater than the first level and providing a control signal for the valve means via the control means when the second level has been sensed to reduce the level of the washing solution to the first level.

5,802,417

CHEMICAL SUPPLY CARTRIDGE

John Richard Fyson, Hackney, England, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 17, 1995, Ser. No. 558,211

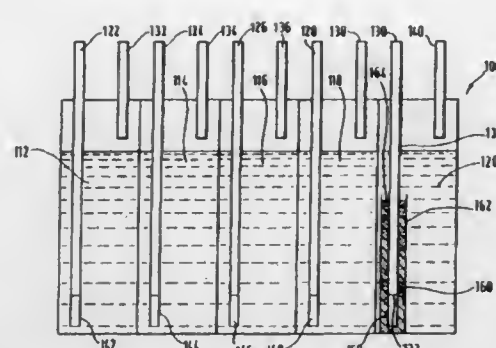
Claims priority, application United Kingdom, Nov. 19, 1994, 9423380

Int. Cl.⁶ G03D 3/02

U.S. Cl. 396—626

12 Claims

1. A method of supplying and recirculating a processing solution to an appropriate stage of a photographic processing apparatus from a chemical supply cartridge, the cartridge comprising a plurality of compartments, each compartment containing processing solution for the photographic process, at least one compartment containing cleaning means, said processing solution passing through said cleaning means to remove unwanted materials prior to entering the processing apparatus, the cleaning means being con-



finned within the at least one compartment and is constructed so that the solution passes through a substantial volume thereof.

5,802,418

SOLUTION MANUFACTURING APPARATUS

Kazuhiro Nemoto, and Teruo Kashino, both of Hino, Japan, assignors to Konica Corporation, Japan

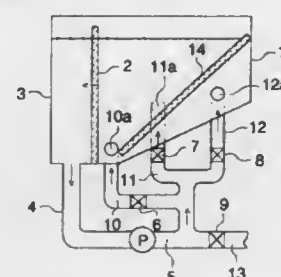
Filed Jan. 21, 1997, Ser. No. 786,043

Claims priority, application Japan, Jan. 26, 1996, 8-011895; Mar. 26, 1996, 8-070326; Mar. 29, 1996, 8-077686

Int. Cl.⁶ G03D 3/02

U.S. Cl. 396—627

6 Claims



1. An apparatus for dissolving solid processing agent for photographic light-sensitive material comprising: a dissolving tank in which a solution is stored, said dissolving tank provided with a supplying port through which said solid processing agent is supplied into said dissolving tank, a collecting section provided in said dissolving tank, for collecting the supplied solid processing agent; a filter in said dissolving tank for guiding the supplied solid processing agent to said collecting section; said dissolving tank having a suction port and a first jetting port; a circulator for sucking said solution through said suction port from said dissolving tank and for discharging the solution through said first jetting port into said dissolving tank, wherein said first jetting port is at a position corresponding to said collecting section whereby said solution is jetted toward said solid processing agent collected by said collecting section.

5,802,419

IMAGE FORMING APPARATUS AND PROCESS CARTRIDGE FOR IMAGE FORMING APPARATUS

Kazushige Sakurai, Gotenba; Hiroshi Sato, Suntoh-gun, and Kazumi Yamauchi, Numazu, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 9, 1996, Ser. No. 731,054

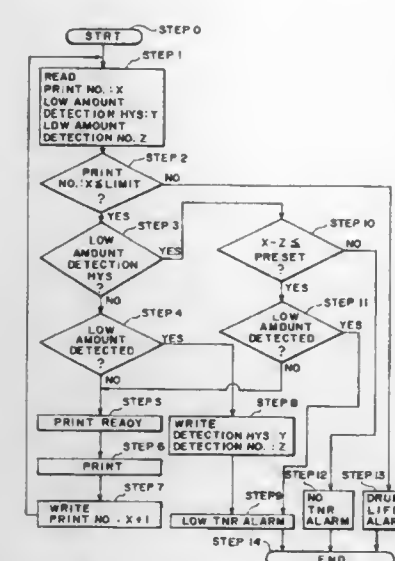
Claims priority, application Japan, Oct. 9, 1995, 7-288079

Int. Cl.⁶ G03G 21/02; 21/00

U.S. Cl. 399—26

8 Claims

1. An image forming apparatus comprising: an electrophotographic photosensitive member; a developer container for containing a developer for developing a latent image formed on said photosensitive member;



- measuring means for measuring a usage degree of said photosensitive member;
developer amount detecting means for detecting whether a remaining amount of the developer in said container is lower than a predetermined level;
display means for displaying the remaining amount of the developer in accordance with the usage degree of the photosensitive member after said detecting means detects that the remaining amount of the developer is lower than the predetermined level.

5,802,420

METHOD AND APPARATUS FOR PREDICTING AND DISPLAYING TONER USAGE OF A PRINTER

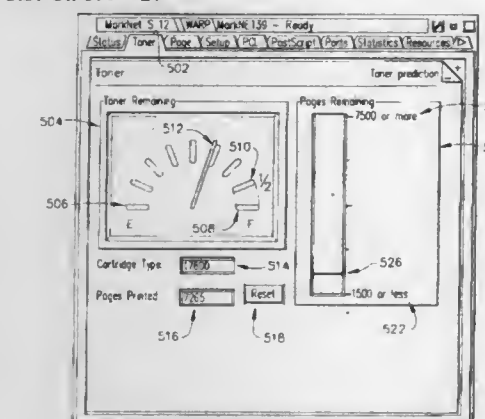
Charles Michael Garr; Nathan Karl Klempner; Patricia Ann Valenti, all of Lexington; Earl Dawson Ward, II, Richmond; James Francis Webb, Lexington, and Phillip Byron Wright, Lexington, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed May 12, 1997, Ser. No. 854,606

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—27

19 Claims



1. A printing apparatus, comprising: a cartridge that contains a toner material that is used to create printing indicia on a print media; an interface circuit that measures the physical quantity of said toner within said cartridge; a memory circuit that stores information, and a processing circuit; wherein said interface circuit is configured to transmit a toner level signal to said processing circuit, said toner level signal being related to the physical toner level remaining in said cartridge; and said processing circuit is configured to determine a toner usage per printed page statistic based upon the previous number of pages that have been printed by said printing apparatus with

respect to the physical toner level of said cartridge; said toner usage per printed page statistic being used by said processing circuit to predict the number of pages that can be printed using the physical quantity of toner remaining within said cartridge.

5,802,421

HEATING AND FIXING DEVICE WITH AC ZERO-CROSS DETECTION CIRCUIT

Shigeo Miura, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

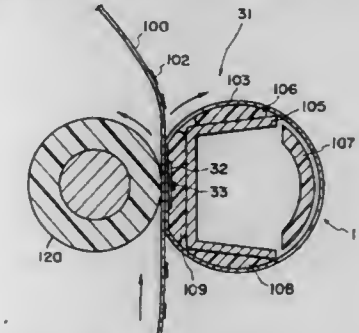
Filed Aug. 28, 1995, Ser. No. 519,743

Claims priority, application Japan, Aug. 26, 1994, 6-224013; Aug. 26, 1994, 6-224014

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—33

2 Claims



1. A heating and fixing device comprising: a heater for generating heat upon electric power supply thereto; a zero-cross detection means for detecting a zero-cross point of AC power supplied to said heater; electric power supply control means for controlling the electric power supply to said heater in an electric power supply control operation, wherein said electric power supply control means phase-controls the electric power supply to said heater in cooperation with said zero-cross detection means; and a timer for measuring time after detection of the zero-cross point by said zero-cross detection means, wherein when said zero-cross detection means detects the zero-cross point within a first predetermined time period after actuation of said timer, said control means continues the electric power supply control operation, when said zero-cross detection means detects the zero-cross point for a period longer than the first predetermined time period within a second predetermined time period, said control means interrupts and then resumes the electric power supply control operation, and when the zero-cross point is not detected even after elapse of the second predetermined time period, an abnormality removing operation is effected.

5,802,422

IMAGE FORMING DEVICE

Norio Hokari, Ehina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jul. 2, 1997, Ser. No. 887,230

Claims priority, application Japan, Jul. 5, 1996, 8-176476

Int. Cl.⁶ G03L 15/16

U.S. Cl. 399—36

15 Claims

1. An image forming device, comprising:

a transfer belt having a surface and moving in a moving direction;
 a drive roll for driving the transfer belt, the drive roll moving the transfer belt a first distance by one rotation of the drive roll;
 an image carrier for transferring an image onto the surface of the transfer belt at an image transfer position; and
 a pattern detecting sensor for detecting a standard pattern transferred onto the transfer belt by the image carrier, the pattern detecting sensor detecting the standard pattern at a standard pattern detecting position,
 wherein a second distance between the image transfer position and the standard pattern detecting position is a non-integer-multiple of the first distance.

5,802,423

IMAGE FORMING APPARATUS WHICH SUPERVISES THE NUMBER OF TIMES AN IMAGE IS FORMED UNDER EACH USER IDENTIFIER

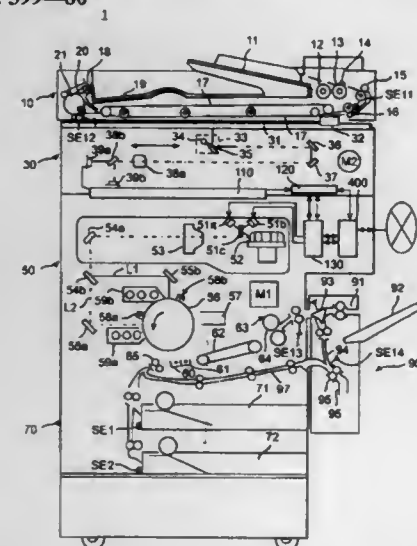
Kazuo Okunishi, Okazaki, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Jul. 25, 1997, Ser. No. 900,827

Claims priority, application Japan, Jul. 26, 1996, 8-197413
 Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—80

26 Claims



1. An image forming apparatus provided with a control unit which comprises:
 a counting unit for counting the number of times an image is formed by the image forming apparatus;
 an identifier receiving unit for receiving a first identifier and a second identifier;
 a determining unit for determining, after the identifier receiving unit has received the first identifier, whether an image forming operation of the image forming apparatus should be allowed under the first identifier;
 a judging unit for judging whether the identifier receiving unit has received the second identifier; and
 a storage unit for storing, if the judging unit has judged that the identifier receiving unit has received the second identifier, the number of times an image is formed in relation to the second identifier after the judgement.

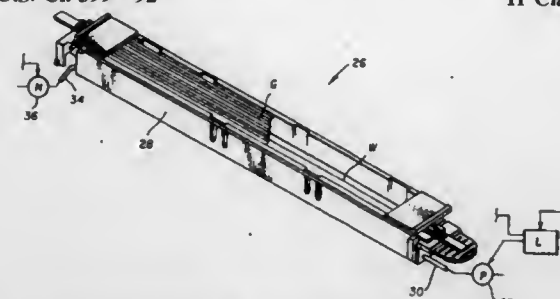
CONTROL FOR ENVIRONMENT OF A CHARGER FOR REPRODUCTION APPARATUS

Martin J. Pernesky, Hornell, and John W. May, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 26, 1997, Ser. No. 979,503
 Int. Cl.⁶ G03G 15/00; 15/02; 21/00

U.S. Cl. 399—92

11 Claims



8. An environmental control for a charger utilized in an electrostatic reproduction apparatus including a movable dielectric support upon which images of information to be reproduced are formed as said dielectric support is moved into operative relation with electrostatic process stations, a method for controlling the environment of a charger utilized by said reproduction apparatus, said charger environment control comprising the steps of:
 selectively providing a positive pressure air flow to the charger environment during movement of the dielectric support of the reproduction apparatus; and
 selectively providing a negative pressure air flow to the charger environment when such dielectric support is at rest.

5,802,425

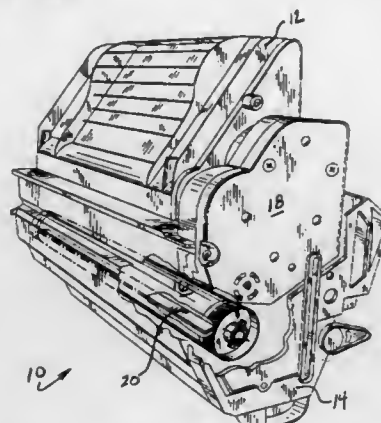
METHODS FOR RECONDITIONING USED CHARGE BLADES FOR ELECTROSTATOGRAPHIC CARTRIDGES, AND THE CHARGE BLADES AND CARTRIDGES THEREBY RECONDITIONED

Vytas A. Kavollus, Charlottesville, and Joseph E. White, Mt. Crawford, both of Va., assignors to Genicom Corporation, Chantilly, Va.

Filed Dec. 20, 1996, Ser. No. 770,772
 Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—109

26 Claims



1. A method of reconditioning a used charge blade of an electrostatic cartridge comprising forming a coating on a surface of the used charge blade which consists essentially of a particulate electrically conductive material in an amount sufficient to reestablish triboelectric harmony between the charge blade, toner particles and developer roller of the cartridge.

5,802,426

UNIT POSITIONING MEMBER FOR AN IMAGE FORMING APPARATUS

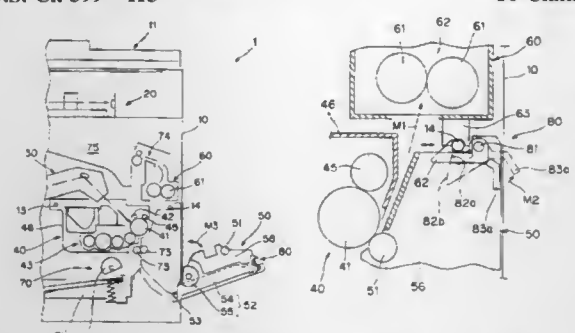
Masahiko Miyazaki, Naoyuki Ishida, Junichi Inada; Tadahiyo Kiyosumi, and Tetsuya Ichigotani, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed May 28, 1997, Ser. No. 864,512

Claims priority, application Japan, May 31, 1996, 8-138660
 Int. Cl.⁶ G03G 21/16

U.S. Cl. 399—113

10 Claims



1. An image forming apparatus having an image forming unit including a photosensitive drum, a fixing unit for fixing an image on a paper sheet, and a conveying unit for conveying the paper sheet from the image forming unit to the fixing unit, comprising:
 a reference positioning member provided in a predetermined position with respect to the position where the image forming unit is arranged;
 an abutting member provided in a predetermined position of the fixing unit; and
 an engaging member provided in a predetermined position of the conveying unit,
 the abutting member in the fixing unit abutting on the reference positioning member, and the engaging member in the conveying unit being engaged with the reference positioning member, so that positioning among the image forming unit, the fixing unit and the conveying unit is obtained.

5,802,427

IMAGE FORMING APPARATUS HAVING MEANS TO DISABLE A DRIVE FORCE WHEN AN APPARATUS COVER IS OPENED

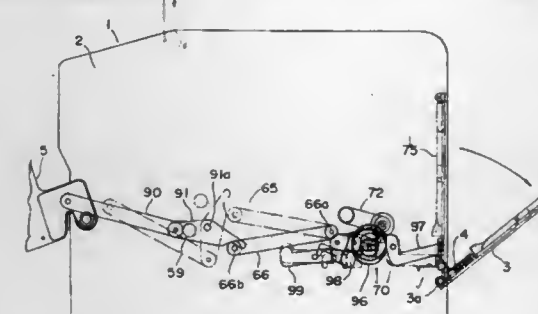
Kenji Sawada, Toyokawa; Masahiro Sato, Toyohashi; Hitoshi Sekino, and Masashi Sakamoto, both of Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Division of Ser. No. 554,547, Nov. 7, 1995, Pat. No. 5,587,769.
 This application Sep. 19, 1996, Ser. No. 715,828

Claims priority, application Japan, Nov. 11, 1994, 6-277533
 Int. Cl.⁶ G03G 15/00; 15/20

U.S. Cl. 399—122

21 Claims



10. An image forming apparatus comprising:
 an apparatus housing having a stationary first frame and a releasable and movable second frame which may be opened on a front side of the image forming apparatus;
 a feed path constructed by a first member and a second member which are repositioned in response to the opening of said

second frame, said feed path extending from the front side to a back side of the image forming apparatus and being mounted on said first frame; and
 a fixing device having a driving mechanism which cuts transmission of a driving force to said fixing device in response to the opening of said second frame.

5,802,428

IMAGES FORMING APPARATUS AND DEVELOPER FOR DEVELOPING ELECTROSTATIC IMAGES

Manabu Ohno, Numazu; Hisayuki Ochi, Shizuoka-ken; Tetsu-hito Kuwashima, Toride; Hiroyuki Suematsu, Yokohama; Eiichi Imai, Funabashi; Tsuyoshi Takiguchi; Kolchi Tomiyama, both of Numazu; Tsutomu Kukimoto, Yokohama, and Hiroshi Yusa, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 108,798, Aug. 19, 1993, Pat. No.

5,534,981, which is a division of Ser. No. 558,097, Jul. 26, 1990, Pat. No. 5,307,122. This application Apr. 18, 1995, Ser.

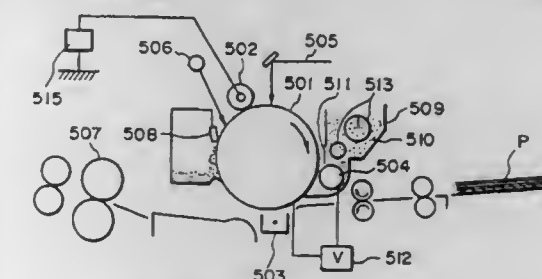
No. 423,709

Claims priority, application Japan, Jul. 28, 1989, 1-94026; Jul. 28, 1989, 1-194015; Jul. 28, 1989, 1-194016; Jul. 28, 1989, 1-194028; Dec. 22, 1989, 1-331299

Int. Cl.⁶ G03G 15/06

U.S. Cl. 399—222

63 Claims



1. An image forming method, comprising:
 a charging step of charging a member to be charged by causing a contact charging member to contact the member to be charged;
 a latent image forming step of imagewise exposing the charged member to be charged to form a latent image thereon; and
 a developing step of developing the latent image held on the member to be charged,
 wherein the developer comprises magnetic toner particles and fine powder treated with a treating agent selected from the group consisting of silicone oil, silicone varnish, amino-modified silicone oil and amino-modified silicone varnish, and
 the magnetic toner particles comprise at least a binder resin, and magnetic fine powder, said magnetic fine powder present in an amount of 10–70 wt. % of the magnetic toner particles.

5,802,429

COPYING MACHINE CONNECTED TO A HOST COMPUTER FOR STORAGE AND RETRIEVAL OF HELP INFORMATION

Yuji Yamashita, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

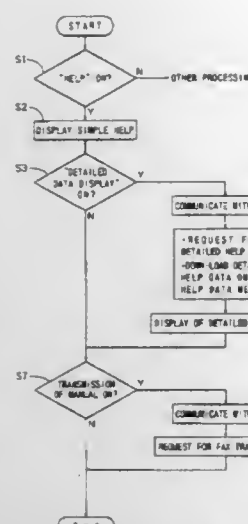
Filed Oct. 28, 1996, Ser. No. 738,884

Claims priority, application Japan, Oct. 30, 1995, 7-281226
 Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—8

2 Claims

1. A copying machine managing system, comprising:
 a host computer;
 a copying machine;
 a help data storage means disposed in said copying machine, and having a first storage region for storing simple help data related to a plurality of copying operations and a second



storage region for temporarily storing detailed help data related to the copying operations;

- a detailed help data request means disposed in said copying machine for requesting detailed help data related to the plurality of copying operations from said host computer;
- an operation manual transmission request means disposed in said copying machine for requesting the transmission of an operation manual;
- a display means disposed in said copying machine for displaying help data stored in said help data storage means and related to the copying operations;
- a data base provided in said host computer for storing detailed help data and an operation manual related to the plurality of copying operations, and for registering identification of a facsimile machine associated with said copying machine;
- a help data retrieval means provided in said host computer for retrieving detailed help data related to the corresponding copying operations, from said data base in accordance with a request from said detailed help data request means;
- an operation manual retrieval means provided in said host computer for retrieving the operation manual in accordance with a request from said operation manual transmission request means; and
- a communication means for transmitting requests from said detailed help data request means and from said operation manual transmission request means to said host computer and for transmitting detailed help data, related to the copying operations and retrieved by said help data retrieval means, to said copying machine and transmitting the operation manual retrieved by said operation manual retrieval means to the facsimile machine associated with said copying machine, as registered in said data base.

5,802,430

IMAGE FORMING APPARATUS HAVING MEANS FOR ADSORBING IMPURITIES CONTAINED IN THE TONER RETURNED BY THE RECYCLING MECHANISM

Hidekatsu Wada, Chiba-ken, Japan, assignor to Kabushiki Kaishi Toshiba, Kawasaki, Japan

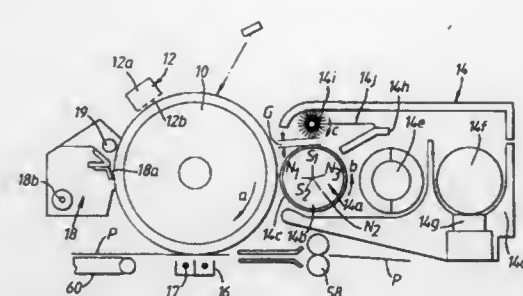
Filed Apr. 9, 1997, Ser. No. 826,370

Claims priority, application Japan, Apr. 22, 1996, 8-100176
Int. Cl.⁶ G03G 15/06; 21/00

U.S. Cl. 399—253

12 Claims

1. An image forming apparatus comprising:
 - means for forming an electrostatic latent image on an image carrier;
 - a developing agent carrying member for carrying a developing agent which is charged with a prescribed polarity and for supplying the developing agent to the electrostatic latent image to form a developed image, the developing agent carrying member including a rotatable non-magnetic sleeve



on which the developing agent is carried, and a magnet member fixed in the sleeve with magnetic poles N and S arranged alternately along a circumferential direction, wherein one of the magnetic poles of the magnetic member is opposed to the image carrier and another one is opposed to a contact member;

- first applying means for applying a prescribed developing bias voltage to the developing agent carrying member;
- the contact member for contacting with the developing agent carried on the developing agent carrying member in brush shape, the contact member including a brush roller which is composed of a conductive brush having a prescribed resistance, arranged at a prescribed distance away from a surface of the sleeve and comes in contact with the developing agent carried in brush shape on the sleeve, wherein the brush roller is rotated in the same direction as that of the sleeve at a position opposite to the sleeve; and
- second apply means for applying an adsorbing voltage having a predetermined polarity and voltage defined by the prescribed polarity of the developing agent and the developing bias voltage so that the contact member adsorbs impurities contained in the developing agent carried on the developing agent carrying member in brush shape.

5,802,431

COLLAPSIBLE TONER CONTAINER

Toshiaki Nagashima, Yokohama; Tadayuki Tsuda, Hachioji; Kazunori Kobayashi, and Kazuo Chadani, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

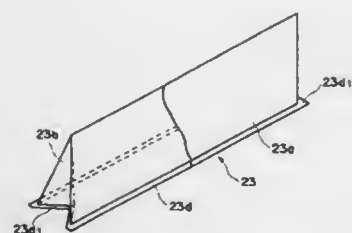
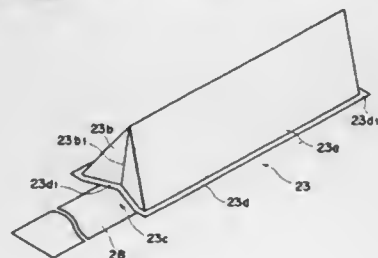
Filed Mar. 29, 1996, Ser. No. 624,214

Claims priority, application Japan, Apr. 3, 1995, 7-103138;
Apr. 3, 1995, 7-103141

Int. Cl.⁶ G03G 15/06

U.S. Cl. 399—262

44 Claims



1. A toner supply container for supplying toner to a toner accommodation container for containing toner to be used for

developing a latent image formed on an electrophotographic photosensitive member, comprising:

- a flexible toner accommodating portion having side walls at longitudinal opposite ends, said side walls having respective inward projected portions so that the toner accommodating portion is collapsed when external force is applied thereto;
- an opening, provided in said toner container, for permitting supply of the toner from said toner accommodating portion to said toner accommodation container;
- a sealing member for removably sealing said opening; wherein when the external force is applied, said toner accommodating portion is collapsed while said projected portion is being folded, so that a volume of toner accommodating portion is reduced in a direction crossing with a longitudinal direction thereof.

5,802,432

TONER CARTRIDGE WITH HOUSING AND PIN CONSTRUCTION

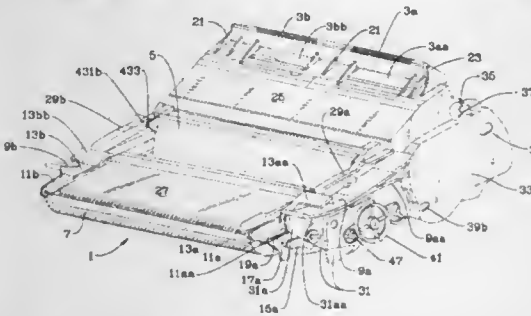
Johnnie A. Coffey, Winchester; Steven Alan Curry, Nicholasville; Larry Steven Foster, Lexington; Paul Douglas Horrall, Lexington; John Randolph McIntyre, Lexington; Richard Alden Ramsdell, Lexington, and David Erwin Rennick, Georgetown, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Dec. 20, 1996, Ser. No. 770,330

Int. Cl.⁶ G03G 21/18

U.S. Cl. 399—110

10 Claims



1. A toner cartridge comprising

- a first unitary element comprising hand grip at the top front end;
- a cleaner chamber at the rear end; and left and right side walls, each said side wall having a housing for loosely receiving a stud positioned in said housing; said element having openings near said chamber to mount a photosensitive roller;
- a second unitary member comprising a toner hopper, a post and a stud extending from each side of said hopper, and means to mount a developer roller for rotation to receive toner from said hopper;
- a first spring connected between said post of the left side of said second unitary member and said left side wall;
- a second spring connected between said post of the right side of said second unitary member and said right side wall;
- said stud of the left side of said cartridge positioned in said housing of said left side so as to be held by said housing of said left side, and
- said stud of the right side of said cartridge positioned in said housing of said right side so as to be held by said housing of said right side.

5,802,433

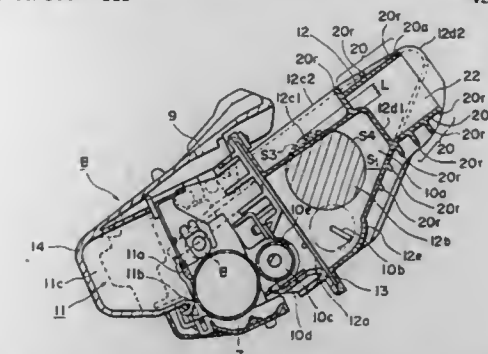
TONER FRAME, PROCESS CARTRIDGE AND ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Minoru Sato, Yokohama, and Isao Ikemoto, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 19, 1996, Ser. No. 635,199

Claims priority, application Japan, Apr. 20, 1995, 7-094730
Int. Cl.⁶ G03G 15/00; 21/18

U.S. Cl. 399—111

45 Claims



24. A toner frame to be used with a process cartridge which includes an electrophotographic photosensitive member and process means acting on said electrophotographic photosensitive member and which is mounted to and dismounted from the main body of image forming apparatus along a direction transverse to a longitudinal direction of said electrophotographic photosensitive member, comprising:

- a toner containing portion for containing toner used for developing a latent image formed on said electrophotographic photosensitive member;
- a first grip portion provided on a surface forming an upper surface of said toner containing portion when said process cartridge is mounted to the main body; and
- a second grip portion provided on a surface forming a lower surface of said toner containing portion when said process cartridge is mounted to the main body;
- a cavity being formed between said first grip portion and said second grip portion and recessed into said toner containing portion, so as to be located upstream of said toner containing portion in a mount direction of said process cartridge to the main body.

5,802,434

IMAGE FIXING APPARATUS WITH SEPARATION MEMBER

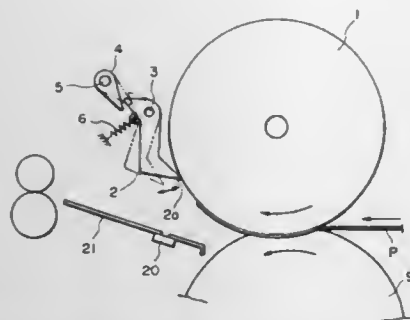
Yoshifumi Takehara, and Masaaki Sakurai, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 921,616, Aug. 3, 1992, abandoned, which is a continuation of Ser. No. 307,507, Feb. 8, 1989, abandoned. This application Mar. 24, 1994, Ser. No. 217,134
Claims priority, application Japan, Feb. 9, 1988, 63-026648; May 16, 1988, 63-118811; May 16, 1988, 63-118812; May 16, 1988, 63-118813; May 16, 1988, 63-118822; May 17, 1988, 63-118295; May 17, 1988, 63-118296

Int. Cl.⁶ G03G 15/20; 21/00

U.S. Cl. 399—323

32 Claims

1. A mechanism for moving a member contactable to a rotatable member, comprising:
 - a contactable member contactable to said rotatable member;
 - reciprocating means for reciprocating, by plural intermittent motions, said contactable member in a direction of a generating line of the rotatable member, wherein said reciprocating means includes a single cam which reciprocates the contactable member and allows said contactable member to stop



at different positions during a forward stroke than during a backward stroke by its one full turn.

5,802,435

TONER HOPPER LOCKOUT MECHANISM

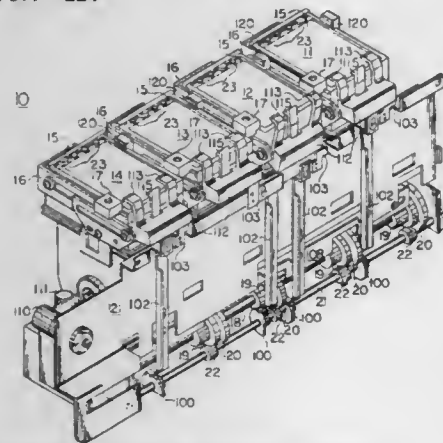
Jeffrey L. Trask, Boise, Id.; Hiroyuki Honda, and Kenji Sato, both of Hachioji, Japan, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 306,049, Sep. 14, 1994, Pat. No. 5,610,692. This application Oct. 22, 1996, Ser. No. 734,933

Int. Cl.⁶ G03G 15/01

U.S. Cl. 399—224

5 Claims



1. A color image forming apparatus comprising: an image retainer;

a plurality of developing developers;

a plurality of toner hoppers, each being attached to a different developer and each having toner level detector for detecting a low level of toner therein and toner cartridge lockout assembly being attached thereto; and

a selector assembly for selectively disengaging and reengaging only a single toner cartridge lockout assembly responsive to a low toner level condition sensed by the toner level detector within the respective toner hopper and configured to cause the lockout assemblies to interfere with engagement of toner cartridges with toner hoppers at all other times, except in the case of an initial fill or maintenance.

5,802,436

APPARATUS FOR REMOVAL OF BACK-PLATED DEVELOPER FROM A DEVELOPMENT DEVICE

Arthur V. Lang, Maplewood, and Donald H. Larson, Stillwater, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

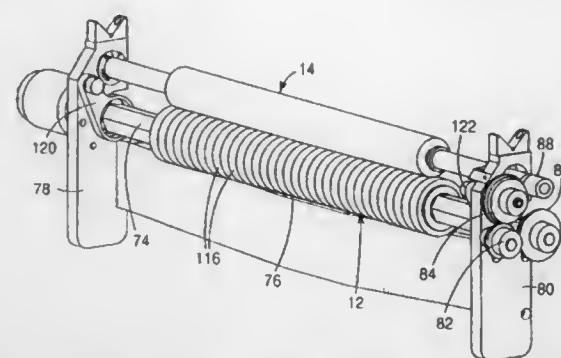
Continuation of Ser. No. 811,661, Mar. 4, 1997. This application Aug. 28, 1997, Ser. No. 919,554

Int. Cl.⁶ G03G 15/10

U.S. Cl. 399—249

23 Claims

1. An apparatus for removing back-plated developer from a development device in a liquid electrographic imaging system, the apparatus comprising:



a shaft having a fluid flow means for delivering a cleaning liquid to an outer surface of the shaft;

cleaning media mounted about the outer surface of the shaft, the cleaning media receiving the cleaning liquid;

means for loading the cleaning media against the development device; and

means for rotating the shaft and cleaning media, wherein the cleaning media removes back-plated developer from the development device and the cleaning liquid flushes at least a portion of the removed back-plated developer from the cleaning media.

5,802,437

PRODUCTION OF METALLIC SHAPED BODIES BY INJECTION MOLDING

Hans Wohlfromm, Ludwigshafen; Dieter Weinand, Neustadt; Martin Blömacher, Meckenheim; Manfred Schwarz, Ludwigshafen, and Eva-Maria Langer, Hemsbach, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

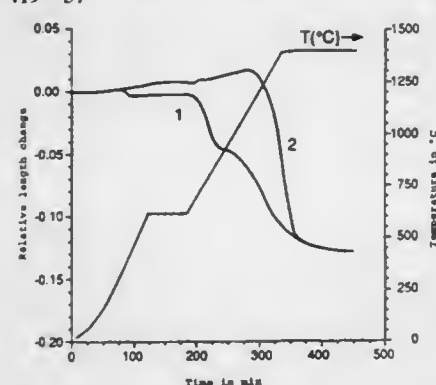
Filed Sep. 28, 1995, Ser. No. 535,736

Claims priority, application Germany, Oct. 7, 1994, 44 35 904.7

Int. Cl.⁶ B22F 3/10

U.S. Cl. 419—37

18 Claims



1. A process for producing metallic shaped bodies, wherein an injection-molding composition comprising at least one carbonyl metal powder and at least one alloy powder is shaped, the binder is removed and the body is sintered, where the alloy powder comprises at least one metal of the group Cr, Mn, V, Si and/or at least one other metal which is at least as oxidation-sensitive, wherein the alloy powder is free of iron.

5,802,438

METHOD FOR GENERATING A CRYSTALLINE ⁹⁹MOO₃ PRODUCT AND THE ISOLATION ⁹⁹M TC COMPOSITIONS THEREFROM

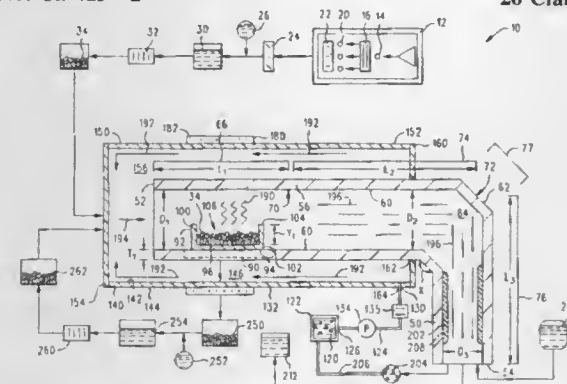
Ralph G. Bennett; Jerry D. Christian, both of Idaho Falls; Robert J. Kirkham, Blackfoot, and Troy J. Tranter, Idaho Falls, all of Id., assignors to Lockheed Martin Idaho Technologies Company, Idaho Falls, Id.

Filed Feb. 19, 1997, Ser. No. 801,981

Int. Cl.⁶ C01G 57/00; 39/02

U.S. Cl. 423—2

26 Claims



1. A method for isolating and producing a ^{99m}Tc-containing reaction product from a ⁹⁹Mo compound comprising:

providing an initial supply of ⁹⁹Mo metal;

dissolving said ⁹⁹Mo metal in at least one oxygen-containing primary solvent to generate a solvated ⁹⁹Mo product;

drying said solvated ⁹⁹Mo product to produce a plurality of ⁹⁹MoO₃ crystals;

heating said ⁹⁹MoO₃ crystals to a first temperature, said first temperature being sufficiently high to sublime said ⁹⁹MoO₃ crystals and generate a gaseous mixture thereof comprising vaporized ^{99m}TcO₃ and vaporized ^{99m}TcO₂, with said first temperature being sufficiently low to avoid melting said ⁹⁹MoO₃ crystals and sufficiently low to likewise avoid forming vaporized ⁹⁹MoO₃ during said heating of said ⁹⁹MoO₃ crystals;

converting said vaporized ^{99m}TcO₃ and said vaporized ^{99m}TcO₂ in said gaseous mixture to a supply of vaporized ^{99m}Tc₂O₇; cooling said vaporized ^{99m}Tc₂O₇ to a final temperature sufficient to condense said vaporized ^{99m}Tc₂O₇ so that a condensed ^{99m}Tc-containing reaction product is produced therefrom; and collecting said condensed ^{99m}Tc-containing reaction product.

5,802,439

METHOD FOR THE PRODUCTION OF ⁹⁹M TC COMPOSITIONS FROM ⁹⁹MO-CONTAINING MATERIALS

Ralph G. Bennett; Jerry D. Christian; S. Blaine Grover; David A. Petti; William K. Terry, and Woo Y. Yoon, all of Idaho Falls, Id., assignors to Lockheed Martin Idaho Technologies Company, Idaho Falls, Id.

Filed Feb. 19, 1997, Ser. No. 801,982

Int. Cl.⁶ C01G 57/00; 39/02

U.S. Cl. 423—2

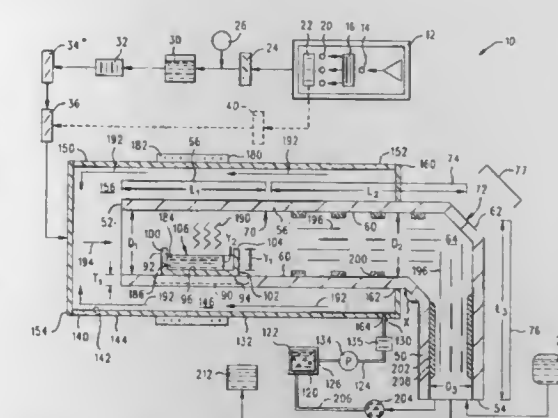
29 Claims

1. A method for isolating and producing a ^{99m}Tc-containing reaction product from a ⁹⁹Mo compound comprising:

providing an initial supply of ⁹⁹MoO₃;

heating said initial supply of ⁹⁹MoO₃ to a temperature sufficient to produce molten ⁹⁹MoO₃ therefrom, said temperature further causing a gaseous mixture to evolve from said molten ⁹⁹MoO₃, said gaseous mixture comprising vaporized ⁹⁹MoO₃, vaporized ^{99m}TcO₃, and vaporized ^{99m}TcO₂;

forming said molten ⁹⁹MoO₃ into a pool having a depth of about 0.5–5 mm, said depth allowing said gaseous mixture to diffuse through said molten ⁹⁹MoO₃ and evolve therefrom in a rapid, efficient, and complete manner;



passing a supply of an oxygen-containing oxidizing gas over said pool of said molten ⁹⁹MoO₃ during evolution of said gaseous mixture therefrom, said passing of said oxidizing gas over said molten ⁹⁹MoO₃ producing a gaseous stream comprising said oxidizing gas in combination with said gaseous mixture, said oxidizing gas oxidizing said vaporized ^{99m}TcO₃ and said vaporized ^{99m}TcO₂ in said gaseous mixture to form a supply of vaporized ^{99m}Tc₂O₇ therefrom, said gaseous stream comprising said vaporized ^{99m}Tc₂O₇ and said vaporized ⁹⁹MoO₃ therein after said oxidizing of said vaporized ^{99m}TcO₃ and said vaporized ^{99m}TcO₂;

cooling said gaseous stream in a primary condensation stage in an amount sufficient to condense and remove said vaporized ⁹⁹MoO₃ from said gaseous stream while allowing said vaporized ^{99m}Tc₂O₇ to remain unaffected;

cooling said gaseous stream in a secondary condensation stage after treatment in said primary condensation stage in an amount sufficient to condense and remove said vaporized ^{99m}Tc₂O₇ from said gaseous stream so that a condensed ^{99m}Tc-containing reaction product is produced from condensation of said vaporized ^{99m}Tc₂O₇; and

collecting said condensed ^{99m}Tc-containing reaction product.

5,802,440

CLEANING APPARATUS FOR CLEANING HEAT FIXING MEMBER, HEAT FIXING METHOD AND IMAGE FORMING METHOD

Ryuichiro Maeyama, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Japan

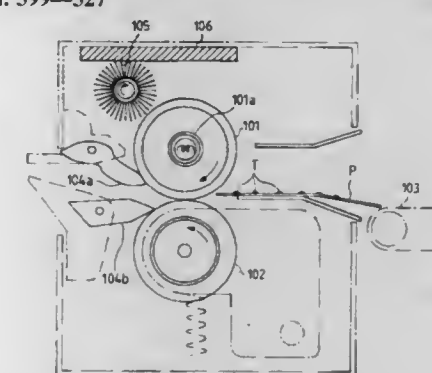
Filed Jul. 1, 1996, Ser. No. 674,241

Claims priority, application Japan, Jun. 30, 1995, 7-186474

Int. Cl.⁶ G03G 15/20; 13/08

U.S. Cl. 399—327

124 Claims



21. A heat fixing method comprising the steps of: carrying a toner image formed by a toner on a recording member;

fixing the toner image carried on said recording member to said recording member by bringing a heat fixing member into pressure contact with the toner image; and cleaning a surface of said heat fixing member by a cleaning apparatus,

wherein said cleaning apparatus comprises a cleaning member to be brought into contact with the surface of said heat fixing member, and a first wax held on said cleaning member, wherein, when a contact angle between the first wax and said heat fixing member at 100° C. is represented by C, and a contact angle between the first wax and said heat fixing member at 200° C. is represented by D, the contact angles C and D satisfy the following relationship:

$$60^\circ \leq C \leq 80^\circ$$

$$10^\circ \geq D - C \geq 3^\circ$$

5,802,441

TONER CARTRIDGE WITH REMOVABLE SEALING FILM

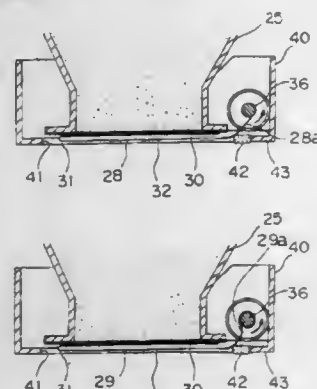
Mitsuharu Okada, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 22, 1996, Ser. No. 755,080

Claims priority, application Japan, Nov. 29, 1995, 7-310866
Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—262

9 Claims



1. A toner cartridge for use in a toner hopper for supplying toner to an image forming apparatus, the toner cartridge comprising: a case having a plurality of toner discharge openings through a portion of said case; a reeling shaft which is rotatably supported by said case; and a first sealing film and a second sealing film, a first portion of each of said first and second sealing films extending across each of said toner discharge openings and removably adhered to a portion of said case surrounding said toner discharge openings, a second portion of each of said sealing films folded back across said first portion and said toner discharge openings, and a third portion attached to and extended around a circumferential portion of said reeling shaft; wherein said third portion of at least one of said first and second sealing films is attached to and extended around said reeling shaft in a circumferential direction opposite that of the other of said first and second sealing films.

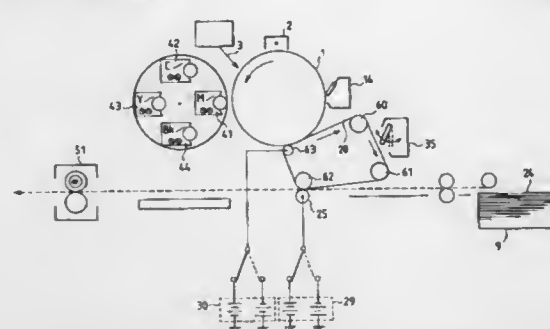
**5,802,442
INTERMEDIATE TRANSFER MEMBER,
ELECTROPHOTOGRAPHY APPARATUS USING THE
SAME, AND METHOD FOR MANUFACTURING THE
SAME**

Takuya Konno, Ibaraki-ken; Masaaki Takenaka, Kashiwa; Hitoshi Kakii, and Mihoko Oda, both of Ushiku, all of Japan, assignors to Canon Kasei Kabushiki Kaisha, Japan
Filed Oct. 16, 1996, Ser. No. 733,013

Claims priority, application Japan, Oct. 20, 1995, 7-272996;
Jul. 26, 1996, 8-214965

Int. Cl.⁶ G03G 15/00; 15/16
U.S. Cl. 399—308

18 Claims



1. An intermediate transfer member for electrophotography, comprising: a base layer; and a surface layer provided upon said base layer, wherein said base layer is formed of elastomer, and said surface layer is formed of engineering plastic, and wherein the hardness measured from the side of said surface layer is in the range of 40 degrees to 100 degrees.

5,802,443

**REINFORCED THIN CYLINDRICAL STRUCTURE,
IMAGE FIXING DEVICE USING THIS CYLINDRICAL
STRUCTURE, AND METHOD FOR MANUFACTURING
REINFORCED THIN CYLINDRICAL STRUCTURE**

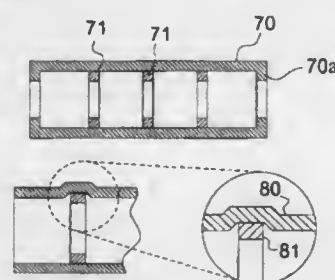
Mitsuhiro Matsumoto; Yasuhiro Uehara, both of Nakai-machi, and Yoshio Shoji, Minami-ashigara, all of Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Nov. 12, 1996, Ser. No. 747,210

Claims priority, application Japan, Feb. 8, 1996, 8-045673
Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—333

17 Claims



1. An image fixing device for heating and pressing recording medium carrying toner images to melt and set the image on the recording medium comprising: a heating fixing roller for heating said recording medium, rotation driving means for driving rotationally the heating fixing roller, and a pressure body provided on the opposite side of said heating fixing roller with respect to said recording medium, said heating fixing roller comprising: a thin cylinder; and supporting members in the form of independent, unconnected rings being in contact with the inside surface of said cylinder for supporting said cylinder by deforming the inside surface.

of said cylinder in the circumferential direction and a central, axial passage through said thin cylinder being defined by inner diameters of said rings.

5,802,444

**ELECTROPHOTOGRAPHIC APPARATUS FOR A
CONTINUOUS STRIP OF PAPER SHEETS FIXED BY A
HEAT FIXING UNIT**

Yoshiichi Takeuchi; Akihiko Yamazaki, both of Hitachinaka; Shuho Yokokawa, Mito; Kunitomo Takahashi, Hitachinaka; Isao Nakajima, Hitachinaka; Kazuhiro Shimojima, Hitachinaka; Shinya Yamazaki, Mito, and Tomomichi Kawashima, Hitachinaka, all of Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

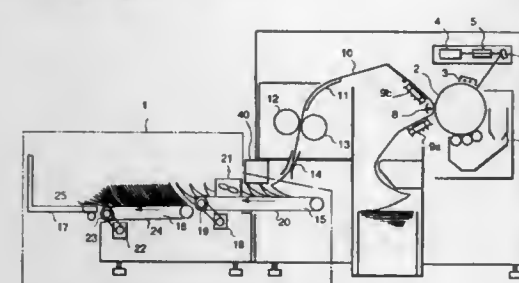
Filed May 5, 1997, Ser. No. 851,067

Claims priority, application Japan, May 10, 1996, 8-116399;
Oct. 25, 1996, 8-283727; Oct. 25, 1996, 8-283734; Oct. 25, 1996, 8-283739

Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—384

17 Claims



1. An electrophotographic apparatus comprising: a fixing unit for heating toner transferred on a continuous strip of paper sheets and for fixing the toner on said strip of continuous paper sheets; a folding unit for supplying a folding force to said continuous strip of paper sheets transferred from said fixing unit; stacking means for stacking the folded continuous strip of paper sheets transferred from said folding unit; and gap forming means arranged between said folding unit and said stacking means for contactingly conveying said folded continuous strip of paper sheets to said stacking means, so as to provide predetermined gaps between the folds in said folded continuous strip of paper sheets.

5,802,445

**METHODS AND APPARATUS FOR PROVIDING USER RF
EXPOSURE MONITORING AND CONTROL IN A
SATELLITE COMMUNICATIONS SYSTEM**

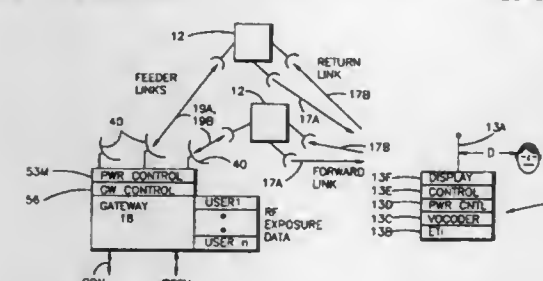
Robert A. Wiedeman, Los Altos; Paul A. Monte, San Jose, and Michael J. Sites, Fremont, all of Calif., assignors to Globalstar L.P., San Jose, Calif.

Filed Jul. 13, 1995, Ser. No. 502,151

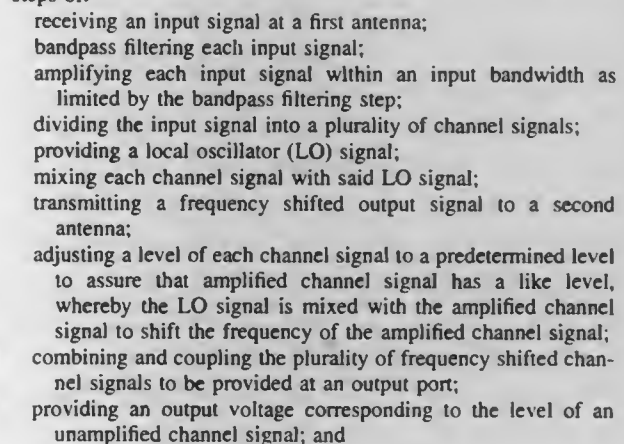
Int. Cl.⁶ H04B 1/04; 7/185

U.S. Cl. 455—12.1

28 Claims



UMI



comparing each amplified channel signal voltage to a reference voltage for providing a switching signal to a corresponding LO channel switch for turning the LO signal off for that channel when the unamplified channel signal level falls below a preset value, and for turning the LO signal on when the unamplified channel signal level meets or exceeds a preset value.

5,802,453

RADIO PAGING TRANSMITTER WHICH ADJUSTS ITS TRANSMISSION TIME BASED ON DETECTION OF ITS OWN TRANSMISSION DELAY

Yoshinori Kuroki; Toshiro Suzuki; Ayumu Koide; Takafumi Kojima, and Yasuo Kogure, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

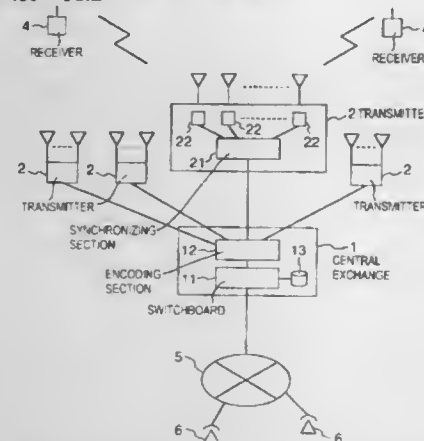
Filed Nov. 30, 1995, Ser. No. 566,434

Claims priority, application Japan, Dec. 2, 1994, 6-299242

Int. Cl.⁶ H04M 11/00

U.S. Cl. 455—31.2

3 Claims



2. A transmitter apparatus for transmitting to a receiving unit by radio a message received from another transmitter at a point of time specified by time information added to the message, comprising:

- a satellite receiving unit for receiving information of time transmitted from a satellite by radio;
- a satellite clock for measuring a current time according to the information of time received by the satellite receiving unit;
- receiving means for receiving the message transmitted from the other transmitter;
- a receiver transmitting unit for transmitting a message by radio;
- a supervisory receiving unit for receiving a message transmitted from the receiver transmitting unit;
- means for obtaining a transmission delay time of the receiver transmitting unit according to the difference between the time specified by the time information added to the message received by the supervisory receiving unit and the time, as measured by the satellite clock thereof, when the message is received by the supervisory receiving unit, and
- control means transmitting, according to the current time being measured by the satellite clock thereof, the message from the receiver transmitting unit at a point of time, adjusted by the obtained transmission delay time, specified by the time information added to the message received by the receiving means.

5,802,454 REMOTELY DISTRIBUTED LOCATION AND MESSAGING SYSTEM

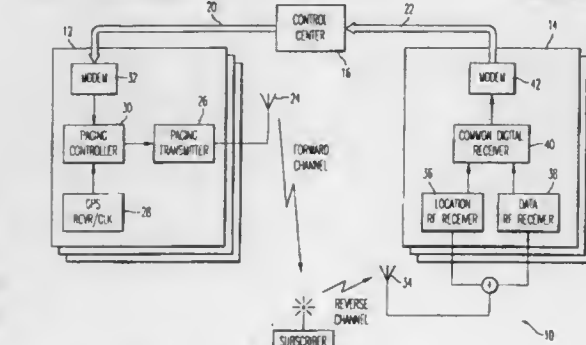
William K. Goshay, Yorba Linda, Calif.; Joseph W. Sheehan, Wayne, Pa.; Barry D. Atkinson, Los Angeles, Calif.; Edward A. Hurst, Oakton, Va.; Richard A. Jackson, Kanata, Canada, and Mario Proietti, Fullerton, Calif., assignors to Teletrac, Inc., Kansas City, Mo.

Filed Dec. 15, 1995, Ser. No. 573,066

Int. Cl.⁶ H04Q 7/08

U.S. Cl. 455—31.2

20 Claims



1. A Distributed Location and Messaging System for providing location and messaging services, comprising:

- (a) one or more Remotely Distributed Network Components for providing the location and messaging services using radio frequency (RF) communications;
- (b) each of the Remotely Distributed Network Components providing a coverage area for a different associated geographic region;
- (c) each of the Remotely Distributed Network Components comprising means for performing a location and message request for a specified subscriber unit in the associated geographic region using one or more radio frequency transmitting sites and a plurality of radio frequency receiving sites;
- (d) one or more Network Operations Centers, coupled to all of the Remotely Distributed Network Components, for controlling operations of the Remotely Distributed Network Components; and
- (e) the Network Operations Centers and the Remotely Distributed Network Components together further comprising means for initiating the location and message request by identifying a particular one of the Remotely Distributed Network Components having a coverage area for the specified subscriber unit, means for routing the location and message request to the identified Remotely Distributed Network Component, means for transmitting a unique paging message to a subscriber unit, means for receiving a response from the subscriber unit, means for forwarding the response from the subscriber unit to a processor coupled to the identified Remotely Distributed Network Component, and means for resolving the response from the subscriber unit into a location for the subscriber unit within the coverage area of the identified Remotely Distributed Network Component.

5,802,455 SELECTIVE CALL RECEIVER USING TYPEFACE-BASED SOURCE IDENTIFICATION

Toshiro Nishiyama, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 16, 1996, Ser. No. 764,882

Claims priority, application Japan, Dec. 19, 1995, 7-330165

Int. Cl.⁶ H04B 7/00

U.S. Cl. 455—38.4

9 Claims

- 1. A selective calling receiver comprising:
 - a display;
 - input means for inputting a user's instruction;
 - receiving means for selectively receiving a first message from a first caller according to a first caller identifier and selectively

5,802,457 METHOD FOR REALIZING AMBIENCE LISTENING, AND RADIO UNIT

Mika Heiskari, Liminka, and Mika Lehmusto, Kerava, both of Finland, assignors to Nokia Telecommunications Oy, Espoo, Finland

PCT No. PCT/FI95/00151, § 371 Date Apr. 19, 1996, § 102(e) Date Apr. 19, 1996, PCT Pub. No. WO95/26614, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 21, 1995, Ser. No. 553,295

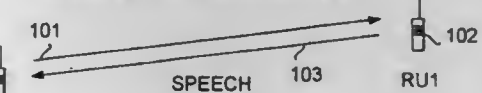
Claims priority, application Finland, Mar. 24, 1994, 941382

Int. Cl.⁶ H04B 1/40

U.S. Cl. 455—88

AMBIENCE LISTENING MESSAGE

13 Claims



1. A method for activating ambience listening, in which a first, mobile radio unit, having an electroacoustic transducer transmits ambient sounds, which may include voice, detected by said electroacoustic transducer to a second radio unit, over a direct mode radio path, comprising the steps of:

- the second radio unit commanding the first radio unit to transmit such ambient sounds as are detected by said electroacoustic transducer, to the second radio unit, by sending the first mobile radio unit, on a direct mode radio channel, an activate-ambience listening message that contains an identifier of the second radio unit, and without causing a user interface of the first, mobile radio unit to provide any indication of such commanding;
- the first mobile radio unit checking, in response to said commanding by the second radio unit, a listening authority of the second radio unit, and
- the first, mobile radio unit starting ambience listening and transmitting ambient sounds, which may include, voice to the second radio on a direct mode radio channel, only if the second radio unit is determined as a result of said checking, to have listening authority.

5,802,456 METHOD AND APPARATUS TO MITIGATE INTERFERENCE CAUSED BY AN OVERLAY COMMUNICATION SYSTEM

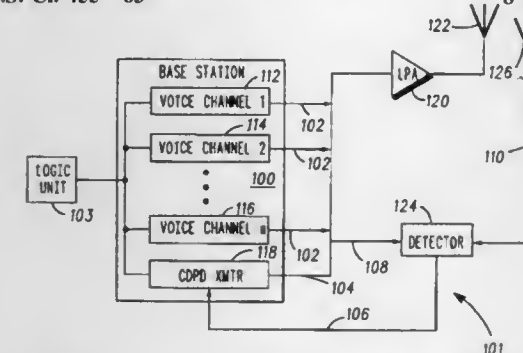
Thomas G. Hulsebosch, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 16, 1996, Ser. No. 602,411

Int. Cl.⁶ H04B 1/12

U.S. Cl. 455—63

8 Claims



1. A method to mitigate interference in a first and a second communication system caused by an overlay of the first and the second communication system, wherein the first and the second communication systems utilize common equipment for transmission of signals, the method comprising the steps of:

- creating a first group of channels utilized by the common equipment to be primarily used by the first communication system, the first group of channels comprising a first and a second subgroup of channels;
- creating a second group of channels utilized by the common equipment to be primarily used by the second communication system, the second group of channels comprising a third and a fourth subgroup of channels;
- utilizing by the second communication system, the third subgroup of channels for primary assignment, the fourth subgroup of channels as secondary assignment, and the first group of channels for assignment when a statistic is above a threshold.

5,802,458 DEVICE AND ANTENNA FOR CORDLESS RADIO COMMUNICATION INCLUDING RADIO SIGNAL ATTENUATION MECHANISM

Paulus Thomas M. Van Zeijl, Hengelo, and Johannis Van Bruggen, Enschede, both of Netherlands, assignors to Telefoanktiebolaget LM Ericsson, Stockholm, Sweden

PCT No. PCT/NL94/00158, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO95/02284, PCT Pub. Date Jan. 19, 1995

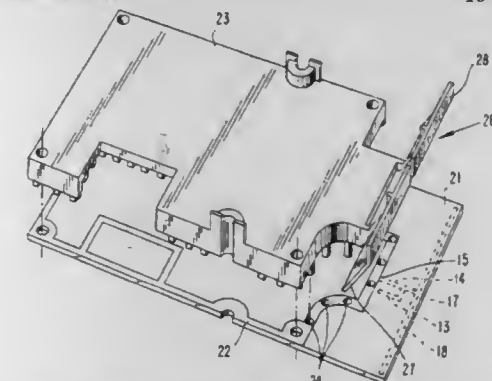
PCT Filed Jul. 11, 1994, Ser. No. 591,559

Claims priority, application European Pat. Off., Jul. 9, 1993, 93202040; Netherlands, Dec. 15, 1993, 9302192

Int. Cl.⁶ H04B 1/03

U.S. Cl. 455—90

10 Claims

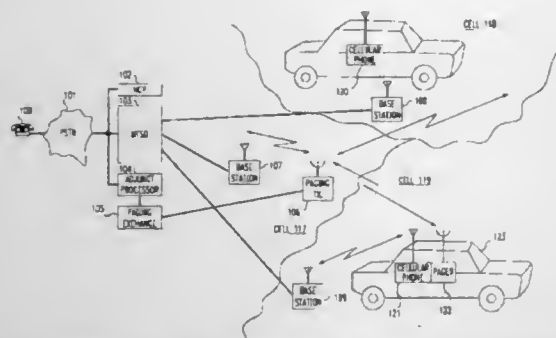


1. Antenna for use in a device for cordless radio communication, comprising:

UMI

1. A broadcast or communications receiver having an intermediate frequency amplifier comprising:

U.S. Cl. 455—426 8 Claims
1. A wireless call completion method comprising the steps of:



in response to a call incoming for a wireless radiotelephone, transmitting a paging signal to a pager associated with the wireless radiotelephone,

the step of transmitting comprising the steps of

in response to the incoming call, determining whether the wireless radiotelephone is registered with any base station, and

in response to determining that the wireless radiotelephone is not registered with any base station, transmitting the paging signal to the pager;

in response to receiving the paging signal at the pager, enabling the wireless radiotelephone to receive the incoming call.

the step of enabling comprising the steps of

causing the wireless radiotelephone to register with a base station,

wherein the step of causing comprises the steps of

activating the wireless radiotelephone; and

in response to the activation, the wireless radiotelephone registering with the base station; and

subsequently to the transmitting paging signal, extending the incoming call to the enabled wireless radiotelephone,

the step of extending comprising the step of

extending the incoming call to the registered wireless radiotelephone through the base station with which the wireless radiotelephone is registered, and further comprising the steps of:

in response to either (a) the extended incoming call not being answered at the wireless radiotelephone or (b) the extended incoming call being answered at the wireless radiotelephone and subsequently being terminated, transmitting a second paging signal to the pager; and

in response to receiving the second paging signal at the pager deactivating the wireless radiotelephone.

5,802,471

MOBILE COMMUNICATION SYSTEM, AUTOMATIC CALL RECEIVING METHOD, AND MOBILE STATION
Koichi Sawai, Yokohama; Kunio Yoshikawa, Tokyo, and Yukiya Miyasita, Yokohama, all of Japan, assignors to NTT Mobile Communications Network, Inc., Japan

Filed Dec. 26, 1995, Ser. No. 578,457

Claims priority, application Japan, Dec. 28, 1994, 6-327677
Int. Cl.⁶ H04Q 7/14; 7/00

U.S. Cl. 455—445

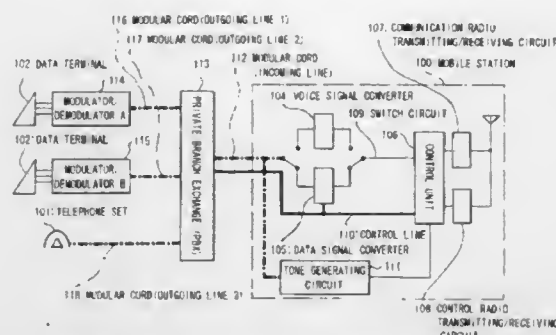
11 Claims

1. A communication system comprising an exchange connected to a network and including a plurality of modulators/demodulators corresponding to plural types of communication and a communication device being capable of communication with said exchange over the air, wherein

said communication device is capable of responding to all call numbers corresponding to a plurality of terminal units connected to said communication device;

said communication device comprising:

number notification means for notifying, when a call is issued to said communication device via said exchange, the number of said call to a plurality of terminal units connected to said communication device; and



communication type notification means for selecting a specific terminal unit, when a signal indicative of "communicable" is supplied by one of said terminal units which has received a notice from said number notification means, and notifying the type of communication to said exchange;

said exchange comprising selection means capable of selecting one of said modulators/demodulators corresponding to said notice provided by said communication type notification means.

5,802,472

RECONNECTION APPARATUS IN DIRECT COMMUNICATION SYSTEM BETWEEN SUBSIDIARY RADIOTELEPHONE UNITS

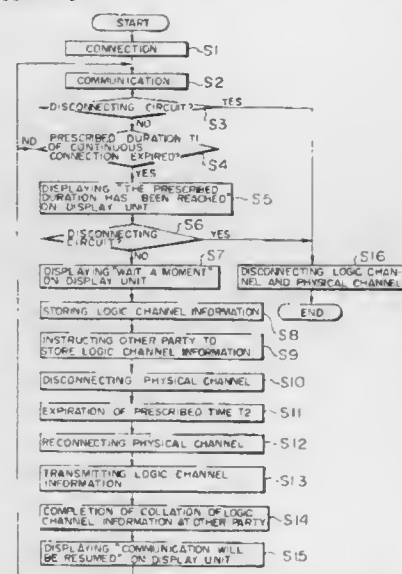
Keiichi Taniguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 707,614

Claims priority, application Japan, Sep. 6, 1995, 7-228450
Int. Cl.⁶ H04B 1/38; 7/005

U.S. Cl. 455—445

14 Claims



1. A reconnection apparatus in a direct communication system between subsidiary radiotelephone units in which connection between the subsidiary radiotelephone units is forcibly disconnected when direct communication is carried out between the subsidiary radiotelephone units over a prescribed duration of a continuous connection, the apparatus comprising:

detection means for detecting the passage of the prescribed duration of a continuous connection and informing the expiration of the prescribed duration of a continuous connection immediately before the prescribed duration of a continuous connection expires;

judging means for judging whether there is a communication continuation instruction from the outside in response to the information from the detection means;

storing means for storing at least information on the connection destination of the direct communication and information on

connection between the subsidiary radiotelephone units when the judging means judges that there is the communication continuation instruction; and

means for carrying out reconnection with the connection destination of the direct communication based on the connection destination information and the connection information of the storing means when the judging means judges that there is the communication continuation instruction.

5,802,473

AUTOMATIC DETERMINATION AND TUNING OF PICO-CELL TOPOLOGY FOR LOW-POWER WIRELESS SYSTEMS

Philip Antony Rutledge, Ottawa; Jin Kue Wong, Nepean; Roland A. Smith, Nepean, and Kasper Reinink, Nepean, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

PCT No. PCT/CA95/00328, § 371 Date Jan. 26, 1996, § 102(e)
Date Jan. 26, 1996, PCT Pub. No. WO95/35004, PCT Pub. Date Dec. 21, 1995

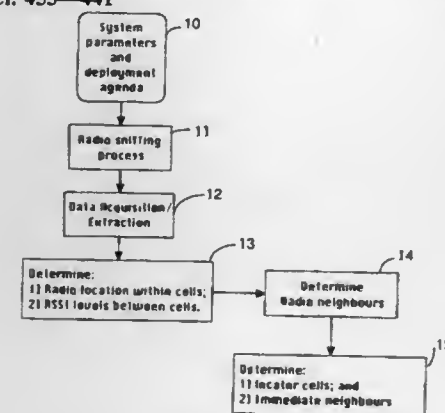
PCT Filed Jun. 7, 1995, Ser. No. 586,694

Claims priority, application United Kingdom, Jun. 10, 1994, 9411665

Int. Cl.⁶ H04Q 7/00

U.S. Cl. 455—441

13 Claims



1. A method of determining the cellular topology of a cellular network, having a plurality of radio base stations connected to a central controller, comprising the steps of:

- a) selecting a base station from said plurality of base stations;
- b) broadcasting from said selected base station a test signal;
- c) receiving the test signal at each base station located within the radio propagation range of said selected base station;
- d) measuring the Received Signal Strength Indication (RSSI) level at each base station able to receive said test signal from said selected base station;
- e) forwarding the measured RSSI level to the central controller;
- f) repeating steps a) to e) until each base station in said plurality has been selected and until all RSSI levels have been measured; and
- g) determining the relative location of each base station from one another by mapping a matrix of measured RSSI levels for the corresponding radio base stations, so as to delineate the cellular bounds of the network.

5,802,474

DIRECTIONAL FREQUENCY ALLOCATION IN AN N=6 CELLULAR RADIO SYSTEM

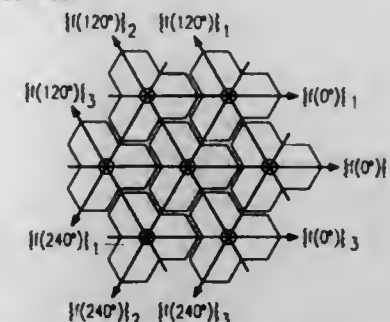
Saleh Faruque, Plano, Tex., assignor to Northern Telecom Limited

Filed Jun. 20, 1996, Ser. No. 667,831

Int. Cl.⁶ H04Q 7/20

U.S. Cl. 455—447

9 Claims



1. A method for frequency allocation in a cellular system, the cellular system having a plurality of available frequencies and comprising a plurality of cells, the method comprising the steps of:

forming a tri-cell group from three of the plurality of cells, the tri-cell group having three axes of frequency use;

forming a cellular cluster from seven of the at least one tri-cell groups, the cellular cluster having a plurality of layers for each frequency use axis;

grouping the plurality of available frequencies into a predetermined number of frequency groups;

locating a plurality of antennas substantially in the center of each tri-cell group, each antenna of the plurality of antennas radiating into a predetermined sector of the tri-cell group; and

allocating the frequency groups such that a first frequency group is used only along a first frequency use axis, of the three frequency use axes, in the cellular cluster.

5,802,475

MOBILE RADIO TELEPHONE APPARATUS

Toshihide Kishida; Hideaki Yui; Shigehiko Yazawa, and Hideya Toyama, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 895,129, Jun. 8, 1992, abandoned.

This application Nov. 10, 1994, Ser. No. 339,296

Claims priority, application Japan, Jun. 6, 1991, 3-134743; Mar. 16, 1992, 4-057898

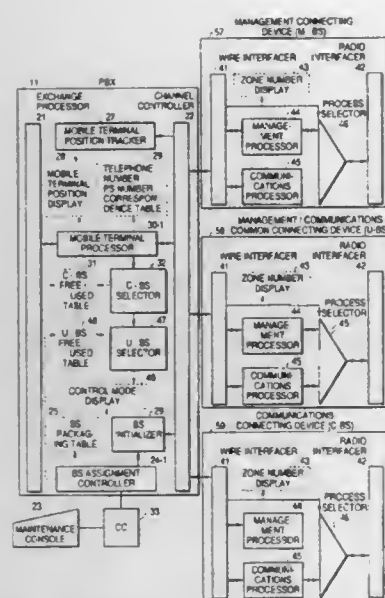
Int. Cl.⁶ H04Q 7/20

U.S. Cl. 455—453

5 Claims

1. A mobile radio telephone system operating in a plurality of zones and using a management connecting device as an additional communications connecting device, comprising:

- a predetermined number P of mobile terminals provided in each of said plurality of zones;
 - a predetermined number Q of communications connecting devices, provided in each of said plurality of zones, each for establishing a call generated from one of the mobile terminals over a control channel and for switching the control channel to a communications channel to communicate with said one mobile terminal in a wireless connection;
 - a management connecting device, provided in each of said plurality of zones separately from said predetermined number Q of communications connecting devices, for recognizing P mobile terminals entering and leaving the zone; and
 - controlling means for switching said management connecting device to operate as an additional communications connecting device in one of said zones if one of said P mobile terminals generates a connecting request in said one zone and all Q of said communications connecting devices are already assigned to the remaining said P mobile terminals,
- such that if the management connecting device is operating as an additional communications connecting device and subse-



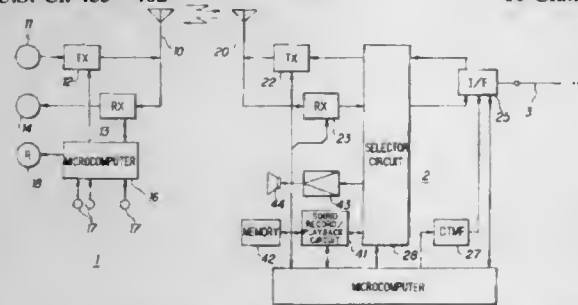
quently a communications connecting device is released from communication followed by a mobile terminal generating a connecting request, the communications connecting device released from communication will communicate with the mobile terminal generating the connecting request, and such that the management connecting device does not recognize mobile terminals entering and leaving the zone when the management connecting device operates as an additional communications connecting device.

5,802,476 CORDLESS TELEPHONE SYSTEM HAVING BASE UNIT WITH SPEAKER

Kazunori Nakajima, Saitama; Toshiharu Tajiri, Kanagawa; Hidekazu Sato, Saitama; Hiroshi Miyamoto, Chiba; Takashi Enomoto, Tokyo, and Tsutomu Iwaoka, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Dec. 29, 1995, Ser. No. 581,331

Claims priority, application Japan, Jan. 18, 1995, 7-023444
Int. Cl.⁶ H04Q 7/30

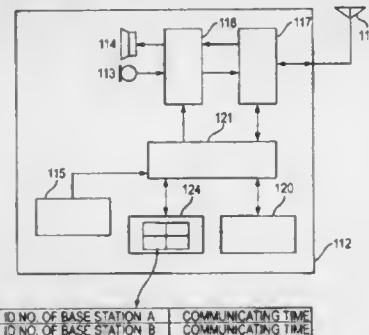
U.S. Cl. 455-462 10 Claims



7. A communication method in a cordless telephone system having a base unit attached to a telephone line and a handset with a plurality of buttons, said method comprising the steps of: transmitting from said base unit a telephone line audio signal received through said telephone line; receiving in said handset the telephone line audio signal from said base unit; transmitting a signal from said handset to said base unit; receiving in said base unit the signal from said handset; and outputting said telephone line audio signal by means of a speaker in said base unit when said base unit receives the telephone service mode signal produced by operating said program button in said handset; and

ceasing outputting said telephone line audio signal upon a subsequent pressing of the program button.

5,802,477
WIRELESS TELEPHONE APPARATUS
Hiromu Mizokami, Fukuoka, and Hiroaki Ishida, Kasuga, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jan. 24, 1996, Ser. No. 590,642
Claims priority, application Japan, Jan. 25, 1995, 7-009935
Int. Cl.⁶ H04M 11/00
U.S. Cl. 455-525 17 Claims



1. A private cordless telephone apparatus comprising: a plurality of base stations connected to a public switched telephone network; and a personal station connected to said base stations by wireless; wherein said personal station comprises: wireless means for connecting to said base stations by wireless; base station ID information registration means for previously registering ID information of a plurality of base stations having a specified relation; base station selection indication means for indicating a selection of a base station to be called from the base stations registered in said base station ID information registration means and reading ID information of said base station to be called out of said base station ID information registration means; and control means for controlling said wireless means to establish wireless communication to a base station, after confirming at said base station if said base station ID information read is base station ID information registered.

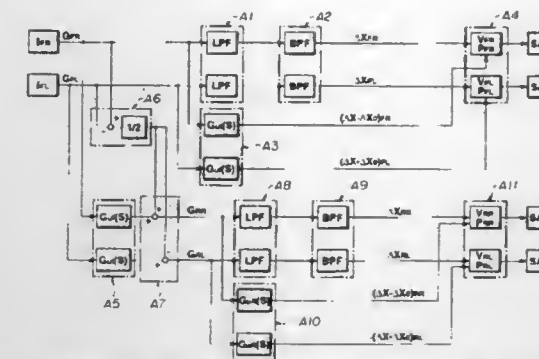
5,802,478 AUTOMOTIVE VEHICLE SUSPENSION CONTROL SYSTEM

Katsuya Iwasaki, Atsugi, Japan, assignor to Unisia Jecs Corporation, Atsugi, Japan

Filed Feb. 9, 1996, Ser. No. 598,941
Claims priority, application Japan, Feb. 14, 1995, 7-025119; Feb. 28, 1995, 7-040662

Int. Cl.⁶ B60G 17/015 38 Claims

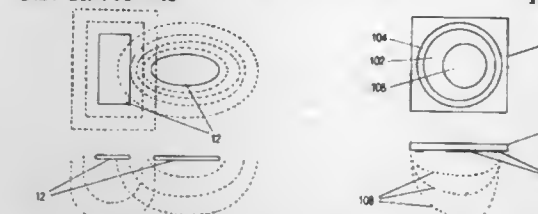
1. A suspension control system for use with an automotive vehicle supported on front-left and -right road wheels at front-left and -right road wheel side tower positions and also on rear-left and -right road wheels at rear-left and -right road wheel side tower positions, comprising: shock absorbers provided between sprung and unsprung masses of the vehicle at the respective tower positions for providing variable damping force characteristics; sensors for sensing first behaviors of the vehicle at the front-left and -right road wheel side tower positions; a control unit for calculating second behaviors of the vehicle at the rear-left and -right road wheel side tower positions based



on the sensed first vehicle behaviors by using a predetermined transfer function with a road surface input as its transfer route and a difference between the sensed first vehicle behaviors, the control unit producing first control signals for the shock absorbers mounted at the front-left and -right road wheel side tower positions based on the sensed first vehicle behaviors, and producing second control signals for the shock absorbers mounted at the rear-left and -right road wheel side tower positions based on the calculated second vehicle behaviors; and actuators responsive to the first and second control signals for controlling the damping force characteristics of the corresponding shock absorbers.

5,802,479
MOTOR VEHICLE OCCUPANT SENSING SYSTEMS
Philip W. Kithil, Michael H. Barron, and William C. McIntosh, all of Santa Fe, N. Mex., assignors to Advanced Safety Concepts, Inc., Santa Fe, N. Mex.
Continuation-in-part of Ser. No. 311,576, Sep. 23, 1994, Pat. No. 5,602,734, and Ser. No. 535,576, Sep. 28, 1995, Pat. No. 5,691,693. This application Mar. 25, 1996, Ser. No. 621,465
Int. Cl.⁶ H01G 4/06; H01L 29/43

U.S. Cl. 701-45 14 Claims



1. A capacitive coupling sensor array comprising a first sensor having a first geometry and a second sensor having a second geometry, said first and second sensors being placed such that equipotential lines of said first and second sensors overlap.

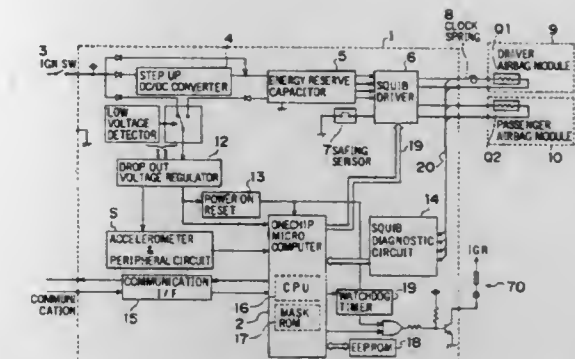
5,802,480 ACTUATION APPARATUS FOR ACTUATING THE PROTECTIVE DEVICES FOR THE SAFETY OF VEHICLE OCCUPANTS

Hidehiro Shiraishi, Kobe, Japan, assignor to Sensor Technology Co., Ltd., Kobe, Japan

PCT No. PCT/JP94/01925, § 371 Date Jun. 5, 1996, § 102(e) Date Jun. 5, 1996, PCT Pub. No. WO95/13940, PCT Pub. Date May 26, 1995

PCT Filed Nov. 14, 1994, Ser. No. 640,946
Claims priority, application Japan, Nov. 15, 1993, 5-309891
Int. Cl.⁶ B60R 21/32 4 Claims

1. An actuation apparatus for actuating a protective device for safety of vehicle occupants, comprising: an accelerometer which outputs a deceleration signal at a time of a crash; a one-chip microcomputer, including,

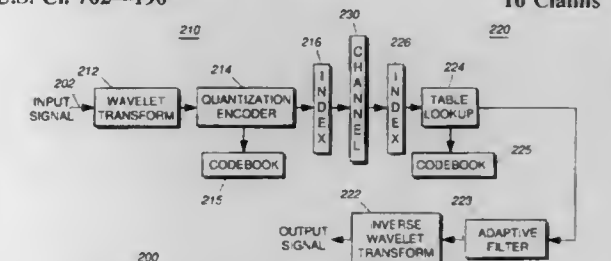


a central processing unit in which the signal received from the accelerometer undergoes arithmetic operations, and a MASKROM which is a read only memory, in which an algorithm for the signal received from the accelerometer undergoing said arithmetic operations is preset; an EEPROM for said central processing unit, which is a writable memory; and an ignition circuit to actuate the protective device on a basis of a signal received from said central processing unit; wherein parameters for use in said arithmetic operations, are preset in said MASKROM and said EEPROM; said parameters are divided into first and second parameters; the first parameters include common threshold values for actuating said protection device and are common to all types of vehicles and are preset in said MASKROM and the second parameters are for adjusting said common threshold values so as to correspond to a specific vehicle type and are preset in said EEPROM; and when the second parameters can be read from said EEPROM, said first parameters read out from said MASKROM are used in place of said second parameters preventing a malfunction of the actuating apparatus at a time of a crash so as to prevent serious injury to the vehicle occupants.

5,802,481 ADAPTIVE FILTERING FOR USE WITH DATA COMPRESSION AND SIGNAL RECONSTRUCTION Yolanda Prieto, Miami, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 20, 1997, Ser. No. 822,403
Int. Cl.⁶ H04N 1/66 16 Claims

U.S. Cl. 702-190



1. A method for filtering a data signal having a plurality of data coefficients comprising the steps of: selecting a mask from a plurality of filter masks based in part upon a minimum variance output detection; generating an estimated local variance as a difference between the minimum variance and a localized noise variance generated during quantization; and generating filtered data coefficients as a function of the estimated local variance.

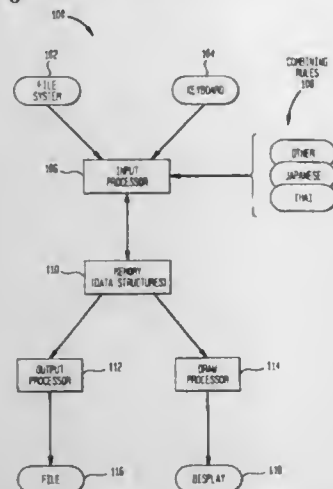
5,802,482
SYSTEM AND METHOD FOR PROCESSING GRAPHIC
LANGUAGE CHARACTERS
Lining Sun, San Jose, Calif., assignor to Silicon Graphics, Inc.,
Mountain View, Calif.

Filed Apr. 26, 1996, Ser. No. 638,217

Int. Cl.⁶ G06F 11/00; 15/38

U.S. Cl. 704—8

9 Claims



1. A method for processing graphical language characters, comprising the steps of:

- (1) receiving, by an input processor, a stream of language input data;
- (2) parsing, by said input processor, said stream of language input data based upon a set of combining rules;
- (3) generating, by said input processor, a data structure that comprises a header and one or more display units, wherein said header further comprises a layout field that identifies a relative display position of said one or more display units;
- (4) storing said data structures in memory; and
- (5) retrieving, by an output device, said data structure and outputting, at an individual unit of display, said one or more display units in accordance with said layout field of said header.

5,802,483
METHOD AND APPARATUS FOR TRANSMISSION OF
DATA AND VOICE

Walker C. Morris, 11110 Russwood Cir., Dallas, Tex. 75229
Division of Ser. No. 314,533, Sep. 28, 1994, which is a continuation of Ser. No. 828,527, Jan. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 733,826, Jul. 22, 1991, abandoned, which is a continuation-in-part of Ser. No. 429,356, Oct. 31, 1989, abandoned. This application Sep. 10, 1996, Ser. No. 711,515

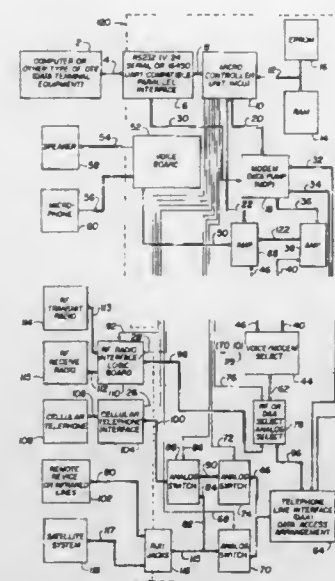
Int. Cl.⁶ H04M 11/00

U.S. Cl. 455—557

20 Claims

1. An apparatus for transmitting data signals over a telephone landline or a cellular telephone system and for transmitting voice signals over the telephone landline or the cellular telephone system, comprising:

- a modem;
- a data access arrangement including means for operatively connecting to the telephone landline;
- a microcontroller;
- a memory operatively connected to said microcontroller;
- protocol software in said memory for controlling the operation of the apparatus;
- a cellular telephone interface for operatively connecting to a cellular telephone;
- means for providing voice communications for transmission over the telephone landline or the cellular telephone system;



a first analog switch operatively connecting a first terminal to either said means for providing voice communications or said modem as decided by the microcontroller;

a second analog switch operatively connecting said data access arrangement and said cellular telephone interface or not as decided by the microcontroller; and

a third analog switch operatively connecting the first terminal of the first analog switch with said data access arrangement or not as decided by the microcontroller.

5,802,484
ADAPTIVE ANTENNA STRUCTURE FOR A
COMPUTATIONAL DEVICE

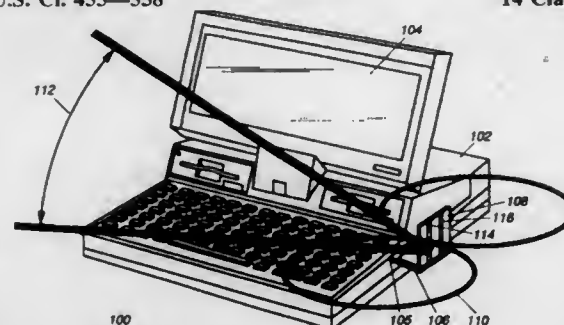
Douglas M. Hamilton, Elgin; Allen L. Davidson, Crystal Lake; Mark A. Gannon, Sleepy Hollow; Leigh M. Chinitz, Palatine, and Roger J. B. Jellicoe, Woodstock, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 12, 1996, Ser. No. 678,899

Int. Cl.⁶ H04B 1/38

U.S. Cl. 455—558

14 Claims



1. A computational device, comprising:

a computer having a data connection port and radiating computer emissions;

a radio frequency communication device located in close proximity of the computer and connected to the data connection port for communication thereto, the communication device including:

- a receiver; and
- an antenna structure coupled to the receiver for receiving and coupling thereto a radio frequency signal, the antenna structure, comprising:

a plurality of receiving elements structured to have a radiation pattern null and strategically phased to aim the null at the computer emissions in order to substantially limit the effects of computer emissions on the integrity of the received signal.

5,802,485
CONTROL DEVICE INCLUDING AN ELECTRICALLY
PROGRAMMABLE MEMORY

Ulrich Koelle, Schwieberdingen; Helmut Randoll, Vaihingen, and Volker Schaeferjohann, Grossbottwar, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

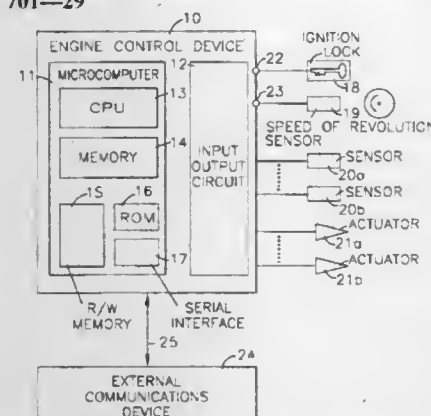
Filed Nov. 13, 1995, Ser. No. 555,960

Claims priority, application Germany, Nov. 10, 1994, 4440127.2

Int. Cl.⁶ G06F 9/24; G05B 19/42

U.S. Cl. 701—29

11 Claims



1. A control device for receiving program data from an external communication device through a serial interface, the control device comprising:

- a central processing unit;
- a programmable memory coupled to the central processing unit, the programmable memory storing a control program; and
- a read-only memory storing at least a portion of a reprogramming program for reprogramming the programmable memory, the read-only memory also storing a reset program, wherein the reset program determines whether power to the control device was interrupted before the reset program was started, and wherein the reprogramming program is started if it is determined that power to the control device was interrupted.

5,802,486
SUSPENSION CONTROL SYSTEM HAVING A SHOCK
ABSORBER CONTROLLED TO PREDETERMINE
COMPRESSION AND EXTENSION DAMPING FORCES
WHEN VEHICLE IS RUNNING ON A BAD ROAD

Masaaki Uchiyama, Chiba-ken, Japan, assignor to Tokico, Ltd.

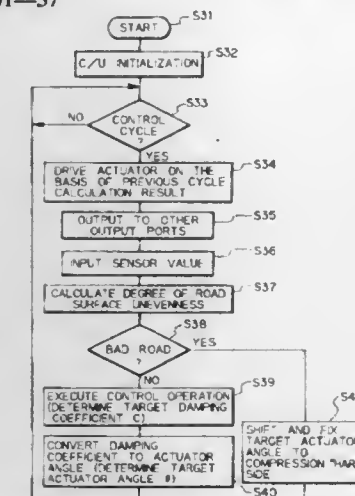
Filed Sep. 12, 1995, Ser. No. 527,343

Claims priority, application Japan, Sep. 20, 1994, 6-251260

Int. Cl.⁶ F16F 9/46; B60G 11/26

U.S. Cl. 701—37

9 Claims



1. A suspension control system comprising:

a damping force control shock absorber interposed between a body of a vehicle and an axle, wherein said shock absorber has an extension damping force variable between a small value and a large value and a compression damping force variable between a small value and a large value, wherein said shock absorber can be controlled such that while the extension damping force is maintained at the small value, the compression damping force can be controlled between the small value and the large value thereof, and while the compression damping force is maintained at the small value, the extension damping force can be controlled between the small value and the large value thereof;

a vertical vibration detecting means for detecting vertical vibration of the said body and producing a signal representing the vertical vibration;

a main control means for controlling said shock absorber on the basis of said signal from said vertical vibration detecting means by selecting a value of the extension damping force and a value of the compression damping force in dependence on the vertical vibration represented by said signal;

a road surface condition judging means for judging the road surface condition of a road on which the vehicle runs by determining whether or not the vehicle is running on a bad road; and

a means for setting said compression damping force at a predetermined value larger than the small value of said compression damping force and accordingly setting said extension damping force to the small value of the extension damping force, in preference to control by said main control means, when said road surface condition judging means judges that the vehicle is running on a bad road, and maintaining the set compression damping force and the set extension damping force fixed while said road surface condition judging means judges that the vehicle is running on a bad road.

5,802,487
ENCODING AND DECODING APPARATUS OF LSP (LINE
SPECTRUM PAIR) PARAMETERS

Naoya Tanaka, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

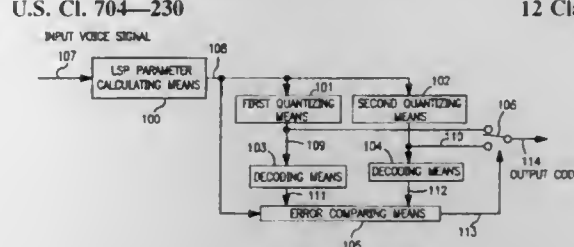
Filed Oct. 18, 1995, Ser. No. 544,600

Claims priority, application Japan, Oct. 18, 1994, 6-252011

Int. Cl.⁶ G10L 1/00

U.S. Cl. 704—230

12 Claims



1. An LSP parameter encoding apparatus comprising:

- a first quantizing means for dividing a voice signal into frames of a predetermined length and quantizing LSP parameters of an input voice signal into a vector independently for each frame;
- a second quantizing means for quantizing LSP parameters into a vector based on a correlation between adjacent frames;
- an error comparing means for comparing quantization errors generated by the first quantizing means and the second quantizing means; and

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UMI

(d) a switch for selecting the quantizing means which produces a smaller quantization error.

5,802,488

INTERACTIVE SPEECH RECOGNITION WITH VARYING RESPONSES FOR TIME OF DAY AND ENVIRONMENTAL CONDITIONS

Isao Edatsune, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

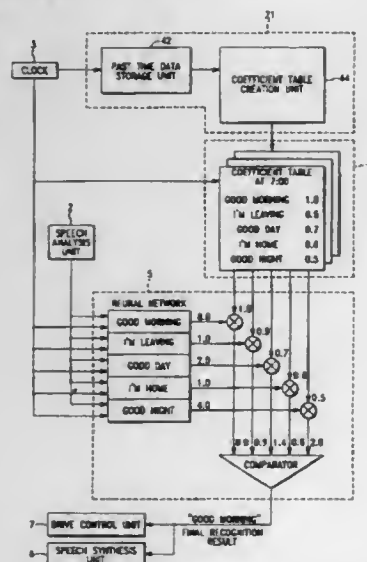
Filed Feb. 29, 1996, Ser. No. 609,336

Claims priority, application Japan, Mar. 1, 1995, 7-042005; Dec. 18, 1995, 7-329352

Int. Cl. G10L 5/06; 5/02

U.S. Cl. 704-231

12 Claims



1. An interactive speech recognition device, comprising:
speech analysis means for analyzing an input speech and creating a speech data pattern that matches characteristics of the input speech;
detection means for detecting variable non-speech data that changes speech flowing from the speech recognition device;
coefficient setting means, responsive to the variable non-speech data, for generating a plurality of weighting coefficients each pre-assigned to a pre-registered recognition target speech, based on the variable non-speech data;
speech recognition means for computing a final recognition result in response to the speech data pattern, said speech recognition means including:

means for storing a plurality of pre-registered recognition target speeches and for outputting, in response to the speech data pattern, a plurality of recognition data values each for a corresponding pre-registered recognition target speech;
means for computing final recognition data by multiplying each recognition data value by a corresponding one of said pre-assigned weighting coefficients for a corresponding pre-registered recognition target speech, and
means for recognizing the input speech by comparing the final recognition data for all of the pre-registered recognition target speeches and for outputting a final recognition result; and
speech synthesis means for converting the final recognition result to corresponding speech synthesis data for producing an appropriate response to the input speech.

speech synthesis means for converting the final recognition result to corresponding speech synthesis data for producing an appropriate response to the input speech.

5,802,489

FRONT WHEEL DRIVE ENGAGEMENT CONTROL SYSTEM FOR AGRICULTURAL VEHICLES

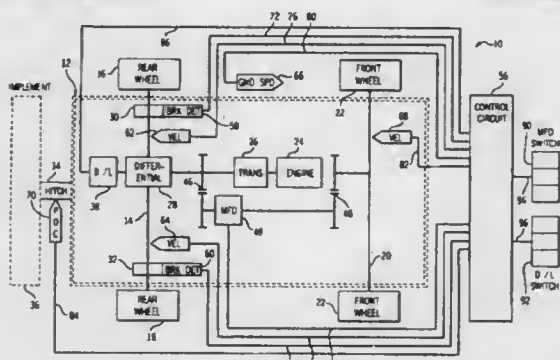
Abraham Orbach, Naperville, and William L. Schubert, Downers Grove, both of Ill., assignors to Case Corporation, Racine, Wis.

Filed Nov. 14, 1994, Ser. No. 339,486

Int. Cl. G06F 7/70; A01B 67/00; B60K 17/34

U.S. Cl. 701-50

22 Claims



1. In an agricultural vehicle having an engine, a first pair of wheels driven by the engine, a second pair of wheels and an engagement circuit for selectively engaging and disengaging the second pair of wheels to the engine in response to control signals for driving the second pair of wheels, a control system comprising:
a vehicle velocity sensor including a radar emitter and a radar receiver configured to detect a parameter indicative of the ground velocity of the vehicle independent of the velocity of the second pair of wheels and to generate a vehicle velocity signal representative thereof;
a wheel velocity sensor configured to detect the velocity of at least one of the first pair of wheels and to generate a wheel velocity signal representative thereof;
a comparator circuit coupled to the vehicle velocity sensor and to the wheel velocity sensor and configured to compare the vehicle velocity signal and the wheel velocity signal and to generate a slip signal representative of the degree of slip of at least one of the first pair of wheels; and
a control circuit coupled to the comparator circuit and to the engagement circuit and configured to generate control signals and to apply the control signals to the engagement circuit, wherein the control signals cause the engagement circuit to engage the engine and thereby drive the second pair of wheels when the degree of slip is above a predetermined value and to disengage the engine and thereby not drive the second pair of wheels when the degree of slip is below the predetermined value.

5,802,490

TORQUE CONVERTER REGULATOR AND CLUTCH LOCKOUT SYSTEM FOR AN AUTOMOTIVE VEHICLE

Timothy A. Droste, Howell, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

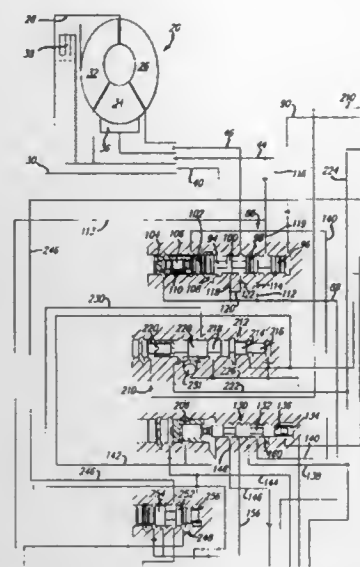
Filed Feb. 20, 1996, Ser. No. 602,558

Int. Cl. G06F 17/00; F16H 61/14

U.S. Cl. 701-51

7 Claims

1. A system for controlling locked and unlocked operation of a converter clutch, comprising:
a torque converter having an impeller, turbine and stator defining a toroidal fluid flow path, a converter clutch for driveably connecting and releasing the impeller and turbine;
a first line for supplying pressurized fluid to a first side of the converter clutch;
a second line for venting and pressurizing a second side of the converter clutch;
a vent port;
a source of converter feed pressure;



lockout means for producing converter unlock pressure having a first magnitude representing a command to unlock the converter and a second magnitude representing a command to lock the converter;
a source of converter control pressure producing a variable pressure including a third magnitude representing a command to unlock the converter and a fourth magnitude representing a command to lock the converter;
a converter regulator valve means for unlocking the converter clutch by opening a connection between the source of converter feed pressure and the first and second lines when the lockout means produces the first magnitude, or the lockout means produces the second magnitude and the source of converter control pressure produces the third magnitude, and for locking the converter clutch by opening a connection between the source of converter feed pressure and the first line and between the second line and the vent port when the lockout means produces the second magnitude and the source of converter control pressure produces the fourth magnitude.

5,802,491

MOTOR VEHICLE CONTROL SYSTEM AND METHOD

Gerd Bush, Gerlingen; Thomas Ehret, Seelbach; Friedrich Kost, Kornwestheim, and Karl-Josef Weiss, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Continuation-in-part of Ser. No. 118,825, Sep. 10, 1993, abandoned. This application Sep. 11, 1995, Ser. No. 526,249

Claims priority, application Germany, Sep. 10, 1992, 42 30 295.1

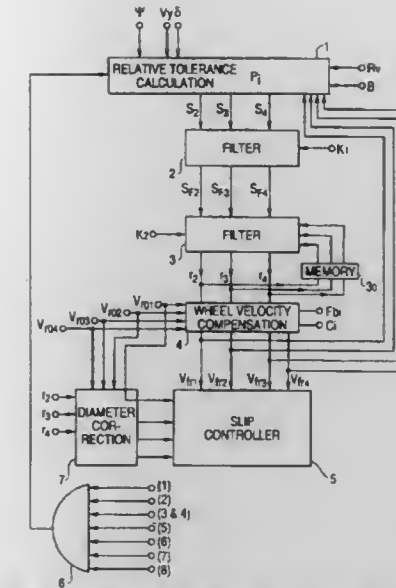
Int. Cl. B60T 8/32

U.S. Cl. 701-76

20 Claims

18. In a control system wherein at least one of the vehicle units brake device and propulsion device is actuated, as a function of at least the respective wheel velocities, which are represented by detected wheel velocity signals, and including means for selecting one of the vehicle wheels as a reference wheel, for starting from the wheel velocity of the reference wheel and for the consideration of the different wheel diameters of the other vehicle wheels, correcting the respective detected wheel velocity signals of the other wheels by correction values, and for utilizing the correct wheel velocity signals to produce the actuation, said system further comprising:

means for determining the vehicle yaw velocity, the vehicle steering angle and the longitudinal tire forces of the respective wheels;
means for determining slip-corrected wheel velocities as a function of the respective wheel velocities and the respective determined longitudinal tire forces;



means for determining a quantity describing the longitudinal vehicle velocity as a function of the respective determined slip-corrected wheel velocity of the reference wheel, the determined steering angle and the determined yaw velocity;
means for determining respective wheel reference velocities starting from the determined quantity describing the longitudinal vehicle velocity and in further dependence on the determined yaw velocity and steering angle; and
means for determining respective said correction values as a function of the respective slip-corrected wheel velocities and the respective determined wheel reference velocities.

5,802,492

COMPUTER AIDED ROUTING AND POSITIONING SYSTEM

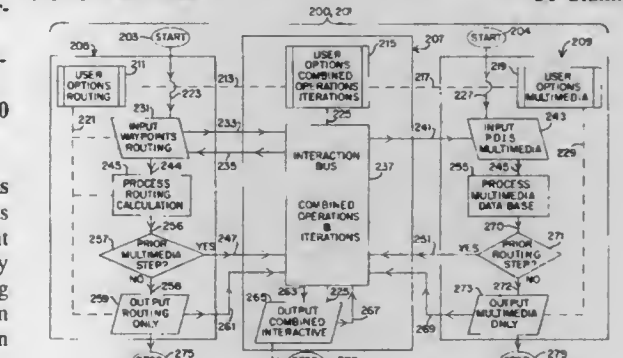
David M. DeLorme, Yarmouth, and Keith A. Gray, Dresden, both of Me., assignors to DeLorme Publishing Company, Inc., Yarmouth, Me.

Continuation-in-part of Ser. No. 381,214, Jan. 31, 1995, Pat. No. 5,559,707, which is a continuation-in-part of Ser. No. 265,327, Jun. 24, 1994, abandoned. This application Jun. 11, 1996, Ser. No. 661,600

Int. Cl. G01C 21/00; G08G 1/123

U.S. Cl. 701-200

50 Claims



1. A computer-aided routing and positioning system (CARPS) for use with a device that includes geocoding capability, comprising:
a digital computer having a computer display;
a map database providing a set of electronic maps for presentation on said computer display, wherein said electronic maps have the capability of depicting transportation routes having identifiable waypoints including route intersections at geographical locations along said transportation routes, said identifiable waypoints on said electronic maps being identifiable

in said computer by coordinate locations of a selected geographical coordinate system;

a CARPS database of geographically locatable points of interest (POIs) identifiable by coordinate locations in said geographical coordinate system, said POIs being organized into a plurality of types for user selection of POIs by type, said POI types including overlays of said CARPS database for display over said electronic maps on said computer display;

CARPS software permitting user travel planning using said electronic maps presented on said computer display by providing user selection of selected waypoints that include at least a travel origin and a travel destination and can include intermediate waypoints, wherein said CARPS software is capable of determining an additional group of said intermediate waypoints between said travel origin and said travel destination, and of calculating, delineating, and displaying a travel route between said travel origin and said travel destination via said intermediate waypoints according to user choice of a shortest travel route, quickest travel route, or user-selected preferred travel route;

said CARPS software also permits user selection of a region of interest along said user-defined travel route, said region of interest having user-specified dimensions and permitting user selection of specified POI types within said region of interest and user selection of particular POIs from said selected types within said region of interest, said region of interest being identifiable in said computer by coordinate locations of said geographical coordinate system;

wherein said CARPS database include travel information selected from a group consisting of graphics, photos, videos, animations, audio information, and text information about POIs of said CARPS database and about said transportation routes and said identifiable waypoints of said electronic maps, wherein said CARPS software is constructed to present a user-customized travelog for preview on said computer display of a user-defined travel route including said travel information in said CARPS database on said selected transportation routes and said selected waypoints of said electronic maps and said selected POIs of said CARPS database in said user-defined region of interest along said travel route, and

wherein said CARPS software permits data transfer between (a) a device that includes geocoding capability and (b) said digital computer.

5,802,493

METHOD AND APPARATUS FOR GENERATING A PROPOSAL RESPONSE

Leonard J. Sheffelt, Avon; Marion A. Wildeman, Glastonbury, both of Conn.; Salvador Aleguas, III, Martinez, Calif.; Joseph L. Murgo, Manchester, Mo.; Pamela Lane Jordan, East Hampton, Conn.; Jill Matus Gregory, Westbrook, Conn.; Carole A. Pincavage, Glastonbury, Conn.; Anthony Cipriani, Middletown, Conn.; and Robert Goldman, South Windsor, Conn., assignors to Aetna Life Insurance Company, Hartford, Conn.

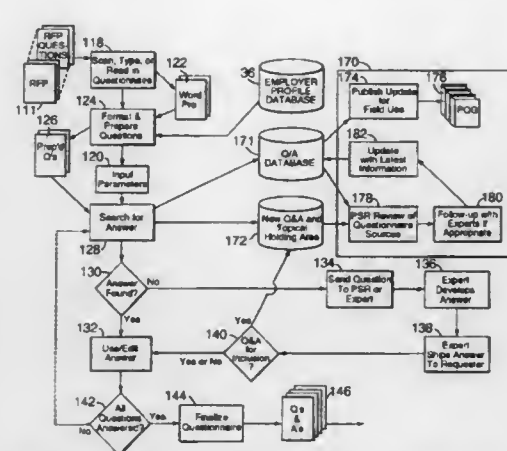
Filed Dec. 7, 1994, Ser. No. 350,949

Int. Cl.⁶ G06C 17/60

U.S. Cl. 705—1

14 Claims

1. A method for generating a response document prepared in reply to a request for product information, said request including a plurality of questions, the method comprising the steps of: receiving signals indicative of the questions in a text form; formatting said question text signals into a corresponding plurality of individual questions; assigning each of said individual formatted question signals identifier signals; associating with said formatted question signals, signals indicative of values of associated input parameters; searching a database having stored therein signals corresponding to a plurality of stored questions, each of said stored questions having associated therewith input parameter signals, said



5,802,494

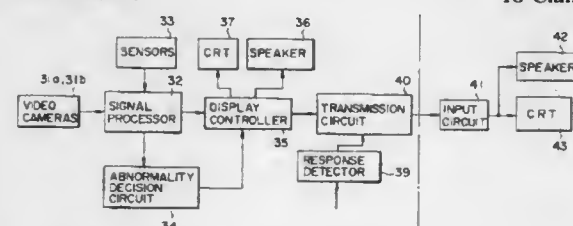
PATIENT MONITORING SYSTEM

Yoshinori Kuno, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 390,816, Feb. 16, 1995, abandoned, which is a continuation of Ser. No. 729,178, Jan. 12, 1991, abandoned. This application Aug. 5, 1996, Ser. No. 692,431 Claims priority, application Japan, Jul. 13, 1996, 2-184004 Int. Cl.⁶ G06F 159/00

U.S. Cl. 705—2

18 Claims



1. A patient monitoring system comprising:

patient data acquiring means, located within a hospital sickroom where a patient exists, for acquiring patient image data including an image of the patient, said patient data acquiring means an image pick-up device for outputting the patient image data corresponding to the image;

means for detecting facial outline of the patient on the basis of the patient image data;

means for determining facial feature candidate regions on the basis of at least the facial outline;

means for processing image data corresponding to each of the facial feature candidate regions, to detect some facial features of the patient;

means for checking a difference between a real-time facial pattern formed of the detected facial features and a facial pattern indicating a normal state and for detecting frequent appearance of strange expressions represented by the real-time facial pattern to output critical state information;

display means, located within a monitor room separate from said hospital sickroom, including a display monitor for displaying said image of said patient; and

data transmitting means, located within said hospital sickroom, for transmitting said patient image data acquired by said image pick-up device to said display means in response to the critical state information to permit the physician examine the medical condition of the patient.

5,802,495

PHRASING STRUCTURE FOR THE NARRATIVE DISPLAY OF FINDINGS

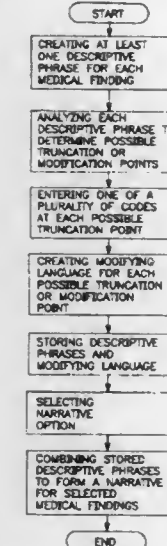
Peter Goltra, 22717 Goltra La., Middleburg, Va. 22117

Filed Mar. 1, 1996, Ser. No. 609,835

Int. Cl.⁶ G06F 159/00; 17/22

U.S. Cl. 705—3

8 Claims



1. A method for generating sentences of text, for selected medical finding in an electronic medical diagnostic system, comprising the steps of:

creating a descriptive phrase for each finding;

analyzing each descriptive phrase to determine possible truncation points for modifying the descriptive phrase of one medical finding if another medical finding is also selected;

entering a code at each possible truncation point;

creating language to be inserted at each coded truncation point;

storing said descriptive phrases and modifying language in a hierarchical database wherein lower layered modifying language modifies higher layered phrases; and

combining stored descriptive phrases and modifying language to form written text from said selected medical findings according to the codes entered into each descriptive phrase.

5,802,496

BUSINESS TRANSACTION DATA ACCUMULATING SYSTEM

Katsuhiko Uchiyama, Fuchu, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 26, 1990, Ser. No. 617,740

Claims priority, application Japan, Nov. 27, 1989, 1-308410

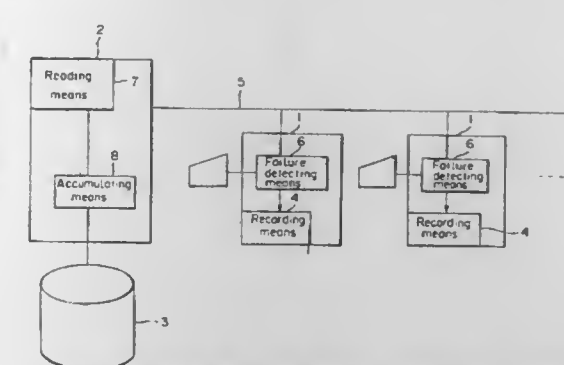
Int. Cl.⁶ G06F 17/60

U.S. Cl. 705—21

6 Claims

1. A business transaction data accumulating system comprising: a plurality of business transaction data entry means for entering of data about business transactions, and for outputting said entered data;

a business transaction data accumulating means for accumulating the business transaction data entered through any of said business transaction data entry means; and



a communication line for connecting said plurality of business transaction data entry means to said business transaction data accumulating means and for transmitting said entered data to said business transaction data accumulating means, wherein each of said business transaction data entry means includes a failure detecting means for detecting any failure that occurs at least on said communication line prior to said business transaction data entry means outputting said data, and a recording means for recordings, on a recording medium, the business transaction data entered through said business transaction data entry means upon detection of any failure by said failure detecting means.

5,802,497

METHOD AND APPARATUS FOR CONDUCTING COMPUTERIZED COMMERCE

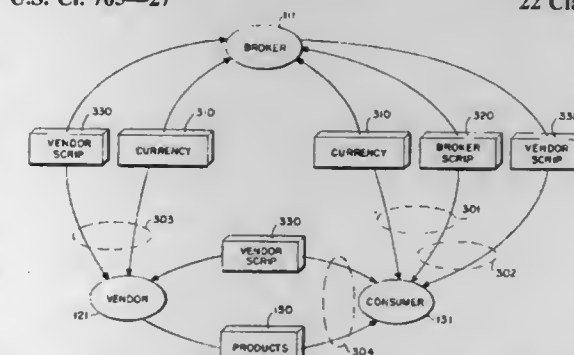
Mark S. Manasse, San Francisco, Calif., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Jul. 10, 1995, Ser. No. 500,038

Int. Cl.⁶ G06F 17/60

U.S. Cl. 705—27

22 Claims



1. A method of conducting computerized commerce on a plurality of computer systems connected by a computer network comprising the steps of:

storing a database of products in a vendor computer system;

generating a plurality of vendor scrips in the vendor computer system;

generating a plurality of broker scrips in a broker computer system;

purchasing a first of the generated broker scrips from the broker computer system, the first broker scrip being transmitted to a consumer computer system;

receiving the first broker scrip in the broker computer system from the consumer computer system;

validating the first broker scrip in the broker computer system;

exchanging a first of the vendor scrips received in the broker computer system for the validated first broker scrip;

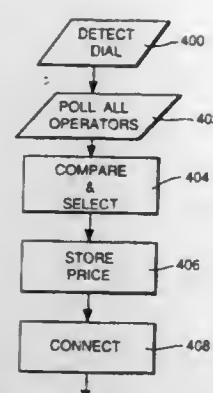
transmitting the first vendor scrip to the vendor computer system;

validating the first vendor scrip; and

transmitting a product to the consumer.

UMI

1. A communication system comprising:
at least one telecommunications resource user apparatus;
a plurality of competing telecommunications resource supplier
apparatus, each selectively operable to open a respective
communications circuit to said telecommunications resource
user apparatus;



- a signalling channel, interconnecting said telecommunications resource user apparatus and each of said plurality of telecommunications resource supplier apparatus;
- a pricing device associated with each said telecommunications resource supplier apparatus and connected to the signalling channel, for detecting an attempt by a said telecommunications resource user apparatus to initiate communications and, in response to said detecting generating and transmitting through the signalling channel a respective competing pricing signal indicative of a pricing level corresponding to the price to be paid for a resource supply transaction via the respective communications circuit, and
- a selecting device, associated with the telecommunications resource user apparatus and connected to the signalling channel, for receiving each said pricing signal, and selecting a corresponding one of said transactions on the basis of said pricing signals, and signalling to the respective telecommunications resource supplier apparatus to open the respective communications circuit based upon said selection;
- the pricing device and selecting device being arranged to generate and transmit a sequence of said pricing signals in a respective dialogue, to negotiate a said pricing level.

5,802,503

CHANNEL SWITCHED MAIL MESSAGE SWITCHING AND METERING SYSTEM

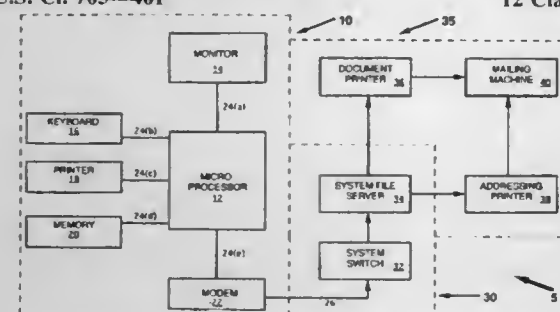
Ronald P. Sansone, Weston, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 24, 1996, Ser. No. 772,798

Int. Cl.⁶ G06F 17/00

U.S. Cl. 705—401

12 Claims



1. A method of channeling message traffic comprising the steps of:

- drafting a message and a corresponding destination address together in electronic form;
- selecting a set of parameters from among a plurality of choices wherein said set of parameters define a method of conversion of said electronic form to a tangible form whereby a predetermined standard for delivery may be met;
- transmitting said message and said destination address via a digital carrier to a printing means, whereby said electronic form can be converted, by utilization of said defined conver-

sion method, to a human readable form; and wherein said transmission to said printing means, further comprises the steps of:

- transmitting said message and said destination address together with said set of conversion parameters, as a packet, to a routing facility via a digital carrier, whereby said routing facility will select a transmission path find assign a set of transmission parameters whereby said packet will be transmitted to a terminal node for conversion and printing; and
- transmitting said packet to said terminal node from said routing facility and wherein said terminal node comprises receiving means for said packet and said printing means; and, wherein said transmission to said terminal node, further comprises the steps of:
- selecting, at said routing facility, an optimal transmission path from among a plurality of available transmission paths, said selection determined by analysis of a plurality of factors;
- weighing each of said plurality of factors and then determining which of said possible paths has the greatest score;
- selecting an optimal transmission path by determining which path on said predetermined list has a highest weighted score among said possible paths; and
- initiating a transmission of said packet wherein said transmission is initiated by said routing facility along said optimal transmission path;
- converting said electronic form to said human readable form by printing said message on a medium and printing said destination address on an envelope;
- forming a finished mail piece from said printed medium and said printed envelope;
- delivering said finished mail piece into a local mail stream for delivery to said destination address.

5,802,504

TEXT PREPARING SYSTEM USING KNOWLEDGE BASE AND METHOD THEREFOR

Aruna Rohra Suda, and Suresh Jeyachandran, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

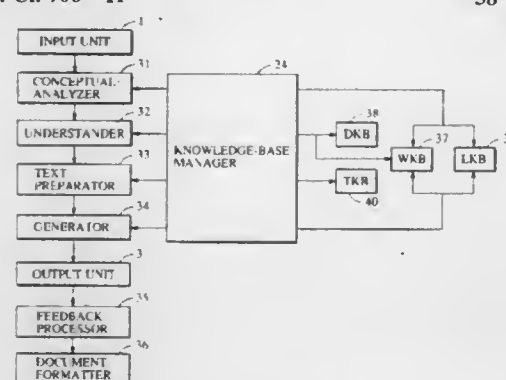
Filed Jun. 21, 1995, Ser. No. 492,930

Claims priority, application Japan, Jun. 21, 1994, 6-138879; Jun. 21, 1994, 6-138887

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—11

58 Claims



1. A text preparing system comprising:

- input means for inputting information;
- a knowledge base for storing knowledge including a text preparation rule which defines kinds of contents in a text and an order of the contents in the text;
- retrieval means for retrieving knowledge, which relates to the information inputted by said input means, from said knowledge base;
- collection means for collecting information corresponding to the kinds of contents defined by the text preparation rule from the

information inputted by said input means and the knowledge retrieved by said retrieval means;

order determining means for determining a describing order of the information collected by said collection means in accordance with the order of the contents in the text defined by the text preparation rule; and

generating means for generating the text containing the information collected by said collection means in the describing order determined by said order determining means.

5,802,505

WAVEFORM SIGNAL EQUALIZING METHOD AND APPARATUS AND SIGNAL RECORDING AND REPRODUCING APPARATUS

Susumu Maruno, Osaka; Sigeo Sakaue, Moriguchi; Yasuharu Simeki, Suita; Taro Imagawa, Kadoma, and Toshiyuki Kouda, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

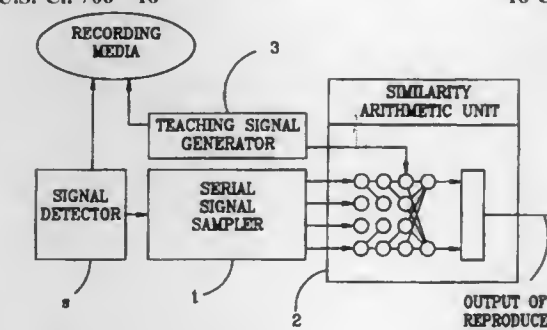
Division of Ser. No. 221,905, Apr. 1, 1994, abandoned. This application Dec. 22, 1995, Ser. No. 577,347

Claims priority, application Japan, Apr. 13, 1993, 5-86153; Oct. 14, 1993, 5-257120

Int. Cl.⁶ G05B 13/00; G06F 15/18

U.S. Cl. 706—16

16 Claims



1. A learning type signal recording and reproducing apparatus comprising:

- a reference signal generating means for generating predetermined reference waveform signals and applying them to a recording media for recordation thereby;
- a signal detection means for detecting recorded signals from the recording media, the recorded signals corresponding to the reference waveform signals recorded by the media, and
- a conversion rule generating means receiving detected recorded signals from the signal detection means and the corresponding reference waveform signals from the reference signal generating means, and generating conversion rules based on a relationship between the detected recorded signals and the reference waveform signals to correctly reproduce signals recorded on the recording media.

5,802,506

ADAPTIVE AUTONOMOUS AGENT WITH VERBAL LEARNING

William Hutchison, 2002 Linden Dr., Boulder, Colo. 80304

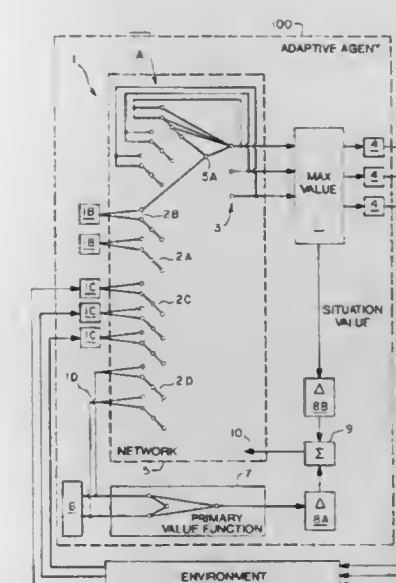
Filed May 26, 1995, Ser. No. 451,543

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—20

13 Claims

1. An adaptive autonomous agent comprising:
- a neural network having a plurality of input nodes for receiving input signals and a plurality of output nodes for driving output signals;
- storage means for storing and accumulating at least two primary values wherein each of the accumulated primary values are coupled to one of the input nodes of the neural network; and



at least one primary value function generator coupled to receive the primary values from the storage means and generate a primary value signal.

5,802,507

METHOD FOR CONSTRUCTING A NEURAL DEVICE FOR CLASSIFICATION OF OBJECTS

Philippe Gentric, Issy Les Moulineaux, and J  l Minot, Charenton, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

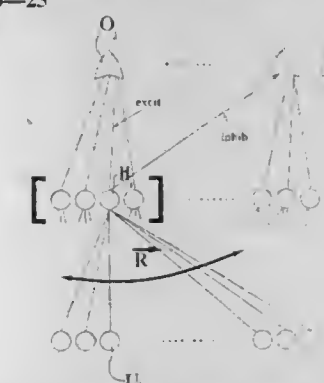
Continuation of Ser. No. 449,465, May 24, 1995, abandoned, which is a continuation of Ser. No. 165,282, Dec. 10, 1993, abandoned. This application Jul. 7, 1997, Ser. No. 888,414

Claims priority, application France, Dec. 16, 1992, 92 15190

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—25

5 Claims



1. A method of constructing a neural device for the classification of objects, where the neural device is trained using a set of learning samples of objects having known classes, each object to be classified being defined by an input vector which is represented by a point in hyperspace, the device comprising:

- a layer of input neurons, each of which corresponds to one of the dimensions of the hyperspace;
 - a layer of hidden neurons whose inputs are connected exclusively to the input neurons, activation of each hidden neuron being based on coordinates of a respective reference point of the hyperspace; and
 - a layer of output neurons, each of which corresponds to a respective class of the objects;
- the method comprising:
- applying an arbitrarily chosen sample from said set of learning samples to the neural device for classification;

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- b) subsequently placing a hidden neuron in the device, while defining the respective reference point associated with said hidden neuron as the point in hyperspace representing the sample;
- c) establishing an excitatory connection of positive weight between said hidden neuron and the output neuron corresponding to a class of the sample;
- d) choosing a new sample from said set of learning samples;
- e) applying the new sample to the device for classification;
- f) if, as a result of step e), a response of the device to the new sample does not give a correct classification, introducing into the device every time an incorrect classification occurs a new hidden neuron, corresponding to the new sample, by
- 1) defining the respective reference point associated with the new hidden neuron as being the point representing the new sample and;
- II) establishing an excitatory connection of positive weight between the new hidden neuron and the output neuron corresponding to the class of the new sample;
- g) if the response does give the correct classification, skipping step f);
- h) treating all remaining samples according to steps e), f) and g) until there are no samples left in said set of learning samples; and
- i) defining groups of neurons, with one neuron that is representative of each group and the group defined as all neurons located within a hypersphere of a predetermined radius centered in hyperspace upon the representative neuron, as the new hidden neurons are introduced, according to the following process:
- I) determining, for each of the new hidden neurons, whether that new hidden neuron is located within the hypersphere of a previously defined group;
- II) in response to a positive result from the determining step, incorporating that new hidden neuron into the group defined by the hypersphere in which that new hidden neuron is located; and
- III) in response to a negative result from the determining step, forming a new group defined as all neurons located within a hypersphere of a predetermined radius centered upon the new hidden neuron, the new hidden neuron thus being defined as representative of the new group.

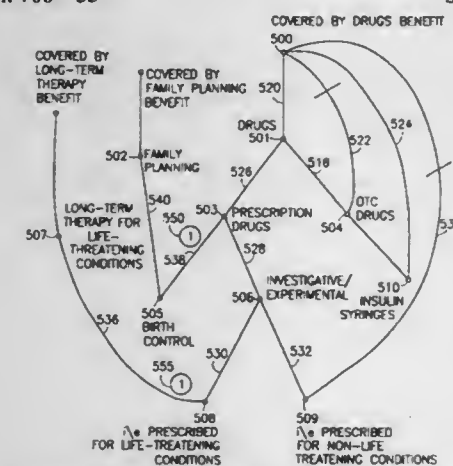
5,802,508

REASONING WITH RULES IN A MULTIPLE INHERITANCE SEMANTIC NETWORK WITH EXCEPTIONS

Leora Morgenstern, New York, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 21, 1996, Ser. No. 700,973
Int. Cl.⁶ G06F 17/00

U.S. Cl. 706—55

37 Claims



1. A computer system with one or more memories and one or more central processing units comprising:

- a. a data structure, stored in one or more of the memories, representing a semantic network with three or more nodes connected by two or more links, each of the nodes representing an object, the semantic network describing the way the objects relate to one another, each of the nodes being one of a root node, internal node, and leaf node, the internal nodes and leaf nodes having one or more parent fields pointing to one or more other nodes in the network being parent nodes, the root and internal nodes having one or more child fields pointing to one or more other nodes in the network being child nodes, one or more ancestor nodes being either a parent node or recursively an ancestor of one of the parent nodes, a set of one or more rules attached to one or more of the nodes, a rule being a statement that at least partially regulates the object represented by the respective node and all the rules in the set being consistent;
- b. a background data structure, stored in one or more of the memories containing one or more information items, each of the information items being attached to every node in the semantic network and at least partially regulating the objects represented by all the nodes in the semantic network; and
- c. a process that proceeds node by node up one or more paths of the links to each ancestor node in the path, creating an interim set of rules by iteratively adding rules attached to each of the ancestors nodes processed only if the added rules are consistent with the rules in the interim set and the background information items, after all the ancestors of the node are processed the interim set being a superset of rules that are all the rules in the semantic network that regulate the node, the superset being a maximally consistent subset of all the rules attached to all of the ancestor nodes.

5,802,509

RULE GENERATION SYSTEM AND METHOD OF GENERATING RULE

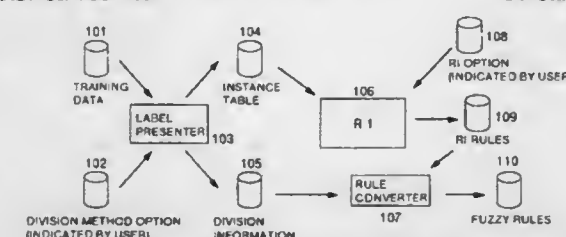
Akira Maeda; Hitoshi Ashida, both of Yokohama; Toshihide Ichimori, Kawasaki; Chiaki Hirai, Tokyo, and Yori Takahashi, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 306,111, Sep. 14, 1994, abandoned.
This application Jul. 11, 1997, Ser. No. 893,422
Claims priority, application Japan, Sep. 21, 1993, 5-257778;
Dec. 24, 1993, 5-327352

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—59

14 Claims



1. A rule generating system for generating rules from training data including a set of specific values related to input and output variables, the rules representing input/output relationships between the input and output variables, the training data including both numeric data and symbol data, comprising:
- division method defining means for defining a division method indicating a number of intervals into which a domain is divided and categorical data expressed by symbols corresponding to the respective intervals for the variables corresponding to the numeric data in the training data;
- label presenting means for converting all the numeric data of the training data into the categorical data in accordance with the defined division method, results of the conversion producing an instance table, and for generating division information indicating dividing positions of the domains for the respective numeric data;
- rule induction means for extracting rules from the instance table, the rules being expressed by the categorical data;

membership function generating means for generating a membership function using the division information generated by the label presenting means; and

fuzzy rule synthesizing means for synthesizing fuzzy rules from the rules induced by the rule induction means and the membership function generated by the membership function generating means;

wherein the fuzzy rules synthesized by the fuzzy rule synthesizing means outputs inference results in the categorical data form.

5,802,510

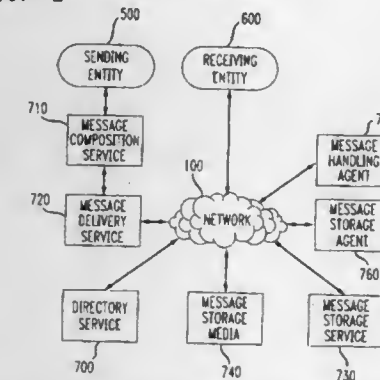
UNIVERSAL DIRECTORY SERVICE

Mark Alan Jones, New Providence, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 29, 1995, Ser. No. 581,654
Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—2

10 Claims



1. A directory system for use with a communication network and a system for providing respective network presences for entities, each of said network presences identified by a unique handle that does not correspond to a physical endpoint, said directory system comprising:

- a storage for storing indices of attributes for said network presences in association with said handles,
- a communication link for receiving a directory query, said directory query specifying values for selected ones of said attributes, and
- a computer programmed to use said indices to provide, in response to said directory query, ones of said handles associated with the selected attributes having values respectively matching the specified values.

5,802,511

DATA RETRIEVAL METHOD AND APPARATUS WITH MULTIPLE SOURCE CAPABILITY

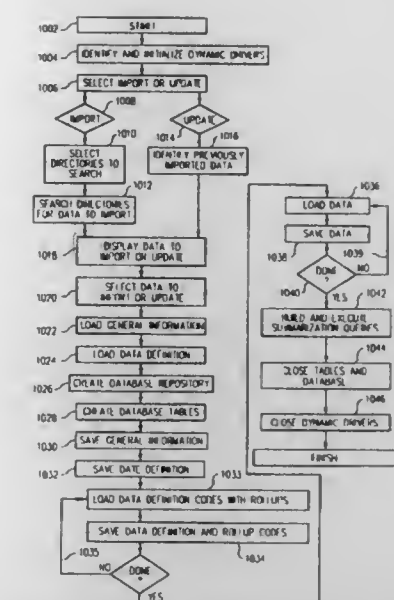
David B. Kouchi, Kirkland; David F. Yarnall, Lynnwood, and Donald K. Babcock, Tacoma, all of Wash., assignors to Time-line, Inc., Bellevue, Wash.

Continuation-in-part of Ser. No. 582,062, Dec. 30, 1995. This application Feb. 1, 1996, Ser. No. 593,118
Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—2

22 Claims

1. A computer-implemented method usable in connection with accessing data which may be stored in either of first and second different data sources, the method comprising:
- a first step for providing a first driver containing program instructions configured for use in connection with said first data source in the absence of said first driver being configured for use in connection with said second data source;



- a second step for using said first driver to automatically obtain first information about the data structure of said first data source without the need for human analysis of the first data source by automatically accessing content of information stored in said first data source;
- using first information to define a structure for a first database different from said data sources wherein said first database did not exist before said step for using said first driver to automatically obtain first information.

5,802,512

STORAGE, REPLAY AND ERROR DETECTION OF USER-DEFINED QUERIES

Peter A. Wallack, Sunnyvale, Calif., assignor to Oracle Corporation, Redwood City, Calif.

Filed Mar. 12, 1996, Ser. No. 614,382
Int. Cl.⁶ G06F 17/30

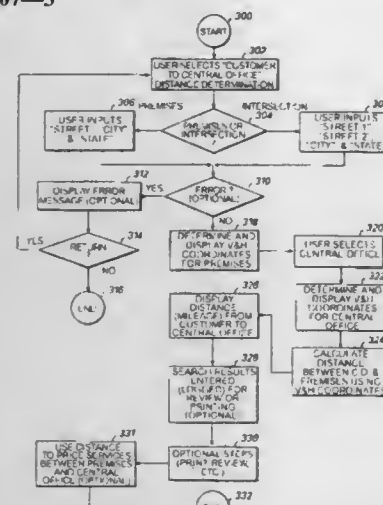
U.S. Cl. 707—2

31 Claims

Order Number	Customer Name	Customer Address	Customer State	Customer Order	Order Date	Order Date	Order Date	Order Date	Order Date
1	John Doe	123 Main	California	socks	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96
2	Jane Doe	456 Main	California	socks	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96
3	Bob Brown	789 Main	California	socks	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96
4	Jack Jones	101 Main	California	socks	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96

1. A method of verifying a stored query, comprising the steps of:
- (a) comparing a stored application version identifier, which is associated with said stored query, with a current application version identifier;
- (b) salvaging said stored query; and
- (c) updating said stored application version identifier to be said current application version identifier.

5,802,513
METHOD AND SYSTEM FOR DISTANCE
DETERMINATION AND USE OF THE DISTANCE
DETERMINATION
Hugh Bowie, III, Lawrenceville, Ga., assignor to BellSouth
Corporation, Atlanta, Ga.
Filed Feb. 1, 1996, Ser. No. 593,122
Int. Cl.⁶ G06F 17/30
U.S. Cl. 707—3 17 Claims

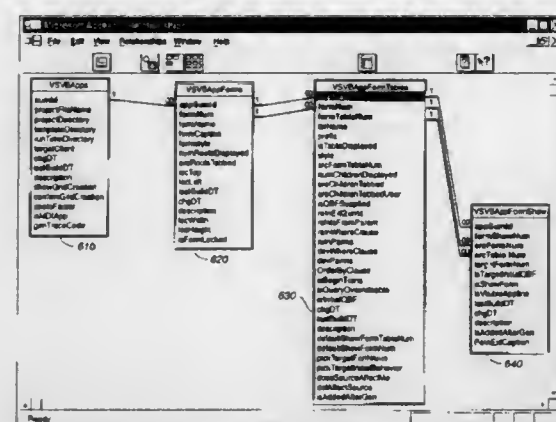


1. In a telecommunications services system, a computer system for determining the geographical distance between a first object and a nearest second object of a plurality of second objects based on the use of a telecommunications services vertical-horizontal coordinate system, comprising:

- a vertical-horizontal coordinate database, said vertical-horizontal coordinate database including a plurality of sets of vertical-horizontal coordinates;
- a central processing unit operative to communicate with said vertical-horizontal coordinate database;
- a display device coupled to said central processing unit;
- an input device coupled to said central processing unit, said input device being operative to receive first identification information corresponding to said first object; and
- said central processing unit being operative to read said first identification information, and in response thereto, to obtain a first set of vertical-horizontal coordinates corresponding to said first identification information from said vertical-horizontal coordinate database;
- based on said first set of vertical-horizontal coordinates, to identify the nearest second object from said plurality of second objects, the nearest second object being closest of said plurality of second objects to said first object; and
- to cause said display device to display said first object, said nearest second object, and the geographical distance between said first object and said nearest second object.

5,802,514
AUTOMATED CLIENT/SERVER DEVELOPMENT TOOL
USING DRAG-AND-DROP METAPHOR
Val J. Huber, Berkeley, Calif., assignor to Vision Software
Tools, Inc., Oakland, Calif.
Filed Apr. 9, 1996, Ser. No. 630,020
Int. Cl.⁶ G06F 17/30
U.S. Cl. 707—4 11 Claims

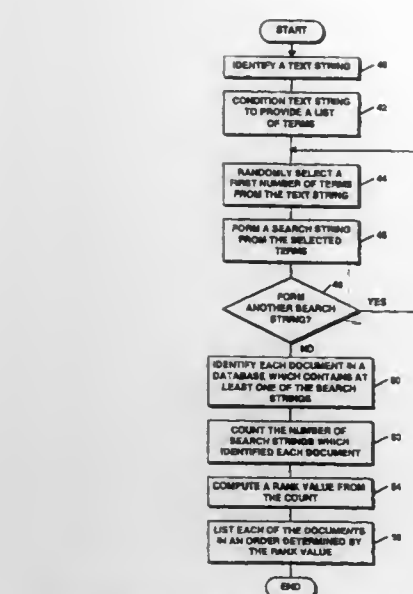
1. A computer-implemented method of developing a client portion of a multiple-form, client/server database application for processing requests against a server database, the method comprising the steps of:
- a) storing in a repository a description of the server database describing database entities within the server database and relationships between those database entities;
 - b) displaying representations of the database entities;



- c) providing an application drawing window for GUI-based creation of a multiple-form client/server database application providing for form transitions between different ones of the multiple forms;
- d) a user dragging and dropping within the application drawing window one of said representations that represents a particular database entity;
- e) creating within the repository a form entry for the particular database entity, and drawing within the drawing window a representation of the particular database entity;
- f) for each database entity for which a form entry within the repository has been created, checking the description of the server database stored in the repository to determine whether a relationship exists between the particular database entity dropped and the database entity being checked;
- g) if a relationship does exist between the particular database entity and the database entity being checked, then creating within the repository a form transition entry for that relationship, and drawing within the drawing window a connector representing the form transition; and
- h) repeating step d) through step g) multiple times.

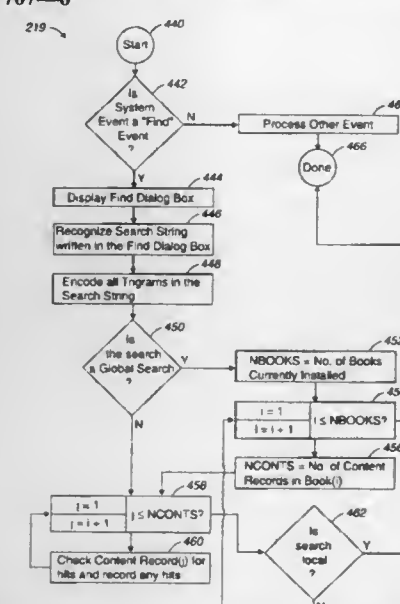
5,802,515
RANDOMIZED QUERY GENERATION AND DOCUMENT
RELEVANCE RANKING FOR ROBUST INFORMATION
RETRIEVAL FROM A DATABASE
Eytan Adar, Boston, and Mitchell N. Charity, Cambridge, both
of Mass., assignors to Massachusetts Institute of Technology,
Cambridge, Mass.
Filed Jun. 11, 1996, Ser. No. 661,591
Int. Cl.⁶ G06F 17/30
U.S. Cl. 707—5 21 Claims

11. A method for searching a database comprising the steps of:
- (a) identifying a first text string having a first plurality of terms;
 - (b) randomly selecting a first predetermined number of terms from the first plurality of terms to form a first search string, the number of terms in the first search string being less than the number of terms in the first text string;
 - (c) randomly selecting a next predetermined number of terms from the first plurality of terms to form a next search string;
 - (d) repeating step (c) a predetermined number of times to provide a predetermined number of next search strings, wherein the first search string and each of the next search strings form a plurality of search strings;
 - (e) identifying each of a plurality of database entries which contain at least one of the plurality of search strings;
 - (f) computing a rank value for each of the database entries identified in step (e) wherein each rank value for each respective database entry corresponds to the number of search strings from the plurality of search strings with which the respective database entry was identified; and



- (g) listing each of the database entries in a predetermined order, wherein the order is determined by the corresponding rank values.

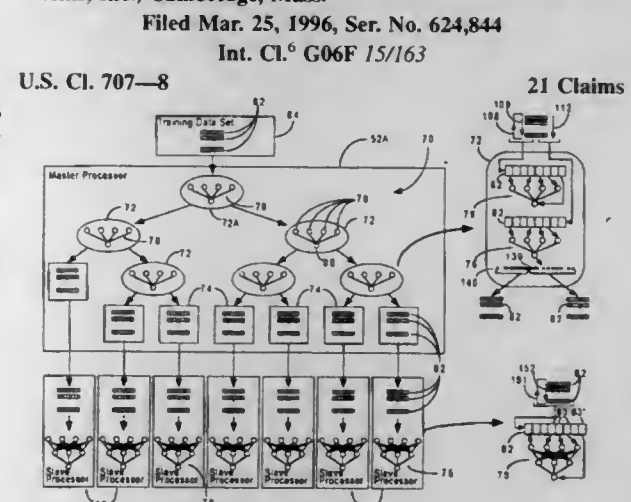
5,802,516
METHOD OF CONTROLLING AN ELECTRONIC BOOK
FOR A COMPUTER SYSTEM
Scott L. Shwartz, Scottsdale, Ariz., and David R. Dunham,
Seattle, Wash., assignors to Apple Computer, Inc., Cupertino,
Calif.
Division of Ser. No. 147,143, Nov. 3, 1993, Pat. No. 5,524,201.
This application May 30, 1995, Ser. No. 454,423
Int. Cl.⁶ G06F 17/30
U.S. Cl. 707—6 8 Claims



1. A method of searching a character string in one or more documents provided in an electronic book with the aid of a pointer-based computer having a processor, a memory connected to the processor, a display screen connected to the processor, a pointer, and one or more documents residing, at least in part, in the memory, each of the documents having one or more content records, the method comprising the following steps:
- selecting a character string by interaction of the pointer with the display screen, the display screen including a field for accepting handwriting, wherein the computer is arranged to recognize handwriting written in the field as the character string;

encoding an NGRAM for each n successive characters in the character string, the NGRAM being grouped with other NGRAMs from the character string in an array of NGRAMs; comparing the character string array of NGRAMs against NGRAMs for the content records of at least one document provided in the electronic book; searching the contents of those content records having NGRAMs containing each element of the character string NGRAM; and indicating on the display screen the records containing the search string.

5,802,517
COMPUTER SYSTEM AND COMPUTERIZED METHOD
FOR PARTITIONING DATA FOR PARALLEL
PROCESSING
Anthony Passera, Watertown, Mass.; John R. Thorp, Columbia, Md.; Michael J. Beckerle, Needham, Mass., and Edward S. A. Zyskowski, Newton, Mass., assignors to Torrent Systems, Inc., Cambridge, Mass.
Filed Mar. 25, 1996, Ser. No. 624,844
Int. Cl.⁶ G06F 15/163
U.S. Cl. 707—8 21 Claims



1. A computer system comprising:
- P processors, where P is an integer greater than one;
 - means for receiving a data set of data objects having N parameters, where N is an integer greater than one;
 - means for dividing an N-dimensional data space having a separate dimension of each of said N parameters into M sub-spaces, each corresponding to a region of said N-dimensional space, where M is an integer greater than or equal to P, so each of said data set's data objects is located in one of said M sub-spaces, said means for dividing including means for dividing said space along boundaries which are non-orthogonal to said N dimensions; and
 - means for associating different ones of said sub-spaces with different ones of said processors, such that each of said P processors has a different set of one or more of said sub-spaces associated with it, including:
 - means for distributing the sub-set of data objects located in each sub-space to the processor associated with that sub-space; and
 - means for causing each processor to perform a computational process on each of the data objects so distributed to said processor.

5,802,518

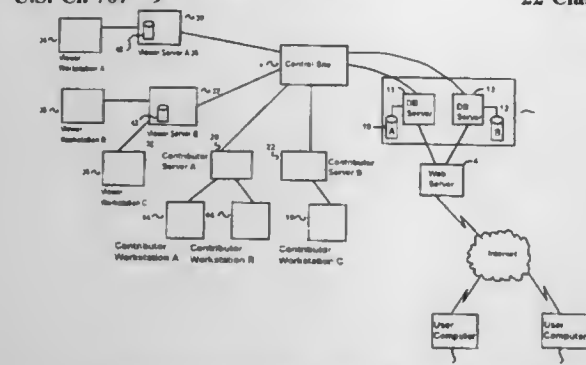
INFORMATION DELIVERY SYSTEM AND METHOD
Isaak Karaev, Brooklyn; George Baird, New York; Pavel Blazek, Forest Hills; Eduard Kitain, Brooklyn; Dmitry Prohorov, Forest Hills; Jacques Leisy, Bridgewater; Yuri Urazov, Forest Hills, all of N.Y., and Stephen Zucknovich, Wayne, N.J., assignors to Muxtel Systems, Inc., New York, N.Y.

Filed Jun. 4, 1996, Ser. No. 658,966

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—9

22 Claims



1. A computer-implemented system for the secure electronic distribution of research documents over the world wide web to investors who are authorized to receive said research documents, comprising:

- a repository server receiving from a plurality of contributors a plurality of research documents in electronic form and a plurality of corresponding document profiles comprising information relating to each research document including authorization information specifying who is permitted to access each research document, the repository server including a first database for structured query searches storing the information from the plurality of document profiles and a second database for full text searches storing searchable full text of the plurality of research reports; and
- a web server coupled to the repository server and coupled to the world wide web, the web server receiving a request from an investor for research documents that satisfy a query, the web server determining whether the first database or the second database should be searched based upon the type of query and thereafter requesting that the repository server query said determined database and transmit to the web server a list of research documents that satisfy the query and which the investor is authorized to access according to the authorization information, the web server thereafter formatting the list of documents according to a template form and transmitting the formatted list of documents to the investor.

5,802,519

COHERENT DATA STRUCTURE WITH MULTIPLE INTERACTION CONTEXTS FOR A SMART CARD

Eduard Karel De Jong, Amsterdam, Netherlands, assignor to Belle Gate Investment B.V., The Hague, Netherlands
PCT No. PCT/NL95/00055, § 371 Date Jul. 19, 1996, § 102(e)
Date Jul. 19, 1996, PCT Pub. No. WO95/22126, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 8, 1995, Ser. No. 676,347

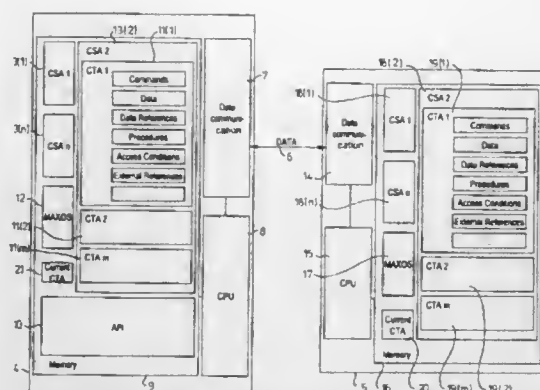
Claims priority, application European Pat. Off., Feb. 8, 1994, 94200236

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—100

17 Claims

1. Data exchange system comprising at least one portable data processing unit (5) comprising data communication means (14), processing means (15) and memory means (16), the later comprising an executive program (17) characterized in that the memory means (16) further comprises at least one interaction context (19(1) . . . 19(m)) containing the following coherent data structure:



- a set of basic communication primitives (A(1) . . .) which are accepted whenever the data processing unit (5) communicates with a similar unit (4), said primitives at least including a primitive used to selectively enter one of the said interaction contexts (19(1) . . .);
- a set of procedural descriptions (C(1) . . .) defining the actions to be performed in response to each of the accepted communication primitives (A(1) . . .), at least comprising a first procedural description to be performed upon activating the interaction context, and a last procedural description to be performed immediately before deactivating the context;
- a, possibly empty, set of data elements (H(1) . . .) either permanently stored or computed, which are available for use when procedures as defined in the procedural descriptions (C(1) . . .) are performed;
- a, possibly empty, set of references to data elements, which references are associated, to the procedural descriptions (C(1) . . .), said data elements are also accessible to possibly further interaction contexts and are available for use when procedures as defined in the procedural descriptions (C(1) . . .) are performed;
- a, possibly empty, data list comprising a list of references (B(1) . . .) to data elements which are available for explicit reference as part of a communication primitive (A(1) . . .) to be used by the procedural description (C(1) . . .) associated with the communication primitive;
- a set of access conditions associated to the data elements which are referenced in association to the procedural descriptions (C(1) . . .);
- a set of access conditions associated to the list of data references (B(1) . . .) in the data list.

5,802,520

SYSTEM AND METHOD FOR MANIPULATING COMPRESSED FILES

Boris M. Jerkunica, and David G. Synder, both of Atlanta, Ga., assignors to Software Builders International, L.L.C., Atlanta, Ga.

Filed Sep. 16, 1996, Ser. No. 714,649

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—101

16 Claims

1. A system for use in extracting an individual file from an overall compressed file comprising:
a remote communicator at a remote location for communicating file requests to a server; and

5,802,522

METHOD AND SYSTEM OF STORING DATA BLOCKS THAT HAVE COMMON DATA ELEMENTS

Scott E. Lloyd, Hoffman Estates, and Shay-Ping T. Wang, Long Grove, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

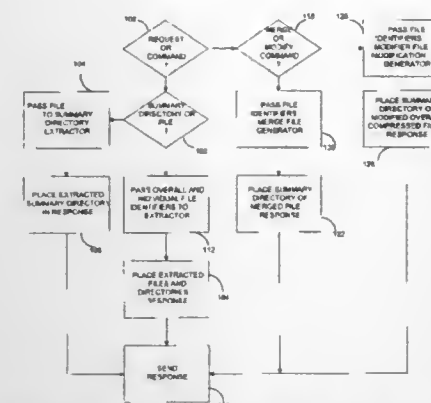
Continuation of Ser. No. 296,041, Aug. 23, 1994, abandoned.

This application Dec. 30, 1996, Ser. No. 775,470

Int. Cl.⁶ G06F 12/02

U.S. Cl. 707—101

3 Claims



a summary directory extractor at said server for extracting a summary directory for an overall compressed file identified by said file request.

5,802,521

METHOD AND APPARATUS FOR DETERMINING DISTINCT CARDINALITY DUAL HASH BITMAPS

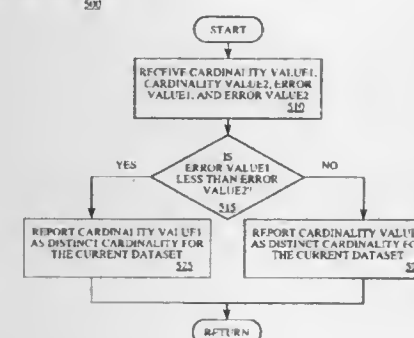
Mohamed Ziauddin, Fremont, Calif., and Michael T. Ong, Andover, Mass., assignors to Oracle Corporation, Redwood Shores, Calif.

Filed Oct. 7, 1996, Ser. No. 726,957

Int. Cl.⁶ G06F 7/00

U.S. Cl. 707—101

23 Claims



1. In a computer system having a processor coupled to a bus and a computer readable memory unit coupled to said bus, a method for determining distinct cardinality of a data sample, said method comprising the steps of:

- receiving said data sample, said data sample containing C entries;
- determining a first distinct cardinality value of said data sample using a hashing function and a first bitmap, said first bitmap comprising x entries;
- determining a second distinct cardinality value of said data sample using a hashing function and a fractional bitmap that is a fraction of a second bitmap, said second bitmap comprising y logical entries and said fractional bitmap comprising z entries wherein y is larger than x; and
- selecting between said first distinct cardinality value and said second distinct cardinality value as said distinct cardinality of said data sample, wherein said first bitmap and said fractional bitmap are separate bitmaps and are stored within said computer readable memory unit.

5,802,523

METHOD AND APPARATUS FOR REDUCING THE MEMORY REQUIRED TO STORE BIND VARIABLE DESCRIPTORS IN A DATABASE

Amit Jasuja, Fremont, and Roger Taranto, Berkeley, both of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Filed Jun. 21, 1996, Ser. No. 669,244

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—103

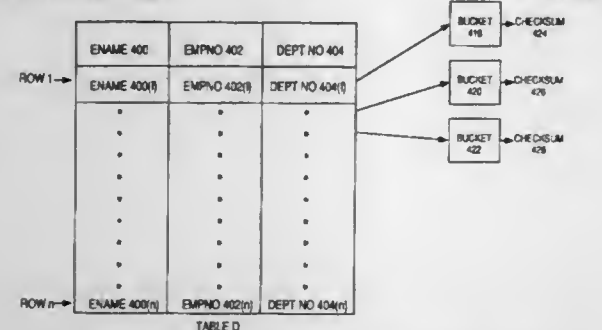
32 Claims

1. A method for executing queries on a server, said method comprising the computer implemented steps of:
storing in a first memory space a first private object for executing a first query from one or a set of clients, wherein said first private object is private to said first query;
storing in a second memory space a first shared object;
storing in said first shared object data describing attributes of a set of bind variables for a particular query;
storing in said first private object data establishing a link to said first shared object;
if differences exist between attributes of a set of bind variables for said first query and attributes of the set of bind variables for said particular query, then storing data in said first private object indicating the differences between attributes of the set

a Converter process, implemented as a class, retrieving the enhanced records from the WorkQueue and formatting them for the client systems that are to receive the enhanced records; the Converter passing the formatted enhanced record to one or more Send processes, implemented as classes, which send them to the appropriate client systems.

5,802,528
METHOD AND APPARATUS FOR DATA COMPARISONS
Brian M. Oki; James Stamos, both of San Jose, and Gary Hallmark, San Carlos, all of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.
Filed May 24, 1996, Ser. No. 655,321
Int. Cl.⁶ G06F 17/30

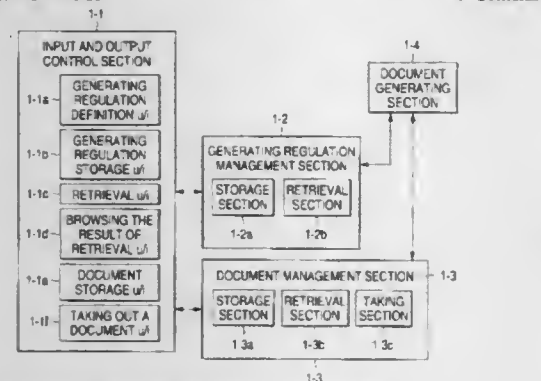
U.S. Cl. 707—201



1. A method for comparing a first set of data and a second set of data, the method comprising the steps of: statistically sampling said first set of data to establish a first set of data groupings; statistically sampling said second set of data to establish a second set of data groupings; statistically sampling said first set of data groupings to generate a first set of comparison values; statistically sampling said second set of data groupings to generate a second set of comparison values; and comparing said first set of comparison values to said second set of comparison values to determine whether said first set of data differs from said second set of data.

5,802,529
APPARATUS AND METHOD FOR DOCUMENT DATABASE MANAGEMENT OF DOCUMENTS HAVING A PLURALITY OF DOCUMENT STRUCTURES
Hisashi Nakatsuyama; Masaki Kyojima, and Yo Okumura, all of Yokohama, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Dec. 29, 1995, Ser. No. 580,688
Claims priority, application Japan, Jan. 6, 1995, 7-000650
Int. Cl.⁶ G06T 1/20

U.S. Cl. 707—513

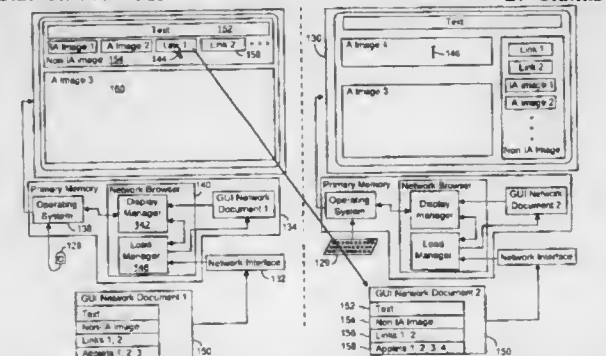


1. A document database apparatus comprising:

a database capable of storing a document, the logical structure of which is formed into a first type logical structure; document input means for inputting a document, the logical structure of which is formed into a second type logical structure; regulation storage means for storing a regulation to generate a logical structure of a document in the database from a logical structure of a document inputted by said document input means; document generating means for generating a document in the database, the logical structure of which is formed into the first type logical structure, from a document inputted by said document input means, the logical structure of which is formed into the second type logical structure, according to a regulation stored in said regulation storage means; document storage means for storing a document generated by said document generating means, the logical structure of which is formed into the first type logical structure, in the database; retrieval condition input means for inputting a retrieval condition for a document in the database; document retrieval means for retrieving a document stored in the database according to the retrieval condition inputted by said retrieval condition input means; second generating regulation storage means for storing a regulation to generate a logical structure of a document using a document class and document schema; regulation retrieval means for retrieving a regulation stored in said second generating regulation storage means in accordance with the document retrieved by said document retrieval means; second document generating means for generating a document to be outputted from the document retrieved by said document retrieval means in accordance with the regulation retrieved by said regulation retrieval means, the document class retrieved by document class retrieval means and the document schema retrieved by a document schema retrieval means; and document output means for outputting a document generated by said second document generating means.

5,802,530
WEB DOCUMENT BASED GRAPHICAL USER INTERFACE
Arthur A. Van Hoff, Mountain View, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.
Filed Jul. 1, 1996, Ser. No. 675,271
Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—513

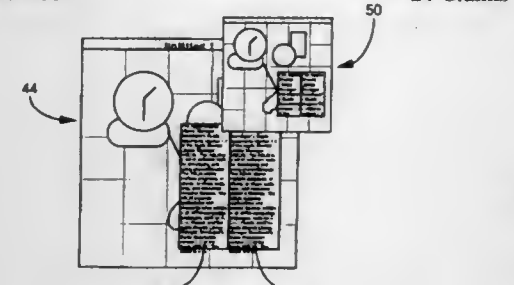


1. A Web document based GUI (graphical user interface) for use on a client computer that is networked with server computers, the GUI comprising: GUI Web documents that collectively enable a user of the client computer to initiate specific operations which are performed on the client computer and collectively define an entire application which is executed on the client computer, each of the GUI Web documents being located at the client computer or one of the server computers and comprising:

one or more links, each of the one or more links providing a link to a corresponding one of the GUI Web documents when (a) the link is selected by the user with the client computer and (b) while the link is being displayed on the client computer; one or more applets, each of the one or more applets (a) generating a corresponding interactive image that is displayed on the client computer when the applet is executed and (b) being invoked to perform a corresponding one of the specific operations when the user acts on the corresponding interactive image with the client computer; and a Web browser that runs on the client computer and that, each time a selected one of the one or more links of a displayed one of the GUI Web documents has been selected by the user with the client computer, (a) loads, if not already loaded, the corresponding GUI Web document in the client computer, (b) displays the corresponding GUI Web document on the client computer by (i) executing each of the one or more applets of the corresponding GUI Web document on the client computer and displaying the corresponding interactive image on the client computer, and (ii) displaying the one or more links of the corresponding GUI Web document on the client computer, and (c) invokes one of the one or more applets of the corresponding GUI Web document to perform the corresponding specific operation when the user acts on the corresponding interactive image with the client computer.

5,802,531
METHOD AND SYSTEM FOR EMBEDDING PARTS OF DOCUMENTS AND SYNCHRONIZING MULTIPLE VIEWS THEREOF
Henri C. Lamiroux, San Carlos, and Anthone Michael Burbridge, Gilroy, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Filed May 8, 1995, Ser. No. 436,116
Int. Cl.⁶ G06F 5/00

U.S. Cl. 707—514

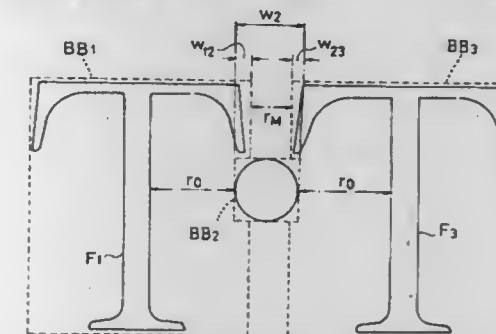


1. In a user interface for a computer, of the type in which a part that forms a component of a document can be contained within another part that forms a component of the document, a method for maintaining synchronized multiple views of a part which is embedded within another part, comprising the steps of: displaying a first part on a display monitor for said computer in a first view; creating a data structure for said first part, said data structure comprising a first list which identifies each view of said first part that is currently being displayed on said display monitor, and a second list which identifies each part that is embedded within said first part; placing a second part in said first part, wherein said second part has a specific positional relationship to said first part and becomes embedded therein; adding an identification of said second part to said second list of said first part, said identification including information pertaining to said positional relationship; creating a second view of said first part on said display monitor, said second view including said embedded second part with said positional relationship; and adding said second view to said first list of said first part.

5,802,532
KERNING METHOD AND ELECTRONIC TYPOGRAPHIC/EDITING APPARATUS
Hiroshi Nakayama, and Kiyotaka Miyai, both of Tokyo, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan
Filed Jul. 8, 1996, Ser. No. 676,509
Claims priority, application Japan, Jul. 10, 1995, 7-198014
Int. Cl.⁶ G06T 1/00

U.S. Cl. 707—519

16 Claims

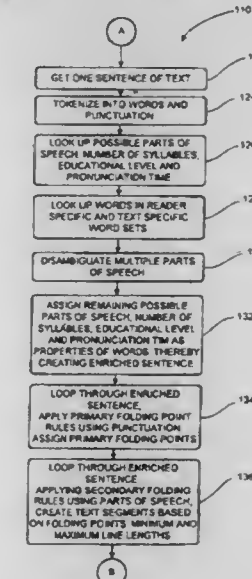


1. A kerning method of adjusting position of at least three characters each defined by an imaginary character frame including a face which represents a configuration of a character therein, said method comprising: a character arranging step for arranging a first character, a second character and a third character in this order; a space reducing step for reducing a first space between said first and second characters by a first space reduction amount and a second space between said second and third characters by a second space reduction amount; a character space computing step for computing a third space between said first character and said third character; a character space judging step for judging whether said third space is smaller than a reference space; and a space reduction correcting step for correcting at least one of said first space reduction amount and said second space reduction amount when said third space is smaller than said reference space, so that said third space is not smaller than said reference space.

5,802,533
TEXT PROCESSOR
Randall C. Walker, 923 Tenth St., SW, Rochester, Minn. 55902
Filed Aug. 7, 1996, Ser. No. 693,444
Int. Cl.⁶ G06F 17/27

U.S. Cl. 707—519

21 Claims



1. A method for enhancing text presentation comprising:
a) extracting text specific attributes from said text; and
b) varying said text presentation in accordance with said attributes, wherein said text specific attributes include a text difficulty measure, and said text presentation includes an automatic text advancement rate, and said presentation includes varying said text presentation rate in accordance within said text difficulty measure.

5,802,534

APPARATUS AND METHOD FOR EDITING TEXT
Yoshinori Hatayama; Masahiro Ishiba; Tetsuo Takeyama;
Takashi Hazui, all of Ogaki, and Kimio Nagasawa, Komaki,
all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi,
Japan

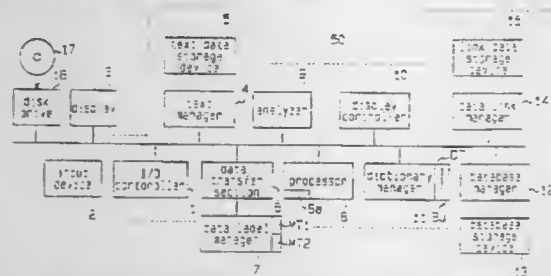
Filed Jul. 6, 1995, Ser. No. 498,879

Claims priority, application Japan, Jul. 7, 1994, 6-155959;
Mar. 17, 1995, 7-059445

Int. Cl. G06F 17/21

U.S. Cl. 707—530

27 Claims



1. An apparatus for editing text in a document, comprising:
a display for displaying text including words on its screen;
an input device operable by an operator to designate a word
from the words of said text displayed on said display; and
a processing unit coupled to said display and said input device
and having a first memory for storing text data including data
of a plurality of words, and a second memory for storing
plural pieces of word data and plural pieces of label data
indicating meaning suggested by individual words, each word
data being paired with its corresponding label data, wherein
said processing unit:

- A) identifies data of a first word designated by an operator using
said input device, from text data stored in said first memory;
and
B) identifies label data associated with word data matching with
said first word data, from said second memory, by referring to
said identified first word data.

5,802,535

DOCUMENT PROCESSING APPARATUS FOR EDITING
AND GENERATING DOCUMENTS

Kazuo Shibata, Nakai-machi, Japan, assignor to Fuji Xerox
Co., Ltd., Tokyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,401

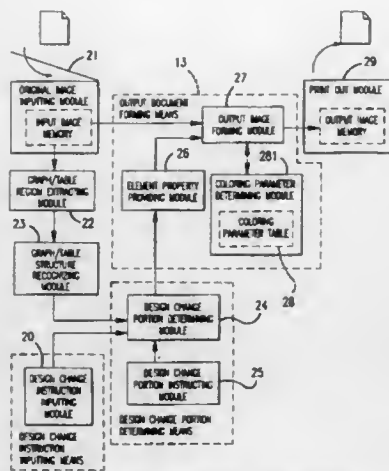
Claims priority, application Japan, Feb. 3, 1995, 7-037795

Int. Cl. G06T 5/00

U.S. Cl. 707—523

21 Claims

1. A document processing apparatus comprising:
design change instruction inputting means for inputting a design
change instruction to generate a plurality of documents having
different design;
design change portion determining means for determining a
different portion to be changed for design in each of the
plurality of documents to be generated; and
document generating means for generating the plurality of docu-
ments each of which has a different changed portion for
design in accordance with the design change instruction input-
ted by said design change instruction inputting means and the



different portion of the document determined by said design
change portion determining means.

5,802,536

INFORMATION SEARCH AND DISPLAY APPARATUS

Fumihiko Yoshii, Tokyo, and Koichi Hayasaka, Kanagawa,
both of Japan, assignors to Sony Corporation, Tokyo, Japan

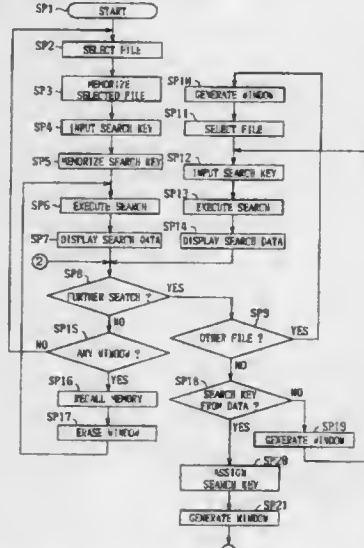
Continuation of Ser. No. 618,080, Mar. 18, 1996, abandoned,
which is a continuation of Ser. No. 66,765, May 25, 1993,

abandoned. This application Oct. 14, 1997, Ser. No. 949,533
Claims priority, application Japan, May 29, 1992, 4-163834

Int. Cl. G06F 17/30

U.S. Cl. 707—532

10 Claims



8. A method for searching a plurality of dictionary data recorded
on an optical disc, comprising the steps of:
determining whether an optical disc is one on which is recorded
a plurality of dictionary data;
searching a first one of the plurality of dictionary data recorded
on the optical disc based on a first inputted search term;
displaying the results of the search using the first search term;
generating display window data for a second inputted search
term for searching a second one of the plurality of dictionary
data;
displaying the generated window data for the second inputted
search term;
searching the second one of the plurality of dictionary data
recorded on the optical disc based on the second search term
displayed in the window;
storing the first inputted search term;
displaying the results of the search using the second search term;
and

automatically reading out the stored first input search term,
searching the first one of the plurality of dictionary data
recorded on the optical disc based on the first inputted search
term, and displaying the results of the search using the first
search term in response to termination of the search using the
second search term.

5,802,537

WORD PROCESSOR WHICH DOES NOT ACTIVATE A
DISPLAY UNIT TO INDICATE THE RESULT OF THE
SPELLING VERIFICATION WHEN THE NUMBER OF
CHARACTERS OF AN INPUT WORD DOES NOT
EXCEED A PREDETERMINED NUMBER

Masaru Makita, Tokyo, Japan, assignor to Canon Kabushiki
Kaisha, Tokyo, Japan

Division of Ser. No. 296,978, Aug. 26, 1994, abandoned, which

is a continuation of Ser. No. 959,477, Oct. 9, 1992, aban-

doned, which is a continuation of Ser. No. 430,953, Nov. 1,

1989, abandoned, which is a continuation of Ser. No. 798,321,

Nov. 15, 1985, abandoned. This application May 15, 1995,

Ser. No. 441,059

Claims priority, application Japan, Nov. 16, 1984, 59-240584;

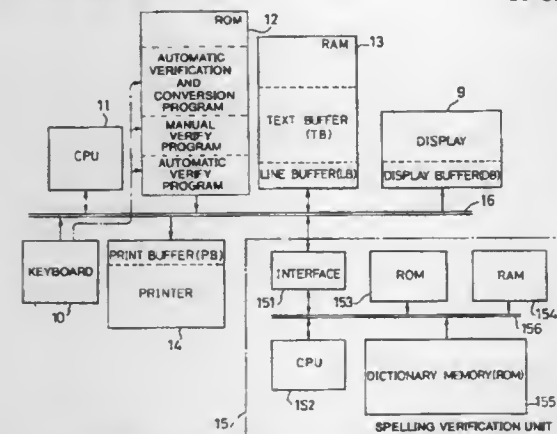
Nov. 16, 1984, 59-240585; Nov. 16, 1984, 59-240586; Nov. 16,

1984, 59-240587

Int. Cl. G06F 3/023

U.S. Cl. 707—533

16 Claims



1. A document processing apparatus comprising:
key input means for inputting character information, separation
information for indicating the end of a word formed by the
character information, and instruction information for produc-
ing a spelling verification instruction;
dictionary means for checking the spelling of a word formed by
the character information input by said key input means;
selection means for selecting one of a plurality of spell checking
modes including first and second spell checking modes; and
control means for, (1) if the first spell checking mode has been
selected by said selection means, controlling, in response to
the separation information being input by said key input
means, said dictionary means to check the spelling of a word
formed by the character information input immediately before
the separation information, and (2) if the second spell check-
ing mode has been selected by said selection means, control-
ling, in response to the instruction information being input by
said key input means, said dictionary means to check the
spelling of a word formed by the character information input
immediately before the instruction information.

5,802,538

SYSTEM FOR ENHANCED UTILITY OF CUSTOM
CHARACTERS INCLUDING DIVIDING THE CUSTOM
CHARACTERS INTO CUSTOM CHARACTER GROUPS
AND ADAPTING THE CUSTOM CHARACTER GROUPS
TO EACH OTHER

Isamu Ooishi, Shizuoka, Japan, assignor to Fujitsu Limited,
Kawasaki, Japan

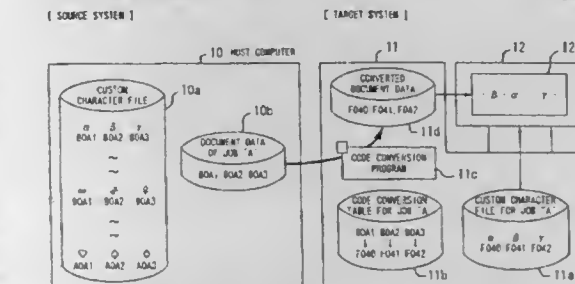
Filed Apr. 10, 1996, Ser. No. 630,245

Claims priority, application Japan, Jun. 26, 1995, 7-159400

Int. Cl. G06F 3/14

U.S. Cl. 707—542

7 Claims



1. A system for enhanced utility of custom characters in a
distributed data processing system, which allows document data to
be distributed from a source system including a first character
coding system to a target system including a second character
coding system different than the first character coding system, the
first and second character coding systems respectively having first
and second predetermined code spaces reserved for assignment of
the custom characters, the second predetermined code space being
smaller in capacity than the first predetermined code space, the
system comprising:

- custom character grouping means, disposed in the source sys-
tem, for dividing the custom characters available in the first
predetermined code space into a plurality of custom character
groups so that the custom character codes included in each of
said custom character groups will not be greater in number
than the custom character codes that the target system can
handle with the second predetermined code space;
custom character environment creating means, disposed in the
source system, for creating a plurality of custom character
environments each corresponding to the plurality of custom
character groups produced by said custom character grouping
means, each of the plurality of character environments includ-
ing a custom character file containing font pattern data of the
custom characters and a code conversion table enabling the
custom characters in the first character coding system to be
partly adapted to the second character coding system by
assigning one of the custom character groups to the second
predetermined code space;
custom character environment setting means, disposed in the
target system, for setting up one of said plurality of custom
character environments in the target system; and
document data processing means, disposed in the target system,
for processing the document data sent from the source system
under the custom character environment set up by said custom
character environment setting means.

5,802,539

METHOD AND APPARATUS FOR MANAGING TEXT
OBJECTS FOR PROVIDING TEXT TO BE
INTERPRETED ACROSS COMPUTER OPERATING
SYSTEMS USING DIFFERENT HUMAN LANGUAGES

Andrew M. Daniels, Menlo Park, and Andrew Wilson, San
Francisco, both of Calif., assignors to Apple Computer, Inc.,
Cupertino, Calif.

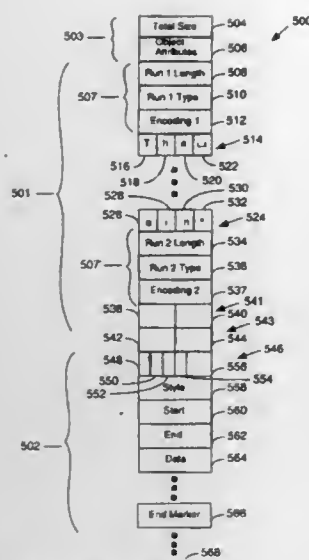
Continuation-in-part of Ser. No. 435,393, May 5, 1995, aban-
doned. This application May 3, 1996, Ser. No. 642,059

Int. Cl. G06F 7/00

U.S. Cl. 707—542

49 Claims

1. A computer-implemented method for creating a text object
having a primary data portion and an annotation portion, said
computer-implemented method comprising the steps of:



providing a string of text characters, at least one run header containing a run length field providing the length of a substring within said string of text characters, and at least one attribute header containing a style definition characterizing a substring within said string of text characters; storing under computer control said string of text characters and said run header in said primary data portion; and storing under computer control said attribute header in said annotation portion; wherein said attribute header in said annotation portion includes information characterizing and describing a plurality of said text characters, and said run header in said primary data portion includes information characterizing and describing a plurality of said text characters and wherein said run header, said attribute header, and said text characters define at least one text run, said text run including a plurality of characters having the same encoding, thereby allowing an operating system of a computer system to convert data representing text of a first character set to data representing the text in a second character set.

5,802,540 PROGRAMMING AND VERIFICATION ADDRESS GENERATION FOR RANDOM ACCESS MEMORY BLOCKS IN PROGRAMMABLE LOGIC ARRAY INTEGRATED CIRCUIT DEVICES

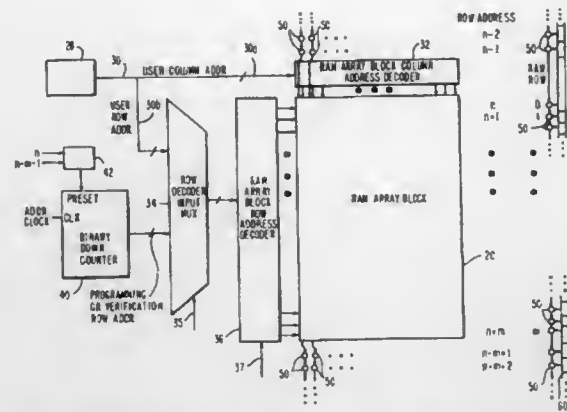
Chiakang Sung, Milpitas; Joseph Huang, San Jose, and Wanli Chang, Saratoga, all of Calif., assignors to Altera Corporation, San Jose, Calif.

Filed Nov. 8, 1995, Ser. No. 555,283
Int. Cl.⁶ G06F 12/02

U.S. Cl. 711—1

10 Claims

1. A programmable logic array integrated circuit device comprising:
a plurality of memory slices;
a decoder for decoding address information applied to said decoder in order to select one of said memory slices which is identified in a predetermined code by said address information;
programmable logic for selectively applying said address information to said decoder;
a code generator circuit for selectively generating alternative address information which successively identifies each of said slices in said predetermined code;
switching circuitry for selectively applying said alternative address information to said decoder in lieu of said address information;



a plurality of additional memory slices which are not selectable by said decoder, said memory slices and said additional memory slices being in an ordered sequence in which all of said memory slices are adjacent to one another in a group that is preceded by a first subplurality of said additional memory slices and followed by a second subplurality of said additional memory slices; and a register circuit having a plurality of outputs, each of which is associated with a respective one of said memory slices and said additional memory slices, said outputs being initially in a first state, and progressively and cumulatively changing to a second state in a sequence which corresponds to the sequence of the associated slices, the state of each output of said register circuit that is associated with an additional memory slice having a predetermined effect on operation of that additional memory slice.

5,802,541 METHOD AND APPARATUS IN A DATA PROCESSING SYSTEM FOR USING CHIP SELECTS TO PERFORM A MEMORY MANAGEMENT FUNCTION

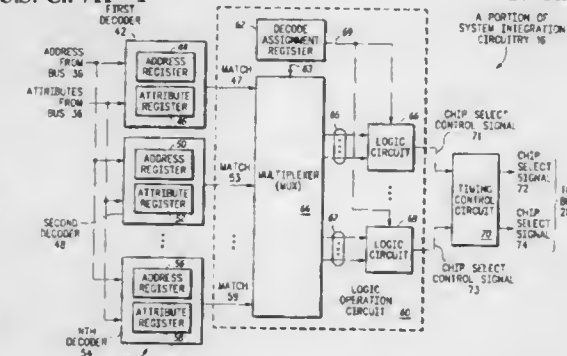
Wendy Reed, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 28, 1996, Ser. No. 608,388

Int. Cl.⁶ G06F 12/00; G11C 11/407; 11/413; H03K 19/0175

U.S. Cl. 711—1

27 Claims



21. An integrated circuit comprising chip select circuitry, said chip select circuitry comprising:
a plurality of decode circuits;
a multiplexing circuit, coupled to said plurality of decode circuits;
a first control circuit for asserting and negating a chip select signal, said first control circuit being coupled to said multiplexing circuit; and
a second control circuit, coupled to said multiplexing circuit, said second control circuit providing at least one control signal to said multiplexing circuit in order to determine which of said plurality of decode circuits are assigned to said chip select signal.

5,802,542 INFORMATION MANAGEMENT SYSTEM FOR A DYNAMIC SYSTEM AND METHOD THEREOF

Enrico William Coiera, Bath, and Simon Charles Roger Lewis, Bristol, both of England, assignors to Hewlett-Packard Laboratories, Bristol, England

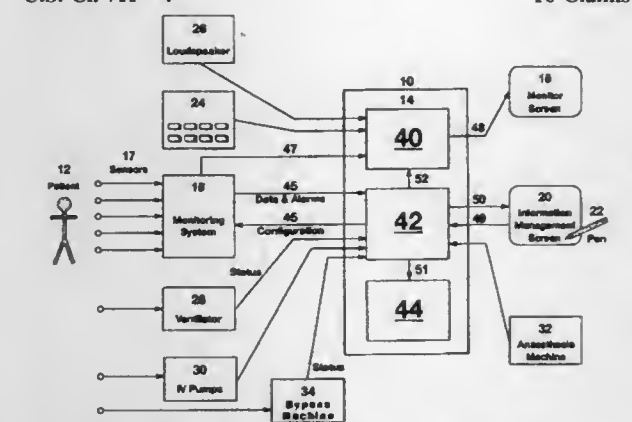
Filed Mar. 24, 1995, Ser. No. 409,444

Claims priority, application European Pat. Off., Mar. 24, 1994, 94302119

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—4

18 Claims



1. An information management system comprising:
a monitoring arrangement for receiving signals indicative of a state of a dynamic system;
an output device for indicating a monitored state of the dynamic system based on said signals;
a computer configured to:
(a) maintain a representation of a prespecified plan for a procedure to be carried out on the dynamic system;
(b) record data concerning the progress of the procedure;
(c) automatically update the representation of the plan based on signals received from the monitoring arrangement; and
(d) reconfigure the output device according to the data concerning the progress of the procedure; and
an interface device for enabling a user to access the representation of the plan.

5,802,543 PAGING RECEIVER EMPLOYING MEMORY BANKING SYSTEM

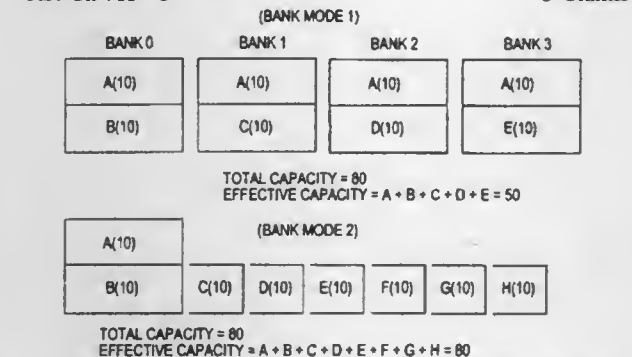
Hiroaki Shibayama, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 25, 1996, Ser. No. 637,492

Claims priority, application Japan, Apr. 28, 1995, 7-105389
Int. Cl.⁶ G06F 12/06

U.S. Cl. 711—5

3 Claims



1. A paging receiver, comprising a receiver for demodulating a modulated wave received by an antenna, a decoder for decoding a demodulated wave outputted from said receiver, a central processing unit serving as a concentrated operation unit in said paging receiver, a ROM in which programs to be executed by said central

processing unit and data are stored in a plurality of bank modes a RAM for managing a bank when said central processing unit accesses said ROM, and demodulated data outputting means, wherein said central processing unit accesses, each time it is to access said ROM, said ROM through said decoder and said decoder decodes an address signal inputted thereto from said central processing unit and outputs chip select signals to each of the ROM, the RAM and the demodulated data outputting means, said decoder including bank mode switching selection means for switchably selecting one of said plurality of bank modes.

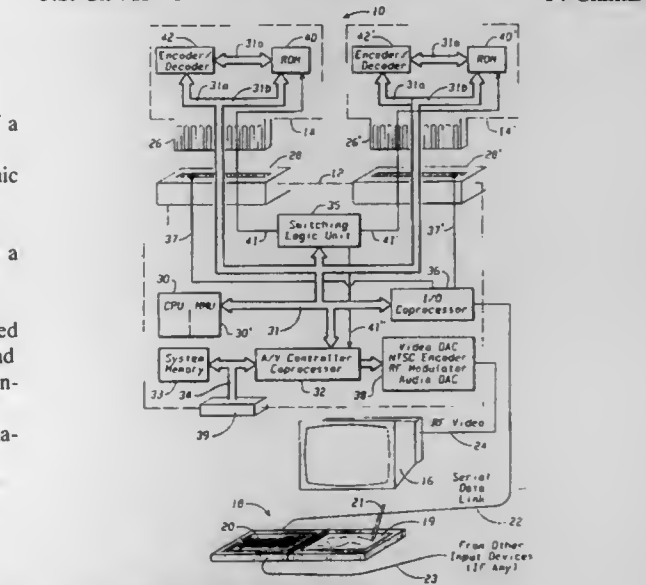
5,802,544 ADDRESSING MULTIPLE REMOVABLE MEMORY MODULES BY REMAPPING SLOT ADDRESSES

James Lee Combs, Cary, N.C.; Herman Rodriguez, Boca Raton, Fla.; James Alan Strothmann, Lexington, Ky., and James Randall Thomas, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 478,923, Jun. 7, 1995, abandoned.
This application Aug. 29, 1997, Ser. No. 921,720
Int. Cl.⁶ G06F 12/06

U.S. Cl. 711—5

14 Claims



1. A computer system comprising:
(a) a central processing unit (CPU);
(b) at least a first and a second slot in circuit communication with said CPU, said slots removably connecting said CPU in circuit communication with memory devices having code stored therein, the code being associated with a particular range of fixed code memory addresses; and
(c) switching logic in circuit communication with said CPU and said slots;
(1) said switching logic detecting which of the memory devices are inserted into which of said slots; wherein each of said slots comprises a range of fixed slot memory addresses; and
(2) said switching logic mapping the range of fixed code memory addresses of the code in the memory devices to the range of fixed code memory addresses independent of which of said fixed slot memory addresses are associated with the slots the memory devices are inserted into;
(d) logic for determining which memory devices form a single application; and
(e) logic for allowing the execution of a second application in a second memory device in a second slot within the execution of a first application in a first memory device in a first slot, wherein this logic comprises:
logic for displaying and selecting a visual representation of the second application during execution of the first application.

5,802,545

METHOD AND SYSTEM FOR RECORDING VEHICLE DATA RELATIVE TO VEHICLE STANDARD TIME

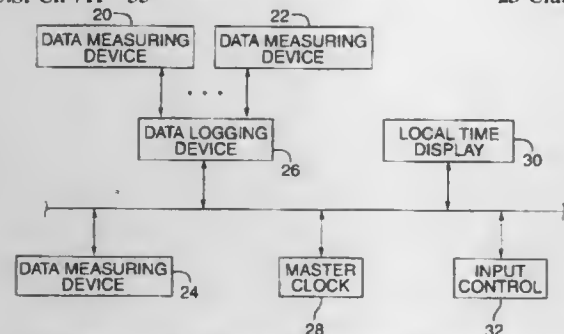
Cary N. Coverdill, Boring, Oreg., assignor to Freightliner Corporation, Portland, Oreg.

Filed May 23, 1996, Ser. No. 652,776

Int. Cl.⁶ G06F 17/00

U.S. Cl. 711—35

23 Claims



1. A data recording system on a vehicle, the system comprising: a plurality of vehicle data measuring devices operable to measure vehicle performance data;
- a master vehicle clock operable to maintain vehicle standard time for the vehicle, and operable to maintain driver local time;
- a data logging device communicative with a plurality of the vehicle data measuring devices and the master vehicle clock, the data logging unit being operable to monitor the vehicle performance data and to record selected vehicle performance data along with a time stamp in vehicle standard time from the master vehicle clock;
- an input control communicative with the master vehicle clock, the input control being operable to receive user input to decrement or increment the driver local time, and operable to communicate a change in driver local time to the master vehicle clock;
- a local time display communicative with the master vehicle clock, the local time display being operable to display the driver local time.

5,802,546

STATUS HANDLING FOR TRANSFER OF DATA BLOCKS BETWEEN A LOCAL SIDE AND A HOST SIDE

Douglas Roderick Chisholm, Delray Beach; Gary Hoch, Coral Springs, both of Fla.; Timothy Vincent Lee, Raleigh; Andrew Boyce McNeill, Jr., Apex, both of N.C., and Ed Wachtel, New York, N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 13, 1995, Ser. No. 573,221

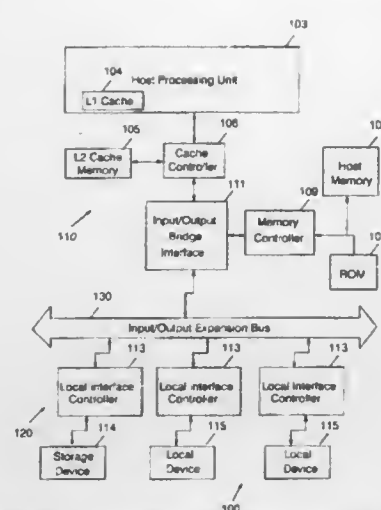
Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—100

14 Claims

1. An information handling system for transferring data blocks between a first processing side and a second processing side over an I/O expansion data bus, comprising:

- a host processing unit;
- a first memory accessible by said host processing unit including first memory portions for storing first data blocks involved in data block transfers between the first processing side and the second processing side;
- a transfer status queue memory portion including a plurality of status queue images, each status queue image storing a status information relating to a corresponding data block transfer;
- a local processing unit;
- a second memory accessible by the local processing unit including second memory portions for storing second data blocks involved in data block transfers between the first processing side and the second processing side;
- a Data Channel Block (DCB) memory portion comprising a plurality of DCB images wherein each of said DCB images stores:



- a first address information corresponding to a first memory portion involved in a data block transfer; and
- a second address information corresponding to a second memory portion involved in the data block transfer;
- a status queue register set programmable by said host processing unit before start of any data block transfer for setting a predefined address for the status queue memory portion and for storing a head pointer value pointing to a default status queue image indicating where a subsequent status information is to be stored and a tail pointer pointing to a default status queue image indicating from where a subsequent status information is to be retrieved;
- a first memory access controller responsive to said first address information for accessing a corresponding first memory portion;
- a second memory access controller responsive to said second address information for accessing the corresponding second memory portion; and
- a data transfer status controller which stores status queue images for a successful transfer as data is being transferred, includes hardware logic which monitors for errors during data transfer and is responsive to said data transfer queue register set for transferring a corresponding status queue image into the data transfer status queue memory portion upon completion of a data transfer without errors and includes hardware logic which detects the transfer of the status queue image into the status queue memory portion and responsively sends an interrupt to the host processor to indicate an unserviced status image, whereby status information is provided to the host processing unit without local processing unit intervention.

5,802,547

DATA STORAGE SYSTEM WITH STREAMLINED DATA EXCHANGE PATH TO CACHED DATA

Vernon John Legvold, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1996, Ser. No. 729,899

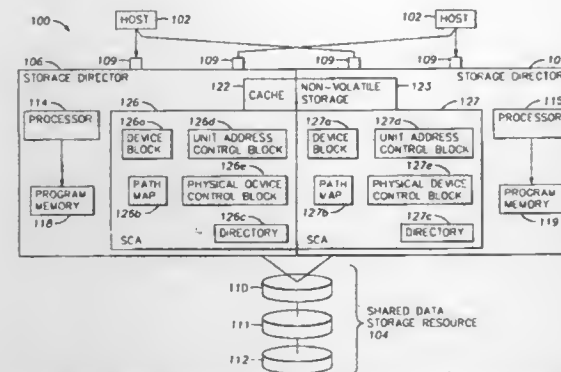
Int. Cl.⁶ G06F 12/00; 13/00

U.S. Cl. 711—100

53 Claims

1. A method for facilitating streamlined data transfer operations in a data storage system having a shared data resource accessible by multiple hosts, said subsystem additionally having a cache coupled to the hosts and the shared data resource, the method comprising the steps of:

- receiving a request by a first one of the multiple hosts to exchange a first data block with the shared data resource, said request including specification of a number of data transfer parameters, said first data block residing in a first part of the shared data resource;
- in response to the request, consulting a fast path map to determine whether a first data path has been established between the first host and the first part;



- if the first data path has not been established, performing first path setup-transfer steps comprising: establishing the first data path between the first host and the first part by performing steps comprising: performing a parameter checking step including verifying validity of the data transfer parameters;
- performing a resource checking step including verifying that the cache and the first part are operational;
- if the request constitutes a request to read the first data block from the shared data resource, determining whether the first data block is present in the cache, and if not present copying the first data block into the cache;
- performing an error recovery setup step including configuring the data storage system for recovery of any errors occurring during exchange of the first data block;
- updating the fast path map to indicate establishment of the first data path between the first host and the first part; and transferring the first data block between the cache and the first host while locking at least the first part of the shared data resource;
- if the first data path has already been established, performing accelerated access steps comprising: utilizing the previously established first data path and the previously performed parameter verifying, resource verifying, and error recovery steps;
- transferring the first data block by performing steps comprising:

- if the request constitutes a request to read the first data block from the shared data resource, determining whether the first data block is present in the cache, and if so, transferring the first data block from the cache to the first host utilizing the first data path between the first host and the cache while leaving the shared data resource in an unlocked condition;
- if the request constitutes a request to write the first data block from the first host to the shared data resource, transferring the first data block from the first host to the cache utilizing the first data path between the first host and the cache while leaving the shared data resource in an unlocked condition; and
- during transferring of the first data block marking in a directory an entry corresponding to the first data block to prevent access of the first data block by other hosts.

5,802,548

SOFTWARE PROGRAMMABLE EDGE DELAY FOR SRAM WRITE ENABLE SIGNALS ON DUAL PURPOSE CACHE CONTROLLERS

Stuart T. Auvinen, Santa Cruz, Calif., assignor to Chips and Technologies, Inc., San Jose, Calif.

Continuation of Ser. No. 782,664, Oct. 25, 1991, abandoned.

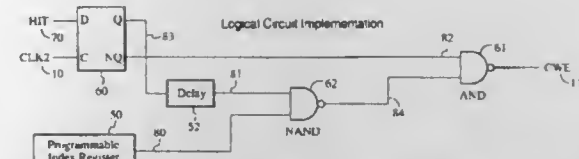
This application Jul. 8, 1994, Ser. No. 272,969

Int. Cl.⁶ G06F 13/42

U.S. Cl. 711—100

10 Claims

1. In a cache controller for use in a microprocessor-based system, the system including a static random access memory (SRAM), the cache controller for providing a write enable (WE)



signal to the SRAM, a circuit for modifying a WE signal pulse width in order to accommodate a plurality of microprocessor types, the circuit comprising:

- signal hit means responsive to a signal hit for providing a signal indicating a cache write is to take place, the WE signal going to an active low state in response to the signal hit going high;
- delay means coupled to the signal hit means being responsive to the signal from the signal hit means for providing a delay to the WE signal, the delay shifting a trailing edge of the WE signal for extending the WE signal pulse width by a predetermined time period;
- programmable means coupled to the delay means for enabling and disabling the delay, wherein the delay enabled by the programmable means does not affect a leading edge of the WE signal, wherein the delay is disabled if one of the plurality of microprocessor types providing a first data hold time is operating in the system, and wherein the delay is enabled if another one of the plurality of microprocessor types providing a second data hold time longer than the first data hold time is operating in the system; and
- a gate coupled to the programmable means and the delay means, the gate having an output producing a logic high when the delay is disabled, wherein the WE signal goes to an inactive high state without the delay in response to the signal hit going low.

5,802,549

METHOD AND APPARATUS FOR PATCHING PAGES OF ROM

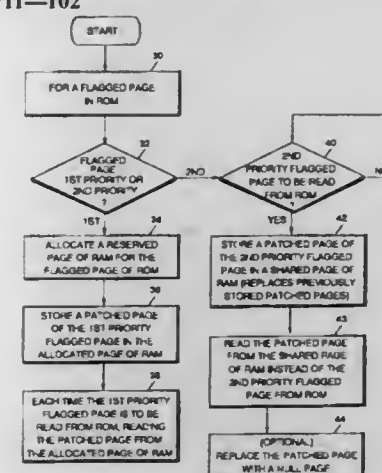
Prabhakar Goyal, Austin; Grama Kasturi Harish, Cedar Park, and James Darrell Heath, Austin, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 14, 1995, Ser. No. 572,694

Int. Cl.⁶ G06F 12/02

U.S. Cl. 711—102

7 Claims



1. A method for patching pages of a Read Only Memory (ROM) using reserved pages of Random Access Memory (RAM), the method comprising the steps of:

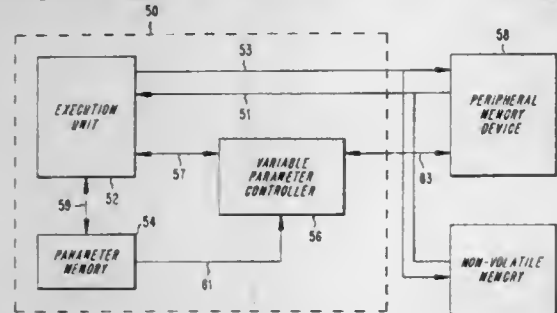
- a) identifying a first priority flagged page and a second priority flagged page of a plurality of pages of the ROM;
- b) allocating one of the reserved pages of the RAM for the first priority flagged page;
- c) storing a first patched page in the one of the reserved pages of the RAM, wherein the first patched page includes updated code replacing at least a portion of code of the first priority

- flagged page and wherein the first patched page is read from the RAM each time the first priority flagged page is to be read;
- d) when the second priority flagged page is to be read, storing a second patched page in a shared page of the reserved pages of the RAM, wherein the second patched page includes second updated code replacing at least a portion of second code of the second priority flagged page; and
- e) after reading the second patched page, replacing the second patched page in the shared page of the RAM with a subsequent page of code.

5,802,550
PROCESSOR HAVING AN ADAPTABLE MODE OF
INTERFACING WITH A PERIPHERAL STORAGE
DEVICE

Scott Fullam, Santa Clara; Eric Anderson, and Rodger C. Schneider, both of San Jose, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.
Filed Jan. 17, 1996, Ser. No. 587,971
Int. Cl.⁶ G06F 12/00

U.S. Cl. 711-102 15 Claims



1. A processor having an adaptable mode of interfacing with a peripheral read only memory (ROM) device, wherein said peripheral ROM device is one of a standard-mode ROM device, a nibble-mode ROM device, and a burst-mode ROM device, comprising:

- a parameter memory for storing information defining timing and control requirements and at least one data access mode of said peripheral ROM device; and
- a controller connected to said memory for interfacing with said ROM device in accordance with said stored information.

5,802,551
METHOD AND APPARATUS FOR CONTROLLING THE
WRITING AND ERASING OF INFORMATION IN A
MEMORY DEVICE

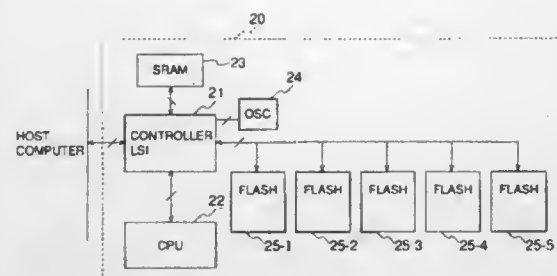
Shinpei Komatsu; Yumi Ishii; Tomohiro Hayashi; Shogo Shibasaki, all of Yokohama; Hiroyuki Itoh, Kawasaki, and Masaru Takehara, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Aug. 19, 1994, Ser. No. 292,213
Claims priority, application Japan, Oct. 1, 1993, 5-246547
Int. Cl.⁶ G06F 13/00

U.S. Cl. 711-103 12 Claims

1. A method of writing and erasing data in a memory device with a memory area having a plurality of blocks, each of said blocks having a plurality of sectors, said memory device erasing data by a unit of one block and writing data by a unit of one sector, said method comprising the steps of:

- assigning a block of said memory area as an evacuation area and assigning blocks of said memory area other than said evacuation area as writing area;
- evacuating necessary data in a desired block of said writing area to said evacuation area;
- reassigning said evacuation area as a writing area;



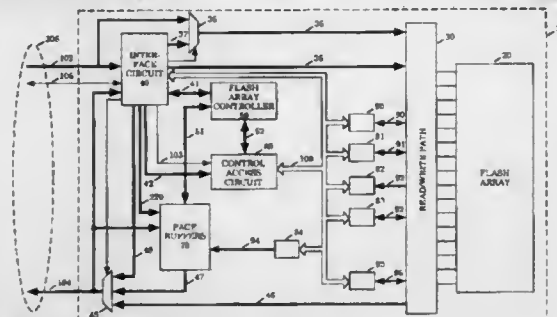
erasing data in said desired block; and
reassigning said desired block as a new evacuation area.

5,802,552
SYSTEM AND METHOD FOR ALLOCATING AND
SHARINGPAGE BUFFERS FOR A FLASH MEMORY
DEVICE

Mickey L. Fandrich, Placerville; Owen Jungroth, Sonora; Mamun Rashid, Fairfield, and Richard J. Durante, Citrus Heights, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 729,339, Oct. 16, 1996, abandoned, which is a continuation of Ser. No. 85,545, Jun. 30, 1993, abandoned. This application Oct. 1, 1997, Ser. No. 942,187
Int. Cl.⁶ G06F 13/16; 12/00

U.S. Cl. 711-103 34 Claims



20. A computer system, comprising:
- a central processing unit configured to transfer a command and a write data block over a host bus; and
- a flash memory device having a page buffer resource coupled to the host bus through a first port and to an internal bus through a second port, the flash memory device configured to (1) receive the command over the host bus and to allocate the page buffer resource according to the command, and (2) receive and buffer the write data block in the page buffer resource while loading another write data block into a flash cell array; a flash array controller circuit coupled to the internal bus; and an interface circuit coupled to the host bus and to the page buffer circuit, the interface circuit configured to receive the command and to generate a control signal to allocate page planes of the page buffer resource to user and flash array controller modes according to the command.

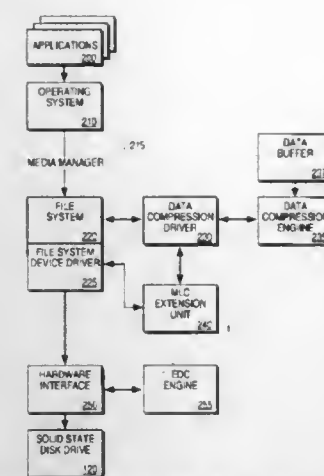
5,802,553
FILE SYSTEM CONFIGURED TO SUPPORT VARIABLE
DENSITY STORAGE AND DATA COMPRESSION
WITHIN A NONVOLATILE MEMORY

Kurt B. Robinson, Newcastle, and Clark S. Thurlo, Folsom, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 19, 1995, Ser. No. 574,646
Int. Cl.⁶ G06F 12/00

U.S. Cl. 711-103 10 Claims

1. An apparatus for storing files, comprising:
- a nonvolatile memory comprising a plurality of memory cells, wherein each cell can store more than one bit of information;



a file configuration system for accessing files stored in the nonvolatile memory, the file configuration system including a data compression unit and a multi-level cell extension unit; wherein the file configuration system stores file control information including storage mode and compression mode of corresponding file data using a reliable storage mode, wherein the file configuration system stores the file data in a selected one of the reliable mode and a high density mode in accordance with the storage mode, wherein the high density mode stores more bits per cell than the reliable mode;

wherein the data compression unit compresses the file data before storage in accordance with the compression mode;

wherein the multi-level cell extension unit generates a reliable mode equivalent block size (y) for the data compression unit in accordance with a reliable mode block size (x), a compression factor (n), the storage mode (w bits per cell), and any error correction bits (z), wherein

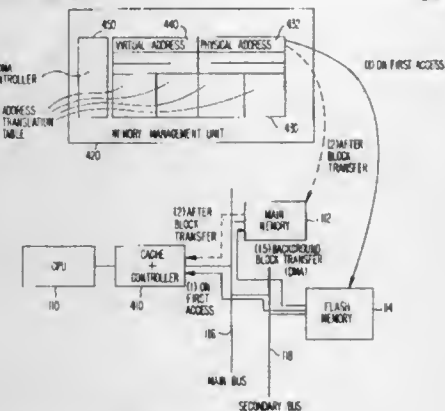
$$y = \frac{x}{w \cdot n} + z$$

5,802,554
METHOD AND SYSTEM FOR REDUCING MEMORY
ACCESS LATENCY BY PROVIDING FINE GRAIN
DIRECT ACCESS TO FLASH MEMORY CONCURRENT
WITH A BLOCK TRANSFER THEREFROM

Ramón Cáceres, New York, N.Y.; Brian Bershad, Seattle, Wash.; Brian D. Marsh, New York, N.Y., and Frederick Douglas, Somerset, N.J., assignors to Panasonic Technologies Inc., Princeton, N.J.

Continuation of Ser. No. 395,965, Feb. 28, 1995, abandoned. This application Mar. 5, 1997, Ser. No. 813,011
Int. Cl.⁶ G06F 12/00

U.S. Cl. 711-103 10 Claims



9. A data processing system including:
processor means for generating requests for data;

a flash memory device for storing data;
a main memory device, separate from the flash memory device, and having a relatively faster access time than the flash memory device, for storing data;

a cache memory device, separate from the flash memory device and the main memory device, and having a relatively faster access time than either the main memory device or the flash memory device, for storing data;

a memory management unit which, responsive to the requests received from the processor means, provides direct single word access by the processor means to data stored in the flash memory device when a data request by the processor means is for data not presently stored in the main memory device, said memory management unit including an address translation means which, for at least first accesses of stored data, maps a virtual address used by the processor to request data directly to a physical address of the flash memory device, said memory management unit including:

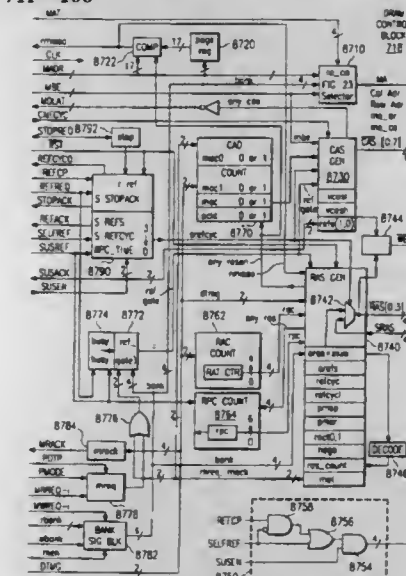
means for concurrently transferring blocks of data, including the data requested by the processor, from the flash memory device to the main memory device when a data request by the processor means is for data not presently stored in the main memory device, and

means for comparing each request for data received from the processor to the data that has been transferred to the main memory device to preferentially provide the requested data from the main memory device.

5,802,555
COMPUTER SYSTEM INCLUDING A REFRESH
CONTROLLER CIRCUIT HAVING A ROW ADDRESS
STROBE MULTIPLEXER AND ASSOCIATED METHOD
Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 482,056, Jun. 7, 1995, abandoned, which is a division of Ser. No. 404,702, Mar. 15, 1995. This application Mar. 13, 1997, Ser. No. 816,460
Int. Cl.⁶ G06F 13/00; G11C 11/406

U.S. Cl. 711-106 29 Claims



1. A refresh controller circuit in a single chip memory controller responsive to a stop request from a microprocessor and also having row address strobe (RAS) output terminals for connection to an external memory, the refresh controller circuit comprising:

- an idle condition detector for detecting an idle condition responsive to absence of memory read or write requests for a period of time;
- a refresh queue counter circuit;
- a refresh clock circuit;

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a control latch for storing at least one bit indicative of a self refresh mode enable and at least one other bit indicative of a refresh queueing enable;

a self refresh circuit which is enabled by said self refresh mode enable and has an input coupled to said refresh clock circuit;

a suspend enable circuit coupled to an output of said idle condition detector and to a stop request line;

a refresh row address strobe circuit having an output, and a first input coupled to an output of said self refresh circuit and a second input coupled to an output of said suspend enable circuit; and

a row address strobe multiplexer having an output coupled to said RAS output terminals and a first input for data access RAS and a second input coupled to the output of said refresh row address strobe circuit.

5,802,556

METHOD AND APPARATUS FOR CORRECTING MISALIGNED INSTRUCTION DATA

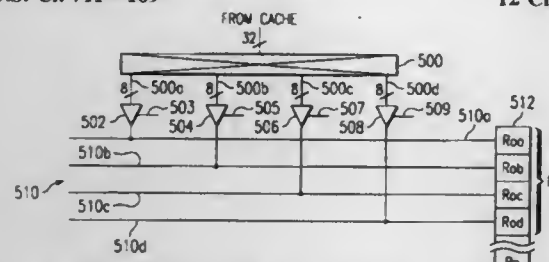
Rajesh Bhikhubhai Patel, and Soumya Mallick, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 16, 1996, Ser. No. 680,808

Int. Cl.⁶ G06F 9/315

U.S. Cl. 711—109

12 Claims



1. In a microprocessor having a plurality of execution units, rename registers, architectural registers and a cache for storing blocks of data, each block having a plurality of words, a method for aligning bytes stored in separate words, the method comprising:

reading a first word from the cache;

rotating the first word to align at least one byte of the first word with a first byte of a rename register;

storing the at least one byte of the first word in the rename register;

reading a second word from the cache;

rotating the second word to align at least one byte of the second word with a second byte of the rename register;

storing the at least one byte of the second word in the rename register.

5,802,557

SYSTEM AND METHOD FOR CACHING INFORMATION IN A DIGITAL DATA STORAGE SUBSYSTEM

Natan Vishlitzky, Alton Ct., Brookline, Mass. 02132; Yuval Ofek, 9 DiCarlo Rd., Hopkinton, Mass. 01748, and Haim Kopylovitz, 15 Naples Rd., Brookline, Mass. 02146

Filed Mar. 18, 1996, Ser. No. 619,931

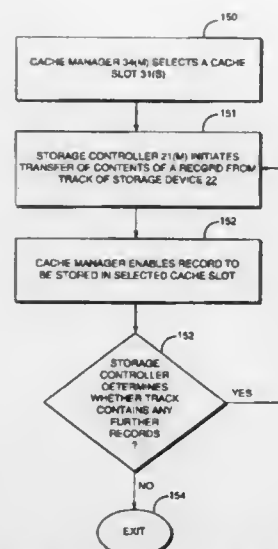
Int. Cl.⁶ G06F 13/00

U.S. Cl. 711—112

2 Claims

1. A digital data storage subsystem for storing data for use by a digital data utilization device, the data as used by the digital data utilization device being organized in the form of variable-length records, the digital data storage subsystem including:

A. a digital data storage device having at least one fixed block storage unit having a plurality of tracks, each of said plurality of tracks including a plurality of records, each of said plurality of records configured to store a predetermined amount of data, said storage unit operable for storing at each of said



tracks, data and additional padding if said data does not comprise at least said predetermined amount of data;

B. a cache including at least one cache slot configured for storing data corresponding to one of said plurality of tracks;

C. a cache control for controlling the transfer of data from said fixed block storage unit to said at least one cache slot for use by said digital data utilization device, and in addition for controlling the transfer of data from said at least one cache slot to said fixed block storage unit, said cache control for controlling the transfer so that the format of the data in said fixed block storage unit conforms to the format of the data in said at least one cache slot.

5,802,558

METHOD AND APPARATUS FOR UPGRADING REPROGRAMMABLE MEMORY CONTENTS IN A PCMCIA CARD

Michael E. Pierce, Orangevale, Calif., assignor to Intel Corporation, Santa Clara, Calif.

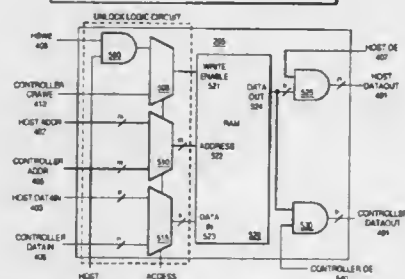
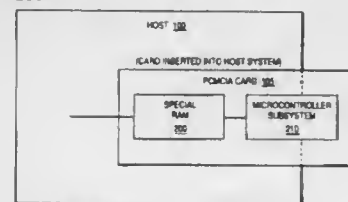
Continuation of Ser. No. 315,912, Sep. 30, 1994, abandoned.

This application Nov. 6, 1996, Ser. No. 746,155

Int. Cl.⁶ G06K 19/067; G06F 13/00; 9/00

U.S. Cl. 711—115

25 Claims



1. A removable computer card including stored Card Information Structure (CIS) information that defines an interface with said card in a computer system, comprising:

(a) a specialized single port random access memory (SPRAM) device having a first portion for storing said CIS information, and a second portion for storing data and instructions, said SPRAM device having a write enable input to allow write

access to said first and said second portions, said SPRAM including an input for a host data bus;

(b) a plurality of control storage locations coupled to said SPRAM device, each having access control data stored therein; and

(c) a controller coupled to said SPRAM device and said storage locations through a micro-controller databus, said controller controlling access requests by said computer system to said SPRAM device, and setting said control data in said storage locations responsive to said computer system to enable said computer system to read and write to said SPRAM device, said controller executing an unlock logic routine responsive to a write request by said computer system to enable said write enable input that allows said computer system to write to said SPRAM device and altering either said first portion or said second portion.

5,802,559

MECHANISM FOR WRITING BACK SELECTED DOUBLEWORDS OF CACHED DIRTY DATA IN AN INTEGRATED PROCESSOR

Joseph A. Bailey, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

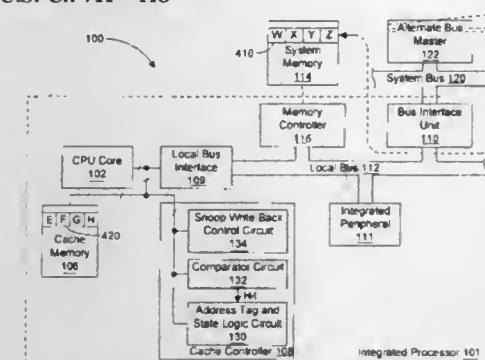
Continuation of Ser. No. 246,838, May 20, 1994, abandoned.

This application Nov. 4, 1996, Ser. No. 743,393

Int. Cl.⁶ G06F 12/00; 13/00

U.S. Cl. 711—118

12 Claims



1. A computer system comprising:

a bus configured to transfer data signals;

a cache memory operatively coupled to said bus;

a processing unit coupled to said cache memory;

a system memory;

a system memory controller operatively coupled to said bus and to said system memory for controlling storage and retrieval of data within said system memory;

an alternate bus master device coupled to said bus, wherein said alternate bus master device is capable of executing a memory cycle on said bus; and

a cache controller operatively coupled to said cache memory and to said bus for controlling the storage and retrieval of data within said cache memory, wherein said cache controller includes:

a tag logic circuit configured to store a plurality of line addresses indicative of a plurality of lines of data stored within said cache memory and configured to store a plurality of dirty bits associated with each line, wherein a separate dirty bit corresponds to a separate doubleword of data within each line; and

a snoop control circuit configured to control a write-back to said system memory of dirty data stored within said cache memory wherein said snoop control circuit is configured to selectively write-back selected non-sequential doublewords of a given line that are dirty based upon a status of said plurality of dirty bits by asserting an address of a first of said selected non-sequential doublewords on said bus during a first period of a burst write cycle and by modifying a predetermined number of lower order bits of said address to

specify an address of a second of said selected non-sequential doublewords during a second period of said burst write cycle;

wherein said system memory controller is configured to sample said predetermined number of lower order bits of said address during said second period of said burst write cycle to determine if a non-sequential doubleword is being written back.

5,802,560

MULTIBUS CACHED MEMORY SYSTEM

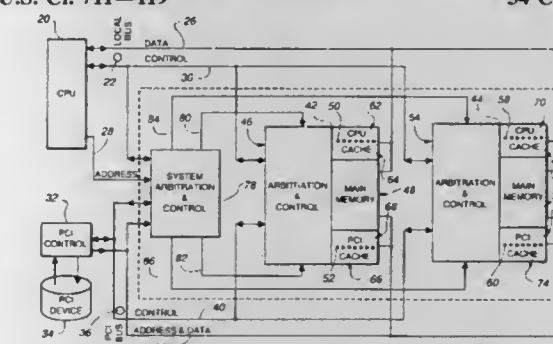
James Dean Joseph, Monument; Doyle James Heisler, and Dion Nickolas Heisler, both of Colorado Springs, all of Colo., assignors to Ramton International Corporation, Colorado Springs, Colo.

Filed Aug. 30, 1995, Ser. No. 521,597

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—119

34 Claims



1. In a computer system including: a plurality of buses, each bus serving at least one device, and each bus serving to communicate direct memory access read/write requests, data, and main memory addresses, from a device to a main memory which is tightly coupled to the devices; a distributed cache memory system, comprising:

a first group of one or more devices requiring direct memory access;

a second group of one or more devices requiring direct memory access;

a first bus connecting said first group of devices directly to the main memory;

a first cache connected directly to said first bus and to the main memory;

a second bus connecting said second group of devices directly to the main memory;

a second cache connected directly to said second bus and to the main memory;

a cache memory control and arbitration unit coupled to said first and second cache, said first and second bus, and to said main memory for processing concurrent direct memory access requests from said first and said second bus.

5,802,561

SIMULTANEOUS, MIRROR WRITE CACHE

Thomas F. Fava, Colorado Springs; Joseph M. Keith, Manitou Springs, and Randy R. Fuller, Colorado Springs, all of Colo., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 28, 1996, Ser. No. 671,154

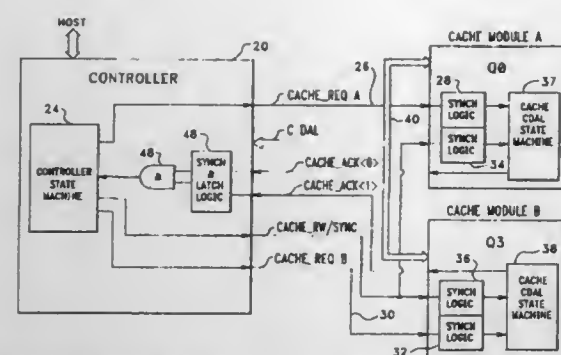
Int. Cl.⁶ G06F 12/08

U.S. Cl. 711—120

10 Claims

1. A method for simultaneously mirror-writing a same data in one write cycle into two separate cache memories in a cache memory system having a controller and two cache modules, each cache module having a cache memory, said method comprising the steps of:

requesting cache access to both cache modules from the controller;



acknowledging cache access to said cache modules by sending a CACHE ACK signal from each cache module back to said controller indicating a first word of the same data is being written;
simultaneously writing further words of the same data from the controller to cache memory in both cache modules in response to receipt of both CACHE ACK signals.

5,802,562

INFORMATION PROCESSING SYSTEM AND INCLUDING A SUPPLEMENTAL MEMORY AND METHOD OF OPERATION

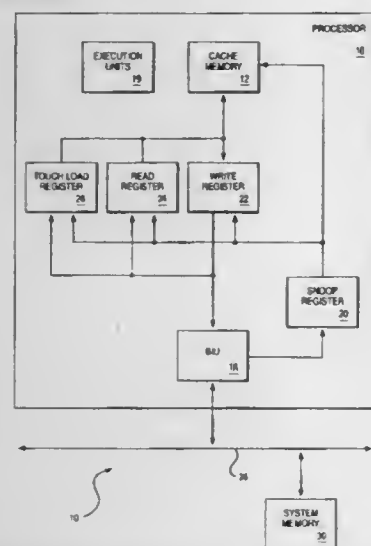
James Allen Kahle, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 130,604, Oct. 1, 1993, abandoned.
This application Mar. 22, 1996, Ser. No. 620,862

Int. Cl.⁶ G06F 12/08

U.S. Cl. 711—122

40 Claims



1. An information processing system, comprising:
a processor;
a bus for communicating information;
a system memory coupled to the bus for storing at least a subset of the information;
a prefetch memory;
a cache memory, integral to said processor; and
circuitry coupled to the bus and to the prefetch and cache memories for:
storing first information from the system memory into the prefetch memory in response to a prefetch instruction requesting only the first information;
storing second information into the cache memory in response to a memory instruction requesting the second information, the second information being provided directly from the prefetch memory, independent of said bus, when the first information includes the second information, otherwise the

second information being from the system memory without being added to the prefetch memory; and
maintaining coherency of the first information in the prefetch memory in response to address information from the bus.

5,802,563

EFFICIENT STORAGE OF DATA IN COMPUTER SYSTEM WITH MULTIPLE CACHE LEVELS

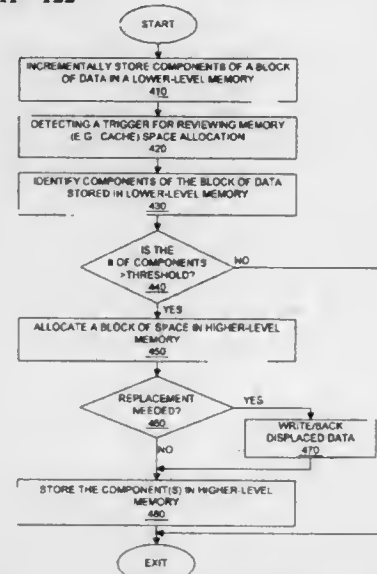
Erik E. Hagersten, Palo Alto, and Mark D. Hill, Los Altos, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 1, 1996, Ser. No. 674,029

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—122

13 Claims



1. A method for selecting caching modes in a computer system having a lower level cache and a higher level cache, said lower level cache including a plurality of cache lines, and said higher level cache including a plurality of pages, each said page including a plurality of cache lines, the method comprising the steps of:
incrementally storing cache-line-sized components of a page-sized block of data in at least two of said cache lines of said lower level cache;
detecting a trigger for reviewing cache space allocation;
identifying said at least two cache lines from among said plurality of cache lines of said lower level cache as storing said components of said block of data; and
if the number of said identified at least two cache lines exceeds a threshold, then:
allocating one of said plurality of pages of said higher level cache; and
storing said identified at least two cache lines to corresponding cache lines of said allocated page of said higher level cache.

5,802,564

METHOD AND APPARATUS FOR INCREASING PROCESSOR PERFORMANCE

Richard James Eickemeyer, Rochester, Minn.; Nadeem Malik; Avijit Saha, both of Austin, Tex., and Charles Gorham Ward, Austin, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

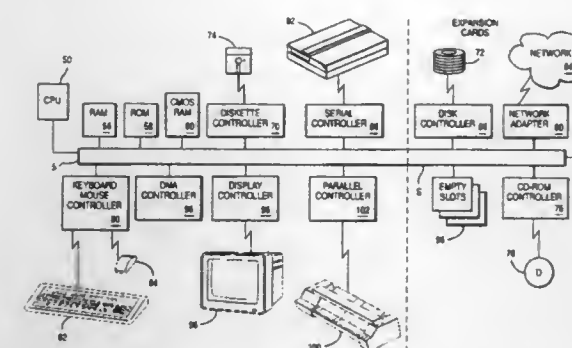
Filed Jul. 8, 1996, Ser. No. 676,785

Int. Cl.⁶ G06F 9/30; 12/02; 13/38

U.S. Cl. 711—123

9 Claims

1. A data processing system comprising:
a communication bus for transmitting data;



- input means, coupled to the communication bus, for receiving input from a user;
display means, coupled to the communication bus, for displaying information to the user;
memory, coupled to the communication bus, for storing data; and
a central processing unit including:
an internal cache for storing data retrieved from the memory;
a register file having a plurality of registers for manipulating data via instructions;
a cache register file having a plurality of registers for storing previously accessed data from the cache via a load instruction;
an instruction processing unit for processing the instructions, the instruction processing unit including:
means for determining, during the processing of load instruction, that the required data resides within the cache register file; and
means for retrieving the data from the cache register file via a cache register.

5,802,565

SPEED OPTIMAL BIT ORDERING IN A CACHE MEMORY

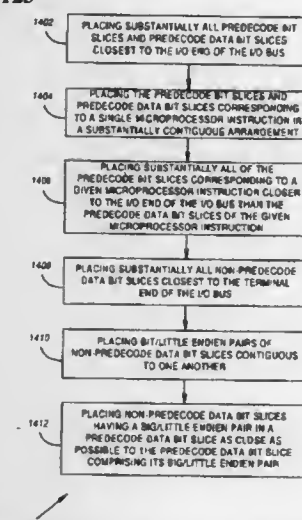
John G. McBride, Fort Collins, and Ted B. Ziemkowski, Loveland, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 29, 1996, Ser. No. 705,443

Int. Cl.⁶ G06F 13/00

U.S. Cl. 711—125

20 Claims



15. A method of ordering bit slices in a microprocessor instruction cache, wherein the cache comprises an I/O bus, a plurality of data arrays, and combinational I/O logic, wherein the I/O bus has a terminal end and an I/O end, wherein the combinational I/O logic and plurality of data arrays form a plurality of bit slices running substantially perpendicular to the I/O bus, and wherein each bit

slice corresponds to a single bit to be output from the cache, the method comprising the steps of:

- a) placing substantially all predecode bit slices and predecode data bit slices corresponding to a plurality of microprocessor instructions closest to the I/O end of the I/O bus; and
b) placing substantially all non-predecode data bit slices closest to the terminal end of the I/O bus.

5,802,566

METHOD AND SYSTEM FOR PREDICTING ADDRESSES AND PREFETCHING DATA INTO A CACHE MEMORY

Erik Hagersten, Mountain View, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

PCT No. PCT/SE92/00282, § 371 Date May 2, 1991, § 102(e) Date May 2, 1991, PCT Pub. No. WO92/20027, PCT Pub. Date Nov. 12, 1992

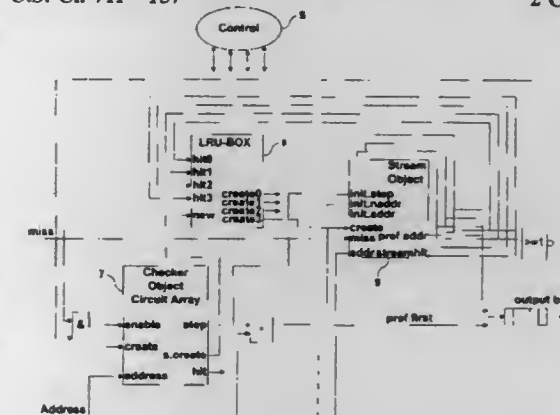
PCT Filed Apr. 29, 1992, Ser. No. 140,097

Claims priority, application Sweden, May 2, 1991, 9101325

Int. Cl.⁶ G06F 12/08

U.S. Cl. 711—137

2 Claims



1. A prefetching apparatus useful in association with a computer system having at least one processor, a memory device, and a cache memory coupled to said at least one processor, said apparatus comprising:

- a stream-detector configured to compare a requested memory address associated with data requested by said at least one processor to a predicted memory address derived from a previously requested memory address according to each of at least one memory address pattern; and
a prefetcher configured to prefetch new data from the memory device and to store said data in the cache memory, said new data prefetched from a next memory address computed from said requested memory address and a corresponding one of the at least one memory address pattern upon a condition in which the requested memory address is accurately represented by the predicted memory address of the corresponding memory address pattern, said new data prefetched in anticipation of a request for said new data from said at least one processor;
wherein upon the condition that there is a cache hit for the requested data in the cache memory, N new data is prefetched, where N is at least 1 and upon the condition that there is a cache miss for the requested data in the cache memory, M new data is prefetched, where M is greater than N.

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of cache lines containing a plurality of byte sets, wherein write accesses to said plurality of cache lines can be configured as write-through or write-back on a per cache line basis; coherency indicia for identifying each byte set among said plurality of byte sets within a cache line that contains data that differs from data stored in corresponding addresses within said associated memory, said coherency indicia being set to identify a byte set within a particular cache line among said plurality of cache lines only in response to a write-back access to said particular cache line; and cache control logic that upon replacement of said particular cache line writes only identified byte sets to said associated memory.

5,802,573

METHOD AND SYSTEM FOR DETECTING THE ISSUANCE AND COMPLETION OF PROCESSOR INSTRUCTIONS

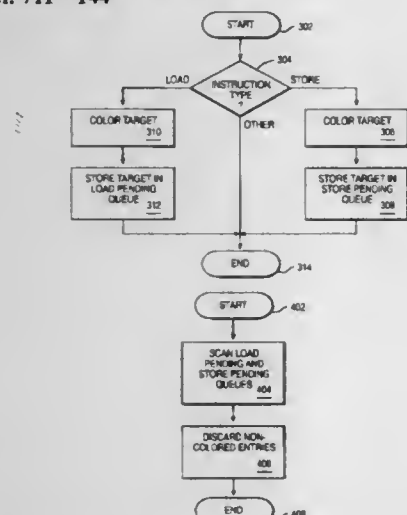
Zhongru Julia Lin; Nadeem Malik, and Avijit Saha, all of Austin, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Feb. 26, 1996, Ser. No. 606,904

Int. Cl.⁶ G06F 13/00

U.S. Cl. 711—144

9 Claims



1. In a first data processing system simulating the execution of a second data processing system, a method of verifying simulated memory coherency for the second data processing system, the method comprising the steps of:

- detecting, with said first data processing system, load and store instructions issued from said second data processing system, each one of the load and store instructions having a target location for receiving data;
- initializing each one of the target locations to equal an initialization value;
- storing each one of the target locations corresponding to a store instruction in a store queue; and
- storing each one of the target locations corresponding to a load instruction in a load queue;
- storing a new value in each one of the target locations in response to executing the corresponding instruction; and
- detecting, after the simulation is complete, any of the target locations having an initialization value.

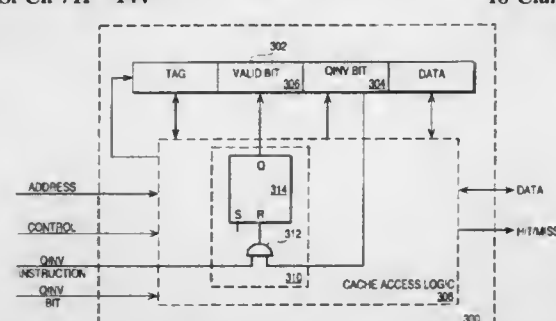
**5,802,574
METHOD AND APPARATUS FOR QUICKLY MODIFYING CACHE STATE**

Deif Atallah, Chandler, Ariz., and Mitchell Kahn, San Jose, Calif., assignors to Intel Corporation, Santa Clara, Calif. Continuation of Ser. No. 173,985, Dec. 28, 1993, abandoned. This application Jun. 24, 1996, Ser. No. 670,753

Int. Cl.⁶ G06F 9/308; 11/00

U.S. Cl. 711—144

18 Claims



1. An apparatus for performing operations on cached information, the apparatus comprising:
 - a cache having at least one cache line, the at least one cache line representing corresponding cached information, the at least one cache line including at least one attribute bit and at least one state bit, the at least one attribute bit representing at least one attribute of the at least one cache line, the at least one state bit representing a state of the at least one cache line, wherein the at least one attribute is a user/supervisor state of the processor;
 - attribute setting circuitry for setting the at least one attribute bit of a corresponding cache line in response to a control signal from a processor; and
 - qualifying logic that receives the at least one attribute bit and an instruction specifying a predetermined attribute, the qualifying logic setting the at least one state bit in response to the at least one attribute bit and the instruction without performing a tag comparison.

5,802,575

HIT BIT FOR INDICATING WHETHER LOAD BUFFER ENTRIES WILL HIT A CACHE WHEN THEY REACH BUFFER HEAD

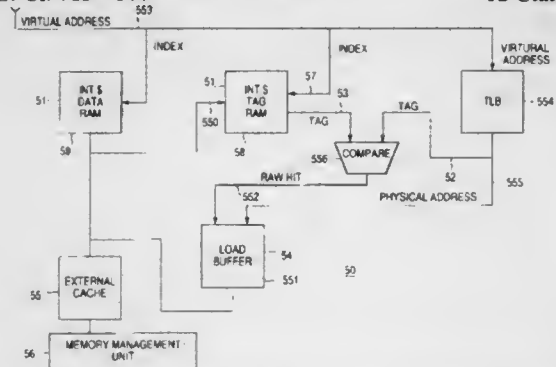
Dale Greenley, Los Gatos; Leslie Kohn, Fremont; Ming Yeh, and Greg Williams, both of Palo Alto, all of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Continuation of Ser. No. 389,636, Feb. 16, 1995, Pat. No. 5,745,729. This application Oct. 7, 1997, Ser. No. 946,611

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—144

12 Claims



1. A method of processing a load instruction for the contents of a memory address in a system with a direct mapped cache, comprising the steps of:
 - decoding the load instruction by a decoder;
 - dispatching the decoded load instruction;

serving the dispatched decoded load instruction, including calculating whether or not the contents of the memory address will be resident in the direct mapped cache at a future time at which one or more older load instructions may have altered the direct mapped cache; queuing the load instruction for the contents of the memory address in a load buffer; waiting until all older load instructions have been processed; and in response to all older load instructions having been processed, accessing the direct mapped cache to retrieve the contents of the memory address if the calculating step determined that the contents of the memory address would be resident in the direct mapped cache.

5,802,576

SPECULATIVE CACHE SNOOP DURING DMA LINE UPDATE

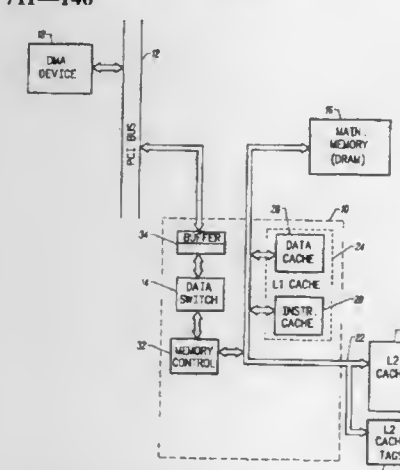
Allan Tzeng, San Jose, and Jayabharat Boddu, Santa Clara, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 1, 1996, Ser. No. 677,011

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—146

3 Claims



2. A microprocessor comprising:
 - a system bus I/O connected to a system bus;
 - a first level instruction cache;
 - a first level data cache;
 - a dedicated second level cache bus I/O connected to a second level cache bus;
 - a main memory bus I/O connected to a main memory bus;
 - cache look-up logic configured to determine whether a received DMA virtual address is in said caches;
 - speculative look-up logic configured to cause a speculative look-up of a next sequential cache line;
 - a buffer configured to store at least two cache lines of DMA data;
 - redirecting logic configured to issue a command to redirect a DMA access to a main memory upon a speculative cache look-up miss;
 - page logic configured to compare said next sequential cache line address to a page of said DMA address; and
 - bus release logic configured to release said system bus if said page is not identical to a page of said next sequential cache line address.

5,802,577

MULTI-PROCESSING CACHE COHERENCY PROTOCOL ON A LOCAL BUS

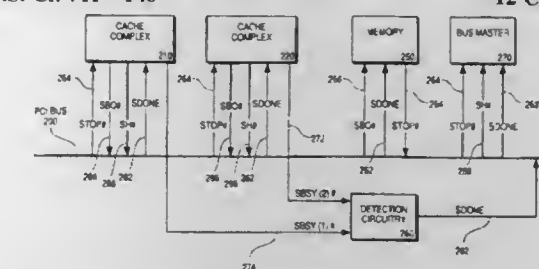
Ketan S. Bhat, Mountain View, and Gregory S. Mathews, Santa Clara, both of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 762,304, Dec. 9, 1996, abandoned, which is a continuation of Ser. No. 406,153, Mar. 17, 1995, abandoned. This application May 14, 1997, Ser. No. 856,045

Int. Cl.⁶ G06F 13/36

U.S. Cl. 711—146

12 Claims



1. A computer system comprising:
 - a local bus;
 - a plurality of caches coupled to the local bus, at least one of which is a write-back cache;
 - a main memory coupled to the local bus;
 - at least one processor coupled to the local bus;
 - a bus master coupled to the local bus, wherein a cache of the plurality of caches is operable to generate a plurality of signals which include:
 - a shared signal generated in response to a data element that is snooped on the first local bus being present in the cache; and
 - a snoop-busy signal that is active when the cache is in the process of searching for the data element being snooped on the local bus; and
 - a circuit directly coupled to each of the multiple caches that receives the snoop-busy signal from each of the multiple caches and transmits a done signal on the local bus in response.

5,802,578

MULTINODE COMPUTER SYSTEM WITH CACHE FOR COMBINED TAGS

Thomas D. Lovett, Portland, Oreg., assignor to Sequent Computer Systems, Inc., Beaverton, Oreg.

Filed Jun. 12, 1996, Ser. No. 662,380

Int. Cl.⁶ G06F 13/16

U.S. Cl. 711—147

20 Claims

14. In a computer having a number of nodes at least one of which is a home node including a processor, local memory, and a remote cache, an apparatus for updating data stored in the local memory when valid data for the local memory is stored in a remote cache of another node, comprising:
 - storage for memory tags for each block of local memory, a memory tag including a memory state and a pointer;
 - storage for cache tags for each cache line stored in the remote cache of the home node, the cache tags including a cache state;
 - a protocol engine for combining a cache tag of the remote cache of the home node with a memory tag as portions of a combined tag; and
 - a tag cache for storing the combined tags, a combined tag enabling the protocol engine to act as a cache controller for requesting the valid data from the other node and as a

5,802,584

HARDWARE ALIGNMENT IN A HEADERLESS DISK DRIVE ARCHITECTURE

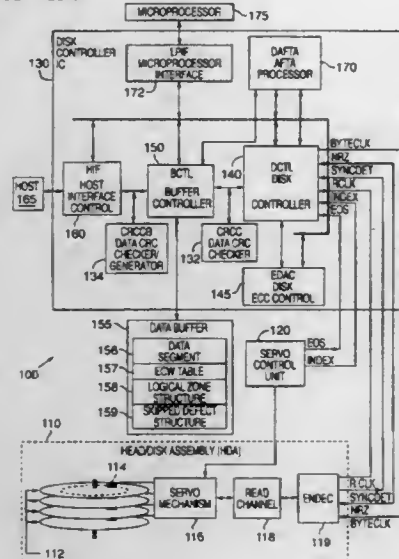
Fred A. Kool, Aptos, and John S. Packer, Milpitas, both of Calif., assignors to Adaptec, Inc., Milpitas, Calif.

Filed Sep. 1, 1995, Ser. No. 522,639

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—154

24 Claims



1. A disk control circuit comprising:
 - a first counter for storage of a first value indicating a position of a head relative to a track on a disk;
 - a first register for storage of a second value indicating a sector requested for a data transfer;
 - a buffer controller; and
 - a disk controller that controls transfers of data between the disk and a data buffer via the buffer controller, wherein the disk controller receives from the buffer controller a sequential list of control words that correspond to and identify frame fields that the head sequentially encounters during rotation of the disks decodes each control word to determine an event type indicated by the control word, increments the first value in the first counter in response to a decoded control word indicating a corresponding frame field is at the end of a data sector, and transfers data between the disk and the data buffer when the first value is equal to the second value.

5,802,585

BATCHED CHECKING OF SHARED MEMORY ACCESSES

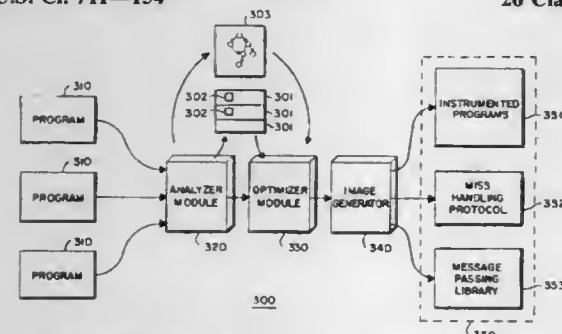
Daniel J. Scales, and Chandramohan A. Thekkath, both of Palo Alto, Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jul. 17, 1996, Ser. No. 682,341

Int. Cl.⁶ G06F 12/00; 9/44

U.S. Cl. 711—154

26 Claims



17. A system for checking access instructions to shared addresses of a memory comprising:

- at least one memory having a plurality of addresses at which data to be shared by multiple processors is stored; and
- a first of the multiple processors configured to:
 - analyze an executable program to locate access instructions of said program for accessing shared addresses;
 - determine if access to said data stored at the addresses is valid; and
 - execute said located access instructions if said access is determined to be valid.

5,802,586

CACHE MEMORY HAVING A READ-MODIFY-WRITE OPERATION AND SIMULTANEOUS BURST READ AND WRITE OPERATIONS AND A METHOD THEREFOR

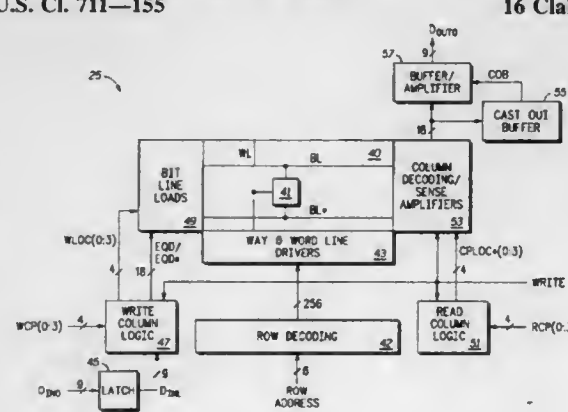
Kenneth W. Jones; Mark D. Bader, and Arthur D. Kahlich, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 27, 1995, Ser. No. 395,225

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—155

16 Claims



1. A cache memory, comprising:
 - a plurality of memory cells, a memory cell of the plurality of memory cells connected to only one word line and to a bit line, wherein the bit line is for both reading to the memory cell, and wherein the memory cell is accessed for both writing to and reading from the memory cell solely by selecting the only one word line;
 - a word line decoding circuit coupled to the plurality of memory cells, for selecting a word line in response to an address;
 - write column decoding logic, coupled to the bit lines of the plurality of memory cells, for writing first data to memory cells of the plurality of memory cells that are connected to the selected word line; and
 - read column decoding logic, coupled to the bit lines of the plurality of memory cells, for reading second data from the memory cells of the plurality of memory cells that are connected to the selected word line;
- wherein during a read-modify-write operation the second data is burst from the cache memory starting from the location corresponding to the address, and the first data is burst to the cache memory starting from the location corresponding to the address, and wherein a portion of the burst from the cache memory overlaps in time with a portion of the burst to the cache memory.

5,802,587

MEMORY CONTROLLER ADAPTED FOR RAPID BLOCK ACCESS OPERATIONS

Osamu Ishikawa, and Toshikazu Ito, both of Tokyo, Japan, assignors to Oki Data Corporation, Tokyo, Japan

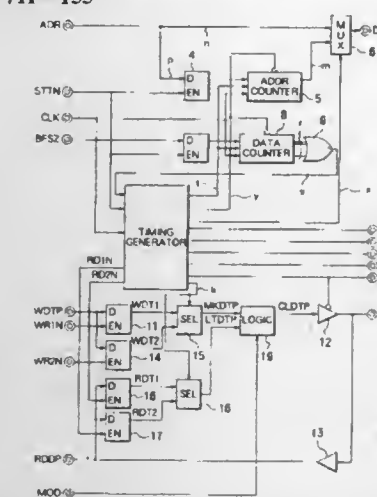
Filed Apr. 23, 1996, Ser. No. 636,571

Claims priority, application Japan, Apr. 25, 1995, 7-100937

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—155

11 Claims



3. A memory controller coupled to a memory device by a bidirectional data bus, for receiving a starting address signal and a block fetch size signal, and reading and writing data in a block of consecutive addresses in said memory device via said data bus, comprising:

- a starting address register for receiving and storing at least part of said starting address signal as a starting address;
- a block fetch size register for receiving and storing said block fetch size signal as a block fetch size value;
- a plurality of write data registers for receiving and storing write data;
- a first selector coupled to said write data registers, for selecting one of said write data registers responsive to a data selection signal, and outputting the write data in the selected one of said write data registers as first selected data;
- an address counter coupled to said starting address register, for loading said starting address as an address count in response to a first control signal, altering said address count in response to a second control signal, thereby producing a plurality of successive addresses, and sending said successive addresses to said memory device;
- a plurality of read data registers for storing the data output from said memory device;
- a second selector for selecting one of said read data registers responsive to said data selection signal, and outputting the data in the selected one of said read data registers as second selected data;
- a logic operation circuit for performing a logic operation on said first selected data and said second selected data, thereby producing modified data; and
- a control circuit coupled to said block fetch size register, said first selector, said second selector, and said address counter, for sending said first control signal once and said second control signal at least once to said address counter and sending read control signals to said memory device, thereby causing said memory device to output data from said successive addresses, until said memory device has output data from a number of said successive addresses designated by said block fetch size value, then sending said first control signal once again and said second control signal at least once again to said address counter, sending said data selection signal to said first selector and said second selector, sending write control signals to said memory device, and sending said modified data to said memory device, thereby causing said memory device to store said modified data at said successive addresses, until

said memory device has stored said modified data at said number of said successive addresses designated by said block fetch size value.

5,802,588

LOAD/STORE UNIT IMPLEMENTING NON-BLOCKING LOADS FOR A SUPERSCALAR MICROPROCESSOR AND METHOD OF SELECTING LOADS IN A NON-BLOCKING FASHION FROM A LOAD/STORE BUFFER

H. S. Ramagopal; Rajiv M. Hattangadi, and Muralidharan S. Chinnakonda, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

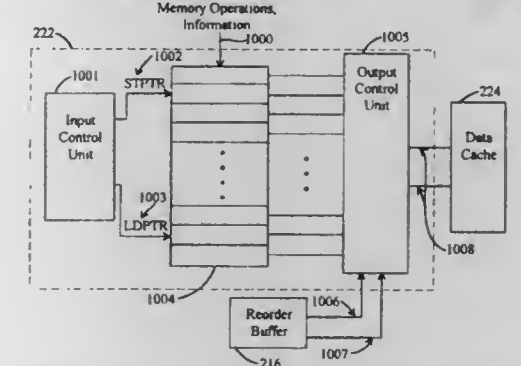
Continuation of Ser. No. 421,211, Apr. 12, 1995, abandoned.

This application May 19, 1997, Ser. No. 858,583

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—156

22 Claims



9. A method for selecting a second memory operation stored in a load/store buffer for access to a data cache during a clock cycle in which a first memory operation stored in said load/store buffer is speculative and is known to miss said data cache, comprising:
 - examining said first memory operation to determine that a miss bit associated with said first memory operation is in a first state indicative that said first memory operation misses said data cache; and
 - selecting said second memory operation for access to said data cache in response to detecting said miss bit associated with said first memory operation in said first state, wherein said second memory operation is subsequent to said first memory operation in program order.

5,802,589

DATA BUFFERING APPARATUS FOR BUFFERING IMAGING DATA BETWEEN A RASTER IMAGE PROCESSOR (RIP) AND AN OUTPUT DEVICE

Thomas P. Brady, Methuen; Kimberly J. Edgar, Lexington; Daniel H. Flint, Westford; Jeanne M. Lucivero, Burlington, and Frank P. White, Woburn, all of Mass., assignors to Agfa Division, Bayer Corporation, Wilmington, Mass.

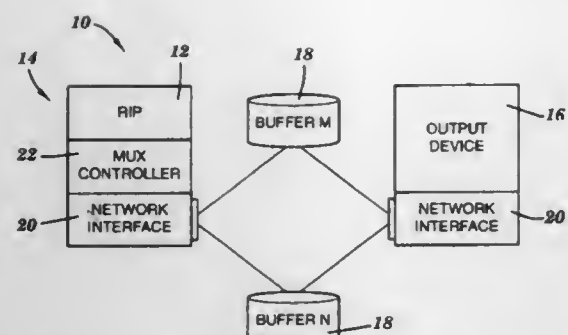
Filed Sep. 28, 1995, Ser. No. 534,908

Int. Cl.⁶ G06F 13/00

U.S. Cl. 711—157

22 Claims

1. An imaging system comprising:
 - a raster image processor (RIP) for producing imaging data;
 - an output device for consuming imaging data produced by said RIP; and
 - means for buffering imaging data between said RIP and said output device, said data buffering means including a plurality of storage buffers, means for storing a first supply of imaging data produced by said RIP on a first one of said storage buffers, means for determining if said output device requires a second supply of imaging data produced by said RIP and previously stored on said first storage buffer, means for segmenting said first supply of imaging data between said first storage buffer and a second one of said storage buffers if said output device requires said second supply of imaging data



previously stored on said storage buffer, and means for outputting said second supply of imaging data to said output device.

5,802,590

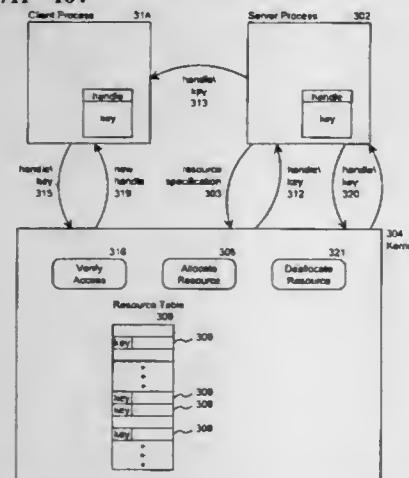
METHOD AND SYSTEM FOR PROVIDING SECURE ACCESS TO COMPUTER RESOURCES

Richard P. Draves, Seattle, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Dec. 13, 1994, Ser. No. 355,135

Int. Cl.⁶ G06F 9/45

U.S. Cl. 711-164



1. A method in a computer system for ensuring that a computer program has authorization to access a resource of the computer system, the resource having a unique resource key for indicating authority to access the resource, the method comprising the steps of:

- generating a resource data structure in main memory of the computer system, the resource data structure having a plurality of resource entries, each resource entry being referenced by a handle;
- storing the resource key in an entry of the resource data structure;
- providing to the computer program to enable the computer program to access the resource both the resource key and the handle referencing the entry of the resource data structure in which the resource key is stored;
- receiving, from the computer program, a handle and a resource key;
- when the received resource key is stored in a resource entry that is referenced by the received handle, granting the computer program access to the resource.

**5,802,591
METHOD AND SYSTEM FOR PREVENTING UNAUTHORIZED ACCESS TO INFORMATION STORED IN A COMPUTER**

Masuyoshi Yachida, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

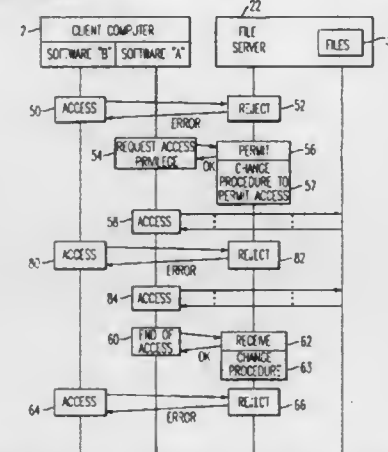
Filed Oct. 31, 1995, Ser. No. 550,807

Claims priority, application Japan, Oct. 31, 1994, 6-267030

Int. Cl.⁶ G06F 9/45

U.S. Cl. 711-164

18 Claims



1. A method for accessing information in a computer memory, comprising the steps of:

- prohibiting access to the information in the computer memory by first and second computer programs in a first computer;
 - attempting access to the information in the computer memory by the first computer program in the first computer; and
 - granting, to the first computer program, access to the information in the computer memory while continuing to prohibit access, by the second computer program in the first computer, to the information in the computer memory,
- wherein the step of granting access to the information in the computer memory by the first computer program includes changing an access procedure while continuing to prohibit access to the information by the second computer program in the first computer, and
- wherein the step of terminating access to the information in the computer memory by the first computer program includes changing the access procedure back to a state in which both the first and second computer programs are denied access to the information in the computer.

5,802,592

SYSTEM AND METHOD FOR PROTECTING INTEGRITY OF ALTERABLE ROM USING DIGITAL SIGNATURES

David M. Chess, Mohegan Lake; Gregory Bret Sorkin, and Steve Richard White, both of New York, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

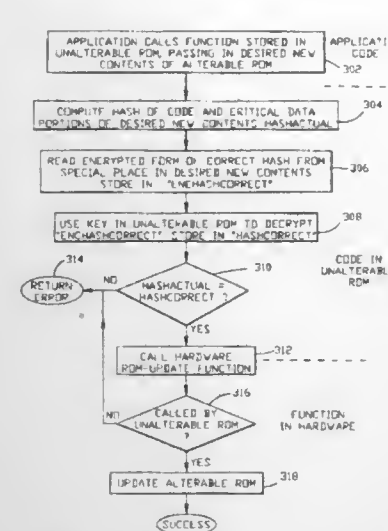
Filed May 31, 1996, Ser. No. 656,626

Int. Cl.⁶ G06F 12/14; 12/16; 11/30

U.S. Cl. 711-164

28 Claims

1. A system, comprising:
 - a processor;
 - a storage device storing an operating system program for execution on the processor;
 - an alterable read only memory for storing data; and
 - a corruption detection device for detecting unauthorized changes to data in the alterable read only memory, the corruption detection device reading a signature, encrypted with a private key, that represents a non-corrupted version of data in the alterable read only memory, and further reading, from a



5,802,593

METHOD AND APPARATUS FOR IMPROVING DISK DRIVE PERFORMANCE

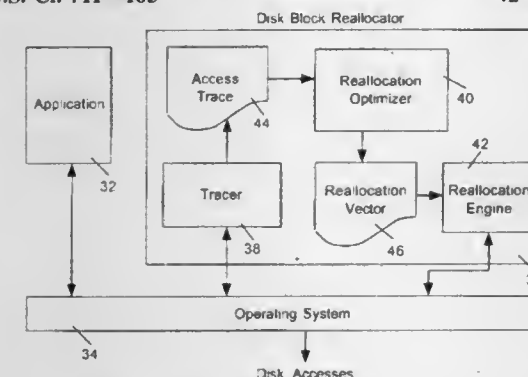
Knut Grimsrud, Aloha, Ore., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 6, 1996, Ser. No. 708,983

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711-165

42 Claims



1. An apparatus comprising

- (a) an execution unit for executing programming instructions; and
- (b) a storage medium coupled to the execution unit and having stored therein a plurality of programming instructions to be executed by the execution unit for analyzing trace data of a sequence of disk accesses, the trace data including disk locations accessed and the order the disk locations are accessed, and for generating a new set of disk locations to reallocate the accessed disk locations such that overall access time will be improved, the new set of disk locations being generated in accordance with at least the order the disk locations are accessed.

5,802,594

SINGLE PHASE PSEUDO-STATIC INSTRUCTION TRANSLATION LOOK-ASIDE BUFFER

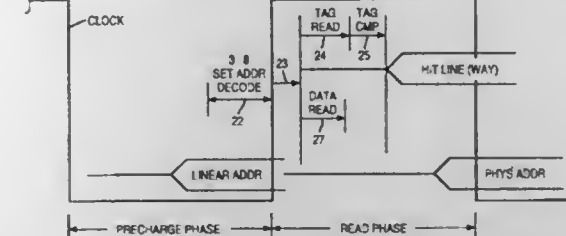
Jimmy W. Wong, Portland, and Badarinarath Kommandur, Beaverton, both of Ore., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 6, 1995, Ser. No. 524,371

Int. Cl.⁶ G06T 11/00

U.S. Cl. 711-167

27 Claims



1. An instruction translation look-aside buffer (iTLB) comprising:

- a 2ⁿ-way set associative data array having m sets, where m and n are both integers greater than or equal to one, each entry in the array holding a physical address;
- a tag array storing tags corresponding to entries in the data array;
- a valid array storing one or more valid bits for each tag in the tag array;
- a j-bit portion of a linear address selecting one of the m sets for reading, with all 2ⁿ ways of the tag, valid and data arrays being read out in response thereto;
- compare logic that compares the 2ⁿ tags read out from the tag array with a k-bit portion of the linear address, the compare logic determining whether the one or more valid bits corresponding to the 2ⁿ tags is set,
- if a match exists for a certain way, and at least one of the one or more valid bits of the certain way is set, the compare logic providing a hit line signal corresponding to the certain way;
- a static multiplexer coupled to the data array and the compare logic, the multiplexer selecting a physical address from the data array which corresponds to the certain way in response to the hit line signal; and
- precharging circuitry that precharges the data array and the hit line during a first phase of a clock cycle prior to making the match, the match and a selection of the physical address being made in a second phase of the clock cycle, thereby completing the selection in a single clock cycle.

5,802,595

SERIAL DATA TRANSFER APPARATUS

Tadashi Shibuya, Kanagawa, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1996, Ser. No. 777,290

Claims priority, application Japan, Dec. 27, 1995, 7-341642

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711-167

6 Claims

1. A serial data transfer apparatus, comprising:
 - storage means for storing communication data wherein one communication includes a predetermined number of frames each including a predetermined number of bits;
 - a shift register for shifting and inputting the communication data to said storage means;
 - a time base counter for counting up a count value in response to a count clock signal supplied thereto and outputting a time base count value;
 - control means for controlling so that the communication data may be communicated for individual bits in accordance with a predetermined procedure;
 - said control means including write control signal generation means for generating a write control signal to write, each time the one communication is completed, the time base count

UMI

1. A synchronous DRAM in synchronization with an external clock comprising:
 - a plurality of pipeline stages concurrently execute signal processing;
 - a plurality of gates each of which is interposed between adjoining plurality of pipeline stages and controls passage of a signal between said adjoining pipeline stages; and
 - a gate control means for producing a control signal and for applying said control signal to one of the gates to control the gate in such a way that the gate will a) enter a transfer state immediately before outputting said signal from a previous pipeline and b) enter a non-transfer state immediately after said signal from the previous pipeline stage is transferred to a next pipeline stage.

1. A memory controller in a computer system having a memory and a device issuing a memory access request, comprising:
a data bus for transmitting a plurality of data elements, including a first data element, between the memory and the device in response to the memory access request; and
stopping circuitry for stopping the transmission of the plurality of data elements after the first data element has been transmitted, said stopping circuitry comprising:
circuitry for activating a DQMB signal that stops the transmission of a second data element and a third data element; and
circuitry for sending a precharge command that stops the transmission of a fourth data element;
wherein said memory controller is in a burst four mode.

U.S. Cl. 711-170 Int. Cl.⁶ G06F 12/00 18 Claims

1. Apparatus for processing data, said apparatus comprising:
a data memory for storing data words at respective memory addresses with an address space of said data memory;
means for generating an access request to a data word stored at a specified memory address within said data memory; and
a memory management controller for controlling processing of said access request; wherein
said memory management controller divides said address space into a plurality of contiguous, fixed size main-sections, each of said main-sections containing a fixed number of sub-sections with said fixed size and said fixed number being the same for each of said main-sections and sub-section size being constant within said main-section and independently set for each of said main-sections, wherein said sub-sections

said specified memory address includes one or more main-section bits, said main-section bits having a fixed position within said specified memory address, and said main-section bits define said main-section within said address space that contains said specified memory address, said specified memory address includes one or more sub-section bits, said sub-section bits having a bit position within said specified memory address that varies with sub-section size, said sub-section bits define a sub-section within said main-section that contains said specified memory address and said sub-section registers are addressed to read said access control parameters for said specified memory address in response to said main-section bits and said sub-section bits.

U.S. Cl. 711—170 15 Claims

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graph TD
    30[START RESUME SET OF REQUESTS FOR STORAGE] --> 32[INITIALIZE SET N - NUMBER OF ELEMENTS IN THE SET  
SET = 1]
    32 --> 34{IS THE  
NTH ELEMENT LARGER  
THAN THE FULL-ASIZE  
BUFFER?}
    34 -- YES --> 42[REQUEST SPACE FOR  
THE NTH ELEMENT]
    34 -- NO --> 36{DOES THE  
NTH ELEMENT FIT  
IN THE FULL-ASIZE  
BUFFER?}
    36 -- YES --> 38[REQUEST SPACE FOR THE FULL-ASIZE BUFFER.  
STORE THE CONTENTS OF THE BUFFER  
AND CLEAR BUFFER STATE]
    36 -- NO --> 40[PLACE THE NTH ELEMENT IN THE BUFFER.  
UPDATE THE STATE DESCRIBING THE  
FULL-ASIZE BUFFER CONTENTS.  
UPDATE STATE DESCRIBING THE  
PLACEMENT OF THE NTH ELEMENT]
    42 --> 44[INCREMENT I]
    44 --> 46{I > N}
    46 -- YES --> 48{DOES  
FULL-ASIZE BUFFER HAVE  
DATA?}
    46 -- NO --> 48
    48 -- YES --> 50[REQUEST SPACE FOR  
CONTENTS OF BUFFER]
    48 -- NO --> 52[STORE CONTENTS OF BUFFER]
    50 --> 52
    52 --> 54[END]
  
```

1. In a storage system having a central processing unit (CPU), memory and at least one storage device wherein data objects are stored in a plurality of storage units on the storage device having unused storage units interspersed with the storage units containing data objects, a method for allocating unused storage units for an object set of a plurality of related data objects, comprising the steps performed by the CPU of:

(a) aggregating in memory for transference together to the storage device, at least two data objects from the object set that are of a size smaller than an optimal minimum storage size for transferring data objects to and from the storage device as determined for the storage system, into at least one object grouping of a size equal to or smaller than the optimal minimum storage size for the storage system;

(d) storing each object grouping and each data object in the object set not in an object grouping in the identified extents of a size at least equal to the optimal minimum storage size, so that the related data objects of the object set are stored as contiguously as possible for more efficient retrieval of the related data objects, and wherein all data objects in an object grouping are transferred together to the storage device for more efficient transference.

Filed Nov. 12, 1996, Ser. No. 747,721
Int. Cl.⁶ G06F 12/00

```

graph TD
    Start([START]) --> Read[READ THE MEASUREMENT OF  
FACTORS FOR (1) DATA BLOCKS AND  
(2) DATA BLOCK STRUCTURE CHART]
    Read --> Calc[PERFORM CALCULATION OVER TEST INTERVAL  
USING MEASUREMENT RATE TEST RATE]
    Calc --> Calc2[CALCULATE DETERMINING OF VALUE OF  
LARGE WAVE RATE AND FAST  
WAVE MEASUREMENT RATE  
USING DATA BLOCK STRUCTURE  
CHARTS AND DATA BLOCK STRUCTURE  
CHARTS TO DETERMINE  
MEASUREMENT RATE OF TEST]
    Calc2 --> IsNewWave[IS NEW  
WAVE MEASUREMENT  
RATES]
    IsNewWave -- NO --> NoAdjust[NO ADJUST]
    IsNewWave -- YES --> IsCodeSet[IS CODE SET  
CHANGING BY 1/2  
THRESHOLD VALUE]
    IsCodeSet -- YES --> IsNewWaveRate[IS NEW  
WAVE RATE  
THRESHOLD VALUE]
    IsCodeSet -- NO --> IsNewWaveRate
    IsNewWaveRate -- YES --> AdjustWaveRate[ADJUST RATE BY  
THRESHOLD VALUE]
    IsNewWaveRate -- NO --> AdjustWaveRate
    AdjustWaveRate --> End([END])
  
```

1. A method for dynamically balancing storage allocations in a computer system that includes cache memory that is accessible from plural computer modules, each computer module including local memory for storage of data blocks, the cache memory including a first portion for storing plural data blocks and a second portion for storing directory entries, each directory entry including information regarding a validity status of an associated data block, said method comprising the steps of:

- a) maintaining a first record of a number of cache misses over a time period, each cache miss occurring when a computer module does not find a desired data block resident in said cache memory;
- b) maintaining a second record of a number of false invalidations over a time period, each false invalidation occurring when a desired data block is resident in a computer module's local memory but a directory entry for said desired data block with a validity status indication therefor, is absent from said cache memory; and

c) employing said first record and second record to adjust a ratio of size allocations of said first portion and second portion so as to reduce at least one of said number of false invalidations and number of cache misses.

5,802,601

INTERFACE BETWEEN A MEMORY HAVING A GIVEN NUMBER OF ADDRESS INPUTS AND A PROCESSOR HAVING FEWER ADDRESS OUTPUTS, AND PROCESSOR AND MEMORY EQUIPPED ACCORDINGLY

Bertrand Kania, Paris, France, and Dieter Kopp, Hemmingen, Germany, assignors to Alcatel Business Systems, Paris, France

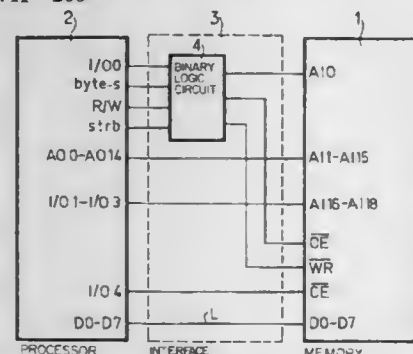
Filed Nov. 21, 1995, Ser. No. 561,415

Claims priority, application France, Nov. 24, 1994, 94 14101

Int. Cl.⁶ G06F 9/02; 12/02

U.S. Cl. 711—200

9 Claims



1. An interface between a memory that stores data in the form of bytes and has "n" address bit inputs for addressing each byte by means of a characteristic combination of "n" bits, and a processor which has "p" address bit outputs, where "p" is less than "n", and "q" programmable data bit outputs, where "q" is at least equal to "n-p", the interface including a binary logic circuit connected to a byte select bit output, to a memory read-write command bit output and to an appropriately programmed one of the "q" programmable bit outputs of the processor and adapted to produce a bit AIO sent to the least significant address bit input of the memory and defined by the equation $AIO = R/W \oplus \text{fheight} \text{byte-s} \text{ OR } \text{fheight} R/W \oplus \text{fheight} I/O$, said interface connecting the "p" address bit outputs of the processor to the "p" next least significant address bit inputs of the memory following said least significant address bit input, and connecting the remaining "n-p-1" most significant address bit inputs of the memory to the same number of appropriately programmed programmable bit outputs of said processor.

5,802,602

METHOD AND APPARATUS FOR PERFORMING READS OF RELATED DATA FROM A SET-ASSOCIATIVE CACHE MEMORY

Monis Rahman, San Jose; Mircea Poplingher, Campbell; Tse-Yu Yeh, Milpitas, and Wenliang Chen, Sunnyvale, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

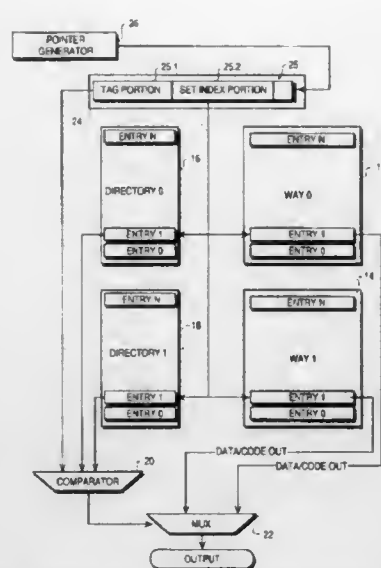
Filed Jan. 17, 1997, Ser. No. 785,199

Int. Cl.⁶ G06F 1/00

U.S. Cl. 711—204

22 Claims

1. A computer-implemented method of allocating entries within a set-associative cache memory having first and second ways, each way having a plurality of entries, wherein corresponding entries of each of the first and second ways comprise respective sets of entries, the method comprising the steps of:



identifying first and second data units as being related by a probability of being successively read from the cache memory; and storing the first and second data units in the corresponding entries in the respective first and second ways, so that the first and second data units are stored in a common set.

5,802,603

METHOD AND APPARATUS FOR ASYMMETRIC/ SYMMETRIC DRAM DETECTION

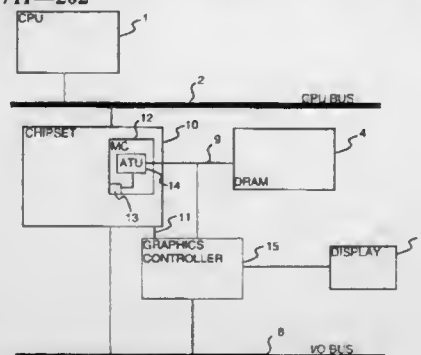
Kuljit Bains, and Narendra Khandekar, both of Folsom, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Feb. 9, 1996, Ser. No. 599,056

Int. Cl.⁶ G06F 12/02

U.S. Cl. 711—202

20 Claims



1. A method of determining if a DRAM is symmetric or asymmetric comprising: forcing a predetermined bit of a memory address to a predetermined value, the memory address comprising a row address and a column address; writing a first known value to a first host address; writing a second known value to a second host address; and reading a value from the first host address to determine which of symmetric and asymmetric the DRAM is.

5,802,604

METHOD FOR ADDRESSING PAGE TABLES IN VIRTUAL MEMORY

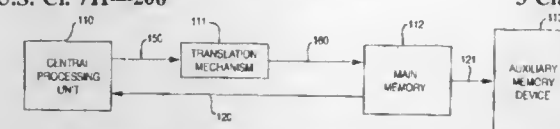
Robert E. Stewart, Stow; Timothy Edwin Leonard, Gruton, and Sherry Tsi-chuan Lee, Carlisle, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 807,950, Dec. 10, 1991, Pat. No. 5,239,635, which is a continuation of Ser. No. 202,886, Jun. 6, 1988, abandoned. This application Jul. 19, 1993, Ser. No. 94,651

Int. Cl.⁶ G06F 12/08

U.S. Cl. 711—206

3 Claims



1. A method for loading a translation buffer of a computer system, which computer system includes a virtual memory space having data referenced by virtual addresses and a physical memory space having data referenced by physical addresses; certain ones of the virtual addresses each having a corresponding physical address, the translation buffer being loaded with predetermined portions of preselected virtual addresses and predetermined portions of corresponding physical addresses, the method comprising the steps of:

- providing a page table memory space in the physical memory space, the page table memory space being referenced by physical addresses which locate locations containing at least a page table entry for a preselected page of the virtual memory space, the page table entry indicating a physical address of the preselected page of the virtual memory space;
- the page table memory space further referenced by a set of virtual addresses, which correspond to the physical addresses, for referencing the page table memory space;
- providing a page table prototype mechanism including known cross reference information between the set of virtual addresses, and the corresponding physical addresses for referencing the page table memory space, the known cross-reference information comprising offset information between the certain ones of the virtual addresses and their corresponding physical addresses;
- operating the computer system to load information identical to a preselected portion of the page table memory space into the translation buffer, which loading of the translation buffer is implemented by utilizing the page table prototype mechanism to dynamically generate physical address information

5,802,605

PHYSICAL ADDRESS SIZE SELECTION AND PAGE SIZE SELECTION IN AN ADDRESS TRANSLATOR

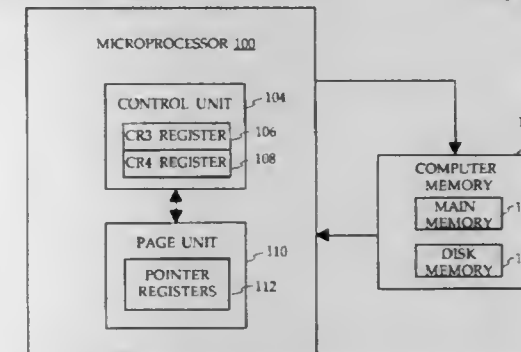
Donald B. Alpert, Santa Clara; Kenneth D. Shoemaker, Saratoga, both of Calif.; Kevin C. Kahn, Portland, and Konrad K. Lai, Aloha, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 372,805, Dec. 23, 1994, Pat. No. 5,617,554, which is a continuation of Ser. No. 832,944, Feb. 10, 1992, abandoned. This application Nov. 25, 1996, Ser. No. 756,184

Int. Cl.⁶ G06F 12/10

U.S. Cl. 711—208

18 Claims



1. A processor generating linear addresses having no more than N bits, said processor comprising: a control unit having stored therein one or more control bits; and a paging unit coupled to said control unit to receive said one or more control bits, said paging unit supporting translation of said linear addresses into physical addresses in a first physical address space having no more than 2^N locations that can be addressed while said one or more control bits are in a first state, said paging unit supporting translation of said linear addresses into physical addresses in a second physical address space having more than 2^N locations that can be addressed while said one or more control bits are in a second state.

5,802,606

Patent Not Issued For This Number

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DESIGNS

SEPTEMBER 1, 1998

397,535

PUFFED FOOD PRODUCT

Henry V. Izzo, Bridgewater, N.J., and Jennifer L. Stanton, Greenwich, Conn., assignors to Wise Foods, Inc., Parsippany, N.J.

Filed Jul. 21, 1997, Ser. No. 73,828

Term of patent 14 years

LOC (6) Cl. 01 - 01

U.S. Cl. D1—109



397,537

LINE GUIDE FOR FISHING ROD

Ryuichi Ohmura, Shizuoka, Japan, assignor to Fuji Kogyo Co., Ltd., Shizuoka-ken, Japan

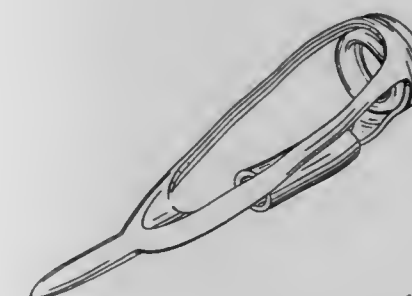
Filed Jul. 18, 1997, Ser. No. 73,889

Claims priority, application Japan, Jan. 24, 1997, 9-1720

Term of patent 14 years

LOC (6) Cl. 22 - 05

U.S. Cl. D2—143



397,536

EXTRUDED SNACK

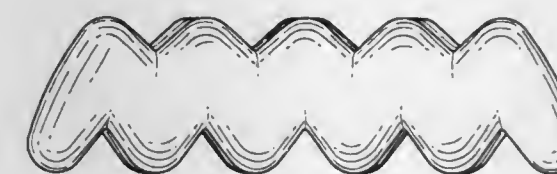
J. R. Rodriguez, Jr., and Richard Damion, both of 180 Newport Center Dr., Suite 180, Newport Beach, Calif. 92660-6949

Filed May 22, 1997, Ser. No. 71,175

Term of patent 14 years

LOC (6) Cl. 01 - 01

U.S. Cl. D1—125



397,538

SCARF

Shelley Hannah, Varna, Canada, assignor to Hugs For L.I.F.E. Inc., Ontario, Canada

Filed Jan. 31, 1997, Ser. No. 65,701

Term of patent 14 years

LOC (6) Cl. 02 - 05

U.S. Cl. D2—508



VOL

1
2
1
4

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1

1998

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397,539

PULL-UP PANTS

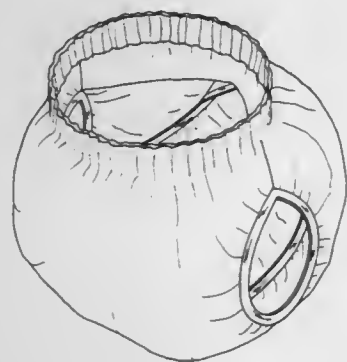
Fredrica V. Coates, Earlysville, Va., assignor to Tailored Technologies, Inc., Earlysville, Va.

Filed Jul. 28, 1995, Ser. No. 41,982

Term of patent 14 years

LOC (6) Cl. 02 - 01

U.S. Cl. D2—712



397,541

DRAGONFLY SANDAL

Celia Jane Henson, 6912 77th St. NW., Gig Harbor, Wash. 98335

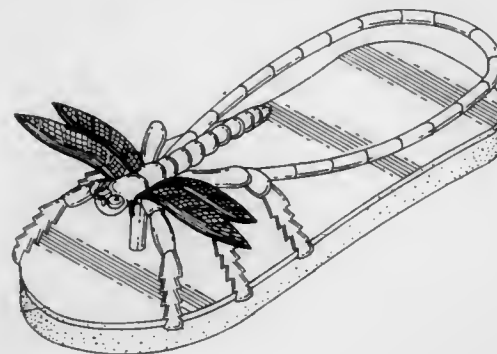
Continuation-in-part of Ser. No. 57,967, Aug. 5, 1996, Pat.

No. Des. 386,587. This application Jul. 2, 1997, Ser. No. 73,090

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—899



397,540

NOVELTY HEADRESS

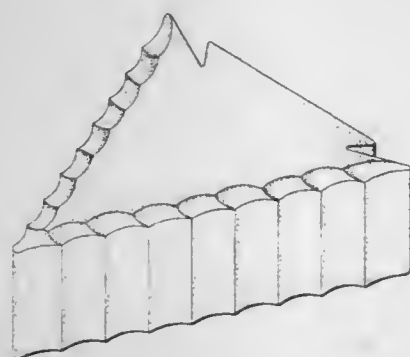
Michael A. Chase, 10470 Caenen Lake Rd., Lenexa, Kans. 66215

Filed Jul. 3, 1997, Ser. No. 73,311

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2—869



397,542

GOLF SHOE COVER

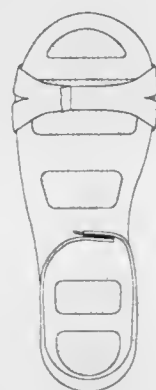
Maxwell S. Bradshaw, 514 N. Academy St., Greensboro, Md. 21639

Filed May 13, 1997, Ser. No. 70,669

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—914



397,543

TENNIS SHOE

Steven A. Silvers, 1751 Colgate Pl., Union, N.J. 07083

Filed Mar. 3, 1995, Ser. No. 35,610

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—902



397,545

CLOG TYPE SHOE

Ivan Davidowitz, Kingston, Pa., and Rosemary Wright, Hincley, England, assignors to Columbia Footwear Corporation, Hazelton, Pa.

Division of Ser. No. 584,454, Jan. 11, 1996. This application

Jun. 24, 1996, Ser. No. 56,061

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—926



397,544

ARTICLE OF FOOTWEAR

Sinisa Egelja, State College, Pa., assignor to Items International, Inc., Altoona, Pa.

Filed Jul. 3, 1996, Ser. No. 56,594

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—912



397,546

SHOE SOLE

Jean-Paul Merceron, Monthodon, France, assignor to L'Article Chaussant Europeen, Chateau-Renault, France

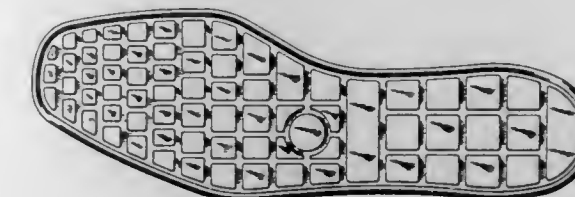
Filed Jan. 24, 1997, Ser. No. 65,226

Claims priority, application France, Jul. 24, 1996, 964337

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—951



397,547

PEN/PENCIL CASE

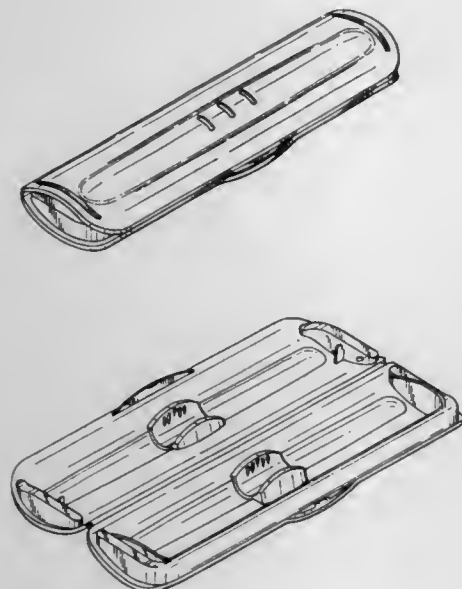
David Malcolm Goodwin, Surrey, and Nicholas Mernor Hamnett, Epsom, both of United Kingdom, assignors to Parker Pen Products, Isleworth, England

Filed Juu. 18, 1996, Ser. No. 56,262

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—206



397,549

CHEF'S ACCESSORY BELT

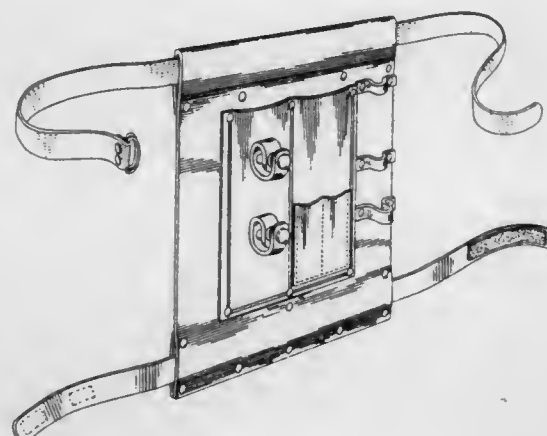
Carrenado Edwards, 5555 Spring Valley #1005, Dallas, Tex. 75240

Filed Mar. 4, 1997, Ser. No. 66,593

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—215



397,550

CUP CADDY WITH SHOULDER STRAP

Julie M. Coughlin, 2411 Rim Rd., Durarte, Calif. 91010

Filed Jul. 16, 1996, Ser. No. 57,099

Term of patent 14 years

LOC (6) Cl. 03 - 99

U.S. Cl. D3—229



397,548

BODY WORN STORAGE POUCH

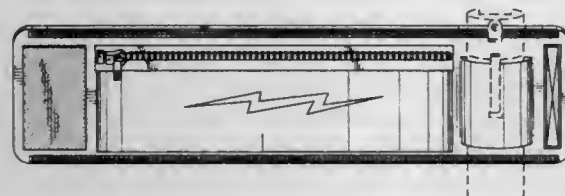
Lawrence Peck, P.O. Box 345, Park City, Utah 84060

Filed Oct. 16, 1995, Ser. No. 45,294

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—215



397,551

EYEGGLASS CONTAINER

Don N. Shefler, Las Vegas, Nev., assignor to Tec Vision, Inc., Midvale, Utah

Filed Jul. 7, 1995, Ser. No. 41,179

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—265



397,553

CONTAINER

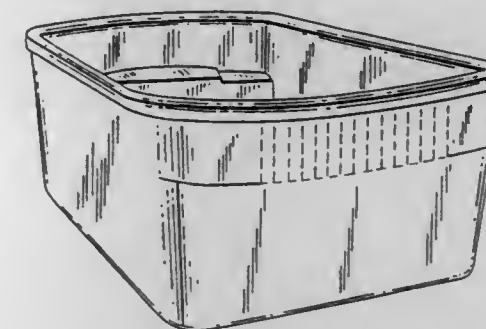
Larry Gene Zimmerman, Hollis, N.H., assignor to Sterilite Corporation, Townsend, Mass.

Continuation-in-part of Ser. No. 4,721, Feb. 11, 1993, Pat. No. Des. 370,346. This application Dec. 22, 1995, Ser. No. 48,805

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—314



397,552

TRANSPARENT STORAGE CONTAINER WITH LID

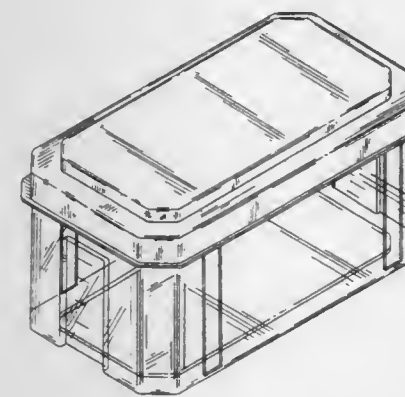
Gary L. Rutledge, Parker, Tex., assignor to John C. Marrelli, Tustin, Calif.

Filed Mar. 19, 1997, Ser. No. 69,209

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—302



397,554

TRAVEL TOOTHBRUSH WITH FLOSS

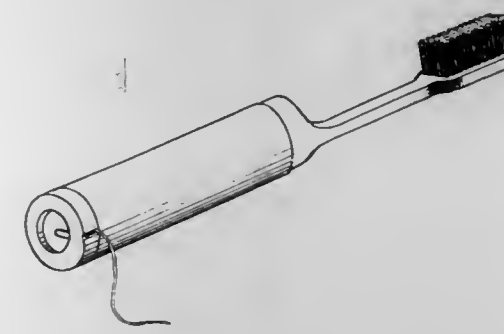
Frances Sprague, 7751 E. Country Club Blvd., Boca Raton, Fla. 33487

Continuation-in-part of Ser. No. 47,438, Dec. 4, 1995, abandoned. This application Apr. 15, 1996, Ser. No. 53,159

Term of patent 14 years

LOC (6) Cl. 04 - 02

U.S. Cl. D4—108



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,555
STRIPED SURFACE PATTERN FOR
RETROREFLECTIVE SHEETING

Susan K. Nestegard, Woodbury, and James E. Lasch, Oakdale,
both of Minn., assignors to Minnesota Mining and Manufac-
turing Company, St. Paul, Minn.

Filed Jan. 19, 1996, Ser. No. 49,168

Term of patent 14 years

LOC (6) Cl. 05 - 06

U.S. Cl. D5—99



397,557
CHAIR

Saul Feldberg, Don Mills, Canada, assignor to Global Uphol-
stery Company, Downsview, Canada

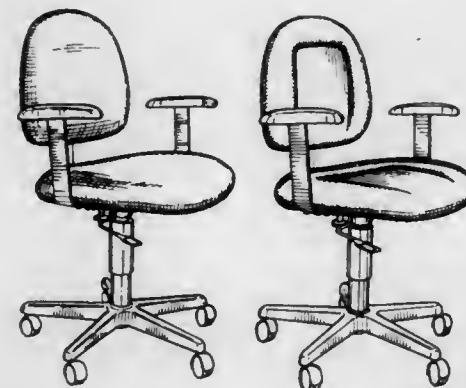
Filed Aug. 18, 1997, Ser. No. 75,505

Claims priority, application Canada, Jul. 10, 1997, 1997-
1824

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—366



397,558
TELEPHONE BOOTH

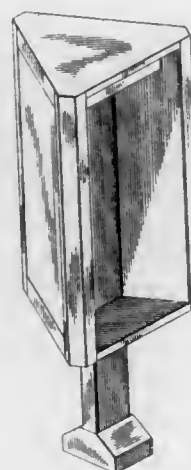
Jacques Caya, Drummondville, Canada, assignor to Industries
Jaro Inc., St-Charles-de-Drummond, Canada

Filed Nov. 15, 1996, Ser. No. 62,478

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—421



397,556

NOVELTY MIRROR

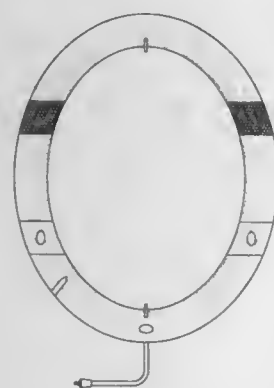
Miykayah Yisrael, 6720 S. Jeffery St., Apt. #608, Chicago, Ill.
60649

Filed Aug. 22, 1997, Ser. No. 75,704

Term of patent 14 years

LOC (6) Cl. 06 - 07

U.S. Cl. D6—309



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1089

397,559
DRESSER

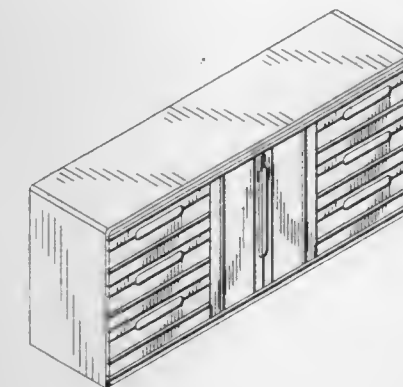
Paul Zaidman, Winnipeg, Canada, assignor to Palliser Furni-
ture Ltd., Winnipeg, Canada

Filed Mar. 10, 1997, Ser. No. 66,333

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—446



397,561

FREESTANDING MODULAR DISPLAY/DIVIDER WALL

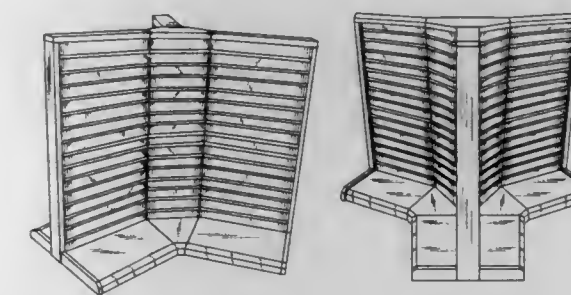
Daniel D. DePottey, Zeeland; Daniel J. Muellerleile, Grand
Haven; Ronald J. Friday, Muskegon, and Vaninath Uppala-
pati, Portland, all of Mich., assignors to Spectra Products
Corporation, Grand Haven, Mich.

Filed Jun. 3, 1997, Ser. No. 71,603

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—455



397,560
MERCHANDISER

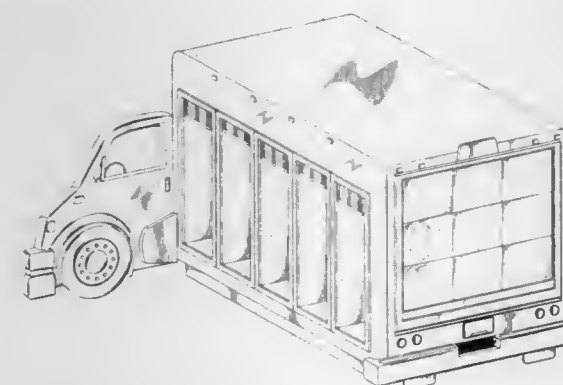
Kathleen F. Socha; Florence A. Kulp, both of Smyrna; Chris-
topher T. Lanning; John D. Merrick, both of Marietta, and
Elizabeth W. O'Dowd, Atlanta, all of Ga., assignors to The
Coca-Cola Company, Atlanta, Ga.

Filed Jun. 9, 1997, Ser. No. 72,095

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—450



397,562

FREESTANDING MODULAR DISPLAY AND DIVIDER
WALL

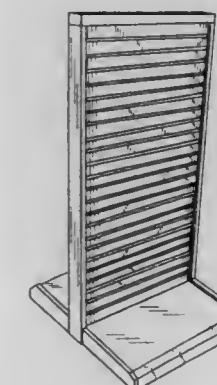
Daniel D. DePottey, Zeeland; Daniel J. Muellerleile, Grand
Haven; Ronald J. Friday, Muskegon, and Vaninath Uppala-
pati, Portland, all of Mich., assignors to Spectra Products
Corporation, Grand Haven, Mich.

Filed Jun. 3, 1997, Ser. No. 71,605

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—468



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,563

TABLE BASE

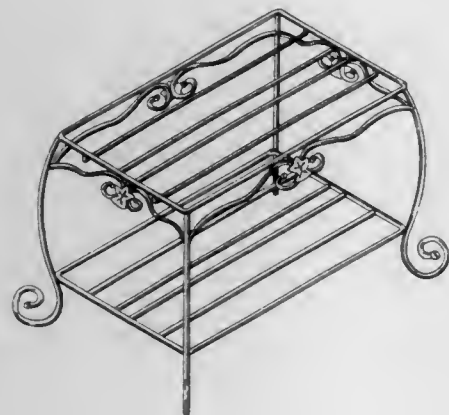
Andrea Walters-Dowding, Dresden; Lynn Lippert, Newark, both of Ohio, and Durward L. Staten, Mountain View, Ark., assignors to The Longaberger Company, Newark, Ohio

Filed Apr. 24, 1997, Ser. No. 69,526

Term of patent 14 years

LOC (6) Cl. 06 - 03

U.S. Cl. D6—499



397,565

OVER THE DOOR SLIDING HOOK

Richard B. Klein, Overland Park; Chris Serslev, Leawood, and Farid Nedjam, Lawrence, all of Kans., assignors to Lynk, Inc., Lenexa, Kans.

Filed Aug. 20, 1997, Ser. No. 75,439

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D6—513



397,564

PORTRION OF A SURFACE TOP FOR FURNITURE AND COUNTERTOPS

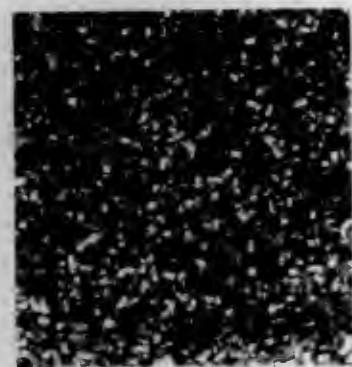
Demir Hamami, 5601 Huntington Pkwy., Bethesda, Md. 20814

Filed Nov. 14, 1996, Ser. No. 62,372

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—511



397,566

DIAPER DISPENSER

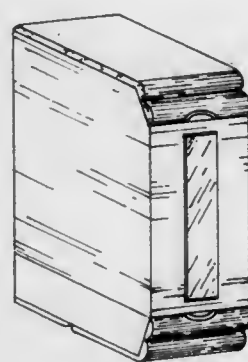
Benoit O. Choiniere, Granger, and Claude Barnhill, South Bend, both of Ind., assignors to C&B Inventions L.L.C., South Bend, Ind.

Filed Jun. 19, 1997, Ser. No. 75,476

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D6—515



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1091

397,567

SHOWER CADDY

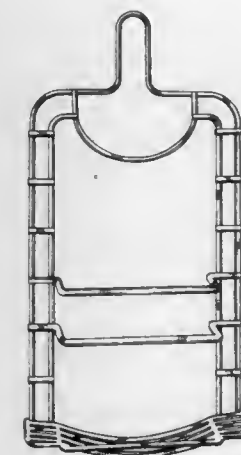
James A. Hofman, Hockessin, Del., assignor to Zenith Products Corporation, New Castle, Del.

Filed Sep. 4, 1997, Ser. No. 75,801

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D6—525



397,569

TOWEL HOLDER

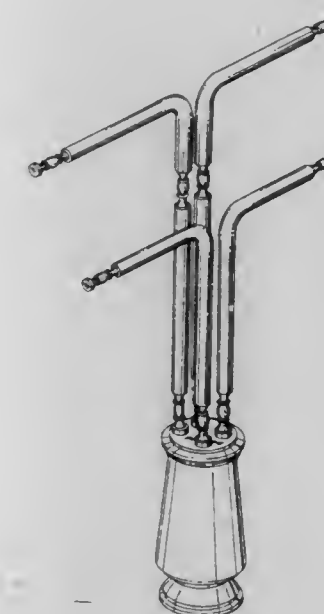
Jerome Warshawsky, Hewlett Harbor, N.Y., assignor to IW Industries, Inc., Melville, N.Y.

Filed Aug. 11, 1997, Ser. No. 75,132

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—548



397,568

COMBINATION DECORATIVE SHOWER CURTAIN RING AND TOWEL/CLOTHES CLAMP

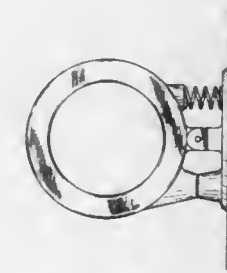
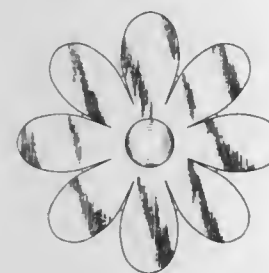
Thomas Brett Jonas, 11563 Back Massillon Rd., Orrville, Ohio 44667

Filed Feb. 22, 1996, Ser. No. 50,688

Term of patent 14 years

LOC (6) Cl. 06 - 02

U.S. Cl. D6—546



397,570

STORAGE BASKET

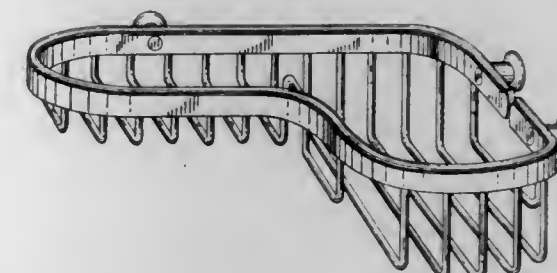
Victor Hoernig, Lowell, Ind., assignor to Gusa, Inc., Fort Mill, S.C.

Filed Dec. 20, 1996, Ser. No. 64,063

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—566



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,571

**FABRIC FOR USE IN COVERINGS FOR
ARCHITECTURAL OPENINGS**

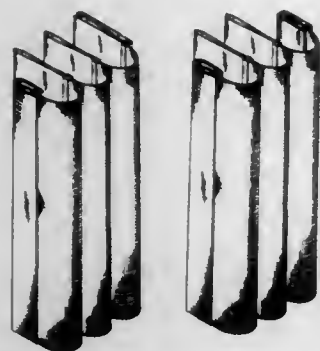
James M. Anthony, Denver, and Wendell B. Colson, Boulder,
both of Colo., assignors to Hunter Douglas Inc., Upper
Saddle River, N.J.

Filed Nov. 26, 1996, Ser. No. 63,083

Term of patent 14 years

LOC (6) Cl. 06 - 10

U.S. Cl. D6—575



397,573

TOWEL/SOAP TUMBLER TOOTHBRUSH HOLDER

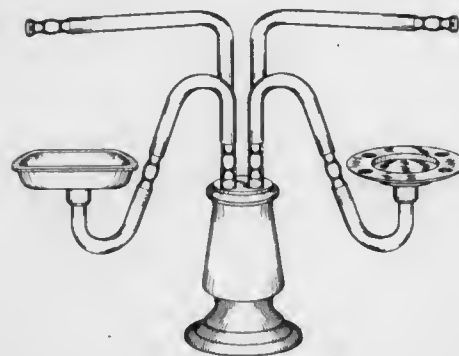
Jerome Warshawsky, Hewlett Harbor, N.Y., assignor to I.W.
Industries, Inc., Melville, N.Y.

Filed Aug. 11, 1997, Ser. No. 75,130

Term of patent 14 years

LOC (6) Cl. 06 - 02

U.S. Cl. D6—527



397,572

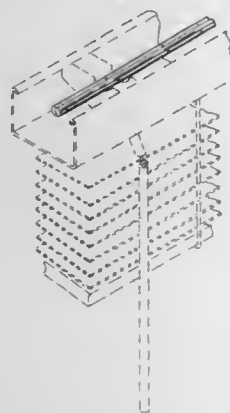
**TILT ROD FOR A CONTROL SYSTEM FOR WINDOW
COVERING**

Richard N. Anderson, Whitesville, Ky., assignor to Hunter
Douglas Inc., Upper Saddle River, N.J.

Filed Nov. 26, 1996, Ser. No. 63,087

Term of patent 14 years

U.S. Cl. D6—580



397,574

TOOTHBRUSH HOLDER

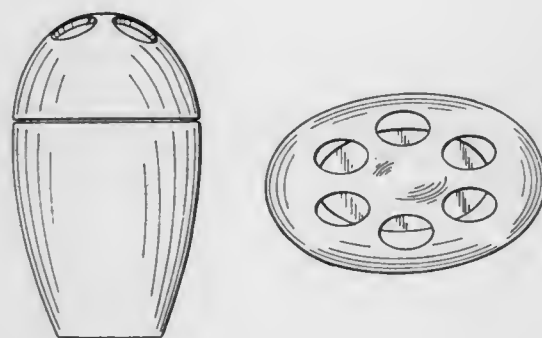
Helen Elizabeth Glenton Kerr, Toronto, Canada, assignor to
Umbra U.S.A., Inc., Buffalo, N.Y.

Filed Sep. 22, 1997, Ser. No. 76,752

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D6—534



397,575

ROSE SHAPED CUSHION

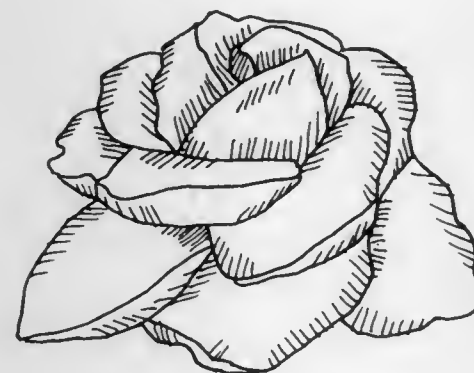
Florian Dove Miller, P.O. Box 186, College Place, Wash. 99324

Filed Jul. 1, 1996, Ser. No. 56,508

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—600



397,577

CONTOURED PILLOW

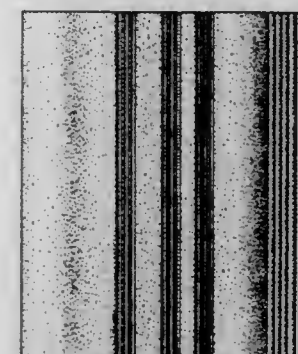
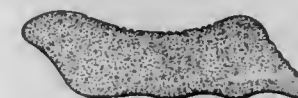
Denys Denney, Bear, Del., assignor to Foamex L.P., Linwood,
Pa.

Filed Oct. 6, 1997, Ser. No. 78,100

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—601



397,576

PREGNANCY PILLOW

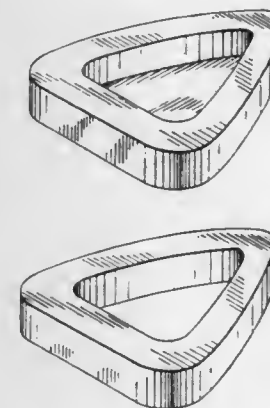
Loretta T. Friedman, 9269 Shore Rd., Apt. B1, Brooklyn, N.Y.
11209

Filed Nov. 5, 1996, Ser. No. 62,009

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—601



397,578

COMFORTER HAVING A STITCH PATTERN

Juliette M. Mansfield, Seattle, Wash., assignor to Pacific Coast
Feather Company, Seattle, Wash.

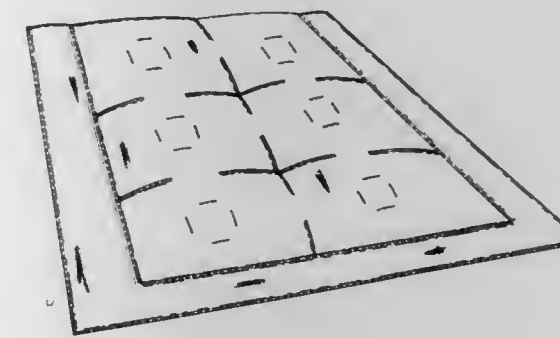
Filed Jul. 3, 1996, Ser. No. 56,622

The portion of the term of this patent subsequent to Mar. 24,
2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 06 - 13

U.S. Cl. D6—603



397,579

DEEP FRYER

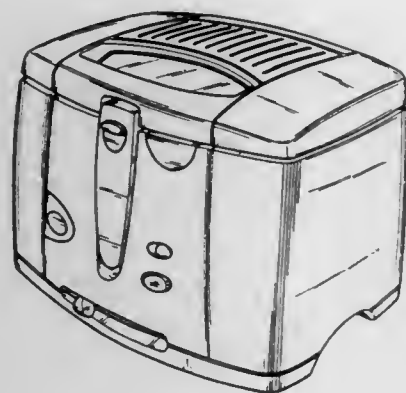
Li-Chen Wu Chang, Taoyuan, Taiwan, assignor to Lyu Jan Co., Ltd., Taoyuan Hsien, Taiwan

Filed Sep. 3, 1996, Ser. No. 59,082

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—350



397,581

CERAMIC MEAT COOKER

Gerald G. Lowery, P.O. Box 25, Rickreall, Oreg. 97371-0025

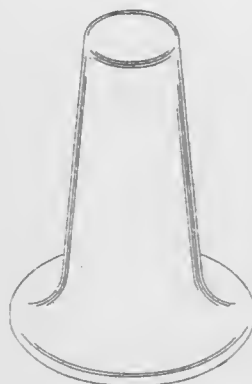
Division of Ser. No. 429,912, Apr. 27, 1995. This application

Oct. 11, 1996, Ser. No. 61,596

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—409



397,580

BARBECUE GRILL COVER SHAPED LIKE A FOOTBALL HELMET

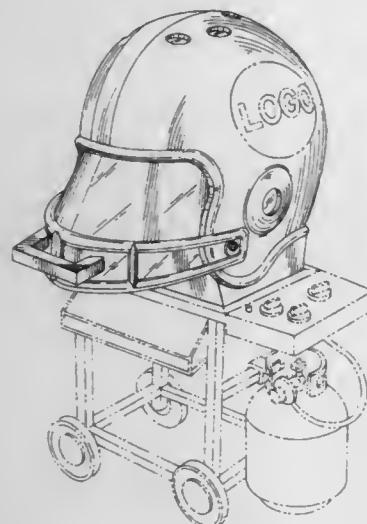
Gregory S. Dunn, 32A Heritage Dr., Windsor, Conn. 06095; Stylianos S. Manousos, 12420 Plantation La., North Palm Beach, Fla. 33408, and Edward J. Kennedy, 201 Bayou Ct., Coppell, Tex. 75013

Filed Jan. 30, 1997, Ser. No. 65,606

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—402



397,582

LAP TRAY

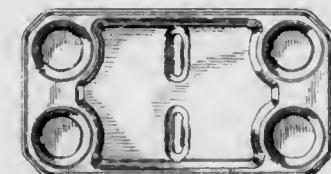
Sy Sussman, 435 Promontory Dr. West, Newport Beach, Calif. 92660

Filed May 22, 1997, Ser. No. 71,149

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—554



397,583

TRICK OR TREAT TOY

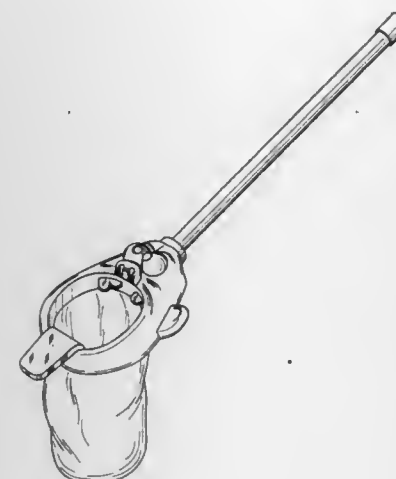
Ian T. Allison, P.O. Box 1705, Santa Rosa, Calif. 95402

Filed Jul. 14, 1997, Ser. No. 73,496

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—601



397,585

ICE CHEST

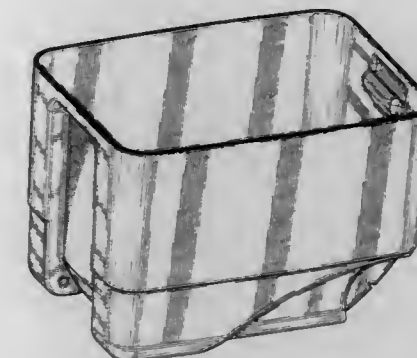
Kevin Rausch, Wooster, Ohio, and Joe Fiore, Lebanon, Pa., assignors to Rubbermaid Incorporated, Wooster, Ohio

Filed May 27, 1997, Ser. No. 71,838

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—605



397,586

CONTAINER WITH CLOSURE FOR LIQUID AND FOOD

John Bowers, Orlando, Fla., assignor to Le Creuset SA, Fresnoy le Grand, France

Filed Feb. 24, 1997, Ser. No. 66,825

Term of patent 14 years

LOC (6) Cl. 09 - 02

U.S. Cl. D7—615



397,584

BOWL SUPPORT

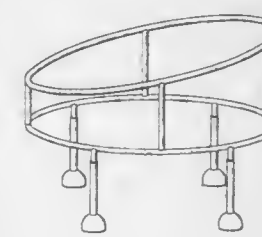
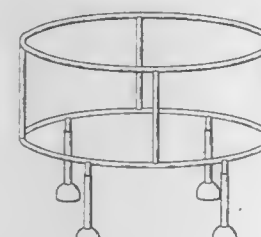
Anthony Vannello, 1227 Jackson St., Philadelphia, Pa. 19148

Filed Mar. 27, 1997, Ser. No. 68,295

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—602



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,587

NAPKIN HOLDER

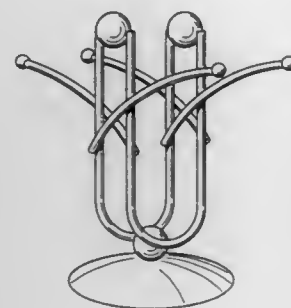
Fred Hollinger, 59 Boxwood Dr., Kings Park, N.Y. 11754

Filed Jul. 31, 1995, Ser. No. 42,082

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—631



397,588

TRAY FOR MAKING STUFFED PASTA PRODUCTS

Edward I. Mishan, New York, N.Y., assignor to E. Mishan &

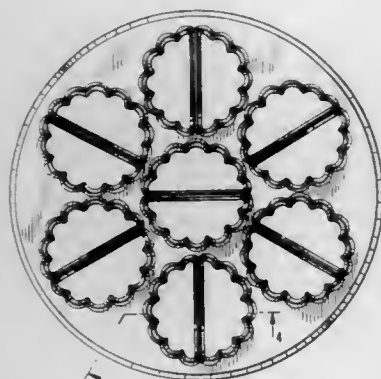
Sons, Inc., New York, N.Y.

Filed Jun. 19, 1997, Ser. No. 72,508

Term of patent 14 years

LOC (6) Cl. 07 - 04

U.S. Cl. D7—672



397,589

NUT CRACKER

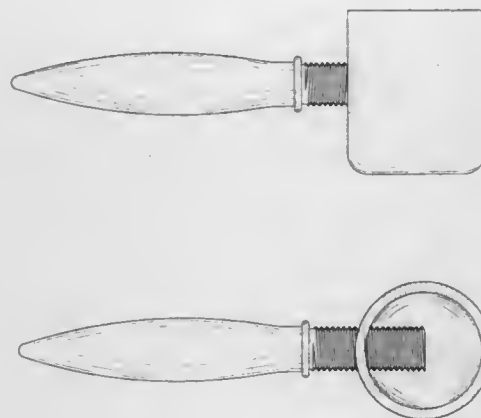
Piotr Gasior, 630 Keats Way Unit 26, Waterloo, Ontario, Canada, N2T 2M8

Filed Sep. 11, 1997, Ser. No. 76,411

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—680



397,590

HEDGE TRIMMER BLADE

Robert Meloni, Baltimore; Deborah Messmer, Stevensville; Angela Hillstrom, and Robert Wagster, both of Baltimore, all of Md., assignors to Black & Decker Inc., Newark, Del.

Filed Jul. 23, 1997, Ser. No. 74,032

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8—8



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1097

397,591

SNOW PUSHER

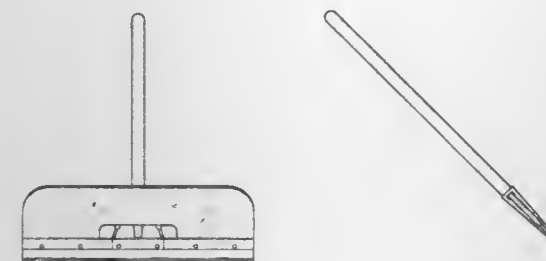
Domenico Susini, III, 89 Summit Dr., Denville, N.J. 07834

Filed May 13, 1997, Ser. No. 70,670

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8—10



397,593

GARDENER'S HAND CULTIVATOR

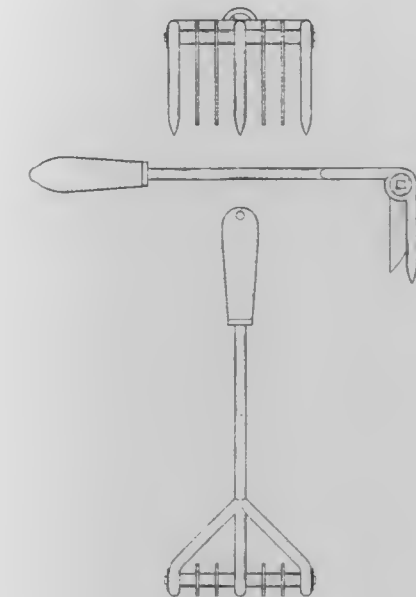
Nelson F. Mendoza, 606 Janice Ave., Hayward, Calif. 94544

Filed May 30, 1997, Ser. No. 71,513

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8—13



397,594

BENDING TOOL FOR ROOFING MATERIAL

Robert Galen Harper, 49122 River Rd., Hammond, La. 70401

Filed Oct. 10, 1995, Ser. No. 45,100

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—14

397,592

GOLF RAKE

Stanley W. Widmer, Browerville, Minn., assignor to Par Aide

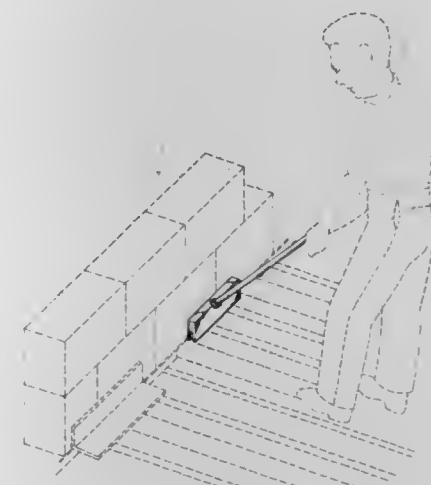
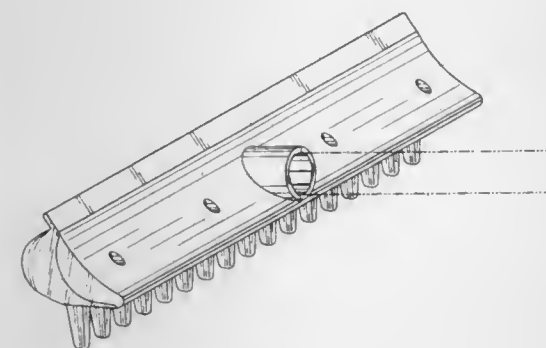
Products Co., St. Paul, Minn.

Filed May 19, 1997, Ser. No. 71,076

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D8—13



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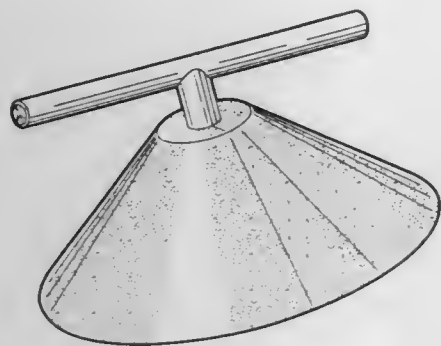
1098

OFFICIAL GAZETTE

SEPTEMBER 1, 1998

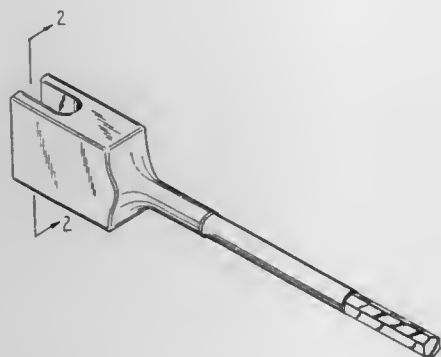
397,595

PACKAGE OPENING DEVICE FOR REMOVING
PLASTIC WRAPPING
Clive Martin Dobson, 98 Lynvale Ct., Daly City, Calif. 94015
Filed Oct. 25, 1995, Ser. No. 45,643
Term of patent 14 years
LOC (6) Cl. 08 - 05
U.S. Cl. D8—14



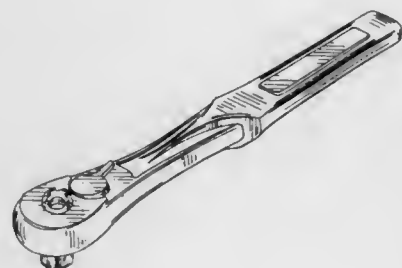
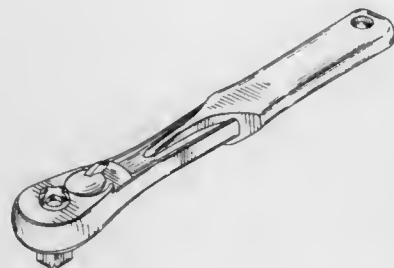
397,596

COMBINED EYEBOLT AND HOOK TURNING TOOL
Steven A. Morin, 8103 Land-o-Lakes Dr., Portage, Mich. 49002
Continuation-in-part of Ser. No. 41,315, Jul. 11, 1995, Pat.
No. Des. 376,520. This application Mar. 15, 1996, Ser. No.
51,721
Term of patent 14 years
LOC (6) Cl. 08 - 02
U.S. Cl. D8—14



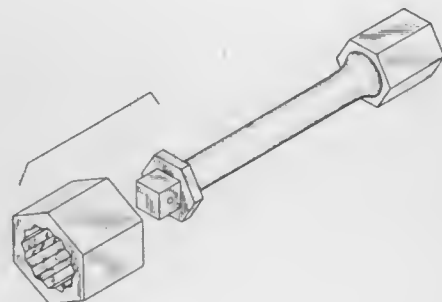
397,597

SOCKET WRENCH
John B. Davidson, Chicago, Ill.; Peter M. Roberts, Chatta-
nooga, Tenn., and Kenneth Svetlik, Schaumburg, Ill., assign-
ors to Roberts Tool International (USA), Inc., Chicago, Ill.
Continuation-in-part of Ser. No. 11,202, Jul. 29, 1993, aban-
doned. This application Jan. 10, 1995, Ser. No. 35,978
Term of patent 14 years
LOC (6) Cl. 08 - 05
U.S. Cl. D8—25



397,598

COMBINED SOCKET AND EXTENSION
Donald Peter Falk, 309 N. Lillie Ave., Fullerton, Calif. 92631
Filed Apr. 5, 1996, Ser. No. 52,771
Term of patent 14 years
LOC (6) Cl. 08 - 05
U.S. Cl. D8—29



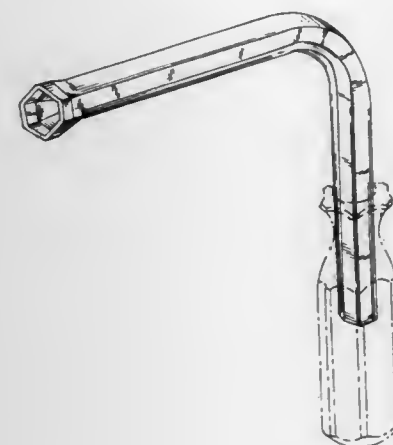
SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

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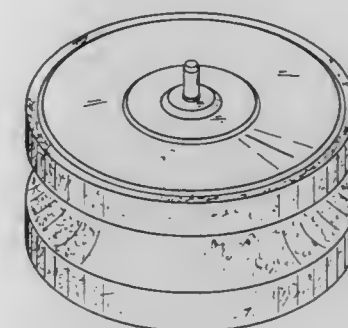
397,599

HAND-HELD NUT DRIVER
Robert L. Stamp, Titusville, Pa., assignor to Hold E-Zee, Ltd.,
Meadville, Pa.
Filed Feb. 11, 1997, Ser. No. 66,301
Term of patent 14 years
LOC (6) Cl. 08 - 05
U.S. Cl. D8—21



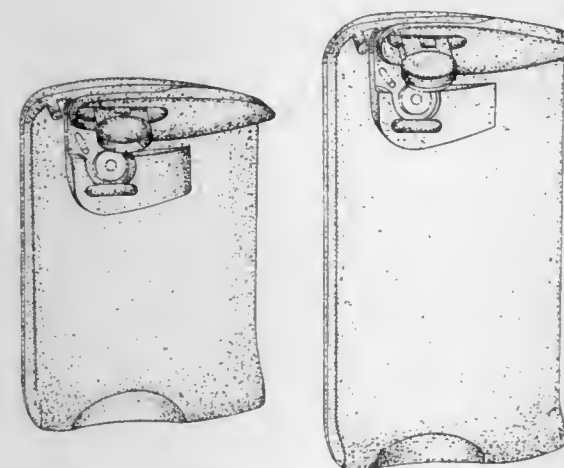
397,601

BUFFER FOR BUFFING ROUND ARTICLES
Daniel R. Omerza, 437 Midway Island, Clearwater, Fla. 34630
Filed Mar. 31, 1997, Ser. No. 68,314
Term of patent 14 years
LOC (6) Cl. 08 - 99
U.S. Cl. D8—70



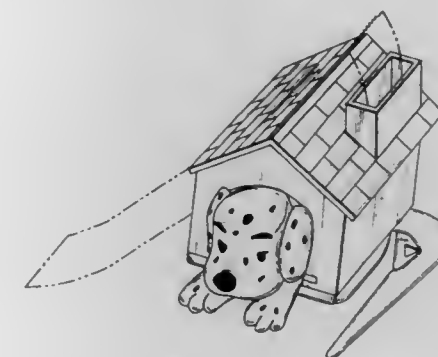
397,600

CAN OPENER
Martin Brady, Chesterfield, Va., assignor to Hamilton Beach/
Proctor-Silex, Inc., Glen Allen, Va.
Filed Mar. 27, 1997, Ser. No. 68,682
Term of patent 14 years
LOC (6) Cl. 07 - 99
U.S. Cl. D8—35



397,602

ROLL STAMP DISPENSER AND LETTER OPENER
Jung Wook Kim, 10447 SW. Moratoc Dr., Tualatin, Oreg.
97062
Filed Sep. 3, 1997, Ser. No. 75,633
Term of patent 14 years
LOC (6) Cl. 08 - 03
U.S. Cl. D8—104



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397,603

HANDLE ASSEMBLY FOR HAND TOOL

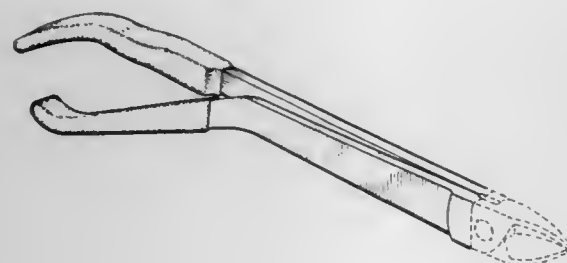
Daniel M. Eggert, Kenosha, and Christopher D. Thompson, Milwaukee, both of Wis., assignors to Snap-on Technologies, Inc., Lincolnshire, Ill.

Filed Oct. 19, 1995, Ser. No. 45,436

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—107



397,605

DISH FOR CASE

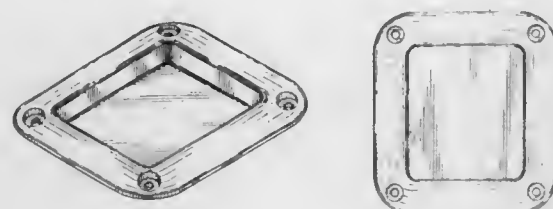
Roger Peter Willems, Penn, England, assignor to Penn Fabrication (U.S.A.) Inc., Moorpark, Calif.

Filed Feb. 25, 1997, Ser. No. 66,973

Term of patent 14 years

LOC (6) Cl. 08 - 07

U.S. Cl. D8—343



397,604

GLIDING DOOR HANDLE

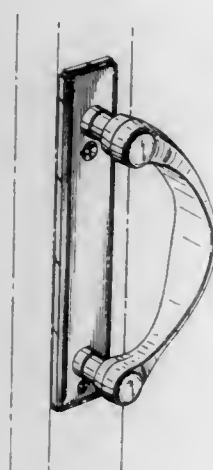
James B. Libby, Stillwater; Casey L. Carlson, Edina, both of Minn., and Duane T. Fier, Hudson, Wis., assignors to Andersen Corporation, Bayport, Minn.

Filed Jul. 31, 1997, Ser. No. 74,459

Term of patent 14 years

LOC (6) Cl. 08 - 06

U.S. Cl. D8—301



397,606

WALL MOUNT BRACKET

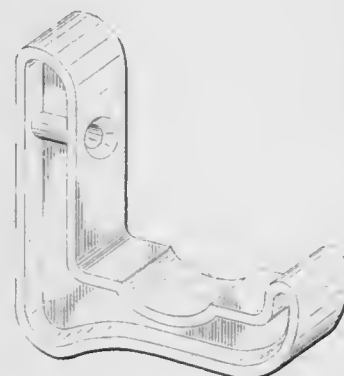
John H. Tameling, 297 Tower Ridge Dr., Marietta, Ga. 30064

Filed Sep. 9, 1997, Ser. No. 76,449

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—363



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1101

397,607

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) ANTI-THEFT FASTENER

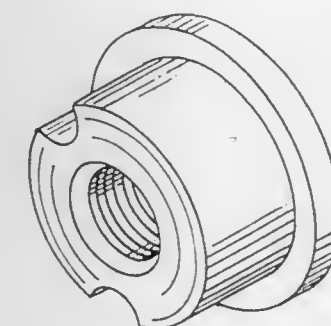
William R. Lawson, Glenside, Pa., assignor to R & B, Inc., Colmar, Pa.

Filed Mar. 20, 1996, Ser. No. 51,953

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D8—397



397,609

PORTION OF THE PACKAGE

Jonathan Christopher Hamilton, Tariffville; Paul K. Metaxatos, Collinsville, and David William Schweitzer, West Hartford, all of Conn., assignors to American Saw & Mfg. Company, East Longmeadow, Mass.

Division of Ser. No. 58,625, Aug. 13, 1996, Pat. No. Des. 387,275. This application Aug. 20, 1997, Ser. No. 75,592

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—423



397,608

FLEXIBLE CONTAINER

Trevor Fiore, Dana Point, Calif., assignor to Amway Corporation, Ada, Mich.

Filed Mar. 22, 1994, Ser. No. 20,283

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—302



397,610

CONTAINER

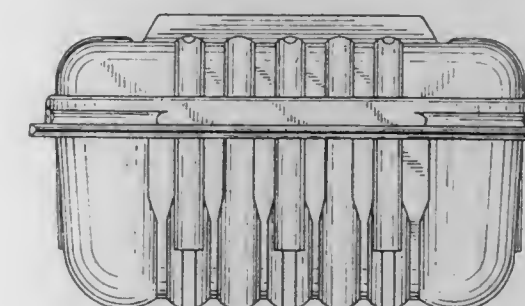
Peter McRostie Cooper, Santiago, Chile, assignor to Typack S.A., Santiago, Chile

Filed Aug. 21, 1996, Ser. No. 59,672

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—425



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397,611

CLOSURE FOR A BOX FOR STRAWS

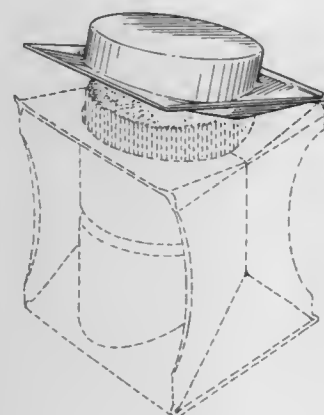
Ron Robinson, Bridgeton; Terrance J. McMichael, Kirkwood, both of Mo.; Brian Flynn, Glendale Hts., Ill.; John Hoffman, Chicago, Ill.; Richard B. Partlow, Naperville, Ill., and David Rosten, Cambridge, Minn., assignors to bioMérieux Vitek, Inc., Hazelwood, Mo.

Division of Ser. No. 61,824, Oct. 31, 1996. This application
Jun. 11, 1997, Ser. No. 72,106

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—435



397,613

BOTTLE TOP

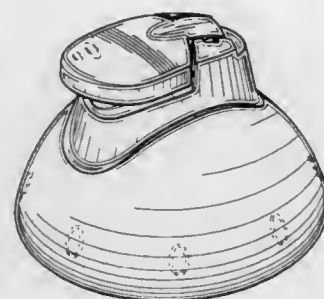
Vincent L. Haley, Orrville, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio

Filed Mar. 31, 1997, Ser. No. 68,777

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—448



397,612

CAP FOR SPIN WELDING TO A CONTAINER

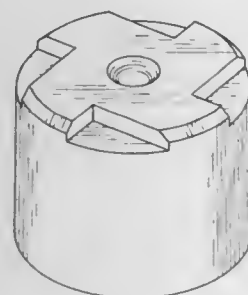
David Lipnick, Roseville, Calif., assignor to Klue Company, Rancho Cordova, Calif.

Filed Aug. 12, 1997, Ser. No. 75,086

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—445



397,614

BOTTLE

Suppayan Krishnakumar, Nashua; Dave Piccioli, Auburn, both of N.H., and John Bretz, Crystal Lake, Ill., assignors to Snapple Beverage Corporation, Chicago, Ill.

Filed Apr. 19, 1996, Ser. No. 53,370

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—520



397,615

COMBINED DISPENSING BOTTLE AND CAP

Linda C. Nash, Wayzata; Timothy E. Fitten, Chaska, and Thomas M. Redmond, Sr., Victoria, all of Minn., assignors to Redmond Products, Inc., Chanhassen, Minn.

Filed May 9, 1996, Ser. No. 54,289

The portion of the term of this patent subsequent to Mar. 17, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—520



397,616

COMBINED WINE BOTTLE AND CAP

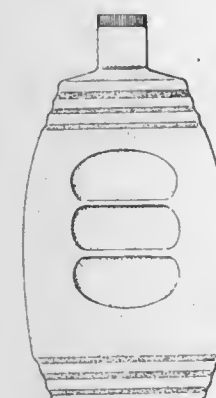
Peng Hung Chen, P.O. Box 82-144, Taipei, Taiwan

Filed May 5, 1997, Ser. No. 69,457

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—540



397,617

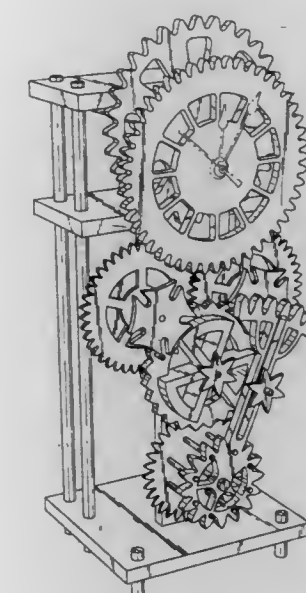
CLOCK

Greg Scott Davis, 21063 Gribben Ave., Hayward, Calif. 94541

Filed Jul. 9, 1997, Ser. No. 73,565

Term of patent 14 years

LOC (6) Cl. 10 - 01



397,618

MOUSE CLOCK

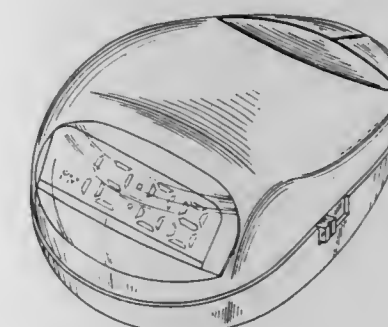
Robert L. Scott, Plantation, Fla., and Jan Tonyan, Norwood, Mass., assignors to Cosmo Communications Corporation, Miami, Fla.

Filed Jun. 19, 1997, Ser. No. 72,565

Term of patent 14 years

LOC (6) Cl. 10 - 01

U.S. Cl. D10—6



VOL

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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,619

WATCH CASE

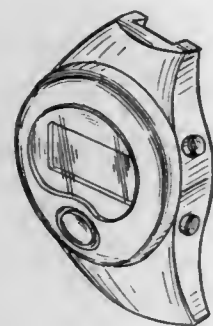
Chih Cheng Lee, Taipei, Taiwan, assignor to E. Gluck Corp.,
Long Island City, N.Y.

Filed Sep. 3, 1997, Ser. No. 75,582

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—30



397,621

FINGER WATCH

Greg Wright, and LaDeana Wright, both of 4777 Pony Express
Trail, Camino, Calif. 95709

Filed Apr. 4, 1997, Ser. No. 71,816

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—31



397,620

WATCH CASE

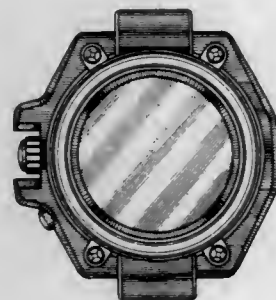
Yoh Fujihara, Hamura, and Masao Wada, Tokyo, both of
Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Sep. 2, 1997, Ser. No. 76,094

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—30



397,622

WATCH

Thierry de Baschmakoff, Paris, France, assignor to Fred, Paris,
France

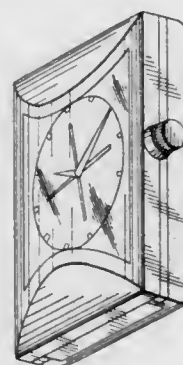
Filed May 23, 1997, Ser. No. 71,208

Claims priority, application France, Nov. 27, 1996, 966658

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—39



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1105

397,623

WRISTWATCH

Giovanni Bulgari, Rome, Italy, assignor to Gianni Bulgari
S.p.A., Rome, Italy

Filed Aug. 8, 1997, Ser. No. 74,651

Claims priority, application WIPO, Apr. 8, 1997, DMA/003
677

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—39



397,625

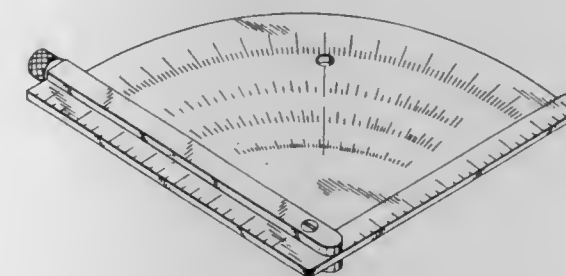
MEASURING DEVICE

Andy Tak Wing Pang, and Sylvania Sau Fun Pang, both of 91
Chelsea View Drive, Birkenhead, Auckland, New ZealandContinuation of Ser. No. 059,059, Aug. 30, 1996. This applica-
tion Jan. 15, 1997, Ser. No. 64,945Claims priority, application New Zealand, Mar. 1, 1996,
27424

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—65



397,624

THERMOMETER

Björn Kling, Frankfurt am Main, Germany, assignor to Braun
Aktiengesellschaft, Frankfurt, Germany

Filed May 30, 1997, Ser. No. 71,422

Claims priority, application Germany, Dec. 2, 1996, 96 10
326.4

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—57



397,626

TAPE MEASURE

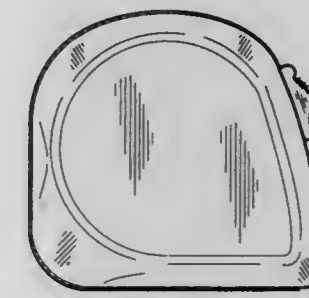
Richard E. Davis, Pasadena, Calif., assignor to Olympia Indus-
trial, Inc., City of Industry, Calif.

Filed Sep. 30, 1996, Ser. No. 60,518

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—72



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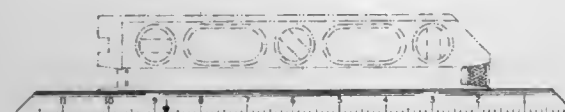
1998

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397,627

SLOPE GRADE ADJUSTER FOR A LEVEL DEVICE
James Webb, 4025 Spencer St., #304, Torrance, Calif. 90503
Filed Apr. 14, 1997, Ser. No. 75,359
Term of patent 14 years
LOC (6) Cl. 10 - 04

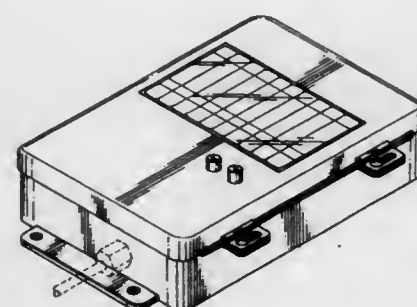
U.S. Cl. D10—74



397,629

GAS MONITOR
Frank J. Wewers, Lenexa, Kans., assignor to Manning Systems Inc., Lenexa, Kans.
Filed Feb. 18, 1997, Ser. No. 66,521
Term of patent 14 years
LOC (6) Cl. 10 - 04

U.S. Cl. D10—96



397,628

PROBE FOR MEASURING AN ELECTRIC CONDUCTIVITY
Shigenori Suzuki, Fujisawa, and Kazuhiko Endoh, Yokohama, both of Japan, assignors to The Tsurumi-Seiki Co., Ltd., Kanagawa-ken, Japan
Filed Aug. 22, 1997, Ser. No. 75,808
Term of patent 14 years
LOC (6) Cl. 10 - 04

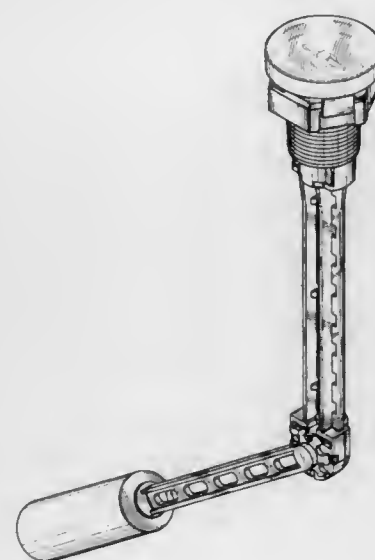
U.S. Cl. D10—78



397,630

LIQUID LEVEL GAUGE
Glen E. Clifton, Austin, Tex., assignor to Rochester Gauges, Inc., Dallas, Tex.
Filed Apr. 25, 1997, Ser. No. 70,055
Term of patent 14 years
LOC (6) Cl. 10 - 04

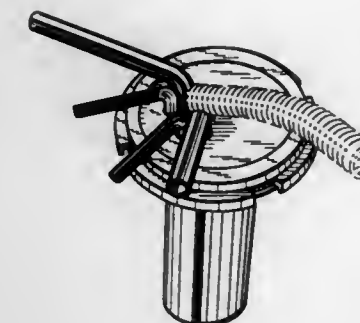
U.S. Cl. D10—101



397,631

CAPACITANCE LIQUID LEVEL SENDER
David P. Riegel, Landisville, Pa., assignor to Datcon Instrument Company, East Petersburg, Pa.
Filed Jun. 28, 1997, Ser. No. 73,015
Term of patent 14 years
LOC (6) Cl. 10 - 04

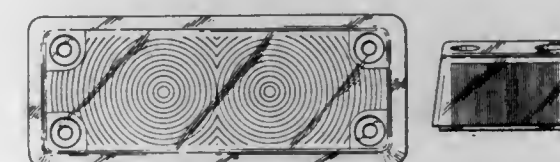
U.S. Cl. D10—101



397,633

LENS FOR A COMBINED LENS CLEARANCE SIDEMARKER AND IDENTIFICATION LAMP
Yubo Yang, North Brunswick; Chenhua You, Spring Lake Heights, and Rand J. Eikelberger, Allenwood, all of N.J., assignors to Dialight Corporation, Manasquan, N.J.
Filed Jan. 11, 1996, Ser. No. 48,703
Term of patent 14 years
LOC (6) Cl. 10 - 05

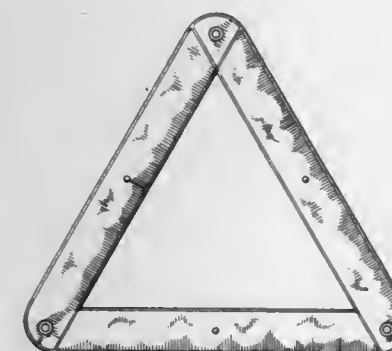
U.S. Cl. D10—111



397,632

FLASHING WARNING INDICATOR
Walter R. Evanyk, 3200 Sherry Dr., Plano, Tex. 75074
Filed Sep. 26, 1997, Ser. No. 77,094
Term of patent 14 years
LOC (6) Cl. 10 - 05

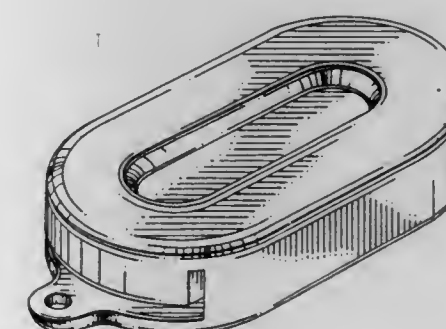
U.S. Cl. D10—109



397,634

GAME CALL
Milton A. Day, 1100 Manor Dr., Shreveport, La. 71118
Filed Aug. 11, 1997, Ser. No. 74,817
Term of patent 14 years
LOC (6) Cl. 10 - 05

U.S. Cl. D10—119



VOL

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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,635

SIREN SPEAKER

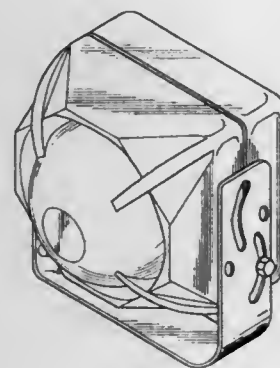
Charles Chu, Taipei Hsien, Taiwan, assignor to Portman Security System International Co., Ltd., Taipei Hsien, Taiwan

Filed Apr. 2, 1997, Ser. No. 68,855

Term of patent 14 years

LOC (6) Cl. 10 - 06

U.S. Cl. D10—120



397,637

WRISTWATCH BRACELET

Bradley J. Fanshaw, Santa Ana, Calif., assignor to Bonneville Watches, Santa Ana, Calif.

Filed Nov. 13, 1996, Ser. No. 62,310

Term of patent 14 years

LOC (6) Cl. 11 - 01

U.S. Cl. D11—25



397,636

SIREN SPEAKER

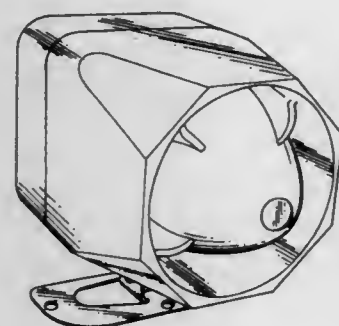
Charles Chu, Taipei Hsien, Taiwan, assignor to Portman Security System International Co., Ltd., Taipei Hsien, Taiwan

Filed Apr. 2, 1997, Ser. No. 68,856

Term of patent 14 years

LOC (6) Cl. 10 - 06

U.S. Cl. D10—120



397,638

PENDANT

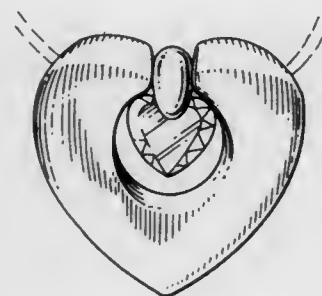
Eran Shenhav, Teich, Germany, assignor to Feeling The Collection Schmuckwaren GmbH, Pforzheim, Germany

Continuation of Ser. No. 57,167, Jul. 18, 1997. This application Sep. 8, 1997, Ser. No. 76,204

Term of patent 14 years

LOC (6) Cl. 11 - 01

U.S. Cl. D11—81



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1109

397,639

FLOWER POT COVER WITH SURFACE SHEEN

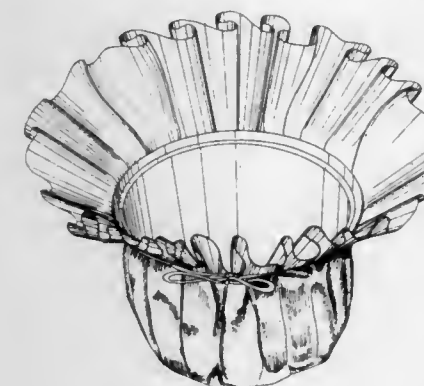
Scott Shea, Berwick, Pa., assignor to Berwick Industries, Inc., Berwick, Pa.

Filed May 16, 1996, Ser. No. 54,533

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11—164



397,641

ATTACHMENT ARMS OF A SLIDE RELEASE BUCKLE

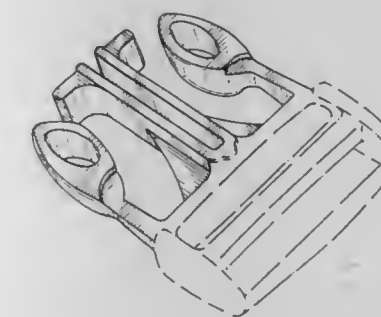
Jeffrey R. Hamilton, Hoffman Estates, and Steven C. Keller, Island Lake, both of Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Jun. 3, 1997, Ser. No. 71,607

Term of patent 14 years

LOC (6) Cl. 02 - 07

U.S. Cl. D11—216



397,642

LIGHT SUPPORT FOR REAR OF MOTORCYCLE

Donald C. Tolefson, 7502 Creeks End Rd., Gloucester, Va. 23061

Filed Apr. 3, 1997, Ser. No. 69,901

Term of patent 14 years

LOC (6) Cl. 12 - 11

U.S. Cl. D12—114

397,640

CONFETTI

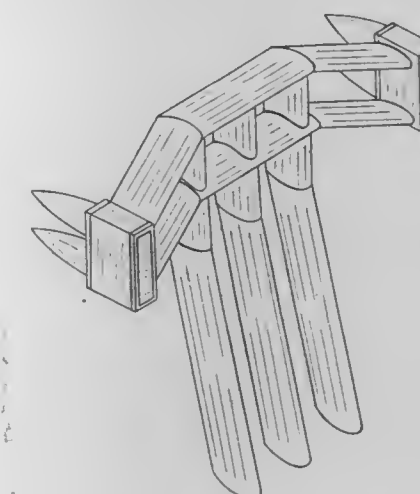
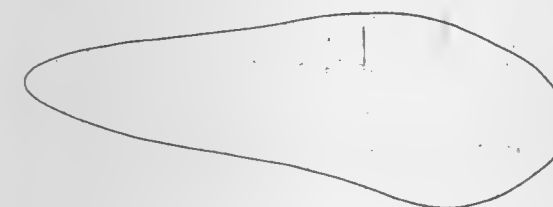
Ardina K. Sterr, Sherman Oaks, and S. Clark Bason, North Hollywood, both of Calif., assignors to Artistry in Motion Entertainment, Inc., Van Nuys, Calif.

Filed Apr. 23, 1996, Ser. No. 53,517

Term of patent 14 years

LOC (6) Cl. 11 - 05

U.S. Cl. D11—184



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,643

PATIENT ROTATING DEVICE

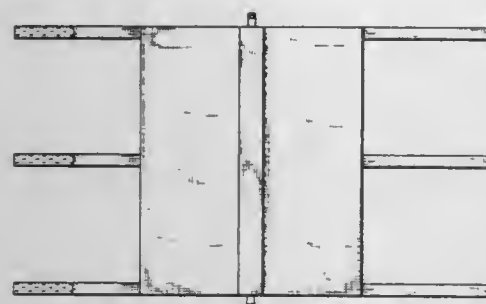
Elinor J. Nicholas, 9185 Lawncrest, Clio, Mich. 48420

Filed Jun. 5, 1997, Ser. No. 71,714

Term of patent 14 years

LOC (6) Cl. 12 - 12

U.S. Cl. D12—128



397,645

MOTORIZED WHEELCHAIR

Walter Schaffner, Shavertown, Pa., assignor to Pride Health Care, Inc., Exeter, Pa.

Filed Jul. 3, 1996, Ser. No. 56,607

Term of patent 14 years

LOC (6) Cl. 12 - 12

U.S. Cl. D12—131



397,646

TIRE TREAD

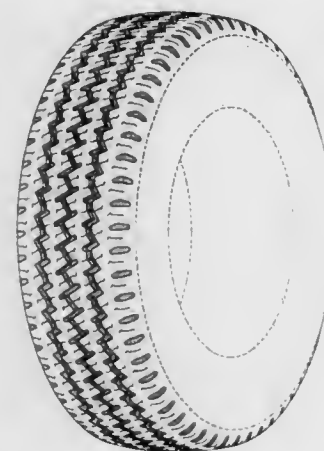
Christian Labbe, Meix-Le-Tige, and Claude Lardo, Walzing, both of Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 57,129, Jul. 17, 1996, Pat. No. Des. 391,533. This application Sep. 11, 1997, Ser. No. 80,108

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—143



397,644

WALKER

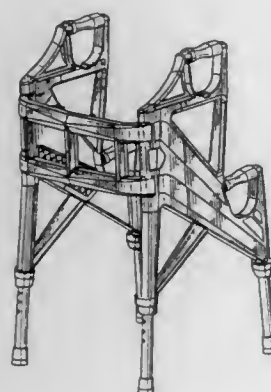
Karl J. Douglass, 3730 Dogwood La., Doylestown, Pa. 18901

Filed Oct. 6, 1997, Ser. No. 77,588

Term of patent 14 years

LOC (6) Cl. 12 - 12

U.S. Cl. D12—130



U.S. PATENT AND TRADEMARK OFFICE

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SEPTEMBER 1, 1998

397,647

TIRE TREAD

Austin Gale Young, Copley, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 59,519, Sep. 12, 1996, Pat. No. Des. 388,370. This application Jun. 30, 1997, Ser. No. 73,223

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—146



397,649

TIRE TREAD

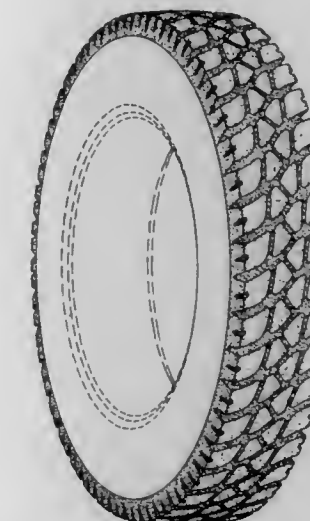
Paul Phillip Grosskopf, Greenville, S.C., and Jean-Jacques Motta, Le Cendre, France, assignors to Michelin Recherche et Technique S.A., Switzerland

Filed Oct. 4, 1996, Ser. No. 60,697

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,648

TIRE TREAD

Walter Dale Allen, Akron; Keith Eric Grabo, Brecksville; Warren Lee Croyle, Wadsworth; Marc Christopher Nowacki, Uniontown, and David Ray Hubbell, Jr., Hartville, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jul. 19, 1996, Ser. No. 57,242

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,650

AUTOMOBILE TIRE

Yasuo Himuro, Tokyo, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

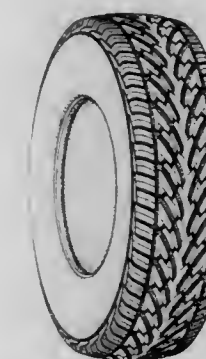
Filed Mar. 27, 1997, Ser. No. 68,809

Claims priority, application Japan, Sep. 30, 1996, 8-29228

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,651

TIRE TREAD

Daniel Edward Schuster, North Royalton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 2, 1997, Ser. No. 69,471

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,653

TIRE TREAD

Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jun. 5, 1997, Ser. No. 71,645

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,652

TIRE TREAD

Phuoc Thuan Le, Attert, and Michel Etienne Joseph Marquet, Bastogne, both of Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jun. 2, 1997, Ser. No. 70,907

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,654

TIRE TREAD

Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jun. 5, 1997, Ser. No. 71,646

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1113

397,655

AUTOMOBILE TIRE

Yoshiyuki Takada, Kobe, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobi, Japan

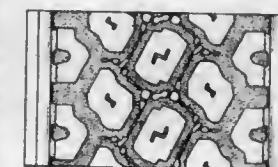
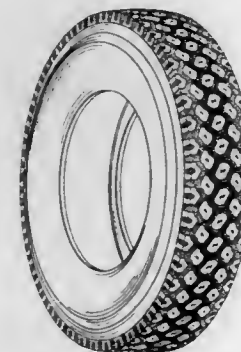
Filed Jun. 6, 1997, Ser. No. 71,757

Claims priority, application Japan, Dec. 6, 1996, 8-37219

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,657

FLOORPLATE FOR GOOSENECK HITCH ASSEMBLY

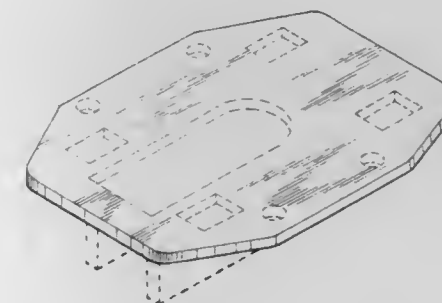
Thomas W. Lindenman, South Bend, and Richard W. McCoy, Granger, both of Ind., assignors to Reese Products, Inc., Elkhart, Ind.

Filed Aug. 8, 1997, Ser. No. 75,105

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—162



397,656

VEHICLE VISOR

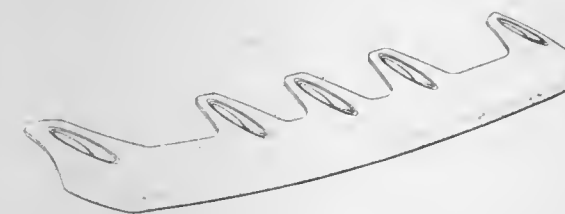
Scott P. Thompson, Indianola, Iowa, and John M. Stanesic, Longmont, Colo., assignors to DFM Corporation, Indianola, Iowa

Filed Oct. 30, 1996, Ser. No. 61,782

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—191



397,658

TWO-PART REARVIEW MIRROR FOR AUTOMOTIVE VEHICLES

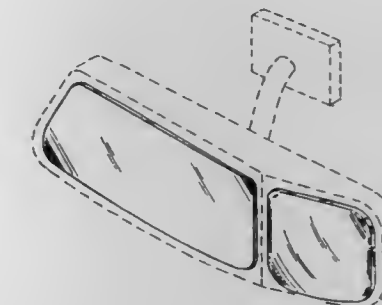
Richard H. Kim, 10075 E. Warren Ave., Denver, Colo. 80231, and Bobby Kim, 12331 E. Arkansas Ave., Aurora, Colo. 80012

Filed Mar. 31, 1997, Ser. No. 69,653

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—187



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397,659

SUN SCREEN SET FOR A VEHICLE VISOR

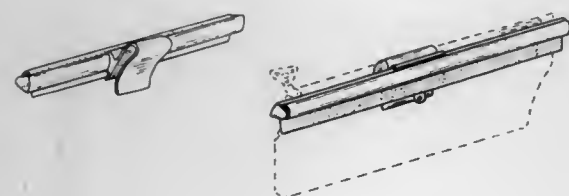
Vitaly Raevsky, 401 Crenford Rd., Cherry Hill, N.J. 08003, and
Valery Shishkin, 801 Cooperlanding Rd. Apt. 202B, Cherry
Hill, N.J. 08002

Filed Dec. 30, 1996, Ser. No. 64,384

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—191



397,661

SMOOTH CHROME EXHAUST TIP

Harut Harutiunian, 905 N. San Antonio Ave., Ontario, Calif.
91762

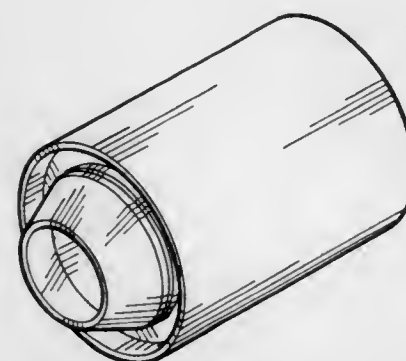
Filed Feb. 26, 1996, Ser. No. 50,733

The portion of the term of this patent subsequent to Sep. 30,
2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—194



397,660

ARTICULATING VISOR

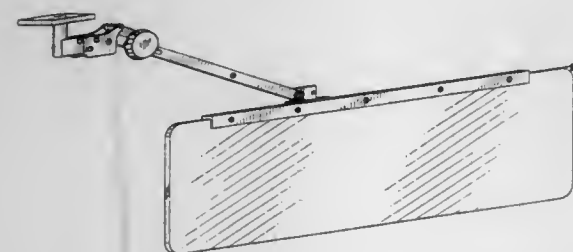
John B. Rosen, Eugene, Oreg., assignor to Advanced Multime-
dia Products Corporation, Eugene, Oreg.

Filed Feb. 6, 1997, Ser. No. 66,476

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—191



397,662

WHEEL

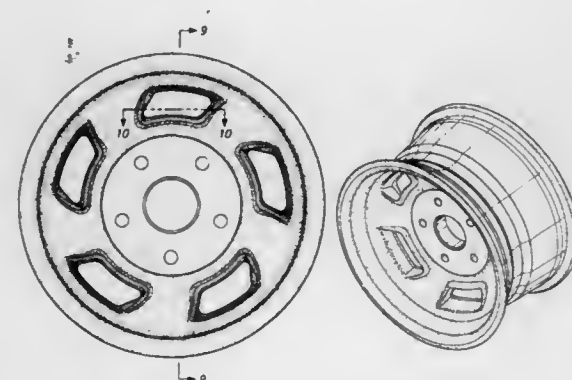
Richard J. LeJuerrne, Wellington, Kans., assignor to Hali-
brand Engineering, Wellington, Kans.

Filed Oct. 19, 1995, Ser. No. 45,440

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



397,663

AUTOMOBILE AND TRUCK WHEEL

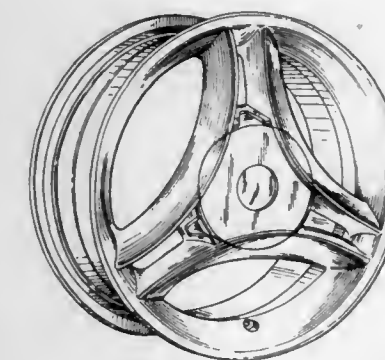
Chrysanto, Surabaya, Indonesia, assignor to PT Prima Alloy
Steel Universal, Sidoarjo, Indonesia

Filed Oct. 3, 1995, Ser. No. 44,920

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



397,665

WHEEL SPINNER

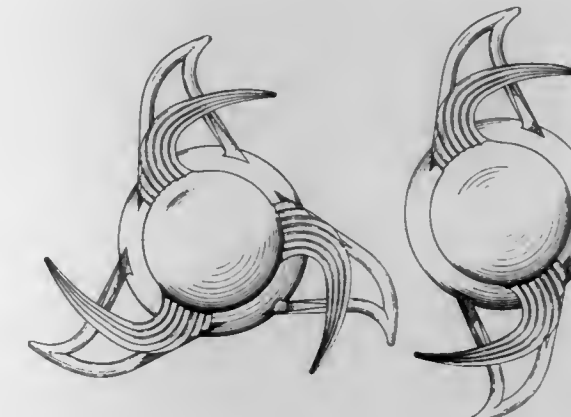
Frank T. Noriega, Pico Rivera, Calif., assignor to Mondera
Wheel, Inc., Long Beach, Calif.

Filed Oct. 7, 1996, Ser. No. 60,801

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—213



397,664

FRONT FACE OF A VEHICLE WHEEL

Matthias Kulla, Stuttgart, Germany, assignor to Dr. Ing. h.c.F.
Porsche AG, Weissach, Germany

Filed Feb. 13, 1997, Ser. No. 67,725

Claims priority, application Germany, Aug. 14, 1996, M 96
06 859.0; Oct. 10, 1996, M 96 08 916.4

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



397,666

ANCHOR

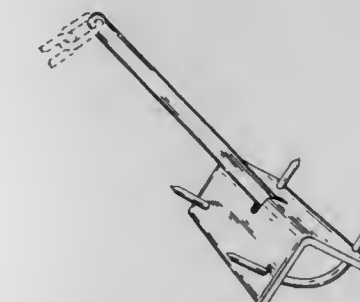
Sabah Naser Al-Sabah, P.B. 36777, Al-Ras, 24758, Kuwait

Filed Mar. 12, 1997, Ser. No. 67,880

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—215



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,667

VEHICLE AIRBAG SECURITY BRACKET

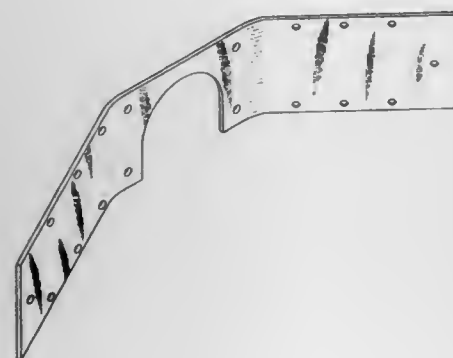
Paul N. White, 871 E. 217th St., Bronx, N.Y. 10467

Filed Jan. 21, 1997, Ser. No. 65,136

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—223



397,669

TENT FOR PICK-UP TRUCK

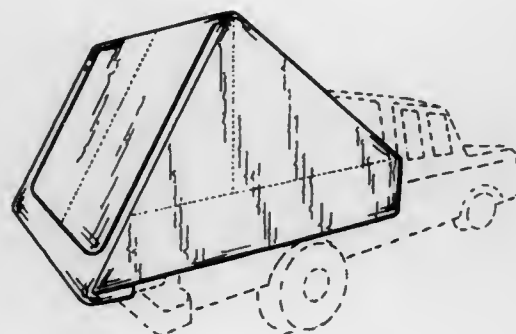
Dennis R. Komick, 126 44th St., Manhattan Beach, Calif. 90266

Filed Oct. 21, 1996, Ser. No. 61,431

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—403



397,670

BATTERY PACK FOR A PORTABLE ELECTRONIC DEVICE

Philip Davies, Epsom; Suzy Stone, St. Albans; Lloyd Vincent, Horsmonden, and Geoff Grey, Bushey, all of England, assignors to AER Energy Resources, Inc., Smyrna, Ga.

Filed May 16, 1996, Ser. No. 54,557

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—103

397,668

TRANSPARENT WATER CRAFT

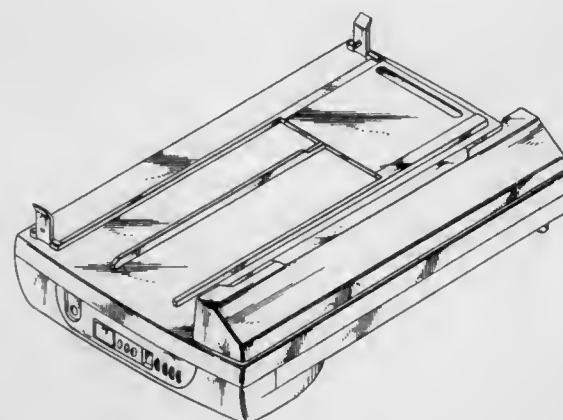
Bruce C. Lincoln, 1308 E. Desert Broom Way, Phoenix, Ariz. 85048

Continuation-in-part of Ser. No. 50,713, Feb. 23, 1996, Pat. No. Des. 378,692. This application Feb. 5, 1997, Ser. No. 66,130

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—302



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1117

397,671

POWER CLIP

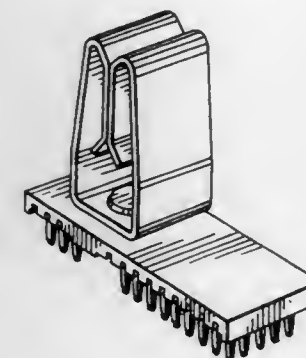
Edwin J. Collin, Southington, and Carmine Gugliotti, Watertown, Conn., assignors to Litton Systems, Inc., Watertown, Conn.

Filed Aug. 4, 1997, Ser. No. 74,917

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—147



397,673

MULTIPLE POSITION ENCLOSURE FOR ELECTRONICS DEVICE

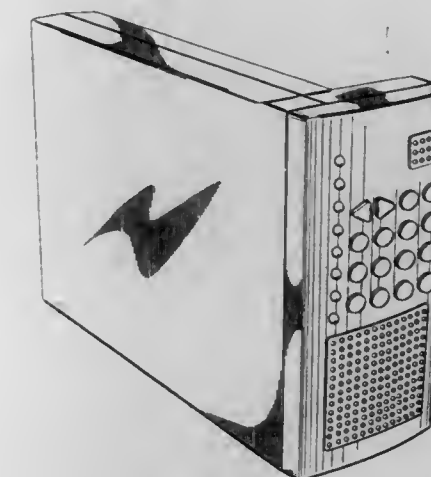
James R. Heberling, Lawrenceville, and J. Stephen Wells, Buford, both of Ga., assignors to Hayes Microcomputer Products, Inc., Norcross, Ga.

Filed Apr. 29, 1997, Ser. No. 70,383

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—102



397,672

CENTER PORTION OF A TOP SURFACE FOR A DOOR FOR A VIDEOCASSETTE

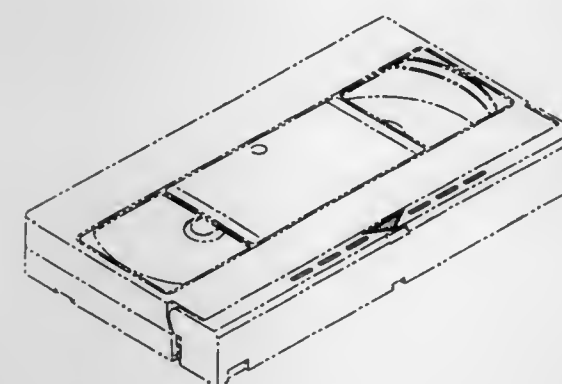
Gregory H. Johnson, Oakdale, Minn., and Mark J. Ciesko, Hilliard, Ohio, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 5, 1994, Ser. No. 20,916

Term of patent 14 years

LOC (6) Cl. 14 - 99

U.S. Cl. D14—121



397,674

COMBINED MAIN DRIVE AND ADAPTER ASSEMBLY

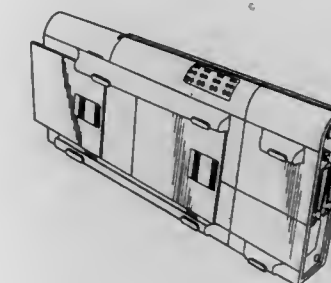
Mahesh Chandra Rao, San Jose, Calif., assignor to Mitsubishi Chemical America, Inc., White Plains, N.Y.

Filed Nov. 13, 1995, Ser. No. 46,320

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—109



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,675

BASE FOR COMPUTER HOUSING

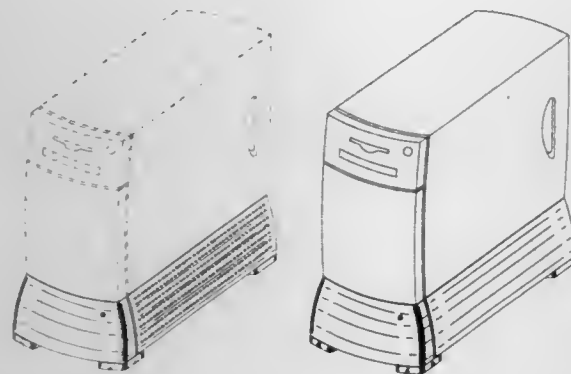
Robert Brunner, Los Gatos, Calif., assignor to Toshiba America Information Systems, Inc., Irvine, Calif.

Filed Aug. 27, 1996, Ser. No. 58,873

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-114



397,677

MEMORY DEVICE

Nichols Brawne, Columbus, Ohio; George Meyer, Ogden, and Michael D. Johnson, Kaysville, both of Utah, assignors to Iomega Corporation, Roy, Utah

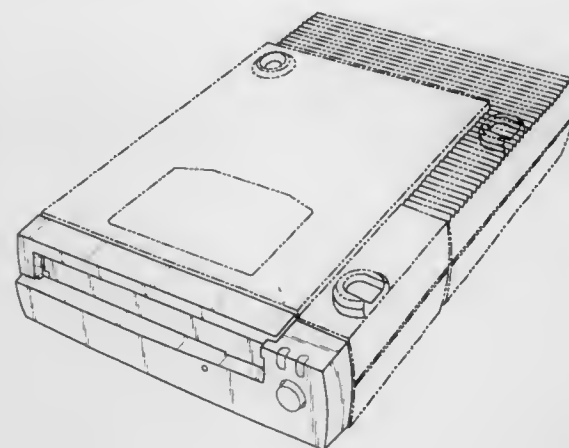
Filed Jan. 29, 1996, Ser. No. 49,696

The portion of the term of this patent subsequent to Jan. 27, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-107



397,676

CELLULAR TELEPHONE

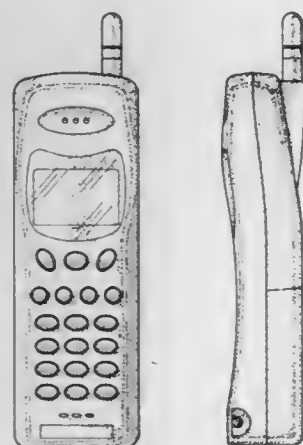
Yasuo Otake, Huntington Beach, Calif., assignor to NEC America, Melville, N.Y.

Filed Feb. 28, 1997, Ser. No. 67,899

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14-13



397,678

MODULAR ENCLOSURE SYSTEM

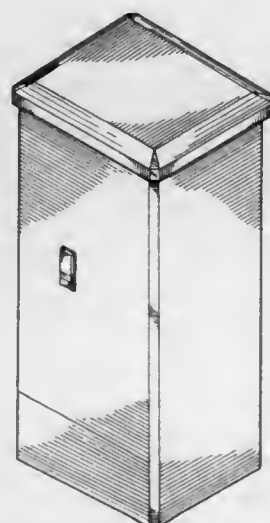
Achim Edelmann, Dillenburg-Donsbach; Michael Diebel, Dillenburg; Bernd Georg, Herborn, and Thomas Schäfer, Schöffengrund-Niederwetz, all of Germany, assignors to Rittal-Werk Rudolf Loh GmbH & Co. KG, Herborn, Germany

Filed Sep. 12, 1996, Ser. No. 59,510

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-100



397,679

POCKET-SIZE ORGANIZER

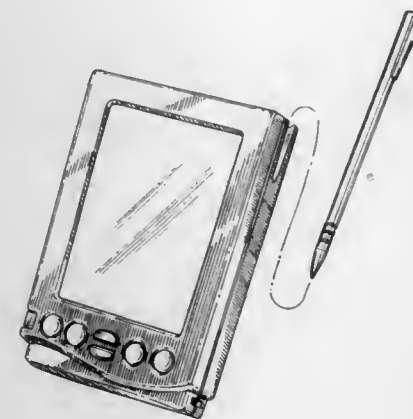
Jeffrey C. Hawkins, Redwood City; Robert Yuji Haitani, San Jose; Malcolm Sloan Smith, Palo Alto, and Gisela Schmoll, San Francisco, all of Calif., assignors to Palm Computing, Inc., Mountain View, Calif.

Filed Nov. 4, 1996, Ser. No. 62,417

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-100



397,681

COMPUTER CASE

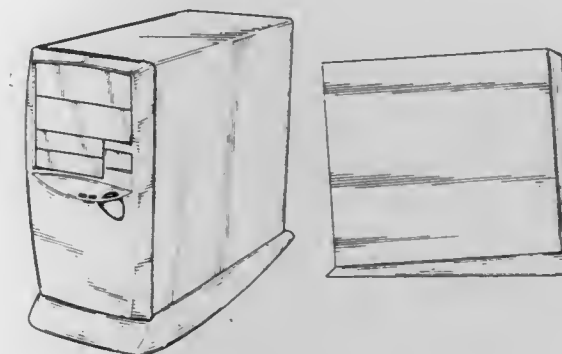
Jefferson Lin, Taipei Hsien, Taiwan, assignor to Linkwould Electronic Co., Ltd., Taipei Hsien, Taiwan

Filed Apr. 1, 1997, Ser. No. 68,401

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-102



397,682

PORTABLE CREDIT CARD READER

Masakatu Yotukura, Kanagawa-ken, Japan, assignor to Kanda Tsushin Kogyo Co., Ltd., Tokyo, Japan

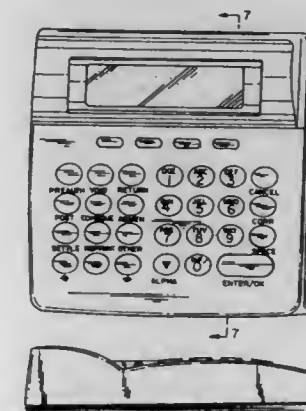
Filed Aug. 14, 1996, Ser. No. 58,396

Claims priority, application Japan, Feb. 21, 1996, 4419

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-105



397,680

ELECTRONIC ORGANIZER

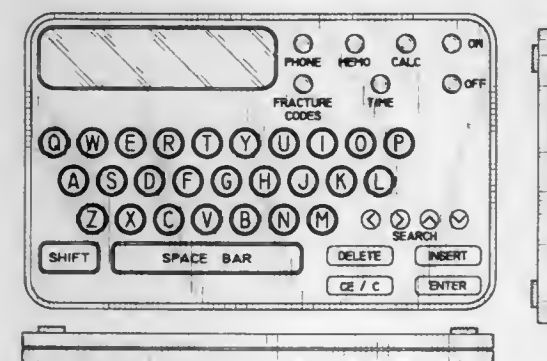
David E. Scarbrough, 906 E. 28th St., Tifton, Ga. 31794

Filed Aug. 21, 1997, Ser. No. 75,572

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14-100



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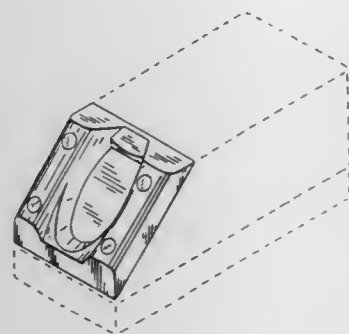
397,683

SENSOR PLATE FOR A FINGERPRINT IDENTIFYING MACHINE

Mitsuo Sakamoto, and Takeshi Tsuji, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 52,148, Mar. 25, 1996, Pat. No. Des. 382,862. This application Apr. 8, 1997, Ser. No. 68,366

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—107



397,685

COMPUTER MOUSE PAD

David W. Barrette, Eagan, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Jan. 23, 1996, Ser. No. 49,651

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114



397,684

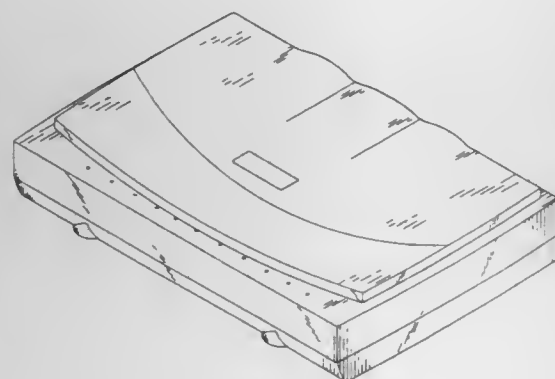
SCANNER

David Kow, Hsin Chu, Taiwan, assignor to Spot Technology, Inc., HsinChu, Taiwan

Filed May 20, 1997, Ser. No. 72,155

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—107



397,686

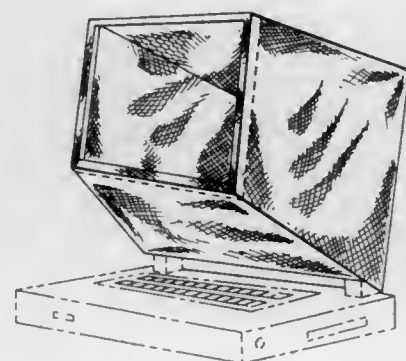
COMPUTER SCREEN HOOD

Brian A. Bregman, and Dawn E. Pack, both of 3911 Kingswood Rd., Sherman Oaks, Calif. 91403

Filed Apr. 8, 1997, Ser. No. 68,885

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114



397,687

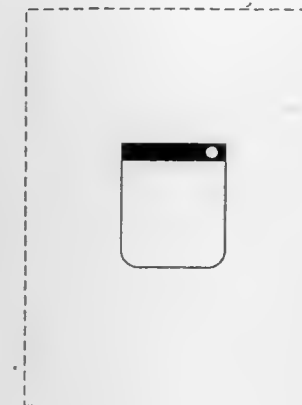
COMPUTER ICON FOR A DISPLAY SCREEN

Samir Arora, San Jose; Clement Mok, San Francisco; Victor B. Zauderer, San Francisco, and Susan Kare, San Francisco, all of Calif., assignors to NetObjects, Inc., Redwood City, Calif.

Filed Jul. 29, 1996, Ser. No. 57,653

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114.3



397,689

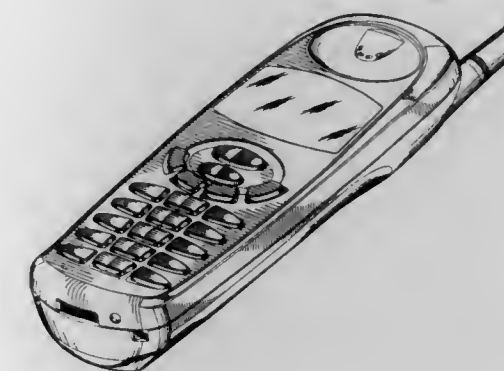
TELEPHONE HOUSING

Daryl R. Harris, Evanston; Thomas S. Wijas, Northbrook, and Douglas J. Swiderek, Hoffman Estates, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 59,185, Sep. 4, 1996, Pat. No. Des. 383,748. This application Mar. 10, 1997, Ser. No. 67,744

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—138



397,690

COMBINED HIGH SENSITIVITY ELECTRONIC AUDIO RECEIVER AND AMPLIFIER

Jeffrey L. Mercer, Hendersonville, and Jerrell J. Duckworth, Chattanooga, both of Tenn., assignors to Go Pro, Inc., Hendersonville, Tenn.

Filed Sep. 30, 1997, Ser. No. 77,356

Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—188

397,688

INPUT MACHINE FOR COMPUTER

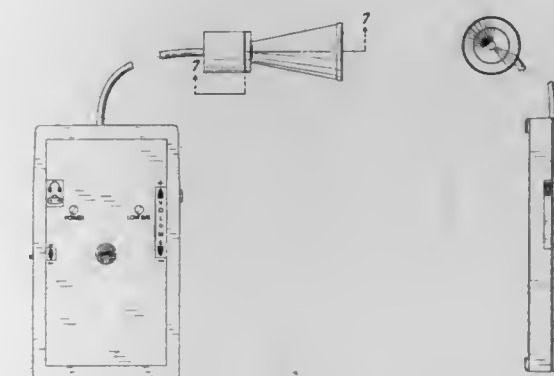
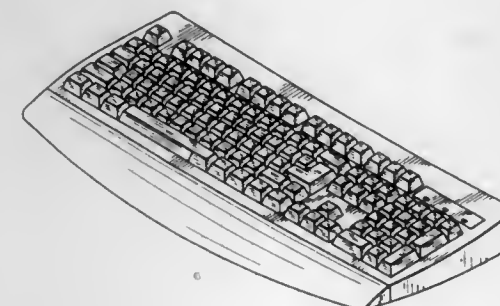
Teiyu Goto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sep. 17, 1996, Ser. No. 59,879

Claims priority, application Japan, Mar. 25, 1996, 8-8102

Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—115



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,691

FOB STYLE VEST POCKET PAGER

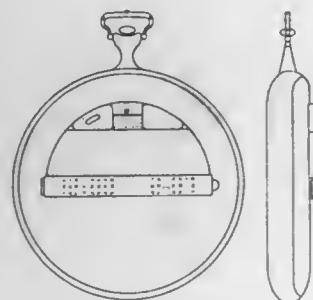
Charles Howard Dixoo, 167 Grand St., Jersey City, N.Y. 07302

Filed May 9, 1997, Ser. No. 71,850

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—191



397,693

CELLULAR BASE STATION

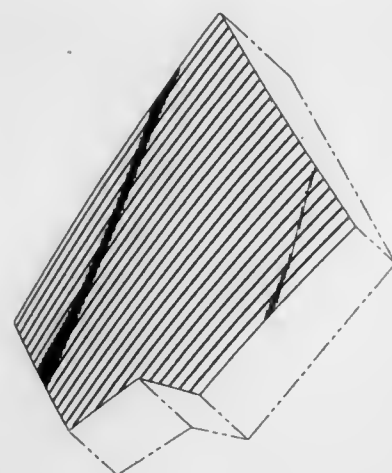
Thomas A. Blais, Half Moon Bay; David A. Rea, Livermore, and Steve J. Shiozaki, Belmont, all of Calif., assignors to InterWAVE Communications International Ltd., Hamilton, Bermuda

Filed Nov. 22, 1996, Ser. No. 61,474

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—240



397,692

MIXER

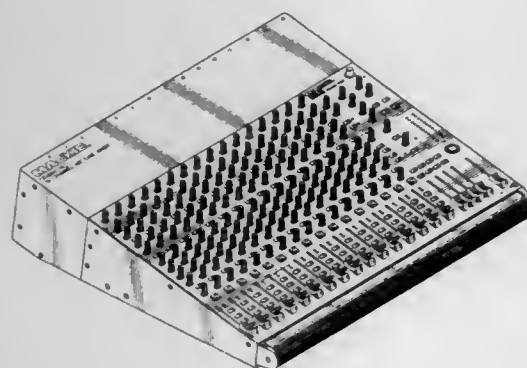
Greg C. Mackie, Kirkland, and Charles T. Jensen, Monroe, both of Wash., assignors to Mackie Designs Inc., Woodinville, Wash.

Filed Jan. 18, 1996, Ser. No. 49,129

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—217



397,694

FACEPLATE HAVING A KEYPAD COVER FOR A PORTABLE TELEPHONE

Nicholas Mischenko, Mt. Prospect; Daryl R. Harris, Evanston, and Daniel L. Williams, Vernon Hills, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

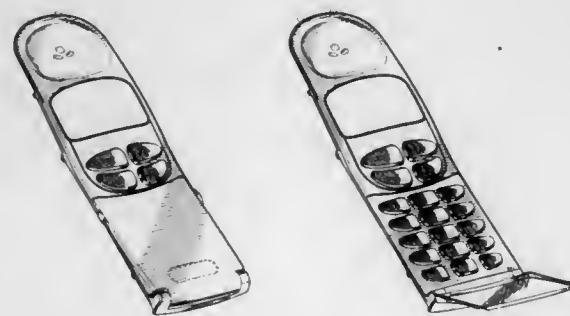
Division of Ser. No. 55,807, May 2, 1996, Pat. No. Des.

388,078, which is a continuation-in-part of Ser. No. 46,799, Oct. 17, 1995, Pat. No. Des. 388,080. This application Jun. 16, 1997, Ser. No. 72,364

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—248



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1123

397,695

TELECOMMUNICATIONS TERMINAL

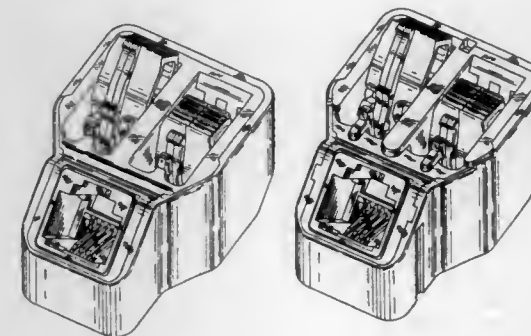
David Arthur Wittmeier, II, and William Norris Beauchamp, both of Raleigh, N.C., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Sep. 19, 1996, Ser. No. 60,009

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—256



397,697

MULTI TINED DIGGING TOOTH

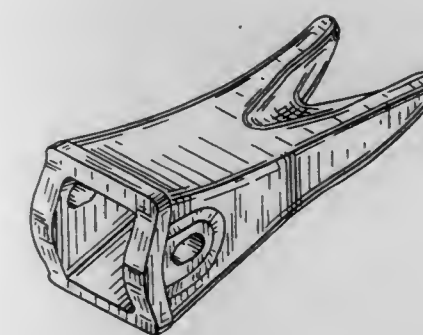
Brian L. Launder, Tulsa, and Charles Clendenning, Broken Arrow, both of Okla., assignors to H&L Tooth Company, Tulsa, Okla.

Continuation-in-part of Ser. No. 53,123, Apr. 15, 1996, abandoned. This application Oct. 4, 1996, Ser. No. 62,977

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15—29



397,698

PRESSER FOOT FOR SEWING MACHINE

Ingvar Rendahl, Huskvarna, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Jun. 20, 1996, Ser. No. 56,046

Claims priority, application Sweden, Dec. 22, 1995, 952443

Term of patent 14 years

LOC (6) Cl. 15 - 06

U.S. Cl. D15—72

397,696

BUCKET LINER FOR EARTH MOVING VEHICLES

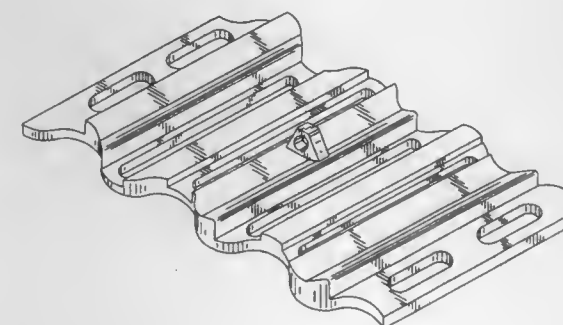
Steven E. Grady, 1468 W. Fletcher Ct., Park City, Utah 84060

Filed Feb. 21, 1996, Ser. No. 50,664

Term of patent 14 years

LOC (6) Cl. 15 - 04

U.S. Cl. D15—28



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,699

CLAMPING MOULD USED IN ORDER TO MAKE DEEP-FROZEN FOODS

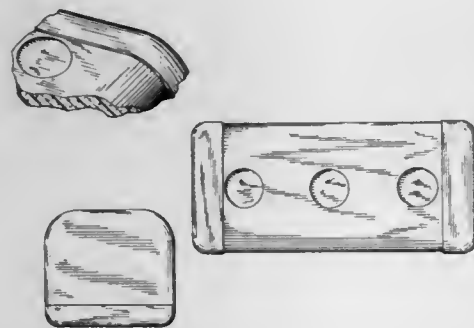
Andre Desjardins, 4480, Cote-de-Liesse, Suite 224, Ville Mont-Royal (QC), Canada, H4N 2R1

Filed Nov. 12, 1996, Ser. No. 62,275

Term of patent 14 years

LOC (6) Cl. 15 - 07

U.S. Cl. D15—90



397,701

CAN COMPACTOR

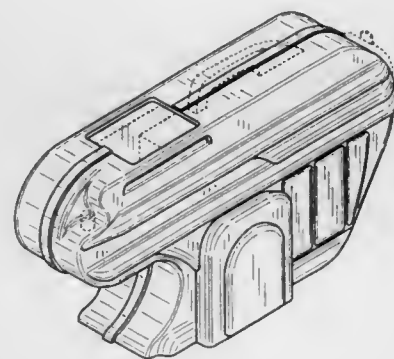
James B. Fleming, 63 Highland Park Dr., Chesterfield, Mo. 63107

Filed Jul. 28, 1997, Ser. No. 74,188

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15—123



397,702

RISER SLEEVE

Ronald C. Aufderheide, 8188 Crossgate Ct. North, Dublin, Ohio 43017; David M. Gilson, 7383 Bridewater Blvd., Columbus, Ohio 43235, and John L. Perrins, 5 Chad Place, Guelph, Ontario, Canada, N1H 6V4

Filed Jun. 13, 1997, Ser. No. 72,282

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15—135

397,700

ICE CUBE TRAY

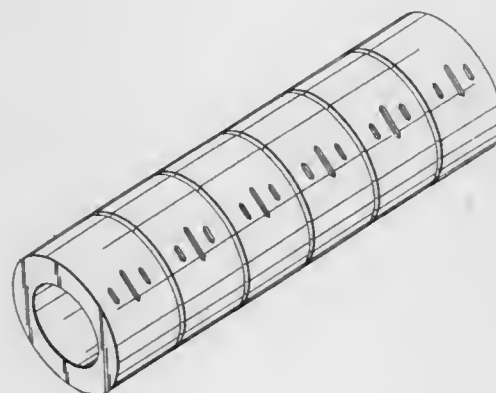
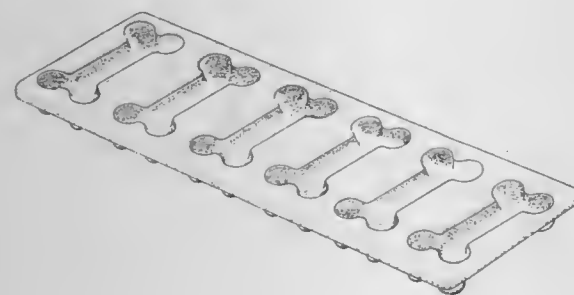
Christopher Raboin Rodgers, 120 Cox Ave., Apt. 2, Raleigh, N.C. 27605

Filed Jun. 26, 1997, Ser. No. 72,947

Term of patent 14 years

LOC (6) Cl. 15 - 07

U.S. Cl. D15—90



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1125

397,703

MOLDING TEMPLATE FOR CORRECTLY POSITIONING DECORATIVE MOLDING

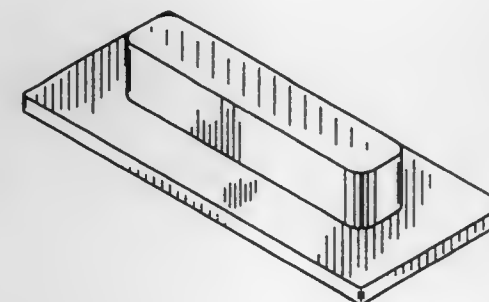
Conrad Williamson, 7206 SW. Montauk Cir., Lake Oswego, Ore. 97035

Filed Apr. 3, 1997, Ser. No. 68,336

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15—136



397,705

SPHERICAL BINOCULARS

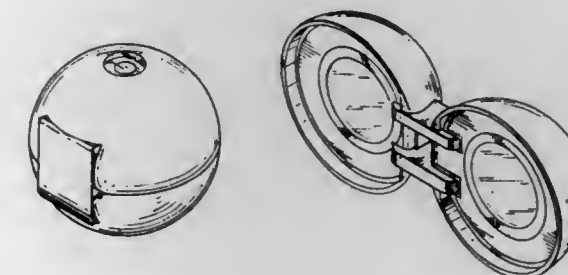
Jianmin Yang, and Chuan Wan, both of Building 5, Room 205, So Jin Village, Nanjing, Jiangsu, China

Filed Apr. 18, 1997, Ser. No. 69,937

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—133



397,704

TRANSPARENT RETICLE DISK

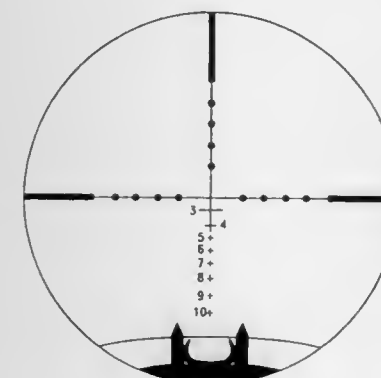
Dennis J. Reese, Geneseo, Ill., assignor to Springfield, Inc., Geneseo, Ill.

Filed Jul. 3, 1997, Ser. No. 73,209

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—130



397,706

ELECTRONIC STILL CAMERA

Yuuki Shibata, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

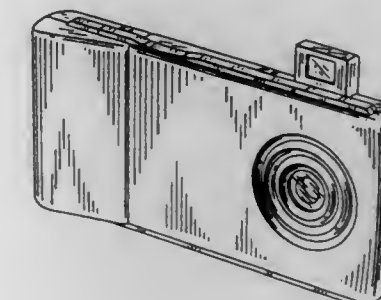
Filed Jun. 25, 1997, Ser. No. 72,472

Claims priority, application Japan, Dec. 26, 1996, 8-39034

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16—202



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OFFICIAL GAZETTE

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397,707

ELECTRONIC STILL CAMERA

Yoshitaka Naitou, Oume, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

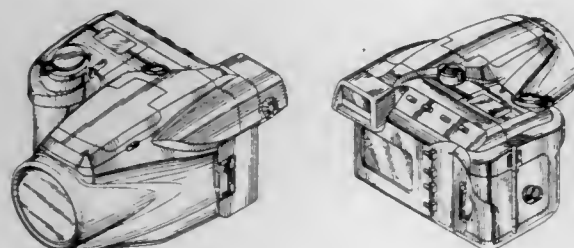
Filed Aug. 25, 1997, Ser. No. 76,131

Claims priority, application Japan, May 12, 1997, 9-53952

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16—202



397,709

VIDEO PROJECTOR

Hee-Seong Park, Kyungki-do, and Mi-Rae Mun, Seoul, both of Rep. of Korea, assignors to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea

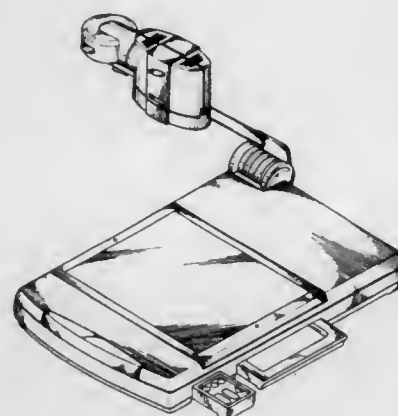
Filed Jul. 26, 1996, Ser. No. 57,467

Claims priority, application Rep. of Korea, Jan. 26, 1996, 1996-1201

Term of patent 14 years

LOC (6) Cl. 16 - 02

U.S. Cl. D16—232



397,708

CAMERA

Hiroshi Fukuda, and Tadashi Suzuki, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

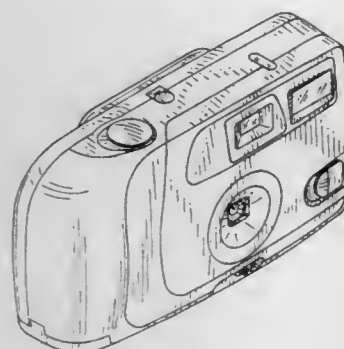
Filed Apr. 30, 1997, Ser. No. 70,386

Claims priority, application Japan, Oct. 31, 1996, 8-33180

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16—209



397,710

SPECTACLES

Yi-Ren Zeng, 58, Ma Yuan West St., Taichung, Taiwan

Filed Sep. 23, 1997, Ser. No. 77,369

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—306



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1127

397,711

SPECTACLES

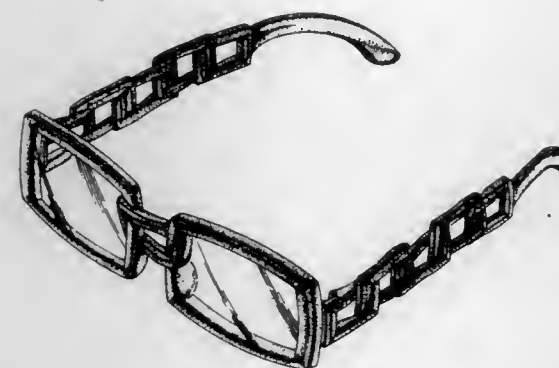
Yi-Ren Zeng, 58, Ma Yuan West St., Taichung, Taiwan

Filed Sep. 23, 1997, Ser. No. 77,370

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—306



397,713

EYEWEAR

Henri Brune, Fleurieux Sur L'Abresle, France, and Simon M. Conway, Lima, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Mar. 12, 1997, Ser. No. 67,881

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—326



397,712

SUNGLASSES

Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop S.p.A., Pederobba, Italy

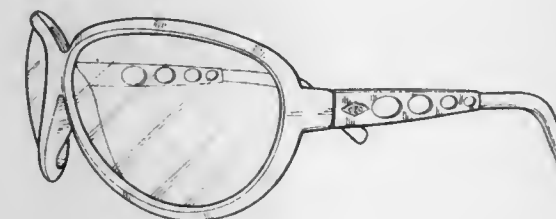
Filed Jul. 29, 1996, Ser. No. 57,622

Claims priority, application WIPO, Feb. 7, 1996, DM035462

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—321



397,714

SUNGLASSES

Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop Eyewear S.p.A., Pederobba, Italy

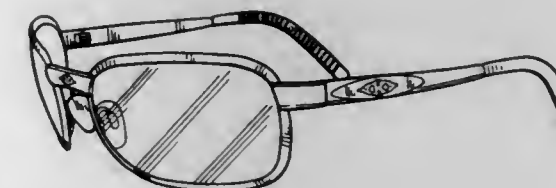
Filed May 16, 1997, Ser. No. 70,797

Claims priority, application Italy, Nov. 19, 1996, TV9600063

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—327



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SUNGLASSES

Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop Eyewear S.p.A., Pederobba, Italy

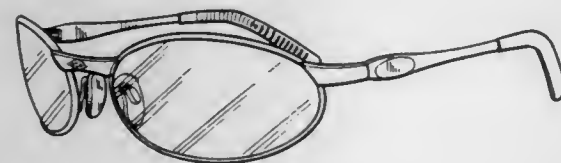
Filed May 16, 1997, Ser. No. 70,800

Claims priority, application Italy, Nov. 19, 1996, TV9600063
The portion of the term of this patent subsequent to Jun. 23, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—327



397,717

MUSICAL INSTRUMENT PICK HOLDER

John Patrick Mulkins, 1160 Sanchez St., San Francisco, Calif. 94114

Division of Ser. No. 44,525, Sep. 26, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 66,136

Term of patent 14 years

LOC (6) Cl. 17 - 03

U.S. Cl. D17—20



397,716

MUSICAL INSTRUMENT PICK HOLDER

John Patrick Mulkins, 1160 Sanchez St., San Francisco, Calif. 94114

Continuation of Ser. No. 44,525, Sep. 26, 1995, abandoned.

This application Feb. 6, 1997, Ser. No. 66,135

Term of patent 14 years

LOC (6) Cl. 17 - 03

U.S. Cl. D17—20



397,718

MUSICAL INSTRUMENT PICK HOLDER

John Patrick Mulkins, 1160 Sanchez St., San Francisco, Calif. 94114

Division of Ser. No. 44,525, Sep. 26, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 66,137

Term of patent 14 years

LOC (6) Cl. 17 - 03

U.S. Cl. D17—20



397,719

ELECTRONIC CASH REGISTER

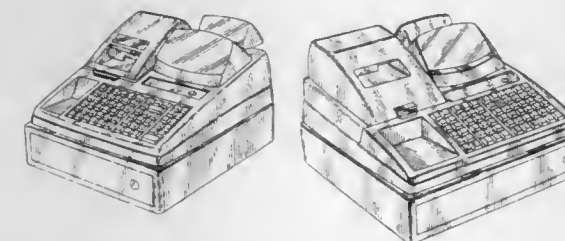
Takuro Masuda, Tokyo, Japan, assignor to Kabushiki Kaisha TEC, Shizuoka, Japan

Filed Aug. 22, 1997, Ser. No. 75,195

Term of patent 14 years

LOC (6) Cl. 08 - 01

U.S. Cl. D18—4



397,721

DOCUMENT CASE

James T. M. Guyer, 3115 Kensington St., Tampa, Fla. 33629, and Michael L. Cone, 6735 S. Lois Ave., Tampa, Fla. 33616

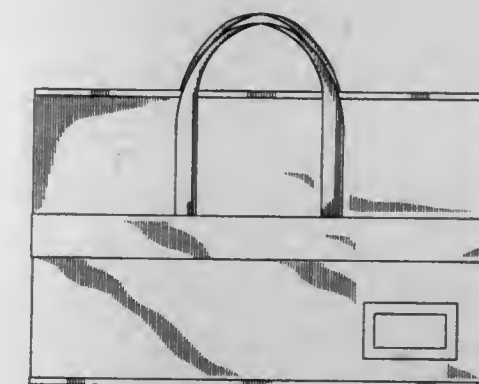
Continuation of Ser. No. 53,304, Mar. 5, 1996, abandoned, which is a continuation-in-part of Ser. No. 28,434, Sep. 15, 1994, Pat. No. Des. 377,049. This application May 16, 1997,

Ser. No. 70,808

Term of patent 14 years

LOC (6) Cl. 19 - 04

U.S. Cl. D19—27



397,720

PRINTER

Fumikazu Shimanuki, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 24, 1997, Ser. No. 75,918

Claims priority, application Japan, Dec. 24, 1996, 8-39191

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D18—55



397,722

Patent Not Issued For This Number

397,723

WRITING INSTRUMENT

Hiromichi Izushima, Kawagoe, Japan, assignor to Kotobuki & Co., Ltd., Kyoto-Fu, Japan

Filed Sep. 3, 1997, Ser. No. 75,623

Claims priority, application Japan, Mar. 25, 1997, 9-8357

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—49



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OFFICIAL GAZETTE

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MULTI-PURPOSE INFORMATION CENTER

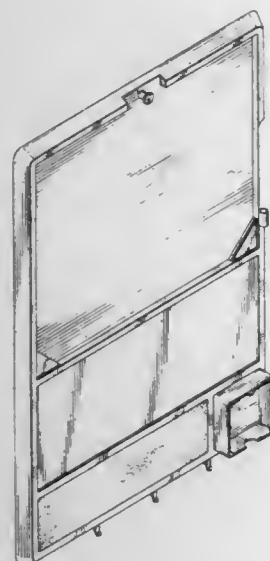
Douglas M. Jack, Fullerton, Calif., assignor to Day Runner, Inc., Fullerton, Calif.

Filed Aug. 20, 1997, Ser. No. 75,431

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—52



397,726

COIN DISPENSER

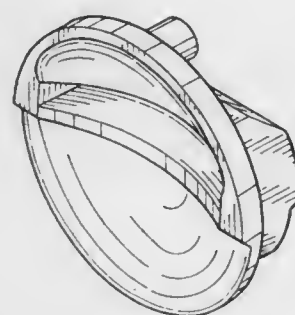
Jong Dae Bae, Chungkootown Apt. 110-1512, 500 Wolsung-Dong, Dalseo-Ku, Taegu, Rep. of Korea

Filed Dec. 22, 1995, Ser. No. 48,246

Term of patent 14 years

LOC (6) Cl. 20 - 01

U.S. Cl. D20—9



397,727

COMPENDIUM GAME TABLE

Richard Tilly, Saint-Germain-les-Arley, France, assignor to Monneret Jouetts, Lons le Saunier, France

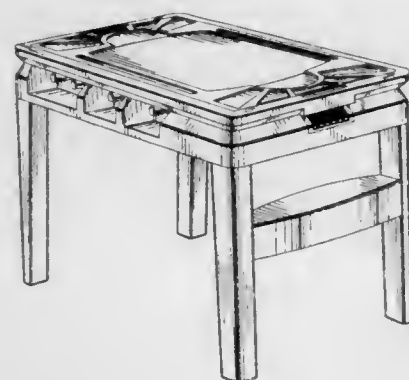
Filed Jun. 22, 1995, Ser. No. 41,135

Claims priority, application Hague Agreement, Jan. 5, 1995, DM/031 743

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—7



397,725

PUNCH

Chuzo Mori, Tokyo, Japan, assignor to Carl Jimuki Kabushiki Kaisha, Tokyo, Japan

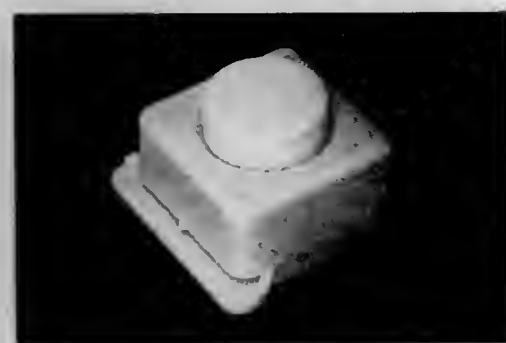
Filed Jun. 23, 1997, Ser. No. 73,062

Claims priority, application Japan, Oct. 28, 1996, 8-32396

Term of patent 14 years

LOC (6) Cl. 19 - 02

U.S. Cl. D19—72



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1131

397,728

ELECTRONIC GAME HOUSING

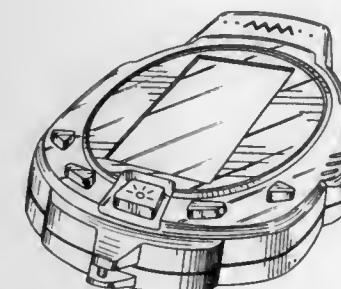
Tsoi Mak Yuen, Hong Kong, and Kenny Ho To Ling, Quarry Bay, both of Hong Kong, assignors to Tiger Electronics, Inc., Vernon Hills, Ill.

Filed Sep. 30, 1997, Ser. No. 77,260

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—13



397,730

GAME'S BOARD

Adar Golad, Scherrenenkweg 16, 8051 KH Hattem, Netherlands; Dirk Ludovica Oscar de Haene, Borgerhout, and Gert Yves Junes, Berchem, both of Belgium, assignors to Adar Golad, Hattem, Netherlands

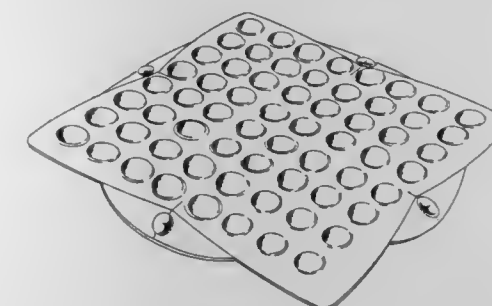
Filed Jun. 4, 1996, Ser. No. 56,403

Claims priority, application Benelux TM/Des. Off., Dec. 4, 1995, 71367-02

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—20



397,731

HANDHELD GAMING BALL DISPLAY DEVICE

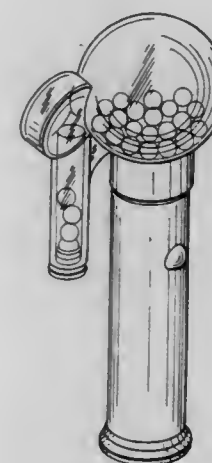
Douglas R. Russell, 2502 Woodside Dr., Louisville, Ky. 40207

Filed Jan. 9, 1997, Ser. No. 64,689

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—37



397,729

HAND HELD ELECTRONIC FISHING GAME

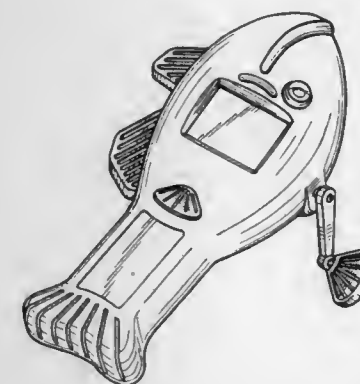
David E. Schulz, Cincinnati, Ohio, and Andrew J. Riggs, Carrollton, Tex., assignors to Radica China Limited, Hong Kong

Filed Dec. 22, 1997, Ser. No. 80,954

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—13



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OFFICIAL GAZETTE

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397,732

TOP SURFACE FOR A MINI CRAPS GAMING TABLE
LAYOUT

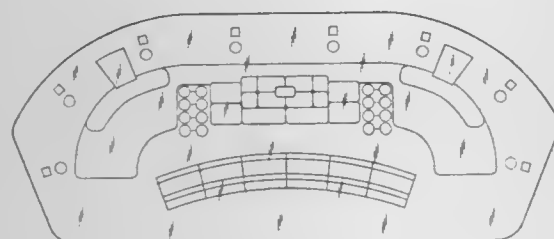
Gary J. Serowik, Ocean City; Thomas Henshaw, and Larry Henshaw, both of Hammonton, all of N.J., assignors to Tomarry, Inc.

Filed Feb. 12, 1997, Ser. No. 66,393

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—37



397,734

HAND OPERATED ELECTRONIC CONTROLLER

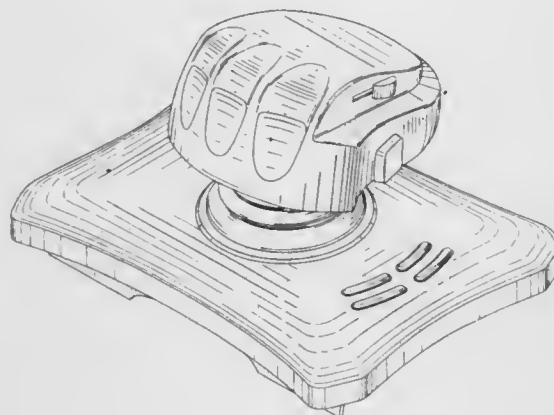
Charles D. Hayes, deceased, late of Grass Valley, by J. Noelle Hayes, executrix; Clay D. Allen, Elk Grove; James P. Dudley, Sacramento, and Kyle D. Fields, El Dorado Hills, all of Calif., assignors to J. Noelle Hayes, Grass Valley, Calif.

Filed Aug. 1, 1997, Ser. No. 74,352

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—48



397,733

SPINNER GAME WITH PRINTABLE TEAR-OUT TABS

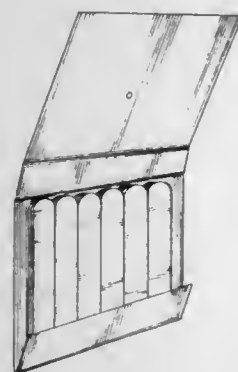
Judy M. Walker, 3650 Chambers St., Eugene, Ore. 97405

Filed May 16, 1997, Ser. No. 70,793

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—39



397,735

PLAYING CARD HOLDER

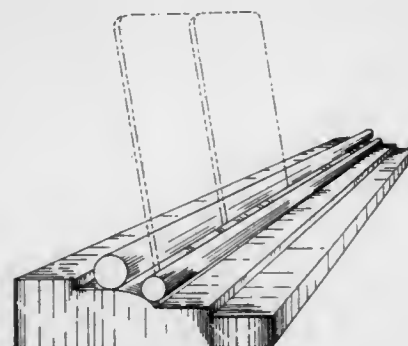
Amber Lee Spranger, 917 Lake Bluff Dr., Flower Mound, Tex. 75028

Filed Mar. 24, 1997, Ser. No. 68,577

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—54



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1133

397,736

DECORATIVE HAND HELD TOY

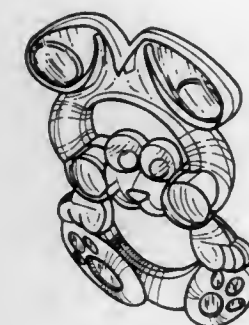
Wong Chung Lun, Hong Kong, Hong Kong, assignor to Fu Hong Industries, Inc., Mongkok, Hong Kong

Filed Aug. 14, 1995, Ser. No. 42,587

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—65



397,738

BUGGY RIDER

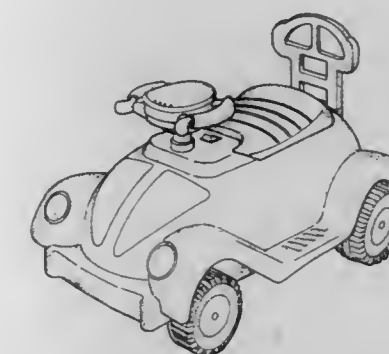
Pao-Yu Liu, 6F., 218, Tatung Rd., Sec. 3, Shichi Chen, Taipei Hsien, Taiwan

Filed Mar. 25, 1997, Ser. No. 68,280

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—78



397,737

CHILDREN'S RIDE-ON TOY VEHICLE

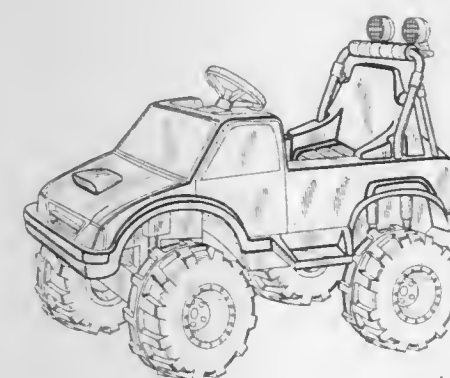
Lawrence R. Harrod, Fort Wayne, Ind., assignor to Mattel, Inc., El Segundo, Calif.

Filed Dec. 31, 1996, Ser. No. 64,447

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—78



397,739

POLICE CYCLE

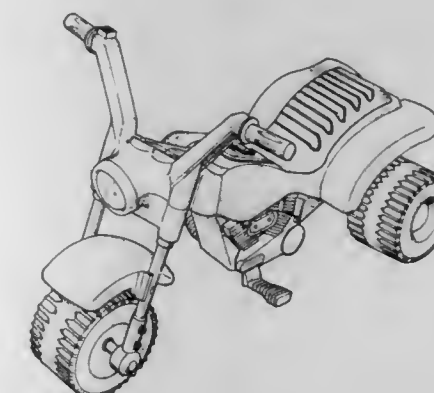
Pao-Yu Liu, 6F., 218, Tatung Rd., Sec. 3, Shichi Chen, Taipei Hsien, Taiwan

Filed Mar. 25, 1997, Ser. No. 68,279

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—80



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397,740

FOAM PAW

Thomas C. Georgevich, 1515 Crescent La., Apt. K, Matthews, N.C. 28105

Filed Oct. 3, 1997, Ser. No. 77,516

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—100



397,741

PICTURE PUZZLE

Grane Steinaa, Mollevangen 7, ST, DK-3460 Birkerød, Denmark

Filed Jan. 18, 1996, Ser. No. 49,133

Claims priority, application Denmark, Jul. 18, 1995, 660/95

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—104



397,742

TOY BUILDING TUBE

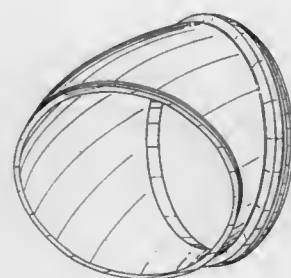
Arne Egholm Jensen, Gentofte, Denmark, assignor to INTER-LEGO AG, Baar, Switzerland

Filed Sep. 18, 1997, Ser. No. 76,849

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—108



397,743

WIRE CAR TOY

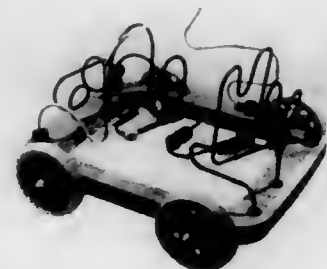
Mark Chester, 4535 Encino Ave., Encino, Calif. 91316

Filed Feb. 12, 1997, Ser. No. 73,755

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—128



397,744

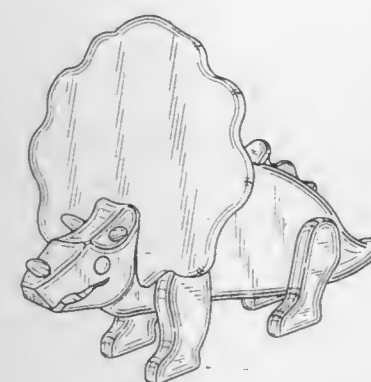
DINOSAUR DESIGN

Daryl J. Brummer, 1704 W. Shore Dr., Delafield, Wis. 53018
Division of Ser. No. 29,448, Oct. 6, 1994, Pat. No. Des. 379,102. This application Dec. 23, 1996, Ser. No. 64,154

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—148



397,745

CURVED SKI TYPE EXERCISE APPARATUS

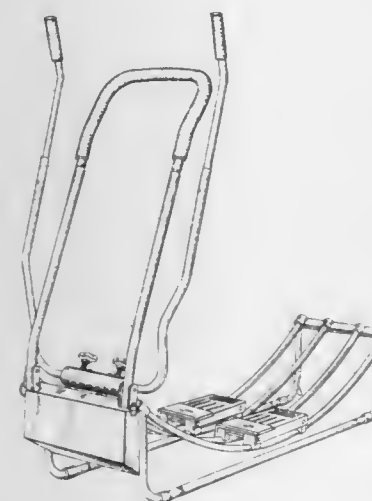
Tai Fu Wu, No. 56, 40 Lane, Ta Wan Road, Yung Kang, Hsiang Tainan, Taiwan

Filed May 3, 1996, Ser. No. 53,995

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—192



397,746

PEDAL EXERCISING DEVICE

Ami Drach, Tel-Aviv, and Raanan Volk, Ramat-Gan, both of Israel, assignors to Mego Afek Industrial Measuring Instruments, Doar NA, Israel

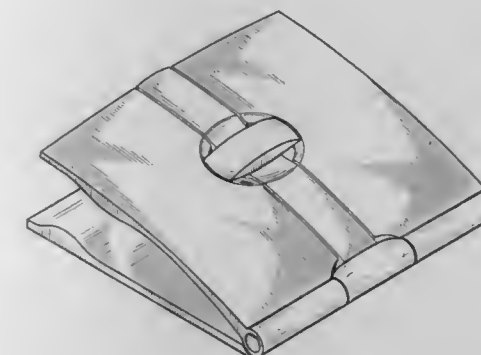
Filed Apr. 28, 1997, Ser. No. 69,549

Claims priority, application Israel, Oct. 30, 1996, 26935

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—192



397,747

GOLF BALL

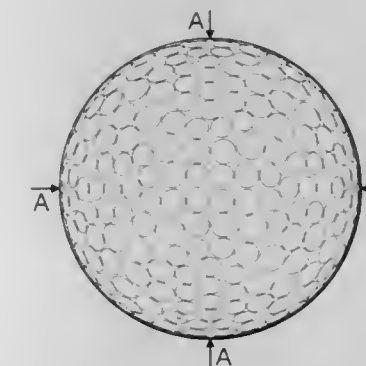
Richard R. Sanchez, Glendale, Ariz., assignor to Karsten Manufacturing Corporation, Phoenix, Ariz.

Filed Dec. 12, 1996, Ser. No. 63,678

Term of patent 14 years

LOC (6) Cl. 21 - 02

U.S. Cl. D21—205



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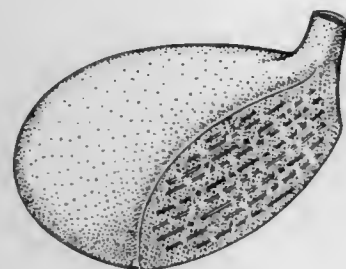
397,748

METALWOOD GOLF CLUB HEAD

James T. Moore, 1024 Peninsula Dr., LaGrange, Ga. 30240
Continuation-in-part of Ser. No. 52,977, Apr. 12, 1996, Pat.
No. Des. 379,391. This application Dec. 31, 1996, Ser. No.
64,423

Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-214



397,750

GOLF CLUB HEAD

Frank Frazetta, East Stroudsburg, Pa., assignor to Crunch
Golf Company, East Stroudsburg, Pa.

Filed Apr. 4, 1997, Ser. No. 69,703
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-214



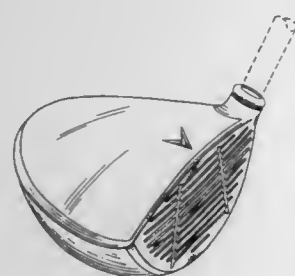
397,749

WOOD-TYPE HEAD FOR A GOLF CLUB

Bruce D. Burrows, 25555 W. Avenue Stanford, Valencia, Calif.
91355-1101

Filed Mar. 31, 1997, Ser. No. 68,733
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-214



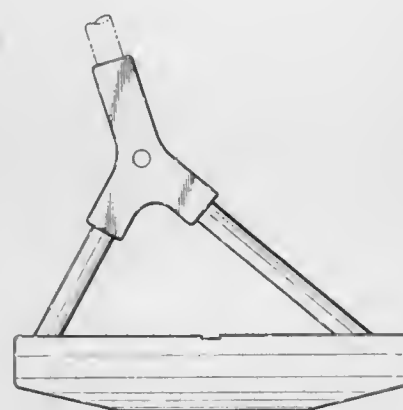
397,751

GOLF PUTTER HEAD

Jack Karagozian, 29765 Fernhill Dr., Farmington Hills, Mich.
48334

Filed Jan. 31, 1997, Ser. No. 65,623
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-219



397,752

PORTION OF A STRIKE FACE FOR A GOLF CLUB
HEAD

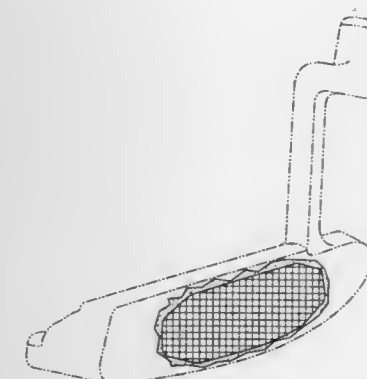
Don T. Cameron, Carlsbad, Calif., assignor to Acushnet Com-
pany, Fairhaven, Mass.

Filed Sep. 6, 1996, Ser. No. 59,310

The portion of the term of this patent subsequent to Nov. 4,
2011, has been disclaimed.

Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-221



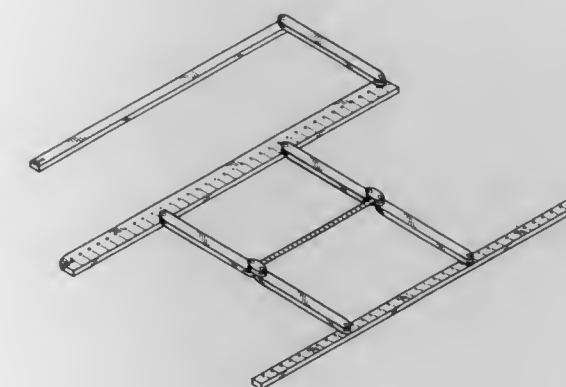
397,754

GOLF TEACHING AID

John H. Nguyen, 5708 Downybrook Rd., Myrtle Beach, S.C.
29575, assignor to John H. Nguyen, Myrtle Beach, S.C.

Filed Nov. 1, 1996, Ser. No. 61,889
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-234



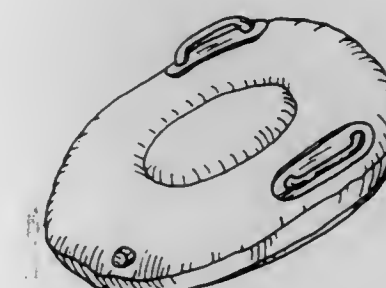
397,755

INFLATABLE RECREATIONAL VEHICLE

Leroy L. Peterson, Omaha, Nebr., assignor to Sportsstuff, Inc.,
Omaha, Nebr.

Filed Jun. 5, 1997, Ser. No. 72,163
Term of patent 14 years
LOC (6) Cl. 12 - 06

U.S. Cl. D21-237



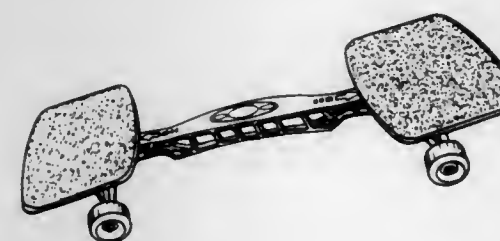
397,753

SKATEBOARD

Lin Liao Yu-Ying, No. 79 Lane 271 Lien Tsun Road, Feng Yaun
City, Taiwan

Filed Apr. 8, 1996, Ser. No. 52,565
Term of patent 14 years
LOC (6) Cl. 21 - 02

U.S. Cl. D21-227



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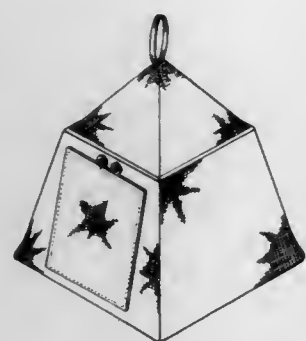
397,756

TOY PLAYHOUSE

Tammy Lynn Hagerty, 6803 N. State Rte. 48, Springboro, Ohio 45066

Filed Mar. 7, 1997, Ser. No. 67,438
Term of patent 14 years
LOC (6) Cl. 21 - 03

U.S. Cl. D21—240



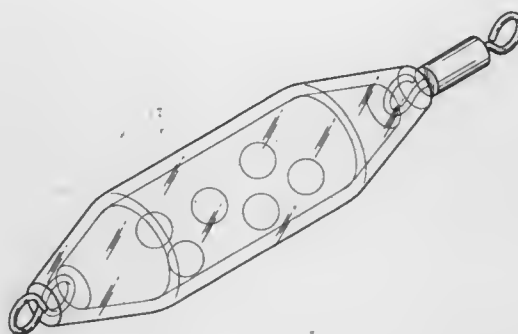
397,758

FISHING LURE ATTACHMENT

Kathy Magers, 5507 Yacht Club Dr., Rockwall, Tex. 75087

Filed Aug. 27, 1996, Ser. No. 58,895
Term of patent 14 years
LOC (6) Cl. 22 - 05

U.S. Cl. D22—126



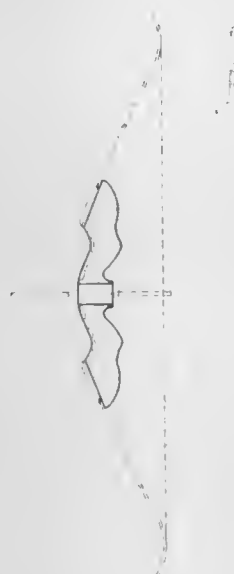
397,757

RISER DESIGN FOR AN ARCHERY BOW FOR RIGHT OR LEFT HAND

Joseph Ferrante, 1101 Sunset Dr., Mayfield Heights, Ohio 44124

Filed Oct. 1, 1996, Ser. No. 60,571
Term of patent 14 years
LOC (6) Cl. 22 - 01

U.S. Cl. D22—107



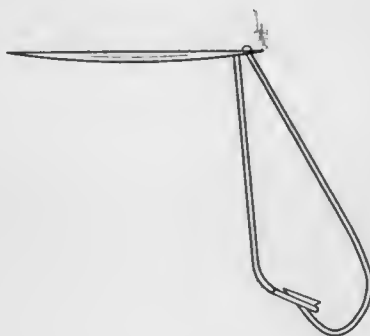
397,759

FISHING LURE

D. Blake Cox, 5385 Valleydale Rd., Kernersville, N.C. 27284

Filed Sep. 13, 1995, Ser. No. 43,814
Term of patent 14 years
LOC (6) Cl. 22 - 05

U.S. Cl. D22—129



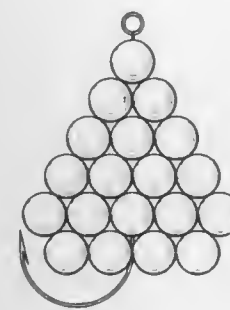
397,760

FISHING LURE

Michael J. Dozier, 1232 Bolero Ave., Salinas, Calif. 93906

Filed May 22, 1997, Ser. No. 71,139
Term of patent 14 years
LOC (6) Cl. 22 - 05

U.S. Cl. D22—132



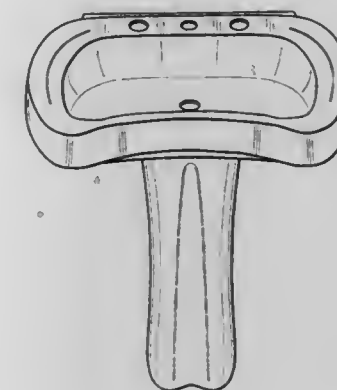
397,762

WASHSTAND WITH PEDESTAL

Marcelo Garza Laguera Garza, Acambaro No. 459, Col. CD. Industrial, 36541, Irapuato, Guanajuato, Mexico

Filed Apr. 30, 1997, Ser. No. 70,105
Claims priority, application Mexico, Oct. 31, 1996, 961101
Term of patent 14 years
LOC (6) Cl. 23 - 02

U.S. Cl. D23—292



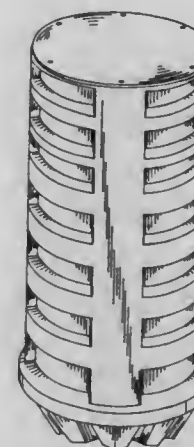
397,763

RIBBED UNDERGROUND STORAGE TANK

Stephen A. Sabo, South Bend, Ind., assignor to A. K. Industries, Plymouth, Ind.

Filed Aug. 18, 1997, Ser. No. 75,383
Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—203



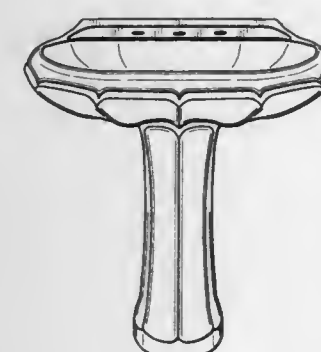
397,761

WASHSTAND WITH PEDESTAL

Marcelo Garza Laguera Garza, Acambaro No. 459 Col. CD. Industrial, 36541, Irapuato, Guanajuato, Mexico

Filed Apr. 25, 1997, Ser. No. 70,063
Claims priority, application Mexico, Oct. 25, 1996, 961068
Term of patent 14 years
LOC (6) Cl. 23 - 02

U.S. Cl. D23—292



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,764

HOUSING FOR A WATER FILTER

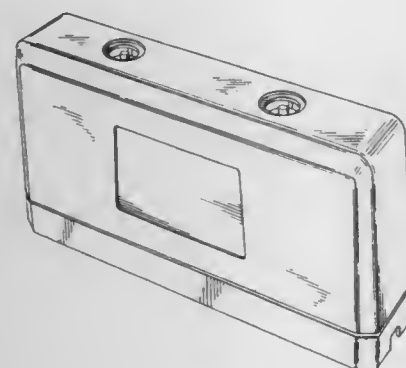
Charles D. Strand, 8811 Royal Harbor Ct., Ft. Worth, Tex. 76179

Filed Nov. 4, 1996, Ser. No. 62,381

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—209



397,766

SEALING VALVE

Kenneth Gustafsson, Sodertalje, Sweden, assignor to Alfa Laval Agri AB, Tumba, Sweden

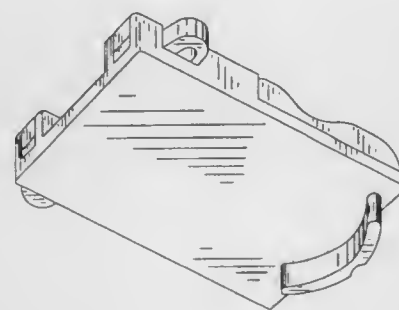
Division of Ser. No. 31,491, Nov. 29, 1994. This application Oct. 31, 1996, Ser. No. 61,842

Claims priority, application Sweden, May 31, 1994, 94-1252; May 31, 1994, 94-1253

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—237



397,765

MISTING APPARATUS

Gary Wintering, Tempe, Ariz., assignor to Arizona Mist, Inc., Tempe, Ariz.

Filed Aug. 19, 1997, Ser. No. 75,509

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—214



397,767

SLIDE VALVE

Kenneth Gustafsson, Sodertalje, Sweden, assignor to Alfa Laval Agri AB, Tumba, Sweden

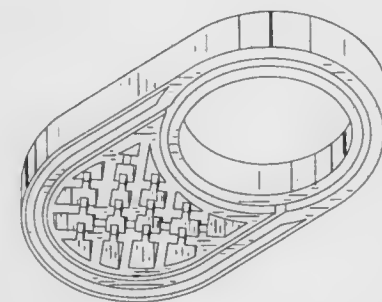
Division of Ser. No. 31,491, Nov. 29, 1994. This application Oct. 31, 1996, Ser. No. 61,843

Claims priority, application Sweden, May 31, 1994, 941252; May 31, 1994, 941253

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—237



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1141

397,768

MIXING VALVE

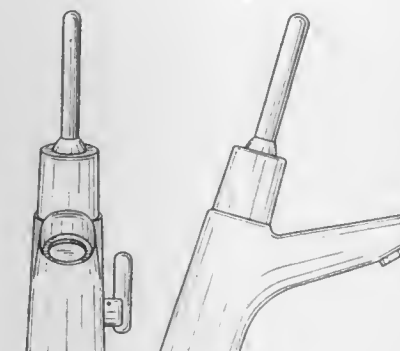
Gerard Delabie, Saint Blimont, and Marcel Normand, Arrest, both of France, assignors to Delabie S.A., Friville-Escarbotin, France

Filed Jan. 16, 1996, Ser. No. 48,949

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—238



397,770

FAUCET HANDLE

Hans Lobermeier, Menden, Germany, assignor to Friedrich Grohe AG, Hemer, Germany

Filed May 13, 1997, Ser. No. 70,656

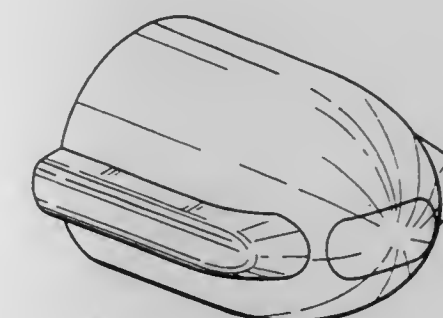
Claims priority, application Germany, Nov. 19, 1996, M 96 09 977.1

The portion of the term of this patent subsequent to Jul. 14, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—250



397,769

FAUCET FOR A BIDET WITH AN EXTENDABLE SPOUT PORTION

Hans Lobermeier, Menden, Germany, assignor to Friedrich Grohe AG, Hemer, Germany

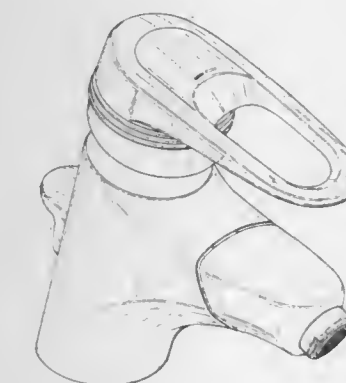
Filed May 7, 1997, Ser. No. 70,350

Claims priority, application Germany, Nov. 19, 1996, M9609980.1

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—238



397,771

COMBINED VALVE HANDLE AND WALL ESCUTCHEON

Hans Lobermeier, Menden, Germany, assignor to Friedrich Grohe AG, Hemer, Germany

Filed May 14, 1997, Ser. No. 70,702

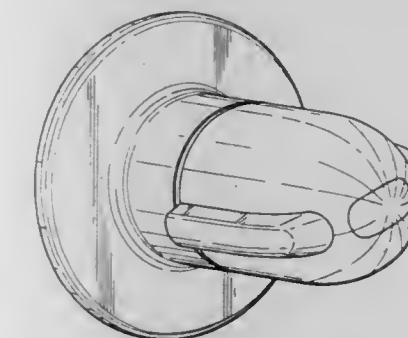
Claims priority, application Germany, Nov. 19, 1996, M9609977.1

The portion of the term of this patent subsequent to Jul. 14, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—254



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397,772

TUB FOR BATHING

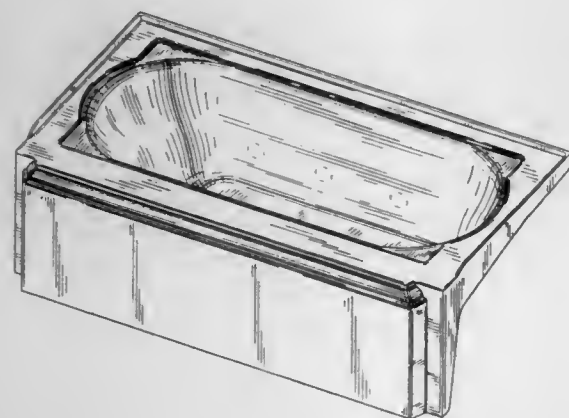
William C. McKeone, Sheboygan, Wis., assignor to Kohler Co.,
Kohler, Wis.

Filed Nov. 21, 1996, Ser. No. 62,677

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—277



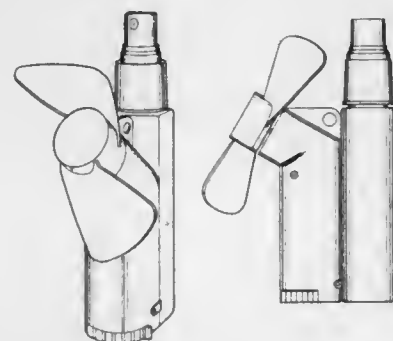
397,774

COMBINED PORTABLE FAN AND SPRAY MISTING
DEVICEEric F. Junkel, Des Plaines; Lee Radtke, Lake Zurich, and
Linda M. Usher, Chicago, all of Ill., assignors to Circulair,
Inc., Chicago, Ill.Division of Ser. No. 69,929, Apr. 29, 1997. This application
Sep. 17, 1997, Ser. No. 76,495

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—328



397,773

SHOWER UNIT

Jean-Bernard Valentin, Bourseville, France, assignor to Valen-
tin S.A., Bourseville, France

Filed Aug. 15, 1996, Ser. No. 58,479

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—304



397,775

HEATER

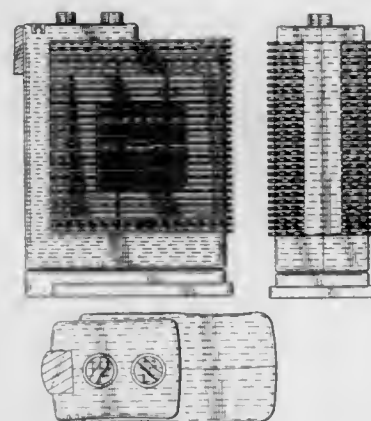
Bernard Chiu, Wellesley, Mass.; Jui-Shang Wang, Taipei, Tai-
wan, and Stanley Gresens, Homewood, Ill., assignors to Hon-
eywell Consumer Products, Inc., Southborough, Mass.

Filed Sep. 22, 1994, Ser. No. 28,798

Term of patent 14 years

LOC (6) Cl. 23 - 03

U.S. Cl. D23—337



397,776

OVEN HOUSING

Niels-Erik Heger, Jessheim, Norway, assignor to Jotul ASA,
Fredrikstad, Norway

Filed Aug. 15, 1997, Ser. No. 75,107

Term of patent 14 years

LOC (6) Cl. 23 - 03

U.S. Cl. D23—347



397,778

HUMIDIFIER

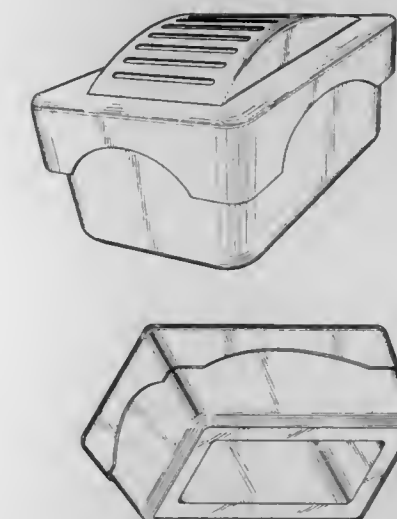
Mike Lam, Edmonton, Canada, assignor to Green Tradings
Ltd., Edmonton, Canada

Filed Feb. 25, 1997, Ser. No. 66,984

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—356



397,777

COMBINED FILTER AND COVER UNIT FOR AN AIR
CONDITIONER

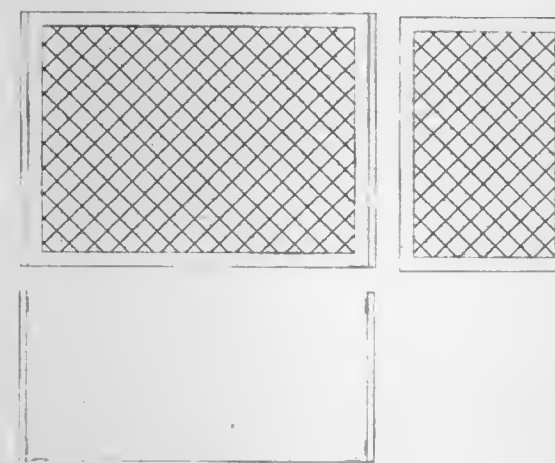
Robert Mack, Jr., 5472 Quari St., Denver, Colo. 80239

Filed Apr. 17, 1997, Ser. No. 69,806

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—354



397,779

WINDOW FAN

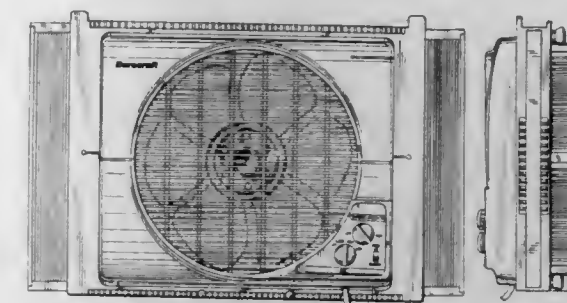
Robert L. Marvin, Farmington, Conn., assignor to Honeywell
Consumer Products, Inc., Southborough, Mass.

Filed Jun. 20, 1994, Ser. No. 24,741

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—382



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FIRELOG

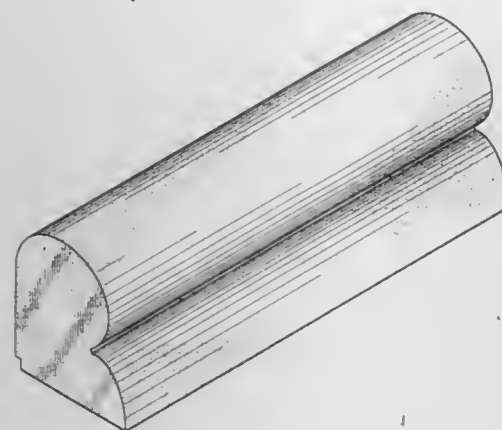
Kapoor Chandaria, Nairobi, Kenya, assignor to Conros Corporation, Scarborough, Canada

Filed Feb. 3, 1997, Ser. No. 66,012

Term of patent 14 years

LOC (6) Cl. 07 - 08

U.S. Cl. D23—409



397,782

COMBINED CANOPY, SUPPORT ROD, HOUSING,
BLADE IRONS AND LIGHT FIXTURE UNIT FOR A
CEILING FAN

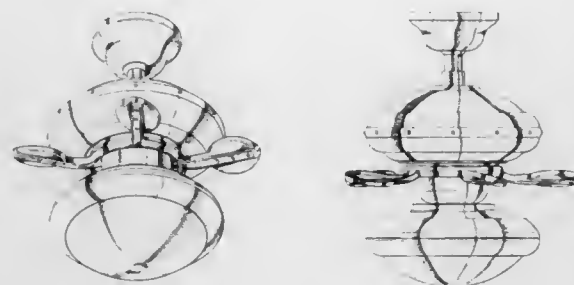
Jack W. Gee, II, Huntsville, Ala., assignor to Hunter Fan Company, Memphis, Tenn.

Filed Aug. 19, 1997, Ser. No. 75,392

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—411



397,781

BLADE MEDALLION FOR A CEILING FAN

Masao Tsuji, Germantown, Tenn., assignor to Hunter Fan Company, Memphis, Tenn.

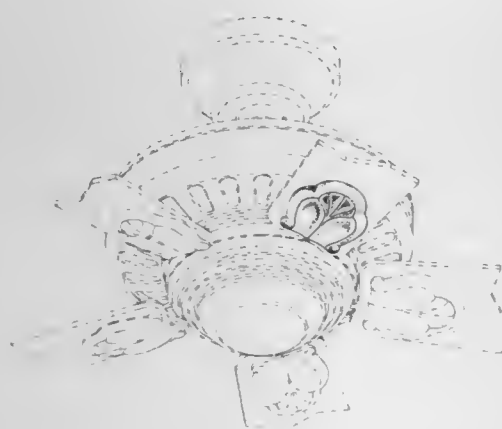
Division of Ser. No. 58,276, Aug. 9, 1996, Pat. No. Des.

389,568. This application Aug. 5, 1997, Ser. No. 74,527

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—411



397,783

BLADE IRON FOR A CEILING FAN

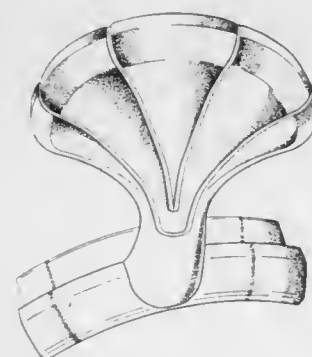
Jack W. Gee, II, Huntsville, Ala., assignor to Hunter Fan Company, Memphis, Tenn.

Filed Aug. 19, 1997, Ser. No. 75,394

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—411



397,784

FLUID DELIVERY UNIT

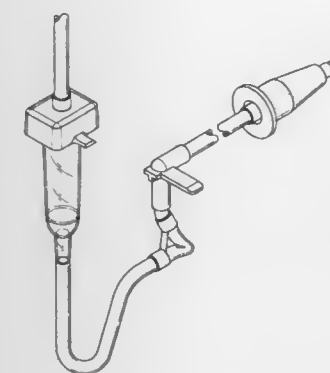
Carl Joseph Piontek, Powell; Robert Donald Clegg, Pickerington; Bradford Lynn Buck, Gahanna; Matthew Scott Fleming; Grant Richard Wilson, both of Columbus; William Edward Patton, Dublin, and William Fred Lyon, Marengo, all of Ohio, assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Sep. 21, 1995, Ser. No. 44,271

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—108



397,786

DESIGN FOR A NEBULIZER PUMP

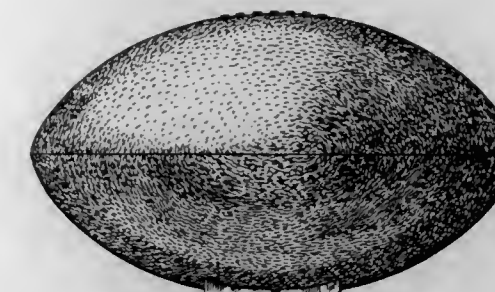
Rey Solano, 30 Pilot St., Apt. 3G, New York, N.Y. 10464

Filed Jul. 14, 1997, Ser. No. 73,589

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—110



397,785

NEBULIZER PUMP

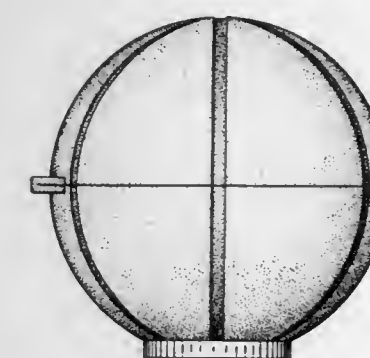
Rey Solano, 30 Pilot St., Apt. 3G, New York, N.Y. 10464

Filed Jul. 14, 1997, Ser. No. 73,509

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—110



397,787

DESIGN FOR A NEBULIZER PUMP

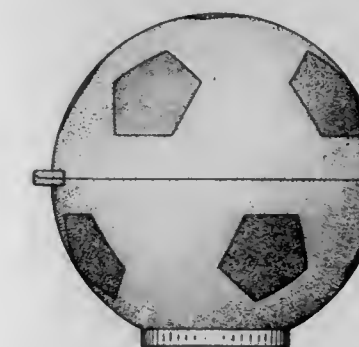
Rey Solano, 30 Pilot St., Apt. 3G, New York, N.Y. 10464

Filed Jul. 14, 1997, Ser. No. 73,629

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—110



397,788

IRRIGATION AND SUCTION INSTRUMENT

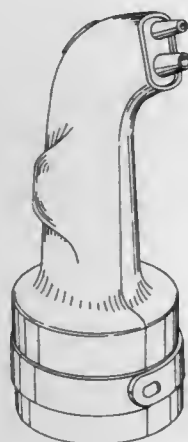
Daniel H. Olson, Louisville; Michael J. Laco, Sherrodsville, and Mark R. Rufener, Dover, all of Ohio, assignors to Bristol-Myers Squibb Company, New York, N.Y.

Continuation-in-part of Ser. No. 602,231, Feb. 15, 1996. This application Aug. 21, 1996, Ser. No. 58,699

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—112



397,789

FLEXIBLE MULTIPLE-COMPARTMENT MEDICAL CONTAINER

Ward W. Barney, Mission Viejo; Mark R. McLonis, Playa Del Rey; Steven L. Smith, Lake Forest; Ernest L. Wooldridge; Walter A. York, both of Mission Viejo, and H. Theodore Young, Dana Point, all of Calif., assignors to McGraw, Inc., Irvine, Calif.

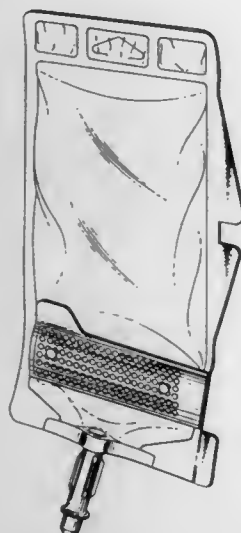
Continuation-in-part of Ser. No. 54,344, May 13, 1996. This application May 17, 1996, Ser. No. 54,638

The portion of the term of this patent subsequent to Dec. 23, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—118



397,790

AUXILIARY FINGER FLANGE FOR A SYRINGE

Masateru Naganuma, Kanagawa, Japan, assignor to Seikagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

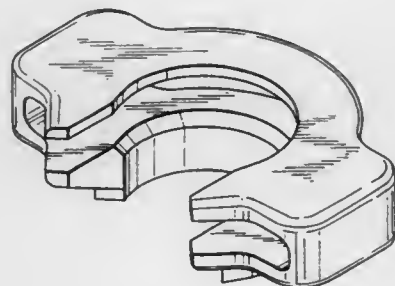
Filed Apr. 16, 1997, Ser. No. 69,441

Claims priority, application Japan, Oct. 16, 1996, 8-31013

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—130



397,791

RATCHET MECHANISM FOR A SURGICAL RETRACTOR ASSEMBLY

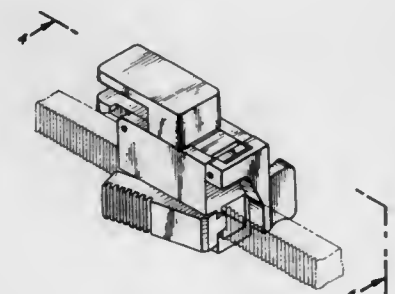
Tibor Koros, and Gabriel Koros, both of 610 Flinn Ave., Moorpark, Calif. 93021

Filed Aug. 30, 1996, Ser. No. 59,029

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—135



397,792

HYPEROPIC CORRECTIVE INSERT FOR REFRACTIVE SURGERY

Russell G. Koepnick, 4435 N. 78th St. #113A, Scottsdale, Ariz. 85251

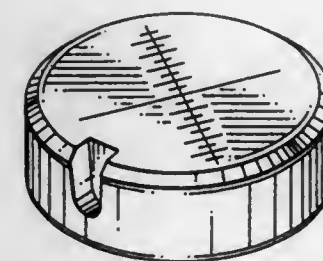
Filed Jul. 26, 1995, Ser. No. 41,897

The portion of the term of this patent subsequent to May 26, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—137



397,794

SUTURE BRAID

Dayne R. Geber, Ocean Reef, Australia, assignor to American Cyanamid Company, Madison, N.J.

Continuation of Ser. No. 11,329, Aug. 2, 1993, which is a continuation-in-part of Ser. No. 555,531, Jul. 18, 1990, abandoned, Ser. No. 555,532, Jul. 18, 1990, abandoned, Ser. No. 555,534, Jul. 18, 1990, abandoned, and Ser. No. 555,535, Jul. 18, 1990, abandoned. This application Nov. 17, 1995, Ser. No. 46,860

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—145



397,793

LAMELLAR CORRECTIVE INSERT FOR REFRACTIVE SURGERY

Russell G. Koepnick, 4435 N. 78th St. #113A, Scottsdale, Ariz. 85251

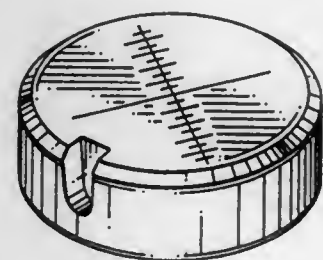
Filed Jul. 26, 1995, Ser. No. 41,907

The portion of the term of this patent subsequent to May 26, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—137



397,795

X-RAY FILM CASSETTE HOLDER

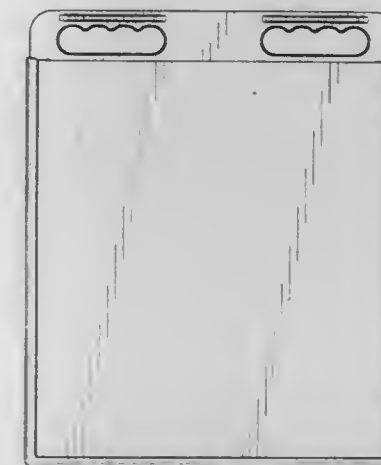
Patricia A. Roddy, Ooltewah, Tenn., assignor to Solo-Sled, LLC, Chattanooga, Tenn.

Filed Jul. 22, 1997, Ser. No. 73,995

Term of patent 14 years

LOC (6) Cl. 24 - 01

U.S. Cl. D24—161



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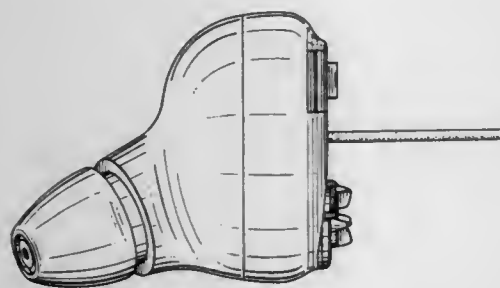
397,796
HEARING AID

Isao Yabe, Tokorozawa; Akira Yanagisawa, Hidaka, and
Toshibumi Wakayama, Tokyo, all of Japan, assignors to
Citizen Tokei Kabushiki Kaisha, Tokyo, and Sayama Seim-
itsu Kogyo Kabushiki Kaisha, Saitama, both of Japan

Filed Sep. 18, 1997, Ser. No. 76,329

Claims priority, application Japan, Jul. 1, 1997, 598191997
Term of patent 14 years
LOC (6) Cl. 24 - 99

U.S. Cl. D24—174

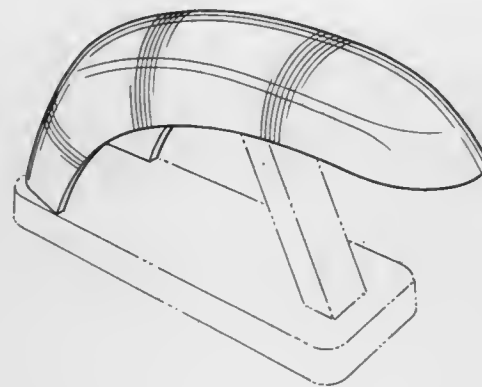
397,798
PUBOCOCCYGEAL MUSCLE EXERCISER

Clarence Parker, Jr., 15433 Sorrento, Detroit, Mich. 48227
Filed Jun. 30, 1997, Ser. No. 72,743

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—200



397,797

ANKLE SUPPORT

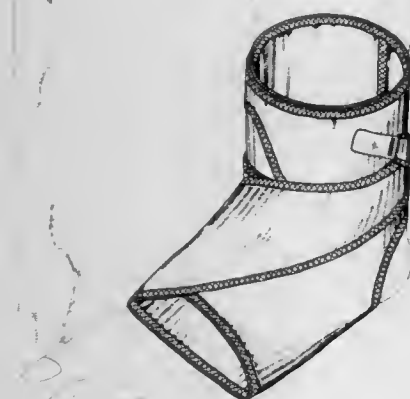
Pang-Ching Chiang, Taipei, Taiwan, assignor to Fenton Tech-
nologies Co., Ltd, Taipei Hsien, Taiwan

Filed Feb. 24, 1997, Ser. No. 66,877

Term of patent 14 years

LOC (6) Cl. 24 - 04

U.S. Cl. D24—192



397,799

VERTICAL WINDTUNNEL

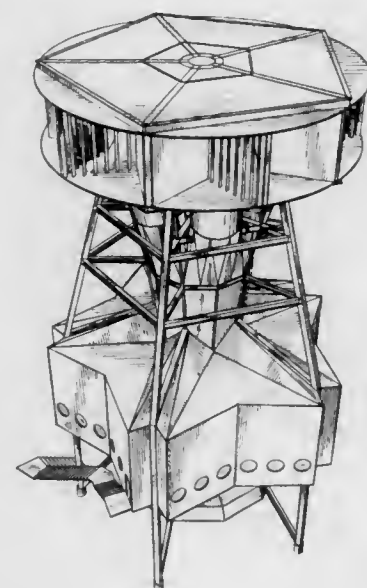
William Joel Kitchen, Longmont, Colo., assignor to Sky Ven-
ture, Inc., Longmont, Colo.

Filed Feb. 21, 1997, Ser. No. 66,819

Term of patent 14 years

LOC (6) Cl. 25 - 03

U.S. Cl. D25—1



397,800

DRIVE THROUGH ARCHITECTURAL STRUCTURE

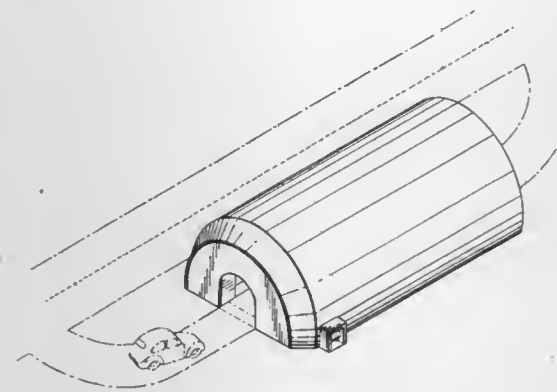
Jose Acevedo-Arjona, and Guillermo Ibarra-Rey Conde, both
of Celaya, Mexico, assignors to Publilatas, A.A. De C.V.,
Celaya, Mexico

Filed Dec. 11, 1996, Ser. No. 63,628

Term of patent 14 years

LOC (6) Cl. 25 - 03

U.S. Cl. D25—18



397,802

PAVING BLOCK

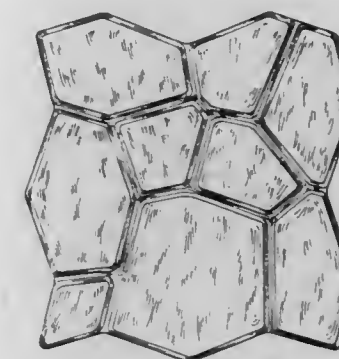
Bridget A. Terry, Peoria, Ariz., assignor to CRH Oldcastle,
Inc., Atlanta, Ga.

Filed Nov. 26, 1996, Ser. No. 63,075

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—113



397,801

TRAPEZOIDAL HUNTING STAND

Thomas E. Graham, Jr., P.O. Box 7127, Wilmington, N.C.
28406

Filed Oct. 20, 1997, Ser. No. 78,176

Term of patent 14 years

LOC (6) Cl. 25 - 04

U.S. Cl. D25—62



397,803

EXTRUDED SLATEWALL SECTION

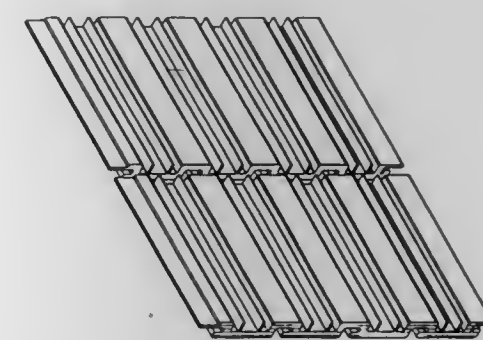
Wayne A. Current, Holmdel, N.J., assignor to International
Visual Corporation, Port Washington, N.Y.

Filed May 16, 1997, Ser. No. 70,983

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—123



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WINDOW COMPONENT EXTRUSION

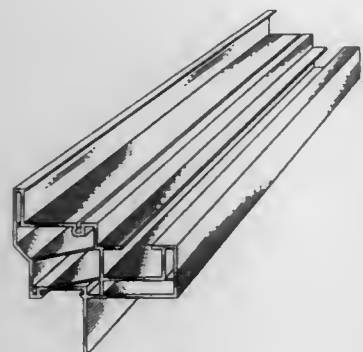
Jeffrey B. Hersh, 653 Baron Dekalb Rd., Wayne, Pa. 19007; Christopher Wetmore, 3811 Midberry Rd., Apt. #C21, Jackson, Mich. 49203, and Dennis Westphal, 1310 Chapel Rd., Parma, Mich. 49269

Filed Mar. 14, 1997, Ser. No. 69,228

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



397,806

WINDOW OR DOOR SASH COMPONENT

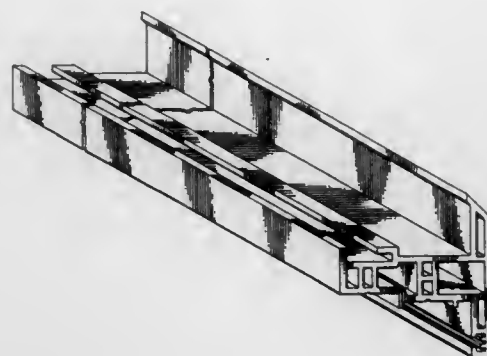
Keith Hart, Newmarket, Canada, assignor to Majestic Plastics Ltd., Weston, Canada

Filed Aug. 8, 1997, Ser. No. 74,654

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



397,805

WINDOW OR DOOR FRAME COMPONENT

Tony DiGiorgio, Woodbridge, Canada, assignor to Dominion Plastics Inc., Woodbridge, Canada

Filed Jul. 8, 1997, Ser. No. 71,253

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



397,807

WINDOW OR DOOR FRAME COMPONENT

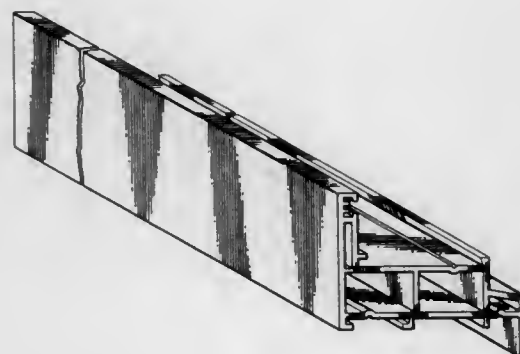
Keith Hart, Newmarket, Canada, assignor to Majestic Plastics Ltd., Weston, Canada

Filed Aug. 8, 1997, Ser. No. 74,655

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—124



397,808

LANDSCAPING BLOCK

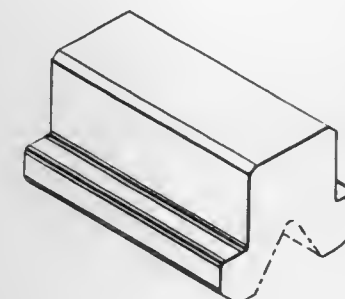
William B. Dawson, Maple Grove, Minn., assignor to Keystone Retaining Wall Systems, Inc., Bloomington, Minn.

Filed Jul. 25, 1995, Ser. No. 41,812

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—164



397,810

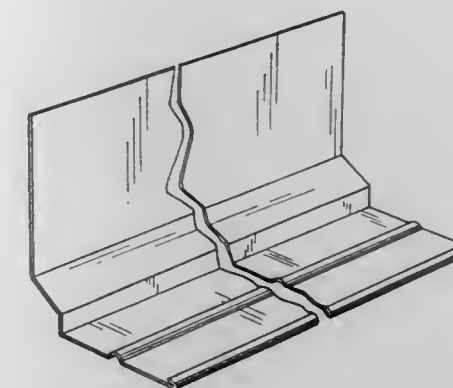
FLASHING

Brendra Joyce Basset, 2399 Hopewell Rd., Lizella, Ga. 31052 Filed Jan. 27, 1997, Ser. No. 65,514

Term of patent 14 years

LOC (6) Cl. 25 - 99

U.S. Cl. D25—199



397,811

FLUORESCENT LIGHT ADAPTOR MODULE

Usman Vakil, Walnut, Calif., assignor to Lights of America, Inc., Walnut, Calif.

Continuation of Ser. No. 19,823, Mar. 11, 1994, abandoned.

This application Jun. 28, 1996, Ser. No. 56,418

Term of patent 14 years

LOC (6) Cl. 26 - 04

U.S. Cl. D26—3

397,809

SNOW GUARD

Robin Nelson, and Ian Cameron, both of Ottawa, Canada, assignors to Matcom Roofing and Waterproofing Supplies, Inc., Ottawa, Canada

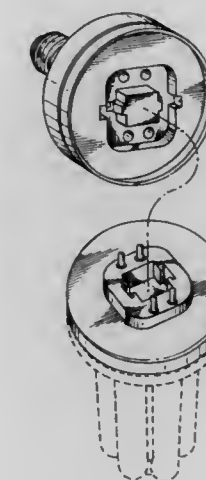
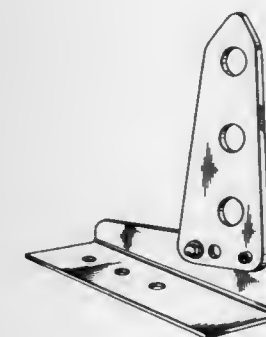
Filed Aug. 28, 1996, Ser. No. 58,932

Claims priority, application Canada, Jul. 16, 1996, 1996-1583

Term of patent 14 years

LOC (6) Cl. 25 - 99

U.S. Cl. D25—199



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,812

ELECTROLUMINESCENT NIGHT LIGHT

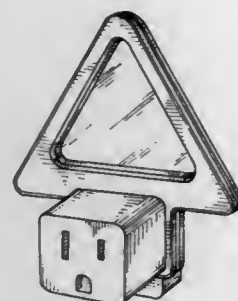
Arthur Schiffrin, New York, N.Y., assignor to Custom Accessories, Niles, Ill.

Filed Feb. 14, 1997, Ser. No. 67,079

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—26



397,814

NIGHT LIGHT

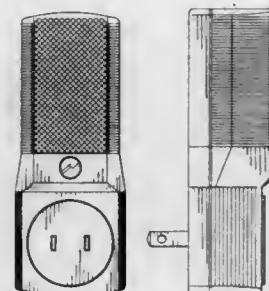
Kam-Wah Pun, Kowloon Bay, Hong Kong, assignor to Styling City Limited, Kowloon, Hong Kong

Filed Jul. 23, 1997, Ser. No. 74,034

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—26



397,815

CRIB LIGHT

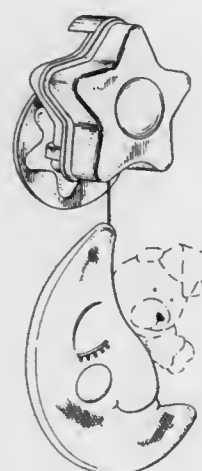
Andy Kislevitz, Englewood, N.J., assignor to Kids II, Inc., Alpharetta, Ga.

Filed Sep. 10, 1997, Ser. No. 76,563

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—26



397,813

NIGHT LIGHT WITH SOCKET

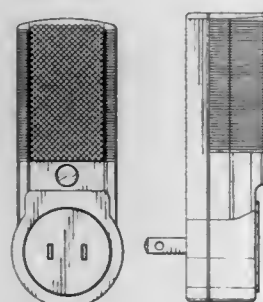
Kam-Wah Pun, Hong Kong, Hong Kong, assignor to Styling City Limited, Kowloon, Hong Kong

Filed Jul. 23, 1997, Ser. No. 74,033

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—26



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1153

397,816

QUICK COUPLING DOCKING LIGHT

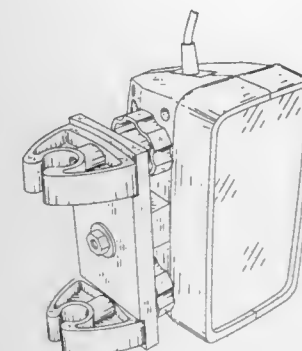
Danny M. Walls, 710 Shiloh Rd., Pocahontas, Ark. 72455

Filed Jun. 17, 1997, Ser. No. 72,337

Term of patent 14 years

LOC (6) Cl. 26 - 06

U.S. Cl. D26—28



397,818

DIRECT INDIRECT LUMINAIRE HOUSING

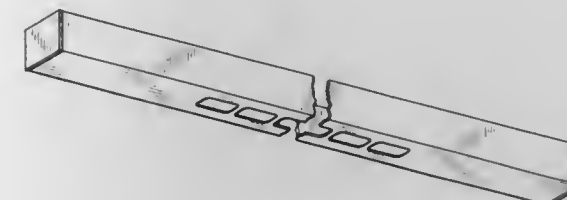
Douglas J. Herst, Ross, and Utkan Salman, Oakland, both of Calif., assignors to Peerless Lighting Corporation, Berkeley, Calif.

Filed Jun. 28, 1996, Ser. No. 56,432

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—119



397,817

SIGNAL LANTERN

John Se-Kit Yuen, Kowloon, Hong Kong, assignor to John Manufacturing Ltd., Hong Kong, Hong Kong

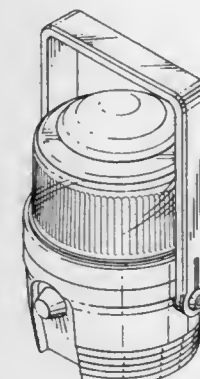
Filed Jul. 14, 1997, Ser. No. 77,006

Claims priority, application United Kingdom, Jan. 15, 1997, 2062424

Term of patent 14 years

LOC (6) Cl. 26 - 02

U.S. Cl. D26—41



397,819

FLUORESCENT LIGHTING FIXTURE

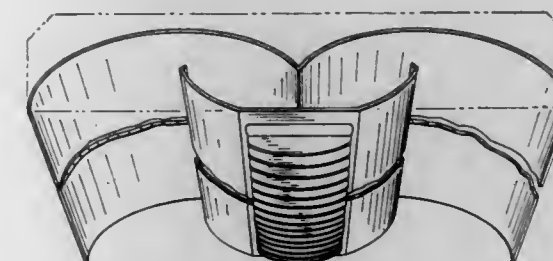
Peter F. Thorton, Jr., Hinsdale, Ill., assignor to Focal Point Lighting, Alsip, Ill.

Filed Apr. 24, 1997, Ser. No. 72,885

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—77



397,820
CHANDELIER

Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510

Continuation of Ser. No. 64,121, Dec. 23, 1996, abandoned.

This application Aug. 15, 1997, Ser. No. 75,357

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—81

397,822
CHANDELIER

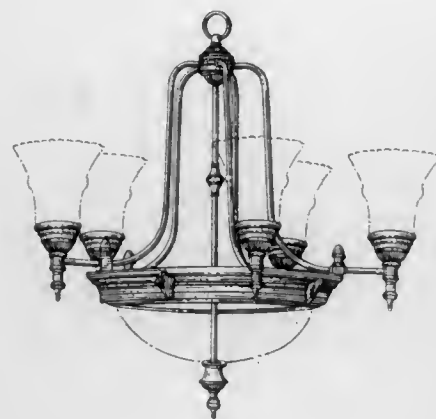
Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510

Filed Jun. 20, 1997, Ser. No. 72,593

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—84



397,823

Patent Not Issued For This Number

397,824
TABLE LAMP

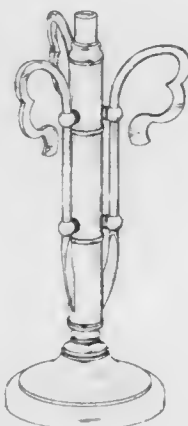
Kevin Von Kluck, Hudson, Ohio, assignor to The L. D. Kichler Co., Cleveland, Ohio

Filed May 12, 1997, Ser. No. 70,578

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—111



397,821

SUSPENDED LIGHTING FIXTURE

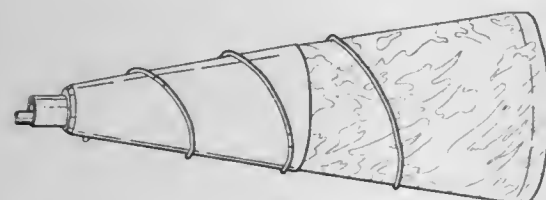
Dani Palmari, 14646 Keswick St., Van Nuys, Calif. 91405

Filed Nov. 19, 1996, Ser. No. 62,610

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—84

397,825
CIGARETTE LIGHTER

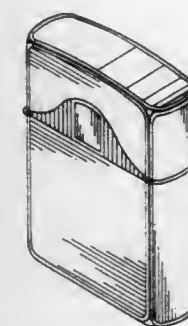
Takaaki Segawa, Ichikawa, Japan, assignor to Kabushiki Kaisha Sarome, Tokyo, Japan

Filed Aug. 28, 1997, Ser. No. 75,324

Term of patent 14 years

LOC (6) Cl. 27 - 05

U.S. Cl. D27—159

397,827
COMBINED CIGAR CUTTER AND LETTER OPENER

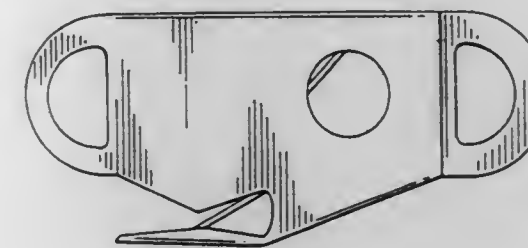
Aubrey Reveley, Randallstown, Md., assignor to Creative Expressions, Randallstown, Md.

Filed May 27, 1997, Ser. No. 71,295

Term of patent 14 years

LOC (6) Cl. 27 - 06

U.S. Cl. D27—195



397,828

STEAM HAIR CURLING SET

Albart Johannes Kip, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

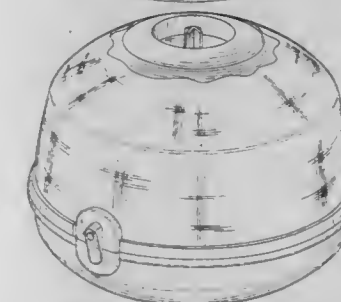
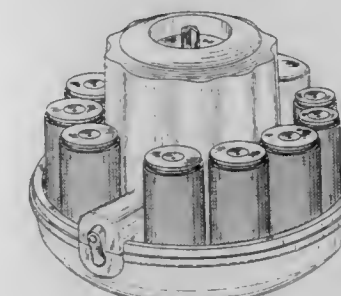
Filed Apr. 18, 1996, Ser. No. 53,252

Claims priority, application Hague Agreement, Jan. 12, 1996, DMA/003166

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—38



397,826

HUMIDOR

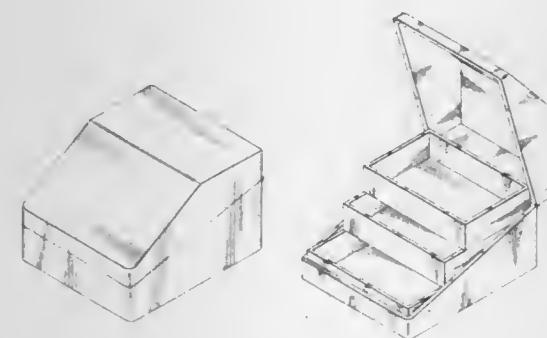
Ronald D. McDiarmid, La Habra Heights, Calif., assignor to Gruga U.S.A., Industry, Calif.

Filed Sep. 24, 1997, Ser. No. 77,036

Term of patent 14 years

LOC (6) Cl. 27 - 06

U.S. Cl. D27—189



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OFFICIAL GAZETTE

SEPTEMBER 1, 1998

397,829

SAFETY RAZOR

Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.

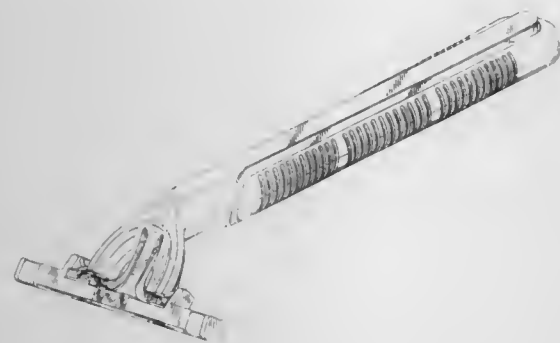
Division of Ser. No. 45,614, Oct. 25, 1995. This application

May 3, 1996, Ser. No. 58,288

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—46



397,831

EYESHADOW QUAD COMPACT

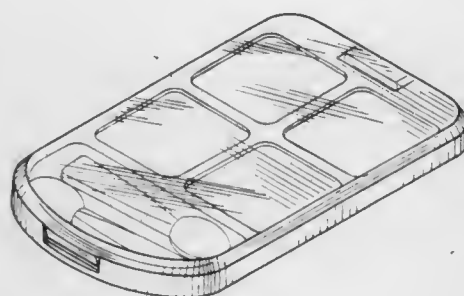
Joanne Stoecker, New York, N.Y., assignor to L'Oreal S.A., Paris, France

Filed Apr. 3, 1997, Ser. No. 72,222

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—78



397,830

SAFETY RAZOR AND HANDLE

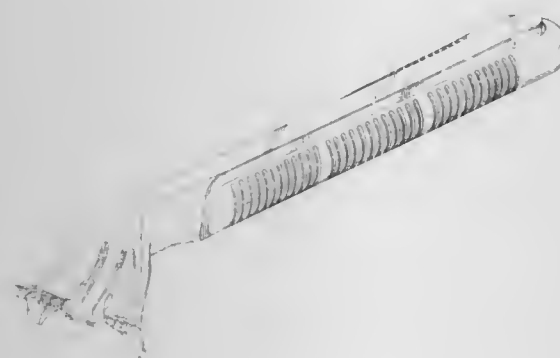
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Oct. 25, 1995, Ser. No. 45,614

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—48



397,832

CAT CLIMBING HABITAT

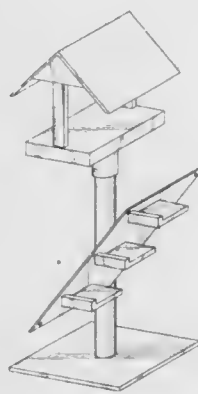
Danny A. Allen, 4403 NC Hwy. 96 South, Four Oaks, N.C. 27524

Filed Mar. 19, 1996, Ser. No. 51,917

Term of patent 14 years

LOC (6) Cl. 30 - 02

U.S. Cl. D30—108



SEPTEMBER 1, 1998

U.S. PATENT AND TRADEMARK OFFICE

1157

397,833

PAINT TRAY WITH BRUSH HOLDER

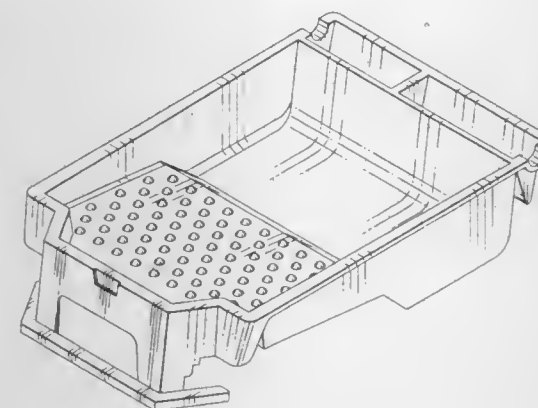
Michael D. Adams Zurawin, New York, N.Y., assignor to Adams Brush Mfg. Co., Inc., Ozone Park, N.Y.

Filed Feb. 26, 1996, Ser. No. 50,746

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D32—53.1



397,834

CLOTHESLINE SUPPORTING DEVICE

Wai Chau Ho, Flat C,D & K, 2 Fl., Block 3 Golden Dragon Industrial Centre, 172-180 Tai Lin Pai Road Kwai Chung, NT Kowloon, Hong Kong

Filed Sep. 26, 1994, Ser. No. 28,899

Claims priority, application United Kingdom, Mar. 26, 1994, 2038029

Term of patent 14 years

LOC (6) Cl. 07 - 05

U.S. Cl. D32—60



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LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 1st DAY OF SEPTEMBER, 1998

NOTE— Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A. F. Klinzing Company, Inc.: *See—*
Hoppman, David P.; Hoppman, Chris; Klein, Eric; and Daleiden, Kevin L., 5,799,615, Cl. 119-510.000.
- A. Menarini Industrie Farmaceutiche Riunite S.r.l.: *See—*
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Alavi, Kamal. Universal shredder. 5,799,884, Cl. 241-27.000.

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Modér, Bo, 5,800,330, Cl. 494-2.000.
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- Allen, Brent E.: See—
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- American Handcuff Co.: See—
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- Amey, Ronald Lee; and Schurr, George Alan, to Du Pont de Nemours, E. I., and Company. Acid composition comprising a coated polyvalent carboxylic acid solid particle and a powder coating comprising the same. 5,800,923, Cl. 428-407.000.
- AMF Bowling, Inc.: See—
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- Amifast Corporation: See—
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- Amir, Ehud. Toothbrush. 5,799,354, Cl. 15-167.100.
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- Anchor Hocking Corporation: See—
Volles, Jacqueline G., 5,800,061, Cl. 383-15.000.
- Andersen, David P.; and Farmer, Michael, to Lockheed Martin Corporation. Acoustic volume and torque weight sensor. 5,800,262, Cl. 460-6.000.
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- Andersen, Per Just; and Hodson, Simon K., to E. Khashoggi Industries, LLC. Methods for manufacturing containers and other articles from hydraulically settable mixtures. 5,800,756, Cl. 264-129.000.
- Anderson, Berris M. Incinerator for medical waste. 5,799,591, Cl. 110-215.000.
- Anderson, Charles C.; Tsou, Andy H.; and Woodgate, Paul E., to Eastman Kodak Company. Backing layers for imaging elements containing hard filler particles and crosslinked, elastomeric matte beads. 5,800,973, Cl. 430-537.000.
- Anderson, Curtis E.; and Brown, Brian J., to Scimed Life Systems, Inc. Stent delivery system with storage sleeve. 5,800,517, Cl. 623-1.000.
- Anderson, David Allen; Myers, Carol Rita; and Saari, Matthew John, to Sheldahl, Inc. Flexible multilayer printed circuit boards and methods of manufacture. 5,800,650, Cl. 156-150.000.
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- Anderson, David P., to Borg-Warner Automotive, Inc. Chain assembly using formed bushings with inversed teeth. 5,800,301, Cl. 474-213.000.

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- Anderson, Michael: See—
Tiedge, Robert; and Anderson, Michael, 5,800,002, Cl. 296-26.000.
- Anderson, Scott C.; Brown, Peter S.; and Orth, Geoffrey A., to EndoTex Interventional Systems, Inc. Multi-anchor stent. 5,800,526, Cl. 623-1.000.
- Anderson, Weston A.; and Richardson, John E., to Varian Associates, Inc. Rotating sealing device. 5,799,951, Cl. 277-301.000.
- Andersson, Kurt Allan; and Carlsson, Tage, to Skanska Teknik AB. Heat insulating outer wall for a building. 5,799,454, Cl. 52-302.300.
- Andersson, Mats, to Nobel Biocare AB. Method using an articulator and computer to represent an individual's bite. 5,800,174, Cl. 433-215.000.
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Fujii, Haruhiko, 5,801,562, Cl. 327-149.000.
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- Ando, Takuya: See—
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- Andre, Maxime. Pipe for conveying fuel. 5,799,704, Cl. 138-137.000.
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- Ångquist, Lennart, to Asea Brown Boveri AB. Control equipment for a series capacitor connected into an electric power line. 5,801,459, Cl. 307-125.000.
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- Annaka, Masahiko: See—
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- ANR Manufacturing, Inc.: See—
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- Ansel, Cliff. Adjustable hip and thigh exerciser. 5,800,323, Cl. 482-129.000.
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- Aoki, Masahiro: See—
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- Aoyama, Hideaki: See—
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- Aoyama, Norihito: See—
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- APC/Foursum: See—
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- Apic Yamada Corporation: See—
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- Apogee AB: See—
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- Apollonio, Renato P.: See—
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- Appelt, Bernd Karl; Fotomy, William Thomas; Japp, Robert Maynard; Papatomas, Kostantinos; and Poliks, Mark David, to International Business Machines Corporation. Technique for forming resin-impregnated fiberglass sheets. 5,800,874, Cl. 427-412.000.
- Apple Computer, Inc.: See—
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- Daniels, Andrew M.; and Wilson, Andrew, 5,802,539, Cl. 707-542.000.
- Duckwall, William S., 5,802,048, Cl. 370-389.000.
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- Krein, William Todd; Flaig, Charles M.; and Kelly, James D., 5,802,055, Cl. 370-402.000.
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- Oprea, Florin, 5,802,289, Cl. 395-200.190.
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- Applied Materials, Inc.: See—
Collins, Kenneth S.; Tsui, Joshua Chiu-Wing; and Buchberger, Douglas, 5,800,871, Cl. 427-385.500.
- Demaray, Richard Ernest; Hosokawa, Akihiro; and Herrera, Manuel J., 5,799,860, Cl. 228-194.000.
- Kholodenko, Arnold; Veytser, Alexander M.; and Shamoulian, Shamouli, 5,801,915, Cl. 361-234.000.
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- Redeker, Fred C.; and Ishikawa, Tetsuya, 5,800,621, Cl. 118-723.0AN.
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- Yao, Xiang Yu, 5,800,878, Cl. 427-573.000.
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- AquaMedic Anlagenbau GmbH: See—
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- Aquarius Medical Corporation: See—
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- Arai, Yasuhiro: See—
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- Barber, Ivor G., to LSI Logic Corporation. Method of packaging integrated circuits. 5,801,072, Cl. 438-107.000.
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- Barnett, Michael: See—
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- Barnhart, Robert D. Boat launching/loading platform. 5,799,962, Cl. 280-166.000.
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- Barrow, Michael, to Intel Corporation. Variable pitch stagger die for optimal density. 5,801,450, Cl. 257-784.000.
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- Barry, Richard E., to Sports Advisor, Inc. Athlete practice shooting aid device. 5,800,290, Cl. 473-438.000.
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- Bartlett-Hooker, William; Ediriweera, Sanath; and Ward, Stuart, to Siemens plc; Yorkshire Water plc; and Microbics Corporation. In or relating to aqueous sample testing apparatus. 5,801,052, Cl. 435-286.100.
- Barton, William M., Jr., to Rokenbok Toy Company. Slotted marble. 5,800,244, Cl. 446-431.000.
- Basart, Edwin J.: See—
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- Baschore, Paul M., to Microchip Technology Incorporated. Handwritten character translator using fuzzy logic. 5,802,204, Cl. 382-186.000.
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- Pfrommer, Ellen; Mrona, Norbert; and Seeger, Oliver, 5,800,824, Cl. 424-401.000.
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- Bassett, William W.: See—
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- Bassier, Jean-François: See—
Sitbon, Gérard; Champeval, Didier; Bassier, Jean-François; and Levillain, Olivier, 5,802,370, Cl. 395-701.000.
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Burke, Robert; Russell, James; Shaanan, Gad; Francovich, Walter; and Brousseau, Ivan, 5,799,417, Cl. 36-105.000.
- Bateman, Linda S.: See—
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- Batra, Shubneesh: See—
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- Batson, Kevin Arthur: See—
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- Batson, Richard Guy, to Baker Hughes Incorporated. Separation of a suspension into its component parts. 5,800,715, Cl. 210-702.000.
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- Bauer, Hermann; Bender, Richard; Fürst, Franz; Vetter, Bernhard; Winterhald, Marc; and Zeuner, Siegfried, to TEMIC Bayem-Chemie Airbag GmbH. Pyrotechnic gas generator with two separate combustion chambers. 5,799,973, Cl. 280-741.000.
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- Bauer, Thomas P.: See—
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- Cosgrove, Delos M.; Rhee, Richard; and Nguyen, Diana, 5,800,531, Cl. 623-2.000.
- McBride, Robert R., 5,800,721, Cl. 210-506.000.
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- Ferguson, H. Earl; Johnson, Bobby R., Jr.; and Ryals, Randy, 5,802,056, Cl. 370-403.000.
- Baybikov, Boris: See—
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- Baydatch, Yair, to National Semiconductor Corporation. Overflow detection for integer-multiply instruction. 5,801,978, Cl. 364-745.040.
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- Laue, Christian; Schröder, Georg; and Arlt, Dieter, 5,801,261, Cl. 556-16.000.
- Mais, Franz-Josef; Paetz, Klaus-Christian; Fiege, Helmut; Blank, Heinz Ulrich; Brueck, Dieter; and Mehl, Wolf, 5,801,284, Cl. 564-417.000.
- Michaelis, Stephan; Roschger, Peter; and Hederich, Volker, 5,800,573, Cl. 8-509.000.
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- Bayer Corporation: See—
Radovich, David A.; Stepan, David D.; Spittler, Keith G.; and Shoup, James D., 5,801,210, Cl. 521-130.000.
- Bayer, John C., to Demer Corporation. Thermoplastic railroad tie. 5,799,870, Cl. 238-84.000.
- Bayer, Robert: See—
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- Peterreins, Klaus, 5,799,492, Cl. 60-343.000.
- Bayley, Gwain: See—
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- Beall, Clifford H.; Rawson, Michael S.; and Hickey, Kurt A., to Baker Hughes Incorporated. Annular chamber seal. 5,799,949, Cl. 277-1.000.
- Beasom, James Douglas; and McLachlan, Craig James, to Harris Corporation. Bonded wafer processing. 5,801,084, Cl. 438-457.000.
- Beavers, Bob Ray; and DeAngelo, Michael, to Northrop Grumman Corporation. Hermetically sealed condenser microphone. 5,802,198, Cl. 381-344.000.
- Beavo, Joseph A.; Bentley, J. Kelley; Charbonneau, Harry; and Sonnenburg, William K., to University of Washington, The Board of Regents of The. Assay methods using DNA encoding mammalian phosphodiesterases. 5,800,987, Cl. 435-6.000.
- Beck, Bernhard, to Eheim GmbH & Co. KG. Automatic feeding apparatus, particularly for an aquarium. 5,799,608, Cl. 119-51.040.
- Beck, Edwin; and Heidenreich, Chuck. Golf bag with stand. 5,799,786, Cl. 206-315.700.
- Beck, Erich: See—
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- Beck, Gregory F.; and Ray, Richard D., to Canon Kabushiki Kaisha. Communication control board with audio functions. 5,802,150, Cl. 379-93.000.
- Beck, James Joseph, to Novartis Finance Corporation. Detection of maize fungal pathogens using the polymerase chain reaction. 5,800,997, Cl. 435-6.000.
- Becker, Thomas W.; and Friedrich, Steven R., to Apple Computer, Inc. Method and apparatus for efficiently updating coordinates of hierarchical views. 5,802,326, Cl. 395-340.000.
- Beckerle, Michael J.: See—
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- Becton Dickinson and Company: See—
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- Henderson, Douglas P., 5,801,055, Cl. 435-297.500.
- Linn, Carl Preston; Walker, G. Terrance; and Spears, Patricia Anne, 5,800,989, Cl. 435-6.000.
- Bedard, Karen, to Hyundai Electronics America. Method and apparatus for creating a television viewer profile. 5,801,747, Cl. 348-1.000.
- Bedeschi, Angelo; Zanini, Franco; Cabri, Walter; Candiani, Ilaria; Penco, Sergio; and Capolongo, Laura, to Pharmacia S.p.A. Camptothecin derivatives and process for their preparation. 5,801,167, Cl. 514-233.200.
- Bedin, Frederic: See—
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- Beer, Ivan L.; and Beer, Loydene M. Propane tank safety carrier. 5,799,849, Cl. 224-403.000.
- Beer, Julie: See—
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- Beer, Loydene M.: See—
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- Begemann, Kurt: See—
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- Begun, Ralph Murray; Green, William Robert; and Herring, Christopher Michael, to International Business Machines Corporation. Computer system for detecting and accessing BIOS ROM on local bus peripheral bus or expansion bus. 5,802,393, Cl. 395-830.000.
- Behnke, Detlev; Schlott, Bernhard; Albrecht, Sybille; Gührs, Karl-Heinz; and Hartmann, Manfred, to medac Gesellschaft für klinische Spezialpräparate mbH. Expression of signal-peptide-free staphylokinases. 5,801,037, Cl. 435-220.000.
- Behrens, Richard T.: See—
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- Bekki, Keisuke: See—
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Smith, William D.; Farr, Harbin C.; Bellflower, Craig O.; and Sams, Wendi J., 5,800,038, Cl. 312-223.100.
- Belin, Felix; and Walker, David J., to McDermott Technology, Inc. Drainable discharge pan for impact type particle separator. 5,799,593, Cl. 110-245.000.
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- Farris, Robert D.; Chacanas, Mary; and McDermott, Christine D., 5,802,145, Cl. 379-34.000.
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- Bellotti, Vittorio: See—
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- BellSouth Corporation: See—
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- Beltrano, Frank Santo; McNeely, Kevin John; Rizo, Roberto Garcia; Shah, Tushar Ramesh; and Ying, Ivy Hui-Fen, to Lucent Technologies Inc. Method for selectively changing the call handling capacity of a telecommunications switch. 5,802,162, Cl. 379-242.000.
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- Benderly, David, to NFB of New York, Inc. Decorative article with engraved high visibility image. 5,799,511, Cl. 63-23.000.
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- Bennett, Easton. Heat exchanger for a hydrocarbon fuelled motor vehicle. 5,799,632, Cl. 123-142.50R.
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- Benni, Dominique, to Schneider Electric SA. Electric control and signaling device fitted with a detachable block. 5,800,206, Cl. 439-532.000.
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- Benson, Linda M.: See—
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- Benson, Terry A.: See—
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- Bentley, Pat O.: See—
Montgomery, Robert M.; Daugherty, Greg K.; Ward, Reeder N.; and Bentley, Pat O., 5,801,874, Cl. 359-305.000.
- Benzel, Edward C.; Yuan, Hansen A.; Dinello, Alex; Wefers, Michael H.; and Smith, Aaron C., to AcroMed Corporation. Spinal column retaining apparatus. 5,800,433, Cl. 606-61.000.
- Benzing, Martin; Mohr, Dieter; Mertes, Juergen; and Blum, Peter, to Agfa-Gevaert AG. Temporary support film for transferring white pigment layer. 5,800,962, Cl. 430-259.000.
- Berendes, Herbert: See—
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- Berestovsky, Yuri V.: See—
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- Bereza, William, to Northern Telecom Limited. Charge pump circuit with source-sink current steering. 5,801,578, Cl. 327-536.000.
- Berg, Lloyd. Separation of ethanol, isopropanol and water mixtures by extractive distillation. 5,800,681, Cl. 203-57.000.
- Berg, Richard A.: See—
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- Berg Technology, Inc.: See—
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- Suzuki, Kenji, 5,800,209, Cl. 439-571.000.
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- Blass, Jacob Moses, to Caredent Limited. Elongate PTFE elements and articles made thereof. 5,800,823, Cl. 424-400.000.
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Herres, Donald C.; and Gold, John Harry, 5,801,494, Cl. 315-289.000.

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Ngo, Viet N.; and Tsai, Wei-Tek, 5,802,375, Cl. 395-709.000.

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Ponizio, Massimo; and Cresti, Fabrizio, 5,799,912, Cl. 248-121.000.

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- Cullity, Richard E., to Skyjack Equipment Inc. Lifting device with counterweight. 5,799,806, Cl. 212-196,000.
- Cummings, Charles A. Flying segmented ring. 5,800,237, Cl. 446-48,000.
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- Cunningham, James A., to SGS-Thomson Microelectronics, Inc. Device having a self-aligned gate electrode wrapped around the channel. 5,801,397, Cl. 257-66,000.
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- Ohno, Shinpei, 5,800,771, Cl. 264-510,000.
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- Nakayama, Hiroshi; and Miyai, Kiyotaka, 5,802,532, Cl. 707-519,000.
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- Damm, Hubertus, to Firma August Neuhoff. Process and device for applying a lubricant carrier layer to a wire material to be formed in a drawing process. 5,801,129, Cl. 508-175,000.
- Dampits, Arthur E.: *See—*
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- Dan, Asit; Kienle, Martin Gerhard; Sitaram, Dinkar; and Yu, Philip Shi-lung, to International Business Machines Corporation. System for load balancing by replicating portion of file while being read by first stream onto second device and reading portion with stream capable of accessing. 5,802,301, Cl. 395-200,530.
- Dana Corporation: *See—*
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- Dangelo, Carlos; Watkins, Daniel; and Mintz, Doron, to LSI Logic Corporation. Method and system for creating and validating low level description of electronic design from higher level, behavior-oriented description, including interactive system for hierarchical display of control and data-flow information. 5,801,958, Cl. 364-489,000.
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- Danielson, Glen C.; and Westhoff, Thomas M. Vehicle straightener measuring unit, measuring apparatus reliant on reflected beam(s), and source, targets and method. 5,801,834, Cl. 356-375,000.
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- Danner, Dale R.; and Wolterman, David S., to Remington Arms Company, Inc. Round sensing mechanism. 5,799,433, Cl. 42-1,050.
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Chamussy, Jean-François; Francois, Jean-Pierre; and Meunier, André, 5,801,306, Cl. 73-146.200.
Francovich, Walter: See—
Burke, Robert; Russell, James; Shaanan, Gad; Francovich, Walter; and Brousseau, Ivan, 5,799,417, Cl. 36-105.000.
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Lafferty, W. Michael; Slemmon, Charles S.; and Frandsen, W. James, 5,801,822, Cl. 356-124.000.
Frank, Jimmy I. Refrigerated mixing chamber and method for making same. 5,799,726, Cl. 165-156.000.
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Sharpe, Norton, 5,799,804, Cl. 211-105.100.
Frankowski, Richard, to Inner Tire Corporation. Pneumatic inner tire. 5,800,643, Cl. 152-156.000.
Frankus, Ernst: See—
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Frantz, Robert H.; and Honeycutt, John C., to InterVoice Limited Partnership. System and method for transmission system automatic impedance matching. 5,802,169, Cl. 379-398.000.
Franz, Keenan Wynn; Purcell, John David; and Reick, Kevin F., to International Business Machines Corporation. System and method for selecting an interrupt system based upon the operating system of a multiprocessor system. 5,802,350, Cl. 395-500.000.
Franz, Wolfgang: See—
Koch, Jochim; and Franz, Wolfgang, 5,800,335, Cl. 600-22.000.
Franzosi, Giuliana: See—
Van Der Goes, Wilhelmus; Bernardi, Antonella; Bosetti, Aldo; Franzosi, Giuliana; and Cesti, Pietro, 5,801,048, Cl. 435-252.330.
Fraser, Stephen G.: See—
Bernier, Donald R.; Fraser, Stephen G.; and Juengel, Richard O., 5,799,768, Cl. 194-318.000.
Fratello, Vincent Jerome: See—
Brandle, Charles David, Jr.; Fratello, Vincent Jerome; and Licht, Steven Joy, 5,801,875, Cl. 359-321.000.
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Gupta, Ramesh; and Frederick, Jeffrey W., 5,799,877, Cl. 239-8.000.
Fredrickson, David F. Multi-function hand tool. 5,799,996, Cl. 294-51.000.
Fredrickson, Lisa, to Seagate Technology, Inc. Matched spectral null encoder/decoder. 5,801,649, Cl. 341-58.000.
Freightliner Corporation: See—
Coverdill, Cary N., 5,802,545, Cl. 711-35.000.
Freimark, Corey A.; and Fisher, Daniel J. Sliding vehicle window. 5,799,444, Cl. 49-413.000.
Freitas, David Anthony, to International Business Machines Corporation. Method and apparatus for servo pulse detection with high AC coupling and large pulse asymmetry. 5,801,896, Cl. 360-77.080.
Freitas, Glenn A.: See—
Boyce, Joseph S.; Freitas, Glenn A.; Magee, Constance L.; Fusco, Thomas M.; Harris, John J.; and Kunkel, Edward, 5,800,672, Cl. 156-580.100.
Fremstad, Greg. Unified apparatus for forming a frame corner. 5,799,430, Cl. 40-785.000.
Frentzel, Herman E.: See—
Rief, Dieter J.; Frentzel, Herman E.; and Sebor, Pavel, 5,799,351, Cl. 15-1.700.
Fresh Products, Inc.: See—
Brown, Douglas S.; Scherger, David F.; Heilman, George C.; and Brown, Robert B., 5,799,826, Cl. 222-4.000.
Freudenberger, Richard, to CalComp Inc. Service station support bracket for printers. 5,801,726, Cl. 347-32.000.
Freund, Robert F.: See—
Abrams, Fredric Louis; and Freund, Robert F., 5,800,757, Cl. 264-132.000.
Freundlich, Alexandre: See—
Vilela, Mauro F.; Bensaula, Abdelhak; Freundlich, Alexandre; Renaud, Philippe; and Medelci, Nasr-Eddine, 5,800,630, Cl. 136-249.000.
Frey, Daniel David: See—
Carlson, Lawrence Evan; Frey, Daniel David; and Brown, Eric Stewart, 5,800,571, Cl. 623-57.000.
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Geus, Hans Georg; and Frey, Detlef, 5,800,840, Cl. 425-7.000.
Freyman, Ronald Lamar; Hendricks, Paul David; and Muscavage, Richard, to Lucent Technologies Inc. Controlled transition time driver circuit. 5,801,558, Cl. 327-112.000.
Friderichs, Elmar Josef: See—
Graudums, Ivars; Winter, Werner; Frankus, Ernst; Strassburger, Wolfgang; Werner Alfred; and Friderichs, Elmar Josef, 5,801,201, Cl. 514-646.000.
Friedman, Jacob; and Barazani, Gideon, to Iscar Ltd. Clamping device for a cutting insert. 5,799,554, Cl. 82-160.000.

Friedrich, Ralph S.; Kane, John F.; and Fortune, Mark H., to Ameron International Corporation. Fire resistant pipe. 5,799,705, Cl. 138-144.000.
Friedrich, Steven R.: See—
Becker, Thomas W.; and Friedrich, Steven R., 5,802,326, Cl. 395-340.000.
Fritz, Dean D.: See—
Orcutt, Eric D.; and Fritz, Dean D., 5,799,531, Cl. 72-402.000.
Fritz, Eric P.: See—
Lambert, Peter G.; Binder, John; Frost, Ivan E.; Brattoli, Stephen F., Jr.; and Fritz, Eric P., 5,800,615, Cl. 118-326.000.
Fritzsche, Ralf: See—
Diehl, Axel; Fritzsche, Ralf; and Groth, Klaus, 5,799,540, Cl. 74-473.370.
Frontec Corporation: See—
Hebiguchi, Hiroyuki, 5,801,398, Cl. 257-66.000.
Frost, Ivan E.: See—
Lambert, Peter G.; Binder, John; Frost, Ivan E.; Brattoli, Stephen F., Jr.; and Fritz, Eric P., 5,800,615, Cl. 118-326.000.
Frye, Dale Bryan: See—
Mead, Charles N.; and Frye, Dale Bryan, 5,801,688, Cl. 345-326.000.
Frye, Scott E.: See—
Corbett, Christopher H.; Balika, Brent A.; Moore, Bruce H.; and Frye, Scott E., 5,799,986, Cl. 285-55.000.
Fuba Automotive GmbH: See—
Lindenmeier, Heinz; Flachenecker, Gerhard, deceased; Hopf, Jochen; and Reiter, Leopold, 5,801,663, Cl. 343-704.000.
Fuji Electric Co. Ltd.: See—
Fujishima, Naoto, 5,801,420, Cl. 257-343.000.
Fuji Oox Inc.: See—
Hamada, Akihiro; Unino, Shinichi; and Takano, Yuji, 5,799,683, Cl. 137-15.000.
Fuji Photo Film Co., Ltd.: See—
Arakawa, Satoshi; and Yasuda, Hiroaki, 5,801,391, Cl. 250-584.000.
Furukawa, Koji, 5,800,968, Cl. 430-350.000.
Kato, Eiichi; Osawa, Sadao; and Nakazawa, Yusuke, 5,800,954, Cl. 430-47.000.
Katsuma, Nobuo; and Enomoto, Hisashi, 5,800,075, Cl. 400-120.140.
Matsumoto, Nobuo, 5,801,814, Cl. 355-40.000.
Mizukawa, Yuki; Igarashi, Tatsuya; and Hirai, Hiroyuki, 5,800,953, Cl. 430-7.000.
Morimoto, Yoshinori; and Miwa, Matsuyuki, 5,801,813, Cl. 355-27.000.
Okamoto, Yasuo; and Kondo, Shunichi, 5,801,212, Cl. 522-16.000.
Sumida, Kunihiro; and Sato, Hiroki, 5,799,898, Cl. 242-530.100.
Tamura, Yutaka, 5,800,970, Cl. 430-432.000.
Fuji Photo Optical Co., Ltd.: See—
Nishimura, Syunji, 5,802,404, Cl. 396-72.000.
Takeuchi, Shinji; and Akiha, Haruo, 5,800,343, Cl. 600-132.000.
Yamada, Hiroshi, 5,801,890, Cl. 359-793.000.
Fuji Xerox Co., Ltd.: See—
Agata, Takeshi; and Imai, Takashi, 5,800,957, Cl. 430-109.000.
Hokari, Norio, 5,802,422, Cl. 399-36.000.
Matsumoto, Fumitaka; and Tojo, Yasuko, 5,802,381, Cl. 395-779.000.
Matsumoto, Mitsuhiro; Uehara, Yasuhiro; and Shoji, Yoshio, 5,802,443, Cl. 399-333.000.
Nakatsuyama, Hisashi; Kyojima, Masaki; and Okumura, Yo, 5,802,529, Cl. 707-513.000.
Nashimoto, Keiichi, 5,802,223, Cl. 385-8.000.
Shibuta, Kazuo, 5,802,535, Cl. 707-523.000.
Suzuki, Kazuhiro, 5,801,841, Cl. 358-433.000.
Yamasawa, Akira, 5,800,082, Cl. 400-120.140.
Fujihara, Hiromichi: See—
Takekoshi, Kiyoshi; Ono, Tetsuji; and Fujihara, Hiromichi, 5,801,545, Cl. 324-770.000.
Fujii, Haruhiko, to Ando Electric Co., Ltd. Variable delay circuit. 5,801,562, Cl. 327-149.000.
Fujii, Hiroshi; Kaneko, Ryuichi; and Satoh, Shinichi, to Nippon Soda Co., Ltd. Diphenyl sulfone derivative and recording material prepared therefrom. 5,801,288, Cl. 568-33.000.
Fujii, Syuichi: See—
Sawa, Toshihiro; Sonoda, Sumitoshi; Fujii, Syuichi; and Yamamoto, Eiji, 5,801,509, Cl. 318-705.000.
Fujikoki Corporation: See—
Yano, Masamichi; and Furuta, Takuji, 5,799,499, Cl. 62-225.000.
Fujikura, Yoshiaki: See—
Uno, Mitsuru; Kitsuiki, Tomohito; Kita, Katsumi; Fujikura, Yoshiaki; and Okutsu, Akiko, 5,801,270, Cl. 560-169.000.
Fujimori, Taketoshi; Kusuoku, Hiroshi; Yamamoto, Akira; Yada, Yukihiko; Higuchi, Kazuhiko; Imokawa, Genji; Kondo, Naoki; Masukawa, Yoshinori; Tokuda, Hajime; and Tsujimura, Hisashi, to Kao Corporation. Amine derivatives for treatment of skin disorders. 5,801,202, Cl. 514-659.000.
Fujimoto, Hitoshi: See—
Ikatai, Masatoshi; Fujimoto, Hitoshi; and Mikoshiba, Tsuyoshi, 5,801,736, Cl. 347-86.000.
Fujimoto, Masaya: See—
Hayashi, Syuji; Fujimoto, Masaya; Nakamura, Koji; Okumura, Ryuichi; and Yamamoto, Haruo, 5,801,845, Cl. 358-458.000.
Fujinami, Yasushi, to Sony Corporation. Apparatus for reproducing data not successively located on a recording medium. 5,802,239, Cl. 386-47.000.
Fujinami, Yasushi: See—

- Kawamura, Makoto; and Fujinami, Yasushi, 5,802,242, Cl. 386-68.000.
Fujino, Masaru, to Murata Manufacturing Co., Ltd. Magnetostatic wave device with indium/tin in the magnetic garnet. 5,801,604, Cl. 333-202.000.
Fujioka, Keiji: See—
Hayakawa, Toru; Yoshinane, Toshiki; Yamamoto, Hiromu; Sato, Akira; Irie, Tsunemasa; Fujioka, Keiji; Takada, Yoshihiro; and Sasaki, Yoshio, 5,800,390, Cl. 604-93.000.
Fujisawa, Hiroshi, to Nissin Electric Co., Ltd. Variable energy radio-frequency type charged particle accelerator. 5,801,488, Cl. 315-5.410.
Fujisawa Pharmaceutical Co., Ltd.: See—
Asano, Toshihiko; Kondo, Ryoko; Mori, Yasumi; Takenawa, Seishi; Yamochi, Motoko; Kunugita, Kiyohiko; and Terachi, Tsutomu, 5,800,830, Cl. 424-439.000.
Fujisawa, Tetsuya; Sato, Mitsutaka; Kasai, Junichi; Mizukoshi, Masataka; Otokita, Kosuke; Yoshimura, Hiroshi; Hayashida, Katsuhiro; Takashima, Akira; Ishiguri, Masahiko; and Sono, Michio, to Fujitsu Limited. Semiconductor device and semiconductor device unit for a stack arrangement. 5,801,439, Cl. 257-686.000.
Fujisawa, Yoshikazu: See—
Nanaumi, Masaaki; Ohta, Norihiro; Asano, Youichi; Takagi, Yoshiaki; and Fujisawa, Yoshikazu, 5,800,783, Cl. 422-94.000.
Fujishima, Naoto, to Fuji Electric Co. Ltd. Lateral semiconductor arrangement for power ICS. 5,801,420, Cl. 257-343.000.
Fujita, Makoto: See—
Yamamoto, Yukio; Fujita, Makoto; Sakate, Nobuo; Ohuchi, Katsuya; and Hirabara, Shoji, 5,800,640, Cl. 148-557.000.
Fujita, Ryo; Soga, Mitsuru; Fukunaga, Yasushi; and Nishida, Takehiko, to Hitachi, Ltd. Special purpose memory for graphics and display apparatus using the special purpose memory for graphics. 5,801,706, Cl. 345-422.000.
Fujita, Yoshifumi: See—
Takiguchi, Masahiro; and Fujita, Yoshifumi, 5,800,309, Cl. 477-144.000.
Fujitani, Sakae: See—
Suzuki, Yuzuru; Fujitani, Sakae; and Makino, Kenichi, 5,801,463, Cl. 310-51.000.
Fujitsu Limited: See—
Chen, Joseph; and Lau, Kenneth, 5,802,264, Cl. 395-182.040.
Fujisawa, Tetsuya; Sato, Mitsutaka; Kasai, Junichi; Mizukoshi, Masataka; Otokita, Kosuke; Yoshimura, Hiroshi; Hayashida, Katsuhiro; Takashima, Akira; Ishiguri, Masahiko; and Sono, Michio, 5,801,439, Cl. 257-686.000.
Hiroshima, Shuichi; Okada, Akihiro; Ozawa, Masayuki; and Udagawa, Mamoru, 5,801,781, Cl. 348-441.000.
Imai, Yuji; Ito, Hidenobu; and Komura, Masahiro, 5,802,298, Cl. 395-200.470.
Inoue, Hiroyasu; Otani, Minoru; and Hasegawa, Tadashi, 5,801,802, Cl. 349-129.000.
Itoh, Yayoi; Ige, Fumiyasu; and Tanaka, Tadaaki, 5,802,308, Cl. 365-200.620.
Katoh, Hiroaki; and Miyazaki, Toshimasa, 5,801,370, Cl. 235-467.000.
Kishida, Toshihide; Yui, Hideaki; Yazawa, Shigehiko; and Toyama, Hideya, 5,802,475, Cl. 455-453.000.
Komatsu, Shinpei; Ishii, Yumi; Hayashi, Tomohiro; Shihazaki, Shogo; Itoh, Hiroyuki; and Takehara, Masaru, 5,802,551, Cl. 711-103.000.
Kuribayashi, Masaki; Kobayashi, Kazuhiko; Sato, Shunichi; and Hakogi, Hironao, 5,802,230, Cl. 385-92.000.
Matsuda, Noriyuki; Shiromoto, Yoshio; and Taira, Yasuhito, 5,800,073, Cl. 400-74.000.
Mishiro, Kinuko, 5,799,392, Cl. 29-830.000.
Mori, Kazuyuki, 5,801,584, Cl. 327-543.000.
Nagahama, Yoshinori, 5,801,969, Cl. 364-578.000.
Naganuma, Norihisa; and Fukushima, Nobuhiro, 5,801,892, Cl. 359-892.000.
Obata, Akihiko, 5,801,677, Cl. 345-123.000.
Ooishi, Isamu, 5,802,538, Cl. 707-542.000.
Saeki, Mituo; Yano, Hidetoshi; and Ozawa, Hidekiyo, 5,801,514, Cl. 320-136.000.
Satoh, Noriko; Okada, Yoshiyuki; Yoshida, Shigeru; and Yahagi, Hironori, 5,801,648, Cl. 341-50.000.
Shinozaki, Naoharu, 5,802,596, Cl. 711-169.000.
Sugai, Toshimi, 5,802,259, Cl. 395-112.000.
Uchiyama, Katsuhiko, 5,802,496, Cl. 705-21.000.
Warashina, Suguru; and Tsuboi, Osamu, 5,801,081, Cl. 438-410.000.
Watanabe, Yoshihiro, 5,802,049, Cl. 370-390.000.
Yagi, Norio; Shimada, Kunihiro; Katoh, Takehiko; Myokan, Kenichi; Matsumoto, Takashi; and Takashi, Kazuhiko, 5,801,907, Cl. 360-105.000.
Fujitsu Software Corporation: See—
Morse, Norman; and Douglas, Jeffrey, 5,802,296, Cl. 395-200.380.
Fujiwara, Kunihiko: See—
Suzuki, Mitsuru; Ohno, Kazunari; Fujiwara, Kunihiko; Kato, Tetsuo; and Morishita, Takanori, 5,801,343, Cl. 181-254.000.
Fujiwara, Toshikatsu: See—
Horiuchi, Shingo; Terakawa, Taiju; and Fujiwara, Toshikatsu, 5,800,230, Cl. 442-352.000.
Fujiwara, Yukinari: See—
Adachi, Masaru; and Fujiwara, Yukinari, 5,802,451, Cl. 455-126.000.
Fukami, Shoichi, to J.E. Co., Ltd.; and Ben Clements and Sons. Fastener assembly. 5,799,375, Cl. 24-16.00B.
Fukatani, Katsumi, to Toyota Jidosha Kabushiki Kaisha. Device for stabilizing vehicle attitude in terminal portion of countersteering state by reducing vehicle yaw moment produced by yaw moment control mechanism. 5,799,745, Cl. 180-410.000.
Fukaya, Kenji: See—
Hori, Makoto; Miyamoto, Toshimi; Fukaya, Kenji; Hamaya, Masahiro; Ohta, Minoru; and Miwa, Naoto, 5,800,689, Cl. 204-428.000.
Fukuda, Morio: See—
Matsumoto, Hiroshi; Arao, Hiroki; and Fukuda, Morio, 5,800,797, Cl. 423-625.000.
Fukuda, Yumi: See—
Iida, Atsuko; Uchida, Tatsuro; Kinno, Akira; Saito, Masayuki; Kizaki, Yukio; Miyagi, Takeshi; Mori, Miki; and Fukuda, Yumi, 5,801,797, Cl. 349-73.000.
Fukuhara, Rina: See—
Igarashi, Yasuo; Suzuki, Takashi; Kimura, Tomoko; Motoyama, Akira; Fukuhara, Rina; and Torii, Atsuko, 5,800,827, Cl. 424-405.000.
Fukui, Toshiyuki; Hamaguchi, Kazumasa; Kosugi, Masato; and Shimoyama, Tomohiko, to Canon Kabushiki Kaisha. Information processing method and system therefor. 5,802,295, Cl. 395-200.460.
Fukui, Wataru: See—
Umamoto, Hideki; Hiraoka, Naoki; Fukui, Wataru; Ohashi, Yutaka; and Yokotani, Masahiro, 5,801,529, Cl. 324-207.120.
Fukumoto, Masami: See—
Inoue, Takayuki; Fukumoto, Masami; and Yamaura, Izumi, 5,799,363, Cl. 15-327.300.
Fukunaga, Yasushi: See—
Fujita, Ryo; Soga, Mitsuru; Fukunaga, Yasushi; and Nishida, Takehiko, 5,801,706, Cl. 345-422.000.
Fukushima, Nobuhiro: See—
Naganuma, Norihisa; and Fukushima, Nobuhiro, 5,801,892, Cl. 359-892.000.
Fukuzawa, Daizo: See—
Oba, Hiroyuki; Ohtsuka, Yasumasa; Okuda, Kouichi; Ishiyama, Tatsunori; Hayakawa, Akira; Fukuzawa, Daizo; and Shibuya, Takashi, 5,801,360, Cl. 219-216.000.
Fulcher, Daniel B. Audio decoy. 5,802,197, Cl. 381-205.000.
Fulford, H. Jim, Jr.: See—
Gardner, Mark I.; Dawson, Robert; Fulford, H. Jim, Jr.; Hause, Frederick N.; Michael, Mark W.; Moore, Bradley T.; and Wristers, Derick J., 5,801,075, Cl. 438-197.000.
Gardner, Mark I.; Wristers, Derick J.; and Fulford, H. Jim, Jr., 5,801,088, Cl. 438-585.000.
Ghneim, Said N.; and Fulford, H. Jim, Jr., 5,801,076, Cl. 438-261.000.
Fullam, Scott; Anderson, Eric; and Schneider, Rodger C., to Apple Computer, Inc. Processor having an adaptable mode of interfacing with a peripheral storage device. 5,802,550, Cl. 711-102.000.
Fuller, Randy R.: See—
Fava, Thomas F.; Keith, Joseph M.; and Fuller, Randy R., 5,802,561, Cl. 711-120.000.
Fulton, James Paul: See—
Patton, Thadd Clark; Filkins, Robert John; Fulton, James Paul; Heden-gren, Kristina Helena Valborg; and Young, John David, 5,801,532, Cl. 324-238.000.
Fumarolo, Arthur L.: See—
Ayoub, Rami P.; Fumarolo, Arthur L.; and Maher, John William, 5,801,690, Cl. 345-329.000.
Funanami, Yukiya; Mitsuoka, Yasuyuki; Kasama, Nobuyuki; and Iwaki, Tadao, to Seiko Instruments Inc. Image Projection apparatus. 5,800,033, Cl. 353-97.000.
Funk, Wade L.; and Jackson, Walter C., to Electronic Data Systems Corporation. Automated system and method for point-of-sale (POS) check processing. 5,801,366, Cl. 235-380.000.
Furlani, Edward P.: See—
Bryant, Robert C.; O'Brien, Michael J.; and Furlani, Edward P., 5,802,415, Cl. 396-469.000.
Furst, Franz: See—
Bauer, Hermann; Bender, Richard; Furst, Franz; Vetter, Bernhard; Winterhalder, Marc; and Zeuner, Siegfried, 5,799,973, Cl. 280-741.000.
Furukawa Electric Co., Ltd.: See—
Suzuki, Satoshi; and Murakawa, Mitsuru, 5,800,932, Cl. 428-615.000.
Furukawa, Koji, to Fuji Photo Film Co., Ltd. Method for heat developing photosensitive material and apparatus therefor. 5,800,968, Cl. 430-350.000.
Furumoto, Takayuki: See—
Hayashi, Syuji; and Furumoto, Takayuki, 5,802,216, Cl. 382-270.000.
Furuse, Tatsuji: See—
Okawa, Yoshihiro; and Furuse, Tatsuji, 5,801,112, Cl. 501-138.000.
Furuta, Takuji: See—
Yano, Masamichi; and Furuta, Takuji, 5,799,499, Cl. 62-225.000.
Furutachi, Hitoshi: See—
Ozaki, Masaharu; Naka, Takeshi; and Furutachi, Hitoshi, 5,801,518, Cl. 323-222.000.
Furuya, Hiromi: See—
Miyahara, Yoshihisa; Kimura, Kouichi; Motoyoshi, Yoshiyuki; Takagi, Tatsuo; Horiuchi, Osamu; and Furuya, Hiromi, 5,800,745, Cl. 264-13.000.
Fusco, Thomas M.: See—
Boyce, Joseph S.; Freitas, Glenn A.; Magee, Constance L.; Fusco, Thomas M.; Harris, John J.; and Kunkel, Edward, 5,800,672, Cl. 156-580.100.

- Fusek, Martin; and Vetricka, Václav, to Oklahoma Medical Research Foundation. Method for inhibition of breast tumor growth. 5,800,814, Cl. 424-133.100.
Fuss, William A.: See—
Eschbach, Reiner; Fuss, William A.; and Hains, Charles M., 5,802,214, Cl. 382-254.000.
Fusselman, David F.: See—
David, James J.; and Fusselman, David F., 5,800,192, Cl. 439-188.000.
Futaba Industrial Co., Ltd.: See—
Suzuki, Mitsuru; Ohno, Kazunari; Fujiwara, Kunihiko; Kato, Tetsuo; and Morishita, Takanori, 5,801,343, Cl. 181-254.000.
Future Domain Corporation: See—
Epstein, Jeffrey E.; and Heppenstall, Mark F., 5,802,392, Cl. 395-824.000.
Fyfe, Edward: See—
Ludwig, Jerome H.; Shenkir, Myron; Temple, Dan; and Fyfe, Edward, 5,800,629, Cl. 134-22.110.
Fyson, John Richard, to Eastman Kodak Company. Chemical supply cartridge. 5,802,417, Cl. 396-626.000.
Gaarder, Glenn W.; Stodder, Samuel A.; Palmer, Lynn D.; Caputo, Dan S.; and Nguyen, Chan K., to Hewlett-Packard Co. Multiple-function printer document deflector actuation coupled to service station actuation. 5,800,083, Cl. 400-185.000.
Gabalda, Carlos Matas, to ICBT Diederichs. Weaving loom with vibration damper. 5,799,706, Cl. 139-1.00R.
Gademann, Lothar; Schmid, Roland; and Hamann, Friedrich-Reinhold, to Robert Bosch GmbH. Housing for an electrical device having spring means. 5,801,330, Cl. 174-52.100.
Gadtke, David W.: See—
Isaacson, Philip O.; and Gadtke, David W., 5,800,349, Cl. 600-323.000.
Gaffar, Abdul: See—
Mirajkar, Yelloji Rao K.; Gaffar, Abdul; Stein, Stefan; Jahns, Ekkehard; Dieing, Reinhold; and Sperling, Karin, 5,800,803, Cl. 424-54.000.
Gagliardi, Giovanni; and Bolognese, Litterio, to Società Italiana Vetro - SIV - S.p.A. Process for the improvement of the abrasion resistance features and of the chemical inertia of transparent thin coatings. 5,800,684, Cl. 204-192.160.
Gaige, Dennis G.: See—
McVay, Kenneth R.; Gaige, Dennis G.; and Kain, William S., 5,801,275, Cl. 562-523.000.
Galaxy Top International S.p.A.: See—
Punti, Luigi, 5,800,476, Cl. 607-66.000.
Galick, Stephen J.: See—
Peacock, Kenneth; Everaerts, Albert I.; Wilson, Kenneth D.; and Galick, Stephen J., 5,800,919, Cl. 428-355.0AC.
Galileo Laboratories, Inc.: See—
Miller, Guy; Lou, Lillian; and Nakamura, John, 5,801,159, Cl. 514-45.000.
Galivan, John Henry; Ryan, Thomas John; Yao, Rong; and Nimec, Zenia, to Health Research, Incorporated. Human and rat gamma glutamyl hydrolase genes. 5,801,031, Cl. 435-172.300.
Galland, Pierre A.: See—
Alfano, Robert R.; Ho, Ping-Pei; Wang, Leming; Liang, Xiangchun; and Galland, Pierre A., 5,799,656, Cl. 128-664.000.
Gallant, John K.; and Reynolds, Kevin T., to MCI Communications Corporation. Personal communication device voice mail notification apparatus and method. 5,802,466, Cl. 455-413.000.
Gallant, John K.; Reynolds, Kevin; Mockford, Stephen; and Wraspe, Thomas, to MCI Corporation. System and method for identifying calling areas within a communication system. 5,802,468, Cl. 455-422.000.
Galliano, Mario Jose: See—
Zetts, John Mark; Galliano, Mario Jose; Tannenbaum, Alan R.; Tracey, William J.; Lee, Keun J.; and Desrosiers, Moe R., 5,802,388, Cl. 395-804.000.
Gallmeyer, William: See—
Gershenson, Bruce; and Gallmeyer, William, 5,799,378, Cl. 24-452.000.
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- Kawai, Hiroyuki; and Sekihara, Kensuke, 5,802,133, Cl. 378-4,000.
- Hitachi Metals, Ltd.: *See—*
- Iwata, Masao, 5,800,728, Cl. 252-62,530.
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- Hubermayr, Erwin; and Horak, Dieter, 5,800,185, Cl. 439-72,000.
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- Jejelowo, Moses Olukayode; and Hlatky, Gregory George, 5,801,113, Cl. 502-104,000.
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- Hoch, Paul-Gerhard: *See—*
- Buch, Stefan; Hoch, Paul-Gerhard; und Klopff, Wolfgang, 5,800,072, Cl. 384-568,000.
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- Hock, Klaus: *See—*
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- Bahrman, Helmut; Kleiner, Hans-Jerg; and Regnat, Dieter, 5,801,291, Cl. 568-454,000.
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- Baur, Rüdiger; and MacHoldt, Hans-Tobias, 5,800,602, Cl. 106-162,200.
- Neuhacher, Marc; Elschner, Steffen; Lang, Christoph; Teske, Christoph; and Mueller-Buschbaum, Hans Karl, 5,801,126, Cl. 505-501,000.
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- Sievers, Werner; and Müller, Günter, 5,800,594, Cl. 95-211,000.
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- Feeney, Carrie A.; Jones, Ida L.; Ward, Bennett C.; Kenesson, Thomas M.; Hilton, Charles B.; Ahern, Michael R.; Adams, Gregory M.; de la Garza, Edward M.; Wood, B. Frank, Jr.; Grantland, Thomas L.; Tsai, Kan J.; and Ragan, James L., 5,801,269, Cl. 560-78,000.
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- Hrb, Nicholas Joseph; Jurcak, John Gerard; and Mutlib, Abdul E., 5,801,176, Cl. 514-254,000.
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- Mauer, Rudolf; Schreck, Michael; and Wilhelm, Adolf, 5,800,913, Cl. 428-323,000.
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- Pare, David Ferrin, Jr.; Hoffman, Ned; and Lee, Jonathan Alexander, 5,802,199, Cl. 382-115,000.
- Hoffmann, Erich: *See—*
- Mehnert, Hans-Jürgen; Hoffmann, Erich; and Pytlík, Dorothea, 5,800,707, Cl. 210-232,000.
- Hoffmann-La Roche Inc.: *See—*
- Klaus, Michael; Lovey, Allen John; Mohr, Peter; and Rosenberger, Michael, 5,801,253, Cl. 549-79,000.
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- Hogan, John Martin, to City of Hope. Intravascular needle with movable safety shield, 5,800,400, Cl. 604-171,000.
- Hogan, Kathleen Marie: *See—*
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- Hogenson, James G.: *See—*
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- Hoppe, Joachim; and Hohmann, Arno, 5,800,763, Cl. 264-255,000.
- Hohmann, Rolf: *See—*
- Backasch, Wolf; and Hohmann, Rolf, 5,799,393, Cl. 29-852,000.
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- Hokari, Norio, to Fuji Xerox Co., Ltd. Image forming device, 5,802,422, Cl. 399-36,000.
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- Issa, Nabil M.; and Holbrook, Gerald L., 5,801,621, Cl. 340-439,000.
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- Holden, James M.; Levin, Stephen E.; Nickel, James O.; and Wrench, Edwin H., Jr., to ITT Industries, Inc. Stand alone device for providing security within computer networks, 5,802,178, Cl. 380-49,000.

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- Holland, John Patrick; and Barnes, Michael S., to Lam Research Corporation. Vacuum plasma processor having coil with minimum magnetic field in its center. 5,800,619, Cl. 118-723.001.
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- Holmes Products Corp.: *See—*
Glenn, Neville R.; Collier, Ted; and Rigsby, Lori, 5,800,741, Cl. 261-107.000.
- Lo, David, 5,800,054, Cl. 362-431.000.
- Holmström, Nils, to Pacesetter AB. Activity-responsive pacer with bipolar sensor electrode. 5,800,468, Cl. 607-17.000.
- Holt, Jeffrey J., to Intergraph Corporation. Vertex list management system. 5,801,714, Cl. 345-501.000.
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- Holtzclaw, Richard G.: *See—*
DeJonge, Robert A.; and Holtzclaw, Richard G., 5,799,538, Cl. 74-473.300.
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- Holzgruber, Harald: *See—*
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- Hon Hai Precision Ind. Co., Ltd.: *See—*
Hsu, Sung Liu; Wang, Chun Chu; and Yin, Chang-Hua, 5,800,207, Cl. 439-541.500.
- Honda Giken Kogyo Kabushiki Kaisha: *See—*
Honda, Kiyoshi, 5,799,974, Cl. 280-739.000.
- Isobe, Takashi; and Hara, Fumio, 5,799,639, Cl. 123-520.000.
- Kanehara, Shigeru; Yoshida, Hideaki; Akagi, Hirofumi; Aoyama, Hideaki; and Shimada, Takamichi, 5,800,298, Cl. 474-8.000.
- Kusano, Katsuyuki; Ito, Hisahiro; and Itoh, Tomoyuki, 5,801,498, Cl. 318-139.000.
- Moriya, Takashi; Komatsu, Yasuyuki; Sono, Hiroshi; and Sugai, Takashi, 5,799,630, Cl. 123-90.110.
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- Nosaki, Katsutoshi; Masumoto, Tsuyoshi; Inoue, Akihisa; and Yamaguchi, Tadashi, 5,800,638, Cl. 148-403.000.
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Trask, Jeffrey L.; Honda, Hiroyuki; and Sato, Kenji, 5,802,435, Cl. 399-224.000.
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- Honeywell Inc.: *See—*
Erickson, Timothy K.; and O'Brien, Gary R., 5,800,628, Cl. 134-18.000.
- Karpinski, Andrew J., Jr.; Albers, Steven C.; and Callaghan, Timothy J., 5,801,377, Cl. 250-231.120.
- Nichols, Randolph G., 5,801,923, Cl. 361-704.000.
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- Hong Vuong, Loan T., to Motorola, Inc. Mask stencil wear indicator. 5,800,856, Cl. 427-9.000.
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- Hooper, Warren W.; Keys, James F.; Kaczynski, James F.; and Malm, Douglas N., to Standard Products Company, The. Method of intermittent length stabilization. 5,800,657, Cl. 156-244.110.
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Grover, Tim S., 5,800,291, Cl. 473-447.000.
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- Hoover Company, The: *See—*
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Rudewicz, Paul T.; Thomas, Thom; Hopkins, Mark A.; and Chan, Robert K., 5,799,822, Cl. 221-150.0HC.
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- Horak, Dieter: *See—*
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- Horn, Marcus J. Chemical sample treatment system and cassette, and methods for effecting multistep treatment process. 5,800,784, Cl. 422-101.000.
- Horne, Remko: *See—*
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- Hornig, Shui-Bin: *See—*
Laing, Muh-Wang; Hornig, Shui-Bin; Chao, Chin-Yu; Chang, Han-Chieh; and Hsiao, Chung-Hsih, 5,800,750, Cl. 264-40.500.
- Horrall, Paul Douglas: *See—*
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- Horton, Robert R., to Ericsson Inc. Transmit sequencing. 5,802,450, Cl. 455-114.000.
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- Hoshi, Atsushi: *See—*
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- Hoshino, Tatsuyuki; Ban, Takashi; Moroi, Takahiro; and Yagi, Kiyoshi, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Viscous fluid heater. 5,799,619, Cl. 122-26.000.
- Hosiden Corporation: *See—*
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- Hosomi, Eiichi: *See—*

- Hirano, Naohiko; Doi, Kazuhide; Takubo, Chiaki; Tazawa, Hiroshi; Hosomi, Eiichi; Hiruta, Yoichi; Okada, Takashi; and Shibasaki, Koji, 5,801,447, Cl. 257-778.000.
- Hosoya, Masahiro: *See—*
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- Hosoya, Takeshi: *See—*
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- Hosoyama, Kenji: *See—*
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- Hossainy, Syed F. A.: *See—*
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- Hotra, Zenon: *See—*
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- Hotta, Yoshihiko: *See—*
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- Houdek, Philip, II: *See—*
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- Houle, Patrick J.: *See—*
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- Houman, Fariba: *See—*
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- House, William K.: *See—*
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- Howell, Stephen K.: *See—*
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- Jabbi, Amandeep; and Howell, Stephen K., 5,801,719, Cl. 345-524.000.
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- Howmedica Inc.: *See—*
Bao, Qi-Bin; Higham, Paul A.; Bagga, Charanpreet S.; and Yuan, Hansen A., 5,800,549, Cl. 623-17.000.
- Higham, Paul A.; and Warfield, Larry T., 5,800,559, Cl. 623-23.000.
- Hoyt, David; and Alderotto, Gary T., to Principle Plastics. Toy film viewer and method of making same. 5,800,034, Cl. 353-109.000.
- Hoyt, Dean: *See—*
Perrotta, Kenneth A.; and Hoyt, Dean, 5,800,597, Cl. 96-9.000.
- Hrdlicka, Gregory A.: *See—*
Thompson, David L.; King, Gary W.; and Hrdlicka, Gregory A., 5,800,465, Cl. 607-9.000.
- Hrib, Nicholas Joseph; Jurcak, John Gerard; and Mutlib, Abdul E., to Hoechst Marion Roussel, Inc. Substituted benzothienylpiperazines and their use. 5,801,176, Cl. 514-254.000.
- Hrib, Nicholas Joseph; and Jurcak, John Gerard, to Hoechst Marion Roussel, Inc. 3-[4-(1-substituted-4-piperazinyl)butyl]-4-thiazolidinone and related compounds. 5,801,186, Cl. 514-324.000.
- Hsei, Paul K.: *See—*
Liston, Max D.; Harrison, Todd I.; and Hsei, Paul K., 5,801,317, Cl. 73-863.810.
- Hsiao, Chung-Hsih: *See—*
Laing, Muh-Wang; Hornig, Shui-Bin; Chao, Chin-Yu; Chang, Han-Chieh; and Hsiao, Chung-Hsih, 5,800,750, Cl. 264-40.500.
- Hsiao, Kimbo: *See—*
Huang, Wei-Lun; Hsiao, Kimbo; and Hsieh, Hung-Yih, 5,801,678, Cl. 345-127.000.
- Hsiao, Yao-shiung. Repeatable coding lock. 5,799,519, Cl. 70-358.000.
- Hsieh, Chih-Ching. Crescent wrench. 5,799,550, Cl. 81-150.000.
- Hsieh, Chung-Wei; Hsieh, Yung-Ching; and Ting, Tah-Kang Joseph, to Etron Technology, Inc. Ping-pong boost circuit. 5,801,997, Cl. 365-189.110.
- Hsieh, Hung-Yih: *See—*
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- Hsieh, Wen-Chan. Electrolytic fueling system for engine. 5,799,624, Cl. 123-3.000.
- Hsieh, Yung-Ching: *See—*
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- Hsien-Jen, Kuo; and Kuo, Hsien-Wen. Retractable conduit. 5,799,702, Cl. 138-120.000.
- Hsu, Chao-chun. Belt hanger with buckle protecting jacket. 5,799,843, Cl. 223-85.000.
- Hsu, Jerry, to United Microelectronics Corp. Two-channel programmable sound generator with volume control. 5,802,187, Cl. 381-119.000.
- Hsu, Kang-Chiang. Golf club containing cylinder structure. 5,799,785, Cl. 206-315.600.
- Hsu, Ker-Shin. Hammock. 5,799,348, Cl. 5-123.000.
- Hsu, Min-Hsun. Plug-in type light bulb. 5,800,212, Cl. 439-619.000.
- Hsu, Sung Liu; Wang, Chun Chu; and Yin, Chang-Hua, to Hon Hai Precision Ind. Co., Ltd. Mechanism for arranging different I/O port connectors. 5,800,207, Cl. 439-541.500.
- HT Research, Inc.: *See—*
Hwang, Ivan Chung-Shung, 5,802,391, Cl. 395-822.000.
- Hu, Zhenze; and Denick, John, to Bausch & Lomb Incorporated. Ophthalmic compositions including glycerin and propylene glycol. 5,800,807, Cl. 424-78.040.
- Huang, Ann. Swimming goggles. 5,799,338, Cl. 2-428.000.
- Huang, Chen-tan. Double-acting hydraulic cylinder for use in an exercising apparatus. 5,799,758, Cl. 188-285.000.
- Huang, Chih-Tsung: *See—*
Pierce, Kerry M.; Erickson, Charles R.; Huang, Chih-Tsung; and Wieland, Douglas P., 5,801,546, Cl. 326-39.000.
- Huang, Joseph: *See—*
Sung, Chiakang; Huang, Joseph; and Chang, Wanli, 5,802,540, Cl. 711-1.000.
- Huang, Kung-Da. Resistance device for an exerciser. 5,800,316, Cl. 482-61.000.
- Huang, Ming: *See—*
Gavin, Michael; Cimini, Catherine M.; Huang, Ming; Kuklo, Anthony, Jr.; Mawhirt, James A.; Marcelino, Eduardo; and Simone, Albert, 5,800,781, Cl. 422-73.000.
- Huang, Richard J.; and Woo, Christy M.-C., to Advanced Micro Devices, Inc. Production worthy interconnect process for deep sub-half micrometer back-end-of-line technology. 5,801,095, Cl. 438-627.000.
- Huang, Rong-Fong; Sanchez, Carlos A.; and Lombard, James H., to Motorola Inc. Low temperature cofirable dielectric paste. 5,801,108, Cl. 501-32.000.
- Huang, Rong-Ting: *See—*
Chen, Diana; Wright, Phil; and Huang, Rong-Ting, 5,801,799, Cl. 349-74.000.
- Wright, Phil; Chen, Diana; Richard, Fred V.; Jachimowicz, Karen E.; and Huang, Rong-Ting, 5,801,800, Cl. 349-77.000.
- Huang, Tzuen-Hsi: *See—*
Lee, Chwan-Ying; and Huang, Tzuen-Hsi, 5,801,100, Cl. 438-678.000.
- Huang, Wei-Lun; Hsiao, Kimbo; and Hsieh, Hung-Yih, to Industrial Technology Research Institute. Fast bi-linear interpolation pipeline. 5,801,678, Cl. 345-127.000.
- Huang, Yea-Shian, to Industrial Technology Research Institute. System and process for constructing optimized prototypes for pattern recognition using competitive classification learning. 5,802,207, Cl. 382-224.000.
- Huang, Yifang: *See—*
Dalton, David R.; and Huang, Yifang, 5,801,247, Cl. 548-201.000.
- Hubbell, Jeffrey A.; Pathak, Chandrashekar P.; Sawhney, Amarpreet S.; Desai, Neil P.; and Hossainy, Syed F. A., to Board of Regents, The University of Texas System, The. Gels for encapsulation of biological materials. 5,801,033, Cl. 435-182.000.
- Huber, Val J., to Vision Software Tools, Inc. Automated client/server development tool using drag-and-drop metaphor. 5,802,514, Cl. 707-4.000.
- Hubert, Christine: *See—*
Soubrier, Florent; Alhene-Gelas, François; and Hubert, Christine, 5,801,040, Cl. 435-226.000.
- Hubrig, Sylvan E.; and Fischer, Roy K. Water-conserving urinal. 5,799,340, Cl. 4-342.000.
- Hudkins, Robert L.; Diebold, James L.; and Knight, Ernest, Jr., to Cephalon, Inc. Fused pyrolytic[2,3-C] carbazole-6-ones. 5,801,190, Cl. 514-410.000.
- Hudson, George Carlton: *See—*
Rudder, Ronald Alan; Hendry, Robert Carlisle; and Hudson, George Carlton, 5,800,620, Cl. 118-712.001.
- Hudson, Hank M.: *See—*
Wilkinson, John D.; Hudson, Hank M.; and Cuellar, Kyle T., 5,799,507, Cl. 62-621.000.
- Hudson, John: *See—*
Goicoechea, George; Hudson, John; and Mialhe, Claude, 5,800,508, Cl. 623-1.000.
- Hudson, Perry B.; Lombardo, Michael E.; and Hakky, Said I. Method for detecting prostatic cancer. 5,801,004, Cl. 435-7.230.
- Hudson Standard Corporation: *See—*
Pearlman, Theodore; and Pearlman, Wade, 5,801,362, Cl. 219-400.000.
- Huffman, Eric C., to Bissell Inc. Multi-use water extraction cleaning system and method for using the same. 5,799,362, Cl. 15-321.000.
- Huffman, Ronald E., to Dentsply Research & Development Corp. Spacer block for a dental articulator. 5,800,166, Cl. 433-60.000.
- Hugel, Ulrich: *See—*
Corrigan, Patrick; and Hugel, Ulrich, 5,801,818, Cl. 356-5.010.
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LeFevre, David, 5,801,556, Cl. 327-103.000.
- Sklar, Richard E.; and Girard, Lawrence E., 5,801,751, Cl. 348-8.000.
- Wells, Michael L.; Tyson, John A.; Sand, Richard J.; Higa, Glenn S.; and Pauwels, Jane L., 5,799,899, Cl. 244-3.110.
- Hughes Electronics Corporation: *See—*
Bunstedt, Douglas C.; Palumbo, Aaron J.; Haider, Robert S.; and Reyes, Tony A., 5,801,928, Cl. 361-801.000.
- Crary, Philip D., 5,802,579, Cl. 711-149.000.
- Hughes, John Farrell, to University of Southampton. Process for the preparation of electrostatically charged particles. 5,800,605, Cl. 106-270.000.

- Hughes, John M.: *See—*
Seago, James D.; and Hughes, John M., 5,801,830, Cl. 356-346.000.
Hughes, Peter M.; and Luczak, Edward C., to United States of America, National Aeronautics and Space Administration. System and method for creating expert systems. 5,802,255, Cl. 395-75.000.
Hull, Vincent W.: *See—*
Schwartz, Robert S.; Bresnahan, John; Bergman, Rebecca M.; Coury, Arthur J.; Lindell, Elaine; Hull, Vincent W.; and Dror, Michael, 5,799,384, Cl. 29-458.000.
Hulsebosch, Thomas G., to Motorola, Inc. Method and apparatus to mitigate interference caused by an overlay communication system. 5,802,456, Cl. 455-63.000.
Hülseberg, Dagmar: *See—*
Zastrow, Leonhard; Hülseberg, Dagmar; Golz, Karin; and Stanzl, Klaus, 5,800,835, Cl. 424-647.000.
Hultberg, Kent; and Ranta, Teuvo, to Lindab AB. Double-walled structure and method and arrangement for producing the same. 5,801,342, Cl. 181-224.000.
Hunt, Gary T., to International Business Machines Corporation. Supporting multiple client-server sessions from a protocol stack associated with a single physical adapter through use of a plurality of logical adapters. 5,802,306, Cl. 395-200.580.
Huntsman, Robert A., to Extended Systems, Inc. Hypertext based remote graphic user interface control system. 5,801,689, Cl. 345-329.000.
Huppenthal, Joseph A.: *See—*
Hebestreit, Charles G.; Myers, David J.; Huppenthal, Joseph A.; and Bethke, Glenn T., 5,801,319, Cl. 84-297.005.
Hurd, Jonathan James: *See—*
Crump, Dwayne Thomas; Hurd, Jonathan James; Pancoast, Steven Taylor; and Worthington, Thomas K., 5,801,785, Cl. 348-563.000.
Hurst, Edward A.: *See—*
Goshay, William K.; Sheehan, Joseph W.; Atkinson, Barry D.; Hurst, Edward A.; Jackson, Richard A.; and Proietti, Mario, 5,802,454, Cl. 455-31.200.
Husain, Abbas M. Eye chart with color vision screening. 5,801,809, Cl. 351-239.000.
Huse, O. C., to Moeller Marine Products. Expandable boat seat. 5,799,605, Cl. 114-363.000.
Hussong, Dudley D., to Hussong Manufacturing Co., Inc. Mineral fiber log processing. 5,800,875, Cl. 427-430.100.
Hussong Manufacturing Co., Inc.: *See—*
Hussong, Dudley D., 5,800,875, Cl. 427-430.100.
Hutchins, Robert Allen: *See—*
Clark, Alan Robert; and Hutchins, Robert Allen, 5,802,031, Cl. 369-59.000.
Hutchison, William. Adaptive autonomous agent with verbal learning. 5,802,506, Cl. 706-20.000.
Hutin, Patrice; Cleveland, Roger; Stone, Daniel Joseph; Lemus, Joseph, III; and Goodin, John W., to Roger Cleveland Golf Company, Inc. Set of iron-type golf club heads. 5,800,282, Cl. 473-291.000.
Hutton, Theodore A., to Publishers Printing Company, Inc. Perforated cover. 5,799,979, Cl. 281-29.000.
Huvey, Michel: *See—*
Groult, Pierre, deceased; and Huvey, Michel, 5,800,921, Cl. 428-369.000.
Huynh, Ky: *See—*
Spelman, Francis A.; Clopton, Ben M.; Voie, Arne; Jolly, Claude N.; Huynh, Ky; Boogaard, Jerome; and Swanson, John W., 5,800,500, Cl. 607-137.000.
Huynh, Thanh: *See—*
Lee, Se-Jin; and Huynh, Thanh, 5,801,014, Cl. 435-69.100.
Hwang, Ivan Chung-Shung, to HT Research, Inc. Direct-access team/workgroup server shared by team/workgrouped computers without using a network operating system. 5,802,391, Cl. 395-822.000.
Hwang, Jiunn-Bin; and Tsai, Te-Ping, to Chun-Shan Institute of Science and Technology. Interleaved current-fed forward converter. 5,801,932, Cl. 363-21.000.
Hyatt, Gregory Aaron, to Makino Inc. Fluid-activated variable honing tools and method of using the same. 5,800,252, Cl. 451-61.000.
Hybridon, Inc.: *See—*
Pari, Gregory S., 5,801,235, Cl. 536-24.500.
Robinson, Gregory S.; and Smith, Lois Elaine Hodgson, 5,801,156, Cl. 514-44.000.
Hydro 7 International: *See—*
Secondi, Jean Paul, 5,800,114, Cl. 414-458.000.
Hyonaga, Takuya: *See—*
Teradaira, Mitsuaki; Koakutsu, Naohiko; and Hyonaga, Takuya, 5,800,081, Cl. 400-74.000.
Hyperion Catalysis International, Inc.: *See—*
Fischer, Alan B., 5,800,706, Cl. 210-198.200.
Hypoxico Inc.: *See—*
Kotliar, Igor K., 5,799,652, Cl. 128-205.110.
Hyslop, Ronald T.; and Qualls, Lonny D., to Coburn Optical Industries, Inc. Lap adapter. 5,800,255, Cl. 451-550.000.
Hyundai Electronics America: *See—*
Bedard, Karen, 5,801,747, Cl. 348-1.000.
Pinkham, Ray, 5,801,569, Cl. 327-333.000.
Hyundai Electronics Industries Co., Ltd.: *See—*
Choi, Jae Myoung, 5,801,998, Cl. 365-193.000.
Kwon, Oh Jung, 5,801,538, Cl. 324-671.000.
Park, Kee Woo; and Shin, Sang Ho, 5,802,008, Cl. 365-230.060.
Hyundai Motor Company: *See—*
Cho, Kuk-Hyun, 5,800,007, Cl. 296-146.600.
Choi, Kyeongnam, 5,800,307, Cl. 477-94.000.
Hyundai Motor Company, Ltd.: *See—*
Lee, Jun Yeop, 5,799,489, Cl. 60-597.000.
Hyzin, Peter Joseph, to ITT Manufacturing Enterprises, Inc. Connector system with quick coupling/decoupling. 5,800,197, Cl. 439-372.000.
I-Flow Corporation: *See—*
McPhee, Charles J., 5,800,405, Cl. 604-218.000.
I. Kruger Systems A/S: *See—*
Larsen, Ole Jens, 5,800,701, Cl. 210-158.000.
Iadanza, Joseph Andrew; Keyser, Frank Ray, III; Kilmoyer, Ralph David; and Laramie, Michael Joseph, to International Business Machines Corporation. System for implementing write, initialization, and reset in a memory array using a single cell write port. 5,802,003, Cl. 365-230.030.
Iaizzo, Paul Anthony: *See—*
Augustine, Scott D.; Iaizzo, Paul Anthony; Sparrow, Ephraim M.; Johnson, Paul Steven; and Arnold, Randall C., 5,800,480, Cl. 607-96.000.
Ibaraki, Yoshihiro; Ina, Hidekazu; and Kawanaka, Hideji, to Teisan Kabushiki Kaisha. Exhaust gas treatment unit and method. 5,800,792, Cl. 423-210.000.
Ibarolla, Jesús Echepare; and Pina Insausti, José Luis, to Azkoyen Industrial, S.A. Device for the successive exposure of images in amusement machines. 5,800,266, Cl. 463-34.000.
IBM Corporation: *See—*
Zerts, John Mark; Galliano, Mario Jose; Tannenbaum, Alan R.; Tracey, William J.; Lee, Keun J.; and Desrosiers, Moe R., 5,802,388, Cl. 395-804.000.
ICBT Diederichs: *See—*
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Ichigo, Koichi: *See—*
Sakaguchi, Yoshikazu; Kano, Takenori; Ichigo, Koichi; and Oka, Takeya, 5,799,697, Cl. 137-625.650.
Ichigotani, Tetsuya: *See—*
Miyazaki, Masahiko; Ishida, Naoyuki; Inada, Junichi; Kiyosumi, Tadahiro; and Ichigotani, Tetsuya, 5,802,426, Cl. 399-113.000.
Ichiguchi, Tsuneo: *See—*
Wada, Yasuo; Mitsuya, Munehisa; Ichiguchi, Tsuneo; Hashizume, Tomihiro; Heike, Seiji; Lutwyche, Mark; and Watanabe, Satoshi, 5,801,472, Cl. 310-309.000.
Ichihara, Masashi: *See—*
Hayasaka, Kazuhiro; and Ichihara, Masashi, 5,801,868, Cl. 359-202.000.
Ichikawa, Hidehiro; Ishikawa, Satoshi; Iizuka, Hiroaki; Sakakibara, Takeshi; Suzuki, Nobuhiko; and Tanaka, Hiraku, to Yazaki Corporation. Relay device for rotating members. 5,800,190, Cl. 439-164.000.
Ichikawa, Hisao: *See—*
Arai, Katsuhiko; Enomoto, Katsutoshi; Yoshii, Kiyoshi; and Ichikawa, Hisao, 5,800,147, Cl. 417-269.000.
Ichikawa, Kazuo: *See—*
Yamagishi, Makoto; Kagawa, Yutaka; Akiyama, Akihiro; and Ichikawa, Kazuo, 5,802,194, Cl. 381-188.000.
Ichikawa, Toshio: *See—*
Koyama, Yasuji; and Ichikawa, Toshio, 5,801,036, Cl. 435-191.000.
Ichikawa, Yasushi: *See—*
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Ichimori, Toshihide: *See—*
Maeda, Akira; Ashida, Hitoshi; Ichimori, Toshihide; Hirai, Chiaki; and Takahashi, Yori, 5,802,509, Cl. 706-59.000.
Ichitani, Katsumi: *See—*
Kaneko, Masato; Konishi, Tsuneo; and Ichitani, Katsumi, 5,801,132, Cl. 508-579.000.
ICIT: *See—*
Densberger, John A.; and Decker, Derek E., 5,800,279, Cl. 473-220.000.
ICL Personal Systems OY: *See—*
Hirvinen, Seppo, 5,802,285, Cl. 395-200.800.
Ideguchi, Takahiro: *See—*
Sugimoto, Yasuhiro; Suzuki, Nobuo; Kasai, Akihito; and Ideguchi, Takahiro, 5,799,640, Cl. 123-527.000.
Idemitsu Kosan Co., Ltd.: *See—*
Kamano, Hideki; Nasuno, Ichiro; Yamamoto, Hiroshi; and Koike, Kazuyoshi, 5,801,121, Cl. 504-288.000.
Kaneko, Masato; Konishi, Tsuneo; and Ichitani, Katsumi, 5,801,132, Cl. 508-579.000.
Idexx Laboratories, Inc.: *See—*
Vary, Calvin P. H., 5,800,984, Cl. 435-6.000.
Ido, Yoichi, to Yazaki Corporation. Seed supplying mechanism in seed gel coating apparatus. 5,800,613, Cl. 118-13.000.
Ieki, Atsushi: *See—*
Hane, Kazuhiro; Ieki, Atsushi; and Matsui, Keiji, 5,801,378, Cl. 250-237.00G.
Ienaga, Takashi, to NEC Corporation. Cache memory device of DRAM configuration without refresh function. 5,802,002, Cl. 365-207.000.
Igarashi, Mutsunori: *See—*
Takano, Midori; Minami, Fumihiko; and Igarashi, Mutsunori, 5,801,960, Cl. 364-491.000.

- Igarashi, Tatsuya, to Sony Corporation. Method of data management using recorded flags to discriminate used allocation blocks and unwritten allocation blocks. 5,802,028, Cl. 369-58.000.
Igarashi, Tatsuya: *See—*
Mizukawa, Yuki; Igarashi, Tatsuya; and Hirai, Hiroyuki, 5,800,953, Cl. 430-7.000.
Igarashi, Yasuo; Suzuki, Takashi; Kimura, Tomoko; Motoyama, Akira; Fukuhara, Rina; and Torii, Atsuko, to Shiseido Co., Ltd. Disinfectant composition. 5,800,827, Cl. 424-405.000.
Ige, Fumiyasu: *See—*
Itoh, Yayoi; Ige, Fumiyasu; and Tanaka, Tadaaki, 5,802,308, Cl. 365-200.620.
Iida, Akio: *See—*
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Iida, Atsuko; Uchida, Tatsuro; Kinno, Akira; Saito, Masayuki; Kizaki, Yukio; Miyagi, Takeshi; Mori, Miki; and Fukuda, Yumi, to Kabushiki Kaisha Toshiha. Image display apparatus includes an opposite board sandwiched by array boards with end portions of the array boards being offset. 5,801,797, Cl. 349-73.000.
Iijima, Hitoshi: *See—*
Koda, Toshihide; Shimoi, Mihoko; Sugihara, Masahiro; Tanaka, Naoki; Iijima, Hitoshi; Izawa, Takeshi; and Toyoshima, Masaki, 5,799,503, Cl. 62-503.000.
Iijima, Yoshitaka: *See—*
Kubota, Masaru; Kawaguchi, Takashi; Akahane, Hidehiro; Iijima, Yoshitaka; Oguchi, Keiichiro; Ito, Mikiko; Hayashi, Youichi; and Makiba, Hidenori, 5,802,016, Cl. 368-11.000.
Iivonen, Mauno; Koso, Aaro; Pikka, Olavi; Pursiainen, Seppo; and Turunen, Esko, to Ahlstrom Machinery Oy; and Metsä-Botnia Ab Joutseno Pulp. Method and apparatus for improving a batch cooking process. 5,800,674, Cl. 162-52.000.
Iizawa, Junichi, to NEC Corporation. Multipoint video conference system. 5,801,756, Cl. 348-16.000.
Iizuka, Hiroaki: *See—*
Ichikawa, Hidehiro; Ishikawa, Satoshi; Iizuka, Hiroaki; Sakakibara, Takeshi; Suzuki, Nobuhiko; and Tanaka, Hiraku, 5,800,190, Cl. 439-164.000.
Iji, Masatoshi: *See—*
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Ijuin, Yasuharu: *See—*
Yazawa, Kazunaga; Watanabe, Kazuo; Ijuin, Yasuharu; Shikano, Mayumi; Soda, Yasuji; Kosaka, Tetsuya; Matsuyama, Naoto; and Mizuno, Koji, 5,801,178, Cl. 514-255.000.
Ikada, Yoshito: *See—*
Yamada, Shiro; and Ikada, Yoshito, 5,800,545, Cl. 623-15.000.
Ikami, Jun, to Brother Kogyo Kabushiki Kaisha. Electrostatic latent image developer. 5,800,959, Cl. 430-126.000.
Ikeda Bussan Co., Ltd.: *See—*
Koseki, Tomohiro, 5,800,883, Cl. 428-35.200.
Ikeda, Eiichiro, to Canon Kabushiki Kaisha. Image data processing apparatus for processing combined image signals in order to extend dynamic range. 5,801,773, Cl. 348-229.000.
Ikeda, Hayato; Inukai, Hitoshi; Kawasumi, Kazuhito; Mori, Hideo; Ito, Koichi; and Yokomachi, Naoya, to Kabushiki Kaisha Toyota Jidoshokki Seisakusho. Compressor with discharge chamber relief valve. 5,800,133, Cl. 417-269.000.
Ikeda, Kiyoharu: *See—*
Motegi, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakada, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
Ikeda, Shingo: *See—*
Urano, Toshiyuki; Takasaki, Ryuichiro; Kamimura, Jiro; Ikeda, Shingo; Endo, Noriko; Chika, Yuzuru; and Ochiai, Tameichi, 5,800,952, Cl. 430-7.000.
Ikeda, Yukio: *See—*
Takematsu, Tetsuo; Komata, Takeo; Kume, Takashi; Kohda, Yumiko; Suzuki, Kiyoshi; Kawamura, Matsue; Ikeda, Yukio; and Mori, Kaoru, 5,801,122, Cl. 504-289.000.
Ikegawa, Akihito, to Minolta Co., Ltd. Electrostatic recording apparatus. 5,801,741, Cl. 347-141.000.
Ikeguchi, Naoko: *See—*
Hasegawa, Akira; Maki, Noboru; Yagi, Shintaro; Kashiwakuma, Tomiko; Yamaguchi, Kenjiro; Ikeguchi, Naoko; Kobayashi, Tomoko; and Senoo, Chiaki, 5,800,982, Cl. 435-5.000.
Ikemoto, Isao: *See—*
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Ikemoto, Kiyoshi, to Speedfam Co., Ltd. Disc streak pattern forming method and apparatus. 5,800,253, Cl. 451-63.000.
Iketani, Masaru: *See—*
Sato, Yohei; Masuda, Kazuaki; Osada, Torachika; Higuma, Masahiko; Kawai, Jun; Izumida, Masaaki; Taneya, Yoichi; and Iketani, Masaru, 5,801,737, Cl. 347-86.000.
Ikezue, Tatsuya: *See—*
Kashimura, Noboru; Sakoh, Harumi; Amamiya, Shoji; and Ikezue, Tatsuya, 5,800,955, Cl. 430-58.000.
Ikktai, Masatoshi; Fujimoto, Hitoshi; and Mikoshiba, Tsuyoshi, to Canon Aptex Inc. Ink jet printer with cartridge having integral ink storage chamber. 5,801,736, Cl. 347-86.000.
Ikoma, Munehisa: *See—*
Hamada, Shinji; Marukawa, Shuhei; Inoue, Hiroshi; and Ikoma, Munehisa, 5,800,942, Cl. 429-148.000.
Ikuta, Hironori: *See—*
Takase, Yasutaka; Watanabe, Nobuhisa; Matsui, Makoto; Ikuta, Hironori; Kimura, Teiji; Saeki, Takao; Adachi, Hideyuki; Tokumura, Tadaku; Mochida, Hisatoshi; Akita, Yasunori; and Souda, Shigeru, 5,801,180, Cl. 514-259.000.
Illinois Tool Works Inc.: *See—*
Veoukas, Stanley C.; Kwok, Kui-Chiu; Van Erden, Donald L.; and Velan, George M., 5,799,855, Cl. 227-10.000.
Illumination Technology, Inc.: *See—*
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- Isaac, Richard: *See—*
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- Isaacson, Philip O.; and Gadtko, David W., to Nonin Medical, Inc. Offset pulse oximeter sensor. 5,800,349, Cl. 600-323.000.
- Isao, Nagase: *See—*
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- Iscar Ltd.: *See—*
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- Isfeld, Mark S.; Mallory, Tracy D.; Mitchell, Bruce W.; Seaman, Michael J.; and Arunkumar, Nagaraj, to 3Com Corporation. Bridge/router architecture for high performance scalable networking. 5,802,278, Cl. 395-200.020.
- Ishi, Tsutomu, to NEC Corporation. Magnetoresistive head. 5,800,935, Cl. 428-692.000.
- Ishiba, Masahiro: *See—*
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- Ishida, Hiroaki: *See—*
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- Ishida, Hiroyuki: *See—*
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- Ishihara, Osamu: *See—*
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- Ishihara, Yasuo; Kawakita, Haruo; and Okabe, Naoto, to Denso Corporation. Semiconductor device and method of manufacturing same. 5,801,445, Cl. 257-771.000.
- Ishii, Kanji, to Asahi Kasei Kogyo Kabushiki Kaisha. Method for producing acrylonitrile. 5,801,266, Cl. 558-320.000.
- Ishii, Takao; Akiyama, Shuji; and Hosaka, Hiroki, to Tokyo Electron Limited. Apparatus and method for testing semiconductor device. 5,801,527, Cl. 324-158.100.
- Ishii, Yumi: *See—*
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- Ishikawa, Masatoshi; and Mizuno, Kunio, to Inoac Corporation; Dia Corporation Ltd.; and Ishikawasangyo Yugenkaisha. Floating island with water-purifying effect, plant-cultivation bag and method for purifying water. 5,799,440, Cl. 47-65.000.
- Ishikawa, Osamu; and Ito, Toshikazu, to Oki Data Corporation. Memory controller adapted for rapid block access operations. 5,802,587, Cl. 711-155.000.
- Ishikawa, Satoshi: *See—*
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Yokota, Masahiro, 5,801,481, Cl. 313-440.000.
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Hoshino, Tatsuyuki; Ban, Takashi; Moroi, Takahiro; and Yagi, Kiyoshi, 5,799,619, Cl. 122-26.000.
Ikeda, Hayato; Inukai, Hitoshi; Kawasumi, Kazuhito; Mori, Hideo; Ito, Koichi; and Yokomachi, Naoya, 5,800,133, Cl. 417-269.000.
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Sawa, Toshihiro; Sonoda, Sumitoshi; Fujii, Syuuichi; and Yamamoto, Eiji, 5,801,509, Cl. 318-705.000.
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Yuyama, Shoji; and Hamada, Hiroyasu, 5,800,113, Cl. 414-416.000.
Kabushiki Kaishi Toshiba: *See—*
Wada, Hidekatsu, 5,802,430, Cl. 399-253.000.
Kabushiki Kaisha Equos Research: *See—*
Yamaguchi, Kojo; and Miyaishi, Yoshinori, 5,799,744, Cl. 180-65.200.
Kaczynski, James F.: *See—*
Hooper, Warren W.; Keys, James F.; Kaczynski, James F.; and Malm, Douglas N., 5,800,657, Cl. 156-244.110.
Kadono, Kohei: *See—*
Ando, Masanori; Kadono, Kohei; Haruta, Masataka; Sakaguchi, Toru; and Miya, Masaru, 5,800,925, Cl. 428-432.000.
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Kahlisch, Arthur D.: *See—*
Jones, Kenneth W.; Bader, Mark D.; and Kahlisch, Arthur D., 5,802,586, Cl. 711-155.000.
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Kahlke, Michael: *See—*
Hasse, Reiner Ulrich; and Kahlke, Michael, 5,800,157, Cl. 431-328.000.
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Alpert, Donald B.; Shoemaker, Kenneth D.; Kahn, Kevin C.; and Lai, Konrad K., 5,802,605, Cl. 711-208.000.
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Kai, Tadao: *See—*
Ohishi, Sueyuki; and Kai, Tadao, 5,802,403, Cl. 396-53.000.
Kaifu, Noriyuki: *See—*
Endo, Tadao; Kaifu, Noriyuki; Takeda, Shinichi; Tashiro, Kazuaki; Kobayashi, Isao; and Kameshima, Toshio, 5,801,385, Cl. 250-370.110.
Kain, William S.: *See—*
McVay, Kenneth R.; Gaige, Dennis G.; and Kain, William S., 5,801,275, Cl. 562-523.000.
Kajiwara, Takuji: *See—*
Nishibori, Sadao; and Kajiwara, Takuji, 5,801,205, Cl. 521-54.000.
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Tsubakihara, Hidehiro; Kajiwara, Yasushi; and Tetsuka, Michihiko, 5,800,193, Cl. 439-266.000.
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Konno, Takuya; Takenaka, Masaaki; Kakii, Hitoshi; and Oda, Mihoko, 5,802,442, Cl. 399-308.000.
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Bevill, Beymer, Jr.; Kalin, William James; Rasmus, Todd Morgan; Sylvant, James William; and Tomaszewski, Peter Roy, 5,802,151, Cl. 379-93.050.
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Sautter, Manfred; Neumüller, Hannes; and Kallfass, Jens, 5,799,470, Cl. 53-550.000.
Kallfass Verpackungsmaschinen GmbH & Co.: *See—*
Sautter, Manfred; Neumüller, Hannes; and Kallfass, Jens, 5,799,470, Cl. 53-550.000.
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- Gray, Joe W.; Collins, Colin; Pinkel, Daniel; Kallioniemi, Olli-Pekka; and Tanner, Minna M., 5,801,021, Cl. 435-94.200.
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Nounin, Katsuya; Wakutsu, Takashi; Nakajima, Nobuyasu; Ogura, Koji; Serizawa, Mutsumu; Moriya, Osamu; Sugawara, Tsutomu; Kamagata, Eiji; and Kumaki, Yoshinari, 5,802,469, Cl. 455-422.000.
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Kamb, Alexander, to Myriad Genetics, Inc. Probes for MTS1 gene and polynucleotides encoding mutant MTS1 genes, 5,801,236, Cl. 536-24.310.
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Ishizuka, Shigeo; and Kameyama, Isao, 5,800,208, Cl. 439-557.000.
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Kato, Yoshiyuki; Kameyama, Masatoshi; and Miki, Takahiro, 5,801,705, Cl. 345-419.000.
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Asada, Takashi; and Kameyama, Takashi, 5,801,772, Cl. 348-222.000.
Kamiguchi, Masao; Neko, Noriaki; Hiraga, Kaoru; and Nagaya, Motohiro, to Fanuc Ltd. Pressure data display method for an injection molding machine, 5,800,748, Cl. 264-40.100.
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Kamitani, Masashi: *See—*
Yoneyoshi, Yukio; Konya, Naoto; Suzukamo, Gohfu; Kamitani, Masashi; and Miyawaki, Takashi, 5,801,280, Cl. 354-415.000.
Kamitz, Siegfert: *See—*
Speckbrock, Gerd; Kamitz, Siegfert; Alt, Marion; and Schmitt, Heribert, 5,800,060, Cl. 374-104.000.
Kaniya, Kazuhiro: *See—*
Miyake, Takashi; Suenaga, Shoji; Tanoue, Mutsuro; Miyamura, Jun; Abe, Shinichi; and Kaniya, Kazuhiro, 5,802,066, Cl. 370-527.000.
Kammerdiner, Lee; Davenport, Tom; and Hadnagy, Domokos, to Ramtron International Corporation. Use of calcium and strontium dopants to improve retention performance in a PZT ferroelectric film, 5,800,683, Cl. 204-192.120.
Kamuro, Yasuo: *See—*
Sakai, Kunikazu; Kamuro, Yasuo; Takatsuto, Suguru; Watanabe, Tsuyoshi; and Kuriyama, Hiroki, 5,801,123, Cl. 504-291.000.
Kan, Masayuki: *See—*
Matsumami, Naoto; Kan, Masayuki; Kaneda, Yasunori; Yagisawa, Ikuya; Oeda, Takashi; and Arakawa, Hiroshi, 5,802,345, Cl. 395-500.000.
Kanai, Tatsunori: *See—*
Shirakihara, Toshio; Kanai, Tatsunori; and Hirayama, Hideaki, 5,802,267, Cl. 395-182.130.
Kanaizuka, Minoru: *See—*
Eitai, Kazuo; Kanaizuka, Minoru; Ishida, Hiroyuki; Kumagai, Shuzo; and Kobayashi, Tadashi, 5,800,137, Cl. 417-319.000.
Kanao, by Chizuko, heir: *See—*
Kanao, Shiro, deceased; Kanao, by Chizuko, heir; and Kanao, by Shigeki, heir, 5,799,703, Cl. 138-121.000.
Kanao, by Shigeki, heir: *See—*
Kanao, Shiro, deceased; Kanao, by Chizuko, heir; and Kanao, by Shigeki, heir, 5,799,703, Cl. 138-121.000.
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Kanayama, Kenjiro: *See—*
Matsumoto, Osamu; Take, Eishiro; Yabuta, Tadashi; and Kanayama, Kenjiro, 5,801,986, Cl. 365-185.090.
Kanda, Hiroyuki; Kusumoto, Tatsuharu; and Yatsu, Masahide, to Kabushiki Kaisha Toshiba. Head positioning control system for use in a disk storage system, 5,801,897, Cl. 360-78.140.
Kane, John: *See—*
Chandler, W. Jeffrey; Kane, John; Egan, Michael J.; Phillips, Howard S.; Roundy, James S.; Cassaday, William; and Etherington, Roger, 5,800,383, Cl. 604-35.000.
Kane, John F.: *See—*
Friedrich, Ralph S.; Kane, John F.; and Fortune, Mark H., 5,799,705, Cl. 138-144.000.
Kaneda, Yasunori: *See—*
Matsumami, Naoto; Kan, Masayuki; Kaneda, Yasunori; Yagisawa, Ikuya; Oeda, Takashi; and Arakawa, Hiroshi, 5,802,345, Cl. 395-500.000.
Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See—*
Ueda, Yasuyoshi; and Manabe, Hajime, 5,801,251, Cl. 548-533.000.
Kanehara, Shigeru; Yoshida, Hideaki; Akagi, Hirofumi; Aoyama, Hideaki; and Shimada, Takamichi, to Honda Giken Kogyo Kabushiki Kaisha. Metal V-belt type continuously variable transmission, 5,800,298, Cl. 474-8.000.
Kaneka Medix Corporation: *See—*
Taki, Waro; Sadato, Akiyo; Ogawa, Atsushi; Goto, Yasuhiro; and Hirano, Shinichi, 5,800,426, Cl. 606-32.000.
Kanehara, Nobuyasu; Suzuki, Shoji; Sato, Yoshimichi; Tashiro, Korefumi; Bekki, Keisuke; Sato, Hiroshi; Nohmi, Makoto; and Ohtsuji, Shinya, to Hitachi, Ltd. Logic circuit having error detection function, redundant resource management method, and fault tolerant system using it, 5,802,266, Cl. 395-182.090.
Kaneko, Hisaharu; and Sato, Masatoshi, to Nikon Corporation. Optical disk device having a plurality of record and playback units, 5,802,020, Cl. 369-34.000.
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Satake, Eiji; Kaneko, Masanobu; and Tomioka, Ken, 5,801,807, Cl. 351-221.000.
Kaneko, Masato; Konishi, Tsuneo; and Ichitani, Katsumi, to Idemitsu Kosan Co., Ltd. Refrigerator oil composition, 5,801,132, Cl. 508-579.000.
Kaneko, Ryuichi: *See—*
Fujii, Hiroshi; Kaneko, Ryuichi; and Satoh, Shinichi, 5,801,288, Cl. 568-33.000.
Kaneko, Takashi: *See—*
Okabe, Eiji; Tanabe, Mayumi; Saito, Shinichi; Sakaigawa, Akira; Takeda, Hitoshi; Kido, Masami; Kaneko, Takashi; Koden, Mitsuhiro; and Sako, Teiyu, 5,800,736, Cl. 252-299.610.
Kaneko, Takuji: *See—*
Yoneoka, Masaki; Izumida, Toshitaka; Kawamoto, Norio; Kaneko, Takuji; Ohmichi, Takako; and Okazaki, Hiromichi, 5,802,342, Cl. 395-442.000.
Kang, David; Updegrove, Kevin; and Goodwater, Frank, to Chromalloy Gas Turbine Corporation. Plating turbine engine components, 5,800,695, Cl. 205-135.000.
Kang, Hun: *See—*
Jung, Dong Bum; and Kang, Hun, 5,802,119, Cl. 375-354.000.
Kang, Koon-Woo: *See—*
Ra, Jong-Oh, 5,800,305, Cl. 475-343.000.
Kang, Tae Gil, to Samsung Electronics Co., Ltd. Refrigerator with an air guide for a cool air dispensing device, 5,799,500, Cl. 62-408.000.
Kang, Yun-seok: *See—*
Park, Hae-jin; and Kang, Yun-seok, 5,799,496, Cl. 62-89.000.
Kania, Bertrand; and Kopp, Dieter, to Alcatel Business Systems. Interface between a memory having a given number of address inputs and a processor having fewer address outputs, and processor and memory equipped accordingly, 5,802,601, Cl. 711-200.000.
Kankkunen, Jukka, to Instrumentarium Oy. Arrangement in connection with an anaesthetic liquid container, 5,799,710, Cl. 141-18.000.
Kankkunen, Jukka: *See—*
Heinonen, Erkki; Särela, Antti; and Kankkunen, Jukka, 5,799,711, Cl. 141-18.000.
Kanne, Erwin D.: *See—*
Christensen, Jack V.; and Kanne, Erwin D., 5,799,405, Cl. 33-392.000.
Kanno, Kinya: *See—*
Ashida, Eiichi; Kanno, Kinya; and Goto, Shoichi, 5,801,788, Cl. 348-888.000.
Kano, Masayuki: *See—*
Hamaguchi, Masaki; Inomata, Syoji; Kano, Masayuki; Taga, Wataru; and Inayoshi, Hideyuki, 5,799,888, Cl. 241-259.100.
Kano, Takenori: *See—*
Sakaguchi, Yoshikazu; Kano, Takenori; Ichigo, Koichi; and Oka, Takeya, 5,799,697, Cl. 137-625.650.
Kansas City Poster Display Company: *See—*
Poindexter, Gary S., 5,799,428, Cl. 40-658.000.
Kanzaki Kogyokoki Mfg. Co., Ltd.: *See—*
Takada, Kenichi; Ohashi, Ryota; Sumomozawa, Hironori; and Shimizu, Hiroaki, 5,799,486, Cl. 60-464.000.
Kao, Chih-Kuang, to United Microelectronics Corporation. Waveform correction apparatus, 5,802,108, Cl. 375-245.000.
Kao, Chi-Kuang. Air supplying device for building, 5,800,260, Cl. 454-370.000.
Kao Corporation: *See—*
Fujimori, Taketoshi; Kusuoku, Hiroshi; Yamamuro, Akira; Yada, Yukihiro; Higuchi, Kazuhiko; Imokawa, Genji; Kondo, Naoki; Masukawa, Yoshinori; Tokuda, Hajime; and Tsujimura, Hisashi, 5,801,202, Cl. 514-659.000.
Kao Corporation: *See—*
Kitaori, Noriyuki; Yoshida, Osamu; Sasaki, Katsumi; Ishikawa, Junko; and Endo, Katsumi, 5,800,917, Cl. 428-332.000.
Miyachi, Yoshitaka; Sowa, Toshiki; Hamaguchi, Koji; Shiba, Daisuke; and Takahashi, Hiromichi, 5,801,135, Cl. 510-474.000.
Ohashi, Yukihiro; Kawamata, Akira; Yada, Yukihiro; Higuchi, Kazuhiko; Tsukahara, Kazuo; and Imokawa, Genji, 5,801,258, Cl. 549-448.000.
Uno, Mitsuru; Kitsuji, Tomohito; Kita, Katsumi; Fujikura, Yoshiaki; and Okutsu, Akiko, 5,801,270, Cl. 560-169.000.
Kao, Oliver C. K., to United Microelectronics Corporation. Method to eliminate noise in repeated sound start during digital sound recording, 5,802,250, Cl. 395-2.370.
Kapa, Prasad: *See—*
Xu, David; Kapa, Prasad; Repic, Oljan; and Blacklock, Thomas J., 5,801,281, Cl. 564-82.000.
Kapoor, Ashok K.: *See—*
Rostoker, Michael D.; Koford, James S.; Scepanovic, Ranko; Jones, Edwin R.; Padmanabhen, Gobi R.; Kapoor, Ashok K.; Kudryavtsev, Valeriy B.; Andreev, Alexander E.; Aleshin, Stanislav V.; and Podkolzin, Alexander S., 5,801,422, Cl. 257-369.000.

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- Kara, Salim G., to E-Stamp Corporation. System and method for printing postage indicia directly on documents. 5,801,944, Cl. 364-464.200.
- Kara, Salim G. Computer file backup encryption system and method. 5,802,175, Cl. 380-21.000.
- Karabin, Lynette M., to Aluminum Company of America. Vanadium-free, lithium-free, aluminum alloy suitable for sheet and plate aerospace products. 5,800,927, Cl. 428-457.000.
- Karaev, Isaak; Baird, George; Blazek, Pavel; Kitain, Eduard; Prohorov, Dmitry; Leisy, Jacques; Urazov, Yuri; and Zuckovich, Stephen, to Multex Systems, Inc. Information delivery system and method. 5,802,518, Cl. 707-9.000.
- Karas, Robert F.: See—
Zocco, Jay A.; and Karas, Robert F., 5,799,366, Cl. 16-35.00R.
- Karasa, Alvydas P.: See—
Bunyea, Roderick F.; Karasa, Alvydas P.; Miller, Philip T.; and Smith, Allen P., 5,800,940, Cl. 429-97.000.
- Karasawa, Tsuguo; Takahashi, Masayuki; Miyamoto, Masami; and Takayama, Itaru, to Oriental Yeast Co., Ltd.; and Nikkan Industries Co., Ltd. Packing paper for baker's yeast. 5,800,901, Cl. 428-131.000.
- Karn, Judy: See—
Bowers, John E.; Mar, Alan; Helkey, Roger J.; and Karin, Judy, 5,802,084, Cl. 372-18.000.
- Karlberg, Rolf Staffan Eugen: See—
Smolentsov, Andre; and Karlberg, Rolf Staffan Eugen, 5,802,159, Cl. 379-201.000.
- Karlsson, Sven Jan-Anders: See—
Ashton, Michael John; Karlsson, Sven Jan-Anders; Vacher, Bernard Yvon Jack; and Withnall, Michael Thomas, 5,801,165, Cl. 514-172.000.
- Karlton, Philip L.; Myers, Robert K.; Rossi, Charles V.; and Weissman, Terry, to Silicon Graphics, Inc. System and method using cover bundles to provide immediate feedback to a user in an interactive television environment. 5,802,284, Cl. 395-200.090.
- Karnig, Edward G.: See—
Borch, Michael J.; Karnig, Edward G.; and Chen, Chau Ho, 5,801,455, Cl. 307-10.300.
- Karp, Alan H.; Brzezinski, Dennis; and Gupta, Rajiv, to Hewlett-Packard Company. System and method for clipping integers. 5,801,977, Cl. 364-745.030.
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- Kara, Vijia Kumar, to Nordberg, Inc. High reduction ratio crushing in conical/gyrator crushers. 5,799,885, Cl. 241-30.000.
- Kasai, Akihito: See—
Sugimoto, Yasuhiro; Suzuki, Nobuo; Kasai, Akihito; and Ideguchi, Takahiro, 5,799,640, Cl. 123-527.000.
- Kasai, Junichi: See—
Fujisawa, Tetsuya; Sato, Mitsutaka; Kasai, Junichi; Mizukoshi, Masataka; Otokita, Kosuke; Yoshimura, Hiroshi; Hayashida, Katsuhiko; Takashima, Akira; Ishiguri, Masahiko; and Sono, Michio, 5,801,439, Cl. 257-686.000.
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Funanami, Yukiya; Mitsuoka, Yasuyuki; Kasama, Nobuyuki; and Iwaki, Tadao, 5,800,033, Cl. 353-97.000.
- Kashiha, Takashi, to Mitsubishi Gas Chemical Company, Inc. Method for preservation of article. 5,799,463, Cl. 53-400.000.
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- Kashino, Teruo: See—
Nemoto, Kazuhiro; and Kashino, Teruo, 5,802,418, Cl. 396-627.000.
- Kashiwagi, Kenji; Yamagiwa, Akira; and Inoue, Masao, to Hitachi, Ltd. Data bus circuit and method of changing over termination resistor of the data bus circuit. 5,802,390, Cl. 395-821.000.
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Hasegawa, Akira; Maki, Noboru; Yagi, Shintaro; Kashiwakuma, Tomiko; Yamaguchi, Kenjiro; Ikeguchi, Naoko; Kobayashi, Tomoko; and Senoo, Chiaki, 5,800,982, Cl. 435-5.000.
- Kasic, James F., II: See—
Campbell, Carey V.; Kasic, James F., II; Kovach, Larry J.; Laguna, Alvaro J.; Lewis, James D.; Mayrand, Mark E.; Myers, David J.; and Zukowski, Stanislaw L., 5,800,522, Cl. 623-1.000.
- Kasik, James F.: See—
Matsumoto, Jack T.; Kazirskis, Benedict; Pence, Vernon W.; and Kasik, James F., 5,802,126, Cl. 376-260.000.
- Kason Corporation: See—
Alamzad, Hossein; Zhao, William; and Heidinger, Alfred, 5,799,799, Cl. 209-365.100.
- Kaspar, Miles A., III: See—
Dischert, Lee Robert; and Kaspar, Miles A., III, 5,802,226, Cl. 386-53.000.
- Kasper, Wolfgang, to Ruediger Haaga GmbH. Device for sterilizing the inner surfaces of pressure sensitive containers. 5,801,354, Cl. 219-121.430.
- Kass, John J.; and McCoy, Richard, to Reese Products, Inc. Hitch having spring bars with integral hanger. 5,799,965, Cl. 280-406.100.
- Kassan, Lawrence. Diaper changing pad. 5,799,654, Cl. 128-869.000.
- Katah Holding AB: See—
McGregor, Duncan C., 5,800,703, Cl. 210-169.000.
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- Katakawa, Yukinori, to NEC Corporation. Speaker waterproof structure for electrical equipment. 5,802,192, Cl. 381-188.000.
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- Kato, Tomohiko: See—
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- Katz, Richard B. Fund raising by discounted collection on special issue checks. 5,801,365, Cl. 235-359.000.
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- Kaule, Wittich: See—
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- Kauphusman, Jim: See—
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- Kauvar, Lawrence M., to Terrapin Technologies, Inc. Sorbent families. 5,801,225, Cl. 530-344.000.
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- Kawaguchi, Takashi: See—
Kubota, Masaru; Kawaguchi, Takashi; Akahane, Hidehiro; Iijima, Yoshitaka; Oguchi, Keiichi; Ito, Mikiko; Hayashi, Youichi; and Makiha, Hidenori, 5,802,016, Cl. 368-11.000.
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- Kawakita, Haruo: See—
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- Kawamoto, Norio: See—
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- Kawamura, Shoichi: See—
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- Kawaraba, Makoto: See—
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- Kawasaki Jukogyo Kabushiki Kaisha: See—
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- Kawasaki Motors Mfg. Co.: See—
Nissen, Lanny; and Sacki, Takehiko, 5,801,946, Cl. 364-468.010.
- Kawasaki Steel Corporation: See—
Inokuti, Yukio, 5,800,633, Cl. 148-111.000.
- Kenmochi, Kazuhito; Sonobe, Osamu; Kawazumi, Eisuke; Seino, Yoshikazu; Akazawa, Takashi; and Okada, Kazusito, 5,799,527, Cl. 72-252.500.
- Ogawa, Tetsuo; and Satoh, Hiroshi, 5,802,065, Cl. 370-469.000.
- Kawase, Kei; and Moriama, Takao, to International Business Machines Corp. Multiprocessor system with parallel execution of data. 5,802,570, Cl. 711-141.000.
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- Kawashima, Tomomichi: See—
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- Kawashima, Yonesaburo, to Tochigi Seiko Co., Ltd. Tooth brush. 5,799,356, Cl. 15-167.100.
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- Kazecki, Henry L.: See—
Diehl, John W.; and Kazecki, Henry L., 5,802,111, Cl. 375-259.000.
- Kazirskis, Benedict: See—
Matsumoto, Jack T.; Kazirskis, Benedict; Pence, Vernon W.; and Kasik, James F., 5,802,126, Cl. 376-260.000.
- Kazui, Shinichi: See—
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Keune, Andreas; and Kellermann, Uwe, 5,801,543, Cl. 324-761.000.
- Kean, Thomas A., to Xilinx, Inc. Embedded memory for field programmable gate array. 5,801,547, Cl. 326-40.000.
- Keana, John F. W.; Cai, Sui Xiong; Zhou, Zhang-Lin; and Navratil, James M., to Oregon Health Sciences University and the University of Oregon, State of Oregon, Acting by and Through the Oregon State Board of Higher Education, Acting for and on Behalf of the; and Cocensys, Inc. Aza and aza (N-oxo) analogs of glycine/NMDA receptor antagonists. 5,801,183, Cl. 514-300.000.
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- Keen Perception Industries Inc.: See—
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- Keeney, Stanley Clifford: See—
Ko, Uming U-Ming; Andresen, Bernhard Hans; Balko, Glen Roy; Keeney, Stanley Clifford; and Sexton, Joe Frank, 5,802,270, Cl. 395-183.030.
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- Keil, Gary D.; Morgan, Ronald G.; Tipton, Sheryl A.; and Supak, Wayne A., to Caterpillar Inc. A process for automated measurement of ammonia content in a gas mixture. 5,801,296, Cl. 73-19.100.
- Keiper Recaro GmbH & Co.: See—
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- Keith, Edward L.; and Bauer, Thomas P., to Microcosm, Inc. Economical launch vehicle. 5,799,902, Cl. 244-55.000.
- Keith, Joseph M.: See—
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- Kelce, Donald Lee. Cargo restraining device. 5,800,145, Cl. 410-142.000.
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- Keller, Gerhard, to AISA Automation Industrielle SA. Process for producing tubular bodies. 5,800,653, Cl. 156-203.000.
- Keller, Kenneth Edmund: See—

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- Keller, Lothar: *See—*
- Hinderer, Heiko; Keller, Lothar; Jokschas, Guenter; and Wolf, Michael, 5,800,584, Cl. 55-482.000.
- Keller, Neal Martin: *See—*
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- Affleck, Rhett L.; Demas, James N.; Goodwin, Peter M.; Keller, Richard; and Wu, Ming, 5,799,682, Cl. 137-14.000.
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- Kellermann, Uwe: *See—*
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- Kelley, Donald B.: *See—*
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- Kelley, Jon Paul: *See—*
- Liu, Jiyao; and Kelley, Jon Paul, 5,801,619, Cl. 340-436.000.
- Kellogg, Mark W.: *See—*
- Connolly, Brian J.; Kellogg, Mark W.; and Hazelzet, Bruce G., 5,802,395, Cl. 395-834.000.
- Kellums, Bruce W.: *See—*
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- Kelly, Gar P.; Aaron, Bob; and Davidson, Dennis P., to Hewlett-Packard Company. Toner cartridge toner dam replacement and method therefor, 5,799,712, Cl. 141-287.000.
- Kelly, Gregory L.: *See—*
- Mikus, Paul W.; Kelly, Gregory L.; and Brady, Ralph K., 5,800,487, Cl. 607-105.000.
- Kelly, James D.: *See—*
- Krein, William Todd; Flaig, Charles M.; and Kelly, James D., 5,802,055, Cl. 370-402.000.
- Kelly, John Gerard: *See—*
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- Kelly, Stephen, to Rolic AG. Photo cross-linkable liquid crystal derivatives, 5,800,733, Cl. 252-299.600.
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- Kement, Michael W.: *See—*
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- Krenzer, Ulrich, 5,800,100, Cl. 408-224.000.
- Kennedy, Clinton Robert: *See—*
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- Kenney, Donald McAlpine, to International Business Machines Corporation. Method of forming stacked devices, 5,801,089, Cl. 438-589.000.
- Kenney, George B.: *See—*
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- Kenney, William P.: *See—*
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- Kerber, Martin: *See—*
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- Kern, Charles Francis: *See—*
- Cusick, Michael John; Jackson, Fred Lee; Kern, Charles Francis; and DePorter, Craig Donald, 5,800,586, Cl. 55-486.000.
- Kettl, Werner: *See—*
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- Keune, Andreas; and Kellermann, Uwe, to ke Kommunikations-Elektronik GmbH & Co. Device for testing printed circuit boards and/or flat modules, 5,801,543, Cl. 324-761.000.
- Keusch, Gerald T.: *See—*
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- Key-Trak, Inc.: *See—*
- Maloney, William C., 5,801,628, Cl. 340-568.000.
- Keys, James F.: *See—*
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- Keyser, Frank Ray, III: *See—*
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- Kieval, Robert S., to Medtronic, Inc. System for providing hyperpolarization of cardiac to enhance cardiac function, 5,800,464, Cl. 607-9.000.
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- Koyama, Yasuji; and Ichikawa, Toshio, 5,801,036, Cl. 435-191.000.
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Lucas, Richard E., Jr.: See—
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Baker, Thomas W.; and Mobin, Mohammed S., 5,802,116, Cl. 375-341.000.
Beltrano, Frank Santo; McNeley, Kevin John; Rizo, Roberto Garcia; Shah, Tushar Ramesh; and Ying, Ivy Hui-Fen, 5,802,162, Cl. 379-242.000.
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Daniel, Elizabeth Mary; Gordon, Malcolm; Jones, William; Martin, Anthony; and Pulley, Douglas Roger, 5,802,177, Cl. 380-49.000.
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Fatehi, Mohammad T.; and Heismann, Fred Ludwig, 5,801,863, Cl. 359-124.000.
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Fisher, Aaron Louis; Greenberger, Alan Joel; and Wilshire, Jay Patrick, 5,802,268, Cl. 395-183.010.
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Hanson, Thomas C., 5,802,149, Cl. 379-89.000.
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Kilian, Arnd Hermann; Lee, Hyung Jong; and MacChesney, John Burnette, 5,800,860, Cl. 427-163.200.
Kos, Richard James; Wierzbicki, Alex Lawrence; Yu, Hsien-Chuen; and Zola, Meyer Joseph, 5,802,045, Cl. 370-352.000.
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Podilchuk, Christine Irene; and Zhang, Xiaoyu, 5,802,208, Cl. 382-224.000.
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Ludwig, Jerome H.; Shenkirk, Myron; Temple, Dan; and Fyfe, Edward, to H.E.R.C. Products Incorporated. Pipe system cleaning and in-line treatment of spent cleaning solution. 5,800,629, Cl. 134-22.110.
Ludwig, Lester F.; Lauwers, J. Chris; Lantz, Keith A.; Burnett, Gerald J.; and Burns, Emmett R., to Vicor, Inc. Teleconferencing system in which location video mosaic generator sends combined local participants images to second location video mosaic generator for displaying combined images. 5,802,294, Cl. 395-200.340.
Luebke, Gary; and Pauley, Edward P., to Penford Products Co. Size press coating method. 5,800,870, Cl. 427-369.000.
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Henderson, Daniel E.; Kleimenhagen, Karl W.; Koehrsen, Craig L.; Lueschow, Kevin J.; and Stratton, Kenneth L., 5,801,967, Cl. 364-564.000.
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Luiz, Carolina, Loch-Hung Leo Sze, Leah Samantha Sze, heirs: See—
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Decker, Thomas G.; Lundie, Gregory P.; Pappas, David L.; Welty, Richard P.; and Parent, C. Robert, 5,799,549, Cl. 76-104.100.
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Edwards, Stuart D.; Lax, Ronald G.; Lundquist, Ingemar H.; and Sharkey, Hugh R., 5,800,378, Cl. 604-22.000.
Luong, Lam Chi: See—
Tetz, Warren; Luong, Lam Chi; and Heaman, Norman Laverne, 5,800,111, Cl. 414-515.000.
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Sonnenberg, Wade; Houle, Patrick J.; Luong, Thong B.; Shelmut, James G.; and Fisher, Gordon, 5,800,739, Cl. 252-510.000.

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Wada, Yasuo; Mitsuya, Munehisa; Ichiguchi, Tsuneo; Hashizume, Tomihiro; Heike, Seiji; Lutwyche, Mark; and Watanabe, Satoshi, 5,801,472, Cl. 310-309.000.
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Baehr, Geoffrey G.; Danielson, William; Lyon, Thomas L.; Mulligan, Geoffrey; Panerson, Martin; Scott, Glenn C.; and Turbyfill, Carolyn, 5,802,320, Cl. 395-200.790.
Lyons, David P.; and Witbrodt, Jeff R., to Excel Industries, Inc. Snap-fit sliding window assembly. 5,799,449, Cl. 52-204.510.
Lyons, Pamela M.: See—
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Lysaght, Michael J.: See—
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Dionne, Keith E.; Emerich, Dwaine F.; Hoffman, Diane; Sanberg, Paul R.; Christenson, Lisa; Hegre, Orion D.; Scharp, David W.; Lacy, Paul E.; Aebischer, Patrick; Vasconcellos, Alfred V.; Lysaght, Michael J.; and Gentile, Frank T., 5,800,829, Cl. 424-422.000.
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Lyu, Hwa-Young, to LG Electronics Inc. Device and method for decoding digital video data. 5,801,777, Cl. 348-409.000.
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M. H. Segal Limited Partnership: See—
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Ma, Manny K. F.: See—
Sher, Joseph C.; Ma, Manny K. F.; and Casper, Stephen L., 5,801,421, Cl. 257-355.000.
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Stoffel, John Lawrence; Shor, Arthur Charles; Spinelli, Harry Joseph; Ma, Sheau-Hwa; Matrick, Howard; Choy, Mark Leland; and Johnson, Loren Eugene, 5,801,738, Cl. 347-100.000.
Maas, Alan Francis. Milk/juice jug insulator. 5,799,820, Cl. 220-739.000.
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Macaulay, John M., to Candescant Technologies Corporation. Gated filament structures for a field emission display. 5,801,477, Cl. 313-309.000.
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MacFarlane, Duncan L., to Board of Regents, The University of Texas System. Three-dimensional monitor. 5,801,666, Cl. 345-6.000.
MacGregor, Alasdair, to Desert Bloom Foundation. Protective enclosures for seeds. 5,799,439, Cl. 47-57.600.
Machek, James E.; Verboven, Yves; Spehr, Paul R.; and Goldman, Stephen L., to Sulzer Intermedics Inc. Endocardial lead assembly. 5,800,495, Cl. 607-116.000.
Machida, Kiyosada; and Omi, Junichi, to Nikon Corporation. High magnification zoom lens barrel including a drive ring having a short length to provide a compact camera. 5,801,888, Cl. 359-694.000.
MacHoldt, Hans-Tobias: See—

- Baur, Rüdiger; and MacHoldt, Hans-Tobias, 5,800,602, Cl. 106-162.200.
- Mack, Gary Lee: *See—*
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- Mackay, Bruce E.: *See—*
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- MacKay, Jack W., Jr., to Hillerich & Bradsby Co. Laminated wood bat and method of making same, 5,800,293, Cl. 473-464.000.
- MacKichan, Barry B.: *See—*
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- Macy, Elwood Herbert: *See—*
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- Madabhushi, Rangaraj, to NEC Corporation. Wide band and low driving voltage optical modulator with improved connector package, 5,801,871, Cl. 359-245.000.
- Mader, Leopold, to EH-Schrack Components-AG. Electromagnetic relay with combined contact/reset spring, 5,801,608, Cl. 335-128.000.
- Madigan, Richard J., Jr.: *See—*
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- Madsen, John: *See—*
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- Maeda, Akira: *See—*
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- Maeda, Chikao: *See—*
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- Maeda, Kazuo; Tokumasu, Noboru; and Yuyama, Yoshiaki, to Canon Sales Co., Inc.; and Semiconductor Process Laboratory Co., Ltd. Method for forming a fluorine containing silicon oxide film, 5,800,877, Cl. 427-535.000.
- Maeda, Munehiro; Timmermans, Hans A.; Uchida, Barry T.; and Rösch, Josef, to Cook Incorporated. Spiral stent, 5,800,456, Cl. 606-198.000.
- Maeda, Shigeru: *See—*
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- Maehara, Hiroshi: *See—*
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- Maeyama, Ryuichiro, to Canon Kabushiki Kaisha. Cleaning apparatus for cleaning heat fixing member, heat fixing method and image forming method, 5,802,440, Cl. 399-327.000.
- Magé, Jérôme Jacques Marie, to Spy Optic, Inc. Sport sunglasses resistant to fogging, 5,801,805, Cl. 351-62.000.
- Magee, Constance L.: *See—*
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- Magline, Inc.: *See—*
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- Magnetek S.p.A.: *See—*
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- Magni, Ambrogio: *See—*
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- Magome, Nobutaka: *See—*
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- Mahar, Brian A.: *See—*
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- Maher, John William: *See—*
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- Mahiou, Belaid: *See—*
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- Mühl, Dieter, to Shiecr Globe N.V. Method and apparatus for the biochemical purification of a liquid medium, 5,800,710, Cl. 210-617.000.
- Mahmoudian, Mostafa: *See—*
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- Mahr, Erich: *See—*
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- Maillet, Pierre; Lonardi, Emile; and Bernard, Gilbert, to Paul Wurth S.A. Device for the distribution of materials in bulk, 5,799,777, Cl. 198-642.000.
- Mailoux, Louis D.: *See—*
Bracco, Rosario A.; Harer, George L.; Lam, Sue K.; Mailoux, Louis D.; Nguyen, Hoan N.; Pence, Cheryl A.; Pham, Hung M.; Raker, Cathleen J.; Rostamian, Farhad D.; Thompson, Robert R., Jr.; and Truong, Daniel D., 5,802,215, Cl. 382-258.000.
- Maine, Gregory T.: *See—*
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- Maione, Theodore E., to Repligen Corporation. Methods and compositions for treatment of angiogenic diseases, 5,800,820, Cl. 424-198.100.
- Mais, Franz-Josef; Paetz, Klaus-Christian; Fiege, Helmut; Blank, Heinz Ulrich; Brueck, Dieter; and Mehl, Wolf, to Bayer Aktiengesellschaft. Hydrogenation of halonitroaromatic compounds, 5,801,284, Cl. 564-417.000.
- Majima, Masao, to Canon Kabushiki Kaisha. Communication system for performing wavelength division multiplexing communications, and wavelength control method used in the system, 5,801,861, Cl. 359-124.000.
- Majorana, William Gary: *See—*
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- Maki, Hideyuki: *See—*
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- Maki, Noboru: *See—*
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- Maki, Yasuhito; Abe, Motoaki; Narabu, Tadakuni; and Nomura, Hideo, to Sony Corporation. Linear sensor having a plurality of sensor rows, 5,801,850, Cl. 358-483.000.
- Makiba, Hidenori: *See—*
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- Makino Inc.: *See—*
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- Makino, Kenichi: *See—*
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- Makita Corporation: *See—*
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- Makita, Masaru, to Canon Kabushiki Kaisha. Word processor which does not activate a display unit to indicate the result of the spelling verification when the number of characters of an input word does not exceed a predetermined number, 5,802,537, Cl. 707-533.000.
- Makley, James A.: *See—*
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- Malek, Charles J.: *See—*
Weigand, David L.; Malek, Charles J.; Succi, Gerard G.; Unal, Fatih; and Dilip, S., 5,802,076, Cl. 371-31.000.
- Malhi, Satwinder: *See—*
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- Minakuchi, Mitsuru, to Sharp Kabushiki Kaisha. Information display apparatus. 5,801,680, Cl. 345-150.000.
- Minami, Fumihiko: *See—*
- Takano, Midori; Minami, Fumihiko; and Igarashi, Mutsunori, 5,801,960, Cl. 364-491.000.
- Minato, Tsuyoshi: *See—*
- Takizawa, Toshiaki; Akeno, Mitsuru; and Minato, Tsuyoshi, 5,800,760, Cl. 264-167.000.
- Mine Safety Appliances Company: *See—*
- Kouznetsov, Viktor, 5,801,379, Cl. 250-286.000.
- Minebea Co., Ltd.: *See—*
- Suzuki, Yuzuru; Fujitani, Sakae; and Makino, Kenichi, 5,801,463, Cl. 310-51.000.
- Minemoto, Hitoshi: *See—*
- Shima, Kazuo; Suetsugu, Junichi; Uematsu, Ryosuke; Minemoto, Hitoshi; and Hagiwara, Yoshihiro, 5,801,730, Cl. 347-55.000.
- Minemura, Hiroaki; Sakai, Eiichi; Yasuda, Kenichi; and Kitahara, Yohko, to Konica Corporation. Electrophotographic photoreceptor with specific interlayer. 5,800,956, Cl. 430-60.000.
- Ming, Tan At: *See—*
- Yanagi, Haruyuki; Suzuki, Tetsuo; Hiramatsu, Soichi; Taniguro, Masa-hiro; Inoue, Hiroyuki; Saito, Hiroyuki; Tanno, Koichi; Kawarama, Makoto; Kinoshita, Hiroyuki; Shinmachi, Masaya; and Ming, Tan At, 5,801,728, Cl. 347-50.000.
- Ministero Dell 'Universita' E Della Ricerca Scientifica E Tecnologica: *See—*
- Van Der Goes, Wilhelmus; Bernardi, Antonella; Bosetti, Aldo; Franzosi, Giuliana; and Cesti, Pietro, 5,801,048, Cl. 435-252.330.
- Minnesota Mining and Manufacturing Company: *See—*

- Berger, Todd P.; and Xu, Frank Y., 5,801,332, Cl. 174-73.100.
Lang, Arthur V.; and Larson, Donald H., 5,802,436, Cl. 399-249.000.
McKenzie, Tawn L.; and Griggs, Allen L., 5,801,218, Cl. 523-414.000.
Peacock, Kenneth; Everaerts, Albert I.; Wilson, Kenneth D.; and Galick, Stephen J., 5,800,919, Cl. 428-355.0AC.
Pulido, Jacqueline J., 5,802,237, Cl. 385-135.000.
Sandvig, Timothy C.; Ersfeld, Dean A.; Davis, Daniel W.; and Gotz, Steven H., 5,800,899, Cl. 428-96.000.
Wirt, David F., 5,799,841, Cl. 222-571.000.
Wood, Leigh E.; Krueger, Dennis L.; Gorman, Michael R.; and Alberg, Randall L., 5,800,903, Cl. 428-152.000.
Minolta Co., Ltd.: *See—*
Ikegawa, Akihito, 5,801,741, Cl. 347-141.000.
Okunishi, Kazuo, 5,802,423, Cl. 399-80.000.
Sawada, Kenji; Sato, Masahiro; Sekino, Hitoshi; and Sakamoto, Masashi, 5,802,427, Cl. 399-122.000.
Yagoto, Mitsutoshi; Kurahashi, Hideyuki; Murakami, Masanori; Nanba, Katsuhiko; Ishiyama, Masamitsu; and Suzuki, Toshikazu, 5,801,462, Cl. 310-12.000.
Minor, Thomas O.: *See—*
Coleman, Daniel E.; and Minor, Thomas O., 5,799,969, Cl. 280-728.200.
Minot, Joel: *See—*
Gentric, Philippe; and Minot, Joel, 5,802,507, Cl. 706-25.000.
Mintz, Doron: *See—*
Dangelo, Carlos; Watkins, Daniel; and Mintz, Doron, 5,801,958, Cl. 364-489.000.
Mirajkar, Yelloji Rao K.; Gaffar, Abdul; Stein, Stefan; Jahns, Ekkehard; Dieing, Reinhold; and Sperling, Karin, to Colgate-Palmolive Company. Oral composition exhibiting enhanced uptake by dental tissue of noncationic antibacterial agents, 5,800,803, Cl. 424-54.000.
Misawa, Makoto, to Yamaha Hatsudoki Kabushiki Kaisha. Engine-driven heat pump apparatus and method for stable operation of heat pump, 5,799,867, Cl. 237-2.00B.
Mishina, Shinya; Kawakami, Soichiro; Kobayashi, Naoya; and Asao, Masaya, to Canon Kabushiki Kaisha. Battery and method for the manufacture of such a battery, 5,800,939, Cl. 429-57.000.
Mishiro, Kinuko, to Fujitsu Limited. Method of manufacturing a connecting structure of printed wiring boards, 5,799,392, Cl. 29-830.000.
Misra, Pradyumna K.: *See—*
Held, Andrew F.; Jung, Edward K.; Leach, Paul; Misra, Pradyumna K.; Sailor, Richard K.; Seaman, Michael R. C.; and Brown, Nathaniel S., 5,802,367, Cl. 395-685.000.
Mistry, Kishor Kumar: *See—*
Langley, John Graham; Symes, Kenneth Charles; and Mistry, Kishor Kumar, 5,801,140, Cl. 510-530.000.
Mita Industrial Co., Ltd.: *See—*
Hashimoto, Yasuhiro; Sako, Masahiro; Inenaka, Hiroyuki; and Yamashita, Yuji, 5,802,271, Cl. 395-183.200.
Hayashi, Syuji; Fujimoto, Masaya; Nakamura, Koji; Okumura, Ryuichi; and Yamamoto, Haruo, 5,801,845, Cl. 358-458.000.
Hayashi, Syuji; and Furumoto, Takayuki, 5,802,216, Cl. 382-270.000.
Miyazaki, Masahiko; Ishida, Naoyuki; Inada, Junichi; Kiyosumi, Tadahi-ro; and Ichigotani, Tetsuya, 5,802,426, Cl. 399-113.000.
Okada, Mitsuharu, 5,802,441, Cl. 399-262.000.
Yamashita, Yuji, 5,802,429, Cl. 399-8.000.
Mitchell, Bruce W.: *See—*
Isfeld, Mark S.; Mallory, Tracy D.; Mitchell, Bruce W.; Seaman, Michael J.; and Arunkumar, Nagaraj, 5,802,278, Cl. 395-200.020.
Mitchell, John Orville; Shah, Suvas Manubhai; Shin, John Hoon; and Weichinger, Gary Michael, to International Business Machines Corporation. Extended DLUR/APPN support for non-APPN SNA devices, 5,802,313, Cl. 395-200.680.
Mitchell, Lawrence E. Decorative attachments for articles of clothing and footwear, 5,800,900, Cl. 428-100.000.
Mitchell, Thomas F.: *See—*
Bosch, Daniel J.; Cousins, Hal W.; Hendricks, Ed L.; Johnson, Donald R.; Mitchell, Thomas F.; and Wehrman, James L., 5,799,396, Cl. 29-890.052.
Mitek Surgical Products, Inc.: *See—*
Wenstrom, Richard F., Jr., 5,800,447, Cl. 606-139.000.
Mitel Corporation: *See—*
Gray, Thomas A., 5,802,396, Cl. 395-840.000.
Mitotix, Inc.: *See—*
Cottarel, Guillaume; Damagnez, Veronique; and Draetta, Giulio, 5,801,015, Cl. 435-69.100.
Mitsubishi Chemical Corporation: *See—*
Sato, Heihachi; Hayakawa, Seiichiro; and Seo, Iwao, 5,801,884, Cl. 359-620.000.
Tanaka, Seiichiro; Kato, Hanako; Sawai, Takeshi; and Matsuzoe, Nobuyuki, 5,800,606, Cl. 106-287.160.
Tsuiji, Shigeo; and Okamoto, Hideaki, 5,800,965, Cl. 430-287.100.
Urano, Toshiyuki; Takasaki, Ryuichi; Kamimura, Jiro; Ikeda, Shingo; Endo, Noriko; Chika, Yuzuru; and Ochiai, Tameichi, 5,800,952, Cl. 430-7.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Asada, Satoshi, 5,801,348, Cl. 200-61.530.
Harada, Kenichi; Kuragaki, Takeshi; Ishihara, Osamu; Sato, Kazuhiko; and Kudo, Akiyoshi, 5,801,069, Cl. 438-52.000.
Inoue, Yasuo; Nishimura, Tadashi; Yamaguchi, Yasuo; and Iwamatsu, Toshiaki, 5,801,080, Cl. 438-405.000.

- Kato, Takayuki; and Matsubayashi, Hiroto, 5,801,528, Cl. 324-158.100.
Kawaguchi, Takeo; Tokunaga, Hisanobu; Iwagami, Makoto; and Yuasa, Masumi, 5,801,480, Cl. 313-440.000.
Koda, Toshihide; Shimoji, Mihoko; Sugihara, Masahiro; Tanaka, Naoki; Iijima, Hitoshi; Izawa, Takeshi; and Toyoshima, Masaki, 5,799,503, Cl. 62-503.000.
Konishi, Yuzuru; Hirasawa, Kyotaro; and Taguchi, Kazunori, 5,801,429, Cl. 257-433.000.
Kosaki, Katsuya; and Kuragaki, Takeshi, 5,800,667, Cl. 156-382.000.
Kuroi, Takeshi; and Oda, Hidekazu, 5,801,425, Cl. 257-383.000.
Moteji, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakuda, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
Ohno, Yoshikazu, 5,801,443, Cl. 257-758.000.
Ohtsuka, Masataka; Isota, Yoji; Nakahara, Shintaro; Matsunaga, Makoto; and Konishi, Yoshihiko, 5,801,660, Cl. 343-700.0MS.
Okaniwa, Kazuhiro; and Hayase, Iwao, 5,800,665, Cl. 156-344.000.
Ooishi, Tsukasa, 5,801,576, Cl. 327-530.000.
Sawai, Katsunori; and Shimazu, Yukihiko, 5,801,559, Cl. 327-116.000.
Shiratake, Shigeru; Motonomi, Kaoru; and Hamamoto, Satoshi, 5,801,427, Cl. 257-412.000.
Suzuki, Hiroshi, 5,801,661, Cl. 343-702.000.
Suzuki, Hiroyoshi, 5,801,763, Cl. 348-77.000.
Tajima, Kenichi; Itoh, Kenji; Nishimura, Shuji; Doi, Masayuki; and Iida, Akio, 5,801,589, Cl. 331-1.00R.
Takahashi, Hideki, 5,801,408, Cl. 257-212.000.
Takemi, Masayoshi; and Ohkura, Yuji, 5,800,622, Cl. 118-725.000.
Takita, Hidenori, 5,801,496, Cl. 315-368.110.
Tanaka, Nobuhiko, 5,801,566, Cl. 327-259.000.
Taneda, Atsushi; Akamatsu, Koji; Ogawa, Hajime; and Suzuki, Satoshi, 5,801,352, Cl. 219-69.180.
Tobita, Youichi, 5,801,412, Cl. 257-206.000.
Umemoto, Hideki; Hiraoka, Naoki; Fukui, Wataru; Ohashi, Yutaka; and Yokotani, Masahiro, 5,801,529, Cl. 324-207.120.
Wada, Ryukichi; Suzuki, Fumio; and Ohtsuru, Yoshisuke, 5,801,745, Cl. 347-232.000.
Yamaguchi, Atsuo, 5,801,372, Cl. 235-492.000.
Yamauchi, Tadaaki, 5,801,451, Cl. 257-786.000.
Yoshimura, Yoshimasa, 5,802,328, Cl. 395-282.000.
Mitsubishi Electric Engineering Co., Ltd.: *See—*
Kawaguchi, Takeo; Tokunaga, Hisanobu; Iwagami, Makoto; and Yuasa, Masumi, 5,801,480, Cl. 313-440.000.
Taneda, Atsushi; Akamatsu, Koji; Ogawa, Hajime; and Suzuki, Satoshi, 5,801,352, Cl. 219-69.180.
Mitsubishi Electric Semiconductor Software Co., Ltd.: *See—*
Tanaka, Nobuhiko, 5,801,566, Cl. 327-259.000.
Mitsubishi Gas Chemical Company, Inc.: *See—*
Kashiba, Takashi, 5,799,463, Cl. 53-400.000.
Mitsubishi Materials Corporation: *See—*
Tezuka, Youichi; Tanaka, Shoichi; Wakaki, Makoto; Osako, Akihiko; and Nakamura, Kazuhito, 5,799,685, Cl. 137-375.000.
Mitsubishi Pencil Kabushiki Kaisha: *See—*
Odashima, Hideo, 5,801,215, Cl. 523-164.000.
Mitsudishi Denki Kabushiki Kaisha: *See—*
Kato, Yoshiyuki; Kameyama, Masatoshi; and Miki, Takahiro, 5,801,705, Cl. 345-419.000.
Mitsui Mining & Smelting Co., Ltd.: *See—*
Tsuyoshi, Hiroaki; and Sato, Tetsuro, 5,800,722, Cl. 216-13.000.
Mitsui Petrochemical Industries, Ltd.: *See—*
Yamamoto, Ryoichi; Ohtani, Satoru; Hachimori, Toshimi; Kojima, Teruhisa; and Mamyoda, Takahiro, 5,799,412, Cl. 34-582.000.
Mitsuoka, Yasuyuki: *See—*
Funanami, Yukiya; Mitsuoka, Yasuyuki; Kasama, Nobuyuki; and Iwaki, Tadao, 5,800,033, Cl. 353-97.000.
Mitsuteru Kimura: *See—*
Kimura, Mitsuteru, 5,801,475, Cl. 310-319.000.
Mitsuya, Munechisa: *See—*
Wada, Yasuo; Mitsuya, Munechisa; Ichiguchi, Tsuneo; Hashizume, Tomihiko; Heike, Seiji; Lutwyche, Mark; and Watanabe, Satoshi, 5,801,472, Cl. 310-309.000.
Mittal, Millind: *See—*
Peleg, Alexander; Yaari, Yaakov; Mittal, Millind; Mennemeier, Larry M.; and Eitan, Benny, 5,802,336, Cl. 395-376.000.
Miura, Hiroyuki; Kayajima, Masanobu; and Sato, Takashi, to Daicel Chemical Industries, Ltd. Method for removing iodine compounds contained in organic medium, 5,801,279, Cl. 562-608.000.
Miura, Kyo: *See—*
Yoshino, Hitoshi; Miura, Kyo; and Kondo, Yuji, 5,800,916, Cl. 428-328.000.
Miura, Shigeo, to Canon Kabushiki Kaisha. Heating and fixing device with AC zero-cross detection circuit, 5,802,421, Cl. 399-33.000.
Miura, Takashi: *See—*
Seido, Nobuo; Nishikawa, Takenobu; Sotoguchi, Tsukasa; Yuasa, Yoshifumi; Miura, Takashi; and Kumobayashi, Hidenori, 5,801,271, Cl. 560-29.000.
Miwa, Matsuyuki: *See—*
Morimoto, Yoshinori; and Miwa, Matsuyuki, 5,801,813, Cl. 355-27.000.
Miwa, Michio: *See—*
Suzuki, Hironobu; Miwa, Michio; Hikita, Hiroyuki; Kawaguchi, Toru; and Ogasawara, Noritoshi, 5,801,709, Cl. 345-433.000.

- Miwa, Naoto: *See—*
Hori, Makoto; Miyamoto, Toshimi; Fukaya, Kenji; Hamaya, Masahiro; Ohta, Minoru; and Miwa, Naoto, 5,800,689, Cl. 204-428.000.
Miya, Kazuyuki: *See—*
Watanabe, Masatoshi; Miya, Kazuyuki; and Kato, Osamu, 5,802,110, Cl. 375-259.000.
Miya, Masaru: *See—*
Ando, Masanori; Kadono, Kohei; Haruta, Masatake; Sakaguchi, Toru; and Miya, Masaru, 5,800,925, Cl. 428-432.000.
Miyachi Technos Corporation: *See—*
Takaichi, Kohji, 5,802,087, Cl. 372-35.000.
Miyadera, Tatsuo: *See—*
Yoshida, Kiyohide; and Miyadera, Tatsuo, 5,801,117, Cl. 502-415.000.
Miyagi, Takeshi: *See—*
Iida, Atsuko; Uchida, Tatsuro; Kinno, Akira; Saito, Masayuki; Kizaki, Yukio; Miyagi, Takeshi; Mori, Miki; and Fukuda, Yumi, 5,801,797, Cl. 349-73.000.
Miyahara, Yoshihisa; Kimura, Kouichi; Motoyoshi, Yoshiyuki; Takagi, Tatsuo; Horiuchi, Osamu; and Furuya, Hiromi, to Nichias Corporation; and Zenith Corporation. Oil holding cylinder for an oil coating roller and method therefor, 5,800,745, Cl. 264-13.000.
Miyai, Kiyotaka: *See—*
Nakayama, Hiroshi; and Miyai, Kiyotaka, 5,802,532, Cl. 707-519.000.
Miyaiishi, Yoshinori: *See—*
Yamaguchi, Kozo; and Miyaiishi, Yoshinori, 5,799,744, Cl. 180-65.200.
Miyajima, Fumio, to Apic Yamada Corporation. Resin molding machine, 5,800,841, Cl. 425-89.000.
Miyake, Takashi; Suenaga, Shoji; Tanoue, Mutsurou; Miyamura, Jun; Abe, Shinichi; and Kamiya, Kazuhiro, to Pioneer Electronic Corporation. Multiplex broadcast receiving method and receiver with program type memory, 5,802,066, Cl. 370-527.000.
Miyake, Tomoko: *See—*
Yamasaki, Chihoro; Horiba, Yukihiko; Tomita, Hisaki; Iwata, Yasuo; Watanabe, Kenichi; and Miyake, Tomoko, 5,800,882, Cl. 428-31.000.
Miyakoshi Printing Machinery Co., Ltd.: *See—*
Kishine, Toshiaki; Izawa, Hideo; Yamaoka, Noritaka; and Yamada, Toshikazu, 5,800,327, Cl. 493-357.000.
Miyamoto, Hirohisa: *See—*
Hirao, Akiko; Miyamoto, Hirohisa; Nishizawa, Hideyuki; Hosoya, Masahiro; and Suguchi, Masami, 5,800,950, Cl. 430-1.000.
Miyamoto, Hironobu: *See—*
Nakayama, Tatsuo; and Miyamoto, Hironobu, 5,801,405, Cl. 257-192.000.
Miyamoto, Hiroshi: *See—*
Nakajima, Kazunori; Tajiri, Toshiharu; Sato, Hidekazu; Miyamoto, Hiroshi; Enomoto, Takashi; and Iwaoka, Tsutomu, 5,802,476, Cl. 455-462.000.
Miyamoto, Masami: *See—*
Karasawa, Tsuguo; Takahashi, Masayuki; Miyamoto, Masami; and Takayama, Itaru, 5,800,901, Cl. 428-131.000.
Miyamoto, Taizou: *See—*
Shimomura, Koichi; Hiraishi, Yoshinobu; and Miyamoto, Taizou, 5,800,612, Cl. 117-201.000.
Miyamoto, Toshimi: *See—*
Hori, Makoto; Miyamoto, Toshimi; Fukaya, Kenji; Hamaya, Masahiro; Ohta, Minoru; and Miwa, Naoto, 5,800,689, Cl. 204-428.000.
Miyamura, Jun: *See—*
Miyake, Takashi; Suenaga, Shoji; Tanoue, Mutsurou; Miyamura, Jun; Abe, Shinichi; and Kamiya, Kazuhiro, 5,802,066, Cl. 370-527.000.
Miyana, Kiyoharu: *See—*
Yamazaki, Shunpei; Miyana, Kiyoharu; and Hamatani, Toshiji, 5,800,265, Cl. 463-23.000.
Miyana, Tsuneo. Flame torch, 5,800,155, Cl. 431-153.000.
Miyane, Toshiki: *See—*
Tamura, Tsuyoshi; Miyane, Toshiki; and Ishikawa, Teruhisa, 5,801,776, Cl. 348-403.000.
Miyano, Toshiharu Tom. Liquid coolant/lubricant recovery system for machine tools, 5,800,104, Cl. 409-131.000.
Miyashita, Masataka: *See—*
Tsukada, Takeo; Kanasugi, Masaaki; Miyashita, Masataka; Okada, Kazuhiro; and Yamaguchi, Norishige, 5,800,636, Cl. 148-306.000.
Miyasita, Yukiya: *See—*
Sawai, Koichi; Yoshikawa, Kunio; and Miyasita, Yukiya, 5,802,471, Cl. 455-445.000.
Miyata, Kensho; Kinutani, Kazutomo; Katsumata, Noboru; Kuroda, Kensho; Wada, Toyotaka; Nakayama, Akihiro; Takahashi, Katsumasa; Nishida, Takaharu; Uemura, Shouichi; and Kodama, Tetsuo. Slurry managing system and slurry managing method for wire saws, 5,799,643, Cl. 125-21.000.
Miyata, Souichi: *See—*
Yumoto, Manabu; Muramatsu, Tsuyoshi; and Miyata, Souichi, 5,802,399, Cl. 395-886.000.
Miyuchi, Satoshi: *See—*
Takada, Akiyazu; Onaya, Junichi; Arai, Mikio; Miyuchi, Satoshi; Kyogashima, Mamoru; and Yoshida, Keiichi, 5,801,162, Cl. 514-54.000.
Miyuchi, Yoshitaka; Sowa, Toshiki; Hamaguchi, Koji; Shiba, Daisuke; and Takahashi, Hiromichi, to Kao Corporation. Deinking composition comprising a fatty acid mixture and a nonionic surfactant, 5,801,135, Cl. 510-474.000.

- Miyauchi, Yuji, to Olympus Optical Company, Ltd. Real image mode finder optical system, 5,801,882, Cl. 359-431.000.
Miyawaki, Mamoru: *See—*
Oozu, Hayao; Miyawaki, Mamoru; Ishizaki, Akira; and Sugawa, Shige-toshi, 5,801,373, Cl. 250-208.100.
Miyawaki, Takashi: *See—*
Yoneyoshi, Yukio; Konya, Naoto; Suzukamo, Gohfu; Kamitamar, Masashi; and Miyawaki, Takashi, 5,801,280, Cl. 564-415.000.
Miyazaki, Hitoshi; Kunii, Hitoshi; Sato, Takashi; and Saito, Kazuya, to Nippon Koki Co., Ltd. Gas generator for seat belt retracting power generating device, 5,799,977, Cl. 280-806.000.
Miyazaki, Kazuto, to Casio Computer Co., Ltd. Transmitter-receiver for a radio communication apparatus, 5,802,447, Cl. 455-76.000.
Miyazaki, Masahiko; Ishida, Naoyuki; Inada, Junichi; Kiyosumi, Tadahi-ro; and Ichigotani, Tetsuya, to Mita Industrial Co., Ltd. Unit positioning member for an image forming apparatus, 5,802,426, Cl. 399-113.000.
Miyazaki, Shigeki, to Sony Corporation. Plasma-addressed display panel and a method of manufacturing the same, 5,800,232, Cl. 445-24.000.
Miyazaki, Toshimasa: *See—*
Kato, Hiroaki; and Miyazaki, Toshimasa, 5,801,370, Cl. 235-467.000.
Miyoshi, Kousuke, to NEC Corporation. Method of forming metal wirings on a semiconductor substrate by dry etching, 5,801,101, Cl. 438-714.000.
Mizoguchi, Tetsuhiko; Sato, Toshiro; Sahashi, Masashi; Hasegawa, Michio; Tomita, Hiroshi; and Sawabe, Atsuhito, to Kabushiki Kaisha Toshiba. Planar magnetic element, 5,801,521, Cl. 323-282.000.
Mizokami, Hiromu; and Ishida, Hiroaki, to Matsushita Electric Industrial Co., Ltd. Wireless telephone apparatus, 5,802,477, Cl. 455-525.000.
Mizukami, Hiroshi: *See—*
Uenohara, Norihisa; Mizukami, Hiroshi; Noda, Shinichi; and Tanaka, Masanobu, 5,800,270, Cl. 464-64.000.
Mizukawa, Yuki; Igarashi, Tatsuya; and Hirai, Hiroyuki, to Fuji Photo Film Co., Ltd. Method for producing color filter using a silver halide color photosensitive material, 5,800,953, Cl. 430-7.000.
Mizukoshi, Masataka: *See—*
Fujisawa, Tetsuya; Sato, Mitsutaka; Kasai, Junichi; Mizukoshi, Masataka; Okokita, Kosuke; Yoshimura, Hiroshi; Hayashida, Katsuhiko; Takashima, Akira; Ishiguri, Masahiko; and Sono, Michio, 5,801,439, Cl. 257-686.000.
Mizukoshi, Ryuji: *See—*
Muto, Masaki; Mochida, Yoshihisa; Mizukoshi, Ryuji; and Maeda, Chikao, 5,801,594, Cl. 331-158.000.
Mizuno, Koji: *See—*
Yazawa, Kazunaga; Watanabe, Kazuo; Ijuin, Yasuharu; Shikano, Mayumi; Soda, Yasuji; Kosaka, Tetsuya; Matsuyama, Naoto; and Mizuno, Koji, 5,801,178, Cl. 514-255.000.
Mizuno, Kunio: *See—*
Ishikawa, Masatoshi; and Mizuno, Kunio, 5,799,440, Cl. 47-65.000.
Mizuno, Masayuki; and Yamashina, Masakazu, to NEC Corporation. Semiconductor integrated circuit with MOS transistors compensated of characteristic and performance deviations and deviation compensation system therein, 5,801,570, Cl. 327-362.000.
Mizutani, Hideo; Kobayashi, Naoyuki; and Magome, Nobutaka, to Nikon Corporation. Surface position detection apparatus and method, 5,801,835, Cl. 356-375.000.
Mizutani, Hideo; and Ota, Kazuya, to Nikon Corporation. Acousto-optic modulator, position detector using it, and projection exposure apparatus, 5,801,389, Cl. 250-548.000.
Mladsi, Scott: *See—*
Marik, Greg; Mladsi, Scott; and Cooper, Michael, 5,800,546, Cl. 623-16.000.
Mlejnek, Daniel George: *See—*
Brooks, Henry Marshall; Mlejnek, Daniel George; Portig, Harald; and Seman, Richard Andrew, Jr., 5,799,548, Cl. 74-606.00R.
Moberg, Gerth. Leaching protector, 5,799,948, Cl. 273-410.000.
Mobil Oil Corporation: *See—*
Marler, David Owen; and Kennedy, Clinton Robert, 5,799,482, Cl. 60-39.020.
Mobin, Mohammed S.: *See—*
Baker, Thomas W.; and Mobin, Mohammed S., 5,802,116, Cl. 375-341.000.
Mobius Green Energy, Inc.: *See—*
Yan, De Yi, 5,800,639, Cl. 148-426.000.
Mochida, Hisatoshi: *See—*
Takase, Yasutaka; Watanabe, Nobuhisa; Matsui, Makoto; Ikuta, Hironori; Kimura, Teiji; Saeki, Takao; Adachi, Hideyuki; Tokumura, Tadakazu; Mochida, Hisatoshi; Akita, Yasunori; and Souda, Shigeru, 5,801,180, Cl. 514-259.000.
Mochida, Yoshihisa: *See—*
Muto, Masaki; Mochida, Yoshihisa; Mizukoshi, Ryuji; and Maeda, Chikao, 5,801,594, Cl. 331-158.000.
Mochizuki, Naoto: *See—*
Yamanushi, Satoshi; and Mochizuki, Naoto, 5,799,935, Cl. 270-58.080.
Mockford, Stephen: *See—*
Gallant, John K.; Reynolds, Kevin; Mockford, Stephen; and Wrappe, Thomas, 5,802,468, Cl. 455-422.000.
Modér, Bo, to Alfa Laval AB. Method and equipment for monitoring a centrifugal separator, 5,800,330, Cl. 494-2.000.
Model & Instrument Development Corporation: *See—*
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- Mogul, Jeffrey Clifford, to Digital Equipment Corporation, Method for predictive prefetching of information over a communications network, 5,802,292, Cl. 395-200.330.
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- Monroe, Aaron Dillon: *See—*
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- Moore, David, to Motorola, Inc., Voltage detector circuit, 5,801,552, Cl. 327-62.000.
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- Moore, Gary M.; Peterson, Michael; and Beese, Steven C., 5,801,961, Cl. 364-492.000.
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- Moore, Larry W., Apparatus for storing separating and filling coffee filters, 5,799,713, Cl. 141-358.000.
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- Moreth, R. Edward, Roasting oven spit and mounting structure, 5,799,569, Cl. 99-421.00H.
- Morey, Dennis Earl, to Burton Corporation, The, Twist rack for snowboards, 5,799,915, Cl. 248-201.000.
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- Morgan, Jeffrey D., Three-dimensional word game, 5,799,943, Cl. 273-272.000.
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- Morinishi, Yasuharu: *See—*
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- Morris, Ronald N.; Ball-DiFazio, Doreen J.; Matté, Stephen R.; and Quintanilha, Ernest D., to Helix Technology Corporation, Corrosion resistant cryopump, 5,799,493, Cl. 62-55.500.
- Morris, Walker C., Method and apparatus for transmission of data and voice, 5,802,483, Cl. 455-557.000.
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- Morton, Joel T.: *See—*
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- Morzano, Christopher K., to Micro Technology, Inc., Multipoint serial access self-queuing memory switch, 5,802,131, Cl. 377-26.000.
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- Baum, Kevin; Kelton, James Robert; and Rasky, Phillip David, 5,802,044, Cl. 370-330.000.
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- Bynum, Byron Glen, 5,801,523, Cl. 323-315.000.
- Cavasin, Daniel, 5,800,747, Cl. 264-39.000.
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- Dinh, Khoi Van, 5,801,987, Cl. 365-185.180.
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- Hulsebosch, Thomas G., 5,802,456, Cl. 455-63.000.
- Johnson, Scott V.; and Jaskie, James E., 5,801,486, Cl. 313-495.000.
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- Kosice, Jeanne Han, 5,801,567, Cl. 327-263.000.
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- Moore, David, 5,802,552, Cl. 327-62.000.
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- Reed, Wendy, 5,802,541, Cl. 711-1.000.
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- Smith, Sybren Daniel; Palmer, James D.; and Lundell, Louis, 5,801,513, Cl. 320-113.000.
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- Traylor, Kevin Bruce, 5,801,654, Cl. 341-144.000.
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Murakawa, Mitsuru: See—
Suzuki, Satoshi; and Murakawa, Mitsuru, 5,800,932, Cl. 428-615.000.
Muramatsu, Kazuhiko; and Kinoshita, Yoshio, to NSK-Warner Kabushiki Kaisha. Cage having a bearing for use in a one-way clutch. 5,799,764, Cl. 192-41.500.
Muramatsu, Naokuni: See—
Aoshima, Shoji; and Muramatsu, Naokuni, 5,799,717, Cl. 164-271.000.
Muramatsu, Shigeru: See—
Sakai, Manabu; and Muramatsu, Shigeru, 5,800,149, Cl. 418-55.200.
Muramatsu, Tsuyoshi: See—
Yumoto, Manabu; Muramatsu, Tsuyoshi; and Miyata, Souichi, 5,802,399, Cl. 395-886.000.
Muraoka, Shinya, to NEC Corporation. Reception circuit for a baseband processing and operation. 5,802,120, Cl. 375-362.000.
Murasaki, Ryuichi: See—
Akeno, Mitsuru; and Murasaki, Ryuichi, 5,800,845, Cl. 425-224.000.
Murata Manufacturing Co., Ltd.: See—
Fujino, Masaru, 5,801,604, Cl. 333-202.000.
Kurose, Hideo; Tamura, Kouta; and Watanabe, Kenichi, 5,800,118, Cl. 414-676.000.
Nakamura, Takeshi, 5,801,507, Cl. 318-648.000.
Nakamura, Takeshi, 5,802,196, Cl. 381-202.000.
Tani, Hiroji; and Ogata, Naoki, 5,801,318, Cl. 75-373.000.
Wada, Hiroyuki; Sano, Harunobu; Sakamoto, Norihiko; and Hamaji, Yukio, 5,801,111, Cl. 501-138.000.
Yamamoto, Takashi; and Takeshima, Tetsuo, 5,801,603, Cl. 333-189.000.
Murayama, Shigeru: See—
Nomura, Kazuo; Kato, Tomohiko; Tamura, Tomonori; and Murayama, Shigeru, 5,799,502, Cl. 62-476.000.
Murayama, Yasuhiro: See—
Urabe, Kenzo; Makino, Giho; Tochiwara, Syunji; Murayama, Yasuhiro; and Hoshi, Atsushi, 5,802,078, Cl. 371-37.800.
Murdoch, Michael C.: See—
Emico, James H.; and Murdoch, Michael C., 5,802,205, Cl. 382-187.000.
Murgo, Joseph L.: See—
Sheffott, Leonard J.; Wildeman, Marion A.; Aleguas, Salvador, III; Murgo, Joseph L.; Jordan, Pamela Lane; Gregory, Jill Matus; Pincavage, Carole A.; Cipriani, Anthony; and Goldman, Robert, 5,802,493, Cl. 705-1.000.
Murphy, Joseph E.: See—
Rodzewich, Edward A.; Ouyang, Jiangbo; and Murphy, Joseph E., 5,801,217, Cl. 523-409.000.
Murphy, Kevin, to Tuthill Corporation. Tube testing connector. 5,799,985, Cl. 285-38.000.
Murphy, R. Allen: See—
Robbins, William L.; Haggerty, John S.; Rathman, Dennis D.; Goodhue, William D.; Kenney, George B.; Lightfoot, Annamarie; Murphy, R. Allen; Rhine, Wendell E.; and Sigalovsky, Julia, 5,801,073, Cl. 438-125.000.
Murphy, Richard Gerald: See—
Galvagni, John; Murphy, Richard Gerald; and Saxenmeyer, George John, 5,799,379, Cl. 29-25.420.
Murray, David E.; Wooten, David R.; Hess, Randall L.; Wanner, Christopher C.; and Wolford, Jeff W., to Compaq Computer Corporation. Universal serial bus keyboard system. 5,802,318, Cl. 395-280.000.
Murray, Richard A.: See—
Neese, David A.; Golobeff, William; Rhine, Jeffrey J.; Graham, Gary; and Murray, Richard A., 5,801,725, Cl. 347-32.000.
Muscavage, Richard: See—
Freyman, Ronald Lamar; Hendricks, Paul David; and Muscavage, Richard, 5,801,558, Cl. 327-112.000.
Musco Corporation: See—
Gordin, Myron K., 5,800,048, Cl. 362-275.000.
Musil, Joseph E.; Henry, Donald W.; Ostergaard, David A.; and Juhlin, Jon, to Cedarapids, Inc. Gyratory crusher having thermal relief system. 5,799,886, Cl. 241-36.000.
Muskin, R. Bennett: See—
Kisner, Roger A.; Baker, Steven P.; and Muskin, R. Bennett, 5,800,360, Cl. 600-532.000.
Musso, Anthony F., Jr. Adjustable child seat for bicycles. 5,800,014, Cl. 297-243.000.
Must System Inc.: See—
Sheu, Rich; Wang, Ming-Song; and Wu, Jung-Fu, 5,801,962, Cl. 364-526.000.
Mutlib, Abdul E.: See—
Hrib, Nicholas Joseph; Jurcak, John Gerard; and Mutlib, Abdul E., 5,801,176, Cl. 514-254.000.
Muto, Masaki; Mochida, Yoshihisa; Mizukoshi, Ryuji; and Maeda, Chikao, to Matsushita Electric Industrial Co., Ltd. Quartz oscillator device and its adjusting method. 5,801,594, Cl. 331-158.000.
Muzio, Simon C.; Omel, Randall R.; and Linnett, Barry J., to Microsoft Corporation. Audio-visual user interface controls. 5,801,692, Cl. 345-339.000.
Mydnynski, Steven T.: See—
Powers, Daniel J.; Cameron, David; Cole, Clinton S.; Lyster, Thomas D.; Mydnynski, Steven T.; and Morgan, Carlton B., 5,800,460, Cl. 607-5.000.
Myers, Carol Rita: See—
Anderson, David Allen; Myers, Carol Rita; and Saari, Matthew John, 5,800,650, Cl. 156-150.000.
Myers, David J.: See—
Campbell, Carey V.; Kasie, James F., II; Kovach, Larry J.; Laguna, Alvaro J.; Lewis, James D.; Mayrand, Mark E.; Myers, David J.; and Zukowski, Stanislaw L., 5,800,322, Cl. 623-1.000.
Hebestreit, Charles G.; Myers, David J.; Huppenthal, Joseph A.; and Bethke, Glenn T., 5,801,319, Cl. 84-297.005.
Myers, David Lewis; and Turkevich, Leonid Anthony, to Kimberly-Clark Worldwide, Inc. Method of preparing small particle dispersions. 5,800,866, Cl. 427-220.000.
Myers, Lawrence E.: See—
Byer, Robert L.; Fejer, Martin M.; Miller, Gregory D.; and Myers, Lawrence E., 5,800,767, Cl. 264-430.000.
Myers, Robert A., to M & M Designs, Inc. Heat fusible laminates and methods for preparation and use thereof. 5,800,890, Cl. 428-41.700.
Myers, Robert K.: See—
Karlton, Philip L.; Myers, Robert K.; Rossi, Charles V.; and Weissman, Terry, 5,802,284, Cl. 395-200.090.
Myokan, Kenichi: See—
Yagi, Norio; Shimada, Kunihiro; Katoh, Takehiko; Myokan, Kenichi; Matsumoto, Takashi; and Takashi, Kazuhiko, 5,801,907, Cl. 360-105.000.
Myriad Genetics, Inc.: See—
Kamb, Alexander, 5,801,236, Cl. 536-24.310.
NABCO Ltd.: See—
Akamatsu, Osamu; Asano, Yoshio; and Matsuoka, Toshiyuki, 5,799,757, Cl. 188-76.000.
Nablo, Samuel V.; and Wood, James C., Jr., to Electron Processing Systems, Inc. Method of and apparatus for the electron beam treatment of powders and aggregates in pneumatic transfer. 5,801,387, Cl. 250-492.300.
Nadal, Guy; Chevillon, Gérard; and Contenceau, Jean-Philippe, to B. Braun Celsa (Societe Anonyme). Prosthesis implantable in a human or animal duct such as a stent or a prosthesis for aneurism. 5,800,515, Cl. 623-1.000.
Nadalin, Anthony Joseph: See—
Benantar, Messaoud; Blakley, George Robert, III; and Nadalin, Anthony Joseph, 5,802,276, Cl. 395-186.000.
Nader, David R.: See—
Davey, Christopher Kirk; Shah, Anand J.; Dickison, Donald Fenwick; Nader, David R.; Jerger, Robert Joseph; and Kluzner, Michael Igor, 5,801,295, Cl. 73-1.060.
Naecker, Charles A., Jr. Mobile hoop hitch. 5,800,294, Cl. 473-481.000.

- Nagahama, Yoshinori, to Fujitsu Limited. Method and apparatus for computational fluid dynamic analysis with error estimation functions. 5,801,969, Cl. 364-578.000.
Nagai, Shigekazu; Sugano, Koji; Saitoh, Akio; and Suzuki, Masahiko, to SMC Kabushiki Kaisha. Actuator structural body. 5,799,543, Cl. 74-490.090.
Nagano, Ryuichiro; Nagase, Yoichi; and Tamura, Hajime, to Nippon Telegraph and Telephone Corporation; and Tokyuni Electric Cable Co., Ltd. Flat optical fiber cable. 5,802,231, Cl. 385-114.000.
Naganuma, Norihisa; and Fukushima, Nobuhiro, to Fujitsu Limited. Optical device having an optical film with an incident angle thereupon variable. 5,801,892, Cl. 359-892.000.
Nagasawa, Kimio: See—
Hatayama, Yoshinori; Ishiba, Masahiro; Takeyama, Tetsuo; Hazui, Takashi; and Nagasawa, Kimio, 5,802,534, Cl. 707-530.000.
Nagasawa, Tadahiko, to Amada Company, Limited. Method of bending operations and bending system using the same. 5,799,530, Cl. 72-389.300.
Nagase, Yoichi: See—
Nagano, Ryuichiro; Nagase, Yoichi; and Tamura, Hajime, 5,802,231, Cl. 385-114.000.
Nagashima, Mitsuhiro: See—
Wada, Hideo; Nagashima, Mitsuhiro; Oda, Naoki; Sasaki, Tokuhito; and Mori, Toru, 5,801,383, Cl. 250-332.000.
Nagashima, Toshiaki; Tsuda, Tadayuki; Kobayashi, Kazunori; and Chadani, Kazuo, to Canon Kabushiki Kaisha. Collapsible toner container. 5,802,431, Cl. 399-262.000.
Nagata, Shigeyoshi: See—
Kawamura, Takeshi; Yanagisawa, Kiyoshi; and Nagata, Shigeyoshi, 5,800,151, Cl. 418-201.300.
Nagata, Yoshiyuki, to Komatsu Ltd. Elastic-bodied crawler plate and crawler band. 5,800,026, Cl. 305-46.000.
Nagaya, Motohiro: See—
Kamiguchi, Masao; Neko, Noriaki; Hiraga, Kaoru; and Nagaya, Motohiro, 5,800,748, Cl. 264-40.100.
Nagerl, Hans: See—
Kubein-Meesenburg, Dietmar; and Nagerl, Hans, 5,800,370, Cl. 602-26.000.
Nagura, Koji: See—
Kyushima, Hiroyuki; Hasegawa, Yutaka; Atsumi, Akira; and Nagura, Koji, 5,801,511, Cl. 313-532.000.
Nahlovsky, Boris: See—
Bell, Eugene; Malik, Aslam A.; Nahlovsky, Boris; and Young, Marvin F., 5,800,372, Cl. 602-48.000.
Nai Anchorlok, Inc.: See—
Pierce, William C., 5,799,564, Cl. 92-99.000.
Najar, Michael. Neck support cushion for utilization in conjunction with hair treatment. 5,799,344, Cl. 4-523.000.
Naka, Takeshi: See—
Ozaki, Masaharu; Naka, Takeshi; and Furutachi, Hitoshi, 5,801,518, Cl. 323-222.000.
Nakada, Mamoru; and Shinozuka, Minoru, to Olympus Optical Co., Ltd. Catheter. 5,800,411, Cl. 604-280.000.
Nakada, Takakazu: See—
Nogami, Tatsuya; Nakada, Takakazu; Sakai, Rie; and Hosoya, Takeshi, 5,800,926, Cl. 428-447.000.
Nakagaki, Shoji: See—
Hasegawa, Susumu; Nakagaki, Shoji; and Umeda, Tokihiko, 5,800,134, Cl. 417-269.000.
Nakagawa, Katsumi: See—
Arao, Kozo; Nakagawa, Katsumi; and Iwasaki, Yukiko, 5,800,632, Cl. 136-258.000.
Nakahara, Shintaro: See—
Ohtsuka, Masataka; Isota, Yoji; Nakahara, Shintaro; Matsunaga, Makoto; and Konishi, Yoshihiko, 5,801,660, Cl. 343-700.0MS.
Nakai, Tatsuya: See—
Kobayashi, Masakazu; Nakai, Tatsuya; Hirashima, Hiroyuki; Monomohshi, Masahiko; and Sano, Yoshiki, 5,801,671, Cl. 345-95.000.
Nakajima, Isao: See—
Takeuchi, Youichi; Yamazaki, Akihiko; Yokokawa, Shuho; Takahashi, Kunitomo; Nakajima, Isao; Shimajima, Kazuhiro; Yamazaki, Shinya; and Kawashima, Tomonichi, 5,802,444, Cl. 399-384.000.
Nakajima, Kazunori; Tajiri, Toshiharu; Sato, Hidekazu; Miyamoto, Hiroshi; Enomoto, Takashi; and Iwaoka, Tsutomu, to Sony Corporation. Cordless telephone system having base unit with speaker. 5,802,476, Cl. 455-462.000.
Nakajima, Kiichi: See—
Imamura, Masato; Nakajima, Kiichi; Jindo, Katsumi; Asami, Toshio; Kato, Tatsuhiko; Ushirobisu, Kouichi; Aizawa, Yukio; Sekido, Yasuo; Goto, Akira; and Komiyama, Tomonari, 5,800,790, Cl. 422-174.000.
Nakajima, Nobuyasu: See—
Nounin, Katsuya; Wakutsu, Takashi; Nakajima, Nobuyasu; Ogura, Koji; Senizawa, Mutsumu; Moriya, Osamu; Sugawara, Tsutomu; Kamagata, Eiji; and Kumaki, Yoshinari, 5,802,469, Cl. 455-422.000.
Nakaki, Takuo: See—
Kawamura, Hajime; Nemoto, Takeharu; and Nakaki, Takuo, 5,801,956, Cl. 364-489.000.
Nakamura, Fumihiko: See—
Sawada, Hirohisa; Iwata, Masakatsu; Sasai, Keizo; and Nakamura, Fumihiko, 5,800,084, Cl. 400-208.000.
Nakamura, Hideo, to Toyota Jidosha Kabushiki Kaisha. Apparatus for controlling engine valve performance. 5,799,631, Cl. 123-90.170.
Nakamura, Hidetake, to NEC Corporation. Power MOSFET. 5,801,572, Cl. 327-434.000.
Nakamura, Hiroki: See—
Masuda, Youichi; Harada, Nozomu; and Nakamura, Hiroki, 5,801,672, Cl. 345-98.000.
Nakamura, John: See—
Miller, Guy; Lou, Lillian; and Nakamura, John, 5,801,159, Cl. 514-45.000.
Nakamura, Kazuhito: See—
Tezuka, Youichi; Tanaka, Shoichi; Wakaki, Makoto; Osako, Akihiko; and Nakamura, Kazuhito, 5,799,685, Cl. 137-375.000.
Nakamura, Ken: See—
Obayashi, Arata; Wakabayashi, Naoyuki; and Nakamura, Ken, 5,802,039, Cl. 370-216.000.
Nakamura, Koji: See—
Hayashi, Syuji; Fujimoto, Masaya; Nakamura, Koji; Okumura, Ryuichi; and Yamamoto, Haruo, 5,801,845, Cl. 358-458.000.
Nakamura, Masayuki; Koelling, Jeffrey E.; Thurston, Paulette; and McAdams, Hugh P., to Texas Instruments Incorporated. Four bit pre-fetch sDRAM column select architecture. 5,802,005, Cl. 365-230.030.
Nakamura, Tadashi: See—
Urata, Yoshinori; Yoneda, Takao; Akazawa, Yoshiaki; Morinishi, Yasuharu; Nakano, Nobuhiko; Nakamura, Tadashi; Ouchi, Takeaki; and Ogawa, Satoshi, 5,799,881, Cl. 241-5.000.
Nakamura, Takeshi, to Murata Manufacturing Co., Ltd. Acceleration sensor. 5,801,507, Cl. 318-648.000.
Nakamura, Takeshi, to Murata Manufacturing Co., Ltd. Speaker for radiating sound waves in all directions relative to a speaker supporting surface. 5,802,196, Cl. 381-202.000.
Nakamura, Toshihiko, to NEC Corporation. Vector data bypass mechanism for vector computer. 5,802,384, Cl. 395-800.050.
Nakamura, Toshiyuki: See—
Motegi, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakuda, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
Nakamura-Craig, Meire, to Glaxo Wellcome Inc. Use of 3, 5-diamino-6-(2,3-dichlorophenyl)-1, 2, 4-triazine isethionate for the treatment and prevention of dependence; tolerance and sensitization of drugs. 5,801,171, Cl. 514-242.000.
Nakanishi, Hideki: See—
Umezawa, Masao; Nakanishi, Hideki; and Watanabe, Tsutomu, 5,800,920, Cl. 428-364.000.
Nakano, Nobuhiko: See—
Urata, Yoshinori; Yoneda, Takao; Akazawa, Yoshiaki; Morinishi, Yasuharu; Nakano, Nobuhiko; Nakamura, Tadashi; Ouchi, Takeaki; and Ogawa, Satoshi, 5,799,881, Cl. 241-5.000.
Nakao, Mitsuhiro; Ishikawa, Toshimitsu; and Hayashi, Kazunori, to Kabushiki Kaisha Toshiba. Semiconductor device with smaller package. 5,801,433, Cl. 257-666.000.
Nakao, Yasumasa: See—
Nishizawa, Manabu; and Nakao, Yasumasa, 5,801,109, Cl. 501-66.000.
Nakashima, Shinji: See—
Motegi, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakuda, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
Nakashima, Yoshihiko; and Kinoshita, Togo, to Noritsu Koki Co., Ltd. Developing apparatus. 5,802,414, Cl. 396-568.000.
Nakata, Kiyoshi: See—
Mori, Mutsuhiro; Saito, Ryuichi; Kimura, Shin; Nakata, Kiyoshi; Saitoo, Syuichi; Horie, Akira; Koike, Yoshihiko; and Sekine, Shigeki, 5,801,936, Cl. 363-132.000.
Nakatsuyama, Hisashi; Kyojima, Masaki; and Okumura, Yo, to Fuji Xerox Co., Ltd. Apparatus and method for document database management of documents having a plurality of document structures. 5,802,529, Cl. 707-513.000.
Nakayama, Akihiro: See—
Miyata, Kensho; Kinutani, Kazutomo; Katsumata, Noboru; Kuroda, Kensho; Wada, Toyotaka; Nakayama, Akihiro; Takahashi, Katsumasa; Nishida, Takaharu; Uemura, Shouichi; and Kodama, Tetsuo, 5,799,643, Cl. 125-21.000.
Nakayama, Hiroshi; and Miyai, Kiyotaka, to Dainippon Screen MFG. Co., Ltd. Kerning method and electronic typographic/editing apparatus. 5,802,532, Cl. 707-519.000.
Nakayama, Tadayoshi, to Canon Kabushiki Kaisha. Decoding apparatus and method. 5,801,650, Cl. 341-67.000.
Nakayama, Tatsuo; and Miyamoto, Hironobu, to NEC Corporation. Field effect transistor. 5,801,405, Cl. 257-192.000.
Nakayama, Toshimasa: See—
Sato, Mitsuru; Nitta, Kazuyuki; Hada, Hideo; Hashiguchi, Tatsuya; Komano, Hiroshi; and Nakayama, Toshimasa, 5,800,964, Cl. 430-281.100.
Nakazato, Yasuaki; Kubota, Kazuo; and Takano, Hisakazu, to Shin-Etsu Handotai Co., Ltd. Apparatus and method of lapping works. 5,800,251, Cl. 451-41.000.
Nakazawa, Toshihiko: See—
Yamada, Osamu; Nakazawa, Toshihiko; Suzuki, Yasutomo; and Uchio, Hirokazu, 5,801,853, Cl. 358-504.000.
Nakazawa, Yusuke: See—

- Kato, Eiichi; Osawa, Sadao; and Nakazawa, Yusuke, 5,800,954, Cl. 430-47.000.
- Nalco Chemical Company: *See—*
- Miller, Thomas M.; Dave, Bhasker B.; and Goodman, W. Hugh, 5,800,714, Cl. 210-651.000.
- Nalewajek, David: *See—*
- Wilson, David P.; Singh, Rajiv R.; Basu, Rajat S.; Swan, Ellen L.; and Nalewajek, David, 5,800,729, Cl. 252-67.000.
- Nally, Martin Paul: *See—*
- Chow, Jenny Ming; Griffin, Susan Franklin; Nally, Martin Paul; and Rich, Lawrence Scott, 5,802,352, Cl. 395-500.000.
- Nam, Jung-hyun, to Samsung Electronics Co., Ltd. Multiphase charge coupled device solid-state image sensors, 5,801,409, Cl. 257-233.000.
- Nam, Soo-keun; and Kim, Kook-hwan, to Samsung Aerospace Industries, Ltd. Die bonding device, 5,799,858, Cl. 228-6.200.
- Namco Controls Corporation: *See—*
- Crosby, Robert J.; and Everson, Harold W., Jr., 5,801,530, Cl. 324-207.260.
- Namiki, Noriaki: *See—*
- Kamikawa, Nobuhisa; Kobayashi, Naomi; Namiki, Noriaki; and Matsumoto, Norihisa, 5,799,737, Cl. 172-2.000.
- Nanami, Masayoshi, to Sanshin Kogyo Kabushiki Kaisha. Twin jet drive for watercraft, 5,800,222, Cl. 440-38.000.
- Nanaumi, Masaaki; Ohta, Norihiro; Asano, Youichi; Takagi, Yoshiaki; and Fujisawa, Yoshikazu, to Honda Giken Kogyo Kabushiki Kaisha. NOx sensor for exhaust gas and method for producing same, 5,800,783, Cl. 422-94.000.
- Nanavati, Sameer Y.: *See—*
- Norrod, Forrest E.; Briggs, Willard S.; Wilcox, Christopher G.; Falardeau, Brian D.; and Nanavati, Sameer Y., 5,801,720, Cl. 345-526.000.
- Namba, Katsuhiko: *See—*
- Yagoto, Mitsutoshi; Kurahashi, Hideyuki; Murakami, Masanori; Namba, Katsuhiko; Ishiyama, Masamitsu; and Suzuki, Toshikazu, 5,801,462, Cl. 310-12.000.
- Nanishige Co. Ltd.: *See—*
- Yoneyama, Shinji, 5,799,537, Cl. 74-471.0XY.
- Nankervis, Wayne T.; Dufek, Gary L.; and Pantel, David S., to Paper Converting Machine Company. Breathable girth unit for a tube former in a packaging apparatus and method, 5,799,467, Cl. 53-450.000.
- Nanri, Yasuo: *See—*
- Yasumoto, Toshiaki; Okumura, Hiromichi; Iwai, Kenji; Tanaka, Toshimitsu; Sasaki, Toshihiko; Sugimoto, Akio; Kawashima, Hiroshi; Itano, Naofumi; Shibata, Manabu; and Nanri, Yasuo, 5,800,888, Cl. 428-36.910.
- Naoumenko, Yves: *See—*
- Chartier, Pascal; Azzopardi, Marie-Jose; Codazzi, Nathalie; Chaussade, Pierre; Naoumenko, Yves; Gauthier, Fabienne; and Guiselin, Olivier, 5,800,918, Cl. 428-336.000.
- Nappholz, Tibor A. Pacemaker with anaerobic threshold determination, 5,800,469, Cl. 607-18.000.
- Narabu, Tadakuni: *See—*
- Maki, Yasuhito; Abe, Motoaki; Narabu, Tadakuni; and Nomura, Hideo, 5,801,850, Cl. 358-483.000.
- Narayan, Ramani; Krishnan, Mohan; Snook, Joseph B.; Gupta, Ajay; and DuBois, Philippe, to Board of Trustees operating Michigan State University. Bulk reactive extrusion polymerization process producing aliphatic ester polymer compositions, 5,801,224, Cl. 528-357.000.
- Narayanan, Bikshandarkoil A.: *See—*
- Oliver-Shaffer, Patricia A.; Narayanan, Bikshandarkoil A.; Resek, James E.; and Singam, Pulla Reddy, 5,801,250, Cl. 548-526.000.
- Narayanan, Narasimhachari: *See—*
- Patonay, Gabor; Narayanan, Narasimhachari; Strekowski, Lucjan; Midendorf, Lyle Richard; and Lipowska, Malgorzata, 5,800,995, Cl. 435-6.000.
- Narazaki, Wataru: *See—*
- Sasaki, Kouji; Sakurai, Takao; Konno, Takeshi; Narazaki, Wataru; and Hashimoto, Masaichi, 5,801,375, Cl. 250-216.000.
- Nasburg, Robert E., to Condition Monitoring Systems. Traffic surveillance and simulation apparatus, 5,801,943, Cl. 364-436.000.
- Nashiki, Masayuki, to Okuma Corporation. Reluctance type synchronous motor, 5,801,478, Cl. 310-261.000.
- Nashimoto, Keiichi, to Fuji Xerox Co., Ltd. Optical deflecting device, 5,802,223, Cl. 385-8.000.
- Nasipuri, R. N.: *See—*
- Wambebe, Charles; Ogunyale, P. O.; Gamaniel, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.
- Nasuno, Ichiro: *See—*
- Kamano, Hideki; Nasuno, Ichiro; Yamamoto, Hiroshi; and Koike, Kazuyoshi, 5,801,121, Cl. 504-288.000.
- Natarajan, Shankar; and Fowler, Gregory A., to Cisco Systems, Inc. Autosensing LMI protocols in frame relay networks, 5,802,042, Cl. 370-255.000.
- Nathan, Simeon, III; and Brown, Mark S., to PWC Lock, L.L.C. Personal water craft security device, 5,799,513, Cl. 70-14.000.
- National Institute for Pharmaceutical Research and Development Federal Ministry of Science and Technology: *See—*
- Wambebe, Charles; Ogunyale, P. O.; Gamaniel, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.
- National Semiconductor Corporation: *See—*
- Baydatch, Yair, 5,801,978, Cl. 364-745.040.
- Kuo, James R., 5,801,565, Cl. 327-202.000.
- Luich, Thomas, 5,801,424, Cl. 257-377.000.
- Norrod, Forrest E.; Briggs, Willard S.; Wilcox, Christopher G.; Falardeau, Brian D.; and Nanavati, Sameer Y., 5,801,720, Cl. 345-526.000.
- Weigand, David L.; Malek, Charles J.; Socci, Gerard G.; Unal, Fatih; and Dilip, S., 5,802,076, Cl. 371-31.000.
- Natter, Charlie Van: *See—*
- McClung, Guy L., III, 5,799,616, Cl. 119-709.000.
- Naufel, Naji Chafic: *See—*
- Wiseman, Carl Donald; Naufel, Naji Chafic; Quan, Sang; and Kim, Yong Hyon, 5,802,317, Cl. 395-280.000.
- Navarro, Luis A.: *See—*
- Chandler, Daniel A.; Navarro, Luis A.; and Chu, Edward F., 5,801,612, Cl. 338-22.00R.
- Navia, Manuel A.; and St. Clair, Nancy L., to Vertex Pharmaceuticals, Incorporated. Method of producing a product with crosslinked crystals of thermolysin, 5,801,022, Cl. 435-108.000.
- Navis, Glen E., to Brunswick Corporation. Masking device with handle, 5,800,894, Cl. 428-41.700.
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- Kolen, Paul T.; and Nebolon, Joseph F., 5,800,491, Cl. 607-108.000.
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- Endo, Kaoru; and Sugiyama, Mikio, 5,801,713, Cl. 345-473.000.
- Hamada, Takehiko, 5,802,000, Cl. 365-205.000.
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- Iizawa, Junichi, 5,801,756, Cl. 348-16.000.
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- Ishizuka, Nobuhiko, 5,801,586, Cl. 327-545.000.
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- Nishiyama, Toshiro, 5,802,455, Cl. 455-38.400.
- Ohba, Akitomo; Sato, Masahiko; and Takahashi, Jun-ichi, 5,802,036, Cl. 369-112.000.
- Ohta, Ken, 5,802,006, Cl. 365-230.030.
- Ohta, Toshiyuki, 5,801,971, Cl. 364-578.000.
- Okamura, Ryuichi, 5,801,426, Cl. 257-386.000.
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- Sakai, Katsumi, 5,801,840, Cl. 358-427.000.
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- Sano, Hideo, 5,802,109, Cl. 375-245.000.
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- Taniguchi, Keiichi, 5,802,472, Cl. 455-445.000.
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- Ueda, Hiroaki, 5,801,775, Cl. 348-402.000.
- Wada, Hideo; Nagashima, Mitsuhiro; Oda, Naoki; Sasaki, Tokuhito; and Mori, Toru, 5,801,383, Cl. 250-332.000.
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- Yamada, Minoru, 5,802,019, Cl. 369-32.000.
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- Yoneyama, Kenichi, 5,801,860, Cl. 359-124.000.
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- Kunihiro, Hideto, 5,802,245, Cl. 386-98.000.
- Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek TNO: *See—*
- van den Brink, Johannes Maarten; and van Gorcom, Robertus Franciscus, 5,801,024, Cl. 435-132.000.
- Neese, David A.; Golobeff, William; Rhine, Jeffrey J.; Graham, Gary; and Murray, Richard A., to Encad, Inc. Slidable wiping and capping service station for ink jet printer, 5,801,725, Cl. 347-32.000.
- Nehoda, Charles J., to Allen Bradley Company, Inc. Manchester decoder with received signal blanking, 5,801,651, Cl. 341-70.000.
- Neises, Gabrielle R.: *See—*
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- Nelson, Dale K.; Savage, Steven D.; Pedersen, Brad D.; and McFarlin, Whitney A., to Angeion Corporation. Linear catheter ablation system, 5,800,428, Cl. 606-41.000.
- Nelson, James Kellogg: *See—*
- Maughan, James Rollins; and Nelson, James Kellogg, 5,800,159, Cl. 431-349.000.
- Nelson Metall Products Corporation: *See—*
- Shimmell, Dennis S.; and Mesanovic, Samir, 5,800,902, Cl. 428-139.000.
- Nelson, Michael D.: *See—*
- Demopoulos, Gregory A.; Yenko, Stephen A.; Herrin, David A.; McIlvaine, Neil G.; Nelson, Michael D.; Sigelmann, Milton R.; de Castro, Jose T. V.; Selezman, George; Collins, John; Aziz, Imraan; and Bressner, Gorm, 5,800,544, Cl. 623-13.000.
- Nelson, William G., to White Consolidated Industries, Inc. Refrigerator system with float valve flow control, 5,799,504, Cl. 62-509.000.
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- Tsuchiya, Kenji; Shirai, Tamotsu; and Nemoto, Akira, 5,800,015, Cl. 297-331.000.
- Nemoto, Kazuhiro; and Kashino, Tetsuo, to Konica Corporation. Solution manufacturing apparatus, 5,802,418, Cl. 396-627.000.
- Nemoto, Takeharu: *See—*
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- Nenno, David J.: *See—*
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- Neo-Ex Lab, Inc.: *See—*
- Kobayashi, Yasuhiko, 5,800,896, Cl. 428-67.000.
- Nepomuceno, Jose M. G.: *See—*
- Cho, Kwang H.; Clarke, Thomas J.; Dobbs, Joseph M.; Fischer, Eugene B.; Leister, Diane L.; Nepomuceno, Jose M. G.; Nichols, Walter A.; and Prasad, Ravi, 5,799,665, Cl. 131-291.000.
- Nesbitt, Gregory S.; and Shoemaker, Robert D., to Delavan Inc. Purging of fluid spray apparatus, 5,799,872, Cl. 239-8.000.
- Nesbitt, R. Dennis: *See—*
- Sullivan, Michael J.; and Nesbitt, R. Dennis, 5,800,284, Cl. 473-377.000.
- Nestec S.A.: *See—*
- Clyde, Gene Frank; Kwon, Steven Soon-Young; Potter, Marianne Dorothy; Vadehra, Dharam Vir; and Wedral, Elaine Regina, 5,800,850, Cl. 426-45.000.
- Netzer, Yishay. Differential windshield capacitive moisture sensors, 5,801,307, Cl. 73-170.170.
- Netzler, Göran, to Apogee AB. Method and device for control of AGV, 5,801,506, Cl. 318-587.000.
- Neubacher, Marc; Elschner, Steffen; Lang, Christoph; Teske, Christoph; and Mueller-Buschbaum, Hans Karl, to Hoechst Aktiengesellschaft. Process for producing thallium-containing high-T_c superconductors in flowing gas atmospheres, 5,801,126, Cl. 505-501.000.
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- Neumann, Bernhard, to Gmundner Fertigteile Gesellschaft m.b.H. & Co. KG. Multi-track road crossing, 5,799,868, Cl. 238-8.000.
- Neumann, Karl-Heinz; Joentgen, Winfried; Heitkamp, Dieter; and Fiege, Helmut, to Bayer Aktiengesellschaft. Process for the preparation of hydroxyvalic acid, 5,801,276, Cl. 562-531.000.
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- Sautter, Manfred; Neumüller, Hannes; and Kalfass, Jens, 5,799,470, Cl. 53-550.000.
- Neurosearch A/S: *See—*
- Moldt, Peter; and Wätjen, Frank, 5,801,174, Cl. 514-253.000.
- New, Daryl C., to Micron Technology, Inc. Pre-patterned contact fill capacitor for dielectric etch protection, 5,801,916, Cl. 361-321.400.
- New England Medical Center Hospitals, Inc.: *See—*
- Acheson, David W. K.; Sonenshein, Abraham L.; and Keusch, Gerald T., 5,800,821, Cl. 424-200.100.
- New Jersey Institute of Technology: *See—*
- Carr, William N.; and Cho, Dong-Il, 5,801,309, Cl. 73-514.290.
- Newell, Arthur D.: *See—*
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- Newell, John Keith; and Zwernemann, Gregory Richard, to Northrop Grumman Corporation. Mechanism of noise suppression system for a supersonic aircraft, 5,801,341, Cl. 181-215.000.
- Newman, Karel Z.: *See—*
- Foresman, Mark D.; Ghai, Jyotsna; and Newman, Karel Z., 5,801,064, Cl. 436-518.000.
- Newman, Stephen: *See—*
- Wallis, Julian; Hall, Kevin P.; Newman, Stephen; and Stevenson, Dian Elizabeth, 5,800,974, Cl. 430-566.000.
- Newport, Cynthia M.: *See—*
- Burch, Aileen; and Newport, Cynthia M., 5,799,355, Cl. 15-167.100.
- Newton, John Harris: *See—*
- Clarke, Neil; and Newton, John Harris, 5,800,716, Cl. 210-711.000.
- Neymark, Alexander L.; and Miklos, David J., to Bee Chemical Company. Zero VOC aqueous dispersion of an acid-modified polyolefin and a monoepoxide/polymeric acid adduct, 5,801,219, Cl. 523-501.000.
- NFB of New York, Inc.: *See—*
- Benderly, David, 5,799,511, Cl. 63-23.000.
- Ng, Chin Yee: *See—*
- Brenlinger, Keith J.; Ertan, Basak; Houdek, Philip, II; Ng, Chin Yee; Roza, Scott; Sanyal, Yodhohit; and Shull, Craig, 5,799,566, Cl. 99-320.000.
- NGK Insulators, Ltd.: *See—*
- Aoshima, Shoju; and Muramatsu, Naokuni, 5,799,717, Cl. 164-271.000.
- Kato, Yasushi; Hashimoto, Shigeharu; and Watanabe, Yoshinobu, 5,800,787, Cl. 422-174.000.
- Niori, Yusuke; Umemoto, Koichi; and Ushikoshi, Ryusuke, 5,800,618, Cl. 118-723.00E.
- Ngo, Viet N.; and Tsai, Wei-Tek, to Cray Research, Inc. Outer loop vectorization, 5,802,375, Cl. 395-709.000.
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- Gaarder, Glenn W.; Stodder, Samuel A.; Palmer, Lynn D.; Caputo, Dan S.; and Nguyen, Chan K., 5,800,083, Cl. 400-185.000.
- Nguyen, Chinh D.: *See—*
- Chang, Shang-De Ted; Nguyen, Chinh D.; and Yuen, Guy S., 5,801,994, Cl. 365-185.290.
- Nguyen, Chung T.: *See—*
- Ganesh, Chidambar; Nguyen, Chung T.; Hammel, Sherry E.; and Marafino, Margaret, 5,802,369, Cl. 395-200.770.
- Nguyen, Diana: *See—*
- Cosgrove, Delos M.; Rhee, Richard; and Nguyen, Diana, 5,800,531, Cl. 623-2.000.
- Nguyen, Hoan N.: *See—*
- Bracco, Rosano A.; Harer, George L.; Lam, Sue K.; Mailloux, Louis D.; Nguyen, Hoan N.; Pence, Cheryl A.; Pham, Hung M.; Raker, Cathleen J.; Rostamian, Farhad D.; Thompson, Robert R., Jr.; and Truong, Daniel D., 5,802,215, Cl. 382-258.000.
- Nguyen, Minhtam: *See—*
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- Nguyen, Phong Thanh, to Exar Corporation. Voltage-controlled oscillator capable of operating at lower power supply voltages, 5,801,593, Cl. 331-113.000.

- Niblett, Peter David, to International Business Machines Corp. Method and apparatus for the serialization of updates in a data conferencing network. 5,802,322, Cl. 395-200.810.
- Nichias Corporation: See—
Miyahara, Yoshihisa; Kimura, Kouichi; Motoyoshi, Yoshiyuki; Takagi, Tatsuo; Horiuchi, Osamu; and Furuya, Hiromi, 5,800,745, Cl. 264-13.000.
- Nicholls, Stephen Lansell: See—
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- Nichols, Randolph G., to Honeywell Inc. Mounting multichip and single chip modules on printed wiring boards. 5,801,923, Cl. 361-704.000.
- Nichols, Walter A.: See—
Cho, Kwang H.; Clarke, Thomas J.; Dobbs, Joseph M.; Fischer, Eugene B.; Leister, Diane L.; Neponiuceno, Jose M. G.; Nichols, Walter A.; and Prasad, Ravi, 5,799,665, Cl. 131-291.000.
- Nickel, James O.: See—
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- Nickolas, Stewart Earle; and Tate, Bruce Alan, to International Business Machines Corporation. Method for displaying object oriented class information and content information. 5,802,334, Cl. 395-357.000.
- Nicol, Mark D.: See—
DeRoo, David T.; Nicol, Mark D.; and Krau, Michael P., 5,802,376, Cl. 395-726.000.
- Nidek Co., Ltd.: See—
Sumiya, Toshifumi, 5,800,424, Cl. 606-4.000.
- Niegel, Michael, to Lucent Technologies, Inc. Transmission system comprising a matching circuit. 5,802,122, Cl. 375-372.000.
- Nielsen, Finn Visgaard: See—
Jensen, Finn; Aarestrup, Jan Caroe; and Nielsen, Finn Visgaard, 5,801,500, Cl. 318-254.000.
- Nienburg, Johann: See—
Börner, Gunter; Nienburg, Johann; Sopka, Jörg; and Wittmann, Josef, 5,800,876, Cl. 427-459.000.
- Nienkamper Furniture & Accessories Inc.: See—
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- Nihon Tokushu Toryo Co., Ltd.: See—
Yasumoto, Toshiaki; Okumura, Hiromichi; Iwai, Kenji; Tanaka, Toshimitsu; Sasaki, Toshihiko; Sugimoto, Akio; Kawashima, Hiroshi; Itano, Naofumi; Shibata, Manabu; and Nanri, Yasuo, 5,800,888, Cl. 428-36.910.
- Niitsu, Toshihiro, to Molex Incorporated. Electrical connector for flat cable. 5,800,204, Cl. 439-495.000.
- Nikkan Industries Co., Ltd.: See—
Karasawa, Tsuguo; Takahashi, Masayuki; Miyamoto, Masami; and Takayama, Itaru, 5,800,901, Cl. 428-131.000.
- Nikolaev, Anton: See—
Nayar, Shree K.; and Nikolaev, Anton, 5,802,201, Cl. 382-153.000.
- Nikon Corporation: See—
Kaneko, Hisaharu; and Sato, Masatoshi, 5,802,020, Cl. 369-34.000.
- Machida, Kiyosada; and Omi, Junichi, 5,801,888, Cl. 359-694.000.
- Mizutani, Hideo; Kobayashi, Naoyuki; and Magome, Nobutaka, 5,801,835, Cl. 356-375.000.
- Mizutani, Hideo; and Ota, Kazuya, 5,801,389, Cl. 250-548.000.
- Ohishi, Sueyuki; and Kai, Tadao, 5,802,403, Cl. 396-53.000.
- Otake, Tatsuro; and Sakano, Hitoshi, 5,802,406, Cl. 396-150.000.
- Satake, Eiji; Kaneko, Masanobu; and Tomioka, Ken, 5,801,807, Cl. 351-221.000.
- Sato, Haruo, 5,801,887, Cl. 359-691.000.
- Shiraishi, Naomasa, 5,801,816, Cl. 355-53.000.
- Shiraishi, Nomasa, 5,801,390, Cl. 250-559.300.
- Uchiyama, Takayuki; and Arima, Hirobumi, 5,800,032, Cl. 353-69.000.
- Wakabayashi, Hiroshi; and Terunuma, Hiroshi, 5,802,407, Cl. 396-287.000.
- Wakahayashi, Tsutomu; Akami, Noboru; and Kotani, Noriyasu, 5,802,411, Cl. 396-389.000.
- Nill, Werner; and Mosbaek, Johannessen. Method for delaying run-off of flash-storm water or ordinary rainwater from roofs and other surfaces with water-retention capability. 5,800,092, Cl. 405-52.000.
- Nilsson, Sven-Ake; and Sandblom, Robert, to Alfa Laval AB. Damping device. 5,800,070, Cl. 384-535.000.
- Nimec, Zenia: See—
Galivan, John Henry; Ryan, Thomas John; Yao, Rong; and Nimec, Zenia, 5,801,031, Cl. 435-172.300.
- Nimer, Fred. Stepladder utility basket. 5,799,819, Cl. 220-694.000.
- Nimmi, Marcel E.: See—
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- Nims, Robert A., to Allied Signal Inc. Dual turbogenerator auxiliary power system. 5,799,484, Cl. 60-39.150.
- Ninh, Loi; and Hackworth, Barry D., to Sony Corporation; and Sony Electronics Inc. Universal audio/video signal converter. 5,801,749, Cl. 348-6.000.
- Niori, Yusuke; Umemoto, Koichi; and Ushikoshi, Ryusuke, to NGK Insulators, Ltd. Plasma-generating electrode device, an electrode-embedded article, and a method of manufacturing thereof. 5,800,618, Cl. 118-723.000.
- Nippon Conlux Co., Ltd.: See—
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- Nippon Koki Co., Ltd.: See—
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- Nippon Oil Co., Ltd.: See—
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- Nippon Shoji Kaish Ltd.: See—
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- Nippon Shokubai Co., Ltd.: See—
Sumida, Yasutaka; Asakawa, Miaki; Kita, Yuichi; Kitajima, Mitsuhiko; Takahashi, Yoshiyuki; and Sagi, Kazuo, 5,801,277, Cl. 562-583.000.
- Yano, Hitoshi; and Shimasaki, Yuuji, 5,801,252, Cl. 548-554.000.
- Nippon Soda Co., Ltd.: See—
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- Nippon Steel Corporation: See—
Kudo, Yoshinobu, 5,802,068, Cl. 370-538.000.
- Nippon Telegraph and Telephone Corporation: See—
Nagano, Ryuichiro; Nagase, Yoichi; and Tamura, Hajime, 5,802,231, Cl. 385-114.000.
- Nippon Thompson Co., Ltd.: See—
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- Nippondenso Co., Ltd.: See—
Hori, Makoto; Miyamoto, Toshimi; Fukaya, Kenji; Hamaya, Masahiro; Ohta, Minoru; and Miwa, Naoto, 5,800,689, Cl. 204-428.000.
- Ohayashi, Kazuyoshi, 5,801,508, Cl. 318-801.000.
- Otsuka, Yoshinori; Atsumi, Kinya; and Kimura, Yuji, 5,802,088, Cl. 372-36.000.
- NISCA Corporation: See—
Yamanushi, Satoshi; and Mochizuki, Naoto, 5,799,935, Cl. 270-58.080.
- Nishibori, Sadao; and Kajiura, Takuji, to ELN Engineering Co., Ltd. Reprocessed resin formed of thermoset resin formed material, method for reprocessing thermoset resin foamed material and method for molding molded article formed of the reprocessed resin. 5,801,205, Cl. 521-54.000.
- Nishida, Hiroshi: See—
Kinoshita, Yoshihiko; Nishida, Hiroshi; Ishigaki, Tatsuya; Kai, Kenjiro; and Ito, Atsushi, 5,801,904, Cl. 360-106.000.
- Nishida, Kouji, to Komatsu Electronic Metals Co., Ltd. Semiconductor single crystal ingot cutting jig. 5,799,644, Cl. 125-35.000.
- Nishida, Masaaki: See—
Tsutsui, Hiroshi; Tsukamoto, Kazumasa; Hayabuchi, Masahiro; Nishida, Masaaki; and Yamamoto, Yoshihisa, 5,800,308, Cl. 477-116.000.
- Nishida, Takaharu: See—
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- Nishida, Takehiko: See—
Fujita, Ryo; Soga, Mitsuru; Fukunaga, Yasushi; and Nishida, Takehiko, 5,801,706, Cl. 345-422.000.
- Nishihata, Toshihiko, to Victor Company of Japan, Ltd. Active matrix device. 5,801,400, Cl. 257-72.000.
- Nishikawa, Takenobu: See—
Seido, Nobuo; Nishikawa, Takenobu; Sotoguchi, Tsukasa; Yuasa, Yoshifumi; Miura, Takashi; and Kumobayashi, Hidenori, 5,801,271, Cl. 560-29.000.
- Nishimura, Shuji: See—
Tajima, Kenichi; Itoh, Kenji; Nishimura, Shuji; Doi, Masayuki; and Jida, Akio, 5,801,589, Cl. 331-1.00R.
- Nishimura, Syunji, to Fuji Photo Optical Co., Ltd. Helicoid-structure. 5,802,404, Cl. 396-72.000.
- Nishimura, Tadashi: See—
Inoue, Yasuo; Nishimura, Tadashi; Yamaguchi, Yasuo; and Iwamatsu, Toshiaki, 5,801,080, Cl. 438-405.000.
- Nishiyama, Naoki, to Sumitomo Electric Industries, Ltd. Preamplifier for optical communication. 5,801,588, Cl. 330-308.000.
- Nishiyama, Toshiro, to NEC Corporation. Selective call receiver using typeface-based source identification. 5,802,455, Cl. 455-38.400.
- Nishizaka, Takashi: See—
Lee, Shy-Fuh; Nishizaka, Takashi; and Komatsubara, Kenichi, 5,801,120, Cl. 504-236.000.
- Nishizawa, Hideyuki: See—
Hirao, Akiko; Miyamoto, Hirohisa; Nishizawa, Hideyuki; Hosoya, Masahiro; and Sugiuchi, Masami, 5,800,950, Cl. 430-1.000.
- Nishizawa, Manabu; and Nakao, Yasumasa, to Asahi Glass Company Ltd. Alkali-free glass and flat panel display. 5,801,109, Cl. 501-66.000.
- Nissan Chemical Industries, Ltd.: See—
Nogami, Tatsuya; Nakada, Takakazu; Sakai, Rie; and Hosoya, Takeshi, 5,800,926, Cl. 428-447.000.
- Nissan Motor Co., Ltd.: See—
Origuchi, Tamotsu, 5,799,748, Cl. 180-233.000.
- Shimizu, Youji, Yanagishima, Takayuki; Jindo, Tomio; and Yagihashi, Wataru, 5,801,667, Cl. 345-7.000.
- Nissei Plastic Industrial Co., Ltd.: See—
Kudo, Yoshiaki; Okada, Haruo; and Kobayashi, Fumihiko, 5,800,839, Cl. 425-3.000.
- Nissen, Lanny; and Saeki, Takehiko, to Kawasaki Motors Mfg. Co. Assembly prompting system. 5,801,946, Cl. 364-468.010.
- Nissha Printing Co., Ltd.: See—
Yamazaki, Seiichi; and Okuno, Shiroh, 5,800,759, Cl. 264-163.000.

- Nissin Flour Milling Co., Ltd.: See—
Hiramoto, Shigeru; Saito, Yukio; Hatanaka, Shigeo; and Shingai, Akiko, 5,801,143, Cl. 514-9.000.
- Nissin Electric Co., Ltd.: See—
Fujisawa, Hiroshi, 5,801,488, Cl. 315-5.410.
- Nissin Kagaku Kenkyusho Co., Ltd.: See—
Kato, Yasuo, 5,800,677, Cl. 162-199.000.
- Nittec, Inc.: See—
Gast, William A., Jr.; Herdeman, Robert W.; and Saenz, Jorge E., 5,799,495, Cl. 62-78.000.
- Nitta, Katsukuni; and Senga, Kazuyo, to Oji-Yuka Synthetic Paper Co., Ltd. Sheet for illuminated signboard and illuminated signboard employing the same. 5,800,909, Cl. 428-207.000.
- Nitta, Kazuyuki: See—
Sato, Mitsuru; Nitta, Kazuyuki; Hada, Hideo; Hashiguchi, Tatsuya; Komano, Hiroshi; and Nakayama, Toshimasa, 5,800,964, Cl. 430-281.100.
- Nitto Boseki Co., Ltd.: See—
Koike, Kazuyoshi; and Kojima, Hidetoshi, 5,800,676, Cl. 162-145.000.
- Nitz, Frederic W.: See—
Moore, Robert E.; Nitz, Frederic W.; and Gipe, Michael A., 5,801,952, Cl. 364-483.000.
- Nixon, Mark; Havekost, Robert B.; Jundt, Larry O.; Stevenson, Dennis; Ott, Michael G.; Webb, Arthur; and Lucas, Mike, to Fisher-Rosemount Systems, Inc. Process control system user interface including selection of multiple control languages. 5,801,942, Cl. 364-188.000.
- Njoroge, F. George: See—
Afonso, Adriano; Baldwin, John J.; Doll, Ronald J.; Li, Ge; Mallams, Alan K.; Njoroge, F. George; Rane, Dinanath F.; Reader, John C.; and Rossman, Randall R., 5,801,175, Cl. 514-254.000.
- Nobel Biocare AB: See—
Andersson, Matts, 5,800,174, Cl. 433-215.000.
- Nobuta, Hiroshi, to Canon Kabushiki Kaisha. Image communicating apparatus. 5,801,846, Cl. 358-468.000.
- Noda, Osamu; and Norioka, Setsuo, to Jeol Ltd. Method of analyzing foreign materials. 5,801,382, Cl. 250-310.000.
- Noda, Shinichi: See—
Uenohara, Norihisa; Mizukami, Hiroshi; Noda, Shinichi; and Tanaka, Masanobu, 5,800,270, Cl. 464-64.000.
- Noffsinger, Jimmie K.; and Ou, Ching-Nan, to Primus Corporation. Chromatographic method for the identification and characterization of hemoglobin variants in blood. 5,801,053, Cl. 435-288.600.
- Nogami, Tatsuya; Nakada, Takakazu; Sakai, Rie; and Hosoya, Takeshi, to Nissan Chemical Industries, Ltd. Coating film having water repellency and low refractive index. 5,800,926, Cl. 428-447.000.
- Nogiwa, Toru: See—
Itoh, Akihide; Nogiwa, Toru; Hotta, Yoshihiko; Suzuki, Akira; and Kutami, Atsushi, 5,801,743, Cl. 347-171.000.
- Noguchi, Takao: See—
Yano, Yoshihiko; and Noguchi, Takao, 5,801,105, Cl. 438-785.000.
- Noguchi, Takuya, to Sunny Industry Company, Limited. Air supply system for incinerator apparatus. 5,799,590, Cl. 110-216.000.
- Nohmi, Makoto: See—
Kanekawa, Nobuyasu; Suzuki, Shoji; Sato, Yoshimichi; Tashiro, Kore-fumi; Bekki, Keisuke; Sato, Hiroshi; Nohmi, Makoto; and Ohtsui, Shinya, 5,802,266, Cl. 395-182.090.
- Nokia Mobile Phones Limited: See—
Frampton, Simon, 5,802,351, Cl. 395-500.000.
- Hamalainen, Jari; and Jokiahio, Timo, 5,802,465, Cl. 455-403.000.
- Nokia Telecommunications Oy: See—
Heiskari, Mika; and Lehmusto, Mika, 5,802,457, Cl. 455-88.000.
- Nokian Renkaat Oy: See—
Eromäki, Pentti Juhani, 5,800,644, Cl. 152-210.000.
- Eromäki, Pentti Juhani, 5,800,649, Cl. 156-114.000.
- Nolan, Timothy J., to Smith, Sr., Paul V.; and Smith, Jr., Paul V. Baseball bat practice device and method of manufacture. 5,799,937, Cl. 273-26.00B.
- Nolen, James A.; and Mallow, William, to Biosensory Insect Control Corporation. Apparatus for attracting and destroying insects. 5,799,436, Cl. 43-112.000.
- Nomos Corporation: See—
Carol, Mark P., 5,802,136, Cl. 378-65.000.
- Nomura, Hideo: See—
Maki, Yasuhito; Abe, Motoaki; Narabu, Tadakuni; and Nomura, Hideo, 5,801,850, Cl. 358-483.000.
- Nomura, Kazuo; Kato, Tomohiko; Tamura, Tomonori; and Murayama, Shigeru, to Sanyo Electric Co., Ltd. Absorption type refrigerating apparatus. 5,799,502, Cl. 62-476.000.
- Nomura, Sueki. Kneeling putter. 5,800,283, Cl. 473-294.000.
- Nonin Medical, Inc.: See—
Isaacson, Philip O.; and Gadtko, David W., 5,800,349, Cl. 600-323.000.
- Norand Corporation: See—
Boatwright, Darrell L.; and Austin, Rickey G., 5,802,379, Cl. 395-750.060.
- Nordberg, Inc.: See—
Karra, Vijja Kumar, 5,799,885, Cl. 241-30.000.
- Nording, Thomas; and Utter, Alfred, to J. Eberspächer GmbH & Co. Process for manufacturing an air gap-insulated exhaust pipe. 5,799,395, Cl. 29-89.080.
- Nordson Corporation: See—
Lambert, Peter G.; Binder, John; Frost, Ivan E.; Brattoli, Stephen F., Jr.; and Fritz, Eric P., 5,800,615, Cl. 118-326.000.
- Matsunaga, Masafumi; Yamagata, Ikuo; Kitasako, Shigenori; and Takayanagi, Akito, 5,800,867, Cl. 427-236.000.
- Norioka, Setsuo: See—
Noda, Osamu; and Norioka, Setsuo, 5,801,382, Cl. 250-310.000.
- Noritsu Koki Co., Ltd.: See—
Nakashima, Yoshihiko; and Kinoshita, Togo, 5,802,414, Cl. 396-568.000.
- Norman, Lewis R.; Slabaugh, Billy F.; McCabe, Michael A.; and Morgan, Ronnie G., to Halliburton Energy Services, Inc. Method of forming and using particulate slurries for well completion. 5,799,734, Cl. 166-278.000.
- Norman, Richard S. Massively-parallel processor array with outputs from individual processors directly to an external device without involving other processors or a common physical carrier. 5,801,715, Cl. 345-505.000.
- Normile, James: See—
Wang, Katherine; and Normile, James, 5,802,361, Cl. 395-600.000.
- Norrod, Forrest E.; Briggs, Willard S.; Wilcox, Christopher G.; Falardeau, Brian D.; and Nanavati, Sameer Y., to National Semiconductor Corporation. Data transfer from a graphics subsystem to system memory. 5,801,720, Cl. 345-526.000.
- Norte, David A.: See—
Carter, Galen L.; Norte, David A.; and Yoon, Woong K., 5,801,597, Cl. 333-12.000.
- Northcutt, John: See—
Kozarsky, Christopher; Northcutt, John; and Nowak, Michael, 5,802,114, Cl. 375-340.000.
- Northern Telecom Limited: See—
Bereza, William, 5,801,578, Cl. 327-536.000.
- Faruque, Saleh, 5,802,474, Cl. 455-447.000.
- Roberts, Kim Byron; O'Sullivan, Maurice Stephen; and May, Gregory Dean, 5,801,858, Cl. 359-114.000.
- Rutledge, Philip Antony; Wong, Jin Kue; Smith, Roland A.; and Reinink, Kasper, 5,802,473, Cl. 455-441.000.
- Skills, Richard Prescott; Livermore, Frederick Caldwell; and Allen, Brent E., 5,802,043, Cl. 370-258.000.
- Northrop Grumman Corporation: See—
Beavers, Bob Ray; and De Angelo, Michael, 5,802,198, Cl. 381-344.000.
- Bullen, George Nicholas; Brazil, Stephen A.; Decker, Douglas D.; and MacAllister, Ian, 5,800,662, Cl. 156-294.000.
- Hamilton, Robin E.; Kennedy, Paul G.; Ostrop, John; Baker, Martin L.; Arlow, Gregory A.; Golombek, John C.; and Fagan, Thomas J., Jr., 5,801,442, Cl. 257-714.000.
- Newell, John Keith; and Zwernemann, Gregory Richard, 5,801,341, Cl. 181-215.000.
- Williams, Roger B.; Szmurlo, Thomas E.; Guthrie, Warren E.; and Jensen, James, 5,801,643, Cl. 340-87.020.
- Northwest Machine Works, Inc.: See—
Soiniski, Frederick J.; and Raymond, Donald, 5,799,742, Cl. 175-236.000.
- Northwestern University: See—
Soff, Gerald; Gately, Stephen T.; and Twardowski, Przemyslaw, 5,801,012, Cl. 453-68.100.
- Norton Company: See—
Maujouid, Mohammed, 5,799,642, Cl. 125-15.000.
- Norton, Michael D.: See—
Smith, Roger P.; Krall, Thomas J.; Lugar, Jeffrey S.; and Norton, Michael D., 5,800,770, Cl. 264-509.000.
- Nosaki, Katsutoshi; Masumoto, Tsuyoshi; Inoue, Akihisa; and Yamaguchi, Tadashi, to Inoue, Akihisa; Masumoto, Tsuyoshi; YKK Corporation; and Honda Giken Kogyo Kabushiki Kaisha. Ultrafine particle of quasi-crystalline aluminum alloy and process for producing aggregate thereof. 5,800,638, Cl. 148-403.000.
- Nounin, Katsuya; Wakutsu, Takashi; Nakajima, Nobuyasu; Ogura, Koji; Serizawa, Mutsumu; Moriya, Osamu; Sugawara, Tsutomu; Kamagata, Eiji; and Kumaki, Yoshinari, to Kabushiki Kaisha Toshiba. Radio communication system selectable low speed bi-directional communication and high-speed down link communication. 5,802,469, Cl. 455-422.000.
- Novamont S.p.A.: See—
Bastolfi, Catia; Bellotti, Vittorio; Del Tredici, Gianfranco; and Rallis, Angelos, 5,801,207, Cl. 521-84.100.
- Novartis Finance Corporation: See—
Beck, James Joseph, 5,800,997, Cl. 435-6.000.
- Novell, Inc.: See—
McCain, William C., 5,801,679, Cl. 345-145.000.
- Novo Nordisk A/S: See—
Bisgård-Frantzen, Henrik; Borchert, Torben Vedel; Svendsen, Allan; Thellersen, Marianne; and Van der Zee, Pia, 5,801,043, Cl. 435-252.300.
- Schneider, Palle; Pedersen, Anders Hjelholt; and Hansen, Svend Aage, 5,801,035, Cl. 435-189.000.
- Nowak, Michael: See—
Kozarsky, Christopher; Northcutt, John; and Nowak, Michael, 5,802,114, Cl. 375-340.000.
- NSI Enterprises, Inc.: See—
Leadford, Kevin F., 5,800,050, Cl. 362-296.000.
- NSK Ltd.: See—
Endo, Shuji; Itakura, Yusuke; and Kobayashi, Hideyuki, 5,801,504, Cl. 318-434.000.
- Yamamura, Kenji; and Wada, Shuji, 5,800,637, Cl. 148-318.000.
- NSK-Warner Kabushiki Kaisha: See—
Muramatsu, Kazuhiko; and Kinoshita, Yoshio, 5,799,764, Cl. 192-41.500.

- NTC Technology Inc.: *See—*
Rayburn, Daniel B., 5,800,361, Cl. 600-532.000.
NTN Corporation: *See—*
Yamamoto, Ken; Itoh, Kenichiro; Hori, Isao; and Akiyoshi, Kohji, 5,799,749, Cl. 180-247.000.
NTT Mobile Communications Network, Inc.: *See—*
Sawai, Koichi; Yoshikawa, Kunio; and Miyasita, Yukiya, 5,802,471, Cl. 455-445.000.
Nugent, James S.: *See—*
Geurtsen, Friedrich H. H.; Snay, Eleanor R.; Nugent, James S.; and Stein, Samuel H., 5,800,656, Cl. 156-239.000.
Numaguchi, Katsuyuki: *See—*
Uchida, Motoharu; and Numaguchi, Katsuyuki, 5,801,050, Cl. 435-257.100.
Nunberg, Jack H.: *See—*
Doyle, Michael V.; Newell, Arthur D.; Nunberg, Jack H.; and White, Thomas J., 5,800,810, Cl. 424-85.200.
Núñez, Jose F.; and Schmitt, Peter J., to Meadox Medicals, Inc. Shaped woven tubular soft-tissue prostheses and methods of manufacturing, 5,800,514, Cl. 623-1.000.
Nunn, Michael: *See—*
Chestnut, Robert W.; Polley, Margaret J.; Paulson, James C.; Jones, S. Tarran; Saldanha, José W.; Bendig, Mary M.; Krieger, Michael; Perez, Carl; Bayer, Robert; and Nunn, Michael, 5,800,815, Cl. 424-153.100.
Nutter, Francis C.; and Bloom, David A., to BTU International, Inc. Solder reflow furnace having a boroscope viewing assembly, 5,801,825, Cl. 356-241.000.
Nyacol Products, Inc.: *See—*
Catone, David L., 5,800,740, Cl. 252-610.000.
Nyberg, Donald G.: *See—*
Ramsay, Stephen R.; and Nyberg, Donald G., 5,800,717, Cl. 210-711.000.
Nycomed Imaging AS: *See—*
Hollister, Kenneth Robert; Keller, Kenneth Edmund; Wei, Dong; Peng, Xin; Ladd, David Lee; Henrichs, Paul Mark; and Snow, Robert Allen, 5,801,228, Cl. 534-15.000.
Nykiel, Patricia: *See—*
Comarteau, Jean-Louis; Boudot, Daniel; Liebaud, Christophe; and Nykiel, Patricia, 5,799,718, Cl. 164-306.000.
Oba, Hiroyuki; Ohtsuka, Yasumasa; Okuda, Kouichi; Ishiyama, Tatsunori; Hayakawa, Akira; Fukuzawa, Daizo; and Shibuya, Takashi, to Canon Kabushiki Kaisha. Image fixing apparatus, 5,801,360, Cl. 219-216.000.
Obara, Rikuro. Compound bearing assembly, 5,800,069, Cl. 384-504.000.
Obata, Akihiko, to Fujitsu Limited. Shared document display system, 5,801,677, Cl. 345-123.000.
Obayashi, Arata; Wakabayashi, Naoyuki; and Nakamura, Ken, to Kabushiki Kaisha Toshiba. Mobile radio communication apparatus with synchronized reception recovering function, 5,802,039, Cl. 370-216.000.
Obayashi, Kazuyoshi, to Nippondenso Co., Ltd. Apparatus for controlling a polyphase AC motor in quick-torque and high-efficiency modes, 5,801,508, Cl. 318-801.000.
O'Bear, Raymond E.: *See—*
Chen, Patrick K.; and O'Bear, Raymond E., 5,800,778, Cl. 422-48.000.
Ober, Lawrence R.: *See—*
Abearn, Kevin J.; Ober, Lawrence R.; and Aulsems, Michiel Reinier, 5,801,918, Cl. 361-683.000.
Obinata, Kenichi: *See—*
Tatewaki, Masayuki; Kato, Hiromasa; Obinata, Kenichi; and Aoki, Masahiro, 5,800,864, Cl. 427-164.000.
Obino, Stanislas F.; and Buscemi, Paul J., to PharmaTarget, Inc. Catheter for implantable rhythm control device, 5,800,498, Cl. 607-123.000.
O'Brien, Gary R.: *See—*
Erickson, Timothy K.; and O'Brien, Gary R., 5,800,628, Cl. 134-18.000.
O'Brien, Michael J.: *See—*
Bryant, Robert C.; O'Brien, Michael J.; and Furlani, Edward P., 5,802,415, Cl. 396-469.000.
Obriest, Gerhard, to Lechner GmbH. Method for the manufacture and/or filling of a two-chamber pressure pack, 5,799,469, Cl. 53-470.000.
Océ Printing Systems GmbH: *See—*
Wiedemer, Manfred, 5,801,742, Cl. 347-171.000.
Ochi, Hisayuki: *See—*
Ohno, Manabu; Ochi, Hisayuki; Kuwashima, Tetsuhito; Suematsu, Hiroyuki; Imai, Eiichi; Takiguchi, Tsuyoshi; Tomiyama, Koichi; Kukimoto, Tsutomu; and Yusa, Hiroshi, 5,802,428, Cl. 399-222.000.
Ochiai, Masato, to Canon Kabushiki Kaisha. Facsimile apparatus having means for controlling the reading, storing and transmission of image data, 5,801,839, Cl. 358-404.000.
Ochiai, Tameichi: *See—*
Urano, Toshiyuki; Takasaki, Ryuichiro; Kamimura, Jiro; Ikeda, Shingo; Endo, Noriko; Chika, Yuzuru; and Ochiai, Tameichi, 5,800,952, Cl. 430-7.000.
Ockuly, John D.: *See—*
Swartz, John F.; Ockuly, John D.; and Hassett, James A., 5,800,413, Cl. 604-280.000.
Oda, Hidekazu: *See—*
Kuroi, Takashi; and Oda, Hidekazu, 5,801,425, Cl. 257-383.000.
Oda, Hiromi, to Shimano Inc. Apparatus for sealing a bicycle control cable, 5,799,544, Cl. 74-502.400.
Oda, Mihoko: *See—*
Konno, Takuya; Takenaka, Masaaki; Kakii, Hitoshi; and Oda, Mihoko, 5,802,442, Cl. 399-308.000.
Oda, Naoki: *See—*
Wada, Hideo; Nagashima, Mitsuhiro; Oda, Naoki; Sasaki, Tokuhito; and Mori, Toru, 5,801,383, Cl. 250-332.000.
Oda, Robert P.: *See—*
Naylor, Stephen; Tomlinson, Andrew J.; Benson, Linda M.; Braddock, Walter David; and Oda, Robert P., 5,800,692, Cl. 204-601.000.
Oda, Yoh: *See—*
Tsukioka, Takashi; Shiina, Takayuki; Minagawa, Tadayoshi; and Oda, Yoh, 5,799,599, Cl. 112-65.000.
Odagiri, Takashi; and Ohno, Hiroki, to Uniden Corporation. Vibrator attaching structure, 5,801,466, Cl. 310-81.000.
Odashima, Hideo, to Mitsubishi Pencil Kabushiki Kaisha. Baked pencil lead and method for manufacturing the same, 5,801,215, Cl. 523-164.000.
O'Donoghue-Kitt, Christine. Medical treatment garment, 5,799,330, Cl. 2-114.000.
Oechsle, Markus: *See—*
Chau-Huu, Tri; Meinecke, Albrecht; and Oechsle, Markus, 5,799,409, Cl. 34-117.000.
Oeda, Takashi: *See—*
Matsunami, Naoto; Kan, Masayuki; Kaneda, Yasunori; Yagisawa, Ikuya; Oeda, Takashi; and Arakawa, Hiroshi, 5,802,345, Cl. 395-500.000.
Ofek, Yuval: *See—*
Vishlitzky, Natan; Ofek, Yuval; and Kopylovitz, Haim, 5,802,557, Cl. 711-112.000.
Ogaito, Makoto: *See—*
Ohara, Hitomi; and Ogaito, Makoto, 5,801,255, Cl. 549-274.000.
Ogasawara, Noritoshi: *See—*
Suzuki, Hironobu; Miwa, Michio; Hikita, Hiroyuki; Kawaguchi, Toru; and Ogasawara, Noritoshi, 5,801,709, Cl. 345-433.000.
Ogata, Naoki: *See—*
Tani, Hiroji; and Ogata, Naoki, 5,801,318, Cl. 75-373.000.
Ogawa, Atsushi: *See—*
Taki, Waro; Sadato, Akiyo; Ogawa, Atsushi; Goto, Yasuhiro; and Hirano, Shinichi, 5,800,426, Cl. 606-32.000.
Ogawa, Hajime: *See—*
Taneda, Atsushi; Akamatsu, Koji; Ogawa, Hajime; and Suzuki, Satoshi, 5,801,352, Cl. 219-69.180.
Ogawa, Masahiko, to Canon Kabushiki Kaisha. Video recording camera, 5,802,247, Cl. 386-119.000.
Ogawa, Satoshi: *See—*
Urata, Yoshinori; Yoneda, Takao; Akazawa, Yoshiaki; Morinishi, Yasu-haru; Nakano, Nobuhiko; Nakamura, Tadashi; Ouchi, Takeaki; and Ogawa, Satoshi, 5,799,881, Cl. 241-5.000.
Ogawa, Tetsuo; and Satoh, Hiroshi, to Kawasaki Steel Corporation. Data receiving device, 5,802,065, Cl. 370-469.000.
Ogawa, Yoshihide: *See—*
Moteji, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakuda, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
Ogino, Hiroshi, to Sanshin Kogyo Kabushiki Kaisha. Splash and anti-cavitation plate for marine drive, 5,800,224, Cl. 440-66.000.
Ogino, Masanori, to Hitachi, Ltd. Single plate color liquid crystal display apparatus, 5,801,795, Cl. 349-5.000.
Ogino, Tadao: *See—*
Hayashi, Hiroshi; Ogino, Tadao; and Matsuo, Minoru, 5,801,368, Cl. 235-454.000.
Ogiso, Koichi; Mukai, Hiroshi; Kawashima, Daiichiro; Koizumi, Junji; and Ito, Katsushi, to Toyoda Gosei Co., Ltd. High gloss molded resin, 5,800,912, Cl. 428-323.000.
Ogle, Michele Dollar: *See—*
Laskaris, Evangelos Trifon; and Ogle, Michele Dollar, 5,801,609, Cl. 335-216.000.
Oglesby, Alfred P.; and Oglesby, John P., to Oglesby & Butler Research and Development Limited. Gas powered heating device, 5,799,648, Cl. 126-414.000.
Oglesby & Butler Research and Development Limited: *See—*
Oglesby, Alfred P.; and Oglesby, John P., 5,799,648, Cl. 126-414.000.
Oglesby, John P.: *See—*
Oglesby, Alfred P.; and Oglesby, John P., 5,799,648, Cl. 126-414.000.
Ognier, Jean-François. Medical gas insufflator with automatic gas flow control, 5,800,381, Cl. 604-26.000.
Oguchi, Keiichiro: *See—*
Kubota, Masaru; Kawaguchi, Takashi; Akahane, Hidehiro; Iijima, Yoshi-taka; Oguchi, Keiichiro; Ito, Mikiko; Hayashi, Youichi; and Makiba, Hidenori, 5,802,016, Cl. 368-11.000.
Ogunyale, P. O.: *See—*
Wambebe, Charles; Ogunyale, P. O.; Gamanuel, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.
Ogura, Koji: *See—*
Nounin, Katsuya; Wakutsu, Takashi; Nakajima, Nobuyasu; Ogura, Koji; Serizawa, Mutsumu; Moriya, Osamu; Sugawara, Tsutomu; Kamagata, Eiji; and Kumaki, Yoshinari, 5,802,469, Cl. 455-422.000.
Oh, Kisuk. Nursing bottle, 5,799,808, Cl. 215-11.100.
Ohara, Hitomi; and Yahata, Masahito, to Shimadzu Corporation. Method for producing L-lactic acid with high optical purity using bacillus strains, 5,801,025, Cl. 435-139.000.
Ohara, Hitomi; and Ogaito, Makoto, to Shimadzu Corporation. Method for producing lactide and apparatus used therefor, 5,801,255, Cl. 549-274.000.

- Ohashi, Ryota: *See—*
Takada, Kenichi; Ohashi, Ryota; Sumomozawa, Hironori; and Shimizu, Hiroaki, 5,799,486, Cl. 60-464.000.
Ohashi, Yoshikazu, to Cognex Corporation. Machine vision methods and articles of manufacture for determination of convex hull and convex hull angle, 5,801,966, Cl. 364-559.000.
Ohashi, Yukihiro; Kawamata, Akira; Yada, Yukihiro; Higuchi, Kazuhiko; Tsukahara, Kazuo; and Imokawa, Genji, to Kao Corporation. Amide derivatives and dermatologic preparations containing the same, 5,801,258, Cl. 549-448.000.
Ohashi, Yutaka: *See—*
Umemoto, Hideki; Hiraoka, Naoki; Fukui, Wataru; Ohashi, Yutaka; and Yokotani, Masahiro, 5,801,529, Cl. 324-207.120.
Ohba, Akitomo; Sato, Masahiko; and Takahashi, Jun-ichi, to NEC Corporation. Optical head device utilizing super-resolution technique, 5,802,036, Cl. 369-112.000.
O'Hearn, John: *See—*
Evans, Gary; and O'Hearn, John, 5,799,437, Cl. 47-40.500.
Ohi Seisakusho Co., Ltd.: *See—*
Monzen, Tomoaki, 5,801,502, Cl. 318-286.000.
Ohio State Research Foundation, The: *See—*
Bertone, Alicia L., 5,799,660, Cl. 128-898.000.
Ohio Willow Wood Company: *See—*
Arbogast, Robert E.; Bartkus, Eric K.; Colvin, James M.; and Srinivasan, Sujatha, 5,800,563, Cl. 623-35.000.
Cooper, John Edwin; Arbogast, Robert E.; Kinsinger, Jay H.; and Srinivasan, Sujatha, 5,800,567, Cl. 623-39.000.
Ohishi, Sueyuki; and Kai, Tadao, to Nikon Corporation. Apparatus for inspecting blur correction camera, blur correction camera, and method of inspecting blur correction camera, 5,802,403, Cl. 396-53.000.
Ohishi, Takeo, to Victor Company of Japan, Ltd. Digital information modulating apparatus, 5,802,081, Cl. 371-55.000.
Ohkura, Yuji: *See—*
Takemi, Masayoshi; and Ohkura, Yuji, 5,800,622, Cl. 118-725.000.
Ohmeda Inc.: *See—*
Kirchhevel, G. Lamar, 5,801,384, Cl. 250-345.000.
Ohmichi, Takako: *See—*
Yoneoka, Masaki; Izumida, Toshitaka; Kawamoto, Norio; Kaneko, Takuji; Ohmichi, Takako; and Okazaki, Hiromichi, 5,802,342, Cl. 395-442.000.
Ohno, Hiroki: *See—*
Odagiri, Takashi; and Ohno, Hiroki, 5,801,466, Cl. 310-81.000.
Ohno, Kazunari: *See—*
Suzuki, Mitsuru; Ohno, Kazunari; Fujiwara, Kunihiko; Kato, Tetsuo; and Morishita, Takanori, 5,801,343, Cl. 181-254.000.
Ohno, Manabu; Ochi, Hisayuki; Kuwashima, Tetsuhito; Suematsu, Hiroyuki; Imai, Eiichi; Takiguchi, Tsuyoshi; Tomiyama, Koichi; Kukimoto, Tsutomu; and Yusa, Hiroshi, to Canon Kabushiki Kaisha. Images forming apparatus and developer for developing electrostatic images, 5,802,428, Cl. 399-222.000.
Ohno, Shinpei, to Dai Nippon Printing Co., Ltd. method for forming pattern onto article during injection molding thereof, 5,800,771, Cl. 264-510.000.
Ohno, Yoshikazu, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device with short circuit prevention and method of manufacturing thereof, 5,801,443, Cl. 257-758.000.
Ohta, Eiji: *See—*
Suzuki, Yasumichi; Yamada, Masanori; and Ohta, Eiji, 5,802,217, Cl. 382-274.000.
Ohta, Ken, to NEC Corporation. Semiconductor memory of multiple-bank structure having block write function, 5,802,006, Cl. 365-230.030.
Ohta, Ken-ichi, to Canon Kabushiki Kaisha. Color image processing method and apparatus utilizing the same, 5,801,855, Cl. 358-518.000.
Ohta, Minoru: *See—*
Hori, Makoto; Miyamoto, Toshimi; Fukaya, Kenji; Hamaya, Masahiro; Ohta, Minoru; and Miwa, Naoto, 5,800,689, Cl. 204-428.000.
Ohta, Norihiro: *See—*
Nanaumi, Masaaki; Ohta, Norihiro; Asano, Youichi; Takagi, Yoshiaki; and Fujisawa, Yoshikazu, 5,800,783, Cl. 422-94.000.
Ohta, Seiya, to Hewlett-Packard Company. Key holder, 5,799,522, Cl. 70-456.000.
Ohta, Toshiyuki, to NEC Corporation. Form simulation device and its simulating method by the use of the Monte Carlo method, 5,801,971, Cl. 364-578.000.
Ohtani, Satoru: *See—*
Yamamoto, Ryoichi; Ohtani, Satoru; Hachimori, Toshimi; Kojima, Teru-hisa; and Mamyoda, Takahiro, 5,799,412, Cl. 34-582.000.
Ohtsuji, Shinya: *See—*
Kanekawa, Nobuyasu; Suzuki, Shoji; Sato, Yoshimichi; Tashiro, Kore-fumi; Bekki, Keisuke; Sato, Hiroshi; Nohmi, Makoto; and Ohtsuji, Shinya, 5,802,266, Cl. 395-182.090.
Ohtsuka, Hidefumi: *See—*
Oohara, Shunichi; Ejiri, Masakazu; Nemoto, Yasuhiro; Sasaki, Naoki; Ohtsuka, Hidefumi; Matsumoto, Shogo; Sato, Ryoko; and Yoshida, Kazushi, 5,801,704, Cl. 345-358.000.
Ohtsuka, Masataka; Isota, Yoji; Nakahara, Shintaro; Matsunaga, Makoto; and Konishi, Yoshihiko, to Mitsubishi Denki Kabushiki Kaisha. Antenna apparatus using a short patch antenna, 5,801,660, Cl. 343-700.0MS.
Ohtsuka, Yasumasa: *See—*
Oba, Hiroyuki; Ohtsuka, Yasumasa; Okuda, Kouichi; Ishiyama, Tatsunori; Hayakawa, Akira; Fukuzawa, Daizo; and Shibuya, Takashi, 5,801,360, Cl. 219-216.000.

Ohtsuru, Yoshisuke: *See—*
Wada, Ryukichi; Suzuki, Fumio; and Ohtsuru, Yoshisuke, 5,801,745, Cl. 347-232.000.

Ohuchi, Katsuya: *See—*
Yamamoto, Yukio; Fujita, Makoto; Sakate, Nobuo; Ohuchi, Katsuya; and Hirabara, Shoji, 5,800,640, Cl. 148-557.000.

Ohwaki, Hirotsugu; and Yoneda, Kiyoshi, to Sony Corporation. Keyboard and video camera control system, 5,801,771, Cl. 348-211.000.

Ohya, Yasumasa, to Nippon Thompson Co., Ltd. Linear motion guide unit with elastic deformable sleeves, 5,800,064, Cl. 384-44.000.

Ohya, Yukihide, to Sumitomo Rubber Industries, Ltd. Pneumatic tire, mold including vent grooves, and method, 5,800,642, Cl. 152-209.00R.

Oishi, Kanji: *See—*
Momma, Atsuko; Matsumoto, Miki; and Oishi, Kanji, 5,801,554, Cl. 327-89.000.

Oishi, Kazumi; and Yamamoto, Atsushi, to Sunstar Inc. Toothbrush, 5,799,353, Cl. 15-167.100.

Oji-Yuka Synthetic Paper Co., Ltd.: *See—*
Nitta, Katsukuni; and Senga, Kazuyo, 5,800,909, Cl. 428-207.000.

Ojo-Amaze, Emmanuel A.; Okogun, Joseph I.; and Cottam, Howard B., to Immune Modulation, Inc. Compositions and methods for immunosuppressing, 5,801,193, Cl. 514-475.000.

Oka, Michio; and Suganuma, Hiroshi, to Sony Corporation. Light exposure and illuminating apparatus, 5,801,870, Cl. 359-216.000.

Oka, Takeya: *See—*
Sakaguchi, Yoshikazu; Kano, Takenori; Ichigo, Koichi; and Oka, Takeya, 5,799,697, Cl. 137-625.650.

Okabe, Eiji; Tanabe, Mayumi; Saito, Shinichi; Sakaigawa, Akira; Takeda, Hitoshi; Kido, Masami; Kaneko, Takashi; Koden, Mitsuhiro; and Sako, Teiyu, to Chisso Corporation; and Sharp Kabushiki Kaisha. Smectic liquid crystal composition and liquid crystal device, 5,800,736, Cl. 252-299.610.

Okabe, Naoto: *See—*
Ishihara, Yasuo; Kawakita, Haruo; and Okabe, Naoto, 5,801,445, Cl. 257-771.000.

Okada, Akihiro: *See—*
Hiroshima, Shuichi; Okada, Akihiro; Ozawa, Masayuki; and Udagawa, Mamoru, 5,801,781, Cl. 348-441.000.

Okada, Haruo: *See—*
Kudo, Yoshiaki; Okada, Haruo; and Kobayashi, Fumihiko, 5,800,839, Cl. 425-3.000.

Okada, Kazuhiro: *See—*
Tsukada, Takeo; Kanasugi, Masaaki; Miyashita, Masataka; Okada, Kazuhiro; and Yamaguchi, Norishige, 5,800,636, Cl. 148-306.000.

Okada, Kazusito: *See—*
Kenmochi, Kazuhito; Sonobe, Osamu; Kawazumi, Eisuke; Seino, Yoshikazu; Akazawa, Takashi; and Okada, Kazusito, 5,799,527, Cl. 72-252.500.

Okada, Mitsuharu, to Mita Industrial Co., Ltd. Toner cartridge with removable sealing film, 5,802,441, Cl. 399-262.000.

Okada, Naohisa, to Sumitomo Wiring Systems, Ltd. Electrical connector, 5,800,216, Cl. 439-752.000.

Okada, Takashi: *See—*
Hirano, Naohiko; Doi, Kazuhide; Takubo, Chiaki; Tazawa, Hiroshi; Hosomi, Eiichi; Hiruta, Yoichi; Okada, Takashi; and Shibasaki, Koji, 5,801,447, Cl. 257-778.000.

Okada, Yoshiyuki: *See—*
Sato, Noriko; Okada, Yoshiyuki; Yoshida, Shigeru; and Yahagi, Hironori, 5,801,648, Cl. 341-50.000.

Okajima, Shinpei; and Ueda, Yutaka, to Shimano, Inc. Snowboard binding, 5,799,957, Cl. 280-14.200.

Okamoto, Hideaki: *See—*
Tsuiji, Shigeo; and Okamoto, Hideaki, 5,800,965, Cl. 430-287.100.

Okamoto, Jun: *See—*
Jindai, Masaaki; and Okamoto, Jun, 5,800,101, Cl. 408-230.000.

Okamoto, Yasuo; and Kondo, Shunichi, to Fuji Photo Film Co., Ltd. Photopolymerizable composition containing a sensitizing dye and a titanocene compound, 5,801,212, Cl. 522-16.000.

Okamura, Ryuichi, to NEC Corporation. Field effect transistor with improved source/drain diffusion regions having an extremely small capacitance, 5,801,426, Cl. 257-386.000.

Okaniwa, Kazuhiro; and Hayase, Iwao, to Mitsubishi Denki Kabushiki Kaisha. Method and apparatus for fabricating semiconductor device, 5,800,665, Cl. 156-344.000.

Okawa, Yoshihiro; and Furuse, Tatsuji, to Kyocera Corporation. Dielectric ceramic composition, 5,801,112, Cl. 501-138.000.

Okayama, Minenobu; and Sato, Shuji, to Hisamitsu Pharmaceutical Co., Inc. Non-crosslinked acrylic polymers and non-crosslinked anion exchange resins, 5,800,809, Cl. 424-78.120.

Okazaki, Hiromichi: *See—*
Yoneoka, Masaki; Izumida, Toshitaka; Kawamoto, Norio; Kaneko, Takuji; Ohmichi, Takako; and Okazaki, Hiromichi, 5,802,342, Cl. 395-442.000.

Okazaki, Yuichi, to Agency of Industrial Science & Technology, Ministry of International Trade & Industry. Precision positioning control apparatus and precision positioning control method, 5,801,939, Cl. 364-167.010.

Oki, Brian M.; Stamos, James; and Hallmark, Gary, to Oracle Corporation. Method and apparatus for data comparisons, 5,802,528, Cl. 707-201.000.

Oki Data Corporation: *See—*
Ishikawa, Osamu; and Ito, Toshikazu, 5,802,587, Cl. 711-155.000.

Oki Electric Industry Co., Ltd.: *See—*
Iwakiri, Itsuro, 5,801,981, Cl. 365-73.000.

- Satou, Kenji; and Matsushita, Yuichi, 5,801,999, Cl. 365-200.000.
Oklahoma Medical Research Foundation: *See—*
Fusek, Martin; and Vetricka, Vaclav, 5,800,814, Cl. 424-133.100.
Okogun, J. I.: *See—*
Wambebe, Charles; Ogunyale, P. O.; Ganiemi, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.
Olympus America, Inc.: *See—*
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Olympus Optical Co., Ltd.: *See—*
Goto, Mitsuo; Uzawa, Kunihiko; Itakura, Masahiro; and Hijino, Masamichi, 5,799,676, Cl. 134-61.000.
Miyauchi, Yuji, 5,801,882, Cl. 359-431.000.
Nakada, Mamoru; and Shinozuka, Minoru, 5,800,411, Cl. 604-280.000.
Togino, Takayoshi, 5,801,885, Cl. 359-630.000.
Omega-Flex, Inc.: *See—*
Albino, Mark, 5,799,989, Cl. 285-334.500.
Omel, Randall R.: *See—*
Muzio, Simon C.; Omel, Randall R.; and Linnett, Barry J., 5,801,692, Cl. 345-339.000.
Omeros Medical Systems, Inc.: *See—*
Demopoulos, Gregory A.; Pierce, Pamela A.; and Herz, Jeffrey M., 5,800,385, Cl. 604-49.000.
Demopoulos, Gregory A.; Yench, Stephen A.; Herrin, David A.; Mellvaine, Neil G.; Nelson, Michael D.; Sigelmann, Milton R.; de Castro, Jose T. V.; Seletman, George; Collins, John; Aziz, Imraan; and Bressner, Gorm, 5,800,544, Cl. 623-13.000.
Omi, Junichi: *See—*
Machida, Kiyosada; and Omi, Junichi, 5,801,888, Cl. 359-694.000.
Omi, Toshihiko: *See—*
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Omniport Corporation: *See—*
Scott, Logan, 5,802,046, Cl. 370-280.000.
Omori, Katsumi: *See—*
Satou, Yoshinori; Maeda, Akira; Maki, Hideyuki; and Omori, Katsumi, 5,802,254, Cl. 395-68.000.
Omote, Kenji: *See—*
Tsuzuki, Shigeo; Hara, Takeshi; Watanabe, Manabu; Omote, Kenji; and Tanaka, Satoru, 5,801,499, Cl. 318-141.000.
Omron Corporation: *See—*
Horibata, Kenji; Omi, Toshihiko; and Sato, Fumihiko, 5,801,313, Cl. 73-718.000.
Onaya, Junichi: *See—*
Takada, Akikazu; Onaya, Junichi; Arai, Mikio; Miyauchi, Satoshi; Kyogashima, Mamoru; and Yoshida, Keiichi, 5,801,162, Cl. 514-54.000.
Oneida Indian Nation: *See—*
Holch, Niels C.; and Riolo, Frank J., 5,800,269, Cl. 463-42.000.
O'Neill, James J.: *See—*
Bangs, David L.; Gouares, Alexander G.; O'Neill, James J.; Sargent, Murray, III; and Zaika, Igor Y., 5,802,380, Cl. 395-777.000.
Ong, Michael T.: *See—*
Ziauddin, Mohamed; and Ong, Michael T., 5,802,521, Cl. 707-101.000.
Ong, T. P.: *See—*
Fiordalice, Robert; Garcia, Sam; and Ong, T. P., 5,801,098, Cl. 438-653.000.
Ono, Junichi: *See—*
Takata, Kensaku; and Ono, Junichi, 5,800,201, Cl. 439-466.000.
Ono, Makoto: *See—*
Takagi, Yuji; Doi, Hideaki; and Ono, Makoto, 5,801,965, Cl. 364-552.000.
Ono, Tetsuji: *See—*
Takekoshi, Kiyoshi; Ono, Tetsuji; and Fujiyama, Hiromichi, 5,801,545, Cl. 324-770.000.
Ono, Yuichi; Hatori, Mitsuaki; and Inoue, Hiroshi, to Usui Kokusai Sangyo Kaisha Limited. Fluid clutch, 5,799,765, Cl. 192-58.620.
Onoda, Izumi; Adachi, Yasushi; Kawabe, Isao; and Takashima, Kazu, to Kabushiki Kaisha Toshiba. Hermetic compressor having vibration damping support, 5,800,150, Cl. 418-63.000.
Ontario Cancer Institute: *See—*
Gariépy, Jean, 5,801,145, Cl. 514-12.000.
Ontrak Systems Inc.: *See—*
Pant, Anil K.; Young, Douglas W.; Meyer, Anthony S.; Volodarsky, Konstantin; and Weldon, David E., 5,800,248, Cl. 451-41.000.
Onyx Pharmaceuticals, Inc.: *See—*
McCormick, Francis, 5,801,029, Cl. 435-172.300.
Oohara, Shunichi; Ejiri, Masakazu; Nemoto, Yasuhiro; Sasaki, Naoki; Ohtsuka, Hidefumi; Matsumoto, Shogo; Sato, Ryoko; and Yoshida, Kazushi, to Hitachi, Ltd. Three-dimensional input device with displayed legend and shape-changing cursor, 5,801,704, Cl. 345-358.000.
Ooishi, Isamu, to Fujitsu Limited. System for enhanced utility of custom characters including dividing the custom characters into custom character groups and adapting the custom character groups to each other, 5,802,538, Cl. 707-542.000.
Ooishi, Tsukasa, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor integrated circuit device having a hierarchical power source configuration, 5,801,576, Cl. 327-530.000.
Oomoto, Ryuji: *See—*
Hattori, Toshiyuki; Oomoto, Ryuji; and Murai, Kiyoaki, 5,802,209, Cl. 382-232.000.

Olusola, Akin: *See—*

Wambebe, Charles; Ogunyale, P. O.; Ganiemi, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.

Olympus America, Inc.: *See—*

Dianna, Andreas E.; and Costello, James G., 5,801,762, Cl. 348-65.000.

Olympus Optical Co., Ltd.: *See—*

Goto, Mitsuo; Uzawa, Kunihiko; Itakura, Masahiro; and Hijino, Masamichi, 5,799,676, Cl. 134-61.000.

Miyauchi, Yuji, 5,801,882, Cl. 359-431.000.

Nakada, Mamoru; and Shinozuka, Minoru, 5,800,411, Cl. 604-280.000.

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Muzio, Simon C.; Omel, Randall R.; and Linnett, Barry J., 5,801,692, Cl. 345-339.000.

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Demopoulos, Gregory A.; Pierce, Pamela A.; and Herz, Jeffrey M., 5,800,385, Cl. 604-49.000.

Demopoulos, Gregory A.; Yench, Stephen A.; Herrin, David A.; Mellvaine, Neil G.; Nelson, Michael D.; Sigelmann, Milton R.; de Castro, Jose T. V.; Seletman, George; Collins, John; Aziz, Imraan; and Bressner, Gorm, 5,800,544, Cl. 623-13.000.

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Omi, Toshihiko: *See—*

Horibata, Kenji; Omi, Toshihiko; and Sato, Fumihiko, 5,801,313, Cl. 73-718.000.

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Scott, Logan, 5,802,046, Cl. 370-280.000.

Omori, Katsumi: *See—*

Satou, Yoshinori; Maeda, Akira; Maki, Hideyuki; and Omori, Katsumi, 5,802,254, Cl. 395-68.000.

Omote, Kenji: *See—*

Tsuzuki, Shigeo; Hara, Takeshi; Watanabe, Manabu; Omote, Kenji; and Tanaka, Satoru, 5,801,499, Cl. 318-141.000.

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Oneida Indian Nation: *See—*

Holch, Niels C.; and Riolo, Frank J., 5,800,269, Cl. 463-42.000.

O'Neill, James J.: *See—*

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Ziauddin, Mohamed; and Ong, Michael T., 5,802,521, Cl. 707-101.000.

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Fiordalice, Robert; Garcia, Sam; and Ong, T. P., 5,801,098, Cl. 438-653.000.

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Takata, Kensaku; and Ono, Junichi, 5,800,201, Cl. 439-466.000.

Ono, Makoto: *See—*

Takagi, Yuji; Doi, Hideaki; and Ono, Makoto, 5,801,965, Cl. 364-552.000.

Ono, Tetsuji: *See—*

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Ono, Yuichi; Hatori, Mitsuaki; and Inoue, Hiroshi, to Usui Kokusai Sangyo Kaisha Limited. Fluid clutch, 5,799,765, Cl. 192-58.620.

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Pant, Anil K.; Young, Douglas W.; Meyer, Anthony S.; Volodarsky, Konstantin; and Weldon, David E., 5,800,248, Cl. 451-41.000.

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McCormick, Francis, 5,801,029, Cl. 435-172.300.

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Ooishi, Tsukasa, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor integrated circuit device having a hierarchical power source configuration, 5,801,576, Cl. 327-530.000.

Oomoto, Ryuji: *See—*

Hattori, Toshiyuki; Oomoto, Ryuji; and Murai, Kiyoaki, 5,802,209, Cl. 382-232.000.

- Oozu, Hayao; Miyawaki, Mamoru; Ishizaki, Akira; and Sugawa, Shigetoshi, to Canon Kabushiki Kaisha. Solid-state image pickup device having a plurality of photoelectric conversion elements on a common substrate, 5,801,373, Cl. 250-208.100.
Opal, Anthony P., to Telco Services, Inc. Climate controlled outdoor enclosure, 5,801,632, Cl. 340-585.000.
Oprescu, Florin, to Apple Computer, Inc. Method for propagating preemptive bus initialization on an acyclic directed graph, 5,802,289, Cl. 395-200.190.
Opticon Medical Inc.: *See—*
Salama, Fouad A., 5,800,339, Cl. 600-29.000.
Optima Corporation: *See—*
Townsend, Gerald Leo, 5,799,465, Cl. 53-258.000.
Optische Werke G. Rodenstock: *See—*
Melzig, Manfred; and Zinner, Herbert, 5,801,243, Cl. 544-71.000.
Opto Power Corporation: *See—*
He, Xiaoguang, 5,801,403, Cl. 257-94.000.
Oracle Corporation: *See—*
Jasuja, Amit; and Taranto, Roger, 5,802,523, Cl. 707-103.000.
Oki, Brian M.; Stamos, James; and Hallmark, Gary, 5,802,528, Cl. 707-201.000.
Wallack, Peter A., 5,802,512, Cl. 707-2.000.
Ziauddin, Mohamed; and Ong, Michael T., 5,802,521, Cl. 707-101.000.
Orbach, Abraham; and Schubert, William L., to Case Corporation. Front wheel drive engagement control system for agricultural vehicles, 5,802,489, Cl. 701-50.000.
Orban, Stefan Raimund: *See—*
Flowers, Philip Lester; Orban, Stefan Raimund; Seifert, Roland; Lee, Thomas S.; and Wang, Mandy L., 5,802,524, Cl. 707-103.000.
Orcutt, Eric D.; and Fritz, Dean D., to Dana Corporation. Crimper fitting locator assembly, 5,799,531, Cl. 72-402.000.
Oregon Health Sciences University and the University of Oregon, State of Oregon, Acting by and Through the Oregon State Board of Higher Education, Acting for and on Behalf of the: *See—*
Keana, John F. W.; Cai, Sui Xiong; Zhou, Zhang-Lin; and Navratil, James M., 5,801,183, Cl. 514-300.000.
Oriental Yeast Co., Ltd.: *See—*
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Origin Medsystems, Inc.: *See—*
Chin, Albert K., 5,800,540, Cl. 623-11.000.
Origuchi, Tamotsu, to Nissan Motor Co., Ltd. Operating state detecting system of free-wheel hub mechanism for four-wheel-drive vehicles, 5,799,748, Cl. 180-233.000.
Orisadipe, Abayomi: *See—*
Wambebe, Charles; Ogunyale, P. O.; Ganiemi, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Olusola, Akin; and Orisadipe, Abayomi, 5,800,819, Cl. 424-195.100.
Ormai, Peter: *See—*
Bankuti, Laszlo; Ormai, Peter; Talosi, Karoly; Tokes, Jozsef; Vamos, Zoltan; Wursching, Istvan; and Micsinai, Zsolt, 5,801,484, Cl. 313-493.000.
Ormat Industries Ltd.: *See—*
Bronicki, Lucien Y.; Goldman, Daniel; and Sinia, Joseph, 5,799,490, Cl. 60-655.000.
Ormondroyd, Thomas, to Sportstec Concepts, Inc. Goalie training apparatus and method of using a goalie training apparatus, 5,800,312, Cl. 482-51.000.
Orr, Marjorie. Adjustable stand, 5,799,919, Cl. 248-398.000.
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Saikia, Chowdhury Nath; Goswami, Tridip; and Ghosh, Anil Chandra, to Council of Scientific & Industrial Research. Process for the preparation of alkali salt of carboxy alkyl cellulose, 5,801,239, Cl. 536-124.000.
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Held, Andrew F.; Jung, Edward K.; Leach, Paul; Misra, Pradyumna K.; Sailor, Richard K.; Seaman, Michael R. C.; and Brown, Nathaniel S., 5,802,367, Cl. 395-685.000.
Saint-Gobain Vitrage: See—
Chartier, Pascal; Azzopardi, Marie-Jose; Codazzi, Nathalie; Chaussade, Pierre; Naoumenko, Yves; Gauthier, Fabienne; and Guiselin, Olivier, 5,800,918, Cl. 428-336.000.
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Willkens, Craig A.; and Bateman, Linda S., 5,801,361, Cl. 219-270.000.
Saio, Katsuo; and Hasegawa, Masahiko, to Komatsu Ltd. Plasma piercing with non-oxidative plasma gas and plasma cutting with oxidative plasma gas, 5,801,355, Cl. 219-121.440.
Saito, Hiroyuki: See—
Yanagi, Haruyuki; Suzuki, Tetsuo; Hiramatsu, Soichi; Taniguro, Masahiro; Inoue, Hiroyuki; Saito, Hiroyuki; Tanno, Koichi; Kawamura, Makoto; Kinoshita, Hiroyuki; Shinnachi, Masaya; and Ming, Tan Ai, 5,801,728, Cl. 347-50.000.
Saito, Kazuya: See—
Miyazaki, Hitoshi; Kunii, Hitoshi; Sato, Takashi; and Saito, Kazuya, 5,799,977, Cl. 280-806.000.
Saito, Masayuki: See—
Iida, Atsuko; Uchida, Tatsuro; Kinno, Akira; Saito, Masayuki; Kizaki, Yukio; Miyagi, Takeshi; Mori, Miki; and Fukuda, Yumii, 5,801,797, Cl. 349-73.000.
Saito, Michio: See—
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Mori, Mutsuhiro; Saito, Ryuichi; Kimura, Shin; Nakata, Kiyoshi; Saitoo, Syuuji; Horie, Akira; Koike, Yoshihiko; and Sekine, Shigeki, 5,801,936, Cl. 363-132.000.
Saito, Shinichi: See—
Okabe, Eiji; Tanabe, Mayumi; Saito, Shinichi; Sakaigawa, Akira; Takeda, Hitoshi; Kido, Masami; Kaneko, Takashi; Koden, Mitsuhiko; and Sako, Teiyu, 5,800,736, Cl. 252-299.610.
Saito, Yukio: See—
Hiramoto, Shigeru; Saito, Yukio; Hatanaka, Shigeo; and Shingai, Akiko, 5,801,143, Cl. 514-9.000.
Saitoh, Akio: See—
Nagai, Shigekazu; Sugano, Koji; Saitoh, Akio; and Suzuki, Masahiko, 5,799,543, Cl. 74-490.090.
Saitoo, Syuuji: See—
Mori, Mutsuhiro; Saito, Ryuichi; Kimura, Shin; Nakata, Kiyoshi; Saitoo, Syuuji; Horie, Akira; Koike, Yoshihiko; and Sekine, Shigeki, 5,801,936, Cl. 363-132.000.
Saitou, Akiko: See—
Watanabe, Miho; Honda, Hisashi; Hatakeyama, Keiji; Sakakiabra, Yuichi; and Saitou, Akiko, 5,801,483, Cl. 313-485.000.
Sakaguchi, Kazuhiro, to NEC Corporation. Electronic circuit tester and method of testing electronic circuit, 5,801,540, Cl. 324-752.000.
Sakaguchi, Toru: See—
Ando, Masanori; Kadono, Kohei; Haruta, Masatake; Sakaguchi, Toru; and Miya, Masaru, 5,800,925, Cl. 428-432.000.
Sakaguchi, Yoshikazu; Kano, Takenori; Ichigo, Koichi; and Oka, Takeya, to Aisin AW Co., Ltd. Pressure regulating valve, 5,799,697, Cl. 137-625.650.
Sakai, Eiichi: See—
Minemura, Hiroaki; Sakai, Eiichi; Yasuda, Kenichi; and Kitahara, Yohko, 5,800,956, Cl. 430-60.000.
Sakai, Katsumi, to NEC Corp. Apparatus for decoding codes with less memory capacity, 5,801,840, Cl. 358-427.000.
Sakai, Kunikazu; Kamuro, Yasuo; Takatsuto, Suguru; Watanabe, Tsuyoshi; and Kuriyama, Hiroki, to Sagami Chemical Research Center; Tama Biochemical Co. Ltd.; and Bal Planning Co., Ltd. Epoxycyclohexane derivative and plant growth regulator, 5,801,123, Cl. 504-291.000.
Sakai, Manabu; and Muramatsu, Shigeru, to Matsushita Electric Industrial Co., Ltd. Electrically-driven closed scroll compressor having means for minimizing an overturning moment to an orbiting scroll, 5,800,149, Cl. 418-55.200.
Sakai, Rie: See—
Nogami, Tatsuya; Nakada, Takakazu; Sakai, Rie; and Hosoya, Takeshi, 5,800,926, Cl. 428-447.000.
Sakaigawa, Akira: See—
Okabe, Eiji; Tanabe, Mayumi; Saito, Shinichi; Sakaigawa, Akira; Takeda, Hitoshi; Kido, Masami; Kaneko, Takashi; Koden, Mitsuhiko; and Sako, Teiyu, 5,800,736, Cl. 252-299.610.
Sakairi, Natsuhiko, to NEC Corporation. Surface acoustic wave (SAW) device, 5,801,474, Cl. 310-313.00R.
Sakakiabra, Yuichi: See—
Watanabe, Miho; Honda, Hisashi; Hatakeyama, Keiji; Sakakiabra, Yuichi; and Saitou, Akiko, 5,801,483, Cl. 313-485.000.
Sakakibara, Takeshi: See—
Ichikawa, Hidehiro; Ishikawa, Satoshi; Iizuka, Hiroaki; Sakakibara, Takeshi; Suzuki, Nobuhiko; and Tanaka, Hiraku, 5,800,190, Cl. 439-164.000.
Sakakibara, Yoshihiro; Yamada, Yukio; and Suzuki, Kitami, to Hitachi Techno Engineering Co., Ltd. User-motion-response type exercise equipment, 5,800,314, Cl. 482-54.000.
Sakamoto, Masashi: See—
Sawada, Kenji; Sato, Masahiro; Sekino, Hitoshi; and Sakamoto, Masashi, 5,802,427, Cl. 399-122.000.
Sakamoto, Norihiko: See—
Wada, Hiroyuki; Sano, Harunobu; Sakamoto, Norihiko; and Hamaji, Yukio, 5,801,111, Cl. 501-138.000.
Sakano, Hitoshi: See—
Otaki, Tatsuro; and Sakano, Hitoshi, 5,802,406, Cl. 396-150.000.
Sakano, Yukio: See—
Yamakawa, Shinji; Sakano, Yukio; Takahashi, Hiroshi; and Maruyama, Kounosuke, 5,801,844, Cl. 358-450.000.
Sakate, Nobuo: See—
Yamamoto, Yukio; Fujita, Makoto; Sakate, Nobuo; Ohuchi, Katsuya; and Hirahara, Shoji, 5,800,640, Cl. 148-557.000.
Sakaue, Sigeo: See—
Maruno, Susumu; Sakaue, Sigeo; Simeki, Yasuharu; Imagawa, Taro; and Kouda, Toshiyuki, 5,802,505, Cl. 706-16.000.
Sako, Isamu; Honda, Masato; Sato, Jyoji; Seguchi, Masato; and Hisama, Hiroyuki, to Yoshino Kogyosho Co., Ltd. Blow molded container and blow mold thereof, 5,799,809, Cl. 215-12.100.
Sako, Masahiro: See—
Hashimoto, Yasuhiro; Sako, Masahiro; Inenaka, Hiroyuki; and Yamashita, Yuji, 5,802,271, Cl. 395-183.200.
Sako, Teiyu: See—
Okabe, Eiji; Tanabe, Mayumi; Saito, Shinichi; Sakaigawa, Akira; Takeda, Hitoshi; Kido, Masami; Kaneko, Takashi; Koden, Mitsuhiko; and Sako, Teiyu, 5,800,736, Cl. 252-299.610.
Sako, Yoichiro; Owa, Hideo; Osawa, Yoshitomo; Kurihara, Akira; and Kawashima, Isao, to Sony Corporation. Data recording medium, 5,802,174, Cl. 380-4.000.
Sako, Yoichiro, to Sony Corporation. Data recording method, 5,802,246, Cl. 386-105.000.

- Sakoh, Harumi: *See—*
Kashimura, Noboru; Sakoh, Harumi; Amamiya, Shoji; and Ikezue, Tatsuya, 5,800,955, Cl. 430-58.000.
- Sakurai, Kazushige; Sato, Hiroshi; and Yamauchi, Kazumi, to Canon Kabushiki Kaisha. Image forming apparatus and process cartridge for image forming apparatus. 5,802,419, Cl. 399-26.000.
- Sakurai, Masaaki: *See—*
Takehara, Yoshifumi; and Sakurai, Masaaki, 5,802,434, Cl. 399-323.000.
- Sakurai, Takao: *See—*
Sasaki, Kouji; Sakurai, Takao; Konno, Takeshi; Narazaki, Wataru; and Hashimoto, Masaichi, 5,801,375, Cl. 250-216.000.
- Sakurai, Yasuhiro, to Citizen Watch Co., Ltd. Temperature compensation type quartz oscillator. 5,801,596, Cl. 331-176.000.
- Salama, Fouad A., to Opticon Medical Inc. Urinary control valve. 5,800,339, Cl. 600-29.000.
- Salas, Lucia, to Church & Dwight Co., Inc. Aerosol deodorant product. 5,800,805, Cl. 424-65.000.
- Salazar, Joe Andrew; and Molero-Castro, Luis, to Innovative Intelcom Industries. Wireless and wired communications, command, control and sensing system for sound and/or data transmission and reception. 5,802,467, Cl. 455-420.000.
- Saldanha, José W.: *See—*
Chestnut, Robert W.; Polley, Margaret J.; Paulson, James C.; Jones, S. Tarran; Saldanha, José W.; Bendig, Mary M.; Kriegler, Michael; Perez, Carl; Bayer, Robert; and Nunn, Michael, 5,800,815, Cl. 424-153.100.
- Salmonson, Richard B., to Cray Research, Inc. Method and apparatus for cooling daughter card modules. 5,801,924, Cl. 361-719.000.
- Salvas, Paul: *See—*
Sanders, Anthony; Salvas, Paul; and Manasas, Mark A., 5,800,556, Cl. 623-23.000.
- Samick Music Corporation: *See—*
Blodgett, Clifford L., 5,802,189, Cl. 381-162.000.
- Sammon, Terence P.; Griffin, Henry W.; and Kneisel, Andrew R., to Essex Specialty Products. Vehicle window and a process for the preparation thereof. 5,799,450, Cl. 52-208.000.
- Sampson, Gerald P.; Strauss, Melvin; Tyson-Quah, Kathleen; Haddock, Jorge; and Sime, Thomas S., to Cedit Bank. Method and system for providing credit support to parties associated with derivative and other financial transactions. 5,802,499, Cl. 705-35.000.
- Sampson, Richard K. Fluid fitting coupling system. 5,799,987, Cl. 285-81.000.
- Sams, Wendi J.: *See—*
Smith, William D.; Farr, Harbin C.; Belflower, Craig O.; and Sams, Wendi J., 5,800,028, Cl. 312-223.100.
- Samsung Aerospace Industries, Ltd.: *See—*
Lee, Chun-Gon, 5,801,886, Cl. 359-675.000.
- Nam, Soo-keun; and Kim, Kook-hwan, 5,799,858, Cl. 228-6.200.
- Samsung Electronics Co., Ltd.: *See—*
Choi, Yong-bae; and Kim, Keon-soo, 5,801,416, Cl. 257-335.000.
- Goh, Young-Ok; and Lee, Do-Soo, 5,802,023, Cl. 369-44.280.
- Jeong, Jong-Geal, 5,802,158, Cl. 379-198.000.
- Ju, Young-Bok, 5,801,724, Cl. 347-23.000.
- Kang, Tae Gil, 5,799,500, Cl. 62-408.000.
- Kim, Bum Ki; and Park, Kyung Chan, 5,802,018, Cl. 369-30.000.
- Kim, Chang Seok; Park, Seong Yeon; Yoon, Jae Hyun; and Ryu, Ho Han, 5,802,022, Cl. 369-37.000.
- Kim, Hyun-Suck, 5,802,165, Cl. 379-356.000.
- Kim, Yong-Ho; and Jo, Hyun-Min, 5,801,503, Cl. 318-434.000.
- Kim, Yun-Gi, 5,801,410, Cl. 257-295.000.
- Kwon, Hyeok-chul, 5,801,555, Cl. 327-94.000.
- Lee, Chul-woo; Rim, Kyung-hwa; Chung, Chong-sam; Cho, Kun-ho; Yoo, Jang-hoon; and Jung, Soo-yeul, 5,802,037, Cl. 369-120.000.
- Lee, Hyun-Moo; and Lee, Geum-Chan, 5,799,512, Cl. 68-23.200.
- Lee, Jae-sung; Lee, Jin-pyo; Kim, Nam-cheol; and Lee, Seong-won, 5,800,906, Cl. 428-192.000.
- Lee, Ju-hyung; and Yoon, Chan-joo, 5,801,395, Cl. 257-57.000.
- Lee, Sung-Soo; and Kim, Jin-Ki, 5,801,989, Cl. 365-185.220.
- Lee, Yi-Kwoun, 5,800,085, Cl. 400-489.000.
- Lee, Yong-Jae, 5,802,035, Cl. 369-112.000.
- Limberg, Allen L.R., 5,801,759, Cl. 348-21.000.
- Limberg, Allen LeRoy, 5,801,790, Cl. 348-607.000.
- Nam, Jung-hyun, 5,801,409, Cl. 257-233.000.
- Park, Byung-Chul, 5,801,974, Cl. 364-722.000.
- Park, Geun-bok; Kim, Kil-yong; Go, Jae-seung; and Kim, Dong-heyun, 5,801,315, Cl. 73-861.570.
- Park, Hae-jin; and Kang, Yun-seok, 5,799,496, Cl. 62-89.000.
- Shin, Hyun-kuk, 5,801,402, Cl. 257-80.000.
- Song, Kwon-eui, 5,801,786, Cl. 348-564.000.
- Samsung Heavy Industries Co., Ltd.: *See—*
Seo, Jeong Yong; and Song, Myung Hoon, 5,799,419, Cl. 37-348.000.
- Samsung Information Systems America: *See—*
Patterson, James T., 5,801,782, Cl. 348-473.000.
- Samuel, Babatunde: *See—*
Wambebe, Charles; Ogunyale, P. O.; Gamaniel, K. S.; Nasipuri, R. N.; Okogun, J. I.; Samuel, Babatunde; Oluosola, Akin; and Orisadipe, Ahayomi, 5,800,819, Cl. 424-195.100.
- Sanberg, Paul R.: *See—*
Dionne, Keith E.; Emerich, Dwaine F.; Hoffman, Diane; Sanberg, Paul R.; Christenson, Lisa; Hegre, Orion D.; Scharp, David W.; Lacy, Paul E.; Aebischer, Patrick; Vasconcellos, Alfred V.; Lysaght, Michael J.; and Gentile, Frank T., 5,800,828, Cl. 424-422.000.
- Dionne, Keith E.; Emerich, Dwaine F.; Hoffman, Diane; Sanberg, Paul R.; Christenson, Lisa; Hegre, Orion D.; Scharp, David W.; Lacy, Paul E.; Aebischer, Patrick; Vasconcellos, Alfred V.; Lysaght, Michael J.; and Gentile, Frank T., 5,800,829, Cl. 424-422.000.
- Sanchez, Carlos A.: *See—*
Huang, Rong-Fong; Sanchez, Carlos A.; and Lombard, James H., 5,801,108, Cl. 501-32.000.
- Sand, Richard J.: *See—*
Wells, Michael L.; Tyson, John A.; Sand, Richard J.; Higa, Glenn S.; and Pauwels, Jane L., 5,799,899, Cl. 244-3.110.
- Sanda, Yutaka; Katakami, Seiki; and Hasunuma, Seigo, to Hosiden Corporation. Pantograph type keyboard switch. 5,799,772, Cl. 200-344.000.
- Sandage, Bobby Winston; Fisher, Marc; and Locke, Kenneth Walter, to Interneuron Pharmaceuticals, Inc. Method of protecting brain tissue from cerebral infarction subsequent to ischemia. 5,801,160, Cl. 514-49.000.
- Sandau, Hartmut, deceased (by Rosatha Sandau & Christine Sandau), to Robert Bosch GmbH. Electrohydraulic control device for double-acting consumer. 5,799,485, Cl. 60-452.000.
- Sandau05800810, Nimmi: *See—*
Hall, Frederick L.; Nimmi, Marcel E.; Tuan, Tai-Lan; Wu, Lingtau; and Cheung, David T., 5,800,811, Cl. 424-93.700.
- Sandau & Christine Sandau, Rosatha: *See—*
Sandau, Hartmut, deceased, 5,799,485, Cl. 60-452.000.
- Sandblom, Robert: *See—*
Nilsson, Sven-Åke; and Sandblom, Robert, 5,800,070, Cl. 384-535.000.
- Sanders, Albert R.: *See—*
Rowland, Patricia J.; Kreeger, Kevin A.; and Sanders, Albert R., 5,801,970, Cl. 364-578.000.
- Sanders, Anthony; Salvas, Paul; and Manasas, Mark A., to Johnson & Johnson Professional, Inc. Adjustable bipolar-unipolar adaptor for a head trial. 5,800,556, Cl. 623-23.000.
- Sanders, Winston: *See—*
Widrick, Kent; Madsen, John; Sanders, Winston; Bryant, Darrin; and Pauley, Leonard, 5,800,274, Cl. 473-54.000.
- Sandewicz, Ida Marie: *See—*
Brieva, Hernando; Russ, Julio Gans; and Sandewicz, Ida Marie, 5,800,816, Cl. 424-63.000.
- Sandhu, Gurtej S., to Micron Technology, Inc. Method to deposit highly conformal CVD films. 5,800,617, Cl. 118-722.000.
- Sandler, Allan: *See—*
Dostie, Alain; and Sandler, Allan, 5,799,911, Cl. 248-116.000.
- Sandock, David L., to Kopin Corporation. Tubular medical prosthesis for use in a body lumen. 5,800,519, Cl. 623-1.000.
- Sandor, Joseph. Tool hanging device. 5,799,847, Cl. 224-197.000.
- Sandoz Ltd.: *See—*
Lee, Shy-Fuh; Nishizaka, Takashi; and Komatsubara, Kenichi, 5,801,120, Cl. 504-236.000.
- Sandvig, Timothy C.; Ersfeld, Dean A.; Davis, Daniel W.; and Gotz, Steven H., to Minnesota Mining and Manufacturing Company. Orthopedic casting material having improved wet strength. 5,800,899, Cl. 428-96.000.
- Sandvik AB: *See—*
Dourén, Lars, 5,800,788, Cl. 422-161.000.
- Lenander, Anders; and Åkesson, Leif, 5,800,868, Cl. 427-249.000.
- Sandvik Aktiebolag: *See—*
Qvarth, Ingemar, 5,800,079, Cl. 407-46.000.
- Sang, Juergen: *See—*
Thoma, Peter; Clement, Alf; Sang, Juergen; Hoffmann, Peter; and Jahn, Robert, 5,801,953, Cl. 364-487.000.
- Sanganee, Hitesh Jayantilal: *See—*
Davies, Stephen Graham; Polywka, Mario Eugenio Cosamino; and Sanganee, Hitesh Jayantilal, 5,801,249, Cl. 548-229.000.
- Sangregory, Jude A.; Earnhart, Edgar G.; and Weiser, Joseph C., to Eastman Kodak Company. Method of remanufacturing one-time-use camera. 5,802,401, Cl. 396-6.000.
- Sankey, Stephen William; Dawes, Mark Edward; and Lawrence, Paul David, to Imperial Chemical Industries PLC. Polymeric sheet. 5,800,911, Cl. 428-213.000.
- Sano, Fumiaki: *See—*
Moteji, Shuji; Nakamura, Toshiyuki; Sano, Fumiaki; Kakuda, Masayuki; Ikeda, Kiyoharu; Ogawa, Yoshihide; Watanabe, Eiji; and Nakashima, Shinji, 5,800,142, Cl. 418-55.200.
- Sano, Harunobu: *See—*
Wada, Hiroyuki; Sano, Harunobu; Sakamoto, Norihiko; and Hamaji, Yukio, 5,801,111, Cl. 501-138.000.
- Sano, Hideo, to NEC Corporation. Speech encoding communication system. 5,802,109, Cl. 375-245.000.
- Sano, Tetsuo; Arai, Yasuhiro; Yamashita, Tetsuji; Iwanaga, Takaki; and Goto, Koichi, to Kabushiki Kaisha Toshiba. Refrigerating apparatus. 5,799,497, Cl. 62-149.000.
- Sano, Yoshiki: *See—*
Kobayashi, Masakazu; Nakai, Tatsuya; Hirashima, Hiroyuki; Monomohshi, Masahiko; and Sano, Yoshiki, 5,801,671, Cl. 345-95.000.
- Sanshin Kogyo Kabushiki Kaisha: *See—*
Irieno, Yasushi; and Sumino, Yoshitsugu, 5,800,223, Cl. 440-49.000.
- Kumita, Atsushi; and Yamamoto, Manabu, 5,799,925, Cl. 248-642.000.
- Nanami, Masayoshi, 5,800,222, Cl. 440-38.000.
- Ogino, Hiroshi, 5,800,224, Cl. 440-66.000.

- Sansone, Ronald P., to Pitney Bowes Inc. Channel switched mail message switching and metering system. 5,802,503, Cl. 705-401.000.
- Santa Barbara Research Center: *See—*
Richman, John A., 5,801,356, Cl. 219-121.680.
- Santhosh-Kumar, C. R.: *See—*
Kolhouse, J. Fred; Deutsch, John C.; and Santhosh-Kumar, C. R., 5,800,979, Cl. 435-4.000.
- Santo, Antonio Ferreira do Espirito, to Metagal Industria e Comercio Ltda. Internal rearview mirror with courtesy lights. 5,800,040, Cl. 362-83.100.
- Sanwa Shutter Corporation: *See—*
Yamaguchi, Kenji; Tadashi, Tadashi; Koyano, Akira; and Hosoyama, Kenji, 5,799,716, Cl. 160-310.000.
- Sanyal, Yodhohit: *See—*
Breitlinger, Keith J.; Ertan, Basak; Houdek, Philip, II; Ng, Chin Yee; Roza, Scott; Sanyal, Yodhohit; and Shull, Craig, 5,799,566, Cl. 99-320.000.
- Sanyo Chemical Industries, Ltd.: *See—*
Tanaka, Keiji; Date, Masashi; Tsubota, Kenjiro; Yuki, Tsuyoshi; and Tamabuchi, Satoshi, 5,801,238, Cl. 536-123.100.
- Sanyo Electric Co., Ltd.: *See—*
Hatayama, Yoshinori; Ishiba, Masahiro; Takeyama, Tetsuo; Hazui, Takashi; and Nagasawa, Kimio, 5,802,534, Cl. 707-530.000.
- Kimura, Kazuhiro; Hayashibe, Shigeaki; Hirakoso, Yutaka; Masumoto, Takahiko; Ishimura, Shizuka; Ozawa, Toshiyuki; and Suka, Munehiro, 5,802,067, Cl. 370-527.000.
- Nomura, Kazuo; Kato, Tomohiko; Tamura, Tomonori; and Murayama, Shigeru, 5,799,502, Cl. 62-476.000.
- Okue, Takahiro; Takao, Osamu; and Yoneda, Haruhiko, 5,801,898, Cl. 360-85.000.
- Shimizu, Yutaka; and Ota, Seiya, 5,801,718, Cl. 345-508.000.
- Sugimoto, Kazuhiko, 5,802,405, Cl. 396-82.000.
- Tsukihashi, Akira, 5,802,026, Cl. 369-48.000.
- Sarcos Group: *See—*
Jacobsen, Stephen C.; and Davis, Clark C., 5,799,690, Cl. 137-576.000.
- Sarcos, Inc.: *See—*
Jacobsen, Stephen C.; Davis, Clark C.; and Lippert, John A., 5,800,454, Cl. 606-191.000.
- Särelä, Antti: *See—*
Heinonen, Erkki; Särelä, Antti; and Kankkunen, Jukka, 5,799,711, Cl. 141-18.000.
- Sargent, Murray, III: *See—*
Bangs, David L.; Gounares, Alexander G.; O'Neill, James J.; Sargent, Murray, III; and Zaika, Igor Y., 5,802,380, Cl. 395-777.000.
- Sargoytchev, Stoyan Ivanov, to Institute For Space And Terrestrial Science. Fabry-Perot spectrometer for detecting a spatially varying spectral signature of an extended source. 5,801,831, Cl. 356-346.000.
- Sarkar, Soumitra: *See—*
Bollella, Gregory; Hogan, Kathleen Marie; Kompella, Vachaspathi Peter; Morse, Alisa Lynn; Pozefsky, Diane Phyllis; and Sarkar, Soumitra, 5,802,053, Cl. 370-401.000.
- Sarstedt, Walter; Pfeiffer, Matthias; and Henkel, E., to Sarstedt, Walter. Method and device for providing and spreading fluids. 5,801,062, Cl. 436-180.000.
- Sasai, Keizo: *See—*
Sawada, Hirohisa; Iwata, Masakatsu; Sasai, Keizo; and Nakamura, Fumihiko, 5,800,084, Cl. 400-208.000.
- Sasaki, Hideaki: *See—*
Shibuya, Tsutomu; Katayama, Kaoru; Shirai, Mitugu; Kazui, Shinichi; Sasaki, Hideaki; and Iwata, Yasuhiro, 5,801,350, Cl. 204-157.150.
- Sasaki, Katsumi: *See—*
Kitaori, Noriyuki; Yoshida, Osamu; Sasaki, Katsumi; Ishikawa, Junko; and Endo, Katsumi, 5,800,917, Cl. 428-332.000.
- Sasaki, Kouji; Sakurai, Takao; Konno, Takeshi; Narazaki, Wataru; and Hashimoto, Masaichi, to Advantest Corporation. Sampler module, sampling waveform measurement device using the sample module, and sampling waveform measurement method. 5,801,375, Cl. 250-216.000.
- Sasaki, Naoki: *See—*
Oohara, Shunichi; Ejiri, Masakazu; Nemoto, Yasuhiro; Sasaki, Naoki; Ohtsuka, Hidefumi; Matsumoto, Shogo; Sato, Ryoko; and Yoshida, Kazushi, 5,801,704, Cl. 345-358.000.
- Sasaki, Tadashi: *See—*
Yamaguchi, Kenji; Sasaki, Tadashi; Koyano, Akira; and Hosoyama, Kenji, 5,799,716, Cl. 160-310.000.
- Sasaki, Tokuhito: *See—*
Wada, Hideo; Nagashima, Mitsuhiro; Oda, Naoki; Sasaki, Tokuhito; and Mori, Toru, 5,801,383, Cl. 250-332.000.
- Sasaki, Toshihiko: *See—*
Yasumoto, Toshiaki; Okumura, Hiromichi; Iwai, Kenji; Tanaka, Toshimitsu; Sasaki, Toshihiko; Sugimoto, Akio; Kawashima, Hiroshi; Itano, Naofumi; Shibata, Manabu; and Nanri, Yasuo, 5,800,888, Cl. 428-36.910.
- Sasaki, Yoshio: *See—*
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Fawcett, Philip E.; Blomfield-Brown, Christopher; and Strom, Clifford P., 5,802,526, Cl. 707-104.000.
Strong, Daniel J., to TRW Inc. Power steering control valve with noise reduction, 5,799,693, Cl. 137-625.230.
Strothmann, James Alan: *See—*
Combs, James Lee; Rodriguez, Herman; Strothmann, James Alan; and Thomas, James Randall, 5,802,544, Cl. 711-5.000.
Struck, Günther: *See—*
Jünemann, Alfons; and Struck, Günther, 5,800,146, Cl. 417-68.000.
STS Biopolymers, Inc.: *See—*
Zhang, Xianping; and Whitbourne, Richard J., 5,800,412, Cl. 604-280.000.
Stucker, William V.: *See—*
Taylor-McCune, Christopher J.; Popescu, Nicolae G.; and Stucker, William V., 5,800,702, Cl. 210-162.000.
Studio Fluco Ltd.: *See—*
Lin, Lindbergh, 5,800,046, Cl. 362-252.000.
Stufflebeam, John F.; Olson, Thomas A.; and Dunham, Lisle J., to Case Corporation. Apparatus for sealing a vacuum chamber of a seed metering apparatus, 5,799,598, Cl. 111-185.000.
Stump, Kenneth Troy. Vehicle tie-down mechanism, 5,800,105, Cl. 410-103.000.
Sturhan, Wilhelm F. L.: *See—*
Timms, Daryl B.; Sturhan, Wilhelm F. L.; and Hellweg, Gerhard, 5,799,922, Cl. 248-564.000.
Sturlesi, Doron; and Peled, Shimon, to State of Israel-Ministry of Defence, Rafael-Armament Development Authority. Catadioptric optics for staring array detector system, 5,802,335, Cl. 359-364.000.
Sturm, Ruger & Company, Inc.: *See—*
Thorne, John K.; and Poplaski, Chester E., 5,800,285, Cl. 473-324.000.
Sturzebecher, Dana J.; Kosinski, John A.; Ballato, Arthur; Cooke, Paul W.; and Cui, Hong-Liang, to United States of America, Army. Thickness mode acoustic wave resonator, 5,801,476, Cl. 310-324.000.
Sturzu, Peter: *See—*
Campbell, Thomas H.; and Sturzu, Peter, 5,800,494, Cl. 607-116.000.
Styfloorn, John: *See—*
Baldwin, Arden E.; Clelland, William G., III; and Styfloorn, John, 5,799,383, Cl. 29-407.050.
Styner, & Benz AG: *See—*
Lüthi, Rudolf; Wehrli, Alex; and Jöhr, Hans, 5,802,221, Cl. 384-537.000.
Su, Yuan Tai. Motor vehicle security system, 5,801,615, Cl. 340-425.500.
Suárez Oviedo, José Luis: *See—*
Ziegert, Günter; and Suárez Oviedo, José Luis, 5,799,790, Cl. 206-443.000.
Sublistatic International: *See—*
Delebassee, Gilbert, 5,799,580, Cl. 101-488.000.
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Smart, Wilson H.; and Subramanian, Kumar, 5,801,057, Cl. 436-68.000.
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Suda, Yasuo, to Canon Kabushiki Kaisha. Camera, 5,802,408, Cl. 396-296.000.
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Suematsu, Hiroyuki: *See—*
Ohno, Manabu; Ochi, Hisayuki; Kuwashima, Tetsuhito; Suematsu, Hiroyuki; Imai, Eiichi; Takiguchi, Tsuyoshi; Tomiyama, Koichi; Kukimoto, Tsutomu; and Yusa, Hiroshi, 5,802,428, Cl. 399-222.000.
Suenaga, Shoji: *See—*
Miyake, Takashi; Suenaga, Shoji; Tanoue, Mutsuro; Miyamura, Jun; Abe, Shinichi; and Kamiya, Kazuhiro, 5,802,066, Cl. 370-527.000.
Suetch Industries Co., Ltd.: *See—*
Du, Ku Ni, 5,799,518, Cl. 70-281.000.
Suetsugu, Junichi: *See—*
Shima, Kazuo; Suetsugu, Junichi; Uematsu, Ryosuke; Minemoto, Hitoshi; and Hagiwara, Yoshihiro, 5,801,730, Cl. 347-55.000.
Sugahara, Kenji, to NEC Corporation. TAB tape and semiconductor device including TAB tape, 5,801,434, Cl. 257-668.000.
Sugai, Takashi: *See—*
Moriya, Takashi; Komatsu, Yasuyuki; Sono, Hiroshi; and Sugai, Takashi, 5,799,630, Cl. 123-90.110.
Moriya, Takashi; Komatsu, Yasuyuki; Sono, Hiroshi; and Sugai, Takashi, 5,799,926, Cl. 251-129.100.
Sugai, Toshimi, to Fujitsu Limited. Data processing device for processing print data, 5,802,259, Cl. 395-112.000.
Sugamura, Kazuo: *See—*
Shimamura, Toshio; Hamuro, Junji; and Sugamura, Kazuo, 5,801,003, Cl. 435-7.230.
Sugano, Koji: *See—*
Nagai, Shigekazu; Sugano, Koji; Saitoh, Akio; and Suzuki, Masahiko, 5,799,543, Cl. 74-490.090.
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Sugawara, Tsutomu: *See—*
Nounin, Katsuya; Wakutsu, Takashi; Nakajima, Nobuyasu; Ogura, Koji; Serizawa, Mutsumu; Moriya, Osamu; Sugawara, Tsutomu; Kamagata, Eiji; and Kumaki, Yoshinari, 5,802,469, Cl. 455-422.000.
Sugden, David M.; Langhorst, Phillip G.; Marcinkiewicz, Joseph G.; and Smart, James C. R., to Emerson Electric Co.; and Switched Reluctance Drives, Ltd. Digital power factor correction circuit, 5,801,935, Cl. 363-89.000.
Sugi, Shinichiro; Kabeta, Keiji; Wakamatsu, Shigeru; and Imai, Takafumi, to Toshiba Silicone Co., Ltd. Polysilane optical device, 5,802,233, Cl. 385-122.000.
Sugihara, Masahiro: *See—*
Koda, Toshihide; Shimoji, Mihoko; Sugihara, Masahiro; Tanaka, Naoki; Iijima, Hitoshi; Izawa, Takeshi; and Toyoshima, Masaki, 5,799,503, Cl. 62-503.000.
Sugimoto, Akio: *See—*
Yasumoto, Toshiaki; Okumura, Hironichi; Iwai, Kenji; Tanaka, Toshimitsu; Sasaki, Toshihiko; Sugimoto, Akio; Kuwashima, Hiroshi; Itano, Naofumi; Shibata, Manabu; and Nanri, Yasuo, 5,800,888, Cl. 428-36.910.
Sugimoto, Kazuhiko, to Sanyo Electric Co., Ltd. Camera apparatus that can have the time for moving rear lens group reduced when powered, 5,802,405, Cl. 396-82.000.
Sugimoto, Yasuhiro; Suzuki, Nobuo; Kasai, Akihito; and Ideguchi, Takahiro, to Honda Giken Kogyo Kabushiki Kaisha. Fuel feed device for gas engines and gas-engine-powered working machine, 5,799,640, Cl. 123-527.000.
Sugiuchi, Masami: *See—*
Hirao, Akiko; Miyamoto, Hirohisa; Nishizawa, Hideyuki; Hosoya, Masahiro; and Sugiuchi, Masami, 5,800,950, Cl. 430-1.000.
Sugiyama, Kouichi: *See—*
Tanaka, Shigeo; Yamazaki, Hiroshi; Kotabe, Noriko; Sugiyama, Kouichi; Sato, Makoto; Katsuyama, Akira; Osakabe, Yoshio; and Kusagaya, Yasuo, 5,802,300, Cl. 395-200.520.
Sugiyama, Mikio: *See—*
Endo, Kaoru; and Sugiyama, Mikio, 5,801,713, Cl. 345-473.000.
Sugiyama, Toshinori: *See—*
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Suh, Jeong-Dae: *See—*
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Suhocki, Paul V.: *See—*
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Suite Solutions Designs Ltd.: *See—*
Robertson, Joann; and Holisky, Andy, 5,800,029, Cl. 312-271.000.
Suka, Munehiro: *See—*
Kimura, Kazuhiro; Hayashibe, Shigeaki; Hirakoso, Yutaka; Masumoto, Takahiko; Ishimura, Shizuka; Ozawa, Toshiyuki; and Suka, Munehiro, 5,802,067, Cl. 370-527.000.
Sullivan, Candace A.: *See—*
Casey, Jon A.; Cohn, Michael A.; Cropp, Michael E.; Sullivan, Candace A.; Sullivan, Robert J.; and Vogel, Andrew H., 5,800,761, Cl. 264-212.000.
Sullivan, Daniel J.: *See—*
Bachinski, Thomas J.; Goldstein, David S.; and Sullivan, Daniel J., 5,801,525, Cl. 623-1.000.
Sullivan, David: *See—*
McGrath, Michael C.; Groleau, Wayne M.; Hedding, Michael A.; Stockford, Brian J.; and Sullivan, David, 5,800,025, Cl. 303-7.000.
Sullivan, Joseph Michael: *See—*

- Lopergolo, Emanuele Frank; Goldmann, Lewis Sigmund; Sullivan, Joseph Michael; and Tompkins, Charles Russell, Jr., 5,800,184, Cl. 439-66.000.
- Sullivan, Michael J.; and Nesbitt, R. Dennis, to LISCO, Inc. Golf ball, 5,800,284, Cl. 473-377.000.
- Sullivan, Robert J.: See—
- Casey, Jon A.; Cohn, Michael A.; Cropp, Michael E.; Sullivan, Candace A.; Sullivan, Robert J.; and Vogel, Andrew H., 5,800,761, Cl. 264-212.000.
- Sulzer Chemtech AG: See—
- Ainscow, Stuart; and Sitkus, Rolf, 5,800,791, Cl. 422-228.000.
- Sulzer Intermedics Inc.: See—
- Machek, James E.; Verboven, Yves; Spehr, Paul R.; and Goldman, Stephen L., 5,800,495, Cl. 607-116.000.
- Routh, Andre; Bruls, Annette; Woodson, Drury, II; Vandegriff, Joseph; and Verboven, Yves, 5,800,466, Cl. 607-14.000.
- Sumida, Kunihiko; and Sato, Hiroki, to Fuji Photo Film Co., Ltd. Web winding apparatus, 5,799,898, Cl. 242-530.100.
- Sumida, Yasutaka; Asakawa, Miaki; Kita, Yuichi; Kitajima, Mitsuhiro; Takahashi, Yoshiyuki; and Sagi, Kazuo, to Nippon Shokubai Co., Ltd. Solid catalyst for etherification reaction and production process for ether compound using this catalyst, 5,801,277, Cl. 562-583.000.
- Sumino, Yoshitsugu: See—
- Iriono, Yasushi; and Sumino, Yoshitsugu, 5,800,223, Cl. 440-49.000.
- Sumitomo Chemical Company, Limited: See—
- Ueda, Yuji; Takeyama, Naoki; Ueki, Hiromi; and Kusumoto, Takehiro, 5,800,966, Cl. 430-283.100.
- Yoneyoshi, Yukio; Konya, Naoto; Suzukamo, Gohfu; Kamitamaru, Masashi; and Miyawaki, Takashi, 5,801,280, Cl. 564-415.000.
- Sumitomo Electric Industries, Ltd.: See—
- Jindai, Masaaki; and Okamoto, Jun, 5,800,101, Cl. 408-230.000.
- Nishiyama, Naoki, 5,801,588, Cl. 330-308.000.
- Takata, Kensaku; and Ono, Junichi, 5,800,201, Cl. 439-466.000.
- Sumitomo Metal Industries Limited: See—
- Tsubakihara, Hidehiro; Kajiwara, Yasushi; and Tetsuka, Michihiko, 5,800,193, Cl. 439-266.000.
- Sumitomo Pharmaceuticals Company, Limited: See—
- Hayakawa, Toru; Yoshimine, Toshiki; Yamamoto, Hiromu; Sato, Akira; Irie, Tsunemasa; Fujioka, Keiji; Takada, Yoshihiro; and Sasaki, Yoshio, 5,800,390, Cl. 604-93.000.
- Sumitomo Rubber Industries, Ltd.: See—
- Ohya, Yukihide, 5,800,642, Cl. 152-209.00R.
- Yokota, Masatoshi; Moriyama, Keiji; and Yamada, Mikio, 5,800,287, Cl. 473-372.000.
- Sumitomo Special Metals Company, Limited: See—
- Taimatu, Hitoshi; and Ueda, Masami, 5,800,152, Cl. 420-40.000.
- Sumitomo Wiring Systems, Ltd.: See—
- Okada, Naohisa, 5,800,216, Cl. 439-752.000.
- Takata, Kensaku; and Ono, Junichi, 5,800,201, Cl. 439-466.000.
- Sumiya, Toshifumi, to Nidek Co., Ltd. Apparatus for use in operating upon a cornea, 5,800,424, Cl. 606-4.000.
- Sumomozawa, Hironori: See—
- Takada, Kenichi; Ohashi, Ryota; Sumomozawa, Hironori; and Shimizu, Hiroaki, 5,799,486, Cl. 60-464.000.
- Sun, Lining, to Silicon Graphics, Inc. System and method for processing graphic language characters, 5,802,482, Cl. 704-8.000.
- Sun Microsystems, Inc.: See—
- Baehr, Geoffrey G.; Danielson, William; Lyon, Thomas L.; Mulligan, Geoffrey; Patterson, Martin; Scott, Glenn C.; and Turhyfill, Carolyn, 5,802,320, Cl. 395-200.790.
- Balick, Maurice; van Hoff, Arthur A.; and McChesney, Roderick J., 5,802,291, Cl. 395-200.320.
- Coppenszky, Michael A., 5,802,568, Cl. 711-136.000.
- Engquist, James D., 5,802,297, Cl. 395-200.420.
- Farkas, Peter; Howell, Stephen K.; and Rice, Daniel S., 5,802,219, Cl. 382-276.000.
- Greenley, Dale; Kohn, Leslie; Yeh, Ming; and Williams, Greg, 5,802,575, Cl. 711-144.000.
- Hagersten, Erik, 5,802,566, Cl. 711-137.000.
- Hagersten, Erik E.; and Hill, Mark D., 5,802,563, Cl. 711-122.000.
- Jabbi, Amandeep; and Howell, Stephen K., 5,801,719, Cl. 345-524.000.
- Jeong, Deog-Kyoon, 5,802,103, Cl. 375-220.000.
- Melo, Michael D., 5,802,307, Cl. 395-200.620.
- Senator, Steven T.; Passmore, Dale R.; and Gittins, Robert S., 5,802,364, Cl. 395-681.000.
- Tzeng, Allan; and Boddu, Jayaharath, 5,802,576, Cl. 711-146.000.
- Van De Vanter, Michael L., 5,802,262, Cl. 395-180.000.
- Van Hoff, Arthur A., 5,802,530, Cl. 707-513.000.
- Sun, Shih-Wei: See—
- Yew, Tri-Rung; Liu, Meng-Chang; Lur, Water; and Sun, Shih-Wei, 5,801,094, Cl. 438-624.000.
- Sun, Yuan-Chen: See—
- Abouelfotoh, Mohamed Osama; Krusin-Eibaum, Lia; and Sun, Yuan-Chen, 5,801,444, Cl. 257-762.000.
- Sunbeam Products, Inc.: See—
- Thrash, Joseph L., 5,801,914, Cl. 361-104.000.
- Sundholm, Göran. Fire fighting system for discharging a liquid-gas finely divided mist, 5,799,735, Cl. 169-9.000.
- Sundstrand Corporation: See—
- Diemer, John W.; and Miller, Jack B., 5,801,460, Cl. 307-129.000.
- Sundstrom, Christafor E.: See—
- Song, Joo H.; Sundstrom, Christafor E.; Record, David W.; Townsend, Donald J.; Broderick, Kevin B.; and Schnell, Philip G., 5,800,847, Cl. 426-3.000.
- Sung, Chiakang; Huang, Joseph; and Chang, Wanli, to Altera Corporation. Programming and verification address generation for random access memory blocks in programmable logic array integrated circuit devices, 5,802,540, Cl. 711-1.000.
- Sung, Gun-Yong; and Suh, Jeong-Dae, to Electronics and Telecommunications Research Institute. Superconductor-insulator-superconductor Josephson tunnel junction and method therefor, 5,801,393, Cl. 257-32.000.
- Suni, Paul, to Zen Research N.V. Track detection methods and apparatus for simultaneous monitoring of multiple adjacent tracks of an optical disk, 5,802,025, Cl. 369-44.410.
- Sunny Industry Company, Limited: See—
- Noguchi, Takuya, 5,799,590, Cl. 110-216.000.
- Sunstar Inc.: See—
- Oishi, Kazumi; and Yamamoto, Atsushi, 5,799,353, Cl. 15-167.100.
- Suominen, Harri: See—
- Cheng, Shu Lin; Timonen, Jussi; and Suominen, Harri, 5,800,363, Cl. 600-587.000.
- Supak, Wayne A.: See—
- Keil, Gary D.; Morgan, Ronald G.; Tipton, Sheryl A.; and Supak, Wayne A., 5,801,296, Cl. 73-19.100.
- Super-Tec Manufacturing: See—
- Lin, Liz, 5,799,967, Cl. 280-646.000.
- Superior Fibers, Inc.: See—
- Miller, William D., 5,800,588, Cl. 55-494.000.
- Surevoid Products, Inc.: See—
- Gates, Robert C.; and Turner, Michael L., 5,799,455, Cl. 52-323.000.
- Surgical Design Corporation: See—
- Banko, William, 5,800,448, Cl. 606-169.000.
- Surgicraft Limited: See—
- McLeod, Alan Rory Mor; and Shafighian, Ali, 5,800,543, Cl. 623-13.000.
- Surigot, Inc.: See—
- Falkowski, Jerry; Shamsunder, Giridhar; Risner, Steven J.; and Lyons, Pamela M., 5,801,010, Cl. 435-31.000.
- Survo, Petteri; and Haavasoja, Taisto, to Vaisala Oy. Method and apparatus for measuring road surface conditions, 5,801,647, Cl. 340-905.000.
- Sutman, Frank J.; and Hobirk, Richard A., to BetzDearborn Inc. Method for dewatering drinking sludge using a water soluble block copolymer, 5,800,719, Cl. 210-734.000.
- Suzukamo, Gohfu: See—
- Yoneyoshi, Yukio; Konya, Naoto; Suzukamo, Gohfu; Kamitamaru, Masashi; and Miyawaki, Takashi, 5,801,280, Cl. 564-415.000.
- Suzuki, Akira: See—
- Itoh, Akihide; Nogiwa, Toru; Hotta, Yoshihiko; Suzuki, Akira; and Kutami, Atsushi, 5,801,743, Cl. 347-171.000.
- Suzuki, Fumio: See—
- Wada, Ryukichi; Suzuki, Fumio; and Ohtsuru, Yoshisuke, 5,801,745, Cl. 347-232.000.
- Suzuki, Hironobu; Miwa, Michio; Hikita, Hiroyuki; Kawaguchi, Toru; and Ogasawara, Noritoshi, to Matsushita Electric Industrial Co., Ltd. 3-dimensional data shaping apparatus, 5,801,709, Cl. 345-433.000.
- Suzuki, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Antenna switching circuit suitable for a radio-frequency apparatus with a built-in antenna, 5,801,661, Cl. 343-702.000.
- Suzuki, Hiroyoshi, to Mitsubishi Denki Kabushiki Kaisha. Face image taking device, 5,801,763, Cl. 348-77.000.
- Suzuki, Kazuhiko: See—
- Sawaguchi, Masahiro; Kudo, Hiroshi; Koizumi, Takeshi; Abe, Yuko; and Suzuki, Kazuhiko, 5,800,915, Cl. 428-323.000.
- Suzuki, Kazuhiro, to Fuji Xerox Co., Ltd. Image signal coding apparatus with switching between variable-length coding and fixed-length coding, 5,801,841, Cl. 358-433.000.
- Suzuki, Kazushi: See—
- Imahori, Yoshio; Suzuki, Kazushi; and Tajima, Kazushige, 5,800,663, Cl. 156-304.100.
- Suzuki, Keizoh: See—
- Komiya, Fuminori; Hattori, Sakashi; and Suzuki, Keizoh, 5,801,349, Cl. 200-61.550.
- Suzuki, Kenji, to Berg Technology, Inc. Electrical connector and affixing member, 5,800,209, Cl. 439-571.000.
- Suzuki, Kitami: See—
- Sakakibara, Yoshihiro; Yamada, Yukio; and Suzuki, Kitami, 5,800,314, Cl. 482-54.000.
- Suzuki, Kiyoshi: See—
- Takematsu, Tetsuo; Komata, Takeo; Kume, Takashi; Kohda, Yamiko; Suzuki, Kiyoshi; Kawamura, Matsue; Ikeda, Yukio; and Mori, Kaoru, 5,801,122, Cl. 504-289.000.
- Suzuki, Masahiko: See—
- Nagai, Shigekazu; Sugano, Koji; Saitoh, Akio; and Suzuki, Masahiko, 5,799,543, Cl. 74-490.090.
- Suzuki, Mitsuro; Ohno, Kazunari; Fujiwara, Kunihiko; Kato, Tetsuo; and Morishita, Takanori, to Futaba Industrial Co., Ltd. Muffler for internal combustion engine, 5,801,343, Cl. 181-254.000.
- Suzuki Motor Corporation: See—
- Matsushita, Yasuhiro, 5,799,845, Cl. 224-42.140.
- Suzuki, Nobuhiko: See—

- Ichikawa, Hidehiro; Ishikawa, Satoshi; Iizuka, Hiroaki; Sakakihara, Takeshi; Suzuki, Nobuhiko; and Tanaka, Hiraku, 5,800,190, Cl. 439-164.000.
- Suzuki, Nobuo: See—
- Sugimoto, Yasuhiro; Suzuki, Nobuo; Kasai, Akihito; and Ideguchi, Takahiro, 5,799,640, Cl. 123-527.000.
- Suzuki, Satoshi; and Murakawa, Mitsuru, to Furukawa Electric Co., Ltd. The Electric contact material and a manufacturing method therefor, 5,800,932, Cl. 428-615.000.
- Suzuki, Satoshi: See—
- Taneda, Atsushi; Akamatsu, Koji; Ogawa, Hajime; and Suzuki, Satoshi, 5,801,352, Cl. 219-69.180.
- Suzuki, Shoji: See—
- Kanekawa, Nobuyasu; Suzuki, Shoji; Sato, Yoshimichi; Tashiro, Kore-fumi; Bekki, Keisuke; Sato, Hiroshi; Nohmi, Makoto; and Ohtsuji, Shinya, 5,802,266, Cl. 395-182.090.
- Suzuki, Takao; Kojoh, Naomiki; and Takahashi, Yoshiyasu, to Toa Medical Electronics Co., Ltd. Apparatus for diluting a solution and method for the same, 5,800,056, Cl. 366-152.400.
- Suzuki, Takashi: See—
- Igarashi, Yasuo; Suzuki, Takashi; Kimura, Tomoko; Motoyama, Akira; Fukuhara, Rina; and Torii, Atsuko, 5,800,827, Cl. 424-405.000.
- Suzuki, Tetsuo: See—
- Yanagi, Haruyuki; Suzuki, Tetsuo; Hiramatsu, Soichi; Taniguro, Masahiro; Inoue, Hiroyuki; Saito, Hiroyuki; Tanno, Koichi; Kawarama, Makoto; Kinoshita, Hiroyuki; Shinmachi, Masaya; and Ming, Tan At, 5,801,728, Cl. 347-50.000.
- Suzuki, Tetsuya, to Konica Corporation. Silver halide photographic light sensitive material, 5,800,975, Cl. 430-567.000.
- Suzuki, Toshikazu: See—
- Yagoto, Mitsutoshi; Kurahashi, Hideyuki; Murakami, Masanori; Nanba, Katsuhiko; Ishiyama, Masamitsu; and Suzuki, Toshikazu, 5,801,462, Cl. 310-12.000.
- Suzuki, Toshiro: See—
- Kuroki, Yoshinori; Suzuki, Toshiro; Koide, Ayumu; Kojima, Takafumi; and Kogure, Yasuo, 5,802,453, Cl. 455-31.200.
- Suzuki, Yasumichi; Yamada, Masanori; and Ohta, Eiji, to Canon Kabushiki Kaisha. Image reading apparatus for obtaining a shading correction factor using two white reference members, 5,802,217, Cl. 382-274.000.
- Suzuki, Yasutomo: See—
- Yamada, Osamu; Nakazawa, Toshihiko; Suzuki, Yasutomo; and Uchio, Hirokazu, 5,801,853, Cl. 358-504.000.
- Suzuki, Yuzuru; Fujitani, Sakae; and Makino, Kenichi, to Minebea Co., Ltd. Dynamoelectric machine, 5,801,463, Cl. 310-51.000.
- Svensen, Allan: See—
- Bisgard-Frantzen, Henrik; Borchert, Torben Vedel; Svendsen, Allan; Thellersen, Marianne; and Van der Zee, Pia, 5,801,043, Cl. 435-252.300.
- Svensson, Nils: See—
- Wetzel, Uwe; and Svensson, Nils, 5,799,561, Cl. 91-424.000.
- Sverlow, Genadie Gleb: See—
- della Cioppa, Guy Richard; Garger, Stephen John, Jr.; Holtz, Richard Barry; McCulloch, Michael Jay; and Sverlow, Genadie Gleb, 5,801,047, Cl. 435-253.600.
- Svoronos, Alexander; and Duncan, Daniel N., to Austin Logistics Inc. Method and system for optimized scheduling, 5,802,161, Cl. 379-216.000.
- Swain, Richard L.: See—
- Dunn, Dennis C.; and Swain, Richard L., 5,802,227, Cl. 385-53.000.
- SWAK Ventures, Inc.: See—
- Edmark, Tomima L.; and Gooch, Roland W., 5,800,503, Cl. 607-145.000.
- Swan, Ellen L.: See—
- Wilson, David P.; Singh, Rajiv R.; Basu, Rajat S.; Swan, Ellen L.; and Nalewajek, David, 5,800,729, Cl. 252-67.000.
- Swanson, Darrin: See—
- Perry, Loren; and Swanson, Darrin, 5,799,339, Cl. 4-286.000.
- Swanson, David K., to EP Technologies, Inc. Systems and methods for actively cooling ablation electrodes using diodes, 5,800,432, Cl. 606-49.000.
- Swanson, John W.: See—
- Spelman, Francis A.; Clopton, Ben M.; Voie, Arne; Jolly, Claude N.; Huynh, Ky; Boogaard, Jerome; and Swanson, John W., 5,800,500, Cl. 607-137.000.
- Swart, Mark A.; and Vinther, Gordon A., to Delaware Capital Formation, Inc. Spring probe and method for biasing, 5,801,544, Cl. 324-761.000.
- Swartz, John F.; Ockuly, John D.; and Hassett, James A., to Daig. Guiding introducer for use in the treatment of atrial flutter, 5,800,413, Cl. 604-280.000.
- Sweetheart Cup Company Inc.: See—
- Schaefer, Robert J.; and Pendergrass, William B., 5,799,814, Cl. 220-254.000.
- Sweezer, William Penn; Jimison, James; and Coleman, Ronald L., to Heartport, Inc. Catheter system and method for providing cardiopulmonary bypass pump support during heart surgery, 5,800,375, Cl. 604-4.000.
- Swiderman, R. Todd; Lindbeck, Mike; and Lindstrom, Doug, to Martin Engineering Company. Vibrator mounting arrangement, 5,799,918, Cl. 248-300.000.
- Swinkels, Petrus H.W.: See—
- De Haas, Franciscus C.M.; Van Laarhoven, Franciscus M.H.; Van Laarhoven, Johannes M.E.; Ligthart, Henricus J.; Swinkels, Petrus H.W.; and Van Beek, Johannes G., 5,800,231, Cl. 445-24.000.
- Switched Reluctance Drives, Ltd.: See—
- Sugden, David M.; Langhorst, Phillip G.; Marcinkiewicz, Joseph G.; and Smart, James C. R., 5,801,935, Cl. 363-89.000.
- Swoyer, John M.; McIntyre, Peter B.; Upton, James E.; Hebyzinski, Annette M.; and Lessar, Joseph F., to Medtronic, Inc. Medical electrical lead having a crush resistant lead body, 5,800,496, Cl. 607-122.000.
- SWZ Engineering Ltd.: See—
- Smith, Cecil E.; Writer, Philip L.; and Campbell, Frank A., 5,801,792, Cl. 348-749.000.
- Sylvant, James William: See—
- Bevill, Beymer, Jr.; Kalin, William James; Rasmus, Todd Morgan; Sylvant, James William; and Tomaszewski, Peter Roy, 5,802,151, Cl. 379-93.050.
- Sylvain, Harry; and Bernard, Perier, to Cesa-Compagnie Europeenne de Sieges pour Automobiles. Seat structure for a motor vehicle provided with an improved control of the articulation of the backrest, 5,800,017, Cl. 297-367.000.
- Symbios, Inc.: See—
- Gasparik, Frank, 5,801,564, Cl. 327-170.000.
- Symbol Technologies, Inc.: See—
- Kahn, Joel; Isaac, Richard; DeVita, Joseph; McGlynn, Daniel R.; Shapira, Reuven; Bard, Simon; Katz, Joseph; and Durst, Robert, 5,801,371, Cl. 235-472.000.
- Symensma, Kenneth L.: See—
- Reed, Gary A.; and Symensma, Kenneth L., 5,799,361, Cl. 15-320.000.
- Symes, Kenneth Charles: See—
- Langley, John Graham; Symes, Kenneth Charles; and Mistry, Kishor Kumar, 5,801,140, Cl. 510-530.000.
- Symex, Inc.: See—
- Miller, Steven K., 5,801,921, Cl. 361-686.000.
- Symphonix Devices, Inc.: See—
- Ball, Geoffrey R.; Mar, Craig; Dietz, Tim; Katz, Bob H.; and Wallace, Dan, 5,800,336, Cl. 600-25.000.
- Synchro Technology, Inc.: See—
- Liu, Faan-Hoan; and Gustavson, Jorge, 5,802,398, Cl. 395-882.000.
- Synder, David G.: See—
- Jerkunica, Boris M.; and Synder, David G., 5,802,520, Cl. 707-101.000.
- Synthelabo: See—
- Cazal, Thierry, 5,800,414, Cl. 604-280.000.
- Syori, Hideichi; Maeda, Shigeru; Morishita, Tomoyuki; and Hane, Tatsuya, to Central Glass Company, Limited. Method and apparatus for manipulating film, 5,800,646, Cl. 156-64.000.
- Syringe Development Partners L.L.C.: See—
- Pressly, William B. S., Sr.; Vaughn, Charles A., Sr.; Brockway, G. Samuel; and Ellis, Thomas R., 5,800,403, Cl. 604-195.000.
- Szabad, Gregory; and Glydon, Jon Anthony, to Earth & Ocean Sports, Inc. Maneuverable body board with step rail, 5,800,226, Cl. 441-65.000.
- Szathmary, Susan: See—
- Grandies, Peter; and Szathmary, Susan, 5,801,063, Cl. 436-518.000.
- Sze, Isaac S.-Y., deceased (by Carolina Luiz, Loch-Hung Leo Sze, Leah Samantha Sze, heirs): See—
- Bridon, Dominique P.; Sze, Isaac S.-Y., deceased; Daghfal, David J.; Jaffe, Keeve D.; and Colpitts, Tracey L., 5,800,983, Cl. 435-5.000.
- Szekely, Alex, to Plastek Group, The. Sampler applicator, 5,799,667, Cl. 132-200.000.
- Szmurlo, Thomas E.: See—
- Williams, Roger B.; Szmurlo, Thomas E.; Guthrie, Warren E.; and Jensen, James, 5,801,643, Cl. 340-870.020.
- Tabak, Larry A.: See—
- Cummins, Diane; Pickup, Karen Marie; and Tabak, Larry A., 5,801,226, Cl. 530-388.200.
- Tabei, Takashi: See—
- Kino, Jiro; Tabei, Takashi; and Takahashi, Masami, 5,801,931, Cl. 363-17.000.
- Taber, William D., to Hall's Machining Services, Inc. Key and retainer device for a chuck, 5,800,102, Cl. 408-241.00R.
- Tachi-S Co., Ltd.: See—
- Tsuehaya, Kenji; Shirai, Tamotsu; and Nemoto, Akira, 5,800,015, Cl. 297-331.000.
- Tadiran Ltd.: See—
- Elster, Esther; and Yamin, Herzel, 5,800,941, Cl. 429-105.000.
- Taga, Wataru: See—
- Hamaguchi, Masaki; Inomata, Syoji; Kano, Masayuki; Taga, Wataru; and Inayoshi, Hideyuki, 5,799,888, Cl. 241-259.100.
- Tagliana, Bernard Marc: See—
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- Taguchi, Kazunori: See—
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- Tai, Nancy Y.: See—
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- Tailliet, François, to SGS-Thomson Microelectronics S.A. High voltage generator, 5,801,577, Cl. 327-536.000.
- Taimatu, Hitoshi; and Ueda, Masami, to Sumitomo Special Metals Company, Limited. Oxidation resistant metallic materials, 5,800,152, Cl. 420-40.000.
- Taira, Yasuhito: See—
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- Uchiyama, Takayuki; and Arima, Hirobumi, to Nikon Corporation. Self correcting projector, 5,800,032, Cl. 353-69,000.
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- Uhler, G. Michael: *See—*
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- Uniden Corporation: *See—*
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- Union Carbide Chemicals & Plastics Technology Corporation: *See—*
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- Unisia Jecs Corporation: *See—*
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- Hsu, Jerry, 5,802,187, Cl. 381-119,000.

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- Wada, Shuji: See—
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- Waferscale Integration, Inc.: See—
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- Walkerow, Loy P. Illuminated fuse extracting and installing tool and tester. 5,800,043, Cl. 362-119.000.
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- Wallack, Peter A., to Oracle Corporation. Storage, replay and error detection of user-defined queries. 5,802,512, Cl. 707-2.000.
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- Walsh, James W.: See—
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- Wang, Ping. Baking pan kit and associated method. 5,800,853, Cl. 426-511.000.
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- Wang, Rea-Chang: See—
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- Wang, Shay-Ping T.: See—
- Lloyd, Scott E.; and Wang, Shay-Ping T., 5,802,522, Cl. 707-101.000.
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- Wanger, Gerhard. Spindle for gas bearing of a rapidly rotating tool. 5,800,068, Cl. 384-119.000.
- Wanner, Christopher C.: See—
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- Ward, Bennett C.: See—
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- Ward, Charles Gorham: See—
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- Ward, Earl Dawson, II: See—
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- Ward, Reeder N.: See—
- Montgomery, Robert M.; Daugherty, Greg K.; Ward, Reeder N.; and Bentley, Pat O., 5,801,874, Cl. 359-305.000.
- Ward, Stuart: See—
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- Warden, David P.: See—
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- Sparks, Harry Lee, Jr.; and Martin, Galen Monroe, 5,800,210, Cl. 439-573.000.
- Whitbourne, Richard J.: See—
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- Willer, Rodney L.; and McGrath, David K., to Cordant Technologies Inc. High performance large launch vehicle solid propellants. 5,801,325, Cl. 149-19.400.
- Willett, Gordon H., to Therm Alliance Company. Heat treating furnace and method. 5,800,774, Cl. 266-105.000.
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- William Exline, Inc.: See—
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- Williamson, Sidney, to Metro Corporation. Scale bearing insert. 5,801,338, Cl. 177-179.000.
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- Yamaguchi, Masao; and Shiraiishi, Takashi, to Kabushiki Kaisha Toshiba. Image forming apparatus having a plurality of mirror members each capable of moving in a parallel or rotary direction, 5,801,746, Cl. 347-259.000.
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Yoon, InBae; Yoon, Suzanne J.; and Yoon, Samuel C. Method of creating an operating space endoscopically at an obstructed site. 5,800,394, Cl. 604-101.000.
Yoon, InBae. See—
Lee, Jai S.; and Yoon, InBae, 5,800,342, Cl. 600-114.000.
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York, Pamela Kay; and Martinelli, Ramon Ubaldo, to David Sarnoff Research Center, Inc. Room temperature diode laser emitting in the 2-5 micrometer wavelength range. 5,802,090, Cl. 372-45.000.
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Yoshida, Kiyohide; and Miyadera, Tatsuo, to Kabushiki Kaisha Riken; and Agency of Industrial Science and Technology. Comprising supported silver sulfate or silver chloride or silver with sulfuric acid. 5,801,117, Cl. 502-415.000.

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Ziauddin, Mohamed; and Ong, Michael T., to Oracle Corporation. Method and apparatus for determining distinct cardinality dual hash bitmaps. 5,802,521, Cl. 707-101.000.
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Ziegert, Günter; and Suárez Oviedo, José Luis, to Hoechst Aktiengesellschaft. Thermoformed tray for the packaging of syringe barrels. 5,799,790. Cl. 206-443.000.

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Zucker, Friedhelm, to Deutsche Thomson Brandt GmbH. Reproduction and/or recording device for optical recording media of varying storage density. 5,802,029. Cl. 369-58.000.

Zuckerman, Lawrence H., to Advanced Micro Devices, Inc. Apparatus and method for receiving a modulated radio frequency signal by converting the radio frequency signal to a very low intermediate frequency signal. 5,802,463. Cl. 455-208.000.

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LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 1st DAY OF SEPTEMBER, 1998

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Butler, Marvin W., to Gehl Company. Net wrap feeding system for a round haler. RE. 35,882. Cl. 53-118.000.

Ellis, Glenn, to Galileo Electro-Optics Corporation. Flexible lead assembly for microchannel plate-based detector. RE. 35,884. Cl. 250-336.100.

Galileo Electro-Optics Corporation: *See—*

Ellis, Glenn, RE. 35,884. Cl. 250-336.100.

Gehl Company: *See—*

Butler, Marvin W., RE. 35,882. Cl. 53-118.000.

Kawada, Akira: *See—*

Wakimasu, Mitsuhiro; Mori, Masaaki; and Kawada, Akira. RE. 35,886. Cl. 514-80.000.

Kazami, Kazuyuki; Nakamura, Toshiyuki; and Wakabayashi, Hiroshi, to Nikon Corporation. Photographing mode switching device of a camera. RE. 35,885. Cl. 396-168.000.

Konieczynski, Ronald D., to Nordson Corporation. Apparatus for dispensing conductive coating materials including color changing capability. RE. 35,883. Cl. 239-3.000.

Mori, Masaaki: *See—*

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Nakamura, Toshiyuki: *See—*

Kazami, Kazuyuki; Nakamura, Toshiyuki; and Wakabayashi, Hiroshi. RE. 35,885. Cl. 396-168.000.

Nikon Corporation: *See—*

Kazami, Kazuyuki; Nakamura, Toshiyuki; and Wakabayashi, Hiroshi. RE. 35,885. Cl. 396-168.000.

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Wakimasu, Mitsuhiro; Mori, Masaaki; and Kawada, Akira, to Takeda Chemical Industries, Ltd. Phosphonic acid derivatives and use thereof. RE. 35,886. Cl. 514-80.000.

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Westphal, Dennis: *See—*
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Wetmore, Christopher: *See—*
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Wewers, Frank J., to Manning Systems Inc. Gas monitor. 397,629, Cl. D10-96,000.
White, Paul N. Vehicle airbag security bracket. 397,667, Cl. D12-223,000.
Widmer, Stanley W., to Par Aide Products Co. Golf rake. 397,592, Cl. D8-13,000.
Wijas, Thomas S.: *See—*
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Williamson, Conrad. Molding template for correctly positioning decorative molding. 397,703, Cl. D15-136,000.
Wilson, Grant Richard: *See—*
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Davidowitz, Ivan; and Wright, Rosemary, 397,545, Cl. D2-926,000.
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Wu Chang, Li-Chen, to Lyu Jan Co., Ltd. Deep fryer. 397,579, Cl. D7-350,000.
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- Yang, Jianmin; and Wan, Chuan. Spherical binoculars. 397,705, Cl. D16-133,000.
Yang, Yubo; You, Chenhua; and Eikelberger, Rand J., to Dialight Corporation. Lens for a combined lens clearance sidemarker and identification lamp. 397,633, Cl. D10-111,000.
Yisrael, Miykayah. Novelty mirror. 397,556, Cl. D6-309,000.
York, Walter A.: *See—*
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Yotukura, Masakatu, to Kanda Tsushin Kogyo Co., Ltd. Portable credit card reader. 397,682, Cl. D14-105,000.
You, Chenhua: *See—*
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Young, Austin Gale, to Goodyear Tire & Rubber Company, The. Tire tread. 397,647, Cl. D12-146,000.
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Yuen, John Se-Kit, to John Manufacturing Ltd. Signal lantern. 397,817, Cl. D26-41,000.
Yuen, Tsoi Mak; and Ling, Kenny Ho To, to Tiger Electronics, Inc. Electronic game housing. 397,728, Cl. D21-13,000.
Yu-Ying, Lin Liao. Skateboard. 397,753, Cl. D21-227,000.
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Zauderer, Victor B.: *See—*
Arora, Samir; Mok, Clement; Zauderer, Victor B.; and Kare, Susan, 397,687, Cl. D14-114,300.
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Zeng, Yi-Ren. Spectacles. 397,711, Cl. D16-306,000.
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- Bear Creek Gardens, Inc.: See—
Zary, Keith W., 10,577, Cl. Plt.-24,000.
Bergman, Wendy R., to Yoder Brothers, Inc. Hibiscus plant named 'Bimini Breeze', 10,582, Cl. Plt.-67,800.
Bergman, Wendy R., to Yoder Brothers, Inc. Hibiscus plant named 'Gulf Wind', 10,583, Cl. Plt.-67,800.
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Hofmann, Christa, 10,586, Cl. Plt.-87,120.
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Hofmann, Christa, to Elsner Pac Jungpflanzen. Variety of geranium named 'Melody Red', 10,586, Cl. Plt.-87,120.
Hurlbut, Robert L. Cherry tree 'Andy-G's Son', 10,578, Cl. Plt.-37,000.
Innovaplant GmbH & Co. KG: See—
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Lee, Robert Edward, to Lee, Robert Edward; and Plant Development Services Inc. Azalea hybrid variety named 'Conlef', 10,579, Cl. Plt.-56,000.
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Bergman, Wendy R., 10,583, Cl. Plt.-67,800.
Zary, Keith W., to Bear Creek Gardens, Inc. Floribunda rose plant named 'JChart', 10,577, Cl. Plt.-24,000.

LIST OF
STATUTORY INVENTION REGISTRATIONS

APPLICANTS TO WHOM

STATUTORY INVENTION REGISTRATIONS WERE ISSUED ON THE
1st DAY OF SEPTEMBER, 1998

- Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, to Exxon Production Research Company. Method for inhibiting hydrate formation. H1,749, Cl. 585-15,000.
Costello, Christine Ann: See—
Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, H1,749, Cl. 585-15,000.
Dobrin, George Christopher. Absorbent article having a breathable backsheet. H1,750, Cl. 604-383,000.
Exxon Production Research Company: See—
Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, H1,749, Cl. 585-15,000.
Marinelli, Luigi; and Palumbo, Gianfranco. Package for packs, for example, packs of sanitary products. H1,748, Cl. 206-83,500.
Oelfke, Russell Harlan: See—
Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, H1,749, Cl. 585-15,000.
Okura Yusoki Kabushiki Kaisha: See—
Saeki, Yutaka; and Sawada, Hiroki, H1,747, Cl. 53-443,000.
Palumbo, Gianfranco: See—
Marinelli, Luigi; and Palumbo, Gianfranco, H1,748, Cl. 206-83,500.
Peiffer, Dennis George: See—
Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, H1,749, Cl. 585-15,000.
Rabeony, Manese: See—
Colle, Karla Schall; Costello, Christine Ann; Oelfke, Russell Harlan; Peiffer, Dennis George; Rabeony, Manese; Talley, Larry D.; and Wright, Pamela Jean, H1,749, Cl. 585-15,000.
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Sawada, Hiroki: See—
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CLASSIFICATION OF PATENTS

ISSUED SEPTEMBER 1, 1998

NOTE—First number, class; second number, subclass; third number, patent number

CLASS 2			CLASS 30			CLASS 53			CLASS 72			CLASS 95			CLASS 116			
12	5,799,326	298.4	5,799,400	118	RE. 35,882	360	5,799,520	187	5,799,565									
19	5,799,327	300	5,799,401	258	5,799,465	416	5,799,521											
69	5,799,328			399	5,799,466	456 R	5,799,522											
102	5,799,329	CLASS 33			400	5,799,463	CLASS 72			211	5,800,594	CLASS 117						
114	5,799,330	1 K	5,799,402	425	5,799,464	9.3	5,799,523	288	5,800,595	288	5,800,595	68	5,800,611	CLASS 118				
159	5,799,331	290	5,799,403	450	5,799,467	55	5,799,524	4	5,800,596	4	5,800,596	201	5,800,612	CLASS 119				
	5,799,332	370	5,799,404	453	5,799,468	105	5,799,525	211	5,800,597	211	5,800,597							
161.6	5,799,333	392	5,799,405	470	5,799,469	248	5,799,526	190	5,800,598	190	5,800,598	13	5,800,613	CLASS 120				
195.1	5,799,334	502	5,799,406	500	5,799,470	252.5	5,799,527					315	5,800,614	CLASS 121				
209.11	5,799,335	555.4	5,799,407	556	5,799,471	318	5,799,528					326	5,800,615	CLASS 122				
247	5,799,336	645	5,799,408	567	5,799,472	340	5,799,529					712 I	5,800,620	CLASS 123				
421	5,799,337	CLASS 34			389.3	5,799,530	CLASS 99			320	5,799,566	719	5,800,616	CLASS 124				
428	5,799,338	117	5,799,409	CLASS 54			348	5,799,567	320	5,799,567	712	5,800,617	CLASS 125					
		247	5,799,410	44.1	5,799,473	CLASS 55			348	5,799,568	723 AN	5,800,618	CLASS 126					
286	5,799,339	582	5,799,412	302	5,800,578	CLASS 73			421 H	5,799,569	723 E	5,800,619	CLASS 127					
342	5,799,340			337	5,800,579	1.06	5,801,295	495	5,799,570	495	5,799,570	725	5,800,622	CLASS 128				
420.4	5,799,341	CLASS 36			378	5,800,580	19.1	5,801,296	CLASS 100			728	5,800,623	CLASS 129				
502	5,799,342	43	5,799,413	378	5,800,581	23.34	5,801,297	CLASS 101					CLASS 130					
504	5,799,343	44	5,799,414	385.3	5,800,582	49.8	5,801,298	271	5,799,572	271	5,799,573	6.5	5,799,607	CLASS 131				
523	5,799,344	58.6	5,799,416	396	5,800,583	53.01	5,801,300	CLASS 102					51.04	5,799,608	CLASS 132			
584	5,799,345	116	5,799,418	467	5,800,584	61.55	5,801,302	CLASS 103					74	5,799,609	CLASS 133			
601	5,799,346	CLASS 37			482	5,800,585	118.1	5,801,301	CLASS 104					166	5,799,610	CLASS 134		
		116	5,799,418	486	5,800,586	119 R	5,801,303	40	5,799,574	40	5,799,574	248	5,799,611	CLASS 135				
81.1 R	5,799,347	CLASS 38			494	5,800,587	146.2	5,801,304	CLASS 105					260	5,799,612	CLASS 136		
123	5,799,348	348	5,799,419	14.5	5,799,474	170.17	5,801,306	365	5,799,579	365	5,799,580	452	5,799,613	CLASS 137				
624	5,799,349	CLASS 39			14.7	5,799,475	223	5,801,308	CLASS 106					510	5,799,616	CLASS 138		
		77.7	5,799,420	14.9	5,799,476	290 V	5,799,534	336	5,801,321	336	5,801,321	712	5,799,617	CLASS 139				
509	5,800,573	88	5,799,421	30	5,799,480	504.13	5,801,310	401	5,801,322	401	5,801,322	721	5,799,618	CLASS 140				
		93	5,799,422	39.02	5,799,480	514.29	5,801,309	476	5,801,323	476	5,801,323			CLASS 141				
CLASS 15			CLASS 40			514.37	5,801,311	CLASS 107					CLASS 142					
1.7	5,799,351	CLASS 41			264	5,799,476	602	5,801,312	CLASS 108					CLASS 143				
167.1	5,799,353	107	5,799,423	293	5,799,477	718	5,801,313	516	5,801,324	516	5,801,324	26	5,799,615	CLASS 144				
		124.08	5,799,424	406	5,799,478	786	5,801,314					31.2	5,799,616	CLASS 145				
		299	5,799,425	393	5,799,479	861.57	5,801,315	CLASS 109					367.1	5,799,617	CLASS 146			
244.1	5,799,357	633	5,799,426	4	5,799,479	863.81	5,801,317	111	5,799,581	111	5,799,581	387	5,799,618	CLASS 147				
250.01	5,799,358	642.02	5,799,427	30	5,799,480	CLASS 59			CLASS 110					CLASS 148				
250.04	5,799,359	658	5,799,428	39.02	5,799,480	CLASS 60			CLASS 111					CLASS 149				
257.2	5,799,360	778	5,799,429	39.15	5,799,481	16	5,799,535	331	5,799,536	331	5,799,536	31.26	5,800,599	CLASS 150				
320	5,799,361	785	5,799,430	343	5,799,482	471 XY	5,799,537	473.18	5,799,539	473.18	5,799,539	31.29	5,800,600	CLASS 151				
321	5,799,362	792	5,799,431	452	5,799,483	473.37	5,799,538	489	5,799,540	489	5,799,540	31.65	5,800,601	CLASS 152				
327.3	5,799,363	CLASS 42			464	5,799,486	490.09	5,799,542	502.4	5,799,544	502.4	5,799,544	162.2	5,800,602	CLASS 153			
338	5,799,364	1.02	5,799,432	487	5,799,487	490.09	5,799,542	502.4	5,799,544	502.4	5,799,544	205.9	5,800,603	CLASS 154				
418	5,799,365	1.05	5,799,433	497	5,799,488	502.4	5,799,544	552	5,799,545	552	5,799,545	270	5,800,604	CLASS 155				
CLASS 16			69.03	5,799,434	597	5,799,489	552	5,799,545	569	5,799,546	569	5,799,546	287.16	5,800,605	CLASS 156			
35 R	5,799,366	57	5,799,435	597	5,799,489	605	5,799,547	606 R	5,799,548	606 R	5,799,548	412	5,800,606	CLASS 157				
86 A	5,799,367	112	5,799,436	752	5,799,492	743	5,800,610	CLASS 74					492	5,800,607	CLASS 158			
92	5,799,368	CLASS 43			55.5	5,799,493	CLASS 75					496	5,800,608	CLASS 159				
110 R	5,799,369	CLASS 44			77	5,799,494	CLASS 76					496	5,800,609	CLASS 160				
236	5,799,370	301	5,800,576	77	5,799,494	10.63	5,800,591	CLASS 77					51.3	5,799,584	CLASS 161			
330	5,799,371	CLASS 47			78	5,799,495	373	5,801,318	CLASS 78					53.1	5,799,585	CLASS 162		
342	5,799,372	40.5	5,799,437	89	5,799,496	453	5,800,592	CLASS 79					56.3	5,799,586	CLASS 163			
358	5,799,373	46	5,799,438	149	5,799,497	712	5,800,593	CLASS 80					66	5,799,587	CLASS 164			
CLASS 19			57.6	5,799,439	154	5,799,498	CLASS 81					86	5,799,571	CLASS 165				
274	5,799,374	65	5,799,440	225	5,799,499	104.1	5,799,549	CLASS 82					108	5,799,588	CLASS 166			
CLASS 24			101	5,799,488	408	5,799,500	CLASS 83							CLASS 167				
16 PB	5,799,375	457.3	5,799,501	476	5,799,502	CLASS 84							CLASS 168					
30.5 R	5,799,376	503	5,799,503	509	5,799,504	CLASS 85							CLASS 169					
452	5,799,378	613	5,799,505	616	5,799,506	CLASS 86							CLASS 170					
195.1	5,799,378	621	5,799,507	621	5,799,507	CLASS 87							CLASS 171					
CLASS 29			638	5,799,509	638	5,799,509	CLASS 88							CLASS 172				
10	5,800,574	646	5,799,510	646	5,799,510	CLASS 89							CLASS 173					
25.42	5,799,379	653	5,799,510	653	5,799,510	CLASS 90							CLASS 174					
252	5,799,380	CLASS 52			23	5,799,511	CLASS 91							CLASS 175				
268	5,799,381	16	5,799,445	23	5,799,511	CLASS 92							CLASS 176					
		94	5,799,446	158	5,800,590	CLASS 93							CLASS 177					
407.05	5,799,382	127.1	5,799,447	159	5,800,589	CLASS 94							CLASS 178					
458	5,799,384	188	5,799,448	158	5,800,590	CLASS 95							CLASS 179					
469	5,799,385	204.51	5,799,449	159	5,800,589	CLASS 96							CLASS 180					
527.5	5,799,386	208	5,799,450	23.2	5,799,512	CLASS 97							CLASS 181					
598	5,799,387	208	5,799,450	14	5,799,513	CLASS 98							CLASS 182					
603.09	5,799,388	223.4	5,799,451	16	5,799,514	CLASS 99							CLASS 183					
603.21	5,799,389	232	5,799,452	18	5,799,515	CLASS 100							CLASS 184					
651	5,799,390	259	5,799,453	24.7	5,799,517	CLASS 101							CLASS 185					
713	5,799,391	302.3	5,799,454	28.1	5,799,518	CLASS 102							CLASS 186					
830	5,799,392	323	5,799,455	358	5,799,519	CLASS 103							CLASS 187					
852	5,799,393	396.04	5,799,456	14	5,799,513	CLASS 104							CLASS 188					
889.22	5,799,394	405.3	5,799,457	16	5,799,514	CLASS 105							CLASS 189					
890.052	5,799,396	417	5,799,458	18	5,799,515	CLASS 106							CLASS 190					
		518	5,799,459	92	5,799,516	CLASS 107							CLASS 191					
890.08	5,799,397	539	5,799,460	24.7	5,799,517	CLASS 108							CLASS 192					
893.32	5,799,398	588.1	5,799,461	28.1	5,799,518	CLASS 109							CLASS 193					
897.3	5,799,399	742.13	5,799,462	358	5,799,519	CLASS 110							CLASS 194					
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290	5,799,664	150	5,800,650	221	5,799,747	508	5,799,792	95	5,799,830	CLASS 244	
291	5,799,665	180	5,800,651	233	5,799,748	554	5,799,793	132	5,799,831	3.11	5,799,899
CLASS 132		184	5,800,652	247	5,799,749	562	5,799,794	135	5,799,832	7 A	5,799,900
76.4	5,799,666	203	5,800,653	410	5,799,745	564	5,799,795	148	5,799,833	17.13	5,799,901
200	5,799,667	227	5,800,654	CLASS 181		586	5,799,796	174	5,799,834	55	5,799,902
208	5,799,669	239	5,800,656	215	5,801,341	CLASS 208		189.07	5,799,835	110 B	5,799,903
210	5,799,670	244.11	5,800,657	224	5,801,342	135	5,800,696	215	5,799,837	163	5,799,904
225	5,799,671	245	5,800,658	254	5,801,343	159	5,800,697	480	5,799,838	CLASS 248	
273	5,799,672	250	5,800,659	272	5,801,344	216 R	5,800,698	541.5	5,799,840	48.2	5,799,905
321	5,799,673	264	5,800,660	CLASS 182		CLASS 209		571	5,799,841	49	5,799,906
324	5,799,674	285	5,800,661	82	5,799,750	CLASS 223			5,799,842	62	5,799,907
333	5,799,675	294	5,800,662	206	5,799,752	306	5,799,798	1	5,799,843	97	5,799,908
CLASS 134		304.1	5,800,663	234	5,799,753	365.1	5,799,799	85	5,799,843	101	5,799,909
1	5,800,625	344	5,800,665	CLASS 183			5,800,699	112	5,799,844	109	5,799,910
1.3	5,800,626	345	5,800,666	665	5,799,558	667	5,799,801			116	5,799,911
10	5,800,627	382	5,800,667	CLASS 184		CLASS 210				121	5,799,912
18	5,800,628	577	5,800,668	6.14	5,799,751	109	5,800,700	42.14	5,799,845	146	5,799,913
22.11	5,800,629	578	5,800,670			158	5,800,701	148.7	5,799,846	201	5,799,914
61	5,799,676	580.1	5,800,671	CLASS 187		162	5,800,702	197	5,799,847	230.8	5,799,915
76	5,799,677		5,800,672	403	5,799,755	169	5,800,703	328	5,799,848	284.1	5,799,916
104.1	5,799,678			CLASS 188		177	5,800,704	398	5,799,849	300	5,799,917
152	5,799,679	28.6	5,800,673	1.11 W	5,799,754	178.2	5,800,705	429	5,799,850	398	5,799,918
96	5,799,680	CLASS 160		2 F	5,799,756	232	5,800,706	501	5,799,851	429	5,799,919
249	5,800,630	170 R	5,799,715	76	5,799,757	287	5,800,707	564	5,799,852	501	5,799,920
251	5,800,631	310	5,799,716	285	5,799,758	306	5,800,708	635	5,799,853	564	5,799,921
258	5,800,632	CLASS 162		300	5,799,759	617	5,800,709	679	5,799,854	635	5,799,922
CLASS 137		52	5,800,674	371	5,799,760	CLASS 211		188	5,799,854	636	5,799,923
1	5,799,681	135	5,800,675	CLASS 192		639	5,800,711	CLASS 227		642	5,799,924
14	5,799,682	145	5,800,676	3.29	5,799,761	650	5,800,712	10	5,799,855	51	5,800,927
15	5,799,683	199	5,800,677		5,799,762	651	5,800,713	112	5,799,856	CLASS 250	
68.15	5,799,684	272	5,800,678	41.5	5,799,763	702	5,800,714	179.1	5,799,857	208.1	5,801,373
375	5,799,685	CLASS 164		58.62	5,799,765	711	5,800,716	CLASS 228		208.2	5,801,374
385	5,799,687	271	5,799,717	70.16	5,799,766	714	5,800,717	6.2	5,799,858	216	5,801,375
505.13	5,799,688	306	5,799,718	CLASS 194		734	5,800,718	157	5,799,859	221	5,801,376
533.13	5,799,689	418	5,799,719	217	5,799,767	787	5,800,719	194	5,799,860	231.12	5,801,377
576	5,799,690	470	5,799,721	318	5,799,768	CLASS 212		CLASS 229		237 G	5,801,378
580	5,799,691	471	5,799,722			90.01	5,799,803	23 R	5,799,861	296	5,801,379
587 A	5,799,692	478	5,799,723	CLASS 198		105.1	5,799,804	68.1	5,799,862	300	5,801,380
625.23	5,799,693			349	5,799,769	184	5,799,805	104	5,799,863	310	5,801,381
625.24	5,799,694	CLASS 165		432	5,799,770	CLASS 215		196	5,799,864	312	5,801,382
625.32	5,799,695	49	5,799,723	499	5,799,776	196	5,799,806	309	5,799,865	332	5,801,383
625.44	5,799,696	134.1	5,799,724	642	5,799,777	270	5,799,807	406	5,799,866	336.1	RE. 35,884
625.65	5,799,697	156	5,799,725	750.5	5,799,778	299	5,799,808			345	5,801,384
628	5,799,698	170	5,799,726	803.15	5,799,779		5,799,809			370.11	5,801,385
CLASS 138		170	5,799,727	823	5,799,780	CLASS 216		CLASS 235		492.21	5,801,386
45	5,799,700	231	5,799,728	CLASS 200		11.1	5,799,800	306	5,799,876	492.3	5,801,387
97	5,799,701	CLASS 166		5 A	5,801,345	12.1	5,799,801	359	5,801,365	542.8	5,801,388
120	5,799,702	55	5,799,729	11 K	5,801,346	386	5,799,811	375	5,801,366	559.3	5,801,389
121	5,799,703	75.14	5,799,730	61.44	5,801,347			380	5,801,367	584	5,801,390
137	5,799,704	77.2	5,799,731	61.53	5,801,348			384	5,801,368	593	5,801,391
144	5,799,705	250.07	5,799,732	61.55	5,801,349	13	5,800,722	454	5,801,369	CLASS 251	
CLASS 139		264	5,799,733	344	5,799,771	16	5,800,723	467	5,801,370	129.1	5,799,926
1 R	5,799,706	278	5,799,734	368	5,799,772	35	5,800,724	472	5,801,371	212	5,799,927
383 A	5,799,707	CLASS 169		403	5,799,773	108	5,800,725	492	5,801,372	214	5,799,928
383 AA	5,799,708	9	5,799,735	CLASS 201		88	5,800,726	CLASS 237		62.53	5,800,728
CLASS 141		57	5,799,736	35	5,800,680	CLASS 219		8 A	5,799,869	67	5,800,729
18	5,799,710	2	5,799,737	59	5,800,681	52	5,801,351			76	5,800,730
287	5,799,711	784	5,799,738	97	5,800,682	69.18	5,801,352	CLASS 238		180	5,800,731
358	5,799,712			57	5,800,683	86.31	5,801,353	8	5,799,868	182.18	5,800,732
CLASS 147		184	5,799,738	121.43	5,801,354	121.43	5,801,354	84	5,799,870	299.6	5,800,733
CLASS 148		217	5,799,739	121.44	5,801,355	121.44	5,801,355	CLASS 239		299.61	5,800,734
48	5,799,714	6	5,801,327	121.68	5,801,356	121.68	5,801,356	1	5,799,871	5,800,735	5,800,735
CLASS 149		35 R	5,801,328	216	5,801,360	216	5,801,360	8	RE. 35,883	299.66	5,800,736
111	5,800,633	42	5,801,329	270	5,801,361	270	5,801,361		5,799,872	321	5,800,737
285	5,800,634	52.1	5,801,330	320	5,801,362	320	5,801,362	33	5,799,873	510	5,800,738
304	5,800,635	73.1	5,801,331	403	5,801,367	403	5,801,367	127.1	5,799,874	610	5,800,739
306	5,800,636	74 A	5,801,332	634	5,801,358	634	5,801,358	296	5,799,875		5,800,740
318	5,800,637	120 SR	5,801,333	734	5,801,363	734	5,801,363	419.3	5,799,876	34	5,799,929
403	5,800,638	146	5,801,334		5,800,692	4.31	5,799,812	CLASS 241		CLASS 257	
426	5,800,639			CLASS 205		254	5,799,813	32	5,799,880	32	5,801,393
557	5,800,640	50	5,800,693	269	5,799,814	258	5,799,815	47	5,799,881	48	5,801,394
578	5,800,641	135	5,800,695	414	5,799,817	269	5,799,816	5	5,799,882	57	5,801,395
CLASS 149		705	5,800,694	462	5,799,818	277	5,799,819	21	5,799,883	65	5,801,396
19.4	5,801,325			494	5,799,820	299	5,799,821	30	5,799,884	66	5,801,397
92	5,801,326	38.1	5,799,774	601	5,800,692	734	5,799,822	36	5,799,885	69	5,801,398
CLASS 150		222	5,799,775	CLASS 206		CLASS 221		236	5,799,887	72	5,801,399
156	5,800,643	246	5,799,781	31.1	5,799,776	5	5,799,821	259.1	5,799,888	77	5,801,401
209 R	5,800,642	308.1	5,801,338	246	5,799,782	150 HC	5,799,822			80	5,801,402
210	5,800,644	261	5,801,339	308.1	5,799,783	298	5,799,823	231	5,799,889	94	5,801,403
CLASS 156					5,799,784		5,799,824	261	5,799,890	102	5,801,404
49	5,800,645	315.11	5,801,340		5,799,785	CLASS 222			5,799,891	206	5,801,405
64	5,800,646	315.7	5,801,341		5,799,786	288	5,799,825		5,799,892	207	5,801,406
69	5,800,647	315.7	5,801,342		5,799,787	379.1	5,799,826	288	5,799,893	212	5,801,407
71	5,800,648	9.1	5,799,743		5,799,788	379.1	5,799,827	379.1	5,799,894	217	5,801,408
71.1	5,800,649	65.2	5,799,744		5,799,789	382.4	5,799,828	382.4	5,799,895	233	5,801,409
		89.12	5,799,745		5,799,790	423	5,799,829	423	5,799,896	233	5,801,410
					5,799,791	433.4	5,799,830	433.4	5,799,897	233	5,801,411
					5,799,792	528	5,799,831	528	5,799,898	233	5,801,412
					5,799,793	530.1	5,799,832	530.1	5,799,899	233	5,801,413

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	5,801,799	675	5,801,886	526	5,801,962	394	5,802,050	65	5,802,136	45	5,800,065
77	5,801,800	691	5,801,887	551.02	5,801,963	395	5,802,051	85	5,802,137	100	5,800,066
128	5,801,801	694	5,801,888		5,801,964		5,802,052	98	5,802,139	119	5,800,068
129	5,801,802	743	5,801,889	552	5,801,965	401	5,802,053	98.8	5,802,138	504	5,800,069
151	5,801,803	793	5,801,890	559	5,801,966		5,802,054	136	5,802,140	514	5,800,071
		871	5,801,891	564	5,801,967	402	5,802,055			535	5,800,070
		892	5,801,892	578	5,801,969	403	5,802,056			537	5,802,221
					5,801,970	408	5,802,057	22	5,802,141		5,800,072
44	5,801,804				5,801,971	410	5,802,058				
62	5,801,805				5,801,972	429	5,802,059	32	5,802,143		
126	5,801,806	72.1	5,801,894	579	5,801,973	444	5,802,060				
221	5,801,807	74.2	5,801,893	715.02	5,801,974	461	5,802,061	34	5,802,145	1	5,802,222
		77.08	5,801,895	722	5,801,975	465	5,802,062			8	5,802,223
239	5,801,809		5,801,896	725.03	5,801,977	469	5,802,063			44	5,802,225
246	5,801,810	78.14	5,801,897	745.03	5,801,978		5,802,064	56.2	5,802,146	51	5,802,224
		85	5,801,898	745.04	5,801,978		5,802,065	67	5,802,147	53	5,802,227
		97.01	5,801,899	768	5,801,979	476	5,802,066	88	5,802,148	78	5,802,229
69	5,800,032	98.07	5,801,900			527	5,802,067	89	5,802,149	88	5,802,229
97	5,800,033	98.08	5,801,901				5,802,068	93	5,802,150	92	5,802,230
109	5,800,034	99.08	5,801,902			538	5,802,069	93.05	5,802,151	114	5,802,231
		103	5,801,903	45	5,801,980			93.26	5,802,152	122	5,802,232
		104	5,801,905	73	5,801,981			98	5,802,153		5,802,233
			5,801,906	149	5,801,982			100.17	5,802,154		5,802,234
22	5,801,811		5,801,907	158	5,801,983	21.1	5,802,070	106.09	5,802,155	123	5,802,235
	5,801,812	105	5,801,908	185.01	5,801,984	22.1	5,802,071			127	5,802,236
27	5,801,813	106	5,801,909	185.09	5,801,985	22.5	5,802,072			135	5,802,237
40	5,801,814		5,801,908	185.18	5,801,986	22.6	5,802,073	196	5,802,157		
53	5,801,815	126	5,801,909	185.21	5,801,987	27.1	5,802,074	201	5,802,158		
	5,801,816		5,801,910	185.22	5,801,988		5,802,075	211	5,802,159		
				185.23	5,801,989	31	5,802,076	211	5,802,160	25	5,802,238
				185.25	5,801,991	36	5,802,077	216	5,802,161	46	5,802,241
4.07	5,801,817	22	5,801,911	185.25	5,801,992	37.8	5,802,078	242	5,802,162	47	5,802,239
5.01	5,801,818	50	5,801,912	185.28	5,801,993	42	5,802,079	265	5,802,163	52	5,802,240
30	5,801,819	71	5,801,913	185.29	5,801,994	53	5,802,080	329	5,802,164	58	5,802,242
36	5,801,820	104	5,801,914	189.05	5,801,995	55	5,802,081	347	5,802,165	73	5,802,243
124	5,801,821	234	5,801,915		5,801,996	62	5,802,082	356	5,802,166	78	5,802,244
	5,801,822	321.4	5,801,916	189.11	5,801,997			372	5,802,167	83	5,802,245
139.03	5,801,823	535	5,801,917	193	5,801,998			388	5,802,168	98	5,802,246
237	5,801,824	683	5,801,918	200	5,801,999	11	5,802,083	398	5,802,169	105	5,802,247
241	5,801,825		5,801,919	200.62	5,802,000	18	5,802,084	412	5,802,170	119	5,802,248
307	5,801,826	685	5,801,920	201	5,802,001	20	5,802,085	419	5,802,171		
315	5,801,827	686	5,801,921	205	5,802,002	22	5,802,086	445	5,802,172		
318	5,801,828		5,801,922	207	5,802,002	35	5,802,087				
326	5,801,829	704	5,801,923	230.03	5,802,003	36	5,802,088			822	5,802,248
346	5,801,830	719	5,801,924		5,802,004	38	5,802,089	41	5,802,174		
	5,801,831	752	5,801,925		5,802,005	45	5,802,090	2	5,802,175		
358	5,801,832	754	5,801,926		5,802,006	49	5,802,091	23	5,802,176	347	5,802,249
	5,801,833	777	5,801,927	230.06	5,802,007	50	5,802,092	48	B1 121.430		
375	5,801,834	801	5,801,928		5,802,008	55	5,802,093	49	5,802,177		
	5,801,835	807	5,801,929		5,802,009	57	5,802,094	51	5,802,178	2.37	5,802,250
		819	5,801,930	233.5	5,802,010	89	5,802,095		5,802,179	2.84	5,802,251
					5,802,011	102	5,802,096			51	5,802,252
					5,802,012					68	5,802,254
					5,802,013					75	5,802,255
296	5,801,837				5,800,055					106	5,802,256
298	5,801,838	31	5,800,035	75	5,800,056	72	5,802,097	17	5,802,180	75	5,802,257
404	5,801,839	72	5,800,036	152.4	5,800,057	78	5,802,098	61	5,802,181	105	5,802,258
427	5,801,840		5,800,037		5,800,058			69	5,802,182	112	5,802,259
433	5,801,841	83.1	5,800,038	306	5,800,059			69	5,802,183	114	5,802,260
434	5,801,842	101	5,800,039	337	5,800,060	104	5,802,099	98	5,802,184	115	5,802,261
450	5,801,843	105	5,800,040		5,800,061	131	5,802,099	107	5,802,185	118	5,802,262
458	5,801,844	119	5,800,041		5,800,062			107	5,802,186	120	5,802,263
468	5,801,845	158	5,800,042	83	5,802,011	206	5,802,101	119	5,802,187	122	5,802,264
	5,801,846	205	5,800,043	88	5,802,012	207	5,802,102	159	5,802,188	124	5,802,265
	5,801,847	252	5,800,044	178	5,802,013	220	5,802,103	162	5,802,189	128	5,802,266
470	5,801,848	255	5,800,045		5,802,014	220	5,802,104	188	5,802,190	129	5,802,267
474	5,801,849	275	5,800,046		5,802,015	222	5,802,105		5,802,191	131	5,802,268
483	5,801,850	294	5,800,047		5,802,016	225	5,802,106		5,802,192	132	5,802,269
497	5,801,851	296	5,800,048		5,802,017	245	5,802,107		5,802,193	133	5,802,270
502	5,801,852	348	5,800,049		5,802,018	259	5,802,108		5,802,194	134	5,802,271
504	5,801,853	376	5,800,050		5,802,019	260	5,802,109		5,802,195	135	5,802,272
518	5,801,854	413	5,800,051		5,802,020	265	5,802,110		5,802,196	136	5,802,273
	5,801,855	431	5,800,052		5,802,021	326	5,802,111		5,802,197	137	5,802,274
	5,801,856	431	5,800,053		5,802,022	340	5,802,112		5,802,198	138	5,802,275
			5,800,054		5,802,023	341	5,802,113			139	5,802,276
					5,802,024	344	5,802,114			140	5,802,277
					5,802,025	350	5,802,115			141	5,802,278
					5,802,026	354	5,802,116			142	5,802,279
					5,802,027	359	5,802,117			143	5,802,280
					5,802,028	362	5,802,118			144	5,802,281
					5,802,029	368	5,802,119			145	5,802,282
					5,802,030	372	5,802,120			146	5,802,283
					5,802,031	377	5,802,121			147	5,802,284
					5,802,032		5,802,122			148	5,802,285
					5,802,033		5,802,123			149	5,802,286
					5,802,034		5,802,124			150	5,802,287
					5,802,035					151	5,802,288
					5,802,036					152	5,802,289
					5,802,037					153	5,802,290
					5,802,038					154	5,802,291
					5,802,039					155	5,802,292
					5,802,040					156	5,802,293
					5,802,041					157	5,802,294
					5,802,042					158	5,802,295
					5,802,043					159	5,802,296
					5,802,044					160	5,802,297
					5,802,045					161	5,802,298
					5,802,046					162	5,802,299
					5,802,047					16	

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CLASSIFICATION OF DESIGNS														
D1—	109	397,535	554	397,582	96	397,629	102	397,673	52	397,724	292	397,761		
	125	397,536	601	397,583	101	397,630		397,681	72	397,725		397,762		
D2—	143	397,537	602	397,584		397,631	105	397,682	9	397,726	304	397,773		
	508	397,538	605	397,585	109	397,632	107	397,677	D20—	7	397,727	328	397,774	
	712	397,539	615	397,586	111	397,633		397,683	D21—	13	397,728	337	397,775	
	869	397,540	631	397,587	119	397,634		397,684			347	397,776		
	899	397,541	682	397,588	120	397,635	109	397,674			354	397,777		
	902	397,543	670	397,589		397,636	114	397,675	30	397,731	356	397,778		
	912	397,544	8	397,590	D8—	25	397,637		397,685	37	397,732	382	397,779	
	914	397,542	10	397,591	D11—	81	397,638		397,686	39	397,733	409	397,780	
	926	397,545	13	397,592		164	397,639	114,3	397,687	48	397,734	411	397,781	
	951	397,546	13	397,593		184	397,640	115	397,688	54	397,735		397,782	
D3—	206	397,547	14	397,594		216	397,641	121	397,672	65	397,736		397,783	
	215	397,548		397,595	D12—	114	397,642	138	397,689	78	397,737	D24—	108	397,784
		397,549		397,596		128	397,643	188	397,690			110	397,785	
	229	397,550	21	397,599		130	397,645	191	397,691	80	397,739		397,786	
	265	397,551	25	397,597		131	397,645	217	397,692	100	397,740		397,787	
	302	397,552	29	397,598		143	397,646	240	397,693	104	397,741	112	397,788	
	314	397,553	35	397,600		146	397,647	248	397,694	108	397,742	118	397,789	
D4—	108	397,554	37	397,601		147	397,648	256	397,695	128	397,743	130	397,790	
D5—	99	397,555	104	397,602		397,649		397,696	148	397,744	135	397,791		
D6—	309	397,556	107	397,603		397,650	29	397,697	192	397,745	137	397,792		
	366	397,557	301	397,604		397,651	72	397,698		397,746		397,793		
	421	397,558	343	397,605		397,652	90	397,699	205	397,747	145	397,794		
	446	397,559	363	397,606		397,653		397,700	214	397,748	161	397,795		
	500	397,560	397	397,607		397,654	123	397,701		397,749	174	397,796		
	455	397,561	402	397,608		397,655	135	397,702		397,750	192	397,797		
	468	397,562	423	397,609		397,656	136	397,703	219	397,751	200	397,798		
	499	397,563	425	397,610	162	397,657	136	397,704	221	397,752	D25—	1	397,799	
	511	397,564	435	397,611	191	397,656	133	397,705	227	397,753	18	397,800		
	513	397,565	445	397,612		397,659	202	397,706	234	397,754	62	397,801		
	515	397,566	448	397,613		397,660		397,707	237	397,755	113	397,802		
	525	397,567	520	397,614	194	397,661	209	397,708	240	397,756	123	397,803		
	527	397,573		397,615	209	397,662	232	397,709		397,757	124	397,804		
	534	397,574	540	397,616		397,663	306	397,710	126	397,758		397,805		
	546	397,568	1	397,617		397,664		397,711	129	397,759		397,806		
	548	397,569	6	397,618	213	397,665	321	397,712	132	397,760		397,807		
	566	397,570	30	397,619	215	397,666	326	397,713	D23—	203	397,763	164	397,808	
	575	397,571		397,620	223	397,667	327	397,714	209	397,764	199	397,809		
	580	397,572	31	397,621	302	397,668		397,715	214	397,765		397,810		
	600	397,575	39	397,622	403	397,669	D17—	20	397,716	237	397,766	D26—	3	397,811
	601	397,576		397,623	D13—	103	397,670		397,717		397,767	26	397,812	
		397,577	57	397,624		147	397,671		397,718		397,768		397,813	
	603	397,578	65	397,625	D14—	13	397,676	D18—	4	397,719	238	397,770		397,814
	350	397,579	75	397,626		100	397,677	22	397,720	250	397,771		397,815	
D7—	402	397,580	74	397,627		397,679	D19—	27	397,721	254	397,771	28	397,816	
	409	397,581	78	397,628		397,680		49	397,723	277	397,772	41	397,817	

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81 397,820	111 397,824		189 397,826		46 397,829	D30— 108 397,832	
84 397,821	119 397,818		195 397,827		48 397,830	D32— 53.1 397,833	

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P—	24 10,577	56 10,579	57 10,581	10,583	87.12 10,585	10,587
	37 10,578	10,580	67.8 10,582	68.1 10,584	10,586	87.18 10,588

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01 :	5,799,563	5,799,342	5,799,951	5,800,387	5,800,754	5,801,225
	5,799,611	5,799,345	5,799,960	5,800,393	5,800,756	5,801,231
	5,799,613	5,799,349	5,799,967	5,800,395	5,800,767	5,801,232
	5,799,713	5,799,351	5,799,972	5,800,396	5,800,784	5,801,260
	5,800,643	5,799,367	5,799,980	5,800,400	5,800,785	5,801,293
	5,801,489	5,799,372	5,799,999	5,800,402	5,800,793	5,801,302
	5,801,636	5,799,413	5,800,003	5,800,405	5,800,810	5,801,310
	5,801,714	5,799,414	5,800,009	5,800,408	5,800,811	5,801,311
04 :	5,799,340	5,799,426	5,800,022	5,800,409	5,800,812	5,801,317
	5,799,391	5,799,429	5,800,034	5,800,422	5,800,815	5,801,333
	5,799,513	5,799,461	5,800,038	5,800,423	5,800,825	5,801,341
	5,799,603	5,799,462	5,800,052	5,800,429	5,800,844	5,801,345
	5,799,612	5,799,474	5,800,083	5,800,432	5,800,853	5,801,356
	5,799,832	5,799,484	5,800,096	5,800,442	5,800,857	5,801,374
	5,799,901	5,799,552	5,800,105	5,800,443	5,800,859	5,801,380
	5,799,969	5,799,606	5,800,136	5,800,453	5,800,863	5,801,386
	5,800,099	5,799,610	5,800,143	5,800,455	5,800,871	5,801,397
	5,800,267	5,799,626	5,800,153	5,800,467	5,800,878	5,801,406
	5,800,285	5,799,629	5,800,156	5,800,477	5,800,879	5,801,418
	5,800,302	5,799,636	5,800,165	5,800,481	5,800,895	5,801,419
	5,800,383	5,799,653	5,800,175	5,800,482	5,800,924	5,801,422
	5,800,522	5,799,655	5,800,186	5,800,484	5,800,946	5,801,430
	5,800,538	5,799,661	5,800,196	5,800,487	5,800,958	5,801,431
	5,800,562	5,799,681	5,800,197	5,800,488	5,800,967	5,801,432
	5,800,623	5,799,705	5,800,226	5,800,491	5,800,978	5,801,440
	5,800,629	5,799,741	5,800,235	5,800,493	5,800,992	5,801,441
	5,801,068	5,799,747	5,800,240	5,800,494	5,800,993	5,801,446
	5,801,222	5,799,750	5,800,242	5,800,509	5,800,996	5,801,450
	5,801,319	5,799,773	5,800,243	5,800,518	5,801,021	5,801,453
	5,801,403	5,799,781	5,800,244	5,800,520	5,801,026	5,801,457
	5,801,486	5,799,788	5,800,248	5,800,521	5,801,029	5,801,464
	5,801,523	5,799,796	5,800,264	5,800,526	5,801,034	5,801,477
	5,801,533	5,799,802	5,800,279	5,800,540	5,801,038	5,801,505
	5,801,617	5,799,804	5,800,281	5,800,541	5,801,039	5,801,512
	5,801,798	5,799,815	5,800,282	5,800,561	5,801,047	5,801,525
	5,801,799	5,799,822	5,800,292	5,800,569	5,801,057	5,801,531
	5,801,800	5,799,828	5,800,295	5,800,575	5,801,063	5,801,541
	5,802,031	5,799,837	5,800,297	5,800,593	5,801,065	5,801,544
	5,802,349	5,799,847	5,800,321	5,800,619	5,801,067	5,801,548
	5,802,516	5,799,851	5,800,331	5,800,621	5,801,072	5,801,551
	5,802,547	5,799,852	5,800,336	5,800,639	5,801,092	5,801,556
	5,802,574	5,799,853	5,800,346	5,800,647	5,801,095	5,801,557
05 :	5,799,337	5,799,860	5,800,351	5,800,662	5,801,120	5,801,560
	5,799,408	5,799,873	5,800,358	5,800,668	5,801,154	5,801,565
	5,799,494	5,799,899	5,800,371	5,800,685	5,801,159	5,801,568
	5,799,689	5,799,902	5,800,375	5,800,686	5,801,184	5,801,569
	5,800,922	5,799,909	5,800,376	5,800,690	5,801,191	5,801,571
06 :	5,799,331	5,799,942	5,800,378	5,800,702	5,801,193	5,801,579
	5,799,339	5,799,946	5,800,379	5,800,721	5,801,196	5,801,585

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5,801,587	5,802,212	5,801,564	5,800,837	5,800,247	5,800,870
5,801,591	5,802,219	5,801,597	5,800,856	5,800,254	5,801,053
5,801,593	5,802,220	5,801,708	5,800,898	5,800,288	5,801,224
5,801,598	5,802,227	5,801,711	5,801,004	5,800,291	5,799,433
5,801,602	5,802,229	5,801,720	5,801,059	5,800,319	5,799,548
5,801,612	5,802,243	5,801,754	5,801,060	5,800,322	5,799,979
5,801,616	5,802,262	5,801,783	5,801,084	5,800,340	5,800,585
5,801,625	5,802,269	5,801,901	5,801,324	5,800,492	5,800,991
5,801,649	5,802,272	5,802,046	5,801,377	5,800,529	5,801,131
5,801,657	5,802,278	5,802,058	5,801,381	5,800,601	5,801,810
5,801,670	5,802,284	5,802,112	5,801,595	5,800,628	5,801,723
5,801,675	5,802,286	5,802,118	5,801,630	5,800,697	5,801,963
5,801,679	5,802,287	5,802,144	5,801,635	5,800,714	5,802,420
5,801,681	5,802,289	5,802,149	5,801,659	5,800,775	5,802,432
5,801,687	5,802,290	5,802,157	5,801,770	5,800,847	5,799,870
5,801,693	5,802,292	5,802,264	5,801,826	5,800,848	5,799,895
5,801,694	5,802,294	5,802,297	5,801,874	5,800,854	5,799,938
5,801,695	5,802,296	5,802,364	5,801,923	5,800,861	5,799,943
5,801,702	5,802,319	5,802,448	5,801,970	5,800,883	5,800,093
5,801,703	5,802,320	5,802,470	5,802,156	5,800,983	5,800,333
5,801,719	5,802,326	5,802,506	5,802,204	5,801,012	5,800,534
5,801,725	5,802,327	5,802,527	5,802,274	5,801,032	5,801,127
5,801,726	5,802,333	5,802,560	5,802,363	5,801,046	5,801,298
5,801,738	5,802,336	5,802,561	5,802,393	5,801,119	5,799,425
5,801,747	5,802,337	5,802,565	5,802,481	5,801,128	5,799,821
5,801,749	5,802,339	5,802,498	5,802,546	5,801,146	5,799,848
5,801,751	5,802,343	5,799,366	5,799,707	5,801,219	5,800,984
5,801,753	5,802,344	5,799,370	5,799,791	5,801,233	5,799,954
5,801,758	5,802,345	5,799,420	5,800,028	5,801,250	5,802,492
5,801,778	5,802,357	5,799,592	5,800,095	5,801,296	5,799,332
5,801,779	5,802,361	5,799,680	5,800,144	5,801,303	5,799,675
5,801,782	5,802,365	5,799,755	5,800,163	5,801,455	5,799,725
5,801,787	5,802,366	5,799,857	5,800,184	5,801,460	5,799,814
5,801,792	5,802,368	5,799,931	5,800,236	5,801,492	5,799,913
5,801,805	5,802,371	5,799,998	5,800,259	5,801,513	5,799,954
5,801,822	5,802,391	5,800,107	5,800,339	5,801,519	5,800,001
5,801,824	5,802,392	5,800,124	5,800,724	5,801,567	5,800,256
5,801,843	5,802,394	5,800,218	5,800,866	5,801,632	5,800,257
5,801,849	5,802,398	5,800,238	5,800,937	5,801,633	5,800,294
5,801,854	5,802,409	5,800,296	5,800,995	5,801,643	5,800,463
5,801,866	5,802,412	5,800,377	5,801,106	5,801,684	5,800,394
5,801,867	5,802,445	5,800,399	5,801,107	5,801,690	5,800,453
5,801,895	5,802,454	5,800,445	5,801,153	5,801,948	5,800,536
5,801,896	5,802,463	5,800,582	5,801,628	5,801,967	5,800,720
5,801,902	5,802,467	5,800,589	5,801,811	5,802,044	5,800,802
5,801,905	5,802,482	5,800,726	5,801,812	5,802,045	5,800,804
5,801,909	5,802,497	5,800,782	5,802,168	5,802,100	5,800,908
5,801,915	5,802,512	5,800,850	5,802,410	5,802,107	5,800,940
5,801,928	5,802,514	5,800,872	5,802,513	5,802,111	5,800,979
5,801,929	5,802,521	5,800,930	5,802,520	5,802,143	5,801,034
5,801,933	5,802,523	5,801,045	5,799,659	5,802,155	5,801,115
5,801,934	5,802,524	5,801,605	5,799,712	5,802,162	5,801,187
5,801,940	5,802,528	5,801,732	5,800,617	5,802,205	5,801,197
5,801,943	5,802,530	5,801,964	5,800,865	5,802,218	5,801,442
5,801,945	5,802,531	5,802,093	5,800,943	5,802,456	5,801,641
5,801,951	5,802,539	5,802,258	5,800,944	5,802,459	5,801,700
5,801,952	5,802,540	5,802,493	5,801,066	5,802,484	5,802,041
5,801,958	5,802,548	5,802,500	5,801,087	5,802,489	5,802,154
5,801,959	5,802,550	5,802,503	5,801,103	5,802,499	5,802,045
5,801,961	5,802,552	5,802,517	5,801,104	5,802,501	5,802,255
5,801,968	5,802,553	5,800,579	5,801,413	5,802,522	5,800,919
5,801,977	5,802,558	5,800,661	5,801,421	5,802,530	5,800,542
5,801,980	5,802,563	5,800,923	5,801,423	5,802,537	5,800,552
5,801,984	5,802,566	5,801,168	5,801,448	5,802,589	5,801,064
5,801,985	5,802,568	5,801,273	5,801,452	5,802,602	5,801,645
5,801,991	5,802,575	5,801,325	5,801,574	5,802,604	5,801,691
5,801,994	5,802,576	5,802,576	5,801,669	5,802,649	5,801,852
5,802,014	5,802,577	5,799,341	5,801,689	5,802,654	5,801,883
5,802,025	5,802,579	5,799,359	5,801,916	5,802,656	5,801,894
5,802,042	5,802,584	5,799,382	5,801,954	5,802,657	5,801,903
5,802,048	5,802,585	5,799,501	5,801,982	5,802,658	5,801,926
5,802,052	5,802,599	5,799,547	5,801,996	5,802,659	5,802,075
5,802,054	5,802,600	5,799,569	5,802,009	5,802,664	5,802,080
5,802,055	5,802,602	5,799,607	5,802,010	5,802,668	5,802,172
5,802,056	5,802,603	5,799,634	5,802,131	5,802,677	5,802,183
5,802,057	5,802,605	5,799,669	5,802,435	5,802,684	5,802,281
5,802,064	5,802,606	5,799,673	5,802,438	5,802,688	5,802,341
5,802,073	5,799,381	5,799,715	5,802,439	5,802,693	5,802,375
5,802,076	5,799,400	5,799,736	5,800,624	5,802,699	5,802,436
5,802,083	5,799,405	5,799,817	5,800,764	5,802,700	5,802,533
5,802,084	5,799,455	5,799,825	5,800,765	5,802,701	5,802,564
5,802,086	5,799,614	5,799,835	5,800,891	5,802,702	5,801,130
5,802,092	5,799,651	5,799,863	5,801,011	5,802,703	5,801,341
5,802,099	5,799,742	5,799,874	5,801,028	5,802,704	5,801,347
5,802,104	5,799,753	5,799,876	5,801,061	5,802,705	5,801,352
5,802,105	5,799,782	5,799,928	5,801,321	5,802,706	5,801,357
5,802,106	5,799,787	5,799,987	5,801,344	5,802,707	5,801,374
5,802,125	5,800,020	5,800,027	5,801,537	5,802,708	5,801,428
5,802,126	5,800,094	5,800,031	5,801,619	5,802,709	5,801,447
5,802,127	5,800,179	5,800,117	5,801,817	5,802,710	5,801,452
5,802,129	5,800,180	5,800,225	5,801,921	5,802,711	5,801,463
5,802,140	5,800,469	5,800,228	5,802,063	5,802,712	5,801,472
5,802,147	5,800,571	5,800,272	5,799,887	5,802,713	5,801,490
5,802,150	5,800,586	5,800,310	5,799,906	5,802,714	5,801,519
5,802,163	5,800,683	5,800,359	5,799,918	5,802,715	5,801,528
5,802,178	5,800,979	5,800,427	5,799,937	5,802,716	5,801,530
5,802,181	5,801,019	5,800,450	5,799,939	5,802,717	5,801,537
5,802,191	5,800,516	5,800,508	5,799,985	5,802,718	5,801,576
5,802,198	5,801,158	5,800,719	5,800,104	5,802,719	5,801,644
5,802,199	5,801,256	5,800,723	5,800,130	5,802,720	5,801,688
5,802,203	5,801,384	5,800,749	5,800,183	5,802,721	5,801,715
5,802,210	5,801,535	5,800,779	5,800,203	5,802,722	5,801,722
			5,800,213	5,802,723	5,801,729
			5,800,214	5,802,724	5,801,739

5,800,740	5,801,216	32	5,799,368	5,802,062	5,801,404	5,799,546
5,800,741	5,801,224		5,799,609	5,802,079	5,801,444	5,799,593
5,800,820	5,801,246		5,799,617	5,802,148	5,801,470	5,799,633
5,800,821	5,801,295		5,799,792	5,802,164	5,801,494	5,799,660
5,800,828	5,801,363		5,799,910	5,802,208	5,801,532	5,799,714
5,800,829	5,801,553		5,799,940	5,802,226	5,801,609	5,799,720
5,800,986	5,801,621		5,799,945	5,802,232	5,801,626	5,799,724
5,800,994	5,801,623		5,800,268	5,802,234	5,801,699	5,799,752
5,800,998	5,801,624		5,800,404	5,802,236	5,801,710	5,799,816
5,800,999	5,801,723		5,800,421	5,802,275	5,801,727	5,799,819
5,801,000	5,801,873		5,800,502	5,802,510	5,801,735	5,799,826
5,801,001	5,801,893		5,800,695	5,800,433	5,801,793	5,799,833
5,801,013	5,802,248	33	5,799,625	5,801,108	5,801,856	5,799,875
5,801,015	5,802,376		5,799,696	5,801,338	5,801,879	5,799,880
5,801,022	5,802,490		5,799,924	5,802,479	5,801,889	5,799,968
5,801,033	5,799,384	27	5,800,227	5,799,330	5,801,891	5,799,986
5,801,044	5,799,399		5,800,373	5,799,386	5,801,912	5,800,035
5,801,056	5,799,504		5,800,597	5,799,390	5,802,015	5,800,043
5,801,073	5,799,677		5,800,718	5,799,416	5,802,102	5,800,061
5,801,124	5,799,694		5,800,770	5,799,432	5,802,117	5,800,116
5,801,149	5,799,779		5,801,209	5,799,458	5,802,170	5,800,132
5,801,156	5,799,820		5,801,937	5,799,488	5,802,190	5,800,237
5,801,160	5,799,831		5,802,061	5,799,505	5,802,201	5,800,252
5,801,203	5,799,848		5,802,311	5,799,508	5,802,214	5,800,416
5,801,221	5,799,869	34	5,799,343	5,799,511	5,802,215	5,800,418
5,801,231	5,799,955		5,799,344	5,799,515	5,802,251	5,800,449
5,801,237	5,799,976		5,799,360	5,799,525	5,802,276	5,800,531
5,801,601	5,800,141		5,799,401	5,799,581	5,802,288	5,800,550
5,801,627	5,800,262		5,799,509	5,799,588	5,802,301	5,800,563
5,801,825	5,800,349		5,799,510	5,799,591	5,802,338	5,800,567
5,801,910	5,800,392		5,799,553	5,799,652	5,802,353	5,800,581
5,801,913	5,800,397		5,799,574	5,799,656	5,802,354	5,800,588
5,801,916	5,800,428		5,799,585	5,799,700	5,802,359	5,800,615
5,801,966	5,800,437		5,799,654	5,799,722	5,802,374	5,800,654
5,802,134	5,800,441		5,799,667	5,799,775	5,802,397	5,800,657
5,802,152	5,800,458		5,799,672	5,799,784	5,802,400	5,800,659
5,802,153	5,800,461		5,799,682	5,799,793	5,802,401	5,800,669
5,802,160	5,800,464		5,799,799	5,799,907	5,802,413	5,800,699
5,802,166	5,800,465		5,799,821	5,799,921	5,802,415	5,800,705
5,802,253	5,800,470		5,799,827	5,799,929	5,802,424	5,800,732
5,802,265	5,800,471		5,799,846	5,800,018	5,802,460	5,800,751
5,802,299	5,800,480		5,799,871	5,800,058	5,802,499	5,800,757
5,802,307	5,800,486		5,799,877	5,800,065	5,802,508	5,801,136
5,802,309	5,800,489		5,799,904	5,800,080	5,802,518	5,801,223
5,802,314	5,800,496		5,799,905	5,800,089	5,802,525	5,801,275
5,802,348	5,800,498		5,799,947	5,800,103	5,802,554	5,801,335
5,802,373	5,800,507		5,800,086	5,800,159	5,802,582	5,801,356
5,802,403	5,800,511		5,800,087	5,800,172	5,802,592	5,801,530
5,802,452	5,800,517		5,800,121	5,800,181	5,802,607	5,801,551
5,802,515	5,800,525		5,800,234	5,800,184	5,802,644	5,801,734
5,802,517	5,800,587		5,800,273	5,800,211	5,799,333	5,801,734
5,802,557	5,800,648		5,800,290	5,800,239	5,799,443	5,801,734
5,802,589	5,800,650		5,800,388	5,800,274	5,799,587	5,801,734
5,802,604	5,800,692		5,800,391	5,800,278	5,799,664	5,801,734
5,799,347	5,800,769		5,800,435	5,800,301	5,799,883	5,801,734
5,799,362	5,800,875		5,800,512	5,800,334	5,800,019	5,799,740
5,799,378	5,800,903		5,800,514	5,800,344	5,800,182	5,799,890
5,799,406	5,800,919		5,800,542	5,800,362	5,800,210	5,799,949
5,799,444	5,801,064		5,800,552	5,800,412	5,800,325	5,800,166
5,799,449	5,801,218		5,800,559	5,800,448	5,800,353	5,800,255
5,799,450	5,801,645		5,800,682	5,800,457	5,800,365	5,800,413
5,799,459	5,801,691		5,800,700	5,800,485	5,800,444	5,800,696
5,799,536	5,801,852		5,800,718	5,800,510	5,800,591	5,800,814
5,799,539	5,801,883		5,800,803	5,800,532	5,800,620	5,801,899
5,799,564	5,801,894		5,800,805	5,800,549	5,800,746	5,802,011
5,799,573	5,801,903		5,800,816	5,800,688	5,800,766	5,799,358
5,799,641	5,801,926		5,800,817	5,800,729	5,800,813	5,799,430
5,799,649	5,802,075		5,800,831	5,800,753	5,800,842	5,799,472
5,799,684	5,802,080		5,800,834	5,800,761	5,800,893	5,799,558
5,799,693	5,802,172		5,800,852	5,800,777	5,800,948	5,799,795
5,799,727	5,802,183		5,800,860	5,800,807	5,800,989	5,799,801
5,799,768	5,802,281		5,800,884	5,800,826	5,800,997	5,799,908
5,799,813	5,802,341		5,800,892	5,800,835	5,801,010	5,799,995
5,799,866	5,802,375		5,800,963	5,800,855	5,801,211	5,800,171
5,799,882	5,802,436		5,801,006	5,800,858	5,801,620	5,800,456
5,799,893	5,802,533		5,801,055	5,800,874	5,801,646	5,801,183
5,799,894	5,802,564		5,801,130	5,800,881	5,801,698	5,801,401
5,799,923	5,799,435	28	5,801,137	5,800,900	5,801,785	5,801,417
5,799,930	5,799,568		5,801,141	5,800,960	5,801,918	5,801,546
5,799,932	5,800,010		5,801,175	5,800,971	5,801,941	5,801,561
5,799,959	5,800,483		5,801,176	5,800,973	5,802,013	5,801,818
5,799,934	5,801,914		5,801,186	5,800,976	5,802,053	5,801,821
5,799,991	5,799,327	29	5,801,195	5,800,977	5,802,114	5,802,069
5,800,011	5,799,428		5,801,208	5,801,031	5,802,151	5,802,074
5,800,025	5,799,604		5,801,220	5,801,042	5,802,184	5,802,089
5,800,148	5,799,728		5,801,245	5,801,110	5,802,310	5,802,132
5,800,219	5,799,756		5,801,253	5,801,118	5,802,313	5,802,188
5,800,220	5,799,864		5,801,269	5,801,142	5,802,321	5,802,213
5,800,275	5,799,900		5,801,281	5,801,151	5,802,329	5,802,282
5,800,303	5,800,320		5,801,292	5,801,163	5,802,352	5,802,545
5,800,304	5,800,533		5,801,309	5,801,172	5,802,450	5,802,578
5,800,583	5,800,572		5,801,327	5,801,200	5,802,544	5,802,580
5,800,624	5,800,778		5,801,334	5,801,226	5,802,569	5,802,593
5,800,664	5,800,905		5,801,362	5,801,241	5,799,674	5,802,594
5,800,711	5,801,185		5,801,476	5,801,242	5,799,961	5,799,328
5,800,774	5,801,365		5,801,629	5,801,262	39	RE: 35,883
5,800,796	5,801,688		5,801,644	5,801,265	5,799,361	5,799,398
5,800,799	5,801,935		5,801,806	5,801,300	5,799,364	5,799,407
5,800,800	5,801,939	30	5,801,809	5,801,312	5,799,365	5,799,438
5,800,902	5,800,221	31	5,801,842	5,801,320	5,799,423	5,799,456
5,800,923	5,800,780		5,801,863	5,801,336	5,799,445	5,799,466
5,801,002	5,801,834		5,801,875	5,801,340	5,799,475	5,799,482
5,801,070	5,801,946		5,801,979	5,801,371	5,799,532	5,799,582

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GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

5,799,630	44 :	5,799,436	5,799,944	5,801,828	5,799,830	5,800,570
5,799,621		5,799,602	5,799,962	5,801,838	5,799,970	5,800,717
5,799,670		5,799,628	5,799,993	5,801,942	5,800,410	5,800,987
5,799,776		5,799,941	5,799,996	5,801,944	5,800,454	5,801,005
5,799,780		5,800,440	5,800,006	5,801,975	5,800,611	5,801,155
5,799,794		5,801,235	5,800,109	5,801,987	5,801,236	5,801,181
5,799,797		5,802,369	5,800,167	5,802,004	5,801,314	5,801,182
5,799,981		5,799,179	5,800,293	5,802,005	5,799,915	5,801,194
5,799,997	45 :	5,799,708	5,800,332	5,802,124	5,800,625	5,801,227
5,800,012		5,799,709	5,800,368	5,802,161	5,801,089	5,801,282
5,800,021		5,799,919	5,800,434	5,802,169	5,802,003	5,801,424
5,800,023		5,799,990	5,800,439	5,802,189	5,802,070	5,801,664
5,800,042		5,800,000	5,800,466	5,802,237	5,802,395	5,801,692
5,800,045		5,800,091	5,800,495	5,802,270	5,799,336	5,801,701
5,800,123		5,800,102	5,800,503	5,802,273	5,799,562	5,801,717
5,800,145		5,800,403	5,800,616	5,802,306	5,799,635	5,801,784
5,800,177		5,800,614	5,800,626	5,802,317	5,799,662	5,802,077
5,800,178		5,801,755	5,800,630	5,802,318	5,799,665	5,802,171
5,800,189		5,801,917	5,800,666	5,802,323	5,799,862	5,802,256
5,800,192	46 :	5,800,406	5,800,738	5,802,324	5,799,865	5,802,304
5,800,199		5,801,919	5,800,747	5,802,330	5,800,090	5,802,305
5,800,558	47 :	5,799,448	5,800,832	5,802,334	5,800,108	5,802,367
5,800,730		5,799,453	5,800,890	5,802,340	5,800,269	5,802,380
5,800,889		5,799,531	5,801,054	5,802,346	5,800,361	5,802,511
5,800,904		5,799,535	5,801,075	5,802,350	5,800,425	5,802,526
5,800,927		5,799,647	5,801,076	5,802,355	5,800,574	5,802,590
5,800,931		5,799,839	5,801,088	5,802,356	5,800,675	5,801,278
5,801,009		5,800,049	5,801,091	5,802,362	5,800,934	5,801,392
5,801,041		5,800,067	5,801,098	5,802,377	5,801,759	5,802,182
5,801,116		5,800,077	5,801,113	5,802,378	5,801,790	RE 35,882
5,801,177		5,800,276	5,801,188	5,802,383	5,802,145	5,799,396
5,801,190		5,800,360	5,801,229	5,802,386	5,802,146	5,799,465
5,801,198		5,800,363	5,801,259	5,802,461	5,802,195	5,799,467
5,801,210		5,800,546	5,801,328	5,802,466	5,802,211	5,799,514
5,801,217		5,800,578	5,801,332	5,802,468	5,802,283	5,799,615
5,801,228		5,800,897	5,801,364	5,802,474	5,802,388	5,799,687
5,801,234		5,801,133	5,801,366	5,802,483	5,802,425	5,799,774
5,801,247		5,801,206	5,801,396	5,802,541	5,802,495	5,799,841
5,801,290		5,801,326	5,801,411	5,802,549	5,799,495	5,799,885
5,801,379		5,802,197	5,801,437	5,802,555	5,799,688	5,799,916
5,801,558		5,802,389	5,801,454	5,802,556	5,799,767	5,800,078
5,801,762	48 :	5,799,418	5,801,522	5,802,559	5,799,778	5,800,221
5,801,789		5,799,427	5,801,524	5,802,562	5,799,787	5,800,417
5,801,804		5,799,446	5,801,549	5,802,567	5,799,849	5,800,652
5,801,881		5,799,507	5,801,563	5,802,571	5,799,956	5,800,758
5,802,090		5,799,605	5,801,634	5,802,572	5,800,016	5,800,846
5,802,091		5,799,616	5,801,639	5,802,573	5,800,044	5,800,851
5,802,116		5,799,686	5,801,652	5,802,581	5,800,356	5,800,894
5,802,136		5,799,726	5,801,654	5,802,586	5,800,385	5,800,899
5,802,228		5,799,732	5,801,666	5,802,588	5,800,460	5,801,164
5,802,268		5,799,733	5,801,697	5,802,597	5,800,478	5,801,685
5,802,360		5,799,812	5,801,707	5,799,377	5,800,500	5,801,924
5,802,382		5,799,842	5,801,721	5,799,601	5,800,544	5,800,651
5,802,387		5,799,884	5,801,820	5,799,690	5,800,568	

DESIGN PATENTS

01 :	397,782	397,716	397,748	397,643	397,787	397,545
	397,783	397,717	397,810	397,751	397,812	397,584
04 :	397,668	397,718	397,556	397,798	397,820	397,599
	397,747	397,724	397,597	397,555	397,822	397,607
	397,765	397,734	397,641	397,592	397,831	397,631
	397,792	397,743	397,689	397,604	397,833	397,639
	397,793	397,749	397,694	397,615	397,695	397,644
	397,802	397,752	397,704	397,672	397,700	397,645
05 :	397,816	397,760	397,774	397,685	397,740	397,750
06 :	397,536	397,789	397,819	397,808	397,759	397,804
	397,550	397,791	397,566	397,611	397,801	45 : 397,649
	397,582	397,811	397,570	397,701	397,832	397,754
	397,583	397,818	397,657	397,755	39 : 397,563	47 : 397,690
	397,593	397,821	397,737	397,551	397,568	397,781
	397,595	397,826	397,763	397,553	397,585	397,795
	397,598	397,571	397,656	397,614	397,613	48 : 397,549
	397,608	397,658	397,540	397,535	397,647	397,552
	397,612	397,777	397,565	397,543	397,648	397,630
	397,617	397,799	397,629	397,591	397,651	397,632
	397,621	397,580	397,662	397,633	397,677	397,735
	397,626	397,609	397,572	397,659	397,702	397,758
	397,627	397,671	397,731	397,732	397,729	397,764
	397,637	397,779	397,594	397,803	397,756	49 : 397,548
	397,640	397,567	397,634	397,815	397,757	397,696
	397,661	397,577	397,542	397,569	397,784	51 : 397,539
	397,665	397,554	397,564	397,573	397,788	397,600
	397,669	397,586	397,590	397,576	397,824	397,642
	397,674	397,601	397,827	397,587	397,697	53 : 397,541
	397,675	397,618	397,775	397,588	397,581	397,575
	397,676	397,721	397,829	397,667	397,602	397,578
	397,679	397,560	397,830	397,691	397,660	397,692
	397,686	397,606	397,561	397,713	397,703	397,603
	397,687	397,673	397,562	397,785	397,733	397,744
	397,693	397,680	397,596	397,786	42 : 397,544	397,772

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

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PLANT PATENTS

06 :	10,577	12 :	10,582	22 :	10,579	10,581
	10,578		10,583		10,580	

STATUTORY INVENTION REGISTRATIONS

39 :	H1,750	48 :	H1,749			
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William Daley, *Secretary*
PATENT AND TRADEMARK OFFICE
Bruce Lehman, *Commissioner*

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OFFICIAL GAZETTE

of the
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

September 8, 1998



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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:		
Transmittal fee	240.00	
Search Fee		
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)		
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00	
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00	
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00	
European Patent Office as ISA	1250.00	
International fees		
Basic fee	455.00	
Basic supplemental fee (for each page over 30)	10.00	
Designation fee per country or region		
— For the first 11 national or regional offices designated	105.00	
— For each designation in excess of 11 offices	No Charge	
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)		
— Designation fee	105.00	
— Confirmation fee	52.50	
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:		
Handling fee	162.00	
Preliminary examination fee		

USPTO as International Preliminary Examining Authority (IPEA)		
— USPTO was ISA in PCT Chapter I	490.00	
— Additional examination fee, per additional invention (payable only upon invitation)	140.00	
— USPTO was not ISA in PCT Chapter I	750.00	
— Additional examination fee, per additional invention (payable only upon invitation)	270.00	

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997
BRUCE A. LEHMAN
Assistant Secretary of Commerce and
Commissioner of Patents and Trademarks

Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on September 5, 1995 for which maintenance fees due at 3 years

and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,446,925 through 5,448,774
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 3, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,044,011 through 5,046,190
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on September 1, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,689,828 through 4,691,386
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f))\$525.00
By other than a small entity\$1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,050.00
By other than a small entity\$2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f))\$1,580.00
By other than a small entity\$3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f))\$65.00
By other than a small entity\$130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable\$700.00
(2) unintentional\$1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED July 1, 1998 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,597,108	06/675,896	07/01/86
4,597,109	06/531,393	07/01/86
4,597,112	06/731,943	07/01/86
4,597,114	06/692,659	07/01/86
4,597,120	06/714,069	07/01/86
4,597,121	06/600,010	07/01/86
4,597,133	06/699,953	07/01/86
4,597,138	06/690,469	07/01/86
4,597,139	06/574,550	07/01/86
4,597,142	06/647,132	07/01/86
4,597,143	06/607,246	07/01/86
4,597,149	06/782,108	07/01/86
4,597,153	06/652,228	07/01/86
4,597,158	06/502,514	07/01/86
4,597,169	06/617,364	07/01/86
4,597,174	06/775,924	07/01/86
4,597,181	06/609,221	07/01/86
4,597,190	06/700,682	07/01/86
4,597,199	06/698,696	07/01/86
4,597,206	06/658,924	07/01/86
4,597,212	06/519,077	07/01/86
4,597,217	06/583,942	07/01/86
4,597,219	06/637,116	07/01/86
4,597,220	06/591,794	07/01/86
4,597,229	06/617,043	07/01/86
4,597,233	06/586,418	07/01/86
4,597,234	06/568,083	07/01/86
4,597,243	06/634,029	07/01/86
4,597,251	06/729,861	07/01/86
4,597,268	06/698,482	07/01/86
4,597,274	06/711,969	07/01/86
4,597,287	06/651,827	07/01/86
4,597,288	06/715,496	07/01/86
4,597,290	06/601,838	07/01/86
4,597,293	06/689,955	07/01/86
4,597,297	06/584,367	07/01/86
4,597,304	06/658,525	07/01/86
4,597,305	06/618,883	07/01/86
4,597,324	06/599,777	07/01/86
4,597,338	06/671,316	07/01/86
4,597,341	06/736,670	07/01/86
4,597,346	06/589,511	07/01/86
4,597,351	06/507,946	07/01/86
4,597,353	06/657,015	07/01/86
4,597,361	06/585,131	07/01/86
4,597,368	06/705,143	07/01/86
4,597,372	06/753,602	07/01/86
4,597,374	06/387,439	07/01/86
4,597,377	06/658,754	07/01/86
4,597,379	06/478,813	07/01/86
4,597,381	06/671,355	07/01/86
4,597,385	06/689,711	07/01/86
4,597,390	06/595,818	07/01/86
4,597,399	06/682,365	07/01/86
4,597,403	06/474,829	07/01/86
4,597,409	06/779,606	07/01/86
4,597,416	06/652,747	07/01/86
4,597,428	06/575,864	07/01/86
4,597,433	06/639,307	07/01/86
4,597,436	06/551,725	07/01/86

Patent Number	Serial Number	Issue Date	4,597,905	06/644,914	07/01/86
4,597,442	06/705,773	07/01/86	4,597,910	06/796,128	07/01/86
4,597,448	06/546,530	07/01/86	4,597,914	06/507,156	07/01/86
4,597,455	06/719,613	07/01/86	4,597,915	06/573,488	07/01/86
4,597,458	06/663,568	07/01/86	4,597,925	06/752,033	07/01/86
4,597,463	06/573,034	07/01/86	4,597,935	06/718,205	07/01/86
4,597,466	06/737,654	07/01/86	4,597,942	06/523,050	07/01/86
4,597,475	06/525,051	07/01/86	4,597,946	06/728,969	07/01/86
4,597,478	06/629,503	07/01/86	4,597,948	06/569,439	07/01/86
4,597,487	06/518,148	07/01/86	4,597,952	06/747,955	07/01/86
4,597,509	06/671,120	07/01/86	4,597,953	06/703,323	07/01/86
4,597,513	06/633,720	07/01/86	4,597,954	06/427,958	07/01/86
4,597,514	06/546,022	07/01/86	4,597,956	06/707,804	07/01/86
4,597,525	06/712,727	07/01/86	4,597,959	06/373,342	07/01/86
4,597,527	06/553,037	07/01/86	4,597,975	06/540,372	07/01/86
4,597,528	06/659,422	07/01/86	4,597,976	06/558,907	07/01/86
4,597,530	06/655,890	07/01/86	4,597,978	06/686,882	07/01/86
4,597,541	06/665,663	07/01/86	4,597,982	06/549,400	07/01/86
4,597,545	06/732,457	07/01/86	4,597,990	06/769,979	07/01/86
4,597,551	06/709,640	07/01/86	4,597,992	06/688,550	07/01/86
4,597,559	06/719,065	07/01/86	4,597,993	06/661,157	07/01/86
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4,597,611	06/646,118	07/01/86	4,598,049	06/528,053	07/01/86
4,597,612	06/698,455	07/01/86	4,598,050	06/557,447	07/01/86
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4,597,649	06/546,501	07/01/86	4,598,078	06/543,496	07/01/86
4,597,651	06/522,230	07/01/86	4,598,094	06/780,054	07/01/86
4,597,652	06/621,413	07/01/86	4,598,098	06/756,898	07/01/86
4,597,660	06/356,543	07/01/86	4,598,100	06/756,896	07/01/86
4,597,674	06/595,561	07/01/86	4,598,101	06/759,776	07/01/86
4,597,686	06/617,972	07/01/86	4,598,107	06/763,157	07/01/86
4,597,688	06/651,016	07/01/86	4,598,112	06/650,448	07/01/86
4,597,701	06/701,850	07/01/86	4,598,113	06/765,641	07/01/86
4,597,702	06/581,560	07/01/86	4,598,117	06/691,027	07/01/86
4,597,706	06/674,502	07/01/86	4,598,119	06/466,767	07/01/86
4,597,715	06/612,411	07/01/86	4,598,120	06/724,140	07/01/86
4,597,723	06/385,611	07/01/86	4,598,121	06/741,359	07/01/86
4,597,737	06/641,610	07/01/86	4,598,122	06/693,484	07/01/86
4,597,754	06/577,757	07/01/86	4,598,138	06/548,693	07/01/86
4,597,764	06/655,622	07/01/86	4,598,140	06/652,531	07/01/86
4,597,766	06/665,546	07/01/86	4,598,142	06/727,983	07/01/86
4,597,768	06/506,330	07/01/86	4,598,144	06/710,557	07/01/86
4,597,773	06/635,871	07/01/86	4,598,145	06/600,232	07/01/86
4,597,779	06/706,371	07/01/86	4,598,147	06/676,608	07/01/86
4,597,785	06/636,525	07/01/86	4,598,155	06/441,829	07/01/86
4,597,790	06/736,329	07/01/86	4,598,158	06/456,978	07/01/86
4,597,792	06/742,830	07/01/86	4,598,161	06/481,927	07/01/86
4,597,805	06/702,177	07/01/86	4,598,166	06/638,176	07/01/86
4,597,812	06/581,811	07/01/86	4,598,169	06/563,979	07/01/86
4,597,825	06/718,987	07/01/86	4,598,174	06/670,084	07/01/86
4,597,829	06/709,278	07/01/86	4,598,181	06/670,083	07/01/86
4,597,834	06/581,344	07/01/86	4,598,188	06/665,714	07/01/86
4,597,835	06/675,695	07/01/86	4,598,196	06/629,368	07/01/86
4,597,841	06/693,946	07/01/86	4,598,197	06/519,675	07/01/86
4,597,844	06/711,018	07/01/86	4,598,202	06/615,336	07/01/86
4,597,847	06/658,738	07/01/86	4,598,203	06/663,945	07/01/86
4,597,851	06/624,105	07/01/86	4,598,208	06/742,652	07/01/86
4,597,854	06/755,767	07/01/86	4,598,214	06/547,524	07/01/86
4,597,863	06/594,280	07/01/86	4,598,217	06/591,281	07/01/86
4,597,870	06/736,869	07/01/86	4,598,224	06/763,164	07/01/86
4,597,877	06/696,489	07/01/86	4,598,230	06/591,743	07/01/86
4,597,883	06/733,894	07/01/86	4,598,239	06/566,184	07/01/86
4,597,886	06/660,606	07/01/86	4,598,253	06/651,231	07/01/86
4,597,889	06/645,588	07/01/86	4,598,254	06/630,240	07/01/86
4,597,890	06/702,289	07/01/86	4,598,259	06/678,330	07/01/86
4,597,893	06/501,367	07/01/86	4,598,261	06/737,627	07/01/86
4,597,894	06/597,456	07/01/86	4,598,266	06/653,411	07/01/86
4,597,904	06/641,607	07/01/86	4,598,268	06/506,572	07/01/86
			4,598,272	06/638,197	07/01/86

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Patent Number	Serial Number	Issue Date	4,936,134	07/392,627	06/26/90
4,598,278	06/461,081	07/01/86	4,936,136	07/338,085	06/26/90
4,598,282	06/478,944	07/01/86	4,936,140	07/146,930	06/26/90
4,598,283	06/621,824	07/01/86	4,936,142	07/203,472	06/26/90
4,598,304	06/790,781	07/01/86	4,936,144	07/424,115	06/26/90
4,598,305	06/621,340	07/01/86	4,936,148	07/258,620	06/26/90
4,598,308	06/596,053	07/01/86	4,936,152	07/357,770	06/26/90
4,598,310	06/546,685	07/01/86	4,936,154	07/383,049	06/26/90
4,598,313	06/666,852	07/01/86	4,936,168	07/468,275	06/26/90
4,598,316	06/532,333	07/01/86	4,936,171	07/301,156	06/26/90
4,598,327	06/749,694	07/01/86	4,936,173	07/026,485	06/26/90
4,598,349	06/646,711	07/01/86	4,936,179	07/102,348	06/26/90
4,598,354	06/561,217	07/01/86	4,936,180	07/295,232	06/26/90
4,598,355	06/545,901	07/01/86	4,936,182	07/320,939	06/26/90
4,598,359	06/481,225	07/01/86	4,936,185	07/136,818	06/26/90
4,598,362	06/506,363	07/01/86	4,936,187	07/341,598	06/26/90
4,598,365	06/481,224	07/01/86	4,936,188	07/406,931	06/26/90
4,598,369	06/490,457	07/01/86	4,936,189	07/414,172	06/26/90
4,598,380	06/640,431	07/01/86	4,936,190	07/409,901	06/26/90
4,598,384	06/487,660	07/01/86	4,936,194	07/318,695	06/26/90
4,598,388	06/693,417	07/01/86	4,936,197	07/383,860	06/26/90
4,598,389	06/656,283	07/01/86	4,936,202	07/362,347	06/26/90
4,598,390	06/624,489	07/01/86	4,936,208	07/342,404	06/26/90
4,598,402	06/549,462	07/01/86	4,936,212	07/345,407	06/26/90
4,598,404	06/564,137	07/01/86	4,936,214	07/373,692	06/26/90
4,598,405	06/565,567	07/01/86	4,936,222	07/273,196	06/26/90
4,598,412	06/700,082	07/01/86	4,936,229	07/357,956	06/26/90
4,598,414	06/665,089	07/01/86	4,936,231	07/392,463	06/26/90
4,935,964	07/367,797	06/26/90	4,936,232	07/334,889	06/26/90
4,935,969	07/260,280	06/26/90	4,936,234	07/347,038	06/26/90
4,935,970	07/336,385	06/26/90	4,936,242	07/419,653	06/26/90
4,935,974	07/419,251	06/26/90	4,936,247	07/354,463	06/26/90
4,935,980	07/367,887	06/26/90	4,936,252	07/362,362	06/26/90
4,935,983	07/216,179	06/26/90	4,936,265	07/428,496	06/26/90
4,935,984	07/308,045	06/26/90	4,936,268	07/292,903	06/26/90
4,935,988	07/372,187	06/26/90	4,936,285	07/229,277	06/26/90
4,935,991	07/282,742	06/26/90	4,936,286	07/331,062	06/26/90
4,935,996	07/342,860	06/26/90	4,936,288	07/415,704	06/26/90
4,936,000	07/327,384	06/26/90	4,936,290	07/419,653	06/26/90
4,936,002	07/332,188	06/26/90	4,936,293	07/354,463	06/26/90
4,936,004	07/324,984	06/26/90	4,936,296	07/362,362	06/26/90
4,936,006	07/317,821	06/26/90	4,936,300	07/428,496	06/26/90
4,936,021	07/360,319	06/26/90	4,936,303	07/292,903	06/26/90
4,936,032	07/311,315	06/26/90	4,936,308	07/229,277	06/26/90
4,936,034	07/338,102	06/26/90	4,936,309	07/331,062	06/26/90
4,936,037	07/375,958	06/26/90	4,936,315	07/375,477	06/26/90
4,936,039	07/428,924	06/26/90	4,936,322	07/223,924	06/26/90
4,936,043	07/355,997	06/26/90	4,936,328	07/402,233	06/26/90
4,936,047	07/186,659	06/26/90	4,936,329	07/328,317	06/26/90
4,936,055	07/243,926	06/26/90	4,936,331	07/339,062	06/26/90
4,936,056	07/291,773	06/26/90	4,936,337	07/382,864	06/26/90
4,936,060	07/258,195	06/26/90	4,936,339	07/235,875	06/26/90
4,936,066	07/303,161	06/26/90	4,936,341	07/365,589	06/26/90
4,936,067	07/367,176	06/26/90	4,936,344	07/241,292	06/26/90
4,936,068	07/228,248	06/26/90	4,936,347	07/366,137	06/26/90
4,936,079	07/279,827	06/26/90	4,936,351	07/360,431	06/26/90
4,936,083	07/382,189	06/26/90	4,936,355	07/308,610	06/26/90
4,936,084	07/334,092	06/26/90	4,936,359	07/216,011	06/26/90
4,936,088	07/252,778	06/26/90	4,936,360	07/334,575	06/26/90
4,936,092	07/276,992	06/26/90	4,936,371	07/353,714	06/26/90
4,936,093	07/234,523	06/26/90	4,936,378	07/170,788	06/26/90
4,936,097	07/268,063	06/26/90	4,936,392	07/430,430	06/26/90
4,936,103	07/371,607	06/26/90	4,936,397	07/275,677	06/26/90
4,936,104	07/333,129	06/26/90	4,936,400	07/245,830	06/26/90
4,936,105	07/415,105	06/26/90	4,936,401	07/205,845	06/26/90
4,936,107	07/268,857	06/26/90	4,936,408	07/285,615	06/26/90
4,936,108	07/371,727	06/26/90	4,936,417	07/360,671	06/26/90
4,936,114	07/370,876	06/26/90	4,936,422	07/149,751	06/26/90
4,936,115	07/194,961	06/26/90	4,936,426	07/260,251	06/26/90
4,936,117	06/801,388	06/26/90	4,936,427	07/230,551	06/26/90
4,936,118	07/199,240	06/26/90	4,936,436	07/005,246	06/26/90
4,936,120	07/336,715	06/26/90	4,936,439	07/221,931	06/26/90
4,936,121	07/256,487	06/26/90	4,936,441	07/190,878	06/26/90
4,936,123	07/375,427	06/26/90	4,936,442	07/360,202	06/26/90
4,936,124	07/382,912	06/26/90	4,936,462	07/325,132	06/26/90
4,936,125	07/227,301	06/26/90	4,936,463	07/384,787	06/26/90
4,936,126	07/194,969	06/26/90	4,936,465	07/261,765	06/26/90
4,936,132	07/180,785	06/26/90	4,936,478	07/231,967	06/26/90
			4,936,479	07/364,836	06/26/90
				07/352,155	06/26/90
				4,936,771	06/26/90
				4,936,779	06/26/90
				4,936,781	06/26/90
				4,936,784	06/26/90
				4,936,786	06/26/90
				4,936,787	06/26/90

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4,936,481	07/144,560	06/26/90	4,936,791	07/383,508	06/26/90
4,936,482	07/335,566	06/26/90	4,936,797	07/342,302	06/26/90
4,936,487	07/264,531	06/26/90	4,936,805	07/224,160	06/26/90
4,936,491	07/425,260	06/26/90	4,936,814	07/276,264	06/26/90
4,936,492	07/301,778	06/26/90	4,936,827	07/179,985	06/26/90
4,936,495	07/309,141	06/26/90	4,936,831	07/377,135	06/26/90
4,936,497	07/289,045	06/26/90	4,936,833	07/237,147	06/26/90
4,936,503	07/355,964	06/26/90	4,936,835	07/288,858	06/26/90
4,936,506	07/270,232	06/26/90	4,936,854	07/288,461	06/26/90
4,936,508	07/346,525	06/26/90	4,936,861	07/255,051	06/26/90
4,936,513	07/139,649	06/26/90	4,936,864	07/246,624	06/26/90
4,936,519	06/714,856	06/26/90	4,936,874	07/129,120	06/26/90
4,936,522	07/331,502	06/26/90	4,936,876	07/119,553	06/26/90
4,936,528	07/192,731	06/26/90	4,936,886	07/378,836	06/26/90
4,936,536	07/380,315	06/26/90	4,936,889	07/246,859	06/26/90
4,936,539	07/189,230	06/26/90	4,936,910	07/395,490	06/26/90
4,936,541	07/354,362	06/26/90	4,936,912	07/211,732	06/26/90
4,936,542	07/329,253	06/26/90	4,936,915	07/223,220	06/26/90
4,936,546	07/316,755	06/26/90	4,936,925	07/389,169	06/26/90
4,936,550	07/422,672	06/26/90	4,936,927	07/283,746	06/26/90
4,936,554	07/253,430	06/26/90	4,936,933	07/278,779	06/26/90
4,936,559	07/273,024	06/26/90	4,936,942	07/206,004	06/26/90
4,936,566	07/238,308	06/26/90	4,936,943	07/207,505	06/26/90
4,936,571	07/323,261	06/26/90	4,936,946	06/904,877	06/26/90
4,936,572	07/415,704	06/26/90	4,936,948	07/406,459	06/26/90
4,936,580	07/419,653	06/26/90	4,936,958	07/298,019	06/26/90
4,936,581	07/354,463	06/26/90	4,936,963	07/356,590	06/26/90
4,936,584	07/362,362	06/26/90	4,936,969	07/290,704	06/26/90
4,936,585	07/428,496	06/26/90	4,936,970	07/270,186	06/26/90
4,936,588	07/292,903	06/26/90	4,936,971	07/175,472	06/26/90
4,936,589	07/229,277	06/26/90	4,936,990	07/345,949	06/26/90
4,936,598	07/331,062	06/26/90	4,936,995	07/194,753	06/26/90
4,936,601	07/375,477	06/26/90	4,936,999	07/214,564	06/26/90
4,936,602	07/223,924	06/26/90	4,937,009	07/108,100	06/26/90
4,936,614	07/402,233	06/26/90	4,937,013	07/247,427	06/26/90
4,936,622	07/328,317	06/26/90	4,937,017	07/385,460	06/26/90
4,936,624	07/339,062	06/26/90	4,937,019	07/246,263	06/26/90
4,936,627	07/382,864	06/26/90	4,937,020	07/292,696	06/26/90
4,936,639	07/235,875	06/26/90	4,937,022	07/165,308	06/26/90
4,936,644	07/365,589	06/26/90	4,937,030	07/388,686	06/26/90
4,936,647	07/241,292	06/26/90	4,937,038	07/281,212	06/26/90
4,936,648	07/366,137	06/26/90	4,937,041	07/305,534	06/26/90
4,936,651	07/360,431	06/26/90	4,937,048	06/575,149	06/26/90
4,936,662	07/308,610	06/26/90	4,937,049	07/159,379	06/26/90
4,936,672	07/216,011	06/26/90	4,937,051	07/074,760	06/26/90
4,936,674	07/334,575	06/26/90	4,937,058	07/311,400	06/26/90
4,936,675	07/353,714	06/26/90	4,937,059	07/249,548	06/26/90
4,936,678	07/170,788	06/26/90	4,937,062	07/164,555	06/26/90
4,936,686	07/430,430	06/26/90	4,937,065	07/281,934	06/26/90
4,936,687	07/275,677	06/26/90	4,937,070	07/433,008	06/26/90
4,936,695	07/245,830	06/26/90	4,937,079	07/138,400	06/26/90
4,936,698	07/205,845	06/26/90	4,937,080	07/238,612	06/26/90
4,936,699	07/285,615	06/26/90	4,937,081	07/144,042	06/26/90
4,936,702	07/360,671	06/26/90	4,937,084	06/682,366	06/26/90
4,936,703	07/149,751	06/26/90	4,937,100	07/230,049	06/26/90
4,936,704	07/260,251	06/26/90	4,937,109	07/386,995	06/26/90
4,936,706	07/230,551	06/26/90	4,937,110	07/222,589	06/26/90
4,936,712	07/005,246	06/26/90	4,937,114	07/348,535	06/26/90
4,936,718	07/221,931	06/26/90	4,937,116	07/312,184	06/26/90
4,936,729	07/190,878	06/26/90	4,937,124	07/360,252	06/26/90
4,936,733	07/360,202	06/26/90	4,937,125	07/208,073	06/26/90
4,936,743	07/325,132	06/26/90	4,937,128	07/248,360	06/26/90
4,936,744	07/384,787	06/26/90	4,937,129	07/293,121	06/26/90
4,936,750	07/261,765	06/26/90	4,937,130	07/298,390	06/26/90
4,936,758	07/231,967	06/26/90	4,937,132	07/288,370	06/26/90
4,936,760	07/364,836	06/26/90	4,937,144	07/362,772	06/26/90
4,936,767	07/352,155	06/26/90	4,937,145	07/273,546	06/26/90
4,936,771	07/369,345	06/26/90	4,937,147	07/335,248	06/26/90
4,936,779	07/391,103	06/26/90	4,937,155	07/374,152	06/26/90
4,936,781	07/393,344	06/26/90	4,937,158	07/349,867	06/26/90
4,936,784	07/357,130	06/26/90	4,937,162	07/283,409	06/26/90
4,936,786	07/348,328	06/26/90	4,937,163	07/302,512	06/26/90
4,936,787	07/348,327	06/26/90	4,937,174	07/380,029	06/26/90
			4,937,175	07/299,201	06/26/90

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4,937,181	07/420,933	06/26/90	4,937,472	07/103,688	06/26/90
4,937,183	07/152,209	06/26/90	4,937,481	07/297,067	06/26/90
4,937,196	07/395,655	06/26/90	4,937,491	07/243,366	06/26/90
4,937,198	07/386,904	06/26/90	4,937,492	07/276,830	06/26/90
4,937,203	07/414,895	06/26/90	4,937,494	06/846,166	06/26/90
4,937,207	07/305,821	06/26/90	4,937,495	07/298,271	06/26/90
4,937,209	07/248,437	06/26/90	4,937,498	07/255,079	06/26/90
4,937,210	07/248,422	06/26/90	4,937,500	07/212,546	06/26/90
4,937,221	07/364,473	06/26/90	4,937,501	07/238,022	06/26/90
4,937,225	07/072,117	06/26/90	4,937,504	07/239,111	06/26/90
4,937,226	07/220,166	06/26/90	4,937,505	07/187,622	06/26/90
4,937,228	07/305,580	06/26/90	4,937,516	07/266,173	06/26/90
4,937,236	07/445,487	06/26/90	4,937,520	07/409,750	06/26/90
4,937,237	07/290,057	06/26/90	4,937,522	07/262,550	06/26/90
4,937,238	07/253,358	06/26/90	4,937,524	07/342,210	06/26/90
4,937,241	07/290,058	06/26/90	4,937,527	07/364,699	06/26/90
4,937,243	07/136,913	06/26/90	4,937,529	07/303,787	06/26/90
4,937,246	07/274,975	06/26/90	4,937,530	07/338,974	06/26/90
4,937,247	07/101,081	06/26/90	4,937,531	07/241,307	06/26/90
4,937,248	07/135,654	06/26/90	4,937,532	07/244,485	06/26/90
4,937,249	07/262,575	06/26/90	4,937,543	07/291,261	06/26/90
4,937,252	07/283,809	06/26/90	4,937,544	07/282,579	06/26/90
4,937,256	07/356,552	06/26/90	4,937,545	07/295,218	06/26/90
4,937,267	07/024,145	06/26/90	4,937,548	07/426,415	06/26/90
4,937,269	07/258,173	06/26/90	4,937,551	07/305,641	06/26/90
4,937,280	07/303,954	06/26/90	4,937,555	07/332,901	06/26/90
4,937,281	07/286,786	06/26/90	4,937,559	07/396,112	06/26/90
4,937,287	07/156,728	06/26/90	4,937,566	07/181,704	06/26/90
4,937,297	07/189,226	06/26/90	4,937,567	07/014,176	06/26/90
4,937,300	07/374,792	06/26/90	4,937,569	07/212,068	06/26/90
4,937,302	07/295,653	06/26/90	4,937,578	07/322,940	06/26/90
4,937,305	07/251,064	06/26/90	4,937,584	07/288,184	06/26/90
4,937,306	07/266,463	06/26/90	4,937,585	07/094,511	06/26/90
4,937,307	07/344,624	06/26/90	4,937,590	07/365,663	06/26/90
4,937,311	07/336,692	06/26/90	4,937,599	07/195,711	06/26/90
4,937,313	07/369,195	06/26/90	4,937,612	07/391,770	06/26/90
4,937,319	07/370,929	06/26/90	4,937,619	07/307,513	06/26/90
4,937,324	07/152,383	06/26/90	4,937,627	07/296,433	06/26/90
4,937,325	07/282,740	06/26/90	4,937,633	07/382,889	06/26/90
4,937,327	07/185,104	06/26/90	4,937,639	07/257,577	06/26/90
4,937,329	07/269,752	06/26/90	4,937,661	07/217,259	06/26/90
4,937,331	07/173,381	06/26/90	4,937,667	07/371,602	06/26/90
4,937,340	07/320,143	06/26/90	4,937,675	07/169,928	06/26/90
4,937,356	07/391,692	06/26/90	4,937,693	07/260,846	06/26/90
4,937,360	07/373,338	06/26/90	4,937,696	07/351,300	06/26/90
4,937,361	07/305,033	06/26/90	4,937,703	07/282,723	06/26/90
4,937,371	07/422,095	06/26/90	4,937,708	07/045,611	06/26/90
4,937,373	07/282,100	06/26/90	4,937,710	07/182,692	06/26/90
4,937,377	07/439,228	06/26/90	4,937,718	07/283,094	06/26/90
4,937,381	06/856,428	06/26/90	4,937,726	07/373,681	06/26/90
4,937,383	07/246,985	06/26/90	4,937,729	07/353,130	06/26/90
4,937,386	07/373,446	06/26/90	4,937,744	07/219,598	06/26/90
4,937,388	07/114,038	06/26/90	4,937,745	07/130,315	06/26/90
4,937,389	07/212,509	06/26/90	4,937,747	07/157,549	06/26/90
4,937,395	07/379,827	06/26/90	4,937,752	07/290,136	06/26/90
4,937,397	07/276,713	06/26/90	4,937,763	07/240,262	06/26/90
4,937,399	07/283,680	06/26/90	4,937,768	07/319,604	06/26/90
4,937,405	07/319,135	06/26/90	4,937,769	07/207,354	06/26/90
4,937,406	07/284,711	06/26/90	4,937,776	07/283,730	06/26/90
4,937,414	07/242,996	06/26/90	4,937,796	07/295,436	06/26/90
4,937,416	07/315,156	06/26/90	4,937,800	07/230,396	06/26/90
4,937,418	07/361,955	06/26/90	4,937,806	07/159,536	06/26/90
4,937,426	07/291,304	06/26/90	4,937,821	07/007,058	06/26/90
4,937,428	07/275,518	06/26/90	4,937,825	07/207,097	06/26/90
4,937,437	07/015,578	06/26/90	4,937,833	07/436,935	06/26/90
4,937,439	07/193,864	06/26/90	4,937,838	07/250,438	06/26/90
4,937,442	06/500,206	06/26/90	4,937,842	07/314,335	06/26/90
4,937,443	07/386,176	06/26/90	4,937,848	07/343,739	06/26/90
4,937,448	07/199,241	06/26/90	4,937,851	07/345,017	06/26/90
4,937,449	07/231,966	06/26/90	4,937,855	07/154,772	06/26/90
4,937,451	07/321,357	06/26/90	4,937,860	07/205,844	06/26/90
4,937,454	07/273,572	06/26/90	4,937,861	07/227,720	06/26/90
4,937,466	07/250,905	06/26/90	4,937,867	07/346,282	06/26/90
			4,937,875	07/401,299	06/26/90

Patents Reinstated Due to the Acceptance of a Late Maintenance Fee From 07/03/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,806,099	07/115,198	11/02/87	02/21/89	07/06/98
5,240,668	07/566,034	08/13/90	08/31/93	07/06/98
5,277,111	07/878,435	05/04/92	01/11/94	07/06/98
5,279,828	08/021,564	02/24/93	01/18/94	07/06/98
5,280,398	08/008,214	01/25/93	01/18/94	07/06/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

5,239,417, Re. S.N. 08/518,325, Aug. 23, 1995, Cl. 359/823, LENS BARREL FOR AUTOMATIC FOCUSING CAMERA, Haruki Eguchi, et. al., Owner of Record: *Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan*, Attorney or Agent: Bruce H. Bernstein, Ex. Gp.: 2516

5,396,675, Re. S.N. 09/118,871, Jul. 20, 1998, Cl. 12/142.P, METHOD OF MANUFACTURING A MIDSOLE FOR A SHOE AND CONSTRUCTION THEREFOR, Stephen M. Vincent, et. al., Owner of Record: *Nike Inc., Beaverton, Oreg.*, Attorney or Agent: Alan I. Cantor, Ex. Gp.: 2404

5,449,363, Re. S.N. 08/928,400, Sep. 12, 1997, Cl. 606/128, ENDOSCOPIC LITHOTRIPSY SYSTEM, Thomas E. Brust, et. al., Owner of Record: *Boston Scientific Corp., Natick, Mass.*, Attorney or Agent: Doris Johnson Hines, Ex. Gp.: 3731

5,465,156, Re. S.N. 08/965,844, Nov. 7, 1997, Cl. 358/296, FACSIMILE MACHINE HAVING PRINTER UNIT AND INTERFACE, Yoshihiro Arai, Owner of Record: *Ricoh Co., Ltd., Tokyo, Japan*, Attorney or Agent: Gregory J. Maier, Ex. Gp.: 2722

5,489,611, Re. S.N. 09/034,304, Mar. 2, 1998, Cl. 514/557, METHOD FOR LOWERING PLASMA LEVELS OF LIPO-PROTEIN (A), Helen T. Lee, et. al., Owner of Record: *Warner-Lambert Co., Morris Plains, N.J.*, Attorney or Agent: Todd M. Crissey, Ex. Gp.: 1205

5,525,770, Re. S.N. 09/095,259, Jun. 10, 1998, Cl. 200/006.A, CONTROL-KEY MECHANISM HAVING IMPROVED OPERATION FEELING, Hiroshi Matsumiya, et. al., Owner of Record: *Sega Enterprises, Tokyo, Japan*, Attorney or Agent: Eugene Lieberstein, Ex. Gp.: 2831

5,621,825, Re. S.N. 09/118,474, Jul. 17, 1998, Cl. 385/14, INTEGRATED TUNABLE OPTICAL FILTER, Jan Willems, et. al., Owner of Record: *BUREAU VANDER HAEGHEN, Bruxelles, Belgium*, Attorney or Agent: Bradley I. Hulbert, Ex. Gp.: 2501

5,659,944, Re. S.N. 08/966,368, Nov. 7, 1997, Cl. 029/596, METHOD FOR REPAIRING A CONNECTING DEVICE FOR THE ELECTRICAL CONNECTION AND FOR SUPPLYING AND CARRYING AWAY THE COOLANT TO AND FROM THE HOLLOW CONDUCTOR ELEMENTS OF THE STATOR WINDING BARS OF ELECTRICAL MACHINES, Alfred Thiard-Laforet, et. al., Owner of Record: *Asea Brown Boveri Ag, Baden, Switzerland*, Attorney or Agent: Gregory J. Maier, Ex. Gp.: 3726

Requests for Reexaminations Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,490,209, Re. S.N. 90/005,036, Jul. 2, 1998, Cl. 438/695, PLASMA ETCHING USING HYDROGEN BROMIDE ADDITION, Dennie C. Hartman, Owner of Record: *Texas Instruments Inc., Dallas, Tex.*, Attorney or Agent: Mark A. Valetti, Texas Instruments Inc., Dallas, Tex., Ex. Gp.: 1763, Requester: Owner

5,440,179, Re. S.N. 90/005,039, Jul. 14, 1998, Cl. 307/066, UPS WITH BI-DIRECTIONAL POWER FLOW, Alex J. Sev-erinsky, Owner of Record: *SL Waber, Inc., Mt. Laurel, N.J.*, Attorney or Agent: Banner and Witcoff, Thomas L. Peterson, Washington, D.C., Ex. Gp.: 2836, Requester: Pillsbury Madison and Sutro, Washington, D.C.

5,587,012, Re. S.N. 90/005,037, Jun. 10, 1998, Cl. 106/823, COMPOSITION FOR AND METHOD OF PUMPING CONCRETE, Daniel P. Montgomery, Owner of Record: *Fritz Industries, Inc., Mesquite, Tex.*, Attorney or Agent: Thomas R. Weaver, Duncan, Okla., Ex. Gp.: 1755, Requester: Robert J. Veal, Veal and Associates, Birmingham, Ala.

5,709,457, Re. S.N. 90/005,038, Jul. 13, 1998, Cl. 362/096, DRAINING LAMP BASE/HUSK ASSEMBLY, Kanichi Hara, Owner of Record: *Minami International Corp., Yonkers, N.Y.*, Attorney or Agent: Neal L. Rosenberg, New York, N.Y., Ex. Gp.: 2875, Requester: Donald A. Kettlestrings, Rockville, Md.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED July 20, 1998 DUE TO FAILURE TO RENEW		
Reg. Number	Serial Number	Reg. Date
118,965	71/098,538	10/16/1917
350,868	71/390,246	10/12/1937
350,882	71/391,495	10/12/1937
350,883	71/391,496	10/12/1937
350,884	71/391,497	10/12/1937
350,918	71/393,346	10/12/1937
350,929	71/393,457	10/12/1937
350,932	71/393,612	10/12/1937
350,960	71/394,076	10/12/1937
350,966	71/368,590	10/12/1937
350,968	71/372,030	10/12/1937
350,985	71/387,466	10/12/1937
350,989	71/387,959	10/12/1937
351,003	71/392,323	10/12/1937

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Reg. Number	Serial Number	Reg. Date	1,074,864	73/096,324	10/11/1977
351,014	71/392,661	10/12/1937	1,074,867	73/110,448	10/11/1977
652,887	72/019,846	10/15/1957	1,074,873	73/066,502	10/11/1977
652,888	72/020,390	10/15/1957	1,074,878	73/098,257	10/11/1977
652,891	72/024,190	10/15/1957	1,074,880	73/102,810	10/11/1977
652,892	72/024,372	10/15/1957	1,074,881	73/102,812	10/11/1977
652,895	72/021,248	10/15/1957	1,074,882	73/104,264	10/11/1977
652,898	72/013,971	10/15/1957	1,074,884	73/109,137	10/11/1977
652,905	72/025,787	10/15/1957	1,074,893	73/111,725	10/11/1977
652,914	72/010,555	10/15/1957	1,074,898	73/011,221	10/11/1977
652,915	72/014,575	10/15/1957	1,074,899	73/058,920	10/11/1977
652,918	72/021,331	10/15/1957	1,074,905	73/073,891	10/11/1977
652,920	72/022,546	10/15/1957	1,074,908	73/092,031	10/11/1977
652,921	72/022,778	10/15/1957	1,074,909	73/094,031	10/11/1977
652,930	72/025,286	10/15/1957	1,074,910	73/094,362	10/11/1977
652,932	72/019,730	10/15/1957	1,074,915	73/107,671	10/11/1977
652,933	72/019,731	10/15/1957	1,074,917	73/108,306	10/11/1977
652,934	72/020,388	10/15/1957	1,074,918	73/108,415	10/11/1977
652,941	72/008,530	10/15/1957	1,074,923	73/111,289	10/11/1977
652,951	72/028,089	10/15/1957	1,074,927	73/116,044	10/11/1977
652,952	72/011,605	10/15/1957	1,074,930	73/116,705	10/11/1977
652,955	72/020,227	10/15/1957	1,074,931	73/119,069	10/11/1977
652,972	72/012,883	10/15/1957	1,074,933	73/096,194	10/11/1977
652,973	72/009,783	10/15/1957	1,074,934	73/096,195	10/11/1977
652,983	72/023,079	10/15/1957	1,074,937	73/110,696	10/11/1977
653,020	72/022,244	10/15/1957	1,074,943	73/105,710	10/11/1977
653,028	72/025,167	10/15/1957	1,074,945	73/109,571	10/11/1977
653,032	72/023,200	10/15/1957	1,074,947	73/110,120	10/11/1977
653,035	72/006,081	10/15/1957	1,074,952	73/112,252	10/11/1977
653,040	72/019,807	10/15/1957	1,074,960	73/120,135	10/11/1977
653,043	72/025,235	10/15/1957	1,074,964	73/049,997	10/11/1977
653,055	72/026,273	10/15/1957	1,074,967	73/066,057	10/11/1977
653,058	71/694,789	10/15/1957	1,074,979	73/081,176	10/11/1977
653,065	72/020,115	10/15/1957	1,074,981	73/085,154	10/11/1977
653,070	71/696,663	10/15/1957	1,074,982	73/085,155	10/11/1977
653,083	72/025,190	10/15/1957	1,074,991	73/090,371	10/11/1977
653,093	71/645,251	10/15/1957	1,074,992	73/091,826	10/11/1977
653,095	71/696,921	10/15/1957	1,074,996	73/094,759	10/11/1977
653,096	71/698,958	10/15/1957	1,074,997	73/097,977	10/11/1977
653,104	72/018,761	10/15/1957	1,075,009	73/078,899	10/11/1977
653,108	72/019,906	10/15/1957	1,075,011	73/088,442	10/11/1977
653,111	72/020,639	10/15/1957	1,075,014	73/106,609	10/11/1977
653,113	72/021,163	10/15/1957	1,075,015	73/107,972	10/11/1977
653,121	72/023,629	10/15/1957	1,075,017	73/058,374	10/11/1977
653,123	72/023,678	10/15/1957	1,075,019	73/092,597	10/11/1977
653,137	72/017,165	10/15/1957	1,075,023	73/061,348	10/11/1977
653,141	72/023,712	10/15/1957	1,075,026	73/084,647	10/11/1977
653,151	72/000,052	10/15/1957	1,075,027	73/087,066	10/11/1977
653,159	72/019,843	10/15/1957	1,075,030	73/092,436	10/11/1977
653,171	72/021,581	10/15/1957	1,075,031	73/092,437	10/11/1977
653,181	72/018,015	10/15/1957	1,075,037	73/108,454	10/11/1977
653,187	72/018,851	10/15/1957	1,075,038	73/108,503	10/11/1977
653,188	72/019,001	10/15/1957	1,075,039	73/108,505	10/11/1977
653,192	72/024,266	10/15/1957	1,075,041	73/108,512	10/11/1977
653,202	72/019,859	10/15/1957	1,075,042	73/117,938	10/11/1977
653,205	71/680,627	10/15/1957	1,075,043	73/054,310	10/11/1977
653,218	72/022,862	10/15/1957	1,075,046	73/117,125	10/11/1977
653,225	72/017,968	10/15/1957	1,075,053	73/096,167	10/11/1977
653,232	71/693,084	10/15/1957	1,075,055	73/109,305	10/11/1977
1,074,797	73/068,184	10/11/1977	1,075,056	73/109,537	10/11/1977
1,074,802	73/083,868	10/11/1977	1,075,062	73/082,773	10/11/1977
1,074,808	73/107,853	10/11/1977	1,075,064	73/085,857	10/11/1977
1,074,809	73/108,468	10/11/1977	1,075,068	73/090,171	10/11/1977
1,074,812	73/111,050	10/11/1977	1,075,069	73/091,337	10/11/1977
1,074,815	73/115,950	10/11/1977	1,075,071	73/093,570	10/11/1977
1,074,825	73/099,266	10/11/1977	1,075,078	73/099,346	10/11/1977
1,074,833	73/111,138	10/11/1977	1,075,080	73/102,515	10/11/1977
1,074,836	73/117,318	10/11/1977	1,075,081	73/103,112	10/11/1977
1,074,838	73/091,717	10/11/1977	1,075,082	73/103,555	10/11/1977
1,074,839	73/061,252	10/11/1977	1,075,088	73/109,538	10/11/1977
1,074,840	73/071,056	10/11/1977	1,075,090	73/109,851	10/11/1977
1,074,843	73/091,929	10/11/1977	1,075,092	73/110,169	10/11/1977
1,074,844	73/092,314	10/11/1977	1,075,095	73/113,080	10/11/1977
1,074,846	73/093,264	10/11/1977	1,075,099	73/116,636	10/11/1977
1,074,857	73/109,963	10/11/1977	1,075,102	73/091,461	10/11/1977
1,074,859	73/112,880	10/11/1977	1,075,131	73/110,797	10/11/1977
1,074,861	73/115,309	10/11/1977	1,075,135	73/113,276	10/11/1977
1,074,862	73/049,909	10/11/1977	1,075,141	73/066,495	10/11/1977
			1,075,143	73/084,440	10/11/1977

Reg. Number	Serial Number	Reg. Date	1,075,144	73/086,552	10/11/1977
1,075,145	73/089,805	10/11/1977	1,075,147	73/095,942	10/11/1977
1,075,148	73/097,233	10/11/1977	1,075,151	73/115,971	10/11/1977
1,075,154	73/088,883	10/11/1977	1,075,155	73/090,841	10/11/1977
1,075,157	73/095,425	10/11/1977	1,075,158	73/096,458	10/11/1977
1,075,160	73/098,335	10/11/1977	1,075,164	73/111,034	10/11/1977
1,075,167	73/113,356	10/11/1977	1,075,176	73/116,926	10/11/1977
1,075,180	73/118,757	10/11/1977	1,075,195	73/091,532	10/11/1977
1,075,196	73/096,405	10/11/1977	1,075,197	73/097,768	10/11/1977
1,075,202	73/102,996	10/11/1977	1,075,203	73/117,098	10/11/1977
1,075,206	73/088,083	10/11/1977	1,075,215	73/098,206	10/11/1977
1,075,216	73/099,204	10/11/1977	1,075,218	73/109,988	10/11/1977
1,075,219	73/110,374	10/11/1977	1,075,229	73/096,003	10/11/1977
1,075,233	73/042,571	10/11/1977	1,075,237	73/061,250	10/11/1977
1,075,253	73/098,768	10/11/1977	1,075,265	73/110,788	10/11/1977
1,075,267	73/117,519	10/11/1977	1,075,272	73/105,977	10/11/1977
1,075,273	73/063,591	10/11/1977	1,075,274	73/070,472	10/11/1977
1,075,276	73/079,397	10/11/1977	1,075,278	73/114,281	10/11/1977
1,075,282	73/095,448	10/11/1977	1,075,284	73/121,566	10/11/1977
1,075,286	73/127,346	10/11/1977			

Notice Regarding Technical Center Box Issue Fee Mailings

The Office will begin mailing address labels with the PTOL-85, "Notice of Allowance and Issue Fee Due" for patent applications allowed in all Technology Centers. These address labels should be used to ensure proper routing of post-allowance correspondence. This directive supersedes the "Special Boxes for Patent Mail" instruction. Any Notice of Allowance and Issue Fee Due received without the accompanying address labels should continue to be addressed to Box Issue Fee.

March 11, 1998
NICHOLAS P. GODICI
Deputy Assistant Commissioner
for Patents (Acting)

Public User Identification Passes USPTO Public Search Facilities

The USPTO Public Search Services Division, responsible for the public search facilities in the Patent Search Room and the Trademark Search Library, is installing the new User Identification Pass system announced in the *Official Gazette* dated January 6, 1998. This system will replace the current passes used in the facilities with a new user number and a laminated identification badge. Later reissues of the badge are expected to add a photo of the user. Badges will be reissued every January upon validating and updating identification information. Information will be digitally stored so that validation and reissue will be speedy. There is a \$15 fee for replacement of lost or forgotten badges; first issue and annual reissues are without fee. Badges must be visible at all times within the Patent Office building complex. The new user numbers will be used by the File Information Unit for public users requesting and checking out files.

Patrons using the Patent and Trademark Public Search Facilities as well as office areas must obtain a new badge before

entering the Patent and Trademark Office complex. The process takes five to ten minutes for a first time issue. Effective immediately, equipment is available to issue the new badges for both patent and trademark public users at the Patent Search Room Reception Desk in Crystal Plaza 3, Lobby. The Patent Search Room is open Monday through Friday from 8 AM to 8 PM. The new User Passes will be required after August 15, 1998; old passes will not be valid after this date.

August 3, 1998
WESLEY H. GEWEHR
Administrator
for Information Dissemination

Service by Publication

A petition to cancel the registration identified below having been filed, and the notice of such proceeding sent by certified mail to registrant at the last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrant listed herein, its assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Leisure Technology, Inc., Los Angeles, Calif., Registration No. 1,770,504 for the mark SUNFLOWER AND DESIGN, Cancellation No. 27,110

KATRINA PETERSON
Supervisory Legal Assistant
Trademark Trial
and Appeal Board, for
Robert M. Anderson
Deputy Assistant Commissioner
for Trademarks

Patent Applications and Patents Available For License or Sale

08/828,732	SOAP-SUNTAN OIL/LOTION BRUSH
Contact:	Marlene R. Trent 1746 President St., #C2 Brooklyn, N.Y. 11213 (voice) : (718) 756-7998 (other) : (718) 573-8773
08/864,212	WYE ELECTRICAL COUPLING
Contact:	Mark Grant 2055 E. Technology Cir. Tempe, Ariz. 85284 (voice) : (602) 730-2011 (other) : (602) 254-4608
4,641,987	CLIP FOR SUSPENDED CEILING GRIDWORK
Contact:	Gary R. Schlegel 1449 Plymouth Ave. Irwin, Pa. 15642 (voice) : (724) 864-0589
4,958,907	COMPUTER SCREEN MAGNIFIER
Contact:	Dale G. Davis 31498 York Fraser, Mich. 48026 (voice) : (810) 296-7663
5,007,410	VIBRATING CRIB MATTRESS
Contact:	Sabrena Delaney 122 Dukes Way Savannah, Ga. 31419 (voice) : (912) 920-9901
5,553,352	BIFOLD DOOR REPAIR APPA- RATUS
Contact:	Darcy Bolton 702 C Randolph Ave.

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(voice) : (714) 641-3736
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COMPLEXES AND PROCESSES FOR
MAKING AND USING THE SAME
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259 Congressional Lane
#602
Rockville, Md. 20852
(voice) : (301) 816-0828
- 5,747,055 INSECTICIDAL AND PESTICIDAL
COMPLEX, AND METHOD FOR
DESTROYING INSECTS AND ECTO-
PARASITES
- Contact: Neil F. Greenblum
Greenblum & Bernstein, PLC
1941 Roland Clarke Place
Reston, Va. 20191
(voice) : (703) 716-1191
- 5,775,025 A LIMITED RESISTANCE DIVE-
ACTION BAIT-NAVIGATING
FISHING BOBBER
- Contact: Dorothy Ooten
2271 Bethel Hygiene Rd.
Bethel, Ohio 45106
(voice) : (513) 734-4813
- 5,783,996 PORTABLE GRAVITY ACTIVATED
ALARM DEVICE FOR GOLF BAGS
AND OTHER SIMILAR ITEMS
- Contact: Francis Muszynski
8500 North Golfview Drive
Citrus Springs, Fla. 34434
(voice) : (352) 489-2137

Continued Prosecution Application (CPA) Practice

Summary: This notice will clarify how the Patent and Trademark Office (PTO) processes requests for a continued prosecution application (CPA) under 37 C.F.R. § 1.53(d), indicate that patent examiners act on a CPA with priority, and, in addition, inform the public about a new PTO service to acknowledge receipt of a request for a CPA which has been transmitted by facsimile to the PTO.

First: If a request for a CPA also includes an instruction and/or reference that is inconsistent with the CPA practice (e.g., an instruction "not to abandon the prior application" and/or a reference to a "continuation-in-part CPA" and/or "CPA under 37 C.F.R. § 1.53(b)"), the request will be processed by the PTO solely as a request for a continuation CPA under 37 C.F.R. § 1.53(d) (unless it is also designated as a divisional application, in which case the request will be processed as a request for a divisional CPA under 37 C.F.R. § 1.53(d) and the inconsistent instruction and/or reference will be ignored).

Second: The PTO will treat continuation CPAs, for examination priority purposes only, as if they were "amended" applications (as of the CPA filing date) and not as "new" applications. As "amended" applications generally have a shorter time frame for being acted on by examiners than "new" applications, this treatment (of CPAs as "amended" applications) will result in first Office actions being mailed in continuation CPAs much sooner than if they had been filed as continuations under 37 C.F.R. § 1.53(b) (or under former 37 C.F.R. §§ 1.60 or 1.62). Therefore, applicants are strongly encouraged to file any preliminary amendment in a CPA at the time the CPA is filed.

Third: The PTO shall offer, as a new service, the following: The PTO will acknowledge receipt of a CPA filed by facsimile transmission, if: (1) the CPA is accompanied by a "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) properly identifying the prior application; and (2) the CPA is transmitted by facsimile directly to a technology center/examining group. The PTO will stamp the "Receipt for Facsimile Transmitted

CPA" with the date of receipt of the CPA and return the "Receipt for Facsimile Transmitted CPA" by mail to the mailing address indicated thereon. The CPA request form (PTO/SB/29) has been modified to include a separate "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) which must be used in order to take advantage of this new service.

Discussion: Effective December 1, 1997, the PTO adopted the CPA practice (37 C.F.R. § 1.53(d)) to provide a streamlined procedure to obtain further examination via a continuation/divisional application. See *Changes to Patent Practice and Procedure*; Final Rule Notice, 62 Fed. Reg. 53131 (October 10, 1997), 1203 Off. Gaz. Pat. Office 63 (October 21, 1997), and *Changes to Continued Prosecution Application Practice*; Interim Rule Notice, 63 Fed. Reg. 5732 (February 4, 1998), 1207 Off. Gaz. Pat. Office 83 (February 24, 1998).

With respect to the first subject: A CPA, by definition, is an application filed under 37 C.F.R. § 1.53(d). The filing of a CPA is, by rule, a request to expressly abandon the prior application as of the filing date of the CPA. See 37 C.F.R. § 1.53(d)(2)(v). An applicant may file a continuation or divisional application as a CPA, but a continuation-in-part may not be filed as a CPA. See 37 C.F.R. § 1.53(d)(1); see also 37 C.F.R. § 1.53(b)(2) (a continuation-in-part must be filed under this paragraph) and § 1.53(d)(5) (no amendment in a CPA may introduce new matter or matter that would have been new matter in the prior application). The PTO, however, has received a number of papers requesting a CPA, but also containing some instruction and/or reference that is inconsistent with the CPA practice. Since streamlined processing is the essence of the CPA practice, the PTO will not hold the request to be improper and deny a filing date to a CPA simply because it contains an instruction and/or reference that is inconsistent with the CPA practice. Rather, assuming that the request otherwise meets the requirements to be entitled to a filing date as a CPA (see 37 C.F.R. § 1.53(d)(1)), the inconsistent instruction and/or reference will be ignored and the request will be processed solely as a request for a continuation (or divisional, if so indicated) CPA under 37 C.F.R. § 1.53(d).

If applicant wants the PTO to disregard a previously filed request for a CPA (and not recognize its inherent request to expressly abandon the prior application) and to treat the paper as the filing of an application under 37 C.F.R. § 1.53(b), the applicant must file a petition under 37 C.F.R. § 1.182. A request to expressly abandon an application is not effective until the abandonment is acknowledged, including the express abandonment of the prior application of a CPA that occurs by operation of 37 C.F.R. § 1.53(d)(2)(v). See *Changes to Patent Practice and Procedure*; Training and Implementation Guide, Question and Answer 66 (December 1997). The express abandonment of the prior application is acknowledged and becomes effective upon processing and entry of the CPA into the file of the prior application. Thus, such a petition under 37 C.F.R. § 1.182 should be filed expeditiously since the petition will not be granted once the request for a CPA has been entered into the prior application (and the inherent request to expressly abandon the prior application has been acknowledged). If the request for a CPA has been entered into the prior application by the time the petition under 37 C.F.R. § 1.182 and the application file are before the deciding official for a decision on the petition, the petition will be denied.

It is noted, however, that if the applicant intended to file a second application (either a continuation or a divisional) without abandoning the prior application, applicant can still achieve that result without loss of the benefit of the original filing date by: (1) continuing the prosecution of the original application via the CPA; and (2) filing a new continuation/divisional under 37 C.F.R. § 1.53(b) claiming benefit of the CPA and its parent applications under 35 U.S.C. § 120 during the pendency of the CPA.

Any (new) specification filed with a CPA request will not be considered part of the original CPA papers, but will be treated as a submission of a substitute specification in accordance with 37 C.F.R. § 1.125. See 37 C.F.R. § 1.53(d)(5). Thus, applicant will have to comply with the requirements of 37 C.F.R. § 1.125(b) before the substitute specification will be entered into the CPA. See *Changes to Patent Practice and Procedure*; Training and Implementation Guide, Question and Answer 61.

Since 37 C.F.R. § 1.125(b) requires that a substitute specification be accompanied by, *inter alia*, a statement that the substitute specification includes no new matter, any substitute specification containing new matter will be denied entry by the examiner. Any preliminary amendment to the written description and claims, other than a substitute specification, filed with a CPA request will ordinarily be entered. Any new matter which is entered, however, will be required to be canceled pursuant to 35 U.S.C. § 132 from the descriptive portion of the specification. See Final Rule Notice, 62 Fed. Reg. at 53141, 1203 Off. Gaz. Pat. Office at 71. Further, any claim(s) which relies upon such new matter for support will be rejected under 35 U.S.C. Z§ 112, first paragraph. See MPEP 2163.06.

In the event that a substitute specification or preliminary amendment containing new matter was filed with a request for a CPA, applicant may file a petition under 37 C.F.R. § 1.182 requesting that the substitute specification or preliminary amendment be removed from the CPA application file, and be accorded the status as a separate application by being placed in a new file wrapper and assigned a new application number, with the new application being accorded a filing date as of the date the request for a CPA and substitute specification/preliminary amendment were filed.

Of course, a request for a CPA is not improper simply because the request is accompanied by a substitute specification or preliminary amendment containing new matter. Thus, an applicant will not be entitled to a refund of the filing fee paid in a proper CPA as a result of the granting of a petition under 37 C.F.R. § 1.182 requesting that the substitute specification or preliminary amendment be removed from the CPA application file.

With respect to the second subject: The PTO has received several comments from practitioners who have been surprised at receiving a first Office action (in a CPA application) fairly quickly after filing a request for the CPA. The CPA procedure permits the PTO to perform all pre-examination processing of a CPA in a technology center/examining group to which the prior application is assigned, which reduces the time it takes to provide a first Office action in a CPA. See Final Rule Notice, 62 Fed. Reg. at 53145, 1203 Off. Gaz. Pat. Office at 74 (response to comment 29). In addition, the PTO has decided to treat all continuation CPAs, for examination priority purposes only, as though they are amended applications (as of the filing date of the CPA) which generally results in examiners acting on the CPAs fairly quickly, as amended applications will ordinarily be acted on by examiners within one or two months of docketing of the applications to the examiners. As a result, continuation CPAs would be acted on by an examiner much sooner than if they were treated, for examination priority purposes, as new applications. See Final Rule Notice, 62 Fed. Reg. at 53144, 1203 Off. Gaz. Pat. Office at 74 (comment 27). Therefore, applicants are strongly encouraged to file any preliminary amendment in a CPA at the time the CPA is filed, especially where the preliminary amendment is a resubmission of an amendment filed after final rejection which was denied entry via an advisory action in the prior application. While the PTO consistently encourages applicants to file a complete application in condition for examination, applicants should note that the PTO will not examine a CPA, or any new application, until the appropriate filing fee (37 C.F.R. § 1.16) has been submitted. Applicants should also note, however, that deposit account charge authorizations carry-over to a CPA from the prior application. See *Changes to Patent Practice and Procedure*; Training and Implementation Guide, Question and Answer 39. Thus, an authorization in the prior application to charge all fees, fees under 37 C.F.R. § 1.16, or filing fees to a deposit account in the prior application will be treated as payment of the basic filing fee (and result in a charge to the deposit account) in a CPA of the prior application.

With respect to the third subject: While 37 C.F.R. § 1.6(f) provides a remedy (if the appropriate records are maintained) in the event that a CPA transmitted to the PTO by facsimile is lost, the PTO has received several comments from practitioners indicating that they do not file CPAs by facsimile transmission due to the lack of a prompt acknowledgment of receipt of the CPA by the PTO. To address this concern, the PTO has decided that it will acknowledge receipt of requests for CPAs transmitted to the PTO by facsimile, if: (1) the CPA is accompanied

by a "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) properly identifying the prior application; and (2) the CPA is transmitted by facsimile directly to a technology center/examining group.

The PTO has modified its CPA request form (PTO/SB/29) to include a separate "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A). A CPA request form (PTO/SB/29) including a "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) is appended to this notice for illustrative purposes. Applicants are not required to use the PTO created "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A), or the PTO created CPA request form (PTO/SB/29), when filing a CPA. The PTO, however, will acknowledge receipt of a facsimile transmitted CPA as set out in this notice only if the CPA is accompanied by a copy of the PTO created "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) completed by the applicant, and will not acknowledge non-PTO versions of a "Receipt for Facsimile Transmitted CPA."

A request for a CPA transmitted to the PTO by facsimile should be transmitted directly to the technology center/examining group to which the prior application is assigned. See *Changes to Patent Practice and Procedure*; Training and Implementation Guide, Question and Answer 44. In order to encourage applicants to transmit CPA requests directly to the technology centers/examining groups, the PTO will only acknowledge receipt of a CPA request filed by facsimile transmission where the CPA request is transmitted directly to a technology center/examining group.

All PTO forms, including the CPA request form (PTO/SB/29) and "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A), are available on the PTO Home Page, either individually or in a single zip-compressed file from the PTO ftp server at <ftp://ftp.uspto.gov/pub/forms/>. Individual forms for patent and trademark submissions can also be requested from 800-PTO-8199 or 703-308-HELP. A specimen book of Patent Forms can be purchased for \$25 from the Office of Electronic Information Products, telephone number 703-306-2600.

Applicants filing a CPA by facsimile transmission may include a "Receipt for Facsimile Transmitted CPA" (PTO/SB/29A) containing a mailing address and identifying information (e.g., the prior application number, filing date, title, first named inventor) with the request for a CPA. The PTO will: (1) separate the "Receipt for Facsimile Transmitted CPA" from the CPA request papers; (2) date-stamp the "Receipt for Facsimile Transmitted CPA"; (3) verify that the identifying information provided by the applicant on the "Receipt for Facsimile Transmitted CPA" is the same information provided on the accompanying request for a CPA; and (4) mail the "Receipt for Facsimile Transmitted CPA" to the mailing address provided on the "Receipt for Facsimile Transmitted CPA." The "Receipt for Facsimile Transmitted CPA" cannot be used to acknowledge receipt of any paper(s) other than the request for a CPA.

A returned "Receipt for Facsimile Transmitted CPA" may be used as *prima facie* evidence that a request for a CPA containing the identifying information provided on the "Receipt for Facsimile Transmitted CPA" was filed by facsimile transmission on the date stamped thereon by the PTO. As the PTO will verify only the identifying information contained on the request for a CPA, and will not verify whether the CPA was accompanied by other papers (e.g., a preliminary amendment), the "Receipt for Facsimile Transmitted CPA" cannot be used as evidence that papers other than a CPA were filed by facsimile transmission in the PTO. Likewise, applicant-created "receipts" for acknowledgment of facsimile transmitted papers (whether created for the acknowledgment of a CPA or other papers) cannot be used as evidence that papers were filed by facsimile in the PTO.

Finally, applicants are cautioned not to include information on a "Receipt for Facsimile Transmitted CPA" that is intended for retention in the application file, as the PTO does not plan on retaining a copy of such receipts in the file of the application.

Inquiries regarding this matter should be directed to Fred A. Silverberg or John F. Gonzales, Senior Legal Advisors, at (703) 305-9285.

August 12, 1998

STEPHAN G. KUNIN
Deputy Assistant Commissioner
for Patent Policy and Projects

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PTO/SB/29 (8/98)
Approved for use through 09/01/2000 OMB 0651-0032
Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

CONTINUED PROSECUTION APPLICATION (CPA)**REQUEST TRANSMITTAL**

Submit an original, and a duplicate for fee processing.
(Only for Continuation or Divisional applications under 37 C.F.R. § 1.53(d)).

CHECK BOX, if applicable:

☐ DUPLICATE

Address to:

Assistant Commissioner for Patents
Box CPA
Washington, DC 20231

Attorney Docket No.
of Prior Application

First Named Inventor

Examiner Name

Group / Art Unit

Express Mail Label No.

This is a request for a ☐ continuation or ☐ divisional application under 37 C.F.R. § 1.53(d),
(continued prosecution application (CPA)) of prior application number _____,
filed on _____, entitled _____.

NOTES

FILING QUALIFICATIONS: The prior application identified above must be a nonprovisional application that is either: (1) complete as defined by 37 C.F.R. § 1.51(b), or (2) the national stage of an international application in compliance with 35 U.S.C. 371. A notice will be placed on a patent issuing from a CPA, except for reissues and designs, to the effect that the patent issued on a CPA and is subject to the twenty-year patent term provisions of 35 U.S.C. § 154(a)(2). Therefore, the prior application of a CPA may have been filed before, on or after June 8, 1995.

CPA NOT PERMITTED: A continuation-in-part application cannot be filed as a CPA under 37 C.F.R. § 1.53(d), but must be filed under 37 C.F.R. § 1.53(b).

EXPRESS ABANDONMENT OF PRIOR APPLICATION: The filing of this CPA is a request to expressly abandon the prior application as of the filing date of the request for a CPA. 37 C.F.R. § 1.53(b) must be used to file a continuation, divisional, or continuation-in-part of an application that is not to be abandoned.

ACCESS TO PRIOR APPLICATION: The filing of this CPA will be construed to include a waiver of confidentiality by the applicant under 35 U.S.C. 122 to the extent that any member of the public who is entitled under the provisions of 37 C.F.R. § 1.14 to access to, copies of, or information concerning, the prior application may be given similar access to, copies of, or similar information concerning, the other application or applications in the file jacket.

35 U.S.C. 120 STATEMENT: In a CPA, no reference to the prior application is needed in the first sentence of the specification and none should be submitted. If a sentence referencing the prior application is submitted, it will not be entered. A request for a CPA is the specific reference required by 35 U.S.C. 120 and to every application assigned the application number identified in such request. 37 C.F.R. § 1.78(a).

- 1 ☐ Enter the unentered amendment previously filed on _____
under 37 C.F.R. § 1.116 in the prior nonprovisional application.
- 2 ☐ A preliminary amendment is enclosed.
- 3 This application is filed by fewer than all the inventors named in the prior application, 37 C.F.R. § 1.53(d)(4).
 - a ☐ **DELETE** the following inventor(s) named in the prior nonprovisional application:

 - b ☐ The inventor(s) to be deleted are set forth on a separate sheet attached hereto.
- 4 ☐ A new power of attorney or authorization of agent (PTO/SB/01) is enclosed.
- 5 Information Disclosure Statement (IDS) is enclosed.
 - a ☐ PTO-1449
 - b ☐ Copies of IDS Citations

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box CPA, Washington, DC 20231.

PTO/SB/29 (8/98)
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CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
TOTAL CLAIMS (37 C.F.R. § 1.16(e) or (f))		-20* =		x \$ _____ =	\$ _____
INDEPENDENT CLAIMS (37 C.F.R. § 1.16(g) or (h))		-3** =		x \$ _____ =	\$ _____
MULTIPLE DEPENDENT CLAIMS (if applicable) (37 C.F.R. § 1.16(d))				+ \$ _____ =	\$ _____
				BASIC FEE (37 C.F.R. § 1.16)	\$ _____
				Total of above Calculations =	\$ _____
				Reduction by 50% for filing by small entity (Note 37 C.F.R. §§ 1.9, 1.27 & 1.28)	\$ _____
				* Reissue claims in excess of 20 and over original patent ** Reissue independent claims over original patent	TOTAL = \$ _____

6 Small entity status

- a ☐ A small entity statement is enclosed, if (b) and (c) do not apply.
- b ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c ☐ Is no longer claimed.

7 The Commissioner is hereby authorized to credit overpayments or charge the following fees to Deposit Account No. _____

- a ☐ Fees required under 37 C.F.R. § 1.16
- b ☐ Fees required under 37 C.F.R. § 1.17
- c ☐ Fees required under 37 C.F.R. § 1.18

8 ☐ A check in the amount of \$ _____ is enclosed**9 ☐ New Attorney Docket Number, if desired**

(Prior application Attorney Docket Number will carry over to this CPA unless a new Attorney Docket Number has been provided herein.)

- 10 a ☐ Receipt For Facsimile Transmitted CPA (PTO/SB/29A)
- b ☐ Return Receipt Postcard (Should be specifically itemized, See MPEP 503)
- 11 ☐ Other _____

NOTE: The prior application's correspondence address will carry over to this CPA UNLESS a new correspondence address is provided below.

12. NEW CORRESPONDENCE ADDRESS☐ Customer Number or Bar Code Labelor ☐ New correspondence address below

(Insert Customer No. or Attach bar code label here.)

Name			
Address			
City	State	Zip Code	
Country	Telephone	Fax	

13. SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)	
Signature	
Registration No. (Attorney/Agent)	
Date	

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Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

RECEIPT FOR FACSIMILE TRANSMITTED CPA (To accompany a request for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) filed by facsimile transmission)	
1. ADDRESS Applicant's Mailing Address for this receipt must be CLEARLY PRINTED or TYPED in the box below.	
NOTE: By this receipt, the PTO (a) acknowledges that a request for a CPA was filed by facsimile transmission on the date stamped below by the PTO and (b) verifies only that the application number provided by the applicant on this receipt is the same as the application number provided on the accompanying request for a CPA. This receipt CANNOT be used to acknowledge receipt of any paper(s) other than the request for a CPA.	
2. APPLICATION IDENTIFICATION: (Provide at least enough information to identify the application)	
a. For prior application	
Application No.	
Filing Date	
Title	
Attorney Docket No.	
First Named Inventor:	
b. For instant CPA application	
New Attorney Docket No. (if applicable)	
The PTO date stamp, which appears in the box to the right, is an acknowledgement by the PTO of receipt of a request for a CPA filed by facsimile transmission on the date indicated below.	
PTO HANDLING INSTRUCTIONS: Please stamp area to the right with the date the complete transmission of the request for a CPA was received in the PTO and also include the PTO organization name that provided the date stamp (stamp may include both items). Verify that the application number provided by applicant on this receipt is the same as the application number provided by applicant on the request for a CPA accompanying this receipt. If there is an inconsistency between the application number provided on this receipt and the request for a CPA, strike through the inconsistent application number provided on this receipt and insert the correct application number, if possible. Then place in a window envelope and mail.	

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time
will vary depending upon the needs of the individual case. Any comments on the
amount of time you are required to complete this form should be sent to the Chief
Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT
SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant
Commissioner for Patents, Box Patent Application, Washington, DC 20231.

Disclaimers

4,853,865—Ronald P. Sansone, Weston; Guy L. Fougere, Easton, both of Conn. MAILING SYSTEM WITH POSTAGE VALUE PRINTING CAPABILITY. Patent dated August 1, 1989. Disclaimer filed May 1, 1998, by the assignee, Pitney Bowes, Inc.

The term of this patent shall not extend beyond the expiration date of Pat. No. 4,760,552.

5,252,554—Heinz Mueller, Monheim; Claus-Peter Herold, Mettmann; Stephan von Tapavicza, Erkrath, all of Fed. Rep. of Germany; Douglas J. Grimes, Beaconsfield, England; Jean-Marc Braun, Celle, Fed. Rep. of Germany; Stuart P. T. Smith, Kincardineshire, Scotland. DRILLING FLUIDS AND MUDS CONTAINING SELECTED ESTER OILS. Patent dated Oct. 12, 1993. Disclaimer filed July 21, 1997, by the assignee, Henkel Kommanditgesellschaft auf Aktien and Baroid Limited.

The term of this patent shall not extend beyond the expiration date of Pat. Nos. 5,403,822; 5,318,954; 5,348,938; and 5,232,910.

5,387,263—Jack W. Marlowe, Reidsville; Ralph B. Monk, Roxboro; Rene A. Eckert, Greensboro, all of N.C. METHOD FOR TREATMENT OF YARN IN PACKAGE FORM. Patent dated Feb. 7, 1995. Disclaimer filed Jan. 29, 1998, by the assignee, Unifi.

Hereby enters this disclaimer to claims 1-6 of said patent.

5,436,161—Jan Bergstrom, Balinge; Stefan Lofas, Uppsala; Bo Johnsson, Storrreta, all of Sweden. MATRIX COATING FOR SENSING SURFACES CAPABLE OF SELECTIVE BIOMOLECULAR INTERACTIONS, TO BE USED IN BIO-SENSOR SYSTEMS. Patent dated July 25, 1995. Disclaimer filed Mar. 27, 1998, by the assignee, Biacore AB.

The term of this patent shall not extend beyond the expiration date of Pat. No. 5,242,828.

Disclaimer and Dedication

Re. 34,826—Werner O. Specht, Sharpville, Pa. WASTE OIL DELIVERY SYSTEM. Patent dated Jan. 17, 1995. Disclaimer and Dedication filed May 29, 1998, by the assignee, Thomas & Betts Corp.

Hereby disclaims and dedicates to the Public claims 11-15 of said patent.

Certificates of Correction
for September 8, 1998

B1-5,032,774	5,505,985	5,621,029	5,652,054
D. 390,505	5,535,738	5,621,462	5,653,862
D. 391,772	5,556,805	5,621,593	5,653,979
D. 394,361	5,557,347	5,622,974	5,654,280
D. 395,157	5,558,410	5,625,391	5,656,839
P. 10,144	5,559,506	5,625,706	5,657,179
P. 10,355	5,570,920	5,630,502	5,662,301
4,642,506	5,575,736	5,633,663	5,662,763
5,082,772	5,578,727	5,635,598	5,663,280
5,355,032	5,580,057	5,635,604	5,664,999
5,355,498	5,580,429	5,636,377	5,665,863
5,383,146	5,582,258	5,637,719	5,665,890
5,388,954	5,583,220	5,641,144	5,667,318
5,395,924	5,584,512	5,642,782	5,670,335
5,425,565	5,585,258	5,643,681	5,671,014
5,431,335	5,589,425	5,645,481	5,672,252
5,442,379	5,593,693	5,646,111	5,673,098
5,451,663	5,605,899	5,646,261	5,673,159
5,466,961	5,615,565	5,648,283	5,673,243
5,472,866	5,616,129	5,649,312	5,674,061
5,491,046	5,618,918	5,650,268	5,674,433

Summary of Final Decisions Issued by the Trademark Trial and Appeal Board
July 20-24, 1998

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
7-21	EX	74/722,274	The Valspar Corp.	2(d)	Refusal reversed		FLUROPON [industrial coating in the nature of paint for use in the field of architectural metal finishing]	HARDCOTE [clear varnish finishes used to protect or beautify interior and exterior surfaces] and HARDCOAT [paint coating used to create a paintable surface for industrial applications]	No
7-21	EX	74/718,351	David Dodart	2(d)	Refusal affirmed		LIFE SCIENCE PRODUCTS, INC. [business marketing services for dietary food supplements]	LIFE SCIENCE and design [dietary supplements and oral electrolyte solution for veterinary use]	No
7-24	EX	74/476,729	Equusport, Inc.	2(d)	Refusal affirmed		EQUUSPORT [clothing, namely, pants, shorts, shirts, skirts, tops, dresses, T-shirts, sweatshirts, sweatpants, lingerie, underwear, socks, shoes, bathing suits, hats, visors, belts, caps, pantyhose, sandals, jackets, coats, scarves and footwear]	EQUUS [men's furnishings, namely, neckwear]	No
7-24	EX	74/728,226	ITT Industries, Inc.	Whether the showing under Sec. 2(f) is sufficient to show that applicant's mark is more than a model designation	Refusal reversed		C-300 [heat exchangers]		No

(1) EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (S)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

Date Issued	Type of Case ⁽¹⁾	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/Petitioner's Mark and Goods/Services	Applicant's/Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
7-24	EX	74/325,713	Benetton Group S.p.A.	Whether applicant's green rectangular label design has acquired distinctiveness under Sec. 2(f)	Refusal affirmed		Green rectangular design [clothing articles and footwear, namely, shirts, blouses, sweaters, cardigans, pullovers, sweatshirts, undershirts, lingerie, dresses, suits, skirts, pants, shorts, trousers, culottes, pantsuits, hats, scarves, afghans, stockings, socks, slippers, sandals, shoes, boots, kerchiefs, coats, jackets, and gloves]		Yes

(1) EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (S)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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SPECIAL BOXES FOR PATENT MAIL

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Washington, D.C. 20231

Box Designations	Explanation
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 12	Contributions to the Examiner Education Program.
Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box Issue Fee	All communications following the receipt of a PTOL-85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box Missing Parts	Response to the Notice to File Missing Parts of Application and associated papers and fees.
Box MPEP	Submissions concerning the Manual of Patent Examining Procedures.
Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box PATENT APPLICATION	New patent applications and associated papers and fees.
Box Patent Ext.	Applications for patent term extension and any communications relating thereto.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Provisional Patent Application	The filing of all provisional patent applications and any communications relating thereto.
Box Reconstruction	Correspondence pertaining to the reconstruction of lost patent files.
Box Reexam	Requests for Reexamination for <i>original</i> request papers <i>only</i> .
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications <i>prior</i> to the Office's standard notification (return post card or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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2900 Crystal Drive
Arlington, Virginia 22202-3513

Box Designations	Explanation
Box NEW APP FEE	New trademark applications and fees.
Box ITU FEE	Statements of Use (SOU's) and extension requests.
Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
Box RESPONSES NO FEE	Responses to Examining Attorneys' Office actions and Post Registration actions.

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Box Designations	Explanation
Box 3	Mail for the Office of Personnel from NFC.
Box 4	Mail for the Deputy Assistant Secretary of Commerce and Deputy Commissioner of Patents and Trademarks; Office of Legislative and International Affairs.
Box 6	Mail for the Office of Procurement.
Box 8	All papers for the Office of the Solicitor <i>except</i> communications relating to <i>pending litigation and disciplinary proceedings</i> ; papers relating to pending litigation in court cases shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Virginia 22215 and papers relating to pending disciplinary proceedings before the Administrative Law Judge or the Commissioner shall be mailed only to the Office of the Solicitor, P.O. Box 16116, Arlington, Virginia 22215.
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

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The following libraries, designated as Patent and Trademark Depository Libraries (PTDLs), receive patent and trademark information from the U.S. Patent and Trademark Office. Many PTDLs have on file patents issued since 1790, trademarks published since 1872, and select collections of foreign patents. All PTDLs receive both the patent and trademark sections of the *Official Gazette of the U.S. Patent and Trademark Office* and numerical sets of patents in a variety of formats. Patent and trademark search systems in the Cassis CD-ROM series are available at all PTDLs to increase access to that information. It is through the CD-ROM systems and other depository materials that preliminary patent and trademark searches may be conducted through the numerically arranged collections.

Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

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Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

Partnership PTDLs provide enhanced and expanded services for which fees are charged. They offer on-line patent text and image searching, on-line trademark searching, and videoconferencing for examiner interviews and workshops. They accept disclosure documents on site, order file wrappers, assignment documents and certified copies for their customers, and host a variety of seminars aimed at specific audiences, including practitioners, paralegals, and independent inventors. Currently, partnerships are located at the Great Lakes Patent and Trademark Center (GLPTC) at the Detroit Public Library in Detroit, Michigan and the Sunnyvale Center for Innovation, Invention and Ideas (SCI³) in Sunnyvale, California.

State	Name of Library	Telephone Contact
Alabama	Auburn University Libraries	(334) 844-1747
	Birmingham Public Library	(205) 226-3620
Alaska	Anchorage: Z.J. Loussac Public Library	(907) 562-7323
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 228-7220
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
Colorado	Denver Public Library	(303) 640-6220
Connecticut	Hartford Public Library	Not Yet Operational
	New Haven Free Public Library	Not Yet Operational
Delaware	Newark: University of Delaware Library	(302) 831-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(954) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 747-4450
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette Siegesmund Engineering Library, Purdue University	(765) 494-2872
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 978-3155
Kentucky	Louisville Free Public Library	(502) 574-1611
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-8875
Maine	Orono: Raymond H. Fogler Library, University of Maine	(207) 581-1678
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Media Union Library, University of Michigan	(313) 647-5735
	Big Rapids: Abigail S. Timme Library, Ferris State University	(616) 592-3602
	Detroit: Great Lakes Patent and Trademark Center	(313) 833-3379
Minnesota	Minneapolis Public Library and Information Center	(612) 630-6120
Mississippi	Jackson: Mississippi Library Commission	(601) 359-1036
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada, Reno Library	(702) 784-6500 Ext. 257
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	Piscataway: Library of Science and Medicine, Rutgers University	(908) 445-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 474-5355
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
	Stony Brook: Engineering Library, State University of New York	Not Yet Operational
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Akron - Summit County Public Library	(330) 643-9075
	Cincinnati and Hamilton County, Public Library of	(513) 369-6971
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Center for International Trade Development	(405) 744-7086
Oregon	Portland: Paul L. Boley Law Library, Lewis & Clark College	(503) 768-6786
Pennsylvania	Philadelphia: The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Puerto Rico	Mayaguez General Library, University of Puerto Rico	(787) 832-4040 Ext. 3459
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Clemson University Libraries	(864) 656-3024
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	Nashville: Stevenson Science Library, Vanderbilt University	(615) 322-2717
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-3826
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
	Lubbock: Texas Tech University	(806) 742-2282
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Vermont	Burlington: Bailey/Howe Library, University of Vermont	(802) 656-2542
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 828-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
West Virginia	Morgantown: Evansdale Library, West Virginia University	(304) 293-2510 Ext. 113
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin	(608) 262-6845
	Madison	(608) 262-6845
	Milwaukee Public Library	(414) 286-3051
Wyoming	Casper: Natrona County Public Library	(307) 237-4935

PATENT EXAMINING CORPS

BRUCE A. LEHMAN, Commissioner
LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director.....	308-0661	01/11/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director.....	308-1235	06/25/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director.....	308-0651	07/29/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director.....	308-2351	05/27/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director.....	308-0196	11/23/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director.....	308-1782	11/13/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director.....	308-0511	04/26/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director.....	305-3900	04/26/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director.....	305-3900	12/21/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director.....	308-0956	11/12/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director.....	305-3900	09/14/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director.....	305-3293	06/28/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director.....	308-1113	12/14/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director.....	308-1148	03/11/97
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director.....	308-0858	02/07/96
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director.....	308-0861	02/13/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director.....	308-2168	02/04/97

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:

- (1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
- (2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
- (3) All design patents are granted for a term of 14 years from the date of the grant. However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of August 1, 1998

Law Office	Oldest Date	
	New*	Amendment Filed
Law Office 101—Christopher Wells, Acting Managing Attorney, (703) 308-9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	04/06/98	06/02/98
Law Office 102—Thomas Shaw, Managing Attorney, (703) 308-9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	11/26/97	03/30/98
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308-9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	11/26/97	03/30/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308-9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	10/20/97	05/22/98
Law Office 105—Thomas Howell, Managing Attorney, (703) 308-9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	12/05/97	03/05/98
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308-9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	01/22/98	05/22/98
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308-9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	03/16/98	06/01/98
Law Office 108—David Shallant, Managing Attorney, (703) 308-9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	12/23/97	04/17/98
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308-9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42.....	10/21/97	06/03/98
**Collective Marks—Class 200		
**Certification Marks—Classes A & B		
Office of Trademark Services—Terror Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126 Affidavits Under Sections 8 & 15 (All Classes).....	05/19/98	—0—
Renewals (All Classes).....	06/22/98	—0—
Section 12(c) Publications (All Classes).....	05/26/98	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305-8747 through (703) 305-9752 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

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REEXAMINATIONS

SEPTEMBER 8, 1998

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 Re. 31,938 (3622nd)

WEB BENDING FIXTURE

Roger Klukow, Champlin, Minn., assignor to Chesley F. Carlson Co., Minneapolis, Minn.

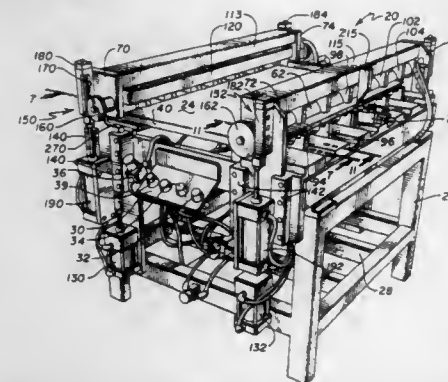
Reexamination Request No. 90/004,906, Jan. 30, 1998.

Reexamination Certificate for Reissue Patent Re. 31,938, issued Jul. 9, 1985, Ser. No. 554,537, Nov. 23, 1983.

Original No. 4,365,500, dated Dec. 28, 1982, Ser. No. 230,281, Jan. 30, 1981.

Int. Cl.⁶ B21D 5/01

U.S. Cl. 72—387



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–29 is confirmed.

1. A web bending fixture for bending plates of metal having a leading edge and a trailing edge comprising:

- a bed to support the plate to be bent;
- at least one anvil having a bending radius at the edge of the bed;
- at least one eccentric camming member having a bending surface positioned relative to the anvil to bend one of the edges of the plate around the bending radius of the anvil;
- a full bearing supporting each end of the eccentric camming member for rotation;
- a plurality of additional bearings intermediate the ends of the eccentric camming member within which the eccentric camming member is rotatably contained during rotation, the additional bearings being spaced along the length of the eccentric camming member to radially support the eccentric camming member throughout its length; and
- means for rotating the eccentric camming member around the bending radius of the anvil, the closest point on the bending surface of the eccentric camming member being spaced from the anvil at all times during rotation a distance equivalent to the thickness of the plate being bent.

B1 5,164,879 (3623rd)

ELECTROSTATICALLY DISSIPATIVE FUEL FILTER

Daniel R. Danowski, Richmond, R.I.; Sunil K. Kesavan, Troy, Mich.; James W. Martin, and James S. Pereira, both of Rehoboth, Mass., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Reexamination Request No. 90/004,543, Feb. 7, 1997.

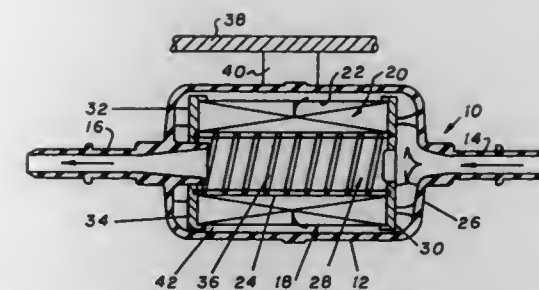
Reexamination Certificate for Patent 5,164,879, issued Nov. 17, 1992, Ser. No. 724,240, Jul. 1, 1991.

Division of Ser. No. 575,260, Aug. 30, 1990, Pat. No. 5,076,920.

Int. Cl.⁶ B01D 27/08

U.S. Cl. 361—215

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:



Claim 1 is determined to be patentable as amended.

Claims 2–4, dependent on an amended claim, are determined to be patentable.

New claims 5–9 are added and determined to be patentable.

1. [Fuel] A fuel injection system component for communicating fuel to the engine of a motor vehicle, said motor vehicle having an electrical plane maintained at a predetermined electrical potential, said fuel injection system component being made of a composite material comprising a polymer having electrically conductive fibers distributed randomly throughout the material to provide an electrically conductive path through said component between the fuel communicated through said component and said electrical plane, so that at least a portion of the electrically conductive path extends through the component and a conductive member leading to said electrical plane to thereby prevent the build-up of electrostatic charge in the fuel and the resultant arcing which causes the breakdown of the polymer material comprising the fuel injection system component.

B1 5,334,646 (3624th)

THERMOPLASTIC ELASTOMER GELATINOUS ARTICLES

John Y. Chen, Pacifica, Calif., assignor to Applied Elastomerics, Inc., Pacifica, Calif.

Reexamination Request No. 90/004,514, Jan. 10, 1997.

Reexamination Certificate for Patent 5,334,646, issued Aug. 2, 1994, Ser. No. 957,290, Oct. 6, 1992.

Continuation-in-part of Ser. No. 705,711, May 23, 1991, Pat. No. 5,262,468, which is a continuation-in-part of Ser. No.

211,426, Jun. 24, 1988, Pat. No. 5,153,254, which is a continuation-in-part of Ser. No. 921,752, Oct. 21, 1986, which

is a continuation-in-part of Ser. No. 572,172, Jan. 18, 1984, Pat. No. 4,618,213, which is a continuation-in-part of Ser. No.

458,703, Jan. 17, 1983, abandoned, which is a continuation-in-part of Ser. No. 134,977, Mar. 28, 1980, Pat. No. 4,369,284,

which is a continuation-in-part of Ser. No. 916,731, Jun. 19, 1978, Pat. No. 4,773,855, which is a continuation-in-part of

Ser. No. 815,315, Jul. 13, 1977, abandoned, which is a continuation-in-part of Ser. No. 778,343, Mar. 17, 1977, Pat.

No. 4,663,047.

The portion of the term of this patent subsequent to Nov. 16, 2010, has been disclaimed.

Int. Cl.⁶ C08K 5/01; C08L 53/00; A42B 3/00; C05K 5/01

U.S. Cl. 524—474

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–6 and 8–9 is confirmed.

Claim 7 is determined to be patentable as amended.

New claims 10 and 11 are added and determined to be patentable.

1159

1. An article of manufacture form from a gelatinous elastomer composition consisting essentially of:

- (a) 100 parts by weight of a high viscosity triblock copolymer of the general configuration poly(styrene-ethylene-butylene-styrene);
- (b) from about 300 to about 1,600 parts by weight of a plasticizing oil;
- (c) said article characterized by a gel rigidity of from about 20 to about 700 gram Bloom.

**B1 5,522,993 (3625th)
PROCESS AND MEANS FOR DOWN STREAM
PROCESSING**

Mats Carlsson, Bälänge; Jan-Gunnar Gustafsson, Upsala; Per Hedman, Upplands Väsby; Per-Åke Pernemalm, and Jörgen Lönngrén, both of Upsala, all of Sweden, assignors to Pharmacia Biotech AB, Upsala, Sweden

Reexamination Request No. 90/004,931, Mar. 2, 1998.
Reexamination Certificate for Patent 5,522,993, issued Jun. 4, 1996, Ser. No. 412,743, Mar. 29, 1995.

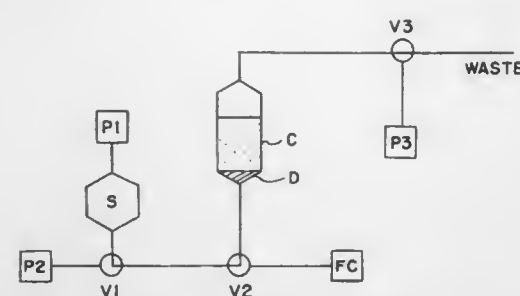
Continuation of Ser. No. 956,776, May 3, 1993, abandoned.
Claims priority, application Sweden, Apr. 17, 1991, 0/91-01149-4; WIPO, Apr. 16, 1992, PCT/SE/00255

Int. Cl.⁶ B01D 15/08
U.S. Cl. 210—635
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 1 is determined to be patentable as amended.

Claims 2–14, dependent on an amended claim, are determined to be patentable.

1. A method of chromatography using a fluidized bed for recovering a desired component from a sample solution, said method comprising the steps:



providing (a) a column with a distributor in form of a bottom port that distributes an inlet flow of liquid equally over the cross-sectional area of the column, (b) a top port, and (c) therebetween a fluidized bed comprising beads [having affinity for the component to be recovered] and an upwardly flowing liquid, said beads having densifying filler particles incorporated therein, said beads having affinity for the component to be recovered;

feeding said sample solution comprising said desired component to be recovered into said column through said bottom port, adjusting the flow rate of said sample solution with respect to the size and density of said beads to confine each bead within a space that is a minor fraction of the total bed volume and to maintain said bed in a stabilized, fluidized state, without the need for a magnetic field, whereby said desired component is bound to said beads and discharging unbound components of the sample solution through said top port of said column;

washing said column with a washing solution introduced through said bottom port under flow conditions which maintain said bed in a fluidized state whereby remaining solid components and other impurities of said sample solution are discharged through said top port of said column; and

introducing into said column an elution solution to release said bound desired components from said beads and collecting said components.

REISSUES

SEPTEMBER 8, 1998

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,887

**CONVERSION EFFICIENCY MEASURING APPARATUS
OF CATALYST USED FOR EXHAUST GAS
PURIFICATION OF INTERNAL COMBUSTION ENGINE
AND THE METHOD OF THE SAME**

Toshio Ishii, Mito; Masayoshi Kaneyasu, Hitachi, and Seiji Asano, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

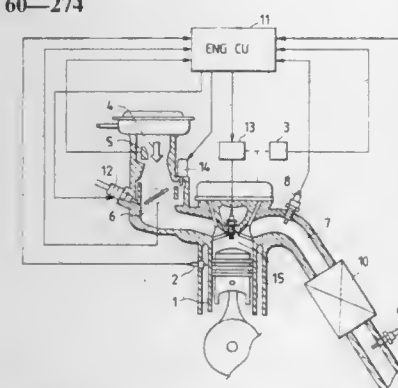
Original No. 5,237,818, dated Aug. 24, 1993, Ser. No. 854,390, Mar. 19, 1992. Application for reissue Aug. 24, 1995, Ser. No. 519,098

Claims priority, application Japan, Mar. 20, 1991, 3-57106

Int. Cl.⁶ F01N 3/20

U.S. Cl. 60—274

37 Claims



34. A conversion efficiency measuring apparatus of a catalyst used for an exhaust gas purification of an internal combustion engine comprising:

a catalyst used for an exhaust gas purification provided at an exhaust gas passage of an internal combustion engine;

gas component sensing means provided at an upstream side and a downstream side of said catalyst used for said exhaust gas purification;

means for calculating a correlation function based on an output signal from said gas component sensing means for estimating the conversion efficiency of said catalyst for said exhaust gas purification; and

means for comparing a calculated value of the correlation function with a comparison value.

Re. 35,888

Patent Not Issued For This Number

Re. 35,889

Patent Not Issued For This Number

Re. 35,890

**OPTIMIZED OFFSET STRIP FIN FOR USE IN COMPACT
HEAT EXCHANGERS**

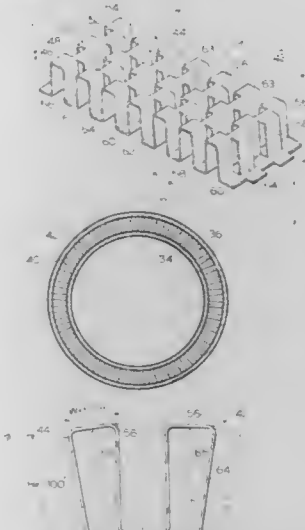
Allan K. So, Mississauga, Canada, assignor to Long Manufacturing Ltd., Canada

Original No. 5,107,922, dated Apr. 28, 1992, Ser. No. 663,414, Mar. 1, 1991. Application for reissue Nov. 30, 1992, Ser. No. 988,405

Int. Cl.⁶ F28F 13/12

U.S. Cl. 165—109.1

13 Claims



7. A single pass tubular heat exchanger for cooling [transaxle and transmission] oil, comprising:

a) an outer tube having a circular cross-section;

b) an inner tube with circular cross-section disposed within the outer tube with the space between the inner tube and the outer tube defining [a] an elongate substantially straight passageway extending along the axial direction of the tubes, said passageway having two opposite ends;

c) an inlet port in flow communication with the passageway for admitting fluid to be cooled into the passageway, said inlet port being located at one end of said passageway;

d) an outlet port in flow communication with the passageway for providing a fluid outlet from the passageway, wherein the outlet port is spaced from the inlet port and located at the opposite end of said passageway; and

e) an offset strip fin disposed in the passageway between the inlet and outlet ports, wherein the fin is provided with a plurality of transverse rows of corrugations, the rows being adjacent and extending in the axial direction, the corrugations each having a [substantially flat] top portion and a [flat] bottom portion, the top and bottom portions of the corrugations having the same width, the top portion being in thermal contact with the inner surface of the outer tube and the bottom portion being in thermal contact with the outer surface of the inner tube, the corrugations also having radially extending portions which join the top and bottom portions and which have a height in a predetermined range from substantially 0.1 inch to 0.130 inch, said corrugation width being in a predetermined range, wherein said height of the corrugations is greater than said width, the corrugations in adjacent rows of the fin overlapping [and] but not to the point where said radially extending portions of one row crossover those of adjacent rows when viewed from one end of said passageway, said corrugations being interconnected between said [flat] top and [flat] bottom portions, the overlapping corrugations defining periodically interrupted flow passageways in the axial

direction, and wherein the corrugations have a lanced length in the longitudinal direction in a predetermined range.

Re. 35,891

PROCESS FOR INCREASING NEAR-WELLBORE PERMEABILITY OF POROUS FORMATIONS

Abul K. M. Jamaluddin, and Taras W. Nazarko, both of Calgary, Canada, assignors to Noranda Inc., Quebec, Canada
Original No. 5,361,845, dated Nov. 8, 1994, Ser. No. 70,812, Jun. 3, 1993. Application for reissue Oct. 3, 1995, Ser. No. 538,664

Claims priority, application Canada, Dec. 22, 1992, 2086040
Int. Cl.⁶ E21B 43/24

U.S. Cl. 166—302

6 Claims

1. A method of increasing the near-wellbore permeability of porous formations containing hydratable clays, shales, materials which swell when contacted with water or mud filtrate, migratable clays or a formation having a wettability which causes water or fluid blockage, comprising exposing the formation to a temperature of at least [400°] 600° C. by using downhole heaters with continuous inert gas injection to cause dehydration of clay lattices, vaporization of any blocked water, mud filtrate or other fluids, and destruction of the clay structure.

Re. 35,892

Patent Not Issued For This Number

Re. 35,893

DEFOAMING COMPOSITION

William K. Valentine, and William Valentine, both of Lawrenceville, Ga., assignors to Valentine Enterprises, Inc., Lawrenceville, Ga.

Original No. 5,275,822, dated Jan. 4, 1994, Ser. No. 806,581, Dec. 12, 1991. Continuation-in-part of Ser. No. 423,877, Oct. 19, 1989, Pat. No. 5,073,384. Application for reissue Jan. 18, 1995, Ser. No. 374,224

Int. Cl.⁶ A61K 9/16; 9/20; 47/26; 31/695

U.S. Cl. 424—489

61 Claims

1. An antifoaming or defoaming composition consisting essentially of a dry, uniform, free flowing granular combine of a water soluble carbohydrate-based agglomerate and a liquid, nonaqueous, antifoaming or defoaming composition selected from the group

consisting of hydrocarbon-based oils containing silica, mineral oils containing silica and silicone oils containing silica, wherein said carbohydrate-based agglomerate is selected from the group consisting of maltodextrin/dextrose co-agglomerates, dextrose agglomerates, maltodextrin/sucrose co-agglomerates, maltodextrin/fructose co-agglomerates, sucrose agglomerates fructose agglomerates, mannitol agglomerates, sorbitol agglomerates, agglomerates of hydrolyzed cereal solids and agglomerates of corn syrup solids having a D.E. of at least 20.

Re. 35,894

INJECTION MOLDED PLASTIC ARTICLE WITH INTEGRAL WEATHERABLE PIGMENTED FILM SURFACE

Thomas M. Ellison, Charlotte, and Brian M. Keith, Waxhaw, both of N.C., assignors to Rexam Industries Corp., Matthews, N.C.

Original No. 5,342,666, dated Aug. 30, 1994, Ser. No. 955,317, Oct. 1, 1992. Continuation of Ser. No. 410,662, Sep. 21, 1989, abandoned, and Ser. No. 241,856, Sep. 8, 1988, Pat. No. 4,931,324, which is a continuation-in-part of Ser. No. 924,299, Oct. 28, 1986, Pat. No. 4,810,540, said Ser. No. 410,662 is a continuation-in-part of Ser. No. 924,295, Oct. 28, 1986, abandoned. Application for reissue Oct. 21, 1996, Ser. No. 734,339

Int. Cl.⁶ B60R 13/00; B32B 3/10; 3/00

U.S. Cl. 428—46

6 Claims



1. A shaped article having a contoured decorative outer surface, comprising a molded polymer substrate having a contoured three-dimensional outer surface and a preformed decorative sheet material adhered to and conforming to said contoured three-dimensional outer surface, said decorative sheet material having regions thereof which have been subjected to an elongation of about 25% or more, and said sheet material comprising a substantially molecularly unoriented liquid-cast weatherable polymer film comprising an alloy of a polyvinylidene fluoride polymer and an acrylic polymer, and a bonding layer formed of a thermoplastic polymer different from said cast polymer film, said bonding layer being adhered to the [inner] surface of said cast polymer film facing said substrate, by an adhesive layer between said bonding layer and said cast polymer film, and said bonding layer also being adhered to said contoured three-dimensional outer surface of said substrate, said cast polymer film having pigments [therein] uniformly distributed throughout the thickness thereof providing color to the outer surface of said article, and said bonding layer comprising a polyolefin polymer.

PLANT PATENTS

GRANTED SEPTEMBER 8, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,589

LINDEN TREE 'HALKA'

Chester J. Halka, Jr., Englishtown, N.J., assignor to J. Frank Schmidt & Son Co., Boring, Oreg.

Filed Jan. 10, 1997, Ser. No. 781,672

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—53.4

1 Claim

1. A new and distinct variety of linden tree substantially as herein shown and described, characterized particularly as to novelty by a dwarf size, compact growth, and dense conical habit.

10,590

SUGAR MAPLE 'BARRETT COLE'

Robert B. Cole, Circleville, Ohio, assignor to J. Frank Schmidt & Son Co., Boring, Oreg.

Filed Jan. 10, 1997, Ser. No. 781,660

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—53.6

1 Claim

1. A new and distinct variety of sugar maple tree substantially as herein shown and described, characterized particularly as to novelty by a compact growth habit, a short internode length, and a narrow upright shape with a straight, dominant leader.

10,591

HEATHER PLANT NAMED 'AMETHYST'

Kurt Kramer, Edammer Str. 26, 26188 Edewecht, Germany

Filed Jun. 6, 1997, Ser. No. 870,282

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—54.1

1 Claim

1. A new and distinct cultivar of Heather plant named Amethyst, as illustrated and described.

10,592

HEATHER PLANT NAMED 'ALICIA'

Kurt Kramer, Edammer Str. 26, 26188 Edewecht, Germany

Filed Jun. 6, 1997, Ser. No. 870,283

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—54.1

1 Claim

1. A new and distinct cultivar of Heather plant named 'Alicia', as illustrated and described.

10,593

HIBISCUS PLANT NAMED 'LIGHT WIND'

Wendy R. Bergman, Lehigh Acres, Fla., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1997, Ser. No. 806,711

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—67.8

1 Claim

1. A new and distinct Hibiscus plant named 'Light Wind', as illustrated and described.

10,594

HIBISCUS PLANT NAMED 'KONA WIND'

Wendy R. Bergman, Lehigh Acres, Fla., assignor to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 27, 1997, Ser. No. 807,405

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—67.8

1 Claim

1. A new and distinct Hibiscus plant named 'Kona Wind', as illustrated and described.

10,595

OSTEOPERMUM PLANT NAMED 'HIGHSIDE'

Masao Kanno, Chigasaki, Japan, assignor to Sakata Seed America, Inc., Morgan Hill, Calif.

Filed Sep. 10, 1996, Ser. No. 707,926

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct hybrid plant variety of the Compositae family, *Osteospermum fruticosum* (L.) Norl., common commercial name Cape Daisy, named 'Highside' substantially as herein shown and described.

10,596

OSTEOSPERMUM PLANT NAMED 'BRIGHTSIDE'

Masao Kanno, Chigasaki, Japan, assignor to Sakata Seed America, Inc., Morgan Hill, Calif.

Filed Sep. 10, 1996, Ser. No. 707,927

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct hybrid plant variety of the Compositae family, *Osteospermum fruticosum* (L.) Norl., common commercial name Cape Daisy, named 'Brightside' substantially as herein shown and described.

10,597

PULMONARIA PLANT NAMED 'BERRIES AND CREAM'

Dan M. Heims, Portland, Oreg., assignor to Terra-Nova Nurseries, Inc., Tigard, Oreg.

Filed Feb. 10, 1997, Ser. No. 797,867

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct hybrid of Pulmonaria plant substantially as shown and described, characterized by uniquely ruffled leaf margins and intensely pink flowers.

10,598

LYSIMACHIA PUNCTATA PLANT NAMED 'ALEXANDER'

Pauline Alexander, 40 Knaption Lane, Acomb, York YO2 5PU, United Kingdom

Filed Mar. 31, 1997, Ser. No. 828,653

Int. Cl.⁶ A01H 5/00

U.S. Cl. Plt.—68.1

1 Claim

1. A new and distinct cultivar of *Lysimachia punctata* plant named 'Alexander', as illustrated and described.

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10,599	10,600
DAHLIA PLANT NAMED 'GALLERY PABLO'	DRACAENA PLANT NAMED 'RIKI'
Aad Verwer, Lisse, Netherlands, assignor to Gebr. Verwer, Lisse, Netherlands	Cees Janssen, Honselersdijk, Netherlands, assignor to FA. Gebr. Janssen, Honselersdijk, Netherlands
Filed Mar. 12, 1997, Ser. No. 815,863	Filed Jun. 6, 1997, Ser. No. 870,006
Int. Cl. ⁶ A01H 5/00	Int. Cl. ⁶ A01H 5/00
U.S. Cl. Plt.—87.8	1 Claim U.S. Cl. Plt.—88.11

1. A new and distinct cultivar of Dahlia plant named 'Gallery Pablo', as illustrated and described.	1. A new and distinct cultivar of Dracaena plant named 'Riki', as illustrated and described.
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PATENTS

GRANTED September 8, 1998

ERRATA

For CLASS	Patents	See PATENT NO.
037—452	5,802,752
037—468	5,802,753
126—414	5,803,061
128—202	5,803,062
128—203	5,803,063
128—203	5,803,064
128—204	5,803,065
128—204	5,803,066
131—299	5,803,081
242—596	5,803,373
293—133	5,803,514
383—038	5,803,605
404—075	5,803,661
438—125	5,804,422
442—141	5,804,510
442—172	5,804,511
442—346	5,804,512
530—324	5,804,604
298—137	5,804,792
310—219	5,804,926
257—411	5,805,013
335—216	5,805,036
335—306	5,805,044
342—357	5,805,200
348—734	5,805,256
381—159	5,805,708
381—169	5,805,709
382—101	5,805,710
381—190	5,805,726
382—291	5,805,745
382—305	5,805,746
382—310	5,805,747
392—465	5,805,856
711—103	5,806,070

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PATENTS

GRANTED SEPTEMBER 8, 1998

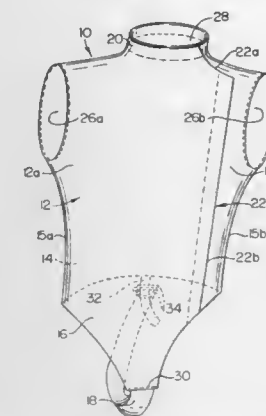
GENERAL AND MECHANICAL

5,802,607

FENCING JACKETS MADE FROM ELECTRICALLY
CONDUCTIVE THREADS

Walter W. Triplette, 331 Church St., Elkin, N.C. 28621

Filed Oct. 20, 1995, Ser. No. 546,474

Int. Cl.⁶ A41B 00/00; D03D 15/00; A63B 67/00; B32B 7/00
U.S. Cl. 2—1 19 Claims

1. A wireless electrically conductive garment for use in electrically-scored contact sports competitions, the garment comprising a body portion for covering at least a portion of an upper torso of a wearer, at least a portion of said garment being made from a woven fabric having conductive threads woven in a first direction and non-conductive threads woven in a second direction, said conductive threads enabling said woven fabric to transport an electrical current provided by a contacting electric fencing implement to thereby enable registration of contact between the garment and an electric implement by a scoring apparatus.

5,802,608

DESIGNATOR WAISTBAND FOR ATHLETES

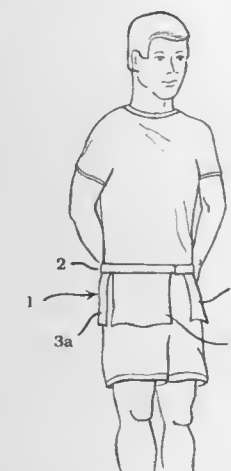
Milan Dennis Earl, 345 E. Main St., Moorestown, N.J. 08057

Continuation-in-part of Ser. No. 518,011, Aug. 22, 1995, abandoned. This application Dec. 19, 1996, Ser. No. 770,586

Int. Cl.⁶ A41F 19/00

U.S. Cl. 2—1

1 Claim



1. An article of clothing worn around the waist comprising: an elastic belt having mateable fastening means on each end; a plurality of separate clothlike pieces substantially rectangular in shape and connected to said elastic belt in a manner as to allow for reasonable expansion and contraction of said elastic belt;

said clothlike pieces spaced along said elastic belt in such a manner as to be visible from any angle relative to the wearer; and said clothlike pieces spaced along said elastic belt in such a manner as to substantially present a wide continuous visible surface to the viewer.

5,802,609

WATER-TIGHT DIVING SUIT

Giovanni Garofalo, Rapallo, Italy, assignor to HTM Sport S.p.A., Italy

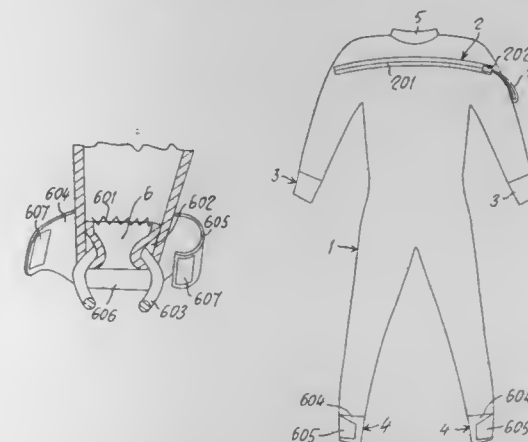
Continuation-in-part of Ser. No. 524,463, Sep. 7, 1995, abandoned. This application Dec. 9, 1996, Ser. No. 762,498

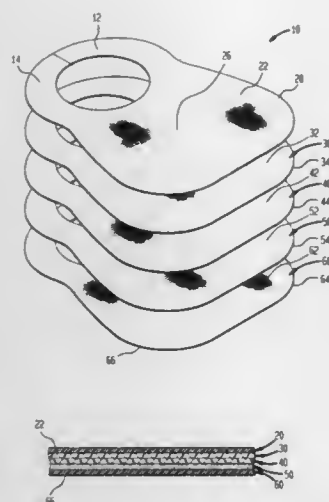
Claims priority, application Italy, Sep. 14, 1994, GE94A0103; Jan. 11, 1995, GE950002 U

Int. Cl.⁶ B63C 11/04

U.S. Cl. 2—2.17

7 Claims

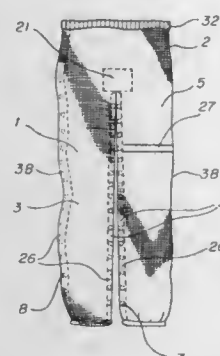




the lower surface of the fourth layer of liquid impermeable material, and the lower surface of which forms the back exterior of the bib;

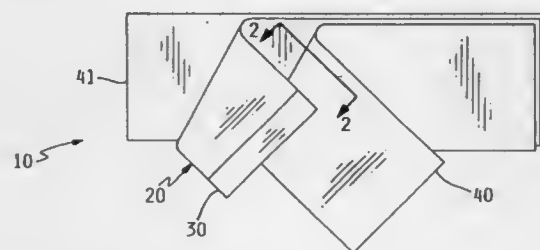
ultrasonic bonds attaching layers together to form a bib;
a neck portion having a circular aperture defined by straps extending from a narrow central portion of the bib, the straps meeting at a top portion of the bib;
the body portion including a wide bottom area tapering to the narrow central portion of the bib; and
means associated with the straps for adjustably securing the bib about the neck of the user.

5,802,611
RELEASABLE CLOTHING WITH TEMPERATURE SENSOR FOR BEDRIDDEN PATIENTS
Melody McKenzie, and Michelle Gainor, both of 1908 E. 19th St., Lot W-79, Lawrence, Kans. 66046
Filed Nov. 18, 1997, Ser. No. 972,188
Int. Cl.⁶ A41D 1/06; 1/3/12
U.S. Cl. 2—69 13 Claims



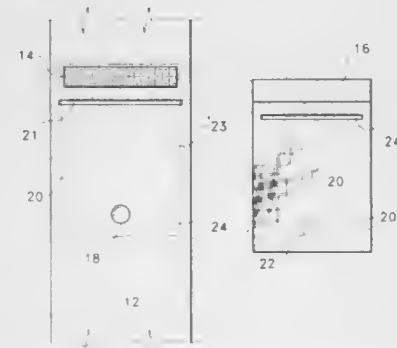
1. Releasable trousers for surrounding a lower body portion of an incapacitated or bedridden patient comprising:
a fabric shell having interior and exterior surfaces with a lower torso portion, first and second leg portions extending therefrom, and groin area therebetween; said shell having a separable inner seam on said first leg portion, separable inner and outer seams on said second leg portion, each separable seam comprising first and second removably attached edges; one of said leg portions having an aperture thereon;
a temperature sensing means received within said aperture and removably attached to said leg portion for contacting a person's skin and measuring the temperature thereof when said fabric shell is surrounding a body portion.

5,802,612
CLOTHING CONJOINER
Louis R. Hosking, 4575 W. 80th St. Cir., No. 223, Bloomington, Minn. 55437
Filed Jan. 30, 1995, Ser. No. 380,622
Int. Cl.⁶ A41F 1/00
U.S. Cl. 2—107 5 Claims



1. A clothing conjoiner which comprises:
a) a base dimensioned or made of a material so that it is relatively stiffer in one direction than in the direction perpendicular to it;
b) the dimensioned base material being called a base;
c) an adhesive with the qualities of being permanently attachable to the base material, peelable from later-applied liner materials, and gripping to but peelable from clothing fabrics, applied to both sides of the base to form an attachment assembly;
d) a non-adhesive removal tab along one edge of the attachment assembly;
e) two liners, an inner liner and an outer liner, wherein
1) the liners are made of material which adheres to the adhesive coating of the base until removed by the user, and which is easily peelable from the adhesive by the user,
2) the outer liner is cut to substantially conform to the shape of the attachment assembly, and
3) the inner liner is cut to the width of the attachment assembly and to a length greater than that of the attachment assembly;
f) the excess length of the inner liner may be folded upward in a direction perpendicular to the length of the attachment assembly so as to form a tab to allow for ease of removal of the inner liner after the conjoined garments are in place on the user.

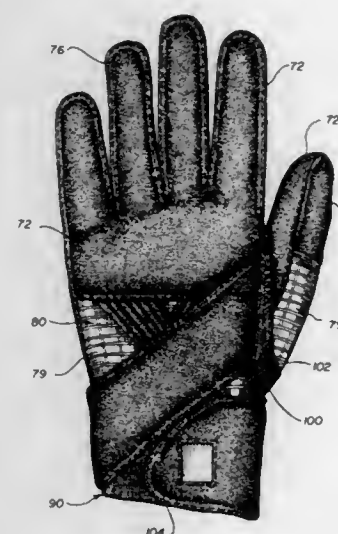
5,802,613
NECKWEAR WITH HIDDEN DETACHABLE STORAGE POCKET
Ruth Marshall, 8372 University Ave., La Mesa, Calif. 91941
Filed Dec. 30, 1996, Ser. No. 775,446
Int. Cl.⁶ A41D 25/00; 27/20
U.S. Cl. 2—145 12 Claims



1. An apparatus for the storage of valuables in a neckwear body comprising:
a storage pocket comprising:

a first side wall having an interior surface, and having an exterior surface;
a second side wall having an interior surface and having an exterior surface connected to said first side wall;
a storage cavity of said storage pocket defined by the area of said first side wall interior, surface and said second sidewall interior, surface;
an exterior surface of said storage pocket defined by the area of the exterior surface of said first side wall and said second side wall;
a storage cavity access aperture communicating with said storage cavity and said exterior, surface of said storage pocket;
means for removable attachment of said storage pocket to any one neckwear body of a plurality of neckwear bodies; and
said neckwear body is comprised of two neckwear side walls forming an interior cavity area of said neckwear body therebetween and having a pocket receiving cavity located in said interior cavity area of said neckwear body, said pocket receiving cavity communicating through one of the side walls of said neckwear body, said pocket receiving cavity sized to accommodate said storage pocket therein whereby a portion of said storage pocket may be removably mounted inside of said pocket receiving cavity by insertion of said storage pocket therein.

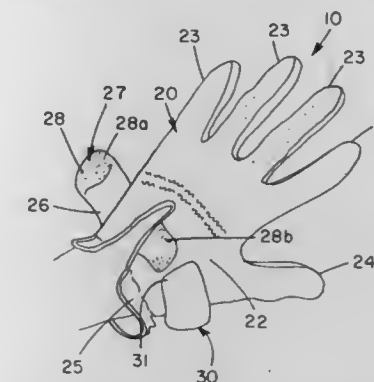
5,802,614
UNIVERSAL SPORTS GLOVE
Charles P. Melone, Jr., 317 E. 34th St. 3rd Floor, New York, N.Y. 10016, assignor to Charles P. Melone, Jr., New York, N.Y.
Filed Aug. 21, 1997, Ser. No. 916,151
Int. Cl.⁶ A41D 19/00
U.S. Cl. 2—161.1 17 Claims



1. Glove for supporting and stabilizing the wrist and hand during sports comprising:
(a) inner glove means conforming to the hand, fingers and thumb from an area proximal to the knuckles including the base of the thumb and extending distal to the finger and thumb metacarpophalangeal joints;
(b) outer glove means conforming to the hand, fingers and thumb extending from the wrist to at least beyond the finger and thumb joints;
(c) criss-cross elastic support means on the exterior of the outer glove means overlying the back of the hand from the wrist to an area adjacent to the knuckles to support and protect the metacarpal bases and the carpometacarpal joints of the hand and wrist;

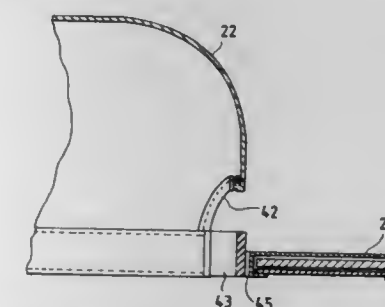
(d) first wrist strap means surrounding the wrist to protect and support the radiocarpal and distal radioulnar joints and having an opening positioned to accommodate the distal ulna protrusion; and
(e) second wrist strap means protecting against excessive tension, lateral deviation and rotational forces on the wrist attached to the thumb side of the outer glove and extending diagonally across the back of the hand and around the wrist over the first wrist strap means.

5,802,615
WEIGHTED GOLF GLOVE
Ron J. Wenk, 63 Landover Dr., Coatesville, Pa. 19320
Filed Mar. 5, 1997, Ser. No. 812,353
Int. Cl.⁶ A41D 11/00
U.S. Cl. 2—161.2 20 Claims



1. A Weighted Golf Glove comprising:
a glove including a palm portion, a back portion, finger stalls, a thumb stall, and a wrist portion cooperatively joined together to fit a wearer's hand;
a generally flexible conforming weight capable of conforming in use to the shape of the ball of the thumb of the wearer's hand; and
a pocket provided intermediate said wrist portion of said glove and said thumb stall of said glove on the ball of the thumb said pocket adapted for receiving and holding said generally flexible conforming weight.

5,802,616
FOLDING HAT WITH STIFF SURROUNDING BRIM
S. Gene Watson, P.O. Box 5302, Carefree, Ariz. 85377
Filed Mar. 20, 1997, Ser. No. 822,282
Int. Cl.⁶ A42B 1/20
U.S. Cl. 2—175.1 8 Claims



1. A folding hat comprising:
a flexible and collapsible crown having a top portion and a bottom, generally round peripheral edge, the bottom edge having front, back, and opposite side portions, the crown being provided with a notch in the back of the bottom edge,

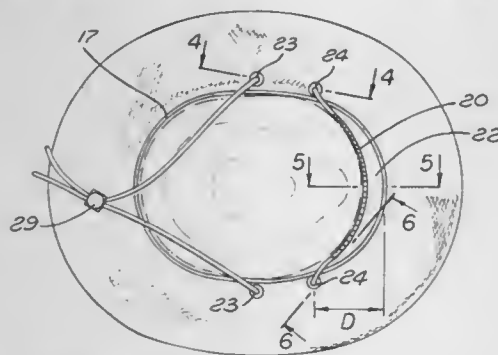
a brim extending generally radially outwardly from the bottom edge of the crown around substantially the entire periphery thereof, the brim including stiffening means for maintaining the shape of the brim in a configuration which extends generally outwardly from the bottom edge and hinge means for permitting the brim to be folded, and an adjustable sizing band extending across the notch of the crown.

5,802,617 VENTILATED HEADGEAR

Robert O. Boden, 1580 Gaywood Dr., Altadena, Calif. 91001
Filed Dec. 27, 1996, Ser. No. 774,032
Int. Cl.⁶ A42B 1/22

U.S. Cl. 2—183

20 Claims



18. Ventilated headgear comprising:

- a hat having a crown adapted to extend across the top of a user's head and downwardly thereabout to a lower portion of the crown for encircling the user's head, the hat including a front portion, a rear portion, and a pair of opposite side portions, each side portion having formed therein at least one opening, said crown defining an interior of the hat;
- an elongated, flexible element including a forehead contacting portion extending across the interior of the hat between opposite sides of said lower portion of the crown at a location to contact a user's forehead and position the hat relative thereto;
- said forehead contacting portion of said elongated element being spaced rearwardly of said lower portion of the crown at the front of the hat to define a front air circulation space through which air can flow between the crown and the elongated element; and
- said elongated element having portions at opposite ends of said forehead contacting portion which extend through the respective openings in the opposite side portions, are adjustable within said openings to vary the length of the forehead contacting portion, and are frictionally retained against movement relative to the openings.

5,802,618 NECK AND CHEST SCARF

Eduardo J. Mustata, 1140 Abbott Rd., E. Lansing, Mich. 48823
Filed Dec. 19, 1996, Ser. No. 770,184
Int. Cl.⁶ A41D 23/00

U.S. Cl. 2—207

8 Claims

7. A neck, face and chest scarf comprising:

- a substantially rectangular neckpiece of flexible material having opposed ends with a front face and a rear face and having a curved indentation between the ends which approximates a circumference of a wearer's neck and having a foldable width;
- a chestpiece of material having a curved indentation which matches the curved indentation of the neckpiece, wherein the chestpiece is fastened to the neckpiece so that the indentation of the neckpiece coincides with the indentation of the chestpiece;



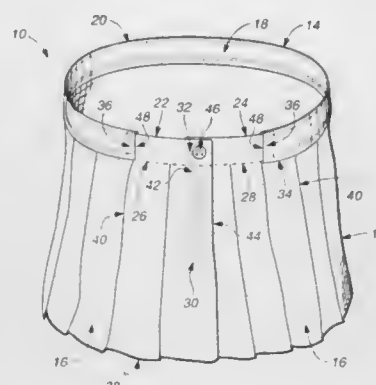
5,802,619 CHEERLEADING SKIRT WITH IMPROVED WAISTBAND

Sherise M. Ralston, and Michele M. Wolken, both of Dallas County, Tex., assignors to National Spirit Group, Ltd., Garland, Tex.

Filed Jul. 22, 1997, Ser. No. 898,614
Int. Cl.⁶ A41D 1/14

U.S. Cl. 2—220

15 Claims



1. A article of clothing suitable for cheerleading and other athletic activities comprising:

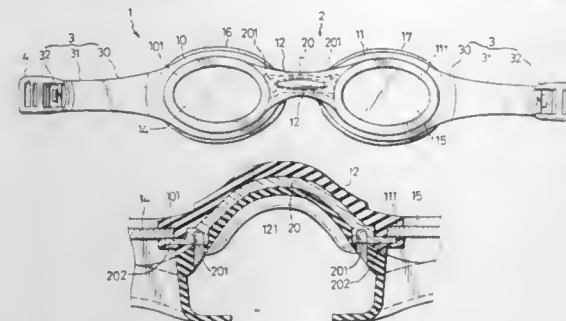
- a) a body which includes a first closure mechanism; and
- b) a waistband connected to the body, the waistband further comprising:
 - a first fabric end;
 - a second fabric end, wherein the first and second fabric ends include a second closure mechanism and the first and second fabric ends are connected to the body adjacent to the first closure mechanism;
 - an elastic band connected to the first and second fabric end such that the first fabric end, the elastic band, and the second fabric end form the radius of the waistband; and
 - a cover material concealing the elastic band and connected to the body such that the entire waistband is attached to the body by the cover material and the first and second fabric ends.

5,802,620 SWIMMING GOGGLE STRUCTURE

Herman Chiang, 1079 Lancer Dr., San Jose, Calif. 95129
Filed Sep. 13, 1996, Ser. No. 713,750
Int. Cl.⁶ A61F 9/02

U.S. Cl. 2—428

10 Claims



1. A swimming goggle structure comprising:

- two lens frames each having a lens fixed therein with a bridge between inner sides of the frames, wherein the bridge comprises a bendable insert embedded therein and substantially extending across the bridge to provide conformity of the bridge to a wearer's nose contour,
- each of the frames has a connecting hole formed thereon and a constraining projection located outboard the connecting hole and extending from the frame,
- and wherein the swimming goggle structure further comprises a head strip having a fastener mounted thereto to engage the connecting hole for securing the head strip to the frames.

5,802,621 SWIMMING GOGGLES WITH IMPROVED WATER- PROOF EFFECT

Terry Chou, No. 12, Hsin Ho Herng Rd., Tainan City, Taiwan
Filed Nov. 3, 1997, Ser. No. 963,348
Int. Cl.⁶ A61F 9/02

U.S. Cl. 2—430

1 Claim



1. A pair of swimming goggles, comprising:

- two lenses formed of transparent rigid material, each said lens including a peripheral surface formed therearound and extended inwardly to provide an increased visual angle, and a flange being formed around the peripheral surface, each said lens further including a rigid engaging section having a hook formed thereon,
- a goggle frame which is integrally formed of plastic material and includes two rings interconnected by a connecting section, each said ring including an annular groove defined in an

annular periphery thereof for receiving the flange of an associated one of said lenses, each said ring further including a protective wall for close contact with an eye socket, the connecting section including two engaging recesses for respectively, securely receiving the hooks on the lenses, and a length-adjustable strap having two ends attached to one of the goggle frame and the lenses.

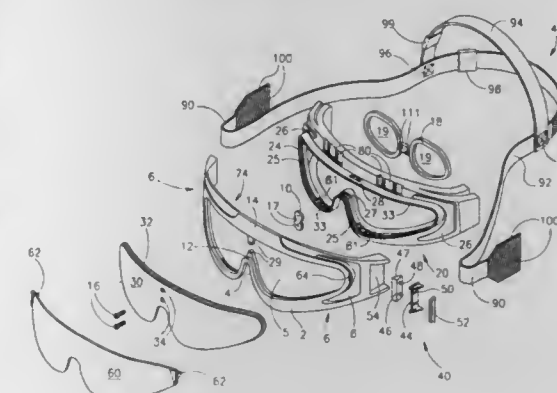
5,802,622 PROTECTIVE GOGGLES

Ram Baharad, Kfar Azar, and Michael Barel, Ramat Efaal, both of Israel, assignors to Shalom Chemical Industries Ltd., Tel Aviv, Israel

Continuation-in-part of Ser. No. 645,017, May 9, 1996, abandoned. This application Apr. 29, 1997, Ser. No. 848,294
Int. Cl.⁶ A61F 9/02

U.S. Cl. 2—434

22 Claims



- 1. Protective goggles comprising a rigid, ballistically resistant transparent shield sealably fittable over the eyes of a wearer via a resilient gasket by a head gear, said goggles having ports; characterized in that said goggles further comprise a second transparent radiation protective shield detachably retained exterior to said ballistically resistant shield and in substantially parallel relation thereto, impervious sealing means being provided between said ballistically resistant shield and said second shield along their peripheries so as to provide an air-tight space therebetween; and a substantially rigid frame intermediate said ballistically resistant shield and said gasket and adapted to support them.

5,802,623 ELECTRONIC AIR DEODORIZER AND METHOD OF USING SAME

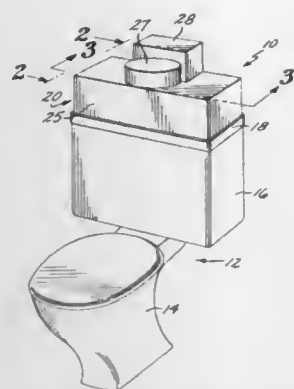
Ray T. Vincent, 3425 S. 176th St., Suite 136, Seattle, Wash. 98188

Filed Dec. 6, 1995, Ser. No. 567,901
Int. Cl.⁶ E03D 9/04

U.S. Cl. 4—209 R

7 Claims

- 1. A deodorizer system for treating odorous flammable gases from a toilet stool having an air outlet and comprising:
 - an air conduit for connection with said air outlet and defining a flow path;
 - a pair of spaced apart electrodes disposed in said flow path;
 - a spark generator connected with one of said electrodes for applying an electrical charge to said electrode to produce an electrical discharge between said electrodes to burn at least a portion of said odorous gases to nonodorous byproducts;
 - a blower for drawing said air through said air conduit and directing said air along said flow path past said electrodes; and



an electronic dust precipitator disposed downstream of said electrodes and electrically charged to collect charged particles.

5,802,624 SECTIONAL TOILET SEAT

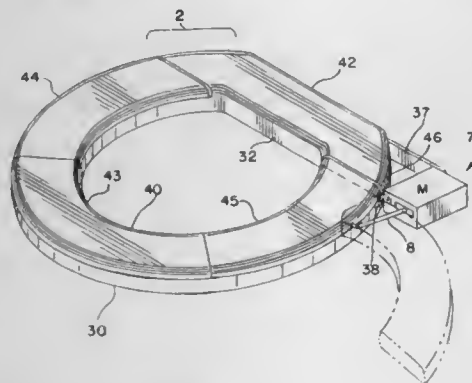
Robert F. Brantman, 1400 Waukegan Rd., Lake Forest, Ill. 60045

Division of Ser. No. 324,788, Oct. 18, 1994, Pat. No. 5,542,131.
This application Jun. 20, 1996, Ser. No. 666,971

Int. Cl.⁶ A47K 13/00

U.S. Cl. 4—239

5 Claims



1. A toilet seat comprising
 - a) a lower seat member;
 - b) an upper seat member disposed over the lower seat member, wherein the upper seat member includes a seating surface consisting of a first section and a second section, the first section integrally formed with the lower seat member and the second section removably disposed over the lower seat member, with the second section constituting less than a majority of the seating surface of the upper seat member; and
 - c) an electric motor that is operatively connected to the second section to remove and replace the second section of the upper seat member.

5,802,625 SANITARY UNIT

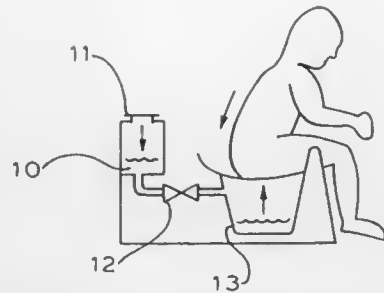
Matthew Ronald Whittaker, Redditch, United Kingdom, assignor to Waterloo Products Limited, United Kingdom
Filed Nov. 27, 1996, Ser. No. 753,703

Int. Cl.⁶ A47K 11/04

U.S. Cl. 4—300

10 Claims

1. A sanitary unit comprising a container and a base, said container including opposite sidewall portions, a bowl portion disposed between said sidewall portions for receiving human waste, a seat means, said seat means being so disposed relative to said bowl portion that waste from a person sitting on the seat



means is received in the bowl portion, said container being movable relative to the base as a result of a person sitting on said seat means; said unit further comprising a water reservoir communicating with the bowl portion by way of valve means, and valve actuating means responsive to the weight of a person sitting on the seat means so as to open the valve means and release water from the reservoir into the bowl portion of the container in response to a person sitting on the seat means, the base being provided with an inclined edge to engage with the container and to urge said sidewall portions of the container apart in response to movement of the container relative to the base as a result of a person sitting on the seat means.

5,802,626

FOOT-OPERATED DEVICE FOR FLUSHING VALVE OF A WALL-MOUNTED URINAL

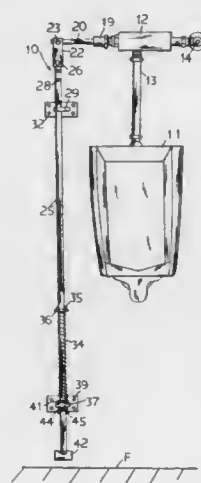
Ramon C. Bedana, 5 Massey Square, Apartment 1410, Toronto, Ontario, Canada, M4C 5Z6

Filed Oct. 6, 1997, Ser. No. 944,802

Int. Cl.⁶ E03D 13/00

U.S. Cl. 4—308

14 Claims



1. A foot-operated device for the flushing valve for a urinal mounted above the ground of a washroom on a vertical wall, comprising
 - a pivot rod member mounted to said flushing valve and operative for actuating the flushing operation of said flushing valve, said pivot rod member having a free end extending along said wall for a short distance beyond a side of said urinal;
 - a coupling member having an upper end pivotally secured to said free end of said pivot rod member;
 - a restraining bracket member adapted for mounting on said wall, an elongated opening formed in a horizontal portion of said restraining bracket member, said horizontal portion extending outwards from said vertical wall;
 - an elongated rod member movably extending through said elongated opening of said restraining bracket member and adapted to be positioned in a substantially vertical manner adjacent to said urinal and be moved in a substantially vertical and lateral

manner within said elongated opening, said elongated rod member having an upper end secured to said coupling member, and a lower end,
a circular compression spring movably mounted in a surrounding manner at a lower portion of said elongated rod member, an abutment pin member mounted on said elongated rod member and adapted to prevent said compression spring from moving up said elongated rod member,
an abutment bracket member mounted on said wall and having a retaining opening formed in a horizontal portion therein adapted to engage slidably with the lower portion of said elongated rod member, and the lower end of said compression spring being in abutment with said abutment bracket member,
a foot pedal member mounted at the lower end of said elongated rod member and positioned in a spaced manner above the ground.

level, said second predetermined fluid level being relatively higher than said first predetermined fluid level.

5,802,628 PRESSURE FLUSHING DEVICE DISCHARGE EXTENSION

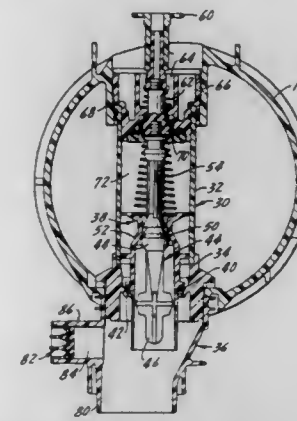
Carl Spoeth, Bayonet Pointe, Fla.; Joseph M. Bosman, Richmond, Mich.; Dan Orlowski, Holland, Ohio, and Ming Ge, Farmington Hills, Mich., assignors to Sloan Valve Company, Franklin Park, Ill.

Filed Jun. 17, 1997, Ser. No. 877,105

Int. Cl.⁶ E03D 3/10

U.S. Cl. 4—359

9 Claims



5,802,627 FLUID OPERATED TILTING BOWL TOILET

Shu-Ki Yeung, 936 White Street, Saint-Laurent, Quebec H4M 2W6, Canada

PCT No. PCT/CA95/00121, § 371 Date Aug. 8, 1996, § 102(e)

Date Aug. 8, 1996, PCT Pub. No. WO95/23261, PCT Pub. Date Aug. 31, 1995

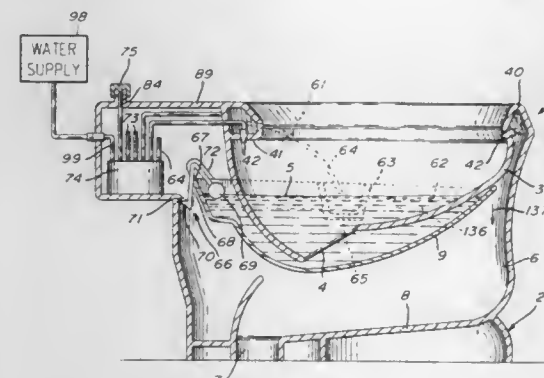
PCT Filed Feb. 28, 1995, Ser. No. 693,084

Claims priority, application United Kingdom, Feb. 28, 1994, 9403776; Canada, Mar. 1, 1994, 2101913

Int. Cl.⁶ E03D 11/10

U.S. Cl. 4—313

14 Claims



1. A toilet comprising:
 - a frame defining a chamber,
 - a toilet bowl disposed within said chamber between an upper chamber region and a lower chamber region, said toilet bowl having a lower discharge opening in communication between said upper chamber region and said lower chamber region,
 - a tilting bowl disposed generally in said lower chamber region of said frame, said tilting bowl defining a fluid-receiving volume,
 - said tilting bowl mounted for pivoting movement relative to said toilet bowl between a first position with said fluid-receiving volume at least partially overlapping said toilet bowl and containing said lower discharge opening, and a second position permitting flow of fluid from said toilet bowl, through said lower discharge opening, and from said fluid-receiving volume into said lower chamber region,
 - said tilting bowl, in said first position, retaining a volume of fluid in said fluid-receiving volume sufficient to engage said lower discharge opening in a manner to restrict flow of gas therethrough, said tilting bowl adapted to remain in said first position when containing said volume of fluid below a first predetermined fluid level, and
 - said tilting bowl adapted to move from said first position toward said second position in response to introduction of additional fluid into said fluid-receiving volume when fluid in said fluid-receiving volume exceeds a second predetermined fluid

1. A pressure flush system for use within a toilet tank including a pressure flush tank, an air inlet for said pressure flush tank, a water inlet for said pressure flush tank, with said pressure flush tank, prior to discharge, containing water under pressure, valve means within said pressure flush tank a water discharge for said pressure flush tank to direct water to a toilet bowl, said water discharge including a housing attached to said pressure flush tank, and a one way check valve in said water discharge housing and outside of said pressure flush tank, said one way check valve preventing water passing therethrough and into the toilet tank when said pressure flush tank is discharged, said one way check valve permitting draining of water outside of said pressure flush tank and within the toilet tank through said water discharge housing.

5,802,629 SELF-DRAINING POOL COVER

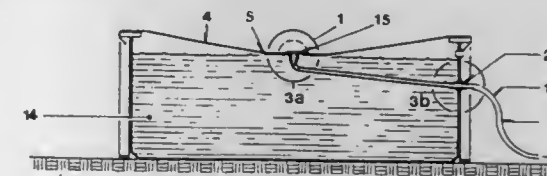
Edward Zietek, 100 Riverside Dr., New York, N.Y. 10024

Filed Jan. 8, 1997, Ser. No. 780,678

Int. Cl.⁶ E04H 4/00

U.S. Cl. 4—498

14 Claims



1. A self draining pool cover for covering water in a pool comprising:
 - a pool cover having a surface area and an aperture located within a portion of said surface area, said portion of said surface area of the pool cover being at a lower elevation than a remaining surface area of said pool cover to remove accumulations from the pool cover by gravity through said aperture, said lower elevation being at a water level of the pool, and conduit means for disposing said accumulations fully

through said aperture, said conduit adapted to be containment being connected to an outlet in a wall of the pool, and said conduit means having at least a portion thereon disposed below the water in the pool and a portion connected to a drain fitting having a drain opening, said drain opening being substantially level with said portion of said surface area of said pool cover at water level, such that a substantial amount of accumulations do not collect on top of said cover before the accumulations are drained through said drain opening.

5,802,630

INSULATED COVER FOR A HOT TUB

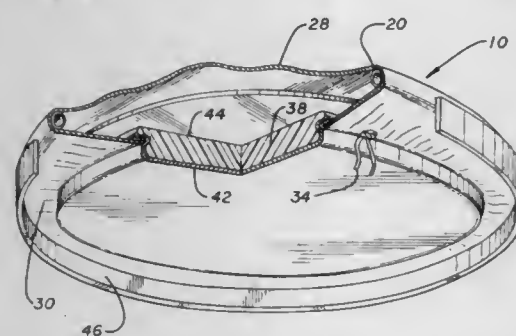
Borg Hansen, Calabasas, and Rafael Gonzalez, Lancaster, both of Calif., assignors to Softub, Inc., Chatsworth, Calif.

Filed Apr. 14, 1997, Ser. No. 840,162

Int. Cl.⁶ D04H 4/08

U.S. Cl. 4—498

15 Claims



1. An insulated cover for removable mounting onto a spa tub having an upstanding peripheral side wall, said insulated cover comprising:

an outer frame ring formed in a closed loop configuration having a size and shape to rest on top of the side wall of the spa tub; a structural membrane formed from a flexible material substantially impermeable to passage of air and water, said structural membrane being stretched across said frame ring with an outer margin of said structural membrane wrapped over said frame ring;

means for adjustably, radially constricting said outer margin of said structural membrane to retain said structural membrane on said frame ring; and

an insulation member having a size and shape to fit generally within the side wall of the spa tub, said insulation member having a peripheral groove formed therein, said means for adjustably, radially constricting being seated within said groove for coupling said insulation member with said structural membrane.

5,802,631

POOL LINER INSTALLATION METHOD AND APPARATUS

Jerome Friedman, 3 Briarwood Dr., Somerset, N.J. 08873

Filed Jul. 1, 1996, Ser. No. 674,094

Int. Cl.⁶ E04H 4/14

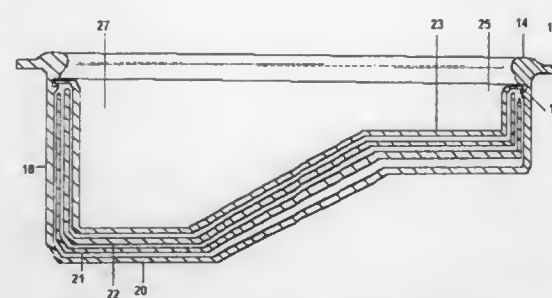
U.S. Cl. 4—506

19 Claims

1. A method for installing a liner into a swimming pool having at least one wall, a bottom, an upper periphery and containing a fluid, said liner comprising a sheet of flexible plastic material having an outer edge and a shape roughly conforming to said swimming pool said swimming pool including retaining means for receiving and maintaining said outer edge of said liner adjacent said upper periphery, said method substantially comprising the steps of:

[a] securing a portion of said outer edge at a first position of said liner retaining means at a first wall position on said wall;

[b] attaching pulling means for pulling said liner to said outer edge at a second position of said liner substantially opposite said first position of said liner;



[c] pulling said pulling means along the bottom of said A swimming pool to a second wall position opposite said first wall position and securing said outer edge into said liner retaining means, whereby at least 50% of said fluid is scooped up into said liner; and

[d] pumping fluid directly into said liner from between the wall and floor and said liner; whereby at least 75% of said fluid is conserved by said method.

5,802,632

PATIENT TRANSFERRING APPARATUS

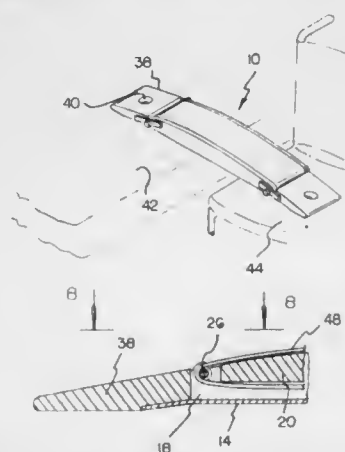
Jerry L. Campbell, 15 Oakwood Rd., Winter Haven, Fla. 33880

Filed Feb. 7, 1996, Ser. No. 597,834

Int. Cl.⁶ A61G 7/08

U.S. Cl. 5—81.1 C

3 Claims



1. A patient transferring apparatus for assisting in moving a patient from a bed to a wheel chair and back again comprising, in combination:

an elongated board portion having a flat bottom level and two side walls extending upwardly from opposing side edges of the flat bottom level, the two side walls having thin end portions and wider intermediate portions, the flat bottom level and the two side walls defining a pair of end portions, the elongated board portion having a top level secured between the two side walls, spaced upwardly from, and generally parallel to the flat bottom level;

a pair of rollers, each of the rollers having a shaft portion, the shaft portion rotatably secured within each of the pair of end portions of the elongated board portion, the shaft portion having end portions extending outwardly of the two side walls of the elongated board portion, the end portions of the shafts having ball bearings coupled thereto by a cap, the cap having extension portions secured to the two side walls of the elongated board portion;

a pair of end plates secured to the pair of end portions of the elongated board portion, each of the pair of end plates having a finger hole formed therethrough, the pair of end plates extending the elongated board portion for securement between a bed and a wheel chair;

an endless belt extending about the shaft portions of the pair of rollers and being movable with respect to the pair of rollers.

5,802,633

PORTABLE PATIENT LIFT ASSEMBLY

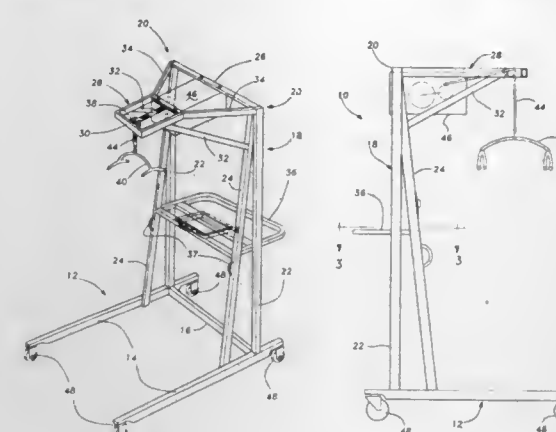
Guido Capaldi, 816 S. Hughes, Howell, Mich. 48843

Filed Dec. 2, 1996, Ser. No. 759,142

Int. Cl.⁶ A47D 7/14; 7/10

U.S. Cl. 5—86.1

14 Claims



1. A portable patient lift assembly for lifting and transporting a patient comprising:

a base;

a support frame extending vertically upwardly from said base to spaced top ends;

a cross beam interconnecting said top ends;

a lift frame extending outwardly in a cantilevered fashion from said cross beam to a distal end;

said assembly characterized by said lift frame having sides spaced inwardly from said top ends of said support frame, said cross beam having ends, the first pair of braces having upper and lower ends, said upper ends attached to said sides of said lift frame and extending downwardly and outwardly to said lower ends, said lower ends attached to said support frame, below said top ends thereof; and

said lift frame including a second pair of horizontal braces having outer ends and inner ends, said outer ends attached to said sides of said lift frame and spaced inwardly from said upper ends of said first pair of braces, said inner ends attached to said support frame at said top ends thereof.

5,802,634

BED WITH HEIGHT ADJUSTING MEANS, CONVERTIBLE FROM INFANT USE TO ADULT USE

Ichiro Onishi, and Kenzo Kassai, both of Osaka, Japan,

assignors to Aprica Kassai Kabushikikaisha, Osaka, Japan

PCT No. PCT/JP96/01040, § 371 Date Dec. 17, 1996, § 102(e)

Date Dec. 17, 1996, PCT Pub. No. WO96/32870, PCT Pub.

Date Oct. 24, 1996

PCT Filed Apr. 17, 1996, Ser. No. 750,732.

Claims priority, application Japan, Apr. 21, 1995, 7-096847;

Oct. 18, 1995, 7-270052

Int. Cl.⁶ A47D 7/01; 15/00; 7/00

U.S. Cl. 5—93.2

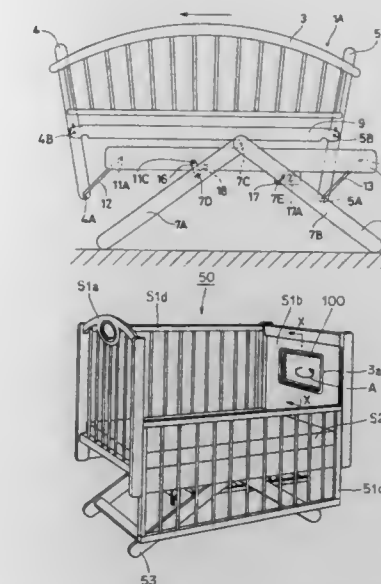
25 Claims

1. A bed comprising

a bed part,

a frame body enclosing the periphery of said bed part and having a changeable configuration thereby rendering a surface area of said bed part changeable in size from a minimum size suitable for an infant's use of said bed to a maximum size suitable for an adult's use of said bed, and

height adjusting means for supporting said bed part and adjusting a height of said bed part relative to a floor face, wherein said height adjusting means comprises a leg part that includes two leg members pivotally joined together at a substantially central portion for adjusting the height of said bed part from



the floor face by being pivotally bent about said substantially central portion in an inverted V shape.

5,802,635

FOLDABLE CRADLE

Jr Long Chen, No. 17, Lane 431, Lien Tsuen Road, Fong Yuan

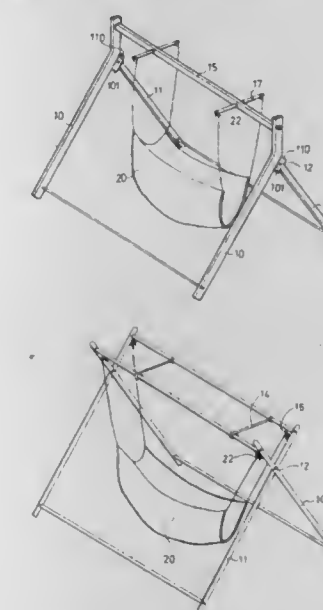
City, Taichung, Taiwan

Filed May 22, 1997, Ser. No. 862,038

Int. Cl.⁶ A47D 9/00

U.S. Cl. 5—102

2 Claims



1. A foldable cradle comprising:

a pair of frames pivotally coupled together at a pivot shaft, for allowing said frames to be rotated about said pivot shaft and to be rotated between an open position and a folded position, a first of said frames includes an upper portion having a beam, said first frame including an upper and middle portion having two pairs of ears for securing said pivot shaft, a second of said frames including at least one positioning bar for engaging with said first frame and for maintaining said frames at said open position, two rods secured to said beam and perpendicular to said beam, said rods each including two ends,

a support, and
means for securing said support to said ends of said rods.

5,802,636

INTEGRATED SIDERAIL AND ACCESSORY RAIL FOR A BED

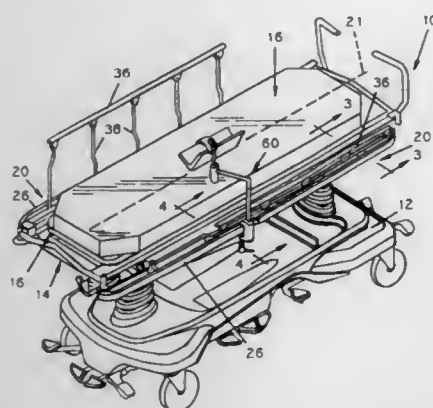
Scott M. Corbin, Sunman, Ind.; Jeffrey A. Moster, Cincinnati, Ohio; Robert W. Wilson, Batesville, and John D. Miller, Brookville, both of Ind., assignors to Hill-Rom, Inc., Batesville, Ind.

Filed Nov. 12, 1996, Ser. No. 747,318

Int. Cl.⁶ A47C 21/08

U.S. Cl. 5—425

21 Claims



1. A rail apparatus configured to be mounted to a frame of a bed as a unit, the apparatus comprising:
an elongated mounting rail;
at least one mounting bracket for coupling the mounting rail to the frame;
an accessory rail coupled to the mounting rail, the accessory rail being configured to receive accessory items;
a siderail including a plurality of tubes and a top rail, each tube having a first end pivotally coupled to the top rail and a second end pivotally coupled between and supported by the mounting rail and the accessory rail; and
a spacer block between the pivotal coupling of the second end and the accessory rail of a sufficiently width to permit mounting of accessory items to the accessory rail adjacent the siderail without interfering with pivoting of the siderail.

5,802,637

DUST RUFFLE CONSTRUCTION

Nancy Bordo, 200 E. 27th St., Apt. 11D, New York, N.Y. 10016

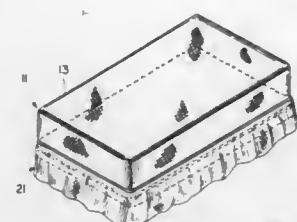
Filed Jan. 6, 1997, Ser. No. 779,168

Int. Cl.⁶ A47C 31/11; A47G 9/04

U.S. Cl. 5—493

27 Claims

1. A decorative fabric skirt or cover for bedding, furniture and the like having a continuous outside surface comprising an elongated fabric sleeve having a first end and a second end and including an outer fabric wall and an inner fabric wall for defining an elongated passage running therebetween;
wherein said passage has a length defined by said walls of said sleeve and carries an elongated tape member intermediate to said inner and outer fabric walls and which is elastic along at least a portion of said length, said tape member being sized to selectively extend along a majority of the circumferential outer surface of said bedding, furniture and the like, said tape member having first and second ends extending beyond said ends of said fabric sleeve when carried within said passage, said tape member including an attachment for selectively connecting said ends thereof to each other such that said skin or cover is selectively girdled by said tape member and thus



fixed in position about said circumferential surface of said bedding, furniture and the like.

5,802,638

ADJUSTABLE LOAD SUPPORTING APPARATUS

George Christopher Parker, Westcliff-on-Sea; Mark A. Sanders, Windsor, and Alexander Joseph Kalogroulis, Coulsdon, all of United Kingdom, assignors to Keymed (Medical & Industrial Equipment) Ltd., Essex, United Kingdom

PCT No. PCT/GB94/00557, § 371 Date Oct. 17, 1995, § 102(e) Date Oct. 17, 1995, PCT Pub. No. WO94/21209, PCT Pub. Date Sep. 29, 1994

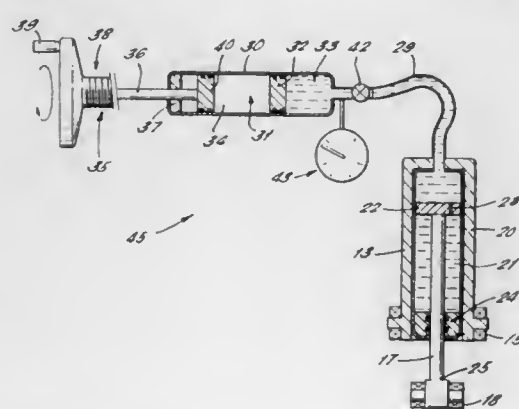
PCT Filed Mar. 18, 1994, Ser. No. 522,341

Claims priority, application United Kingdom, Mar. 18, 1993, 9305552

Int. Cl.⁶ A47B 7/00; F16D 31/02; F15B 21/04

U.S. Cl. 5—611

29 Claims



1. Apparatus for use in supporting a load at an adjustable height comprising a rest portion for supporting a load in use, a base connected to the rest portion by a linkage facilitating adjustment of the height of the rest portion relative to the base and locking means selectively operable in a locking state to lock the position of the rest portion relative to the base and in an unlocked state to facilitate height adjustment, wherein the apparatus further comprises a gas spring operable at least when the locking means is in an unlocked state to apply a spring force directly or indirectly between the base and the rest portion and adjustment means operable independently of height adjustment to adjust the spring force such that an upward component of the spring force acting on

the rest portion has a value which is thereby adjustable to exceed the weight of the rest portion by an amount substantially corresponding to the weight of the load and which remains substantially constant throughout the available height adjustment of the rest portion, the gas spring comprising a cylinder defining a chamber receiving a quantity of gas and a first piston movable within the cylinder in response to pressure of gas, the adjusting means comprising a second piston mounted in the cylinder to be movable independently of the first piston such that the volume of gas occupies a first portion of the chamber bounded by the first and second pistons, and wherein the adjusting means further comprises pump means operable to pressurize a volume of hydraulic fluid and communicating with a volume of hydraulic fluid filling a second portion of the chamber of the gas spring chamber bounded by the second piston whereby the pumping means is actuable to deliver fluid into the second portion of the chamber so as to move the second piston in a direction in which the gas volume is decreased.

5,802,639

VARIABLE FORCE CLUTCH FOR LINEAR ACTUATOR

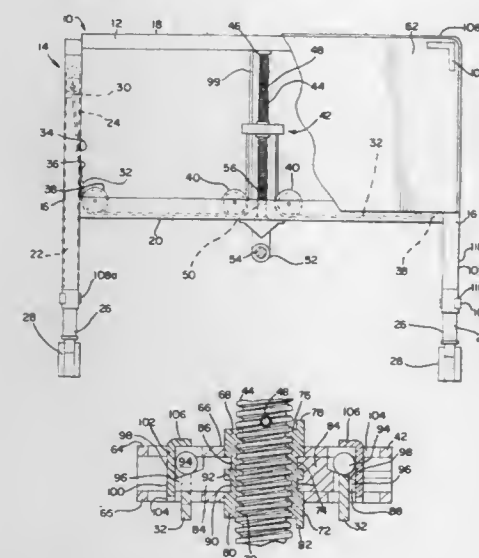
Jason J. Raasch, Wheeling, and Andrey E. Frolov, Glenview, both of Ill., assignors to Midwest Air Technologies, Inc., Lincolnshire, Ill.

Filed Oct. 29, 1996, Ser. No. 741,386

Int. Cl.⁶ A61G 7/02; F16H 27/02

U.S. Cl. 5—611

19 Claims



15. An adjustable bed, comprising:
a head end having a pair of head end legs telescopically inserted therein;
a foot end having a pair of foot end legs telescopically inserted therein;
a generally planar mattress-bearing platform extending between and supported by said head end and said foot end;
a pair of drive screws, one said screw associated with each of said head end and said foot end, each said drive screw being threaded and vertically oriented on said bed, having upper and lower stop pins, and being constructed and arranged for axial rotation relative to said respective end;
a pair of nut housings, one such housing provided with an annular bore for accommodating a corresponding one of said drive screws;
a pair of bed end cables connecting upper ends of said foot end legs with said corresponding nut housing for at least one of said head end, and said foot end each said cable having a barreled end for engaging said nut housing;
a nut in each nut housing configured for engagement in said bore, having a threaded interior surface for engaging threads of said drive screw, an exterior surface provided with grooves, an upper end having a stop lug, and a lower end having a stop

5,802,640

PATIENT CARE SYSTEM

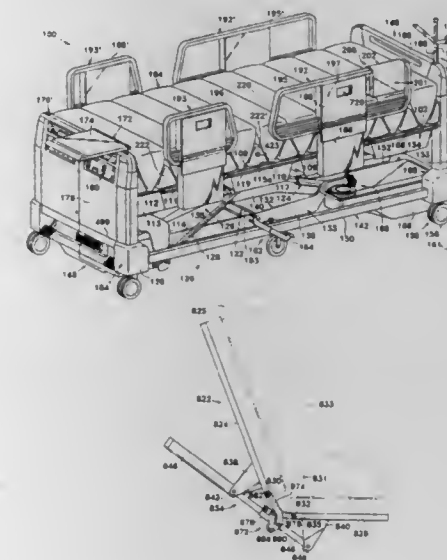
Robert J. Ferrand, Woodside; Marc M. Thomas; Lincoln J. Alvord, both of Redwood City; Stephen D. Smith, San Francisco; Steven N. Roe, San Mateo; Richard W. O'Connor, San Francisco; William A. Gilmartin, Los Altos Hills; William Loh, San Ramon; William R. Fish, San Jose; Jonathan Salzedo, Sunnyvale; Charles W. Nader, Mountain View; Wesley E. Grass, Palo Alto; John E. Looper, San Francisco; Dean T. Miller, and Celia Oakley, both of Redwood City, all of Calif., assignors to Hill-Rom, Inc., Ind.

Continuation-in-part of Ser. No. 864,881, Apr. 3, 1992, Pat. No. 5,279,010. This application Dec. 3, 1993, Ser. No. 162,514

Int. Cl.⁶ A61G 7/06

U.S. Cl. 5—617

53 Claims



1. A bed comprising:
a frame supported on a floor;
a platform configured to support a person;
means for supporting said platform on said frame, including first and second hydraulic ram means, each ram means having opposite ends attached to said frame and said platform, respectively, with the respective ends of said first and second ram means attached to said frame being spaced apart, said first and second ram means being operable for lowering said platform toward a lowered position adjacent to said frame; and
means for transferring weight from said platform directly to said frame when said platform is in a lowered position.

5,802,641
LEG HOLDER SYSTEM FOR SIMULTANEOUS
POSITIONING IN THE ABDUCTION AND LITHOTOMY
DIMENSIONS

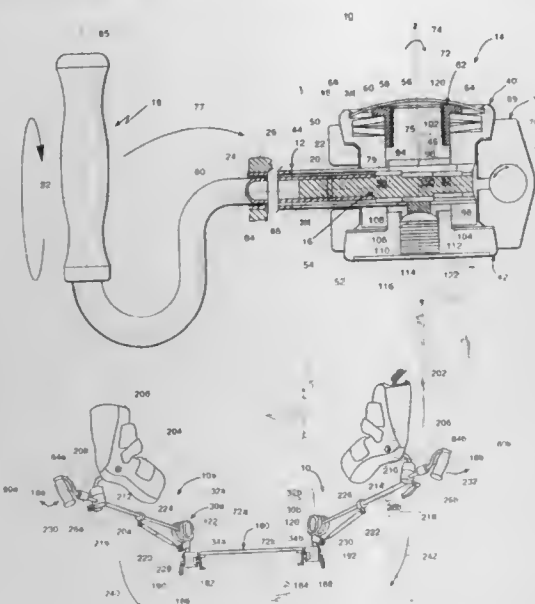
Kip Van Steenburg, Sudbury, Mass., assignor to Amatech Corporation, Acton, Mass.

Filed Mar. 7, 1997, Ser. No. 813,708

Int. Cl.⁶ A61G 13/12

U.S. Cl. 5—648

13 Claims

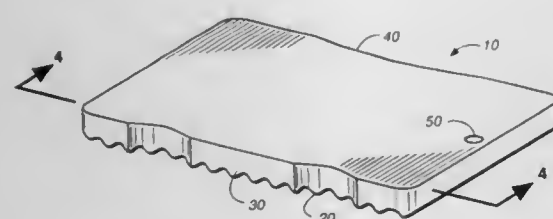


1. A leg holder system for simultaneous positioning in an abduction dimension and a lithotomy dimension comprising:
a support device, having a longitudinal axis, for supporting a leg cradle;
a clamping device for mounting a proximate end of said support device to a mounting device having a first axis transverse to said longitudinal axis and selectively simultaneously clamping and releasing motion of said support device about said first axis and about a second axis transverse to both said first axis and said longitudinal axis, said support device fixed in said clamping device from rotation about said longitudinal axis;
an actuator device for actuating said clamping device to simultaneously selectively clamp and release said support device and said mounting device; and
an operator device remote from said clamping device and said actuator device for operating said actuator device to enable said support device to move jointly about both said first and said second axes in the abduction and lithotomy dimensions.

5,802,642
LOUNGING CUSHION
Cheryl Slaughter, 3737 Sunflower Dr., Redding, Calif. 96001
Filed Jul. 18, 1995, Ser. No. 503,526
Int. Cl.⁶ A47C 16/04

U.S. Cl. 5—656

12 Claims



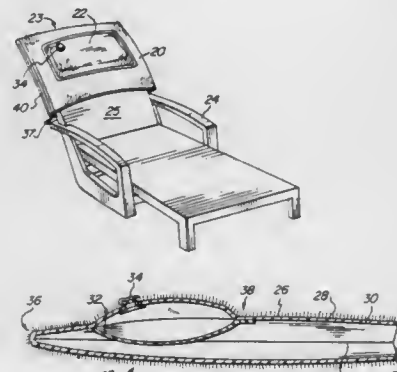
1. A lounging cushion comprising:

buoyant waterproof material of rectangular shape having two opposing long sides and two opposing short sides, said cushion having a ribbed underside, one of said cushion's long sides forming a pair of indentations, said first indentation proximate to one of said cushion's short sides, said second indentation proximate to said cushion's other short side.

5,802,643
SLIPCOVER WITH AN INFLATABLE PILLOW
Alexander Sloat, Sugarloaf, Pa., assignor to Printmark Industries, Inc., Hazleton, Pa.
Filed Nov. 8, 1996, Ser. No. 745,328
Int. Cl.⁶ A47C 20/02

U.S. Cl. 5—656

14 Claims



1. A slipcover for furniture comprising:
(a) a first sheet having an outer layer of fabric attached to an inner layer of thermoplastic material;
(b) a second, smaller sheet attached to the inner layer of the first sheet so as to form an inflatable pillow;
(c) a valve located in at least one of the sheets so as to enable the pillow to be inflated; and
(d) a backing layer attached to the first sheet so as to create a pocket-shaped slipcover with the inflatable pillow in an interior of the slipcover whereby the slipcover can receive a portion of the furniture.

5,802,644
ROLL-UP TRAVEL PILLOW WITH COMPRESSION WRAPPER

Robert S. Scheurer, Wichita Falls, Tex., assignor to Texas Recreation Corporation, Wichita Falls, Tex.

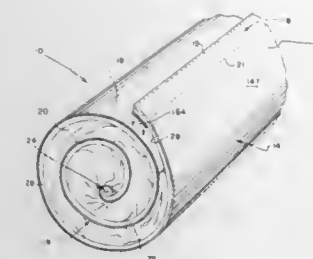
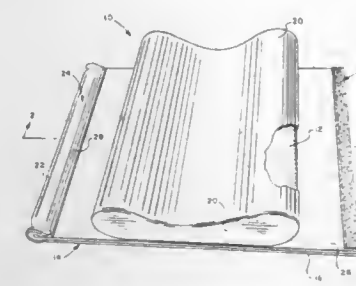
Filed Jun. 18, 1997, Ser. No. 877,388

Int. Cl.⁶ A47G 9/02

U.S. Cl. 5—640

5 Claims

1. A roll-up travel pillow comprising:
a block of resilient, compressible material;
a compression wrapper including a core end portion, a tail end portion and a sheet of hook-compatible or loop-compatible fabric material extending between the core end portion and the tail end portion, thereby forming an external fastener surface on the compression wrapper;
a strip of hook-compatible or loop-compatible fastener material secured onto the tail end portion; and
the compressible block and compression wrapper being rollable about the core end portion in convoluted relationship with each other in a compressed, rolled-up configuration, and the strip of complementary fastener material being engagable in a



releasable interlocking union with the external fastener surface in the compressed, rolled-up configuration.

5,802,645
LOW AIR LOSS BAG FOR PATIENT SUPPORT
John H. Vrzalik, San Antonio, Tex., assignor to Kinetic Concepts, Inc., San Antonio, Tex.

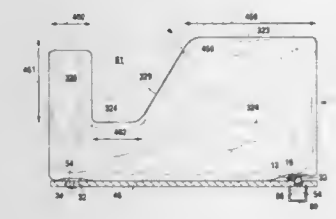
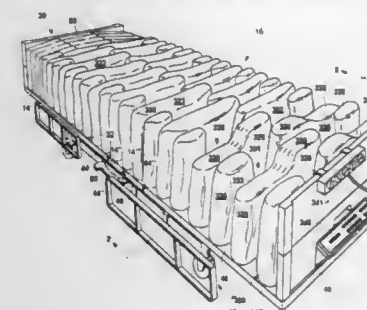
Continuation of Ser. No. 822,366, Mar. 20, 1997, abandoned, which is a continuation of Ser. No. 618,337, Mar. 19, 1996, abandoned, which is a continuation of Ser. No. 299,326, Aug. 31, 1994, abandoned, which is a continuation of Ser. No. 948,460, Sep. 21, 1992, abandoned, which is a continuation of Ser. No. 494,787, Mar. 12, 1990, abandoned, which is a continuation of Ser. No. 273,759, Nov. 17, 1988, abandoned, which is a continuation of Ser. No. 57,516, Jun. 1, 1987, abandoned, which is a continuation-in-part of Ser. No. 905,553, Sep. 9, 1986, abandoned, which is a continuation-in-part of Ser. No. 784,875, Oct. 4, 1985, abandoned, which is a continuation-in-part of Ser. No. 683,153, Dec. 17, 1984, abandoned. This application Oct. 15, 1997, Ser. No. 950,656

Int. Cl.⁶ A61C 7/04

U.S. Cl. 5—710

3 Claims

1. An improved air sac for use in a patient support system



comprising a plurality of air sacs transversely mounted thereto for supporting a patient, comprising:

an inflatable enclosure provided with portions defining first and second ends, an interior, a substantially rectangular vertical cross-section, and a top surface for distributing any pressure exerted against a patient supported thereon to prevent pressure points, the top surface having at least first and second sloped portions;
means for connecting the interior of the enclosure with a source of gas for inflating and deflating the enclosure with the gas; at least one means formed in the top surface of the enclosure for rolling the patient toward the first end of the enclosure; and at least one means formed in the top surface of the enclosure for retaining the patient supported thereon when the patient is rolled toward the first end of the enclosure by the rolling means.

5,802,646
MATTRESS STRUCTURE HAVING A FOAM MATTRESS CORE

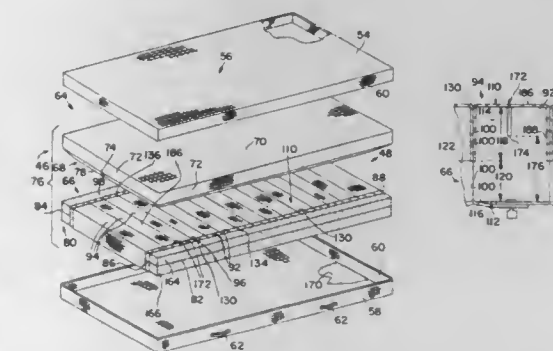
James R. Stolpmann, Gary W. Ferdon, both of Charleston, and Roger D. Dalton, Monsks Corner, all of S.C., assignors to Hill-Rom, Inc., Batesville, Ind.

Filed May 24, 1996, Ser. No. 653,416

Int. Cl.⁶ A47C 27/15

U.S. Cl. 5—740

39 Claims



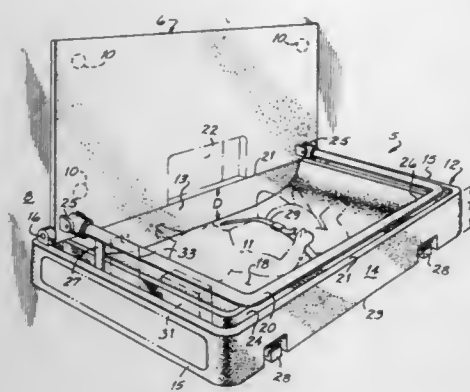
39. A mattress structure consisting essentially of a cover having an interior region, and a plurality of foam columns located within the interior region of the cover, each foam column having opposite sidewalls configured to abut a sidewall of an adjacent column, each sidewall having a shear covering surface which has a low coefficient of friction to reduce frictional forces resulting from engagement of adjacent column sidewalls during compression and decompression of the columns, and a shear layer located between the plurality of columns and the cover.

5,802,647
BABY DIAPER CHANGING STATION
John A. Helmsderfer, Windsor Ave., Cincinnati, Ohio 45206
Filed Jun. 7, 1995, Ser. No. 478,951
Int. Cl.⁶ A47D 5/00

U.S. Cl. 5—947

12 Claims

1. A wall-mounted station (for changing the diapers of a baby) comprising:
a support platform having a top edge and opposing sides, the support platform hingedly fixed at one side with respect to a wall;
the support platform being movable between an opened position wherein the platform is hinged away from the wall and is disposed generally perpendicular to the wall for receiving a baby and a closed position wherein the platform is up against the wall and is disposed generally parallel to the wall plane;
a rail structure movably mounted proximate at least one side of the support platform for automatic movement with respect to the platform;



a mechanism for moving the rail structure to an erected position when the platform is moved to the opened position wherein the rail structure has an upper edge positioned above the top edge of the platform to define an effective depth for the support platform for effectively containing a baby on the platform, the mechanism allowing the rail structure to move to a collapsed position when the platform is moved to the closed position wherein the rail structure is retracted against the support platform for a close seal of the platform against the wall to comply with building regulations.

5,802,648

APPARATUS AND METHOD OF FABRIC CLEANING

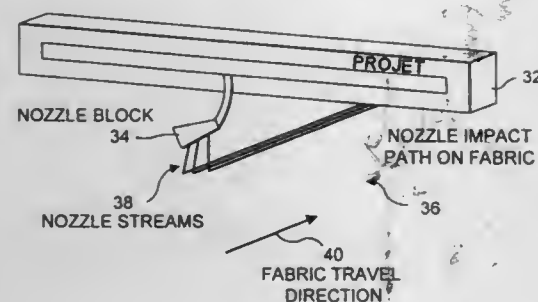
John A. Neun, Clifton Park; Peter T. Carstensen, Adirondack, both of N.Y., and Salvatore C. Panarello, Sewell, N.J., assignors to Thermo Fibertek Inc., Waltham, Mass.

Filed Jul. 6, 1995, Ser. No. 498,909

Int. Cl.⁶ D06B 5/02

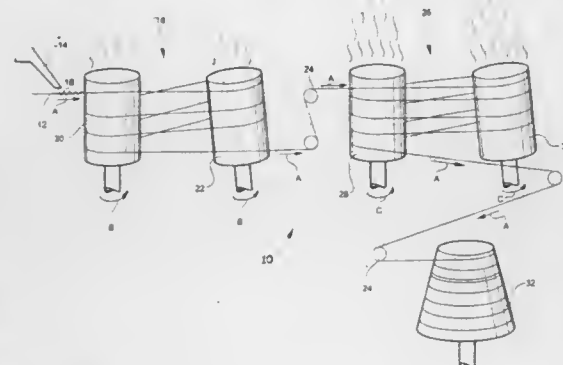
U.S. Cl. 8—151

12 Claims



1. A method cleaning a fabric traveling in a direction through the effect of a water jet impacting thereon comprising the steps of: providing a jet of water at a pressure of approximately 1600 psi and above whereupon a change in the amount of pressure of the jet allows a change in the mass and velocity of water used so that a desired amount of energy of the jet is maintained; causing said jet of water to impact on a fabric which is to be cleaned; and moving said jet across said fabric in a direction substantially perpendicular to the direction of travel of the fabric.

5,802,649
METHOD AND APPARATUS FOR DYEING A TRAVELING TEXTILE STRAND
James O. Threlkeld, Charlotte, N.C., assignor to FYPRO, Charlotte, N.C.
Continuation of Ser. No. 599,800, Feb. 12, 1996, abandoned.
This application Aug. 21, 1997, Ser. No. 916,072
Int. Cl.⁶ D06B 5/06; 15/00
U.S. Cl. 8—151.2 20 Claims



1. A method for dyeing a traveling textile strand comprising the steps of: providing a traveling textile strand moving along a predetermined travel path; providing means for applying a liquid to the traveling strand; applying the liquid to the traveling strand using the applying means; providing first means for heating the traveling strand to a first predetermined temperature; heating the traveling strand to the first predetermined temperature using the first heating means; providing second means for heating the traveling strand to a second predetermined temperature, the second heating means being disposed adjacent to and downstream of the first heating means; directing the traveling strand from the first heating means next to the second heating means; heating the traveling strand to the second predetermined temperature using the second heating means; directing the traveling strand from the second heating means next to a bobbin disposed adjacent to and downstream of the second heating means at an end of the travel path, and winding the traveling strand on the bobbin to form a finished package.

5,802,650

DOCK LEVELER HAVING AN INFLATABLE MEMBER

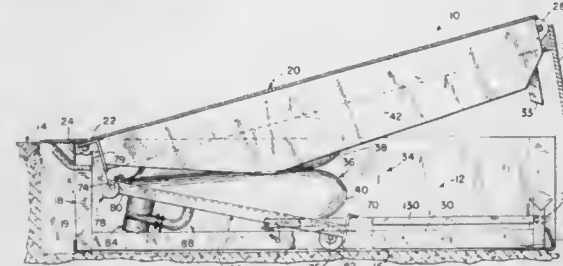
Douglas H. Massey, New Berlin, Wis., and Charles H. Hodges, Ruxton, Md., assignors to Kelley Company, Inc., Milwaukee, Wis.

Continuation-in-part of Ser. No. 380,956, Jan. 31, 1995, Pat. No. 5,600,859, and Ser. No. 131,983, Oct. 4, 1993, Pat. No. 5,411,693. This application Sep. 20, 1995, Ser. No. 531,011

Int. Cl.⁶ E01D 1/00; B65G 69/28

U.S. Cl. 14—71.3

11 Claims



6. A method of operating a dock leveler having a supporting structure, a ramp pivotally-mounted to said support structure at a pivot point, an intermediate member pivotable relative to said ramp, and an inflatable assembly positioned to cause movement of the intermediate member upon inflation of the inflatable member, said method comprising the steps of: inflating the inflatable member; transmitting a force in the intermediate member between the supporting structure and the ramp; and pivoting the intermediate member relative to the ramp and about an axis spaced from the pivot point, thereby pivoting the ramp.

5,802,651

DOCK LEVELER WITH A MOVABLE RAMP AND AN INFLATABLE MEMBER

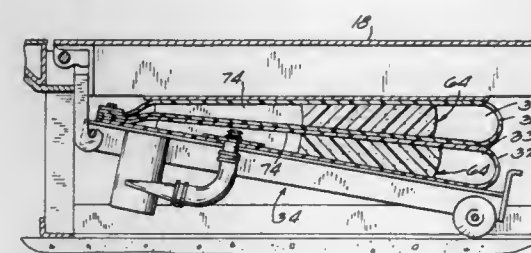
Douglas H. Massey, New Berlin, and Bruce Winter, Muskego, both of Wis., assignors to Kelley Company, Inc., Milwaukee, Wis.

Continuation-in-part of Ser. No. 381,083, Jan. 31, 1995, Pat. No. 5,522,108. This application Jun. 3, 1996, Ser. No. 657,116

Int. Cl.⁶ E01D 1/00; 18/00

U.S. Cl. 14—71.3

18 Claims



10. A dock leveler comprising: a ramp movable between a lowered position and a raised position; an inflatable member positioned to move the ramp to its raised position upon inflation of the inflatable member, the inflatable member including upper and lower portions at least partially defining an internal cavity; an inflating device operatively connected with said internal cavity; and means for maintaining a volume of gas between said upper and lower portions, wherein said maintaining means is positioned within said internal cavity.

5,802,652

BRIDGE DECK PANEL INSTALLATION SYSTEM AND METHOD

Peter Smith, Gansevoort, N.Y., assignor to Fomco International, Schuylerville, N.Y.

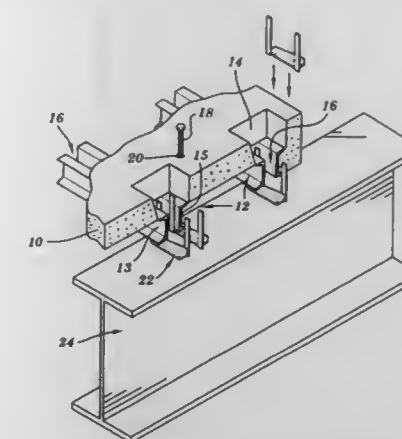
Continuation-in-part of Ser. No. 444,390, May 19, 1995, Pat. No. 5,617,599. This application Jun. 24, 1996, Ser. No. 669,170

Int. Cl.⁶ E01D 19/12; 21/00

U.S. Cl. 14—73

23 Claims

17. A bridge decking system attachable to a system of existing stringers comprising: a deck panel having a plurality of access holes therein; a steel support member mounted across a lower surface of said deck panel; and



a shim positionable between said steel support member and said stringers via one of said access holes.

5,802,653

DEVICE FOR AUTOMATICALLY CLEANING THE BOTTOM AND WALLS OF A SWIMMING-POOL

Max Roumagnac, 7 rue Hector Berlioz, F-33127 Martignas sur Jalles, France

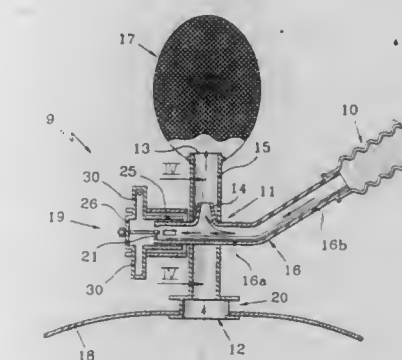
Filed May 6, 1996, Ser. No. 643,571

Claims priority, application France, May 4, 1995, 95 05540

Int. Cl.⁶ E04H 4/16

U.S. Cl. 15—1.7

19 Claims



1. Device for automatically cleaning the bottom and walls of a swimming-pool, comprising:

a suction/discharge body having a suction opening disposed in a plane approximately parallel to a surface to be cleaned at a short distance from a surface, and a discharge orifice; an ejector comprising a venturi diffuser, and a driving nozzle adapted to be connected to a source of pressurized water, said driving nozzle being disposed inside the body; a moveable debris collecting device fluidly connected to said discharge orifice; and wherein in use the nozzle is connected to the source of pressurized water via a conduit having one portion formed by an accordion wall flexible pipe; and propulsion means for creating between the source of pressurized water and said nozzle a transient and repeated outward escapement of pressurized water in the conduit thereby creating a movement of the device by repeated elastic expansion/constriction of the flexible pipe.

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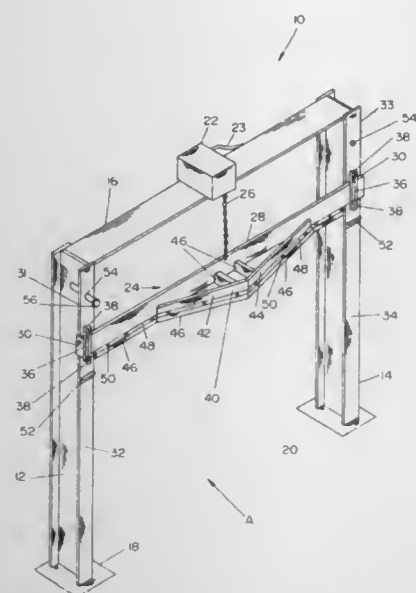
UMI

5,802,654

SNOW AND ICE REMOVER FOR VEHICLE ROOFS
William E. Yeaglin, 966 Wood St., Mount Joy, Pa. 17552
Filed Aug. 11, 1997, Ser. No. 909,359
Int. Cl.⁶ B60S 3/04

U.S. Cl. 15—97.3

10 Claims



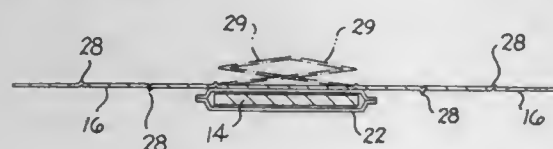
1. A snow and ice remover for vehicles comprising:
two vertical supports separated by a distance sufficient to move a vehicle between the vertical supports; and
a snow plow attached to the vertical supports and located at a height which permits a vehicle to be moved under the snow plow while snow and ice on the roof of the vehicle is pushed off of the vehicle.

5,802,655

CLEANER-WIPER PACKAGE
Thomas W. Denton, 780 Waldon Rd., Orion Township, Oakland County, Mich. 48359
Filed Jul. 18, 1996, Ser. No. 683,134
Int. Cl.⁶ A47K 7/03

U.S. Cl. 15—104.93

12 Claims



1. A cleaner-wiper package comprising:
a pocket structure that includes an imperforate wall and a perforate wall;
a cleaner liquid contained within said pocket structure for passage through said perforate wall onto a work surface when the pocket structure is pressed against said surface;
at least one towel located on said imperforate wall, whereby said towel can be unfolded to wipe cleaner liquid and entrained dirt off of the work surface; and
means for attaching a facial edge area of the folding towel to said imperforate wall.

5,802,656

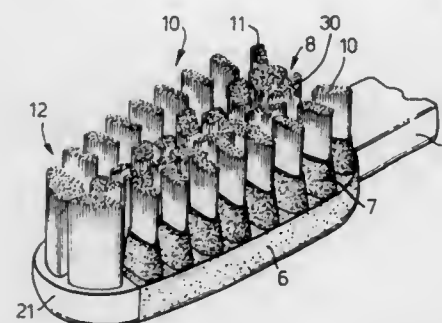
TOOTHBRUSH WITH FLEXIBLY MOUNTED BRISTLES
Peter Leonard Dawson, Upton by Chester, United Kingdom; Bert Davis Heinzelman, Tenafly, N.J.; Donald Richard Lamond, Lynbrook; John Moldauer, Brooklyn, both of N.Y., and Stephen John Raven, Milan, Italy, assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Nov. 27, 1996, Ser. No. 757,365
Claims priority, application United Kingdom, Dec. 1, 1995, 9524580

U.S. Cl. 15—110

Int. Cl.⁶ A46B 9/04

16 Claims



1. A toothbrush comprising a handle and a bristle bearing head, the head comprising a central skeleton with sides flanking the skeleton, a resilient side member mounted on each side of the central skeleton, a plurality of tuft mounting receptacles in the skeleton and in the side members, a plurality of bristles forming tufts received in the tuft mounting receptacles of the skeleton and in the side members, the side member bristle tufts being resiliently movable sideways and downwards in a toggling movement relative to the bristle tufts of the skeleton.

5,802,657

CLEANING DEVICE FOR BROOMS
Juana M. Nogues, and Nelson E. Nogues, both of 3115 NW 96th St., Miami, Fla. 33147
Filed Dec. 2, 1996, Ser. No. 759,248
Int. Cl.⁶ A47L 25/00

U.S. Cl. 15—142

3 Claims



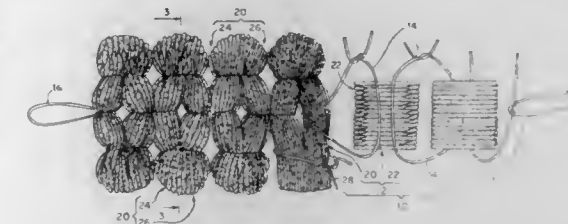
1. A cleaning device for brooms that include an elongated straight handle with two ends and a spine assembly perpendicu-

5,802,659

STRAPLIKE BATH SCRUBBER
Che-Yuan Chang, No. 1, Lane 147, Sec. 2, Chung Sanrd, Yunlin, Chang Hua Hsien, Taiwan
Filed Mar. 18, 1997, Ser. No. 819,995
Int. Cl.⁶ A47K 7/02

U.S. Cl. 15—222

7 Claims



1. A bath scrubber comprising:
a main body formed of a plurality of netlike unit members connected along a predetermined axial direction;
a plurality of first lashing members located respectively between pairs of adjacent unit members; and
two fastening members fastened at respective opposite ends of said main body;
wherein said unit members each have a first portion and a second portion, which are arranged along the direction of a longitudinal axis of said main body and wherein the ends of said first portion and said second portion are connected by a second lashing member.

5,802,658

PAINT AID AND/OR BRUSH
Keith Harold Ward, Surfside, New Zealand, assignor to Tilt-A-Brush Limited, Surfside, New Zealand
Filed Feb. 28, 1996, Ser. No. 608,248
Claims priority, application New Zealand, Feb. 28, 1995, 270586

Int. Cl.⁶ A46B 5/00

U.S. Cl. 15—144.2

5 Claims



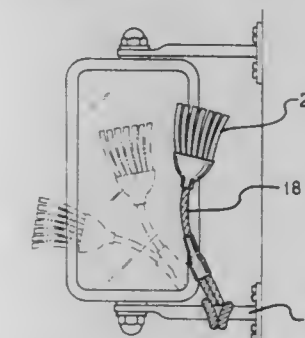
1. A paint aid device comprising
a handle;
a brush head;
connection means between said brush head and said handle;
a ball configuration fixed to said brush head and forming part of said connection means;
a socket to receive said ball configuration within an intermediate member between said brush head and said handle;
a threaded portion within said intermediate member to receive a corresponding threaded portion of said handle within said intermediate member such that said handle can be threaded to apply pressure to a ball of said ball configuration in said socket at a distal end of said intermediate member and thereby lock said ball in place within said socket; and
said intermediate portion having an opening in a wall of said socket portion to accommodate a connecting portion of said ball configuration and allow rotation of said brush head by movement of said connecting portion through said opening;
said opening in said socket portion terminating in at least one end at a side of said wall and being large enough to allow passage of said ball configuration to enable said brush head to be disconnected from said handle when said handle is unthreaded to no longer apply pressure to said ball configuration within said socket.

5,802,660

WIND-ACTIVATED SIDE VIEW MIRROR CLEANER
Timothy C. Appleby, 17 Parkville Road, Withington, Manchester, United Kingdom, M20 4TX
Filed Jul. 31, 1997, Ser. No. 903,602
Int. Cl.⁶ B60S 1/56

U.S. Cl. 15—250.003

11 Claims



2. In a vehicle having a side view mirror attached thereto, a wind activated side view mirror cleaner coupled with said mirror, said cleaner comprising:
a length of cord coupled with the side view mirror of the vehicle; and
a plurality of tassels coupled with a free end of the length of cord.

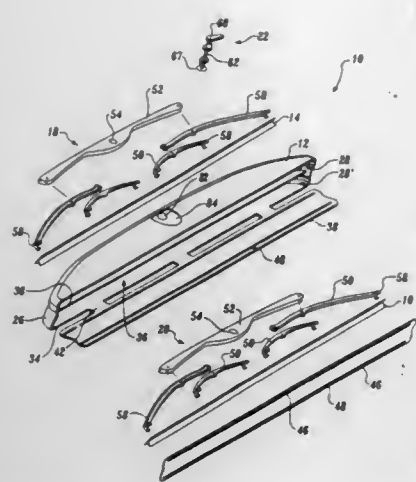
5,802,661

MULTIPLE WINDSHIELD WIPER BLADE ASSEMBLY
James M. Miller, Seattle, and Walter L. Webb, Mukilteo, both of Wash., assignors to Choice, Inc., Seattle, Wash.
Filed Oct. 30, 1997, Ser. No. 960,923
Int. Cl.⁶ B60S 1/38

U.S. Cl. 15—250.41

11 Claims

1. A wiper blade assembly comprising:



- (a) a housing including a shell having a lower opening, the housing including a bottom plate connected to the shell at the lower opening, the bottom plate including at least two slots;
- (b) at least two wiper blades mounted respectively in blade support structures, the wiper blades and blade support structures being positioned within the housing at locations aligned with the bottom plate slots; and
- (c) a switching mechanism coupling the at least two support structures with the housing; the switching mechanism for selectively causing at least one wiper blade to extend through its respective bottom plate slot.

5,802,662

VIBRATION FREE NON-SKIP WIPER BLADES

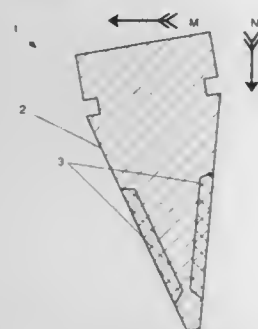
Waldemar Veazie, III, 905 SW. Lighthouse Dr., Palm City, Fla. 34990

Filed Sep. 11, 1996, Ser. No. 712,258

Int. Cl.⁶ B60S 1/35

U.S. Cl. 15—250.48

16 Claims



1. In a windshield wiper assembly including a windshield wiper blade for wiping a windshield surface during a wiping operation, said blade comprising an elongated body of conventional elastomeric material of a first coefficient of friction formed as a squeegee with opposing first and second wiping surfaces converging to an apex, and at least one strip of material of a second, lower coefficient of friction than said first coefficient, said strip having a substantially smooth, continuous third wiping surface, said lower coefficient of friction strip being attached to said body adjacent said first wiping surface and spaced from said apex in order to gradually come into contact with the windshield surface being wiped upon deflection of said body in said wiping operation;

whereby increasing deflection of said wiper blade during said operation gradually increases contact of the first surface of the body up to a full contact area thereof and thereafter increases contact only of the third wiping surface of the lower coefficient of friction strip to thereby lower the average coefficient of the blade and avoid undesirable vibration.

5,802,663
WIPER BLADE WINDSHIELDS OF MOTOR VEHICLES
Paul Criel, St. Truiden, Belgium, assignor to Robert Bosch GmbH, Stuttgart, Germany
PCT No. PCT/DE96/02073, § 371 Date Jul. 10, 1997, § 102(e)
Date Jul. 10, 1997, PCT Pub. No. WO97/21569, PCT Pub. Date Jun. 19, 1997

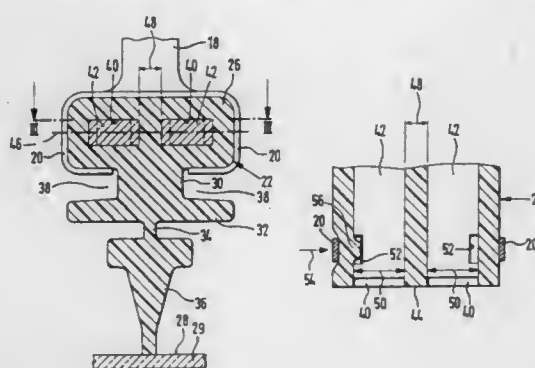
PCT Filed Oct. 31, 1996, Ser. No. 875,411

Claims priority, application Germany, Dec. 12, 1995, 195 46 256.4

Int. Cl.⁶ B60S 1/38

U.S. Cl. 15—250.452

3 Claims



1. A wiper blade (10) for windshields of motor vehicles, said blade comprising an elongated wiping strip (22), which is held by a support frame (12) and can be moved, stressed in a direction of the longitudinal extension over the windshield, wherein the wiping strip (22) has an elongated head strip (26) which is held by the support frame (12), and an elongated sweeping strip (32) connected with it, on whose side facing away from the head strip (26) an elongated wiper lip strip (36) resting against the windshield is fastened by means of an elongated tilting strip (34), wherein elongated spring means (42) made of an elastic material are disposed inside the head strip (26) for distributing a contact load (24), characterized in that the spring means are constituted by at least two flat rod-shaped spring elements (42) each defining opposed edges, which are located in a plane (46), which is at least approximately parallel with a wiping plane (28), and at a distance (48) from each other, and the rod-shaped elongated spring elements (42) are each provided with at least one lateral recess (52,53) in an edge thereof, said recesses opening outwardly from one another, said recesses cooperate with a holding claw (20) of the support frame (12) embracing the head strip (26) wherein the holding claw (20) of the support frame (12) pushes an area of the head strip (26), which forms a wall (56) of a longitudinal channel (40) and around which it grips, into the lateral recess (52,53) of the elongated spring means (42).

5,802,664

POWER HEAD FOR CLEANING MACHINE

Jesse V. Mondigo, Aurora; Gary Edward Palmer, Roselle, and Jerome E. Rau, Hoffman Estates, all of Ill., assignors to Minuteman International, Inc., Addison, Ill.

Filed Oct. 17, 1996, Ser. No. 733,365

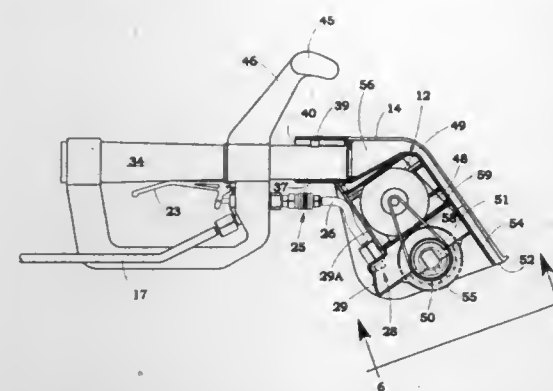
Int. Cl.⁶ A47L 7/00

U.S. Cl. 15—322

9 Claims

1. An apparatus for cleaning material comprising, in combination:

a power head including a housing; a brush rotatably mounted in said housing and adapted to be applied to the material to be cleaned; a motor mounted within said housing for driving said brush; a nozzle in said housing for spraying a cleaning solution under pressure on said material under control of an operator; and means defining a vacuum chamber having an inlet opening adjacent the region of said brush applied to said material and a discharge opening for passing fluid recovered through said inlet; and



a handle adjacent said power head including a suction tube having a first end in fluid communication with said discharge opening of said power head; conduit means for including an actuator for feeding a cleaning solution from a source to said nozzle; and a hand grip mounted to said suction tube; whereby said handle and power head are in close physical proximity for close up work on said material.

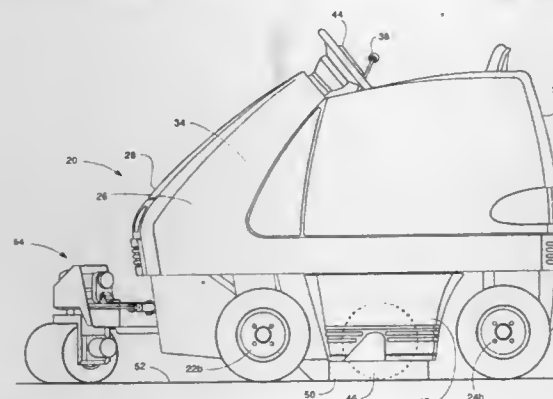
5,802,665

FLOOR CLEANING APPARATUS WITH TWO BROOMS
Christopher M. Knowlton, Pinchurst, N.C.; Robert J. O'Hara, Castle Rock, Colo., and Timothy A. Strickland, Raeford, N.C., assignors to Widsor Industries, Inc., Englewood, Colo.
Continuation-in-part of Ser. No. 233,014, Apr. 25, 1994, Pat. No. 5,485,653. This application Jun. 6, 1995, Ser. No. 479,710

Int. Cl.⁶ A47L 5/00

U.S. Cl. 15—340.4

30 Claims



1. An apparatus for cleaning a surface comprising:
a frame;
means, operatively attached to said frame, for cleaning a surface;
at least three wheels for moving said frame and said means for cleaning over a surface; and
means for steering at least one of said at least three wheels;
wherein said means for cleaning includes a first broom that is substantially located within a first area bounded by an exterior body of the apparatus;
wherein said means for cleaning includes a second broom that, when in use, rotates about an axis that is substantially parallel to a surface and that is located in a second area that is outside of said first area; and
wherein said means for cleaning includes means for selectively positioning said second broom between (1) an operative position in which said axis is substantially parallel to a surface and (2) an inoperative position in which said axis is not substantially parallel to the surface;
wherein said means for cleaning includes means for adjusting the distance of said axis of said second broom relative to the surface when said second broom is in said operative position.

5,802,666

POWER BRUSH FOR A VACUUM CLEANER

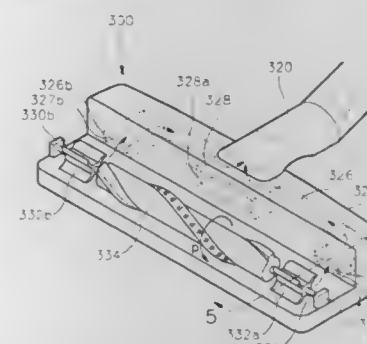
Young-June Jung, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
Filed Sep. 11, 1997, Ser. No. 927,270

Claims priority, application Rep. of Korea, Sep. 30, 1996, P 96-43309

Int. Cl.⁶ A47L 9/04

U.S. Cl. 15—387

9 Claims



1. A power brush for a vacuum cleaner, which comprises:
a brush body for sucking dust by making contact with a floor, said brush body being provided at an end of a rigid wand which is connected to a vacuum cleaner body, a bottom portion of said brush body being open so that a first air flow is introduced into said brush body to contain the dust;
a rotatable roller which is provided at the bottom portion of said brush body, said rotatable roller being rotated for improving a cleaning of said vacuum cleaner, said rotatable roller supporting said brush body while said brush is being moved, a shaft being inserted into said rotatable roller; and
a driving means for generating a rotational force to rotate said rotatable roller, said shaft being inserted therein, said driving means being provided at least at one end of said shaft, said driving means being driven by a second, clean air flow, into the brush body which is introduced into the vacuum cleaner body through said brush body and the rigid wand.

5,802,667

DUCT CLEANING DEVICE

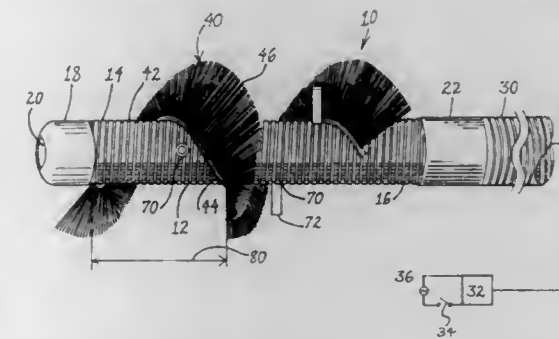
Mark A. Williams, Martinez, Ga., assignor to Paula Steates, Martinez, Ga., a part interest

Filed Sep. 9, 1996, Ser. No. 711,220

Int. Cl.⁶ A47L 5/38

U.S. Cl. 15—395

20 Claims



1. A duct cleaning device, comprising:
a flexible conduit having an interior, a first end, a second end, inlet means at said first end, and outlet means at said second end; and
a sweeper element carried by said conduit, said sweeper element operable to sweep particulates from an interior surface of a duct when said device is inserted therein, said sweeper element extending helically around a portion of said conduit.

5,802,668

CASTER ASSEMBLY

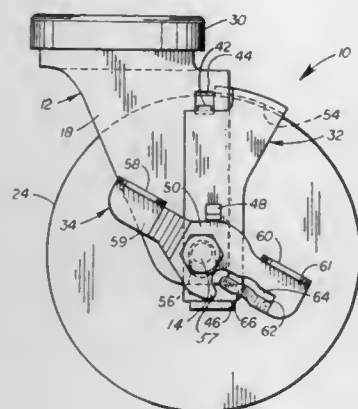
Robert G. Gosselin, Springfield, Mass., assignor to Standex International Corporation, Salem, N.H.

Filed Apr. 16, 1996, Ser. No. 632,894

Int. Cl.⁶ B60B 33/00

U.S. Cl. 16—35 R

19 Claims



1. A caster assembly comprising:

- a horn having at least one downwardly extending leg portion;
- an elongated member supported on at least one said leg portion of said horn;
- a wheel rotatably disposed on said elongated member; a brake disposed on said elongated member for engaging said wheel in an on position and disengaging said wheel in an off position;
- a treadle lever disposed on said elongated member for actuating said brake; and
- a spring integrally formed with said treadle lever, said spring positioned for exerting a separation force between said brake and said treadle lever when said brake is in said off position, whereby rattle of said caster during operation thereof is avoided.

5,802,669

MOLDED SLIDE

Roy A. Wurdack, Warrenton, Mo., assignor to Renovisions, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 143,836, Oct. 27, 1993, Pat.

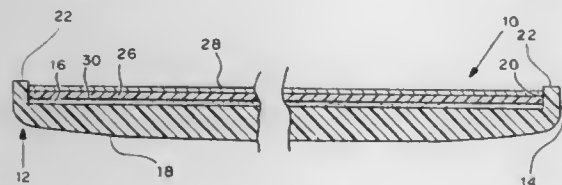
No. 5,469,599. This application Nov. 27, 1995, Ser. No.

562,822

Int. Cl.⁶ A47B 91/06

U.S. Cl. 16—42 R

9 Claims



1. A temporary slide to be partially inserted beneath a floor contact portion of a heavy structure to enable easy sliding, said slide comprising a flexible plate formed of polyoxymethylene homopolymer acetal, having a coefficient of friction of about 0.3 and a pressure versus velocity of about 750 or better and a non-slip pad formed of synthetic plastic material, said plate being no thinner than about 0.05 inch, having a diameter between about 4 inches and about 10 inches, and having an upper face and a lower face joined by a peripheral upstanding rim, said pad adhesively fixed to and extending over the upper face to the rim whereby that part of the plate not under the floor contact portion tends to bend upwardly to slide easily over the floor while the pad keeps the heavy structure from sliding off the slide.

5,802,670

DOOR CLOSER

Volker Bienek, Dortmund, Germany, assignor to Dorma GmbH+Co. KG, Ennepetal, Germany

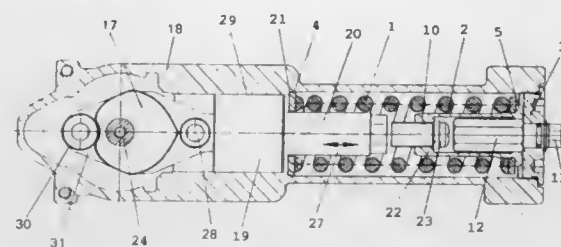
Filed Oct. 22, 1996, Ser. No. 735,414

Claims priority, application Germany, Feb. 22, 1995, 195 06

U.S. Cl. 16—53

Int. Cl.⁶ E05F 3/10; 1/08

20 Claims



1. A door closer comprising:

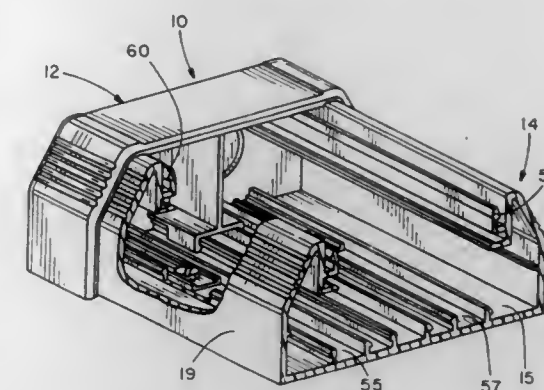
- a housing having a longitudinal axis;
- said housing having a first end and an axially opposite second end;
- said housing comprising a chamber disposed within said housing;
- a piston being disposed within said housing chamber;
- an arrangement to connect said piston to a door;
- said piston being movable within said housing chamber in a direction substantially parallel to the longitudinal axis in response to an opening and closing of a door;
- said housing comprising a projection;
- said projection being disposed to divide said housing chamber into first and second chamber portions;
- said first chamber portion being disposed between said first end of said housing and said projection;
- said second chamber portion being disposed between said projection and said second end of said housing;
- an adjustment sleeve being adjustably connected to said piston to move with said piston;
- said adjustment sleeve being disposed within said second chamber portion;
- said adjustment sleeve being spaced from said piston a distance substantially parallel to the longitudinal axis;
- a spring to store energy during an opening of a door for subsequently closing a door;
- said spring being disposed between said housing projection and said adjustment sleeve to transfer a force between said housing and said adjustment sleeve;
- a connection member being disposed between said piston and said adjustment sleeve to transfer a force between said piston and said adjustment sleeve;
- said connection member having a longitudinal axis;
- said connection member comprising a first end portion and a second end portion;
- said first end portion of said connection member being attached to said piston;
- said second end portion of said connection member being adjustably connected to said adjustment sleeve;
- said adjustment sleeve having a longitudinal axis;
- said adjustment sleeve comprising a first end portion and an axially opposite second end portion;
- said spring being disposed about both of said first and second end portions of said adjustment sleeve;
- said first end portion of said adjustment sleeve being adjustably connected to said second end portion of said connection member;
- said first end portion of said adjustment sleeve comprising a connecting arrangement;
- said connecting arrangement being configured to permit said first end portion of said adjustment sleeve to be adjustably connected to said second end portion of said connection member at different positions with respect to said second end portion of said connection member;

said connecting arrangement being configured to permit adjustment of the distance between said adjustment sleeve and said piston to vary the force transferred by said spring;

an apparatus to adjust said connecting arrangement of said adjustment sleeve;

said adjusting apparatus being configured to adjust the position of said first end portion of said adjustment sleeve with respect to said second end portion of said connection member to adjust where said first end portion of said adjustment sleeve is connected to said second end portion of said connection member; and

said second end portion of said adjustment sleeve comprising a hollow portion.



5,802,671

VIBRATION-PREVENTING DEVICE FOR A DOOR IN A VEHICLE

Masahiro Ikuma, Shizuoka-Ken, Japan, assignor to Suzuki Motor Corporation, Shizuoka-ken, Japan

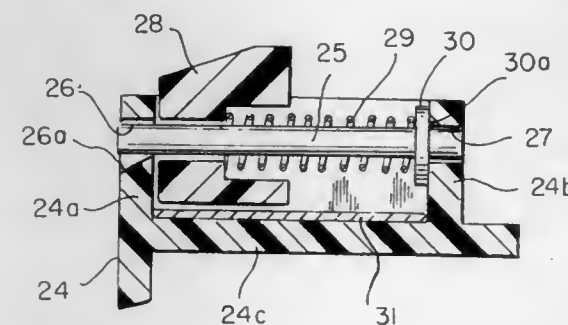
Filed Dec. 4, 1996, Ser. No. 760,401

Claims priority, application Japan, Jan. 30, 1996, 8-013442

Int. Cl.⁶ E05F 5/06

U.S. Cl. 16—85

12 Claims



1. A vibration-preventing device for an opening/closing body in an vehicle comprising:

- a guide pin spanning a case, said guide pin passing through a stopper wedge and a spring in said case;
- a stopper end and a collar end of said guide pin captured in said case in two holes disposed on opposite side walls of said case;
- said stopper wedge and said spring contacting said collar end of said guide pin;
- said spring urging said guide pin toward a collar side wall of said case;
- an incline formed downward and outward on a lower portion of said hole in a stopper side wall of said case through which a stopper end of said guide pin is inserted; and
- a contact surface is formed toward a collar end of said guide pin contacting said collar side wall of said case.

5,802,672

WIRING DUCT END CAP

Brian K. Rohder, 3129 Joann Dr., Joliet, Ill. 60435

Filed Nov. 20, 1996, Ser. No. 752,102

Int. Cl.⁶ E05D 15/00; A47H 1/04

U.S. Cl. 16—95 R

24 Claims

1. A device for enclosing an end of a wiring duct raceway comprising:

- an end panel adapted to cover the end of the raceway;

a covering section extending normal to a portion of an edge of the end panel;

the covering section having a cross-section slightly larger than the raceway cross-section; and

anti-rotation means depending from the covering section for preventing disengagement of the device from the raceway.

5,802,673

CRANK HANDLE FOR ACTUATING A WINDOW PANE

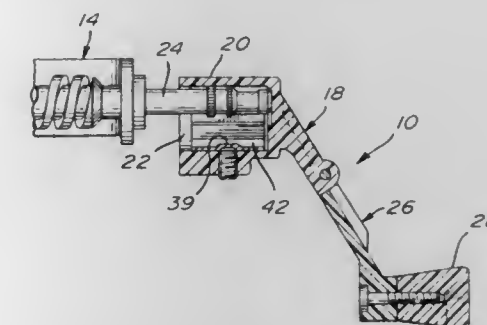
Joe Nemeth, Laval, Canada, assignor to Dero Enterprises, Inc., Montreal-North, Canada

Filed May 19, 1997, Ser. No. 858,840

Int. Cl.⁶ A47B 95/02; B25G 1/04

U.S. Cl. 16—115

7 Claims



1. In combination, a crank handle having a hollow end for engaging a crank shaft mounted to a window sill, the handle operable to actuate a moveable window pane, said hollow end of said handle defining an inner wall having an oval configuration and displaying thereon crank engaging means; a deformable insert adapted to be received in said hollow end, said insert defining a V-shaped configuration consisting of a web and a pair of opposite sides, said sides having convex outer faces adapted to contact the inner wall of said hollow end and inner faces adapted to engage said crank shaft; and forcing means extending through said hollow end and including an inner end extending in said hollow end to contact said web of said insert whereby pressure exerted by said forcing means on said web causes said convex faces of said insert to slide along said inner wall of said hollow end and said inner faces of said insert to cooperate with said crank engaging means to engage said crank shaft and to enable rotation of said crank shaft by said handle.

5,802,674

FIBRE METERING ARRANGEMENT

Roy Michael Barber, Heckmondwike, United Kingdom, assignor to Garnett Controls Limited, West Yorkshire, United Kingdom

PCT No. PCT/GB95/02648, § 371 Date May 9, 1997, § 102(e) Date May 9, 1997, PCT Pub. No. WO96/15299, PCT Pub. Date May 23, 1996

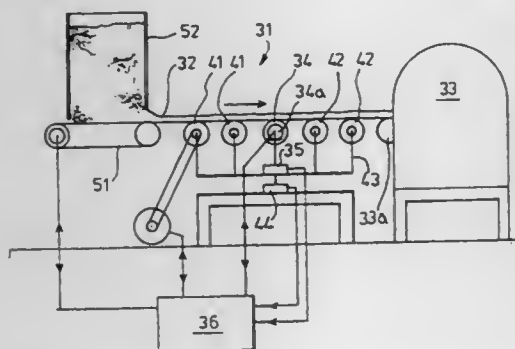
PCT Filed Nov. 13, 1995, Ser. No. 849,031

Claims priority, application United Kingdom, Nov. 12, 1994, 9422889

Int. Cl.⁶ D01G 15/40

U.S. Cl. 19—105

22 Claims



1. A fiber metering device for feeding fiber to a fiber utilizing assembly, the fiber metering device comprising:

- a first fiber feeding unit for feeding fiber along a feeding direction;
- a second fiber feeding unit spaced apart from said first fiber feeding unit, said second fiber feeding unit being downstream from the first feeding unit in the feeding direction;
- a first drive means for driving the first feeding unit;
- a second drive means for driving the second feeding unit, the first drive means operable independently of the second drive means for operating the first and second feeding units at different fiber feeding speeds;
- a first weight transducer means for sensing the weight of fiber being fed by the first fiber feeding unit;
- a second weight transducer means for sensing the weight of fiber being fed by the second fiber feeding unit; and
- control means connected to the first and second transducer means for controlling the fiber feeding speed of the first fiber feeding unit in accordance with the weight of fiber sensed by the first weight transducer means and controlling the fiber feeding speed of the second fiber feeding unit in accordance with the weight of fiber sensed by the second weight transducer means.

5,802,675

INTERLOCKING COVER FOLDING STRAP DISPOSABLE RESTRAINTS

Kevin L. Parsons, Appleton, Wis., assignor to Armament Systems & Procedures, Inc., Appleton, Wis.

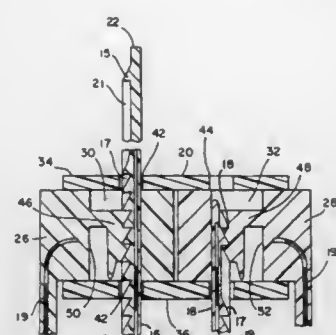
Continuation of Ser. No. 520,979, Aug. 28, 1995, Pat. No. 5,669,110. This application Nov. 22, 1996, Ser. No. 755,231

Int. Cl.⁶ E05B 75/00; B65D 63/00

U.S. Cl. 24—16 R

6 Claims

- 1. A flexible strap, the strap comprising:
 - a. a first side and a second side and opposite outer ends and including a free tip end at one outer end;
 - b. a locking box at the other outer end of said strap, said locking box having a central opening extending through the strap and adapted for receiving the tip end, whereby said strap forms a loop when the tip end is threaded into the locking box;
 - c. a saw-tooth ribbed surface disposed on said first side of said strap wherein said locking box further comprises a detent adapted to engage the saw-tooth ribbed surface for retaining



and preventing the strap from being withdrawn once said strap has been inserted into the central opening;

- d. a locking tooth positioned on said first side of said strap near the free tip end and spaced apart from the saw-tooth ribbed surface, wherein the free tip end is inserted into the central opening of the locking box to form a closed loop and said detent engages the locking tooth for preventing the strap from being withdrawn from the opening and retaining the strap in the closed loop position; and
- e. a smooth writing surface recessed on the first side of said strap between said locking tooth and said saw-toothed ribbed surface.

5,802,676

STRAP FOR SECURING A BUNDLED CORD AND THE LIKE

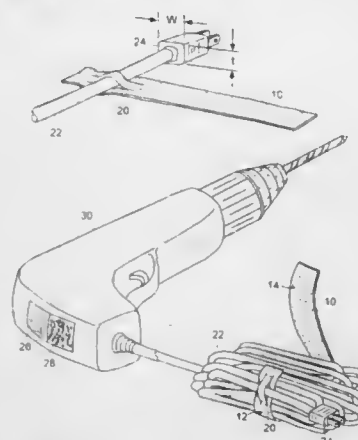
Nancy Jane Tolan, Derry, N.H., assignor to Velcro Industries B.V., Curacao, Netherlands

Filed Dec. 20, 1996, Ser. No. 770,675

Int. Cl.⁶ B65D 63/00

U.S. Cl. 24—16 R

16 Claims



1. A strap useful for securing an arranged bundle of loops of a cord and the like, the strap comprising a unitary piece of two-sided, strip-form, touch fastener material having

- a first longitudinally extended surface from which a multiplicity of fastener elements project;
 - a second longitudinally extended surface from which a multiplicity of fastener elements project, the elements of the second surface formed to mate with the elements of the first surface to form a disengageable fastening there being respective fastener elements substantially throughout the length of the respective extended surfaces, which results in the strap being adjustable; and
 - at least one pair of spaced slots sized in length and positioned to pass the cord through the slots, with the strap material between the slots securing the strap to the cord;
- the strap being flexible and constructed and arranged such that in the wrapped state the fastener elements on the first and second surfaces form a disengageable fastening to secure the strap about the bundle.

5,802,677

BAG CLOSURE CLIP

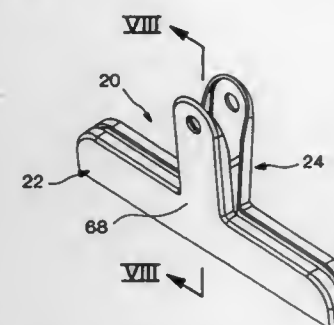
John G. Dorman; Gordon Isenga, both of Holland, and Russell O. Blanchard, Zeeland, all of Mich., assignors to Lilly Industries (USA), Inc., Indianapolis, Ind.

Filed Nov. 6, 1996, Ser. No. 744,358

Int. Cl.⁶ A44B 21/00; A47G 25/48

U.S. Cl. 24—30.5 R

18 Claims



2. A bag closure clip comprising:

- a pair of clip members each including a jaw and a handle, each of said clip members further including a front surface extending along said jaw and said handle;
- fulcrum means for hingedly supporting said clip members relative one another with said jaws facing one another, with said handles facing one another, and with said front surfaces facing outwardly away from one another to define the lateral extent of the clip;
- spring support means on each of said clip members for supporting a spring, said spring support means being located toward said jaws from said fulcrum means; and
- a U-shaped spring fitted over said fulcrum means and bearing against both of said spring support means on each of said clip members to urge said jaws toward one another, said fulcrum means, said spring support means, and said spring being located between said front surfaces of said clip members, wherein said front surfaces are substantially uninterrupted.

5,802,678

NON-PENETRATING TIE RESTRAINING DEVICE

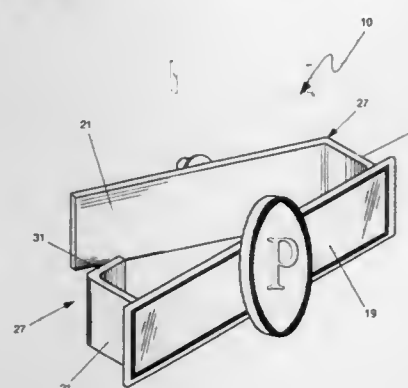
Joe A. Puente, 5941 Vista Dr., Apt. 412, West Des Moines, Iowa 50266

Filed Jul. 16, 1997, Ser. No. 895,227

Int. Cl.⁶ A41D 25/00

U.S. Cl. 24—49.1

5 Claims



1. A tie restraining device for use with conventional neckwear, said tie restraining device comprising:

- an elongated tie restraining clamp for clipping around a tie in a nonpenetrating manner, said restraining clamp including a clamp front member, a first offset side member affixed to and extending perpendicularly outward from said clamp front member, a second offset side member affixed to and extending

- perpendicularly outward from said clamp front member, and a clamp rear member held parallel to and offset from said clamp front member by said first offset side member by a spring hinge means;
- a stick pin needle projecting perpendicularly outward from the back of the clamp rear member;
- a safety needle cover for clamping to and covering said stick pin needle; and
- a decorative fascia affixed to said front member; and wherein said first offset side member and said second offset side member are of sufficient overall length such that said tie restraining device allows a normal necktie type neckwear pass into the orifice formed by said elongated tie restraining clamp while resting in a normal position without binding or pulling.

5,802,679

CIRCULAR CLEAT APPARATUS

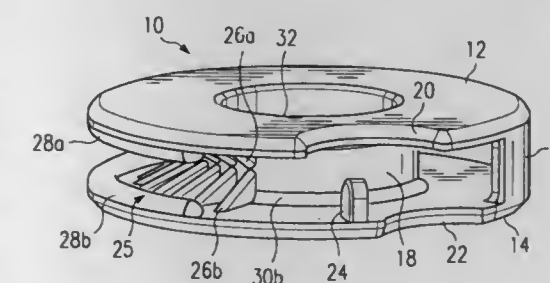
Michael Joseph Neeley, 2039 Rose Hill, Carrollton, Tex. 75007

Filed Apr. 16, 1997, Ser. No. 838,276

Int. Cl.⁶ F16G 11/00

U.S. Cl. 24—130

26 Claims



1. A fastening device, comprising:

- a lower circular member having an inner surface, a perimeter, and a semi-circular cutout positioned on a first portion of the perimeter;
- an upper circular member having an inner surface, a perimeter, and a semi-circular cutout positioned on a first portion of the perimeter, wherein the upper circular member is positioned parallel to the lower circular member;
- an inner circular adjoining member interconnecting the upper circular member and the lower circular member;
- an engaging member for engaging an elongated cord within the fastening device operatively connecting the upper circular member, the inner circular adjoining member, and the lower circular member and having a plurality of upper engaging pieces and a plurality of lower engaging pieces, wherein the upper engaging pieces are physically connected to the inner surface of the upper circular member and the inner circular adjoining member and the lower engaging pieces are physically connected to the inner surface of the lower circular member and the inner circular adjoining member; and
- a guide member connecting a second portion of the perimeter of the lower circular member and a second portion of the perimeter of the upper circular member.

5,802,680

TWO-PIECE BOLT AND SADDLE FOR WIRE ROPE CLIPS

Larry L. Postelwait, Catoosa, Okla., assignor to The Crosby Group, Inc., Tulsa, Okla.

Filed Aug. 15, 1997, Ser. No. 911,747

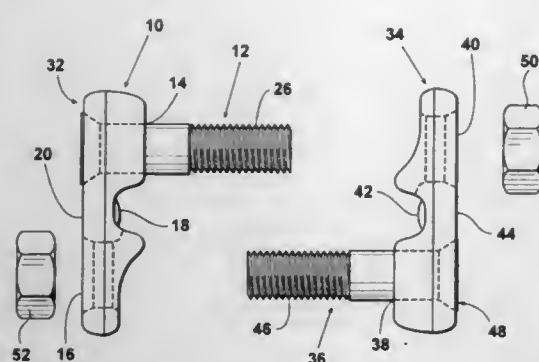
Int. Cl.⁶ F16G 11/00, F16B 37/00

U.S. Cl. 24—135 R

7 Claims

1. A wire rope clip comprising:

- a first bolt having a head and a threaded end, said first bolt having a plurality of splines fashioned proximate said head;



a second bolt having a head and a threaded end, said second bolt having a plurality of splines fashioned proximate said head;
a first saddle having a base, a first orifice and a second orifice, said first orifice for receiving said first bolt therein and for frictionally press fit interference engaging said splines on said first bolt, and securing said first bolt to said first saddle, said first saddle having a rope engaging area between said first and said second orifices;
a second saddle having a base, a first orifice and a second orifice, said first orifice for receiving said second bolt therein and for frictionally press fit interference engaging said splines on said second bolt, and securing said second bolt to said second saddle, said second saddle having a rope engaging area between said first and said second orifices, said first bolt passing through said second orifice of said second saddle, said second bolt passing through said second orifice of said first saddle;
a first nut for engaging said threaded end of said first bolt, said first nut for biasing against said base of said second saddle; and
a second nut for engaging said threaded end of said second bolt, said second nut for biasing against said base of said first saddle.

5,802,681

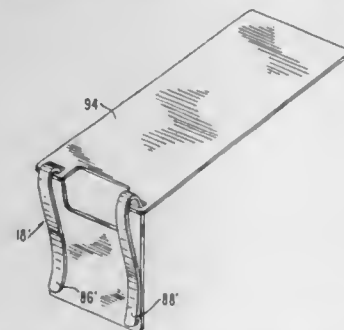
SHAPING AND POSITIONING ARRANGEMENT FOR FURNITURE COVERS

Paula Riley, New York, and Kenneth V. Stevens, Brooklyn, both of N.Y., assignors to Prescient Partners, L.P., New York, N.Y.

Division of Ser. No. 749,544, Nov. 15, 1996, Pat. No. 5,733,002, and a continuation-in-part of Ser. No. 417,933, Apr. 6, 1995, Pat. No. 5,632,068. This application Sep. 18, 1997, Ser. No. 929,317

Int. Cl.⁶ A44B 11/00; 21/00; 13/00; A47G 9/00
U.S. Cl. 24—326

4 Claims



1. A skirt clip arrangement in combination with and for maintaining the position of a skirt to be held on furniture, said arrangement comprising:
a substantially flat plate shaped tongue member, said tongue member having one end with a pair of projections protruding outwardly from said tongue member on opposite sides of said one end of said tongue member, a slot in each projection; and

a clip with a back plate and a pair of fingers extending from a top end of said back plate and through said slots, said fingers defining a recess for receiving an upper edge of a skirt.

5,802,682

BRUSH CONVEYOR AND NEEDLING MACHINE EQUIPPED WITH SAME

Bernard Jourde, Elbeuf, and Francois Louis, La Saussaye, both of France, assignors to Asselin, Elbeuf, France

PCT No. PCT/FR96/00050, § 371 Date Jul. 11, 1997, § 102(e) Date Jul. 11, 1997, PCT Pub. No. WO96/21761, PCT Pub. Date Jul. 18, 1996

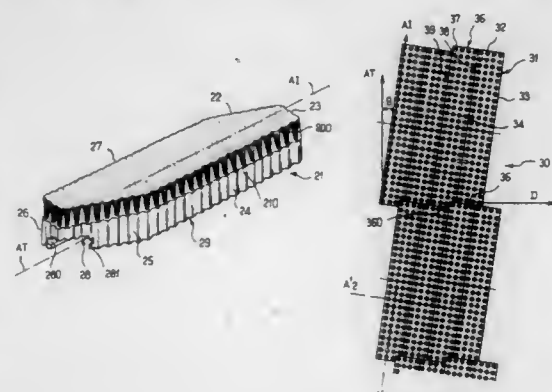
PCT Filed Jan. 12, 1996, Ser. No. 860,932

Claims priority, application France, Jan. 12, 1995, 95 00291

Int. Cl.⁶ D04H 18/00

U.S. Cl. 28—107

13 Claims



1. A brush conveyor, comprising an assembly of contiguous brushes constituting a conveying plane moving in a predetermined conveying direction, each brush comprising a body whose shape is substantially elongated along a principal axis and comprising on its lower face means for connecting the brush to a mechanical drive device and on its upper face holes for receiving tufts of hair, said holes being disposed in rows which are substantially parallel with the principal axis of the brush, the brushes being disposed in the conveyor in such a way that their principal axes are parallel with each other and inclined by a predetermined angle with respect to a transverse direction perpendicular to the conveying direction.

5,802,683

METHOD FOR MAKING UNBULKED THREAD

William Wingate Curran, and John Aitken, both of Paisley, Great Britain, assignors to J. & P. Coats, Limited, Glasgow, Great Britain

Filed Apr. 18, 1997, Ser. No. 646,342

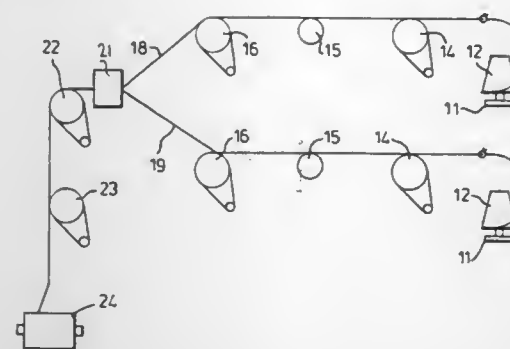
Claims priority, application United Kingdom, Nov. 13, 1993, 9323439

Int. Cl.⁶ D02G 1/20; D02J 1/22

U.S. Cl. 28—220

20 Claims

1. A method for making a thread comprising:
feeding at least two drawn, continuous filament starting threads, of which at least one is a multifilament thread, together to an intermingling device to form a single bulked thread of which the filaments of the starting threads are intermingled and looped, and



tensioning the bulked thread without heat, the tensioning being sufficient to transform the bulked thread into an essentially unbulked thread.

5,802,684

PROCESS FOR PRODUCING A VIBRATION ANGULAR-VELOCITY SENSOR

Takamitsu Fujiu, Zama, and Shunji Watanabe, Tokyo, both of Japan, assignors to Nikon Corporation, Japan

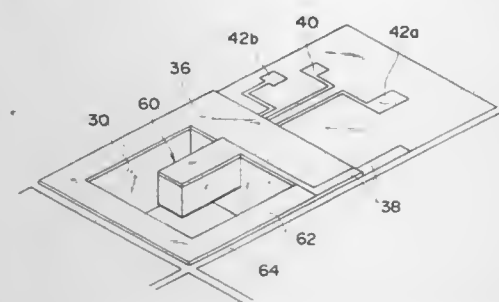
Division of Ser. No. 306,226, Sep. 14, 1994, abandoned. This application Jul. 20, 1995, Ser. No. 504,725

Claims priority, application Japan, Sep. 14, 1993, 5-228719; Oct. 15, 1993, 5-258102; Nov. 29, 1993, 5-298032; Dec. 1, 1993, 5-301668; Dec. 27, 1993, 5-330736

Int. Cl.⁶ H04R 17/00

U.S. Cl. 29—25.35

4 Claims



1. A process for producing a vibration angular-velocity sensor comprising the steps of:

preparing a substrate made of silicon and having a first flat plane;
forming a SiN layer on said first flat plane,
forming a first conductive layer on said SiN layer and thereafter forming a first and second electrodes on a first predetermined area and a second predetermined area of said SiN layer respectively by patterning and etching the formed conductive layer;
forming a base and a sensor portion projecting from said base by patterning and etching said substrate and said SiN layer. said first and second electrodes being located above both of at least one portion of a flat top surface of said sensor portion and at least one portion of a flat top surface of said base;
forming a piezoelectric layer on said first and second electrodes so that said piezoelectric layer electrically and physically contacts with said first and second electrodes; and
forming a second conductive pattern formed on said piezoelectric layer by forming a second conductive layer and etching thereof.

5,802,685

METHOD FOR MANUFACTURING SURFACE WAVE DEVICES OF THE END-FACE REFLECTION TYPE

Michio Kadota, Kyoto, and Naoki Mizoguchi, Takefu, both of Japan, assignors to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

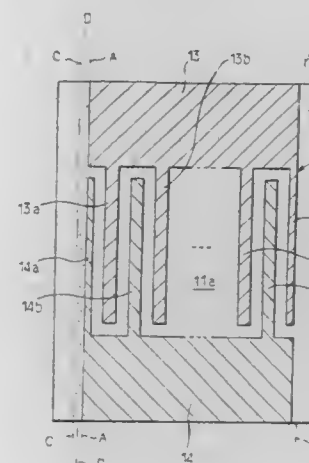
Filed Jul. 1, 1996, Ser. No. 674,248

Claims priority, application Japan, Jun. 30, 1995, 7-166295

Int. Cl.⁶ H01L 41/22

U.S. Cl. 29—25.35

24 Claims



1. A method for manufacturing a surface wave device of an end-face reflection type having interdigital transducers formed on a piezoelectric substrate, said method comprising the steps of:
forming an interdigital transducer on a piezoelectric plate, said interdigital transducer generating a surface wave which propagates along a propagation direction upon the application of an energizing signal thereto, said interdigital transducer having a plurality of interdigital electrode fingers extending generally perpendicular to said propagation direction and including an outermost pair of electrode fingers relative to said propagation direction, said outermost pair of electrode fingers having a width of $\lambda/8$, λ being the wavelength of said surface wave, and the remaining said electrode fingers having a width of $\lambda/4$, said interdigital transducer having a width which is less than the width of said piezoelectric plate; and
defining a pair of target areas in which to cut said piezoelectric plate, each of said target areas extending from an outer edge of a respective one of said outermost pair of electrode fingers to a position $\lambda/8$ outwardly therefrom; and
cutting said piezoelectric plate within said target areas.

5,802,686

PROCESS FOR THE PREPARATION OF AN INK JET PRINTER HEAD

Masato Shimada, and Kazumasa Hasegawa, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Division of Ser. No. 627,065, Apr. 3, 1996. This application May 20, 1997, Ser. No. 859,370

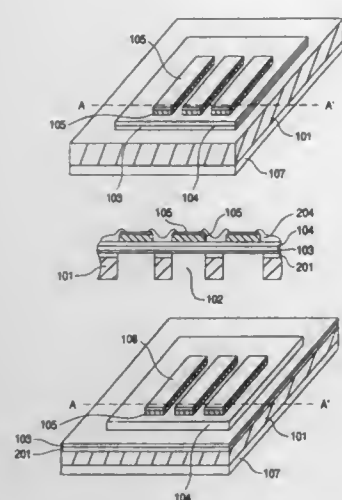
Claims priority, application Japan, Apr. 3, 1995, HEI. 7-77634; Jan. 19, 1996, HEI. 8-7217

Int. Cl.⁶ H01L 41/22; G01D 15/20

U.S. Cl. 29—25.35

17 Claims

1. A process for the preparation of a printer head for ink jet recording comprising:
providing a single-crystal silicon substrate pierced with holes,
forming a monoclinic zirconium oxide layer in direct contact with the surface of said silicon substrate or a silicon oxide layer on the surface of said silicon substrate thereby covering one end of said holes in said silicon substrate,
providing a lower electrode on said zirconium oxide layer,
providing a piezoelectric layer on said lower electrode,
providing an upper electrode on said piezoelectric layer, and



after the formation of said zirconium oxide layer, subjecting the zirconium oxide layer material to heat treatment at a temperature higher than the temperature at which the crystal structure of said zirconium oxide layer turns from monoclinic to tetragonal.

5,802,687

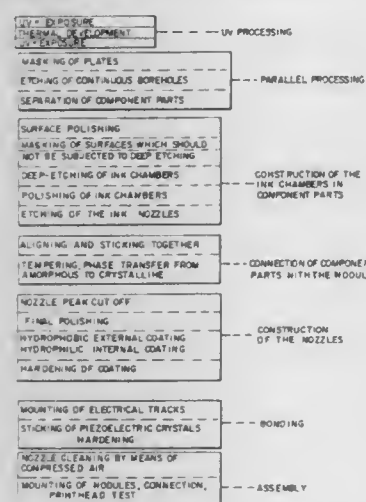
METHOD OF MANUFACTURING AN INK JET PRINT HEAD

Wolfgang Thiel, and Stephan Günther, both of Berlin, Germany, assignors to Francotyp-Postalia AG & Co., Birkenwerder, Germany

Continuation of Ser. No. 449,434, May 24, 1995, abandoned, which is a division of Ser. No. 101,449, Aug. 2, 1993, Pat. No. 5,592,203. This application Nov. 3, 1997, Ser. No. 963,174 Claims priority, application Germany, Jul. 31, 1992, 42 25 799.9

Int. Cl.⁶ B41J 2/01; H01L 41/22
U.S. Cl. 29—25.35

33 Claims



1. A method of manufacturing an ink jet print head having a plurality of different members, which comprises the steps of: producing a plurality of different members by parallel processing individual plates including a first chamber-carrying member, a center member, and a second chamber-carrying member; forming orifices including through openings in the first chamber-carrying member, the center member, and the second-chamber carrying member via masking and etching processes; forming chambers in the first chamber-carrying member and the second chamber-carrying member via masking and etching processes;

forming nozzle openings in at least one of the first chamber-carrying member, the center member and the second chamber carrying member via masking and etching processes; connecting the first chamber-carrying member and the second chamber-carrying member to the center member by annealing for forming at least one print head module; and applying at least one conductor path and piezo-electrical elements to the at least one print head module and electrically connecting the piezo-electrical elements with the at least one conductor path applied to the at least one print head module for forming an ink jet print head.

5,802,688

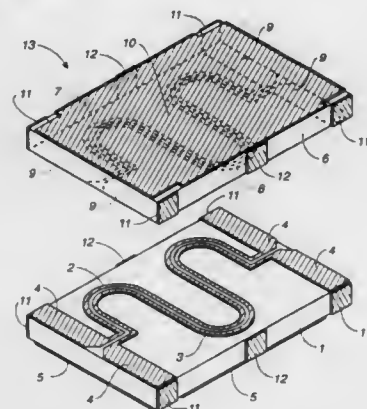
METHOD OF PRODUCING ELECTRONIC PARTS WITH AN ELECTRODE PATTERN BETWEEN TWO DIELECTRIC SUBSTRATES

Hiroaki Tanaka, Osaka, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Division of Ser. No. 447,255, May 22, 1995, Pat. No. 5,625,169. This application Sep. 19, 1996, Ser. No. 715,939 Claims priority, application Japan, Jul. 4, 1994, 6-152264 Int. Cl.⁶ H01G 4/06

U.S. Cl. 29—25.42

4 Claims



1. A method of forming electronic parts comprising the steps of: forming throughholes through two mother substrates each having a first surface and a second surface opposite said first surface; forming mutually symmetric electrode patterns on the first surfaces of said mother substrates, throughhole electrodes inside said throughholes through said mother substrates, and grounding electrodes on the second surfaces of said mother substrates; joining said two mother substrates together with the first surfaces opposite to each other and thereby causing the electrode patterns on said two mother substrates to match and be connected to each other; and cutting said joined mother substrates through said throughholes and thereby exposing said throughhole electrodes.

5,802,689

TUBE CONNECTING APPARATUS

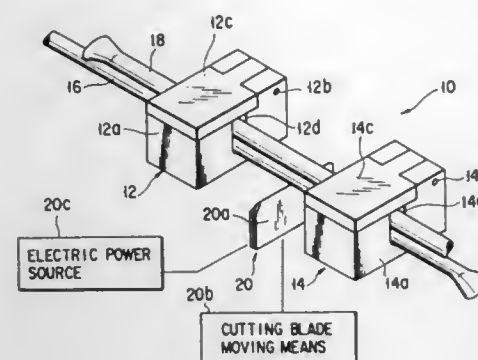
Hiroaki Sano, Yamanashi-ken, Japan, assignor to Terumo Kabushiki Kaisha, Tokyo, Japan

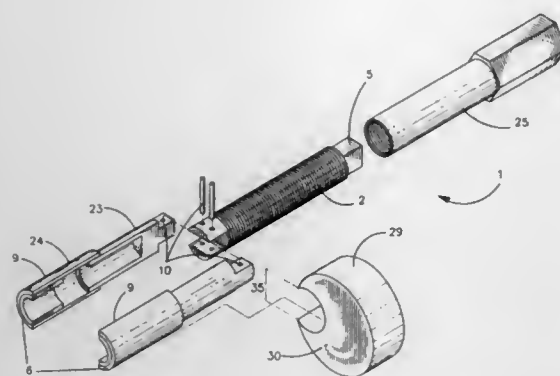
Filed Dec. 4, 1996, Ser. No. 760,311 Claims priority, application Japan, Dec. 8, 1995, 7-345561 Int. Cl.⁶ B21B 15/00; A61M 1/00

U.S. Cl. 29—33 T

13 Claims

1. A tube connecting apparatus comprising: first and second tube holders for holding a plurality of flexible tubes, each tube holder including a tube holding portion having a groove which possesses a width that is substantially the same as that of each tube and into which the tubes are





having an inner gripping surface and an outer surface, said jaws in said closed position having an outer surface diameter; an internally threaded sleeve having a bolt head end and a jaw end, said sleeve being positioned over and in functional connection with said externally threaded bolt, said sleeve having an internal sleeve diameter, said internal sleeve diameter being greater than the widest portion of said outer surface diameter of said jaws in said closed position; and a bracing means for bracing said extractor against the engine head, whereby said bolt and said jaws are linearly drawn toward said jaw end of said sleeve when said sleeve is locked in place by the locking means and said bolt is rotated relative to said sleeve.

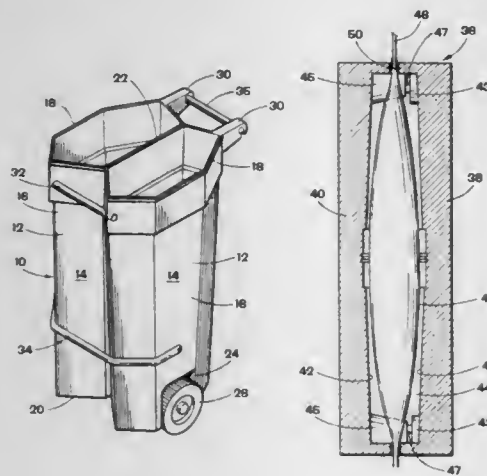
5,802,693

METHOD OF FABRICATING A REFUSE CONTAINER
Norman C. Lee, Greensboro, N.C., assignor to Compagnie Plastic Omnium, France

Division of Ser. No. 402,883, Mar. 10, 1995, abandoned. This application Jan. 24, 1997, Ser. No. 780,870
Int. Cl.⁶ B23P 17/00; B29D 7/00

U.S. Cl. 29—416

14 Claims

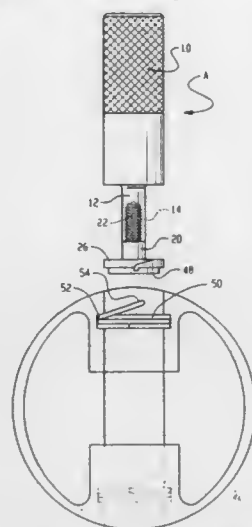


1. A method of fabricating a refuse container having dual side-by-side container bodies, comprising the steps of forming a unitary hollow container structure having a pair of container bodies each having an open end and a closed end and arranged in general alignment with one another with the respective open ends facing one another and the respective closed ends disposed away from the other container body with a connecting web joining at least a portion of the respective open ends, moving the container bodies relative to one another while bending the connecting web therebetween to orient the container bodies in side-by-side relation with the respective open ends adjacent one another, and transversely affixing the container bodies together in the side-by-side relation.

5,802,694
PISTON SPIRAL LOCK REMOVAL TOOL AND METHOD
Gary M. Myles, 28173 Hilliard Blvd., Westlake, Ohio 44145
Filed May 20, 1997, Ser. No. 859,067
Int. Cl.⁶ B23P 19/00

U.S. Cl. 29—426.6

9 Claims



1. A tool for removing a multi-turn spiral lock received in a groove of a piston assembly, the tool comprising:
a handle dimensioned for receipt in and grasping by a user's hand and transmitting manual torque forces;
a disk-shaped tool head having a terminal edge adapted for receipt under the end of a spiral lock, the head further including a first wedge surface for radially urging the spiral lock from its associated groove and a second wedge surface for lifting one turn of the spiral lock from an adjacent turn.

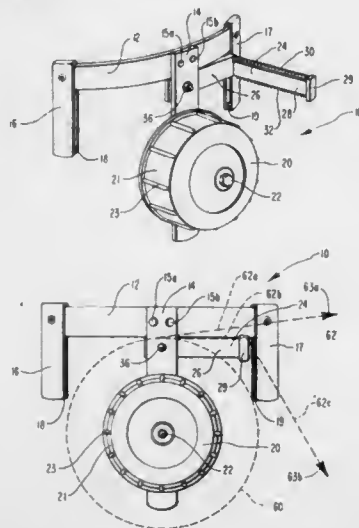
5,802,695

BELT-MOUNTED TAPE DISPENSER METHOD
Billy Dennis Willoughby, Cedar City, Utah, assignor to W.E. III Tech., Inc., Cedar City, Utah

Division of Ser. No. 341,763, Nov. 18, 1994, Pat. No. 5,641,109. This application Apr. 16, 1997, Ser. No. 842,742
Int. Cl.⁶ B26F 3/02

U.S. Cl. 29—434

4 Claims



1. A method for providing access to a spool of tape for retrieval by one hand comprising the steps of:
fabricating a tape dispenser having a frame fabricated from a malleable material and having a belt clip at each end of said

frame and a downwardly depending strut affixed to said frame, said strut including a reel rotatably mounted to said strut below said frame, said strut including a cutter assembly and a cutter shield mounted to said strut;
conforming said frame to the waist of a wearer;
releasably mounting said belt clips to a belt worn about the waist of the wearer;
placing a spool of tape on said reel and extending tape from the spool of tape between said cutter assembly and said cutter shield; and
retrieving tape from said tape dispenser by lifting said cutter shield while pulling the tape with one hand outwardly beyond said cutter assembly; and
cutting the tape by pulling the tape downwardly against said cutter assembly with the one hand thereby severing the tape with said cutter assembly.

5,802,696

PROCESS FOR CASTING A PLASTIC DIE

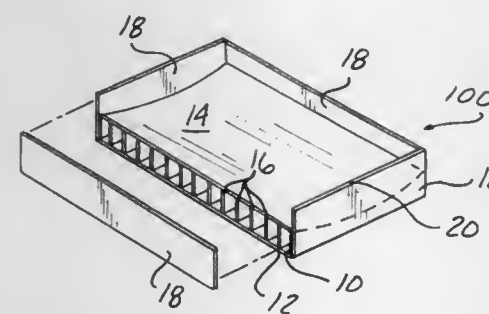
John J. Zuccarini, Metamora, Mich., assignor to Plasco Corporation, Romeo, Mich.

Filed Nov. 5, 1996, Ser. No. 740,965

Int. Cl.⁶ B23Q 3/00; B29C 33/40

U.S. Cl. 29—468

8 Claims



1. A method of casting a rigid plastic die comprising the steps of:

constructing a container having a floor and four walls forming an open end and a cavity therein, wherein the floor of the container is configured in a desired contour shape of the die;
providing a plurality of longitudinal members having rings secured to one side of each longitudinal member, wherein the rings have an aperture therethrough traversing the one side of the longitudinal member;
extending the longitudinal members over the open end across two opposing walls of the container;
providing a plurality of box-shaped cores having aligned apertures through opposing walls of the box-shaped cores;
inserting the boxed-shaped cores into the container by aligning the aligned apertures of the box-shaped cores with the aperture of at least one ring and;
traversing rods across said longitudinal members by threading said rods through said ring and aligned apertures of the cores;
spacing each core essentially equidistantly from each other, wherein the space within the container between the cores defines a cavity;
pouring hardenable plastic material into the cavity of said container; and
removing the plurality of cores from the container after said material has hardened.

5,802,697

Patent Not Issued For This Number

5,802,698

METHOD OF MOVING A ROTARY FIXTURE.

Brian E. Fitzgerald, Elma; Donald F. Lienert, Williamsville, and Ronald J. Pascucci, West Seneca, all of N.Y., assignors to Moog Inc., East Aurora, N.Y.

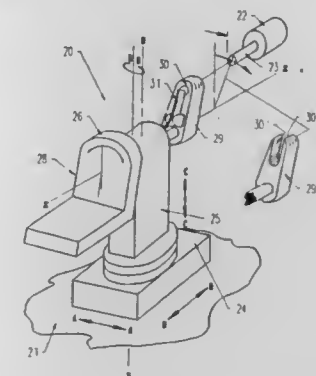
Continuation of Ser. No. 917,833, Jul. 21, 1992, abandoned.

This application May 24, 1993, Ser. No. 66,331

Int. Cl.⁶ B23D 7/08; B23Q 7/00

U.S. Cl. 29—559

6 Claims



1. A method of using a numerically-controlled machine tool to move a rotary fixture from a first angular position to a second angular position, said machine tool having a spindle, comprising the steps of:

providing a rotary fixture;
providing a body;
mounting said fixture on said body for rotational movement about an axis;
providing a frictional locking mechanism between said body and fixture;
providing a member;
mounting said member in said spindle;
moving said spindle so as to cause said member to directly and positively engage said fixture at a location eccentric to said axis in order to hold said fixture at said first angular position;
applying pressure to said frictional locking mechanism by utilizing said member, thereby releasing said frictional locking mechanism;
operating said machine tool to selectively move said member relative to said axis while said member is engaged with said fixture to move said fixture from said first position to said second position and to hold said fixture at said second position;
relieving said pressure from said frictional locking mechanism, thereby re-engaging said frictional locking mechanism; and
withdrawing said member from engagement with said fixture; thereby to rotate said fixture about said axis from said first angular position to said second angular position.

5,802,699

METHODS OF ASSEMBLING MICROELECTRONIC ASSEMBLY WITH SOCKET FOR ENGAGING BUMP LEADS

Joseph Fjelstad, Sunnyvale; John W. Smith, Palo Alto; Thomas H. DiStefano, Monte Sereno, and A. Christian Walton, Belmont, all of Calif., assignors to Tessera, Inc., San Jose, Calif.

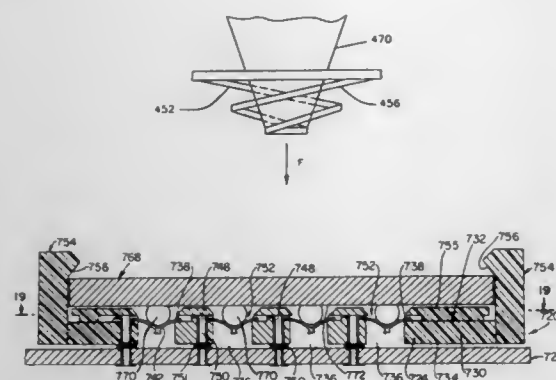
Filed Jun. 7, 1994, Ser. No. 254,991

Int. Cl.⁶ H05K 3/34

U.S. Cl. 29—593

30 Claims

1. A method of making connections to a microelectronic element having bump leads thereon comprising the step of partially engaging the element with a connector having a sheetlike body and having contacts on a first major surface thereof extending over holes in the body so that the first major surface of the connector body is juxtaposed with the microelectronic element, so that the contacts engage the bump leads on the microelectronic element at



contact points on each bump lead, so that said bump leads protrude partially into the holes in the connector body and are urged out of said holes by said contacts and so that the bump leads deform the contacts of the connector and are engaged therewith.

27. A method of making connections to a microelectronic element having bump leads thereon, said bump leads including a solid core and a coating of electrically conductive bonding material on the core, the method comprising the steps of:

- engaging the element with a connector having a sheet-like body and having contacts on a first major surface thereof extending over holes in the body so that the first major surface of the connector body is juxtaposed with the microelectronic element, so that the bump leads on the microelectronic element protrude into the holes in the connector body and so that the bump leads deform the contacts of the connector and are engaged therewith; and
- bonding said bump leads to said contacts by activating the electrically conductive bonding material at interfaces between the bump leads and the contacts.

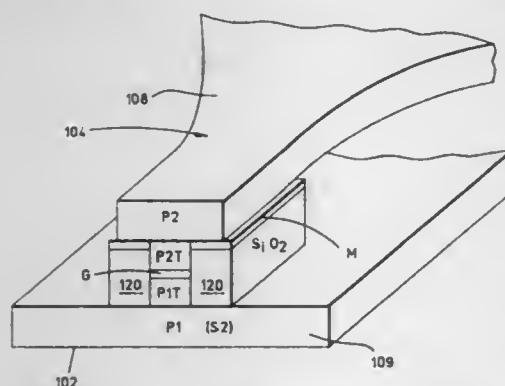
5,802,700
METHOD OF MAKING A PLANARIZED THIN FILM
MAGNETIC WRITE HEAD WITH SUBMICRON
TRACKWIDTH

Mao-Min Chen; Kochan Ju, both of San Jose; Neil Leslie Robertson, Campbell, and Hugo Alberto Emilio Santini, San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 229,484, Apr. 19, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 469,728
Int. Cl.⁶ G11B 5/42

U.S. Cl. 29—603.14

17 Claims



1. A method of making a thin film magnetic write head having a pole tip region located between an air bearing surface and a zero throat level, and a back region extending from the zero throat level back to and including a back gap, the method comprising the steps of:

- forming a first magnetic pole layer having a pole tip portion in the pole tip region and a back portion in the back region;

forming at least one coil structure over the first magnetic pole layer between the pole tip region and the back gap;

forming an insulation layer over the at least one coil structure between the pole tip region and the back gap;

forming a non-magnetic conductive gap layer on the pole tip portion of the first magnetic pole layer in the pole tip region and in the back region, the formation of the non-magnetic electrically conductive gap layer in the back region being formed over said insulation layer between the pole tip region and the back gap;

forming a notch structure on the gap layer in the pole tip region, the notch structure providing a trench in the pole tip region; forming a top electrically conductive layer on top of the notch structure;

the notch structure being a material which is selected from a group of anisotropically etchable materials that includes silicon dioxide, silicon, silicon nitride and carbon and having a top conductive layer;

the notch structure further including:

a base and a pair of legs forming a generally U-shaped layer with first and second surfaces;

the base having an inside front surface, an outside back surface, and a pair of outside side surfaces, each of the legs having an outside front surface, and inside side surface, and an outside side surface, the outside side surfaces of the base being contiguous with the outside side surfaces of the legs; the front surfaces of the legs lying in a common plane which forms part of an air bearing surface; and

the front surface of the base and the inside surfaces of the legs forming the trench inside the U-shaped layer in the pole tip region;

forming a second magnetic pole tip layer inside the trench of the notch structure on said gap layer;

forming a second magnetic pole layer on said second magnetic pole tip layer with a pole tip portion in the pole tip region supported by the notch structure and a back portion in the back region;

the forming of the second magnetic pole tip layer in the trench and the forming of the second magnetic pole layer being accomplished with one step of frame plating using the following as seedlayers:

the non-magnetic conductive gap layer located in the pole tip region and located in the back region between the pole tip region and the back gap; and

the top conductive layer of the notch structure.

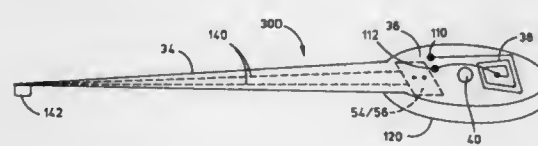
5,802,701
METHOD OF MAKING AN INTEGRATED SUSPENSION,
ACTUATOR ARM AND COIL ASSEMBLY

Robert E. Fontana; James W. Berberich; Michael Anthony Moser; Archibald Currie Munce, Jr.; Oscar J. Ruiz, all of San Jose; Clinton David Snyder, Los Gatos, all of Calif., and C. E. Yeack-Scranton, deceased, late of San Jose, Calif., by Robert A. Scranton, spouse and trustee of the Scranton trust, assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 366,282, Dec. 29, 1994, Pat. No. 5,539,596. This application Apr. 3, 1996, Ser. No. 627,161
Int. Cl.⁶ G11B 5/127

U.S. Cl. 29—603.14

23 Claims



1. A method of making an elongated integrated magnetic head assembly which has a suspension region which extends from a first end of the assembly to an intermediate location of the assembly

and an actuator arm region which extends from the intermediate location to a second end of the assembly comprising the unordered steps of:

- forming a magnetic head including a transducer coil layer in the suspension region;
- forming transducer lead layers in the suspension region that are connected to the transducer coil layer;
- forming an actuator coil layer in the actuator arm region; and
- forming at least one homogeneous support layer which extends from said first end to said second end to provide support for all layers between said first and second ends.

5,802,702

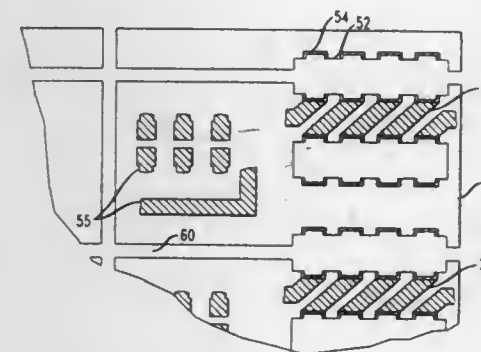
METHOD OF MAKING A DEVICE INCLUDING A
METALLIZED MAGNETIC SUBSTRATE

Debra Anne Fleming, Lake Hiawatha; David Wilfred Johnson, Jr., Bedminster; Vincent George Lambrecht, Jr., Millington; Henry Hon Law, Berkeley Heights; David Joseph Liptack, Hoboken, all of N.J.; Apurba Roy, Rockwall, Tex., and John Thomson, Jr., Spring Lake, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 696,441, Aug. 13, 1996, abandoned, which is a continuation of Ser. No. 268,465, Jun. 30, 1994, abandoned. This application Sep. 4, 1997, Ser. No. 923,591
Int. Cl.⁶ H01F 41/04

U.S. Cl. 29—608

12 Claims



1. A method for making a device including at least one magnetic component, the device comprising a metallized substrate of ceramic magnetic material, the method comprising:

- a) providing at least one layer of unfired magnetic material having a planar surface, said layer of unfired magnetic ceramic material to be referred to as the "unfired layer";
- b) creating at least one via through the unfired layer, the via having an inner side wall surface;
- c) coating, prior to step d), said inner side wall surface with conductive material to form a side wall conductive pathway;
- d) forming at least one aperture through the unfired layer such that at least one aperture edge intersects the via;
- e) metallizing at least a portion of the planar surface of the unfired layer such that the metallized surface portion forms a continuous region with the side wall conductive pathway to create a conductive winding about a portion of the unfired layer; and
- f) firing the unfired layer with the conductive winding formed thereon such that said metallized substrate of magnetic ceramic material results.

179-291 O.G.-98-3:QL3

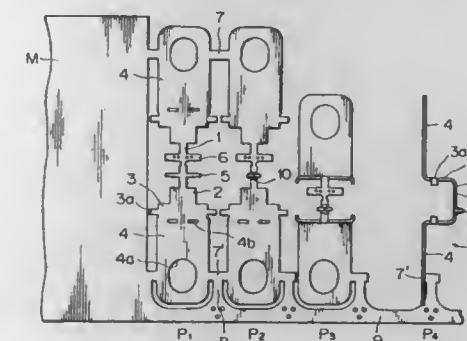
5,802,703

METHOD OF FORMING A CHAIN OF FUSE-LINKS
Mitsuhiko Totsuka, and Hisashi Hanazaki, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Division of Ser. No. 630,767, Apr. 10, 1996, Pat. No. 5,661,448.

This application Apr. 2, 1997, Ser. No. 831,941
Claims priority, application Japan, Apr. 18, 1995, 7-092228
Int. Cl.⁶ H01H 69/02; H01R 43/16

U.S. Cl. 29—623

2 Claims



a vertically oriented support frame;
 a ram slidably mounted within a ram housing that is attached to the support frame;
 means secured to the ram for receiving and maintaining a first hoop in a desired set position;
 a hooping table mounted to the support frame, the hooping table being adapted to receive and maintain a second corresponding hoop in a desired set position; and
 low pressure means for extending the ram from said ram housing a certain distance toward said hooping table;
 high pressure means for extending said ram further toward said hooping table after said ram has been extended said certain distance, wherein said high pressure means is in fluid communication with said ram only after said ram has been extended said certain distance, and wherein said low pressure means communicates with said ram independently from said high pressure means while extending said ram said certain distance; and
 means associated with said low pressure means for activating said high pressure means after said ram has been extended said certain distance, such that resistance preventing said low pressure means from extending said ram said certain distance prevents the fluid communication of said high pressure means with said ram, thereby preventing injury to an operator;
 wherein the means secured to the ram for receiving and maintaining a first hoop in a desired set position comprises a first plate connected to the ram;
 a second plate;
 a hinge connecting the first plate to the second plate; and
 means on the bottom surface of the second plate for receiving and maintaining the first hoop in a desired set position, the first hoop defining a plane, wherein the second hoop defines a plane, and wherein the apparatus further comprises:
 spring loading means for initially maintaining the plane of the first hoop at an angle with respect to the plane of the second hoop;
 such that upon compression of the spring loading means the plane of the second hoop is maintained in an intersecting relationship with the plane of the first hoop.

5,802,705

TOOL FOR ASSEMBLING A CONSTANT VELOCITY UNIVERSAL JOINT

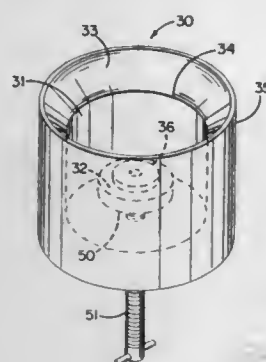
Sean M. Carlini, Rockford, Ill., assignor to Aircraft Gear Corporation, Rockford, Ill.

Division of Ser. No. 580,225, Dec. 28, 1995. This application May 12, 1997, Ser. No. 854,596

Int. Cl.⁶ B21D 53/10; B23P 19/04

U.S. Cl. 29—724

10 Claims



1. An assembly tool for a constant velocity universal joint, the joint requiring assembly of an outer race, an inner race drivably connected through balls located in circumferentially spaced tracks alternately inclined relative to a rotational axis, the balls being maintained in a constant velocity plane by a ball cage, the tool comprising, in combination

a cup having a base spaced a predetermined distance from a rim, and having an opening of a predetermined diameter, the rim being downwardly tapered toward the cup center,
 the predetermined distance between the cup and the rim being related to the axial length of the inner race so as to expose a sufficient portion of the tracks of the inner race to cause a ball on the rim to meet a track of the inner race in a just-assembled position,
 the predetermined diameter being slightly larger than the diameter of the ball cage so that the cage can drop into the cup, but a ball in the cage supported on a track of the inner race will support the ball cage above the rim,
 the angle of the rim being such that an adequate height of the ball and ball cage is presented above the rim for engagement with an outer race when positioned on the rim,
 thereby to allow placement of the outer race on the rim with the balls, cage and inner race in place, to engage the balls in tracks of both the outer and inner rims during an assembly operation.

5,802,706

APPARATUS FOR INJECTING STATOR WINDING COIL GROUPS INTO A STATOR CORE

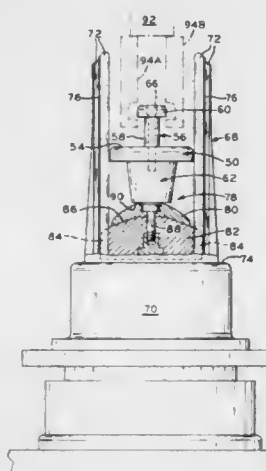
Eugene Richard Barrett, Columbia City, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Aug. 21, 1995, Ser. No. 517,251

Int. Cl.⁶ H02K 15/00

U.S. Cl. 29—736

50 Claims



1. Apparatus for injecting a plurality of coil groups into the magnetic core of a dynamoelectric machine, each coil group having one or more coils, the stator having a central bore and a plurality of teeth spaced around the bore with a slot between adjacent teeth extending radially outwardly from the bore, said injecting apparatus comprising a plurality of gap defining elongate blades arranged in a circular array, said blades configured to have the coil groups placed thereon such that portions of each of the coils are located in gaps between adjacent ones of the blades and segments of each of the coils extend across the interior of said circular array of blades, said apparatus further comprising a stripper assembly movable axially within said circular array of blades, said stripper assembly comprising a first stripper, said first stripper comprising a disk having an outer diameter less than an inner diameter of said circular array, a first surface of said first stripper configured to contact at least one segment of at least one coil which extends across an interior of said circular array of blades and to move at least the one coil axially along said blades without contacting the portions of the one coil in the gaps between said blades.

5,802,707

CONTROLLED BONDLINE THICKNESS ATTACHMENT MECHANISM

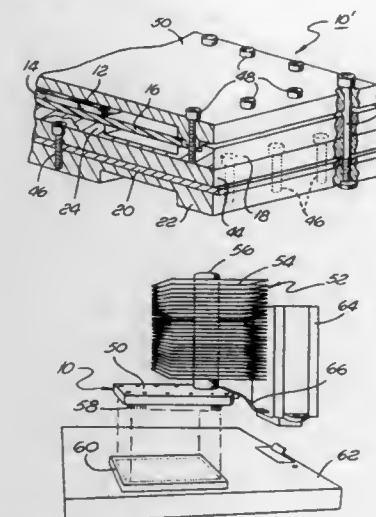
Michael Brownell; Gregory Turturro, both of Chandler, Ariz., and Dan McCutchan, Redwood City, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Mar. 28, 1996, Ser. No. 626,630

Int. Cl.⁶ H05K 1/18; 7/02; 7/20; 13/04

U.S. Cl. 29—740

7 Claims



1. A motherboard assembly, comprising:
 a motherboard;
 a socket that is mounted to said motherboard;
 a printed circuit board that is coupled to said socket, said printed circuit board having a top surface;
 an integrated circuit that is mounted to said top surface of said printed circuit board;
 a bracket that supports said printed circuit board;
 a lid that is attached to said bracket and in contact with said top surface of said printed circuit board, said lid having a platen area that is separated from said integrated circuit by a space;
 and,
 a thermal grease located within said space between said platen area and said integrated circuit.

5,802,708

HYDROSTATIC EXTRUSION OF CU-AG MELT SPUN RIBBON

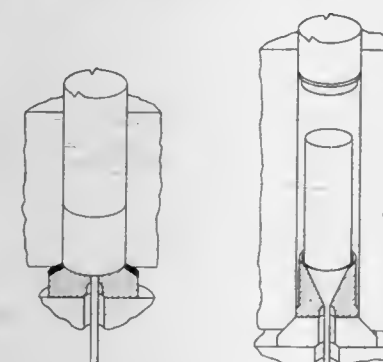
Mary Ann Hill, Los Alamos; John F. Bingert; Sherri A. Bingert, both of Jemez Springs, and Dan J. Thoma, Los Alamos, all of N. Mex., assignors to The Regents of The University of California, Oakland, Calif.

Filed May 30, 1996, Ser. No. 657,860

Int. Cl.⁶ H01R 43/00; C22F 1/02

U.S. Cl. 29—825

7 Claims



1. A method of producing high-strength and high-conductance copper and silver materials comprises the steps of:
 combining a predetermined ratio of said copper with said silver to produce a composite material;
 melt spinning said composite material to produce a ribbon of copper and silver;
 heating the said ribbon in a hydrogen atmosphere;
 die pressing said ribbon into a slug;
 placing said slug into a high-purity copper vessel and sealing said vessel with an electron beam;
 extruding said vessel and slug into wire form using a cold hydrostatic extrusion process.

5,802,709

METHOD FOR MANUFACTURING SURFACE MOUNT CONDUCTIVE POLYMER DEVICES

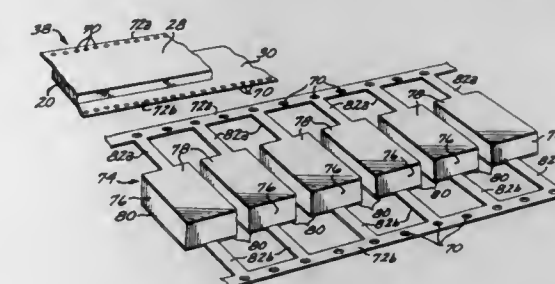
Steven Darryl Hogge, Corona, Calif.; Mengruo Zhang, Taikoo Shing, Hong Kong; Gary Straker, Riverside, Calif.; Paul G. Gratzinger, Moreno Valley, Calif., and Duane Wisner, Riverside, Calif., assignors to Bourns, Multifuse (Hong Kong), Ltd., Kowloon Bay, Hong Kong

Continuation of Ser. No. 559,327, Nov. 16, 1995, abandoned, which is a continuation-in-part of Ser. No. 515,506, Aug. 15, 1995, abandoned. This application Apr. 16, 1997, Ser. No. 838,210

Int. Cl.⁶ H01R 43/00

U.S. Cl. 29—827

15 Claims



1. A method of making an electronic device, comprising the steps of:
 providing a first length of conductive metal foil having a peripheral edge formed as a first carrier strip;
 providing a second length of conductive metal foil having a peripheral edge formed as a second carrier strip;
 laminating a layer of conductive polymeric material between the first and second lengths of conductive metal foil to form a laminated strip having the first and second carrier strips along opposed edges;
 forming the laminated strip into a plurality of active elements, each comprising a layer of conductive polymer material sandwiched between a first planar metal foil electrode connected to the first carrier strip by a first terminal lead element and a second planar metal foil electrode connected to the second carrier strip by a second terminal lead element;
 enclosing each of the active elements in an insulative package;
 and
 separating the first and second terminal lead elements from the first and second carrier strips, respectively.

5,802,710

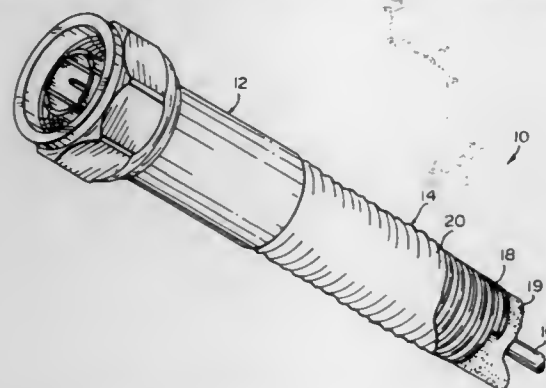
METHOD OF ATTACHING A CONNECTOR TO A COAXIAL CABLE AND THE RESULTING ASSEMBLY
Daniel E. Bufanda, Bolingbrook; John H. Dykstra, Tinley Park, and Jeff A. Ferdina, Hanover Park, all of Ill., assignors to Andrew Corporation, Orland Park, Ill.

Filed Oct. 24, 1996, Ser. No. 736,449

Int. Cl.⁶ H01B 13/20

U.S. Cl. 29—828

18 Claims



1. A method of attaching a connector to a prepared end of a coaxial cable to form a cable assembly, said cable including concentric inner and outer conductors, said prepared end including an exposed portion of said inner conductor and an exposed portion of said outer conductor, said method comprising the steps of:

installing an insulative disc of said connector onto said exposed portion of said inner conductor;
installing an inner contact of said connector onto said exposed portion of said inner conductor;
installing a solder preform onto said exposed portion of said outer conductor;
after installing said solder preform onto said exposed portion of said outer conductor, installing a body member of said connector over said solder preform onto said exposed portion of said outer conductor, said body member encompassing said inner contact; and
melting said installed solder preform to firmly attach said body member of said connector to said exposed portion of said outer conductor of said cable.

5,802,711

PROCESS FOR MAKING AN ELECTRICAL INTERCONNECT STRUCTURE

Duane Foster Card, Whitney Point, N.Y.; Eberhard Siegfried Dittman, Leger Granby, Canada, and Mukund Kantilal Saraiya, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 976,632, Nov. 16, 1992, Pat. No. 5,295,214. This application Dec. 6, 1993, Ser. No. 163,202

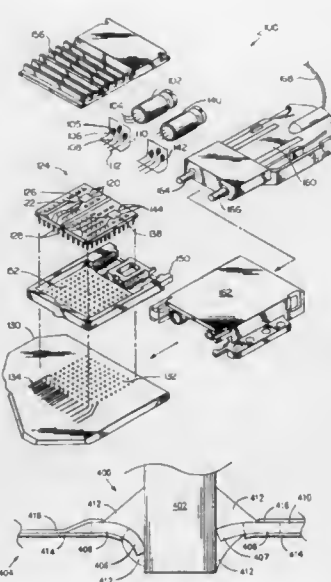
Int. Cl.⁶ H05K 13/04; 3/34

U.S. Cl. 29—840

6 Claims

1. A process for making an electrical interconnect structure, said process comprising the steps of:

providing a dielectric layer material having a major surface;
securing a conductive layer of material onto said major surface of said dielectric layer;
forming a passage through said dielectric layer and said conductive layer secured to said dielectric layer;
forming a conductive path within said conductive layer;
forming a solder-wettable, conductive land within said conductive layer adjacent said passage through said dielectric layer and said conductive layer, and electrically connected to said conductive path;
forming a deformable conductive soldering bridge within said conductive layer between said conductive land and said passage through said dielectric layer and said conductive layer;



positioning a conductive lead within said passage through said dielectric layer and said conductive layer; and
soldering said conductive lead to said conductive land by applying solder onto said deformable conductive soldering bridge.

5,802,712

ELECTRONIC DEVICE MOUNTING METHOD
Tadahiko Sakai, and Shoji Sakemi, both of Fukuoka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

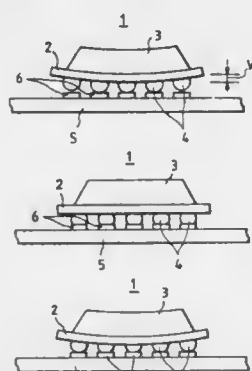
Filed Feb. 22, 1996, Ser. No. 604,895

Claims priority, application Japan, Feb. 23, 1995, 7-035189

Int. Cl.⁶ H05K 3/34

U.S. Cl. 29—840

3 Claims



1. A method of mounting an electronic device to a printed board, said electronic device having a molded body of synthetic resin formed on a substrate thereof for sealing a chip on said substrate, said electronic device further formed with bumps at an underside of said substrate for connection to electrodes of said printed board, said molded body and said substrate having different thermal expansion coefficients, said method comprising the steps of:
deriving a first correlation between a magnitude of warp of said electronic device and a heating temperature of said electronic device, said warp caused by a difference in thermal expansion coefficient between said molded body and said substrate;
deriving a second correlation between the magnitude of warp of said electronic device and a failure rate of coupling between said bumps and said electrodes;
deriving a heating temperature, which causes no coupling failure between said bumps and said electrodes, based on said first and second correlations; and

heating said electronic device to a temperature not less than said heating temperature which causes no coupling failure so as to melt said bumps for fixation onto said electrodes of the printed board.

5,802,713

CIRCUIT BOARD MANUFACTURING METHOD
Kerry L. Deamer, Germantown, Md., assignor to Fairchild Space and Defense Corporation, Germantown, Md.

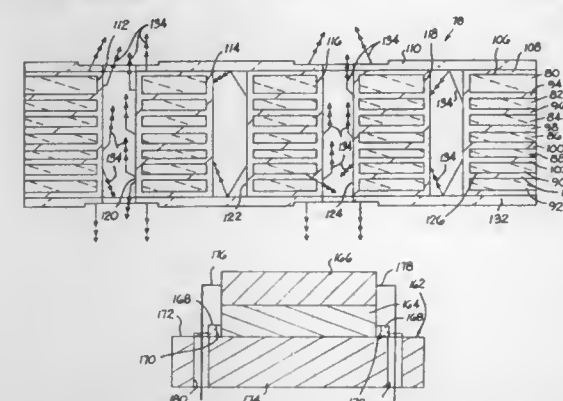
Continuation of Ser. No. 375,652, Jan. 20, 1995, abandoned.

This application Jun. 6, 1996, Ser. No. 659,556

Int. Cl.⁶ H05K 3/28; 3/46

U.S. Cl. 29—846

3 Claims



1. A method of manufacturing a machine soldered printed circuit board with printed circuit board preheating prior to machine soldering of the printed circuit board to provide for heat retardation to alleviate the problem of hot and cold spots on the printed circuit board during the preheating prior to machine soldering of the printed circuit board comprising the steps of:

providing an un-machine soldered printed circuit board having two sides and holes therethrough with one side having a copper layer thereon;
providing a "B" stage semicured polyimide material;
attaching said "B" stage semicured polyimide material to the entire exposed surface portion of said copper layer provided on said one side of said un-machine soldered printed circuit board including said holes prior to providing means for preheating the printed circuit board; providing means for machine soldering the printed circuit board; preheating;
using said means for preheating to preheat said un-machine soldered printed circuit board with said "B" stage semicured polyimide material, said semicured polyimide material serves as a heat retardation means to force heat into said holes in said un-machine soldered printed circuit board, thereby causing heat radiating from said holes to be at substantially the same temperature; and
using said means for machine soldering a printed circuit board to machine solder on said preheated un-machine soldered printed circuit board.

5,802,714

METHOD OF FINISHING A PRINTED WIRING BOARD WITH A SOFT ETCHING SOLUTION AND A PRESERVING TREATMENT OR A SOLDER-LEVELING TREATMENT

Shiro Kobayashi, Isehara, and Masami Kawaguchi, Hadano, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 483,988

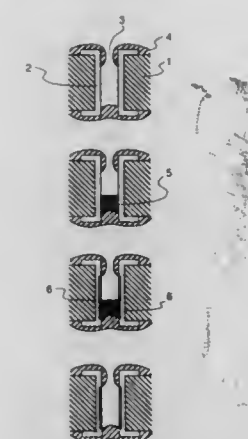
Claims priority, application Japan, Jul. 19, 1994, 6-165677

Int. Cl.⁶ H05K 3/10

U.S. Cl. 29—852

11 Claims

1. A method of finishing a printed wiring board having an exposed copper film, said method comprising soft-etching the



5,802,715

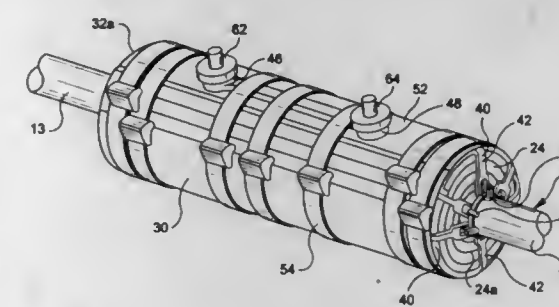
METHOD OF SEALING AN ELONGATE CABLE SPLICE
Andrew J. O'Neill, Cordova, Tenn., assignor to Thomas & Betts Corporation, Memphis, Tenn.

Continuation-in-part of Ser. No. 373,357, Jan. 17, 1995, Pat. No. 5,613,298. This application May 8, 1995, Ser. No. 436,919

Int. Cl.⁶ H01R 43/00

U.S. Cl. 29—869

11 Claims



1. A method of sealing an elongate splice of an electrical cable comprising the steps of:

enclosing a central extent of said splice in a generally cylindrical enclosure tube so as to define exposed lateral splice extents on each side of said tube;
constructing sealing dams about said cable adjacent each end of said cable splice and adjacent each end of said tube so as to position said lateral splice extents between a pair of sealing dams;
covering said exposed lateral splice extents with a pair of elongate generally cylindrical splice enclosing shells each shell having opposed open ends, said splice enclosing shells and said tube being in communication; and
sealably attaching said open ends of each said shell to said sealing dams to sealably enclose said splice.

5,802,716
METHOD FOR BONDING A VALVE SEAT WITH A CYLINDER HEAD

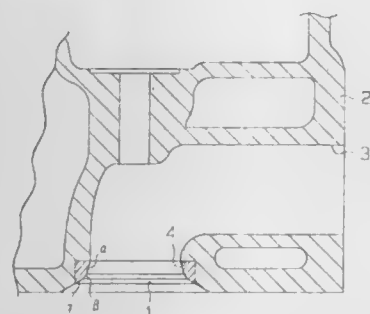
Akihisa Nishimura, Nagoya; Fumio Shimizu, Toyota, and Kenichi Suzuki, Nagoya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-gun, both of Japan
Filed Sep. 27, 1995, Ser. No. 534,611

Claims priority, application Japan, Sep. 30, 1994, 6-237462; Feb. 22, 1995, 7-059755

Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—888.06

12 Claims



1. A method for bonding a valve seat with a cylinder head made of aluminum comprising the steps of:
applying an Al—Zn type brazing material and fluoride type flux to a cylinder head made of aluminum;
assembling a valve seat with said cylinder head; and
brazing said valve seat with said cylinder head by using said Al—Zn type brazing material and said fluoride type flux.

5,802,717
PROCESS FOR PRODUCING INK-JET HEAD WITH A CHEMICAL CHANGE IN THE EASE PLATE SURFACE
Keiichi Murakami, Hachioji, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

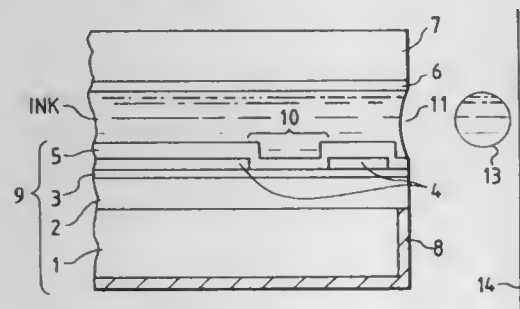
Filed Dec. 19, 1995, Ser. No. 575,152

Claims priority, application Japan, Dec. 21, 1994, 6-335709

Int. Cl.⁶ B23P 15/00

U.S. Cl. 29—890.1

12 Claims



1. A process for producing an ink-jet head having an ink discharge opening for discharging an ink, an ink flow path communicating with the ink discharge opening, a liquid chamber communicating with the ink flow path for supplying the ink thereto, an energy-generating element for generating energy to be utilized for discharging the ink, and a metallic base plate provided with the energy-generating element, said process comprising the steps of:
providing a metallic base plate having thereon a plurality of the energy-generating elements; forming, on the base plate, a plurality of ink flow path walls from a resin for forming the plurality of ink flow paths and the liquid chambers; bonding a ceiling plate onto the ink flow path walls; cutting the formed laminate of the metallic base plate and the ceiling plate having the ink flow path walls

interposed therebetween into a plurality of laminate pieces; and immersing into a chemical treatment solution at least an end portion having that cut face of the cut faces of the respective laminate pieces which forms an ink discharge opening surface having the discharge opening formed therethrough, the immersing in the chemical treatment solution causing a chemical change in the surface of the metallic base plate.

5,802,718
METHOD FOR LEATHER WRAPPING OF A STEERING WHEEL

Henk Raetse, Waterloo, Canada, assignor to Custom Trim Ltd., Canada

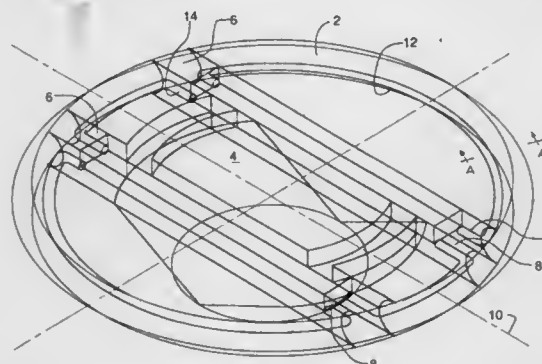
Filed May 1, 1996, Ser. No. 640,603

Claims priority, application Canada, Jun. 9, 1995, 2151403

Int. Cl.⁶ B21D 53/26

U.S. Cl. 29—894.1

6 Claims



1. A method of leather wrapping a steering wheel having a ring spaced radially and extending circumferentially about a central hub and attached thereto by spokes, said method comprising:
providing a groove extending circumferentially along the surface of said ring and at least a portion of said spokes adapted to receive the edge of a leather wrapping therein, said groove being aligned with the intersection of said spokes with said ring and extending along said portion of said spokes;
wrapping said ring with leather and inserting the edge of said leather in said groove;
inserting a welt in said groove to secure the edges of said leather wrapping therein.

5,802,719
ONE PIECE C-ARM FOR X-RAY DIAGNOSTIC EQUIPMENT

Frank B. O'Farrell, Jr., Alfred P. Tomasino, both of Sandy; Roy J. Orr, Salt Lake City; Robert G. Buckingham, Salt Lake City, and Barry K. Hanover, Salt Lake City, all of Utah, assignors to OEC Medical Systems, Inc., Salt Lake City, Utah

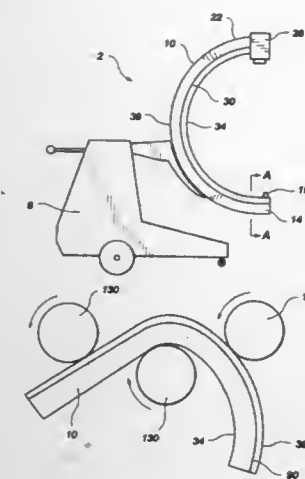
Continuation of Ser. No. 425,881, Apr. 21, 1995, abandoned, which is a division of Ser. No. 209,961, Mar. 14, 1994, Pat. No. 5,426,683. This application Feb. 26, 1997, Ser. No. 806,417

Int. Cl.⁶ H05G 1/02

U.S. Cl. 29—897.35

10 Claims

1. A method for forming a single piece C-arm for use with X-ray diagnostic equipment, the method including the steps of:
(a) extruding a material to form an elongate single piece beam sized with a cross-section including two generally vertical sidewalls connected by spaced-apart support walls configured so as to form a chamber between the two generally vertical sidewalls and spaced-apart support walls, and
(b) successfully passing the single piece beam through a plurality of rollers to curve the single piece beam and forming a



generally C-shaped frame defining a C-shaped chamber between the two generally vertical sidewalls and the spaced apart support walls with opposing ends configured for attachment of X-ray diagnostic equipment.

5,802,720
SHAVING CLOTH
Christopher A. Pribe, 379 Hope St., Mountain View, Calif. 94041

Filed Oct. 4, 1996, Ser. No. 726,163

Int. Cl.⁶ B26B 21/00

U.S. Cl. 30—32

8 Claims



1. A shaving apparatus comprising:
(a) a plurality of cutters wherein each said cutter is in the shape of a ring with one or more cutting apertures formed therein; and
(b) means for flexibly joining said cutters together including a plurality of rings looped through said cutters.

5,802,721
SAFETY RAZORS
Kevin James Wain, Reading, and Frank Edward Brown, Maidenhead, both of United Kingdom, assignors to The Gillette Company, Boston, Mass.

Filed Oct. 16, 1996, Ser. No. 745,324

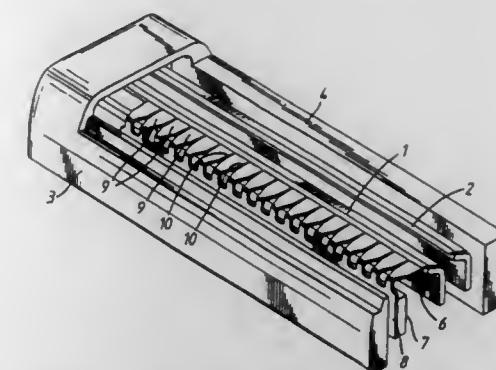
Claims priority, application United Kingdom, Apr. 21, 1994, 9407896

Int. Cl.⁶ B26B 21/06

U.S. Cl. 30—34.2

29 Claims

1. A shaving unit comprising an elongate skin engagement surface for contacting the skin in advance of a blade edge moved across the skin during shaving, said surface being defined by a



series of elements (9;42) defining slots (10) therebetween, characterized in that the slots (10) are arranged for hairs to pass through the slots, and laterally adjacent elements (9;42) are formed and spaced apart along the surface to engage resiliently hairs passing through the slots therebetween for applying a light pulling force to the hairs as the skin from which the hairs project slides over the surface, wherein each of the slots extends from a leading edge to a trailing edge of said surface, the width of each slot tapers rearwardly from the mouth thereof at the leading edge and has a minimum value less than the diameter of a hair, and the adjacent elements are resiliently movable relative to each other substantially parallel to the plane of said surface in response to passage of the hairs through the slots, the hairs passing through the slots being gripped between the adjacent elements to extend the hairs from the skin and the hairs being released at the trailing edge of said surface to meet the blade edge before retracting into the skin.

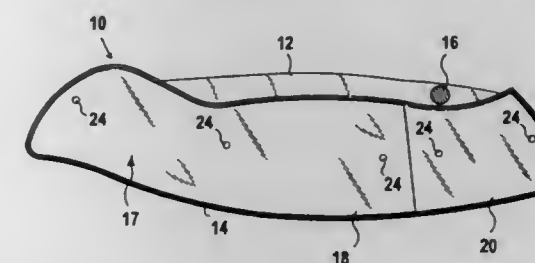
5,802,722
ONE HANDED KNIFE
Michael Maxey, and Helga Maxey, both of 6623-39th Ave. SW, Seattle, Wash. 98136

Filed Jul. 30, 1997, Ser. No. 903,319

Int. Cl.⁶ B26B 1/04

U.S. Cl. 30—160

14 Claims



1. A one handed knife comprising:
a) a handle including first and second handle portions, said first handle portion including an arcuate recess extending therethrough and said second handle portion including a blade lock release extending therefrom;
b) a blade pivotally connected between said first and second handle portions, said blade including a thumb pin extending therefrom; and
c) a tension bar having a first end slideably connected to said first handle portion and a second end extending through said arcuate recess and connected to said blade, wherein said one handed knife is movable between a first closed position in which said blade is partially positioned between said first and second handle portions, said thumb pin is positioned on a portion of said blade extending from between said first and second handle portions and said tension bar is in a first tensioned position at a first end of said arcuate recess and a second open position in which said blade extends from said handle, said tension bar is positioned at a second end of said arcuate recess and said blade lock release is positioned to

prevent said blade from pivoting towards said handle, said blade being caused to pivot from said first closed position into said second open position by application of a force on said thumb pin away from said handle, said force being of a magnitude able to overcome said tension of said tension bar.

5,802,723

ADJUSTABLE BOW KNIFE

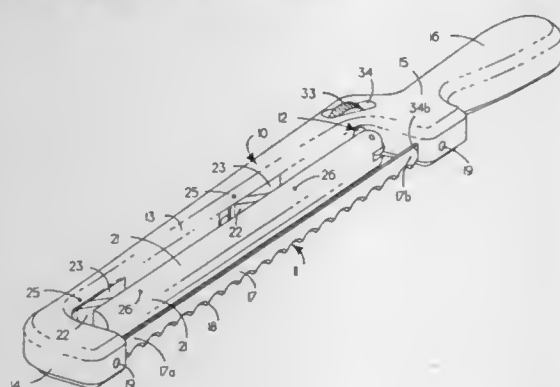
Carl Haggar, P.O. Box 65, Hwy. 2 West, East Glacier Park, Mont. 59434-0065

Filed Feb. 18, 1997, Ser. No. 802,412

Int. Cl.⁶ B26B 3/03

U.S. Cl. 30—283

4 Claims



1. An adjustable bow knife, comprising in combination:

- a body having
 - an elongate back having forward and rearward end portions
 - opposed blade support arms extending spacedly, in parallel orientation from the back at each end portion,
 - a blade carried between the opposed blade support arms parallel to an adjacent surface of the back and perpendicular to a plane through the support arms, and
 - a handle extending rearwardly from the rearward portion of the back; and adjustment structure having
 - an elongate adjustment bar having a linear edge facing the blade and pivotally carried between the back and the blade for parallel motion toward and away from the blade, by spaced support arms pivotally supported by the back to extend therefrom in spaced parallel array,
 - an elongate adjustment screw extending through a first chamber defined in the body in forwardly angulating orientation to the adjustment bar and pivotally interconnected to the adjustment bar, and
 - an adjustment nut threadedly engaged on the adjustment screw and carried in a second chamber defined in the body to extend from the body to allow access for manipulation to move the adjustment bar toward and away from the blade responsive to rotation of the adjustment nut.

5,802,724

COUPLING FOR SPLIT-BOOM POWER TOOL

Harry Gene Rickard; Kenneth M. Brazell, both of Phoenix, and Robert G. Everts, Chandler, all of Ariz., assignors to Ryobi North America, Anderson, S.C.

Continuation-in-part of Ser. No. 303,320, Sep. 9, 1994, abandoned. This application Jul. 26, 1996, Ser. No. 688,036

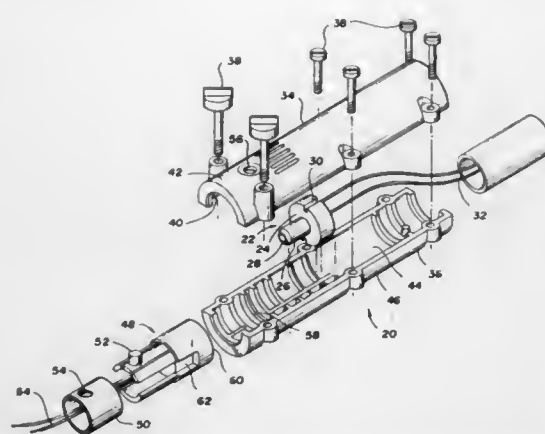
Int. Cl.⁶ B26B 27/00

U.S. Cl. 30—296.1

16 Claims

1. An attachment system for attaching first and second boom members of a split-boom power tool, the attachment system comprising:

- a coupling attachable to the first boom member and comprising a substantially cylindrical single-piece joint having first and second ends, said joint having a cylindrical diameter and



being compressible for reducing the cylindrical diameter, said coupling further comprising first and second flanges extending from the joint, and a first tightening member engaged with said first and second flanges for selectively decreasing the cylindrical diameter of said joint at said first end of said joint, said cylindrical joint further comprising a radial aperture formed through a cylindrical wall of said cylindrical joint;

- a resiliently biased locating pin connectable to the second boom member for engagement with said radial aperture to secure the second boom member to said coupling; and
- wherein said first tightening member is configured to squeeze said first and second flanges together to decrease said cylindrical diameter to rigidly secure the second boom member within said joint.

5,802,725

PORTABLE METAL DRUM OPENING APPARATUS

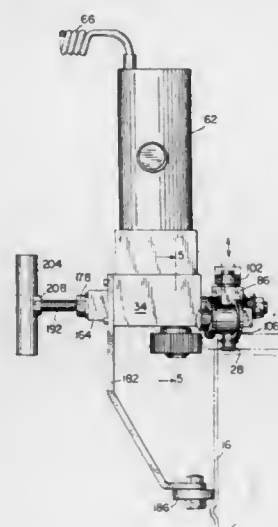
Brian N. Drifka, Pewaukee; Bruce A. Cincotta, Wauwatosa, and Arthur L. Thomas, Milwaukee, all of Wis., assignors to Hydro-Thermal Corporation, Waukesha, Wis.

Filed Apr. 6, 1995, Ser. No. 418,246

Int. Cl.⁶ B67B 7/60; 7/68

U.S. Cl. 30—417

17 Claims



1. A metal drum opener for removing a cover from a metal drum having a cylindrical wall in which an upper edge of the cylindrical wall and a peripheral edge of the cover are rolled to form a chime, the drum opener comprising:

- a carrier having a generally vertical drive shaft bearing hole;
- a drive shaft journaled within the drive shaft bearing hole;
- a rotatable drive wheel mounted to the drive shaft and disposed to engage an outer surface of the drum chime;

- a front housing having a generally vertical cutter shaft bearing hole;
- a rotatable cutting wheel having a cutting head and a cutter shaft projecting perpendicularly from the cutting head, the cutter shaft being slidably mounted to freely slide through the cutter shaft bearing hole in the front housing so that the cutting head is disposed to engage an inner surface of an inside layer of the drum chime;
- a cutting wheel stop that limits the cutter shaft from sliding axially downward through the cutter shaft bearing hole in the front housing beyond a selected chime cutting height relative to the front housing, a position of the cutting wheel stop on the cutter shaft setting the chime cutting height such that the cutting wheel is free to slide axially above the chime cutting height when the cutting head is not engaged with the drum chime;
- means for engaging the drive wheel against the outer surface of the chime and the cutting head against the inner surface of the chime to cut the inside layer of the drum chime;
- means for driving the drive shaft and moving the opener in a cutting direction around the drum chime to open the cover of the drum;
- means for tilting the cutting head downward in the cutting direction as the opener moves around the drum chime; and
- wherein said means for tilting the cutting head downward in the cutting direction as the opener moves around the drum chime pulls the cutting head downward as the opener moves around the drum chime and the cutting wheel stop prevents the cutting head from moving downward beyond the selected chime cutting height by limiting axial downward movement of the cutter shaft through the cutter shaft bearing hole in the front housing.

5,802,726

ARCHERY BOW SIGHT

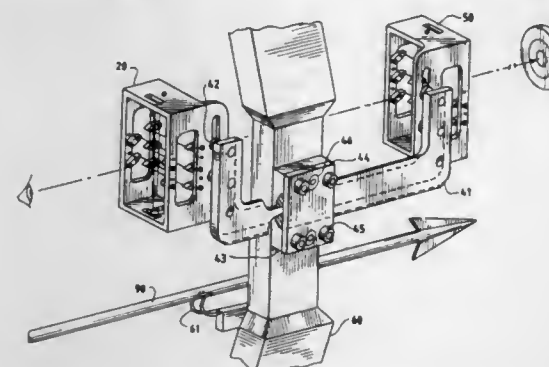
Don L. Trosper, Jr., 606 S. Seminary St., Georgetown, Ill. 61846, and David L. Rehder, 22472 Queen St., Castro Valley, Calif. 94546

Filed Mar. 28, 1997, Ser. No. 827,602

Int. Cl.⁶ F41G 1/467

U.S. Cl. 33—265

14 Claims



1. An archery bow sight of the type that mounts on a bow above the handle and through which the archer views when holding the bow in a vertical shooting position and aiming at a target, the archery bow sight comprising:

- (a) a near frame in a plane perpendicular to the plane formed by the bow and the bowstring, the near frame containing a filament that is vertical when the bow is in the shooting position and a plurality of filaments that are horizontal when the bow is in the shooting position, the filaments being in the same plane as the near frame; and
- (b) a far frame located farther away from the archer than the near frame when the bow is in the shooting position, the far frame being in a plane perpendicular to the plane formed by the bow and the bowstring, the far frame containing a filament that is vertical when the bow is in the shooting position and a

plurality of filaments that are horizontal when the bow is in the shooting position, the filaments being in the same plane as the far frame, each filament in the far frame corresponding to a filament in the near frame to form a corresponding pair, the spaces between the horizontal filaments in the far frame being greater than the spaces between the horizontal filaments in the near frame, the filaments in the far frame located in a plane passing through the corresponding filament in the near frame and the eye of the archer so that each pair of corresponding filaments appear superimposed when the bow is in the shooting position, the intersection of the corresponding vertical filaments and each pair of corresponding horizontal filaments defining a sight for a target of a particular distance.

5,802,727

COMPENSATION SYSTEM FOR ELECTRONIC COMPASS

Rodney K. Blank; Richard J. Gahan; Howard J. Haselhuber, Jr., all of Holland; Kenneth L. Schierbeek, Zeeland, and Kenneth Schofield, Holland, all of Mich., assignors to Donnelly Corporation, Holland, Mich.

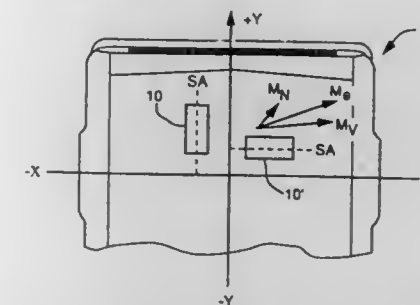
Continuation of Ser. No. 457,621, Jun. 1, 1995, Pat. No. 5,632,092, which is a continuation of Ser. No. 142,509, Oct. 25, 1993, Pat. No. 5,644,851, which is a continuation-in-part of Ser. No. 811,578, Dec. 20, 1991, Pat. No. 5,255,442. This

application Mar. 24, 1997, Ser. No. 823,469

Int. Cl.⁶ G01C 17/28

U.S. Cl. 33—361

10 Claims



1. An electronic compass suitable for use in a vehicle, said electronic compass comprising first and second sensors responsive to an external magnetic field for developing first and second electronic sensor signals respectively representative of said external magnetic field, said external magnetic field being a combination of the earth magnetic field and a deviating field of the vehicle;

said first and second sensors being oriented in a predetermined angular relation with each other and being aligned in a predetermined angular relation with respective axes of said vehicle;

an electronic circuit for measuring said sensor signals for developing signals indicative of the direction of said vehicle; and

a digital lag filter operating on said sensor signals to reduce the noise in said sensor signals.

5,802,728

LIQUID LEVEL AND ANGLE DETECTOR

Drew A. Karnick, and William S. Watson, both of Eau Claire, Wis., assignors to Watson Industries, Inc., Eau Claire, Wis.

Filed Aug. 17, 1995, Ser. No. 516,310

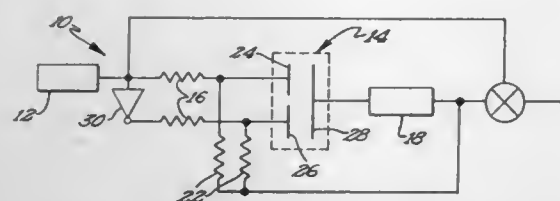
Int. Cl.⁶ G08C 19/10

U.S. Cl. 33—366

38 Claims

1. A circuit for generating an output signal, driven by an input signal, said circuit comprising:

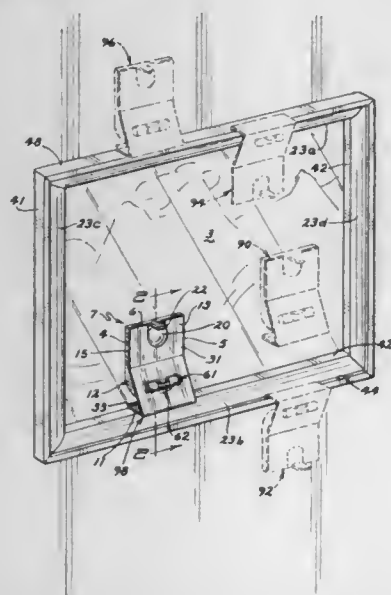
- a sensor having two input points and an output point;
- said sensor comprising:
- a movable medium; and



two signal generating elements connected in the circuit to each generate an intermediate output signal determined by the position of said movable medium relative to said signal generating elements, each intermediate output signal connected to said output point;

said two input points connectable to the input signal; an amplifier; said output point connected to an input of said amplifier; and each of said two input points connected to the output of said amplifier; whereby the output signal correlated to the position of said movable medium is generated.

5,802,729
APPARATUS FOR ASSISTING IN POSITIONING HANGING ARTICLES
Patrick D. O'Brien, 2200 Blaisdell Ave. #201, Minneapolis, Minn. 55401, and Jeff A. Weber, Minneapolis, Minn., assignors to Patrick D. O'Brien, Minneapolis, Minn.
Filed Jan. 22, 1996, Ser. No. 589,201
Int. Cl.⁶ G01C 9/28
U.S. Cl. 33—371

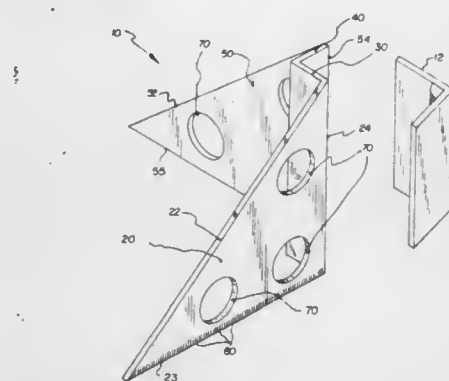


1. An apparatus for assisting a user in fixedly positioning a framed article on a vertical wall surface, said framed article having a flat edge and a transparent surface, said apparatus comprising:

- a) a body member having a front side and a back side and at least one flat external leveling edge, said body member being adapted to be located in a first leveling orientation with said at least one flat external leveling edge substantially abutting the flat edge of the framed article and said back side generally adjacent the transparent surface, said body member further having a hook structure for temporarily securing said body member to the framed article in a second leveling orientation, at least a portion of said hook structure projecting away from one of said sides of the body member;
- b) a suction device secured to said body member for removably affixing said body member to the transparent surface of the frame when said body member is in said first leveling orientation; and

c) a level device, said level device being observable to the user when said body member is in either said first or second leveling orientation.

5,802,730
BAT
Robert A. Gomes, 5125 E. La. #113, Fresno, Calif. 93727
Filed Nov. 6, 1996, Ser. No. 764,066
Int. Cl.⁶ B43L 7/033
U.S. Cl. 33—481



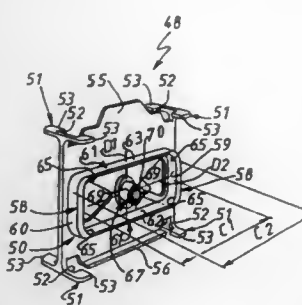
1. A bat comprising:
- a first plate having a first vertical edge and a first horizontal edge connected to said first vertical edge;
 - a first slanted edge connected to said first vertical edge and to said first horizontal edge;
 - a first member securing to said first vertical edge extending orthogonally away from said first plate;
 - a second member securing orthogonally to said first member opposite of said first plate forming a V-shaped channel for positioning around an arcuate corner or formed interior edge;
 - a second plate having a second vertical edge and a second horizontal edge connected to said second vertical edge;
 - a second slanted edge connected to said second vertical edge and to said second horizontal edge; and
 - said second vertical edge securing orthogonally to said second member opposite of said first member thereby forming a W-shape wherein said first plate is orthogonally aligned with respect to said second plate.

5,802,731
CALIBRATION GAGE FOR CALIBRATING A DEVICE FOR READING OFF EYEGLASS FRAME CONTOURS, AND CORRESPONDING CALIBRATION METHOD
Laurent Guillermin, Paris; Henri Hougas, Ozoir la Ferriere, and Patrick Horel, Levallois Perret, all of France, assignors to Essilor International Compagnie Generale d'Optique, Charenton le Pont, France
Filed Jun. 24, 1996, Ser. No. 668,843
Claims priority, application France, Jun. 23, 1995, 95 07555
Int. Cl.⁶ G01B 5/00

- U.S. Cl. 33—502
1. In an eyeglass frame contour reading off device of the type including two generally elongate parallel jaws, at least one of the jaws being mobile transversely to the parallel jaws, a transfer carriage mobile linearly along a path substantially parallel to said parallel jaws, a read carriage mobile linearly on a turntable rotatable on said transfer carriage, a feeler carried by the read carriage and selectively cooperable with a rim groove of an eyeglass frame adapted to be clamped between the jaws, the invention comprising a calibration gage cooperable with the parallel jaws in place of an eyeglass frame, said calibration gage comprising a plate with at least two transverse ribs projecting therefrom, said ribs being substantially parallel to each other in a first direction and spaced

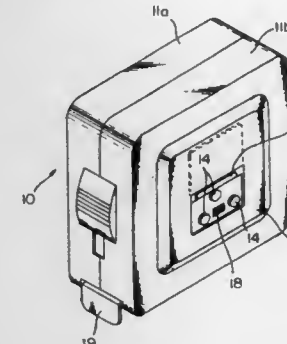
11 Claims

22 Claims



5,802,732
TAPE MEASURE WITH AUDIO RECORDER
Robert D. Malone, 14727 Bothell Way NE., Suite 1, Seattle, Wash. 98155
Filed Jan. 16, 1996, Ser. No. 585,830
Int. Cl.⁶ G01B 3/10
U.S. Cl. 33—768

6 Claims



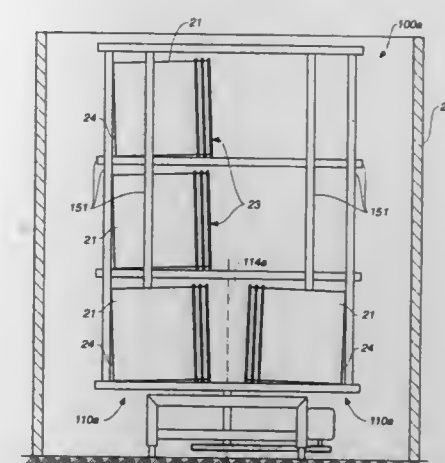
1. A combination measuring tape and audio recorder comprising:
- a housing for a measuring tape;
 - an elongated extendable and retractable measuring tape positioned in said housing;
 - a microcircuit for recording audio messages of dimensions observed on said tape, said microcircuit positioned in a removable housing detachable from said tape; and
 - control means for controlling said recording means to record, play back and erase messages thereon, said controls being positioned at one side of said housing accessible to the user.

5,802,733
DRYER SYSTEM FOR VEGETABLES
John Hougham, Carmel, Calif., assignor to The Great Northern Equipment Company, Salinas, Calif.
Division of Ser. No. 662,661, Jun. 14, 1996, Pat. No. 5,675,905. This application Mar. 10, 1997, Ser. No. 814,045
Int. Cl.⁶ F26B 17/30

U.S. Cl. 34—58

12 Claims

1. A method of centrifugally drying produce comprising the steps of:
- placing pieces of produce in a produce basket having a size suitable for lifting by a single worker when full of produce, said produce basket further being formed with a perforated bottom wall having openings therein sufficiently small to contain said produce under centrifugal forces and sufficiently large to enable water to pass therethrough;
 - thereafter, and while said pieces of produce are still contained in said produce basket, releasably securing said produce basket to a turntable assembly for rotation of said produce basket

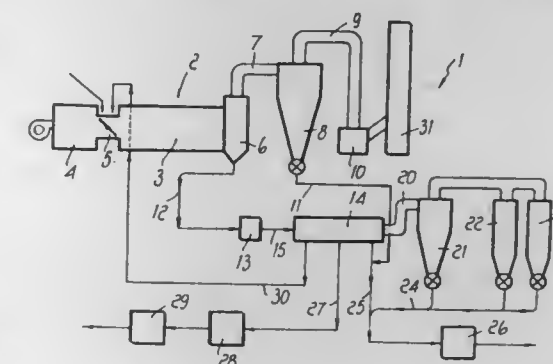


with said turntable assembly about a spin axis, said produce basket being secured to said turntable assembly with said perforated bottom wall facing away from said spin axis; and thereafter, rotating said turntable assembly with said produce basket secured thereto until water in said produce is centrifugally urged out of said produce and through said perforated bottom wall.

5,802,734
METHOD FOR FACILITY FOR DEHYDRATING PLANTS, PARTICULARLY FOR DEHYDRATING FORAGE
Giuseppe Imo Manzoli, Rosolina, Italy, assignor to Marlegreen Holding S.A., Luxembourg, Luxembourg
Division of Ser. No. 677,655, Jul. 8, 1996, Pat. No. 5,692,317.
This application Sep. 23, 1997, Ser. No. 935,775
Claims priority, application Italy, Jul. 14, 1995, MI95A1538
Int. Cl.⁶ F26B 19/00

U.S. Cl. 34—63

18 Claims



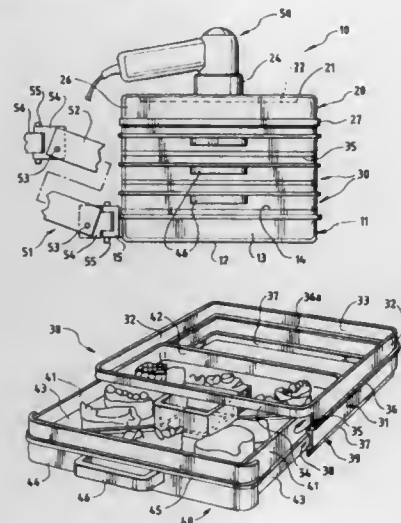
1. A facility for dehydrating plants having mutually attached stalks and leaves, comprising:
- a drier for receiving said plants and for drying said plants so as to remove an initial amount of moisture from said plants;
 - apparatus for separating said plants at least into a first portion of stalks and a second portion of stalks, in which the stalks of said first portion of stalks have a higher moisture content than the stalks of said second portion of stalks; and
 - apparatus for subjecting said first portion of stalks separately from said second portion of stalks to a further drying operation so as to remove a further amount of moisture from said first portion of stalks.

5,802,735 DENTAL MODEL DRYER

John Schoonhoven, 280 Grove Ave., Des Plaines, Ill. 60016
Filed Oct. 24, 1996, Ser. No. 738,029
Int. Cl.⁶ F26B 17/12

U.S. Cl. 34—174

22 Claims



1. A dryer for drying dental models comprising:
 - a base member;
 - a model support section stacked on said base member and including at least one modular drying unit for supporting dental models therein;
 - said modular drying unit including a frame and a tray slidable with respect to the frame between open and closed positions; and
 - a top member stacked on said model support section, said dryer having vent openings therein to accommodate air flow there-through.

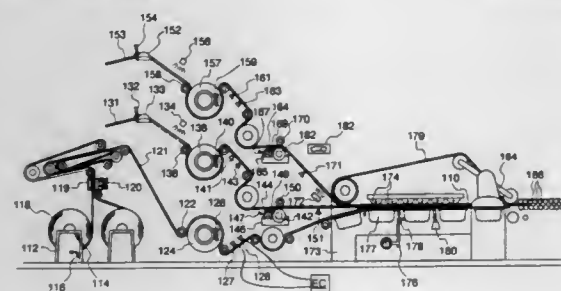
5,802,736 AUTOMATED FABRICATION OF CORRUGATED PAPER PRODUCTS MOISTURE REMOVAL

Jerome J. Klockenkemper, Zionsville; Dennis M. Judge, and Charles Douglas Moore, both of Indianapolis, all of Ind., assignors to Inland Paperboard and Packaging, Inc., Indianapolis, Ind.

Division of Ser. No. 521,714, Aug. 31, 1995, Pat. No. 5,659,976, which is a continuation-in-part of Ser. No. 432,038, May 1, 1995. This application Mar. 7, 1997, Ser. No. 814,739
Int. Cl.⁶ F26B 3/00

U.S. Cl. 34—484

29 Claims



11. A method for preparing a paper web for corrugation, comprising the steps of:
 - providing a paper web having first and second opposed major surfaces and containing moisture;
 - providing heating means with a curved outer heated surface;
 - providing a wrap arm for wrapping the paper web across the heating means, with the wrap arm movable between maxi-

imum and minimum positions so as to bring greater and lesser portions of the paper web in contact with the heating means; moving the wrap arm between a series of different positions, between said maximum and said minimum positions so as to bring a changing amount of the first surface of the paper web in contact with the heating means; providing a probe means having electrically conductive probe elements for contacting the paper web at the first surface; applying a voltage to the probe elements to create a test current flowing through the web; sensing, for the different positions of the wrap arm, the surface moisture carried by the paper web at the first surface by measuring the test current; determining a low moisture wrap arm position at which a rate of increase of moisture increases; determining a high moisture wrap arm position at which a rate of increase of web moisture is negligible; determining an offset comprising one-half of the difference between the low moisture wrap arm position and the high moisture wrap arm position; determining a desired operating position of the wrap arm by adjusting the high moisture wrap arm position toward the low moisture wrap arm position by an amount corresponding to the offset; and moving the wrap arm to the desired operating position.

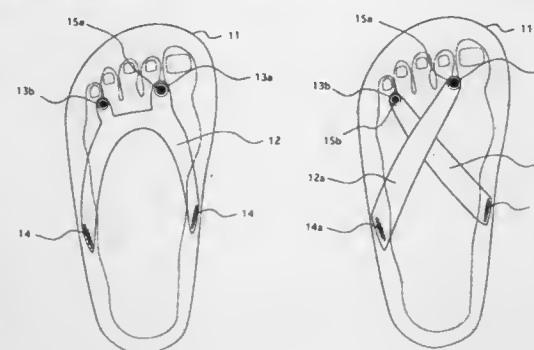
5,802,737 THONG TYPE SANDAL

Shinichi Beppu, Haimu-Shirogane-101 1-7-3 Kamiousaki, Shinagawa-ku Tokyo, Japan

Filed Mar. 12, 1997, Ser. No. 816,215
Int. Cl.⁶ A43B 3/12

U.S. Cl. 36—11.5

7 Claims



1. A sandal comprising:
 - a sole; and
 - at least one strap body having first and second strap ends and first and second strap tabs only which are fixed to said sole of the sandal, said first strap tab positioned between a big toe and an adjacent toe, and said second strap tab positioned between a little toe and an adjacent toe when a user's foot is inserted between the strap body and the sole, wherein only said first and second strap tabs are positioned between toes of a user's foot.

5,802,738 SANDAL-TYPE FOOTWEAR

Aldo Ferniani, Padua, Italy, assignor to Exo Italia S.r.l., Padua, Italy

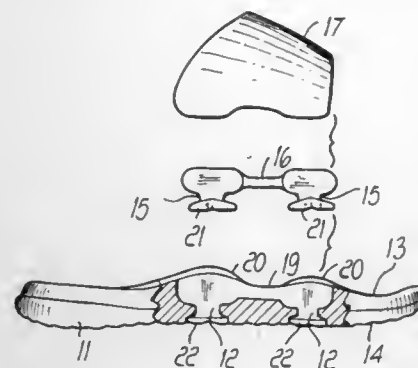
Filed Mar. 4, 1997, Ser. No. 810,443
Claims priority, application Italy, Mar. 8, 1996, PD96 U 00014

Int. Cl.⁶ A43B 3/12

U.S. Cl. 36—11.5

14 Claims

13. An item of footwear comprising:



a sole made of a plastic material, said sole including a foot resting part, a tread and at least one pair of through holes, each of said through holes forming an expanded seat; an upper;

at least one pair of engagement elements connected to said upper, said engagement elements each having an upper end which is connected to said upper and a lower free end arranged distally from said upper, said upper ends of said engagement elements being mutually interconnected by a longitudinal part to form a single body, said upper ends and said longitudinal part being arranged adjacent said upper and said lower free ends of said engagement elements being arranged distally from said upper, each of said lower free ends being shaped so as to pass through and elastically deform a respective one of said through holes to eventually grip in a respective said expanded seat for connecting the respective said engagement element to said sole without use of any other coupling means, and each of said upper ends of said engagement elements being substantially flat and having one side which is substantially non-removably attached to a lateral side portion of said upper by any one of stitching, gluing, molding, and welding techniques, and wherein each of the lower free ends of said engagement elements being expanded for gripping in said respective expanded seat shaped complementarily to the respective lower free end, and said each expanded seat and a bottom portion of each said lower free end being arranged at the tread.

5,802,739

COMPLEX-CONTOURED TENSILE BLADDER AND METHOD OF MAKING SAME

Daniel R. Potter, Forest Grove; Joel L. Passke, Portland, and Michael A. Aveni, Lake Oswego, all of Oreg., assignors to Nike, Inc., Beaverton, Oreg.

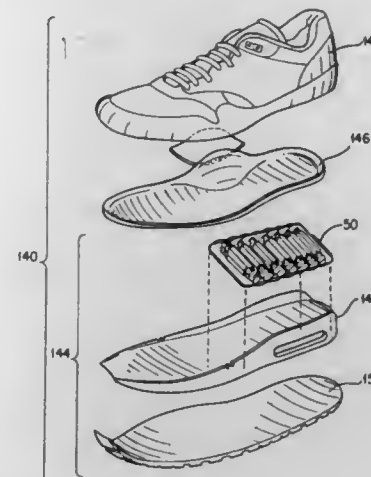
Filed Jun. 7, 1995, Ser. No. 475,500

Int. Cl.⁶ A43B 13/20

U.S. Cl. 36—29

10 Claims

6. A complex-contoured tensile bladder for providing cushioning when pressurized, said bladder comprising:
 - an outer envelope including a top barrier layer and a bottom barrier layer of elastomeric film, said envelope defining a sealing periphery;
 - a tensile element comprising a top inner sheet of elastomeric film and a bottom inner sheet of elastomeric film welded together at a plurality of selected first weld lines, said tensile element having edges and adapted to be surrounded by and disposed within said envelope such that said sealing periphery is spaced away from the edges of said tensile element, said top barrier layer of said envelope welded to said top inner sheet, and said bottom barrier layer welded to said bottom inner sheet at a plurality of selected second weld lines which are incoincident with said first weld lines such that when said bladder is pressurized said tensile element extends between



said top barrier layer and said bottom barrier layer of said envelope to provide a framework and lend a complex-contoured shape to said bladder; and a fluid under pressure which places said tensile element in tension and spaces said top barrier layer and said bottom barrier layer way from one another.

5,802,740

INSULATED AND WATERPROOF SHOE

Erik E. Merk, Sr., P.O. Box 30148, Portland, Oreg. 97230-1027

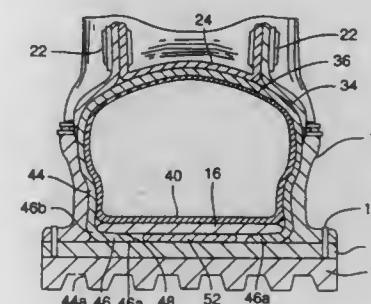
Continuation of Ser. No. 432,302, May 1, 1995, abandoned.

This application Nov. 19, 1996, Ser. No. 754,114

Int. Cl.⁶ A43B 23/07

U.S. Cl. 36—55

5 Claims



1. In combination with a shoe construction of the type having an upper, an outsole, a midsole on the outsole, and an insole on the midsole,
 - a first sock-type liner of waterproofing material,
 - a second sock-type liner of insulating material capable of protecting the feet of a wearer against cold temperatures,
 - said first liner being enclosed in said second liner, said second liner being only slightly larger in overall dimension than said first liner so as to snugly receive it,
 - said first and second liners fitting closely within and suspended from an upper portion of the upper of the shoe, and means for securing the bottom portion of the first liner directly to and in contact with an upper surface of the insole, and upper and lower surfaces of bottom portions of the second liner directly to and in contact with a lower surface of the insole and an upper surface of the midsole, respectively.

5,802,741

SNOWBOARD BOOT

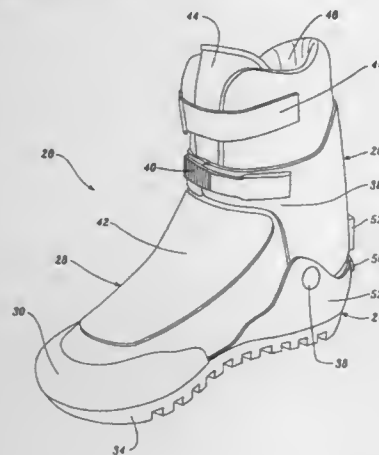
Brent H. Turner, Seattle, Wash.; Antonin A. Meibock, Cleveland, Ohio, and John E. Svensson, Seattle, Wash., assignors to K-2 Corporation, Vashon, Wash.

Continuation-in-part of Ser. No. 120,629, Sep. 13, 1993, Pat. No. 5,452,907, Ser. No. 100,745, Aug. 2, 1993, abandoned, and Ser. No. 94,576, Jul. 19, 1993, Pat. No. 5,437,466. This application Sep. 27, 1993, Ser. No. 127,584

Int. Cl.⁶ A43B 5/04

U.S. Cl. 36—117.3

30 Claims



1. A boot for use with a snowboard, the boot comprising:
- a semirigid base having means for attachment to the snowboard, said base providing a walking surface for the user when the boot is detached from the snowboard;
 - a nonrigid upper attached to said base, said upper being adapted to receive and surround the foot and ankle of a user, said upper being formed of a flexible and pliable material, said upper having a front, a back, and two lateral sides; and
 - a support member attached to and extending upwardly from said base, said support member being disposed adjacent at least a portion of the back of said upper.

5,802,742

INNER FOR SPORTS BOOT

Alain Baude, Izeron, and Loïc David, Grand-Lemps, both of France, assignors to Societe d'Importation de Diffusion ou Distribution d'Articles de Sport (S.I.D.A.S.), Voiron, France

PCT No. PCT/FR95/01125, § 371 Date Apr. 9, 1997, § 102(e) Date Apr. 9, 1997, PCT Pub. No. WO96/07339, PCT Pub. Date Mar. 14, 1996

PCT Filed Aug. 25, 1995, Ser. No. 793,850

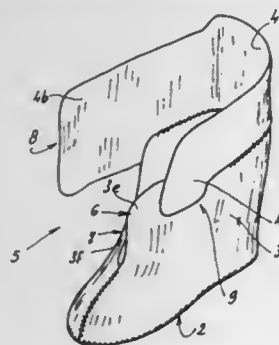
Claims priority, application France, Sep. 8, 1994, 94 10939

Int. Cl.⁶ A43B 5/04; 23/07

U.S. Cl. 36—117.6

11 Claims

1. An inner for a sports boot, comprising a part intended to hold



a wearer's foot, a substantially tubular part intended to surround a wearer's lower leg, and two pairs of independent flaps,

wherein a first pair of said two pairs is located level with a wearer's instep and includes a first flap extending from an inner side of the wearer's foot, and a second flap extending from an outer side of the wearer's foot, said first flap overlapping said second flap above an outer face of the wearer's instep, and

a second pair of said two pairs is located level with the wearer's lower leg and includes a third flap extending from the outer side of the wearer's foot, and a fourth flap extending from the inner side of the wearer's foot, said third flap overlapping said fourth flap above an inner face of the wearer's lower leg.

5,802,743

STRUCTURE OF MASSAGING SLIPPER

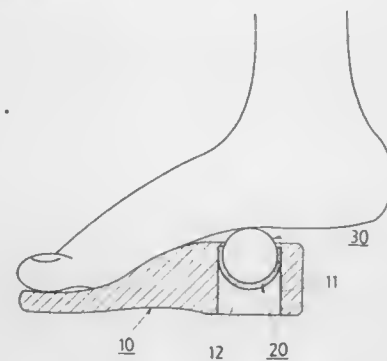
Kuo-Ching Chien, No. 7, Lane 74, Kung-Wu Road, Lung-Tan, Taiwan

Filed Sep. 23, 1997, Ser. No. 935,779

Int. Cl.⁶ A61F 5/14

U.S. Cl. 36—141

1 Claim



1. A structure of massaging slipper comprised of a slipper, an elastic gasket and a massaging ball, said structure is characterized in that:

said slipper is provided on the top surface thereof with a round hole which receives therein by insertion a plunger on which said elastic gasket is placed, said massaging ball is placed on said elastic gasket and plunger and is embedded in said round hole not to drop;

when said massaging ball is pressed by an external pushing force, it is movable and rotatable in said round hole by means of said elastic gasket provided at the bottom thereof and then is restorable to its original position.

5,802,744

METHOD OF AND AN APPARATUS FOR RECONSTRUCTING RAILWAY TRACK SYSTEMS

Werner Kampmann, Karwendelstr. 6, 82377 Penzberg, Germany; Herbert Heitkamp, Lutkchcidc 80, 59368 Werne, Germany; Klaus Linde, Solbacher Str. 142, 57078 Siegen, Germany; Werner Schmidt, Mittlerer Weg 62, 74564 Crailsheim, Germany; Fritz J. Schmidt, Gustav-Adolf-Str. 1, 73033 Goppingen, Germany; Franz Oppel, Bergackerstr. 19, 74597 Stimpfach, Germany, and Jurgen Rieger, Konigsberger Str., 97990 Weikersheim, Germany

PCT No. PCT/DE94/01353, § 371 Date Oct. 24, 1996, § 102(e) Date Oct. 24, 1996, PCT Pub. No. WO95/15418, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 11, 1994, Ser. No. 649,607

Claims priority, application Germany, Dec. 4, 1993, 43 41 418.4

Int. Cl.⁶ E02F 5/04

U.S. Cl. 37—104

54 Claims

1. A method of reconstructing railway track systems, whereby while clearing away a bed of an old track, a trench with side walls

5,802,746

VEHICLE-MOUNTED SNOW PLOWING SYSTEM

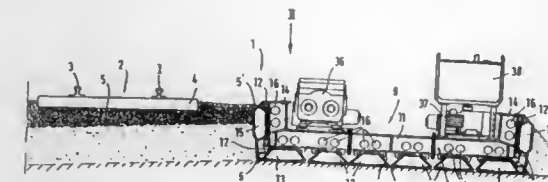
David L. Miller, 17286 460th Ave., Watertown, S. Dak. 57201

Filed Apr. 24, 1997, Ser. No. 839,951

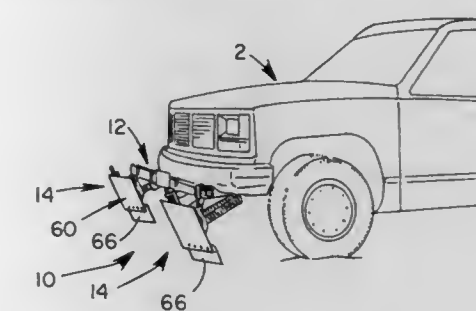
Int. Cl.⁶ E01H 5/04

U.S. Cl. 37—263

18 Claims



and a bottom is cut and the trench proceeds in a forward direction along a path of the old track, materials for making a bed of a new track being fed into the trench, characterized in that for safeguarding the trench, a sliding cutting structure is used with bottom cutters resting on the trench bottom and with side cutters which serve to safeguard the side walls of the trench, the bottom cutters and the side cutters guided on a supporting frame and being advanced under pressure by means of cutter cylinders disposed between the side cutters, the bottom cutters and the supporting frame, and the supporting frame big advanced relative to the bottom cutters and the side cutters by the cutter cylinders.



1. A snow plowing system mountable to the front of a vehicle, comprising:

a pair of snow deflector assemblies, each of said pair of snow deflector assemblies mounted ahead of and in line with a front wheel of said vehicle;

a vehicle mounting means for mounting each of said pair of snow deflector assemblies to said vehicle;

wherein each of said pair of snow deflector assemblies comprises a snow deflector mounting means for mounting said snow deflector assembly to said vehicle mounting means, a lower carriage coupled to said snow deflector mounting means, and a snowplow blade coupled to said lower carriage; wherein said snowplow blade is moveable between a lowered, operative position and a raised, stowed position;

wherein each of said pair of snow deflector assemblies further comprises a compressible support means for maintaining said snowplow blade generally in said lowered, operative position and for allowing rearward movement of said snowplow blade; wherein said snow deflector mounting means comprises a mounting frame, wherein

said lower carriage has a lower end, said lower carriage including a pair of spaced legs extending from said lower end thereof, each of said pair of spaced legs having a slot therein, and wherein

said compressible support means comprises:

a pair of guide rods angularly projecting from said mounting frame, each of said pair of guide rods having a first end and a second end, said first end of each of said pair of guide rods secured to said mounting frame, said second end of each of said pair of guide rods extendable through said slot in one of said pair of spaced legs of said lower carriage, and

a pair of springs disposed around said pair of guide rods, one of said pair of springs disposed around one of said pair of guide rods, each of said pair of springs interposed between said mounting frame and one of said pair of spaced legs of said lower carriage.

5,802,747

CRUSHER

Akihiko Nojima, deceased, late of Osaka-fu, Japan, by Chiyo Nojima, executor, assignor to Jacty Engineering Co., Ltd., Osaka, Japan

Filed Mar. 6, 1997, Ser. No. 812,289

Claims priority, application Japan, Mar. 29, 1996, 8-076406

Int. Cl.⁶ E02F 3/40; B02C 1/02

U.S. Cl. 37—403

7 Claims

1. A crusher to be removably installed on an arm of a hydraulic shovel having a hydraulic source, comprising:

a frame;

a bracket extending from said frame and connected to said arm; and a fixed member provided on said frame;

1. A hydraulic system adapted to take power from the engine of a road vehicle for driving an implement, comprising:

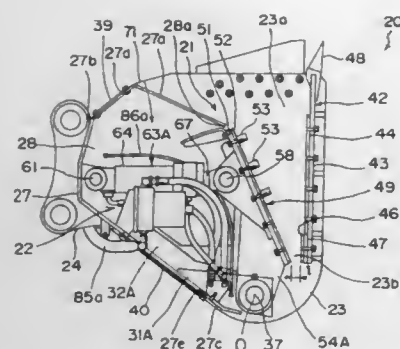
(a) hydraulic fluid, said hydraulic fluid contained within fluid transport means and capable of being heated by the operation of said hydraulic system;

(b) a pump, said pump adapted to receive power generated by said engine and to use that power to pressurize said hydraulic fluid;

(c) a motor, said motor adapted to receive said pressurized hydraulic fluid from said pump via said fluid transport means, to drive said implement; and

(d) a heat exchanger with a capacity of greater than 15,000 BTU/h, said heat exchanger coupled to said fluid transport means and adapted to remove the heat from said pressurized hydraulic fluid after said hydraulic fluid has been discharged from said motor;

(e) a tank, said tank providing a reservoir for said hydraulic fluid, said tank having a capacity of less than 5 gallons.



- a movable member having a supporting arm extending downwardly and pivotally connected to said frame at a supporting point such that said movable member confronts the fixed member forming a crushing space between them;
- a driving device installed in the frame so as to allow the movable member to approach or retreat from the fixed member;
- a plurality of crushing plates installed on each of the fixed member and the movable member to crush an object in said crushing space;
- a discharge port provided at a lower end of the frame to discharge crushed pieces of said object;
- an adjusting plate removably attached between said fixed member and a lowermost crushing plate for adjusting a size of said crushed pieces discharged;
- the driving device comprising:
- a hydraulic cylinder connected to said hydraulic source and provided in a direction substantially perpendicular to said fixed member; and
- a rod reciprocally supported by said hydraulic cylinder and pivotally connected at a connecting end with a central portion of the movable member, said connecting end vertically aligned with said supporting point when said rod extends to a maximum point so as to move said movable member substantially in said direction thereby providing a relatively large traveling distance of said movable member.

5,802,748

TIERED TRENCHING BACKHOE SYSTEM

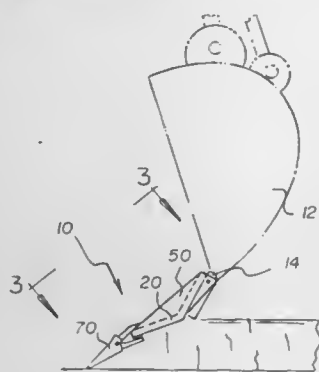
Ronald G. Haagenstad, 119 Summer Heaven Dr., Blackhawk, Colo. 80403-9032

Filed Jul. 15, 1996, Ser. No. 679,851

Int. Cl.⁶ E02F 3/96

U.S. Cl. 37—405

6 Claims



1. A Tiered Trenching Backhoe System comprising:
- a trenching plate having a transverse bend therein located between substantially planar first and second plate portions of said trenching plate, said trenching plate having first and second end edges oriented substantially parallel to said transverse bend and having lateral side edges extending between said end edges;

- a first tooth mount secured to said first end edge of the trenching plate and projecting in a direction substantially orthogonal to said first end edge;
- a second tooth mount secured to said first end edge and projecting from said first end edge in an orientation substantially parallel to the first tooth mount;
- a first support member secured to one of the lateral edges of the trenching plate, said support member projecting in a direction substantially orthogonal to the second end edge of the trenching plate;
- a second support member secured to the opposed lateral edge of the trenching plate, said support member projecting in a direction substantially parallel to said first support member; and
- a planar side member secured to the lateral side edge of the trenching plate adjacent to the second support member and projecting substantially parallel to a plate portion of said trenching plate,
- wherein said planar side member includes a downward bend therein at a location spaced from said lateral side edge.

5,802,749

IRON AND ACCUMULATED ENERGY TRANSFERRING STAND

Maarten Barmiento, Groningen; Gerrit Bijker, Veldhoven; Robert E. F. Einerhand, Eindhoven; Paul A. J. Ackermans, Eindhoven; Jan P. Elkhuizen, Eindhoven, and Adriaan Netten, Drachten, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

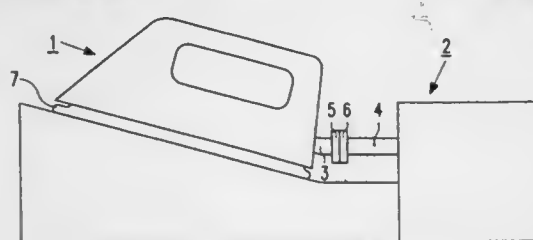
Filed Dec. 12, 1996, Ser. No. 764,833

Claims priority, application European Pat. Off., Dec. 14, 1995, 95203486

Int. Cl.⁶ D06F 75/02; 79/02

U.S. Cl. 38—82

11 Claims



1. An iron arrangement comprising a cordless iron and a stand, said iron having a soleplate, said stand receiving energy from an energy supply, said arrangement comprising transfer means for transferring said energy to the iron for heating said iron when the iron is attached to the stand characterized in that the stand comprises means for accumulating said energy, said transfer means transferring said accumulated energy when the iron is attached to the stand and said accumulated energy thus transferred to the iron providing a heat source in the iron sufficient to heat a portion of the iron for a substantial period subsequent to removal of the iron from the stand.

5,802,750

DEVICE FOR SIMULATING FLYING FISH

Paul F. Fulmer, Plantation, Fla., assignor to Autopilot Systems, Inc., Ft. Lauderdale, Fla.

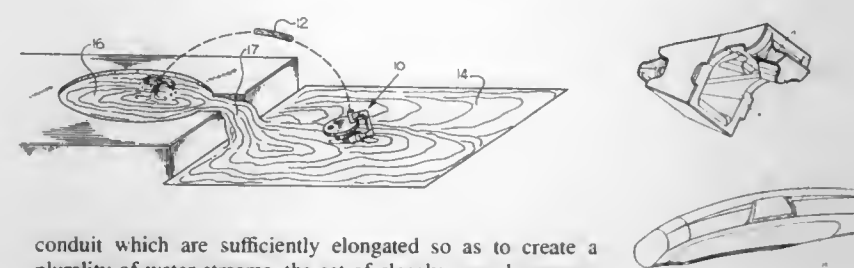
Filed May 21, 1996, Ser. No. 651,699

Int. Cl.⁶ G09F 19/00

U.S. Cl. 40—406

16 Claims

14. A method for simulating a flying fish, including the steps of:
- a) providing a pressurized and uncolumarized supply of water from a first body of water using a pump having a conduit;
- b) columnarizing the pressurized water by directing the water through a set of closely spaced passages connected to the



conduit which are sufficiently elongated so as to create a plurality of water streams, the set of closely spaced passages having terminal ends from which a plurality of water streams are ejected; and

- c) trimming the columnarized water streams to create alternating deflected and generally unimpeded projected portion by periodically driving at least one surface of a flow trimmer into and out of an impinging relationship with the columnarized water streams, the projected portion targeted at a second body of water.

5,802,751

ORNAMENTAL AIRCRAFT HAVING MULTIPLE MOVING PARTS

Vernon V. Schwieterman, 8310 121 Ave. North, Largo, Fla. 34643

Filed Apr. 3, 1996, Ser. No. 578,722

Int. Cl.⁶ G09F 19/08

U.S. Cl. 40—414

5 Claims

1. A stationary decorative aircraft for display, comprising:
- a longitudinally disposed fuselage;
- a cockpit opening formed in said fuselage;
- a low voltage electric motor positioned in a forward end of said fuselage;
- said motor including a first rotatable output shaft;
- said first rotatable output shaft being longitudinally disposed;
- a propellor mounted to said first rotatable output shaft;
- an elongate conductor disposed in interconnecting relation between a source of power and said motor;
- said elongate conductor extending through said cockpit opening;
- a rudder mounted to a trailing end of said fuselage;
- an upstanding rod to which said rudder is attached;
- a boss means formed in said fuselage for receiving said upstanding rod;
- a bell crank having a first end secured to said upstanding rod;
- said motor including a second rotatable out-put shaft;
- said second rotatable output shaft being disposed normal to said first rotatable output shaft;
- a disc member secured to said second rotatable output shaft;
- an elongate, rigid control rod having a first, leading end pivotally connected to said disc member and a second, trailing end pivotally connected to a second end of said bell crank;
- whereby activation of said motor causes rotation of said propellor; and
- whereby rotation of said disc member by said second rotatable output shaft effects periodic displacement of said bell crank and said rudder.

5,802,752

TOOTH ARRANGEMENT FOR EXCAVATOR

Per Ulf Torgny Quarfordt, Karlskoga, Sweden, assignor to Componenta Wear Parts AB, Kristinehamn, Sweden

PCT No. PCT/SE95/00218, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/25851, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 2, 1995, Ser. No. 702,704

Claims priority, application Sweden, Mar. 21, 1994, 9400934

Int. Cl.⁶ E02F 9/28

U.S. Cl. 37—452

9 Claims

1. A tooth arrangement applied on the cutting edge of an excavator bucket, said tooth arrangement having opposite ends

removably joined together, a first end including a male part and a second end including a female part, the ends being locked together by a dowel going through the male part and the female part, wherein the first end further includes a female part, the second end further includes a male part, the female and male parts arranged one above the other, at least one male part including a longitudinal ridge which cooperates with a longitudinal recess in the other male part so that when the ends are joined together, they constitute a transverse groove for insertion of the dowel.

5,802,753

QUICK COUPLING ASSEMBLY

Jyrjö Raunisto, Anttilankatu 13, FIN-13210, Hämeenlinna, Finland

PCT No. PCT/FI95/00053, § 371 Date Aug. 8, 1996, § 102(e)

Date Aug. 8, 1996, PCT Pub. No. WO95/21969, PCT Pub.

Date Aug. 17, 1995

PCT Filed Feb. 9, 1995, Ser. No. 687,601

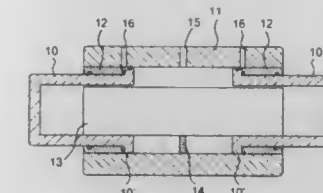
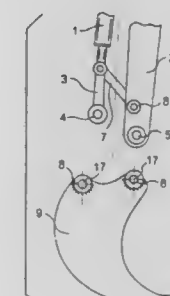
Claims priority, application Finland, Feb. 9, 1994, 940608;

Sep. 13, 1994, 944214

Int. Cl.⁶ E02F 3/96

U.S. Cl. 37—468

7 Claims



1. A push-pull quick coupling pin assembly for mounting a tool on a work machine, comprising at least one pair of attachment bushings for fitting a corresponding pair of fulcrum pins for attaching the tool to the work machine, said assembly being fixed to the work machine and comprising two horizontally movable fulcrum pins arranged opposite each other, at least one of said pins comprising a cylinder of a double-acting pressure-actuated piston and cylinder.

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5,802,754

IDENTIFICATION PLATE ATTACHMENT STRUCTURE
Iwao Watanabe, Atsugi, Japan, assignor to Nissan Motor Co., Ltd., Kanagawa, Japan

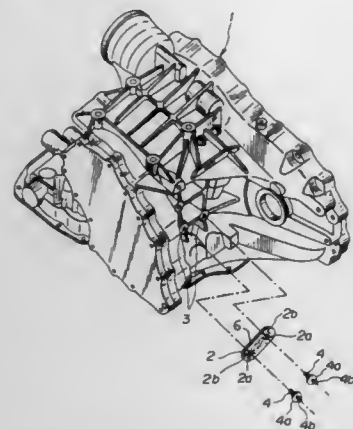
Filed Apr. 24, 1996, Ser. No. 639,096

Claims priority, application Japan, Apr. 27, 1995, 7-103391

Int. Cl.⁶ G09F 3/04

U.S. Cl. 40—630

24 Claims



1. An identification plate attachment structure comprising:
a vehicular component;
an identification (ID) plate having a bolt hole;
a bolt extending through said bolt hole in said ID plate and entering into said vehicular component, said bolt having a head;
an adhesive agent including a first portion disposed between a first face of said ID plate which is adjacent to said vehicular component and said vehicular component and a second portion disposed between an opposite second face of said ID plate and said head of said bolt;
wherein said ID plate includes means for establishing fluid communication between the first and second portions of said adhesive agent and for allowing said adhesive to be forced therethrough from the first face of said ID plate to the second face.

5,802,755

RATCHET-LOCKING COLLAR

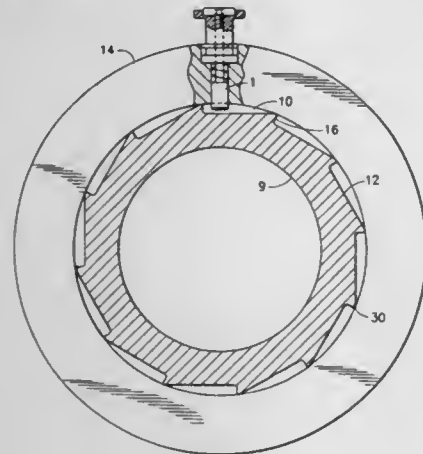
Richard W. Tortorici, Schenectady, and Stephen M. Van Dyke-Restifo, Feura Bush, both of N.Y., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 27, 1997, Ser. No. 960,115

Int. Cl.⁶ F41A 25/00

U.S. Cl. 42—75.02

4 Claims



1. A device for locking a collar onto a cylinder against a stop, comprising:
a movable plunger, extending radially through said collar;
means for urging said plunger toward said cylinder;
said collar including a first threaded portion on an interior surface of said collar;
said cylinder having a second threaded portion and a ratchet portion, each of said second threaded portion and said ratchet portion being formed on an external surface of said cylinder;
said ratchet portion including a plurality of ratchet teeth, each of said plurality of ratchet teeth including a lip, a wall, and a ramp;
said first threaded portion being in mating engagement with said second threaded portion, wherein rotation of said collar in a first direction around said cylinder urges said collar toward said wall to act as a stop, and wherein rotation of said collar in said opposite direction causes said plunger to ride up said ramp of one of said plurality of ratchet teeth, and to step down over the lip and down the wall of said one of said plurality of ratchet teeth, onto the beginning of the ramp of the next succeeding ratchet tooth.

5,802,756

ADJUSTABLE SLING FOR RIFLES, SHOTGUNS OR THE LIKE

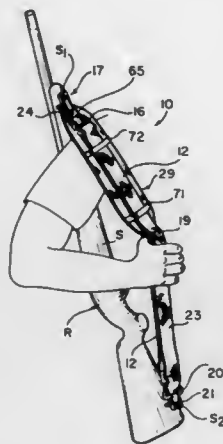
Floyd Hightower, 1216 Western Ridge Dr., Waco, Tex. 76712

Filed May 15, 1997, Ser. No. 857,184

Int. Cl.⁶ F41C 23/02

U.S. Cl. 42—85

36 Claims



1. A firearm sling comprising a substantially elongated pad having a pad upper portion and a pad lower portion, a substantially elongated sling member having a sling member upper fold portion and a sling member lower portion, first securing means for securing said pad upper portion to a stock of a firearm, second securing means for slidably securing said pad upper portion to said sling member upper fold portion, third securing means for securing said sling member lower portion to a stock of a firearm, and means for retaining said sling member upper fold portion in substantially sliding relationship to and along said pad.

5,802,757

FIREARM WITH RELEASABLY RETAINED SIGHT ASSEMBLY

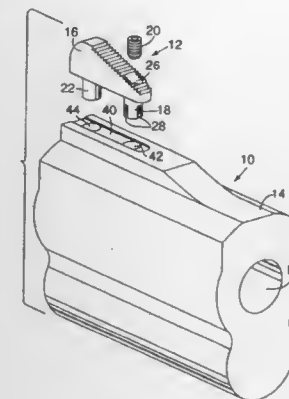
Michael S. Duval, Chicopee, and Craig A. Mariani, Ludlow, both of Mass., assignors to Smith & Wesson Corp., Springfield, Mass.

Filed Apr. 30, 1997, Ser. No. 846,738

Int. Cl.⁶ F41G 1/46

U.S. Cl. 42—100

20 Claims



1. In a firearm having a frame assembly including a barrel having a muzzle end and a gun bore opening through the muzzle end, and a sight assembly mounted on the frame assembly, the improvement comprising said frame assembly having an outwardly open sight mounting bore defined by a bore wall, said sight assembly including a sight body having a gun sighting portion and an integral axially elongated radially expandable anchor pin axially projecting from said sighting portion and slideably received within said sight mounting bore, and expanding means supported by said sight body for radially expanding said anchor pin into and maintaining said anchor pin in frictional gripping engagement with said bore wall to releasably secure said sight assembly in assembled relation with said frame assembly.

5,802,758

FISH HOOK SETTING APPARATUS

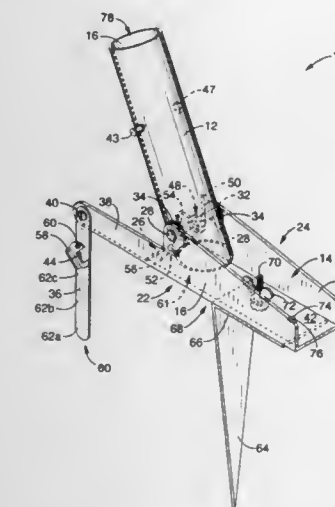
Wayne Frehling, P.O. Box 1077, San Andreas, Calif. 95249

Filed Jul. 25, 1996, Ser. No. 687,189

Int. Cl.⁶ A01K 97/12

U.S. Cl. 43—15

17 Claims



1. A fish hook setting apparatus, comprising:
(a) a base;

(b) a rod holder pivotally coupled to said base wherein said rod holder pivots between a cocked position and a resting position, said rod holder for receiving a fishing rod having a fishing line with a hook attached at an end of said line;
(c) bias means for spring-loading said rod holder in said cocked position;
(d) a roller bushing rotatable disposed on said rod holder so as to allow for triggering of the fish hook setting apparatus;
(e) a trigger member pivotally coupled to said base, said trigger member including a notch structured and configured to receive said roller bushing, whereupon receipt of said roller bushing within said notch places said rod holder in said cocked position, said trigger member including means for releasably engaging said rod holder when said rod holder is in said cocked position such that said trigger member is disengageable by tension in said fishing line caused by a fish biting on said hook, wherein said rod holder is biased toward said resting position upon activation of said trigger member; and
(f) means for releasably locking said rod holder in said cocked position, said locking means connected to said trigger member so as to selectively prevent inadvertent release of the trigger member.

5,802,759

LINE GUIDE FOR A FISHING ROD

Ryuichi Ohmura, Shizuoka, Japan, assignor to Fuji Kogyo Co., Ltd., Shizuoka-ken, Japan

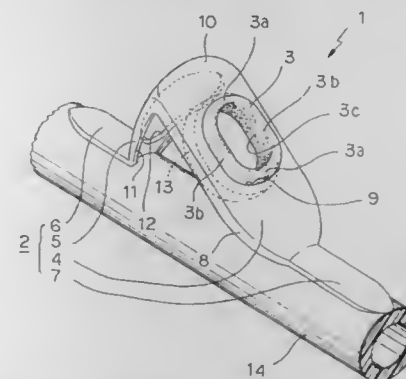
Filed Oct. 21, 1997, Ser. No. 954,895

Claims priority, application Japan, Nov. 12, 1996, 8-337412

Int. Cl.⁶ A01K 87/04

U.S. Cl. 43—24

2 Claims



1. A line guide for a fishing rod, mounted externally thereon and provided with a guide ring through which a fishing line that has been drawn out from the reel, comprises a rear frame in which an oblong ring mounting hole is formed and slanted toward a tip end of the fishing rod, a front frame extending from a tip end of said rear frame toward the fishing rod body and having a line passing hole, each mounting foot extending from said rear frame and said front frame, and an oblong guide ring mounted on said rear frame, wherein said guide ring has a flange extending along an outer circumference of said guide ring, said flange is in contact with a back side circumferential edge portion of the ring mounting hole and the remainder of said guide ring is fitted in the ring mounting hole.

5,802,760

FISHING BUCKET

Jason E. Campbell, 119 Bob Sikes Blvd. #12, Ft. Walton Beach, Fla. 32547

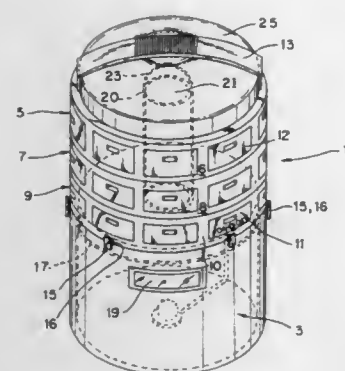
Filed Sep. 13, 1996, Ser. No. 713,360

Int. Cl.⁶ A01K 97/05

U.S. Cl. 43—57

4 Claims

1. A beverage and storage container comprising in combination:



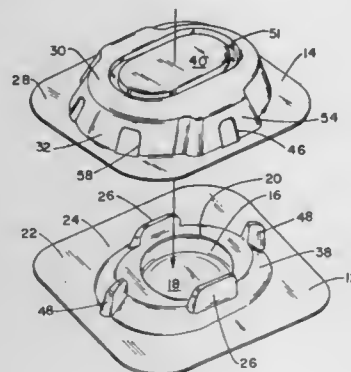
at least two vertically disposed storage sections disposed one over the other with one of said sections being a lower storage section, said sections having a common vertical centrally located hole extending through each section with each of said sections having a plurality of storage drawers;
a lower live bait well detachably attached to said lower storage section, said well being connected to a power source in one of storage sections for supplying aeration to any water therein; and
an insulated beverage container insertable into the common vertical hole formed in the storage sections.

5,802,761
BAIT STATION FOR CRAWLING INSECTS
Scott W. Demarest, Caledonia, and Charles Austen Angell, Madison, both of Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Sep. 18, 1996, Ser. No. 715,558
Int. Cl.⁶ A01M 1/20

U.S. Cl. 43—131

19 Claims



1. A bait station for targeted crawling insects, comprising a base and a cover that is fastened to the base, the base including
a. a bait cup for containing a selected bait, the bait cup having a central floor surrounded by an insect-climbable bait cup wall extending upwardly from the central floor;
b. a peripheral flange including a peripheral floor distal and adjacent to the bait cup, and
c. at least one side support extending upwardly above the level of the bait cup wall and extending longitudinally generally along the bait cup wall;
the cover having a cover flange attached to the peripheral flange of the base and further including a shell that includes
a. a shell wall rising from the level of and enclosing the peripheral floor of the base, the shell wall being spaced from the bait cup wall to define a walkway therebetween having a walkway floor of a width sufficient to allow targeted insects to walk thereon,

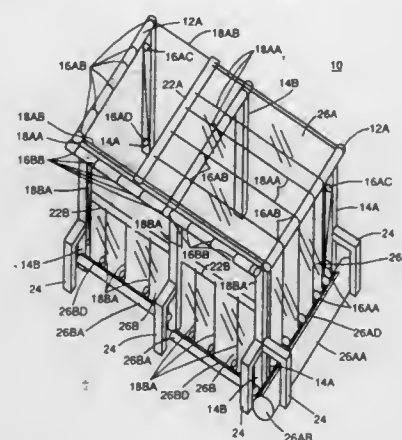
b. a roof spanning the space encompassed by the shell wall, the roof being supportable by the side support and being sufficiently spaced above the bait cup wall that targeted insects may crawl over the bait cup wall to reach any bait contained within the bait cup;
c. an antechamber at least as long as the side support and defined on one side by the side support and on another side by interior surfaces of the shell wall, the antechamber having a floor that is continuous with the walkway floor,
d. at least one antechamber door in the shell wall, opening into the antechamber and having a size sufficiently large to admit a targeted insect, the antechamber door being so located in relation to the side support that straight-line access through the antechamber door to the bait cup is blocked by the side support,
the antechamber providing sufficient space from the side support to the shell wall that a targeted insect may enter the bait station through the antechamber door, avoid the side support by entering the walkway, and thus gain access to any bait contained in the bait cup.

5,802,762
RETRACTABLE GREENHOUSE
Bob Stonecypher, 1383 Fahlander Dr. S., Columbus, Ohio 43229

Filed Sep. 16, 1996, Ser. No. 714,455
Int. Cl.⁶ E04B 7/16; A01G 9/14

U.S. Cl. 47—17

12 Claims



1. A retractable greenhouse, comprising:
(a) a front-rear horizontal member having two distal ends and including two front-rear cable pull guides integrally mounted on said front-rear horizontal member;
(b) two front-rear vertical support posts, each said front-rear vertical support post being positioned at and attached to one of said distal ends of said front-rear horizontal member;
(c) a front-rear cover sheet roller spindle attached to each of said front-rear vertical support posts;
(d) a plurality of front-rear pull-support cables which wrap around said front-rear cable pull guides and said front-rear cover sheet roller spindle and are attached to a front-rear junction bar;
(e) a front-rear cover sheet attached to said front-rear junction bar and wrapped around a front-rear cover sheet roller spindle;
(f) a front-rear cover sheet motor which rotates said front-rear cover sheet spindle to raise and lower said front-rear cover sheet;
(g) a front left-right horizontal member and a rear left-right horizontal member, each having two distal ends and including two left-right cable pull guides integrally mounted on each said left-right horizontal member, each said left-right horizontal member being placed adjacent one said front-rear horizontal member;

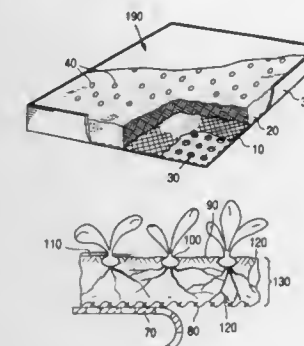
(h) two front left-right vertical support posts, each said left-right vertical support post being positioned at and attached to one of said distal ends of said front left-right horizontal member and two rear left-right vertical support posts, each said left-right vertical support post being positioned at and attached to one of said distal ends of said rear left-right horizontal member;
(i) a plurality of left-right support cable guides mounted on a shaft, said shaft being suspended from each said front left-right vertical support post;
(j) a plurality of left-right support cables attached to a left-right junction bar and which reel on said plurality of left-right support cable guides;
(k) a plurality of left-right pull cables attached to said left-right junction bar and which cooperate with said left-right pull cable guides, said plurality of left-right pull cables being further attached to a left-right cover sheet roller spindle attached to each said front left-right vertical support post;
(l) a left-right cover sheet attached to said left-right junction bar and wrapped around said left-right cover sheet roller spindle; and
(m) a motor which rotates said left-right cover sheet roller spindle to raise and lower said left-right cover sheet.

5,802,763
SPENT MUSHROOM GROWTH MEDIA AS A GROWING MEDIA FOR PLANT SOD MATS
Gene Milstein, Golden, Colo., assignor to Applewood Seed Company, Arvada, Colo.

Filed May 20, 1996, Ser. No. 650,770
Int. Cl.⁶ A01G 1/00

U.S. Cl. 47—56

14 Claims



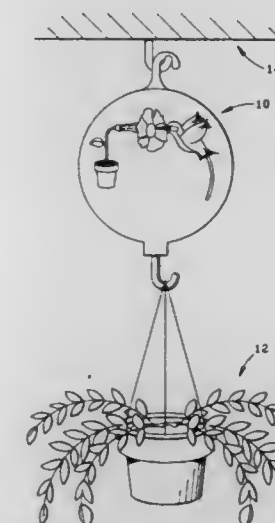
1. A plant sod mat comprising:
a sheet of perforated polyethylene,
a sheet of polyester, polypropylene or polyethylene fabric atop the perforated polyethylene,
a planting medium atop the fabric,
plants growing in the planting medium, wherein the improvement comprises a planting medium comprising raw spent mushroom growth media and a porosity increasing material.
2. A method of propagating plants on sod mats comprising:
a) providing a sheet of perforated polyethylene;
b) positioning a sheet of polyester, polypropylene or polyethylene fabric atop the perforated polyethylene;
c) depositing a layer of raw spent mushroom growth media and porosity increasing material on the fabric sheet combination;
d) applying sufficient water to the mushroom growth media to reduce the electrical conductivity of the media to less than 1.25;
e) spreading viable plant seed over the media;
f) moistening the media and seeds;
g) germinating seeds in the media, such that the roots of the seedlings mesh with the polyester, polypropylene or polyethylene fabric forming a sod mat;
h) removing the mat from the perforated polyethylene; and
i) cutting the sod mat into sections for packaging, storage and installation.

5,802,764
MOISTURE INDICATOR FOR HANGING PLANT CONTAINERS

Michael J. Nucci, 5 Center La., Delmar, N.Y. 12054
Filed Sep. 3, 1996, Ser. No. 713,542
Int. Cl.⁶ A01G 9/02; A47G 7/02

U.S. Cl. 47—67

8 Claims



1. An apparatus for coupling a hanging potted plant to a ceiling, comprising:
a) a first support for coupling the apparatus to the hanging potted plant and a second support for coupling the apparatus to the ceiling;
b) a movable visual icon that moves from an upward position visually indicative of a fully watered potted plant to a downward position visually indicative of a dried out potted plant; and
c) a fixed visual icon that is fixed relative to the movable visual icon positioned to be close to the movable visual icon when the potted plant is fully watered and to be positioned away from the movable visual icon when the potted plant is dry.

5,802,765
DOOR ASSEMBLY AND SECURITY GUARD
Raymond Sydney Vickery, Queensland, Australia, assignor to Grace Bernadette Dean, Queensland, Australia
PCT No. PCT/AU95/00512, § 371 Date Nov. 5, 1996, § 102(e)
Date Nov. 5, 1996, PCT Pub. No. WO96/06254, PCT Pub. Date Feb. 29, 1996

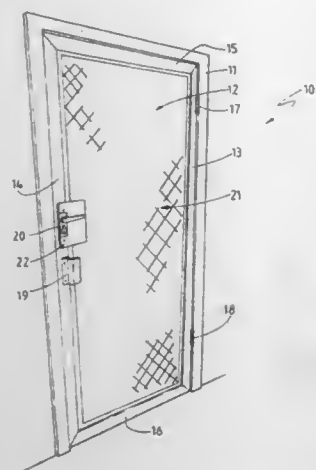
PCT Filed Aug. 18, 1995, Ser. No. 737,169
Claims priority, application Australia, Aug. 18, 1994, PM 7530; Apr. 7, 1995, PN 2221

Int. Cl.⁶ E05B 65/04

U.S. Cl. 49—67

12 Claims

1. A screen door assembly for a building comprising a generally rectangular door jamb, a generally rectangular, peripheral door frame supported in the door jamb, the frame having vertical side members, the frame supporting a screen infill, one vertical side member having a relatively small centrally positioned lock assembly with an exposed manually operable release means, wherein there is provided a generally planar guard marginally larger than the lock assembly covering a portion of said screen adjacent said lock assembly to inhibit outside unauthorized access to said release means through said screen infill when the screen door is locked; wherein the lock assembly includes a handle projecting a defined distance transversely of the longitudinal axis of the vertical frame member and generally parallel to the screen infill, the guard protecting marginally beyond and generally parallel to the handle; and



wherein the guard is made from a semi-rigid material, the guard being capable of flexing toward the handle if a force is applied against the guard from an exterior side of the door assembly.

5,802,766
METHOD AND APPARATUS FOR CONTROLLING AUTOMATIC OPENING AND CLOSING OF WINDOW OF DRIVER'S CAB OF WORKING VEHICLE

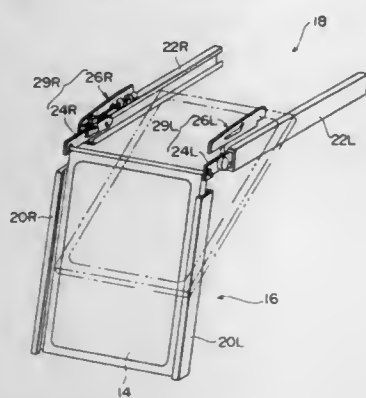
Masamichi Miyazaki, Hirakata, and Yoshihiro Nagata, Zyoyo, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

PCT No. PCT/JP94/01203, § 371 Date Jan. 23, 1996, § 102(e) Date Jan. 23, 1996, PCT Pub. No. WO95/03465, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 21, 1994, Ser. No. 586,924
Claims priority, application Japan, Jul. 23, 1993, 5-202645
Int. Cl.⁶ E05F 15/20

U.S. Cl. 49—29

20 Claims



9. An apparatus comprising:
said driver's cab having a window, a window frame, and a top wall;
guide rails formed on the window frame and on the top wall, the window being movable along the guide rails;
a driving cable, connected to the window, for moving the window vertically;
a cable driving device for driving the driving cable;
locking units for pressing the window against the window frame to shut the window; and
a controller; said controller detecting a load current of the cable driving device in order to detect, as a load current of the cable driving device exceeding a predetermined threshold value, either of a terminal position for a downward movement of the window during a closing operation and a terminal position for an upward movement of the window during an opening operation; said controller continuing an operation of the cable

driving device for a first predetermined time after an initiation of movement of the window by the cable driving device during the window closing operation, even if a load current of the cable driving device exceeds the predetermined driving threshold value; said controller outputting a stop signal to the cable driving device upon the occurrence of a detection of a terminal position.

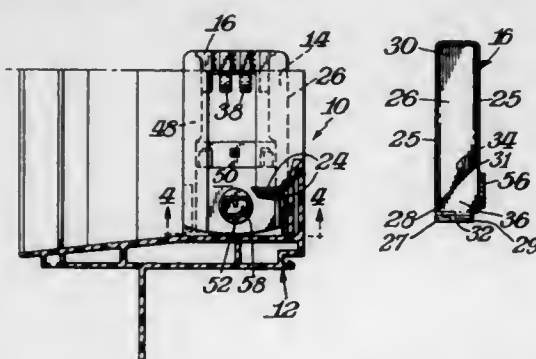
5,802,767
BALANCE SHOE HAVING A RECESS FOR ACCOMMODATING A WELD FLASH OF A HOLLOW WINDOW FRAME

Colin Slocumb, Wilmington, Del., and Scott E. Beard, Lewisburg, W. Va., assignors to CSB Enterprises, Inc., Wilmington, Del.

Filed Dec. 16, 1996, Ser. No. 764,997
Int. Cl.⁶ E05D 15/22

U.S. Cl. 49—181

8 Claims



1. In a window frame assembly made of hollow components welded together to form welded components having a channel with a weld seam in said channel and a balance shoe disposed in said channel for engagement with a pivot bar mounted to a frame member, the improvement being said balance shoe includes a housing having opposite side walls, said housing having a leading end and a trailing end, said leading end having a leading wall, said leading end being disposed in said channel at said weld seam, each of said side walls having a pair of opposite side edges forming a pair of corners at their junction with said leading wall, and one of said side walls being recessed at said leading end inwardly from said leading wall to form an indented wall section extending substantially completely across said one of said side walls from one of said pair of corners and inwardly away from the other of said pair of corners to thereby accommodate a weld flash at said weld seam.

5,802,768
MANUALLY RELEASABLE COUPLING DEVICE FOR CONNECTING AN ELONGATE OPERATOR WITH A FRAME OR MAIN FRAME MEMBER OF A WINDOW AND A PIVOTAL CHAIN OPENER OPERATED WINDOW WITH SUCH A COUPLING DEVICE

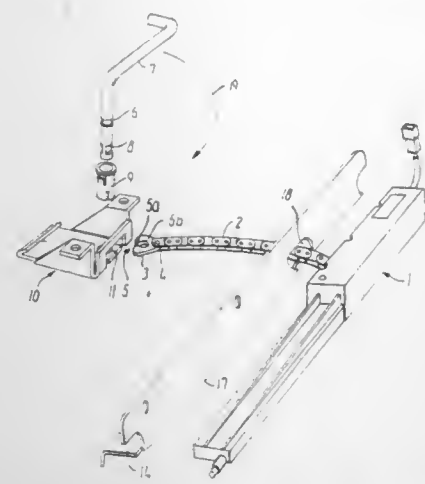
Carl Johannes Hammer, Skjern, and Ole Fejer, Grevinge, both of Denmark, assignors to V. Kann Rasmussen Industri A/S, Søborg, Denmark

Filed Apr. 26, 1996, Ser. No. 638,377
Claims priority, application Denmark, Apr. 28, 1995, 0505/95
Int. Cl.⁶ E05F 11/00

U.S. Cl. 49—325

23 Claims

1. An openable window with a frame and a main frame, each consisting frame elements, and a manually releasable coupling device connecting an operator means (2) with a frame element of the frame or main frame, wherein the frame is movable relative to the main frame, and the coupling device has a first coupling member (3) connected with a free end of the operator means (2),



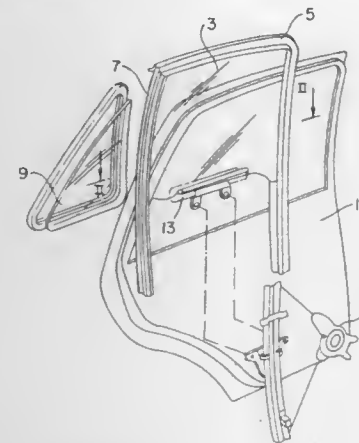
said free end facing said frame or main frame element, and a second coupling member (6-10) designed for mounting in or on the frame element of the frame or main frame, characterized in that the first coupling member is a flat, disc-shaped element (3a), which at one end portion is designed for connection with said free end of the operator means and which at an opposite end portion has a substantially keyhole-shaped recess (5) with a constricted mouth (5a) and a circular part (5b), the mouth having a width, while the second coupling member comprises a shaft portion (6.20) for mounting in a bore in one of a frame element of the frame, a frame element of the main frame, and a fixture connected with said frame element of the frame or main frame perpendicular to the longitudinal direction said frame element of the frame or main frame, said second coupling member being connected with a turning handle (7.22), said shaft section (6.20) having a local constriction (8.24) with a substantially rectangular cross-section which in one direction has a dimension (a) corresponding to the width of the mouth of the recess (5) in the first coupling member (3) and in a direction perpendicular thereto a dimension (b) corresponding to the diameter of the circular part (5b) of the recess, whereby said second coupling member also comprises means (9,10) for holding said shaft section (6.20) and turning handle (7.22) onto said frame element of the frame or main frame.

5,802,769
DOOR GLASS LIFTING APPARATUS FOR A VEHICLE
Kwangho Lee, Kyungsangnam-do, Rep. of Korea, assignor to Hyundai Motor Corporation, Seoul, Rep. of Korea
Filed Aug. 6, 1996, Ser. No. 689,261

Claims priority, application Rep. of Korea, Sep. 5, 1995, 1995-24082

U.S. Cl. 49—374 Int. Cl.⁶ B60J 1/16

4 Claims



1. A door glass lifting means comprising:

a door glass having a peripheral surface defined by a top, a bottom and two opposite side edges;
guide grooves formed on a door glass run and a division channel for guiding and supporting said door glass lifted by force applied by a door regulator with power supplied from power generating means; and
friction reducing means mounted on each of the opposite side edges of the door glass and disposed between each of the two opposite side edges of the door glass and the respective guide groove facing the opposite side edge, thereby reducing mutual lifting friction between the opposite side edges of the door glass and the guide grooves.

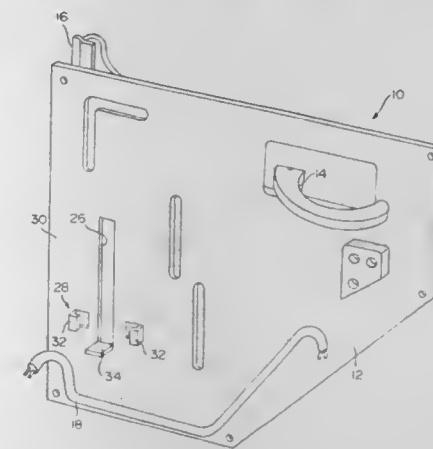
5,802,770
DOOR CARTRIDGE HAVING A DOOR LATCH MOUNTING ASSEMBLY

Christopher J. Kavanagh, Fraser; Richard C. Wroblewski, Warren; Robert B. Mooney, and D'Arcy Miller, both of Farmington Hills, all of Mich., assignors to Atoma International Inc., Newmarket, Canada

Filed Sep. 25, 1996, Ser. No. 719,760
Int. Cl.⁶ E06B 3/00

U.S. Cl. 49—506

5 Claims



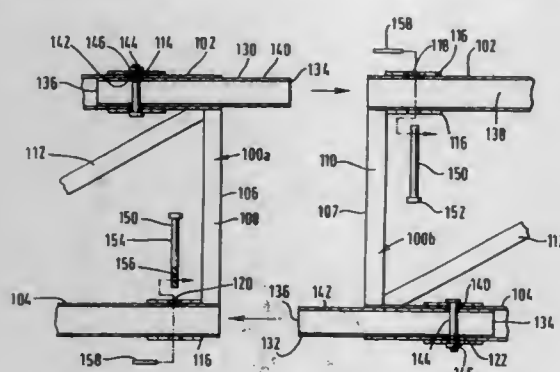
1. A method of coupling a door latch assembly to a door mounting panel for shipping as a unit, the door mounting panel being constructed and arranged to be fixedly mounted to a vehicle door, the door latch assembly being adapted to be mounted in a final, assembled position in a vehicle and including a latching member constructed and arranged to be movable between a latching position and a releasing position, the method including:
providing coupling structure on the mounting panel, temporarily securing said door latch assembly to said panel in a shipping position different from the final, assembled position thereof by engaging said latching member in the latching position thereof with said coupling structure thereby enabling said mounting panel with said door latch assembly temporarily secured in the shipping position to be transported to an assembly location as a unit,
moving said latching member to the releasing position thereof, removing said door latch assembly from said shipping position thereof after moving said latching member to the releasing position thereof; and
mounting said removed door latch assembly in the final, assembled position thereof in the vehicle.

5,802,771

Patent Not Issued For This Number

5,802,772
RELEASEABLE JOINT FOR JOINING TWO
CONSTRUCTION ELEMENTS AND TRANSPORTABLE
CONSTRUCTION COMPRISING SAME
 Jeffrey Robert Burke, Kent, and Oliver Charles Watts, London, both of England, assignors to Edwin Shirley Trucking, Ltd., London, England
 PCT No. PCT/GB95/00967, § 371 Date Apr. 16, 1996, § 102(e) Date Apr. 16, 1996, PCT Pub. No. WO95/30062, PCT Pub. Date Nov. 9, 1995
 PCT Filed Apr. 27, 1995, Ser. No. 569,170
 Claims priority, application United Kingdom, Apr. 28, 1994, 9408499

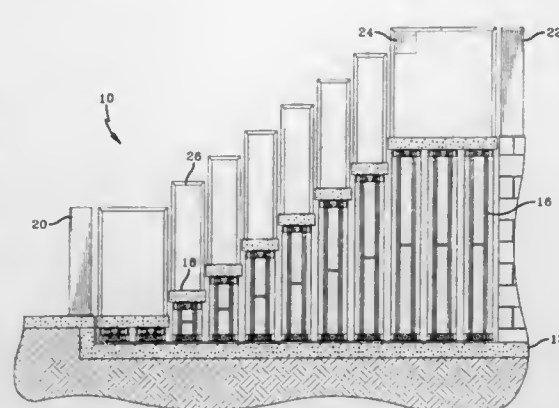
Int. Cl.⁶ E04H 3/10
 U.S. Cl. 52—6 16 Claims



1. A releasable joint for a transportable construction, said releasable joint comprising:
 first and second construction elements, each construction element comprising first and second spaced, substantially parallel, elongate chord portions, each chord portion having first and second ends and defining a recess in at least one of said ends, and bracing components for bracing said first and second chord portions;
 first and second spigot members, each spigot member having first and second ends, one end of one of the spigot members being fixedly secured to one end of one of the chord portions of one of the construction elements, and the other end is accommodated within a recess in one end of one of the chord portions of the other construction element, and one end of the other spigot member being fixedly secured to one end of the other chord portion of one of said construction elements, and the other end of the other spigot member being received in a recess in the one end of the other chord member of the other construction element, the other end of each of said spigot members having a first aperture formed therethrough that can be aligned with a respective second aperture formed through the one end of the respective chord portion when the other end of the spigot member is received in the respective recess;
 first and second non-threaded spigot securing members, each spigot securing member is entered into a respective pair of said aligned first and second apertures for retaining the other end of each spigot member in the respective recess; and
 first and second releasable securing components, each securing component releasably securing a respective one of the spigot securing members in the respective pair of aligned first and second apertures.

5,802,773
HANDICAP ACCESSIBLE STAIR
 Nathan W. Pingel, 426 E. Whittier, Columbus, Ohio 43206
 Continuation of Ser. No. 346,631, Nov. 30, 1994, abandoned.
 This application Nov. 21, 1996, Ser. No. 754,744
 Int. Cl.⁶ E04H 3/12

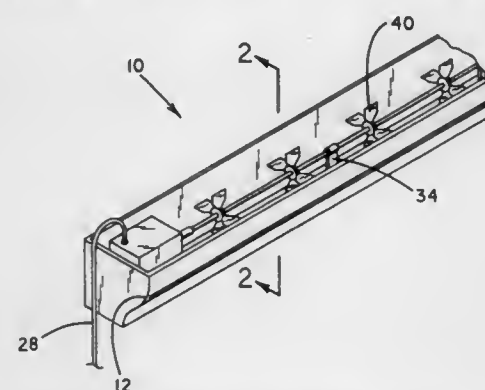
U.S. Cl. 52—10 14 Claims
 6. A handicap accessible stair, comprising:



a first step rising from a lower landing, said first step forming a first riser in said stair, wherein said first step has an upper surface;
 a second step positioned adjacent said first step and forming a second riser in said stair, wherein said second step has an upper surface, wherein said second step upper surface is located a vertical distance above said first step upper surface;
 a control operably connected to said first and second step, wherein said control causes vertical movement of said first and second step down to a position wherein said first and second step upper surfaces are level with said lower landing, and said control further causes vertical movement of said second step to said position to form said second riser in said stair; and
 whereby said stair provides improved mobility to handicapped users while preserving the aesthetic qualities of said stair.

5,802,774
GUTTER CLEANING SYSTEM
 Joseph S. Kardacz, 238 Willard Dr., Ridley Park, Pa. 19078
 Filed Aug. 14, 1997, Ser. No. 911,099
 Int. Cl.⁶ E04D 13/04

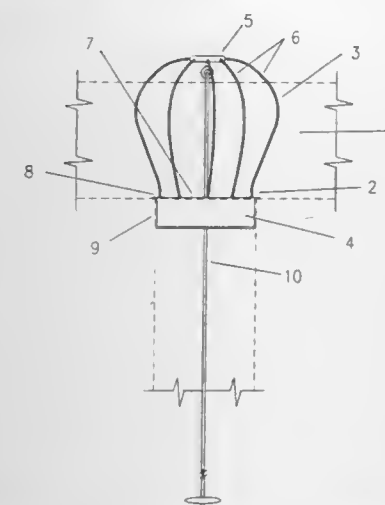
U.S. Cl. 52—11 4 Claims



2. A gutter cleaning system for eliminating a need to manually clean gutters comprising, in combination:
 a gutter positionable on a house, and includes a downspout at one end;
 a motor disposed within a gutter at an end thereof opposite a downspout opening thereof, the motor being disposed within a waterproof housing, the motor having a rotating coupling rod extending outwardly thereof and extending outwardly of a side wall of the housing, the motor having a power cord extending outwardly thereof and extending outwardly of a top wall of the housing;
 a spindle shaft coupling with the rotating coupling rod of the variable speed motor, the shaft extending essentially a length of the gutter; and
 a plurality of fan blades coupled with the spindle shaft in a spaced relationship.

5,802,775
ACTIVE GUTTER DOWNSPOUT STRAINER WITH
ROTATING ACTION
 Brian R Toth, 110 N. Webster St. #5, Naperville, Ill. 60540
 Filed Dec. 26, 1996, Ser. No. 780,191
 Int. Cl.⁶ E04D 13/00

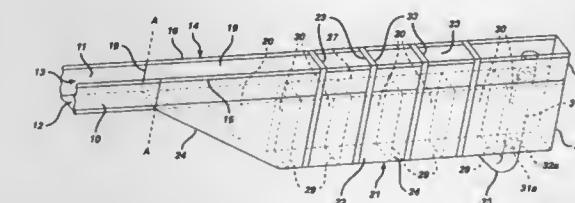
U.S. Cl. 52—12 3 Claims



1. A flexible strainer to be attached to roofing gutter downspout drain openings comprising:
 A flexible cage constructed of inverted U shaped members attached to a base plate, said flexible cage to fit within the space defined by the walls of the gutter,
 A fixed base plate adapted to fit within the drain opening without obstructing the drain opening, said base plate to rest flush against the sides of the drain opening, said base plate having inverted L shaped stops which rest against the gutter floor to prevent the base from falling in to the gutter drain,
 A cord attached to the top center of said cage, said cord extending through the drain opening and out to the opening of the down spout.

5,802,776
GUTTER TRAP ASSEMBLY
 Joseph A. Murray, 116 Smoke Rise Dr., Warren, N.J. 07059-6821
 Continuation-in-part of Ser. No. 608,687, Feb. 29, 1996, abandoned. This application Apr. 1, 1997, Ser. No. 831,049
 Int. Cl.⁶ E04D 13/00

U.S. Cl. 52—12 4 Claims

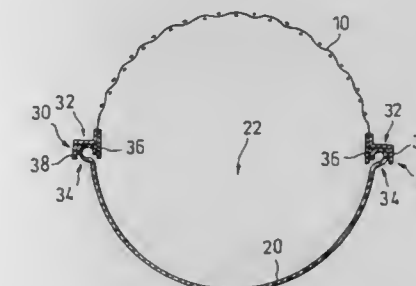


1. A unitary, integral gutter trap assemblage for use with conventional, U-shaped gutters and their downspouts comprising:
 (a) an upper section having a front wall; a rear wall spaced from said front wall; opposed spaced apart sides; and, an open top and an open bottom defined between said front and rear walls and said opposed, spaced apart sides;
 (b) a lower section having a front wall; a rear wall spaced from said front wall; opposed, spaced apart end walls; a bottom wall interconnecting said front wall, said rear wall and said end walls collectively defining an open top therebetween, said defined open top being co-extensive with said open bottom of said section enabling communication between said upper sec-

tion and said lower section through said open bottom of said upper section and said defined open top of said lower section, said lower section having an aperture formed therein positioned to mate with a conventional downspout,
 (c) a plurality of transverse, vertically disposed and spaced apart screen members removably secured within said lower section defining a plurality of chambers therein, wherein the upper end of said screen members extend to slightly below said defined open top of said lower section, said open bottom of said upper section, and the bottom wall of said conventional, U-shaped gutter;
 (d) a tubular gutter downspout screen positioned in said aperture of said lower section enabling communication with said upper section and a conventional downspout through said lower section; and,
 (e) means to secure said assemblage to a conventional gutter such that said assemblage communicates with said conventional gutter through said sides of said upper section and such that water, seeds, leaves and other debris will flow through said conventional gutter enabling said seeds, leaves and other debris to be deposited in said lower section while permitting water to continue to flow and be discharged through said downspout screen into said gutter downspout.

5,802,777
PROTECTION COVER FOR EAVES GUTTER
 Hiroki Sato; Katsuko Sato; Masayuki Sato, and Yasuko Sakurayama, all of Saku, Japan, assignors to Hiroki & Co., Ltd., Saku, Japan
 Filed Jul. 8, 1997, Ser. No. 889,684
 Claims priority, application Japan, Jul. 29, 1996, 8-216602
 Int. Cl.⁶ E04D 13/076

U.S. Cl. 52—12 12 Claims



1. A protection cover for an eaves gutter, comprising:
 a net cover body adapted to be fitted on an upper opening of the eaves gutter;
 said net cover body being formed so as to have a central portion upwardly expanded and a pair of lateral portions downwardly inclined from said central portion; and
 a fixing means for fixing opposite lateral edges of said net cover body when fitted to respective lateral upper edges of the eaves gutter, including a pair of fixing frames continuously extending along the respective lateral edges of the net cover body in a longitudinal direction of the net cover body and mounted on the respective lateral edges of the net cover body, each of said fixing frames formed with an opening facing downwardly so as to permit a corresponding one of the lateral upper edges of the eaves gutter to be fitted therein.

5,802,778

WORKSTATION WITH FLEXIBLE CANOPY

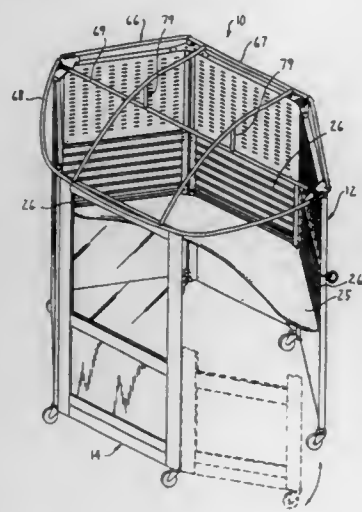
Clarkson S. Thorp, Wayland; Thai Q. Tran; Gary R. Ludwig, both of Holland, and Steven A. Heyer, Jenison, all of Mich., assignors to Haworth, Inc., Holland, Mich.

Filed Jun. 7, 1996, Ser. No. 660,503

Int. Cl.⁶ E04H 1/12

U.S. Cl. 52—36.2

12 Claims



10. A self-contained workstation comprising:

a divider wall comprising at least three serially-connected upright divider wall panels positioned in upright supportive engagement on a floor, said divider wall panels having parallel vertically extending side edges which are laterally spaced to define a horizontal width of each said divider wall panel, the side edge of one said divider wall panel and the side edge of another said divider wall panel being positioned closely adjacent one another and fixedly connected together in a fixed angular relation by a mounting member extending therebetween, at least an intermediate one of said divider wall panels being disposed between first and second said divider wall panels which define opposite first and second ends of said divider wall assembly, said first and second divider wall panels extending at an angle forwardly relative to said intermediate divider wall panel adjacent thereto to define a rear boundary of a workstation area, said side edges of said first and second divider wall panels which are disposed away from said intermediate divider wall panel defining an open front of said workstation area;

a door assembly which includes a plurality of door panels serially connected together, said door assembly being pivotally connected to said first end of said divider wall assembly to selectively enclose said open front when in a closed position and being positioned in upright supportive engagement on a floor, said door panels having parallel vertically extending side edges which are laterally spaced apart, the side edge of one said door panel and the side edge of another laterally adjacent said door panel being fixedly connected together by connector means for defining a first vertical pivot axis about which said adjacent door panels are independently pivotable, at least an intermediate one of said door panels being disposed between first and second said door panels which said first and second door panel respectively define a pivot end and an opposite free end of the door assembly, said pivot end and said first divider wall end being pivotally connected together by pivot connector means so that said door assembly is swingable as a unit about a second vertical pivot axis between an open position and said closed position, said free end having connector means for removably connecting said free end to said second divider wall end when in said closed position; and

a horizontally enlarged canopy assembly which overlies a top end of said workstation so as to cover the workstation area defined by the divider wall and the closed door assembly, said canopy assembly including a canopy frame formed of elongate rods which includes a rear frame member disposed in a load-bearing relation with the divider wall, a front frame

member having opposite ends connected to said rear frame member by first and second frame connectors proximate said first and second opposite ends of said divider wall and being cantilevered therefrom so as to extend forwardly over said door assembly when in said closed position generally along a top edge thereof, an intermediate frame assembly being connected to said front and rear frame members to support a canopy fabric thereon, said intermediate frame assembly having at least one first support member extending forwardly between said front and rear frame members, and at least one second transverse member extending horizontally between said first and second frame connectors and connected to said first support member, said rear frame member of said canopy frame being pivotally connected to pivot members secured on each said mounting member of said intermediate divider wall so as to be pivotally supported at two locations, said canopy frame being vertically swingable about a horizontal pivot axis which is defined by said pivot members and extends along a top edge of said intermediate divider wall panel between the opposite side edges thereof.

5,802,779

VERMIN CONTROL METHOD

Byron Hulls, Reynoldsburg, and Kathy D. Schmidt, Utica, both of Ohio, assignors to Owens Corning Fiberglas Technology, Inc., Summit, Ill.

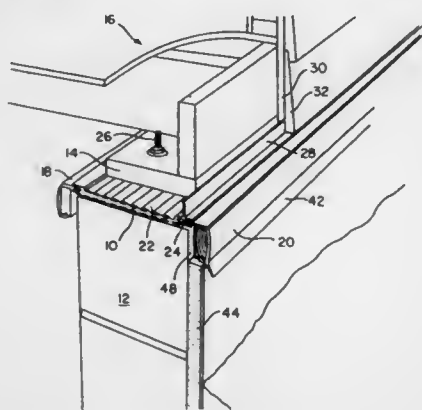
Division of Ser. No. 635,997, Apr. 22, 1996, Pat. No. 5,678,362.

This application May 6, 1997, Ser. No. 851,760

Int. Cl.⁶ A01K 3/00; E04B 1/72; E04H 9/16

U.S. Cl. 52—101

10 Claims



1. A method of vermin control comprising:

providing a barrier between a building foundation and a building structure;
attaching a piece of cellulosic material to the barrier at an interior surface and an exterior surface of the foundation;
inspecting the cellulosic material to detect the presence of vermin; and
replacing the cellulosic material with a cellulosic material containing poison if vermin are detected.

5,802,780

CONSTRUCTION SYSTEM WITH PRE-MANUFACTURED HOLE PATTERNS

Peter G. Hammerschlag, 220-111th Ave. SE., Bellevue, Wash. 98004

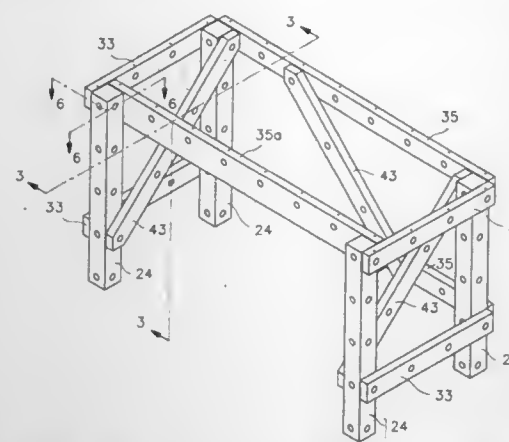
Continuation of Ser. No. 263,875, Jun. 22, 1994. This application Nov. 10, 1997, Ser. No. 966,687

Int. Cl.⁶ B23Q 1/01; A63H 33/10; A47B 97/00; E04C 3/00

U.S. Cl. 52—105

8 Claims

1. A construction system having structural members with pre-manufactured rows of equally spaced holes of the same size, and fastening means which connect those structural members together



by passing through a selection of those holes, wherein the improvement comprises the combination of:

(a) structural members of a first kind, each having a row of holes, those holes all having substantially the same size, with adjacent holes being equally spaced at a hole-center to hole-center distance N, wherein N is a basic hole spacing chosen for a specific application of the construction system, and
(b) structural members of a second kind, each having a row of holes, those holes all having substantially the same size as the holes in said structural members of a first kind, with adjacent holes equally spaced at a hole-center to hole-center distance S different from N and selected from the group consisting of: N×V2, N×V5, N×V10 and N×V17,

said structural members of the first and second kinds being joinable together into a structure with the fastening means passing through a selection of the holes, such that the structure comprises structural frames selected from the group consisting of:

(1) right angle triangular shaped frames with structural members of the first kind forming the two short sides of those triangular frames and a structural member of the second kind forming the hypotenuse of the triangular frames and
(2) square or rectangular shaped frames with structural members of the first kind forming the four sides of said frames and a structural member of the second kind connecting two parallel sides of the frames, such that said square or rectangular shaped frames are divided into trapezoids.

5,802,781

SOFFIT LOCK

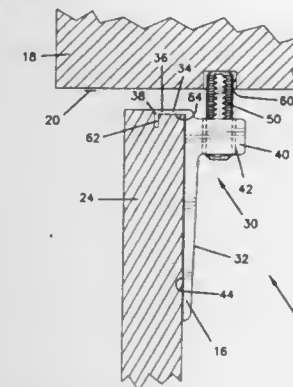
John K. Eickhof, R.R. 2, Box 11, Edgewood, Crookston, Minn. 56716, assignor to John K. Eickhof, Crookston, and Paul Eickhof, Erskine, both of Minn.

Filed Jul. 11, 1996, Ser. No. 678,293

Int. Cl.⁶ E04H 13/00

U.S. Cl. 52—146

14 Claims



1. An apparatus having a soffit, a mounting member and a facing member, the soffit having a recess formed therein and the facing member having a slot formed in a top edge, comprising:

the mounting member mounting to an inner surface of the facing member including an inner portion attaching to the inner surface, a hook portion extending over the top edge of the facing member and having a retaining portion inserting into the slot formed in the top edge of the facing member, a connector support portion having a threaded orifice formed therein extending substantially parallel to the retaining portion; and

a threaded stud member engaging the threaded orifice and extending upward from the connector support portion and inserting into the recess.

5,802,782

HEADER CONNECTION

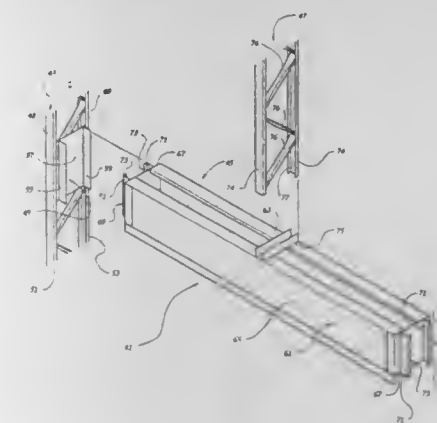
Everett Jewell, P.O. Box 397, Dallas, N.C. 28034

Filed Aug. 11, 1997, Ser. No. 909,400

Int. Cl.⁶ E04C 3/02; E06B 1/04

U.S. Cl. 52—204.2

15 Claims



1. An assembly forming a header connection, comprising:

a pair of vertically extending stud members each having a predetermined depth and a side including two vertically extending edges, said stud members being oriented in spaced parallel relation with said sides in opposed relation;

each said side including a pair of projecting generally parallel first flanges spaced apart a distance less than said depth of said stud members and positioned offset inwardly from said edges;

a header member having two ends and a body portion extending between said ends, each end having a pair of longitudinally projecting generally parallel spaced second flanges formed to engage said first flanges in lapping relation offset inwardly from said edges;

means for fastening said first flanges to said second flanges, whereby said header member can be mounted between said stud members and said first and second flanges are offset inwardly from said edges.

5,802,783

HURRICANE RESISTANT/SECURITY WINDOWS/DOORS

Charles E. Bayha, 728 Tislington Dr., Collierville, Tenn. 38017

Filed Dec. 4, 1996, Ser. No. 760,437

Int. Cl.⁶ E06B 3/00

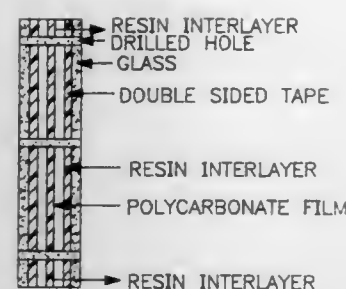
U.S. Cl. 52—204.5

10 Claims

1. A laminate useful for a hurricane resistant window or door, comprising:

a polycarbonate sheet having two opposite sides;

a layer of tertiary butyl styrene resin on each of said opposite sides of said polycarbonate sheet, said layers of tertiary butyl styrene having two sides, one side adhering to said polycarbonate sheet and a second side; and



at least one sheet of glass adhering to at least one of said second sides of said tertiary butyl styrene layers.

5,802,784

WINDOW APPARATUS FOR PROVIDING AND DIRECTING GLARE-FREE SUNLIGHT TO A ROOM
Helmut Federmann, Holunderweg 17, 51427 Bergisch Gladbach, Germany

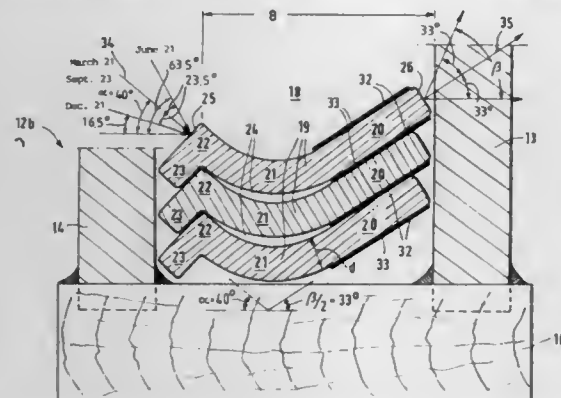
Filed Jan. 21, 1997, Ser. No. 786,439

Claims priority, application Germany, Jan. 26, 1996, 296 01 308.0

Int. Cl.⁶ E04B 9/24

U.S. Cl. 52—204.5

28 Claims



1. A window apparatus for providing glare-free diffused sunlight to a room, said apparatus comprising at least one light-deflecting element having an inlet face adapted to be exposable to the sun's rays, an outlet face adapted to be exposable to the room to be lit and an intermediate section for guiding and dispersing the sun's rays to and through said outlet face toward a selected location in the room, the said inlet face and said outlet face being disposed at an angle to each other and the intermediate section being curved and being formed rectilinearly at least at its end adjoining the outlet face to have mutually opposing peripheral faces forming a guide path for said rays.

5,802,785

ALUMINUM FRAMED WINDOW MOLDING

Derek James Crook, 3283 Shearwater, Nanaimo, B.C., Canada, V9S 6A1

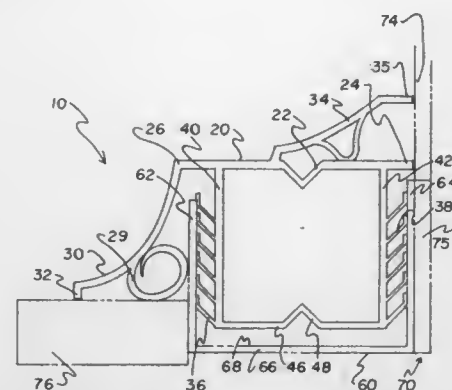
Filed Feb. 21, 1997, Ser. No. 806,249

Int. Cl.⁶ E06B 3/54

U.S. Cl. 52—204.53

16 Claims

1. An aluminum framed window molding in combination with a metal framed window having a window glass member, a sill, and a metal window guide member having a U-shaped channel being defined by an inner side wall, an outer side wall, and a lower portion, said aluminum framed window molding comprising:
a horizontal member having a window seal end and an extension end, said horizontal member being positioned above said



metal window guide member, said window seal end being abutted next to said window glass member;
a sill extension member having sill seal end, said sill extension member being coupled to said extension end, said sill seal end being abutted next to said sill;
an inner vertical member being disposed within said U-shaped channel and being coupled to said horizontal member; and
wherein said horizontal member includes a fitting groove portion.

5,802,786

Patent Not Issued For This Number

5,802,787

GROMMET SEAL FOR ROOF FLASHING

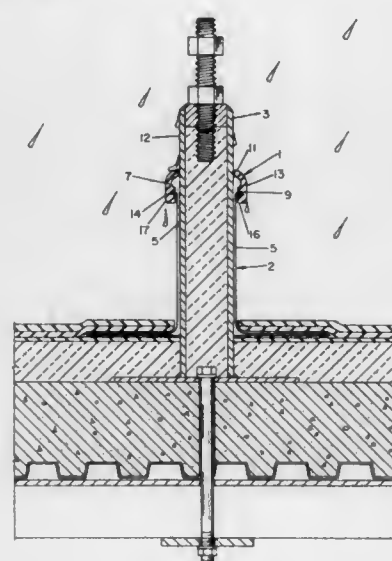
Ken Thaler, 32-33 Maple Wood Drive, R.R. #1, Parry Sound, Ontario, Canada, P2A 2W7

Filed Feb. 12, 1997, Ser. No. 800,218

Int. Cl.⁶ E04D 13/14

U.S. Cl. 52—219

18 Claims



1. A grommet for sealing a gap defined between roof flashing and a coaxially disposed member projecting through an opening in an end of the roof flashing, the flashing including an outwardly extending flange adjacent the opening therein, the grommet comprising:
an annular grommet body formed of a resilient elastomeric material having an interior surface;

mounting means on said interior surface of the body dimensioned to receive and to encase a portion of the end of said roof flashing and form a seal therewith, said mounting means comprised of a recess in the interior surface of said body for receiving the flange of the flashing; and
sealing lip means on said interior surface of said body, said lip means extending inwardly from a top portion of the body for receiving and resiliently sealingly engaging an exterior surface of the projecting member.

5,802,788

FIXING DEVICE FOR TENSIONING MEMBER FOR PRESTRESSED CONCRETE

Nobuyuki Ozawa, Chiba-ken; Masao Kikuchi, Kanagawa-ken; Manabu Sotooka, and Junji Hosokawa, both of Kanagawa-ken, all of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho Komatsu Plastics Industry Co., Ltd., Japan

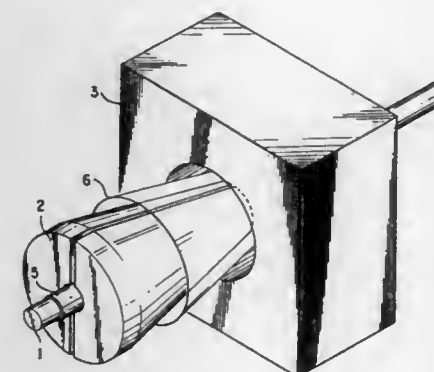
Filed Feb. 7, 1995, Ser. No. 385,126

Claims priority, application Japan, Feb. 22, 1994, 6-023884

Int. Cl.⁶ E04C 3/10

U.S. Cl. 52—223.13

23 Claims



1. A tensioning structure for a prestressed concrete, comprising:
an elongated tension carrier;
a stationary member having an opening;
a tension retainer cooperated with said tension carrier and said stationary member for fixing said tension carrier relative to said stationary member in a condition where a predetermined magnitude of tension force is applied to said tension carrier, said tension retainer having a single axially extending slit; and
a sleeve form stress distributor disposed between said tension carrier and said tension retainer, said stress distributor having a first inner surface mating with an outer surface of said tension carrier and having an inner surface configuration complementary with an outer surface configuration of said tension carrier and a second outer surface mating with an inner surface of said tension retainer and having an outer surface configuration complementary with an inner surface configuration of said tension retainer for distributing a retaining force of said tension retainer to substantially an entire outer circumferential surface of a mating portion of said tension carrier for uniformly distributing a holding force exerted from said stress distributor uniformly over an entire outer circumference of the mating portion of said tension carrier.

5,802,789

PARTITION CONSTRUCTION INCLUDING REMOVABLE COVER PANELS

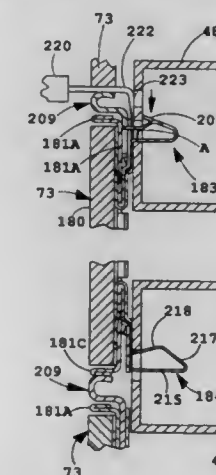
Steven F. Goodman; Kenneth D. Brickner, both of Wyoming; Melissa A. DuBuis, Jenison; Daniel Grabowski; Allen C. Hager, both of Grand Rapids; Robert E. Jeffers, Ada; Karl J. Mead, Grand Rapids; Scott M. Miller, Kentwood, and Kurt A. Jonker, Grand Rapids, all of Mich., assignors to Steelcase, Inc., Grand Rapids, Mich.

Filed Dec. 17, 1996, Ser. No. 767,817

Int. Cl.⁶ E04M 3/00

U.S. Cl. 52—239

20 Claims



1. A partition panel comprising:
a partition frame having a planar face with clip-receiving apertures and bracket-receiving apertures, the planar face having a back surface;
a pair of cover panels configured to cover the partition frame, the cover panels including side edges that define a gap therebetween and provide access to the bracket-receiving apertures when the cover panels are attached to the partition frame;
clips releasably engaging the clip-receiving apertures and retaining the cover panels on the partition frame in a coplanar arrangement, the clips each including an antislidgement tooth interlockingly engaging the back surface when the clips are engaged with the clip-receiving apertures, and further including a release tab that is depressible to move the tooth to a disengaged position wherein the clips are released from the clip-receiving apertures; and
a flexible strip attached to one of the cover panels and covering the gap when the cover panels are attached to the partition frame in a coplanar and adjacent position thereon.

5,802,790

DECORATIVE MOULDING CORNER CAP

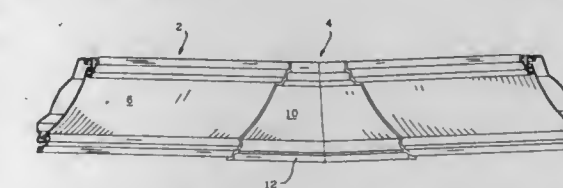
Bernard Lamont, Gatineau, and David Rozon, Russell, both of Canada, assignors to 3429342 Canada Ltée, Hull, Canada

Filed Aug. 19, 1996, Ser. No. 699,440

Int. Cl.⁶ E04B 1/00

U.S. Cl. 52—288.1

11 Claims



1. A moulding assembly comprising a linear moulding and a corner cap separable from said linear moulding and covering an exposed end of said linear moulding, said corner cap comprising upper and lower rims and a web portion extending therebetween.

said rims each being characterized by engagement means releasably engaging said linear moulding in a snap-lock sliding engagement, said engagement means comprising an elongate flange having a generally hook-shaped cross section mating with a rib extending from said linear moulding to permit said cap to be displaced linearly relative to said linear moulding following installation of said linear moulding to a wall member.

5,802,791

SURFACE EXPANSION DEVICE

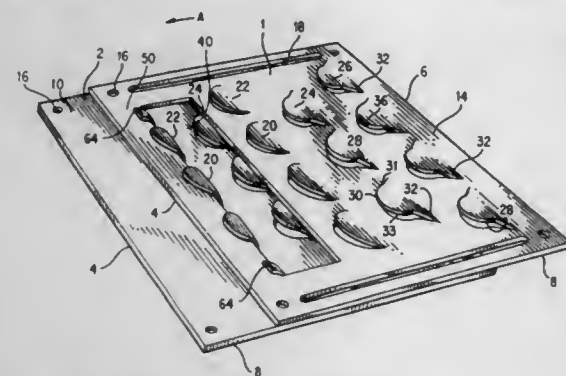
William Kuntz, Ellicott City, Md., assignor to Eagle Inventors, LLC, Ellicott City, Md.

Filed Nov. 1, 1996, Ser. No. 740,788

Int. Cl.⁶ E04B 1/62

U.S. Cl. 52—394

14 Claims



1. A surface expansion device comprising:
a first plate having a top surface and a bottom surface;
a second plate having a top surface and bottom surface;
a first tab disposed on said first plate;
a second tab disposed on said first plate laterally offset from said first tab; and

engagement means disposed on said second plate, wherein upon lateral movement of said first plate with respect to said second plate, said engagement means engages said first tab and subsequently engages said second tab.

5,802,792

DRYWALL CONSTRUCTION AND MEANS THEREFOR

David W. Fielding, 131 Yonge Blvd., Toronto, Ontario, Canada, M3S 3H2, and Clifford E. Van Steinburg, 48 Catalina Drive, Scarborough, Ontario, Canada, M1M 1K6

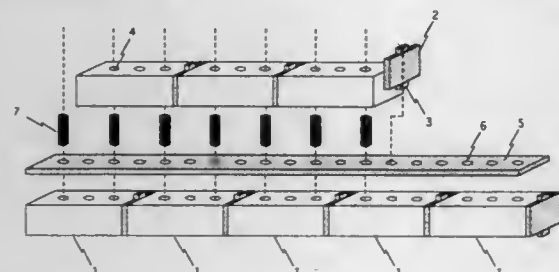
Filed Sep. 19, 1996, Ser. No. 716,549

Claims priority, application Canada, Sep. 21, 1995, 2158771

Int. Cl.⁶ E04B 1/62

U.S. Cl. 52—396.09

11 Claims



1. A method of constructing a drywall having a mortared type appearance comprising, laying a horizontal row of bricks in end to end relationship, the bricks being provided with symmetrically and longitudinally spaced vertical holes passing therethrough, laying a belt on top of the row, the belt simulating a horizontal mortar layer

and being provided with holes coinciding with the locations of the holes in the bricks and the spaces between abutting ends of the bricks in the row, inserting simulated, vertically oriented, mortar pads between the abutting ends of the bricks in the row, inserting short pins through the holes of the belt into the coincident holes of the bricks and leaving a portion of each pin projecting above the level of the belt, laying a further row of bricks over and onto the projecting ends of the pins in standard horizontally and longitudinally offset brick construction format and inserting simulated, vertically oriented mortar pads between the abutting ends of the bricks of said further row to form a vertical wall simulating standard brick format construction.

5,802,793

PRECAST MODULAR KEYED BUILDING SYSTEM

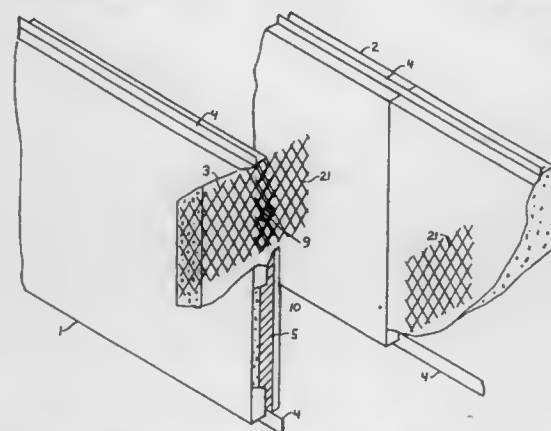
Walter Don DeVore, Jr., P.O. Box 35, Idaho Springs, Colo. 80452

Filed Nov. 14, 1996, Ser. No. 748,932

Int. Cl.⁶ E04B 2/30

U.S. Cl. 52—424

18 Claims



1. An assembly for constructing a building wall structure, said assembly comprising:

a generally planar cast panel defining a pair of opposed surfaces joined by a plurality of edge faces, at least one of said edge faces defining a slot for receiving a connecting strip for joining an adjacent one of said panels;

at least one embedded member protruding from one of said surfaces, wherein said embedded member is a generally planar perforated material for receiving a fastener to join an overlapped embedded member from another of said panels which is spaced and parallel to said panel.

5,802,794

CERAMIC FIBER SECURING DEVICE

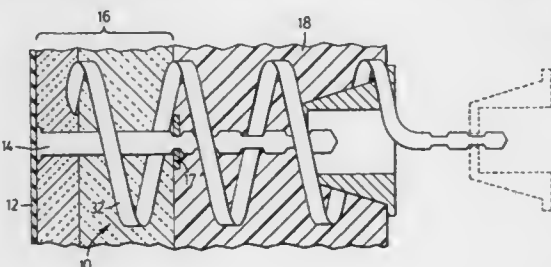
Duncan T. Robson, Carlisle, Canada, assignor to Jayne Industries Inc., Stoney Creek, Canada

Filed May 5, 1997, Ser. No. 851,284

Int. Cl.⁶ E04B 1/74

U.S. Cl. 52—407.4

16 Claims



1. A ceramic fiber securing device for securing at least one layer of ceramic fiber insulation to an existing ceramic fiber lining, said ceramic fiber securing device comprising:

a helical portion screwable about a first axis into said existing ceramic fiber lining;
a generally straight portion integral with and extending from an outer end of said helical portion and having a second axis generally parallel to said first axis; and
attachment means for interacting with an outer retention member to attach said outer retention member to said generally straight portion.

5,802,796

CURVILINEAR MASONRY BUILDING UNIT HAVING A GLAZE COMPOSITION AND USES THEREOF

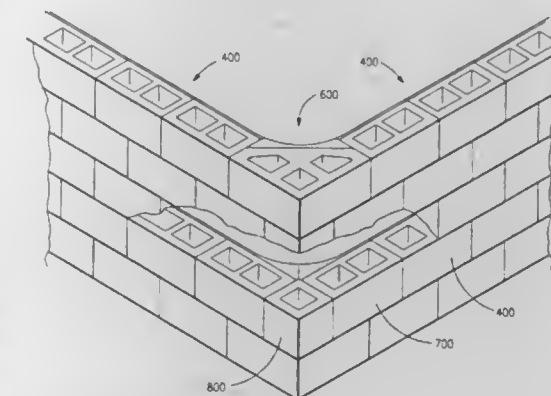
John L. McClinton, 7432 Hickory La., Hanover, Md. 21076, and Russell P. Rich, 902 W. Northern Pkwy., Baltimore, Md. 21210

Filed Apr. 4, 1995, Ser. No. 417,156

Int. Cl.⁶ E04C 1/00

U.S. Cl. 52—596

17 Claims



1. A building unit, comprising:
a masonry base unit including a planar non-curved front face, two side faces, a back face opposite said front face of said masonry base unit, a top face, and a bottom face; and
a glaze composition applied to said planar non-curved front face of said masonry base unit, said glaze composition molded to form a curvilinear portion comprising at least a portion of an inside corner.

5,802,797

DRY-STACKABLE MASONRY UNIT AND METHODS OF MANUFACTURE AND USE

John Storer-Folt, Mississauga, Canada, assignor to Jannock Limited, Ontario, Canada

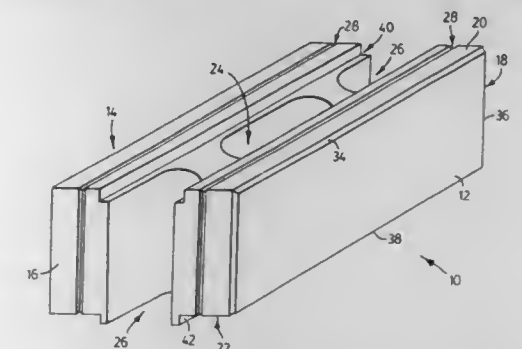
Filed Dec. 29, 1995, Ser. No. 578,185

Claims priority, application Australia, Dec. 30, 1994, PN0331

Int. Cl.⁶ E04B 5/04

U.S. Cl. 52—604

14 Claims



1. A brick being secured to another similar brick or bricks by means of mortar or grout, said brick comprising:

a front face,
a rear face,
a pair of header faces,
a top bed face,
a bottom bed face,
a recess extending lengthwise into said top bed face along a center portion of said top bed face;
a projection extending lengthwise from said bottom bed face along a center portion of said bottom bed face;

5,802,795

SELF-RETAINING PIN FOR CONCRETE WALL PANELS

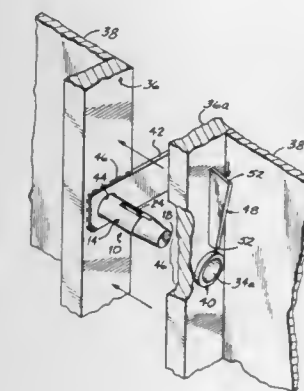
Dallas E. Myers, Middletown, and Norman Cottongim, Trenton, both of Ohio, assignors to Feather Lite Innovations, Inc., Springboro, Ohio

Filed Nov. 14, 1997, Ser. No. 970,438

Int. Cl.⁶ E04G 11/08; 17/06

U.S. Cl. 52—426

13 Claims



9. A system for releasably coupling a first concrete wall form panel to a second concrete wall form panel wherein the first panel has a first flange extending outwardly therefrom and a first aperture formed therethrough, the second panel has a second flange extending outwardly therefrom and a second aperture formed therethrough which is aligned with the first aperture, the system comprising:

a pin having an enlarged head and an elongated shank extending between the head and an end of the pin, the shank having a through slot spaced from the head and a retaining member being biased to project from the shank and being positioned intermediate the head and the slot; and
a wedge having a first end which is larger than a second end thereof, the second end being sized to pass through the slot and the first end being sized not to pass through the slot;

wherein the end of the pin is inserted into and through the first aperture in the first flange and the head preventing the pin from passing entirely through the first aperture, the retaining member being depressed and biased into contact with a side-wall of the first aperture to retain the pin in the first aperture while the second aperture of the second panel is aligned therewith and the first and second flanges being juxtaposed to one another and the second end of the wedge inserted into and through the slot to releasably couple the panels together.

said projection contoured to register at least along an edge with the recess of an underlying brick to align said brick and to define a space with mortar or grout;

a recess extending into at least one of said header faces to partially define an aperture which in conjunction with an adjacent header face of an adjacent brick defines an aperture having mortar or grout between said adjacent header faces into said aperture;

said front face having contouring thereon at least partially resembling a contour of a mortar joint whereby said contouring of said front faces of adjacently stacked brick combined resemble the appearance of mortar joints between said brick; a groove extending around the perimeter of said brick parallel to and inwardly from said front face to at least partially define a mortar stop adjacent to said front faces;

whereby any mortar or grout in excess of a volume defined by said apertures and said recess of said brick flows into said groove.

5,802,798

SET OF BUILDING ELEMENTS FOR FRAMEWORK STRUCTURES

Christian Martens, Cologne, Germany, assignor to Expo Mart Inc., Wilmington, Del.

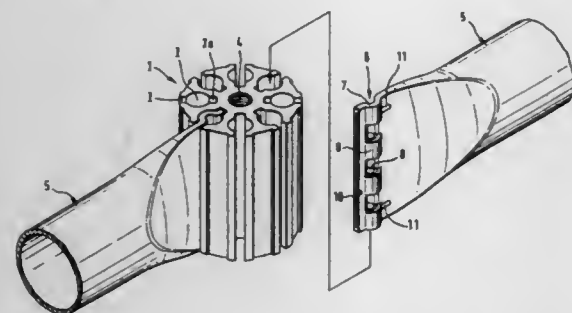
Filed Nov. 25, 1996, Ser. No. 753,415

Claims priority, application Germany, Nov. 25, 1995, 195 44 076.5

Int. Cl.⁶ E04H 12/00

U.S. Cl. 52—653.1

10 Claims



1. A construction set for use in forming supporting structures, said construction set comprising:

a cylindrical connecting element having a central axis and an outer cylindrical surface, said connecting element including a plurality of slots which are parallel to said central axis, said slots extending radially inwardly from said outer surface to said central axis, each said slot including a widened portion intermediate said outer surface and said central axis and defining a chamber;

a support bar, said support bar having flattened ends, said flattened ends each including an insertion head and an edge which defines the outer limits of said flattened end, each said insertion head including two slits which are spaced from said edge and which are disposed parallel to each other and at 90 degrees relative to said edge, said slits defining a plurality of strips, each said strip defining a bead, the beads of adjacent said strips disposed on mutually opposite sides of a central plane through the longitudinal axis of said support bar, said beads defining a thickened portion having a cross-sectional shape similar to the cross-sectional shape of said chambers, whereby said insertion heads are adapted to be received in said chambers.

5,802,799

GLAZING SYSTEM FOR BUILDINGS

Börje Thuleskär, Lysekil, and Jerker Lundgren, Göteborg, both of Sweden, assignors to Scandinavian Licence AB, Sweden

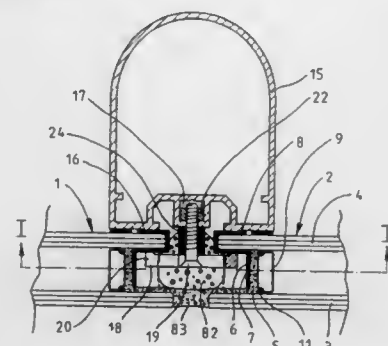
PCT No. PCT/SE94/01055, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/13439, PCT Pub. Date May 18, 1995

PCT Filed Nov. 9, 1994, Ser. No. 640,850

Claims priority, application Sweden, Nov. 10, 1993, 9303704 Int. Cl.⁶ E04C 2/38

U.S. Cl. 52—656.5

8 Claims



1. A glazing system for buildings, comprising:

at least one glass element with an inner glass pane and an outer glass pane, said glass panes having respective pane edges and having respective facing surfaces substantially parallel to and spaced apart from each other; said inner and outer panes further having respective second surfaces opposite said respective facing surfaces;

each of said at least one glass elements having a respective frame interposed between said facing surfaces and spaced away from said edges of said panes, said panes having edge portions between said edges and said frame, said frame and said edge portions defining respective tracks, said tracks for retaining joint compound having an affinity to said facing pane surfaces therein;

a building framework for mounting said at least one glass element, said building framework having at least one resting portion for contacting said second surfaces of said edge portions of said inner glass panes;

fastening elements extending over said edge portion of said facing surface of said inner glass pane into said respective tracks;

said attaching elements connecting said fastening elements to said framework, said attaching elements urging said fastening elements against said edge portion of said facing surface of said inner glass pane so as to press said edge portion of said second surface of said inner glass pane against said at least one resting portion of said framework; and

U-shaped protector elements on said edge portion of said inner glass pane at positions of said respective fastening elements, said protector elements comprising U-flanges for protecting said edge portion of said inner glass pane at said positions of said fastening elements.

5,802,800

SIMULATED WOOD BEAM CONSTRUCTION

Leo J. Meyers, deceased, late of Pittsburgh, Pa., by Michael C. Meyers, executor, assignor to Sun Room Designs, Inc., Youngwood, Pa.

Filed May 22, 1996, Ser. No. 651,526

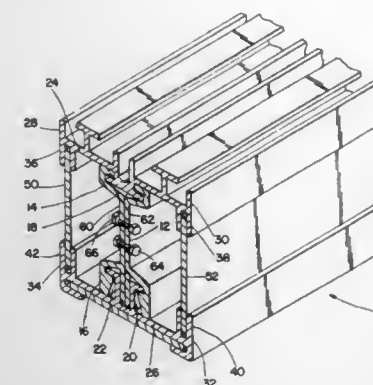
Int. Cl.⁶ E04C 3/30

U.S. Cl. 52—731.21

5 Claims

1. A simulated beam construction which comprises:

a. a central elongate I-beam member having opposing ends; b. side panel members mounted on said opposing ends with said side panel members having opposing lateral ends;



c. lateral elongate panels extending between said lateral ends of said side panel members so as to enclose said central elongate I-beam;

d. means on said lateral ends for sliding attachment to said lateral panels.

5,802,801

LOCKER DOOR AND FRAME ASSEMBLY

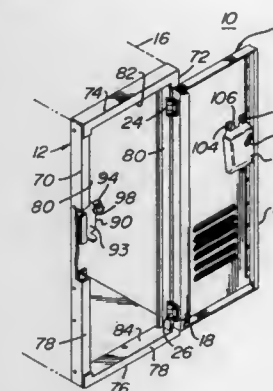
Charles D. Hohns, Box, R.D. #5, Malvern, Pa. 19355, and James Benenson, Jr., 1 Lexington Ave., New York, N.Y. 10010

Continuation-in-part of Ser. No. 429,331, Apr. 25, 1995, abandoned, which is a continuation-in-part of Ser. No. 359,586, Dec. 20, 1994, abandoned. This application Oct. 30, 1996, Ser. No. 739,919

Int. Cl.⁶ E04C 2/32

U.S. Cl. 52—792.1

22 Claims



1. A locker door and frame assembly, said assembly including: a one-piece metal locker door having a central rectangular panel and a pair of integral box beam supports, said rectangular panel having outer and inner surfaces, a pair of opposed side edges, and a pair of opposed end edges, said integral box beam supports being at the extreme side edges of said rectangular panel, each of said side edges being provided by a first outer marginal fold zone extending the length of the side and each of said box beam supports being provided by a marginal portion of said locker door integrally joined to said panel through a respective first outer marginal fold zone and extending outwardly of said panel, each of said marginal portions including multiple, adjacent marginal areas integrally joined to each other through additional marginal fold zones spaced outwardly from said first outer marginal fold zone, said marginal areas of each of said marginal portions being bent along said first outer marginal fold zone and said additional marginal fold zones to form each of said integral box beam supports, each of said integral box beam supports including a first marginal area joining said panel through said first outer marginal fold zone and extending approximately perpendicular to said panel and outwardly from said inner surface at the

extreme side edge of said panel, each of said integral box beam supports including at least two additional marginal areas within the perimeter of said panel and being bent relative to each other along one of said additional marginal fold zones, one of said at least two additional marginal areas being directed inwardly toward said inner surface and the other of said at least two additional marginal areas extending parallel to and flush against the inner surface of said panel and being joined to said one of said at least two additional marginal areas by one of said additional fold zones, said one of said additional fold zones being transversely spaced inwardly from the first outer marginal fold zone;

said frame including transversely spaced apart side frame members having outwardly facing front surfaces and transversely spaced-apart, side surfaces that face each other, said metal locker door being disposed within the frame with the first marginal area of each of said integral box beam supports being disposed in contiguous, overlying relationship with an adjacent side surface of said frame and with no portion of said locker door overlying an outwardly facing front surface of said frame;

hinge means directly connected to a first marginal area of one of said integral box beam supports and to an adjacent side frame member for pivotally connecting said locker door to said frame through one of said integral box beam supports;

a single-point latch means adjacent the side edge of the door remote from the hinge means for use in locking the door to the frame at only a single location spaced intermediate the opposed end edges of the door.

5,802,802

ARRANGEMENT AT A BEAM OR BUILDING ELEMENT AND A MOULD FOR MAKING A BEAM OR BUILDING ELEMENT

George Wegler, Vaxholm, Sweden, assignor to Resaro AB, Vaxholm, Sweden

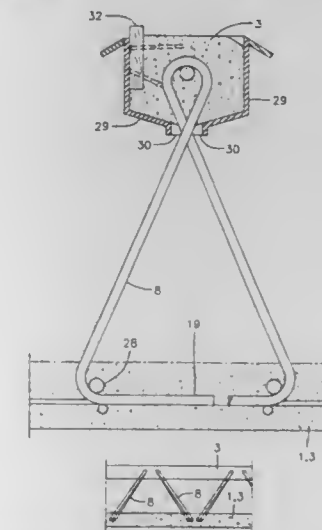
PCT No. PCT/SE94/00700, § 371 Date Jan. 19, 1996, § 102(e) Date Jan. 19, 1996, PCT Pub. No. WO95/03461, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 19, 1994, Ser. No. 583,024

Claims priority, application Sweden, Jul. 19, 1993, 9302446 Int. Cl.⁶ E04C 3/20; B22O 19/02

U.S. Cl. 52—693

3 Claims



1. A truss assembly comprising:

two elongated members separated from each other, a web assembly extending between said two elongated members and being partially embedded in said two elongated members, said web assembly including a plurality of separated web members having separate parts bent and embedded in said elongated members in such form that when seen in a longitudinal

direction, said web members form a zig zag array inclined at an angle with respect to an adjacent web member in relation to a longitudinal direction of said two elongated members for avoiding torsional stresses.

said web members being spaced along and embedded partially in said two elongated members along a length of said two elongated members,

said web members each including a perpendicular or oblique extending portion in relation to the longitudinal direction of said two elongated members,

two ends of each of said web members each end including a bend terminating in a straight shank portion and a free end portion embedded in a same one of said elongated members,

each of said web members including a portion opposite to said two ends, said portion being embedded in the other of said elongated members and having an inner bend formed in a crossed, enclosed loop.

said web assembly including web members having a shape which is created by bending a web portion, in one plane with V-shaped-bends in a zig zag array by bending the web portion, at least on one side, to include the V-shaped-bends.

5,802,803

CASE PACKER

Kazumi Kitagawa, and Kazuhiro Takaoka, both of Shiga, Japan, assignors to Ishida Co., Ltd., Japan

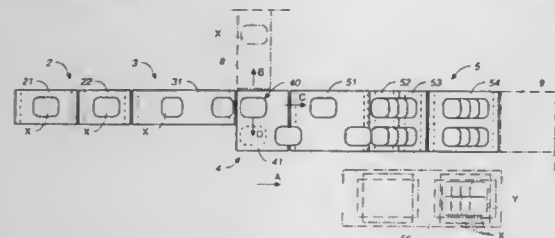
Filed May 1, 1997, Ser. No. 845,983

Claims priority, application Japan, May 8, 1996, 8-139479

Int. Cl.⁶ B65B 5/10; 35/46; 57/14

U.S. Cl. 53—54

8 Claims



1. A case packer comprising:

an inspection unit disposed on an upstream side of a path of transportation for packaged products for inspecting each of said products being transported on said path and thereby distinguishing defective products from normal products;

a packing unit disposed on a downstream side of said path for packing a specified container simultaneously with products delivered thereto in a plurality of rows on said path; and

a sorting unit disposed between said inspection unit and said packing unit along said path for discharging said defective products away from said path and arranging said normal products in said plurality of rows on said path.

5,802,804

SYSTEM FOR FEEDING ARTICLES TO BLISTERS OF A BLISTER BAND

Stefano Degli Esposti, Bologna; Mario Fossi, Funo, and Vicinelli Stefano, S. Lazzaro di Savena, all of Italy, assignors to I.M.A. Industria Macchine Automatiche S.p.A., Ozzano Emilia, Italy

PCT No. PCT/IB95/01121, § 371 Date May 23, 1997, § 102(c) Date May 23, 1997, PCT Pub. No. WO96/18539, PCT Pub. Date Jun. 20, 1996

PCT Filed Dec. 12, 1995, Ser. No. 849,086

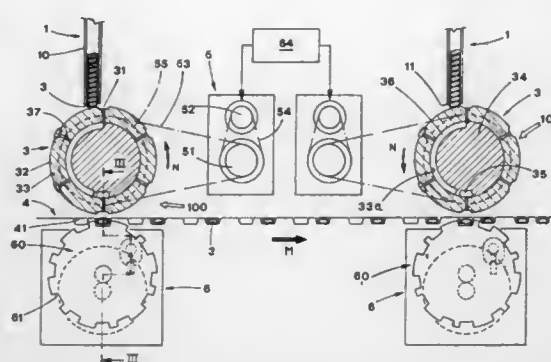
Claims priority, application Italy, Dec. 16, 1994, BO94A0551

Int. Cl.⁶ B65B 9/04; 57/06

U.S. Cl. 53—55

6 Claims

1. System for feeding articles to blisters of a blister band, the system including: at least one magazine (1), formed by a basically



vertical channel (10) with open bottom (11), containing a pile of articles (2) to be introduced into relative blisters (41) of a blister band (4) that is located under this magazine (1) and driven in a straight direction (M); the said system being characterised in that it also includes:

placement means (3), for taking cyclically at least one article (2) from the bottom (11) of said magazine (1) and for introducing it into a respective blister (41), said placement means (3) being located between the magazine (1) and the blister band (4), and rotated in a direction (N) that is in accordance with movement direction (M) of said band (4) and in phase relation therewith;

a plurality of depressions (31) made on an outer surface of said placement means (3);

a motor (5), controlled by an electronic control unit (64) for driving said placement means (3) into rotation;

feedback control means (6), electronically connected with the said control unit (64), for detecting the position of the blisters (41) and for operating said motor (5) to carry out a precise introduction of the articles (2) into respective blisters (41).

5,802,805

COMBINED COMPRESSION AND PACKAGING MACHINE FOR CYLINDRICAL OBJECTS

Jens Øiestad, Vestre Øiestad Gård, Rykene, Norway

PCT No. PCT/NO95/00099, § 371 Date Mar. 18, 1997, § 102(e)

Date Mar. 18, 1997, PCT Pub. No. WO96/08957, PCT Pub. Date Mar. 28, 1996

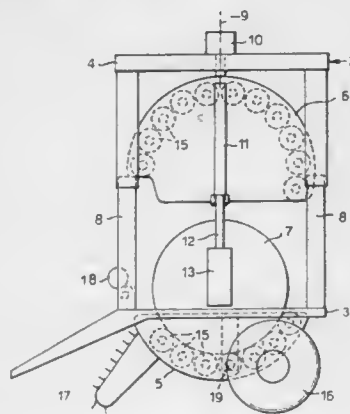
PCT Filed Jun. 13, 1995, Ser. No. 809,231

Claims priority, application Norway, Sep. 21, 1994, 943506

Int. Cl.⁶ B65B 11/04; 11/58

U.S. Cl. 53—176

21 Claims



1. A device (1) for compression of a loose mass, of vegetable fibres, into a compressed round bale (7), the device comprising a frame (2), on which frame is assembled a pressing chamber (5,6) equipped on an internal circumference thereof with rotatable rolls (15), belts, press bars or other pressing devices for rotation and pressing of the bale (7), the pressing chamber (5,6) including an input device (17) for input of the mass into the pressing chamber

(5,6), the pressing chamber (5,6) comprising a lower chamber part (5) and an upper chamber part (6) which are displaceable in relation to each other so as to free an area of the bale (7) allowing the bale to be packaged with a web of first packaging material, characterized in that the upper chamber part (6) is rotatably supported in relation to the frame (2) around a vertical axis (9) when the chamber parts are at a distance from each other and an area of the centre of the bale (7) is freed, and that at least one retaining arm (11) is attached to the upper chamber part (6) for a roll (13) of the first packaging material, for packaging of the bale (11) in the web, so that the retaining arm (11) rotates with the upper chamber part (6) and during rotation issues the first packaging material to the bale (7).

5,802,806

MACHINE FOR WRAPPING WITH SHEET MATERIAL

Pier Carlo Scaliti, Rodello, Italy, assignor to Soremartec S.A., Belgium

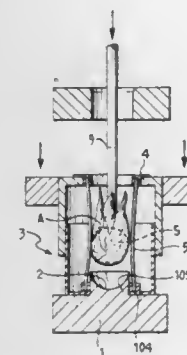
Filed Apr. 8, 1997, Ser. No. 841,949

Claims priority, application Switzerland, Apr. 15, 1996, 0952/96

Int. Cl.⁶ B65B 11/54

U.S. Cl. 53—226

20 Claims



1. An apparatus for wrapping an article with sheet material by means of a wrapping operation, said apparatus comprising:

a forming device having an annular mouth and constriction members defining a cavity through which the article advances;

pusher means which push the article through said cavity so as to cause partial, frontal wrapping of a leading portion of the article with a sheet of the sheet material that has been interposed between the article and said mouth at the beginning of the wrapping operation; and

contraction means which cause contraction of said cavity by constriction inward of said constriction members whereby a portion of the sheet of sheet material trailing the article through the cavity is pinched together behind the article to form a tail of sheet material;

wherein said contraction means are configured such that said forming device selectively has 1) a first operating configuration during advance of the article through said cavity, at least a subset of said constriction members not constricting inward when said forming device is in said first operating configuration; and 2) a second operating configuration after the article has advanced through said cavity, said subset of said constriction members constricting inward to cause contraction of said cavity when said forming device is in said second operating configuration so as to pinch together the portion of sheet material trailing the article through the cavity.

5,802,807

VERSATILE KNOCKDOWN MANUAL BAG FILLING APPARATUS FOR PARTICULATE MATERIAL

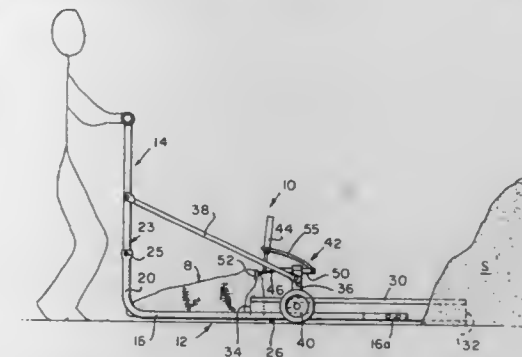
Melvin C. Johnson, 11749 Wasaukee Rd., Germantown, Wis. 53022

Filed Mar. 28, 1997, Ser. No. 827,492

Int. Cl.⁶ B65B 67/12

U.S. Cl. 53—255

18 Claims



1. A manual bag filling apparatus for facilitating the filling of a bag with fluent material comprising,

a frame having a pair of handle members graspable by a user and said frame having a lower portion defining a fulcrum area at one end adjacent said handle members,

a generally U-shaped scoop mounted to said frame lower portion,

said scoop defining a generally planar elongated bottom and a pair of upstanding elongated walls defining a scoop mouth at one end of said scoop and a bag discharge mouth at the other end of said scoop opening toward said fulcrum area,

a fulcrum area between said handle members and said lower frame portion, whereby said handle members are swingable to a generally upright position to permit the user to advance the said scoop mouth into a mass of fluent material to charge the scoop, whereupon rocking of said frame about said fulcrum area permits discharge of the scoop contents from the said discharge mouth into a bag positioned thereat, and,

a latch apparatus mounted to said frame to releasably tension and secure a bag mouth to said scoop discharge mouth, thereby to facilitate filling the bag from said scoop,

said latch apparatus including an arm mounted for pivotal movement on said frame between a first retracted position and a second bag tensioning position for holding a bag adjacent said scoop.

5,802,808

ENVELOPE THROAT OPENING MECHANISM FOR INSERTING MACHINE

Thomas M. Lyga, Torrington, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 17, 1997, Ser. No. 895,871

Int. Cl.⁶ B65B 43/26; 43/34

U.S. Cl. 53—381.5

14 Claims

1. An envelope throat opening mechanism for an envelope inserting machine having means for storing a plurality of envelopes, means defining an envelope inserting position in spaced relationship with said envelope storing means in which insert material is adapted to be inserted into said envelopes, and means for feeding envelopes seriatim from said storage means to said inserting position, said envelope throat opening mechanism comprising:

A. a pair of envelope throat opening claw assemblies disposed in said envelope inserting machine adjacent the outer ends of the throat of an envelope in said inserting position, each of said claw assemblies having a claw mounted therein for movement into the throat of said envelope adjacent said outer ends to open said throat to permit insert material to be inserted into said envelope,

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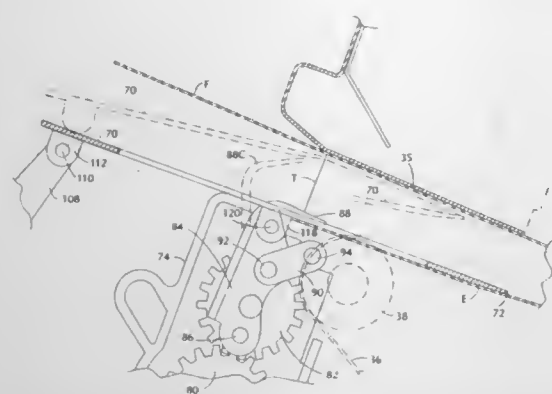
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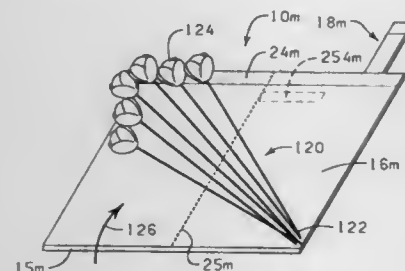
B. an envelope throat opening center tongue assembly disposed in said envelope inserting machine in substantial lateral alignment with the center of the throat of an envelope in said inserting position for opening the center portion of the throat of an envelope positioned in said inserting position, and
C. means for driving said claw assemblies and said center tongue assembly in a timed sequence with the arrival of said envelope at said envelope inserting position, whereby said claw assemblies and said center tongue assembly open the entire length of the throat of said envelope to permit insert material to be inserted into said throat without interference from any portion of said throat.

5,802,809 FLORAL GROUPING WRAPPER HAVING A DETACHABLE PORTION

Donald E. Weder, Highland, and William F. Straeter, Breese, both of Ill., assignors to Southpac Trust International, Inc. Continuation of Ser. No. 453,721, May 30, 1995, Pat. No. 5,655,353, which is a division of Ser. No. 218,952, Mar. 25, 1994, Pat. No. 5,595,048, which is a continuation-in-part of Ser. No. 95,331, Jul. 21, 1993, Pat. No. 5,428,939, which is a continuation-in-part of Ser. No. 963,882, Oct. 20, 1992, Pat. No. 5,408,803. This application May 27, 1997, Ser. No. 863,772

Int. Cl.⁶ B65B 13/02;16/00
U.S. Cl. 53—397

17 Claims



1. A method for wrapping a floral grouping and affixing a label thereto, comprising:
providing a floral grouping having an upper end and a stem portion;
providing a sheet of material having:
an upper surface,
a lower surface,
a crimp connecting means comprising an adhesive or cohesive bonding material disposed upon a portion of a surface of the sheet, the crimp connecting means for holding overlapping portions of the sheet of material in a crimped position adjacent the stem portion of the floral grouping,
a label bonding material comprising an adhesive or cohesive bonding material disposed upon a portion of a surface of

the sheet of material for affixing a label to a portion of the sheet of material, and
detaching means for detaching a portion of the sheet of material after the sheet of material has been wrapped about the floral grouping;
providing a label for affixing to the label bonding material;
placing the floral grouping on the upper surface of the sheet of material;
wrapping the sheet of material about the floral grouping causing portions of the sheet of material to overlap other portions of the sheet of material with the sheet of material substantially encompassing and surrounding a substantial portion of the stem portion of the floral grouping forming a wrapper about the floral grouping;
forming a crimped portion in the wrapper by crimping together portions of the wrapper with the crimp connecting means causing portions of the wrapper to overlap and connect other portions of the wrapper, the crimp connecting means engaging the overlapping portions of the wrapper together in a position surrounding and adjacent the stem portion of the floral grouping thereby firmly binding the wrapper about the floral grouping; and
affixing the label to the sheet of material.

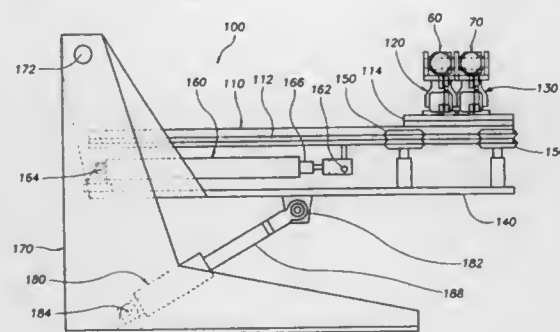
5,802,810 METHOD AND APPARATUS FOR WRAPPING AND SECURING STRETCH FILM ABOUT A LOAD

John P. Wojcik, Long Grove; Donald L. Van Erden, Wildwood, both of Ill., and Werner K. Diehl, Parkland, Fla., assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Jun. 28, 1997, Ser. No. 896,315
Int. Cl.⁶ B65B 13/00;53/00

U.S. Cl. 53—399

20 Claims



1. A method for securing a tail of stretch film wrapped about a load, the method comprising:
positioning a first arm toward the load, the first arm retaining an end portion of film;
wrapping at least one layer of film about the first arm positioned toward the load and the load so that at least a portion of the first arm is between the wrapped film and the load;
withdrawing at least a first portion of the first arm retaining the end portion of film from between the wrapped film and the load by simultaneously pivoting and shifting the first arm;
releasing the end portion of film retained by the first arm, whereby the end portion of film is at least partially positioned and secured between the wrapped film and the load.

5,802,811 METHOD AND APPARATUS FOR DISPENSING BABY BIBS

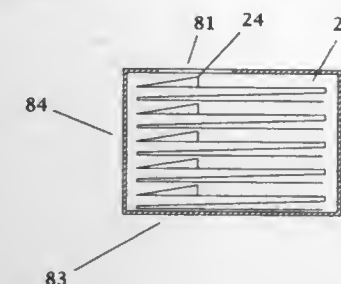
Jan Quinn Danzig, S. 6322 Gaiser Ct., Spokane, Wash. 99223

Filed Apr. 18, 1997, Ser. No. 844,725

Int. Cl.⁶ B65B 63/04

U.S. Cl. 53—429

8 Claims



1. A method of packaging baby bibs, the baby bibs having a lengthwise direction and a perpendicularly oriented widthwise direction, the method of folding the baby bibs comprising:

- (a) folding a bib having an apron and a cuff about a plurality of fold lines, whereby a portion of the apron and a portion of the cuff of the folded bib is exposed;
- (b) repeating step (a) for a plurality of bibs;
- (c) stacking the plurality of bibs; and
- (d) enclosing the stacked plurality of bibs in a container having an opening through which the exposed portion of the cuff and the exposed portion of the apron of one of the bibs is graspable by a user through the opening.

5,802,812 PROCESS AND DEVICE FOR THE PROCESSING OF CONTAINERS

Gerhard Heudecker, Pentling, Germany, assignor to Kronen AG Hermann Kronseder Maschinenfabrik, Neutraubling, Germany

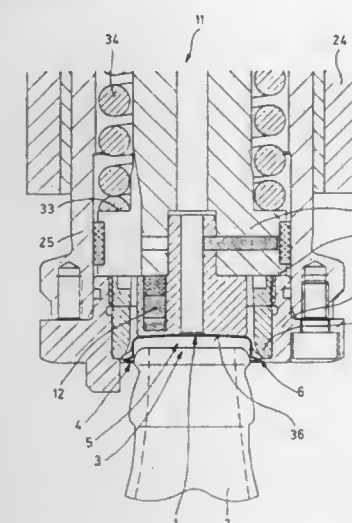
Filed Jan. 22, 1996, Ser. No. 589,714

Claims priority, application Germany, Jan. 26, 1995, 195 02 452.4

Int. Cl.⁶ B65B 55/18

U.S. Cl. 53—431

20 Claims



1. An improved process for the processing of containers into which a fluid is injected after filling, before a mouth (3) of the container (2) is closed in a sealing manner by means of a closure cap (1), the improvement comprising the steps of, first, after the injection of the fluid, moving a closure cap (1) up to the mouth (3) of the container (2), next, positively holding said closure cap (1) in

a protective position (11) above said mouth by means of a holding element (12), so that the mouth is covered by said closure cap, but a distance remains between said mouth and a lower side (36) of said closure cap (1) allowing gas to escape from said container (2) through an annular gap between said mouth and said closure cap to an ambient atmosphere having at least atmospheric pressure, waiting a predetermined length of time to allow gas, generated by said injected fluid outside of said container, to escape through said annular gap and during said predetermined length of time conveying together said container and said closure cap (1) while holding said closure cap parallel to said mouth and maintaining said distance in said protective position, and, after said predetermined length of time, lowering and attaching said closure cap to said container in a sealing manner.

5,802,813 APPARATUS AND METHOD FOR MAKING AND BAGGING DECORATIVE GRASS

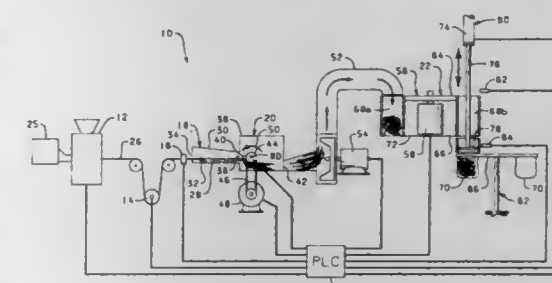
Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation of Ser. No. 485,959, Jun. 7, 1995, Pat. No. 5,678,388. This application Jan. 21, 1997, Ser. No. 774,932

Int. Cl.⁶ B65B 63/00;1/04;1/30

U.S. Cl. 53—435

15 Claims



13. A method for continuously producing and bagging uniform quantities of filaments of material, the method comprising the steps of:

- a. extruding continuous strands of flexible material with each strand having a predetermined thickness, width, density and travel speed;
- b. cutting the continuous strands of material into elongate filaments of material wherein the filaments are produced continuously at a predetermined rate;
- c. positioning a bag to receive filaments;
- d. transferring a substantially uniform quantity of filaments into the bag based on the predetermined rate at which the filaments are being produced;
- e. removing the bag containing the substantially uniform quantity of filaments; and
- f. repeating steps b, c, d, e, and f.

5,802,814 METHOD OF WRAPPING A BUNDLE OF FIBER

Kazuhiko Sano, Kusatsu, Japan, assignor to Nissho Corporation, Osaka, Japan

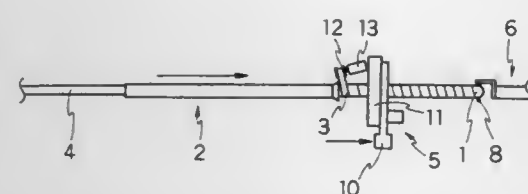
Continuation-in-part of Ser. No. 276,402, Jul. 18, 1994, abandoned. This application Aug. 10, 1995, Ser. No. 513,635

Claims priority, application Japan, Aug. 20, 1993, 5-228253
Int. Cl.⁶ B21D 39/06

U.S. Cl. 53—438

2 Claims

1. A method of packing a bundle of fiber comprising the steps of:
providing a bundle of fiber;
applying a predetermined tension to the bundle longitudinally thereof and at opposite ends of the bundle;



then wrapping a tape helically around the bundle and from one of the opposite ends towards the other end so that the tape covers the bundle almost entirely, while maintaining the tension applied thereto; and

finally unwinding the tape off the bundle thereby exposing the bundle gradually from the other end towards the one end, while inserting the thus exposed portion of the bundle gradually into a cylindrical protector, thereby filling the bundle into the cylindrical protector.

5,802,815

PROCESS FOR THE SELF-SEALING OF CONTAINERS

Christoph Lohr, Dortmund; Krebs Michael, Hilden, and Robert Magunia, Elztal-Dallau, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP95/00415, § 371 Date Aug. 14, 1996, § 102(e) Date Aug. 14, 1996, PCT Pub. No. WO95/21767, PCT Pub. Date Aug. 17, 1995

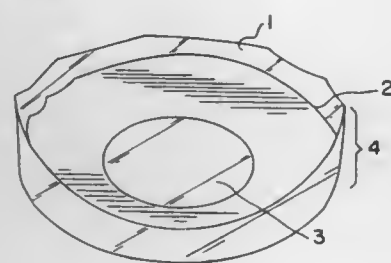
PCT Filed Feb. 6, 1995, Ser. No. 693,306

Claims priority, application Germany, Feb. 14, 1994, 44 04 631.6

Int. Cl.⁶ B65B 55/14

U.S. Cl. 53—440

17 Claims



16. A process for filling and self-sealing containers comprising filling a container with a molten material and covering a top surface of the molten material which is still at elevated temperature after filling with an insert consisting of a plastic film and a plastic disk, said plastic film facing the molten material and being larger than said plastic disk and the diameter of said plastic disk being sufficiently smaller than the internal diameter of said container such that a projecting part of said plastic film is bent around an outer periphery of said plastic disk.

wherein heat from the molten material flows into said plastic disk and said plastic disk expands such that a radial pressure is built up and presses the projecting part of said plastic film against a wall of the container, and

wherein a portion of said molten material rises between said projecting part of said plastic film and an inner wall of the container and establishes an intimate and tight seal between the edge of the film and said inner wall of the container.

5,802,816
PROCESS FOR THE PRODUCTION OF A SPECIMEN CARRIER

Gunter Dietzel, Straubenhardt, Germany, assignor to Raytest Isotopenmessgeraete GmbH, Straubenhardt, Germany

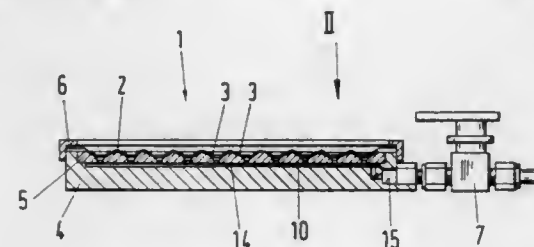
PCT No. PCT/DE95/00906, § 371 Date Feb. 9, 1996, § 102(c) Date Feb. 9, 1996, PCT Pub. No. WO96/01692, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 6, 1995, Ser. No. 591,601

Claims priority, application Germany, Jul. 8, 1994, 44 24 112.7

Int. Cl.⁶ B65B 47/10; 3/02; 43/54
U.S. Cl. 53—453

9 Claims



1. A process for the production of a specimen carrier having a plurality of individual specimen locations therein for receiving specimens in a solvent comprising:

- contacting a first sheet with a support having a plurality of depressions therein, each said depression being in communication with a means for applying a vacuum thereto and means for releasing a vacuum therein;
- applying a vacuum to the depressions to draw the first sheet into the depressions and create a series of depressions in the first sheet corresponding to the depressions in the support;
- placing a specimen in a solvent therefor in each of the depressions in the first sheet;
- removing the solvent from the specimens;
- placing a second sheet over the depressions having the specimens therein; and
- securing the first and second sheets together to encase the specimens in the depressions and between the first and second sheets.

5,802,817

METHOD AND APPARATUS FOR OPENING A MESH BAG

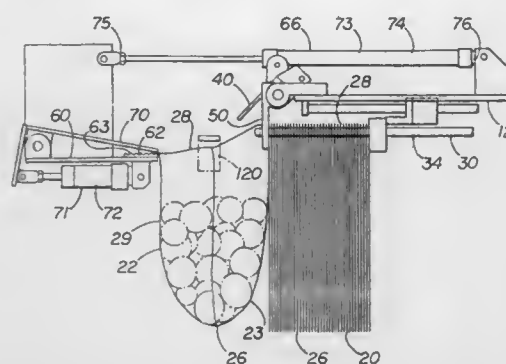
Charles T. Hood, Rte. 4, Box 209, Allen Rd., Commerce, Ga. 30529

Filed Apr. 25, 1996, Ser. No. 637,876

Int. Cl.⁶ B65B 43/26

U.S. Cl. 53—459

42 Claims



1. An automatic bag opening apparatus for sequentially opening a plurality of mesh bags, each mesh bag having a first side, a second side, two opposing edges, a closed end, and an opposite open end, the bag opening apparatus comprising:

- a frame;
- a bag holding means disposed on the frame for supporting at least a portion of the second side of the mesh bags, the bag holding means having a forward end and an opposite back end, wherein the mesh bag adjacent the forward end is the outermost mesh bag;
- a first clamp disposed on the frame adjacent the forward end of the bag holding means, the first clamp being movable between a hold position, in which the first clamp contacts a portion of the outermost mesh bag, and a release position;
- means for moving the first clamp between the hold position and the release position;
- a second clamp disposed on the frame adjacent the forward end of the bag holding means, the second clamp being movable between a grasp position and a free position, wherein, in the grasp position the second clamp alternately contacts a different portion of the outermost mesh bag than that contacted by the first clamp or a portion of the mesh bag adjacent the outermost mesh bag after that portion of the outermost mesh bag is partially pulled away from the bag holding means when the second clamp is in the free position;
- means for moving the second clamp between the grasp position and the free position;
- an air dam slidably mounted to the frame;
- means for sliding the air dam between an opening position adjacent the open end of the first side of the outermost mesh bag and a removed position;
- an opener clamp slidably mounted to the frame, the opener clamp being movable between a closed position, in which the opener clamp clamps at least a portion of the first side of the outermost bag, and an open position;
- means for sliding the opener clamp between a first position at a first desired distance from the outermost mesh bag to grasp the first side of the outermost mesh bag, and a second position at a second desired distance from the outermost mesh bag to pull the first side of the outermost mesh bag away from its second side;
- means for moving the opener clamp between the open and closed positions; and
- means for directing a pressurized fluid through at least a portion of the first side of the outermost mesh bag adjacent its open end and onto the air dam, thereby causing the portion of the mesh bag through which the pressurized fluid is directed to move towards the air dam so that the opener clamp may grasp a portion of the first side of the outermost mesh bag.

establishing a fill opening extending from an outer portion of the cartridge into the interior ink bladder;

applying pressure to sides of the cartridge to provide a decreased volume of the interior ink bladder;

transferring ink into the interior ink bladder through the fill opening while maintaining the decreased volume;

sealing the fill opening; and

relieving pressure on the sides of the cartridge to provide an increased volume of the interior ink bladder.

5,802,819

METHOD AND DEVICE FOR FOLDING END PORTIONS OF TUBULAR WRAPPINGS

Fulvio Boldrini, Ferrara, Italy, assignor to G.D. Societa' Per Azioni, Bologna, Italy

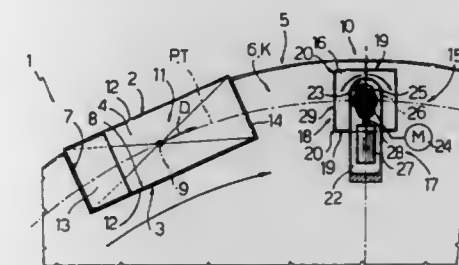
Filed May 2, 1997, Ser. No. 850,592

Claims priority, application Italy, May 6, 1996, B096A0240

Int. Cl.⁶ B65B 7/04

U.S. Cl. 53—480

12 Claims



5,802,818

REFILLING INK JET CARTRIDGES

Paul F. Doll, 117 Central St., Apt. E-4, Acton, Mass. 01720; Michael A. Andreottola, 25 Tamarock Ter., Stoneham, Mass. 02180, and Shaun Flanagan, 29 Partridge La., Lynnfield, Mass. 01940

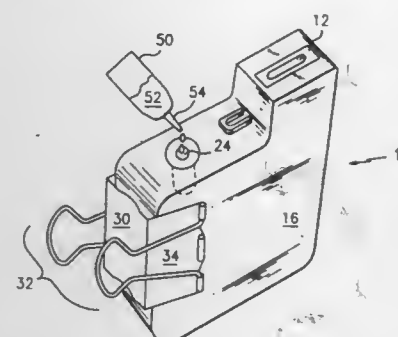
Continuation of Ser. No. 554,382, Nov. 8, 1995, abandoned.

This application Mar. 20, 1997, Ser. No. 821,068

Int. Cl.⁶ B65B 3/04; 3/18

U.S. Cl. 53—468

20 Claims



1. A method of refilling an ink jet cartridge having an interior ink bladder, comprising the steps of:

5,802,820

APPARATUS FOR OBTAINING THE UNIFORM DISTRIBUTION OF A COHESIONLESS SUBSTANCE CONTAINED WITHIN A BAG

Andrea Romagnoli, San Lazzaro Di Savena, Italy, assignor to I.M.A. Industria Macchine Automatiche S.P.A., Emilia, Italy
PCT No. PCT/IT96/00064, § 371 Date Dec. 4, 1996, § 102(e)
Date Dec. 4, 1996, PCT Pub. No. WO96/31398, PCT Pub. Date Oct. 10, 1996

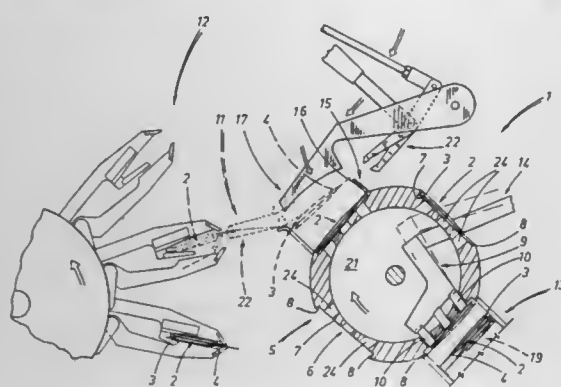
PCT Filed Apr. 2, 1996, Ser. No. 750,058

Claims priority, application Italy, Apr. 4, 1995, BO95A0149

Int. Cl.⁶ B65B 1/22

U.S. Cl. 53—525

11 Claims



I. Apparatus for uniformly distributing a cohesionless substance contained in a bag having an internal volume of variable geometry delimited between a bottom and a closed top of the bag, comprising:

a rotor having a radially outer periphery relative to a longitudinal rotational axis which is arranged so as to be substantially horizontal, the rotor being arranged to be intermittently rotated about said axis and abruptly stopped in respective steps each of a respective predetermined angular extent;

said rotor being provided in said outer periphery with at least one pocket, each said pocket being arranged to receive at any time a total of one said bag; each pocket being delimited by a supporting surface which is disposed so as to be generally tangential to said outer periphery of said rotor, and opposite delimited angularly of said outer periphery by two transversely disposed walls which are disposed so as to extend generally radially of said rotor, with one of said walls being an angularly leading wall relative to the respective pocket;

an outfeed station and a knockout station juxtaposed with said rotor at two respective positions which are spaced from one another such that each confronts a said at least one pocket when said rotor is stopped between respective ones of said steps of intermittent rotation of said rotor, and such that, a said bag if installed in a said pocket bottom side down at said outfeed station becomes oriented bottom side up when ready to be ejected from the respective pocket at said knockout station;

the positioning of the angularly leading one of said walls of each pocket being such as to co-act with the force of gravity when the rotor abruptly stops as a respective pocket carrying a respective bag with its closed top angularly leading, is brought into confirmation with the knockout station, on the respective bag to redistribute the cohesionless substance within the respective bag relatively away from the bottom of the respective bag and towards the top of the respective bag.

5,802,821

APPARATUS FOR APPLYING A COVER FOIL TO A BOTTOM FOIL INCLUDING A CONTAINMENT STRUCTURE

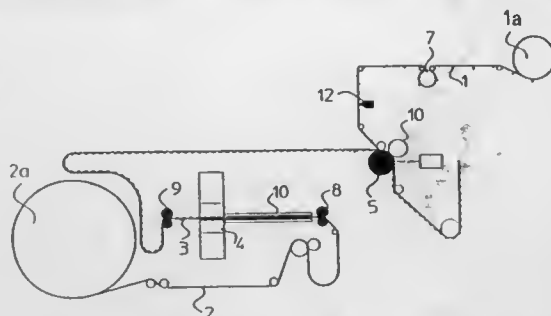
Günter Albrecht, Karlsruhe, Germany, assignor to Horn & Noack Pharmatechnik GmbH, Worms, Germany
Filed May 10, 1997, Ser. No. 858,215

Claims priority, application Germany, May 10, 1996, 196 18 769.9

Int. Cl.⁶ B65B 41/18; 47/00

U.S. Cl. 53—559

3 Claims



I. An apparatus for applying a cover foil to a bottom foil having a containment structure formed into it, said apparatus comprising a stepwise operating molding tool having recesses for forming said containment structure into said bottom foil, means for moving said bottom foil through said molding tool section by section to form said containment structure into each section of said bottom foil while said section is in said molding tool, an application roller over which said bottom foil is guided after leaving said molding tool and on which a cover foil is applied to said bottom foil, said application roller having depressions formed therein in the same pattern as the containment structure formed into said bottom foil in which the containments of said containment structure are received while disposed on said application roller, at least some of said depressions in said application roller having in the circumferential direction of said application roller a distance from one another which is greater than the distance between the respective recesses in said molding tool, and control means for controlling said means for moving said bottom foil through said molding tool for adjusting the lengths of said sections of said bottom foil depending on the position of said cover foil relative to said bottom foil.

5,802,822

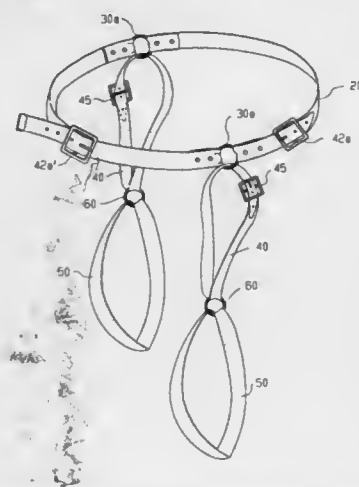
EQUESTRIAN RIDING AID

Lynne M. Holzhauser, 52-97 79th St., Elmhurst, N.Y. 11373
Filed Nov. 13, 1996, Ser. No. 747,880

Int. Cl.⁶ B68C 1/16

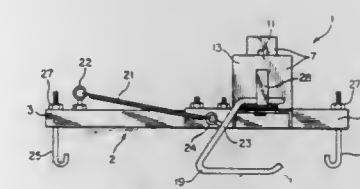
U.S. Cl. 54—46.1

6 Claims



6. An equestrian riding aid for guiding a rider's lower body while riding a horse, comprising:

first and second tensioning members, for providing tension between the rider's hips and heels, extendable from the rider's right and left hips, respectively, to the rider's right and left heels, wherein each tensioning member includes an elastic extension connected to a heel hoop by a connection ring; and a belt, having two adjustment members, for positioning the tensioning members adjacent the rider's hips.



5,802,823

SHOCK ABSORBING PANEL ASSEMBLY FOR SADDLES

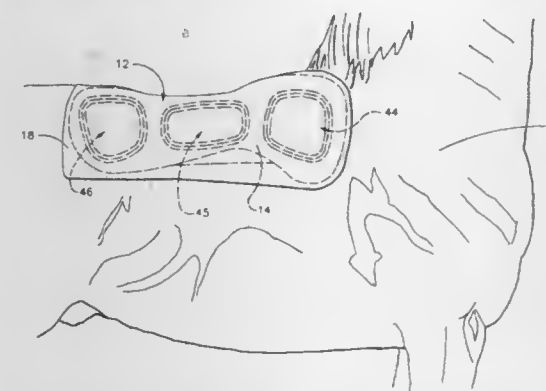
John P. Woods, P.O. Box 2666, El Cajon, Calif. 92021

Filed Sep. 6, 1996, Ser. No. 708,255

Int. Cl.⁶ B68C 1/12

U.S. Cl. 54—66

18 Claims



I. A shock absorbing panel assembly for positioning on a horse's back beneath a saddle, comprising:

a saddle pad for placing beneath a saddle on a horse's back, the saddle pad having a right-hand side pocket and a left-hand side pocket;

a right-hand panel member positioned in the right-hand side pocket and a left-hand panel member positioned in the left-hand side pocket so as to extend over right- and left-hand regions, respectively, of a horse's back;

each panel member having an enlarged forward end portion, a central portion, and a rear end portion;

each panel member comprising a base having at least two recesses in one face, and a shock absorbing pad mounted in each of the recesses and projecting outwardly from the recess; and

the base comprising at least one layer of cushioning material.

5,802,824

PORTABLE POWERED GRASS WHIP AND A NOVEL FREE-MOVING BRACKET FOR MOUNTING THE SAME TO RIDING EQUIPMENT

Steven H. Aldrich, Hope, Mich., assignor to Keyboard Comfort, Inc., Midland, Mich.

Filed Oct. 13, 1997, Ser. No. 949,256

Int. Cl.⁶ A01D 34/00

U.S. Cl. 56—13.7

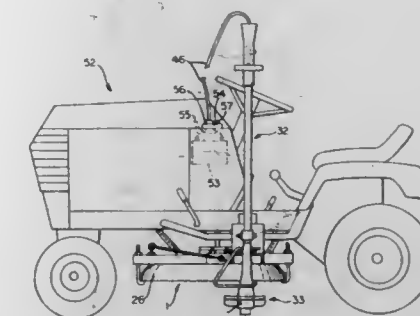
8 Claims

I. A bracket for mounting a powered grass whip, said bracket comprising:

(A) a first base having a linear axis and a top planar surface;
(B) a second base;
(C) a rotatable arm having a near end and a distal end;
(D) a stanchion;

(E) a spring having a near end and a distal end, wherein the first base (A) includes means to attach said first base to a mower shroud;

said second base being surmountable attached on said first base and essentially at a right angle to the linear axis of the first base and essentially in the same plane as the top planar surface;



said rotatable arm being rotatably surmounted on and detachably affixed to the second base at the rotatable arm near end; said stanchion being fixedly surmounted on said rotatable arm at or near the rotatable arm distal end thereof, said rotatable arm having surmounted thereon at the rotatable arm distal end, a hollow post and said stanchion having connected thereto, the spring, said spring being connected at the spring near end; the distal end of said spring being attached to the mower shroud or the first base at a point distant from the attachment point of the second base to the first base.

5,802,825

METHOD AND APPARATUS FOR CONTROLLING ROUND BALE CUTTER

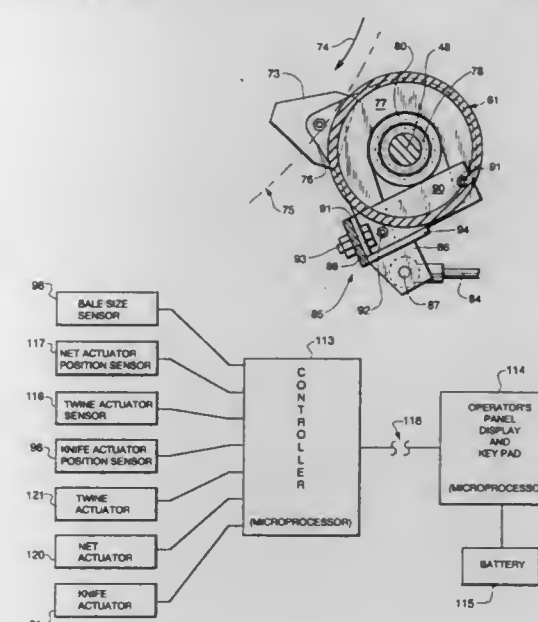
Mark K. Chow, Paoli, and John H. Merritt, New Holland, both of Pa., assignors to New Holland North America, Inc., New Holland, Pa.

Filed Jun. 3, 1996, Ser. No. 657,128

Int. Cl.⁶ A01D 39/00; B30B 5/06

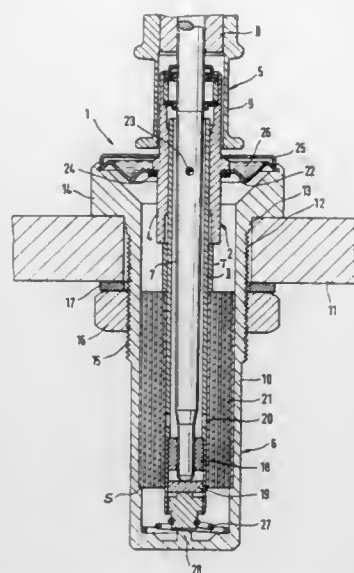
U.S. Cl. 56—341

8 Claims



I. In a round baler having a main frame, a pair of spaced side walls mounted on said main frame, crop confining means mounted between said side walls,

said crop confining means comprising means for defining an expandable chamber for rotatably forming a cylindrical package of crop material between said side walls, pickup means mounted on said frame for picking up crop material and conveying it into said chamber, means for defining a generally transverse crop infeed opening in said chamber, said infeed opening operatively associated with said pickup to receive crop material picked up by said pickup and conveyed into said chamber through said opening, crop cutting means comprising one or more transversely spaced knife elements extendable into said chamber for cutting crop material on the surface of said cylindrical package as it is being formed, actuator means for operating said knife elements under conditions where crop material is being conveyed into said expandable chamber to form a cylindrical package of hay, and means for sensing the position of said knife elements, the improvement comprising: apparatus for controlling said crop cutting means including sensing means for continuously sensing the size of said cylindrical package of crop material, means for providing a first signal representing the size of said cylindrical package of crop material as it is being formed, means for providing a second signal representing the sensed position of said knife elements, and a controller including means for receiving said first and second signals and providing a control signal to said actuator means to selectively operate said knife elements responsive to the operative relationship of said first and second signals.



a guiding tube supporting the neck bearing and the step bearing, and
a bearing housing supportively connected to the guiding tube in an area of the neck bearing by means of a membrane, said bearing housing being connectable to a spindle rail, wherein said membrane is relatively rigid in a radial direction and relatively resilient in an axial direction to thereby form a hinge for the guiding tube about a tilting axis at a level of the membrane which is flexible with regard to tilting movements of the guiding tube, and wherein said guiding tube is supported radially with respect to the bearing housing by a radial spring in an area of the step bearing such that said radial spring opposes tilting movements of the guiding tube about the tilting axis.

5,802,826 PRODUCTION OF CORE/WRAP YARNS BY AIRJET AND FRICTION SPINNING IN TANDEM

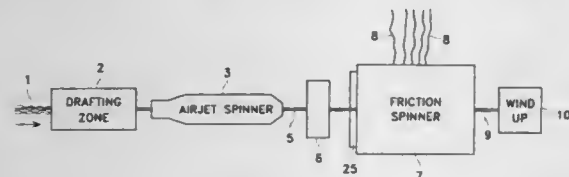
A. Paul S. Sawhney, Metairie; Craig L. Folk, New Orleans, and George F. Ruppenicker, Kenner, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 6, 1993, Ser. No. 102,932

Int. Cl.⁶ D02G 3/36

U.S. Cl. 57—5

20 Claims



1. Apparatus for producing core/wrap yarn comprising a friction spinner having two closely adjacent rotating drums, said spinner being downstream from an airjet spinner so that airjet-spun yarn, as it exits said airjet spinner, passes without interruption to said friction spinner to be wrapped with fibrous material in said friction spinner.

5,802,827 SPINDLE FOR A SPINNING OR A TWISTING MACHINE

Gerd Stahlecker, Eislingen/Fils, Germany, assignor to Fritz Stahlecker, Bad Überkingen, and Hans Stahlecker, Suessen, both of Germany

Filed Mar. 25, 1997, Ser. No. 829,902

Claims priority, application Germany, Mar. 27, 1996, 196 12 121.3

Int. Cl.⁶ D01H 7/14

U.S. Cl. 57—135

32 Claims

1. A spindle for spinning or twisting machines, said spindle comprising:
a rotatable shaft,
a neck bearing and a step bearing supporting the shaft.

5,802,828 COMPOSITE YARN FOR THE MANUFACTURING OF BRAIDED PACKINGS, BRAIDED PACKING AND PROCESS FOR FORMING THE COMPOSITE YARN

Marcello Cattaneo Adorno, Rio de Janeiro, Brazil, assignor to Manegro Administracao E Participacoes Ltda, Rio de Janeiro, Brazil

PCT No. PCT/BR95/00008, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO95/21280, PCT Pub. Date Aug. 10, 1995

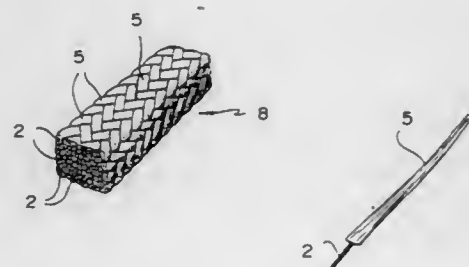
PCT Filed Feb. 3, 1995, Ser. No. 676,275

Claims priority, application Brazil, Feb. 4, 1994, 9400435

Int. Cl.⁶ D02G 3/36

U.S. Cl. 57—232

24 Claims



1. Composite yarn (5) for forming braided packings (8), comprising an outermost layer which is a laminated yarn made of a first material (1) and a core made of a second material (2), said core including a filament.

5,802,829 STEEL CORDS FOR REINFORCING RUBBER ARTICLES AND PNEUMATIC RADIAL TIRE USING THE STEEL CORDS

Takaya Yamanaka, Kodaira, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

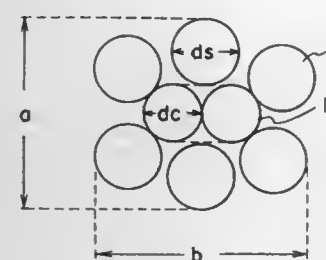
Filed Dec. 13, 1996, Ser. No. 766,820

Claims priority, application Japan, Dec. 14, 1995, 7-346914; Dec. 14, 1995, 7-346915

Int. Cl.⁶ D02G 3/36

U.S. Cl. 57—212

18 Claims



1. A two-layered twisted steel cord for reinforcing rubber articles, comprising: a core including two filaments and a sheath including six or seven filaments wound around the core, wherein an average twist pitch of the core is at least 30 mm, and when six filaments are used for the sheath, a ratio of diameter d_s of each filament of the sheath to diameter d_c of each filament of the core, $[(d_s/d_c) \times 100]$, is in a range of $58.0\% < d_s/d_c < 161.5\%$, and when seven filaments are used for the sheath, the ratio of diameter d_s to diameter d_c is in a range of $47.3\% < d_s/d_c < 121.1\%$, and wherein when six filaments are used for the sheath, a ratio of a minor axis a of said steel cord to a major axis b , in cross-section $[(a/b) \times 100]$, is set in a range of $100.0\% \geq a/b > 68.4\%$.

5,802,830 STEEL CORD AND STEEL RADIAL TIRE

Hiroshi Kawatani, Kitakami, Japan, assignor to Tokyo Rope Mfg. Co., Ltd., Tokyo, Japan

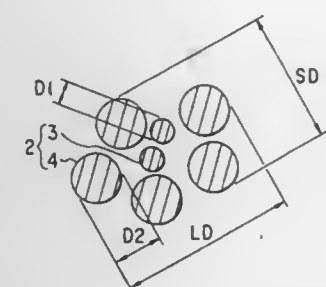
Filed May 16, 1996, Ser. No. 645,649

Claims priority, application Japan, May 18, 1995, 7-120004

Int. Cl.⁶ D02G 3/36

U.S. Cl. 57—212

10 Claims



1. A steel cord comprising:
two core wires each preformed to have a preforming percentage K_c before a strand is formed, said two core wires having substantially the same diameter,
five outer wires each having a diameter larger than that of each core wire and integrally twisted on said core wires, said five outer wires each being preformed to have a preforming percentage K_s before said strand is formed, said five outer wires also having substantially the same diameter, said strand being formed by said five outer wires and said two core wires, and having an oblong cross section; and

rubber filled in a clearance between the two core wires and the five outer wires, wherein a ratio of a diameter of each of said outer wires to a diameter of each of said core wires falls within a range of about 1.45 to about 2.25, and the preforming percentage K_c of said two core wires is greater than the preforming percentage K_s of said five outer wires.

5,802,831 PIECING METHOD FOR A SPINNING MACHINE

Yuji Imamura, Kyoto, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

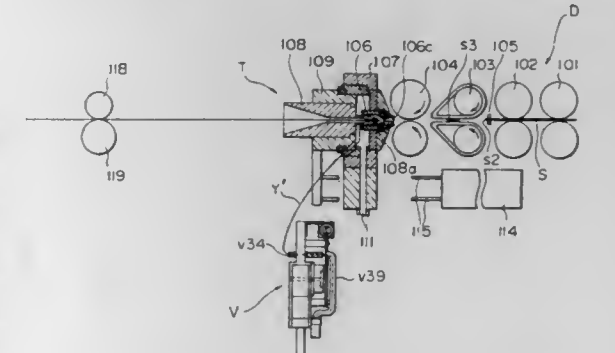
Filed May 14, 1997, Ser. No. 856,171

Claims priority, application Japan, May 16, 1996, 8-146638; May 16, 1996, 8-146641

Int. Cl.⁶ D01H 11/00

U.S. Cl. 57—261

7 Claims



1. A piecing method for piecing yarn which has been severed in a spinning machine having means for winding yarn produced by said spinning machine, a twist device including means for imparting a twist to fibers delivered to said twist device containing a spinning chamber and a spindle for delivering yarn produced by said twist device, and a draft device including continuously rotating draft rollers and selectively rotatable draft rollers for delivering sliver to said twist device, said piecing method comprising the steps of:

stopping the rotation of said selectively rotatable draft rollers to produce sliver having a length of tapered tip;
withdrawing yarn from said yarn winding means of a predetermined length sufficient to entangle substantially the entire tapered tip of said sliver and delivering it to a position within the spinning chamber of said twist device;
delivering said sliver with the tapered tip to said spinning chamber of said twist device whereby twisting forces operate to entangle and thereby piece fibers of said tapered tip of said sliver with said yarn from said winding means; and
operating said selectively rotatable draft rollers and said winding means to reestablish operation of said spinning machine.

5,802,832 TEXTURING YARN

Peter William Foster, Cheshire, England, assignor to University of Manchester Institute of Science and Technology, Manchester, United Kingdom

PCT No. PCT/GB93/00245, § 371 Date Oct. 3, 1994, § 102(e) Date Oct. 3, 1994, PCT Pub. No. WO93/16218, PCT Pub. Date Aug. 19, 1993

PCT Filed Feb. 5, 1993, Ser. No. 284,495

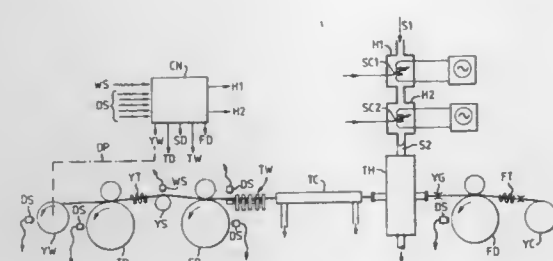
Claims priority, application European Pat. Off., Feb. 5, 1992, 9202397

Int. Cl.⁶ D01H 7/46

U.S. Cl. 57—264

31 Claims

1. A method of manufacturing a textured yarn comprising the steps of:



feeding a yarn to be textured from a supply thereof to a take-up means for the textured yarn along a path including a texturing zone;

false twisting the yarn so that it is twisted in the texturing zone; heating then cooling the twisted yarn in the texturing zone to produce a false twist textured yarn; sensing a condition of the yarn at a position in said path; providing adjustability of at least one of said feeding, false twisting and heating and cooling steps; and adjusting at least one of said steps for which adjustability is provided in accordance with the condition sensed in said sensing step,

wherein the condition sensed in said sensing step comprises yarn speed while tension in the textured yarn is relaxed at a position in said path between the texturing zone and the take-up means.

5,802,833

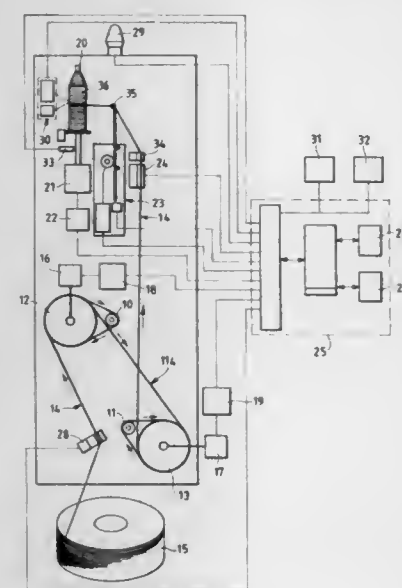
TEXTILE MACHINE FOR FORMING YARN WINDINGS OF ANY SHAPE

Romano Boni, Via Umberto I^o, 10-Gottolengo (Brescia), Italy, assignor to Romano Boni, and Mariella Cotti, both of Italy
Filed Apr. 4, 1996, Ser. No. 627,645

Claims priority, application Italy, May 22, 1995, MI95A1038
Int. Cl.⁶ D01H 7/46

U.S. Cl. 57—264

5 Claims



1. A textile machine for forming yarn windings of any shape comprising:
a frame;
a feed of yarn to be treated;
a support element, provided with a motor for its rotation, for collecting and winding treated yarn;
a thread guide for distributing the yarn along the support element;

a pair of rollers, each provided with a driver controlled motor for its rotation, which receives yarn from the yarn feed and feeds it to the collecting element via the thread guide;

a sensor element being positioned between said pair of rollers and the support element for collecting the treated yarn;

characterised in that said sensor element measures the braking force exerted on the yarn generated by said pair of rollers by measuring said force and converting it to an electrical voltage, said sensor being connected to a processor which compares said electrical voltage with a preset value, and independently electronically varies the rotational speed of the respective motors of each roller to adjust the previously measured braking force to the preset value by increasing the speed of the roller if the measured braking force exceeds the preset value and decreasing the rotational speed of each roller if the measured braking force is less than the preset value.

5,802,834

METHOD FOR THREADING YARNS OF TWO SUPPLY BOBBINS POSITIONED COAXIALLY ATOP ONE ANOTHER IN A TWO-FOR-ONE TWISTING SPINDLE THROUGH THE TWO-PART HOLLOW SPINDLE AXLE

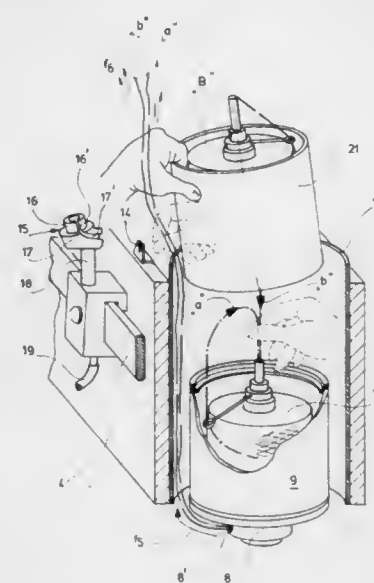
Jürgen Kallmann, Kaarst; Helmut Heiser, Mönchengladbach; Jakob Nilges, Tönisvorst, and Manfred Bermges, Nettetal, all of Germany, assignors to Palitex Project - Company GmbH, Krefeld, Germany
Filed Jan. 5, 1996, Ser. No. 583,420

Claims priority, application Germany, Jan. 7, 1995, 195 00 318.7

Int. Cl.⁶ D01H 9/00

U.S. Cl. 57—279

8 Claims



1. A method for pneumatically threading yarns of two supply bobbins, positioned coaxially one atop the other in a two-for-one twisting spindle, through a two-part hollow spindle axle and a yarn guide channel of the yarn storage disk with a compressed-air operated injection threading device, said method comprising the steps of:

a) inserting a first supply bobbin into a two-for-one twisting spindle;

5,802,836

METHOD FOR MAKING THREAD USING SUBSTANTIALLY EQUAL OVERFEED TO AN INTERMINGLING DEVICE

William Wingate Curran, and John Aitken, both of Paisley, Great Britain, assignors to J. & P. Coats, Limited, Glasgow, United Kingdom

PCT No. PCT/GB94/02455, § 371 Date Jul. 8, 1996, § 102(e) Date Jul. 8, 1996, PCT Pub. No. WO95/14124, PCT Pub. Date May 26, 1995

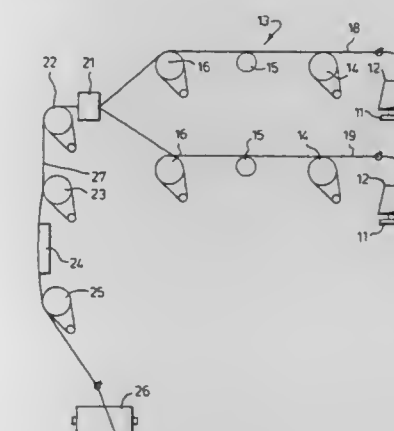
PCT Filed Nov. 8, 1994, Ser. No. 640,932

Claims priority, application United Kingdom, Nov. 13, 1993, 9323441

Int. Cl.⁶ D01H 13/26

U.S. Cl. 57—351

36 Claims



1. A method for making a thread from at least two drawn, continuous filament starting yarns, of which at least one is a multifilament yarn, the method comprising the steps of:

feeding all of the starting yarns together to an intermingling device, each of the starting yarns being fed with substantially equal overfeed, to form a single bulked thread of which the filaments of the starting yarns are intermingled and looped; and

applying a bulk-reducing treatment to the bulked thread.

5,802,835

SPINNING MACHINE NEGATIVE PRESSURE DISTRIBUTION SYSTEM

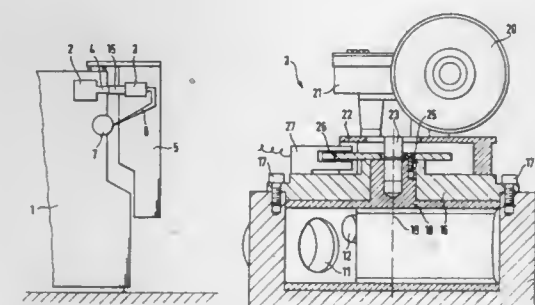
Adalbert Stephan, Bielngries, Germany, assignor to Rieter Ingolstadt Spinnereimaschinenbau AG, Ingolstadt, Germany
Filed Jan. 31, 1997, Ser. No. 792,656

Claims priority, application Germany, Feb. 23, 1996, 196 06 666.2

Int. Cl.⁶ D01H 11/00

U.S. Cl. 57—304

17 Claims



1. A textile spinning machine utilizing negative pressure to carry out a plurality of operational tasks, said spinning machine comprising:

a negative pressure channel and a plurality of negative pressure lines in pneumatic communication with said negative pressure channel, each of said negative pressure lines configured to deliver negative pressure to a negative pressure component of said spinning machine to perform at least one of said operational tasks;

a distributor operably disposed between said negative pressure channel and said negative pressure lines;

said distributor comprising a housing, said negative pressure lines and said negative pressure channel in pneumatic communication with said housing, said distributor further comprising a valve variably positionable within said housing between a closed position wherein said negative pressure lines are pneumatically isolated from said negative pressure channel and a plurality of operable positions wherein each of said negative pressure lines is in pneumatic communication with said negative pressure channel through said housing in at least one of said operable positions.

5,802,837

DRIVING BEARING DEVICE FOR SPINNING ROTORS OF OPEN END SPINNING MACHINES

Anton Paweletz, Fellbach, and Wilhelm Birkenmaier, Weinstadt, both of Germany, assignors to SFK Textilmaschinen-Komponenten GmbH, Stuttgart, Germany

Filed Mar. 4, 1997, Ser. No. 811,373

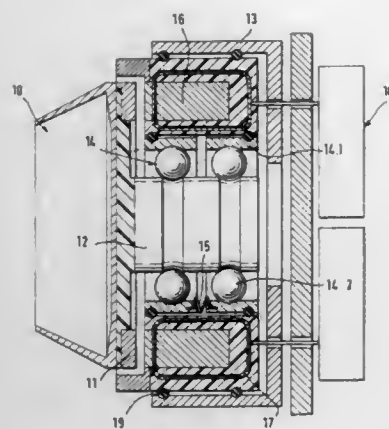
Claims priority, application Germany, Mar. 5, 1996, 196 08 267.6

Int. Cl.⁶ D01H 3/00

U.S. Cl. 57—406

16 Claims

1. An open end spinning machine, comprising a spinning rotor; an electric motor having a main field with an axial component, and having a rotor and a stator; a bearing housing with a bearing for said spinning rotor; said rotor of said electric motor being arranged on said spinning rotor while said stator of said electric motor being arranged in said bearing housing; and a short shaft supported by said bearing, said spinning rotor being supported on said short shaft near a center of gravity of said spinning rotor, said spinning rotor being supported limitedly elastically at least in a radial direction in said bearing housing and being magnetically pre-



tensioned in an axial direction, said spinning rotor being composed of a plurality of components which are elastically connected with one another.

5,802,838

COUPLING DEVICE FOR CONNECTING A ROTOR POT TO A ROTOR SHAFT IN AN OPEN-END SPINNING ROTOR

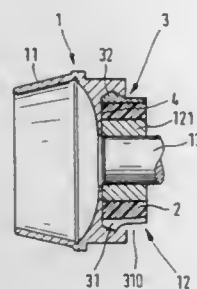
Erich Bock, Wettstetten, Germany, assignor to Rieter Ingolstadt Spinnereimaschinenbau AG, Ingolstadt, Germany
Filed Jul. 29, 1997, Ser. No. 840,408

Claims priority, application Germany, May 25, 1996, 196 21 190.5

Int. Cl.⁶ D01H 4/00

U.S. Cl. 57—406

14 Claims



1. An open end spinning rotor for a textile spinning machine, said rotor comprising:

- a shaft;
- a supporting part received in part on one end of said shaft;
- a rotor pot mounted on said shaft and received by said supporting part;
- said supporting part further comprising a coupling having a first axially extending projection configured on said rotor pot and a second axially extending projection configured on said shaft and concentric with said first axially extending projection; and
- an elastic element disposed between and concentric with said first and said second axially extending projections of said coupling so as to attenuate oscillations and vibrations transmitted through said coupling.

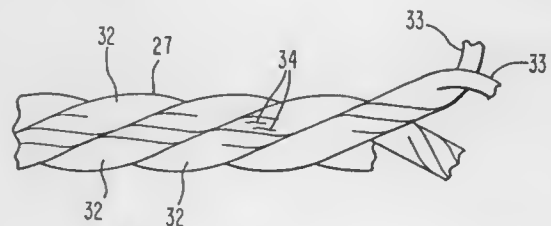
5,802,839 ENDLESS POWER TRANSMISSION BELT CONSTRUCTION, CORD THEREFOR AND METHODS OF MAKING THE SAME

Robert M. Van Hook, Springfield, Mo., assignor to Dayco Products, Inc., Dayton, Ohio
Continuation-in-part of Ser. No. 412,652, Mar. 28, 1995, Pat. No. 5,505,667, which is a division of Ser. No. 287,696, Aug. 9, 1994, Pat. No. 5,425,681. This application Apr. 2, 1996, Ser. No. 626,523

Int. Cl.⁶ D02G 3/02; 3/36

U.S. Cl. 57—902

20 Claims



1. In a p-aramid fiber cord comprising five plies twisted together in one direction at a rate to approximately equal a first certain twist multiplier with each said ply comprising three yarns of a plurality of p-aramid fiber filaments having a certain denier and being twisted together in a direction opposite to said one direction at a rate to approximately equal a second certain twist multiplier, each said twist multiplier being equal to the quotient of the product of the turns per linear inch of twisted material multiplied by the square root of the product of said certain denier of said fiber filaments multiplied by the total number of said yarns being twisted at that time divided by seventy-three, the improvement wherein said yarns and said plies are respectively twisted on a 2 for 1 twister means so as to cause the longitudinal axes of said fiber filaments to be disposed generally in the longitudinal direction of said cord with said certain denier being approximately 1500, said first certain twist multiplier being 3.6986 as the five plies are twisted together at a rate of approximately 1.8 turns per linear inch of said cord, said second certain twist multiplier being 3.5838 as the three yarns for each said ply are twisted together at a rate of approximately 3.9 turns per linear inch of that said ply, and said p-aramid comprising co-poly (paraphenylene/3,4'-oxydiphenylene terephthalamide).

5,802,840

PROCESS FOR THE LOW-POLLUTANT CONVERSION OF FOSSIL FUELS INTO MECHANICAL POWER

Bodo Wolf, Freiberg, Germany, assignor to CRG Kohlenstoffrecycling GES.mbh, Freiberg, Germany
PCT No. PCT/EP95/00754, § 371 Date Sep. 6, 1996, § 102(c) Date Sep. 6, 1996, PCT Pub. No. WO95/24545, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 2, 1995, Ser. No. 702,544

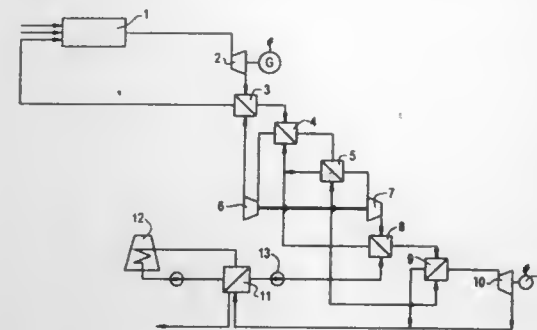
Claims priority, application Germany, Mar. 8, 1994, 44 07 619.3

Int. Cl.⁶ F02C 3/34

U.S. Cl. 60—39.02

5 Claims

1. A process for the low-pollutant conversion of a fossil fuel into mechanical power with the aid of an expansion engine comprising: providing an expansion engine; burning fossil fuel in the presence of oxygen and recycled carbon dioxide and expanding the burned fossil fuel in the expansion engine to produce mechanical power; removing expanded exhaust gas from the expansion engine; cooling the expanded exhaust gas in a heat exchanger; increasing pressure of the expanded exhaust gas; cooling the expanded exhaust gas in further heat exchangers to below 30° C.; liquifying the expanded exhaust gas;



purging non-condensable fractions from the expanded exhaust gas;
removing a portion of liquid CO₂ from said process;
recycling remaining portions of the liquid CO₂ to the process as a circulating gas;
vaporizing said remaining portions of the liquid CO₂ by heat exchange with the expanded exhaust gas; and
cooling the process to a temperature between 800° to 1500° C. with the vaporized CO₂.

5,802,841

GAS TURBINE COOLING SYSTEM

Fukuo Maeda, Machida, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

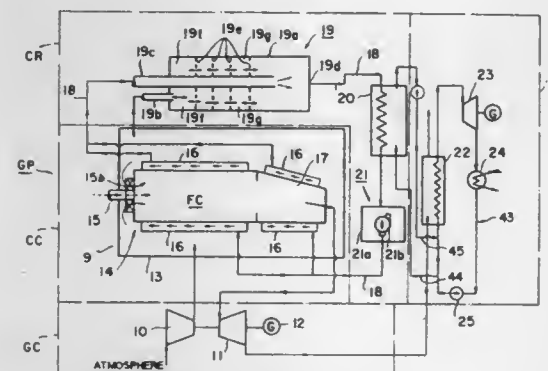
Filed Dec. 2, 1996, Ser. No. 756,918

Claims priority, application Japan, Nov. 30, 1995, 7-312703; Feb. 29, 1996, 8-043903

Int. Cl.⁶ F02C 7/12

U.S. Cl. 60—39.07

17 Claims



1. A gas turbine plant comprising:
a gas turbine system provided with a compressor, a gas turbine and a generator which are mounted on a common shaft and operatively connected in series to each other;
a gas turbine combustor system including a gas turbine combustor composed of an outer casing and an inner cylinder accommodated in the casing; and
a cooling air circulation system operatively connected to the gas turbine combustor system for circulating a cooling air, wherein a cooling passage means is disposed along an outer peripheral surface of the inner cylinder and a circulating line is disposed for circulating cooling air in the cooling passage means at sufficient pressure to balance the pressure within the casing of the gas turbine combustor and wherein said cooling air circulation system includes an equalizer header unit for supplying the cooling air in the cooling passage means to the circulation line, a heat exchanger unit for re-cooling the cooling air from the equalizer header unit and a blower unit for returning the cooling air to the cooling passage means after the re-cooling.

5,802,842 DIMENSIONALLY STABLE THROAT INSERT FOR ROCKET THRUSTERS

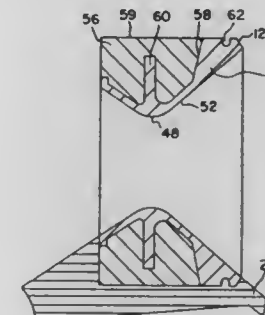
Dale L. Hook, Rancho Palos Verdes; Thomas M. Rust, Agoura, and Scott J. Rotenberger, Redondo Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Jul. 29, 1996, Ser. No. 688,628

Int. Cl.⁶ F02K 1/00

U.S. Cl. 60—271

10 Claims



1. A throat insert for use in a rocket engine, the throat insert comprising:

- a shell having a throat and being made from a high strength, oxidation resistant material, the shell being formed with a radially extending annular stiffening ring located at the throat;
- a casing having an inner surface affixed to an outer surface of the shell and having an exterior surface for mounting to a housing for the rocket engine, the casing being made from a material having a thermal conductivity greater than that of the shell; and
- wherein the material of the shell resists oxidation caused by extreme temperatures of ignited rocket fuel passing through the throat insert, while the material of the casing acts to transfer heat from the shell.

5,802,843

METHOD AND APPARATUS FOR DIAGNOSING ENGINE EXHAUST GAS PURIFICATION SYSTEM

Nobuo Kurihara, Hitachiota; Hiroshi Kimura; Yutaka Takaku, both of Hitachinaka, and Toshio Ishii, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

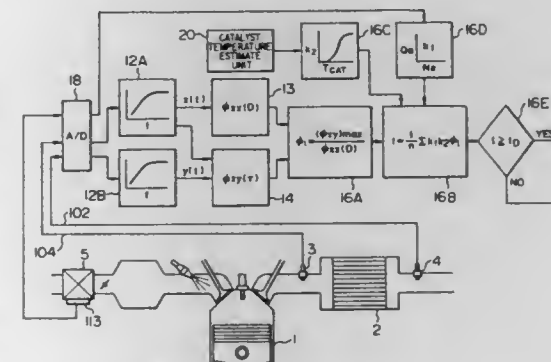
Filed Feb. 10, 1995, Ser. No. 386,659

Claims priority, application Japan, Feb. 10, 1994, 6-016081

Int. Cl.⁶ F01N 3/20

U.S. Cl. 60—274

3 Claims



1. A method of estimating a temperature of a catalyst of an exhaust gas purification system in an internal combustion engine of a motor vehicle having an air-fuel ratio control system wherein a fuel injection is controlled to maintain the air-fuel ratio in a predetermined value, comprising the steps of
(a) estimating a catalyst temperature in a steady-state based on engine speed and intake air flow rate; and

(b) estimating a catalyst temperature in a transient state by correcting said estimated catalyst temperature in a steady-state with a heat transfer delay model including parameters of heat transmission component and heat conduction component.

5,802,844

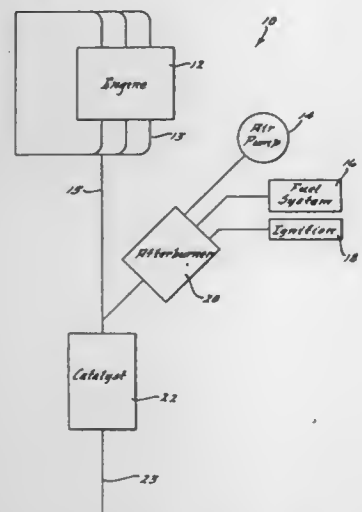
AFTER-BURNER HEATED CATALYST SYSTEM AND ASSOCIATED CONTROL CIRCUIT AND METHOD
Anson Lee, St. Clair; Jan S. Pyko, Bloomfield Township; Mark J. Poulton, Utica, and Larry R. Hartwick, Rochester Hills, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Jun. 30, 1995, Ser. No. 497,592

Int. Cl.⁶ F01N 3/20

U.S. Cl. 60—274

7 Claims



1. In an after-burner heated catalyst control system and an associated control circuit for controlling an after-burner heated catalyst, the after-burner heated catalyst control system having an air pump motor, a spark plug, and a fuel injector each having a signal frequency and a duty cycle, the control circuit comprising:

- a device for controlling the air pump motor electrically coupled to the air pump motor, the device for controlling the air pump motor supplying electrical power to the air pump motor;
- a device for controlling the spark plug electrically coupled to the spark plug, the device for controlling the spark plug supplying electrical power to the spark plug;
- a device for controlling the fuel injector electrically coupled to the fuel injector, the device for controlling the fuel injector supplying electrical power to the fuel injector;
- a communications interface for transmitting and receiving data communications of the control circuit; and
- a microprocessing unit for individually controlling the signal frequency and the duty cycle of the air pump motor, the spark plug, and the fuel injector, the microprocessing unit being electrically coupled to the communications unit, spark plug, and the air pump motor, and having memory, a bus line, and a software program stored in the memory for executing a method for controlling operation of the after-burner heated catalyst, the method comprising the steps of:
 - determining the signal frequency and the duty cycle of the fuel injector and the air pump motor;
 - determining a temperature of the after-burner heated catalyst and a fuel injector "on" time;
 - pulse width modulating the fuel injector and the air pump motor if the temperature of the after-burner heated catalyst and the fuel injector "on" time are less than set limits stored in the memory of the microprocessing unit; and
 - disabling operation of the fuel injector if the temperature of the after-burner heated catalyst and the fuel injector "on"

time are greater than set limits stored in the memory of the microprocessing unit.

5,802,845

EXHAUST GAS PURIFICATION SYSTEM AND EXHAUST GAS PURIFICATION METHOD

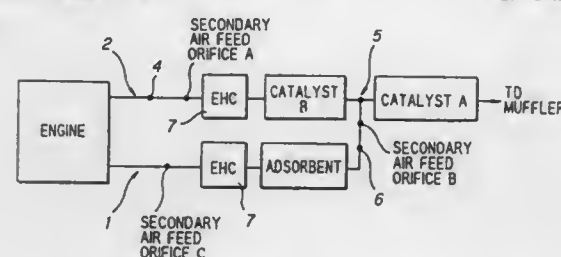
Fumio Abe, Handa; Shigeharu Hashimoto, Okazaki, and Masato Ogawa, Komaki, all of Japan, assignors to NGK Insulators, Ltd., Japan

Division of Ser. No. 289,268, Aug. 11, 1994. This application Dec. 17, 1996, Ser. No. 767,618

Claims priority, application Japan, Aug. 20, 1993, 5-206534 Int. Cl.⁶ F01N 3/20

U.S. Cl. 60—274

29 Claims



1. An exhaust gas purification system for purifying exhaust gas flowing therethrough from an internal combustion engine, comprising:

- a catalyst flow path including at least one catalyst for treating harmful components in the exhaust gas;
- an adsorbent flow path including an outlet and an adsorbent for adsorbing harmful components in the exhaust gas, wherein the outlet of the adsorbent flow path is connected to the catalyst flow path at a position upstream of the catalyst, thereby forming a joint portion; and
- means for maintaining separate flow of the exhaust gas such that the exhaust gas flows through both the catalyst flow path and the adsorbent flow path at a predetermined ratio of flow rates, whereby harmful components in the exhaust gas are adsorbed by the adsorbent in the adsorbent flow path during cold-start of the engine, and the catalyst of the catalyst flow path is activated when harmful components adsorbed by the adsorbent are desorbed with a rise in temperature of the adsorbent.

5,802,846

EXHAUST GAS RECIRCULATION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

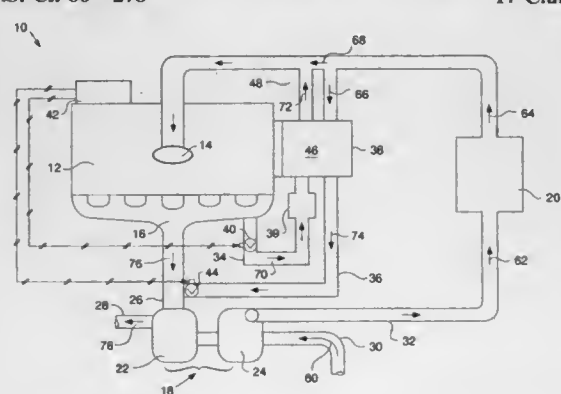
Brett M. Bailey, Peoria, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Mar. 31, 1997, Ser. No. 828,685

Int. Cl.⁶ F01N 3/02; F02M 25/07; F02B 33/44

U.S. Cl. 60—278

17 Claims



1. An exhaust gas recirculation system in a pressure-charged internal combustion engine, said pressure-charged internal com-

bustion engine including an intake air circuit having an intake air pressurizing device, an intake manifold, an exhaust manifold, a plurality of combustion chambers, said exhaust gas recirculation system comprising:

- an exhaust gas recirculation conduit for diverting a flow of exhaust gas from at least one selected combustion chamber to said intake air circuit at a location downstream of said intake air pressurizing device;
- at least one exhaust gas recirculation diversion valve interposed between said selected combustion chamber and said exhaust gas recirculation conduit;
- a controller operatively associated with said exhaust gas recirculation diversion valve and adapted for selectively diverting said flow of exhaust gas from said selected combustion chamber to said exhaust gas recirculation conduit; and
- an intake air bypass conduit in fluid communication with said intake air circuit for selectively transporting a flow of intake air from said intake circuit to said exhaust manifold.

5,802,847

HYDRAULIC SYSTEM FOR A MOBILE WORK DEVICE, IN PARTICULAR A WHEEL LOADER

Edwin Harnischfeger, Bad Orb, Germany, assignor to Mannesmann Rexroth AG, Lohr/Main, Germany

PCT No. PCT/EP95/01556, § 371 Date Nov. 1, 1996, § 102(e) Date Nov. 1, 1996, PCT Pub. No. WO95/30800, PCT Pub. Date Nov. 16, 1995

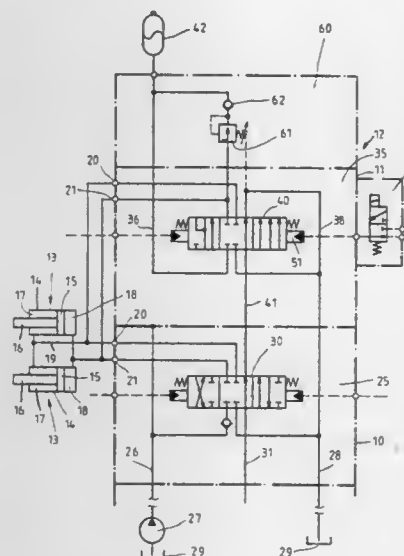
PCT Filed May 25, 1995, Ser. No. 737,363

Claims priority, application Germany, May 7, 1994, 44 16 228.6

Int. Cl.⁶ F16D 31/02

U.S. Cl. 60—413

10 Claims



1. A hydraulic system for a mobile working device, having a working tool which can be actuated via at least one hydraulic cylinder (13) having a piston (15) which divides the inside of the hydraulic cylinder (13) into two pressure chambers (17, 18), having a hydraulic accumulator (42) which can be loaded via a filling line, and having a directional control valve (11) with a control slide (40) for the separate pressurization of the two pressure chambers (17, 18) of the hydraulic cylinder (13) or for the connecting of the two pressure chambers (17, 18) of the hydraulic cylinder (13) to a tank (29), wherein the hydraulic accumulator (42) and the first pressure chamber (18) of the hydraulic cylinder (13) are connectable with each other via the control slide (40) of the directional control valve (11).

5,802,848

HYDRAULIC SYSTEM FOR MOTOR VEHICLE

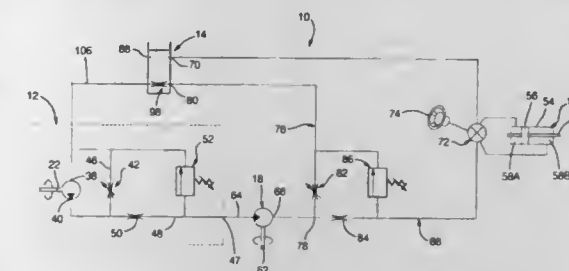
Kevin Mark McClendon, Saginaw; James Leroy Davison, Freeland; Robert Edward Beyerlein, Saginaw; Tom Cheuk-In Wong, Saginaw; Allan Lee Dickinson, Saginaw; Albert Cheuk-Yin Wong, Saginaw; Carl David Tarum, Saginaw; James Michael Shea, Saginaw, and David Fredrick Hammerbacher, Saginaw, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 28, 1997, Ser. No. 919,517

Int. Cl.⁶ F16D 31/02

U.S. Cl. 60—426

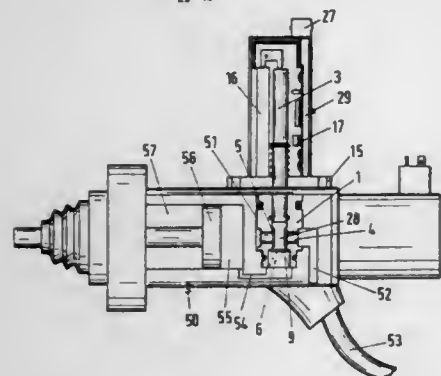
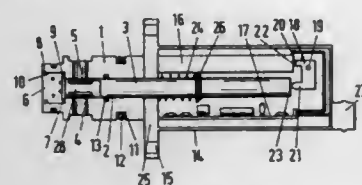
4 Claims



5,802,849
ACTUATING DEVICE FOR COUPLING OF AN AUTOMATIC TRANSMISSION OF A VEHICLE
 Alfred Trzmiel, Grafenberg, Germany, assignor to Hydraulik-Ring Antriebs- und Steuerungstechnik GmbH, Nürtingen, Germany

Filed Jan. 21, 1997, Ser. No. 785,907
 Claims priority, application Germany, Jan. 19, 1996, 196 01 758.0

Int. Cl.⁶ F04B 17/04; F16D 31/02
 U.S. Cl. 60—477 22 Claims



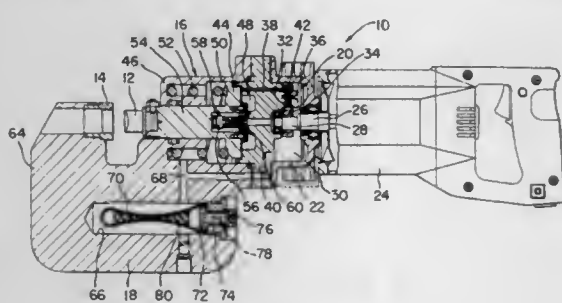
1. An actuating device for a coupling of an automatic transmission of a vehicle, said actuating device comprising:
 a housing;
 at least one piston slide positioned in said housing for pumping a pressure medium to a coupling element;
 at least one piezo element positioned in said housing and acting on said at least one piston slide for displacing said piston slide from a neutral position in a reciprocating displacement direction within said housing.

5,802,850
HYDRAULIC MACHINE HAVING AN IMPROVED AIR BAG

Kiyoshi Kimura, Fujisawa, Japan, assignor to Kabushiki Kaisha Ogura, Kanagawa-Ken, Japan

Filed Mar. 7, 1997, Ser. No. 813,075
 Claims priority, application Japan, May 31, 1996, 8-138230
 Int. Cl.⁶ F16D 31/02

U.S. Cl. 60—479 6 Claims



1. A hydraulic machine comprising:
 (a) a cylinder housing means;
 (b) a piston reciprocally mounted in the cylinder housing means and defining a cylinder fluid chamber therein;

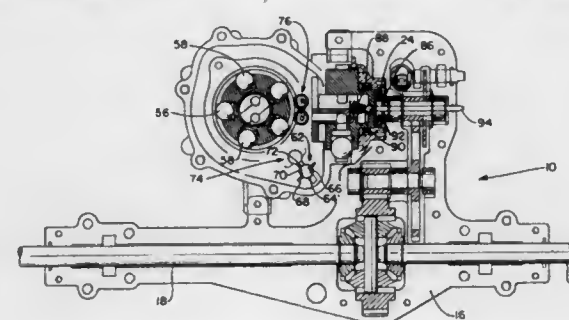
(c) pump housing means defining a pump fluid chamber for containing a hydraulic fluid;
 (d) a pump disposed in the pump fluid chamber for pressurizing the fluid for delivery to the cylinder fluid chamber;
 (e) means defining a fluid control chamber in constant communication with the pump fluid chamber;
 (f) an elastic air bag disposed in the fluid control chamber, the air bag being capable of contraction and expansion in order to keep constant the amount of the fluid in the pump fluid chamber; and
 (g) a spacer received within the air bag for preventing the mutual contact of the inside surface of the air bag upon contraction.

5,802,851
MOTOR VEHICLE HYDROSTATIC TRANSMISSION SYSTEM

William Douglas Krantz, Fort Wayne, Ind., assignor to Dana Corporation, Toledo, Ohio

Filed Nov. 12, 1996, Ser. No. 747,326
 Int. Cl.⁶ F16D 39/00

U.S. Cl. 60—487 10 Claims



1. A coupling assembly between a motor vehicle hydrostatic transmission and a gear axle having an input shaft, said coupling assembly comprising:
 a tow pin positioned external of the gear axle and about the centerline of a motor rotor which allows said motor rotor to be biased away from the gear axle, thus disconnecting a spline drive coupling between said motor rotor and the input shaft to the gear axle to overcome hydraulic lock when the motor vehicle hydrostatic transmission is shut down and to permit human power to propel the motor vehicle.

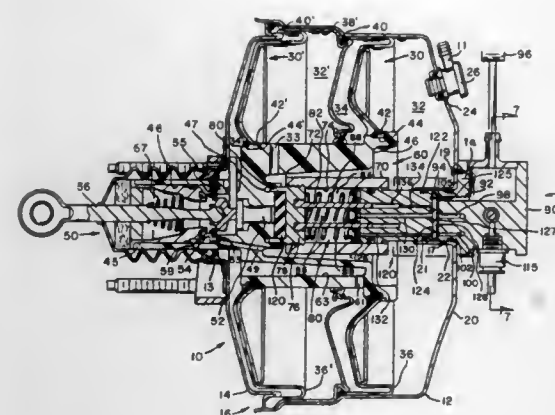
5,802,852
BRAKE BOOSTER WITH AN INTEGRATED MASTER CYLINDER

Richard Lee Harbaugh, South Bend, Ind., assignor to Robert Bosch Technology Corporation, Broadview, Ill.

Filed Jun. 20, 1997, Ser. No. 879,383
 Int. Cl.⁶ B60T 13/00; F15B 9/10

U.S. Cl. 60—547.1 45 Claims

1. A brake assembly comprising:
 a housing formed by joining a first shell to a second shell, said first shell having a first axial opening and said second shell having a second axial opening;
 an end member located in said first axial opening, said end member having first and second passages therein respectively connected to first and second brake conduits;
 wall means located in said housing to define first and second chambers, said first chamber being connected to a first source of fluid, said wall means having a hub with a projection which extends through said second opening, said hub having a first bore therein connected with said first and second chambers and to a second source of fluid, said first and second fluids having different pressures;



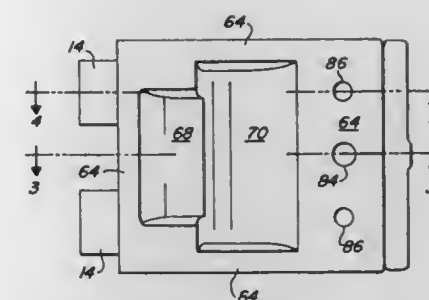
a flange extending from said first shell for receiving said first end member and extending into said first chamber;
 a cylindrical member located in said flange, said cylindrical member having a first end and a second end with a peripheral ledge located adjacent said second end, said cylindrical member having third and fourth passages that extends from said first end to said second end;
 a tube extending from said second end of said cylindrical member and connected to said fourth passage;
 a sleeve member having a second bore that extends from a first end to a second end, said peripheral ledge on said cylindrical member sealingly engaging said second bore;
 a second end member secured to said second end of said sleeve member and slidably engaging said hub;
 a disc retained on said tube and slidably engaging said second bore of said sleeve member;
 spring means acting on said disc to define within said sleeve member a first pressurizing chamber between said disc and said cylindrical body and a second pressurizing chamber between said disc and said second end member, said first and second pressurizing chambers being respectively connected to said first and second brake conduits through said cylindrical member and said end member; and
 control valve means located in said first bore and responsive to an input force for connecting said second chamber with said second source of fluid after terminating communication of said first source of fluid present in said first chamber with said second chamber to create a pressure differential across said wall means between said first source of fluid in said first chamber and said second source of fluid in said second chamber, said pressure differential acting through said hub to communicate an actuation force to said second end member, said actuation force moving said sleeve member toward said end member to pressurize fluid in said first and second pressurizing chambers, said pressurized fluid being supplied to said first and second brake conduits to effect a brake application.

5,802,853
VALVE HOUSING ASSEMBLY FOR A BRAKE VALVE
 Karsten Oberst, Ludwigshafen, and Harald Winkelmann, Seeheim-Jugenheim, both of Germany, assignors to Deere & Company, Moline, Ill.

Filed Apr. 22, 1997, Ser. No. 844,812
 Claims priority, application Germany, May 8, 1996, 196 18 429.0

U.S. Cl. 60—581 14 Claims

1. A valve housing for a vehicle brake valve having a chamber, one side of the chamber serving as an equalizing reservoir which is connected directly or indirectly with at least one brake cylinder bore formed in the valve housing, another side of the chamber serving as an emergency steering volume of a hydrostatic steering circuit, the steering circuit having at least one return port opening



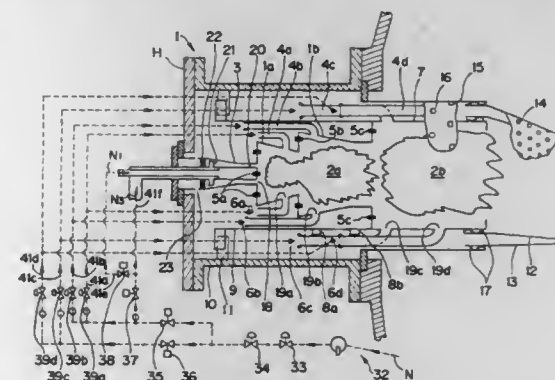
into the chamber, the chamber having an overflow opening above the return port, the overflow opening being connected through a channel with a fluid reservoir, characterized by:
 an intermediate wall which subdivides the chamber into the equalizing reservoir and the emergency steering volume; and
 at least one equalizing opening which communicates the equalizing reservoir with the emergency steering volume.

5,802,854
GAS TURBINE MULTI-STAGE COMBUSTION SYSTEM
 Fukuo Maeda, Machida; Yasunori Iwai, Kawasaki, and Yuzo Sato, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 394,275, Feb. 24, 1995, abandoned.
 This application May 12, 1997, Ser. No. 854,749

Claims priority, application Japan, Feb. 24, 1994, 6-026953
 Int. Cl.⁶ F23R 3/30; 3/34

U.S. Cl. 60—737 18 Claims



1. A gas turbine combustion system comprising:
 a cylindrical combustor having one end closed by a header;
 a plurality of combustion sections in an arrangement spaced apart in an axial direction of the combustor;
 a plurality of fuel supply lines independently connected to said combustion sections, respectively;
 a plurality of igniter means respectively provided for said combustion sections and initiating the combustion in the respective combustion sections;
 a plurality of premixed fuel supply sections respectively provided for said fuel supply lines and supplying a premixed fuel and having a premixed fuel nozzle;
 a diffusion combustion fuel supply section supplying a diffusion combustion fuel to one of the combustion sections and having a diffusion combustion fuel nozzle; and
 a control unit switching over said fuel supply sections and selectively supplying either one of the premixed fuel and the diffusion combustion fuel;
 said combustion sections including a first combustion stage, a second combustion stage and at least three succeeding combustion stages, totally at least five combustion stages, and said fuel supply lines including a fuel supply line for the first combustion stage which is divided into two fuel supply sections, one of which is connected to the diffusion combustion fuel nozzle of the diffusion fuel supply section and another

one of which is connected to the premixed fuel nozzle of the premixed fuel supply section so that the control unit switches over a combustion condition from diffusion combustion to premixed combustion during operation of the gas turbine combustion system, and in at least one of said combustion stages, the premixed fuel is burned by the igniter means.

5,802,855

POWER LEAD FOR ELECTRICALLY CONNECTING A SUPERCONDUCTING COIL TO A POWER SUPPLY

Sataro Yamaguchi, 18-17 Kanokoden, Chikusa-ku, Nagoya, Aichi; Kiyoshi Takita, c/o Fuji Electric Co., Ltd. 1-1, Tanabeshinden, Kawasaki-ku, Kawasaki, Kanagawa 210; Ikuo Itoh, c/o Fuji Electric Co., Ltd. 1-1, Tanabeshinden, Kawasaki-ku, Kawasaki, Kanagawa 210; Hisaaki Hiue, c/o Fuji Electric Co., Ltd. 1-1, Tanabeshinden, Kawasaki-ku, Kawasaki, Kanagawa 210, and Shinichi Nose, c/o Fuji Electric Co., Ltd. 1-1, Tanabeshinden, Kawasaki-ku, Kawasaki, Kanagawa 210, all of Japan

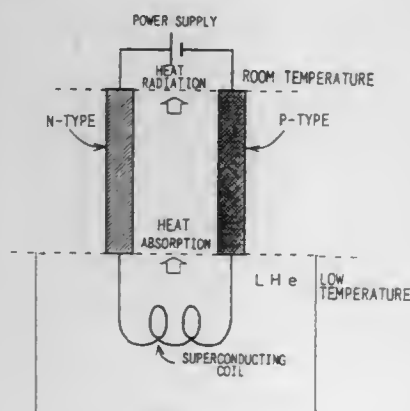
Filed Nov. 20, 1995, Ser. No. 560,951

Claims priority, application Japan, Nov. 21, 1994, 6-309416

Int. Cl.⁶ F25B 21/02

U.S. Cl. 62—3.2

18 Claims



1. A power lead electrically connecting a superconducting coil with a power supply, comprising thermoelectric cooling means, said means including at least an N-type thermoelectric member and a P-type thermoelectric member, being electrically connected to a positive side and a negative side of said power supply, respectively.

5,802,856

MULTIZONE BAKE/CHILL THERMAL CYCLING MODULE

Charles D. Schaper, Union City; Khalid A. El-Awady, Mountain View, and Thomas Kailath, Stanford, all of Calif., assignors to Stanford University, Stanford, Calif.

Continuation-in-part of Ser. No. 688,909, Jul. 31, 1996, abandoned. This application Jul. 31, 1997, Ser. No. 903,716

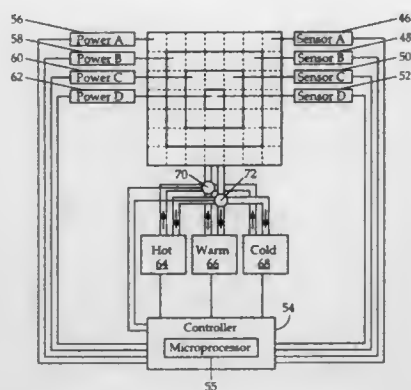
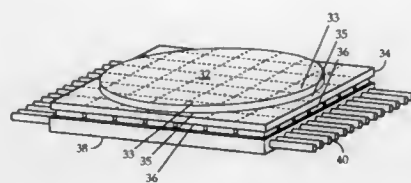
Int. Cl.⁶ F25B 21/02

U.S. Cl. 62—3.7

54 Claims

44. A method for processing a substrate through a thermal cycle, the method comprising the following steps:

- transferring heat between the substrate and a thermoelectric device;
- exchanging heat between the substrate and a fluid heat exchanger;
- changing relative flows of a plurality of fluids through the fluid heat exchanger, wherein the fluids have differing temperatures;
- calculating a control signal based on a desired process parameter; and



e) changing a flow of electric current through the thermoelectric device in accordance with the control signal.

5,802,857

METHOD OF AND APPARATUS FOR CLEANING COLLECTION CHAIN CONVEYORS

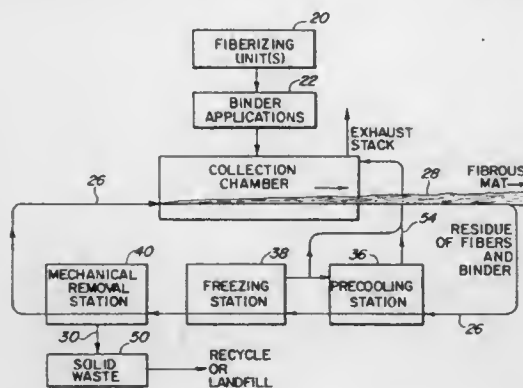
Leo M. Radkowski, Evergreen; Roy V. Pogue, Littleton, and Larry E. Baumgartner, Morrison, all of Colo., assignors to Johns Manville International, Inc., Denver, Colo.

Filed Jun. 23, 1997, Ser. No. 880,730

Int. Cl.⁶ F25D 13/06

U.S. Cl. 62—63

20 Claims



1. A method of cleaning a continuous, foraminous, collection chain conveyor of a fibrous mat forming process wherein fibers and binder are collected on said collection chain conveyor, as said collection chain conveyor travels through a collection run, to form said fibrous mat; said fibrous mat is removed from said collection chain conveyor leaving a residue of said fibers and said binder on and in openings of said collection chain conveyor; and said collection chain conveyor travels through a return run prior to again traveling through a subsequent collection run; comprising: freezing said residue of said fibers and said binder on and in openings of said collection chain conveyor as said collection chain conveyor travels through said return run to form a frozen residue of said fibers and said binder; and mechanically removing said frozen residue of said fibers and said binder from said collection chain conveyor prior to said collection chain conveyor again traveling through said subsequent collection run.

5,802,858

CRYOGENIC COOLING TOWER

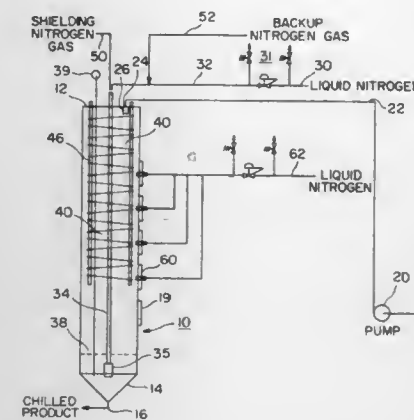
Alan Tat Yan Cheng, Livingston, N.J., and Donald Leonard Devack, Norwalk, Conn., assignors to Praxair Technology, Inc., Danbury, Conn.

Filed Mar. 27, 1997, Ser. No. 826,288

Int. Cl.⁶ F28C 1/00

U.S. Cl. 62—121

20 Claims



1. A cooling tower to provide heat exchange for a liquid to be cooled comprising:

- a tower;
- a source of a cooling medium;
- an inlet for injecting said liquid to be cooled into said tower interior;
- a plurality of plates within said tower stacked spaced apart vertically one above the other, tilted downwardly at an angle relative to the tower vertical axis and alternately tilting in opposite directions, wherein said plates are located below said second inlet and above said source of said cooling medium such that said liquid to be cooled flows downwardly on said downwardly tilted plates and said cooling medium circulates upwardly within said tower, such that said liquid to be cooled is cooled by said cooling medium within said tower to produce a cooled process liquid;
- a collection area at the bottom of said tower for collection of said cooled process liquid below said plates; and
- an outlet at the bottom of said tower for removal of said cooled process liquid.

5,802,859

APPARATUS FOR RECOVERING AND ANALYZING VOLATILE REFRIGERANTS

Kevin Zugibe, Pomona, N.Y., assignor to Hudson Technologies, Inc., Hillburn, N.Y.

Filed Jan. 16, 1997, Ser. No. 766,957

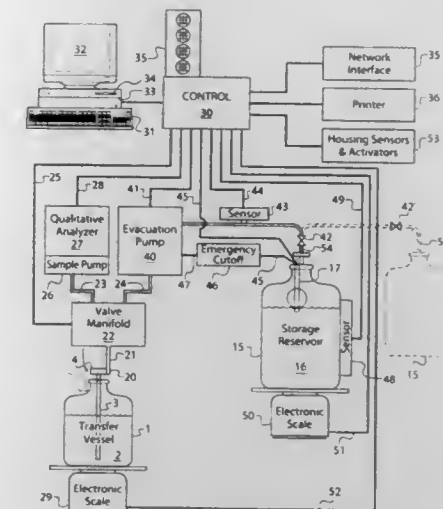
Int. Cl.⁶ F25B 49/00

U.S. Cl. 62—125

40 Claims

1. A self-contained refrigerant recovery device for recovering refrigerant from a transfer vessel into a storage reservoir, comprising, in a single enclosure:

- a qualitative analyzer for determining a refrigerant composition in the transfer vessel;
- a quantitative analyzer for determining a recovered quantity of refrigerant from the transfer vessel;
- a refrigerant extractor for withdrawing refrigerant from the transfer vessel into a storage reservoir;
- a storage device for storing said determined refrigerant composition and determined refrigerant quantity in association; and



(e) an output means for outputting information describing an economic value of recovered refrigerant based on said stored determined refrigerant composition and said determined refrigerant quantity.

5,802,860

REFRIGERATION SYSTEM

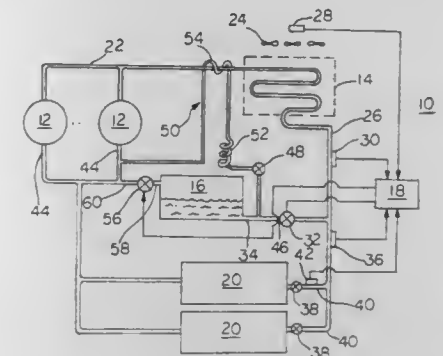
Richard C. Barrows, South Bend, Ind., assignor to Tyler Refrigeration Corporation, Niles, Mich.

Filed Apr. 25, 1997, Ser. No. 843,097

Int. Cl.⁶ F25B 41/00; 49/00

U.S. Cl. 62—126

16 Claims



1. A system for controlling the circulation of refrigerant through a refrigeration loop including an interconnected condenser and compressor to maintain a desired amount of subcooling of the refrigerant at the output of said condenser, said system comprising: a receiver for containing refrigerant connected between said condenser and said compressor; means operably associated with said loop for providing a temperature differential between said refrigerant at the output of said condenser and the phase change temperature of said refrigerant within said condenser; said receiver connected to said loop by a valve for bleeding refrigerant from said receiver to said loop to increase said temperature differential as the volume of liquid refrigerant within said condenser increases; and controller means for diverting refrigerant from said condenser to said receiver when said temperature differential exceeds a predetermined value.

5,802,861

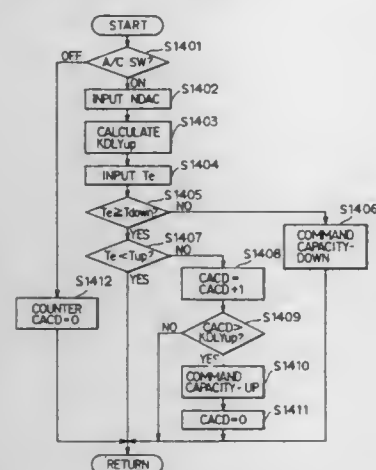
EXHAUST GAS DETOXIFICATION FOR INTERNAL COMBUSTION ENGINE

Yukihiko Yamashita; Jun Hasegawa, both of Kariya; Yasuhiko Niimi, Handa, and Hiroshi Kishita, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan
Filed Aug. 7, 1996, Ser. No. 689,496

Claims priority, application Japan, Aug. 7, 1995, 7-201027
Int. Cl.⁶ B60H 1/32

U.S. Cl. 62—133

17 Claims



1. An air conditioner control system for an air conditioner and catalytic converter coupled to an internal combustion engine of a vehicle, said system comprising:

means of calculating a degree of air conditioning necessity by the air conditioner which is driven by the internal combustion engine and used for air conditioning a vehicle interior; and means for restricting operation of the air conditioner in response to the calculated degree of air conditioning necessity and to a determination of whether exhaust gas detoxification performance of the catalytic converter in an exhaust system of the engine is expected to deteriorate.

5,802,862

METHOD AND APPARATUS FOR LATENT HEAT EXTRACTION WITH COOLING COIL FREEZE PROTECTION AND COMPLETE RECOVERY OF HEAT OF REJECTION IN DX SYSTEMS

Kenneth L. Eiermann, 1049 Manchester Cir., Winter Park, Fla. 32792

Continuation-in-part of Ser. No. 290,202, Aug. 15, 1994, Pat. No. 5,493,871, which is a continuation-in-part of Ser. No. 8,192, Jan. 25, 1993, Pat. No. 5,337,577, which is a continuation of Ser. No. 791,120, Nov. 12, 1991, Pat. No. 5,181,552.

This application Feb. 26, 1996, Ser. No. 607,335

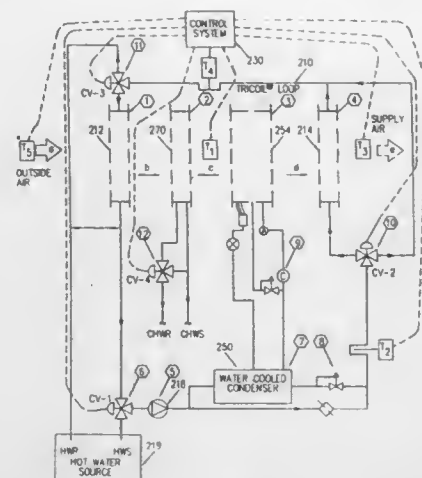
Int. Cl.⁶ F25B 29/00; F25D 17/06

U.S. Cl. 62—173

1 Claim

1. A moisture control and freeze preventing apparatus adapted for use with an air conditioning system having a chilled water cooling coil where chilled water in the chilled water cooling coil absorbs thermal energy from a return air flow as a cooled supply air flow, the moisture control apparatus comprising:

a controller apparatus;
a working fluid;
a precooling coil in said return air flow for exchanging thermal energy between the return air flow and the working fluid;
a return air flow temperature sensor in said return air flow for determining the temperature of the return air flow and generating a return air flow temperature signal for use by said controller apparatus;
a reheat coil in said supply air flow for exchanging thermal energy between the working fluid and the supply air flow;



a thermal energy source for adding thermal energy to the working fluid;

a control valve responsive to a command signal from the controller apparatus for i) directing the working fluid through a series arrangement of said reheat coil and said precooling coil when the command signal is in a first state and ii) directing the working fluid exclusively through said precooling coil bypassing said reheat coil when the command signal is in a second state; and,

a fluid pump for motivating a flow of the working fluid through said a thermal energy source to said control valve.

5,802,863

SYSTEM AND METHOD FOR REFRIGERATING LIQUIDS

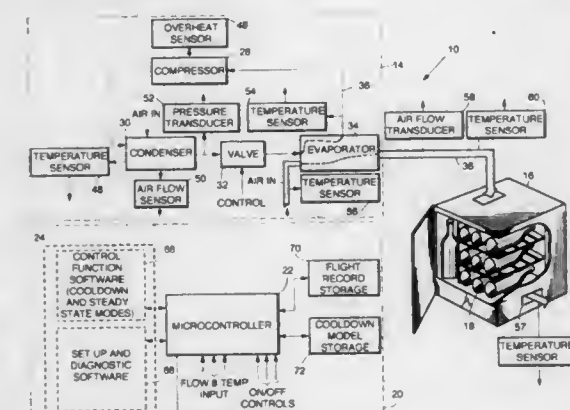
Kenneth W. Cowans, Fullerton, Calif., assignor to B/E Aerospace, Inc., Wellington, Fla.

Filed Nov. 9, 1995, Ser. No. 556,163

Int. Cl.⁶ F25B 41/00; I/00

U.S. Cl. 62—211

13 Claims



1. The method of rapidly cooling wine in bottles of unpredictably different temperatures and numbers without damaging the wine comprising the steps of:

placing the wine bottles in a confined volume;
cooling a refrigerant to a variable temperature level;
passing refrigerating air after thermal exchange relation with the cooled refrigerant into the confined volume;
measuring the air flow rate and temperature levels of incoming and outgoing air within the volume;
computing thermal load conditions in the confined volume from the measured air flow rate and temperature levels in the volume;
selecting a predetermined cooldown model for the temperature of wine in the bottles in accordance with predetermined criteria based on the computed thermal load condition;

varying the temperature in the confined volume such that the temperature follows the cooldown model; and
continuing to sense thermal load conditions and selecting different cooldown models in the event of change of the thermal load.

5,802,864

HEAT TRANSFER SYSTEM

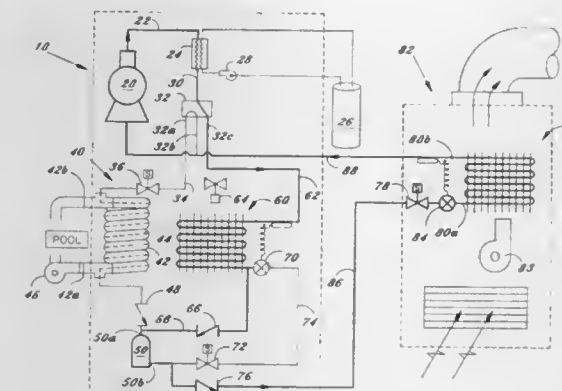
Merrill A. Yarbrough, Deerfield, and Russell E. Lambert, Islamorada, both of Fla., assignors to Peregrine Industries, Inc., Deerfield Beach, Fla.

Filed Apr. 1, 1997, Ser. No. 825,686

Int. Cl.⁶ F25B 27/00

U.S. Cl. 62—238.6

19 Claims



1. A heat transfer system for selectively cooling an interior space and heating water, said system comprising:

(a) means for compressing refrigerant gas having a suction inlet and a compressed gas outlet, said outlet in fluid communication with a reversing valve, said reversing valve having an inlet and first, second and third outlets, said reversing valve selectively movable from a first position wherein fluid communication is achieved between said inlet and said third outlet and commonly between said first and second outlets, and a second position wherein fluid communication is achieved between said inlet and said first outlet, and commonly between said second and third outlets;

(b) a refrigerant-to-water heat exchanger having a refrigerant inlet and outlet, and a water inlet and outlet, said refrigerant inlet in fluid communication with said first reversing valve outlet, said water inlet in fluid communication with a pool water circulating pump for drawing water from a pool water source, said water outlet being in communication with a water conduit returning water to said pool water source;

said refrigerant-to-water heat exchanger including an outer water conduit with an inner refrigerant conduit coaxially disposed therein, said outer and inner conduits having a helical coil shape, said refrigerant-to-water heat exchanger disposed in surrounding relation with said means for compressing refrigerant gas thereby functioning as a compressor sound shield for minimizing the transmission of noise from said means for compressing to the surrounding environment;

said outer water conduit further including a gas trap for isolating gas within the outer conduit such that said inner conduit is not exposed to gas accumulating in said trap and remains fully submerged in water within said outer conduit;

(c) a refrigerant-to-air heat transfer coil, said heat transfer coil including a fan for forcing ambient air across said coil, and first and second refrigerant ports for passing refrigerant fluid through said coil, said first refrigerant port in fluid communication with said third reversing valve outlet;

(d) means for receiving and storing refrigerant having an inlet and an outlet, said heat exchanger refrigerant outlet and said heat transfer coil second port being in fluid communication with said inlet of said means for receiving and storing refrigerant, said outlet of said means for receiving and storing refrigerant being in fluid communication with refrigerant conduit including a first solenoid valve and a first thermal expansion valve, said conduit further fluidly communicating with said heat transfer coil second refrigerant port;

(e) an evaporator for allowing heat transfer between refrigerant in said evaporator and air from an interior space, said evaporator having an inlet in fluid communication with said outlet of said means for receiving and storing refrigerant, and an outlet in fluid communication with said means for compressing refrigerant, and a fan for forcing air from said interior space across said evaporator, said evaporator inlet including a second solenoid valve and a second thermal expansion valve; and

(f) control means, responsive to interior space temperature and pool water temperature, for energizing and controlling said system for selectively cooling said interior space and/or heating said pool water.

5,802,865

EVAPORATIVE PERSONAL COOLER

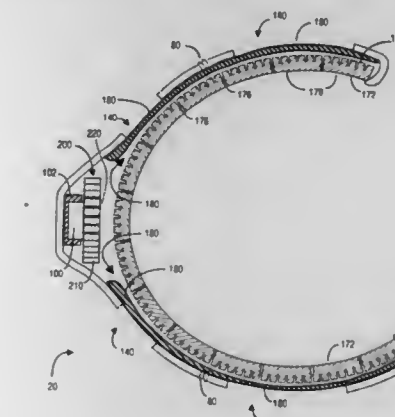
Ted N. Strauss, Fairfax, Calif., assignor to The Sharper Image, San Francisco, Calif.

Filed Sep. 5, 1997, Ser. No. 924,580

Int. Cl.⁶ F25D 5/00; 23/12

U.S. Cl. 62—259.3

20 Claims



1. A device for cooling a body portion of a user, comprising: a generally C-shaped housing sized to fit around at least 180° conformally about said body portion;

a heat dissipating member disposed within said housing such that a first surface is biasedly urged against said body portion, wherein said heat dissipating member has the first surface facing said body portion and an opposite second surface having a greater surface area than said first surface to promote heat dissipation;

a liquid-retainable material disposed within said housing so as to contact at least a chosen one of an upper region and a lower region of said heat dissipating member while being spaced-apart from said second surface of said heat dissipating member to define at least one plenum; and

means for moving ambient air into said housing, along said plenum, and out of said housing.

5,802,866

AIR-COOLED ABSORPTION-TYPE AIR CONDITIONING APPARATUS

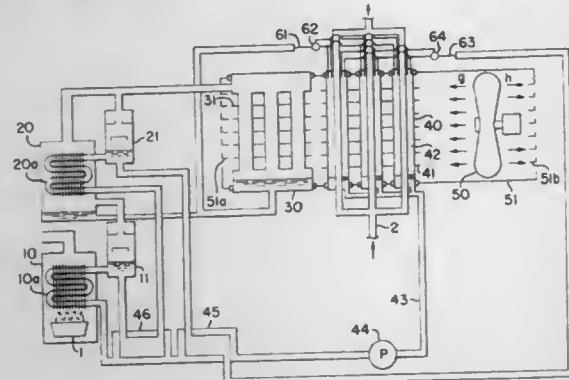
Katsusuke Ishiguro, Nagoya, Japan, assignor to Paloma Industries, Ltd., Aichi, Japan

Filed Jun. 18, 1997, Ser. No. 878,218

Claims priority, application Japan, Jul. 25, 1996, 8-215422
Int. Cl.⁶ F25B 15/00

U.S. Cl. 62—324.2

2 Claims



1. An air-cooled absorption-type air conditioning apparatus to perform a cooling operation or a heating operation comprising:
 - a regenerator to heat an absorption liquid, and to separate it into a higher concentration absorption liquid and a coolant vapor;
 - a condenser having external fins to condense the coolant vapor from the said regenerator into a liquid coolant;
 - an air conditioning device to adjust the air temperature by thermal media circulating in circulation pipes;
 - outer pipes having external fins formed concentrically around the outer circumference of said circulation pipes to form chambers between said circulation pipes and said outer pipes;
 - a fan to blow air to said condenser and said outer pipes;
 - means to perform the cooling operation by chilling the thermal media circulating in the circulation pipes by spraying liquid coolant from said condenser onto the outer surface of said circulation pipes in said chambers formed between said circulation pipes and said outer pipes, and spraying absorption liquid from said regenerator onto the inner surface of said outer pipes;
 - means to perform the heating operation by heating the thermal media circulating in said circulation pipes by spraying liquid coolant from said condenser onto the inner surface of said outer pipes and spraying absorption liquid from said regenerator onto the outer surface of said circulation pipes in said chambers; and
 - whereby said fan blows air in the direction from said outer pipes to said condenser during the cooling operation and in the direction from said condenser to said outer pipes during the heating operation.

5,802,867

REFRIGERATOR WITH A COOL AIR DISPERSING DEVICE

Tae Gil Kang, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

PCT No. PCT/KR96/00136, § 371 Date May 30, 1997, § 102(e)
Date May 30, 1997, PCT Pub. No. WO97/07370, PCT Pub. Date Feb. 27, 1997

PCT Filed Aug. 19, 1996, Ser. No. 809,869

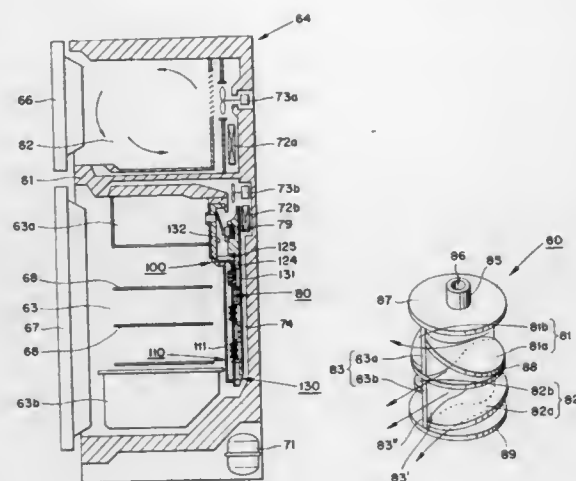
Claims priority, application Rep. of Korea, Aug. 19, 1995, 199525557

Int. Cl.⁶ F25D 17/04

7 Claims

U.S. Cl. 62—408

1. A refrigerator including a main body housing a fresh food compartment, and a cool air duct provided in a wall of the fresh food compartment and having a cool air discharging opening



opened toward the fresh food compartment to supply a cool air from an evaporator into the fresh food compartment, the refrigerator comprising:

- a rotary shaft;
- a partitioning plate mounted on said rotary shaft along a rotation axis of said rotary shaft, said partitioning plate being disposed near said cool air discharging opening;
- a driving means for rotating said rotary shaft; and
- a pair of cool air dispersing wings mounted on both surfaces of said partitioning plate with an inclined angle to said rotation axis.

5,802,868

SADDLE TYPE ADSORBENT UNIT

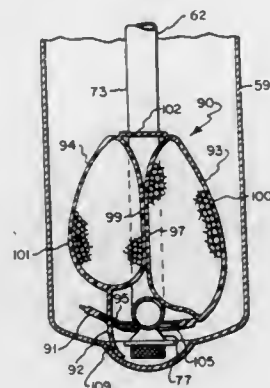
Paul A. Riemenschneider, Williamsville, N.Y., assignor to Multisorb Technologies, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 626,464, Apr. 2, 1996, Pat. No. 5,636,525. This application Apr. 24, 1997, Ser. No. 847,380

Int. Cl.⁶ F25B 43/00; B01D 59/26

U.S. Cl. 62—474

39 Claims



1. An adsorbent unit comprising first and second porous fabric adsorbent containers, adsorbent in said first and second containers, inner and outer end portions on said first and second containers, a connecting member connecting said inner end portions of said first and second containers, a first tab extending outwardly from said outer end portion of said first container, a second tab extending outwardly from said outer end portion of said second container, and aperture means in at least one of said first and second tabs for mounting said adsorbent unit on a structural member which is external thereto.

5,802,869

ABSORPTION REFRIGERATOR

Manabu Kagawa, and Mitsuru Ishikawa, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

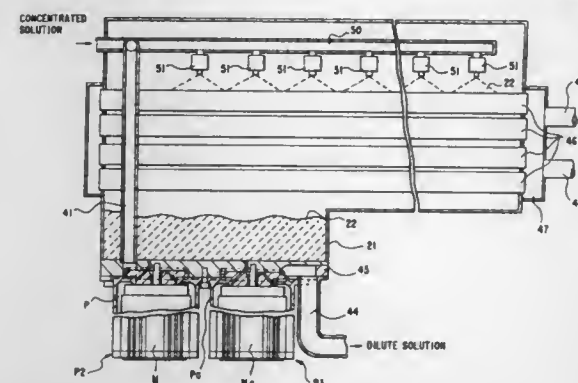
Filed Apr. 3, 1997, Ser. No. 834,732

Claims priority, application Japan, Apr. 5, 1996, 8-110388

Int. Cl.⁶ F25B 15/00

U.S. Cl. 62—476

8 Claims



1. An absorption refrigerator comprising:
 - an evaporator provided with a refrigerant tank for storing a refrigerant;
 - an absorber fluidly communicated by a vapor passage to the evaporator and provided with an absorbent solution tank for storing a solution of an absorbent which absorbs a refrigerant vapor generated in the evaporator;
 - a regenerator for heating the absorbent solution drawn from the absorber to release the refrigerant vapor;
 - a condenser for condensing the refrigerant vapor released in the regenerator for supplying to the evaporator; and
 - a pump for delivering the absorbent solution from the absorbent solution tank, wherein a housing of said pump joined to a recessed part of a wall of the absorbent solution tank to make a pump chamber so that the pump and the absorbent solution tank are formed integral with each other.

5,802,870

SORPTION COOLING PROCESS AND SYSTEM

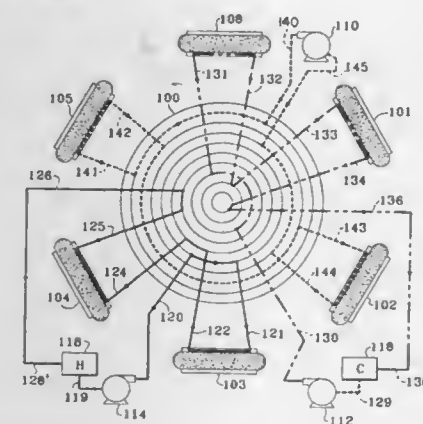
Edward Charles Arnold, Naperville; Stephen R. Dunne, Algonquin, and Syed M. Taqvi, Rolling Meadows, all of Ill., assignors to UOP LLC, Des Plaines, Ill.

Filed May 2, 1997, Ser. No. 850,544

Int. Cl.⁶ F25B 17/08; 15/00

U.S. Cl. 62—480

32 Claims



1. A process for sorption heating and cooling comprising the following steps:
 - a. supplying a first hot stream to a first sorption zone of at least 2 sorption zones, each sorption zone comprising a heat trans-

fer zone and a separate adsorption zone, said adsorption zone containing a sorbent, said heat transfer zone being in intimate indirect thermal contact with said adsorption zone to permit an essentially uniform temperature throughout said sorption zone to desorb a refrigerant vapor from the adsorption zone of said first sorption zone at an upper pressure and provide a hot exit stream from the heat transfer zone of said first sorption zone;

- b. passing the refrigerant vapor stream to a cooler and condenser zone to provide a condensate stream, reducing the pressure of the condensate stream to a lower pressure to provide a reduced pressure condensate, and passing the reduced pressure condensate to an evaporator zone to provide a revaporized refrigerant stream;
- c. passing a cold stream to the heat transfer zone of a second sorption zone and recovering a cold exit stream, and simultaneously conducting the revaporized refrigerant stream to the adsorption zone of said second sorption zone to adsorb the revaporized refrigerant;
- d. simultaneously terminating the passing of refrigerant vapor from said first sorption zone, terminating the passing of said hot stream to the heat transfer zone of said first sorption zone, terminating the passing of the cold stream to the second sorption zone, and passing a recirculation stream between the heat transfer zone of the first sorption zone and the heat transfer zone of the second sorption zone; and
- e. repeating the above steps (a) through (d) to provide a sorption cooling or heating cycle wherein said first sorption zone and second sorption zone alternately undergo a desorption stroke in step (a), an adsorption stroke in step (c), and an intermediate stroke in step (d) between alternate adsorption and desorption strokes.

5,802,871

DEPHLEGMATOR PROCESS FOR NITROGEN REMOVAL FROM NATURAL GAS

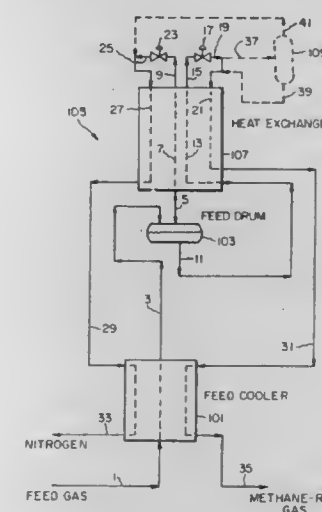
Lee Jarvis Howard, Pikeville, and Howard Charles Rowles, Center Valley, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 16, 1997, Ser. No. 951,705

Int. Cl.⁶ F25J 1/00

U.S. Cl. 62—627

19 Claims



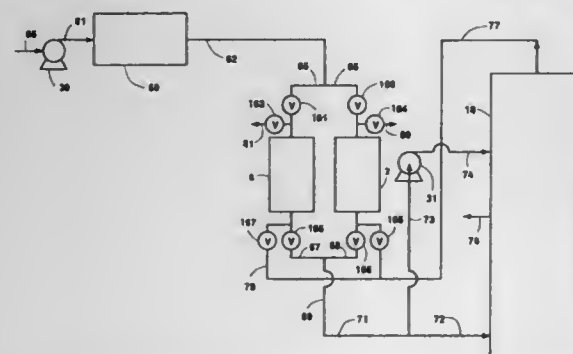
1. A method for the removal of nitrogen from a pressurized feed gas mixture containing nitrogen and methane which comprises:
 - (a) cooling the feed gas mixture;
 - (b) introducing the resulting cooled feed gas mixture into a dephlegmator wherein the gas mixture is further cooled, partially condensed, and rectified to produce a nitrogen-rich overhead and a methane-rich bottoms;
 - (c) subcooling the methane-rich bottoms and reducing the pressure of the resulting subcooled stream;

(d) vaporizing the resulting reduced-pressure methane-rich stream in the dephlegmator by indirect heat exchange with the cooled feed gas mixture to provide at least a portion of the refrigeration required for cooling, partially condensing, and rectifying the cooled feed gas mixture in step (b); and
(e) withdrawing from the dephlegmator an intermediate vaporized methane-rich stream.

5,802,872
CRYOGENIC AIR SEPARATION WITH COMBINED PREPURIFIER AND REGENERATORS
John Fredric Billingham, Getzville; Dante Patrick Bonaquist, Grand Island, and James Robert Dray, Kenmore, all of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.
Filed Jul. 30, 1997, Ser. No. 902,919
Int. Cl.⁶ F25J 1/00

U.S. Cl. 62—641

10 Claims



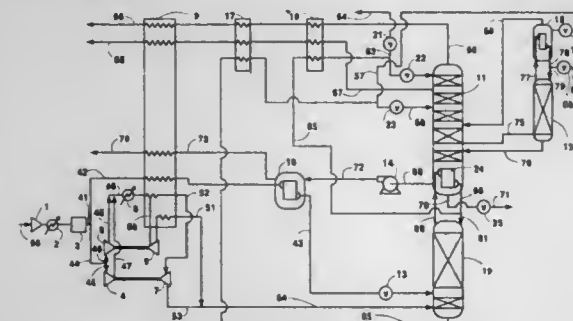
1. A method for separation of air by cryogenic rectification comprising the steps of:

- compressing feed air which contains impurities;
- passing the compressed feed air through a prepurification system wherein the air is substantially cleaned of impurities;
- cooling the cleaned air by passage through a previously cooled regenerator while cooling another regenerator by passing a waste stream from a cryogenic air separation facility through this other regenerator;
- introducing the cooled air into the cryogenic air separation facility; and
- withdrawing a product stream from the air separation facility.

5,802,873
CRYOGENIC RECTIFICATION SYSTEM WITH DUAL FEED AIR TURBOEXPANSION
Henry Edward Howard, Grand Island, N.Y., assignor to Praxair Technology, Inc., Danbury, Conn.
Filed May 8, 1997, Ser. No. 848,397
Int. Cl.⁶ F25J 3/00

U.S. Cl. 62—646

8 Claims



1. A method for the cryogenic separation of air comprising:

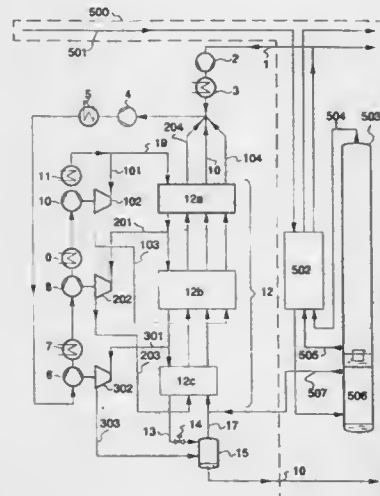
- compressing feed air to an expansion pressure to produce expansion pressure feed air;
- cooling a first portion of the expansion pressure feed air to a first temperature, turboexpanding the cooled first portion, and passing the turboexpanded first portion into a cryogenic air separation plant;
- cooling a second portion of the expansion pressure feed air to a second temperature which is lower than said first temperature, turboexpanding the cooled second portion, and passing the turboexpanded second portion into the cryogenic air separation plant wherein shaft work from the expansion of the first portion and the second portion of the feed air is used to compress the feed air to the expansion pressure;
- separating the feed air by cryogenic rectification within the cryogenic air separation plant to produce product; and
- recovering product from the cryogenic air separation plant.

5,802,874
PROCESS AND APPARATUS FOR LIQUEFYING LOW BOILING GAS SUCH AS NITROGEN
Jürgen Voit, Schondorf, Germany, assignor to Linde Aktiengesellschaft, Hoeftriegelskreuth, Germany
Filed Mar. 5, 1997, Ser. No. 810,764
Claims priority, application Germany, Mar. 11, 1996, 196 09 489.5

Int. Cl.⁶ F25J 3/00

U.S. Cl. 62—650

36 Claims



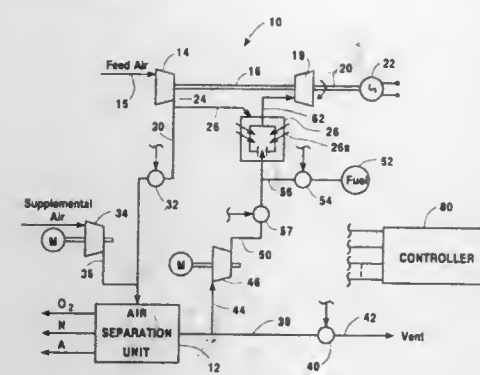
1. A process for liquefying a low-boiling gas, in which gas to be liquified is cooled under an increased pressure, is expanded and is subsequently obtained as a liquid product, comprising a refrigeration cycle in which a cycle medium is compressed to a first pressure, a first partial flow of the cycle medium is expanded while carrying out work in a first expansion unit, a second partial flow of the cycle medium is cooled and is expanded while carrying out work in a second expansion unit, and a third partial flow of the cycle medium is cooled and is expanded while carrying out work in a third expansion unit, the inlet pressures and the outlet pressures of the three expansion units being essentially equal and the cooling of the gas to be liquified being carried out at least partially by an indirect heat exchange with expanded cycle medium in a cycle heat exchanger,

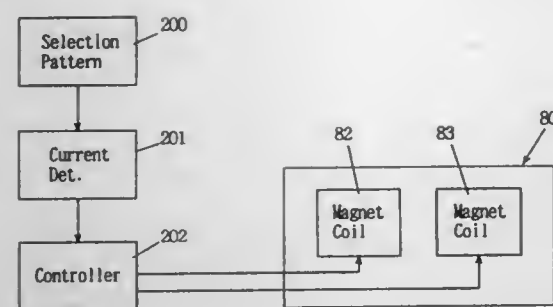
wherein the cooling of at least one of the second and third partial flow and the cooling of the gas to be liquified is carried out at least partially by an indirect heat exchange with expanded cycle medium in a co-current flow in the cycle heat exchanger, and wherein the outlet pressures of the expansion units are essentially the same.

5,802,875
METHOD AND APPARATUS FOR CONTROL OF AN INTEGRATED CRYOGENIC AIR SEPARATION UNIT/ GAS TURBINE SYSTEM
Raymond Francis Drnevich, Clarence, N.Y., assignor to Praxair Technology, Inc., Danbury, Conn.
Filed May 28, 1997, Ser. No. 864,343
Int. Cl.⁶ F25J 3/02

U.S. Cl. 62—656

8 Claims





reciprocating over the needle beds, each of said needle beds having plural needle grooves, and each of said needle grooves having a needle, a select jack and a selector therein wherein

said carriage has a selector actuator having an attraction site comprising a permanent magnet and a release site comprising an electromagnet,

said selector is arranged on the select jack for free sliding and rocking, said selector having a pole contact at one end thereof for being attracted or released by the selector actuator, and the selector being excited to release the pole contact from the selector actuator,

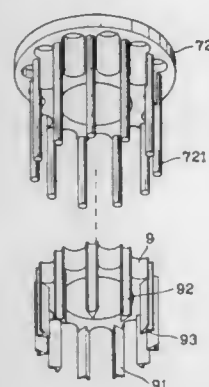
said selector has a tip on an opposite end from the pole contact, the tip having a protrusion for protruding out of the needle groove, and

said carriage has a reference plane that contacts in plane with said protrusion when the pole contact is attracted by the selector actuator.

5,802,879
KNITTING MACHINE YARN RECEIVER WITH ACCUMULATED WASTE DISCHARGE DEVICE
Lin Chung Min, No. 4, Aly.122, LN. 352, Sec. 1, Chungshan Rd., Yungho, Taipei, Taiwan
Filed Jan. 10, 1997, Ser. No. 781,708
Int. Cl.⁶ D04B 15/48

U.S. Cl. 66—132 R

4 Claims



1. An improved yarn receiver for use in knitting machines, comprising:

a driving reel integrally formed by plastics injection molding having a transmission shaft in the center, a bottom flange with no protrusive edge and a plurality of spaced L-shaped struts formed around the rim of the bottom flange and projecting upwardly;

a driven reel having a top flange and a plurality of spaced pillars formed around the rim of the top flange and projecting downwardly;

a bushing reel integrally formed by plastics injection molding having a plural number of sheaths, each sheath holding a pillar, the pillars being positioned with the struts in a staggered manner;

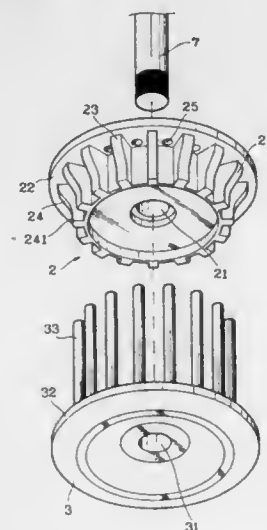
a brush means located on a yarn feeding means for holding the yarns wound around the yarn receiver from falling off; and

a pulley driven by a belt being engaged with one end of the transmission shaft; whereby the brush means will automatically discharge hards and refuses falling off from the yarn receiver.

5,802,880
IMPROVEMENT OF YARN SUPPLY REEL AND YARN GUIDE FOR KNITTING MACHINES
Lin Chung min, No. 4, Aly. 122, LN. 352, Sec. 1, Chungshan Rd., Yungho, Taipei, Taiwan
Filed Jan. 10, 1997, Ser. No. 781,709
Int. Cl.⁶ D04B 15/48

U.S. Cl. 66—132 R

2 Claims



1. An improvement of a yarn supply reel and yarn guide for knitting machines, comprising:

a driving reel having a second spindle opening engageable with a transmission spindle of a knitting machine and a second flange with a plurality of spaced struts vertically formed thereon in annular manner;

a driven reel made by plastics injection molding having a first spindle opening which mates with the second spindle opening and a first flange with a plurality of spaced ribs formed thereunder, each rib having a slanted and curved lateral surface pointing downwardly and inwardly, the first flange having an aperture formed between a pair of the ribs for engaging with a strut; and

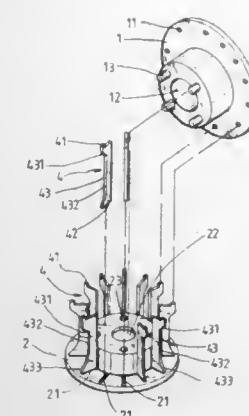
a yarn guide made by elastics injection molding having curved and smooth surfaces and edges, a through aperture in a top plate and a pair of spaced slots for holding a porcelain rod; wherein when a yarn enters a yarn supply reel at an upper portion, it is caused to slip along the slanted lateral surface of the yarn supply reel, wind around the struts and then pass over the porcelain rod of a yarn guide before reaching a needle so as to provide a yarn supply at a constant tension.

5,802,881
KNITTING MACHINE THREAD WHEEL CONSTRUCTION
Tean-Lai Lin, No. 272, Chun Shing Street, Shu Lin Chen, Taipei Hsien, Taiwan
Filed Feb. 4, 1997, Ser. No. 792,752
Int. Cl.⁶ D04B 15/48

U.S. Cl. 66—132 T

1 Claim

1. A thread wheel of the type comprising: a top wheel base having a plurality of locating holes equiangularly spaced around the periphery, a center through hole, and a plurality of mounting plug rods spaced around the center through hole; a bottom wheel



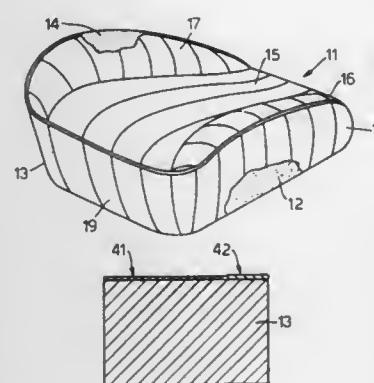
base having a plurality of locating holes equiangularly spaced around the periphery corresponding to the locating holes of said top wheel base, a center through hole longitudinally connected to the center hole of said top wheel base and adapted to be connected to a center shaft of an automatic thread storage and feeding unit of a knitting machine by a screw bolt, and a plurality of plug holes spaced around the center through hole of said bottom wheel base which receive the mounting plug rods of said top wheel base; and supporting elements connecting said top wheel base to said bottom wheel base, said supporting elements having two opposite ends respectively fitted into the locating holes of said top wheel base and the locating holes of said bottom wheel base, and an outer face disposed between two opposite ends, said outer face comprised of an upper section adapted for guiding thread in, a lower section adapted for guiding thread out, and a middle section adapted for storing thread.

wherein said supporting elements comprise an elongated flat plate, at least one end of each of said supporting element having a rectangular cross section, the locating holes of said top wheel base and said bottom wheel base being adapted for receiving the two opposite ends of said supporting elements, and having a respective cross section fitting the cross section of the respective end of the respective supporting element.

5,802,882
KNITTED COVER
William E. Girard, Ontario, Canada; Daniel J. Forest, Macomb, Mich.; Malcolm Frederick Proctor, Nottingham, and Gerald Francis Day, Derbyshire, both of United Kingdom, assignors to General Motors Corporation, Detroit, Mich.
Filed Jun. 3, 1996, Ser. No. 657,214
Int. Cl.⁶ D04B 1/16

U.S. Cl. 66—170

15 Claims



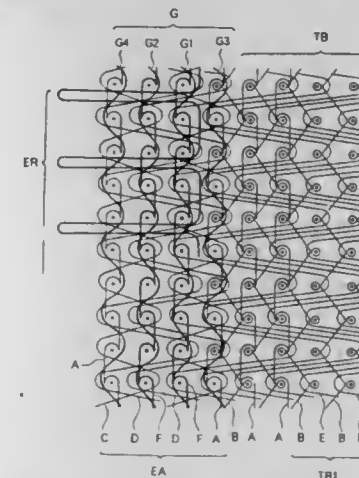
1. A double jersey weft knitted cover having a front layer and a rear layer, said cover being knitted from at least one heat-treatable ground yarn and having a visual and tactile indicator portion formed thereon during knitting to indicate whether said cover has

passed through a heat treatment, said indicator portion comprising a flap knitted integrally with the cover and comprising two layers of knitted fabric, at least one layer being knitted from heat-sensitive yarn and being capable of changing its physical form after heat treatment.

5,802,883
KNIT SLIDE FASTENER STRINGER
Yoshio Matsuda; Hidenobu Kato, and Yoshito Ikeguchi, all of Toyama-ken, Japan, assignors to YKK Corporation, Tokyo, Japan
Filed Jun. 20, 1997, Ser. No. 879,817
Claims priority, application Japan, Jun. 24, 1996, 8-163380
Int. Cl.⁶ D04B 21/20; 21/14; A44B 19/56

U.S. Cl. 66—193

4 Claims



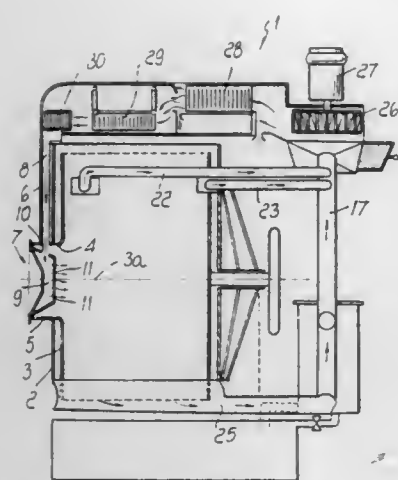
1. A knit slide fastener stringer comprising:
(a) a fastener tape knitted in a warp-knit ground structure and having along one longitudinal edge an element-attaching portion;
(b) a continuous fastener element row knitted in and along said element-attaching portion of said fastener tape and secured by two or more wales of anchoring chain stitch yarns simultaneously with the knitting of said fastener tape;
(c) successive needle loops of each of said two or more wales formed of said anchoring chain stitch yarns, which press said continuous fastener element row toward said warp-knit ground structure of said fastener tape from the upper side, and successive sinker loops, which constitute part of said ground structure; and
(d) a number of warp-inlaid yarns each laid in and interlaced with at least part of said successive sinker loops.

5,802,884
MACHINE FOR WASHING AND DEGREASING WITH SOLVENTS OR FOR DRYING TEXTILE PRODUCTS OR THE LIKE
Giuseppe Cavalli, Viale Matteo, 8 - 22060 Campione D'Italia (Prov. di Como), Italy
Filed Nov. 1, 1996, Ser. No. 742,616
Int. Cl.⁶ D06F 43/08; F26B 21/02

U.S. Cl. 68—18 C

8 Claims

1. A machine for washing and degreasing with solvents textile products, comprising
a container having a drum therein which can be rotated about its own axis, said container being closed by a door on one of its sides, which is directed towards an axial end of said drum, a circuit for conveying a stream of drying air being provided, said circuit having a delivery duct leading into said container at the region of said door, wherein the machine further comprises



means for directing the stream of drying air, in the region where it enters said container, along a direction that is substantially parallel to the axis of said drum;
said means for directing the stream of drying air comprising a chamber formed in said door, said chamber being provided with at least one intake port, which is formed on the lateral surface of said door and faces the outlet of said delivery duct, and with at least one discharge port, which is formed on the face of said door that faces said drum, said discharge port being arranged along the axis of said drum and comprising a plurality of holes formed on the face of said door that faces said drum, an antistatic deionizing device being accommodated in said chamber.

5,802,885

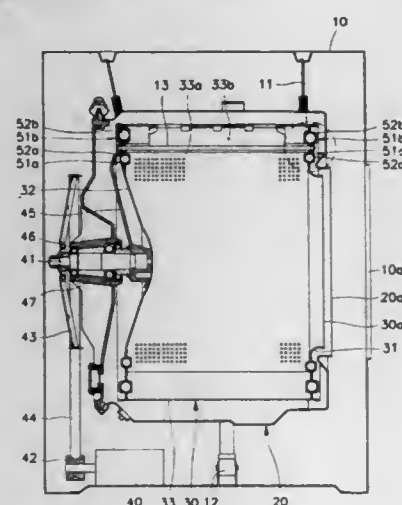
BALANCING DEVICE FOR DRUM WASHING MACHINE
Jin-Soo Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 22, 1997, Ser. No. 861,568

Claims priority, application Rep. of Korea, May 30, 1996, 1996-13848 U; May 30, 1996, 1996-13849 U; May 30, 1996, 1996-13853 U

Int. Cl.⁶ D06F 37/22

U.S. Cl. 68—23.2



1. A drum washing machine comprising:
a rotatable spin basket having a cylindrical side panel defining a horizontal center axis, a front panel connected to a front end of the side panel, and a rear panel connected to a rear end of the side panel;
a front plate joined to a front surface of the front panel along a front interface, and a rear plate joined to a rear surface of the rear panel along a rear interface;

the front panel and front plate together forming a front race structure comprised of radially spaced annular races arranged coaxially with the center axis;
the rear panel and rear plate together forming a rear race structure comprised of radially spaced annular races arranged coaxially with the center axis;
each of the front and rear race structures having one portion thereof protruding longitudinally forwardly of the respective interface, and another portion thereof protruding longitudinally rearwardly of the respective interface; and
balls movably disposed in each of the races.

5,802,886

SPIN BASKET FOR A WASHING MACHINE
Jae-Sin Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

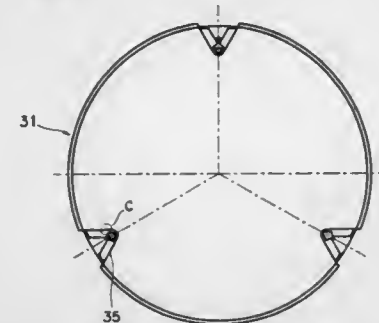
Filed May 12, 1997, Ser. No. 854,817

Claims priority, application Rep. of Korea, May 30, 1996, 1996-13836; May 30, 1996, 1996-13837

Int. Cl.⁶ D06F 37/06

U.S. Cl. 68—142

4 Claims



1. A spin basket for a drum type clothes washing machine, comprising a cylindrical side panel, the side panel including a rectangular sheet formed into a cylindrical shape, the sheet having opposed ends folded back around one another to form an interlocking joint, the sheet forming inwardly projecting lifters adapted to raise laundry during rotation of the spin basket, each lifter including an inwardly projecting wall, the interlocking joint disposed in one of the walls.

5,802,887

SNOWMOBILE SKI LOCK
Camille Bélard, 679, Place Louise-Philippe, Baie-Comeau (Québec), Canada

Filed Dec. 9, 1996, Ser. No. 761,372

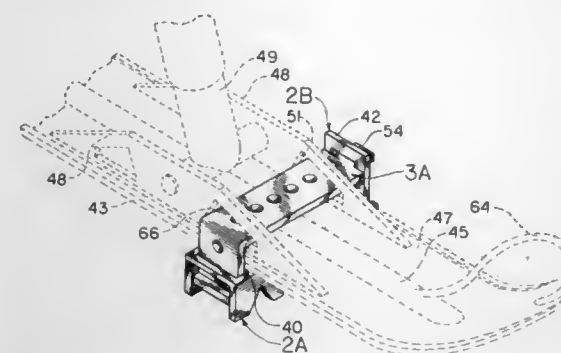
Claims priority, application United Kingdom, Apr. 24, 1996, 9608425

Int. Cl.⁶ E05B 73/00; B60R 25/00

U.S. Cl. 70—14

7 Claims

1. A locking device for the apertured ski of a snowmobile comprising a ground engaging elongated member of inverted U-shaped cross-section including a top web and two depending wings, each with a serrated lower edge forming a ground gripping means, said web having an aperture at one end of said ground engaging member and recessed relative to said wings to form an opening at the other end of said ground engaging member,
an elongated locking member releasably attached to said web through said aperture and extending over and longitudinally of said ground engaging member, and
an elongated pivotal member pivoted to said wings about a pivotal axis transverse to and located at said other end of said



ground engaging member, said pivotal member upwardly extending through said opening, both said locking member and said pivotal member having interengageable free ends to be locked together, said ground engaging member adapted to be positioned under and transversely of a snowmobile apertured ski with said locking member extending over said ski and through its aperture.

5,802,888

FLEXIBLE STRAP RESTRAINING DEVICE
Kevin L. Parsons, Appleton, Wis., assignor to Arament Systems and Procedures, Inc., Appleton, Wis.

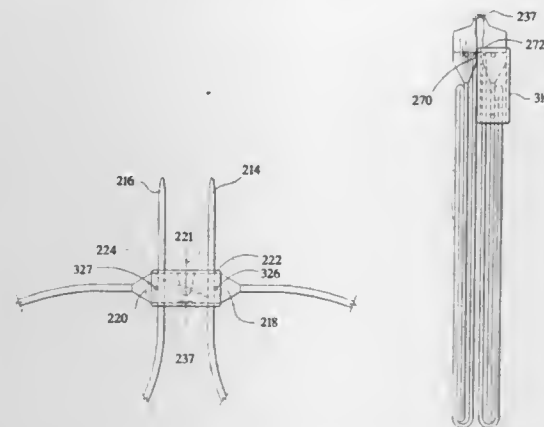
Continuation of Ser. No. 327,042, Oct. 21, 1994, abandoned.

This application Feb. 13, 1996, Ser. No. 600,563

Int. Cl.⁶ E05B 75/00; B65D 63/00

U.S. Cl. 70—16

34 Claims



1. In a disposable restraining device having a flexible strap with two ends adapted to form two closed loops, an improvement comprising:

- a locking mechanism located on the strap between the two ends, said locking mechanism adapted for securing one end of the strap to form a loop;
- an integral hinge formed in the strap between the two ends, said restraining device is the restraining device is adapted to be secured and stored in a folded position when not in use folded at the integral hinge; and
- a cover having a hollow interior, inner walls, a top portion and a bottom portion and open ends, said cover adapted for placement on the strap by inserting one end of the strap through the open ends of the cover, said cover is slidably mounted over said hinge and locking mechanism when in use to reinforce said hinge and preclude tampering with said locking mechanism.

5,802,889
RAPID SECURING BICYCLE LOCK

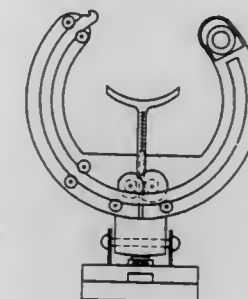
L. Taylor Arnold, 13500 Lipizzan Ct., Matthews, N.C. 28105

Filed Apr. 7, 1997, Ser. No. 834,935

Int. Cl.⁶ E05B 71/00

U.S. Cl. 70—18

19 Claims



1. A bicycle locking device for locking a bicycle to a fixed object, said device comprising:

- a housing defining a central opening and being adapted for securement to the bicycle, said housing further defining an entrance into the central opening through which the fixed object can be passed such that the fixed object is partially encircled by the housing;
- a plunger supported by said housing such that a portion of said plunger is within said central opening and spaced from said entrance, said plunger being adapted for engagement and movement by the fixed object;
- a shackle operatively connected to said plunger for orbital movement in response to movement of the plunger, said shackle being supported by said housing for circular movement about an axis of rotation which does not pass through the shackle such that the shackle orbits around the fixed object and bridges the entrance to the central opening defined by said housing; and
- a lock supported by the housing for locking the shackle once the fixed object has been fully encircled such that the fixed object cannot be removed from the central opening through the entrance therein.

5,802,890

ANTI-THEFT DEVICE APPLICABLE TO CONTAINERS OF ARTICLES

Jerónima Espada-Velasco, Barcelona, Spain, assignor to Activ Protection Systems S.L., Barcelona, Spain

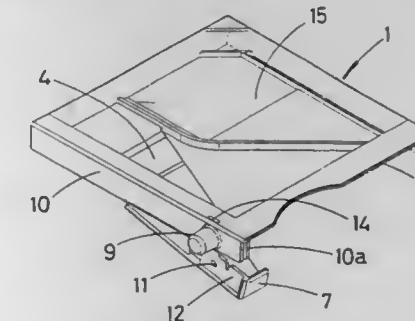
Filed May 13, 1997, Ser. No. 855,317

Claims priority, application Spain, May 14, 1996, 9601077

Int. Cl.⁶ G11B 33/04; B65D 85/57

U.S. Cl. 70—57.1

2 Claims

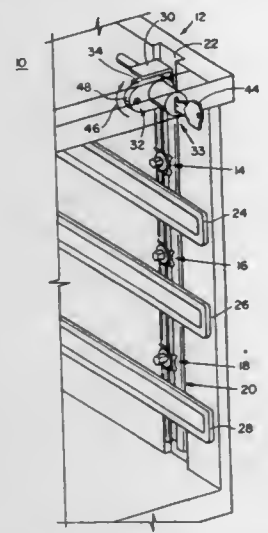


1. A new anti-theft device applicable to containers of articles, of the kind comprising a container (1) having a flattened parallelepiped or other shape, open through one of its smaller faces (3) and having on an adjacent smaller face (10) a bolt (8) that is axially mobile across said face (10), biased by a spring (13) towards a locking position of the article (2) or contents, and released from said locking position by the action of a magnetic field generated by

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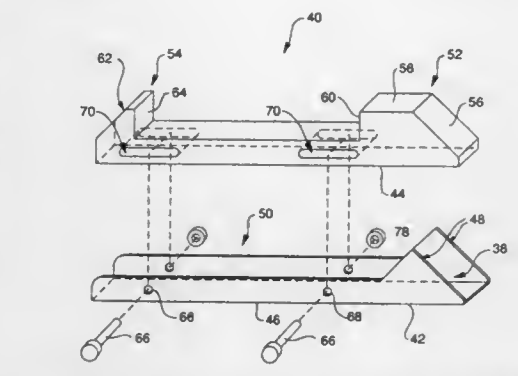
an external machine, essentially characterised in that the container (1) has an area (4) partially or entirely relating to one of its larger faces (5), which area has an articulation line (6) about which it tends to flex to lie at an angle to the general plane of the face (5), a free side of the said area (4) being provided with a right-angled flap (7) which, when the area (4) is situated coplanarly with the face (5), partially or fully closes the opening (3), preventing the removal of the packed article (2), and in which closed position the area (4) is kept locked by means of a conventional device comprising the said bolt (8) located outside the smaller face (10) and inserted in a hole (11) provided in a wall (12) lying perpendicular to the flap (7).

5,802,891
ANCHOR ASSEMBLY FOR MULTIPLE DRAWER LOCKING SYSTEM
Thomas Arthur Kahara, Fitchburg, and Wayne Rodrigues Crespo, Winchendon, both of Mass., assignors to ESP Lock Products, Inc., Leominster, Mass.
Filed Mar. 20, 1997, Ser. No. 820,868
Int. Cl.⁶ E05B 65/44; F16B 27/00
U.S. Cl. 70—79



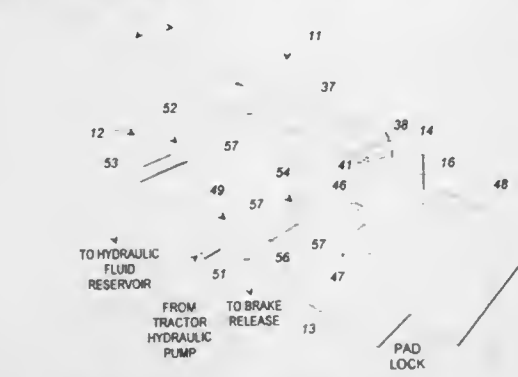
1. An improved anchor assembly for a multiple drawer locking system having a "C" shaped lock bar with an access slot, said anchor assembly comprising:
an anchor having an anchor element for slidably mounting in a lock bar and a mounting device;
a multifaceted locking pin for engaging said mounting device;
and
an indexing plate between said anchor element and said pin and including at least one anti-rotational element for extending through the slot into the lock bar to prevent said anchor element from rotating and aligning with the slot.

5,802,892
STORAGE SYSTEM INCLUDING MULTIFUNCTION LOCK ASSEMBLY UTILIZING LOCK LATCH MECHANISM AND LOCK LATCH EXTENSION MECHANISM
Robert J. Cohn, Dallas; Douglas J. Kaminski, Wilkes-Barre, and Robert W. Altonji, Quakertown, all of Pa., assignors to Metro Industries, Inc., Reno, Nev.
Filed May 8, 1996, Ser. No. 643,434
Int. Cl.⁶ E05B 65/44
U.S. Cl. 70—84
23 Claims
1. A lock latch extension mechanism for a lock assembly including a lock catch and a striker member, said lock latch extension mechanism comprising:



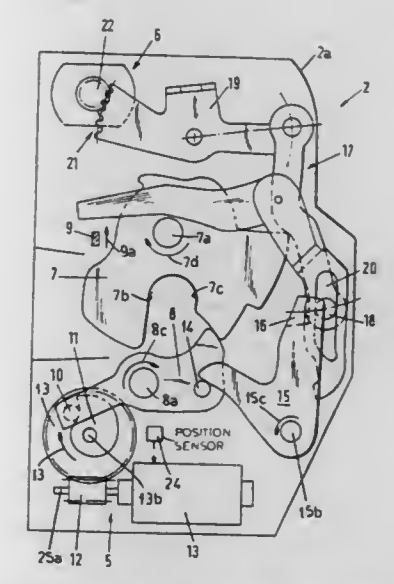
a linear shuttle slide including a locking portion engagable with the lock catch of the lock assembly, and a latching portion engagable with the striker member of the lock assembly.

5,802,893
HYDRAULIC TRACTOR THEFT PREVENTION DEVICE
Mike Avery, 1699 Donna Lynn Dr., Smyrna, Ga. 30080
Filed Mar. 24, 1995, Ser. No. 410,495
Int. Cl.⁶ F16K 35/00
U.S. Cl. 70—180
5 Claims



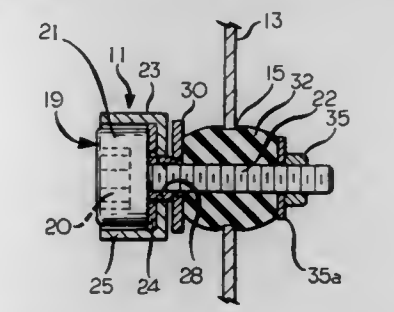
1. An anti-theft device for use with vehicles having brakes that are normally applied to prevent vehicle movement and that are hydraulically released for use when the vehicle is started, the vehicle including a hydraulic fluid reservoir for containing hydraulic fluid and a hydraulic fluid pump for delivering hydraulic fluid under pressure to a brake release actuator from which the hydraulic fluid recirculates to the reservoir, said anti-theft device comprising:
a substantially rectangular block-shaped body having opposed first and second faces, opposed top and bottom sides, and opposed ends;
a substantially cylindrical bore extending from said top side of said body to a terminal end of said bore within said body;
a first internal passageway formed in said body with said first internal passageway communicating with said cylindrical bore and extending therefrom to a terminal end within said body;
a second internal passageway formed in said body with said second internal passageway communicating with said cylindrical bore and extending therefrom to a terminal end within said body, said terminal end of said second internal passageway being displaced from said terminal end of said first passageway;
a substantially cylindrical valve core having a longitudinal axis, an external end and an internal end and being positioned within said substantially cylindrical bore, wherein said external end is located at said top side of said body and said internal end is positioned within said bore spaced from said terminal end thereof;
said first and second internal passageways communicating with said bore at a position intermediate said external and internal ends of said valve core;
sealing means for sealing said valve core against an interior surface of said bore adjacent said external and internal ends thereof;

a conduit formed in said valve core with said conduit having a first end communicating with said terminal end of said bore and a second end communicating with said bore at a position corresponding to a location where said first and second internal passageways communicate with said bore;
said valve core being rotatable about said longitudinal axis within said bore between a first position wherein said second end of said conduit communicates with said first internal passageway and a second position wherein said second end of said conduit communicates with said second internal passageway;
an elongated handle having a first end and a second end, wherein said first handle end is fastened to said exterior end of said valve core, said handle having a secure position, wherein said handle extends from said valve core exterior end, along said top side of said block, such that when said valve core is in said valve core first position, a longitudinal axis of said handle is aligned with a longitudinal axis of said block, and wherein exterior edges of said handle are disposed inwardly of edges of said top surface;
a locking mechanism disposed near said second handle end for locking said handle means in said secure position;
a fluid inlet port coupled to and communicating with said bore at the terminal end thereof for receiving hydraulic fluid under pressure from the hydraulic pump;
a first fluid outlet port coupled to and communicating with said first internal passageway adjacent the terminal end thereof for delivering hydraulic fluid back to the hydraulic fluid reservoir; and
a second fluid outlet port coupled to and communicating with said terminal end of said second internal passageway for delivering hydraulic fluid to the brake release actuator, whereby when said handle is locked in place in said secure position, hydraulic fluid is directed from the hydraulic pump through said valve core, said first internal passageway and back to the reservoir leaving the brakes engaged so that the vehicle can not be operated and when said handle is unlocked and rotated from said secure position, hydraulic fluid is directed from the hydraulic pump through said valve core, said second internal passageway and to the brake release actuator to release the brakes for operation of the vehicle.



said door locks for said plurality of doors all being practically structurally identical;
a central electrical control unit on the vehicle for controlling said locks; and
at least one electrical control line connecting said central control unit to said locks for operating the first and the second electrically operable actuators of each lock from said central unit with the functions "operate," "lock and unlock," "anti-theft mode on and off" and "child-safe mode on and off", each of said locks being provided with a bistable relay controlled by said central unit and electrically settable to "unlocking" and "locking" modes, each relay disconnecting current flow to said first electrically operable actuator of the respective lock in said "locking" mode.

5,802,894
CENTRAL LOCKING SYSTEM FOR AN AUTOMOTIVE VEHICLE WITH STRUCTURALLY IDENTICAL DOOR LOCKS
Achim Jahrsetz, Velbert; Frank Kleefeldt, Heiligenhaus; Wilfried Ostermann, Essen, and Fred Welskopf, Herne, all of Germany, assignors to Kiekert AG, Heiligenhaus, Germany
Filed Jun. 10, 1996, Ser. No. 653,366
Claims priority, application Germany, Aug. 18, 1995, 195 30 726.7
Int. Cl.⁶ E05B 63/00
U.S. Cl. 70—264
8 Claims
1. A central locking system for an automotive vehicle comprising:
a respective electrically controllable door lock for each of a plurality of doors of said vehicle, each of said door locks including:
a respective rotary bolt on the door engageable with a respective pin,
a respective swingable keeper pivotable between a position in which the respective bolt is secured and a position in which the respective bolt is free to rotate,
a first electrically operable actuator operatively connected to said keeper for displacing same, and
an interior actuating lever operatively connectable to said keeper for displacing same,
a coupling lever selectively displaceable between an effective position connecting said interior actuating lever with said keeper and an ineffective position wherein displacement of said interior actuating lever cannot displace said keeper, and
a second electrically operable actuator operatively connected to said coupling lever for displacing said coupling lever between said effective and ineffective positions,



1. In combination,
a vehicle having an access port for a linear tool employed to raise and lower a vehicle spare tire/wheel assembly from a storage position under said vehicle, and
a locking/blocking device for said access port comprising, an elongate shaft,
an expandable, plug-like member carried by said shaft, and adapted to be inserted through said access port,
said shaft including a terminal end cap including a recess configured to receive a key means actuable to translate a turning action on said shaft to radial expansion of said plug-like member to a size incapable of being removed from said access port; and said key means being actuable in reverse fashion, thereby to reduce the size of said plug-like member to its original size whereby it is capable of being removed from said access port, thereby allowing access to said port.

5,802,896

SAFETY LOCK-SET

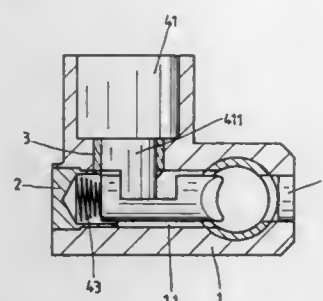
Ching-Tien Tsai, No. 3, Lane 288, Hsi-Shu Rd., Tainan, Taiwan

Filed May 7, 1997, Ser. No. 852,339

Int. Cl.⁶ E05B 15/16

U.S. Cl. 70—417

1 Claim



1. A safety lock-set, comprising:

- a main body having a lock-pin hole formed therethrough adjacent a bottom side thereof and a transversely directed hollow cylinder intersecting a rear end of said lock-pin hole and in open communication therewith;
- a socket member formed of heat-treated steel and disposed in said rear end of said lock-pin hole to form a closure therefor, said socket member having a closed end and an opposing open end to define a cavity therein, said open end having an arcuate shaped notch formed in a perimeter edge thereof;
- a spring disposed in said cavity of said socket member;
- a latch disposed in said lock-pin hole and having a rear end surface in contiguous contact with one end of said spring within said cavity of said socket member;
- a lock barrel disposed in said hollow cylinder and having a set bar extending therefrom for displaceably engaging said latch;
- a heat-treated steel bushing having a tubular contour disposed in said hollow cylinder and surrounding said set bar, said bushing having a distal end with arcuate notches formed in a perimeter edge thereof, said distal end of said bushing contacting said socket member with respective arcuate notches being disposed in aligned relationship, said socket member and said bushing together forming a shield around said set bar, said spring and a rear end portion of said latch.

5,802,897

Patent Not Issued For This Number

5,802,898

APPARATUS FOR FORMING A TUBULAR FRAME MEMBER

Ralph E. Roper, Indianapolis, Ind., assignor to Aquaform, Inc., Auburn Hills, Mich.

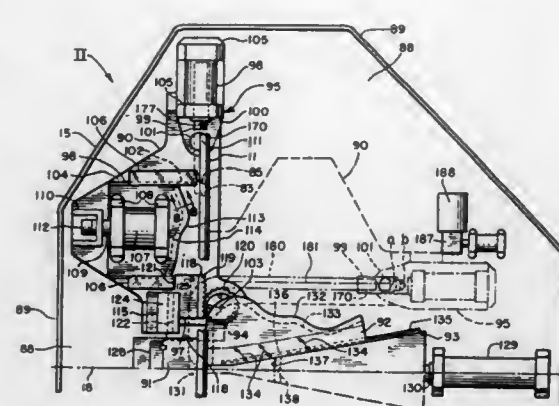
Division of Ser. No. 263,325, Jun. 21, 1994, Pat. No. 5,499,520, which is a division of Ser. No. 77,616, Aug. 23, 1993, Pat. No. 5,353,618, which is a division of Ser. No. 837,081, Feb. 13, 1992, Pat. No. 5,239,852, which is a continuation of Ser. No. 482,782, Feb. 21, 1990, abandoned, which is a continuation-in-part of Ser. No. 398,272, Aug. 24, 1989, abandoned. This application Jun. 5, 1995, Ser. No. 463,664

Int. Cl.⁶ B21D 26/02; 15/03

U.S. Cl. 72—58

14 Claims

- 1. An apparatus for bending a tube blank having an outer diameter, comprising:
 - an inner bending die having an arcuate outer surface which has a first radius from an axis;
 - a wiper shoe having an inner surface, said shoe disposed and adapted to trap a tube blank between said inner surface and said outer surface;



holding means for holding a first portion of the blank against said inner die;

limiting means for limiting movement of said shoe to rolling about an arc around said axis, said arc having a second radius from said axis which is approximately between said first radius and said first radius plus said diameter; and,

moving means for moving said shoe around said axis, and around the blank thereby bending a second portion of the blank around said outer surface; and

sealing and pressurizing means for sealing the blank and for hydraulically pressurizing the interior of the blank to a sufficient pressure to allow said moving means to bend said second portion of the blank around said outer surface, said pressurized liquid acting like a flexible mandrel to alone ensure uniform, non-buckling deformation of the tube, substantially without distorting the cross section of the second portion.

5,802,899

METHOD FOR INTERNAL HIGH-PRESSURE DEFORMING OF HOLLOW OFFSET SHAFTS MADE OF COLD-DEFORMABLE METAL

Friedrich Klaas, Achalmstrasse 24, D-73432 Aalen; Helmut Bogel, Gabelsbergerstrasse 10, D-73431 Aalen, and Georg Weber, Kapellenweg 15, D-73466 Lauchheim/Rottingen, all of Germany

PCT No. PCT/DE94/01300, § 371 Date Jul. 12, 1996, § 102(e) Date Jul. 12, 1996, PCT Pub. No. WO95/12466, PCT Pub. Date May 11, 1995

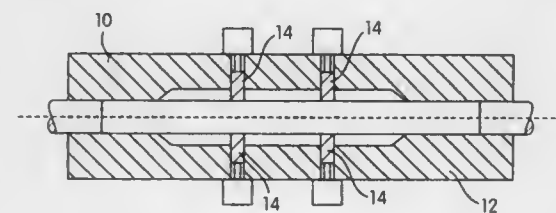
PCT Filed Nov. 3, 1994, Ser. No. 637,783

Claims priority, application Germany, Mar. 11, 1993, 43 37 517.0

Int. Cl.⁶ B21D 26/02

U.S. Cl. 72—58

1 Claim



1. A method for internal high-pressure deforming of hollow offset shafts of cold-deformable metal comprising the following steps:

- disposing a pipe having an initial wall thickness in a tool, said tool having bracing elements resiliently mounted therein to prevent said pipe from buckling while applying a longitudinally inwardly directed force to opposing end portions of said pipe;

- filling said pipe with fluid;
- sealing opposite ends of the pipe;
- applying an internal high pressure to the fluid suitable for circumferentially expanding an intermediate portion of the pipe between opposing end portions of the pipe;
- maintaining or increasing a calibration pressure of said fluid while applying said longitudinally inwardly directed force to said opposing end portions of said pipe to thereby increase the wall thickness of said opposing end portions of said pipe on opposing sides of said intermediate portion such that the wall thickness of said end portions of said pipe after said circumferential expansion is greater than said initial wall thickness.

5,802,901

PROCESS FOR CORRECTING THE DISTORTION OF ELECTROLYTIC SEED PLATES

Hirobisa Oda, Niihama; Masamichi Miyauchi, Yamato; Akinori Miura, Niihama; Kenichi Moriyama, Niihama; Tsuneo Funahashi, Niihama; Yukihisa Moriya, Niihama, and Katsushi Takeda, Niihama, all of Japan, assignors to Sumitomo Metal Mining Co., Ltd., Tokyo, and Kawazoe Machine Works, Ltd., Amagasaki, both of Japan

Continuation of Ser. No. 578,938, Dec. 27, 1995, abandoned.

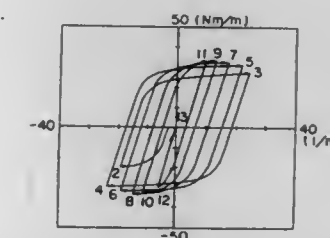
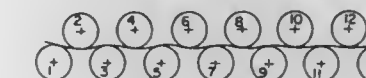
This application Aug. 20, 1997, Ser. No. 915,085

Claims priority, application Japan, Dec. 27, 1994, 6-338079

Int. Cl.⁶ B21D 1/02; 3/02; B21B 15/00

U.S. Cl. 72—161

4 Claims



5,802,900

APPARATUS FOR FABRICATING A FLUID BEARING

Sung-hee Lee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Rep. of Korea

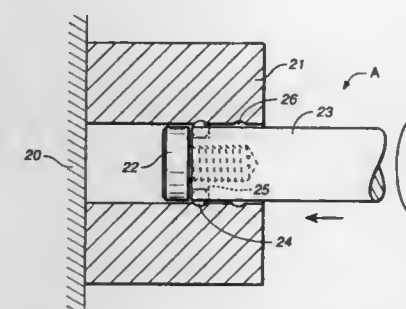
Continuation of Ser. No. 435,815, May 5, 1995, abandoned.

This application May 20, 1997, Ser. No. 859,573

Int. Cl.⁶ H21D 17/04

U.S. Cl. 72—75

1 Claim



- 1. An apparatus for fabricating a fluid bearing comprising a rotary shaft, a ball-accepting cylindrical guide groove with an end portion open to a leading edge surface of the rotary shaft for accepting a hard ball projected in a predetermined radial distance beyond an outer surface of the rotary shaft provided at the leading edge of said rotary shaft;
- a ball-escape-preventing device having substantially the same outer diameter as an outer diameter of the rotary shaft and a substantially planar surface enclosing the end portion of the ball-accepting cylindrical guide groove for preventing said hard ball from escaping in the axial direction of said rotary shaft, which said ball-escape-preventing device is coupled at said leading edge of said rotary shaft and the hard ball has a contacting surface which projects a predetermined height beyond the outer diameter of the ball-escape-preventing device with a predetermined diameter in a perpendicular radial direction with respect to a longitudinal axis of the rotary shaft to produce a force perpendicular to the longitudinal axis; and
- a locking means for connecting said ball-escape-preventing device to the center of said rotary shaft for preventing said hard ball from escaping with rotation of said rotary shaft, said locking means including a threaded slot formed within the end of said rotary shaft.

5,802,902

PRODUCTION PLANT FOR CONTINUOUSLY OR DISCONTINUOUSLY ROLLING HOT STRIP

Dieter Rosenthal, Niederfischbach, and Wilfried Bald, Hilchenbach, both of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany

Filed Nov. 1, 1996, Ser. No. 743,431

Claims priority, application Germany, Nov. 3, 1995, 195 40 978.7

Int. Cl.⁶ B21B 1/04

U.S. Cl. 72—201

15 Claims



- 1. In a production plant for rolling hot strip from slabs produced by continuous casting, the production plant including a shearing machine in a strip travel direction following a continuous casting plant or a casting machine and in front of an equalizing furnace, an additional shearing machine and a descaling unit following the equalizing furnace and in front of a continuously operating rolling

mill, and a heating or cooling unit and a strip reeling unit of a coiling machine following the rolling mill, the improvement comprising the rolling mill comprising a plurality of four-high stands as a first roll stand group, additional individual heating devices between the four-high stands of the first roll stand group, wherein the strip reeling unit is comprised of a double reeling machine.

5,802,903 MANUFACTURING METHOD FOR ANGLED STEEL PIPES

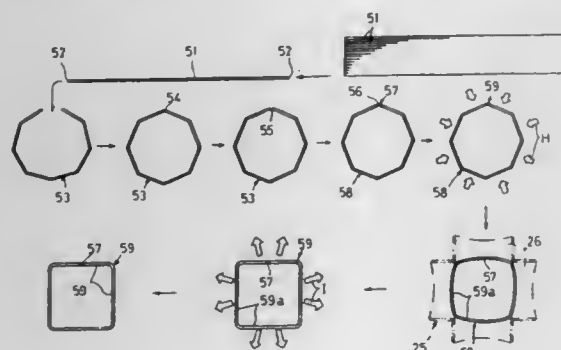
Norio Nakajima, Fukuroi, Japan, assignor to Nakajima Steel Pipe Co., Ltd, Osaka, Japan

Filed Jan. 28, 1997, Ser. No. 790,330

Int. Cl.⁶ B21D 13/10; 39/02; 27/06

U.S. Cl. 72—224

4 Claims



1. A manufacturing method for angled steel pipes, comprising the steps of:

- press forming flat plate material into the shape of a polygonal hollow steel pipe by a pressing machine;
- seam welding a pair of bevels of the polygonal hollow steel pipe to form the polygonal hollow steel pipe to a larger width size than that of the final product;
- heating an entire portion of the seam-welded polygonal hollow steel pipe in a hot oven; and then
- hot forming the polygonal hollow steel pipe into an angled steel pipe while drawing the polygonal steel pipe to reduce the width size thereof by an angled steel pipe forming mill.

5,802,904 MULTIPART ROLL STAND

Michael Minnerop, Düsseldorf; Manfred Albedyhl, Mettmann; Karl Otto Schmidt; Hermann Bahr, both of Hilchenbach; Egon Foermer, Meerbusch; Berthold Schulze, Wenden, and Alexander Svagr, Wegberg, all of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Düsseldorf, Germany

Filed Sep. 20, 1995, Ser. No. 531,040

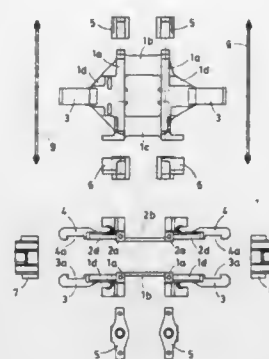
Claims priority, application Germany, Sep. 23, 1994, 9415429 U

Int. Cl.⁶ B21B 13/10; 31/00; 31/07

U.S. Cl. 72—225

1 Claim

1. In a universal roll stand including two pairs of vertical housings, wherein the housings of each pair are connected to one another by upper and lower crossbeams, wherein the housings have at sides thereof facing away from the crossbeams lateral support projections for receiving vertical rolls, and wherein the pairs of vertical housings are connected to one another by transverse girders, the improvement comprising the vertical housings of each pair of vertical housings being composed of a single piece with the crossbeams and the lateral support projections, tie rods guided by the vertical housings and the transverse girders, wherein the pairs of vertical housings are connected to each other horizontally and



5,802,905 PROCESS AND DEVICE FOR APPLYING A TEMPERATURE PROFILE TO METAL BLOCKS FOR EXTRUSION

Amit Kumar Biswas, Kaarst; Alfred Steinmetz, Willich, both of Germany, and Ivar Venaas, Chartres, France, assignors to SMS Hasenclever GmbH, Düsseldorf, Germany, and Hydro Aluminium AS Karmoy, Haavik, Norway

PCT No. PCT/DE94/00166, § 371 Date Feb. 12, 1996, § 102(e) Date Feb. 12, 1996, PCT Pub. No. WO94/19124, PCT Pub. Date Sep. 1, 1994

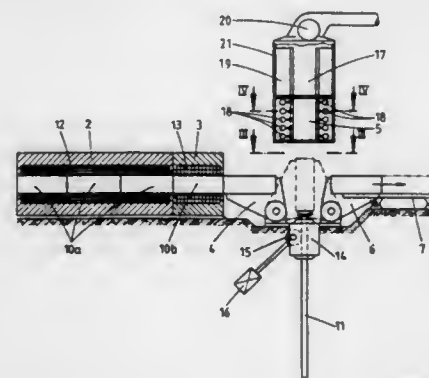
PCT Filed Feb. 17, 1994, Ser. No. 525,541

Claims priority, application Germany, Feb. 18, 1993, 43 05 012.3

Int. Cl.⁶ B21C 33/00

U.S. Cl. 72—270

4 Claims



2. An installation for applying a temperature profile to metal blocks for extrusion in metal-extrusion presses, the installation comprising

- a furnace,
- a chamber divided into a plurality of zones of separately controllable cooling intensity for regionally controlled chilling of evenly pre-heated metal blocks with controlled movement of the metal block relative to the zones, and
- means for transporting the metal blocks from the furnace to the chilling chamber and on to a block-loading means of the metal-extrusion press,
- the chilling chamber having a vertical axis,
- the chilling chamber being arranged with said vertical axis above a transport means for the blocks,
- the transport means including two block-tilting means, and
- a push rod for displacing the block relative to the chilling chamber, said push rod being arranged below the chilling chamber coaxially therewith so as to be liftable and lowerable.

5,802,906 MACHINE USED FOR FOLDING, PROFILING AND CUTTING METAL SHEETS

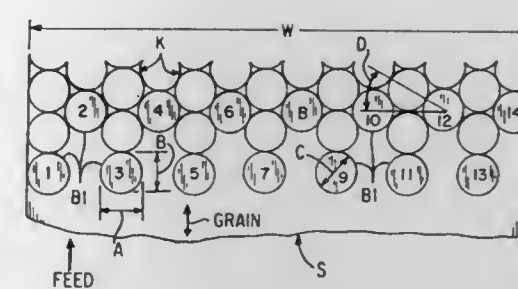
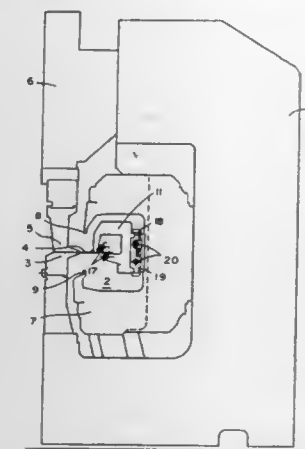
Jorma Juhani Lillbacka, Kaubava, Finland; Roberto De Rossi, and Luigi Patuzzi, both of Bologna Veneta, Italy, assignors to Finn-Power Italia Srl, Brescia, Italy

Filed May 10, 1996, Ser. No. 644,861

Int. Cl.⁶ B21D 5/02; 5/16; 28/00

U.S. Cl. 72—294

19 Claims



cut edge die surrounding the draw pad at each station, and a die center punch within the draw pad at each station, the method comprising the steps of forming the cut edge die and the blank and draw die at each station to produce an out-of-round disk-like blank, arranging the tooling stations to produce nested blanks with adjacent blanks having centers defining a line forming an angle different than thirty degrees with a line perpendicular to the direction of feed of the strip through the press, cutting the strip between the annular cut edge dies and the corresponding annular blank and draw dies for forming the blanks, holding the metal blanks between the annular draw pads and the corresponding annular blank and draw dies at the stations, and engaging center portions of the blanks with the corresponding die center punches for drawing the blanks into cups.

1. Machine for folding, profiling and cutting of work sheets comprising:

- a support structure;
- a lower presser element, onto which a sheet to be worked on rests, coupled to said support structure;
- an upper presser element movable with respect to said support structure and working cooperatively with said lower pressure element for maintaining said sheet in a proper horizontal plane;
- a mobile structure having a substantially C-shaped cross section including two end tips for defining a longitudinal channel;
- a pair of folding blades adaptable for folding said sheet each respectively mounted to one of said end tips when said C-shaped structure is moved along an axis perpendicular to said horizontal plane, said C-shaped structure being movable as a unit;
- at least one removable tool holding means situated in the interior of said channel and positionable along the longitudinal axis of said channel; and
- at least one tool means coupled to said tool holding means for effecting profiling and/or cutting operations on said sheet held in position by said upper and lower presser elements.

5,802,907 TOOLING APPARATUS AND METHOD FOR HIGH SPEED PRODUCTION OF DRAWN METAL CUP-LIKE ARTICLES

Ralph P. Stodd, 6450 Poe Ave., Suite 113, Dayton, Ohio 45414
Continuation-in-part of Ser. No. 679,770, Jul. 15, 1996, which is a continuation-in-part of Ser. No. 516,831, Aug. 18, 1995, Pat. No. 5,638,717, which is a continuation-in-part of Ser. No. 184,969, Jan. 21, 1994, Pat. No. 5,442,947, which is a continuation-in-part of Ser. No. 30,777, Mar. 12, 1993, abandoned. This application Mar. 3, 1997, Ser. No. 810,531

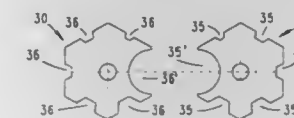
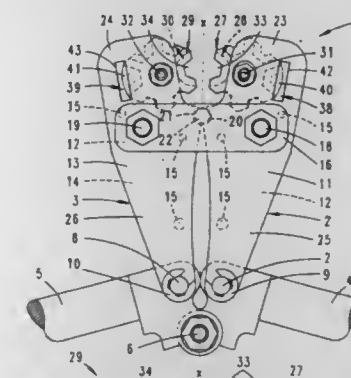
Int. Cl.⁶ B21D 28/02

U.S. Cl. 72—336

23 Claims

1. A method of forming a batch of cups from a strip of sheet metal with each stroke of a double action mechanical press including an inner ram and an outer ram each supported for reciprocating movement, the rams supporting tooling comprising a series of horizontally spaced and substantially identical cup-forming stations each including an annular draw pad, an annular blank and draw die opposing the annular draw pad at each station, an annular

1. A press tool for pressing cable terminals and connectors onto electrical conductors, having two clamping jaws movable against one another to effect a pressing operation, there being rotatably mounted in each clamping jaw, respectively one disc-type press die formed with several different press troughs on the circumference, each press trough being selectable by rotation of the disc-type press die into a working position to operate on a cable terminal or connector, which press die is lockable in each working position, wherein a second press die is associated with each press die, the second press die being arranged to be rotatable independently of the first press die.



5,802,909

APPARATUS AND METHODS FOR MONITORING
CARBON DISULPHIDE

George Charles Faulder, The Old Barn, Hollow Lane, Cheddleton, Leek, Staffordshire ST13 7HP; Richard Martin Faulder, Colour Mill Cottage, Winkhill, Near Leek, Staffordshire ST13 7PR, and Roger Neil Bloor, Pinewood House, Pinewood Drive, Ashley Heath, Market Drayton, Shropshire TF9 4PA, all of United Kingdom

PCT No. PCT/GB95/01480, § 371 Date Feb. 26, 1997, § 102(e) Date Feb. 26, 1997, PCT Pub. No. WO96/00900, PCT Pub. Date Jan. 11, 1996

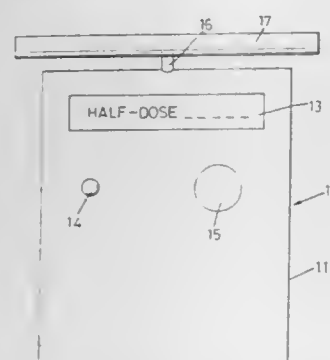
PCT Filed Jun. 23, 1995, Ser. No. 793,466

Claims priority, application United Kingdom, Jun. 28, 1994, 9412909

Int. Cl.⁶ G01N 33/497; 33/00

U.S. Cl. 73—23.3

6 Claims



1. Apparatus for self-testing for carbon disulphide in a sample of breath comprising a gas sensor for detecting the carbon disulphide and generating a measure of carbon disulphide concentration in the sample and means for storing the measure on a daily basis.

5,802,910

MEASURING SYSTEM FOR LIQUID VOLUMES AND
LIQUID LEVELS OF ANY TYPE

Heinrich Krahn, Schönfelderstrasse 4, D-34225 Baunatal 5; Adolf Günther, Waldstrasse 5, D-34466 Wolfhagen, and Werner Weindl, Max. Plank-Strasse 11, D-34225 Baunatal 1, all of Germany

PCT No. PCT/IB96/00318, § 371 Date Dec. 10, 1996, § 102(e) Date Dec. 10, 1996, PCT Pub. No. WO96/33392, PCT Pub. Date Oct. 24, 1996

PCT Filed Apr. 11, 1996, Ser. No. 765,042

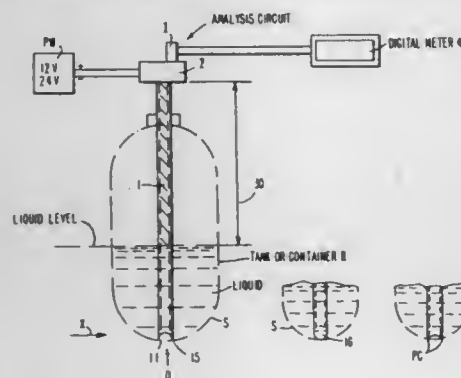
Claims priority, application Germany, Apr. 15, 1995, 195 14 201.1

Int. Cl.⁶ G08B 21/00; E21B 47/04; G01F 23/18

U.S. Cl. 73—299

8 Claims

1. An apparatus with a single measurement tube for measuring



liquid volume of liquid held in a container having a lowest point, said apparatus having no moving parts and comprising:

a dynamic pressure tube (1) having an open tube end (O), wherein said dynamic pressure tube (1) stands in said container (6) with said open tube end (O) at said lowest point (11) of said container and said open tube end (O) is shaped so that only some, but not all, points (PC) on said open tube end (O) rest on a bottom surface (S) of said container at said lowest point (11), so that said liquid can flow into and out of said dynamic pressure tube (1) until an equilibrium liquid level (L) is attained;

a pressure measurement converter (2) closing another end of said dynamic pressure tube (1) opposite from said open tube end (O) so as to form an air column (30) between the pressure measurement converter (2) and a liquid level (L) in said dynamic pressure tube (1); and

an electronic analyzing device (3,4) comprising an electronic circuit (3) mounted on the pressure measurement converter (2) and connected electrically to said pressure measurement converter (2), said electronic circuit (3) including means responsive to said pressure measurement converter for producing an electronic signal characteristic of the liquid volume in the container (6).

5,802,911

SEMICONDUCTOR LAYER PRESSURE SWITCH

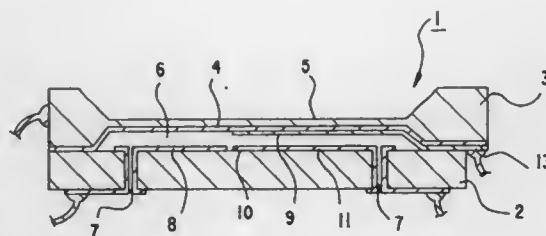
Sean Samuel Cabill, Palo Alto, Calif., and Tokudai Neda, Tokyo, Japan, assignors to Tokyo Gas Co., Ltd., Tokyo, Japan

Filed Sep. 13, 1994, Ser. No. 305,443

Int. Cl.⁶ G01L 9/06; H01H 35/40

U.S. Cl. 73—727

5 Claims



1. A pressure switch element including a semiconductor layer having a diaphragm portion in a center thereof and a plate having a through hole, said semiconductor layer and said plate being stacked one on another and forming a gas space between said diaphragm portion of said semiconductor layer and said plate with said through hole communicating between the interior of said gas space and the exterior of said pressure switch element, said pressure switch element comprising:

an insulating layer on said diaphragm portion of said semiconductor layer and facing said plate;

a first switch electrode on said insulating layer; and

a fixed electrode and a second switch electrode on said plate;

said diaphragm portion on said semiconductor layer, said insulating layer on said diaphragm portion of said semiconductor layer and said fixed electrode on said plate forming a first of a pair of electrostatically attracted contacts; and

said fixed electrode and said second switch electrode on said plate forming a second of said pair of said electrostatically attracted contacts;

said through hole communicating between the interior of said gas space and the exterior of said pressure switch element increasing and decreasing the space between said electrostatically attracted contacts as gas pressure exterior of said pressure switch increase or decrease and is fed to or exhausted from said gas space in said pressure switch element.

5,802,912

ELECTRICAL TERMINAL APPARATUS

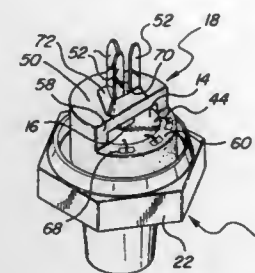
Paul Joseph Pitzer, Kokomo, and Andres Deogracias Viduya, Carmel, both of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Jan. 25, 1996, Ser. No. 591,814

Int. Cl.⁶ G01L 7/00; H01G 13/66

U.S. Cl. 73—756

7 Claims



1. An electrical connection apparatus, comprising in combination:

a base supporting electronic elements including at least a first bond pad;

a connector assembly including a nonconductive element mounted on the base and having a dome portion extending above the base and covering at least some of the base, and at least one terminal blade supported by the nonconductive element and having a first end extending away from the base and a second end defining at least a second bond pad in proximity to said first bond pad, said dome portion having an opening to permit wirebond access to the first and second bond pads during the manufacture of the apparatus; and a wirebond connection between the first bond pad and the second bond pad.

5,802,913

WINDOW OPERATOR

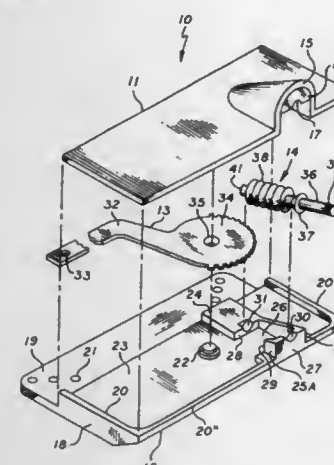
Kurt W. Winner, 133 Polihale Pl., Honolulu, Hi. 96825

Filed May 19, 1997, Ser. No. 858,696

Int. Cl.⁶ E05F 11/24

U.S. Cl. 74—89.18

8 Claims



1. A window operator for opening and closing casement and awning windows comprised of a plurality of window panels coupled to one of said panels comprising:

an injection molded plastic housing consisting solely of a generally rectangular base and a generally rectangular cover, said base having an upstanding peripheral wall extending along at least part of both side edges and one elongated edge thereof interconnecting said side edges, said cover conforming to the wall and adapted to mate therewith, a worm gear mounted on said base, said base having a cavity therein for receiving

one-half of said worm gear therein, said cover having a cavity for receiving the other half of said worm gear therein and an integral upstanding pivot pin on said base spaced from said cavity in said base for receiving a geared actuating arm thereon in pivotal relationship;

said worm gear having a worm gear portion of bronze or heat treated stainless steel disposed in said cavities with an integral shaft for rotating said worm gear portion, said shaft extending out of said mating cavities beyond said elongated edge, said cavities having inner walls in non-frictional contact with said worm gear portion so that said worm gear portion spins freely therein;

an actuating arm having a geared portion in driving engagement with said worm gear portion receiving said pin in a hole through said geared portion, said arm having an integral arm portion extending from said geared portion away from said geared portion and past said cover, said arm portion being adapted to be coupled to the window panel of said window, for opening and closing said windows whereby, rotating said shaft rotates said worm gear portion thus moving said handle arm portion, thereby moving said window panel; and

control means associated with said cavities and said worm gear portion for controlling the frictional free rotation of said worm gear portion, said control means including said cavity in said base being provided by a first upstanding wall portion spaced from one of said side walls and from said elongated edge having a groove at the upper end thereof, and a second portion upstanding from said elongated edge also having a groove at the upper end thereof, said first portion being spaced from said second portion providing an opening for receiving said shaft of said worm gear therein, said grooves being generally aligned, said second portion higher than said first portion whereby one-half of said worm gear shaft rests in said grooves in said base with said shaft extending beyond said second portion and the other half of said worm gear shaft is disposed in like configured grooves in downwardly extending wall portions in said cover, said control means further comprising said grooves in said cover receiving a portion of said shaft therein, and friction regulating means comprising said worm gear portion having a thrust face end bearing against and trapped between thickened portions associated with said mating grooves in said base and said cavity, and slots on each side of said both base and said cover adjacent said elongated edge whereby said thickened portions bear against the thrust face end of said worm gear portion and said slots bend outwardly under the spring action of said thickened portions bearing on the thrust face end of said worm gear portion.

5,802,914

ALIGNMENT MECHANISM USING FLEXURES

Werner Fassler, Rochester; James E. Pickering, Holcomb, and John E. Mooney, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

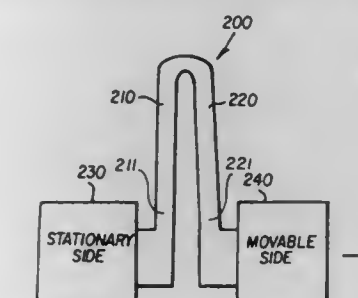
Filed May 30, 1996, Ser. No. 655,367

Int. Cl.⁶ F16H 21/44

U.S. Cl. 74—110

12 Claims

1. A U-shaped mechanical first flexure for linear translation,



comprising:

a first leg having a first length L_1 , a first Young's modulus E_1 , and a first moment of inertia I_1 ; and

a second leg having a second length l_2 , a second Young's modulus E_2 , and a second moment of inertia I_2 , wherein an end of the first leg is joined with an end of the second leg so that the two legs are substantially coextensive and parallel to each other in order to form a U-shaped structure, and

wherein, when a force is applied to an unjoined end of the first leg along an axis through the unjoined end of the first leg and an unjoined end of the second leg, said unjoined leg ends move with respect to each other substantially along the axis, and

wherein the first and second leg lengths, the first and second Young's modulus and the first and second moment of inertia are selected in order to obtain

$$i^4 + (7n - 5)i^3 + (16n^2 - 65n + 85n^4 - 36n^5)i^2 + (5n^5 + 3n^6)i - n^7 = 0$$

wherein

$$n = L_2/L_1 \text{ and } i = E_2 I_2 / E_1 I_1$$

whereby translation of said unjoined leg is perfectly along said axis through said unjoined ends.

5,802,915

TRANSMISSION SHIFTING MECHANISM WITH BALL RAMP ACTUATOR

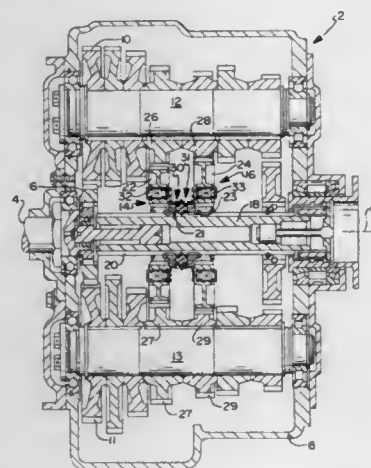
Gregory J. Organek, Detroit, and David M. Preston, Clarkston, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed May 23, 1996, Ser. No. 652,741

Int. Cl. F16H 59/04

U.S. Cl. 74—331

8 Claims



1. A transmission shift system for a transmission having a mainshaft and at least one countershaft disposed substantially within a housing having rotational axes parallel to one another; at least two pairs of gears, each pair comprising a countershaft gear nonrotatably attached to said countershaft permanently in mesh with a corresponding mainshaft gear rotatably supported on said mainshaft, said mainshaft gear supported on said mainshaft being connectable to said mainshaft by an axially moveable jaw clutch, the shift system comprising:

a ball ramp mechanism comprising an actuation ring nonrotatably connected to said mainshaft and a control ring disposed adjacent to said actuation ring, both encircling said mainshaft and having opposed faces provided with circumferentially extending grooves, arranged as at least three opposed pairs of grooves, including portions of varying depth, and rolling members disposed one in each opposed pair of grooves, said grooves on said actuation ring and said control ring being

arranged so that relative angular movement of said actuation ring and said control ring in either direction, from a starting position thereof, causes axial movement of said control ring away from said actuation ring to axially displace said jaw clutch thereby rotatably coupling said mainshaft gear to said mainshaft;

a coil assembly mounted to said housing and electrically energized to create an electromagnetic field to frictionally couple said control ring to said mainshaft gear thereby causing relative rotation between said control ring and said actuation ring; a clutch plate adapted to frictionally engage said coil assembly upon electrical energization of said coil assembly, said clutch plate being nonrotatably linked to said control ring; where said jaw clutch axially contacts said control ring and has axially beveled clutch teeth formed thereon adapted to engage a corresponding plurality of axially beveled engagement cavities formed in said mainshaft gear.

5,802,916

SHIFT DEVICE FOR A CHANGE SPEED-GEARBOX

Thilo Ebinger, Stuttgart; Hans-Jürgen Neubauer, Remshalden, and Martin Schetter, Besigheim, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

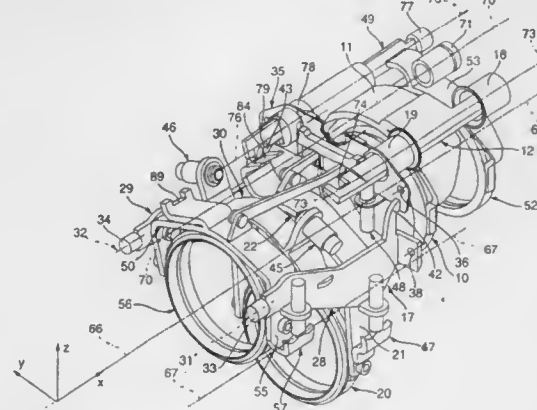
Filed Mar. 10, 1997, Ser. No. 815,264

Claims priority, application Germany, Mar. 9, 1996, 196 09 209.4

Int. Cl. B60K 20/00

U.S. Cl. 74—360

33 Claims



17. A transmission assembly comprising:

a first axially displaceable shift rod operable to actuate a first gear wheel clutch by movement thereof in a transmission axial direction,

a first pivotably displaceable shift rocker operable to actuate a second gear wheel clutch by pivotal movement thereof about a first rocker pivot axis extending transverse to the transmission axial direction,

a shift casing unit,

a casing housing including first and second casing housing parts connected to one another in use and enclosing the shift casing unit and at least portions of the first shift rod and the first shift rocker,

wherein said shift casing unit is releasably connectable to said casing housing and includes:

a pair of bearing bracket carriers extending in said transmission axial direction at respective opposite sides of the first shift rocker and having respective aligned pivotal bearing supports for the first shift rocker,

a crossmember fixedly connecting the bearing bracket carriers to one another at a location axially spaced from the pivotal bearing supports for the first rocker,

and at least one support detachably engageable with one of said casing housing parts at a location spaced axially from both the crossmember and the pivotal bearing supports for the first shift rocker.

5,802,917

GEAR SHIFTING MECHANISM FOR CHANGE-SPEED GEARBOXES OF MOTOR VEHICLES

Hans-Ulrich Gondeck, Pulheim-Stommeln, Germany, assignor to Ford Global Technologies, Inc., Dearborn, Mich.

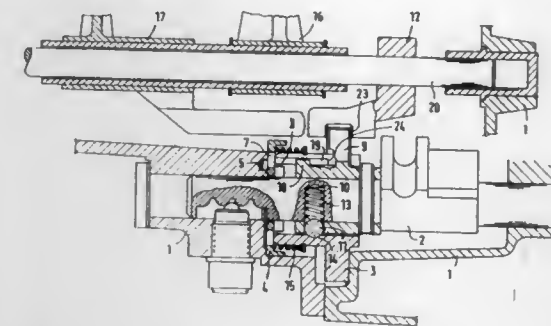
Filed Oct. 17, 1996, Ser. No. 733,651

Claims priority, application Germany, Oct. 25, 1995, 195 39 599.9

Int. Cl. F16H 63/36; B60K 41/26

U.S. Cl. 74—411.5

7 Claims



1. A gear shifting mechanism for change-speed gearboxes of motor vehicles with braking of an input shaft of the gearbox during engagement of a reverse gear, comprising:

a gearbox housing;

a shifter shaft radially pivotably and axially slidably supported by said housing;

a plurality of shifter forks supported by said shifter shaft, said forks including a reverse shifter fork having an arm with a groove formed therein and a forward shifter fork;

a shifter rod supported by said housing adjacent said shifter shaft;

a shifter finger supported by said shifter rod, said finger engageable in said groove of said arm to selectively move said reverse fork axially;

a shift interlock substantially axially fixed to said housing, said shift interlock including a blocking plate rotatable with said shift finger to selectively block movement of at least one of said shifter forks; and

interlock connection means for releasably connecting said shift interlock for axial movement with one of the group comprising said shifter finger and said shifter shaft to axially move said forward shifter fork with said shift interlock during engagement of reverse gear.

5,802,918

CONCENTRIC FACE GEAR TRANSMISSION ASSEMBLY

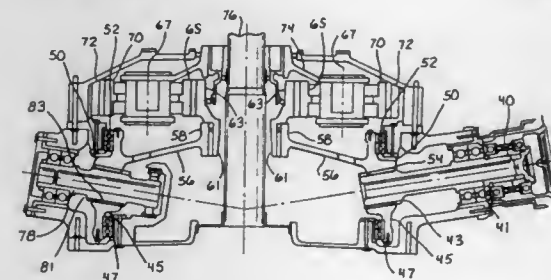
Yih-Jen D. Chen, Chandler; Gregory F. Heath, Mesa; Ronald E. Gilbert, Payson; Vijay J. Sheth, and Michael T. Morris, both of Mesa, all of Ariz., assignors to McDonnell Douglas Helicopter Co., Mesa, Ariz.

Filed Oct. 16, 1996, Ser. No. 732,930

Int. Cl. F16H 1/22; 55/20

U.S. Cl. 74—416

25 Claims



1. A split-torque transmission, comprising:

a first face gear having a plurality of first face gear teeth;

a second face gear having a plurality of second face gear teeth; at least one input pinion contacting both the first face gear teeth and the second face gear teeth; and

at least one idler pinion contacting both the first face gear teeth and the second face gear teeth, the first face gear being adapted for directly driving a propeller and the second face gear not being adapted for directly driving a propeller, wherein the second face gear comprises an annular member without a web.

5,802,919

YOKE APPARATUS FOR RACK AND PINION

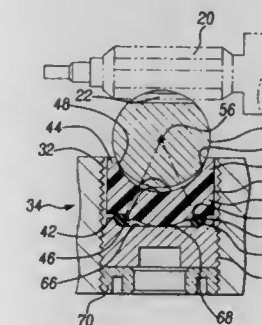
Edward H. Phillips, Troy, Mich., assignor to Techco Corporation, Southfield, Mich.

Filed Apr. 10, 1996, Ser. No. 630,369

Int. Cl. F16H 1/04

U.S. Cl. 74—422

9 Claims



1. An apparatus for maintaining a rack and pinion in meshing engagement, said rack movable within a housing along an axis of translation therewithin, said apparatus comprising:

an adjuster plug member having an upper surface and being adjustably mounted within a bore of said housing along an adjustment axis that is nominally orthogonal to said axis of translation;

a bearing disc member mounted within said housing generally along said adjustment axis between said upper surface of said adjuster plug member and said rack, said bearing disc member having an outer circumferential surface spaced inwardly and apart from an inner surface of said bore such that the bearing disc member is permitted movement from alignment with the axis of said bore in a direction orthogonal to the axis of translation of said rack when said rack is moved, and having at least one nominally cylindrical surface spaced apart from a lower surface, said nominally cylindrical surface formed to slidably receive said rack, said lower surface disposed between a pair of diametrically opposed contact surface portions disposed radially inwardly from said circumferential surface; and

at least one compliant member disposed between said adjuster plug member and said bearing disc member, said at least one compliant member having at least two portions biasingly contacting respective contact surface portions of said disc member to hold said disc member from said inner surface of said bore so that one of said contact portions may be compressed when said rack is moved along the axis of translation.

5,802,920

DOUBLE GEAR WHEEL OF A TURNING DEVICE ON PRINTING PRESSES

Willi Becker, Bammental, Germany, assignor to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

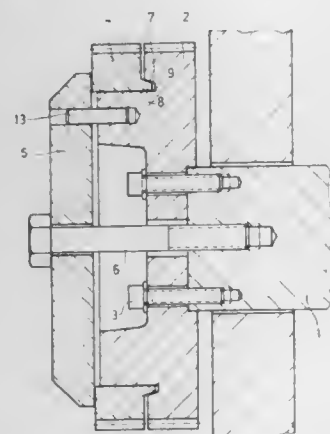
Filed Nov. 14, 1996, Ser. No. 746,757

Claims priority, application Germany, Nov. 15, 1995, 295 18 072.2; Sep. 16, 1996, 196 37 612.2

Int. Cl.⁶ B41F 13/12

U.S. Cl. 74—439

20 Claims



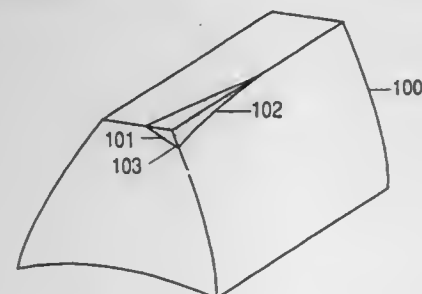
11. A double gear wheel of a turning device for a printing press, said double gear wheel comprising:
an adjustable gear wheel;
a fixed gear wheel;
said fixed gear wheel comprising an arrangement for being fixedly connected to a shaft of a printing press;
an arrangement for fractionally connecting said adjustable gear wheel to said fixed gear wheel to permit adjustment of said adjustable gear wheel in a rotational direction with respect to said fixed gear wheel;
said adjustable gear wheel comprises an internal bore;
said internal bore comprises an internal bore surface;
said frictional connecting arrangement comprising a conical seat disposed on said internal bore surface;
said frictional connecting arrangement comprising a conical projection projecting from said fixed gear wheel into said internal bore; and
said conical seat being engaged by said conical projection.

5,802,921

MAXIMUM POWER DENSITY GEARINGWilliam S. Rouverol, 1331 Arch St., Berkeley, Calif. 94708
Continuation-in-part of Ser. No. 700,692, Aug. 13, 1996, abandoned. This application Jul. 22, 1997, Ser. No. 898,159Int. Cl.⁶ F16H 53/08

U.S. Cl. 74—458

23 Claims



1. A pair of mating gears having teeth slantingly disposed with respect to the common pitch element,
said teeth on at least one, and preferably both, of said pair having liminal cross modification.

5,802,922

SHIFT LEVER SUPPORTING MECHANISM FOR A MANUAL TRANSMISSION

Hiroshi Kawai; Yoshitaka Sogo; Mitsuyuki Hasegawa, and Toshio Tanba, all of Kariya, Japan, assignors to Tsuda Kogyo Kabushiki Kaisha, Kariya, and Aisin Ai Co., Ltd., Nishio, both of Japan

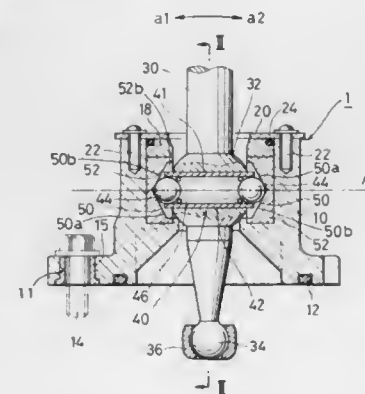
Filed Jun. 26, 1996, Ser. No. 668,359

Claims priority, application Japan, Jul. 5, 1995, 7-169865

Int. Cl.⁶ B60K 20/04

U.S. Cl. 74—473 P

5 Claims



1. A shift lever supporting mechanism for supporting a shift lever in a manual transmission and having a shift lever retainer, the shift lever having an enlarged spherical portion movably retained in the shift lever retainer through sphere-to-sphere engagement so that the shift lever is pivotally moved for performing the selecting and shifting operations, comprising:

a hollow support provided on the enlarged spherical portion of the shift lever and aligned with a rotational axis of the enlarged spherical portion for the selecting and shifting operations of the shift lever;

at least one spherical member received in said hollow support;
a spring received in said hollow support for biasing the spherical member; and

at least one cam portion provided on the shift lever retainer and having at least one inclined cam surface;

said at least one spherical member being biased against said at least one cam portion by a spring force of said spring, said at least one spherical member moving along said inclined cam surface of said cam portion while being forced into said hollow support against the spring force of said spring, when the shift lever is moved for performing the selecting and shifting operations, thereby producing a restoring force on the shift lever.

5,802,923

SHIFTING APPARATUS FOR A BICYCLE

Nobukatsu Hara, Osaka, Japan, assignor to Shimano, Inc., Osaka, Japan

Filed Feb. 28, 1995, Ser. No. 396,123

Claims priority, application Japan, Mar. 7, 1994, 6-035845

Int. Cl.⁶ B60K 20/02; B62M 25/04

U.S. Cl. 74—473.13

20 Claims

1. A shifting apparatus for a bicycle comprising:
a takeup element supported to be rotatable for pulling and releasing a control cable;

a first shift member supported by a handlebar to be rotatable substantially along an outer periphery thereof for rotating the takeup element in at least one of the pulling or the releasing direction, the first shift member being rotatable separately from the takeup element;

a first interlock mechanism for interlocking the first shift member and the takeup element when the first shift member rotates in a first direction for rotating the takeup element in one of the pulling or the releasing direction;

5,802,925

MICROSCOPE STAGE

Masato Kanao, Tanashi, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

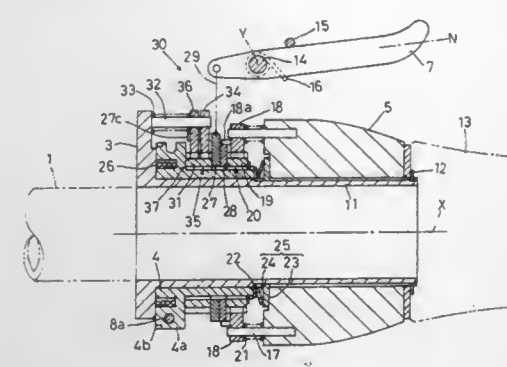
Filed Oct. 21, 1996, Ser. No. 733,200

Claims priority, application Japan, Oct. 23, 1995, 7-274393

Int. Cl.⁶ B02B 21/26; F16H 19/06; G05G 11/00

U.S. Cl. 74—490.13

17 Claims



a second shift member supported by the handlebar to be displaceable relative thereto for rotating the takeup element in the other one of the pulling or the releasing direction;
a positioning mechanism for retaining the takeup element in a selected angular position;
a second interlock mechanism for releasing the positioning mechanism in response to operation of the second shift member for allowing the takeup element to rotate in the other one of the pulling or the releasing direction; and
a declutching mechanism responsive to operation of the second shift member for releasing the first interlock mechanism so that the first shift member is allowed to remain stationary while the takeup element rotates in the other one of the pulling or the releasing direction.

5,802,924

SHROUD FOR A VEHICLE STEERING COLUMN

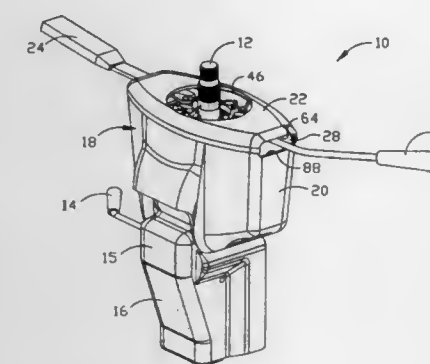
James R. Johnson; Gary L. Dies; Mark A. Cartwright, all of Lafayette, and Jonathan A. Lewis, Kokomo, all of Ind., assignors to TRW Inc., Lyndhurst, Ohio

Filed Jul. 12, 1996, Ser. No. 679,289

Int. Cl.⁶ G05G 11/00

U.S. Cl. 74—484 R

20 Claims



1. An apparatus comprising:
a shroud for surrounding an upper end of a vehicle steering column, said shroud including first and second portions;
said first portion defining a first opening through which the steering column extends;
said second portion at least in part defining a second opening through which a turn signal actuator mounted on the steering column extends, said second portion having means for enabling said second portion to be mounted in different positions relative to said first portion depending upon the position of the turn signal actuator relative to the steering column, said second portion at least partially closing said first opening defined by said first portion when said second portion is in said different positions, said second portion having a third opening through which the steering column extends.

5,802,926

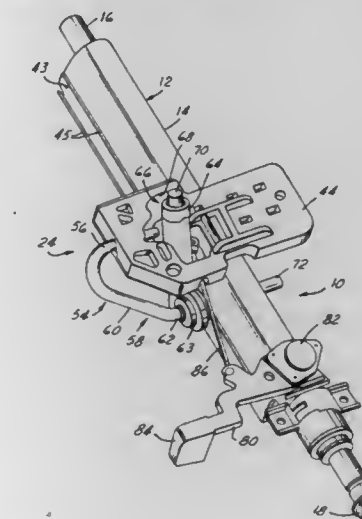
COLLAPSIBLE STEERING COLUMN ASSEMBLY
Robert M. Thomas, South Lyon, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed Mar. 21, 1997, Ser. No. 822,968

Int. Cl.⁶ B62D 1/19

U.S. Cl. 74—493

9 Claims



1. An automotive vehicle steering column assembly including an elongated collapsible steering column having a lower end portion and an upper end portion, comprising
a lower support for pivotally attaching the lower end portion of the steering column to vehicle support structure.

an upper support for the upper end portion of the steering column,
 said upper support comprising a mounting block attachable to vehicle support structure,
 a swing unit for controlling the movement of the upper end portion of the steering column when it collapses comprising a lock mechanism including an elongated tubular housing having a first end portion and a second end portion,
 a rod slidable longitudinally within said housing,
 said housing having means for releasably locking said rod in a longitudinally adjusted position within said housing,
 means connecting said rod to the upper end portion of said steering column,
 a swing arm having a first end portion and a second end portion, said first end portion of said swing arm being rotatably received in said block,
 means connecting the first end portion of said swing arm to said first end portion of said housing,
 means connecting the second end portion of said swing arm to the second end portion of said housing, and
 a torque bar secured to said block having a non-rotatable connection to said first end portion of said swing arm.

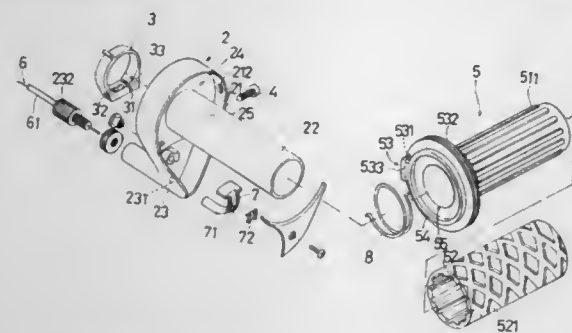
5,802,927

ROTARY DRIVING MECHANISM FOR BRAKE DEVICE
 Yung-Jung Yu, No. 20, Lane 221, Sec. 4, Chung-Ho Street, Hsin-She Hsiang; Chiu-Hsia Chien Wang, No. 27, Lane 15, Sec. 3, Chung-Hsiao Road, San-Chung City, and Ming-Huang Chen, No. 143, Chung-Yang Road, Feng-Yuan City, all of Taiwan

Filed Mar. 12, 1997, Ser. No. 815,609
 Int. Cl.⁶ F16C 1/10

U.S. Cl. 74—502.2

12 Claims



1. A rotary driving mechanism for a brake device in combination with a bicycle, comprising:
 - a brake device disposed on a bicycle frame for braking a wheel of the bicycle;
 - a base seat installed around a handle of the bicycle, a circumference of an inner face of the base seat being formed with a flange to define an annular rotary groove, an outer face of the base seat being disposed with a recess for inserting a binding member therein so as to secure the base seat to the handle, a shaft sleeve axially extending along the handle, an outer circumference of the base seat being disposed with a conducting section projecting outward in a reverse direction of the shaft sleeve, a guiding hole passing through a face of the conducting section to the rotary groove;
 - a rotary member rotatably fitted around the shaft sleeve and coaxial with the handle on which the shaft sleeve is fitted, one end of the rotary member being disposed with a fastening seat rotatably disposed in the rotary groove of the base seat, an outer circumference of the fastening seat being formed with a stepped hole; and
 - a linking member which is a steel cord with a predetermined length, one end of the steel cord being secured to the brake device, while the other end of the steel cord being passed through the conducting section of the base seat and secured at

the stepped hole of the rotary member, said rotary driving mechanism being characterized in that:
 the length of the rotary member is such as to cover the width of a human palm, a stopper ring projecting from the center of the fastening seat, an outer circumference of the stopper ring having a predetermined radius, at least the outer circumference of the stopper ring being coated with a metal skin, the linking member being wound around the outer circumference of the stopper ring;
 a guiding block having an arch guiding channel being disposed under the linking member in the base seat, one end of the guiding block axially extending toward the guiding hole of the conducting section, while the other end thereof being directed in a tangent direction of the outer circumference of the stopper ring of the rotary member, a metal sliding block being disposed at a predetermined position of the arch guiding channel of the guiding block so as to resist against the friction produced by the compressing force of the linking member; and
 a torque spring is fitted around the shaft sleeve, two ends of the spring being respectively secured to two adjacent faces of the rotary groove of the base seat and the fastening seat of the rotary member, the torque spring being restricted on inner side of the stopper ring of the rotary member so as to locate the rotary member.

5,802,928

BOWDEN WIRE INSTALLATION HAVING A YIELDING DEFORMABLE ANCHOR MEMBER

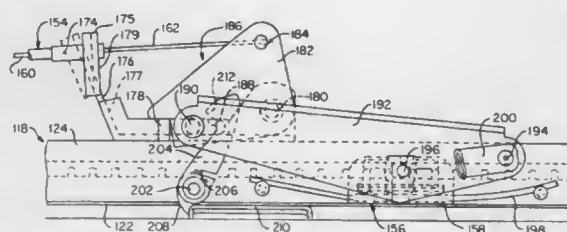
Omar D. Tame, W. Bloomfield, Mich., assignor to Atoma International, Inc., Ontario, Canada

Filed Dec. 9, 1996, Ser. No. 769,927

Int. Cl.⁶ F16C 1/22

U.S. Cl. 74—502.4

4 Claims



1. A Bowden wire installation comprising
 - a Bowden wire assembly including an elongated flexible tube having opposite ends and a cable slidably mounted in said flexible tube having opposite end portions which extend outwardly from respective opposite ends of said flexible tube, spaced movable members connected to the opposite end portions of said cable and
 - spaced anchor members connected to opposite ends of said flexible tube.
- one of said anchor members being disposed in a fixed operative position into which it has been yieldingly deformed from an initial position by movement of the end of the flexible tube connected in fixed relation therewith such that the material of said one of said anchor members is yieldingly deformed beyond an elastic limit thereof.

5,802,929

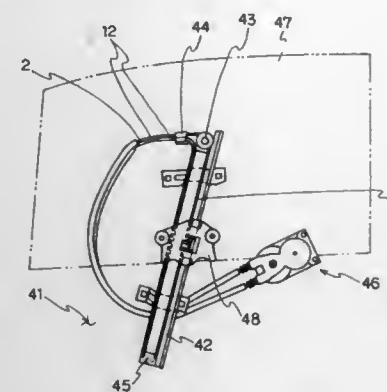
ROPE-OPERATED DEVICE

Hiroaki Furukawa, Takarazuka; Sadahiro Onimaru, Mino, and Yukio Narita, Sanda, all of Japan, assignors to Nippon Cable Systems Inc., Takarazuka, Japan

Continuation of Ser. No. 605,714, Feb. 22, 1996, abandoned, which is a continuation of Ser. No. 227,020, Apr. 13, 1994, abandoned. This application May 13, 1997, Ser. No. 855,646
 Claims priority, application Japan, Apr. 15, 1993, 5-088474
 Int. Cl.⁶ F16C 1/10

U.S. Cl. 74—502.5

1 Claim



1. A cable type window regulator, comprising
 - a wire rope having a wire strand core composed of a plurality of wires stranded in parallel with each other and parallel stranded wire lay strands around said wire stranded core with said wire in said parallel stranded core and said wire in said parallel lay strands in warrington type parallel lay contact where such contact occurs, a tubular liner of synthetic resin material around said wire rope and a silicone lubricant between an inner wall of said liner and said wire rope;
 - a guide for guiding said wire rope with said tubular liner around said wire rope, a conduit connected to said wire rope guide and having a pulley and a sliding guide for guiding said wire rope, and an actuator connected to said sliding guide and said wire rope for regulating a window;
 - wherein said silicone lubricant lubricates said wire rope in said tubular liner as said wire rope is moved in said tubular liner relative to said liner.

5,802,930

BICYCLE PEDAL ASSEMBLY HAVING A ROTATABLE CLEAT ENGAGING UNIT MOUNTED THEREON

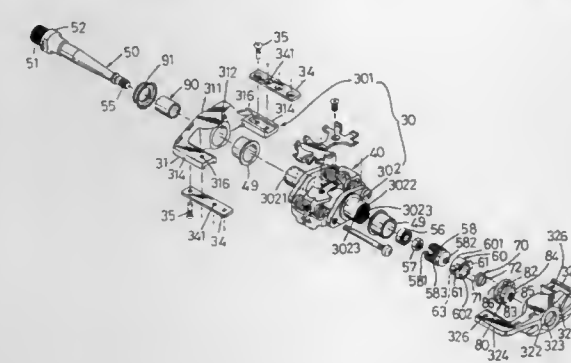
Chung-I Chen, Taichung Hsien, Taiwan, assignor to Teleflex Incorporated, Plymouth Meeting

Continuation-in-part of Ser. No. 837,243, Apr. 10, 1997. This application May 5, 1997, Ser. No. 841,880

Int. Cl.⁶ B62M 3/08; G05G 1/14

U.S. Cl. 74—594.6

4 Claims



1. A bicycle pedal assembly comprising:

a pedal body including a frame portion and a tubular portion with first and second ends which partitions said frame portion in a transverse direction, said frame portion having first and second through holes which are aligned with one another in the transverse direction, and a plurality of engaging cavities formed adjacent to said second through hole of said frame portion, said tubular portion having a cleat engaging unit fixed thereto, said second end of said tubular portion having a plug member with an axial blind hole engaging threadedly therein;
 a pedal shaft extending rotatably through said tubular portion and having a first threaded end which extends through said first through hole of said frame portion, a second threaded end which extends into said axial blind hole of said plug member, a nut member which engages said second threaded end, and a bearing which is mounted near said second threaded end of said pedal shaft;
 a tubular retaining member having a closed end and an open end, said closed end of said retaining member extending into said second end of said tubular portion adjacent to said plug member and having a first engaging hole formed therein, said open end of said retaining member being connected non-rotatably to said second end of said tubular portion;
 a torsional spring member having first and second ends and being disposed in said retaining member, said first end of said torsional spring member engaging said first engaging hole of said retaining member; and
 a disc member received in said second through hole of said frame portion and having opposed first and second side faces, said first side face of said disc member having a second engaging hole formed therein, said second side face of said disc member having a plurality of projections formed thereon, said torsional spring member biasing said disc member so that said projections on said disc member engage correspondingly said cavities of said frame portion, said second end of said torsional spring member engaging said second engaging hole of said disc member so that said cleat engaging unit is positioned reversibly at a predetermined angle with respect to said frame portion of said pedal body;
 whereby, a torsional force of said torsional spring member can be adjusted by means of pushing said disc member toward said retaining member against the biasing force of said torsional spring member in order to disengage said projections of said disc member from said cavities of said frame portion, rotating said disc member, and releasing said disc member in order engage said projections and said cavities.

5,802,931

AXLE DRIVING APPARATUS

Joseph E. Louis, Panora, Iowa, assignor to Sauer Inc., Ames, Iowa

Continuation of Ser. No. 706,279, May 28, 1991, Pat. No. 5,505,279, which is a continuation of Ser. No. 482,656, Feb. 21, 1990, abandoned, which is a continuation of Ser. No. 319,164, Mar. 3, 1989, Pat. No. 4,903,545. This application Feb. 1, 1996, Ser. No. 595,276

Int. Cl.⁶ B60K 7/00; F16H 57/02; F16D 33/00

U.S. Cl. 74—606 R

1 Claim

1. An axle driving apparatus, comprising:
 - a housing;
 - a hydrostatic transmission completely within said housing;
 - axle shafts extending from said housing;
 - differential gearing means completely within said housing operatively connecting said hydrostatic transmission and said axle shafts;

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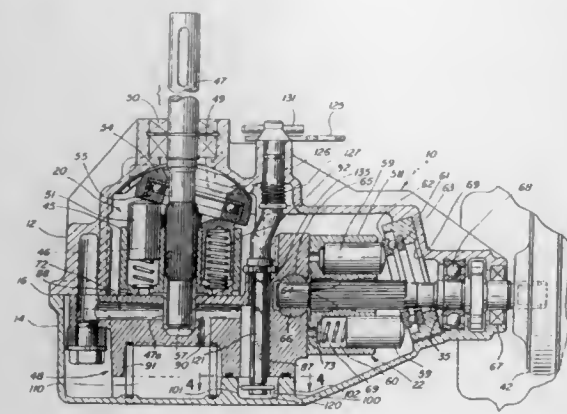
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said housing being defined by at least two separable elements detachably joined together along a horizontal parting plane.

5,802,932

CUTTER FOR A CUTTING DEVICE OF AN ELECTRIC SHAVING APPARATUS OR BEARD TRIMMER

Michael Vankov, Schmitten; Karlheinz John, Wiesbaden; Dieter Huth; Gunther Seidel, both of Frankfurt; Rudolf Majthao, Eschborn, and Lutz Voigtmann, Ober-Mörlen, all of Germany, assignors to Braun Aktiengesellschaft, Frankfurt, Germany

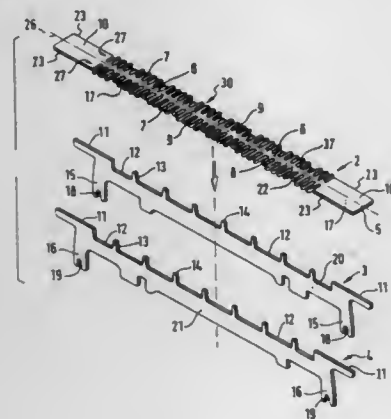
PCT No. PCT/EP94/04330, § 371 Date Nov. 13, 1996, § 102(e) Date Nov. 13, 1996, PCT Pub. No. WO95/28258, PCT Pub. Date Oct. 26, 1995

PCT Filed Dec. 28, 1994, Ser. No. 693,042

Claims priority, application Germany, Apr. 18, 1994, 44 13 352.9

Int. Cl.⁶ B21K 11/00; B26B 19/38

U.S. Cl. 76—104.1



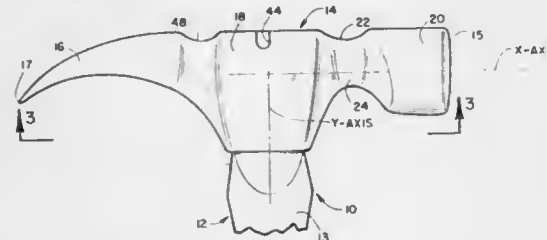
1. A method of manufacturing a cutter for an electric shaving device comprising:

- providing a hardened sheet metal planar strip;
- contour etching the hardened sheet metal planar strip to form a blade with a plurality of teeth and a comb strip;
- forming a wall portion from a sheet metal section; and subsequently
- welding the blade to the wall portion by a fusion-welding process such that the blade is distortion-free.

5,802,933
HAMMER
Paul W. Hebert, 6450 Lakeshore Dr., San Diego, Calif. 92119, and Ted Floyd, 453 Grand Ave., Spring Valley, Calif. 91977
Continuation-in-part of Ser. No. 562,468, Nov. 24, 1995, Pat. No. 5,590,868. This application Oct. 28, 1996, Ser. No. 739,025
Int. Cl.⁶ B25D 1/00

U.S. Cl. 81—20

4 Claims



1. A hammer comprising:
an elongated handle having a longitudinally extending Y-axis, a top end, a neck portion and a shank portion;
a hammer head assembly having a front end, a rear end, a head portion, a central portion, and a relieved connecting portion between said head portion and said central portion;
said central portion having a top surface, a bottom surface and a bore hole that extends from said top surface to said bottom surface and the neck portion of said handle is received therein; said central portion having a front wall, a rear wall and laterally spaced side walls surrounding said bore hole;
said head portion having a front surface and a longitudinally extending X-axis perpendicular to the front surface; a plurality of separate indentations that are not interconnected to each other formed in said front surface; said indentations cover at least 30 percent of said front surface, the depth of said indentations being in the range of 0.030–0.250 inches and the width of said indentations being in the range of 0.030–0.250 inches.

5,802,934

ANGULARLY ADJUSTABLE SOCKET WRENCH

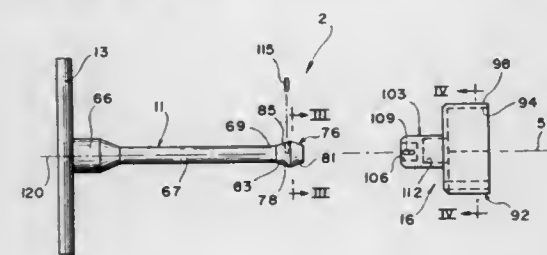
Cameron Harriot, Huntington Beach; Marlene Faye Kaufman, Adelanto, and Richard Lawrence Jetter, Los Angeles, all of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Nov. 26, 1996, Ser. No. 756,531

Int. Cl.⁶ B25G 3/02; B25B 23/16

U.S. Cl. 81—177.85

1 Claim



1. A socket wrench, comprising:
an elongate shaft defining a first longitudinal axis and having first and second longitudinally spaced end portions;
a handle member at said first end portion which is adapted to be manually grasped for rotating said shaft;
a terminal end portion that is polygonal in cross-section formed at said second end portion, said terminal end portion of said shaft including an intermediate section from which said terminal end portion tapers in said first longitudinal direction both towards and away from said handle member;
a socket member having a first diametric portion defining an internal, polygon-shaped socket and a second diametric por-

tion that is aligned along a second longitudinal axis with and extends longitudinally from said first diametric portion;
a first, polygon-shaped bore provided in said second diametric portion which receives said terminal end portion of said shaft;
a retaining member adapted to positively retain said terminal end portion of said shaft in said first bore;
a hole extending partially through said terminal end portion of said shaft; and
a single aperture formed in said second diametric portion of said socket member, said aperture extending into said first bore and being aligned with said hole, said aperture being formed by a single slot extending along said second longitudinal axis, said retaining member comprising a pin that extends through said aperture and is fixedly secured to said terminal end portion in said hole;
wherein said terminal end portion of said shaft directly drivingly engages said socket member while being angularly adjustable relative to said socket member such that said first longitudinal axis is arrangeable at an obtuse angle to said second longitudinal axis.

5,802,935

Patent Not Issued For This Number

5,802,936

TOOL HAVING A ROTATABLE DRIVING STEM

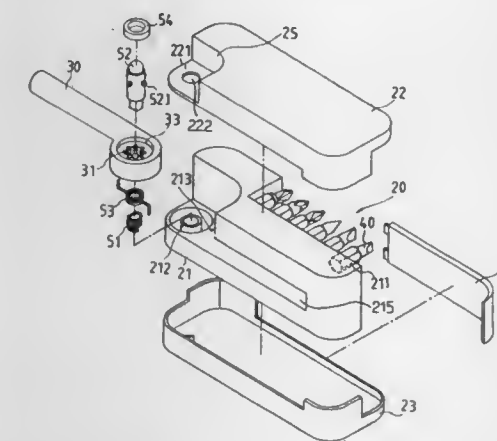
Kuo Chen Liu, No. 31, 12th Road, Gong Yeh Chu, Da Li City, Taichung Hsien, Taiwan

Filed Mar. 7, 1997, Ser. No. 813,226

Int. Cl.⁶ B25B 23/00

U.S. Cl. 81—450

5 Claims



1. A tool comprising:
a body including a hub,
a driving stem including a plurality of internal teeth,
a shaft slidably engaged in said hub and including at least one projection for engaging with said internal teeth of said driving stem, said shaft including an upper portion,
means for biasing said at least one projection of said shaft to engage with said internal teeth of said driving stem and for positioning said driving stem relative to said body,
wherein said driving stem being allowed to rotate about said shaft when said upper portion of said shaft is depressed against said biasing means causing said at least one projection of said shaft to be disengaged from said internal teeth of said driving stem, and
a cover including a panel having an orifice for engaging with said upper portion of said shaft, said cover including a notch for receiving said upper portion of said shaft.

5,802,937

SMART TOOL HOLDER

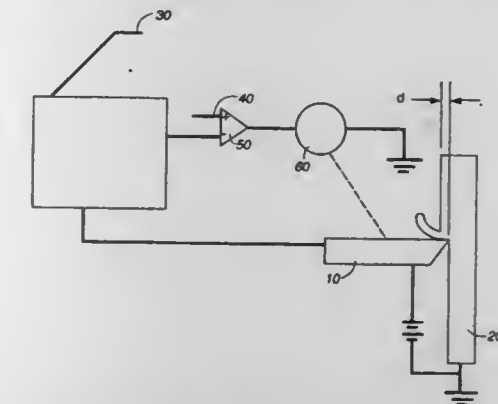
Robert Dean Day; Larry R. Foreman; Douglas J. Hatch, all of Los Alamos, N. Mex., and Mark S. Meadows, Boston, Mass., assignors to The Regents of The University of Calif., Oakland, Calif.

Filed Jul. 26, 1995, Ser. No. 507,628

Int. Cl.⁶ B23B 1/00

U.S. Cl. 82—1.11

4 Claims



1. A method for precision machining comprising:
(a) contacting a workpiece with a cutting tool;
(b) applying a bias voltage across said workpiece and said cutting tool so as to cause a flow of current between said workpiece and said cutting tool;
(c) measuring the current flow between said workpiece and said cutting tool;
(d) converting said flow of current from between said workpiece and said cutting tool into voltage;
(e) with a voltage comparator comparing said voltage with a set voltage;
(f) simultaneously measuring the position of the cutting tool during cutting and adjusting the depth of said cutting tool in said workpiece by use of a displacement producing means responding to signals from said voltage comparator; and
(g) thereby producing an amount of current flow between said cutting tool and said workpiece sufficient to cause said voltage being compared with said set voltage to equal said set voltage.

5,802,938

SLITTER FOR USE WITH ROLLED MATERIAL

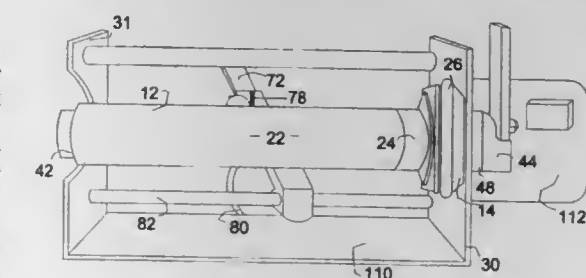
Emile Fournier, 179 Edgeland Road, N.W., Calgary, AB, Canada, T3A 2Y3, and David Markevich, 4040 Edgevalley Landing, N.W., Calgary, Alberta, Canada, T3A 5H1

Filed Nov. 27, 1996, Ser. No. 757,499

Int. Cl.⁶ B26D 7/14

U.S. Cl. 83—18

19 Claims



18. The method of slitting rolled material using a slitting machine having a support frame, a support cylinder, said support cylinder having a first end and a second end, said second end being unmovably connected to said support frame, an expansion rod, said

expansion rod having a first end and a second end, said second end extending through said frame and being affixed to a lever, said expansion rod being centered within said support cylinder, a rigid sleeve, said rigid sleeve being a T-shaped cylinder having a slick surface and having a first end, a second end and a leg, the leg of said T being proximate said support cylinder and the first end of rigid sleeve being proximate said expansion ring, T-shaped motor means, said motor means being proximate said support frame and having a receiving channel, said receiving channel being dimensioned to receive said support cylinder and said expansion rod, a flexible expansion ring, said flexible expansion ring being between said rigid sleeve and said motor means and in contact with said motor means to allow said expansion ring to revolve with said motor means, connection means, said connection means being affixed to said expansion rod and preventing removal of said support cylinder and said rigid sleeve from said expansion rod, gear means, said gear means being adjacent said lever, and interacting with said lever to move said expansion rod, cutting means, said cutting means being movable horizontally along a blade support rod, handle means, said handle means being affixed to said cutting means and having a guidance bar, an activation bar, approximately parallel to, and spaced from, said guidance bar, a fulcrum tab positioned between said guidance bar and said activation bar, a support bolt to maintain said guidance bar and said activation bar at a fixed distance from one another and a stop bolt to prevent said cutting means from cutting said rigid cover, switching means connecting said cutting means and said motor means and being activated and deactivated by pressure applied to bring said activation bar proximate said guidance bar, a bearing, said bearing receiving said first end of said expansion rod and having a diameter greater than said support cylinder to prevent said first end of said expansion rod from entering said support cylinder, a washer, said washer being between said support cylinder and said bearing comprising the steps of:

- placing said lever in an unlocked position;
- sliding said rolled material onto said rigid sleeve;
- placing said rolled material adjacent said motor;
- placing said lever in a locked position to move said rigid sleeve to cause said expansion ring to arch;
- moving said cutting means along said blade support rod to the desired position;
- applying pressure to said activation bar to engage said switch and lock said cutting means along said blade support rod;
- rotating said cutting means around said blade support rod;
- cutting through said rolled material until said stop bolt comes in contact with an upper support bar;
- releasing said handle means to deactivate said cutting means;
- placing said lever in the unlocked position, to move said rigid sleeve to cause said expansion ring to become flush with said rigid sleeve;
- removing said rolled material from said rigid sleeve.

5,802,939

TABLE TOP BAND SAW

Richard K. Wiand, 1023 Yarmouth Rd., Bloomfield Hills, Mich. 48301, and Dennis Buschmohle, 18306 Millar, Clinton Township, Mich. 48036

Filed Jul. 18, 1996, Ser. No. 683,245

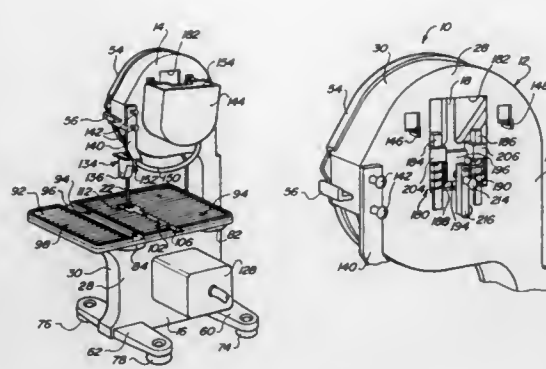
Int. Cl.⁶ B23D 55/10; 59/04; B26D 1/48; B27B 13/00

U.S. Cl. 83—169

23 Claims

6. A band saw for cutting a work piece, said band saw comprising:

- a housing having an upper housing portion and a lower housing portion, said housing including a back panel, a side panel and a door panel, said door panel being pivotally secured to the side panel, said back panel having an opening therein and, said housing further including at least one post member connected to the back panel at the periphery of the opening and extending within the opening of the back panel;
- first and second wheels, said first wheel being rotatably mounted within the upper housing portion and said second wheel being rotatably mounted within the lower housing portion;



- a work table secured to the lower housing portion;
- a saw blade positioned around the first and second wheels and extending through the work table so as to be in a position for cutting the work piece; and
- a tensioning assembly, said tensioning assembly including a tensioning device, a shaft member connected to the tensioning device and at least one spring, said spring being positioned on the at least one post member, said tensioning device having at least one opening extending therethrough, said post member extending through the at least one opening of the tensioning device so that the tensioning device is slidably secured to the housing, said first wheel being rotatably mounted on the shaft member and said spring being positioned between the tensioning device and the housing such that a radial force on the first wheel towards the table will cause the tensioning device to slidably move on the at least one post member against the bias of the spring, whereby the opening in the back panel allows a user to manually contact the tensioning device to force the tensioning device against the bias of the spring to move the first wheel towards the second wheel.

5,802,940

DISPENSER APPARATUS FOR AN ECONOMIC USE OF A MULTI-ZONE DISPOSABLE STRIP

Gérard Jaeger, Blonay, Switzerland, assignor to Asulab S.A., Bienne, Switzerland

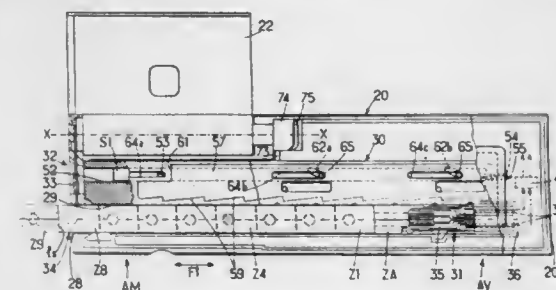
Filed Apr. 29, 1996, Ser. No. 638,799

Claims priority, application France, May 2, 1995, 95 05222

Int. Cl.⁶ B26D 5/20

U.S. Cl. 83—207

11 Claims



- 1. A dispensing apparatus for use with disposable strips, each comprising several detachable successive utilization zones along its longitudinal axis, said apparatus comprising:
- a case with an hinged cover able to move between an open position and a closed position, said case defining a circulation passage having an upstream end for the introduction of said strip and a downstream end at the opposite side,
- a forward feed mechanism for bringing said strip out of the circulation passage with a constant pitch step by step movement,
- means for cutting said strip, and
- a sliding unit, mounted so as to move in said passage, attached to said forward feed mechanism and coupled to the downstream end of a strip when said strip is introduced, wherein

said dispenser apparatus also comprises a guiding plate, cooperating with a groove located in a cylindrical extension of said means for cutting said strip, to form means for controlling backward movement of said strip over a predetermined distance less than one forward step after said strip has carried out such a step.

5,802,941

ADJUSTABLE CUTTING ROLL ASSEMBLY FOR SEVERING PIECES OF MATERIAL AND METHOD FOR ADJUSTING SAME

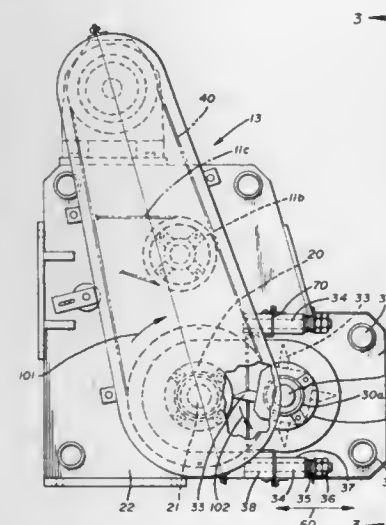
Keith M. Kline, Massillon, Ohio, assignor to Akron Steel Fabricators Co., Inc., Akron, Ohio

Filed Aug. 26, 1996, Ser. No. 702,976

Int. Cl.⁶ B26D 1/12

U.S. Cl. 83—344

5 Claims



- 1. A cutting apparatus for severing material from a length of material moved into proximity with the cutting apparatus on a conveyor, comprising:

- (a) a frame disposed adjacent the conveyor;
- (b) an anvil roll rotatably mounted on said frame;
- (c) a cutter roll rotatably mounted on said frame opposite said anvil roll for movement toward and away from said anvil roll in a direction perpendicular to their centerlines;
- (d) at least one knife releasably attached to said cutter roll and projecting radially outwardly from the periphery thereof;
- (e) first and second supports mounted on said frame;
- (f) said anvil roll being mounted on said first support;
- (g) said cutter roll being mounted on said second support with said supports being disposed with their longitudinal axes being disposed in the same horizontal plane;
- (h) said second support being connected to said first support by a plurality of elongate connecting members extending therebetween along a line perpendicular to said longitudinal axes;
- (i) resilient members disposed on said connecting members and normally urging said second support toward said first support and permitting movement of said second support away from said first support upon interference between said at least one knife with said anvil roll during rotation thereof; and
- (j) means for adjusting the spacing between the projecting end of said at least one knife and the peripheral surface of said anvil roll.

5,802,942

PAPER TRIMMER

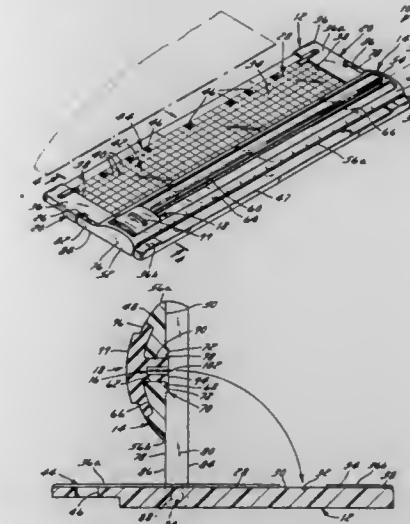
Robert W. Cornell, Schofield, Wis., and Suk Ku An, Gyeong-gido, Rep. of Korea, assignors to Fiskars Inc., Madison, Wis.

Filed Oct. 10, 1995, Ser. No. 544,397

Int. Cl.⁶ B26D 1/04; 7/02

U.S. Cl. 83—455

15 Claims



- 1. A paper trimmer comprising:

- a base including a pair of sides, a support surface, and a cutting region having a channel;
- a plate pivotally attached to the base and including an upper surface, a lower surface, a first end, a second end, and a slot extending through the plate along a longitudinal axis of the plate intermediate the first and second ends;
- a carrier being slidably received in the slot, the carrier including a top flange, wherein the plate is formed of resilient material; and
- a blade attached to the carrier, wherein a portion of the blade extends below the lower surface of the plate within the channel when the plate is disposed over the cutting region; wherein the upper surface of the plate and the top flange of the carrier have complementary arcuate shapes and the top flange engages the upper surface.

5,802,943

BEVEL LOCKING SYSTEM FOR A SLIDING COMPOUND MITER SAW

Mark E. Brunson, Abingdon; William R. Stumpf, Kingsville, and Adan Ayala, Joppa, all of Md., assignors to Black & Decker Inc., Newark, Del.

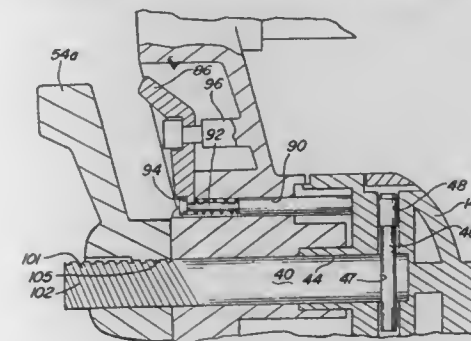
Continuation-in-part of Ser. No. 761,730, Dec. 5, 1996. This application Feb. 20, 1997, Ser. No. 803,406

Int. Cl.⁶ B26D 7/26

U.S. Cl. 83—471.3

13 Claims

- 1. A device for performing working operations on a workpiece,



said device comprising:

- a table;
 a shaft fixedly secured to said table, said shaft having an axis;
 a support housing supporting a motor and a working tool driven by said motor, said support housing being disposed on said shaft adjacent to said table, said support housing being axially movable along said shaft and being laterally pivotable about an axis of rotation; and
 a locking mechanism for locking the support housing at a predetermined lateral position, wherein said locking mechanism comprises a handle disposed on said shaft, said handle being rotatable in two directions with respect to said shaft, such that, upon rotation of said handle in both directions from a neutral position on said shaft, the handle urges said support housing into contact with said table.

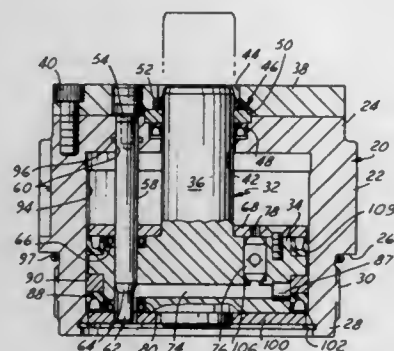
5,802,944

GAS CYLINDER WITH INTERNAL TIME DELAY
 Sabatino A. Bianchi, Bloomfield Hills; Boice F. Horde, Westland, and Bernard J. Wallis, Dearborn, all of Mich., assignors to Livernois Research and Development Company, Dearborn, Mich.

Filed Apr. 11, 1997, Ser. No. 837,300
 Int. Cl.⁶ B26D 7/28

U.S. Cl. 83—639.1

3 Claims



1. In a die stamping system in which an upper die moves downwardly toward and upward away from a lower die to stamp a workpiece, and in which a portion of the lower die is supported by at least one gas cylinder coupled to gas under pressure to cushion downward motion of the lower die portion and delay upward motion of the lower die portion, the improvement wherein said at least one gas cylinder comprises:
 a piston disposed in a cylinder body with a piston rod for engaging said lower die portion,
 a pair of one-way valve means disposed within and carried by said piston, and
 passage means in said piston responsive to downward movement of said piston within said cylinder for feeding gas from a lower side of said piston to an upper side of said piston within the cylinder through a first of said one-way valve means,
 a second of one of said one-way valve means including means for retarding gas flow therethrough from the upper side of said piston to the lower side of said piston so as to delay upward motion of said piston during upward motion of said upper die.

5,802,945
NEEDLE ROLLER ARRANGEMENT WITH SEVERAL NEEDLE ROLLERS FOR PERFORATING A MATERIAL WEB

Friedhelm Brinkmeier, and Achim Seeberger, both of Lengerich, Germany, assignors to Windmüller & Hölscher, Lengerich, Germany

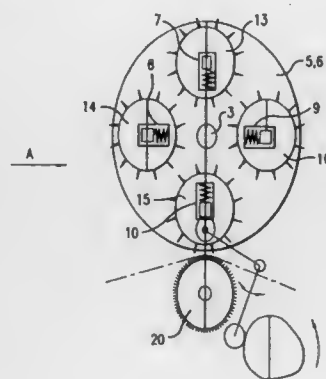
Filed Nov. 22, 1996, Ser. No. 754,478

Claims priority, application Germany, Nov. 28, 1995; 195-44 330.6

Int. Cl.⁶ B26F 1/24

U.S. Cl. 83—660

8 Claims



1. A needle roller arrangement comprising:
 a plurality of needle rollers;
 a rotary frame, said needle rollers being mounted in a freely rotatable manner in said rotary frame on a circular line which is concentric to a rotational axis of said rotary frame;
 a brush roller with which only one of said needle rollers interacts at any particular time, said one of said needle rollers interacting with said brush roller for perforating a material web passing through, each needle roller being liftable off the brush roller while mounted inside the rotary frame; and
 a device for lifting the one of the needle rollers interacting with the brush roller away from the brush roller and placing it on the brush roller.

5,802,946

DRIVE DEVICE FOR CHAIN SAW

Arvo Leini, Edsbyn, Sweden, assignor to Sandvik AB, Sweden
 Continuation of Ser. No. 610,238, Mar. 4, 1996, abandoned.
 This application Jul. 18, 1997, Ser. No. 897,148

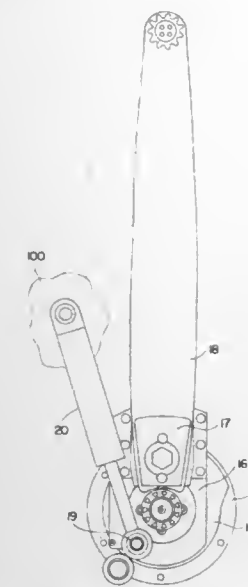
Claims priority, application Sweden, Mar. 2, 1995, 9500754

Int. Cl.⁶ B26D 1/46

U.S. Cl. 83—794

8 Claims

1. A drive device for a chain saw, comprising:
 a drive motor including a body and a drive shaft;
 a holder pivotably mounted relative to the drive motor, the holder having clamping means for clamping a chain saw guide bar, the holder having an opening, the drive motor being at least partially disposed in the opening in the holder;
 a bearing assembly for allowing the holder to rotate relative to the motor, the bearing assembly having an inner opening, the body of the motor being attached directly to the bearing assembly and at least partially disposed inside of the opening in the bearing assembly; and
 first and second matching parts of a swivel device, the first matching part of the swivel device being attached to the motor and the second matching part of the swivel device forming part of the holder, the first and second matching parts of the swivel device being pivotable relative to each other, the first matching part of the swivel device and the second matching part of the swivel device each having surfaces having concentric grooves, the holder having channels, the grooves in the first and second matching parts of the swivel device and the



- channels in the holder defining a path for liquid from the drive motor to the guide bar,
 wherein the first matching part of the swivel device includes an opening and the opening in the holder extends through the second matching part of the swivel device, the motor being at least partially disposed inside of the opening in the first matching part of the swivel device.

5,802,947

DIMPLED CIRCULAR SAW BLADE

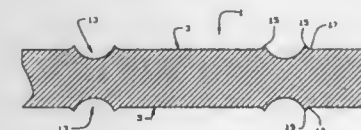
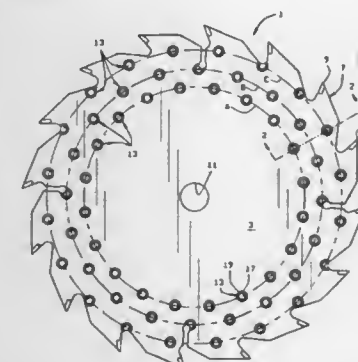
Kevin M. Ward, Jr., Louisville, and Gregory A. Phillips, La Grange, both of Ky., assignors to Credo Tool Company, Woodburn, Oreg.

Filed Oct. 15, 1996, Ser. No. 730,398

Int. Cl.⁶ B23D 47/00

U.S. Cl. 83—835

16 Claims



1. A circular saw blade, the saw blade having a body and a plurality of cutting teeth extending outwardly from the blade body; the blade body having a first planar radial surface and a second planar radial surface, said planar surfaces extending from a central aperture in said body to said teeth, the saw blade having a multiplicity of discrete dimples formed on at least one of said radial surfaces of said blade body, the dimples each having a perimeter, and each including a ridge extending around the entire perimeter of said dimple, which extends above the planar surface of the blade body in which the dimple is formed.

5,802,948

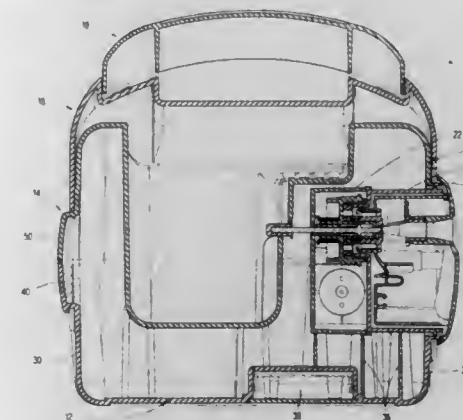
METHOD FOR SHARPENING CRAYONS

John J. Andrisin, III, Cuyahoga Falls; David D. Hayes, Hartville; G. Stewart Lenox, Akron; Robert L. Quinlan, Stow, and Douglas Zlatich, North Royalton, all of Ohio, assignors to The Little Tikes Company, Hudson, Ohio
 Division of Ser. No. 598,840, Feb. 9, 1996. This application Jan. 15, 1997, Ser. No. 784,691

Int. Cl.⁶ B43L 23/02

U.S. Cl. 83—862

7 Claims



1. A method for sharpening a crayon having a longitudinal axis, the method comprising the steps of:
 inserting the crayon into a cartridge block having an axial bore; positioning a forward end of the crayon in a forward end of the axial bore;
 initiating relative rotational movement between the cartridge block and the crayon;
 cutting the forward end of the crayon with at least one sharpening blade positioned to extend into the axial bore such that a first outer layer of the crayon is shaved off thus forming a conical nose into the forward end of the crayon; and
 cutting the forward end of the crayon with at least one secondary blade positioned conterminous to the conical nose of the crayon and extending parallel to and into the axial bore such that a second outer layer of the crayon proximate the conical nose is shaved off thus forming a cylindrical collar conterminous to the conical nose.

5,802,949

CLOSED CENTER POWER STEERING GEAR

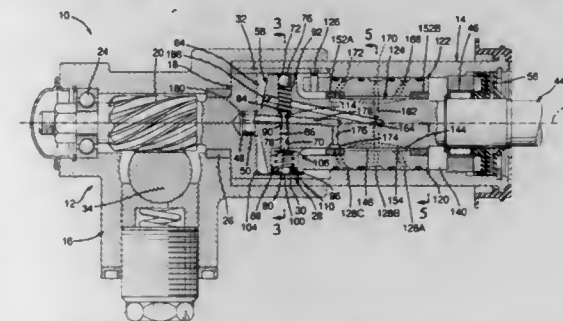
Alan Cray Davis; Dennis Charles Eckhardt, both of Saginaw, and Randy Scott Miller, Frankenmuth, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 12, 1996, Ser. No. 689,621

Int. Cl.⁶ F15B 9/10

U.S. Cl. 91—375 R

5 Claims



1. A closed center power steering gear including
 a pinion head connected to a steered wheel of a motor vehicle and rotatable about a centerline of said steering gear,
 a spool shaft connected to a steering wheel of said motor vehicle and rotatable about said centerline of said steering gear rela-

tive to said pinion head in response to an applied torque on said steering wheel, and
a control valve in a fluid flow path from a fluid accumulator to a working chamber of a steering assist fluid motor operative to block said fluid flow path in a center position of said spool shaft relative to said pinion head and to open said fluid flow path when said spool shaft rotates relative to said pinion head from said center position in response to said applied torque on said steering wheel thereby to permit said accumulator to discharge into said working chamber and induce therein a boost pressure.

characterized in that said control valve comprises:

a poppet supported on said spool shaft for linear translation between a closed position and a range of open positions and being biased toward said closed position by a net pressure force on said poppet attributable to fluid at said steering assist boost pressure in said fluid motor working chamber, an orifice in said fluid flow path defined between a seat on said poppet and a seat on said spool shaft,

said orifice being closed and said seats on said poppet and on said spool shaft engaging each other in said closed position of said poppet and being open throughout said range of open positions of said poppet with a span between said seats on said poppet and on said spool shaft being progressively greater from a start of said range of open positions of said poppet to an end of said range of open positions of said poppet,

a cam follower on said spool shaft,

a cam on said pinion head operative to effect linear translation of said cam follower in response to rotation of said spool shaft relative to said pinion head from said center position, and

a pressure control spring between said cam follower and said poppet operative in response to linear translation of said cam follower to induce corresponding linear translation of said poppet from said closed position to an open position in said range of open positions of said poppet and to thereafter prevent return of said poppet to said closed position until said steering assist boost pressure in said fluid motor working chamber achieves a magnitude sufficient for said net pressure force on said poppet to compress said pressure control spring a distance equal to the corresponding span between said seats on said poppet and on said spool shaft.

5,802,950

BRAKE BOOSTER FOR VEHICLES

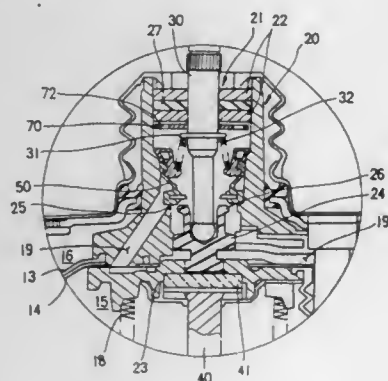
Wang Soo Lee, Seoul, Rep. of Korea, assignor to Mando Machinery Corporation, Kyungki-Do, Rep. of Korea
Filed Dec. 24, 1996, Ser. No. 773,785

Claims priority, application Rep. of Korea, Dec. 27, 1994, 95-58671

Int. Cl.⁶ F15B 9/10

U.S. Cl. 91—376 R

20 Claims



1. A brake booster for vehicles comprising:
a casing;

a diaphragm mounted in said casing by which a constant-pressure chamber and a varying-pressure chamber are isolated from each other;

a valve body one end of which is fixed to the inner surface of said diaphragm and the other end of which includes an air suction area;

a valve mounted in said valve body to connect or disconnect said varying-pressure chamber to the outside;

an input shaft one end of which is arranged in said valve body to operate said valve;

an output shaft transmitting to a master cylinder the force boosted by the pressure difference between said constant-pressure chamber and said varying-pressure chamber;

a silencer mounted in the air suction area of said valve body to reduce suction noise; and

a noise barrier mounted in the air suction area of said valve body between said silencer and said valve to further reduce the suction noise.

5,802,951

BRAKE BOOSTER

Tohru Satoh; Makoto Watanabe, and Naohito Saito, all of Saitama-ken, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan

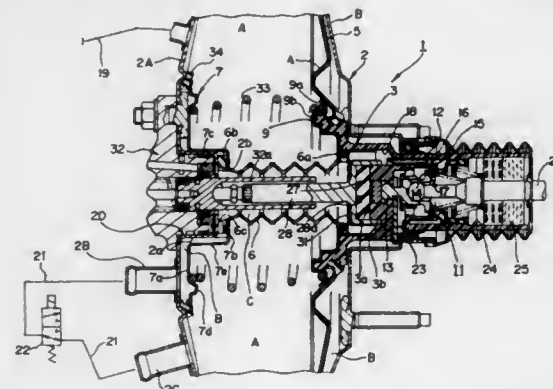
Filed Feb. 5, 1997, Ser. No. 794,866

Claims priority, application Japan, Feb. 29, 1996, 8-069345

Int. Cl.⁶ F15B 9/10

U.S. Cl. 91—376 R

5 Claims



1. A brake booster including a valve body which is disposed in a shell in a movable manner, a power piston mounted on the valve body, a constant and a variable pressure chamber defined across the power piston, bellows disposed within the constant pressure chamber and having its rear end connected to the valve body, a bulge formed in an axial portion of the shell in its front region and extending rearward of the shell, and an inlet formed in the shell at a location radially outward of the bulge for allowing a negative pressure or an atmosphere to be introduced into the internal space of the bellows, the bulge of the shell including a tubular portion which extends rearward, and an end face which extends radially inward from the rear end of the tubular portion;

characterized in that an annular, first support member is disposed within the constant pressure chamber, with a seal member disposed between a portion of the first support member adjacent to the outer periphery thereof and a wall surface of the shell at a location radially outward of the inlet to maintain a hermetic seal in a corresponding region, a front end of the bellows being held by a portion of the first support member adjacent to its inner periphery in a hermetically sealed manner while the front end of the bellows is held in abutment against the end face of the bulge, a space formed between the first support member and an opposing wall surface of the shell and the bulge, and a radial clearance formed at the front end of the bellows constituting together a communication channel which establishes a communication between the inlet and the internal space of the bellows.

5,802,952

REACTION MECHANISM FOR BOOSTER

Masahiro Ikeda, Saitama-ken, Japan, assignor to Jidosha Kiki Co., Ltd., Tokyo, Japan

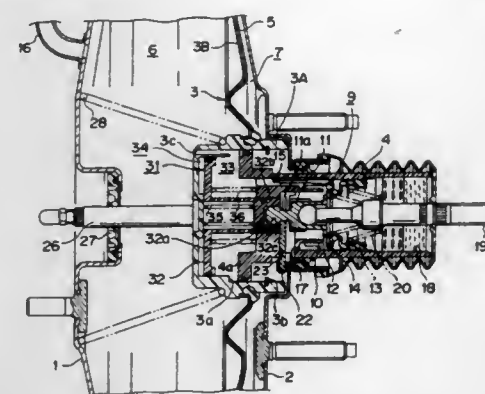
Filed Jun. 19, 1997, Ser. No. 874,373

Claims priority, application Japan, Jul. 5, 1996, 8-195491

Int. Cl.⁶ F15B 9/10

U.S. Cl. 91—369.1

4 Claims



1. In a booster including a valve body slidably disposed within a shell, a power piston mounted on the valve body, a constant and a variable pressure chamber defined across the power piston, a valve mechanism disposed in the valve body, an input shaft coupled to an operating rod and adapted to drive a valve plunger back and forth to switch a flow path in the valve mechanism, the valve plunger forming part of the valve mechanism, and an output shaft which is driven forward as the valve body is driven forward;

a reaction mechanism for booster comprising pseudo-reaction imparting means which prevents a reaction applied to the output shaft when the booster is actuated from being transmitted to the valve plunger and which imparts a pseudo-reaction which depends on a travel of the operating rod to the operating rod;

the pseudo-reaction imparting means comprising a reaction piston slidably mounted on either the power piston or the valve body for partitioning between a second constant pressure chamber, to which a pressure in the constant pressure chamber is introduced, and a second variable pressure chamber, to which a pressure in the variable pressure chamber is introduced, the reaction piston being urged rearward by a pressure differential between the second constant pressure chamber and the second variable pressure chamber, and a force acting upon the reaction piston being transmitted to the valve plunger as a pseudo-reaction, and

separating means which abuts against the shell in the inoperative condition of the booster to separate the reaction piston and the opposing valve plunger from each other.

5,802,953

POWER TILT CYLINDER DEVICE

Tamotsu Nakamura, Saitama, Japan, assignor to Showa Corporation, Gyoda, Japan

Filed Mar. 20, 1997, Ser. No. 821,066

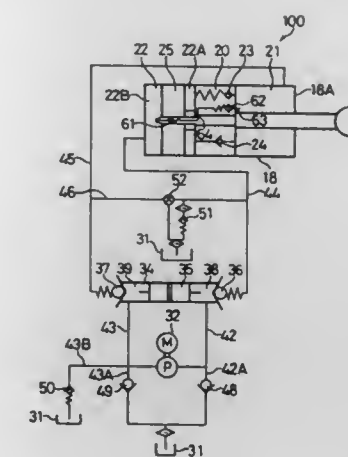
Claims priority, application Japan, Mar. 22, 1996, 8-091755

Int. Cl.⁶ F15B 11/08; F01B 11/02

U.S. Cl. 91—422

2 Claims

1. A power tilt cylinder device provided between a vessel body and a vessel propelling unit, the propelling unit being supported so as to be tilted against the vessel body by supplying a hydraulic fluid from a pressure supplying device to the cylinder device and alternatively discharging a hydraulic fluid from the cylinder device, the cylinder device comprising a cylinder; a piston rod, which is inserted into this cylinder and extended to the outside of the cylinder via a rod guide; a piston, which is fixed in a piston rod end part in the cylinder and plots and forms a first chamber of a piston rod housing space and a second chamber



of a piston rod non-housing space; and a free piston, which plots the second chamber into a piston side space and an opposite piston side space,

said piston being provided with a shock valve, which is opened when the first chamber is suddenly compressed, and a return valve, which returns a fluid in the piston side space to the first chamber by a dead weight of the propelling unit,

a rod part projectingly provided in an end surface of the piston facing the second chamber is fitted in a through-hole of the free piston,

a check valve for preventing flowing of a fluid from the first chamber is provided in a portion facing the opposite piston side space, of said rod part provided in the piston, an operation valve for preventing flowing of a fluid from the second chamber is provided in an end surface of the piston, which faces the first chamber, and these check and operation valves being communication with each other,

a hydraulic fluid supplied to the opposite piston side space of the free piston, in an upper limit position of upward tilting for discharging the hydraulic fluid from the first chamber, said operation valve is pushed open by the rod guide, and a flow passage directed from the opposite piston side space of the free piston toward the first chamber is caused to be conductive via said check and operation valves.

5,802,954

RECIPROCATING PISTON COMPRESSOR

Hayato Ikeda; Hiromi Michiyuki; Masanobu Yokoi; Yasunori Ueda, all of Kariya; Masato Nakagawa, and Manabu Naoi, both of Seki, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, and Nagoya Screw Mfg. Co., Ltd., Nagoya, both of Japan

Filed Mar. 18, 1996, Ser. No. 617,292

Claims priority, application Japan, Mar. 22, 1995, 7-063168

Int. Cl.⁶ F01B 3/00

U.S. Cl. 92—71

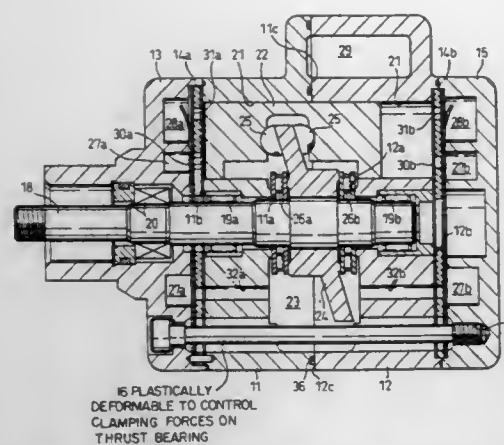
7 Claims

1. A reciprocating piston type compressor for compressing refrigerant gas including:

a main housing with a plurality of parallel cylinder bores arranged around the longitudinal axis of the cylinder block, the main housing comprising first and second cylinder blocks which include inner clamping faces and abutting faces in contact with each other, the first and second cylinder blocks being connected to each other by a plurality of bolts;

a plurality of pistons slidably provided within the cylinder bores: an axially extending drive shaft supported by the main housing for rotation through a pair of bearings;

a swash plate mounted on the drive shaft for rotation with said drive shaft, and for engagement with the pistons through shoes, the rotation of the drive shaft reciprocating the pistons through the movement of the swash plate;



a pair of thrust bearings provided between the swash plate and the inner clamping faces of the cylinder blocks to clamp the swash plate there between; and
at least one means for controlling a clamping force by plastic deformation thereof provided on a path along which a tightening force by the bolts is transmitted to the thrust bearings, on the thrust bearings from the inner clamping faces so that the clamping force does not exceed a predetermined allowable upper limit, when the compressor is assembled wherein the means for controlling the clamping force by plastic deformation is separate from said cylinder blocks.

5,802,955

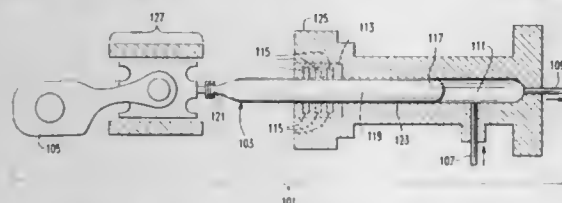
CORROSION RESISTANT CERMET WEAR PARTS
William M. Stoll, Ligonier; James P. Materkowski, and Ted R. Massa, both of Latrobe, all of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Division of Ser. No. 398,039, Mar. 3, 1995. This application
Jan. 11, 1996, Ser. No. 585,080

Int. Cl.⁶ F16J 9/00

U.S. Cl. 92—248

35 Claims



1. A plunger for use in a hyper compressor comprising:
(a) an elongated body;
(b) a first end;
(c) a second end, wherein the second end further comprises an attachment that facilitates the reciprocation of the plunger within a portion of the a hyper compressor; and
(d) a surface extending between the first end and the second end, at least a portion the plunger being comprised of a corrosion and wear resistant cermet composition comprising:
(i) at least one ceramic component, wherein the at least one ceramic component comprises at least one of boride(s), carbide(s), nitride(s), oxide(s), silicide(s), their mixtures, their solutions, and combinations thereof; and
(ii) between about 6–19% by weight binder alloy consisting essentially of a major component and between about 26–60% by weight of an additive component, wherein the major component consists of one or more of iron, nickel, cobalt, their mixtures, and their alloys; the additive component consists of at least one of ruthenium, rhodium, palladium, osmium, iridium, platinum, their mixtures and their alloys; and the interaction of the major component and the additive component imparts corrosion resistance to the plunger.

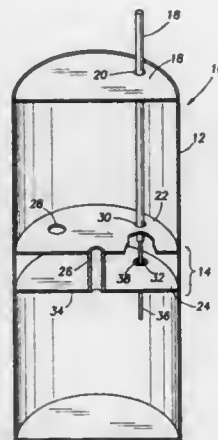
5,802,956
METHOD AND APPARATUS FOR THE REMOVAL OF KRAEUSEN IN THE BREWING PROCESS
David Henry Robertson, 2919 Silver Falls, and Landry Edward Bonnette, 2135 Lake Hills Dr., Apt. 2103, both of Kingwood, Tex. 77339

Filed Feb. 25, 1996, Ser. No. 621,351

Int. Cl.⁶ C12C 5/00

U.S. Cl. 99—276

16 Claims



1. An apparatus for use in brewing beer comprising:
a fermentation container comprising an open-top cylinder with an enclosed bottom; and
a removable platform positionable upon the top surface of a batch of wort within the container wherein the platform comprises
a substantially flat upper plate;
a substantially flat lower plate spaced apart from the upper plate; and
a foam-vent chimney between the plates.

5,802,957

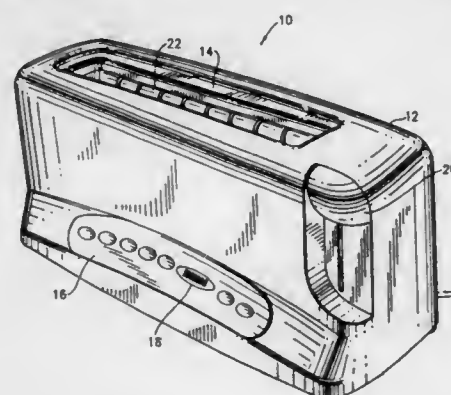
TOASTER SHADE CONTROL DISPLAY
David Wanat, Meriden, and Roger Letso, Sandy Hook, both of Conn., assignors to Conair Corporation, Stamford, Conn.

Filed Jul. 16, 1997, Ser. No. 892,956

Int. Cl.⁶ A47J 37/08; H05B 1/02

U.S. Cl. 99—327

12 Claims



1. A toaster for toasting bread to a desired darkness, said toaster comprising:
heater means for toasting bread; and
control means including:
(i) input means for receiving a user input corresponding to a desired toast darkness;
(ii) display means comprising a linear array of indicators; and
(iii) processor means:
(a) for causing said heater means to toast said bread to said desired toast darkness, and

(b) responsive to said input means, for activating a selected, sequential number of said indicators corresponding to said desired toast darkness.

5,802,958

COOKING GRILL

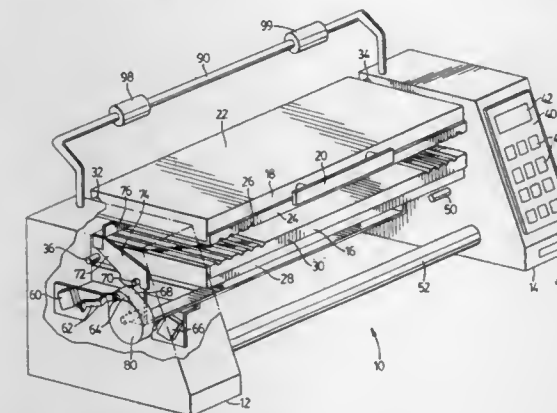
Alf E. Hermansson, 1330 Stanbury Road, Oakville, Ontario, L6L 2J4, Canada

Filed Jun. 16, 1997, Ser. No. 876,496

Int. Cl.⁶ A47J 37/00; 37/06; 37/08

U.S. Cl. 99—349

21 Claims



1. A cooking device comprising:
a first support;
a second support;
a lower cooking plate extending between and being supported by said first and second supports;
an upper cooking plate extending between and supported by said first and second supports and being movable between a lowered cooking position and a raised position; and
an ejector, located between said upper and said lower cooking plates, said ejector being movable between a rearward and a forward position.

5,802,959

BAKED, NON-OIL CONTAINING SNACK PRODUCT FOOD

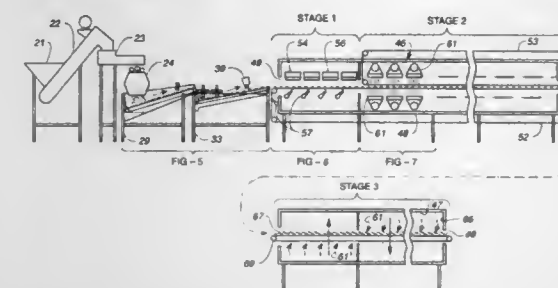
Clark K. Benson, Millbrae; Andrew A. Caridis, San Carlos; Donald B. Giles, Castro Valley; Daniel E. Brown, San Mateo; James A. Padilla, Pacifica; Thomas F. Leary, Sebastopol, and Leonardo P. Murgel, San Francisco, all of Calif., assignors to Heat and Control, Inc., Hayward, Calif.

Continuation-in-part of Ser. No. 756,271, Nov. 25, 1996, which is a division of Ser. No. 475,485, Jun. 7, 1995, Pat. No. 5,603,973. This application May 27, 1997, Ser. No. 863,916

Int. Cl.⁶ A47J 37/00; H05B 6/64

U.S. Cl. 99—355

6 Claims



1. Apparatus for continuously preparing potato chips in the absence of cooking oil, the combination comprising means for slicing whole potatoes,

potato slice washing means arranged to receive potato slices from said slicing means,
first conveyor means serving to remove potato slices from said washing means,
means serving to spread the potato slices for receipt by said conveyor means,
means serving to supply and direct at least one stream of air against the surfaces of the potato slices for removing surface water and starch particles therefrom,
an oven housing having an inlet and an outlet,
second conveyor means extending through said housing inlet and outlet and serving to carry the slices therethrough for cooking treatment,
infra red source arranged in said housing above said second conveyor means serving to transmit infra red energy from the infrared source in the range of about 1200° F. to about 1600° F. onto the potato slices carried by said second conveyor means,
open flame burner means arranged in said housing below said conveyor means serving to project a flame onto the potato slices carried by said second conveyor means,
said infra red source and open flame burner means co-acting to blanch said potato slices and quench substantially the enzymes therein,
first and second arrays of air impingement jets arranged in said housing respectively above and below said second conveyor means and there along in the direction of slice movement through said housing,
means serving to supply a first process vapor to issue from said impingement jets and to reheat and recirculate the process vapor following contact with the potato slices,
means serving to collect the slices into a multi layer pack, and
drying means serving to supply a second process vapor to the layered pack and to reheat and recirculate the second process vapor following contact with the potato slice pack.

5,802,960

ERGONOMIC COOKWARE

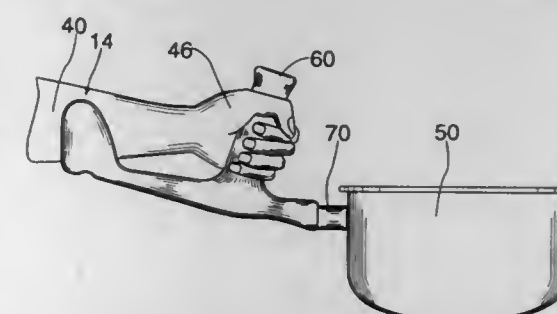
Raymond Graj, New York; Simon Graj, Pleasantville, and Eric Gustavsen, New York, all of N.Y., assignors to Graj & Gustavsen, New York, N.Y.

Filed Nov. 26, 1997, Ser. No. 980,037

Int. Cl.⁶ A47J 27/00; 37/00; 45/06; A47B 95/02

U.S. Cl. 99—403

28 Claims



1. An ergonomic handle attached to a cooking utensil at an upward angle substantially between 10 and 25 degrees from a horizontal plane that is parallel to the base of said cooking utensil for stabilized lifting, carrying and tilting of said cooking utensil, said handle comprising:

an elongated body portion having an upwardly directed concave surface for forearm support sized to engage a substantial portion of the forearm in an amount sufficient to inhibit sideways motions of said forearm relative to the gripping hand;

said body portion having integrally attached a handle gripping means extending substantially perpendicular to said upwardly directed concave surface of said body portion wherein said handle gripping means is positioned on said body portion so

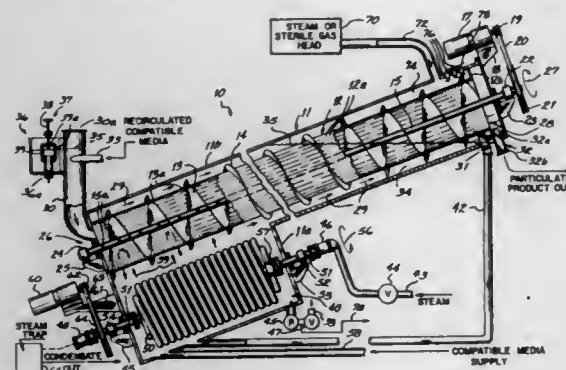
as to receive said gripping hand of said forearm such that the wrist is in a unrotated state.

5,802,961
METHODS AND APPARATUS FOR PARTICULATE HEAT EXCHANGE AND TRANSFER

Lloyd F. Hay; Jerry M. Hougland, both of Oakdale, and Christopher J. Rufer, Sacramento, all of Calif., assignors to FMC Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 228,079, Apr. 15, 1994, abandoned. This application Nov. 9, 1995, Ser. No. 555,522
Int. Cl.⁶ A47J 37/12

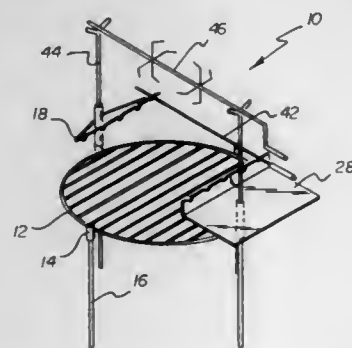
U.S. Cl. 99—406

21 Claims



14. A method of processing a mixture of particulate product and fluid media comprising the steps of:
maintaining a level of fluid media in a chamber;
transferring said particulate product through an inclined perforated tube having a substantial length completely submerged in said fluid media and having an upper portion extending above said fluid media level;
creating a cross current of fluid media from above said perforated tube and through the submerged length of said tube in a generally downward direction;
straining said particulate product of said fluid media at a location above said fluid media level; and
directing strained particulate product to a particulate product outlet of said chamber.

5,802,962
OUTDOOR ADJUSTABLE GRILL
Robert Goldyn, 9941 122nd Street, Surrey, British Columbia, Canada, V3V 4M2
Filed Feb. 5, 1998, Ser. No. 18,998
Int. Cl.⁶ A47J 33/00; 37/04; 37/07; F24B 3/00
U.S. Cl. 99—421 H



1. An outdoor adjustable grill for grilling over an open wood fire with numerous options comprising, in combination:

a circular grill portion having four circular sleeves secured to an outer periphery thereof, the four circular sleeves being disposed at ninety degree intervals, the circular sleeves having open upper and lower ends, the open lower ends being internally threaded;

four leg portions each having threaded upper ends, the threaded upper ends coupling with the open lower ends of the circular sleeves for elevating the circular grill portion above a recipient surface;

a skewer assembly having a cylindrical tube extending downwardly therefrom, a lower end of the cylindrical tube received within the open upper end of one of the circular sleeves, the cylindrical tube having an open upper end, the cylindrical tube having a pair of arms extending upwardly in an angular relationship thereto, the pair of arms having a horizontal arm extending therebetween, the horizontal arm having a plurality of notches formed therein;

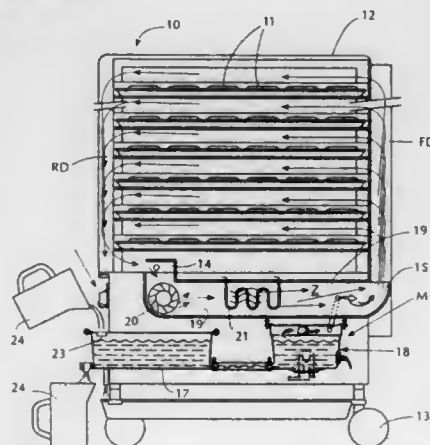
a heat guard assembly having an L-shaped configuration, the heat guard assembly having an inner vertical plate and an outer horizontal plate, the outer horizontal plate having an aperture therethrough, the outer horizontal plate having a cylindrical sleeve extending downwardly therefrom in communication with the aperture, the cylindrical sleeve having a cylindrical tube extending outwardly of an open lower end thereof, a set screw extending through the cylindrical sleeve for engaging the cylindrical tube, a lower end of the cylindrical tube received within the open upper end of one of the circular sleeves diametrically opposed from the skewer assembly, the inner vertical plate having a plurality of notches formed therein, the plurality of notches of the inner vertical plate being aligned with the plurality of notches of the skewer assembly to allow a plurality of skewers to transverse therebetween;

a pair of forked posts each having lower ends, the lower end of one of the forked posts received within the open upper end of the cylindrical tube of the skewer assembly, the lower end of an opposed fork post received within the aperture and the cylindrical sleeve of the heat guard assembly; and

a crank spit extending between upper forked ends of the pair of forked posts, one end of the crank spit having a handle disposed thereon positioned above the heat guard assembly, the crank spit having a pair of claws disposed thereon in a facing relationship.

5,802,963
MODULE FOR PRODUCING HOT HUMID AIR
Robert J. Cohn, Dallas, and Chad Morgan, West Pittston, both of Pa., assignors to Product Solutions Inc., Wilkes-Barre, Pa.
Continuation-in-part of Ser. No. 858,117, May 19, 1997. This application Sep. 3, 1997, Ser. No. 929,121
Int. Cl.⁶ A21B 1/00; 1/22; F27D 11/00; A23L 1/00
U.S. Cl. 99—476

13 Claims



1. A module adapted to generate a stream of hot, humid air comprising:

A. an air duct having an air intake at an inlet end thereof, an exhaust vent at an outlet end thereof and a mixing zone adjacent said vent;
B. a motor-driven blower disposed in the duct adjacent said intake to blow a stream of air toward the exhaust vent;
C. an electric air heater element disposed in the duct to heat the air stream; and
D. means to inject steam into said mixing zone in the duct to intermingle with the hot air stream whereby discharged from the exhaust vent is a stream of hot, humid air, said means to inject steam including a steam generator provided with a water Pan having an electric water heater element therein to boil the water in the pan to produce said steam, and a refillable water reservoir adjacent said steam generator and coupled to said pan whereby the water level in the pan is the same as that in the reservoir.

5,802,964
DRIVE SYSTEM CONFIGURATION FOR THE CONCAVE AND RADially CUT HEMISPHERE FOR CUTTING AND PRESSING FOR CITRUS JUICE EXTRACTION MACHINE

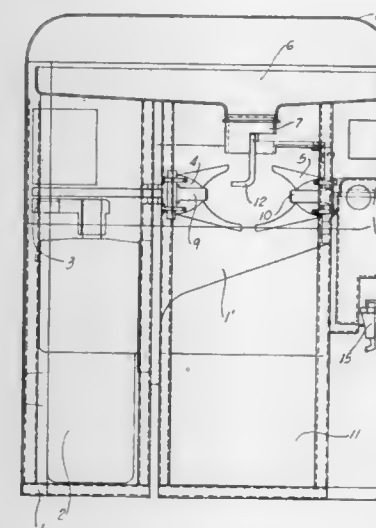
Carlos Neto Mendes, Rua Voluntarios de Patria 1738, Araraquara, Brazil

Filed Jul. 29, 1996, Ser. No. 681,626

Claims priority, application Brazil, Aug. 1, 1995, 7501779 U
Int. Cl.⁶ A23N 1/02

U.S. Cl. 99—509

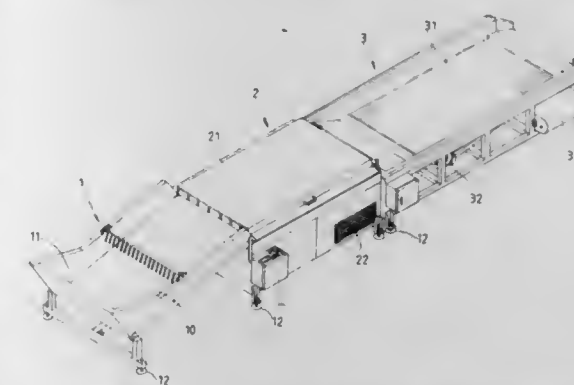
6 Claims



1. A fruit juice extraction apparatus comprising:
a chassis having mounted thereon juice extraction means;
said juice extraction means having means for storing said fruit, said storing means having an aperture therein for allowing articles of said fruit to be deposited between two concave hemispheres;
drive means for actuating means for forcing the first of said concave hemispheres against the second of said concave hemispheres, thereby pressing an article of said fruit deposited between said hemispheres, said means for forcing comprising, a driven rod connected to a base member on which said first concave hemisphere is mounted;
said first concave hemisphere having a central pin and said second concave hemisphere a perforating tube for the extraction of juice from said article of fruit, whereby the solid residue is deposited in a receptacle and the liquid is passed through a filter and then falls into a reservoir which has outlet ports therein.

5,802,965
BEAN SPROUT PROCESSING APPARATUS
Pao-Tseng Lin, No. 40, Alley 2, Lane 787, Chung Cheng Road, Chung Li City, Taiwan
Filed Feb. 19, 1997, Ser. No. 802,055
Int. Cl.⁶ A23L 1/00; 1/34; B08B 3/02; 3/06
U.S. Cl. 99—517

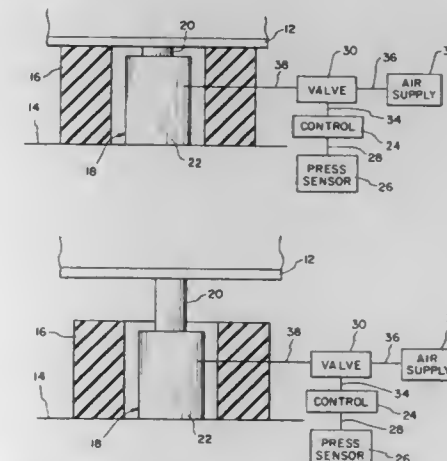
12 Claims



1. A bean sprouts processing apparatus comprising a feeding section, a treating section and a separating section arranged in sequence substantially in a horizontal manner, wherein:
the feeding section comprises a receptacle for receiving un-processed bean sprouts therein and conveyor means for conveying the bean sprouts toward the treating section;
the treating section comprising a sprout tray movably supported on a base, shaking means being provided between the sprout tray and the base to shake the sprout tray relative to the base so as to separate husks from the sprouts and to break roots of the sprouts and also move the sprouts and the separated husks and broken roots toward the separating section; and
the separating section comprises a sprout support plate movably supported on a base to receive the sprouts from the treating section, the sprout support plate comprising a plurality of apertures formed thereon, and vibration means arranged between the base and the sprout support frame to vibrate the sprout support plate relative to the base so as to cause the husks and broken roots to fall through the apertures and thus separated from the sprouts.

5,802,966
DUAL MOUNT CONTROL SYSTEM
Daniel A. Schoch, Minster, Ohio, assignor to The Minster Machine Company, Minster, Ohio
Filed Aug. 5, 1996, Ser. No. 693,895
Int. Cl.⁶ B30B 15/00
U.S. Cl. 100—35

17 Claims



17. A dual control mount system for a mechanical press having a press bed, the system comprising:

an elastomeric isolator adjacent said press bed, said elastomeric isolator for supporting said press bed relative to a floor;
 an air mount isolator operatively associated with said press bed, said air mount isolator for supporting said press bed relative to a floor;
 an air supply;
 a press sensor;
 a solenoid valve in communication with said air supply and said air mount;
 a control unit in communication with said press sensor and said solenoid, said press sensor sending input signals to said control unit, said control unit sending signals to said solenoid valve to open and close said solenoid valve based on received said input signals, whereby activation of said air mount isolator is dependant on particular input signals.

5,802,967

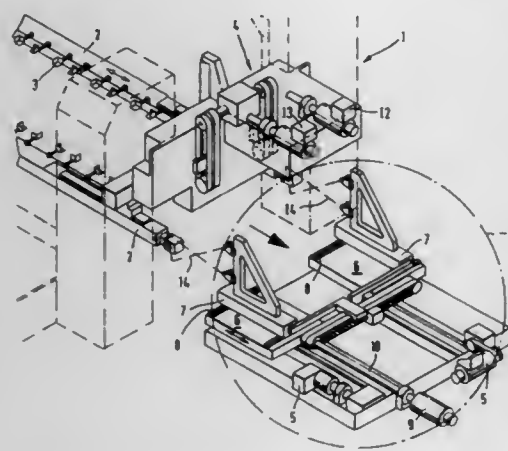
ARRANGEMENT FOR TRANSFERRING WORKPIECES THROUGH A SUCCESSION OF MACHINING STATIONS
 Karl Thudium, Waeschenbeuren; Walter Rieger, Goeppingen, and Andreas Dangelmayr, Ottenbach, all of Germany, assignors to Schuler Pressen GmbH & Co., Germany

Filed Feb. 22, 1996, Ser. No. 605,630

Claims priority, application Germany, Feb. 22, 1995, 195 06 078.4

Int. Cl.⁶ B30B 15/30; B21D 43/05
U.S. Cl. 100—207

6 Claims



1. An arrangement for transferring workpieces through a succession of machining stations of one of a press, a simulator, and a tool setting system, comprising: spaced parallel transport rails; at least one motor for moving the transport rails horizontally in a longitudinal direction thereof, vertically up and down and horizontally toward and away from one another; a respective coupling rod for moving each of the transport rails; traverses each operatively connected by at least one of said coupling rods with a respective transport rail, and a cross drive driven synchronously with the at least one driving motor for moving the traverses and respective transport rails toward and away from one another.

5,802,968

APPARATUS FOR CRUSHING CONTAINERS
 Jonathan Kirschner, Powder Springs, Ga., and Frederick R. Handren, Arlington, Va., assignors to The Coca-Cola Company, Atlanta, Ga.

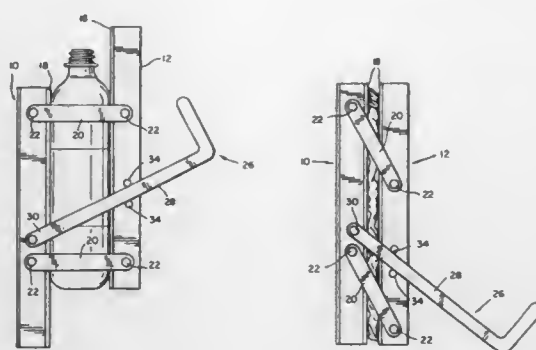
Filed Apr. 26, 1996, Ser. No. 637,898

Int. Cl.⁶ B30B 9/32

U.S. Cl. 100—233

22 Claims

1. An apparatus for crushing containers comprising:



a stationary member having a pressing surface circumscribed by laterally spaced sides and longitudinally spaced ends;

a movable member having a pressing surface circumscribed by laterally spaced sides and longitudinally spaced ends, the pressing surface of the movable member being disposed in confronting relation to the pressing surface of the stationary member;

first means for constraining the movable member for movement along an arcuate path toward and away from (1) a first position in which the pressing surfaces of the members are wholly separated from each other by a space which will accommodate a container to be crushed and (2) a second position in which the pressing surfaces of the members are closer to each other, the first means comprising links extending between the members and pivotally connected to a side of each of the members; and

second means for effecting movement of the movable member between the first and second positions, said second means comprising a lever pivotally connected to the stationary member and slidably engaging at least one projection on the movable member.

5,802,969

METHOD AND APPARATUS FOR TRANSFERRING IMAGES ONTO A CUP-SHAPED STRUCTURE

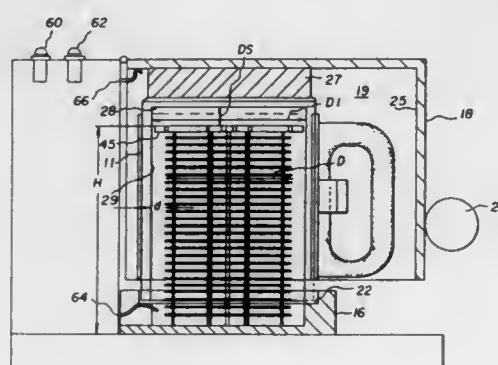
Raymond E. Wess, Holley; Carlos F. Rezende, Rochester, and Daniel C. Davis, Rush, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 10, 1997, Ser. No. 843,686

Int. Cl.⁶ B41F 17/20

U.S. Cl. 101—9

23 Claims



1. An apparatus for imprinting a sublimation transfer onto a generally cup-shaped structure, said apparatus comprising:
 a support member for holding said cup-shaped structure;

a cover mounted to said apparatus for movement between an open position and a closed position, said cover when in the closed position forming a heating chamber wherein said cup-shaped structure having a sublimation dye transfer thereon is placed for heating; and

a heating tower provided on said support member and having a shape such that said cup-shaped structure can be placed in an inverted position over said tower without touching said tower, said heating tower comprising a support structure and an electrical heating wire that is wrapped about said support structure, said heating wire being capable of heating said cup-shaped structure with the sublimation dye transfer thereon to transfer sublimation dyes from the sublimation dye transfer to the cup-shaped structure.

5,802,970

SCREEN PRINTING APPARATUS

Okie Tani, Tokyo, Japan, assignor to Tani Electronics Industry Co., Ltd, Tokyo, Japan

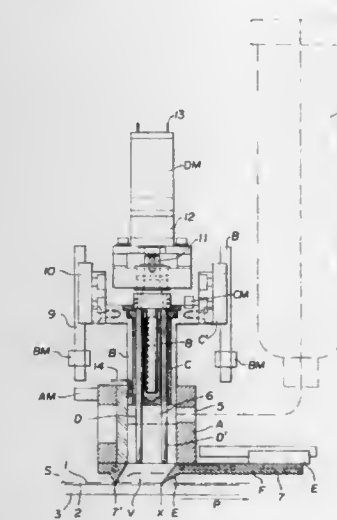
Filed Mar. 1, 1996, Ser. No. 609,628

Claims priority, application Japan, Mar. 1, 1995, 7-081656; Oct. 7, 1995, 7-296349; Nov. 17, 1995, 7-335632

Int. Cl.⁶ B41L 13/18

U.S. Cl. 101—123

11 Claims



1. A screen printing apparatus for applying a viscous printing material in a desired pattern on a substrate, the screen printing apparatus comprising:

a printing material chamber having a peripheral wall for containing the viscous printing material, the printing chamber having open ends and an inlet through the peripheral wall for supplying the printing material to the chamber;

an operable and closable squeegee mechanism at a first one of the open chamber ends;

a reversible displacement mechanism for extruding the printing material through the open squeegee mechanism, the displacement mechanism having an extrusion member for fitting in a second one of the open chamber ends; and

an agitating mechanism for agitating the printing material in the chamber, the agitating mechanism being supported in the chamber by the extrusion member;

wherein operations of the displacement mechanism, the squeegee mechanism, and the agitating mechanism are synchronized with respect to one another.

5,802,971

SCREEN PRINTING FRAME ASSEMBLY WITH SCREEN ANCHORS

Alan J. Hamu, Huntington Beach, Calif., and Kaino J. Hamu, 16061 Dominica Cir., Huntington Beach, Calif. 92649, assignors to Kaino J. Hamu, Huntington Beach, Calif.

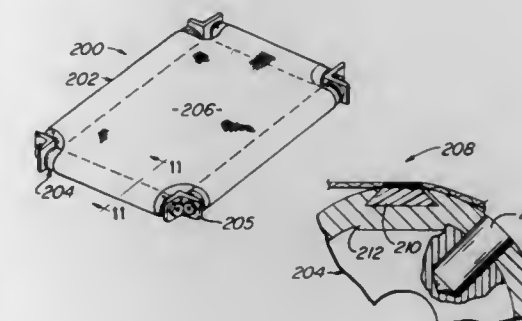
Division of Ser. No. 944,223, Sep. 14, 1992, Pat. No. 5,379,691.

This application Jan. 6, 1995, Ser. No. 369,642

Int. Cl.⁶ B41L 13/02

U.S. Cl. 101—127.1

22 Claims



1. For use in a printing screen frame assembly, the combination comprising:

an elongate screen anchor having a bonding surface along one longitudinal side of the screen anchor to be bonded to a printing screen, and a roller having a circumferential surface and a longitudinal channel having an open longitudinal side opening laterally through said roller surface and removably receiving said screen anchor,

said bonding surface being curved to approximately the same radius of curvature as said roller surface,

said channel opening endwise through one end of said roller, said channel and screen anchor having generally complementary shapes in transverse cross-section which constitute said means for releasably securing said screen anchor in said channel, and the screen anchor being slidable in said channel endwise of the roller for insertion and removal through the open end of the channel,

means for releasably retaining said screen anchor in said channel in a fixed position about and laterally of the axis of said channel wherein said screen anchor bonding surface is flush with the roller surface, and wherein said screen anchor is removable from said roller for cleaning and replacement.

5,802,972

TAMPON PRINTING PROCESS

Hans-Rainer Hoffmann, Neuwied; Bodo Asmussen, Ammersbek; Klaus Schumann, and Walter Müller, both of Neuwied, all of Germany, assignors to LTS Lohman Therapie-Systeme GmbH & Co., KG, Neuwied, Germany

Continuation of Ser. No. 492,054, Sep. 28, 1995, abandoned.

This application Nov. 10, 1997, Ser. No. 966,792

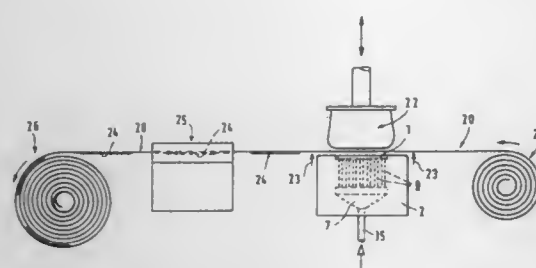
Claims priority, application Germany, Jan. 29, 1993, 43 02 445.9

Int. Cl.⁶ B41M 1/10

U.S. Cl. 101—170

10 Claims

1. In a printing process which comprises feeding a printing medium to at least one printing form of a printing plate, said printing plate being provided at its surface with said printing form, supplying said printing form with printing medium at time intervals and subsequently transferring the said printing medium to a support, the improvement wherein the process is a tampon printing process in which precisely regulated quantities of printing fluid are transferred onto a support by causing a tampon to press said support against the printing form and wherein the supply of printing fluid is conveyed from a storage vessel into the printing form



from below, passing through the printing plate, by means of a plurality of channels which emerge at the bottom of the printing form.

5,802,973

DEVICE FOR REGISTER ADJUSTMENT ON A SHEET-FED PRINTING PRESS

Tobias Mueller, Hirschberg; Anton Rodi, Leimen; Klaus Mueller, Heidelberg, and Holger Leonhardt, Bammental, all of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Continuation of Ser. No. 141,123, Oct. 21, 1993, abandoned.

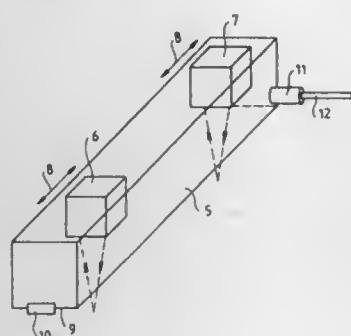
This application Oct. 12, 1995, Ser. No. 542,298

Claims priority, application Germany, Oct. 21, 1992, 42 35 393.9

Int. Cl.⁶ B41F 5/02; 13/12

U.S. Cl. 101—183

15 Claims

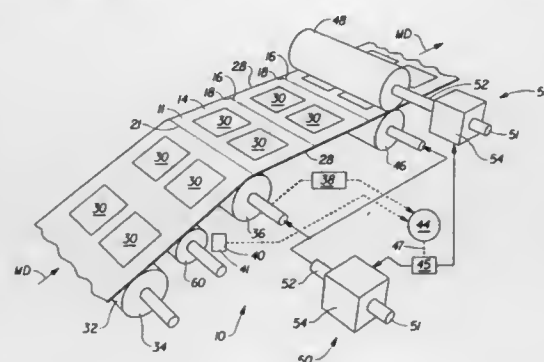


1. Register adjustment device in a sheet-fed printing press having adjusting elements for adjusting a printing operation thereof, comprising a position sensor, a light an illumination source for supplying light to said position sensor, and an evaluating unit connected to said sensor for receiving data therefrom regarding registration of printing material traveling on a path through the printing press, said evaluating unit being further connected to the adjusting elements of the printing press for adjusting a printing operation thereof in accordance with said data, said position sensor being disposed in the vicinity of the printing-material travel path so as to determine a respective register affecting the printing material, said position sensor comprising at least two sensor heads disposed at spaced distance from one another, wherein said position sensor includes a sensor housing for receiving said sensor heads, a lamp housing spaced apart from said sensor housing wherein said illumination source is received, and a lightwave conductor connecting said lamp housing to said sensor housing.

5,802,974
APPARATUS FOR SHEET HAVING INDICIA
REGISTERED WITH LINES OF TERMINATION
Kevin Benson McNeil, Loveland, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Mar. 25, 1996, Ser. No. 621,571
Int. Cl.⁶ B41F 13/26

U.S. Cl. 101—226

19 Claims



1. An apparatus for registering indicia with lines of termination in a transported sheet, the apparatus comprising:
a means for transporting a sheet in a first direction;
a means for applying spaced indicia to the sheet at predetermined repeating intervals and at a first rate;
a means for sensing the position of the indicia on the sheet;
means for imparting lines of termination to the sheet at a second rate, said means for imparting lines of termination comprising at least one rotatable blade and a chop-off roll, said lines of termination comprising a first plurality of chop-off cuts and a second plurality of perforations intermediate said chop-off cuts, said chop-off cuts defining leading and trailing edges of the sheet and being coincident the perforations, the lines of termination being in spaced relationship to the indicia;
a means for determining the position of one of the means for imparting lines of termination or the means or applying indicia;
a means for comparing the position of the indicia on the sheet to the position of one of the means for imparting lines of termination or the means for applying the indicia to the sheet to thereby generate an error signal; and
means for adjusting the spaced relationship between the indicia and the lines of termination by adjusting either said first rate or said second rate while maintaining said coincidence between the chop-off cuts and the perforations, said adjustment being based upon the error signal.

5,802,975

DEVICE FOR MANIPULATING SLEEVES ON CYLINDERS

Wolfgang Prem, Kutzenhausen, and Anton Stadlmair, Kùhbach, both of Germany, assignors to Man Roland Druckmaschinen AG, Offenbach AM Main, Germany
Continuation of Ser. No. 601,470, Feb. 14, 1996, abandoned, which is a continuation-in-part of Ser. No. 346,773, Nov. 30, 1994, abandoned. This application Nov. 18, 1997, Ser. No. 972,920

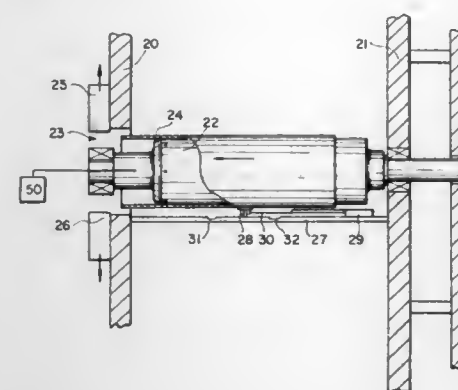
Claims priority, application Germany, Dec. 3, 1993, 43 41 246.7

Int. Cl.⁶ B41F 27/00; 30/00; B65H 23/00

U.S. Cl. 101—375

8 Claims

1. A device for manipulating a printing form sleeve or rubber blanket sleeve on a cylinder that is cantilever mounted horizontally in a rotary printing machine while the cylinder is horizontally mounted between side walls of the printing machine, the cylinder having an axis, the device comprising:
force means for engaging the sleeve within the printing machine; and sleeve gripping means for activating the force



means to grip the sleeve within the printing machine in a frictional manner, so that the entire sleeve, when gripped, is selectively displaceable axially on the cylinder in either axial direction while the sleeve is between the side walls of the printing machine so that the sleeve is correctly positionable on the cylinder, the sleeve gripping means including a guide rail horizontally mountable between the side walls of the printing machine so as to extend parallel to the cylinder axis, a guide member displaceably mounted on the guide rail so as to be engageable with the sleeve for moving the sleeve between the side walls, and a drive articulated to the guide member to displace the guide member.

5,802,976

DEVICE FOR CLEANING CYLINDER SURFACES IN PRINTING PRESSES

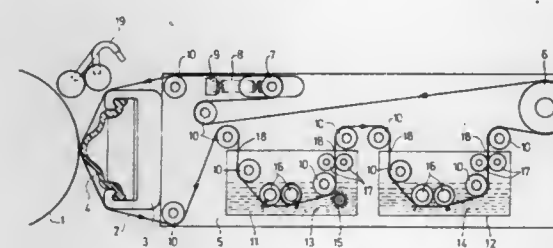
Jens Friedrichs, Heidelberg, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Filed Jan. 17, 1997, Ser. No. 784,402

Claims priority, application Germany, Jan. 17, 1996, 196 01 471.9

Int. Cl.⁶ B41F 35/00

U.S. Cl. 101—424

18 Claims



1. An apparatus for cleaning a cylinder surface in a printing press, said apparatus comprising:
an application element to dispose an endless cleaning cloth in contact with a cylinder surface;
a device to wash a dirty endless cleaning cloth;
an arrangement to direct an endless cleaning cloth through said device to wash a dirty endless cleaning cloth;
a cleaning cloth drive mechanism, said cleaning cloth drive mechanism comprising an arrangement configured and disposed to move an endless cleaning cloth across said application element and through said arrangement to direct an endless cleaning cloth through said washing device;
said device to wash a dirty endless cleaning cloth comprising a first wash tank to immerse a dirty endless cleaning cloth in an ink solvent; and
said device to wash a dirty endless cleaning cloth comprising a second wash tank to immerse a dirty endless cleaning cloth in water.

5,802,977

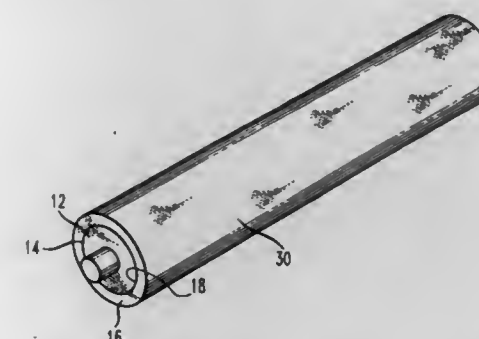
LIQUID METERING ROLL

Ronald Constantino, and Sharon Constantino, both of 4946 Dutch Hill Rd., Cincinnati, N.Y. 13040
Division of Ser. No. 391,575, Feb. 6, 1995, Pat. No. 5,660,109.
This application Jun. 12, 1997, Ser. No. 874,072

Int. Cl.⁶ B41F 31/26

U.S. Cl. 101—483

1 Claim



1. A method of manufacture for a durable metering roll for the application of ink or other liquids, said method comprising:
a. forming a core roll having a constant cross-sectional area;
b. roughening the periphery surface of said core roll in preparation for the application of an adhesive, said roughening of said peripheral surface of said core roll comprising spinning said core roll about its longitudinal axis while simultaneously grit blasting its periphery;
c. forming a concentric sleeve complimentary with said core roll, said concentric sleeve comprised of a non-porous, heat-resistant, transparent glass;
d. abrading the interior, cylindrical surface of said concentric sleeve in preparation for the application of adhesive, said abrading of said interior cylindrical surface of said concentric sleeve comprising the spinning of said concentric sleeve about its longitudinal axis while simultaneously introducing an oxide grit onto the interior cylindrical surface of said concentric sleeve;
e. applying adhesive to the cylindrical periphery of said core roll or to said interior cylindrical surface of said concentric sleeve said adhesive comprising a non-solvent, solid adhesive;
f. positioning said concentric sleeve about said core roll;
g. curing and setting said adhesive, said curing and setting comprising exposing said adhesive to the application of ultraviolet light passing through said non-porous, heat-resistant, transparent glass; and
h. engraving distinct ink capturing cells on said peripheral surface of said cylindrical sleeve.

5,802,978

METHOD FOR REGULATING INKING WHEN PRINTING WITH A PRINTING PRESS

Wolfgang Geissler, Bad Schönborn; Harald Bucher, Eschelbronn; Werner Huber, Rauenberg, and Bernd Kistler, Eppingen, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany
Filed Sep. 13, 1996, Ser. No. 713,799

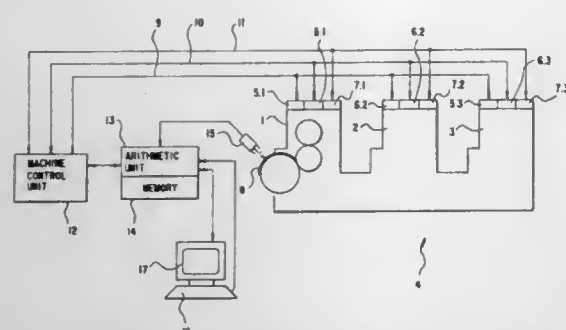
Claims priority, application Germany, Sep. 13, 1995, 195 33 822.7

Int. Cl.⁶ B41F 31/04; 31/06

U.S. Cl. 101—484

2 Claims

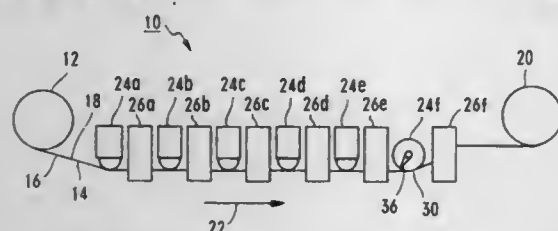
1. In an inking control method for a printing machine wherein inking is controlled on the basis of given measurement sites on a recording carrier, a method of selecting the measurement sites for regulating inking during printing with the printing machine, which comprises:
providing a printing press having control elements for adjusting inking of a printed image;
printing a first printed image onto a recording carrier;



defining a multiplicity of measurement sites on an entire printed area of the first printed image on the recording carrier; ascertaining, with at least one sensor element, first actual value signals representing a coloration and position of the coloration of the first printed image from the multiplicity of measurement sites; defining control signals for adjusting the control elements for controlling the inking; adjusting the control elements with the control signals; subsequently printing with the control elements adjusted according to the control signals a second printed image, deriving second actual value signals representing the coloration and position of the coloration of the second printed image, comparing the first actual value signals with the second actual value signals, and determining differences between the first actual value signals and the second actual value signals for each measurement site; and selecting, in a subsequent inking control process, those measurement sites at which the differences are the greatest.

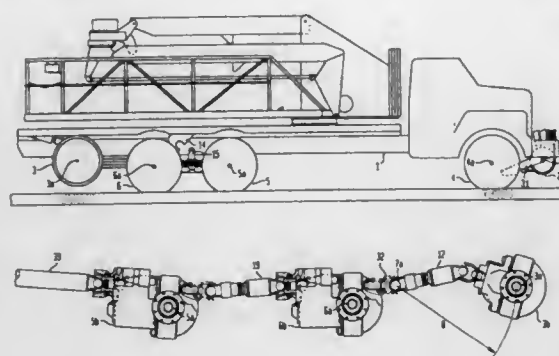
5,802,979

METHOD FOR MANUFACTURING A DISPLAY
Douglas I. Lovison, Rancho Santa Fe, Calif., assignor to Chromium Graphics, San Diego, Calif.
Continuation-in-part of Ser. No. 670,626, Jun. 25, 1996, which is a continuation-in-part of Ser. No. 382,132, Feb. 1, 1995, abandoned. This application Dec. 27, 1996, Ser. No. 774,906
Int. Cl.⁶ B41F 15/42; 13/00
U.S. Cl. 101—491 21 Claims



1. A method for manufacturing a display which comprises the steps of:
extending a substrate through at least three printing stations between a supply roller and a first receiving unit;
rotating the first receiving unit to transfer the substrate from the supply roller to the first receiving unit;
rotationally depositing substantially translucent inks at a first printing station to form a pattern on the substrate, the pattern being one of a plurality of sequential patterns on the substrate;
rotationally depositing substantially opaque ink at a second printing station onto at least a portion of at least one of the patterns on the substrate;
rotationally depositing viscous, substantially translucent ink at a third printing station to form one or more extraordinarily thick ridges on at least a portion of at least one of the patterns on the substrate;
curing the inks on the substrate; and
applying a metalized substance onto the substrate over at least a portion of the translucent inks, the opaque ink and the viscous translucent ink.

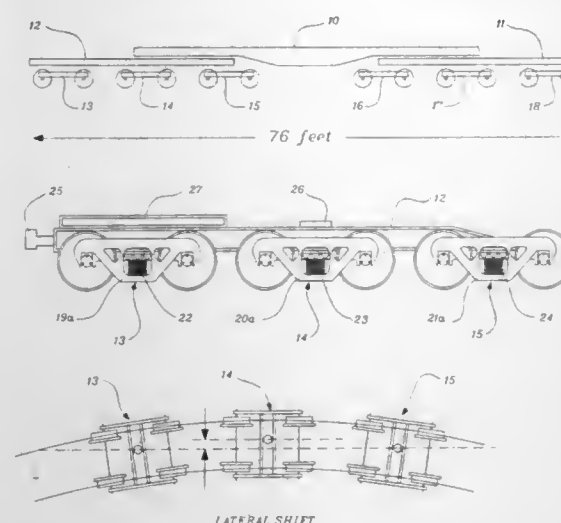
5,802,980
VEHICLE DRIVE SYSTEM FOR ROAD AND RAILROAD TRACK
Richard J. Hofmiller, Orange, Conn., assignor to DFM Enterprises, Inc., North Haven, Conn.
Filed Apr. 7, 1997, Ser. No. 833,421
Int. Cl.⁶ B61C 13/00
U.S. Cl. 105—72.2 8 Claims



1. A vehicle for operation on both road and railroad track provided with a wheeled chassis comprising:
a steerable first front wheel axle disposed on said chassis;
a first rear wheel differential axle with a universal joint output disposed on said chassis;
a second front wheel axle disposed on said chassis;
a second rear wheel differential axle with a universal joint input disposed on said chassis to the rear of said first rear wheel differential axle;
a front road wheel rotatably mounted on said steerable first front wheel axle;
a rear road wheel rotatably mounted on said first rear wheel differential axle;
a front rail wheel rotatably mounted on said second front wheel axle;
a rear rail wheel rotatably mounted on said second rear wheel differential axle;
a rail wheel drive shaft drivingly connected at one end to said universal joint output of said first rear wheel differential axle and at the other end to said universal joint input of said second rear wheel differential axle;
wherein said front rail wheel and said rear rail wheel are suspended horizontally from said wheeled chassis when said vehicle is being driven on a road;
wherein said front rail wheel and said rear rail wheel are engaged with a railroad track and said second rear wheel differential axle is driven by said first rear wheel differential axle through said rail wheel drive shaft, when said vehicle is driven on the railroad track; and
wherein said steerable first front wheel axle and said second front wheel axle are disposed at the front of the vehicle and said first rear wheel differential and said second rear wheel differential axle are disposed at the rear of the vehicle and wherein said steerable first front wheel axle is disposed to the rear of said second front wheel axle and said first rear wheel differential axle is disposed in front of said second rear wheel differential axle.

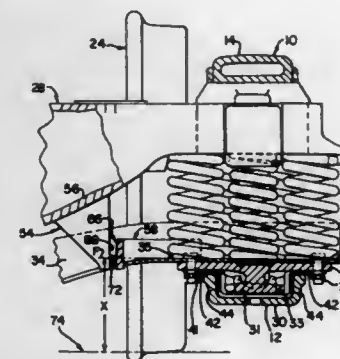
5,802,981
TWELVE-AXLE RAIL VEHICLE
Gabe M. Kassab, Pittsburgh, Pa., assignor to Kasgro Rail Corp., New Castle, Pa.
Filed Mar. 13, 1997, Ser. No. 816,388
Int. Cl.⁶ B61F 3/00
U.S. Cl. 105—176 12 Claims

1. A railway vehicle comprising:
(a) a body,
(b) two span bolsters rotatably mounted to said body, and



(c) each of said span bolsters having three 2-axle truck assemblies rotatably attached at three separate locations on said each of said span bolsters thereby supporting said vehicle on twelve axles and twenty four wheels.

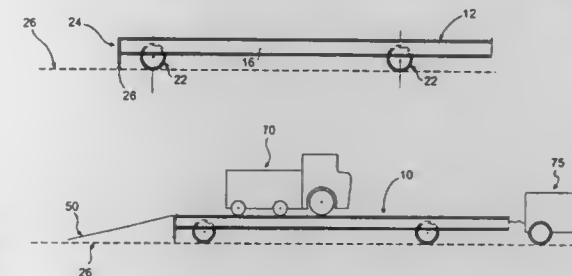
5,802,982
ROLL CONTROL MECHANISM FOR SWING MOTION TRUCK
Hans B. Weber, Rotonda West, Fla., assignor to NACO, Inc., Downers Grove, Ill.
Filed Aug. 22, 1997, Ser. No. 916,881
Int. Cl.⁶ B01F 5/24
U.S. Cl. 105—187 11 Claims



1. A railway car truck comprising:
a pair of side frames journaled on associated wheel and axle assemblies for swinging movement transversely of the truck under the action of laterally directed forces applied to the truck, each said frame having a bolster receiving opening;
a bolster extending between said side frames, each end of said bolster being received in said opening of a respective side frame for movement of said bolster transversely of said side frame;
a transom extending between said side frames in interlocking relationship therewith for limiting the transverse swinging movement of said side frames;
a lateral bolster stop extending from said bolster adapted to transmit lateral forces from said bolster to said transom;
a lateral transom stop extending from said transom adapted to be contacted by said bolster stop to limit lateral movement of said bolster and transmit lateral forces from said bolster to said transom;
said transom stop defining an upper edge surface and a lower edge surface, and a convex contact surface extending between said upper edge surface and said lower edge surface, said

convex contact surface including a contact point, said contact point adapted to be engaged by said bolster stop.

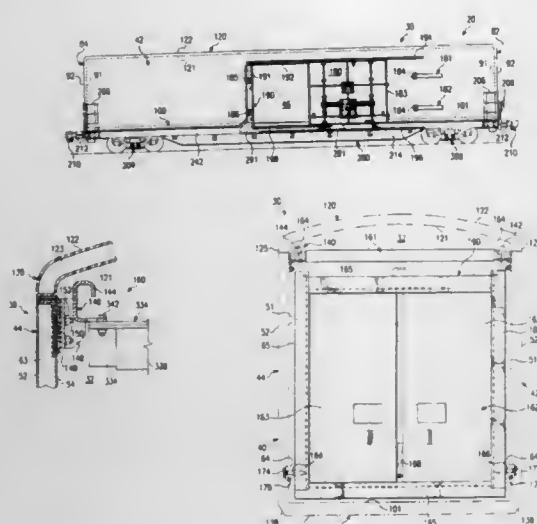
5,802,983
RAILROAD PLATFORM CART
Christopher J. Manzini, Williamsport, Md., assignor to Amtrac Railroad Contractors of Maryland, Inc., Hagerstown, Md.
Filed Feb. 20, 1997, Ser. No. 803,246
Int. Cl.⁶ B61D 3/00; 49/00
U.S. Cl. 105—355 12 Claims



1. A non-motorized low-profile platform cart system for transportation of heavy equipment and vehicles to limited access areas comprising:
a platform cart having a rectangular cart body with an upper surface, an underside, two sides and two ends; said cart having mechanical means formed on one end of the cart body for allowing directional movement of ballast/debris which may be encountered on railroad tracks during operation of the cart, rail wheels connected to the underside of the cart body, means for connecting to a motor power source and air brakes; and
a portable loading ramp for facilitating loading and unloading of the cart, wherein the ramp has a high end and a low end, the high end fitting flush against an end of the cart such that the upper surface of the cart is level with the high end of the ramp when the ramp and cart are placed end to end, wherein said cart is capable of attaining speeds of 40 mph, where track conditions permit, when connected to a motor power source capable of the same.

5,802,984
LOAD DIVIDER ASSEMBLY AND DOOR ASSEMBLY FOR A COMPOSITE RAILWAY BOXCAR
Mell R. Thoman, Carrollton, and John W. Coulborn, Fort Worth, both of Tex., assignors to Trinity Industries, Inc., Dallas, Tex.
Filed Jul. 19, 1996, Ser. No. 684,537
Int. Cl.⁶ B61D 17/00
U.S. Cl. 105—404 23 Claims

1. A railway boxcar comprising:
a pair of opposite side walls and a pair of opposite end walls extending between the side walls to define in part a hollow interior for the boxcar;
a door mounted on each side wall intermediate the end walls;
a floor extending between the side walls and the end walls; the side walls, the end walls, and the floor formed as a first fiber reinforced composite unit;
the first fiber reinforced composite unit mounted on a railway car underframe;
a second fiber reinforced composite unit forming a roof for the boxcar;
an upper load divider track assembly having a pair of tracks with one track disposed between the roof and one side wall and the other track disposed between the roof and the other side wall; and
a lower load divider track assembly having a pair of tracks with a first track disposed within a first longitudinal recess formed



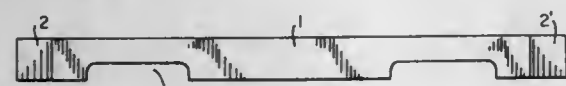
within an interior surface of one side wall and a second track disposed within a second longitudinal recess formed within an interior surface of the other side wall.

5,802,985
GUIDES FOR TRANSPORTING PALLETS AND DEVICE FOR MANUFACTURING THE SAME
Edmund Munk, Oberstenfeld, and Helmuth Huber, Gronau, both of Germany, assignors to Werzalit AG + Co., Oberstenfeld, Germany

Filed Sep. 5, 1995, Ser. No. 523,744
Int. Cl.⁶ B65D 19/00

U.S. Cl. 108—51.11

1 Claim

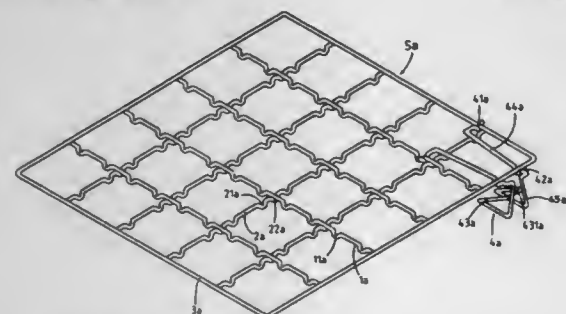


1. A guide for arranging between feet of transporting pallets, comprising a one-piece integral elongated body composed of a mixture of fibers and a heat hardenable binder, said body having a central part and two end parts as considered in a longitudinal direction, said central part and said end parts being composed of a same material, but the material of said end parts being compressed more the material of said central part, so that said end parts have a density which is higher than a density of said central part.

5,802,986
PALLET DEVICE
Tsun Jen Lin, Taipei, Taiwan, assignor to Tsun Jen Lin, Taiwan
Filed Apr. 18, 1997, Ser. No. 839,793
Int. Cl.⁶ B65D 19/00

U.S. Cl. 108—57.14

9 Claims



1. A pallet device, comprising

a frame consisting of a plurality of lengthwise bars and a plurality of crosswise steel bars intercrossing said lengthwise bars; and

a plurality of foot members, detachable mounted at selected positions on said frame, for supporting said pallet device by raising said frame to a height from the ground, each of said foot members including

a base,

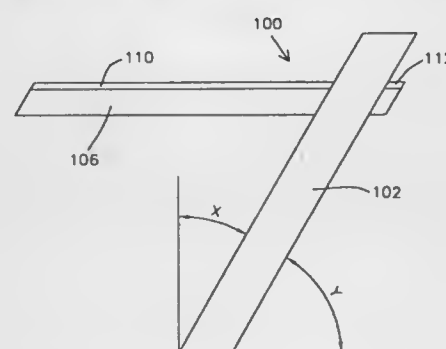
a pair of standoffs extending upward from one side of the base, a pair of arms extending from said standoffs generally parallel to and over the base,

each arm having a support detent at one end of the arm, above the base, for engaging one of said crosswise bars or lengthwise bars and a clamping finger at a free end of the arm for engaging one of said crosswise bars or lengthwise bars.

5,802,987
CANTILEVERED DISPLAY DEVICE
David K. Bellak, and Jonathon G. Bellak, both of P.O. Box 16735, Alexandria, Va. 22302-0735
Filed Aug. 8, 1996, Ser. No. 694,177
Int. Cl.⁶ A47B 9/00

U.S. Cl. 108—108

16 Claims



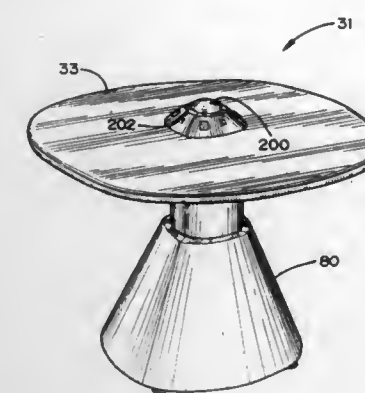
1. A display unit consisting of:
at least one angled support member which is disposed at an angle of less than 90 degrees to the ground;
at least one horizontally extending shelf bearing member operatively connected to said support member; and
a shelf disposed on said shelf bearing member for supporting articles to be displayed, wherein said shelf bearing member and said shelf provide a cantilever action holding said display unit in an upright position.

5,802,988
VERTICALLY ADJUSTABLE TABLE
Michael R. Shields, Greensboro, N.C., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed Nov. 14, 1996, Ser. No. 747,798
Int. Cl.⁶ A47B 9/00

U.S. Cl. 108—147

19 Claims

1. A table comprising:
a base adapted to stably engage a floor;
a tabletop assembly including a support operably supported on the base for telescoping vertical movement, and further including a tabletop mounted on the support;
a lift assist including a release button located generally under a center of the tabletop and operably connected to the base and the support for lifting the support; and



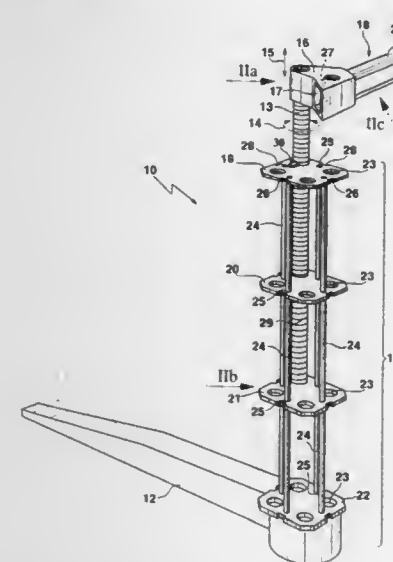
an actuator button positioned within a perimeter of the tabletop and operably connected to the release button of the lift assist for operating the lift assist.

5,802,989
TABLE SUPPORT STRUCTURE
Wolf Veyhl, Neuweiler, Germany, assignor to Veyhl GmbH, Neuweiler, Germany
Filed Oct. 1, 1997, Ser. No. 942,324
Claims priority, application Germany, Oct. 14, 1996, 196 42 387.2

Int. Cl.⁶ A47B 3/06

U.S. Cl. 108—153.1

11 Claims

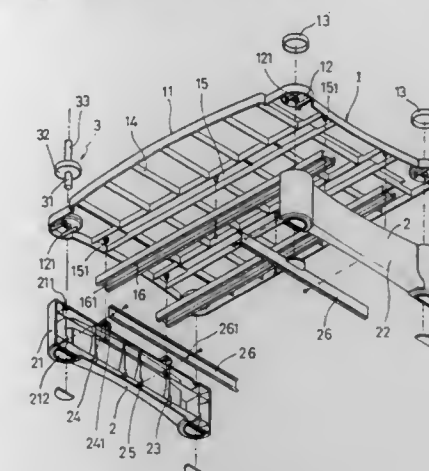


1. A table structure comprising:
a column having a plurality of mutually separated stacked plates, each of said plates having a through hole aligned with through holes of other plates, said column also having a support rod holding said plates together in a vertical direction;
a bar vertically directed within said column, said bar passing through said through holes in said plates, said bar rotatable and displaceable with respect to said plates;
an adapter mounted to a free end of said bar projecting above said column for mutual rotation with said bar, said adapter having a receptacle; a transverse support having a free end accepted in said receptacle for attachment of said transverse support to said adapter; and
a foot mounted to a bottom of said column.

5,802,990
COMPUTER RACK
Chin-Chih Lin, 2F, No. 160, Shih Ta Road, Taipei, Taiwan
Filed May 30, 1997, Ser. No. 866,344
Int. Cl.⁶ A47B 3/06

U.S. Cl. 108—157.1

6 Claims

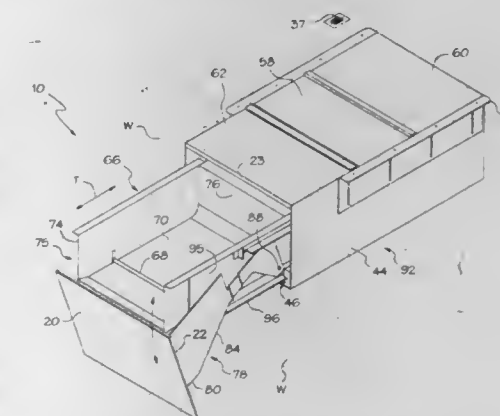


1. An improved computer rack for placement on a desk surface, said improved computer rack comprising:
a top plate having a plate surface with a top side and a bottom side, at least one corner of said top side being sunken to form a plate ring with a ring hole at a center thereof for receiving a support shaft of a computer peripheral device, said bottom side being provided with a plurality of criss-cross partition ribs;
two side plates, said two side plates being arranged opposite to each other and fixedly provided at both sides of said top plate, a plate post being disposed at a front end and a rear end of each of said two side plates, each plate post having a curved hole at an upper end for matching each said ring hole, and a post leg at a lower end for contacting the desk surface, and each of said two side plates having a plurality of criss-cross plate ribs at an inner wall thereof.

5,802,991
TRANSACTION DRAWER ASSEMBLY AND METHOD
Michael E. Brown, Mason, and Michael J. Craven, Sycamore Township, both of Ohio, assignors to E. F. Bavis & Associates, Inc., Maineville, Ohio
Continuation of Ser. No. 582,094, Jan. 2, 1996, abandoned.
This application Jun. 20, 1997, Ser. No. 880,052
Int. Cl.⁶ E06B 7/32

U.S. Cl. 109—19

26 Claims



1. A transactional drawer assembly comprising:
a housing having an outer edge;

a drawer having an associated customer door having a predetermined opened position and a closed and sealed position relative to said drawer, said drawer being reciprocable relative to said housing; and

a cam actuator assembly for moving said door between said opened position and said closed and sealed position in response to reciprocation of said drawer relative to said housing, said actuator assembly further comprising a seal/unseal cam surface which interacts with cam follower to move said door between said closed and sealed position to an unsealed position in a substantially only normal direction with respect to said outer edge, and at least one other cam surface which interacts with a cam follower to move said door between said unsealed and opened positions in a direction which is not substantially normal to said outer edge; and

wherein said door is rotatably mounted about a pivot point spaced from the front edge of the drawer; and

with the assembly further comprising a threaded rod threadedly associated with a correspondingly threaded nut attached to said drawer, said threaded rod and nut assembly being powered by said low powered reversible power source for selectively reciprocating said drawer relative to said housing.

5,802,992

SLUDGE PROCESSOR

Alex J. Doncer, Palos Heights, Ill., assignor to Alar Engineering Corporation, Mokena, Ill.

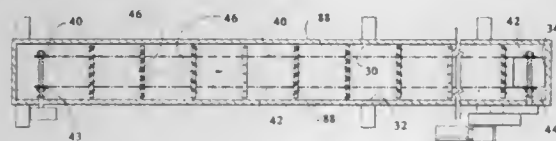
Division of Ser. No. 530,898, Sep. 20, 1995, Pat. No. 5,660,124.

This application Jan. 30, 1997, Ser. No. 790,535

Int. Cl.⁶ F23B 7/00

U.S. Cl. 110—341

15 Claims



1. A method for heating a stream of solid material in a stream comprising the steps of:

providing an elongate pathway having an inlet end and an outlet end;

heating said elongate pathway between said inlet end and said outlet end;

introducing said stream of solid material into said inlet end and onto said pathway;

urging said solid material from said inlet end to said outlet end along said pathway and;

repeatedly laterally redirecting said stream by laterally splitting and recombining said stream as said stream is urged along said pathway.

5,802,993

PYROLYSIS SYSTEM AND METHOD

W. R. Meador, 1031 Andrews Hwy. Suite 310, Midland, Tex. 79701

Filed Oct. 31, 1996, Ser. No. 742,083

Int. Cl.⁶ F23J 11/00; F23G 5/12; F27B 9/02

U.S. Cl. 110—345

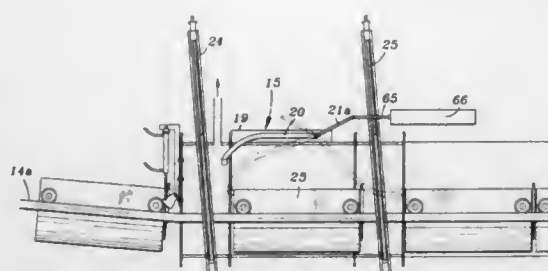
10 Claims

5. A method for reclamation and recovery of used battery constituents from non-lead acid batteries by pyrolysis comprising:

(a) providing a pyrolysis chamber with a central heating zone, an entry zone and an exit zone;

(b) installing a rail system including a spaced-apart pair of rails extending throughout the pyrolysis chamber with an inclined segment outside the entry zone and a declined segment outside the exit zone;

(c) heating the central heating zone to a temperature range for pyrolysis to occur of the non-lead acid batteries;



(d) transferring a series of rail carts containing batteries for pyrolysis by the rail system at atmospheric pressure into the entry zone, one rail cart at a time;

(e) providing vapor recovery apparatus for maintaining a sub-atmospheric pressure in the heating zone and recovery of battery constituents volatilized by pyrolysis;

(f) decreasing intermittently the pressure in the entry zone to the sub-atmospheric pressure in the heating zone;

(g) transferring the series of rail carts under sub-atmospheric pressure from the entry zone into the heating zone for pyrolysis, one rail cart at a time, until the heating zone is at rail cart capacity, thereafter the series of rail carts extending throughout the entry zone, and the heating zone of the pyrolysis chamber;

(h) decreasing intermittently the pressure in the exit zone, concurrently with decreasing the pressure in the entry zone to the sub-atmospheric pressure in the heating zone;

(i) transferring the series of rail carts at the sub-atmospheric pressure out of the heating zone into the exit zone, one rail cart at a time;

(j) increasing intermittently the pressure in the exit zone concurrently with increasing the pressure in the entry zone to the atmospheric pressure;

(k) removing at atmospheric pressure the series of rail carts entering the exit zone, one rail cart at a time; and

(l) recovering the residual battery constituents remaining in the cart.

10. A gate assembly for sealing a passageway into a reaction chamber comprising:

(a) a pair of spaced-apart panels transverse to the passageway into the reaction chamber, each panel having an opening therethrough, one of said panels having a first series of wedge blocks surrounding its opening, the other of said panels having a sealing member surrounding its opening;

(b) an open spacing frame intermediate said pair of spaced-apart panels to form a chamber;

(c) a gate having a second series of wedge blocks for correlative engagement with the first series of wedge blocks on one of said panels, the gate including an operating arm extending through the frame member for moving the gate such that the wedge blocks on one of said panels engage the wedge blocks of the gate and then moves the gate into engagement with the sealing member surrounding the opening of the other of said panels thereby sealing the passageway.

5,802,994

SEEDER APPARATUS FOR DISPENSING SEED WITH OR WITHOUT TOP DRESSING

George B. Kinkead, St. Paul; Vernon J. Worrel, Mahtomedi; Scott Bjorge, Owatonna, and Matthew A. Donner, St. Anthony, all of Minn., assignors to Turfco Manufacturing Incorporated, Minneapolis, Md.

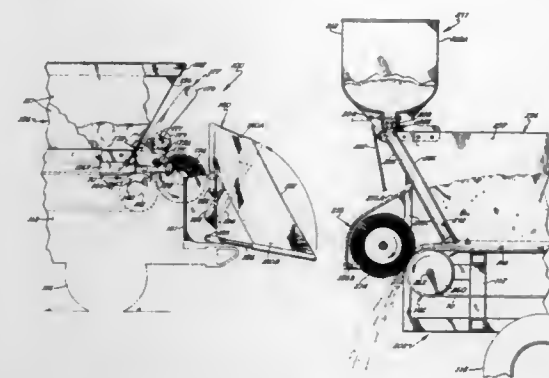
Filed Jul. 3, 1996, Ser. No. 675,653

Int. Cl.⁶ A01G 1/12; A01C 15/16; 15/06

U.S. Cl. 111—11

25 Claims

1. Seeder apparatus adapted to move across the ground in a longitudinal direction for dispensing seed, comprising, in combination: a frame having a discharge end portion, means for movably supporting the frame upon the ground, a seed hopper, hopper mounting means for mounting the seed hopper to the frame,



conveyor means mounted to the frame for moving seed from the seed hopper and discharging the seed at the frame discharge end portion, with the conveyor means including a sheeting moveable around an axis, a brush mounted to the frame adjacent to the frame discharge end portion to extend above the conveyor means and parallel to the axis for rotatably coacting with the conveyor means to contact the seeds on the sheeting after the seeds have started to move downwardly along with the sheeting and have passed through a vertical plane of the axis of the conveyor means to propel seeds on the conveyor means downwardly to the ground, and control means for metering the amount of seed moved by the conveyor means to the brush.

5,802,995

PLANTING UNIT

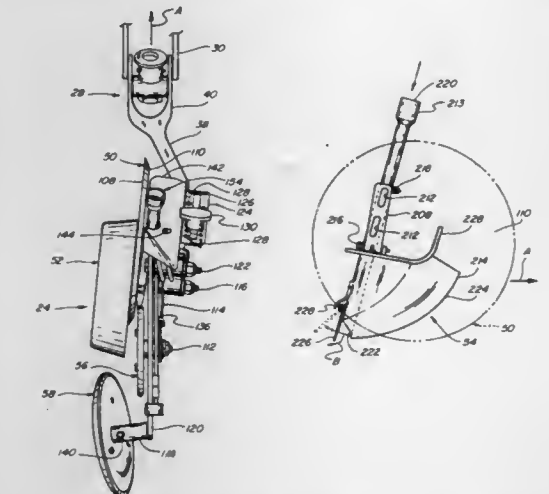
Roger Dale Baugher, and Garreth Dean Baugher, both of P.O. Box 79-A, McClure, Ill. 62957

Continuation-in-part of Ser. No. 384,660, Feb. 6, 1995, Pat. No. 5,595,130. This application Jan. 17, 1997, Ser. No. 785,653

Int. Cl.⁶ H01C 5/06

U.S. Cl. 111—52

23 Claims



1. An opener assembly movable forwardly over the ground for opening a furrow therein comprising:

a member adapted for connection to an implement adapted for moving the opener assembly over the ground;

a generally flat disk connected to the member for rotation about a disk axis offset at an angle to the direction transverse to the forward direction, the angled disk thus defining forwardly and rearwardly directed disk surfaces, the disk having a lower portion positionable for penetrating the ground for opening the furrow therein and an outer perimeter edge extending around the disk surfaces, the outer perimeter edge defining a disk profile when viewed from the rear direction.

a seed tube located adjacent the rearward directed disk surface, the seed tube having a lower end portion located substantially

within the rear disk profile and including an outlet opening for discharging material in the furrow located adjacent to the lower portion of the disk; and

an extension supported adjacent the seed tube lower end portion and extending forwardly thereof closely adjacent the rearwardly directed disk surface, the extension being shaped and sufficiently narrow so as to be located substantially within the rear disk profile and to move through the furrow for preventing loose soil on the side of the furrow opposite the rearwardly directed disk surface from entering the furrow in advance of material discharged therein through the seed tube outlet opening with only minimal contact with the side of the furrow.

5,802,996

SOIL AERATOR FERTILIZER AND METHOD

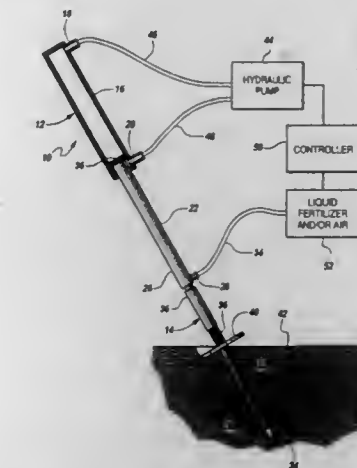
Bill J. Baxter, 220 Osprey Dr., Hot Springs, Ark. 71902

Filed May 12, 1995, Ser. No. 439,491

Int. Cl.⁶ A01B 45/02; A01C 15/00

U.S. Cl. 111—118

15 Claims



1. A fertilizer injection system for sequentially driving at least one probe into the soil, injecting at least one of air and liquid products into the soil, and then removing the probe, comprising:

at least one hydraulic ram having an elongate cylinder with respective hydraulic fluid ports for introducing and extracting hydraulic fluid, a piston at least partially received within said elongate cylinder with one end extending outwardly from said cylinder,

an elongate fertilizer probe having a first end attached to said one end of said piston, a second end terminating in an insertion point with at least one discharge opening, and an elongate fluid passage extending from said first end of said probe to said discharge opening,

at least one fertilizer probe for receiving and delivering at least one of pressurized air and liquid products to said elongate passage at said first end of said probe, said fertilizer port being located in said one end of said piston adjacent said first end of said probe,

a source of hydraulic fluid for selectively supplying hydraulic fluid to said hydraulic fluid ports of said cylinder,

a source of pressurized air for selectively supplying pressurized air to valve means,

a source of liquid products for supplying said liquid products to said valve means,

said valve means for selectively directing at least one of pressurized air and liquid products, to said fertilizer port for discharge from said probe into the soil following insertion of said probe into the soil, and

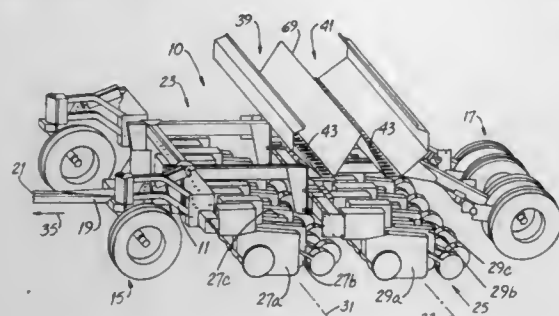
hydraulic control means for selectively controlling the extension of said piston and insertion of said probe into the soil and the retraction of said piston into said cylinder and withdrawal of said probe from the soil.

5,802,997

PLANTING APPARATUS AND RELATED METHOD
James W. Connell, Jr., Plainfield, and Sarah E. Spencer, Lisle,
both of Ill., assignors to Case Corporation, Racine, Wis.
Filed Dec. 24, 1996, Ser. No. 772,928
Int. Cl.⁶ A01C 7/18

U.S. Cl. 111—170

17 Claims



1. A mobile planting apparatus having first and second ranks of powered row units and wherein:
the apparatus includes first and second power devices connected to independently power first and second shafts and provide driving horsepower to the first and second ranks, respectively; and
each power device includes a separate, independently-operable control mechanism permitting the driving horsepower provided to the respective ranks to be independently controlled and permitting each rank to be disabled independently of the other rank.

5,802,998

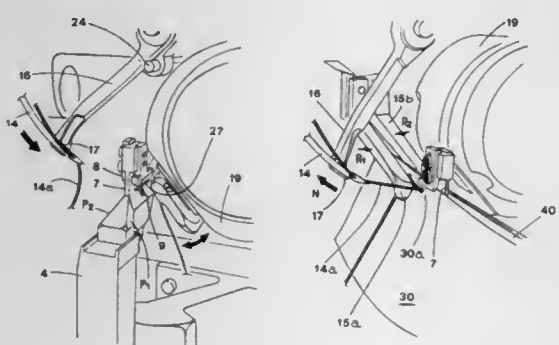
AUTOMATIC SEWING MACHINE FOR VARIOUS ARTICLES, IN PARTICULAR LEATHER ARTICLES
Mario Ciucani, Via S. Girolamo, Fermo (Ascoli Piceno), Italy
PCT No. PCT/IB95/01082, § 371 Date May 27, 1997, § 102(e)
Date May 27, 1997, PCT Pub. No. WO96/17989, PCT Pub. Date Jun. 13, 1996

PCT Filed Nov. 30, 1995, Ser. No. 849,027
Claims priority, application Italy, Dec. 6, 1994, B094 U 000206

Int. Cl.⁶ D05B 15/02; 27/20; 35/10

U.S. Cl. 112—49

8 Claims



1. An automatic machine for sewing different kinds of articles, especially leather articles such as an upper and a toe cap for producing an open moccasin, the machine comprising:
a machine support frame having a fixed support (1) fastened thereto;
a longitudinal guide (3) that is removably mounted on the fixed support;
flat slopping surfaces (3a, 3b) made mutually and upwardly convergent on said longitudinal guide to define first and second longitudinal work tops (P1, P2) respectively, a longitudinal slot (27) made in an upper part of the slopping surfaces;

hold down means (8, 9) located above the guide which in conjunction with the work tops guide juxtaposed edges (30a, 40a) of the articles (30, 40) placed on the work tops;
a needle (14, 25) situated beside the second work top (P2) and movable so as to define two extreme positions, a first lowermost position in which said needle pierces the juxtaposed edges of the articles resting on the work tops, the first position reached by the needle passing through the slot of the work tops, and a second raised position in which said needle is extracted from the juxtaposed edges of the articles;
a rotary hook device (19) located beside the first work top which works in conjunction with the needle to sew a stitch when the needle is in the lowermost position, when the needle pierces the leather articles;
means for reciprocating the rotary hook device and said needle so that said rotary hook device and needle are given a reciprocating longitudinal motion along the guide, a forward stroke moving the rotary hook device and needle towards the machine frame so as to move the leather articles forward.

5,802,999

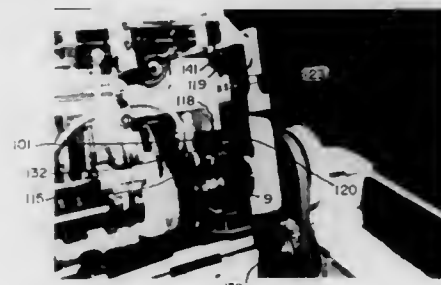
STOP MECHANISM FOR A BUTTONHOLE SEWING MACHINE

Rudy Papajewski, and Gerd Papajewski, both of Stutensee, Germany, assignors to AMF Recce, Inc., Mechanicsville, Va.
Filed Jan. 6, 1997, Ser. No. 779,126

Int. Cl.⁶ D05B 3/06; 69/22

U.S. Cl. 112—67

16 Claims



1. A stop apparatus for a buttonhole sewing machine comprising a housing, a main drive shaft in the housing, a stop cam on the main drive shaft, the stop cam having a curved surface and a flat, a stop lever pivoted from the housing and moveable between an engaged position and a disengaged position with respect to the cam, a slide bar connected to the housing for moving along the housing and against a lower end of the stop lever for moving the stop lever between the positions, a stop lever return spring connected to the stop lever for moving the stop lever between the disengaged position and the engaged position, wherein when the slide bar moves away from the stop lever, the spring pushes the stop lever to a changed position and when the slide bar moves toward the stop lever, energizes the spring, and moves the stop lever to a changed position, and a heavy energy-absorbing stop connected to the stop lever for urging the stop lever into contact with the curved surface of the stop cam as the stop cam turns and for urging the stop lever into contact with the flat to stop the cam and main shaft.

5,803,000

EMBROIDERY SEWING MACHINE
Nami Morita, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Nov. 17, 1997, Ser. No. 972,047

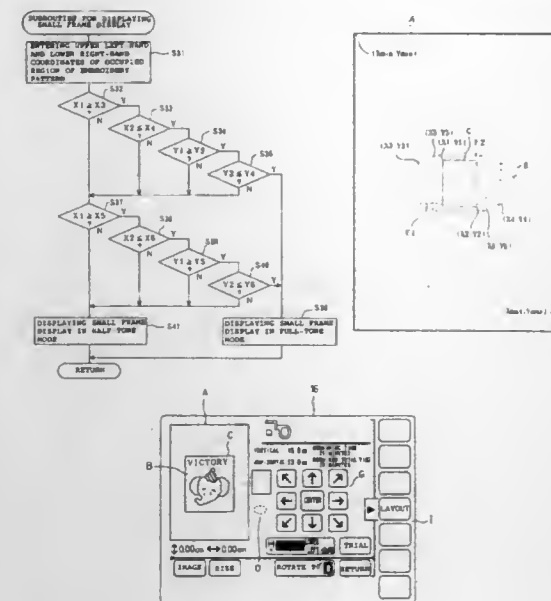
Claims priority, application Japan, Nov. 18, 1996, 8-306228

Int. Cl.⁶ D05C 5/02; D05B 21/00; G06F 19/00

U.S. Cl. 112—102.5

16 Claims

1. An embroidery sewing machine comprising:
an embroidery frame for holding a workpiece cloth;



a needle bar;
a moving mechanism for moving either one or both of the embroidery frame and the needle bar relative to the other or each other so that an embroidery pattern is formed on the workpiece cloth;
pattern selecting means for selecting an embroidery pattern to be formed;
means for obtaining an occupied region within the workpiece cloth occupied by the embroidery pattern selected by the pattern selecting means;
range setting means for automatically setting a plurality of different sewable ranges in a region inside the embroidery frame;
judging means for judging within which of the sewable ranges set by the range setting means the occupied region of the selected embroidery pattern falls; and
informing means for informing a result of judgment by the judging means.

5,803,001

SEWING MACHINE HAVING THREAD CUTTING DEVICE

Masaki Shimizu, Toyooka, and Akio Takahashi, Gifu-ken, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

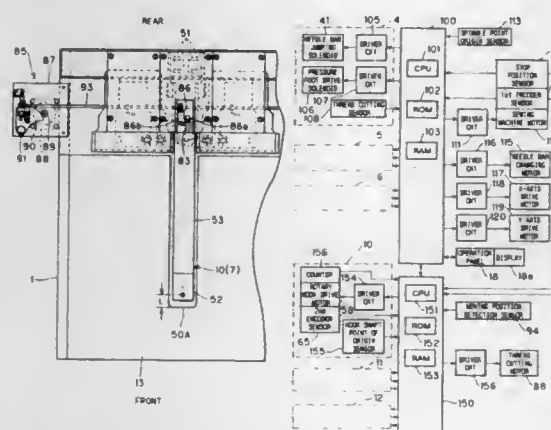
Filed Mar. 7, 1997, Ser. No. 813,355

Claims priority, application Japan, Mar. 11, 1996, 8-083355

Int. Cl.⁶ D05B 65/02

U.S. Cl. 112—291

8 Claims



1. A thread cutting device for use in a sewing machine for cutting a thread, the sewing machine having a throat plate, a spindle and a sewing machine motor for driving the spindle, the thread cutting device comprising:

a thread cutting mechanism, the thread cutting mechanism including a stationary blade provided below the throat plate, a movable blade provided below the throat plate and movable between a first position positioned remote from the stationary blade and a second position positioned close to the stationary blade, and a power transmission mechanism provided between an actuator and the movable blade for selectively moving the movable blade toward one of the first and second positions;

the actuator having a thread cutting motor that drives the thread cutting mechanism, the thread cutting motor comprising a stepping motor driven independently of the sewing machine motor; and

means for controlling the actuator so that the thread cutting mechanism is driven in synchronism with the spindle, the control means including means for receiving a signal indicative of rotation of the spindle, means for transmitting a drive signal to the stepping motor in accordance with every predetermined number of the spindle rotation signal, first means for determining a moving direction of the movable blade toward the first position when a first predetermined number of the spindle rotation signal is sensed, second means for determining the moving direction of the movable blade toward the second position when a second predetermined number of the spindle rotation signal is sensed, means for discontinuously increasing rotation speed of the stepping motor when the movable blade is moved from the second position to the first position if the first predetermined number of the spindle rotation signal is sensed, means for maintaining rotation speed of the stepping motor when the movable blade reaches the second position, and means for discontinuously decreasing rotation speed of the stepping motor when the movable blade is moved from the first position to the second position if the second predetermined number of the spindle rotation signal is sensed.

5,803,002

METHOD AND APPARATUS FOR LATCHTACKING
Michael P. Faber, Rock Hill, S.C.; Stephen S. Ruderman, Matthews, N.C.; Michael J. Funke, Fort Mill, and Maximilian Adamski, Jr., Tega Cay, both of S.C., assignors to Union Special Corporation, Huntley, Ill.

Continuation-in-part of Ser. No. 366,324, Dec. 29, 1994, Pat. No. 5,613,454. This application Mar. 21, 1997, Ser. No. 822,699

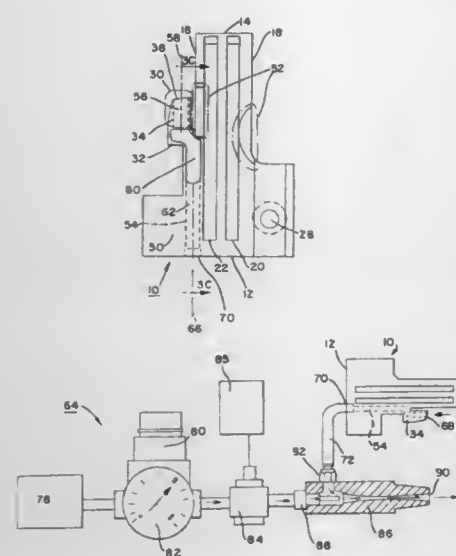
Int. Cl.⁶ D05B 65/02

U.S. Cl. 112—475.01

7 Claims

2. A method of cutting the stitch chain formed after completing a seam on a work piece and latching the severed stitch chain on the next work piece to be sewn comprising the steps of:

- (1) sensing the leading edge of a work piece to be sewn;
- (2) lowering the presser foot;
- (3) after a predetermined time following step (1), turning on a chaining tongue vacuum;
- (4) after a predetermined time delay after step (3), sending a signal to turn on a sew motor;
- (5) before the motor run signal initiated by step (4) causes sewing to commence, turning the chaining tongue vacuum off;
- (6) after a predetermined time delay following step (7), raising the presser foot;
- (7) after a predetermined time delay following step (6), sending an off signal to the sew motor;
- (8) after a predetermined time delay after the signal sent in step (7) has stopped the sew motor, actuating a chain cutter;
- (9) after the chain has been cut by step (8), turning the chaining tongue vacuum on;



(10) after a predetermined time delay, turning the chaining tongue vacuum off.

5,803,003

ROTARY BOAT LIFT

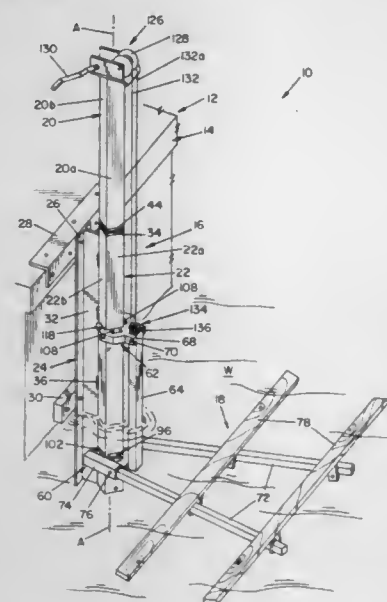
Robert V. Vickers, Chagrin Falls, Ohio, assignor to The Louis Berkman Company, Steubenville, Ohio

Filed Jan. 2, 1997, Ser. No. 775,872

Int. Cl.⁶ B63C 1/00

U.S. Cl. 114-44

34 Claims



1. Boat lift apparatus comprising, track member means for vertical mounting on a dock structure, said track member means having a vertical axis and including a lower track portion and an upper track portion, cradle means supported on said track member means for vertical displacement relative thereto between said lower and upper portions thereof, said cradle means including axially spaced apart upper and lower bearing support members, bearing rolls on said upper support member, bearing blocks on said lower support member, said rolls and blocks interengaging with said track member means for guiding and supporting said displacement of said cradle means, and means on said upper track portion for vertically displacing said cradle means relative to said track member means.

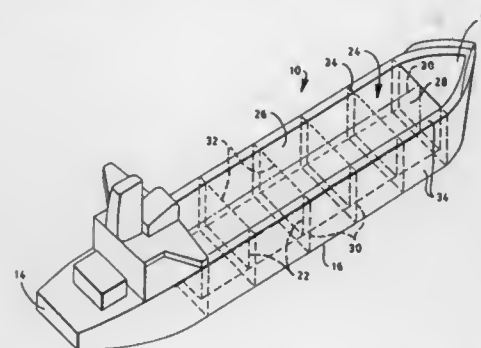
5,803,004
MARINE VESSEL CONSTRUCTION
Ronald F. Swann, Oxon Hill, Md.; Noel J. Tessler, North Attleboro; James M. Teague, Norfolk, both of Mass.; Ted M. Daves, Dillwyn, Va.; Depankar Neogi, Woburn, Mass., and William A. Yancey, Farmville, Va., assignors to Emerson & Cuming, Composite Materials, Inc., Canton, Mass.

Filed Nov. 6, 1996, Ser. No. 744,594

Int. Cl.⁶ B63B 1/00

U.S. Cl. 114-56

16 Claims



1. A ship which includes a plurality of volumes, positioned within the ship each of said volumes comprising:
an inner wall structure,
an outer wall structure spaced apart from said inner wall structure to provide a space between said inner wall structure and said outer wall structure,
means for maintaining said inner wall structure spaced apart from said outer wall structure and,
an energy absorbing composition positioned within said space comprising between about 10 and about 60 volume percent of a hardened resin containing hollow microspheres and between about 90 and about 40 volume percent macrospheres.

5,803,005

SHIP BASED SYSTEM FOR COMPRESSED NATURAL GAS TRANSPORT

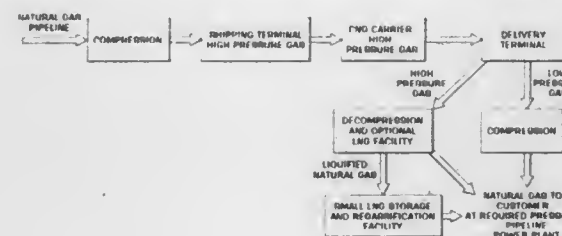
David G. Stenning, and James A. Cran, both of Calgary, Canada, assignors to Enron LNG Development Corp., Houston, Tex.

Continuation of Ser. No. 787,807, Jan. 23, 1997, abandoned, which is a continuation of Ser. No. 550,080, Oct. 30, 1995, abandoned. This application Jun. 30, 1997, Ser. No. 885,292

Int. Cl.⁶ B63B 25/00

U.S. Cl. 114-72

26 Claims



1. A ship based system for compressed natural gas transport including a ship having a plurality of gas cylinders, characterized by:
the plurality of gas cylinders being configured into a plurality of compressed gas storage cells, each compressed gas storage cells consisting of between 3 and 30 gas cylinders connected by a cell manifold to a single cell control valve;
a high pressure manifold including means for connection to shore terminals;
a low pressure manifold including means for connection to shore terminals;

a submanifold extending between each control valve to connect each storage cell to both the high pressure manifold and the low pressure manifold; and
valves for controlling the flow of gas through the high pressure manifold and the low pressure manifold.

5,803,006

FLOAT MASTER FOR A WATERCRAFT

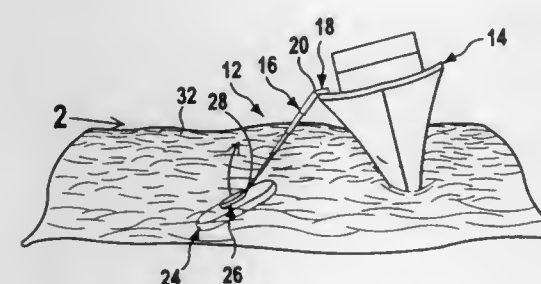
Mansour Bandar Al-Dokhi, P.O. Box 90390, Riyadh 11613, Saudi Arabia

Filed Aug. 15, 1997, Ser. No. 915,538

Int. Cl.⁶ B63B 43/14

U.S. Cl. 114-123

19 Claims



1. A float master for a watercraft comprising:
a) a telescopic arm;
b) means for securing a first end of said telescopic arm to a deck of the watercraft;
c) an inflatable raft;
d) means for attaching said inflatable raft to a second end of said telescopic arm;
e) means connected to said telescopic arm for extending said telescopic arm in an angular direction down towards a body of water about the watercraft; and
f) means connected to said inflatable raft for inflating said inflatable raft in the body of water after said telescopic arm is completely extended, so that said inflatable raft will stabilize the watercraft in an upright position within the body of water.

5,803,007

MODULAR PONTOON DECK

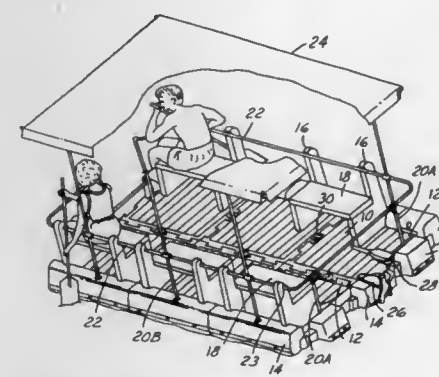
Ernest John Stevens, 6247 Sandy Pointe, Troy, Mich. 48098

Filed Apr. 21, 1997, Ser. No. 843,781

Int. Cl.⁶ B63B 35/44

U.S. Cl. 114-266

30 Claims



1. A modular float having a centerline and being of generally rectangular configuration comprising:
a top surface and
a bottom surface through which the centerline extends; and

four sides connecting said top surface and said bottom surface, each of said sides having a plurality of engagement structures extending therefrom, said engagement structures being spaced apart from each other and defining a plurality of receivers therebetween;
each receiver having a rear wall;
each engagement structure having a front surface;
each receiver having a pair of side walls which are spaced apart, with one side wall forming a side surface of one engagement structure and the other side wall forming a side surface of an adjacent engagement structure;
the side walls of each receiver converging towards one another as they extend from said rear wall in a direction away from said centerline;
said side walls of each receiver having the greatest distance therebetween adjacent said rear wall and a shorter distance therebetween at the front surfaces of adjacent engagement structures;
each of said sides having a channel extending between said top surface and said bottom surface, said channel being sized to receive a joining device.

5,803,008

SYSTEM AND METHOD FOR MONITORING AND CONTROLLING ANCHOR ROPE LENGTH

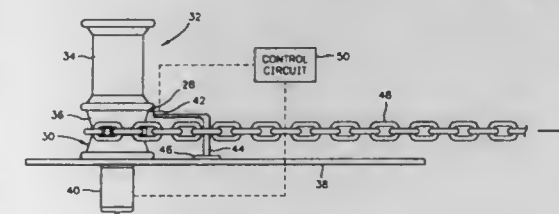
Harold H. Georgens, San Diego; David H. Georgens, Cardiff, and James A. Eggebeen, Temecula, all of Calif., assignors to Georgens Industries, Inc., San Diego, Calif.

Filed Jun. 17, 1997, Ser. No. 877,350

Int. Cl.⁶ B63B 21/24

U.S. Cl. 114-293

16 Claims



1. A system for monitoring and controlling anchor rope length, comprising:
a winch mountable on a vessel and having a rotatable element about which an anchor rope is at least partially wrapped and energizable to rotate the rotatable element in a first direction for letting out the anchor rope from the vessel and energizable to rotate the rotatable element in a second direction for pulling the anchor rope into the vessel;
a sensor assembly mounted adjacent the rotatable element for generating signals representative of the amount of rotation of the rotatable element; and
a control circuit connected to the winch and the sensor assembly that selectively energizes the winch upon receipt of a plurality of predetermined commands for rotating the rotatable element in the first and second directions to control a length of anchor rope deployed from the winch using the signals from the sensor assembly.

5,803,009

PROCESS OF PROTECTING AN OBJECT FROM SOUND WAVES

Christian Audoly, Six Fours, France, assignor to Delegation Generale pour l'Armement, Paris, France

Filed Apr. 29, 1996, Ser. No. 638,579

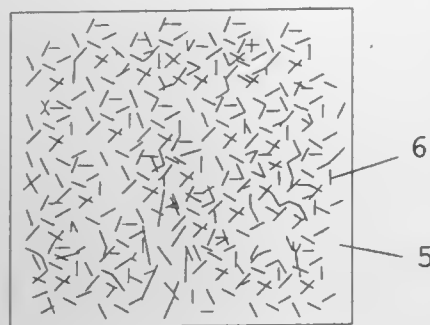
Claims priority, application France, Apr. 27, 1995, 95 05050

Int. Cl.⁶ B63G 8/28

U.S. Cl. 114-312

8 Claims

1. A coating material in contact with ambient fluid and having improved sound wave absorbing and sound echo reducing proper-



ties for use on a substrate which is excitable by an exterior sound wave, said coating material comprising a viscoelastic matrix material and at least one reinforcement selected from the group consisting of rods, mineral fibers and synthetic fibers embedded in the viscoelastic matrix material, said matrix material not containing air or gas inclusions and selected such that its static compressibility is close to that of water, thus providing to said coating material acoustic performance independent of water depth, when immersed.

5,803,010

WATERCRAFT HULL PROTECTIVE APPARATUS

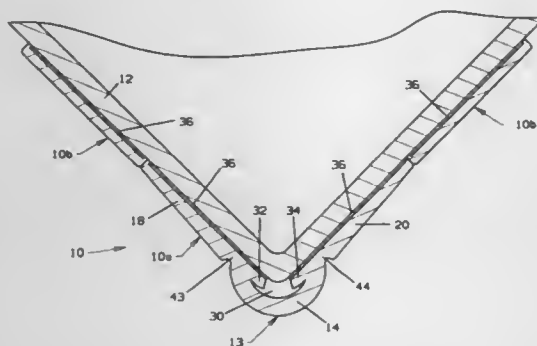
James G. Roy, 3 Surrey La., Elito, Me. 03903, and Michael A. Roy, 60 Lake Ridge Dr., Taunton, Mass. 02780-6822

Filed Oct. 17, 1996, Ser. No. 730,852

Int. Cl.⁶ B63B 59/02

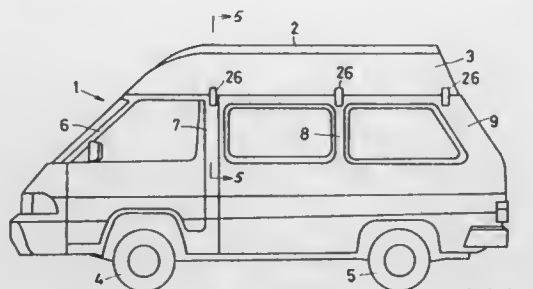
U.S. Cl. 114—343

20 Claims



1. Apparatus for protecting the hull of a watercraft comprising an elongated member of flexible material having a first generally flat side intended to be attached to a watercraft surface and an opposite second side for providing protection from abrasion and impact with solid objects, the member having a longitudinally extending central section between and integrally attached to first and second longitudinally extending side wall portions by respective first and second longitudinally extending hinges of reduced thickness, the central section having an outwardly extending, generally convex surface configuration on the second side, a longitudinally extending cavity formed in the central section open to the first side, first and second tabs extending over the cavity, the tabs having distal end portions spaced from one another and adhesive material disposed on the first side for attaching the member to the surface of a watercraft.

5,803,011
VEHICLE WITH HULL
Akira Tatsumi, 3-2-10, Omachinishi, Sakai, Osaka, Japan
Continuation of Ser. No. 751,835, Nov. 18, 1996, abandoned.
This application Nov. 10, 1997, Ser. No. 966,645
Int. Cl.⁶ B63B 17/00
U.S. Cl. 114—343 2 Claims



1. In a motor vehicle comprising an open top body and a dual purpose structure disposed on the open top of said body and means for removably holding said structure on said top of said body in a locked position and for enabling said structure to be removed from said top of said body, whereby said structure serves as the roof of said body in the locked position and as a boat when removed from the top of the body, the improvement comprising:

said means for removably holding comprising:

a plurality of locking means for detachably fitting said structure onto said top of said body, said plurality of locking means comprising at least one locking means attached to each side of said body and to a front of said body and to a rear of said body close to said top of said body, a corresponding number of hook means attached to corresponding locations of said structure, wherein each of said locking means each comprises a rotatable engaging means connectable to said respective hook means, and lever means for pulling the engaging means against said hook means to lock the structure onto said top of said body in said locked position, and to release the engaging means from hook means and thereby release the structure from being locked to the top of said body in a released position, so that the structure is readily locked and unlocked from said top of said body by manual operation and without use of tools;

a plurality of roll bars disposed transverse to a longitudinal direction of said body and connected to said body and on top thereof, said roll bars being of suitable strength to provide reinforcement of the top of said body, and

frame means fitted around and connected to the open top of said body and connected to said plurality of roll bars, so that said structure is stably held on said top of said body; and

means fitted over said plurality of roll bars for covering said open top of said body when said structure is removed from said body, and comprising a flexible sheet of waterproof material, said sheet being rolled up when said structure is locked on top of said body, and being unrolled to be on top of and be held in place by said plurality of roll bars so as to cover the open top of said body when said structure is removed from the top of said body; and wherein

said structure comprises a channel around an edge thereof which fits on said frame means and forms a gutter for said vehicle when said structure is locked on top of said body.

5,803,012
BOOK MARK
Jack M. Kamen, 8782 N. Cricket Tree La., Indianapolis, Ind. 46260
Filed Nov. 1, 1996, Ser. No. 742,884
Int. Cl.⁶ B42D 9/00
U.S. Cl. 116—235 28 Claims



22. A bookmark for use in a book including a height and a plurality of pages, each of the plurality of pages have a plurality of lines, and when the book is open a right-hand page and a left-hand page face a reader of the book, the bookmark comprising

a flat elongated member having a first end, a second end spaced apart from the first end, a middle region situated between the first and second ends, a first side, and a second side facing away from the first side,

first and second page indicators, the first page indicator being fixed on the first end of the flat elongated member, and the second page indicator being fixed on the second end of the flat elongated member, and

a pair of markers for marking a selected line on the indicated page as a marked line, the markers being fixed relative to the first and second page indicators, and the pair of markers being situated in the middle region of the flat elongated member.

5,803,013
INSTRUMENT CLUSTER GAUGE ASSEMBLY
Bhavesh Hariprasad Joshi, Canton, and Janardan N. Shah, West Bloomfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Aug. 26, 1994, Ser. No. 296,393
Int. Cl.⁶ G01D 13/22
U.S. Cl. 116—328 6 Claims

6. An instrument cluster gauge comprising:

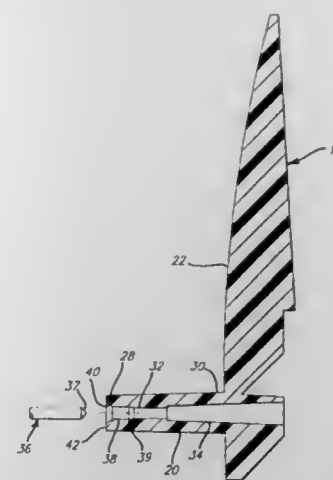
a pointer assembly having a bushing;

a gauge movement further comprising a cylindrical staff with a substantially constant diameter, said staff having an end adapted to receive said bushing for mounting of said pointer assembly on said staff;

wherein said bushing further comprises an end and a bore; said bore having a cylindrical main contact portion having a first diameter slightly smaller than said diameter of said staff, and a clearance portion having dimensions which provide radial clearance from said staff; said main contact portion located closer to said end of said bushing than said clearance portion;

wherein said bushing of said pointer assembly is mounted on said staff of said gauge movement with said end of said staff extending into said clearance portion of said bore;

wherein said bore further comprises a lead-in portion between said main contact portion and said end of said bushing, said



lead-in portion having dimensions which provide radial clearance from said staff; and wherein said bore further comprises a beveled portion at said end of said bushing.

5,803,014
HABITAT MEDIA FOR ANTS AND OTHER INVERTEBRATES

Assaf Guri, Cherry Hill, N.J., assignor to Plant Cell Technology, Inc., Washington, D.C.

Filed Jun. 20, 1997, Ser. No. 880,003

Int. Cl.⁶ A01K 67/00

U.S. Cl. 119—6.5

16 Claims

1. A soil-less ant habitat medium providing both a habitat and nutrients comprising the combination of a culture medium and a chemical agent, which chemical agent comprises: methylchloroisothiazolinone in a concentration range of about 2.0 to 2.6 g/l; methylisothiazolinone in a concentration range of about 0.6 to about 0.8 g/l; magnesium chloride in a concentration range of about 15.0 to 30 g/l; and magnesium nitrate in a concentration range of about 15.0 to 30 g/l; wherein the chemical agent is present in the culture medium at a concentration that reduces or prevents microbial contamination of the culture medium and allows for the substantially sustained viability of the ants inhabiting the habitat media.

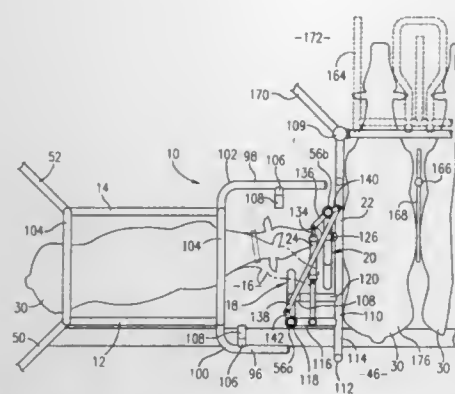
5,803,015
DAIRY PARLOR ENTRY GATE
Kevin Rhodes, Shawnee, Kans.; Arthur C. Rogers, III, Mt. Vernon, Wash.; Ted Townsend, Kansas City, Mo., and H. Eugene Robbins, Jr., Mt. Vernon, Wash., assignors to Alfa Laval Agri Inc., Kansas City, Mo.
Filed Jan. 21, 1997, Ser. No. 786,828
Int. Cl.⁶ A01K 1/12
U.S. Cl. 119—14.02 17 Claims

1. An entry gate for permitting access by dairy animals to a milking parlor comprising:

a first stanchion and a second stanchion positioned in spaced relationship to said first stanchion defining therebetween an animal ingress passageway for permitting movement of animals along an entry path from an upstream end to a downstream end leaving to the milking parlor;

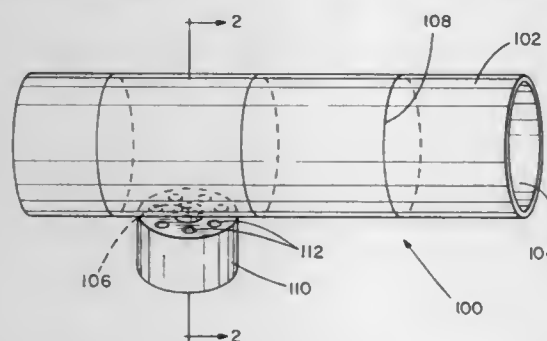
a first gate member presenting an upright first gate pivot axis; a second gate member presenting an upright second gate pivot axis;

a first gate mount pivotally mounting said first gate member with its pivot axis proximate said first stanchion and proximate the downstream end of the passageway for swinging between a first closed position oriented transversely across said passageway to impede the movement of animals along said path and a



second open position wherein said first gate member is oriented substantially parallel to said path to permit movement of animals through said passageway; and
a second gate mount pivotally mounting said second gate member with its pivot axis relatively proximate the second station and proximate downstream end of the passageway with said first pivot axis of said first gate member positioned upstream relative to the second gate axis of the second gate member and permitting swinging movement of said second gate member between a first closed position oriented transversely across said passageway and downstream from said first gate member when the latter is in its closed position, and a second open position oriented substantially parallel to said first gate member when the latter is in its open position, said gate members, when in their respective closed positions, cooperatively presenting structure blocking the downstream end without impeding animal ingress through the upstream end into the passageway.

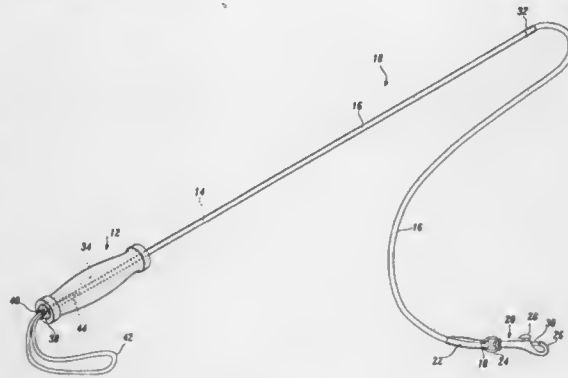
5,803,016
CLEANABLE WASTE DEPOSITORY FOR SMALL ANIMALS AND METHOD
T. Earl Poulson, 22 Elmwood Dr., Indian Head Park, Ill. 60525
Filed Sep. 13, 1995, Ser. No. 527,472
Int. Cl. A01K 29/00
U.S. Cl. 119-161 12 Claims



1. A method for collecting waste in a waste depository for small animals comprising the steps of:
(A) providing a waste depository comprising:
a surface portion accessible to a small animal while the small animal is confined in an animal habitat, said surface portion having an opening formed therethrough, said opening being smaller than the small animal; and
a container located below said surface portion having an opening that is removably in communication with said opening in said surface portion such that bodily excrements from the small animal are passed from the small animal into said container;
(B) placing a small amount of the small animal's waste in the waste depository; and

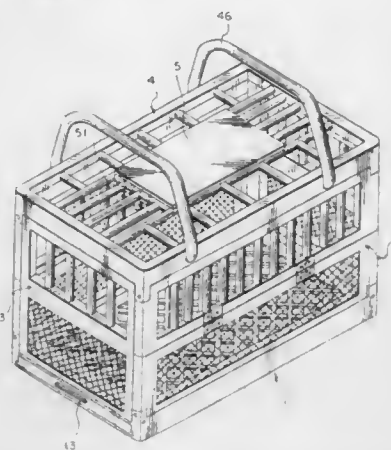
(C) allowing the small animal to peruse the surface portion of the waste depository, whereby the small animal is prompted to deposit its waste in the waste depository.

5,803,017
ANIMAL LEASH
Wayne A. Stewart, 2518 SW. Genessee St., Seattle, Wash. 98106
Filed May 14, 1997, Ser. No. 856,495
Int. Cl. A01K 27/00
U.S. Cl. 119-799 16 Claims



1. A leash for an animal comprising:
a handle having a hollow portion defined therein;
a cord having a hollow channel extending axially through a length of the cord;
a rod having a first end secured to the handle within the hollow portion of the handle, and a second end inserted into and extending through at least a portion of the hollow channel of the cord so that at least a portion of the rod is enveloped by the cord; and
an attachment device secured to the cord for releasable attachment of the cord to a restraint extending about the animal.

5,803,018
PORTABLE KNOCK-DOWN PIGEON CAGE
Jong-Shiaw Liou, No. 9-1, Yu-Tsuo Chuang, Shi-Kou Shiang, Chia-I Hsien, Taiwan
Filed Sep. 10, 1997, Ser. No. 926,445
Int. Cl. A01K 31/08
U.S. Cl. 119-461 1 Claim

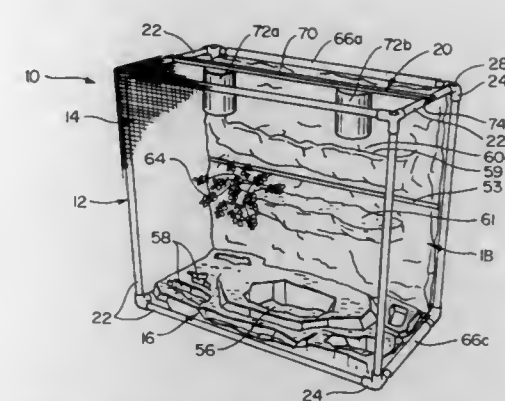


1. An improved foldable pigeon cage for transportation of homing pigeons, comprising:
a bottom base;
a pair of longitudinal foldable fences pivotally engaged with said bottom base;

a pair of lateral side walls pivotally secured to the lateral sides of said bottom base;
a top roof with which being engaged said foldable fences being provided with a central opening;
a cover plate pivotally located at said central opening for closing the same up; and a net-like board removably mounted onto said bottom base;
a waste collecting board removably engaged with said bottom base under said net-like board for collecting pigeon droppings;
said bottom base rectangular in shape being provided with a slide track on each longitudinal flanged inner side thereof so as to permit said waste collecting board to be removably attached to the bottom base;
a recess being defined on each lateral flanged side of said bottom base; at each corner of said bottom base being disposed a vertical protrusion stud;
each of said foldable fences being made up of an upper portion and a lower portion that being hinged together for folding purpose; said upper portion being a window provided with a plurality of parallel bars with two right-angle cuts defined at the upper right and left corner of said upper portion; said lower portion being also a window provided with a screen and a pair of right angle cuts defined at the lower left and right corners; on an inner side adjacent each of said upper right and left cuts of each upper portion being provided with a protruded retaining rod;
each side wall provided with parallel bars on the upper portion and a screen on the lower portion thereof having a locking groove at each upper end of each longitudinal side thereof, in correspondence to each retaining rod of the upper portions of the foldable fences;
said top roof being a bracket provided with a downwardly protruded rod at each corner thereof and having a central opening encircled by two longitudinal bars and two lateral bars; on each longitudinal side of said roof of the bracket being disposed round holes for the attachment of handles each provided with a locking member at each end thereof;
said cover plate of a rectangular shape having a pair of hinge hooks at one lateral side and a locking member disposed near the opposite side thereof;
said net-like board mounted onto the bottom base by engaging the lateral edges with the recesses on the lateral flanged sides of said bottom base in such a manner that the waste collecting board being movable under said net-like board;
whereby in assembly, said right-angle cuts of said lower portion of said foldable fences being placed in alignment with the protrusion studs of said bottom base and being pivotally secured thereto; said right-angle cuts of said upper portions of said foldable fences being put in pivotal engagement with said protruded rods of said top roof so as to make said top roof foldable with respect said fences; then, said side walls being pivotally secured to each lateral side of said bottom base between a pair of the protrusion studs respectively so that said side walls can be foldably operated; said pivots of said side walls being located at a lower position than that of the pivots of the foldable fences on the protrusion rods; next, said cover plate being pivotally mounted onto said top roof by way of the hinge hooks engaged with one of the lateral bars, with the locking hooks engaged with said one of the lateral bars so as to close up the opening of said top roof; said net-like board being placed in position by way of the recesses.

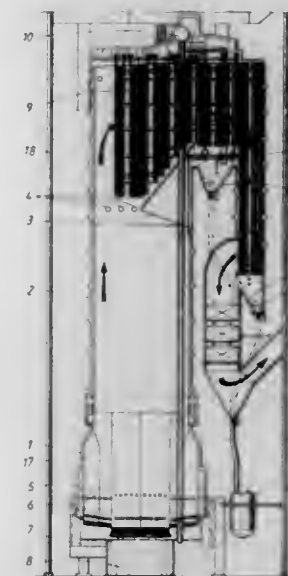
5,803,019
DISPLAY ENVIRONMENT FOR REPTILES AND OTHER PETS
Eric W. Heilborn, 2216 I St., and Michael A. Blain, 1108 Donovan Ave., both of Bellingham, Wash. 98225
Filed May 2, 1996, Ser. No. 640,547
Int. Cl. A01K 31/00
U.S. Cl. 119-475 28 Claims

1. An animal habitat assembly, comprising:



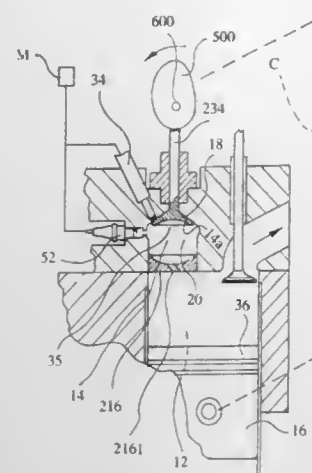
a plurality of elongate, substantially rigid structural members detachably mountable to one another for forming a framework which surrounds a living area for an animal, said structural means comprising:
a plurality of elongate, substantially straight structural members; and
a plurality of corner pieces for detachably joining said structural members in end-to-end relationship so as to form said framework, each said corner piece comprising:
at least three sleeve portions extending orthogonally to one another for receiving said structural members at corners of a rectangular framework which surrounds said living area; and an enclosure formed of a fabric screen material, said fabric enclosure being configured to conform closely to said framework so as to surround said living area, said fabric enclosure further having a detachable flap for forming an opening for receiving said framework therein when said framework is in a fully assembled configuration, said fabric screen material comprising:
a collapsible, softly flexible fabric screen material having a mesh which permits substantially free passage of air and sunlight to an animal in said living area.

5,803,020
RECOVERY BOILER FOR COMBUSTION OF WASTE LIQUORS
Anders Palmgren, Ytterby, Sweden, assignor to Kvaerner Pulping Technologies AB, Karlstad, Sweden
Filed Oct. 6, 1994, Ser. No. 319,439
Claims priority, application Sweden, Dec. 29, 1993, 9304309
Int. Cl. F22D 1/00
U.S. Cl. 122-7 R 14 Claims



UMI

1. An internal combustion engine comprising:
at least one pair of first and second cylinders said first cylinder
having a larger swept volume than said second cylinder;



respective first and second pistons reciprocable in said cylinders, wherein said second piston has a drive stem and divides said second cylinder into a first volume containing said drive stem of said second piston and a second volume between said two pistons;

air inlet means communicating with said first cylinder;

exhaust means communicating with said first cylinder;

means defining a common combustion space between said pistons when said pistons are substantially at their inner dead centre positions, said combustion space comprising said second volume;

transfer means for enabling gas flow between said first and second volumes towards the end of the compression stroke of said second piston;

inhibiting means for inhibiting movement of fuel/air mixture from said first volume into said second volume until towards the end of the compression stroke of said second piston;

a first fuel source for providing fuel to said first volume;

drive means for driving said second piston;

cavity means formed in a side wall of said second cylinder and opening into said second cylinder through aperture means, said aperture means being axially spaced from the inner dead centre position of said second piston; and spark ignition means in said cavity means.

5,803,027

SUPERCHARGED INTERNAL COMBUSTION ENGINE
Gregory Bruce Bell, Woodlands, and Stephen Reinhard Mals, Woodvale, both of Australia, assignors to Orbital Engine Company (Australia) Pty. Limited, Balcatta, Australia

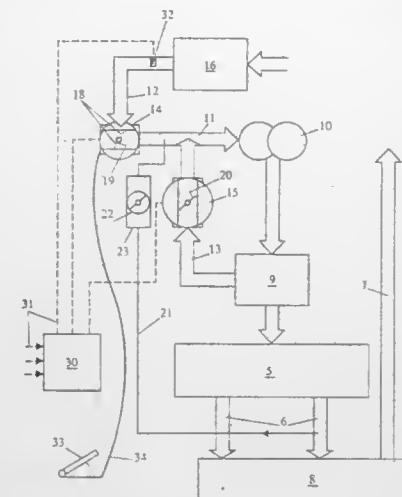
PCT No. PCT/AU96/00077, § 371 Date Jul. 28, 1997, § 102(e) Date Jul. 28, 1997, PCT Pub. No. WO96/26357, PCT Pub. Date Aug. 29, 1996

PCT Filed Feb. 16, 1996, Ser. No. 875,350

Claims priority, application Australia, Feb. 20, 1995, PN1261 U.S. Cl. 123—65 BA

29 Claims

1. A method of controlling the air supply to a scavenged internal combustion engine having a blower for supplying air thereto and bypass means for allowing a bypass air flow from the outlet side of the blower to the inlet side thereof, the method including regulating the bypass air flow through the bypass means to provide a variable rate of air flow therethrough and regulating the flow of ambient air to the blower to thereby control the pressure of the intake air supply to the blower and controlling a supply of recirculated exhaust gas introduced upstream of the blower by controlling the flow rate of ambient air to the blower such that a requisite



5,803,028

FLUID ACTUATED ENGINES AND ENGINE MECHANISMS

Nigel Eric Rose, 5 Woodvale Drive, Mudgeeraba Gold Coast, Old Australia, Australia, 4213

PCT No. PCT/AU95/00673, § 371 Date Jun. 13, 1996, § 102(e) Date Jun. 13, 1996, PCT Pub. No. WO96/12109, PCT Pub. Date Apr. 25, 1996

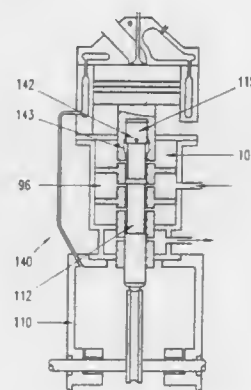
PCT Filed Oct. 13, 1995, Ser. No. 663,085

Claims priority, application Australia, Oct. 13, 1994, PM 8752; Oct. 13, 1994, PM 8753; Oct. 19, 1994, PM 8865; Oct. 19, 1994, PM 8867; Oct. 27, 1994, PM 9052

Int. Cl. F02B 75/02

U.S. Cl. 123—78 E

7 Claims



1. A fluid actuated engine piston assembly including a first fluid chamber, piston means arranged for reciprocating movement within said chamber, means coupling said piston means to an engine piston so as to move therewith, said piston means including first and second spaced apart pistons dividing said chamber into a first chamber section between said first piston and one end of said chamber adjacent said engine piston, a second chamber section between said first and second pistons, and a third chamber section between said second piston and the opposite end of said chamber, fluid inlet means communicating with said second chamber section, valve means for controlling the supply of fluid to said first and third chamber sections from said second chamber section to vary the direction of movement of said piston means, a second fluid chamber adjacent said third chamber section and means for selectively communicating fluid from said first chamber section to said second fluid chamber.

5,803,029

VALVE PERFORMANCE CONTROLLER FOR INTERNAL COMBUSTION ENGINE

Yuji Yoshihara, Toyota; Hiroyuki Kawase, Okazaki; Yuichi Sakaguchi, Nagoya; Kouichi Shimizu, and Hiromasa Suzuki, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

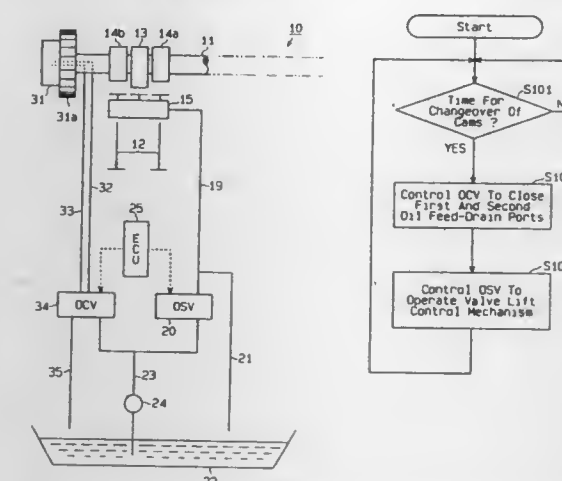
Filed Sep. 10, 1997, Ser. No. 927,224

Claims priority, application Japan, Sep. 11, 1996, 8-240240

Int. Cl. F02D 13/02; F01L 1/34; 13/00

U.S. Cl. 123—90.16

12 Claims



1. An apparatus for controlling valve performance in an engine having a combustion chamber connected with an air intake passage and an air exhaust passage, an intake valve located in the intake passage to control airflow supplied to the combustion chamber from the intake passage, and an exhaust valve located in the exhaust passage to control exhaust airflow to the exhaust passage from the combustion chamber, wherein each of said valves is controlled to adjust airflow passing therethrough with a variable valve lift amount and a variable valve timing, said apparatus comprising:

a camshaft provided with a plurality of cams of different shapes for actuating at least one of the valves;

a first mechanism for selecting at least one cam for actuating the actuated valve to alter a lift amount of the actuated valve;

a second mechanism for controlling the valve timing, said second mechanism being provided on the camshaft, wherein said second mechanism has a rotary member, a movable member, and first and second hydraulic chambers, wherein said movable member couples said rotary member with said camshaft, wherein said movable member moves to change the relative rotational phase between said rotary member and said camshaft, wherein said first and second hydraulic chambers are provided respectively on opposite sides of said movable member, and wherein said chambers control movement of said movable member with hydraulic pressure;

a transmission device for transmitting torque from the engine to the rotary member;

means for altering the hydraulic pressure in the first and second chambers, said altering means selectively supplying hydraulic fluid to and draining hydraulic fluid from said first and second hydraulic chambers; and

means for controlling said altering means to charge and retain hydraulic fluid in the chambers during changing of the operative cam by said first mechanism.

5,803,030

PHASE ADJUSTABLE CAM DRIVE

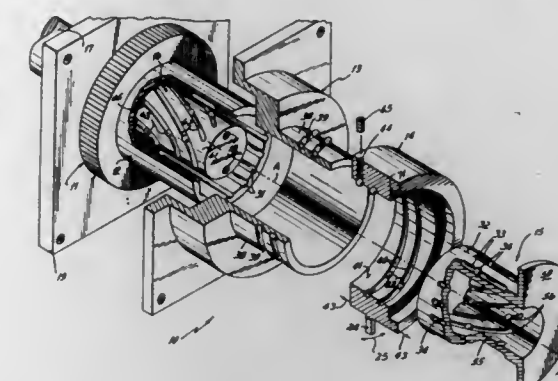
Kenneth Wade Cole, 3408 Mill Creek Rd., Carrollton, Ky. 41008

Filed Jan. 10, 1997, Ser. No. 781,404

Int. Cl. F01L 1/344

U.S. Cl. 123—90.17

24 Claims



1. Apparatus for changing the angular phase between a drive shaft and a driven shaft and comprising:

an index gear operably disposed and interconnected between said drive shaft and said driven shaft and being rotatable about an axis of rotation and movable axially along said axis of rotation;

a first coupling means comprising a plurality of balls disposed in respective cooperating grooves in said index gear and in said drive shaft respectively for coupling said index gear to said drive shaft for rotationally driving said index gear about said axis of rotation, said first coupling means permitting motion of said index gear in an axial direction along said axis of rotation, and

a second coupling means comprising a plurality of balls disposed in respective cooperating grooves in said index gear and in said driven shaft respectively for coupling said index gear to said driven shaft for rotationally driving said driven shaft, and for rotating said driven shaft with respect to said index gear when said index gear is moved in said axial direction;

said second coupling means being separate and independent from said first coupling means.

5,803,031

HYDRAULIC ACTUATOR IN AN INTERNAL COMBUSTION ENGINE

Yoshihito Moriya, Nagoya, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 1, 1997, Ser. No. 886,724

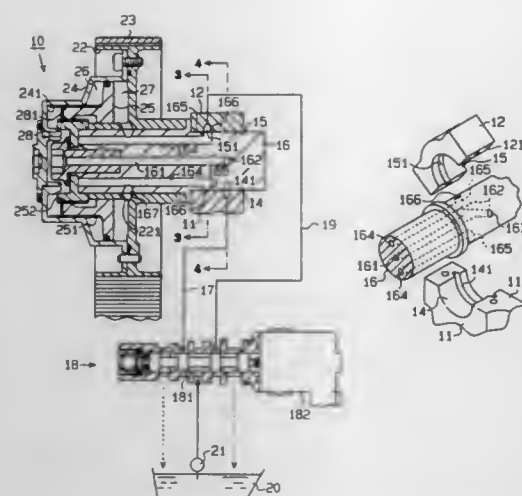
Claims priority, application Japan, Jul. 3, 1996, 8-173514

Int. Cl. F01L 1/344; F02D 13/02

U.S. Cl. 123—90.17

17 Claims

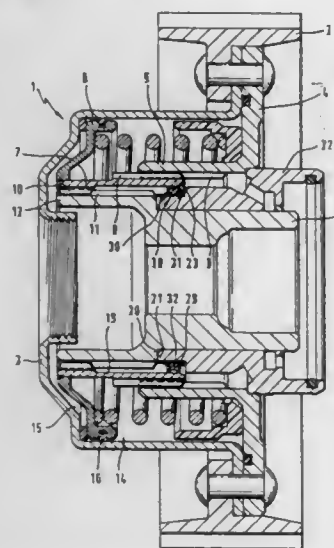
1. A hydraulic actuator comprising:
a rotatable shaft having a circumferential surface;
an actuation member connected to the shaft;
a first passage and a second passage extending through the shaft, wherein said actuation member is moved in accordance with differences in pressure applied to the actuation member through the passages;
a first port located in the circumferential surface serving as an opening to the first passage;
a second port located in the circumferential surface serving as an opening to the second passage;
a bearing for rotatably supporting the shaft, the bearing having a bearing surface facing the circumferential surface of the shaft; first and second grooves defined in said bearing surface and arranged at different positions with respect to the axial and circumferential directions of said shaft, said first and second



grooves communicating with said first and second passages through said first and second ports, respectively; wherein the first and second grooves are substantially sealed by portions of the circumferential surface of the shaft to form hydraulic passages through which pressurized hydraulic fluid flows while the shaft rotates; wherein the first groove does not circumferentially overlap the second groove when viewed in the axial direction.

5,803,032
PRESSURE MEDIUM SEALING IN A CAMSHAFT ADJUSTING DEVICE
Dieter Goppelt, Aurachtal, Germany, assignor to INA Walzager Schaeffler KG, Germany
Division of Ser. No. 760,842, Dec. 5, 1996, Pat. No. 5,727,508.
This application Oct. 7, 1997, Ser. No. 946,447
Claims priority, application Germany, Dec. 15, 1995, 195 46 934.8

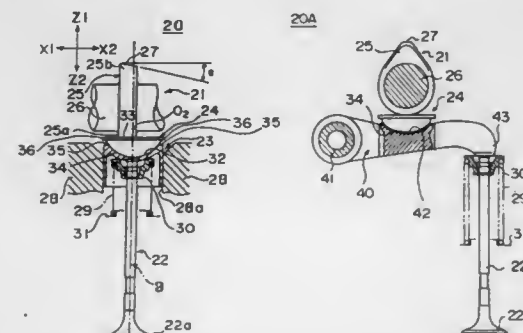
Int. Cl.⁶ F01L 1/344
U.S. Cl. 123—90.17 6 Claims



1. A device for the continuous variation of a relative angular position between a crankshaft and a camshaft arranged in a cylinder head, said device comprising:
A) a drive element (2) driven by the crankshaft through a traction means,
B) a hollow cylindrical sliding sleeve (7) positively locked by a first gearing (8, 9) to the drive element (2) and by a second gearing (10, 11) to the driven element (13).

C) a double-action hydraulic adjusting piston (6) which is fixed on the sliding sleeve (7) and guided in a housing (3) to axially delimit two pressure chambers (14, 15) which can be connected alternately to a pressure medium supply and a pressure medium discharge,
D) a sealing of the pressure chambers (14, 15) from each other by a sealing arrangement on the circular ring-shaped adjusting piston (6) and
E) a sealing between the sliding sleeve (7) and a component situated radially inwardly therefrom by a sealing element wherein a sealing ring (28) is arranged positionally fixed on the drive element (2) or on a component directly connected to the drive element (2), and the sealing ring (28) comprises at least one sealing lip (31) which bears with pre-tension against an inner wall (19) of the sliding sleeve (7).

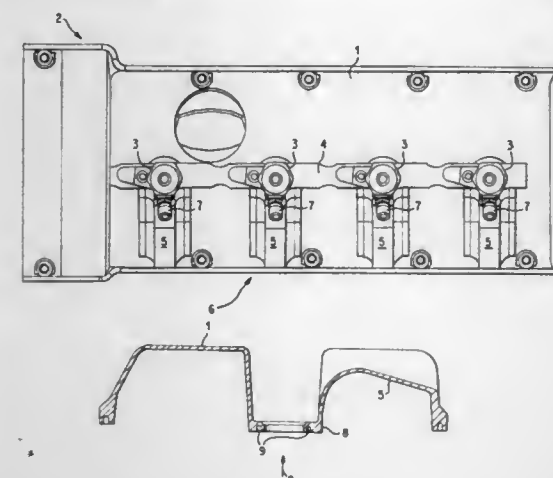
5,803,033
VALVE DRIVE APPARATUS FOR AN INTERNAL COMBUSTION ENGINE HAVING A CONVEX SHIM BETWEEN A CAM AND A VALVE
Takao Naruoka, Mishima, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi-ken, Japan
Filed Dec. 2, 1996, Ser. No. 755,885
Claims priority, application Japan, Nov. 8, 1996, 8-296746
Int. Cl.⁶ F01L 1/12; 1/300
U.S. Cl. 123—90.18 9 Claims



1. A valve drive apparatus for driving a valve of an internal combustion engine, said valve drive apparatus comprising:
a three-dimensional cam rotatable in synchronization with operation of said internal combustion engine, said three-dimensional cam including a cam portion having a slanting surface inclined with respect to a rotational axis of said three-dimensional cam, said three-dimensional cam being movable along said rotational axis;
a force transmitting member transmitting a force generated by a camming action of said three-dimensional cam to said valve, said force transmitting member having a first surface pressing said valve and a second surface; and
a shim interposed between said three-dimensional cam and said force transmitting member, said shim having a first surface contacting said three-dimensional cam and a second surface opposite to said first surface of said shim, said second surface of said shim pressing said second surface of said force transmitting member, wherein said shim is rotatable over an entire profile of said three-dimensional cam in any direction so that the first surface of the shim always aligns with the slanting surface of the cam portion, and wherein a width of said first surface of shim is greater than a width of the cam portion; said second surface of said shim having a convex spherical shape, and said second surface of said force transmitting member having a concave spherical shape so as to receive said second surface of said shim.

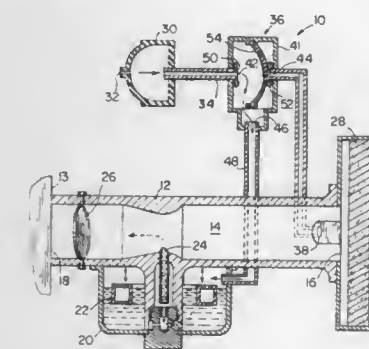
5,803,034
CYLINDER HEAD COVER WITH DRAINAGE-GROVE INDENTATION FOR AN INTERNAL-COMBUSTION ENGINE
Gerhard Gruber, Backnang; Rolf Klingmann, Pluederhausen, and Werner Hofheinz, Plochingen, all of Germany, assignors to Daimler-Benz AG, Germany
Filed Jul. 21, 1997, Ser. No. 897,147
Claims priority, application Germany, Jul. 20, 1996, 196 29 308.1

Int. Cl.⁶ F01M 9/10
U.S. Cl. 123—90.38 7 Claims



1. Cylinder head cover for a direct-injecting internal-combustion engine, comprising an injection nozzle holder arranged in a cylinder head between charge cycle valves, and a clamping shoe configured to fix a position of the injection nozzle holder in a receiving bore in the cylinder head, the cylinder head cover being pulled-in configured in an area of the injection nozzle holder and having a passage for the injection nozzle holder, wherein the cylinder head cover is configured to be pulled down to the cylinder head, and from the area of the injection nozzle holder, a drainage-groove-type indentation leads to an inlet side of the internal-combustion engine.

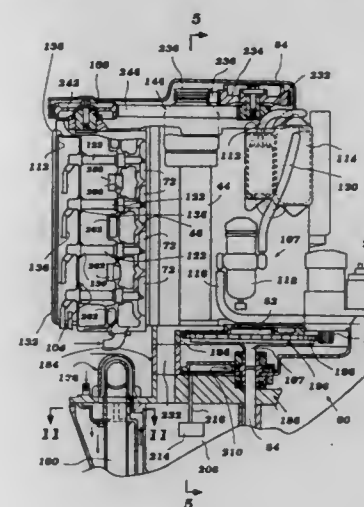
5,803,035
CARBURETOR WITH PRIMER LOCKOUT
Thomas G. Guntly, Hartford, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.
Continuation of Ser. No. 433,321, May 3, 1995, abandoned.
This application Nov. 30, 1995, Ser. No. 564,927
Int. Cl.⁶ F02M 1/10
U.S. Cl. 123—179.11 30 Claims



1. A carburetor for use with a combustion engine, said carburetor comprising:
a body member having a wall portion defining an orifice extending through said body member;

a primer device in operative communication with said orifice;
a primer lockout operatively positioned between said primer device and said orifice; and
an enriching device in operative communication with said orifice.

5,803,036
ENGINE FOR OUTBOARD MOTOR
Masanori Takahashi, and Hitoshi Watanabe, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-ken, Japan
Filed Dec. 30, 1996, Ser. No. 775,454
Claims priority, application Japan, Dec. 30, 1995, 7-354175
Int. Cl.⁶ F02N 1/00; F01M 1/02; B63H 21/32
U.S. Cl. 123—179.25 8 Claims



1. An outboard motor having a cowling defining an upper unit and having a lower unit extending therebelow, the motor having an internal combustion engine positioned within the upper unit, the engine having a cylinder block with a cylinder head connected thereto, the block and head defining therein at least one combustion chamber, a member movably positioned within said chamber and in driving engagement with a crankshaft, said crankshaft rotatably journaled with respect to said engine and vertically arranged, said crankshaft extending beyond a bottom end of said engine, an exhaust guide positioned at said bottom end of said engine within said lower unit, a flywheel positioned on said crankshaft within a space defined by said exhaust guide, a starter motor having a first end and a second end, said second end having a drive shaft extending therefrom with a drive gear mounted thereon, said starter motor having at least its second end positioned within a space defined by said exhaust guide and arranged so that said drive gear selectively engages said flywheel to start said engine, said engine further including an oil pump positioned within said exhaust guide.

5,803,037
JOINED TYPE VALVE SEAT
Osamu Kawamura; Teruo Takahashi, and Arata Kakiuchi, all of Tochigi-ken, Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo-to, Japan
Filed Jun. 5, 1997, Ser. No. 869,845
Claims priority, application Japan, Jun. 7, 1996, 8-145368
Int. Cl.⁶ F01L 3/04 8 Claims

1. A joined type valve seat for being integrally joined with an aluminum alloy cylinder head of an internal combustion engine, said valve seat being made of a material having the following characteristics:

VOL

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1
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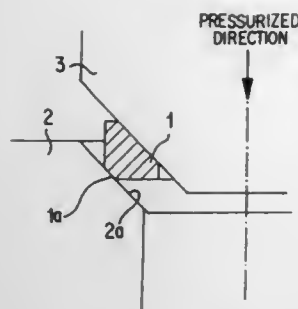
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a tensile strength of 300 MPa or above
a radial crushing strength of 500 MPa or above
an elongation of 0.6% or more
a thermal conductivity of 15 W/(m·K) or above
a coefficient of thermal expansion of 10×10^{-6} (1/K) or above,
and
an electric resistivity of 50 $\mu\Omega\cdot\text{cm}$ or below.

5,803,038

DYNAMIC VALVE MECHANISM FOR ENGINE

Tadato Ihara, Kawasaki; Fumio Akikawa, Tokyo; Toshihiro Kokubun, Yokohama, and Mitsunori Murakami, Kawasaki, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, and Mitsubishi Jidosha Engineering Kabushiki Kaisha, Tokyo, Japan

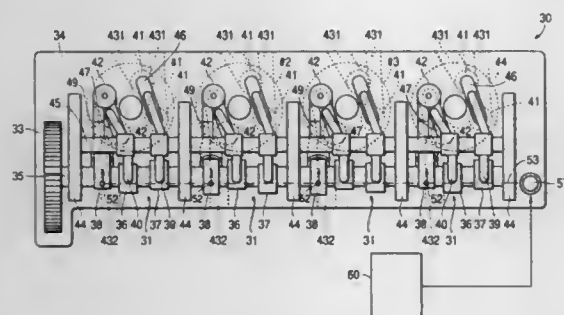
Filed Jul. 10, 1997, Ser. No. 890,885

Claims priority, application Japan, Jul. 10, 1996, 8-180930

Int. Cl.⁶ F02D 13/04

U.S. Cl. 123—321

11 Claims

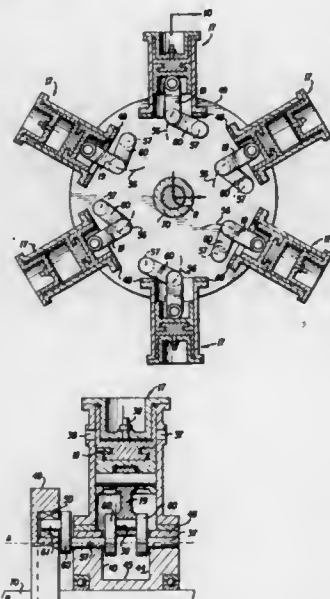


1. A dynamic valve mechanism for an engine, comprising:
a cam shaft disposed on a cylinder head of the engine;
an exhaust cam disposed on the cam shaft, said exhaust cam driving an exhaust valve through an exhaust rocker arm;
a rocker shaft pivotally supporting the exhaust rocker arm;
an exclusive cam disposed side by side with the exhaust cam on the cam shaft;
an oil passage housing disposed under the rocker shaft, said oil passage housing having one end thereof facing the exclusive cam and the other end thereof facing the exhaust valve;
a master piston which operates in response to an operation of the exclusive cam, said master piston being located approximate said one end of the oil passage housing and supplies hydraulic pressure to the other end; and
a slave piston provided approximate said other end of the oil passage housing said slave piston opening the exhaust valve at a timing different from the valve opening timing by the exhaust cam under the hydraulic pressure supplied thereto by the operation of said master piston.

5,803,039
PISTON-CYLINDER ASSEMBLY AND DRIVE TRANSMITTING MEANS
Pao Chi Pien, Marbelle Club, 840 S. Collier Blvd., Marco Island, Fla. 33937
Division of Ser. No. 551,797, Nov. 7, 1995. This application Jun. 21, 1996, Ser. No. 667,602
Int. Cl.⁶ F02B 75/08

U.S. Cl. 123—197.1

6 Claims



1. A piston-crank assembly comprising, a cylinder body having a bore formed therein, means defining an annular recess within said body and in communication with said bore, an inlet means in communication with said bore, an outlet means in communication with said bore, a piston mounted for reciprocation within said bore, said piston including an annular skirt defining a space therewithin, said skirt being adapted to fit within said annular recess, said skirt reciprocating within said recess during reciprocation of said piston within said bore, a fuel injection nozzle in communication with said space within the skirt, a power output shaft, a flywheel drivingly connected to said output shaft, said flywheel having a side with a cam groove formed therein, a crankshaft, a connecting rod having opposite ends, one of said ends being pivotally connected to said piston, the other of said ends being pivotally connected to said crankshaft for turning movement about an axis, a drive roller rotatably carried by said crankshaft for turning movement about an axis, said drive roller being disposed within said cam groove, said other end of said connecting rod and said drive roller oscillating along two parallel arcs during reciprocation of said piston.

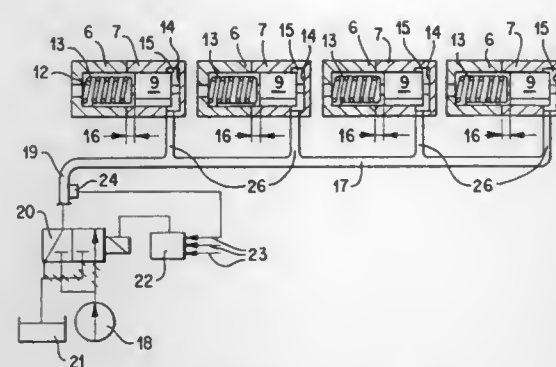
5,803,040
METHOD FOR SHUTTING DOWN AND RESTARTING INDIVIDUAL CYLINDERS OF AN ENGINE
Herwig Biesinger, Korntal-Münchingen; Heiko Flebbe, Sassenburg; Dieter Kalweit, Schorndorf; Peter Klein, Leinfelden-Echterdingen; Peter Lautenschütz, Plochingen, and Anton Waltner, Weinstadt, all of Germany, assignors to Mercedes Benz AG, Germany
Filed Dec. 13, 1996, Ser. No. 764,390
Claims priority, application Germany, Dec. 13, 1995, 195 46 549.0

Int. Cl.⁶ F02B 77/00

U.S. Cl. 123—198 F

4 Claims

1. Method for shutting down and starting individual cylinders of a multicylinder internal combustion engine having at least one intake valve and at least one exhaust valve per cylinder, and a device for fuel injection for individual cylinders, with said valves



of a selected individual cylinder being deactivated or activated during a shutdown or restart of said selected cylinder by means of a shutdown device, and the fuel injection in said selected cylinder being deactivated or activated as a function of an operating state of said valves, the improvement comprising:

when said selected cylinder is switched, a time sequence for activation or deactivation of intake and exhaust valves is controlled such that a shutdown of said selected cylinder takes place after one intake cycle and prior to a next succeeding exhaust cycle thereof, and a restart of said selected cylinder takes place before one exhaust cycle and after a next preceding intake cycle thereof;
a crankshaft angle is preset for said shutdown device relative to a reference mark on a crankshaft or camshaft of said engine on which the switching process is to begin;
an angular switching position of said disconnection device is determined as a function of operating parameters;
when a switching signal is present, the angular switching position and the crankshaft angle are added to a current crankshaft angle;
a next succeeding reference mark is determined on the basis of said crankshaft angle, and angular switching position for the disconnection device is calculated by subtracting the crankshaft angle and angular switching position;
when an angular switching position is reached, said disconnection device is activated.

5,803,041

ROTARY ENGINE

Ardeshtir Motakef, P.O. Box 395, Aberdeen, Ohio 45101

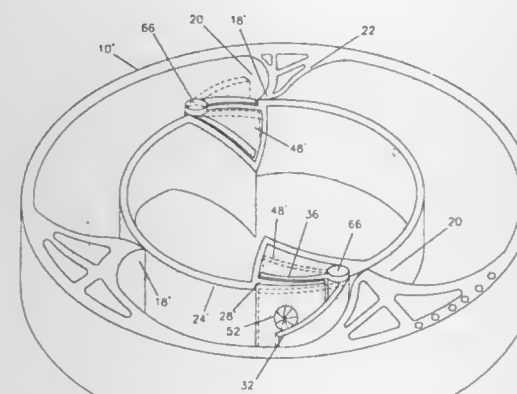
Division of Ser. No. 622,825, Mar. 27, 1996, Pat. No.

5,704,332. This application May 16, 1997, Ser. No. 857,929

Int. Cl.⁶ F02B 53/00; 75/26

U.S. Cl. 123—225

5 Claims



1. A rotary engine comprising:
a central, annular stator having an annular wall and a plurality of V-shaped blades pivotally mounted in said wall;

an annular rotor oriented concentrically with said stator and positioned radially outwardly thereof, said rotor having a radially inner peripheral cam surface, said cam surface having a plurality of radially inwardly extending noses, each of said noses having a generally convex leading cam surface and a generally concave trailing surface of a smaller radius of curvature;

each of said blades including a radially outer plate having an end surface shaped to engage said cam surface, a radially inner plate, and a cylindrical pivot body positioned at a vertex of said blade, said body having a passageway connecting an inner surface of said inner plate to an inner surface of said outer plate, said passageway having a check valve oriented to prevent fluid flow from said inner plate to said outer plate;
said annular wall having a plurality of wedge-shaped chambers positioned such that each of said chambers encloses one of said inner plates, said chamber having an outer wall with an air inlet port and a check valve in said port which prevents fluid flow out of said chamber, and a plurality of concave combustion surfaces, each of said combustion surfaces being positioned adjacent to one of said chambers and to one of said inner plates and including a spark plug;

a pair of end plates mounted on said stator, one of said end plates including air intake ports for supplying air and fuel to said chambers;

whereby rotation of said rotor relative to said stator causes said cam surface to bear against said end of said V-shaped blade and pivot said blade relative to said stator, thereby causing said outer plate to compress a fuel air mixture in said chamber and force said compressed mixture through said channels to a space between said inner plate and said combustion surface where said mixture is ignited by said spark plug, thereby forcing said V-blade to pivot against said concave trailing cam surface and rotate said rotor relative to said stator.

5,803,042

VALVES AND VALVE TIMING FOR INTERNAL COMBUSTION ENGINE

Cesare Bortone, Via Antonello Conlgor 14 Apt 1901, Lecce, Italy, 73100

PCT No. PCT/US93/06952, § 371 Date Jan. 24, 1995, § 102(e)

Date Jan. 24, 1995, PCT Pub. No. WO94/02717, PCT Pub.

Date Feb. 3, 1994

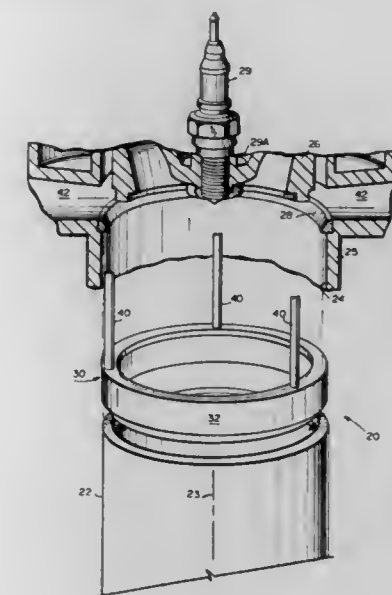
PCT Filed Jul. 27, 1993, Ser. No. 374,688

Claims priority, application Italy, Jul. 27, 1992, BA92A0023

Int. Cl.⁶ F01L 3/20

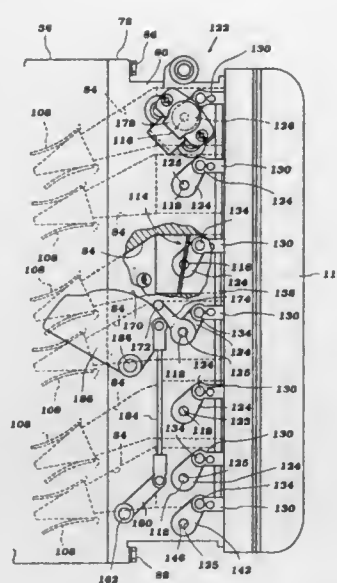
U.S. Cl. 123—312

12 Claims



1. A valve timing system for controlling the actuation of an exhaust valve and an induction valve with respect to a combustion chamber of an internal combustion engine, the timing system comprising:

an induction timing gear and an exhaust timing gear, the induction timing gear and the exhaust timing gear being rotatable about an axis parallel to a central axis of the combustion chamber, the induction timing gear and the exhaust timing gear lying in spaced apart parallel planes perpendicular to the central axis of the combustion cylinder, each of the induction timing gear and the exhaust timing gear having a camming surface provided thereon to face the other gear, the camming surface of the induction timing gear being operative to control the actuation of the induction valve and the camming surface of the exhaust timing gear being operative to control the actuation of the exhaust valve.



5,803,043

DATA INPUT INTERFACE FOR POWER AND SPEED CONTROLLER

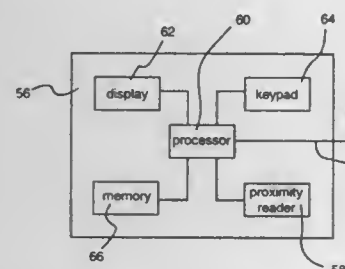
Harry Bayron, 7439 Pioneer Rd., West Palm Beach, Fla. 33413, and Neil Winthrop, 12A Amherst Ct., Royal Palm Beach, Fla. 33411

Continuation-in-part of Ser. No. 654,856, May 29, 1996. This application Aug. 1, 1996, Ser. No. 691,203

Int. Cl.⁶ F02P 9/00; F02D 11/10; 41/28

U.S. Cl. 123—335

25 Claims



5. An apparatus for interfacing with a vehicular engine control device having a throttle control, said apparatus for purposes of allowing the owner of a vehicle to limit the rpm, speed, or power of said vehicle's engine performance for purposes of limiting said vehicle to a particular performance level, said apparatus comprising: a user interface keypad for programmably inputting engine performance rpm, speed, or power limitation data, a memory and processor means for receiveably storing and processing said limitation data, said processor means producing engine control signals which are used by said vehicular engine control device to effectuate said performance limits on said engine.

5,803,044

THROTTLE VALVE SYNCHRONIZATION MECHANISM
Masahiko Kato, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed May 31, 1996, Ser. No. 656,396

Claims priority, application Japan, May 31, 1995, 7-134429

Int. Cl.⁶ F02D 9/10; 11/04

U.S. Cl. 123—336

35 Claims

1. A throttle assembly of a marine engine comprising a plurality of throttle devices which communicate with the engine and a throttle linkage which interconnects said throttle devices so as to synchronize the operation of said throttle devices, each throttle device comprising an operator that includes a throttle lever attached to said linkage, said throttle operators being arranged such that a common axis extends through each throttle lever at a point of attachment between each throttle lever and said linkage, said

linkage including an elongated link to which each throttle lever is coupled, said link arranged so as to be offset from said common axis.

5,803,045

AIR INTAKE SLIDE THROTTLE FOR AN INTERNAL COMBUSTION ENGINE

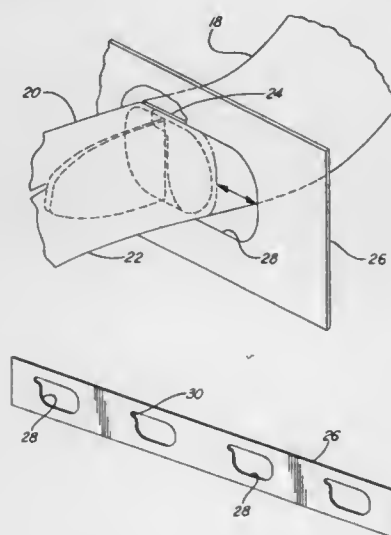
David Wayne Adamisin, Northville; Philip Damian Cierpial, Detroit, and Raymond Alan Kach, Farmington Hills, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Dec. 13, 1996, Ser. No. 766,698

Int. Cl.⁶ F02D 9/12; F02B 31/00; F02M 3/00

U.S. Cl. 123—336

15 Claims



1. An intake system for a multi-cylinder internal combustion engine, having at least one intake port for each cylinder, the intake system comprising:

a plurality of primary intake runners each having an upstream end and a downstream end and an air flow passage there-through, adapted to extend from the upstream end to the intake ports at the downstream end, and a slot spaced from either end of the primary runner, extending at least partially around its periphery;

a generally flat throttle plate mounted in and extending across the slots, with the throttle plate also including a plurality of openings therethrough operatively engaging the slots, and with each of the openings in the throttle plate having an idle slot extending therefrom; and

actuator means for axially sliding the throttle plate to a plurality of positions relative to the primary intake runners whereby the plurality of openings will selectively block off portions of the intake runners when slid by the actuator.

5,803,046

IGNITION TIMING CONTROL

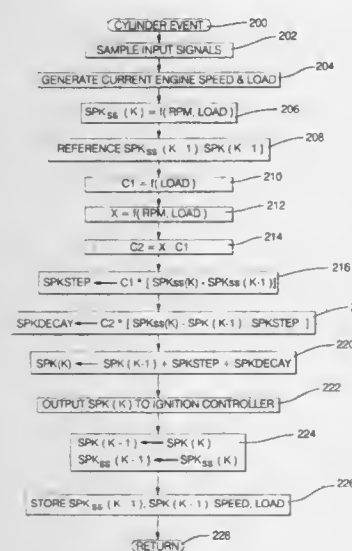
William Joseph Bolander, Ortonville, and Robert Leonard Morris, Livonia, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 31, 1996, Ser. No. 741,004

Int. Cl.⁶ F02P 5/14

U.S. Cl. 123—425

10 Claims



1. An engine ignition timing control method for controlling a time of ignition of an air/fuel mixture in an internal combustion engine cylinder combustion chamber, comprising the steps of:

sensing a change in an engine operating condition from an initial engine operating condition to a final engine operating condition;

modeling a combustion chamber temperature change profile between an initial combustion chamber corresponding to the initial engine operating condition and a final combustion chamber temperature corresponding to the final engine operating condition;

establishing an ignition timing command change profile between an initial timing command corresponding to the initial engine operating condition and a final ignition timing command corresponding to the final engine operating condition as a function of the temperature change profile;

varying an ignition timing command in accordance with the established ignition timing command change profile; and applying the ignition timing command to an engine ignition system for controlling the time of ignition of the air/fuel mixture in the engine cylinder combustion chamber.

5,803,047

METHOD OF CONTROL SYSTEM FOR CONTROLLING COMBUSTION ENGINES

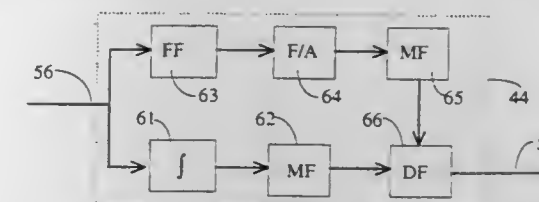
Patrik Rask, Karlstad, Sweden, assignor to Mecel AB, Sweden

Filed Apr. 17, 1997, Ser. No. 839,352

Int. Cl.⁶ F02P 41/14; 5/152

U.S. Cl. 123—425

12 Claims



1. Method for controlling a two-stroke or four stroke combustion engine of the Otto-type in order to obtain an optimum combustion, which method comprises the steps of:

detecting the degree of ionization within a combustion chamber of the engine;

generating an ionization signal corresponding to the degree of ionization;

detecting whether a knocking condition from combustion occurs;

integrating the signal corresponding to the degree of ionization during a measuring window kept open from after the generation of an ignition spark in association to the upper dead position of a piston of the combustion chamber and at least until 40 crankshaft degrees after upper dead position of the piston, whereby an integrated value of the ionization signal is obtained;

varying a control parameter of the engine in such a manner that the integrated value of the ionization signal is maximized during an essentially non-knocking condition; and

if a knocking condition occurs, reducing the integrated value of the ionization signal to form a corrected integrated value of the ionization signal.

5,803,048

SYSTEM AND METHOD FOR CONTROLLING AIR-FUEL RATIO IN INTERNAL COMBUSTION ENGINE

Toru Yano; Eisuke Kimura; Masanori Hayashi; Yusuke Tataru; Toshio Yokoyama, and Kenichiro Kinoshita, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

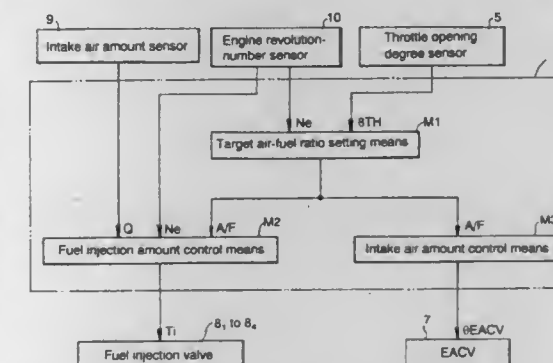
Filed Apr. 10, 1995, Ser. No. 424,880

Claims priority, application Japan, Apr. 8, 1994, 6-071128; Apr. 13, 1994, 6-074768; Apr. 26, 1994, 6-088341

Int. Cl.⁶ F02D 41/04

U.S. Cl. 123—443

20 Claims



1. An air-fuel control system in an internal combustion engine, comprising a fuel injection valve provided at each of plural cylinders, a target air-fuel ratio setting means for setting a target air-fuel ratio based on an operational state of the internal combustion

engine, and a fuel injection amount control means for separately changing an amount of fuel injected by each said fuel injection valve based on the target air-fuel ratio when said target air-fuel ratio setting means has switched the target air-fuel ratio, said fuel injection amount control means sequentially and separately changing said amounts of fuel injected by each of the respective said fuel injection valves at predetermined timing intervals for each said fuel injection valve, said timing intervals being based on an elapsed number of top dead center positions occurring in said cylinders, said fuel injection amount control means including means for changing said timing intervals.

5,803,049

FUEL SYSTEM

Anthony Thomas Harcombe, Richmond, United Kingdom, assignor to Lucas Industries, United Kingdom
PCT No. PCT/GB96/01106, § 371 Date Feb. 17, 1998, § 102(e)
Date Feb. 17, 1998, PCT Pub. No. WO96/35867, PCT Pub. Date Nov. 14, 1996

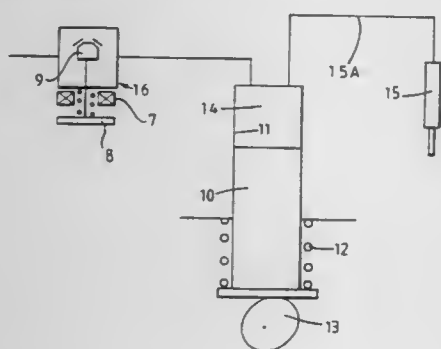
PCT Filed May 9, 1996, Ser. No. 952,233

Claims priority, application United Kingdom, May 12, 1995, 9509610

Int. Cl.⁶ F02D 41/20

U.S. Cl. 123—446

11 Claims



1. A method of controlling the flow of current in a winding which forms part of a fuel delivery control valve of an engine fuel system, the valve further including an armature which is coupled to a valve member, the armature and valve member being movable by the magnetic field produced by the winding from a rest position at which there is no flow of fuel to the associated engine towards an actuated position at which fuel is delivered to the associated engine, the valve including a spring which biases the armature and valve member to the rest position, the method comprising connecting the winding to a source of electric supply and allowing the current in the winding to rise to a peak value during which time the armature and valve member start to move from the rest position towards the actuated position, disconnecting the winding from the source of supply and allowing the current in the winding to fall at a high rate during which period the armature and valve member attain the actuated position and start to return to the rest position, reconnecting the winding to a source of electric supply and allowing the current flow to increase to a low value to control the movement of the armature and valve member towards the rest position and then further increasing the current flow to effect movement of the armature and valve member to the actuated position.

5,803,050
FUEL INJECTED INDUCTION SYSTEM FOR MARINE ENGINE

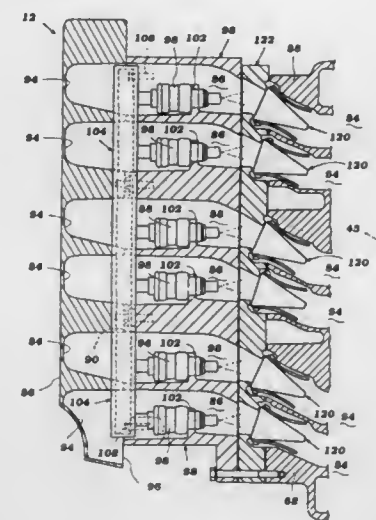
Takayuki Osakabe, and Hitoshi Watanabe, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Japan

Filed Feb. 20, 1996, Ser. No. 603,748

Claims priority, application Japan, Feb. 17, 1995, 7-029186
Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—456

29 Claims



1. An induction system for a two-cycle, crankcase compression, internal combustion engine having multiple cylinders, the engine comprising a plurality of crankcase chambers each communicating with a respective cylinder of the engine, said induction system being attachable to a crankcase member of the engine on a side opposite of the cylinders and comprising an intake manifold defining a plurality of intake passages, all of the intake passages being arranged in a row with corresponding flow axes through the intake passages lying generally within a common plane, each intake passage communicating with a respective one of said crankcase chambers, and a plurality of throttle devices, each throttle device communicating with a respective one of the intake passages, and all of the throttle devices being arranged in a row generally parallel to the row of intake passages.

5,803,051

FUEL DISTRIBUTION ARRANGEMENT FOR AN INTERNAL COMBUSTION ENGINE

Hartmut Stehr, Gifhorn, Germany, assignor to Volkswagen AG, Wolfsburg, Germany

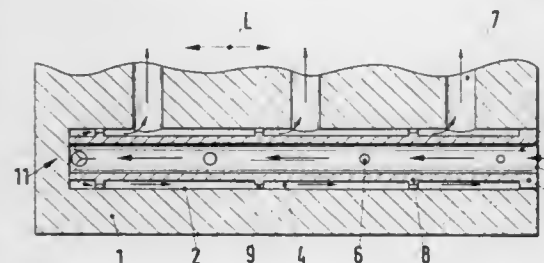
Filed Aug. 21, 1997, Ser. No. 916,149

Claims priority, application Germany, Aug. 24, 1996, 196 34 260.0

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—456

8 Claims



1. A fuel distribution arrangement for an internal combustion engine comprising

a cylinder head having an integral fuel-carrying passage extending in a longitudinal direction of the internal combustion engine from which fuel is supplied to fuel injectors in the cylinder head for individual cylinders of the internal combustion engine; and

an axially extending tubular insert in the passage forming a coaxial outer duct communicating with the fuel injectors and having a central fuel inflow duct which is connected to the outer duct through outflow orifices in the insert.

5,803,052

SPRING CLIP FOR RETAINING A FUEL INJECTOR IN A FUEL RAIL CUP

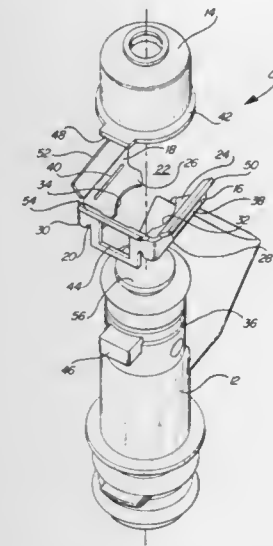
Jack R. Lorraine, Newport News, and Ronald G. Fly, Yorktown, both of Va., assignors to Siemens Automotive Corporation, Auburn Hills, and Ford Motor Co., Dearborn, both of Mich.

Filed Jun. 27, 1997, Ser. No. 884,370

Int. Cl.⁶ F02M 55/02

U.S. Cl. 123—470

7 Claims



1. A spring clip for retaining together a fuel injector and a fuel rail cup, said clip comprising:

first and second parallel spaced side walls; and

a third side wall resiliently connecting said first and second side walls to form a generally U-shaped body with an open side;

said first and second parallel spaced side walls including flanges extending inwardly toward one another from opposed lower edges of said side walls, said flanges being configured to coact with an exterior surface of an associated fuel injector to locate said injector axially relative to said clip;

said first and second parallel spaced side walls also including slots arranged to receive a flanged portion of said fuel rail cup such that said clip is located axially relative to said cup, thereby locating said injector axially relative to said cup;

said third side wall including an aperture for receiving both a radially protruding orientation key of said injector and a corresponding orientation key of said fuel rail cup;

whereby when said injector and said clip are assembled with said fuel rail cup, said clip is effective to fix said injector against axial and rotational movement relative to said fuel rail cup.

5,803,053

METHOD AND ARRANGEMENT FOR SUPPLYING FUEL VAPOR TO AN INTERNAL COMBUSTION ENGINE

Helmuth Pfeiffer, Obersulm, and Georg Mallebrein, Singen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

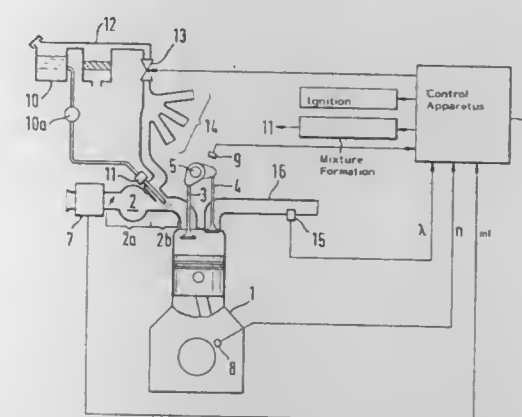
Filed Mar. 24, 1997, Ser. No. 822,683

Claims priority, application Germany, Mar. 23, 1996, 196 11 521.3

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—516

6 Claims



1. In a multicylinder internal combustion engine including a tank-venting system, a plurality of intake channels leading to respective ones of the cylinders and a line system branching to respective ones of said intake channels, a method for controlling the output of fuel vapor from said tank-venting system via said line system, the method comprising the steps of:

providing metering means in said line system for metering said fuel vapor into said intake channels in synchronism with the engine revolutions; and,

metering said fuel vapor for all cylinders simultaneously at least once per work cycle of said engine.

5,803,054

EVAPORATIVE FUEL-PROCESSING SYSTEM FOR INTERNAL COMBUSTION ENGINES FOR VEHICLES

Kazumi Yamazaki, Teruo Wakashiro, Koichi Hidano, Takeshi Hara, and Takeaki Nakajima, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

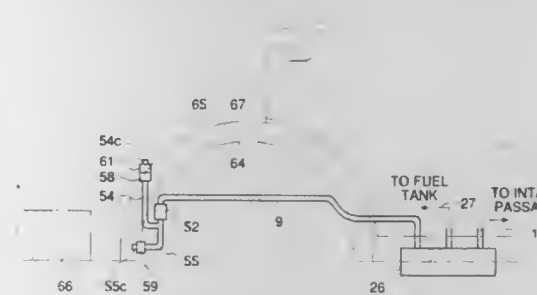
Filed Jul. 31, 1996, Ser. No. 688,858

Claims priority, application Japan, Aug. 4, 1995, 7-218249

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—519

3 Claims



1. An evaporative fuel-processing system for an internal combustion engine for use in a vehicle, said engine having an intake passage and a fuel tank, comprising:

a passage extending between said fuel tank and said intake passage, for guiding evaporative fuel generated in said fuel tank, for processing;

a canister arranged across said passage;

a first passage connected to said canister;

a second passage connected to said canister;

a first valve arranged across said first passage, for allowing air to flow into said canister through said first passage and for inhibiting air containing evaporative fuel from being discharged from said canister through said first passage;

a second valve arranged across said second passage, for inhibiting air from flowing into said canister through said second passage and for allowing air containing evaporative fuel to be discharged from said canister through said second passage;

and

a filter arranged in said first passage,

wherein said vehicle has a chassis including a wheel house defining a space located inwardly thereof, said first and second passages having respective distal ends, said distal end of said first passage having said filter arranged therein and opening into said space at a relatively upper portion of said space, said distal end of said second passage opening into said space at a relatively lower portion of said space.

5,803,055

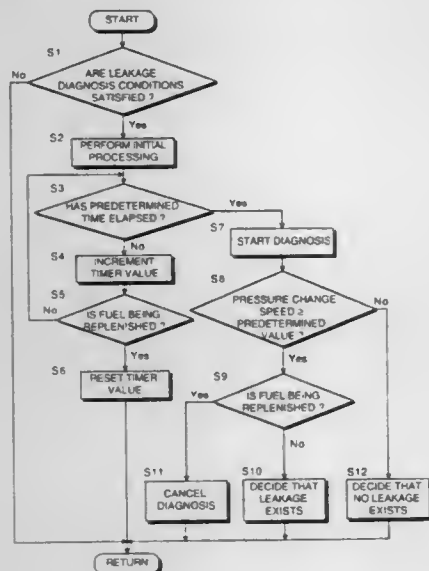
DEVICE FOR DETECTING REPLENISHMENT OF FUEL TANK OF AN ENGINE AND DIAGNOSTIC DEVICE FOR EVAPORATED FUEL PROCESSING MECHANISM OF THE ENGINE

Kenichi Goto, Zama, and Atsushi Iochi, Tokyo, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan
Filed Nov. 14, 1996, Ser. No. 749,192

Claims priority, application Japan, Nov. 14, 1995, 7-295632
Int. Cl.⁶ F02M 25/08; F02B 77/08

U.S. Cl. 123—520

7 Claims



1. A device for detecting that fuel is being replenished into a fuel tank of an engine, comprising:

means for detecting temperature of the fuel in the fuel tank, and

means for deciding, if the fuel temperature is dropping, that the fuel is being replenished.

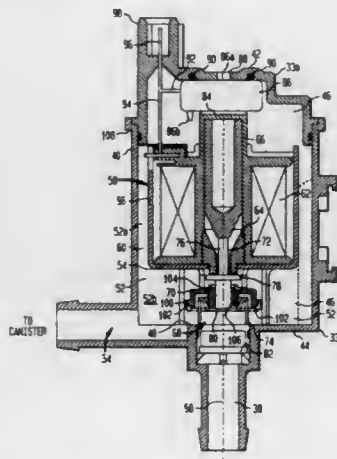
**5,803,056
CANISTER VENT VALVE HAVING ELECTRIC PRESSURE SENSOR AND VALVE ACTUATOR**
John E. Cook; Paul D. Perry, and Craig A. Weldon, all of Chatham, Canada, assignors to Siemens Electric Limited, Mississauga, Canada

Filed Feb. 12, 1997, Ser. No. 798,818

Int. Cl.⁶ F02M 37/04

U.S. Cl. 123—520

10 Claims



1. In a vapor collection system for an internal combustion engine fuel system wherein a canister purge valve is disposed between an intake manifold of an engine and a fuel vapor collection canister that collects vapor generated by volatile fuel in a fuel tank, and the purge valve both a) controls the purging of said canister to said intake manifold in accordance with a purge control signal that sets the extent to which said canister purge valve allows purge flow and b) in response to a leak detection test signal closes the canister to the intake manifold for testing the integrity against leakage of evaporative emission space cooperatively defined by the canister and headspace of the fuel tank, and a vent valve is disposed between a vent port of the canister for venting the evaporative emission space through the canister, the improvement in which said vent valve comprises a walled housing defining an enclosed interior space and comprising a first port and a second port for communicating with the interior space, a valve operated by an electric actuator disposed within the interior space for selectively allowing and disallowing communication between said ports through said interior space, a device for providing an electric signal related to pressure in said interior space, and electric terminals connected to said electric actuator and said device to provide for said actuator and device to be connected in an electric circuit for the vapor collection system.

5,803,057

METHOD AND APPARATUS FOR DOSING A GASEOUS FUEL

Alfred Van de Brink, Barneveld, Netherlands, assignor to Autogastechiek Holland B.V., Netherlands

Filed Sep. 20, 1996, Ser. No. 693,264

Claims priority, application Netherlands, Feb. 18, 1994, 9400246

Int. Cl.⁶ F02D 41/00; F02M 21/02

U.S. Cl. 123—527

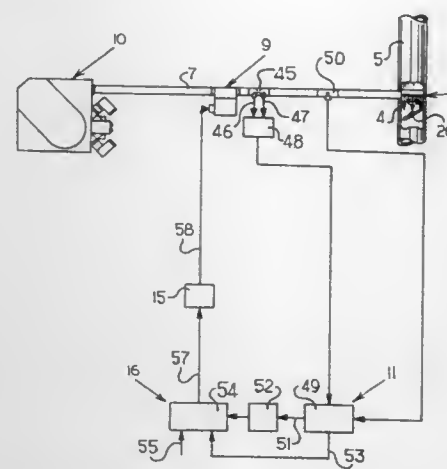
19 Claims

1. A method for dosed supply to a combustion engine of a fuel which is gaseous in ambient conditions, comprising the steps of:

determining a rotation speed and a load of the engine;

calculating a fuel flow per unit of time required at the determined rotation speed and the determined load;

converting the required fuel flow per unit of time into a control signal determining at least one of an opening duration and frequency of a digital fuel valve arranged between a fuel container and the engine;



transmitting the control signal to the digital fuel valve;

detecting the fuel flow per unit of time flowing through the digital fuel valve;

comparing the detected fuel flow to the required fuel flow;

adapting the control signal for the valve on the basis of a difference between the required fuel flow and the detected fuel flow, wherein:

the fuel flow per unit of time through the digital fuel valve is detected by periodically measuring a pressure difference in a line connecting the digital fuel valve and the engine and sampling and integrating the measured values of the pressure difference; and

the digital fuel valve includes a closing member continuously moveable between a fully open position and a fully closed position.

5,803,058

Patent Not Issued For This Number

5,803,059

AUTOMOTIVE INTERMEDIATE IGNITION SIGNAL CONVERTER

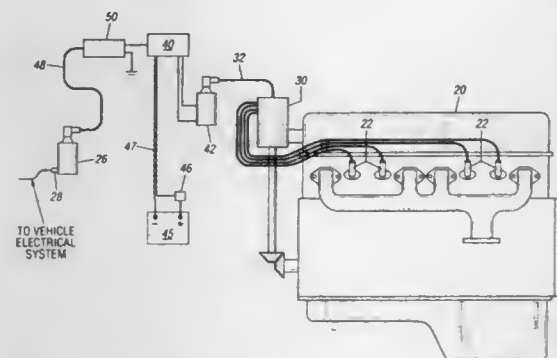
Christopher A. Jacobs, and Gregory V. Puscas, both of Midland, Tex., assignors to Jacobs Electronics, Inc., Midland, Tex.

Filed Jun. 23, 1997, Ser. No. 880,894

Int. Cl.⁶ F02P 29/04

U.S. Cl. 123—595

41 Claims



1. An ignition synchronization device for an internal combustion engine, said engine having at least one cylinder with a spark plug, said engine further having an original ignition system that provides a first firing signal, said original ignition system further having a coil that provides a first spark energy upon receiving said first

firing signal, said engine further having a retrofit ignition system, said retrofit ignition system being electrically connected to said spark plug, said retrofit ignition system constructed and arranged to provide a second spark energy to said spark plug upon receiving a second firing signal, said device comprising:

an intermediate spark energy signal converter, said converter being electrically connected to said coil and to said retrofit ignition system, said converter having means for absorbing said first spark energy from said coil, said converter constructed and arranged to provide said retrofit ignition system with said second firing signal that causes said retrofit ignition system to generate said second spark energy thereby causing said spark plug to fire said cylinder.

5,803,060

MISSILE LAUNCHING

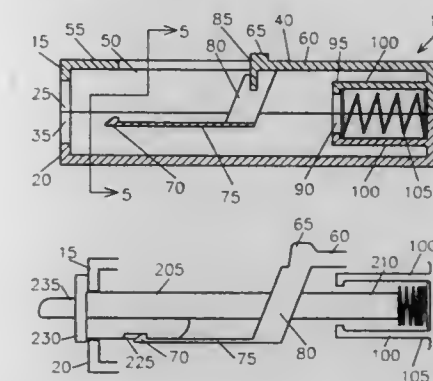
Joseph F. Skivran, Cincinnati, Ohio, assignor to Hasbro, Inc., Pawtucket, R.I.

Filed Apr. 9, 1996, Ser. No. 628,901

Int. Cl.⁶ F41B 7/00; 7/08

U.S. Cl. 124—16

31 Claims



1. A toy missile receiving apparatus comprising:

a first housing section with an opening configured to receive a missile; and

a trigger mechanism integrally formed from a common piece of material with the first housing section to define a single component,

the trigger mechanism comprising a latch which is engageable with a received missile, the trigger mechanism further comprising a resilient portion which tends to bias the latch into engagement with the missile to thereby prevent the missile from being released from the housing,

the trigger mechanism further including a portion which may be manipulated by a user to move the latch out of engagement with the missile to release the missile from the first housing section.

26. A toy missile receiving apparatus comprising:

a housing section having a first opening and a wall with a second opening, the first opening being configured to receive a missile; and

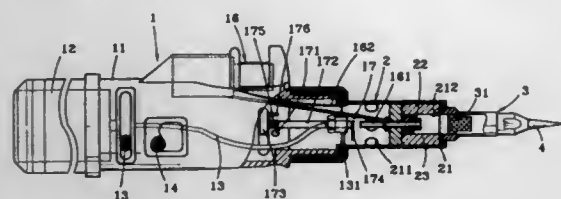
a trigger mechanism extending from and connected to one side of the second opening in the wall of the housing section, the trigger mechanism including a latch and being configured so that a missile inserted into the missile launching apparatus passes between the latch and a point at which the trigger mechanism extends from the side of the opening in the wall of the housing section, wherein the latch is configured to engage an inserted missile and to release the inserted missile in response to manipulation of the trigger mechanism.

5,803,061

GAS-BURNED SOLDERING TOOL
Chin-Hsung Kao, Taipei Hsien, Taiwan, assignor to Rekrow Industrial Inc., Taipei Hsien, Taiwan
Filed Oct. 21, 1997, Ser. No. 955,831
Int. Cl.⁶ B23K 3/02

U.S. Cl. 126—414

2 Claims



1. A gas burned soldering tool comprising:

- a tool body, said tool body comprises a fuel gas chamber containing a fuel gas, a gas tube having a rear end connected to said fuel gas chamber and a front end terminating in a gas nozzle, a gas lever for controlling fuel gas passage between said fuel gas chamber and said gas tube, a flame adjustment knob for controlling the flow rate of fuel gas at said gas nozzle, an igniter controlled to cause sparks for burning fuel gas discharged from said gas nozzle, and a swivel flame extinguisher controlled to extinguish open flame, said flame extinguisher comprising a fixed locating rod, a shaft, a control knob and a stopper respectively and perpendicularly extended from two opposite ends of said shaft, and a torsional spring mounted around said shaft, said control knob having a projecting rod, said torsional spring having one end connected to said projecting rod of said control knob and an opposite end fastened to said locating rod, said stopper being turned with said shaft by means of the control of said control knob between a first position where fuel gas is allowed to pass out of said gas nozzle and a second position wherein fuel gas is stopped from escaping out of said gas nozzle;
- a flame nozzle assembly fastened to a front end of said tool body in front of said gas nozzle, said flame nozzle assembly comprising a metal flame nozzle tube connected to said tool body and having a plurality of air vents, a flame nozzle mounted in said flame nozzle tube at one front end remote from said tool body, and a heat insulating element mounted within said flame nozzle tube around said flame nozzle, said flame nozzle being axially aligned with said gas nozzle and spaced from it at a distance;
- a slotted soldering iron holder mounted around said flame nozzle assembly, said slotted soldering iron holder holding a catalyzer on the inside in front of said flame nozzle assembly; and a soldering bit provided at a front end of said soldering iron holder in front of said catalyzer.

5,803,062

COMPRESSION MOLDED INTEGRATED PERSONAL SERVICE AND OXYGEN MODULES FOR USE IN TRANSPORT AIRCRAFT WITH IMPROVED MASK REPACKING AND TEST ACCESS
Charles C. Aulgur, Raytown, Mo., assignor to Nellcor Puritan Bennett Inc., Pleasanton, Calif.

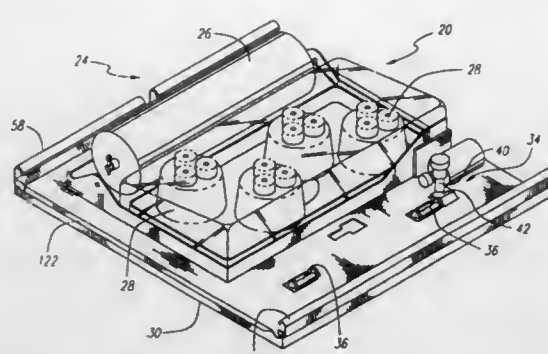
Filed May 14, 1996, Ser. No. 645,909

Int. Cl.⁶ A62B 7/00

U.S. Cl. 128—202.26

6 Claims

1. An integrated oxygen module for producing and dispensing oxygen for use in transport aircraft, comprising:
- a container housing having a main door, said main door including means for latching said main door in a closed position and for releasing said main door to move to an open position;
 - a plurality of door hinge mounts attached to said container housing, and a plurality of door hinge post receptacles molded into said main door for receiving said door hinge mounts;
 - an oxygen generation cartridge assembly including an oxygen generator removably disposed in said oxygen module, and oxygen dispensing means to be deployed from said container for dispensing oxygen; and



an inner mask packing door disposed between said main door and said oxygen dispensing means, said inner mask packing door defining an aperture for manual access to said oxygen dispensing means, whereby said oxygen dispensing means can be manually packed in said container by access through said aperture.

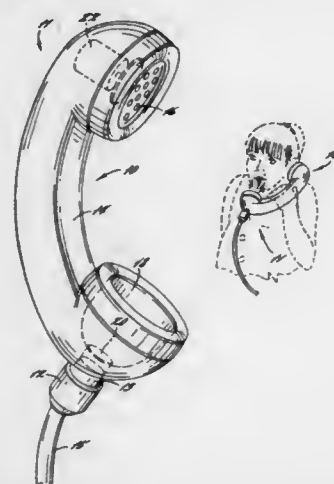
5,803,063

TELEPHONE MEDICAMENT DELIVERY DEVICE
Craig Corey, 18801 River Falls Dr., Davidson, N.C. 28036
Filed Feb. 26, 1997, Ser. No. 806,927

Int. Cl.⁶ A61M 15/00; 16/10; 11/00

U.S. Cl. 128—203.12

5 Claims



1. A medication delivery device adapted for use by a patient comprising:

- a telephone-shaped handle having a gripping portion, an ear-piece at one end of said gripping portion and a mouthpiece at the other end of said gripping portion; and
- means for augmenting delivery of medication in aerosolized or gaseous form, said means having a medication supply inlet and a medication supply outlet, said means for augmenting the delivery of medication being attached to said mouthpiece receptacle so that when said delivery device is used, said medication is delivered through said mouthpiece.

5,803,064

ANESTHESIA SYSTEM FOR USE WITH MAGNETIC RESONANCE IMAGING SYSTEMS
Robert W. Phelps, Lyle E. Kirson, both of Denver, and Kenneth M. Swank, Aurora, all of Colo., assignors to University Technology Corporation, Boulder, Colo.

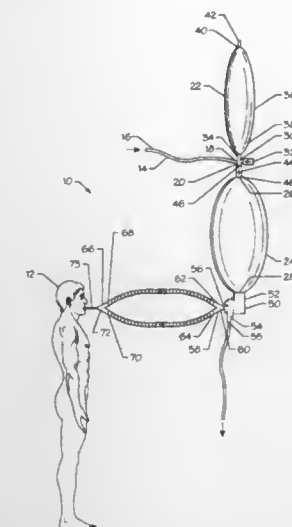
Filed Aug. 12, 1997, Ser. No. 909,722

Int. Cl.⁶ A61M 16/00

U.S. Cl. 128—203.12

22 Claims

1. An anesthesia system for use in MRI suites, the anesthesia system being connected between an anesthesia machine positioned



outside the MRI suite and a patient positioned within the MRI suite, the anesthesia machine providing an anesthesia gas mixture for anesthetizing the patient, the apparatus comprising:

- delivery means for transporting the anesthesia gas mixture from the anesthesia machine to the MRI suite;
- reservoir means for receiving and storing at least a portion of the anesthesia gas mixture delivered through the delivery means;
- means for introducing fresh room air into the anesthesia gas mixture thereby creating a combined gas mixture;
- ventilation means for receiving and storing the combined gas mixture;
- connector means mounted to the ventilation means for receiving the combined gas mixture from the ventilation means;
- non-rebreathing means for inhibiting rebreathing of patient exhalation by the patient;
- first tube means for delivering the combined gas mixture from the connector means to the patient for inhalation consumption by the patient; and
- second tube means for delivering exhalation from the patient to the non-rebreathing means upon the patient exhaling, the non-rebreathing means maintaining the patient exhalation from returning to the patient; and
- scavenger means associated with the non-rebreathing means for releasing patient exhalation from the non-rebreathing means to a scavenger system.

5,803,065

BREATHING GAS DELIVERY METHOD AND APPARATUS

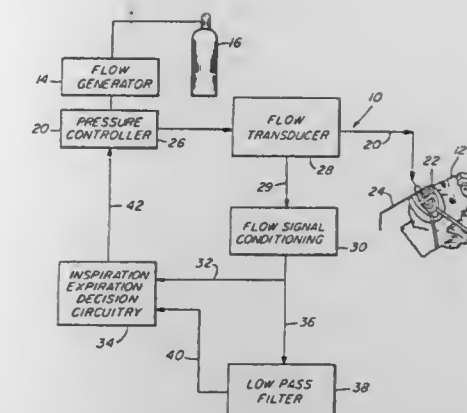
Ronald J. Zdrojkowski, Pittsburgh, and Mark Estes, Trafford, both of Pa., assignors to Respiroics Inc., Pittsburgh, Pa.
Division of Ser. No. 349,634, Dec. 2, 1994, Pat. No. 5,632,269, which is a continuation-in-part of Ser. No. 947,156, Sep. 18, 1992, Pat. No. 5,433,193, which is a continuation-in-part of Ser. No. 411,012, Sep. 22, 1989, Pat. No. 5,148,802. This application Jan. 18, 1996, Ser. No. 588,598

Int. Cl.⁶ A61M 16/00

U.S. Cl. 128—204.23

8 Claims

1. A method of determining a leak component of gas flow in a respiratory gas supply system for supplying respiratory gas to a patient, comprising the steps of:
- determining a beginning and an end of a plurality of patient breaths, each breath comprised of an inspiratory phase and an expiratory phase;
 - integrating patient respiratory gas flow rate throughout said plurality of patient breaths to determine a total respiratory gas volume for said plurality of patient breaths; and



dividing said total respiratory gas volume for said plurality of patient breaths by a time duration of said plurality of patient breaths to determine a leakage rate for said plurality of patient breaths.

5,803,066

METHOD AND APPARATUS FOR OPTIMIZING THE CONTINUOUS POSITIVE AIRWAY PRESSURE FOR TREATING OBSTRUCTIVE SLEEP APNEA

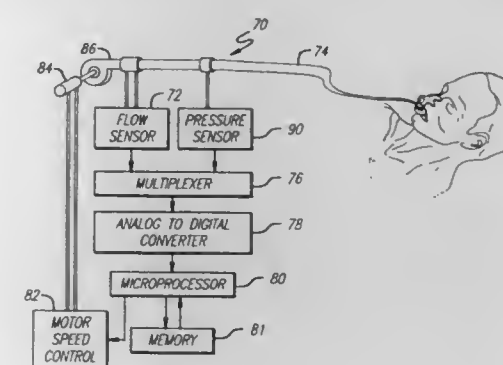
David M. Rapoport, New York, and Robert G. Norrman, New Windsor, both of N.Y., assignors to New York University, New York, N.Y.

Continuation-in-part of Ser. No. 246,964, May 20, 1994, Pat. No. 5,490,502, which is a continuation-in-part of Ser. No. 879,578, May 7, 1992, Pat. No. 5,335,654. This application Feb. 12, 1996, Ser. No. 598,577

Int. Cl.⁶ A61M 16/00

U.S. Cl. 128—204.23

57 Claims



1. A method for optimizing the positive airway pressure to a patient, comprising the steps of:

- a) applying an initial level of positive airway pressure of a breathing gas to a patient;
- b) detecting the onset of an inspiratory flow of breathing gas to the patient;
- c) storing data values representative of the inspiratory flow of breathing gas to the patient;
- d) determining whether the stored data values indicate a flow limitation in the patient by calculating the ratio of the area of the inspiratory waveform to the area of a pure sine wave to create a first index; and
- e) increasing the positive airway pressure when the stored data values indicate a flow limitation in the patient.

5,803,067

PIVOTAL SLING STRAP CONNECTORS AND SIGHTS FOR SLINGSHOTS

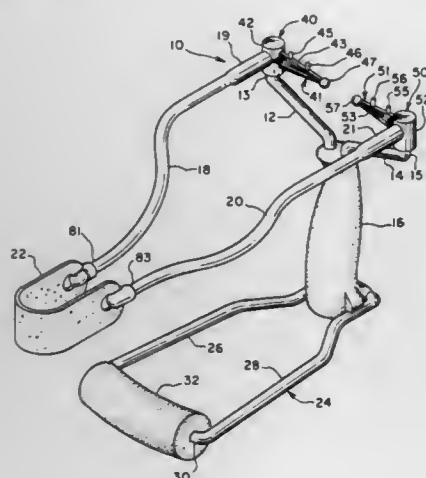
Howard Steve Ellenburg, Boulder, Colo., and Mark Owen Ellenburg, New York, N.Y., assignors to Trumark Mfg. Co., Inc., Boulder, Colo.

Filed Jul. 12, 1996, Ser. No. 666,000

Int. Cl.⁶ F41B 3/02

U.S. Cl. 124—20.1

18 Claims



1. Slingshot apparatus, comprising:
 - a frame having a first branch with a first distal end and a second branch with a second distal end;
 - a first sling strap and a second sling strap;
 - a first rotor with a first hole extending axially into said first rotor, said first rotor being positioned rotatably on said first branch with said first distal end of said first branch inserted into said first hole in said first rotor;
 - a second rotor with a second hole extending axially into said second rotor, said second rotor being positioned rotatably on said second branch with said second distal end of said second branch inserted into said second hole in said second rotor;
 - a first prong extending radially outward from said first rotor and said first sling strap having a first tubular proximal end with said first prong being inserted into said first tubular proximal end; and
 - a second prong extending radially outward from said second rotor, and said second sling strap having a second tubular proximal end with said second prong being inserted into said second tubular proximal end.
9. Slingshot apparatus, comprising:
 - a frame having a first branch and a second branch;
 - a first connector mounted pivotally on said first branch;
 - a second connector on said second branch;
 - a first sling strap attached to said first connector and a second sling strap attached to said second connector; and
 - a first sight extending radially from said first connector.

5,803,068

NO TORQUE ROPE RELEASE

Gregory E. Summers, 105 Overlink Ct., Lynchburg, Va. 24503

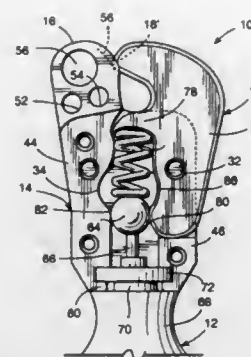
Filed Jan. 21, 1997, Ser. No. 786,038

Int. Cl.⁶ F41B 5/18

U.S. Cl. 124—35.2

13 Claims

1. A rope release device comprising:
 - a housing including a first fixed jaw and a second jaw movable toward and away from the fixed jaw;
 - a length of rope including a closed loop adapted to be engaged between the first fixed jaw and the second jaw; and
 - a handle supporting said housing for rotational adjustment of said housing relative to said handle wherein said handle



incorporates a trigger operatively connected to said second jaw.

5,803,069

ADJUSTABLE QUIVER

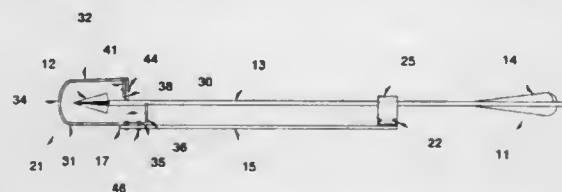
John D. Schreiber, 10923 Wattsburg Rd., Wattsburg, Pa. 16442-9724

Filed Sep. 29, 1997, Ser. No. 939,765

Int. Cl.⁶ F41B 5/06

U.S. Cl. 124—86

8 Claims



1. A quiver for holding a plurality of arrows to be used by an archer comprising:
 - (a) an elongated frame;
 - (b) means for gripping the shaft of the arrows positioned at one end of the elongated frame;
 - (c) means for housing the arrowheads of the arrows positioned at the opposing end of the elongated frame;
 - (d) a shaft rest bar positioned intermediate the shaft gripping means, and the arrowhead housing means;
 - and
 - (e) pressuring means for putting pressure on the arrows so that the arrows are securely pressed against the rest bar.

5,803,070

ARCHERY BOWS WITH STABILIZER RECEIVERS, AND STABILIZER RECEIVERS CONFIGURED FOR MOUNTING ARCHERY BOW STABILIZERS IN VARIABLE POSITIONS RELATIVE TO ARCHERY BOWS

Terry G. Martin, Walla Walla, Wash., and George T. Newbold, Milton-Freewater, Oreg., assignors to Martin Archery Inc., Walla Walla, Wash.

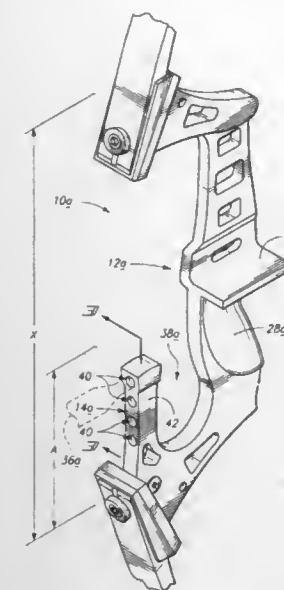
Filed Jan. 2, 1997, Ser. No. 775,899

Int. Cl.⁶ F41B 5/00

U.S. Cl. 124—88

32 Claims

5. An archery bow handle defining a major longitudinal handle axis comprising:
 - a handgrip portion;
 - a stabilizer receiver laterally displaced from the handgrip portion and configured to receive a threaded extension of an archery bow stabilizer and to support an entirety of said archery bow stabilizer by the threaded extension; and
 - a cavity between the stabilizer receiver and the handgrip portion.
17. A stabilizer receiver configured for use with an archery bow and configured for mounting an archery bow stabilizer in variable positions relative to the archery bow comprising:



a body configured to be laterally displaced from a riser portion of an archery bow, the body and the riser portion being comprised by one piece of material; and

a plurality of apertures within the body and extending within the body, at least two of the apertures being longitudinally displaced from one another.

5,803,071

SOFT CONCRETE SAW

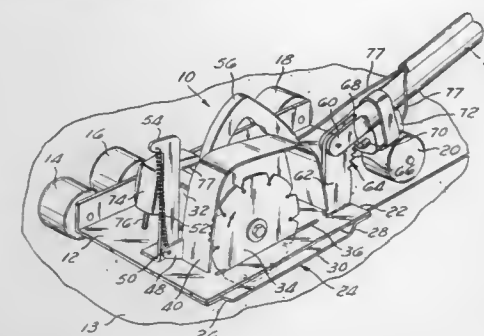
Edward Chiuminatta, and Alan Ray Chiuminatta, both of Riverside, Calif., assignors to Chiuminatta Concrete Concepts, Inc., Corona, Calif.

Continuation of Ser. No. 477,874, Jun. 7, 1995, Pat. No. 5,666,939, which is a continuation of Ser. No. 86,944, Jul. 2, 1993, Pat. No. 5,582,899, which is a continuation of Ser. No. 680,816, Jul. 16, 1996, Pat. No. 5,762,349, which is a continuation of Ser. No. 386,814, Jul. 27, 1989, Pat. No. 4,938,201, which is a division of Ser. No. 185,055, Apr. 22, 1988, Pat. No. 4,889,675, which is a continuation of Ser. No. 843,779, Mar. 25, 1986, Pat. No. 4,769,201. This application Apr. 18, 1997, Ser. No. 844,254

Int. Cl.⁶ B28D 1/04

U.S. Cl. 125—13.01

57 Claims



1. An apparatus for cutting grooves in the exterior surface of finished, soft concrete, comprising:
 - rotating cutting means urged against said exterior concrete surface for cutting a groove in said exterior surface, said cutting means having a cutting edge, two sides, and a trailing edge, said cutting edge rotating out of the exterior surface of the concrete;
 - a motor driving said cutting means;
 - propelling means for moving the apparatus across the exterior surface of the concrete; and

support means in contact with the exterior surface of said concrete for supporting the surface of said concrete within 0.125 inches of said sides immediately adjacent the cutting edge of said cutting means as said cutting means cuts said groove, said support means inhibiting cracking, chipping and damaging of the said concrete finish adjacent said groove.

5,803,072

KITCHEN VENTILATOR

Markus Strand, Motala, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

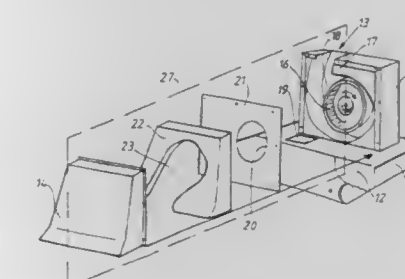
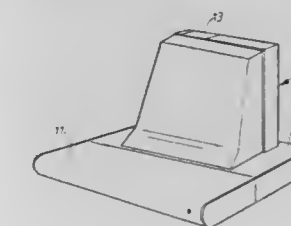
Filed Oct. 30, 1997, Ser. No. 961,329

Claims priority, application Sweden, Nov. 1, 1996, 9604000

Int. Cl.⁶ F24C 15/20

U.S. Cl. 126—299 R

5 Claims



1. A kitchen ventilator, comprising a collecting box (11) supporting on its upper side a fan casing (10), said fan casing defining a chamber which, by means of an essentially vertical partition (21), separates an inlet channel (23) from an outlet channel (18), said collecting box (11) having an outlet opening (19) provided in an upper wall (11a) of said collecting box (11), said outlet opening (19) being connected to the inlet channel (23), said fan casing (10) containing an impeller (16) rotatable in a vertical plane and having an inlet side, an outlet side and a direction of rotation, the inlet side of said impeller (16) being connected to the inlet channel (23) via an opening (20) in the partition (21), the outlet side of said impeller being connected to the outlet channel (18), said inlet and outlet channels (23,18) being formed by an inlet insert and an outlet insert (22,17) respectively, said inlet and outlet inserts (22,17) being made of sound-absorbing material, wherein the outlet opening (19) in the collecting box (11) is displaced laterally relative to the opening (20) in the partition (21) and wherein the inlet channel (23) has a curved shape adapted to the direction of rotation of the impeller (16) so that the air flowing through said inlet channel (23) is deflected in said direction of rotation.

5,803,073

SECOND STAGE SCUBA DIVING REGULATOR HAVING A PNEUMATIC-DEPENDENT ANTI-SET FEATURE

Douglas J. Toth, 8422 Dallas Cir., Huntington Beach, Calif. 92646

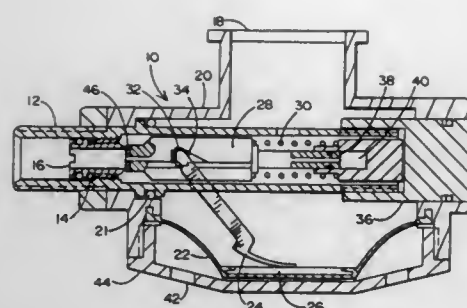
Filed Mar. 8, 1996, Ser. No. 613,070

Int. Cl.⁶ A62B 9/02; 18/10; 7/04; F16K 31/26

U.S. Cl. 128—205.24

10 Claims

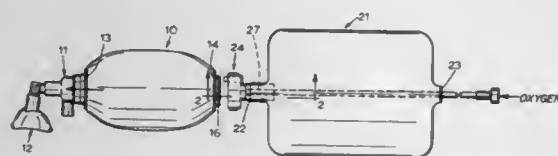
1. An improved diver's breathing regulator of the type having a tube connected to a source of pressurized air and having a demand valve actuated by a lever in response to inhalation by the diver, the



lever withdrawing a poppet having an elastic seal from a sharp edge orifice to permit the pressurized air to pass through the orifice and into the regulator and out through a mouthpiece tube, the poppet returning the elastic seal to engage the sharp edge orifice upon exhalation by the diver thereby terminating input air flow through the orifice until the next breathing cycle of the diver; the improvement comprising:

- a cylindrical sleeve adjustably positioned within said tube for limited axial movement therein;
- a floating orifice member having said sharp edge orifice at one end and having a cylindrical shape with an exterior diameter just smaller than the interior diameter of said sleeve whereby said orifice member may slide coaxially within said sleeve; and
- means for limiting the travel of said orifice member within said sleeve toward said elastomeric seal in response to said pressurized air.

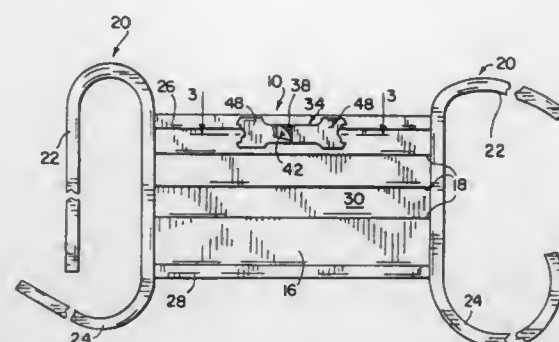
5,803,074
VALVE FOR RESUSCITATOR APPARATUS
James W. Pope, North Fort Myers, Fla., assignor to Smiths Industries Medical Systems, Inc., Keene, N.H.
Filed Nov. 25, 1996, Ser. No. 758,175
Int. Cl.⁶ A62B 7/00; A61M 16/00
U.S. Cl. 128—205.24 18 Claims



1. A valve for use with resuscitator apparatus including a resuscitator bag, a reservoir bag and a coupling connecting the bags, the coupling including a wall forming an interior space which is in flow communication with the reservoir bag, said valve comprising a valve body having a port formed therein, said valve body being mountable in said wall of said coupling between the interior space and the ambient space, said valve further comprising a reed flapper hinged on said valve body on one side of said port, said reed flapper having a normal position wherein said reed flapper extends across and substantially closes said port, said reed flapper being movable to open said port to enable flow into or out of the interior space.

5,803,075
SURGICAL MASK WITH ADHESIVE STRIP TO IMPROVE BREATHING
Edward Q. Yavitz, Rockford, Ill., assignor to Yaru LLC, Wilmington, Del.
Filed Mar. 15, 1996, Ser. No. 616,813
Int. Cl.⁶ A62B 18/02; 18/08
U.S. Cl. 128—206.25 19 Claims

1. A mask for use by a person conducting a surgical procedure, the mask comprising:

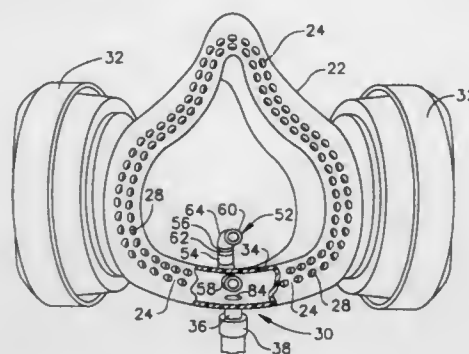


an air-permeable filter having a top edge and a bottom edge, the air-permeable filter further including an inner surface designed to cover a nose and mouth of a wearer;

a plurality of fasteners mounted at the top edge and the bottom edge of the filter, the plurality of fasteners being configured to secure the mask about the face of a wearer; and

a strip attached to the air-permeable filter along the top edge of the inner surface, the strip including a resilient layer and an adhesive layer designed to stick to a nose of the wearer, the resilient layer biasing the strip back towards its original position after being applied to a nose, thereby opening the nasal passages of the wearer.

5,803,076
VACUUM ADHERENT FACE MASK
Warren R. Myers, Rte. 4, Box 500-8, Morgantown, W. Va. 26505
Filed Apr. 15, 1996, Ser. No. 632,744
Int. Cl.⁶ A62B 18/02
U.S. Cl. 128—205.25 17 Claims



1. A vacuum adherent face mask unit comprising:

(a) a face mask for enclosing a human's nose and mouth comprising

- (i) a mask body having a periphery and defining a chamber from and into which a human may inhale and exhale gases,
- (ii) a bladder attached to the periphery of the mask body, said bladder having a face engaging region for engaging a human's face and encircling the chamber, said bladder having a plurality of perforations spaced around said face engaging region,

(b) vacuum means for producing a subatmospheric pressure in said bladder when said mask is in engagement with a human face, said unit comprising a filter unit for removing air toxins and permitting the flow of air from the atmosphere into the chamber.

5,803,077
MASK WITH ELASTIC WEBBING
Peter J. Gazzara, Reading, Mass., assignor to Procure, Inc., Woburn, Mass.
Filed Sep. 15, 1995, Ser. No. 529,700
Int. Cl.⁶ A62B 7/10
U.S. Cl. 128—205.27 29 Claims



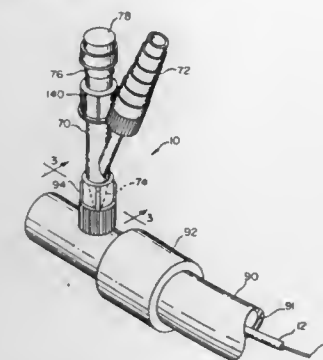
1. A face mask, comprising:

a cover material dimensioned to substantially cover a portion of a face of a wearer, the cover material having a top and a bottom side and a right and a left side; and

at least one band having a first end and a second end, wherein the first end is attached to one side of the cover material and the second end is attached to the opposite side of the cover material and wherein the band is made of a composite elastic material comprising:

an anisotropic elastic fibrous webbing and a gatherable material, with at least one layer of the gatherable material joined to at least one layer of the anisotropic elastic fibrous webbing at spaced-apart locations so that the gatherable layer is gathered between the spaced-apart locations.

5,803,078
METHODS AND APPARATUS FOR INTRAPULMONARY THERAPY AND DRUG ADMINISTRATION
Mark E. Brauner, 722 N. Indiana Ave., Bloomington, Ind. 47408
Continuation-in-part of Ser. No. 282,900, Jul. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 239,241, May 6, 1994, abandoned. This application May 26, 1995, Ser. No. 451,733
Int. Cl.⁶ A61M 16/00
U.S. Cl. 124—207.14 17 Claims



1. An endotracheal catheter assembly for intrapulmonary transfer of liquid drugs and other liquid therapeutic agents in a mammalian patient, comprising:

a first tube having a first outer wall, a first inner wall, a first lumen, at least one first proximal section and at least one first distal tip, said first tube having a length suitable for endotracheal insertion of said first tube in an airway of the patient to position said first distal tip near a carina of said patient;

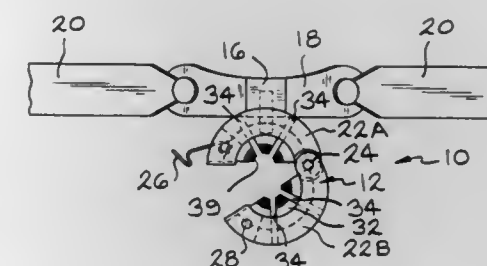
a second tube of approximately the same length as said first tube, said second tube having a second outer wall, a second

inner wall, a second lumen, at least one second proximal section, and at least one second distal tip, said first and second distal tips arranged to form at least one nozzle, said nozzle defining a high velocity gas/liquid interface formed between the first and second distal tips characterized by the first lumen having a comparative cross-sectional area relative to a cross-sectional area of said second lumen, at a position of said nozzle, of between approximately 0.4:1.0 and 4.0:1.0;

gas receiving means connected to said first tube at or near said first proximal section is gaseous connection with said first lumen to allow transfer of gas to and from said first lumen; and

liquid receiving means connected to said second tube at or near said second proximal section in liquid connection with said first lumen, to allow transfer of liquid to and from said first lumen.

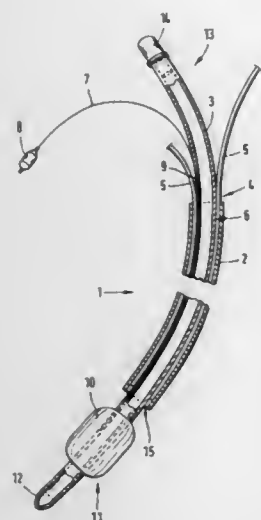
5,803,079
ENDOTRACHEAL TUBE POSITIONER
Russell L. Rogers, Munith, and Gary B. Challenger, Grass Lake, both of Mich., assignors to Aeroquip Corporation, Maumee, Ohio
Division of Ser. No. 273,409, Jul. 11, 1994, Pat. No. 5,555,881.
This application Jul. 30, 1996, Ser. No. 688,536
Int. Cl.⁶ A61M 25/01; 31/60
U.S. Cl. 128—207.14 4 Claims



1. An endotracheal tube holder for use in retaining an endotracheal tube in a desired position comprising in combination: a collar member formed from at least two body portions engaged together to define an axially oriented orifice extending therethrough, said body portions being joined together by at least one hinge member and at least one catch member; at least two tube clamping members, each of which is respectively engaged with one of said body members, said clamping members defectively engaging the endotracheal tube as such tube is positioned in said orifice; and a strap member for securing said tube holder in such desired position.

5,803,080
INSTRUMENT FOR INTERVENTIONAL FLEXIBLE TRACHEOSCOPY/BRONCHOSCOPY
Lutz Freitag, Hemer, Germany, assignor to Willy Rüscher AG, Kernen, Germany
Filed Dec. 20, 1996, Ser. No. 771,297
Claims priority, application Germany, Dec. 20, 1995, 195 47 538.0
Int. Cl.⁶ A61M 16/00
U.S. Cl. 128—207.14 8 Claims

1. An instrument for flexible tracheoscopy/bronchoscopy, the instrument comprising an outer tube, an inner tube mounted within the outer tube so as to be axially displaceable relative to the outer tube, and at least one guide element for radially positioning the inner tube in the outer tube, the inner tube having a distal end, further comprising a cuff fillable with a medium at the distal end of



the inner tube, wherein the at least one guide element is mounted within the space between the outer tube and the inner tube such that an axial position of the inner tube relative to the outer tube is adjustable at the distal end.

5,803,081

TOBACCO AND RELATED PRODUCTS

Francis E. O'Donnell, Jr., St. Louis, Mo., and Jonnie R. Williams, Goochland, Va., assignors to Regent Court Technologies, Chesterfield, Mo.

Continuation-in-part of Ser. No. 671,718, Jun. 28, 1996, and a continuation-in-part of Ser. No. 725,691, Sep. 23, 1996, and a continuation of Ser. No. 739,942, Oct. 30, 1996. This application Dec. 2, 1996, Ser. No. 757,104

Int. Cl.⁶ A24B 15/00

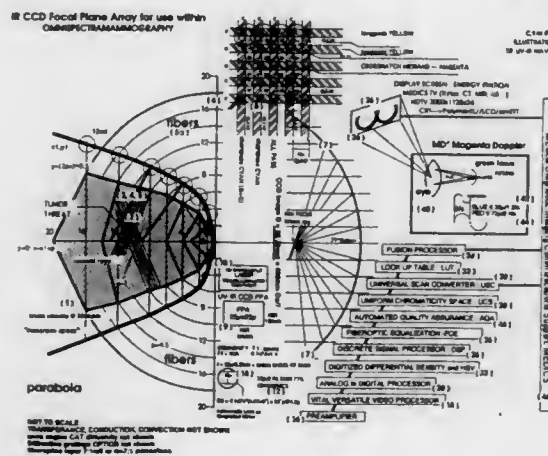
U.S. Cl. 131—299

13 Claims



1. A method of reducing the nitrosamine levels or preventing formation of nitrosamines in a harvested tobacco plant, comprising exposing at least a portion of the plant to microwave energy, while said portion is uncured and in a state susceptible to having the amount of nitrosamines reduced or formation of nitrosamines arrested, for a sufficient time to reduce the amount of or substantially prevent formation of at least one nitrosamine.

5,803,082
OMNISPECTRAMAMMOGRAPHY
John J. Stapleton; Barbara K. Stapleton, both of New Brunswick, and Raymond W. Saxon, Jr., Beach Haven, all of N.J., assignors to Staplevision Inc., East Brunswick, N.J.
Continuation of Ser. No. 615,791, Mar. 14, 1996, abandoned, which is a continuation of Ser. No. 150,444, Nov. 9, 1993, abandoned. This application Apr. 21, 1997, Ser. No. 843,731
Int. Cl.⁶ A61B 6/00
U.S. Cl. 128—653.1 14 Claims



1. A sensor/display processor comprising:
a charge transfer device having a focal plane array and a charge;
a laser or narrowband filtered lamp for photogating said focal plane array of said charge transfer device;
optical means and spectral filter means to collect and focus photons from anatomy emittance, reflectance and transillumination onto said focal plane array of said charge transfer device;
video amplifiers and processing means coupled to said charge transfer device to convert a discrete analog transmission signal proportional to said charge to a digital density signal proportional to logarithm of transmission reciprocal or opacity;
fiberoptic equalization means for automatically compensating with fault-tolerant correction for nonuniformities in the charge transfer device and the optical means and spectral filter means;
fusion processor means for measuring weighted likelihoods and ratios of multispectral observables to detect cancer with minimum false negatives and false positives; and
display means having stable vision for displaying invisible observables in optimum color having Uniform Chromaticity Space du, dv less than 0.01, for encoding tumor diffusivity in one color when approaching and in a different color when receding to effect its scientific visualization providing a magenta Doppler.

5,803,083
GUIDING CATHETER WITH ULTRASOUND IMAGING CAPABILITY

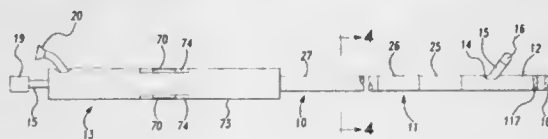
Jerrick C. Buck, Miami, and Donald J. Larnard, Boca Raton, both of Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Sep. 30, 1996, Ser. No. 723,821

Int. Cl.⁶ A61B 8/00; A61N 1/05

U.S. Cl. 128—660.03

6 Claims



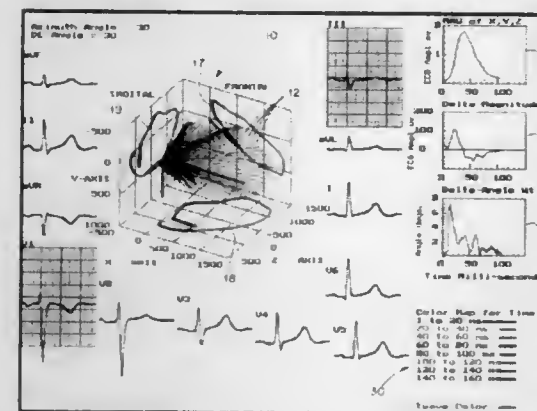
1. A steerable guiding catheter having an ultrasound imaging distal tip in combination with an electrophysiology catheter comprising:

- an elongated tubing body having a proximal end and a distal end and defining a lumen extending for substantially the entire length of the tubing body for receiving an electrophysiology catheter;
- an elongated, flexible electrophysiology catheter slidably disposed within said lumen, a flexible tip portion attached to the distal end of the tubing body;
- an ultrasonic transducer mounted on the flexible tip portion of the tubing body to transmit ultrasound energy and receive resultant echoes so as to provide visualization of an ablation site;
- an electrical conductor disposed in the tubing body for electrically connecting the ultrasound transducer to control circuitry external of the steerable catheter;
- second and third lumens extending lengthwise through the tubing body and both being offset from the central axis of the tubing body;
- first and second puller wires extending through and slidable disposed in said second and third lumens, respectively, each said puller wire being fixedly attached to distal end of the flexible tip portion at a position on opposite sides of the central axis of the tubing body; and,
- control means attached to the proximal ends of the puller wires for moving the puller wires longitudinally relative to the catheter body to thereby deflect the flexible tip portion of the guiding catheter.

5,803,084
THREE DIMENSIONAL VECTOR CARDIOGRAPHIC DISPLAY AND METHOD FOR DISPLAYING SAME
Charles Olson, 43 Lewis Ct., Huntington Station, N.Y. 11743
Filed Dec. 5, 1996, Ser. No. 760,986
Int. Cl.⁶ A61B 5/0402

U.S. Cl. 128—699

23 Claims



1. A cardiographic display for displaying an electrocardiograph heart signal having a magnitude and location in vector format within a single three-dimensional coordinate system sampled at incremental time intervals, comprising:

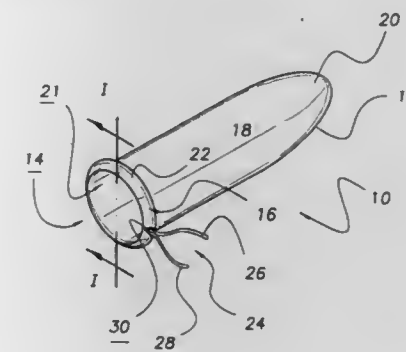
- a point of origin;
- a three-dimensional coordinate system comprising an x-axis, a y-axis and a z-axis extending from said point of origin;
- a frontal plane defined by the area between said x-axis and said y-axis;
- a sagittal plane defined by the area between said z-axis and said y-axis;
- a transverse plane defined by the area between said x-axis and said z-axis; and
- means for displaying the magnitude and location of said signal within said coordinate system at incremental time intervals using a plurality of vectors, said vectors emanating from said origin.

179-291 O.G.-98-7:QL3

5,803,085
NON-ELASTIC CONDOM
Vladimir A. Asinovsky, 12322 Ella Lee La., Houston, Tex. 77077
Filed Jun. 11, 1996, Ser. No. 661,645
Int. Cl.⁶ A61F 6/04

U.S. Cl. 128—844

9 Claims

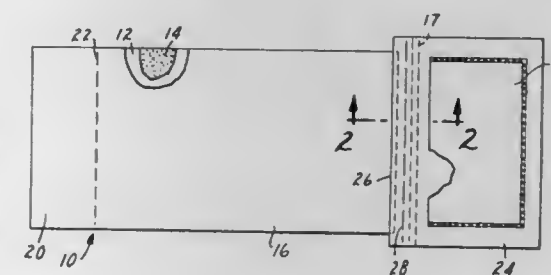


1. A non-elastic condom comprising:
a non-porous sheath member providing a non-elastic membrane formed from a polytetra-fluoroethylene (PTFE) polymer, said sheath member having an insertion opening in connection with a penis receiving compartment formed therein that is shaped to loosely cover the glans and body portion of a penis; and
a securing mechanism in connection with said sheath member for securing the sheath about the body portion of the penis during use.

5,803,086
LINERLESS SURGICAL INCISE DRAPE
Matthew T. Scholz, Woodbury, Minn.; Andrew J. Stockholm, Brookings, S. Dak.; Kristen L. Comstock, Minneapolis; John E. Bruno, Lindstrom, both of Minn., and Dietmar Schlei, Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of Ser. No. 724,744, Oct. 2, 1996, abandoned, which is a continuation-in-part of Ser. No. 648,903, May 16, 1996, abandoned. This application Dec. 2, 1996, Ser. No. 759,244
Int. Cl.⁶ A61B 19/00

U.S. Cl. 128—849

24 Claims



1. A surgical incise drape comprising a substantially transparent flexible film which has at least a major portion of one major surface coated with a pressure sensitive adhesive and at least a major portion of the opposite major surface coated with a low adhesion backsize, wherein the drape is rolled around a core so that the surface coated with the pressure sensitive adhesive releasably engages with the low adhesion backsize surface.

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5,803,087

BACKBOARD IMMOBILIZATION DEVICE

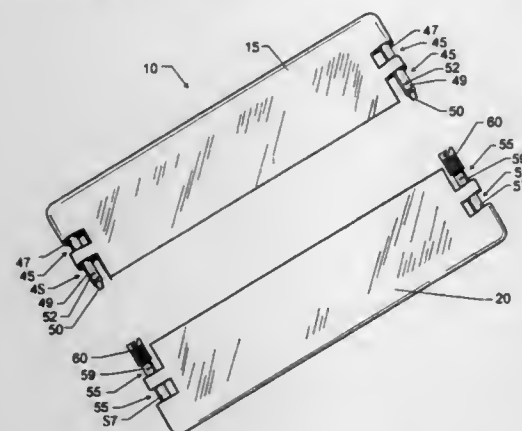
Jason A. Thompson, 7208 Terrell La., Hampton, Va. 23666

Filed Aug. 7, 1997, Ser. No. 908,343

Int. Cl.⁶ A61F 5/37

U.S. Cl. 128—870

8 Claims



1. A backboard immobilization device comprising: first and second complimentary body support panels detachably interconnected at each end by a lock, wherein each lock comprises a first tube and a second tube; the first tube having a first end disposed within the first body support panel and a second end extending therefrom wherein the second end is tapered and has a locking pin; and wherein the second tube has a first end disposed within the second body support panel and a second end extending therefrom wherein the second end has a retracting sleeve wherein the retracting sleeve is slidably connected to the tapered end of the first tube and interlocks with the locking pin on the first tube.

5,803,088

HEEL CUP FOR EXAMINATION TABLE

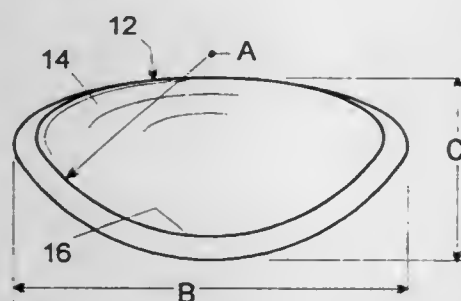
Linda Blackwell, 1025 N. Main St., Cedartown, Ga. 30125

Filed Nov. 25, 1996, Ser. No. 755,950

Int. Cl.⁶ A61F 5/37

U.S. Cl. 128—882

8 Claims



1. A heel cup for a medical examination table, said heel cup supporting a heel of a patient who is lying on said medical examination table, said patient having at least one leg including said heel, and an acetabulum for receiving an end of a bone in said leg, said heel cup comprising a spherically shaped rear portion, the rear end of said heel cup being circular in top plan view and circular in side elevational view for cradling the heel, and a cylindrically shaped forward portion, said rear portion and forward portion being integrally formed, said rear portion being sized to receive the heel of the patient while the foot of the patient extends into said forward portion, said heel cup being oriented with respect to the patient as a minor image of said acetabulum.

5,803,089

POSITION TRACKING AND IMAGING SYSTEM FOR USE IN MEDICAL APPLICATIONS

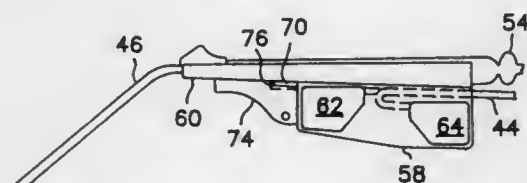
Maurice R. Ferre, North Andover; Peter D. Jakob, Canton, and James S. Tieman, Watertown, all of Mass., assignors to Visualization Technology, Inc., Woburn, Mass.

Continuation-in-part of Ser. No. 306,818, Sep. 15, 1994. This application Sep. 13, 1995, Ser. No. 527,517

Int. Cl.⁶ A61B 19/00

U.S. Cl. 128—897

10 Claims



1. A medical instrument for use in a system for monitoring the position of a medical instrument with respect to a patient during surgery, said medical instrument comprising: receiving means for releasably receiving a removable position detection unit for use in monitoring the position of said medical instrument with respect to a patient during surgery, and identification means for distinguishing said medical instrument from other medical instruments to which said position detection unit may be releasably attached.

5,803,090

Patent Not Issued For This Number

5,803,091

ROLLING METHOD AND A RELATIVE DEVICE FOR FILTER TIPPING MACHINES

Gian Luigi Gherardi, and Fiorenzo Draghetti, both of Medicina, Italy, assignors to G. D. S.P.A., Bologna, Italy

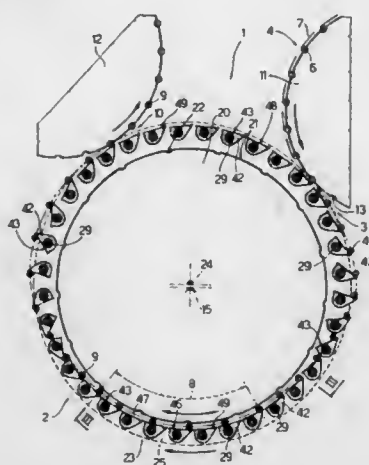
Filed Mar. 17, 1997, Ser. No. 818,430

Claims priority, application Italy, Mar. 15, 1996, BO96A0143

Int. Cl.⁶ A24C 5/10

U.S. Cl. 131—94

16 Claims



1. A rolling method for filter tipping machines, by which to wrap a band of gummed material around a central portion of an assembly, including in addition to the band, two lengths of cigarette rod

and a double length filter interposed between the two rods, in such a way as to obtain a double length filter tipped cigarette, comprising the steps of:

advancing the assembly continuously by use of a conveyor, along a predetermined path, at a first predetermined velocity, between an infed station at which the assembly is taken-up, and an outfeed station at which the double length cigarette is released, and causing the two lengths of cigarette rod and double length of filter of the assembly to roll against a respective band of gummed material, in contact with a rolling element which provides a rolling surface that extends along a rolling let of said path and combines with said conveyor to establish a rolling channel, said rolling element being a rigid element, and said causing includes setting said rigid element in motion along said path in the same direction as said assembly, at a second velocity which is different from zero and greater than said first predetermined velocity.

5,803,092

CUTICLE PUSHER HAVING A CLAMSHELL HEAD

Julie Baltierra, 2243 Pacific Ave., No. 104-A, Costa Mesa, Calif. 92627

Filed Apr. 22, 1997, Ser. No. 840,989

Int. Cl.⁶ A45D 29/00

U.S. Cl. 132—73

7 Claims



1. A cuticle pusher apparatus which reduces risk of injury to a fingernail matrix and comprising: an elongated handle having an end integral to a pusher head, said head having overlapping integral upper and lower members forming a slot between said members for engaging the edge of a cuticle with said lower member beneath said cuticle edge and said upper member limiting the lifting of said cuticle edge.

5,803,093

HAIR/SCALP TREATMENT DEVICE

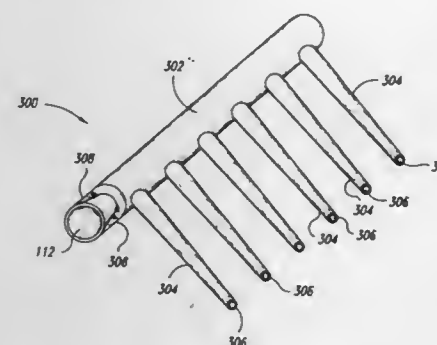
Jason Romano, 309 Classen Dr., Dallas, Tex. 75218

Continuation-in-part of Ser. No. 365,203, Dec. 28, 1994, abandoned. This application May 17, 1995, Ser. No. 442,981

Int. Cl.⁶ A45D 24/22

U.S. Cl. 132—116

11 Claims



1. A hand-held treatment device for distributing a fluid to the roots of a user's hair or scalp, the device comprising:

5,803,094

ARTIFICIAL FINGERNAIL ATTACHMENT AID AND METHOD

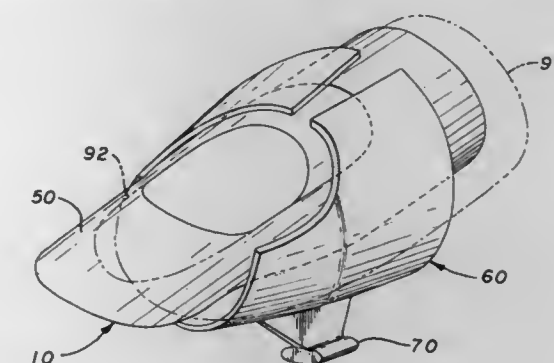
Jeffrey Bruce Becker, Unit 1094 4771 Summit Ridge Dr., Reno, Nev. 89503, and Gregory Pearson Becker, #2, 1032 Tomahawk Trail, Incline Village, Nev. 89451

Filed Sep. 12, 1997, Ser. No. 928,276

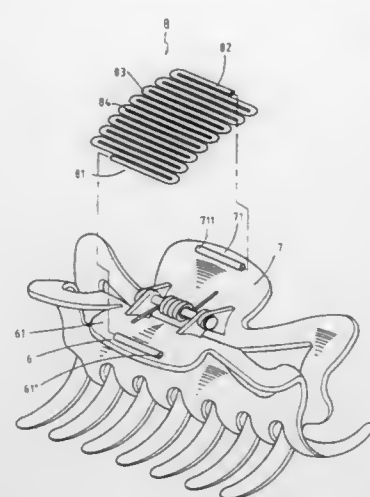
Int. Cl.⁶ A45D 29/00

U.S. Cl. 132—200

13 Claims



1. An artificial fingernail application aid comprising:
a flexible fingernail support shield wrappable around the end of a human finger, the flexible fingernail support shield including a rear edge, a first side edge having a first finger engaging portion and a first fingernail support edge at an angle to the finger engaging portion, and a second side edge having a second finger engaging portion substantially parallel to the first finger engaging portion and a second fingernail support edge disposed at an acute angle relative to the first fingernail support edge, and a generally arcuate tip edge intersecting the first fingernail support edge and the second fingernail support edge, the flexible fingernail support shield defining an fingernail receiving aperture, the aperture defined by a first aperture side edge, a second aperture side edge, a fingernail bed engagement edge and a back edge; and
a substantially conical resilient pinching member having a body defining an expandable slit, the slit expanding to a cut away portion positionable over the fingernail worked on.



5,803,095

PERMANENT WAVE COMPOSITIONS COMPRISING SUBSTANCE P/CGRP ANTAGONISTS

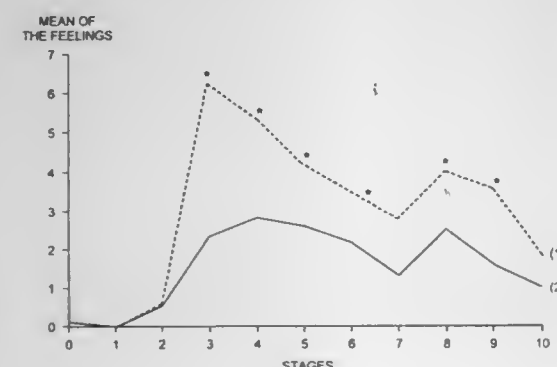
Olivier De Lacharriere, Paris; Geneviève Loussouarn, Clichy, and Lionel Breton, Versailles, all of France, assignors to Société L'Oréal S.A., Paris, France

Filed Oct. 28, 1996, Ser. No. 739,480

Claims priority, application France, Oct. 26, 1995, 95 12654
Int. Cl.⁶ A45D 7/04

U.S. Cl. 132—204

25 Claims



1. A cosmetic composition of matter suited for the permanent deformation of keratinous fibers, comprising at least one reducing agent and/or at least one oxidizing agent other than a peroxide or cresol, at least one of said reducing and/or oxidizing agents normally eliciting a skin irritating side effect, and an effective skin irritant-attenuating/eliminating amount of at least one substance P antagonist and/or at least one CGRP antagonist, in a physiologically acceptable medium therefor.

5,803,096

HAIR CLIP

Ya Chung Lee, No. 42, Lane 3, Li Te 8th Road, Tainan City, Taiwan

Filed Dec. 29, 1997, Ser. No. 998,581

Int. Cl.⁶ A45D 8/20

U.S. Cl. 132—277

2 Claims

1. A hair clip, comprising: two bristle members pivotally connected by a pin, each said bristle member including a grasp section and a bristle section, an elastic member being mounted around the pin to bias the bristle sections of the two bristle members toward each other, and a flexible connecting member being interconnected

between the grasp sections of the bristle members and having a section which is stretchable to form an opening through which the elastic member is passable.

5,803,097

SINGLE-DOSE COSMETIC ELEMENT

Jean-Louis Gueret, Paris, France, assignor to L'Oréal, Paris, France

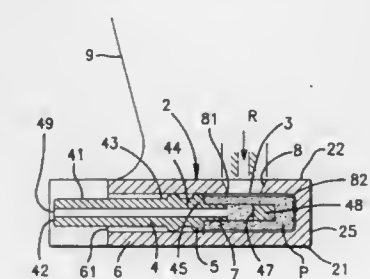
Filed Aug. 10, 1995, Ser. No. 513,591

Claims priority, application France, Aug. 30, 1994, 94-10429

Int. Cl.⁶ A45D 40/24

U.S. Cl. 132—318

19 Claims



1. A cosmetic tester comprising a container having therein a product of generally pasty or solid consistency, and an applicator: said container being generally a parallelepiped and comprising a housing holding said product and a lengthwise cavity for receiving said applicator, said cavity having an applicator-insertion passageway leading to said housing, said housing comprising a filling-opening for introducing said product into said housing, said filling-opening being separate from said applicator-insertion passage way and having an axis generally perpendicular to an orientation of said applicator-insertion passageway; and said applicator having a portion fitting sealingly into said applicator-insertion passageway to close said housing when said applicator is inserted into said cavity, said portion of said applicator comprising grasping means extending in said housing embedded in said product.

5,803,098

VEHICLE WASHING INSTALLATION

Wolfgang Decker, Zusmarshausen-Wollbach, Germany, assignor to Wesumat Fahrzeugwaschanlagen GmbH, Augsburg, Germany

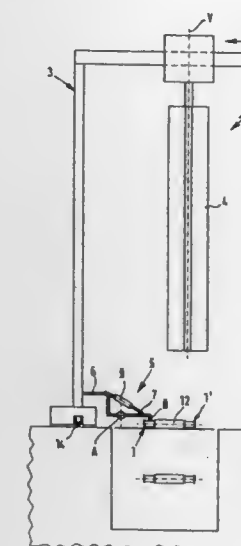
Filed Aug. 1, 1997, Ser. No. 904,973

Claims priority, application Germany, Aug. 21, 1996, 196 33 673.2

Int. Cl.⁶ B08B 1/02

U.S. Cl. 134—56 R

4 Claims



1. A vehicle washing installation with at least one endless conveyor chain provided for moving the vehicle through the installation and which is in the form of a sprocket chain and whose side plates are connected together by chain studs arranged at equal distances from one another, a plurality of treatment units arranged along the path of movement of the vehicle for washing or drying the vehicle, of which at least one is mounted in a carrier adapted to move forwards synchronously with the vehicle over a path section and to be moved back to its starting position by means of a restoring device, and a coupling device provided on the carrier, with a coupling member movable transverse to the chain stud axes and perpendicular to the longitudinal direction of the chain, which can be brought into direct engagement with the conveyor chain for the forward movement of the carrier, characterized in that the coupling member (8) is of comb-like form and comprises a plurality of teeth (8a) arranged at a distance (b) from one another by in the longitudinal direction of the chain (L), with gaps (8b) therebetween, in that the pitch (t1) of the gaps (8b) is an integral fraction of the pitch (t) of the chain studs (10) and in that the gap width (b) in the longitudinal direction of the chain (L) is somewhat greater than the diameter (d) of the chain studs (10) or sleeves surrounding these.

5,803,099

ULTRASONIC CLEANING MACHINE

Shinichi Sakuta; Genzi Mori, both of Kobe; Toyoki Sasakura, Ashiya, and Yukio Morimoto, Kobe, all of Japan, assignors to Matsumura Oil Research Corp., and Furuno Electric Co., Ltd., both of Nishinomiya, Japan

Filed Nov. 14, 1995, Ser. No. 557,633

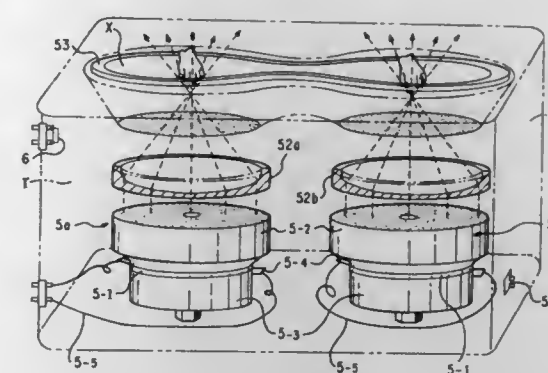
Claims priority, application Japan, Nov. 14, 1994, 6-279480

Int. Cl.⁶ B08B 3/10

U.S. Cl. 134—56 R

4 Claims

4. An ultrasonic cleaning machine comprising:
an external tank holding an insulating oil;
a cleaning vessel holding a cleaning liquid, said cleaning vessel being partially submerged in the insulating oil; an ultrasonic



transmitting and converging device immersed in the insulating oil and focusing ultrasonic waves to converge within the cleaning liquid;
a pair of signal generators for generating signals of two different frequencies which are used to control output power radiated by said ultrasonic transmitting and converging device;
a temperature sensor for sensing a temperature of the insulating oils; and
means for controlling the signals of the two different frequencies for driving said ultrasonic transmitting and converging device such that said two different frequencies are alternately chosen based on a duty ratio set in accordance with said oil temperature to provide a constant cleaning effect regardless of oil temperature variations.

5,803,100

SOIL SEPARATION CHANNEL FOR DISHWASHER PUMP SYSTEM

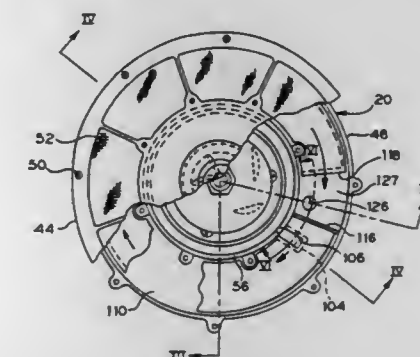
Edward L. Thies, Tipp City, Ohio, assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Aug. 8, 1996, Ser. No. 694,216

Int. Cl.⁶ B08B 3/02

U.S. Cl. 134—104.4

11 Claims



8. A dishwasher soil separator comprising:
a rotating wash impeller;
a circular surrounding wall;
an outlet water conduit receiving water flow from said rotating impellers soil/water flow channel receiving water with entrained soil from adjacent said surrounding wall;
a soil screening channel with a soil/water inlet end having an end wall and outlet end having a discharge opening, and having a screen element on a top side thereof for passing water therethrough while retaining soil below, said screening channel surrounding said surrounding wall, said soil/water flow channel flow connected to said inlet end of said screening channel; and
a soil accumulator sump flow connected to said outlet end of said screening channel; and
means for draining soil from said accumulator sump.

5,803,101

PORTABLE DRAIN CLEANING APPARATUS

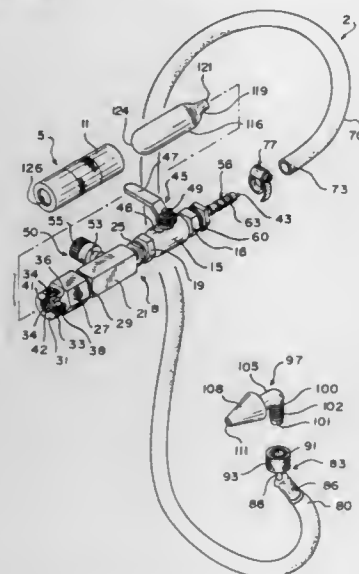
Charles V. Gallo, Blacksburg, Va., assignor to CDC Products, Inc., Blacksburg, Va.

Filed Sep. 11, 1996, Ser. No. 712,192

Int. Cl.⁶ B08B 9/02; 5/00

U.S. Cl. 134—166 C

20 Claims



1. A portable drain cleaning apparatus comprising:
- a control housing adapted to be grasped by and held in a user's hand, said control housing being provided with a fluid passage therein;
 - a release valve member disposed, at least in part, within said passage, said release valve member being movable between at least a first position wherein said release valve member prevents fluid from flowing within said passage and a second position wherein fluid is permitted to flow therein;
 - a flexible, tubular member having first and second end portions, the first end portion of said tubular member being attached to said control housing, downstream of said release valve member, with an interior of said tubular member opening into said fluid passage;
 - a terminal discharge member provided at the second end portion of said tubular member, said terminal discharge member being adapted to be sealingly engaged with an open end of a drain conduit and including an outlet opening in fluid communication with said fluid passage through said tubular member; and
 - means for pressurizing said fluid passage upstream of said release valve member, said pressurizing means including a miniature cartridge, sized to substantially fit in the palm of a hand, that is pre-charged with a gaseous medium, wherein placement of said terminal discharge member at the open end of a drain conduit and shifting of said release valve member from said first position to said second position causes pressurized fluid in said fluid passage to flow through said tubular member and into the drain conduit in order to clean the drain conduit.

5,803,102

PROTECTING STRUCTURE OF CONTROL MEMBERS OF A FOLDED UMBRELLA

Chin-Sung Ko, 27-1, Lane 188, Sec. 3, Chin Mar Road, Changhua City, Taiwan

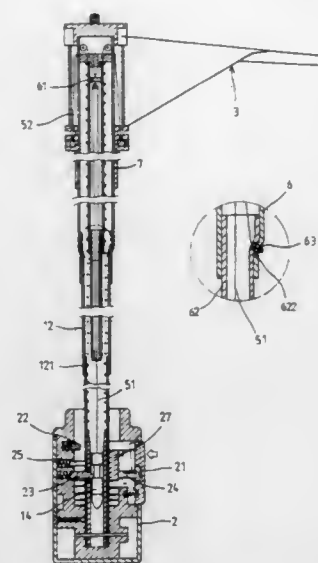
Filed Sep. 9, 1997, Ser. No. 926,004

Int. Cl.⁶ A45B 25/14

U.S. Cl. 135—24

2 Claims

1. A protecting structure of control members of a folded umbrella being composed of a shaft having an outer tube, a middle



tube, and an inner tube, a handle, a rib frame, and an inner spring set, and utilizing a button of the handle to control an engagement or a disengagement of a pair of control members with a retaining piece for an opening or a closing of the umbrella, and characterized in that:

- An inner sleeve within the shaft being provided with an upper fixed member and a slidable tube, and an axis formed in the fixed member and an arched groove formed on one side of the tube placed in the sleeve;
- A long control cord having its inner end connecting with the retaining piece and the other end upwardly extending to turn around the axis of the fixed member and then downward inserting into the sleeve and the tube and passing through a hole at top of the arched groove and a connecting hole of the sleeve for a combination; and
- A pair of short control cords having their inner ends connecting with the fixed member and their outer ends extending directly outwardly from the top of the shaft and extending to the opposed sides of the runner.

5,803,103

WALKER

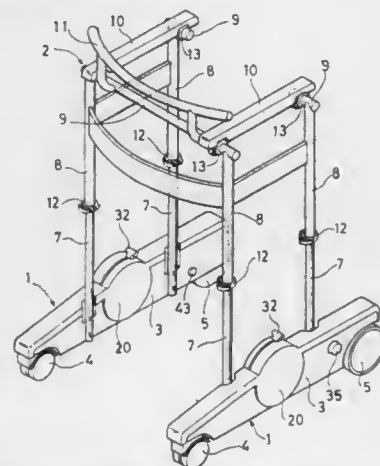
Mitsuru Haruyama, Osaka, Japan, assignor to Handi Network International Co., Ltd., Osaka, and Remotex Corporation, Tokyo, both of Japan

Filed Jun. 23, 1997, Ser. No. 880,642

Int. Cl.⁶ A01H 3/00

U.S. Cl. 135—67

7 Claims



1. A walker comprising a pair of leg members each having a front wheel pivotable about a vertical shaft, a rear wheel and a pair

5,803,105

SYSTEMS AND METHODS FOR DISTRIBUTING FLUIDS

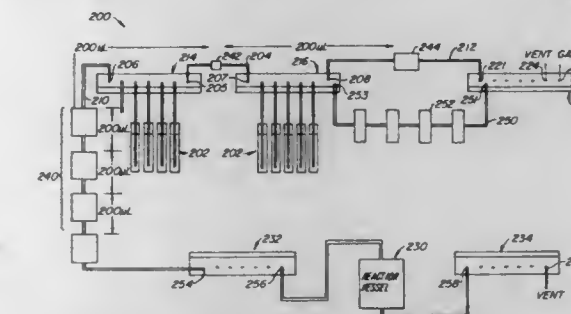
Jim Wasson, Los Altos; Steve Miller, Palo Alto; Peter Wright, Livermore, and Daniel M. Bernstein, Redwood City, all of Calif., assignors to Argonaut Technologies, Inc., San Carlos, Calif.

Division of Ser. No. 560,728, Nov. 20, 1995. This application Feb. 21, 1997, Ser. No. 804,708

Int. Cl.⁶ F16K 11/24

U.S. Cl. 137—1

9 Claims



1. A method for metering a predetermined quantity of fluid from a plurality of fluid sources to one or more receiving vessels comprising:
- providing an elongate body member defining a surface with multiple openings spaced at intervals along the body member and a plurality of separate conduits each communicating one of the fluid sources with one of the openings in the surface;
 - supplying fluid from at least one of the fluid sources through at least one of the openings in the body member surface to a common passage within the body member;
 - directing the fluid in at least two directions through the common passage and through first and second outlets positioned at opposite ends of the multiple openings to first and second measuring passages; and
 - detecting when the volume of fluid within the common passage and the first and second measuring passages is substantially equivalent to the predetermined quantity of fluid.

5,803,106

ULTRASONIC APPARATUS AND METHOD FOR INCREASING THE FLOW RATE OF A LIQUID THROUGH AN ORIFICE

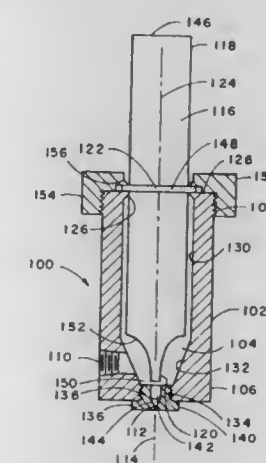
Bernard Cohen, Berkeley Lake; Lee Kirby Jameson, Roswell, and Lamar Heath Gipson, Acworth, all of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Dec. 21, 1995, Ser. No. 576,174

Int. Cl.⁶ G05D 7/00

U.S. Cl. 137—13

32 Claims



1. An apparatus for increasing the flow rate of pressurized liquid through an orifice, the apparatus comprising:

of legs, and a support member detachably mounted on said leg members and having a pair of armrests and a support rod provided at one end thereof and extending in a width direction, wherein said support member can be raised and lowered relative to said leg members and can be turned 180° so that its front and back are reversed relative to said leg members and the distance between said armrests is adjustable.

5,803,104

BIMINI COVER FOR A DECK OF A WATER CRAFT

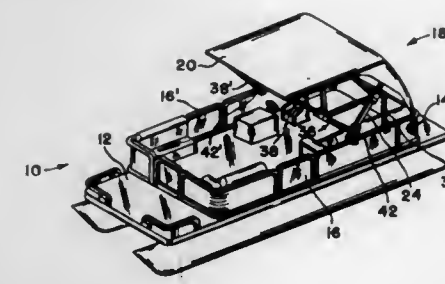
Randall Paul Pollen, 1237 E. 900 N., Milford, Ind. 46542

Filed Dec. 28, 1996, Ser. No. 785,812

Int. Cl.⁶ B63B 17/00; E04H 15/06

U.S. Cl. 135—96

9 Claims



1. A bimini cover for the deck of a water-craft comprising:
- a first end frame having a unitary structure, said first end frame having parallel first and second legs connected by a first cross-over member, said first and second legs each having ends fixed to said deck;
 - a first support member fixed to said deck and to said first leg of said first end frame to define a first triangular member with said first leg and deck such that said first support member is positioned in a fixed vertical position substantially perpendicular to said deck;
 - a second support member fixed to said deck and to said second leg of said first end frame to define a second triangular member with said second leg and deck such that said second support member is positioned in a fixed vertical position substantially perpendicular to said deck;
 - a second end frame having a unitary structure, said second end frame having parallel third and fourth legs connected by a second cross-over member, said third and fourth legs being pivotally connected to said first end frame adjacent the first end of said first and second legs;
 - a canopy secured to said first and second cross-over members of said first and second end frames;
 - a first strut member connected to said first leg and selectively joined to said third leg member to define a substantially third triangular member with said first leg and third leg; and
 - a second strut member connected to second leg and selectively joined to said fourth leg member to define a substantially fourth triangular member with said second leg and fourth leg, said first and second strut members being adjustable after being joined with said third and fourth legs, respectively, to hold said second end frame at a desired arcuate distance from said first end frame to maintain a predetermined torque on said canopy, said first, second, third and fourth triangular members substantially directing any forces applied to said canopy directly into said deck without distorting said first end frame.

a die housing defining:

- a chamber adapted to receive a pressurized liquid;
- an inlet in communication with said chamber and adapted to supply the chamber with the pressurized liquid; and
- an exit orifice in communication with said chamber and defined by the walls of a die tip, the exit orifice being adapted to receive the pressurized liquid from the chamber and pass the liquid out of the die housing; and
- a means for applying ultrasonic energy to a portion of the pressurized liquid within the chamber without applying ultrasonic energy to the die tip, wherein the means for applying ultrasonic energy is located within the chamber, wherein the flow rate of the pressurized liquid is at least about 25 percent greater than the flow rate of an identical pressurized liquid out of an identical die housing through an identical exit orifice in the absence of excitation by ultrasonic energy.

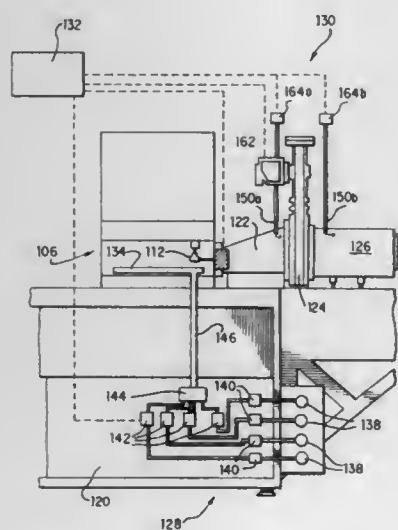
5,803,107

METHOD AND APPARATUS FOR PRESSURE CONTROL IN VACUUM PROCESSORS

Farro Frank Kaveh, Mountain View; Michael S. Barnes, San Francisco; Brett C. Richardson, San Ramon, and Christopher H. Olson, El Dorado, all of Calif., assignors to Lam Research Corporation, Fremont, Calif.

Filed Mar. 29, 1996, Ser. No. 627,711
Int. Cl.⁶ F17D 1/16; 1/18; F16K 17/34
U.S. Cl. 137-14

9 Claims



5. In a process for fabricating semiconductor materials in an evacuated process chamber, a process for transitioning to a set point pressure level for the process chamber and a set point flow rate for at least one process gas introduced into the process chamber, the method for transitioning comprising the steps of:
 - introducing the process gas into the process chamber at a first predetermined flow rate, the first predetermined flow rate being substantially higher than the set point flow rate;
 - maintaining for a predetermined time period the flow rate of the process gas into the process chamber at the first predetermined flow rate such that the pressure in the process chamber is increased from an initial pressure level to a pressure substantially equal to the set point pressure, the set point pressure level being substantially higher than the initial pressure level; and
 - decreasing the flow rate of the process gas into the process chamber from the first predetermined flow rate to the set point flow rate upon expiration of the predetermined time period.

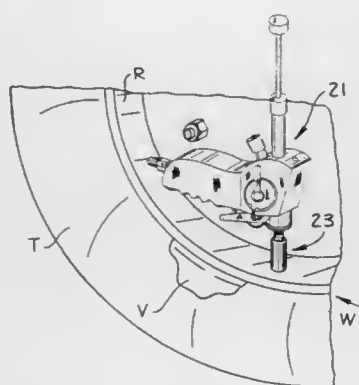
5,803,108

TOOL AND METHOD FOR INSERTING A FILTER ELEMENT INTO THE VALVE STEM OF A WHEEL ASSEMBLY

Warren E. Schuessler, Jr., Florissant; Ray G. Buckles; Efim V. Sulpoar, both of St. Louis, and Steven J. Nagel, Creve Coeur, all of Mo., assignors to International Marketing, Inc., Chambersburg, Pa.

Filed Dec. 9, 1996, Ser. No. 762,502
Int. Cl.⁶ F16K 43/00; 51/00; B60C 29/04
U.S. Cl. 137-15

30 Claims



21. A method for inhibiting the escape of particulate matter through a valve assembly of a pneumatic wheel assembly, said wheel assembly defining an enclosed interior volume for holding fluid under pressure, said valve assembly comprising a valve stem having a passage therethrough for permitting fluid under pressure to be introduced into said interior volume, said passage having an inlet end accessible from outside the wheel assembly and an outlet end adjacent said interior volume, said method comprising the steps of:

inserting a filter element in the valve stem passage while the valve stem is connected to the wheel assembly, said filter element being configured to substantially prevent the passage of particulate matter while allowing the passage of pressurized fluid; and

installing a sealing valve in the valve stem passage after insertion of the filter element, the sealing valve being movable between an open position for allowing pressurized fluid to flow through said passage and a closed sealing position, the sealing valve being positioned between the inlet end of the passage and the filter whereby the filter functions to substantially prevent particulate matter from inside the interior volume of the wheel assembly from interfering with the sealing closure of the sealing valve.

5,803,109

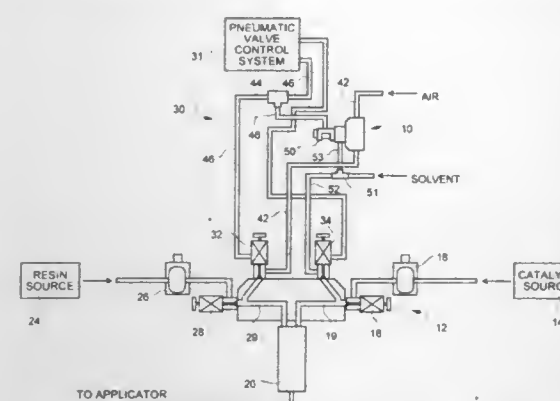
SOLVENT AND AIR MIXING SYSTEM

Paul W. Rosen, 2201 78th Ave., Elmwood Park, Ill. 60707

Filed Apr. 8, 1997, Ser. No. 832,194
Int. Cl.⁶ B08B 3/04; 5/00; 9/02
U.S. Cl. 137-15

11 Claims

9. A method for cleaning one side of a two liquid component mixing system or a paint color changing system with an air and solvent purging/cleaning system, said method including the steps of: (a) supplying purging air through an air purge line to at least one valve and line for cleaning same; (b) adding a small amount of solvent to said air purge line and (c) cleaning the lines and valves



for the one liquid component with air combined with a small amount of solvent.

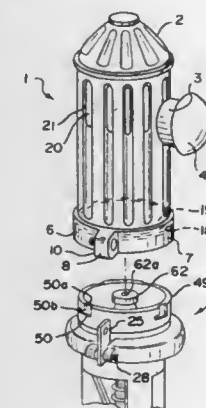
5,803,110

FIRE HYDRANT ASSEMBLY

Milton Segal, 1919 Chestnut St.-Apt. 1924, Philadelphia, Pa. 19103

Filed Nov. 24, 1997, Ser. No. 976,609
Int. Cl.⁶ F16K 17/40; 43/00
U.S. Cl. 137-68.14

6 Claims



1. A fire hydrant comprising a lower fixed hydrant assembly and a variable upper portion and means connecting said upper variable portion to said lower fixed hydrant assembly, said lower fixed hydrant assembly being substantially mounted in the ground and said variable upper portion being above ground, said lower fixed hydrant assembly including a basket housing having an upper extension and having an upper end and a lower end, a water inlet valve seated in said lower end having means for urging said valve to a normally closed position, said means comprising a first operating rod disposed in said lower hydrant assembly, one end of said rod being engaged with said valve, another end extending to said upper extension, means for supporting said rod for axial movement between a first position when said valve is opened and a second position when said valve is closed, said variable upper portion comprising a simulated fire hydrant of resilient plastic mounted to said lower fixed hydrant assembly under normal conditions and a light weight metal portable fire hydrant mounted to said lower fixed hydrant in the event of a fire, said simulated fire hydrant having a base, a circular rim adhesively attached around said base, a solid circular plate fastened within said rim, said plate extending to an inner periphery of said simulated fire hydrant and sealing said simulated fire hydrant from said lower hydrant assembly, said means for connecting said simulated fire hydrant to said lower fire hydrant assembly including a segmented breaking collar having housings aligned at ends of segments of said collar and extending outwardly therefrom, said housings including threaded openings in said housings, a rectangular plate having a lower and upper spaced threaded aperture, said lower aperture being aligned with said

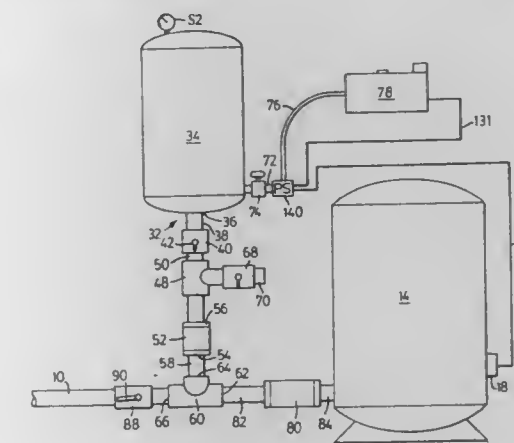
5,803,111

DEVICE FOR PURGING WATER SUPPLY LINE

Adam Soszka, 79 Yorkview Drive, Etobicoke, Ontario, Canada, M9Z 2G3

Filed Jun. 6, 1997, Ser. No. 870,984
Claims priority, application Canada, Jan. 31, 1997, 2196486
Int. Cl.⁶ F16K 24/00
U.S. Cl. 137-207.5

20 Claims



1. A water supply system for use with a pump and suitable for winter weather conditions comprising:
 - a water supply line connectible to a pump;
 - a line connector with first and second water outlets and a water inlet, the latter connectible to said supply line;
 - a one-way check valve operably connected to said first outlet and connectible to a pressure tank for supplying water, said check valve permitting water to flow in one direction only into said pressure tank;
 - an air tank capable of holding a supply of air under pressure and having an air inlet; and
 - line and valve means connecting said air tank to said line connector, said line and valve means including an air bleeder valve arrangement for permitting air to escape from said supply line upon operation of said pump and for permitting air back into said line when said pump shuts off and a further valve arranged between said air bleeder valve arrangement and said air inlet and movable between an open position in which air can flow into or out of said air tank and a closed position in which pressurized air is unable to flow out of said air tank;
- wherein said air bleeder valve arrangement has an open position where air from said supply line can escape to atmosphere upon operation of said pump and a closed position in which air from said supply line can pass into said air tank and pressurize same upon operation of said pump.

5,803,112

REFLUX VALVE MEANS

Lars Andersson, Täby, Sweden, assignor to AB Durgo, Solna, Sweden

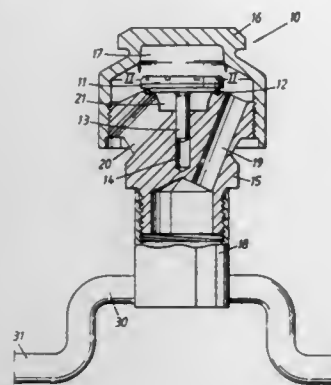
Filed Jun. 20, 1996, Ser. No. 667,851

Claims priority, application Sweden, Jun. 22, 1995, 9502279

Int. Cl.⁶ F16K 24/00

U.S. Cl. 137—217

6 Claims



1. A reflux valve means for installation in a fluid conduit that has a fluid outflow end, wherein said valve means includes a vacuum valve intended for connection to a conduit branch substantially near a top part of the conduit upstream of its outlet end, said valve including a valve housing having a passageway which establishes communication between atmosphere surrounding the valve and the conduit branch, said passageway having a valve seat and a valve plate which can be moved into and out of sealing contact with said seat under the influence of a pressure which is higher and lower, respectively, in said conduit than atmospheric pressure, said valve plate of said vacuum valve being constructed for elastic deformation forward and away from a generally cupped shape in the closed state of the valve under the influence of pressure variations that normally occur in a fluid conducted in said conduit branch, said valve plate being provided on a surface thereof that lies proximal to the branch conduit with radial grooves which define flexing or bending regions for facilitating deformation of said valve plate into and out of said cupped-shape.

5,803,113

Patent Not Issued For This Number

5,803,114

BACK JET FLUSH TOILET SYSTEMS AND METHODS
Dwight N. Johnson, Carlsbad, Calif., assignor to American Standard Inc., Piscataway, N.J.

Division of Ser. No. 279,637, Jul. 25, 1994, Pat. No. 5,515,556.

This application Mar. 8, 1996, Ser. No. 612,649

Int. Cl.⁶ F16K 31/22; 33/00; E03D 11/02

U.S. Cl. 137—404

5 Claims

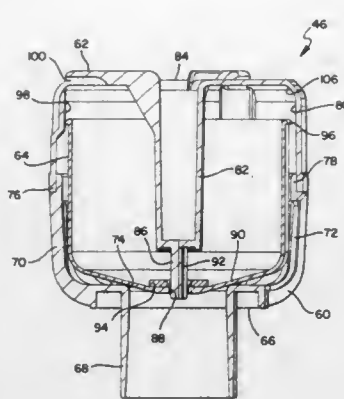
1. A valve assembly for providing a timed valve open operation, said valve assembly comprising:

a housing;

a valve seat in said housing defining an outlet;

float captured in said housing for movement between a lower, closed position in which said float closes said valve seat and an upper, open position in which said float opens said valve seat;

a first restricted flow path which allows water to enter said float for displacing air in said float with a metered flow of water in order to move said float from said open position to said closed position a predetermined time after said housing is filled with water;



a second flow path for draining water from said float after said housing is emptied of water in order to prepare said float to move from said closed position to said open position when said housing is filled with water; and
a third flow path defined intermediate said float and said valve seat for providing flow through said valve seat and out of said housing when said float is in said open position.

5,803,115

VALVE FOR RELIEVING PRESSURE AND VACUUM CONDITIONS IN A TANK

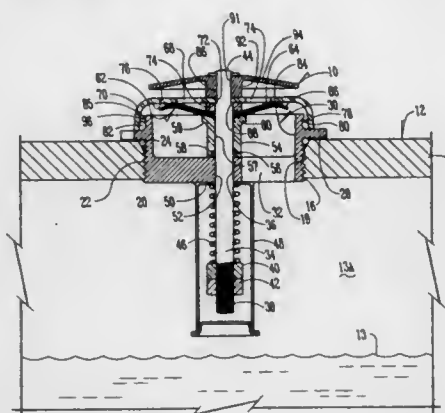
Mark W. Vertanen; David D. Riley, and Matthew T. Higgins, all of Creston, Iowa, assignors to Gits Manufacturing Company, Creston, Iowa

Filed Aug. 26, 1997, Ser. No. 918,366

Int. Cl.⁶ F16K 17/26

U.S. Cl. 137—493.9

21 Claims



18. A method of relieving pressure through a valve having a body member with an O-ring rollably disposed in a groove thereon, the valve further including a cover member movably mounted on the body member and biased into sealing engagement with the O-ring in a tank, comprising:

moving the cover member with respect to the body member when the pressure in the tank acting on the cover member exceeds the biasing force so that the O-ring rolls in the groove until the O-ring abuts a shoulder at an end of the groove;

continuing to move the cover member so as to slide past the O-ring and thereby open a relief passage between the cover member and the O-ring.

5,803,116

Patent Not Issued For This Number

5,803,117

MULTI-ROUTE FULL SWEEP SELECTION VALVE

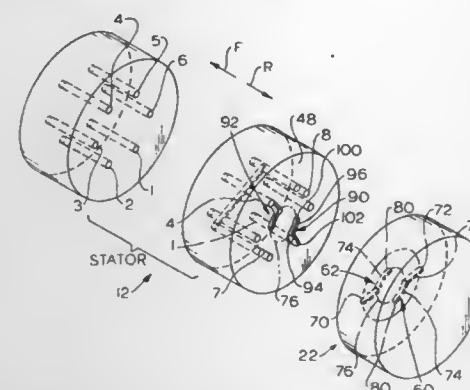
Kristine Olsen, Occidental, and Brian Hauck, Santa Rosa, both of Calif., assignors to Rheodyne, L.P., Cotati, Calif.

Filed Jun. 10, 1996, Ser. No. 660,872

Int. Cl.⁶ F16K 11/074

U.S. Cl. 137—625.15

7 Claims



1. A selection valve which includes a stator and which includes a rotor that is pivotally mounted about a pivot axis with respect to said stator to pivot between each of a plurality of rotor positions, wherein said stator has a plurality of largely axially-extending ports and wherein said rotor has a plurality of rotor channels at the rotor-stator interface, wherein:

said stator has a plurality of stator channels at said rotor-stator interface, with each of said stator channels connected to one of said ports;

said rotor channels and said stator channels each have arc grooves extending substantially circumferentially about said pivot axis, with the arc groove of a first of said rotor channels overlapping the arc groove of a first of said stator channels in each of a first plurality of said rotor positions.

5,803,118

METERED FEED VALVE

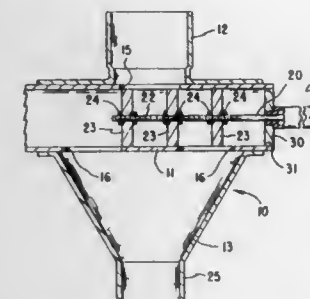
Eugene E. Van Bruggen, 4311 330th St., Sheldon, Iowa 51201

Filed May 20, 1997, Ser. No. 859,383

Int. Cl.⁶ F16K 11/065

U.S. Cl. 137—625.34

7 Claims



1. A valve device for regulating the value of flow of a granular material, said valve comprised of a housing, a tubular channel formed laterally of said housing, an inlet in said housing having a passageway into said channel, at least two outlets formed in said channel, said outlets being axially spaced apart, and control means forming chambers in said channel for delivering said granular material from said inlet alternately to said outlets.

5,803,119

FLUID FLOW CONTROL DEVICE

Joseph H. Steinke, Mission Viejo, Calif., assignor to Control Components Inc., Rancho Santa Margarita, Calif.

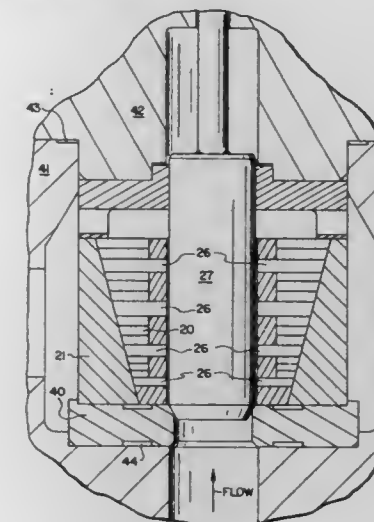
Continuation-in-part of Ser. No. 598,004, Feb. 7, 1996, abandoned. This application Aug. 21, 1997, Ser. No. 915,902

Claims priority, application United Kingdom, Feb. 8, 1995, 9502445

Int. Cl.⁶ F16K 47/00

U.S. Cl. 137—625.37

7 Claims



1. A fluid flow control device comprising a plug and cylinder arrangement, the cylinder being annular and the plug being cylindrical and moveable axially within said cylinder.

a fluid inlet co-operating with one end of said cylinder,

a fluid outlet co-operating with the other end of said cylinder,

a fluid flow path extending axially through the plug and cylinder arrangement and having a path entry of variable area, said cylinder comprising an inner annulus and an outer annulus, the inner annulus being a sealing fit inside the outer annulus, the fluid flow path being provided as passageways formed as axially-extending channels in the outer surface of said inner annulus, said passageways communicating at a plurality of openings along their length with the interior of said inner annulus, said fluid flow path having a plurality of circumferentially extending angular turns, and

operating means for axially moving the plug relative to the cylinder, the arrangement being such that as the plug is moved axially the length of the fluid flow path is varied.

5,803,120

FAUCETS FOR SANITARY FIXTURES WITH INTERCHANGEABLE DECORATIVE ELEMENTS

Franco Bertoli, Milan, Italy, assignor to American Standard Inc., Piscataway, N.J.

Filed Jan. 22, 1996, Ser. No. 589,225

Claims priority, application Italy, Jan. 24, 1995, RE954003 U

Int. Cl.⁶ F16L 5/00

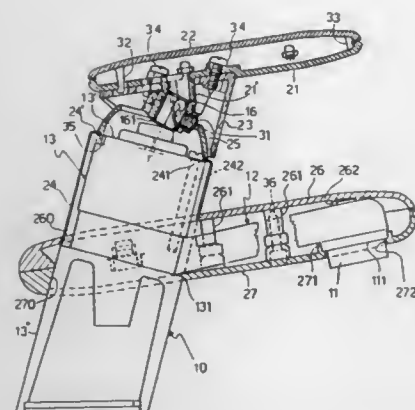
U.S. Cl. 137—801

6 Claims

1. A faucet for sanitary fixtures with interchangeable decorative elements to define the external appearance of the faucet, comprising:

an externally unfinished hydraulic apparatus including at least one water delivery conduit and a water regulation means having a control stem;

a plurality of sheathing elements for covering said hydraulic apparatus, said sheathing elements defining said external appearance of said faucet, said sheathing elements including mating pairs of reciprocally assembled complementary concave shells which together form a handle to move said control



stem and for covering the water delivery conduit, said sheathing elements also including at least one tubular shell for covering said control stem; and, connecting means for fastening said sheathing elements to said hydraulic apparatus.

5,803,121

AIR BAG VENTING SYSTEM

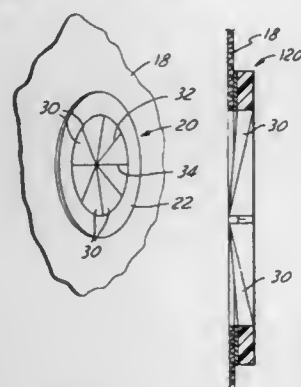
Judson B. Estes, Milford, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Filed Apr. 17, 1997, Ser. No. 839,832

Int. Cl.⁶ F16K 15/14

U.S. Cl. 137—849

9 Claims



1. A valve for controlling a port in an air bag of an automotive vehicle, said valve comprising a disk secured to the air bag over the port therein, said disk having a plurality of valve elements arranged side-by-side and each having opposite side edges, said valve elements in one position thereof having the side edges of adjacent valve elements in contact with one another to substantially prevent flow of air but being movable away from one another by pressure of air in the bag to positions permitting the flow of air out of the bag.

said valve elements being disposed in a circular array, each valve element being in the form of a generally wedge-shaped leaf with the side edges thereof tapering radially inwardly to a point at the center of the array.

5,803,122

RECIPROCATING PUMP VALVE

Thomas Theilmeyer, 140 Kingsland St., Nutley, N.J. 07110

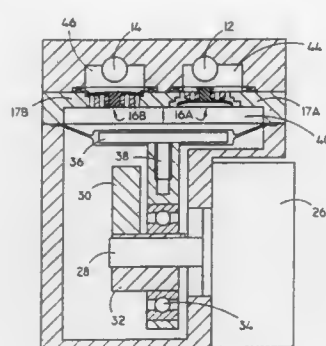
Filed Feb. 14, 1997, Ser. No. 799,245

Int. Cl.⁶ F16K 15/14

U.S. Cl. 137—854

25 Claims

1. A diaphragm valve for a high speed reciprocating pump, said valve adapted to allow a fluid to flow through said valve in only a downstream direction, said valve comprising:



a valve seat having an upstream and a downstream side, said valve seat having a valve face indented into said valve seat and surrounded by a rim, at least a portion of said valve face extending into said valve seat at an angle such that said valve face is indented into said valve seat to maximum extent adjacent said rim;

at least one channel defined by said valve seat, said at least one channel intersecting said valve face; and

a diaphragm disposed in said valve seat having an upstream surface facing said valve face, said diaphragm being formed in a generally planar shape, said diaphragm movable between an open and a closed position, said diaphragm fluidly sealed against said rim when said diaphragm is in the closed position, said rim disposed in said valve seat such that said diaphragm is bowed from said generally planar shape and biased towards the closed position.

5,803,123

MOUNTING SYSTEM FOR PRESSURE TRANSMITTERS

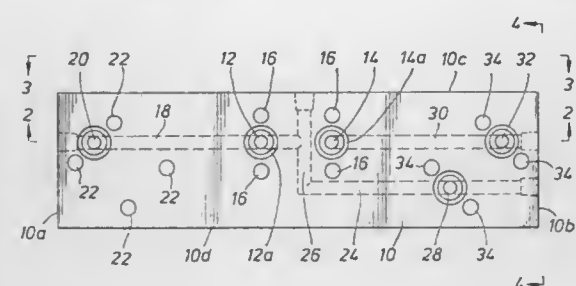
Joel David Bell, Katy, and Alan Fu Chou, Sugar Land, both of Tex., assignors to Keystone International Holdings Corp., Houston, Tex.

Continuation of Ser. No. 253,764, Jun. 3, 1994, Pat. No. 5,494,071. This application Aug. 2, 1995, Ser. No. 510,361

Int. Cl.⁶ F16K 11/00

U.S. Cl. 137—884

6 Claims



5,803,127

COAXIAL PIPING SYSTEMS

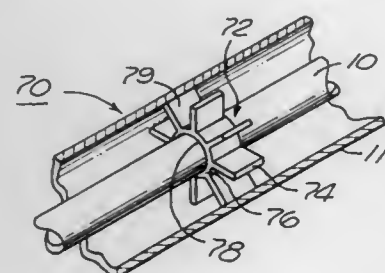
Robert L. Rains, Oxnard, Calif., assignor to R & R Precision Corp., Oxnard, Calif.

Continuation of Ser. No. 625,924, Apr. 1, 1996, abandoned, which is a continuation of Ser. No. 335,662, Nov. 8, 1994, abandoned, which is a continuation of Ser. No. 33,247, Mar. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 901,536, Jun. 19, 1992, abandoned, which is a continuation of Ser. No. 122,537, Nov. 12, 1987, Pat. No. 5,127,441, which is a continuation of Ser. No. 937,441, Dec. 3, 1986, abandoned, which is a continuation of Ser. No. 809,584, Dec. 16, 1985, abandoned. This application Nov. 27, 1996, Ser. No. 758,215

Int. Cl.⁶ F16L 9/18

U.S. Cl. 138—113

9 Claims



1. A piping system for transporting a hazardous material, for containing leaks of said hazardous material and for flushing said system of the leaks of hazardous material comprising:

an outer conduit having a longitudinal center axis, said outer conduit for containing the leaks;

an inner conduit having a longitudinal center axis, said inner conduit positioned within said outer conduit, wherein said longitudinal center axis of said inner conduit is coincident with said longitudinal center axis of said outer conduit, said inner conduit further being adapted to transport the hazardous material;

a spacer separating said inner conduit from said outer conduit, said spacer having a cross section, said cross section axisymmetric with respect to said longitudinal center axis of said inner conduit and said outer conduit, said spacer further having an inner conduit support means for supporting said inner conduit and an outer surface spacer means for holding said inner conduit away from said outer conduit, and said spacer further defining at least one pathway for providing fluid communication through; and,

a purging fluid disposed in a volume between the inner conduit and the outer conduit, the volume defined by the inner conduit, the outer conduit and the spacer, for mixing with and dispersing any leaking said hazardous material present in said volume.

5,803,128

BRAIDED CONDUIT AND METHOD OF MAKING A BRAIDED CONDUIT

Edward A. Reed, Waco, Tex., assignor to Packless Metal Hose, Inc., Waco, Tex.

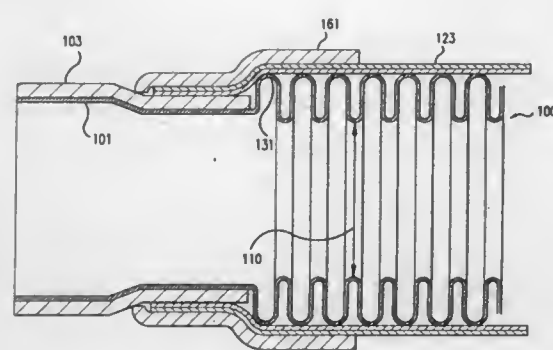
Continuation-in-part of Ser. No. 236,217, Apr. 28, 1994. This application Sep. 25, 1995, Ser. No. 533,431

Int. Cl.⁶ F16L 33/26

U.S. Cl. 138—123

67 Claims

32. A convoluted conduit covered with a braid, comprising:



a section of convoluted conduit comprising convolutions, a substantially unconvoluted end section, and a convolution proximate the end section;

an end conduit substantially surrounding at least a portion of an outer surface of the end section;

a braid covering at least a portion of the convoluted conduit and at least a portion of the end conduit;

additional material covering a portion of the braid; and wherein at least a portion of additional material is formed onto a portion of the braid in a cold formed connection such that (a)

a portion of the braid is held by friction between an outer surface of the end conduit and at least a portion of the additional material, (b) a portion of the braid is held by friction between an outer surface of a convolution proximate the end section and at least a portion of the additional material, and (c) the convolutions of the convoluted conduit are not substantially deformed.

5,803,129

REINFORCED HOSE

Eduardo Quintanilla Coronado, and Jesus Coronado Hinojosa, both of Via Flaminia # 307 Ote., Garza García, N.L., Mexico, 66220

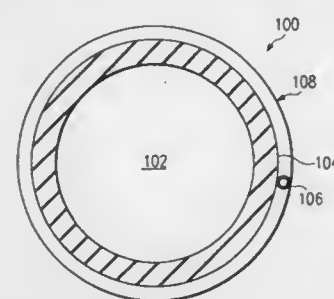
Filed Apr. 3, 1996, Ser. No. 626,801

Claims priority, application Mexico, Sep. 28, 1995, 954141

Int. Cl.⁶ F16L 11/00

U.S. Cl. 138—125

27 Claims



1. A flexible hose for conducting fluids or gases, comprising:

an interior tube having an inner bore, in which the fluids are conducted, the interior tube having an outer surface; and at least one layer of plastic threads braided about the outer surface of the interior tube, the plastic threads comprising a plastic substance about a core material, such that the at least one braided layer of plastic threads reinforces the interior tube to resist rupture and provide enhanced flexibility characteristics.

5,803,130

MULTILAYER TUBE OR SHEET

Petrus A. M. Robben, Lelystad; Petrus J. A. Karsten, Enkhuisen, and Martines W. Vonk, Abcoude, all of Netherlands, assignors to SOLVAY (Société Anonyme), Brussels, Belgium Filed Apr. 29, 1996, Ser. No. 638,392

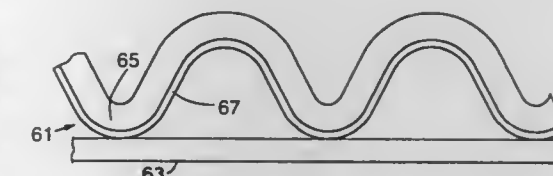
Claims priority, application Belgium, May 12, 1995, 09500431

Int. Cl.⁶ F16L 11/04

U.S. Cl. 138—137

14 Claims

1. A multilayer tube having a tube wall including an intermediate layer, an inner layer bonded to the inner surface of the intermediate layer and an outer layer bonded to the outer surface of the intermediate layer, in which the intermediate layer has a thickness from 15% to 50% of the total thickness of the tube wall, and comprises a polymeric material which is a terpolymer of ethylene, maleic anhydride and an acrylate of formula $\text{CH}_2=\text{CHCO}_2\text{R}$ in which R is of formula $\text{C}_x\text{H}_{(2x+1)}$ with $x=1$ or 2.



spaced apart locations along said pipe where said pipe walls are adhered to one another by said skin.

5,803,131

FUEL FILLER PIPE

Tadanobu Iwasa, Ichinomiya; Masayuki Goto, Ogaki; Masayuki Nakagawa, Iwakura; Yasuhiko Ogisu, Nagoya, and Toshiya Uemura, Tsushima, all of Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-ken, Japan

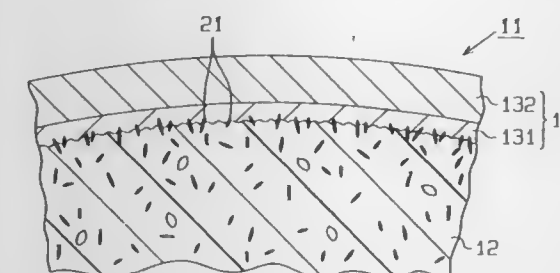
Filed Sep. 21, 1995, Ser. No. 531,696

Claims priority, application Japan, Sep. 26, 1994, 6-229586; Sep. 26, 1994, 6-229587; Mar. 27, 1995, 7-068318

Int. Cl.⁶ F16L 11/00

U.S. Cl. 138—137

18 Claims



1. A pipe for connecting a fuel tank with a fuel source to supply fuel to said tank, said pipe comprising:

a pipe body comprising a polyolefin resin, said pipe body including an inner wall and an outer wall; and a plating layer formed on and bonded to at least one of said inner and outer walls by a reinforced bond with said walls wherein said reinforced bond includes a portion oxidized by ozone on a surface of said wall etched by an etching solution; said surface includes a portion activated by neutralization solution substantially comprising cation surfactant; and said plating layer includes an electroless plated portion on said surface.

5,803,132

SKINNED DOUBLE WALL PIPE AND APPARATUS FOR MAKING SAME

Manfred A. A. Lupke, 10 McLeary Court, Concord, Ontario, Canada, L4K 2Z3

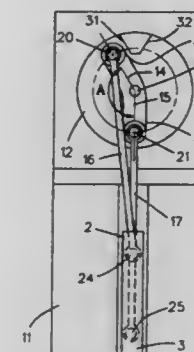
Division of Ser. No. 337,031, Nov. 10, 1994, Pat. No. 5,542,834. This application Jul. 25, 1996, Ser. No. 687,184

Int. Cl.⁶ F16L 11/00; 9/14

U.S. Cl. 138—141

3 Claims

1. A double wall thermoplastic pipe having a flat inner wall, a corrugated outer wall and a skin of reduced thickness relative to and between said walls, said skin being secured continuously along one of said walls and being secured to the other of said walls at



1. A power-loom selvage forming device comprising:

at least two selvage thread guides mounted for longitudinal reciprocal motion and selvage thread guide supports associated with relatively fixed loom structure arranged for guiding the motion of the selvage thread guides;

a drive motor; and a drive shaft driven by the motor and extending perpendicular to the direction of motion of the selvage thread guides;

transmission elements connecting each selvage thread guide to the drive shaft;

said transmission elements arranged to convert rotary drive shaft motion to rectilinear selvage thread guide motion;

said transmission elements each including at least a first portion secured to the drive shaft and at least a second portion secured to one of the selvage thread guides, each transmission element including an articulation point connecting the first and second portions, and each articulation point being located eccentrically of the drive shaft;

said articulation points being spaced by an angle of separation and located at opposite sides of the drive shaft; and

a control system for actuating the drive motor to cause predetermined angular rotations of said drive shaft at predetermined times to thereby cause timed shed forming motions of the selvage thread guides.

1. A system for supplying readily available potable water, comprising
 - a multiplicity of water storage reservoirs at remote locations, each for storing water at an elevated pressure above atmosphere yet below the pressure level requiring governmental certification and inspection of pressure vessels,
 - a dispensing system for each storage reservoir for delivering water from the storage reservoir to a convenient dispensing point,
 - a mobile water source for re-supplying potable water to each storage reservoir at an elevated pressure, wherein the pressurization of water in each storage reservoir enables delivery of water from the storage reservoir to the dispensing point, thereby eliminating the need for a separate power source at each storage reservoir to dispense the water, and
 - an ozone source mobile with the water source for sanitizing the pressurized water by injecting ozone into the water prior to delivery of the water to each storage reservoir,
 - wherein a single ozone generator and water pump can be carried on a mobile unit and utilized to re-supply sanitized water to the storage reservoirs on a periodic basis.

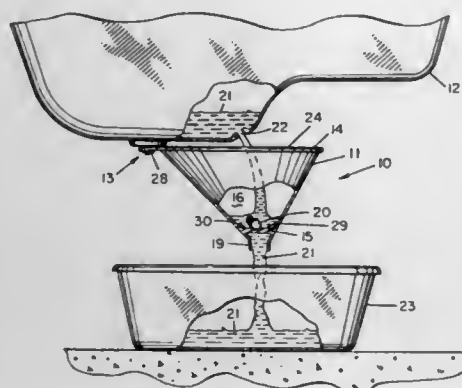
5,803,140
OIL DRAIN FUNNEL WITH MAGNETIC RETENTION
MEANS FOR REMOVABLE ATTACHMENT TO ENGINE
OIL PAN

David Edward Jodoia, 23633 Fairweather Dr., Canyon Lake, Calif. 92587

Filed Nov. 6, 1995, Ser. No. 554,036
 Int. Cl.⁶ B67C 11/00

U.S. Cl. 141—332

2 Claims



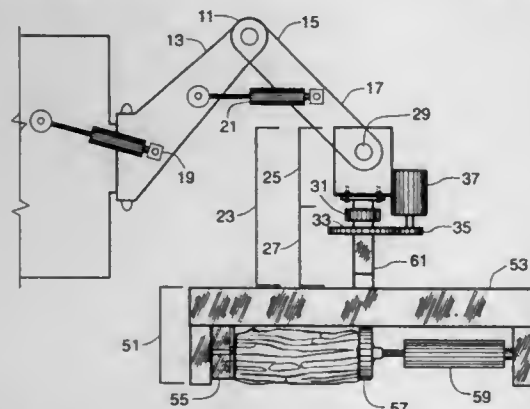
1. An oil drain funnel for removable attachment to the bottom outside portion of an engine oil pan for receiving oil draining therefrom, comprising:

- (a) a funnel having an inlet, an outlet, wherein the diameter of the outlet is smaller than the diameter of the inlet and a sidewall connecting the rim of the inlet with the rim of the outlet;
- (b) magnetic retention means secured to the rim of the inlet to the funnel wherein the magnetic retention means includes: a disc-shaped magnet; a pan-like housing formed of a magnetically-attractive material for housing the disc-shaped magnet which the disc-shaped magnet is operably secured to, the rim about the housing being co-planar with one side of the disc-shaped magnet; and means for securing the magnet and housing to a portion of the rim of the inlet to the funnel; and
- (c) means secured to the funnel and spanning the outlet to block the passage of the oil pan drain plug therethrough while allowing the flow of oil through the funnel outlet.

5,803,141
COMBINATION WOOD SPLITTER AND LOADER
 Toy R. Patterson, 270 Woods Rd., Oliver Springs, Tenn. 37840
 Filed Aug. 8, 1997, Ser. No. 910,950
 Int. Cl.⁶ B27L 7/00

U.S. Cl. 144—195.1

19 Claims



1. Apparatus mountable to a support vehicle for splitting and loading firewood, said apparatus comprising:

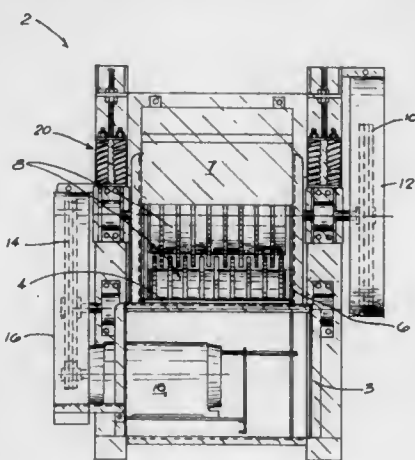
- a rigid connecting member, said connecting member having a proximal component and a distal component, said proximal component mountable to said support vehicle, said distal component transversely mounted to said proximal component;
- traversing means for traversing said distal component relative to said proximal component; and
- a wood splitter supported in a downward orientation by said connecting member and rigidly mounted to said distal component, said wood splitter traversable via said traversing means into a selectable position which is in alignment with the ends of a wood piece.

5,803,142
DEBARKING AND CHIPPING FOLDED WHOLE-TREES
 David Dwight Mulligan, and James Ernest Salyers, both of Covington, Va., assignors to Westvaco Corporation, New York, N.Y.

Filed Sep. 8, 1997, Ser. No. 925,268
 Int. Cl.⁶ B27L 5/02; 1/00

U.S. Cl. 144—369

12 Claims



10. A method of folding and chipping whole-trees, wherein said method is comprised of:

- feeding a barked whole-tree into an apparatus for folding and chipping whole-trees wherein said apparatus includes; a barked whole-tree infeed means, a bark removal means located adjacent to said infeed means wherein said bark removal means includes a plurality of toothed rollers having a nip such that teeth from one of the plurality of rollers are positioned in an area between teeth of the other of the plurality of rollers;
- removing bark from said whole-tree in said bark removal means;
- transferring said debarked whole-tree to a whole-tree chipping means;
- transferring debris from said debarked whole-tree to a debris collection means; and
- chipping said whole-tree.

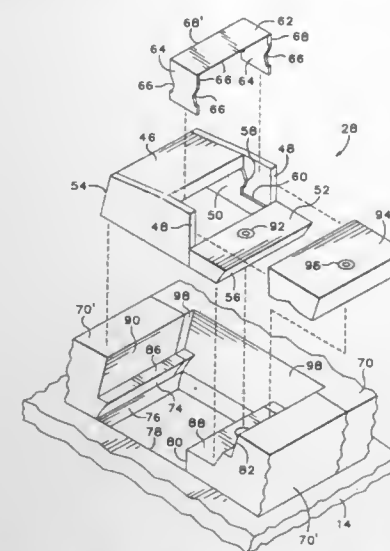
5,803,143
METHOD AND APPARATUS FOR PRODUCING WOOD WAFERS
 Bobby G. Willis, 2420 York St., Eugene, Oreg. 97404

Filed Oct. 23, 1995, Ser. No. 551,871
 Int. Cl.⁶ B27C 1/00; B27L 11/00

U.S. Cl. 144—373

12 Claims

- 1. The method of producing wood wafers from logs, comprising:
 - a) disposing a log against the outer side of a rotary drum with the longitudinal axis of the log parallel to the rotational axis of the drum, and
 - b) subjecting the log to the cutting action of a plurality of cutter blades arranged on the rotary drum in a plurality of said

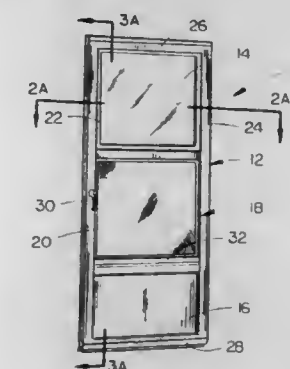


5,803,145
STORM DOOR WITH OPERABLE WINDOW
 Matthew C. Lamb, Omaha, Nebr., assignor to Pacesetter Corp., Omaha, Nebr.

Filed Jun. 2, 1997, Ser. No. 867,206
 Int. Cl.⁶ A47H 3/00

U.S. Cl. 160—90

14 Claims



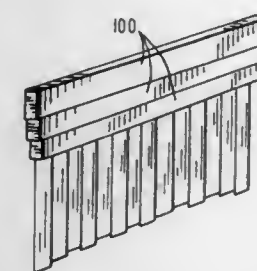
V-shaped patterns in circumferentially spaced positions around the drum and with the cutter blades in each V-shaped pattern disposed in rotational alignment with the cutter blades in each other V-shaped pattern and with the apex of each V trailing in the direction of rotation of the drum and with the leading base defined by cutter blades at the opposite longitudinal ends of the operating length of the drum and with the cutting edges of the blades substantially parallel to the longitudinal axis of the log and with the cutting edge of one blade offset in the axial and circumferential directions of the drum to overlap the cutting edge of a blade next adjacent and next preceding in the direction of rotation of the drum.

5,803,144
MULTIPURPOSE VALANCE ASSEMBLY
 Russell J. Ives, Singer Island, Fla., assignor to Newval, Inc., West Palm Beach, Fla.

Filed Jul. 25, 1995, Ser. No. 507,661
 Int. Cl.⁶ E06B 9/00

U.S. Cl. 160—38

30 Claims



1. A multipurpose valance assembly for use in window treatment systems comprising:

- a valance base that has
 - (a) an elongate, substantially rectangular panel with a front face and a rear face,
 - (b) longitudinal upper and lower lips formed on the front face of the panel at its longitudinal top and bottom edges,
 - (c) a longitudinal channel formed between the upper and lower lips of the panel for introducing and holding a decorative insert, and
 - (d) a substantially continuous receiver means extending longitudinally across a length of the rear face of the panel and extending from a plane of said rear face;
- a valance attachment that has
 - (a) an elongate, substantially rectangular panel with a front face and a rear face,

- (b) longitudinal upper and lower lips formed on the front face of the panel at its longitudinal top and bottom edges,
- (c) a longitudinal channel formed between the upper and lower lips of the panel for introducing and holding a decorative insert, and
- (d) a longitudinal attachment means formed on the front face of the panel and adjacent the upper lip and extending from a plane of said upper lip; wherein the attachment means of the valance attachment is removably engaged with the receiver means of the valance base.

- 1. A storm door comprising:
 - a frame including a pair of opposed, parallel, hollow side rails;
 - a hollow top rail extending between and interconnecting the side rails at upper ends thereof;
 - a hollow bottom rail extending between and interconnecting the side rails at lower ends thereof;
 - a hollow center mullion extending between the side rails, intermediate and parallel to the top and bottom rails;
 - a lower panel affixed between the center mullion and bottom rail, and between the side rails;
 - a screen sash resting atop the center mullion and extending between the side rails;
 - an upper panel resting atop the screen sash and extending between the side rails and up to the top rail;
 - a pair of jamb liners, one mounted along each side rail and extending from the center mullion to the top rail, each jamb liner shaped to form a vertically extending hollow chamber between the liner and the associated side rail;
 - a slidable window sash slidably mounted between said jamb liners on the side rails between a lower position resting on the center mullion and located adjacent the screen sash, and an upper position with an upper edge contacting the top rail and located adjacent the upper panel; and
 - a pair of counterbalance assemblies, each assembly connected to the window sash and located substantially with in each hollow chamber, for counterbalancing the weight of the window sash to permit retention of the window sash at any position between the upper and lower positions.

5,803,146

MODULAR PARTITION SYSTEM

Karel Willem Boon, 4540 Promenade Paton, Laval, Quebec, Canada, H7W 4W6

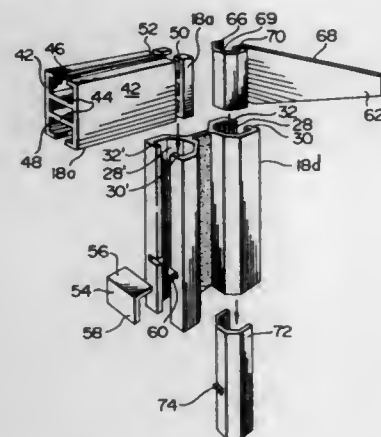
PCT No. PCT/CA94/00290, § 371 Date Jan. 17, 1996, § 102(e) Date Jan. 17, 1996, PCT Pub. No. WO95/32343, PCT Pub. Date Nov. 30, 1995

PCT Filed May 20, 1994, Ser. No. 586,834

Int. Cl. A47G 5/00

U.S. Cl. 160—135

14 Claims



1. A partition system comprising:
a pair of panels united to one another along adjacent edges, each said panel including:

- a) a frame including a plurality of elongated frame members releasably connected in a non-collinear relationship at mating ends thereof to form a closed polygonal figure, first and second ones of said plurality of frame members including a transverse wall from which project two side walls in a spaced apart relationship defining therebetween an elongated channel that extends along a longitudinal axis of the frame member, one of said side walls including at an end portion thereof a projection extending toward the other of said side walls, a third of said plurality of frame members comprising end portions capable of engaging respective ones of said first and second frame members, each said end portions including a groove spaced from a respective extremity of said third frame member by a distance not exceeding a depth of said channel, thereby allowing to engage the end portions of said third member in said first and second frame members by mating the projections thereof in the grooves at the end portions of the third frame member;

- b) a panel member having edge portions capable of slidably engaging respective channels of said first and second frame members;

the frames of said panels including a pair of frame members united in a generally parallel relationship to one another for joining said panels together.

5,803,147

VERTICAL BLIND

Masayoshi Kondo; Zenichi Oda; Michio Okumura, and Akinori Kimata, all of Anjo, Japan, assignors to Makita Corporation, Aichi-ken, Japan

Filed Aug. 13, 1996, Ser. No. 696,223

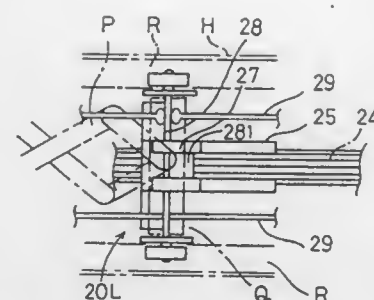
Claims priority, application Japan, Aug. 16, 1995, 7-208761 Int. Cl. E06B 9/36

U.S. Cl. 160—168.1 V

16 Claims

1. A vertical blind assembly comprising:

- a hanger rail;
a lead carrier and a plurality of follower carriers, for hanging vertical louvers thereon, all being housed within said hanger rail;



an operation string first inserted through a first string insertion hole formed in said lead carrier and in each of said plurality of carriers and thereafter being inserted through a second string insertion hole formed in said lead carrier and in each of said plurality of carriers so that said operation string is formed into a continuous loop, and said operation string being connected to said lead carrier for controlling movement of said lead carrier within said hanger rail;

a mechanical connector interconnecting said plurality of carriers and said lead carrier so that said lead carrier is reciprocated within and along said hanger rail by said operation string, said plurality of carriers are also similarly reciprocated;

said lead carrier and said plurality of carriers each include a rotation mechanism for rotating a supported louver about a vertical axis and a shaft insertion hole receiving an operation shaft for engaging and operating said rotation mechanism; and means for preventing rotary moment from being applied to said lead carrier when said operation string is reciprocated; wherein said means for preventing rotary moment from being applied to said lead carrier is an attachment member which is detachably attached to said lead carrier and engages with said operation shaft at a location spaced from the engagement of said operation shaft and said rotation mechanism to prevent rotary moment from being applied to said lead carrier during reciprocation of said operation string.

5,803,148

OPERATING DEVICE FOR A SCREENING ARRANGEMENT

Lars Holck Madsen, Billund, Denmark, assignor to V. Kann Rasmussen Industri A/S, Søborg, Denmark

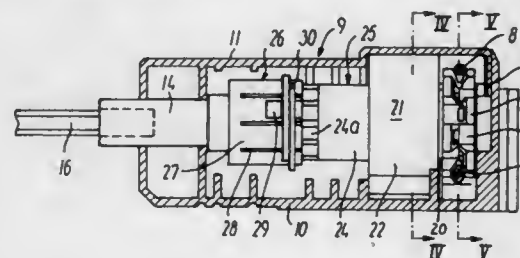
PCT No. PCT/DK96/00094, § 371 Date Jul. 2, 1997, § 102(e) Date Jul. 2, 1997, PCT Pub. No. WO96/27728, PCT Pub. Date Sep. 12, 1996

PCT Filed Mar. 6, 1996, Ser. No. 860,094

Claims priority, application Denmark, Mar. 6, 1995, 0230/95 Int. Cl. E06B 9/36

U.S. Cl. 160—176.1 R

6 Claims



1. An operating device for a screening arrangement, comprising:
a drive including a rotatable wheel for receiving an operating implement;

a transmission shifting device comprising a planet gear having at least one transmission stage;

an output shaft connected to the screening arrangement for rotational movement with the screening arrangement;

an input shaft having a first end connected with said drive and a second end coupled to the output shaft; and

a sliding clutch engaged between the transmission shifting device and the output shaft for limiting transferred driving torque therebetween, the sliding clutch comprising a first coupling part connected with the transmission shifting device and a second coupling part connected with the output shaft, the coupling parts being in torque transferring engagement when the driving torque is below a threshold value and out of torque transferring engagement when the driving torque exceeds said threshold value.

5,803,149

JACK SHAFT GARAGE DOOR OPERATOR

Ronald W. Halley, Des Plaines; Bradford Farris, Chicago, both of Ill., and Colin B. Willmott, Landsweller, Germany, assignors to The Chamberlain Group, Inc., Elmhurst, Ill.

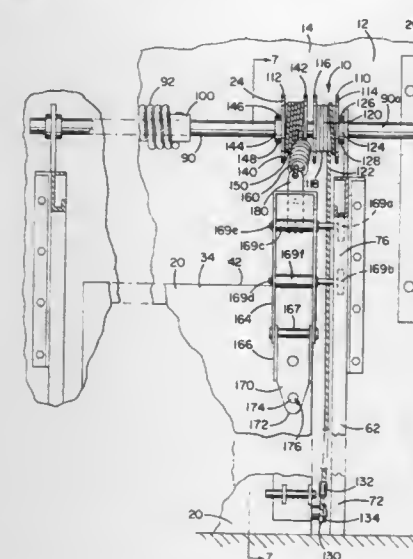
Continuation of Ser. No. 457,520, Jun. 1, 1995, abandoned.

This application May 28, 1997, Ser. No. 864,559

Int. Cl. E05D 15/06

U.S. Cl. 160—201

10 Claims



1. A jack shaft garage door operator transmission for use with a jack shaft garage door operator drive from which it is driven and for mounting on a wall above and near a garage door opening of a parking structure to open and close a multi-panel garage door comprising:

- a track mounted near the garage door opening for carrying the multi-panel garage door, the track having a horizontal section and a vertical section coupled by a curved section having a curved outer boundary on a radius of curvature of the curved section;

an opening flexible link for connection to the multi-panel garage door for supplying a tensional force for opening the multi-panel garage door;

an opening flexible link storage unit connectable to a jack shaft drive to be driven thereby and connectable to the opening flexible link for reeling in the opening flexible link for storage as the multi-panel garage door is drawn open by it and for paying out the opening flexible link as the multi-panel garage door is being closed;

a closing flexible link for connection to the multi-panel garage door for supplying a tensional force at least a portion of which is applied as a closed force for closing the multi-panel garage door;

a closing flexible link storage unit connectable to the jack shaft drive unit to be driven thereby and connected to the closing flexible link for reeling in the closing flexible link for storage as the garage door is being closed by it and for paying out the closing flexible link as the multi-panel garage door is being opened by the opening flexible link;

5,803,150

DEVICE FOR OPERATING A CLOSURE ELEMENT MOVING AT LEAST APPROXIMATELY VERTICALLY

Jean-Philippe Boiteau, Scionzier, France, assignor to Somfy, France

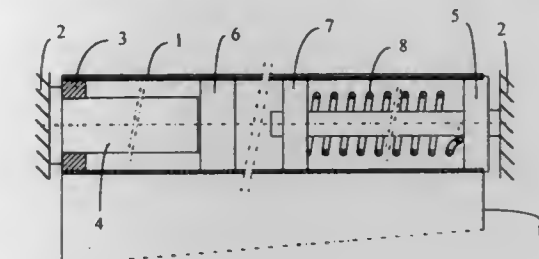
Filed Oct. 15, 1996, Ser. No. 730,365

Claims priority, application Switzerland, Oct. 30, 1995, 3066/95

Int. Cl. E06B 9/72; 9/62

U.S. Cl. 160—310

3 Claims



2. In combination with a closure element which moves approximately vertically a device for operating the closure element comprising:

- said closure element;
a motor (4);
reduction gearing (4);
a drive shaft (1) for the closure element;
an elastic means (8) for compensating for the weight of the closure element; and
a transmission mechanism having a one-way coupling mechanism and a friction coupling (9, 12), said transmission mechanism between the reduction gearing and the drive shaft, the transmission mechanism allowing the closure element being lowered to be disengaged when a resistive force opposes the lowering thereof.

5,803,151

SOLUBLE CORE METHOD OF MANUFACTURING METAL CAST PRODUCTS

Robin A. Carden, Costa Mesa, Calif., assignor to Alyn Corporation, Irvine, Calif.

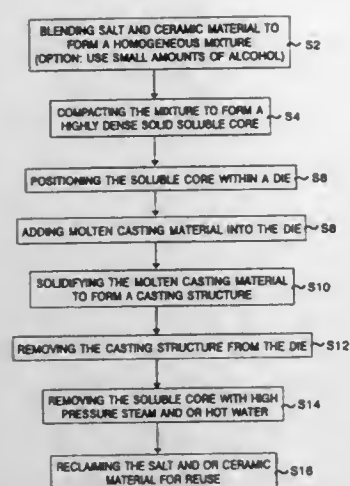
Division of Ser. No. 674,167, Jul. 1, 1996, abandoned. This application Apr. 4, 1997, Ser. No. 826,551

Int. Cl. B22C 1/00; 3/00; 9/10; B22D 29/00

U.S. Cl. 164—5

8 Claims

1. A soluble core die casting process comprising the steps of:
blending a water-soluble salt and a ceramic material selected from a group consisting essentially of a nitride, a carbide, and



combinations thereof to form a homogeneous mixture, wherein the ceramic material comprises up to 20 weight % of the mixture;

compacting the mixture to form a solid core;
positioning the core within a die;
adding molten casting material into the die;
solidifying the molten casting material to form a casting structure;
removing the casting structure from the die; and
removing the core from within the casting structure using steam and/or hot water.

5,803,152 MICROSTRUCTURALLY REFINED MULTIPHASE CASTINGS

Kevin Francis Dolman, Marsfield; Craig Ian Walker, Narrabeen; Charles Philip Harris, East Hills, and Andrew William Thomson, Normanhurst, all of Australia, assignors to Warman International Limited, Australia
PCT No. PCT/AU94/00264, § 371 Date Jun. 18, 1996, § 102(e)
Date Jun. 18, 1996, PCT Pub. No. WO94/27763, PCT Pub. Date Dec. 8, 1994

PCT Filed May 20, 1994, Ser. No. 545,783
Claims priority, application Australia, May 21, 1993, PL8948
Int. Cl. B22D 27/00; 19/14; C21D 5/00; C22F 1/18
U.S. Cl. 164—57.1 27 Claims



1. A method of casting a metal alloy which comprises a primary phase dispersed in a eutectic phase, the method comprising:

- (a) forming a melt of the metal alloy;
- (b) pouring the molten metal alloy at a temperature at least above the liquidus temperature in a stream into a casting mould to form a casting; and
- (c) introducing a particulate material into the stream of molten metal to extract heat from the molten metal alloy to undercool the molten metal alloy from the pour temperature into the primary phase solidification range between the liquidus and

the solidus temperatures of the metal alloy to provide, in a casting mould, a casting including a primary phase dispersed in a eutectic phase.

5,803,153 NONFERROUS CAST METAL MATRIX COMPOSITES Pradeep K. Rohatgi, 4759 N. Marlborough Dr., Milwaukee, Wis. 53211 Continuation-in-part of Ser. No. 506,605, Jul. 25, 1995, abandoned, which is a continuation of Ser. No. 246,081, May 19, 1994, abandoned. This application Aug. 26, 1996, Ser. No. 702,869

Int. Cl. B22D 19/14

U.S. Cl. 164—97

2 Claims

1. A process for producing a cast composite in a static sand mold having a sprue, a sprue basin, a runner, and a mold ingate system comprising: locating reinforcing means in at least one of said sprue, said sprue basin, said runner and said mold ingate system; pouring a molten nonferrous metal into said sand mold; and allowing the metal to cool and to solidify to produce a composite casting.

5,803,154 THIXOCASTING PROCESS Takeshi Sugawara, and Nobuhiro Saito, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

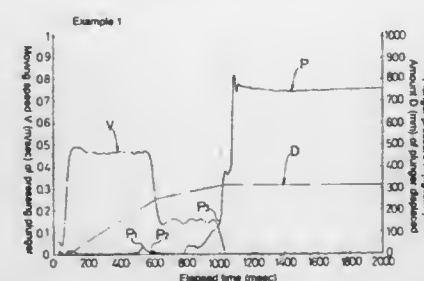
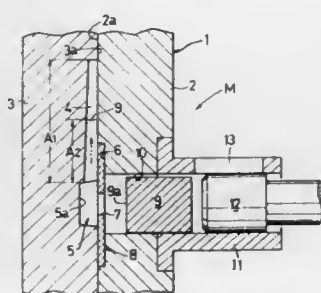
Filed Dec. 16, 1996, Ser. No. 766,031

Claims priority, application Japan, Dec. 14, 1995, 7-347387; Dec. 2, 1996, 8-336409

Int. Cl. B22D 18/02; 23/00

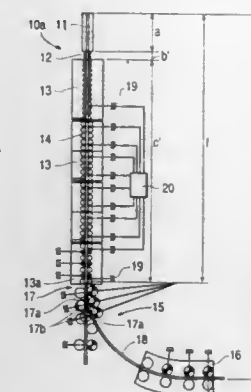
U.S. Cl. 164—120

5 Claims



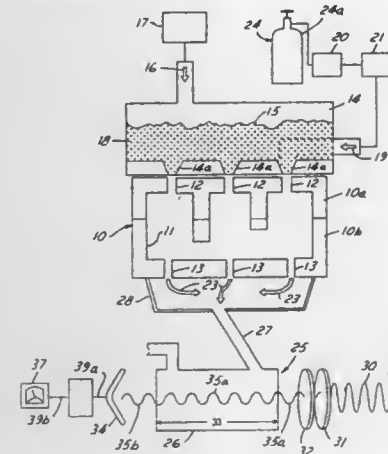
1. A thixocasting process comprising the steps of: subjecting a casting material to a heating treatment to prepare a semi-molten casting material having solid and liquid phases coexisting therein, providing a through-hole for applying a constricting effect to said semi-molten casting material in a flow path for said semi-molten casting material leading to a cavity in a casting mold, and exerting the semi-molten casting material under a pressure into said cavity in said casting mold, wherein said pressure is a material deforming pressure P_1 immediately before said semi-molten casting material starts to flow into said through-hole and is used as a parameter for discriminating the satisfactory filling and the poor filling of said semi-molten casting material into said cavity.

5,803,155 CASTING LINE FOR SLABS Alfredo Lavazza, Solbiate Olona; Andrea Carboni, Milan, and Giovanni Coassin, Pordenone, all of Italy, assignors to Danelli & C. Officine Meccaniche SpA, Buttrio, Italy Filed May 7, 1996, Ser. No. 646,017 Claims priority, application Italy, May 18, 1995, UD95A0090 Int. Cl. B22D 11/04; 11/16 U.S. Cl. 164—417 5 Claims



1. A casting line for casting a slab, which comprises a mould, an assembly of containing elements located at the outlet of the mould, a plurality of containing and guide assemblies provided immediately downstream of the assembly of containing elements and comprising a plurality of pairs of rolls associated with a vertical segment of the line, a drawing assembly associated with a horizontal segment of the line, wherein the containing and guide assemblies cover at least the whole vertical segment of the casting line downstream of the assembly of containing elements, and actuation means governed by a data processing unit for adjusting at least the position of the rolls of the containing and guide assemblies with respect to the slab to obtain a controlled pre-rolling at least in the downstream part of the vertical segment of the casting line.

5,803,156 METHOD OF MAKING CATALYST CURED RESIN-COATED SAND CORES Elaine Cecilia Beckwith, Northville; Thomas John Korniski, Livonia, and James Stewart Rankin, II, Novi, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich. Filed Oct. 7, 1996, Ser. No. 727,157 Int. Cl. B22C 9/12 U.S. Cl. 164—456 6 Claims

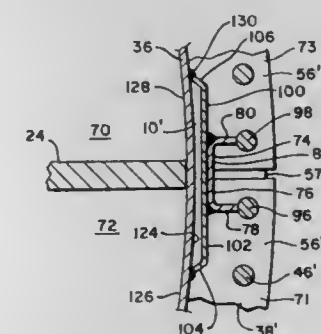


1. A method of making a catalyst cured resin-coated sand core in which said resin-coated sand has been blown into a core box to define an uncured core with a desired packing density, the core box

having at least one inlet to permit ingress of gases and at least one outlet to permit egress of only gases, comprising the steps of:

- (a) passing a non-catalyzing gas through the defined sand core in the core box to create a first effluent and measuring the hydrocarbon content in such first effluent that was exposed to the uncured resin of the sand core;
- (b) injecting a catalyst carrying gas into the at least one inlet to pass through the defined sand core within the core box for polymerizing the resin and thence exit from the at least one outlet as a second effluent; and
- (c) continuously measuring the hydrocarbon content of the second effluent, and when the hydrocarbon content decreases to approximately the hydrocarbon content of the first effluent, opening said core box to remove the sand core in a consistently cured condition.

5,803,157 SEMI-MODULAR PINRACK SEAL Mark E. Brophy; Thomas G. Geyer, both of Wellsville, and Rex R. Snider, Corfu, all of N.Y., assignors to ABB Air Preheater, Inc., Wellsville, N.Y. Filed Aug. 30, 1996, Ser. No. 705,998 Int. Cl. F23L 15/02 U.S. Cl. 165—9 16 Claims



1. A pinrack seal assembly for a rotary heat exchanger having a rotor shell, a plurality of diaphragms defining a plurality of sector compartments wherein each diaphragm separates a first sector compartment from an adjacent second sector compartment, and a pinrack assembly including upper and lower pinrack supports, upper and lower pinrack rails mounted intermediate the upper and lower pinrack supports, and a plurality of pins mounted intermediate the upper and lower pinrack rails, wherein the upper and lower pinrack supports include a plurality of support segments, the support segments being substantially continuous from the first diaphragm to the second diaphragm, and wherein a first pin and a second pin are the two pins that are closest to the diaphragm separating the first sector compartment from the second sector compartment, the pinrack seal assembly comprising:

- a unitary first seal comprising a base portion having oppositely disposed first and second surfaces and first and second leg portions extending substantially orthogonally from the first surface of the base portion; and
 - a unitary second seal comprising a base portion having oppositely disposed first and second surfaces and first and second wing portions extending obliquely from the first surface of the base portion, wherein the second surface of the base portion of the second seal is mounted to the second surface of the base portion of the first seal;
- wherein the first seal is positionable intermediate the upper and lower pinrack rails of the pinrack assembly such that the first leg portion is adjacent the first pin and the second leg portion is adjacent the second pin, and wherein the second seal is positionable intermediate the upper and lower pinrack supports of the pinrack assembly and the first wing portion of the second seal is mountable to the rotor shell proximate the first

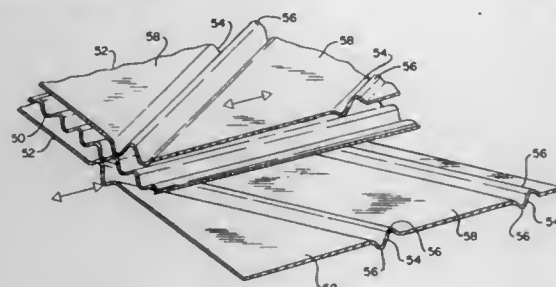
sector compartment and the second wing portion of the second seal is mountable to the rotor shell proximate the second sector compartment.

5,803,158

AIR PREHEATER HEAT TRANSFER SURFACE
William F. Harder, and Robin B. Rhodes, both of Wellsville, N.Y., assignors to ABB Air Preheater, Inc., Wellsville, N.Y.
Filed Oct. 4, 1996, Ser. No. 725,964
Int. Cl.⁶ F28D 17/00

U.S. Cl. 165—10

1 Claim



1. A heat transfer element for an air preheater comprising: an alternating arrangement of adjacent corrugated and notched heat transfer plates, said corrugated plates having longitudinally oriented mutually parallel corrugations formed generally continuously across the lateral direction of said corrugated plate, and said notched plates having straight notches formed from mutually parallel double ridges projecting transversely from opposite sides of said notched plate, and flat sections between said notches, each said notched plate in contact with the adjacent said corrugated plates solely at points of intersection of said notches and said corrugations, and said double ridges of said adjacent notched plates oriented obliquely in mutual opposite directions to said corrugations.

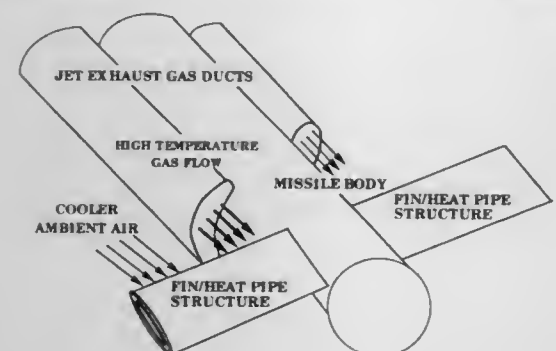
5,803,159

INTEGRATED FIN-HEAT PIPE
Roswell W. Nourse, III, Huntsville, and Richard A. Reynolds, Guntersville, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 23, 1997, Ser. No. 862,678
Int. Cl.⁶ F28F 27/00

U.S. Cl. 165—41

4 Claims



1. A system for cooling a fin of a flying object, the fin having a given shape and the object being motivated by a propulsion means, the fin consisting of a first portion under the influence of hot exhaust gases from the propulsion means and a second portion in contact with cool ambient air, said cooling system comprising: A wick located within the fin, said wick being suitable for guiding therethrough the flow of a pre-selected fluid while

allowing vapors to escape therefrom upon vaporization of said fluid in the first portion of the fin, said wick being adjacent to and concentric with the interior surface of the fin and an internal wall, said wall mimicking the shape of the fin and being positioned so as to create a vapor channel between said wall and said wick, said channel receiving the vapors escaping from said wick and allowing the vapors to travel to the second portion where the vapors liquidate as heat dissipates into the ambient air, thereby cooling the entire fin.

5,803,160

APPARATUS FOR HEATING AND VENTILATING, AND/OR AIR CONDITIONING, THE CABIN OF A MOTOR VEHICLE

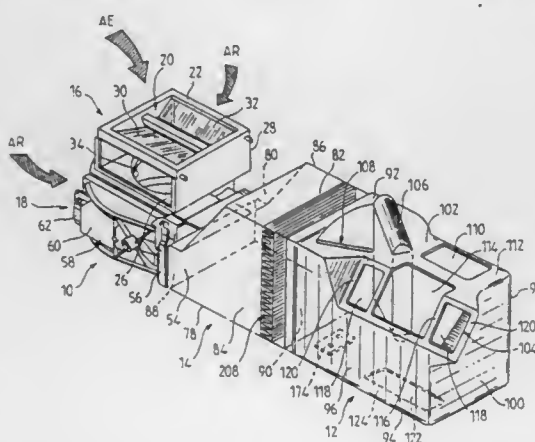
Jacques Danieau, Noisy le Roi, France, assignor to Valeo Climatisation, La Verriere, France
PCT No. PCT/FR99/00920, § 371 Date Feb. 14, 1997, § 102(e) Date Feb. 14, 1997, PCT Pub. No. WO97/00178, PCT Pub. Date Jan. 3, 1997

PCT Filed Jun. 14, 1996, Ser. No. 793,208

Claims priority, application France, Jun. 14, 1995, 95 07093
Int. Cl.⁶ B60H 1/32

U.S. Cl. 165—42

20 Claims



1. Apparatus for heating and air conditioning the cabin of a motor vehicle, comprising:
a blower element including a motor-blower unit, at least one air inlet element selected from a plurality of types of air inlet elements, and at least one attachment surface for receiving the plurality of types of air inlet elements;
a heating element including a heat radiator, at least one air outlet element selected from a plurality of types of air outlet elements, and at least one attachment surface for receiving the plurality of types of air outlet elements; and
a trunk element being interposed between the blower element and the heating element, wherein the blower element, the heating element and the trunk element constitute a modular assembly which can be used for different types of vehicles; and
wherein the radiator includes at least one water header and tubular connections for the admission and evacuation of a heat transfer fluid, and wherein the tubular connections are made in the form of a specific removable unit which is adapted to be fitted to at least one of the water headers of the radiator.

5,803,161

HEAT PIPE HEAT EXCHANGER FOR COOLING OR HEATING HIGH TEMPERATURE/HIGH-PRESSURE SUBSEA WELL STREAMS

Harold W. Wahle, North Canton, Ohio, and Robert J. Glammaruti, Caty, Tex., assignors to The Babcock & Wilcox Company, New Orleans, La.

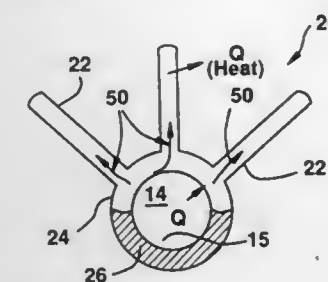
Continuation of Ser. No. 707,787, Sep. 4, 1996, abandoned.

This application Nov. 12, 1997, Ser. No. 954,185

Int. Cl.⁶ F28D 15/00

U.S. Cl. 165—104.21

8 Claims



1. A heat pipe exchanger for a subsea pipeline conveying a wellstream fluid from a wellhead to an above-surface installation, comprising:
an annular reservoir surrounding a section of the subsea pipeline conveying the wellstream fluid and sealedly connected thereto;
at least one heat pipe extending from and in fluidic communication with the annular reservoir; and
a working fluid contained within one of the annular reservoir and the at least one heat pipe.

5,803,162

HEAT EXCHANGER FOR MOTOR VEHICLE COOLING EXHAUST GAS HEAT EXCHANGER WITH DISK-SHAPED ELEMENTS

Thomas Karbach, Stuttgart; Conrad Pfender, Besigheim, and Eberhard Zwitter, Hochdorf, all of Germany, assignors to Behr GmbH & Co., Germany

Continuation of Ser. No. 425,091, Apr. 14, 1995, abandoned.

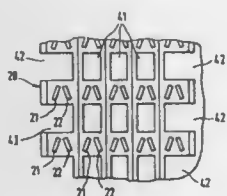
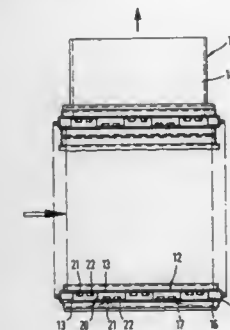
This application Jun. 4, 1997, Ser. No. 869,226

Claims priority, application Germany, Apr. 14, 1994, 94 06 197 U

Int. Cl.⁶ F28F 13/12

U.S. Cl. 165—109.1

15 Claims



1. Heat exchanger for cooling exhaust gas of a motor vehicle engine with a closed flow guiding system for the exhaust gas, comprising at least one heat exchange element arranged between a feeding device and a removing device for the exhaust gas and around which a cooling medium flows, the at least one heat exchange element defining a plurality of separate fluid passages in the flow direction, and a single row of V-shaped pairs of projections being disposed at at least one wall of each said fluid passage.

5,803,163

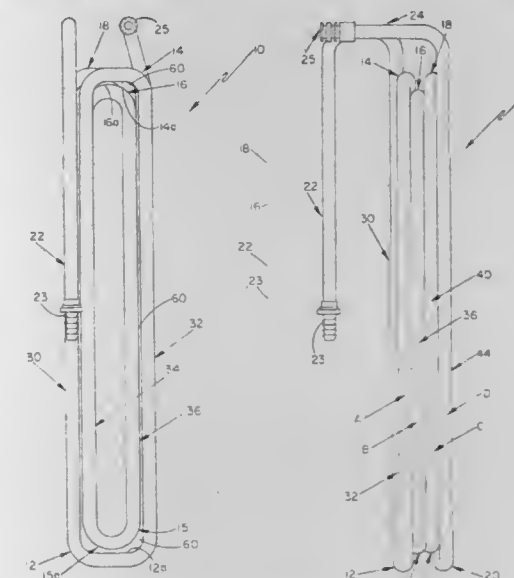
BEVERAGE COOLING COIL
Douglas P. Goulet, Big Lake, Minn., assignor to IMI Cornelius Inc., Anoka, Minn.

Filed Dec. 6, 1996, Ser. No. 761,461

Int. Cl.⁶ F28F 1/00

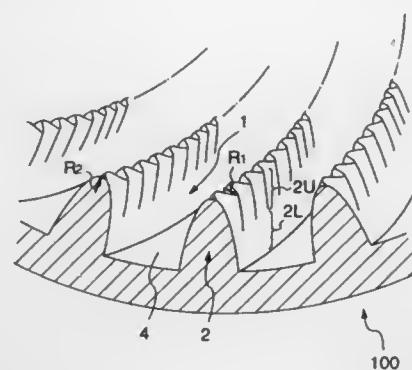
U.S. Cl. 165—172

1 Claim



1. A heat exchange coil comprising:
a length of tubing having a diameter and an inlet end and an outlet end,
the tubing having a first large bend following the tubing inlet end,
a first medium bend in the tubing following the first large bend and having a first longitudinal length of tubing there between, the first medium bend sized smaller than the first large bend by comprising a section of the tubing having a shorter length than a section of the tubing comprising the first large bend,
a first small bend in the tubing following the first medium bend and having a second longitudinal length of tubing extending there between, the first small bend sized smaller than the first medium bend by comprising a section of the tubing having a shorter length than a section of the tubing comprising the first medium bend,
a second small bend in the tubing following the first small bend and having a third longitudinal length of tubing extending therebetween, the second small bend utilizing a length of the tubing equal to that of the first small bend,
a third small bend in the tubing following the second small bend and having a fourth longitudinal length of tubing extending therebetween, the third small bend utilizing a length of the tubing equal to that of the second small bend,
a second medium bend following the third small bend and having a fifth longitudinal length of tubing extending therebetween, the second medium bend utilizing a length of the tubing equal to that of the first medium bend,
a second large bend following the second medium bend and having a sixth longitudinal length of tubing extending therebetween, the second large bend utilizing a length of the tubing equal to that of the first large bend.

the tubing outlet end following the second large bend, and the first and second large bends, the first and second medium bends and the first, second and third bends all extending substantially through an arc of 180 degrees whereby the tube is formed into a plurality of coils, and the first and sixth tubing sections being of equivalent length, the second and fifth tubing sections being of equivalent length and the third and fourth tubing sections being of equivalent length, and the first and sixth tubing sections longer than the second and fifth tubing sections and the second and fifth tubing sections longer than the third and fourth tubing sections so that the plurality of coils are compressible to a fully compressed orientation wherein the first and second large bends abut each other, the first and second medium bends abut each other and the first and third small bends abut each other wherein the first and third small bends are positioned within a compressed coil interior area adjacent and interior of the first and second large ends and wherein the second small bend is positioned within the coil interior area adjacent and interior of the first and second medium bends whereby the total width of the coils is approximately equal to twice the diameter of the tube.



straight outline in a fin longitudinal direction in a cross section parallel to said internal face on which said plurality of fins are formed.

5,803,164
MULTIPLE FINNED TUBE AND A METHOD FOR ITS MANUFACTURE

Gerhard Schuez, Voehringen, and Manfred Knab, Dornstadt-Bollingen, both of Germany, assignors to Wieland-Werke AG, Ulm, Germany

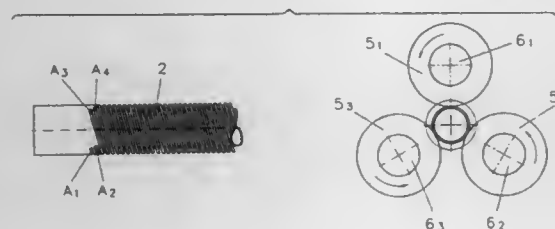
Filed Jun. 6, 1995, Ser. No. 465,758

Claims priority, application Germany, Jun. 15, 1994, 44 20 756.5

Int. Cl.⁶ F28F 1/16; 1/34

U.S. Cl. 165—184

15 Claims



1. A metallic finned tube, comprising: multiple fins integrally formed on and extending helically on an outside of the tube, the fins being at least four in number, and beginning at fin run start locations spaced evenly about a circumference of the tube, with at least one group of side-by-side helical fins being formed which begin at substantially the same circumferential fin run start location on the tube exterior.

5,803,165
HEAT EXCHANGER
Naoki Shikazono, Ibaraki-ken; Masaaki Itoh, Tsuchiura; Mari Uchida, Tsuchiura, and Toshihiko Fukushima, Tsuchiura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 17, 1996, Ser. No. 665,519

Claims priority, application Japan, Jun. 19, 1995, 7-151636

Int. Cl.⁶ F28F 1/40

U.S. Cl. 165—184

5 Claims

1. A heat exchanger, in which a plurality of fins formed on an internal face of a heat transfer tube, wherein each of said plurality of fins has a first portion including a fin top and a second portion including a fin root, and wherein said first portion has a ridgeline formed in a raised and recessed shape, or in a wave-like or corrugated shape, and said second portion has a substantially

5,803,166
AIR CONDITIONING APPARATUS FOR VEHICLE
Yuji Ito, Ichinomiya, and Takayoshi Kawai, Hoi-gun, both of Japan, assignors to Denso Corporation, Kariya, Japan

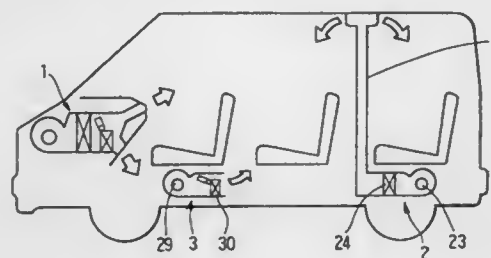
Filed Feb. 28, 1997, Ser. No. 808,571

Claims priority, application Japan, Mar. 1, 1996, 8-045101

Int. Cl.⁶ F25B 29/00

U.S. Cl. 165—203

9 Claims



1. An air conditioning apparatus for a vehicle having a passenger compartment, comprising:
a cooler unit having a first case forming a first air passage for introducing air toward the upper half body of a passenger in said passenger compartment, first air blowing means for blowing air in said first air passage, and a first heat exchanger for cooling air blown from said first air blowing means;
a heater unit having a second case forming a second air passage for introducing air toward feet of said passenger in said passenger compartment, second air blowing means for blowing air in said second air passage, and a second heat exchanger for heating air blown from said second air blowing means;
second air blowing stopping means for stopping said second air blowing means when said passenger compartment is rapidly heated and a heating capacity of said second heat exchanger is less than a predetermined capacity;
control means for gradually increasing an air blowing capacity of said second air blowing means according to a rise of said heating capacity when said heating capacity reaches said predetermined capacity while stopping said second air blowing means; and
first air blowing stopping means for stopping said first air blowing means when both of said cooler unit and said heater unit are operated and when said passenger compartment is rapidly heated and a heating capacity of said second heat exchanger is less than a predetermined capacity.

5,803,167
COMPUTER CONTROLLED DOWNHOLE TOOLS FOR PRODUCTION WELL CONTROL

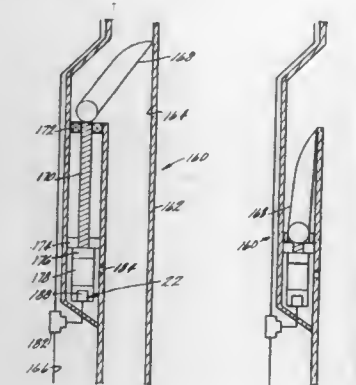
Terry R. Bussear, Friendwood, Tex., and Bruce Weightman, Skene, United Kingdom, assignors to Baker Hughes Incorporated, Houston, Tex.

Division of Ser. No. 599,324, Feb. 9, 1996, Pat. No. 5,706,892, which is a continuation-in-part of Ser. No. 386,505, Feb. 9, 1995, abandoned. This application Aug. 20, 1997, Ser. No. 914,295

Int. Cl.⁶ E21B 34/16

U.S. Cl. 166—65.1

9 Claims



1. A remotely actuated wellbore tool stop comprising:
a housing which includes a primary bore;
a motor in said housing;
a shaft operatively connected to said motor;
a stop pivotally connected to said shaft wherein said stop blocks said primary bore when said motor actuates said shaft in a first direction and said stop is removed from blocking said primary bore when said motor actuates said shaft in a second direction; and
an electronic controller communicating with said motor for actuating said motor.

5,803,168
TUBING INJECTOR APPARATUS WITH TUBING GUIDE STRIPS

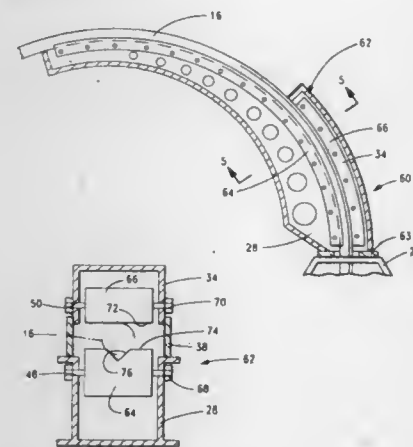
Terry N. Lormand, Kinder; Ally D. Howard, Lake Charles, and Sonya F. Savant, Maurice, all of La., assignors to Halliburton Company, Duncan, Okla.

Filed Jul. 7, 1995, Ser. No. 499,500

Int. Cl.⁶ E21B 19/22

U.S. Cl. 166—77.2

20 Claims



1. A guide apparatus for a tubing injector comprising:
an elongated first frame;
an elongated second frame spaced from said first frame;

an elongated first guide track attached to said first frame and having a first tubing guide surface thereon; and
a second guide track attached to said second frame and spaced from said first guide track, said second guide track defining a second tubing guide surface thereon, said first and second tubing guide surfaces having means for providing sliding engagement with tubing moved by the tubing injector.

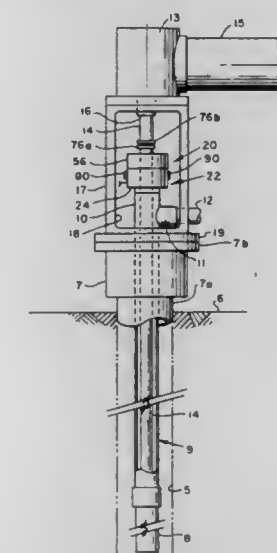
5,803,169
ROTARY STUFFING BOX AND SEAL ASSEMBLY
Grey Bassinger, Midland, and Joseph L. Dalton, Odessa, both of Tex., assignors to Auto Pax Products, L.L.C., Odessa, Tex.

Filed Dec. 24, 1996, Ser. No. 772,948

Int. Cl.⁶ E21B 33/02

U.S. Cl. 166—84.1

29 Claims



1. A stuffing box and seal assembly for forming a substantially fluid-tight seal at a rotary shaft, comprising:
a housing including means for connecting said housing to a support structure, said housing including a bore for receiving a rotary shaft extending therethrough, a first transverse face on said housing and a chamber defined at least in part by said housing;
a cover including a transverse wall portion and a bore extending therethrough for receiving said rotary shaft, said cover including a second transverse face adapted to be opposed to said first transverse face, said cover and said housing including cooperable means for connecting said cover to said housing;
a seal holder disposed in said chamber and including means for supporting a resilient seal element, said seal holder including a third transverse face operable to be opposed to and adjacent to said first transverse face; and
a seal retainer operable to be disposed around said rotary shaft and including opposed surfaces thereon engageable with said seal holder and said second transverse face for retaining said seal element in a working position in sealing engagement with said rotary shaft, said seal retainer including opposed parts adapted to be disposed around said rotary shaft and retained between said cover and said seal holder, said parts of said seal retainer being separable one from the other for removing said seal retainer from said rotary shaft to provide for replacing a seal element supported on said seal holder.

5,803,170

WELL LINE PROTECTIVE APPARATUS

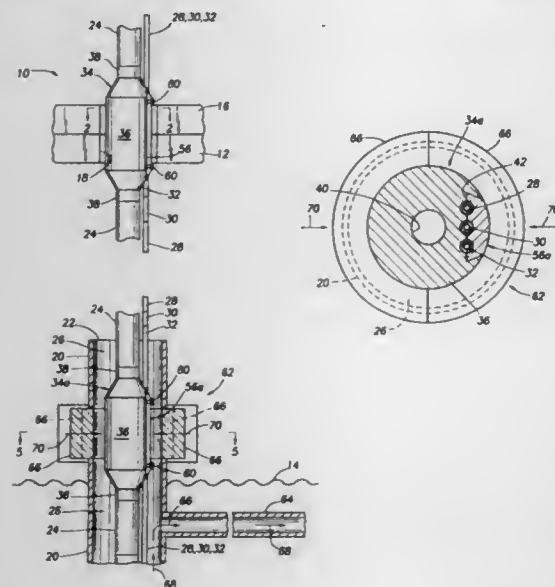
Virgilio Garcia-Soule, Irving, and Kenneth L. Schwendemann, Lewisville, both of Tex., assignors to Halliburton Energy Services, Inc., Dallas, Tex.

Filed Feb. 14, 1997, Ser. No. 800,696

Int. Cl.⁶ E21B 17/10; 33/035

U.S. Cl. 166—242.3

43 Claims



interior surface of said bore hole, as well as separate and distinct from said permeable fill material permitting liquid flow through said permeable fill material between said plurality of unconsolidated granules; and said permeable remediation material placed to surround a well inlet.

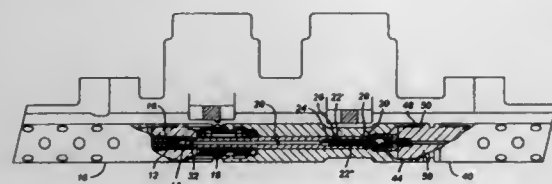
5,803,175
PERFORATING GUN CONNECTION AND METHOD OF CONNECTING FOR LIVE WELL DEPLOYMENT
William Desmond Myers, Jr., 18034 Bambriar Dr., Houston, Tex. 77090, and Robert R. Green, 2815 Kismet, Houston, Tex. 77043

Filed Apr. 17, 1996, Ser. No. 633,916

Int. Cl.⁶ E21B 43/119; 17/046

U.S. Cl. 166—297

47 Claims



15. A method of insertion and removal of perforating guns through a series of rams into a pressurized wellbore through a lubricator comprising:

- supporting at least a first gun in said lubricator;
- mounting at least a second gun to said first gun;
- using at least one connection between said guns that allows for an internal seal between said guns after said guns are fired, as well as facilitating the firing of said guns.

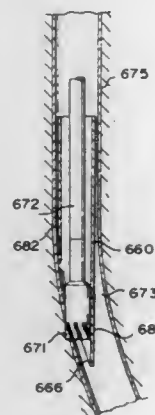
5,803,176
SIDETRACKING OPERATIONS
William A. Blizzard, Jr., Houston, Tex., and Dale E. Langford, Lafayette, La., assignors to Weatherford/Lamb, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 642,118, May 2, 1996, which is a continuation-in-part of Ser. No. 590,747, Jan. 24, 1996, Pat. No. 5,727,629. This application Jul. 15, 1996, Ser. No. 683,611

Int. Cl.⁶ E21B 29/06

U.S. Cl. 166—298

3 Claims



1. Apparatus operatively disposable within a subterranean wellbore, the apparatus comprising an elongated guide structure having inner and outer side surfaces and first and second opposite ends, a drill axially slidably disposed relative to the guide structure inner side surface, the drill being thereby laterally restrained by the guide structure inner side surface,

a grip member, the grip member being radially outwardly extendable relative to the guide structure outer side surface, the elongated guide structure comprising a hollow straight cylindrical body with a bore therethrough an upper end with an upper end opening and a lower end with a lower end opening, the lower end opening having a straight first side and a straight second side, the straight second side having a straight inner surface parallel to a straight outer surface of the hollow straight cylindrical body, the first straight side shorter than the straight second side so that the drill inserted through the bore and disposed at the lower end is free on one side thereof to drill adjacent the elongated guide structure while simultaneously a portion of the drill on another side thereof is in contact with the straight inner surface of the second side.

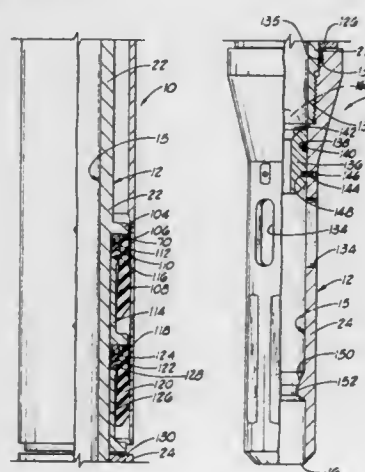
5,803,177
WELL TREATMENT FLUID PLACEMENT TOOL AND METHODS
Iosif J. Hrisco, and Donald W. Winslow, both of Duncan, Okla., assignors to Halliburton Energy Services, Duncan, Okla.

Filed Dec. 11, 1996, Ser. No. 760,095

Int. Cl.⁶ E21B 23/06; 34/08; 43/12

U.S. Cl. 166—305.1

20 Claims



11. A method of placing a treatment fluid in a selected portion of a producing interval in a subterranean formation penetrated by a well bore and by a plurality of perforations extending from casing cemented in the well bore into the producing interval, comprising the steps of:

- (a) connecting a fluid placement tool to tubing or a pipe string, said fluid placement tool having a fluid flow passageway extending therethrough, having at least one resilient self expandable cup type packer attached thereto and having a valve disposed in said fluid flow passageway which closes said fluid flow passageway when a closing plug is dropped into said tool, said placement tool being capable of releasing said cup type packer whereby it provides a seal between said tool and said casing when a first predetermined fluid pressure is applied to said tool after a closing plug is dropped into said tool and opening said fluid flow passageway whereby said treatment fluid is discharged from said tool below said packer when said fluid pressure is increased to a second predetermined fluid pressure;
- (b) lowering said tool and said tubing or pipe string in said well bore to said formation and dropping a closing plug into said tool whereby said valve and said fluid flow passageway of said tool are closed;
- (c) increasing the fluid pressure exerted on said tool to said first predetermined fluid pressure whereby said cup type packer is released;

- (d) positioning said tool whereby said packer is above a selected set or group of said perforations; and
- (e) increasing said fluid pressure exerted on said tool to said second predetermined fluid pressure whereby said fluid flow passageway is opened and said treatment fluid is placed in the portion of said producing interval penetrated by said selected perforations.

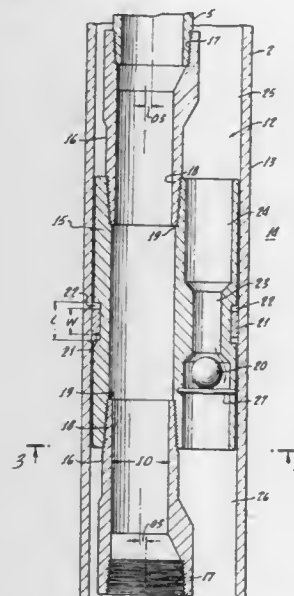
5,803,178
DOWNWELL ISOLATOR
Michael A. Cain, Bakersfield, Calif., assignor to Union Oil Company of California, El Segundo, Calif.

Filed Sep. 13, 1996, Ser. No. 712,922

Int. Cl.⁶ E21B 43/24

U.S. Cl. 166—306

28 Claims



1. A method for recovering one or more formation fluids from a plurality of subsurface zones penetrated by a wellbore tubular, said method comprising:

- placing a fluid isolator having a first passageway and a restrictable passageway at a wellbore location within said wellbore tubular such that said isolator is capable of conducting a formation fluid from a first zone to a surface location through said first passageway while substantially restricting the flow of a formation fluid from a second zone to the surface location through said restrictable passageway; and
- conducting a substantial flow of a formation fluid from said second zone to said surface location, wherein said second fluid flows through said restrictable passageway in said isolator when located at said wellbore location.

5,803,179
SCREENED WELL DRAINAGE PIPE STRUCTURE WITH SEALED, VARIABLE LENGTH LABYRINTH INLET FLOW CONTROL APPARATUS

Ralph H. Echols; Syed Hamid, both of Dallas; David W. Fish, Carrollton; Rex D. Presley, Ben Wheeler, and Timothy E. Harms, The Colony, all of Tex., assignors to Halliburton Energy Services, Inc., Dallas, Tex.

Filed Dec. 31, 1996, Ser. No. 777,650

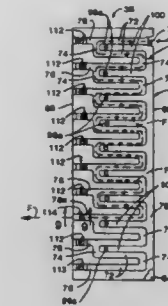
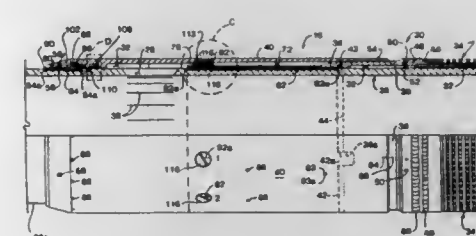
Int. Cl.⁶ E21B 43/00; 33/12; 17/10; E03B 3/11

U.S. Cl. 166—370

48 Claims

1. Production fluid drainage apparatus for a subterranean well, comprising:

- a base pipe having a sidewall inlet opening therein;



a tubular structure coaxially circumscribing the base pipe and forming therewith an annular fluid flow passage communicating with the interior of the base pipe through the sidewall inlet opening, the tubular structure having a fluid filtering section axially offset from the sidewall inlet opening and through which well fluid may flow into the annular fluid flow passage; and

an adjustable fluid flow control structure operative to selectively vary well fluid inflow through the fluid filtering section into the base pipe and including (1) an annular flow control member coaxially circumscribing the base pipe and interposed in the fluid flow passage between the sidewall inlet opening and the fluid filtering section, the flow control member having an outer side surface and further having a selectively variable length flow passage for permitting well fluid to axially traverse the flow control member, and (2) a first resilient sealing material adhered to the outer side surface of the annular flow control member and being compressed between the flow control member and the tubular structure.

5,803,180
CORROSION AND SLUDGE PREVENTION IN AUTOMATIC SPRINKLER-FIRE PROTECTION SYSTEMS

Roger K. Talley, 918 Tenderfoot Hill Rd., Suite #002, Colorado Springs, Colo. 80906

Filed Mar. 4, 1996, Ser. No. 610,473

Int. Cl.⁶ A62C 35/58

U.S. Cl. 169—16

5 Claims

1. A method to prevent corrosion and build-up of corrosion products in the piping of a sprinkler system containing water and used for fire protection, comprising the steps of: adding sodium hydroxide to the water to provide a pH value between about 9.5 to 11 which substantially prevents all electro-chemical activity; and installing a plastic-lined metallic tube between each sprinkler head and the piping to prevent galvanic corrosion.

5,803,181
GARDENING EQUIPMENT FOR LOOSENING THE SOIL
Shih-Hao Hsu, No. 426, Tou-Yuan E. Rd., Pi-Tou Hsiang, Chang-Hua Hsien, Taiwan

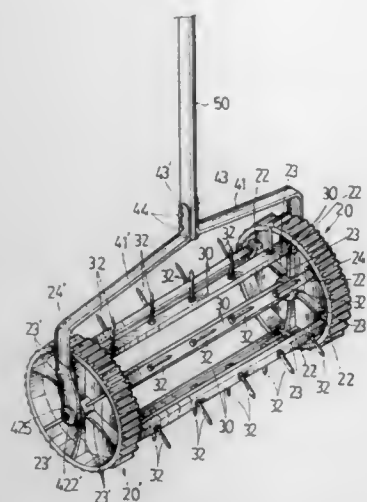
Filed Jan. 23, 1997, Ser. No. 787,945

Int. Cl.⁶ A01B 45/00

U.S. Cl. 172—21

4 Claims

1. A gardening implement comprising:



an axle having an axle body with a polygonal cross-sectional configuration and a screw rod extending from opposite ends of said axle body;

a wheel coupled to the opposite ends of said axle, each wheel comprising a plurality of transverse teeth equiangularly spaced around a periphery, a polygonal center coupling hole at one side coupled to one end of said polygonal axle body of said axle, a rounded center hole communicating with said polygonal center coupling hole enabling the passing of one screw rod of said axle, and a plurality of coupling grooves equiangularly spaced at one side near the periphery;

a plurality of tine bars fixedly attached between said wheels, each of said tine bars having opposite ends respectively, each opposite end fitted into one coupling groove of each of said wheels such that the tine bars do not pivot and rotate relative to the wheels, and a plurality of tines immovably attached to each tine bar, the tines extending outwardly beyond the peripheries of the wheels;

a handle for moving said axle and said wheels by hand; and a plurality of links coupled between one end of said handle and the screw rods of said axle.

5,803,182

BIDIRECTIONAL HYDRAULIC JAR

Stig Erling Bakke, Ålgård, Norway, assignor to Gefro Oilfield Services, Tananger, Norway

PCT No. PCT/NO94/00035, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO94/18428, PCT Pub. Date Aug. 18, 1994

PCT Filed Feb. 9, 1994, Ser. No. 648,075

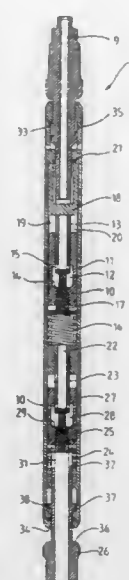
Claims priority, application Norway, Feb. 10, 1993, 930455

Int. Cl.⁶ E21B 4/14

U.S. Cl. 173—91

6 Claims

1. A double-acting hydraulic striking tool comprising a plurality of pistons which are adapted to open and close a flow of liquid, and wherein one of the plurality of pistons in a closed condition and with an appurtenant moving mass is displaceable from a first end position to a second end position by a hydraulic force; a spring is simultaneously tensioned by the hydraulic force to thereby open said piston to permit the flow of liquid, and neutralize the hydraulic force against the piston, said tensioned driving spring driving the mass back to rest against a rigid portion of striking tool, whereby a striking effect arises such that the piston returns to the first end position and again closes the flow of liquid and wherein the pistons



5,803,183

MINIATURE IMPACT TOOL

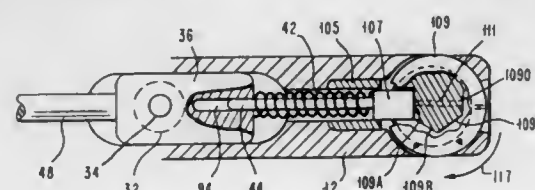
Raymond J. Phillips, 67 Wawecus Hill Rd., Bozrah, Conn. 06334

Filed May 1, 1997, Ser. No. 846,888

Int. Cl.⁶ B25D 11/10

U.S. Cl. 173—203

20 Claims



1. An impact tool comprising:

rotary means adapted for being driven in a rotary motion, said rotary means including a drive shaft that is biased in a forward direction by a first spring and a first cam attached to said drive shaft,

linear reciprocating means abutting said rotary means for converting said rotary motion to linear motion, said linear reciprocating means including a bearing in contact with said first cam, said bearing being moved in a backward longitudinal direction as said first cam rotates,

an output shaft having at one end thereof a holder for holding a cutting chisel,

means for preventing rotation of said output shaft,

a housing enclosing said rotary means, said output shaft and said linear reciprocating means,

a striker that is movable in a backward longitudinal direction against a spring when said first cam rotates and a guide pin/spring assembly including a guide pin and a second spring where said guide pin/spring assembly is in contact with said striker and causes said striker to move in a forward longitudinal direction for providing an impact force to said output shaft,

said second spring abutting at one end thereof a shoulder of said guide pin and at the other end thereof said striker, said guide pin and said second spring causing said striker to move in a forward longitudinal direction for providing a force impulse to said output shaft and thereby to a cutting chisel tool held by said output shaft.

cam means for establishing the compressive force on said second spring when said striker moves backward in a longitudinal direction.

5,803,184

ROTATABLE DRILL PIPE HAVING AN AUGER ON A FREE END THEREOF

Adriaan Van der Wouden, Ouderkerk aan de IJssel, Netherlands, assignor to Fundamentum B.V., Sliedrecht, Netherlands

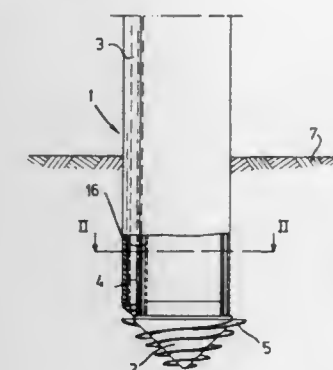
Filed Apr. 25, 1996, Ser. No. 637,474

Claims priority, application Netherlands, Apr. 25, 1995, 1000217

Int. Cl.⁶ E02D 5/56; 5/62

U.S. Cl. 175—21

14 Claims



1. A device for creating one of a tube and a barrier in the ground, comprising:

a rotatable drill pipe having a free end;

at least one displacement element on an exterior of said drill pipe extending substantially an entire length of said drill pipe to a vicinity of the free end; and

introducing means for introducing a setting fluid into the ground surrounding said drill pipe from an end of said at least one displacement element at the vicinity of the free end of said drill pipe.

5,803,185

STEERABLE ROTARY DRILLING SYSTEMS AND METHOD OF OPERATING SUCH SYSTEMS

John D. Barr, Cheltenham; John M. Clegg, Redland, and William C. Motion, Prestbury, all of England, assignors to Camco Drilling Group Limited of Hycalog, Stonehouse, England

Filed Feb. 21, 1996, Ser. No. 604,318

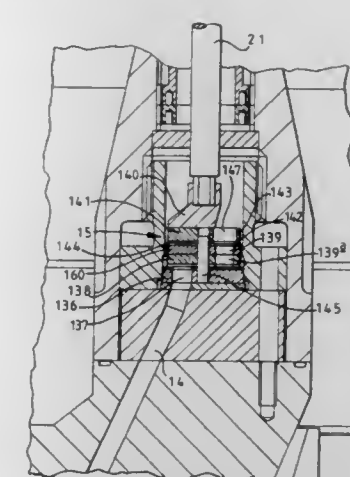
Claims priority, application United Kingdom, Feb. 25, 1995, 9503827

Int. Cl.⁶ E21B 7/08; 47/024

U.S. Cl. 175—45

16 Claims

13. A method of operating a steerable rotary drilling system having a bottom hole assembly which includes, in addition to a drill bit, a modulated bias unit and a control unit, the bias unit comprising a number of hydraulic actuators at the periphery of the unit, each having a movable thrust member which is hydraulically displaceable outwardly for engagement with the formation of the borehole being drilled, each actuator having an inlet passage for connection, through a control valve, to a source of drilling fluid under pressure, the operation of the valve being controlled by the control unit so as to modulate the fluid pressure supplied to the actuators as the bias unit rotates, the method comprising the steps of detecting pulses transmitted through the drilling fluid as a result of operation of the control valve controlling the hydraulic actuators of the bias unit, and interpreting said pulses to obtain information



regarding the operation of the bottom hole assembly including the bias unit.

5,803,186

FORMATION ISOLATION AND TESTING APPARATUS AND METHOD

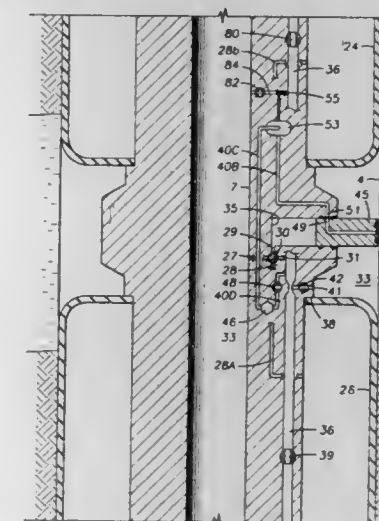
Per Erik Berger, Vestre Amoy; Nils Reimers, Stavanger, both of Norway, and Don Thornton Macune, Houston, Tex., assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 414,558, Mar. 31, 1995, abandoned. This application Mar. 28, 1996, Ser. No. 626,747

Int. Cl.⁶ E21B 49/10

U.S. Cl. 175—50

29 Claims



26. A method of drilling a well bore with a drill string including a drill bit, a mud pulse telemetry system, at least one element extendable from said drill string, a port, at least one fluid transfer device, and a pressure sensor, the method comprising:

drilling the well bore hole to a first formation while circulating drilling fluid;

measuring the pressure of the fluid in the well bore at the first formation;

expanding said at least one extendable element into sealing engagement with the wall of the well bore to isolate a portion of the well bore;

measuring the pressure of the first formation in said isolated portion of the well bore;

adjusting the density of the drilling fluid according to said pressure of the first formation;

withdrawing said at least one extendable element within a protective structure in said drill string; and

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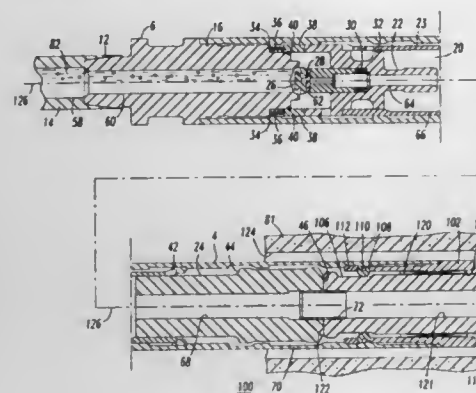
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further drilling the well bore hole with the adjusted drilling fluid density.

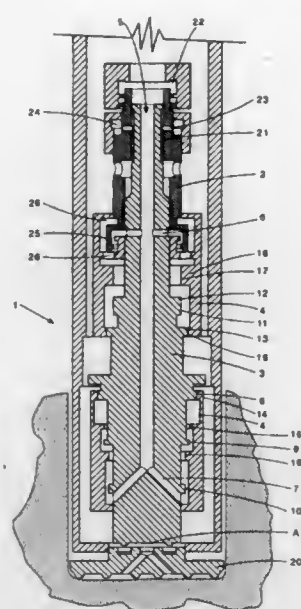
5,803,187
ROTARY-PERCUSSION DRILL APPARATUS AND METHOD
Brooks H. Javins, 292 Webster Ave., Morgantown, W. Va. 26505
Filed Aug. 23, 1996, Ser. No. 701,975
Int. Cl.⁶ F21B 10/36
U.S. Cl. 175—57 24 Claims



1. A rotary-percussion drilling apparatus for drilling a hole in the earth, said apparatus comprising:
drill string means for progressively extending into said hole;
an elongated housing connected to said drill string means, with said elongated housing having a longitudinal axis;
impact drill bit means rotationally coupled to said elongated housing, said impact drill bit means having an engaging surface; an earth impacting surface; channel means having an exit; and a plurality of conduits each of which extends from about the exit of said channel means to an exit portion of said each of said conduits, with said impact drill bit means rotatable about the longitudinal axis of said elongated housing;
piston means within said elongated housing for engaging the engaging surface of said impact drill bit means and forcing the earth impacting surface of said impact drill bit means to impact and penetrate a portion of the earth; and
working fluid handling means for energizing said piston means by means of a working fluid, with said channel means and said conduits of said impact drill bit means providing a path of flow of the working fluid from said piston means to the exit portions of said conduits, and
the exit portions of said conduits being displaced from the longitudinal axis and extending generally downwardly and outwardly, in order that the working fluid emerging from said exit portions effects rotation of said impact drill bit means about the longitudinal axis of said elongated housing.

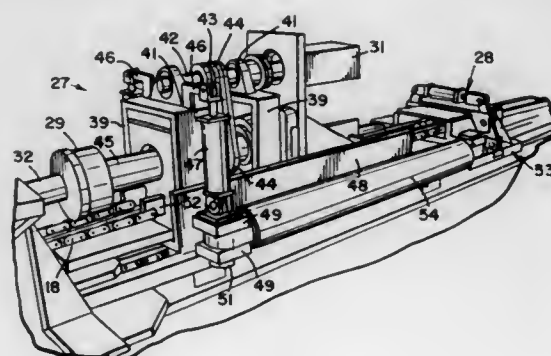
5,803,188
HYDRAULICALLY DRIVEN PERCUSSION HAMMER
Malcolm Bicknell McInnes, Angle Vale, Australia, assignor to SDS Pty Ltd., Australia
Filed Oct. 5, 1995, Ser. No. 539,726
Claims priority, application Australia, Apr. 5, 1993, PL8157
Int. Cl.⁶ E21B 4/14
U.S. Cl. 175—92 11 Claims

1. An hydraulically driven percussive hammer comprising a hammer body with a percussive drill bit at one end, a liner within said body having a piston bore, a piston within said piston bore for reciprocating impact against said drill bit.



a plurality of piston driving areas comprising radially projecting surfaces, at least some of which have different surface areas, spaced along the outer surface of said piston and arranged in two groups with a first group for driving said piston in one direction, and a second group for driving said piston in the other direction, each said driving area having a liner sealing surface,
a plurality of piston sealing surfaces corresponding to each of said piston driving areas spaced along said piston bore engaged sequentially by said piston liner sealing surfaces, fluid conduits for delivery of hydraulic fluid to said piston driving areas comprising a first conduit for delivery of said fluid at one end of said piston and a second conduit for delivery of said fluid at the other end of said piston, and fluid control means to control flow to cause reciprocating movement of said piston,
said piston driving areas and said piston sealing surfaces arranged so that, in each said direction of travel of said piston, said fluid acts sequentially against said piston driving areas with each subsequent effective piston driving area being less than the last so that the flow rate of said fluid remains substantially constant.

5,803,189
DIRECTIONAL BORING MACHINE
Robert L. Geldner, Rte. 1, Box 199, Cleveland, Minn. 56017
Filed Aug. 21, 1996, Ser. No. 701,096
Int. Cl.⁶ E21B 3/02
U.S. Cl. 175—113 10 Claims



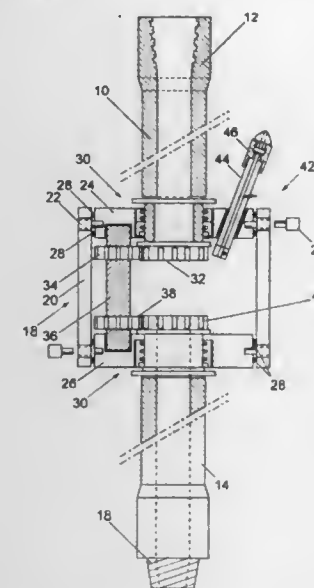
1. An earth boring machine comprising:
carriage means;

longitudinal boom means mounted on the carriage means;
drill head means movably and guidably mounted on the boom means for longitudinal movement thereon, the drill head means including drill means for rotatably boring a hole;
first drive means for drivably moving the drill head means on said boom means in forward and reverse directions; and second drive means comprising:
frame means guidably mounted on the boom means for movement with said drill head means;
locking means for releasably locking the frame means to said boom means; and
actuator means disposed between the frame means and the drill head for extending the drill head means relative to the frame means under a force that supplements the first drive means, and for retracting the drill head means relative to the frame means.

5,803,190

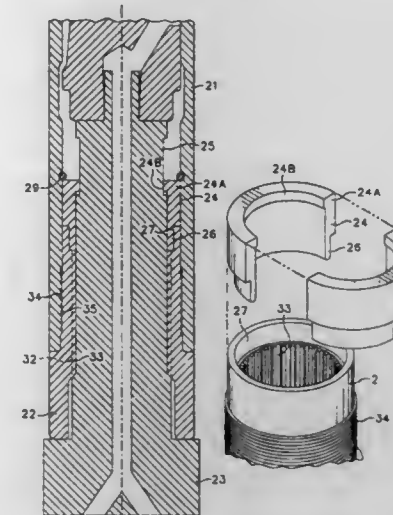
Patent Not Issued For This Number

5,803,191
WELL ENTRY TOOL
Kenneth Mackintosh, Verners Hall, Drumtochty, Auchenblae, Laurencekirk, Kincardineshire AB30 1TQ, United Kingdom
PCT No. PCT/GB95/01209, § 371 Date Nov. 27, 1996, § 102(e)
Date Nov. 27, 1996, PCT Pub. No. WO95/33120, PCT Pub. Date Dec. 7, 1995
PCT Filed May 26, 1995, Ser. No. 737,956
Claims priority, application United Kingdom, May 28, 1994, 9410801; Jul. 2, 1994, 9413340; Sep. 9, 1994, 9418188
Int. Cl.⁶ F21B 19/08; 33/072
U.S. Cl. 175—170 17 Claims



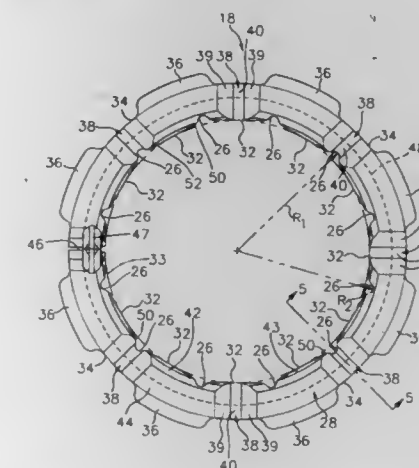
1. A well entry tool comprises an upper tubular member and a lower tubular member connected together by an intermediate assembly; the upper and lower tubular members being provided with outer end portions for connection of the tool in a drill string for fluid flow therethrough; the intermediate assembly comprising a hollow body including axially aligned, spaced bearing devices receiving the upper and lower tubular members to provide rotation of the tubular members relative to the hollow body, a power transmission mechanism within the hollow body for transmitting torque from the upper tubular member to the lower tubular member, and an entry device allowing a flexible elongate member to pass sealingly from the exterior to the interior of the hollow body.

5,803,192
DRILL BIT RETAINER FOR A DOWN HOLE HAMMER ASSEMBLY
Ardis L. Holte, 181 Polk St., Eugene, Oreg. 97402
Filed May 13, 1996, Ser. No. 645,284
Int. Cl.⁶ E21B 4/14
U.S. Cl. 175—296 3 Claims



1. In a down hole hammer having a barrel with a drill bit chuck and a drill bit slidably carried by the chuck, the improvement comprising a segmented retainer sleeve disposed about said bit and limiting axial travel of the bit, said retainer sleeve having an internal shoulder contactable with the bit and a skirt portion for inserted engagement with the drill bit chuck, said chuck having an end segment of reduced wall thickness defining an internal area for reception of said skirt portion of the retainer sleeve.

5,803,193
DRILL PIPE/CASING PROTECTOR ASSEMBLY
R. Ernst Krueger, Newport Beach, and N. Bruce Moore, Costa Mesa, both of Calif., assignors to Western Well Tool, Inc., Houston, Tex.
Continuation-in-part of Ser. No. 542,098, Oct. 12, 1995, abandoned. This application Sep. 20, 1996, Ser. No. 710,628
Int. Cl.⁶ E21B 17/10
U.S. Cl. 175—325.1 38 Claims



1. An underground drilling system comprising:
a well bore in an underground formation;
a fixed tubular casing installed in the well bore;

a rotary drill pipe extending through the casing and having an O.D. spaced from an I.D. of the casing or well bore during normal drilling operations;

a protective sleeve mounted around the drill pipe and spaced from the I.D. of the casing or bore for preferentially contacting the I.D. of the casing or bore when the drill pipe deflects off-center in the casing or bore to protect the casing or bore from contact with the drill pipe or its tool joints during rotation of the drill pipe;

thrust bearing means rigidly affixed to the drill pipe above and below the sleeve for retaining the sleeve in a fixed axial position on the drill pipe;

the protective sleeve mounted to the drill pipe via an internal sleeve I.D. configuration that substantially reduces the rotational rate of the sleeve upon frictional contact of the sleeve with the I.D. of the casing or bore, while allowing the rotary drill pipe to continue rotating within the sleeve at a rotation rate sufficient to conduct drilling operations in the formation; said internal configuration comprising longitudinally extending and circumferentially spaced apart axial grooves formed in an I.D. wall of the sleeve for allowing fluid to circulate through a space formed between the I.D. of the sleeve and the O.D. of the drill pipe; and non-tapered flat bearing surface regions of the I.D. wall of the sleeve extending between adjacent axial grooves and arranged in a polygon configuration contacting the O.D. of the drill pipe by tangential point contact around a portion of the sleeve I.D. for causing the sleeve to separate from the O.D. of the drill pipe upon circulation of a fluid film under pressure between the sleeve and drill pipe to produce a fluid bearing effect having reduced frictional drag.

5,803,194

WEAR PROTECTOR FOR A DRILLING TOOL

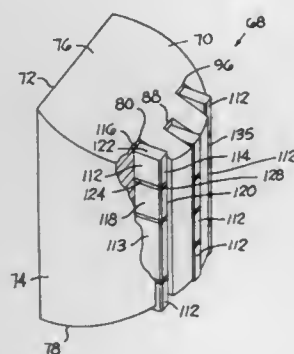
Don C. Rowlett, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.

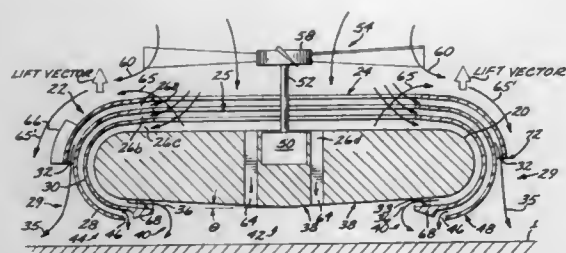
Filed Nov. 19, 1996, Ser. No. 751,383

Int. Cl.⁶ E21B 17/10

U.S. Cl. 175—325.2

20 Claims



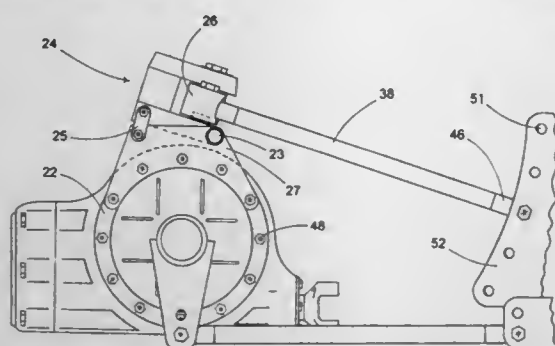


a substantially circular body formed with a downwardly radially curved exterior peripheral surface;
a downwardly facing lifting surface formed on the underside of said body;
a peripheral restoring surface extending around said lifting surface and angling upwardly and outwardly with respect thereto;
an air intake cavity formed in the upper surface of said body;
concentric annular nozzle means, including a first air curtain nozzle, a first air cushion nozzle, a second air curtain nozzle and a second air cushion nozzle;
first air passageway means connecting said intake cavity with said first air curtain nozzle, first air cushion nozzle and second air curtain nozzle;
second air passageway means connecting said intake cavity with said second air cushion nozzle; and
an air drive means, said air drive means being positioned exterior of said body for directing a jet flow into said air intake cavity and also over the curved exterior peripheral surface of said body.

5,803,200
ADJUSTABLE PIVOT AXIS FOR "THE MISSING LINK"
SWIVEL FOR FOUR-LINK RIGID AXLE SUSPENSIONS
Larry A. Brandt, P.O. Box 21061, Reno, Nev. 89515
Filed Dec. 10, 1996, Ser. No. 763,223
Int. Cl.⁶ B60G 9/00

U.S. Cl. 180—348

15 Claims



14. A suspension for a ground vehicle comprising a four-link arrangement to connect a rigid axle to a framework of said vehicle and stabilize said rigid axle in fore, aft, and rotational directions; the four links extend within a predetermined number of degrees of parallel to a longitudinal axis of said vehicle; a pair of said four links attach to said rigid axle above, and a pair of said four links attach to said rigid axle below, a centerline of said rigid axle; the other end each of said four links attach to said framework of said vehicle;

in combination with, a swivel comprising an arm having two opposite ends and a centrally positioned pivot shaft; said swivel is interposed between either pair of links at one end and the surface to which said links would otherwise attach, such that each end of said arm attaches to a corresponding end of the link pair, with said pivot shaft held steadfast to said surface residing between the locations where each link of said link pair would otherwise attach;

thereby said swivel eliminates bind in said suspension by permitting one end of said rigid axle to move up or down independently of the other axle end, when one said link pair is positioned at an angle to the other link pair in the initial setup of the suspension;

the improvement to said suspension is characterized in that said pivot shaft comprises an adjustable means to alter the angle of its axis in relation to the surface in which it is fixed, thus making it capable to realign the pivot motion of the swivel arm with the attaching link pair's lengthwise direction, whenever a change has been made to the setup angle of the swivel attaching link pair;

whereby said suspension can have a wide range of link angle positions from which to select, and be able to maintain proper alignment of said swivel to said attaching link pair.

5,803,201
HYDRAULIC POWER STEERING GEAR ASSEMBLY
WITH UNLOADING VALVE

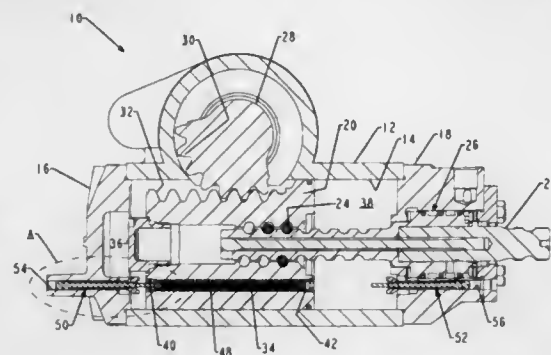
Peter H. Sheppard, Hanover, Pa., assignor to R. H. Sheppard Co., Inc., Hanover, Pa.

Filed Jun. 5, 1996, Ser. No. 659,144

Int. Cl.⁶ B62D 5/08

U.S. Cl. 180—429

18 Claims



1. A hydraulic power steering gear assembly comprising an assembly body defining a piston chamber having opposed chamber ends;

a reciprocating power piston in the chamber having opposed piston ends facing said chamber ends and a rack;
an input shaft mounted in the assembly body at one chamber end and extending into the chamber from such chamber end;
a ball screw connection between the input shaft and the piston;
an output shaft rotatably mounted in the assembly body with a gear on the output shaft, said gear engaging said piston rack;
a piston passage extending through the piston between said piston ends;
a check valve at each end of the piston passage;
a plunger passage in said assembly body at each end of the chamber, such passages aligned with the ends of the piston passage; and
a plunger assembly in each plunger passage, each such assembly including a plunger body having a first end away from the chamber, a poppet end extending into the chamber, a rod extending between such ends, opposed stop members on each end of the plunger body, and a spring substantially surrounding the rod and extending between said stop members, said spring resiliently engaging a wall of a plunger passage.

5,803,202
REACTION SIMULATOR ESPECIALLY FOR A VEHICLE
STEERING SYSTEM

Hubert Bohner, Böblingen; Martin Moser, Fellbach, and Karsten Gerdes, Kürten, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

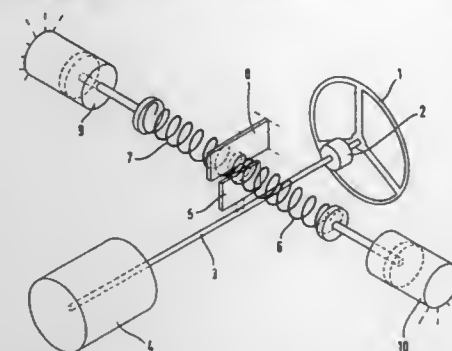
Filed Oct. 18, 1996, Ser. No. 731,761

Claims priority, application Germany, Oct. 20, 1995, 195 39 101.2

Int. Cl.⁶ B62D 5/04

U.S. Cl. 180—443

5 Claims



1. A reaction simulator for a vehicle steering system including: a steering wheel mounted on a shaft rotatably supported in a housing for providing a master set point value for an operating mechanism of a vehicle steering system, a cam cylinder mounted on said rotatable shaft for rotation therewith, a return spring with a force transmitting structure arranged so as to be biased by said spring into engagement with said cam cylinder for biasing said steering wheel into a rest position and to provide varying reaction forces to said steering wheel via said cam cylinder, and means for applying a controllable force to said force transmitting structure in opposition to the force applied by said spring for controlling the force applied to said cam cylinder for simulating direct coupling of said steering wheel with the operating mechanism of the vehicle steering system.

5,803,203
ACTIVE SCAFFOLDING SYSTEMS
Robert L. Williams, II, Athens, Ohio, assignor to Ohio University, Athens, Ohio

Filed May 14, 1997, Ser. No. 856,329

Int. Cl.⁶ E04G 1/20

U.S. Cl. 182—141

1 Claim



12-dof Active Structure

1. An active scaffolding system adapted to hold a payload, said active scaffolding system comprising:
(a) a plurality of adjustable links and rigid links connected by joints;

(b) a plurality of actuator devices associated with the adjustable links so as to change to length of the adjustable links;
(c) a microprocessor to determine how the lengths of each of the adjustable links throughout a number of time steps; the said microprocessor being provided with computer program instructions to resolve Cartesian end point translational and rotational motions;
(d) the said adjustable links, rigid links, and actuator devices forming an active scaffolding adapted to move a payload around environmental obstacles while supporting said payload against the force of gravity.

5,803,204
PERSONNEL LIFT WITH CLAMSHELL CAGE
ASSEMBLY

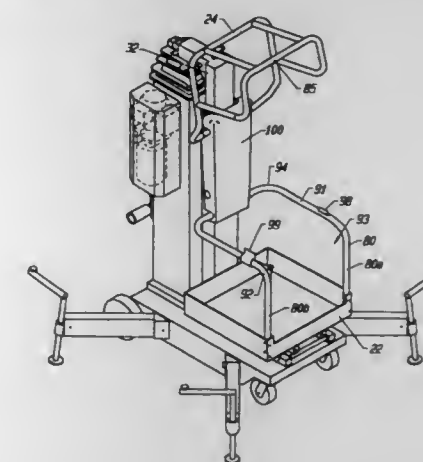
David D. White, Fresno, Calif., and Alan E. Murphy, Kingston, Wash., assignors to UpRight, Inc., Selma, Calif.

Continuation-in-part of Ser. No. 609,823, Mar. 1, 1996, abandoned, which is a continuation of Ser. No. 546,764, Oct. 23, 1995, abandoned. This application Jan. 28, 1997, Ser. No. 787,024

Int. Cl.⁶ B66B 9/20

U.S. Cl. 182—148

10 Claims



1. A safety cage assembly having a clamshell opening feature for use in conjunction with a portable personnel lift wherein said lift is movable between a lowermost position wherein said cage assembly provides ground level entry for a user, and one or more elevated positions wherein said cage assembly provides a safety system to prevent said user from falling, said cage assembly comprising:

cage support means supportable by said lift,
cage base means on which said user stands when in said safety cage assembly,
a movable upper safety rail means pivotally mounted for rotation about a horizontal axis and movable between an open, raised position wherein said cage assembly is open and affords direct access for said user into said cage without stooping, and a closed, lower position wherein said movable upper safety rail means of said cage assembly extends at least partially around said user when standing in said cage, and
a mid-level safety rail means, at least a portion of which is connected to said movable upper safety rail means, whereby said safety cage assembly in its closed position provides a mid-level rail and an upper rail extending around said user when standing in said cage.

5,803,205

FOLDING SAWHORSE

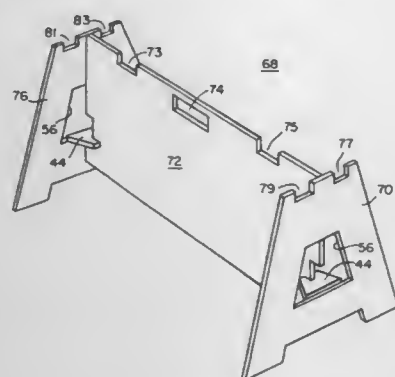
Robert C. Kochem, 21 Jason Rd., Belmont, Mass. 02178

Filed Nov. 8, 1996, Ser. No. 746,405

Int. Cl.⁶ B27B 21/00

U.S. Cl. 182—153

2 Claims



1. A one-piece folding sawhorse consisting essentially of:
 - a one-piece rigid planar center panel having a left edge, a right edge, a top edge and a bottom edge;
 - a first rigid planar end panel having a lower edge, a left edge and a right edge;
 - first hinge means for pivotally attaching said left edge of said rigid planar center panel to said first rigid planar end panel, wherein the rigid planar center panel is centrally located between the left and right edges of the first rigid planar end panel and the center panel is disposed perpendicular to the lower edge of the first rigid planar end panel, thereby allowing the first rigid planar end panel to pivot to a position essentially parallel to and about the rigid planar center panel along a hinge axis essentially parallel to the left edge of the rigid planar center panel;
 - a second rigid planar end panel having a lower edge, a left edge, and a right edge;
 - second hinge means for pivotally attaching said right edge of said rigid planar center panel to said second rigid planar end panel, wherein the rigid planar center panel is centrally located between the left and right edges of the second rigid planar end panel and the center panel is disposed perpendicular to the lower edge of the second rigid planar end panel, thereby allowing the second rigid planar end panel to pivot to a position essentially parallel to and about the rigid planar center panel along a hinge axis essentially parallel to the right edge of the rigid planar center panel; and
 - locking means for releasably fixing the first and second rigid planar end panels in a position essentially perpendicular to the rigid planar center panel wherein said locking means comprises a flap pivotally attached to at least one of the rigid planar end panels and releasably engageable with at least one of the left or right edges of the rigid planar center panel.

5,803,206

HOIST LOCKING AND RELEASE APPARATUS

Jon S. Halstead, La Jolla, and Anthony J. Halstead, National City, both of Calif., assignors to Western Hoist, Inc., National City, Calif.

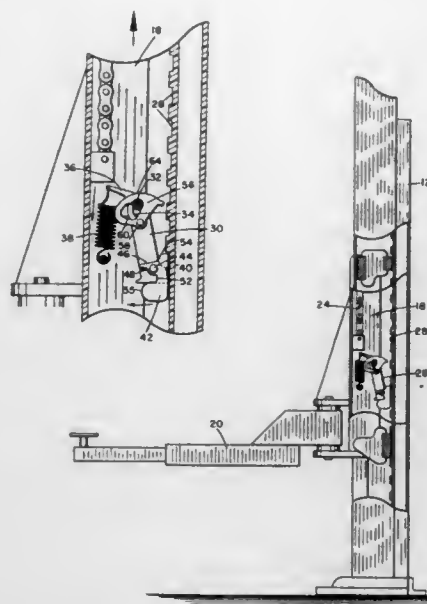
Filed May 14, 1996, Ser. No. 645,690

Int. Cl.⁶ B66B 9/00

U.S. Cl. 187—208

13 Claims

1. A lifting apparatus for lifting loads, comprising:
 - first and second spaced vertical posts;
 - a first carriage slidably mounted on the first post;
 - a second carriage slidably mounted on the second post;
 - a drive mechanism for driving the first and second carriages up and down the respective posts;



- each post having a wall facing the respective carriage, the wall having a series of vertically spaced recesses;
- a first locking assembly pivotally mounted on the first carriage;
- a second locking assembly pivotally mounted on the second carriage;
- each locking assembly including a ratchet plate pivotally secured to the respective carriage and having a projecting locking portion, a biasing member for biasing the plate towards a locking position in which the locking portion engages in an aligned recess in the post wall, the ratchet plate being pivotable back and forth into and out of successive wall recesses as the respective carriage is raised, and being locked in a selected recess when the respective carriage is lowered;
- each locking assembly further including a lock release cam for releasing the ratchet plate from an aligned recess to allow the respective carriage to be lowered, and a by-pass member for holding the ratchet plate in a retracted position in which the locking portion is clear of the wall recess as the respective carriage is lowered; and
- each lock release cam including a portion for engaging the post wall to bias the ratchet plate out of an aligned recess when the respective carriage is raised from a locked condition.

5,803,207

BRAKE ASSEMBLY FOR A CYCLE

Peter M. Nielsen, 21 Nut Island Ave., Quincy, Mass. 02169

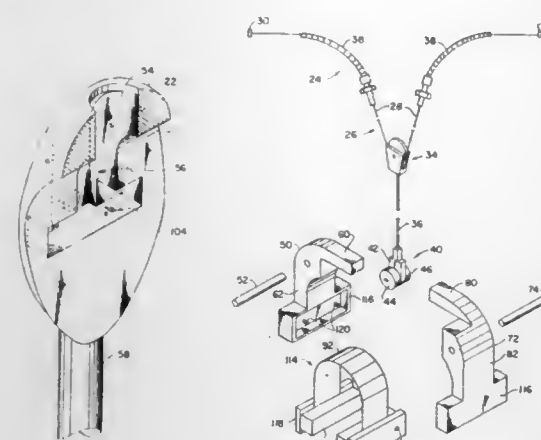
Filed Nov. 14, 1995, Ser. No. 557,349

Int. Cl.⁶ B62L 1/00

U.S. Cl. 188—24.12

42 Claims

1. In combination with a cycle, a brake assembly comprising:
 - a brake actuator mounted on said cycle;
 - a motion transfer assembly fixed to and extending from said brake actuator and movable thereby;
 - a caliper-actuating body connected to said motion transfer assembly;
 - a first caliper arm having first and second arm portions, pivotally movable by said body acting thereon in response to movement of said motion transfer assembly, for moving a first brake pad on said first caliper arm toward a wheel of said cycle; and
 - frame portions of said cycle having cavity means therein, at least a portion of said first caliper arm being disposed in said cavity



means and being movable to advance said first brake pad toward said wheel.

5,803,208

SAFETY ACCESSORY FOR VEHICLES

Rainer Blach, Bubesheim, Germany, assignor to Tripus GmbH

Kunststoff- und Elektrotechnik, Bubesheim, Germany

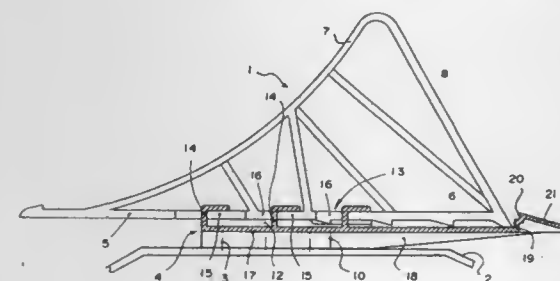
Filed Jan. 31, 1997, Ser. No. 792,110

Claims priority, application Germany, Feb. 1, 1996, 196 03 657.7

Int. Cl.⁶ B60T 3/00

U.S. Cl. 188—32

18 Claims



1. A safety accessory on a vehicle, comprising:
 - at least one holder which is attached to the vehicle;
 - a wheel chock associated with each holder, said wheel chock having a bottom plate defining lateral edges;
 - each said holder including a base plate which is attached to the vehicle, said base plate having cheeks which project away from said base plate, said cheeks defining lateral edges and serving to receive between them said associated wheel chock, and at least one spring arm which projects away from the back of said base plate, said at least one spring arm including at least one protrusion; and
 - fastening means comprising coupling elements which are mutually engaged for fastening said wheel chock to its associated holder, said fastening means being provided in the area of the lateral edges of said bottom plate and the lateral edges of said cheeks, said coupling elements each comprising an insertion bolt and an associated receiving pocket, said insertion bolt being brought into mutual interlocking engagement with its associated receiving pocket by an L-shaped relative movement, with an insertion movement extending perpendicularly to said base plate and a pushing movement extending in the longitudinal direction of said base plate,
- wherein said at least one protrusion reaches behind a rear edge of its associated wheel chock when said wheel chock is brought into engagement with its associated holder, and said

wheel chock is removed from its associated holder by movement against the spring force of said at least one spring arm.

5,803,209

ADJUSTABLE ROPE TENSIONER

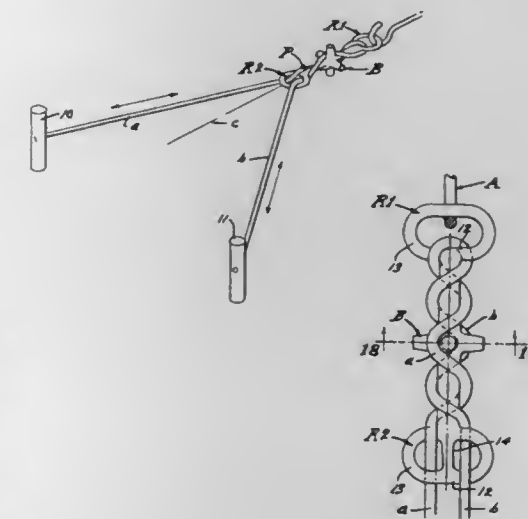
Kiyoshi Suzuki, 1137 El Medio Ave., Pacific Palisades, Calif. 90272

Filed Oct. 26, 1995, Ser. No. 548,877

Int. Cl.⁶ B65H 59/16; A63B 21/018

U.S. Cl. 188—65.2

5 Claims



1. A motion restricting device for adjustably restraining rectilinear movement of and in combination with a loop of rope in an exerciser for controlling tension force applied to either of two opposite legs of the rope, and including:
 - an elongated alignment post disposed along a pulling axis extending from at least one of said legs when tensioned thereby;
 - a rope retainment means in the form of spaced rings centered on and in a common plane coincidental with the pulling axis and projecting from opposite ends of the alignment post for passing the legs of the rope therethrough;
 - a plurality of angularly displaced circumferentially spaced bit members arranged on radially disposed angularly separated axes projecting radially from the alignment post pulling axis at a position intermediate opposite ends of the alignment post for selectively adjusting restraintment of the rope;
 - the alignment post and the retainment means rings and the bit members being smooth surfaced for frictional sliding engagement with said loop of rope;
 - the loop of rope having a center section disposed between said opposite end legs thereof and entrained into and through the retainment means rings at one end of the alignment post to extend along one side thereof and entrained and turned through the retainment means ring at the other end of the alignment post to extend along the other side of the alignment post and through and out of the retainment means ring at said one end of the alignment post;
 - the center section of the rope entrained along either one side or the other of the alignment post being rotatively drawn and hooked over one of the angularly displaced bit members;
 - and the two opposite legs of said loop of rope being tensioned through the retainment means ring at said one end of the alignment post.

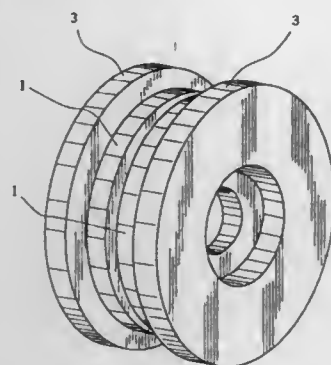
5,803,210
DISK BRAKES

Takefumi Kohno; Masakazu Hiro; Yoshio Soda, and Mitsuhiro Ishii, all of Yokohama, Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 578,148, Dec. 27, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 808,578
Claims priority, application Japan, Dec. 28, 1994, 6-337670; Feb. 6, 1995, 7-39382

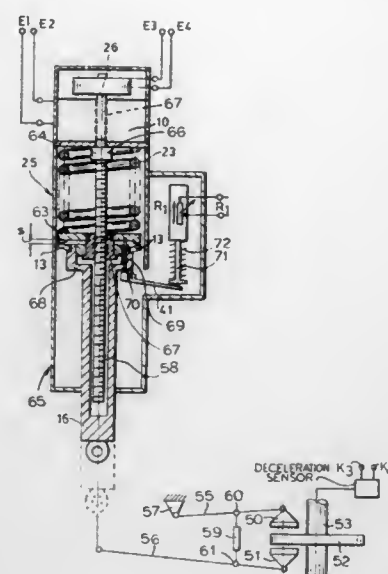
Int. Cl.⁶ F16D 69/02
U.S. Cl. 188—73.1

26 Claims



1. A disk pad brake comprising a rotor disk provided with a carbon-carbon composite material (a) as a friction member, and at least one pad provided with a carbon-carbon composite material (b) as a friction member; said materials (a) and (b) being each composed of carbon fibers and a carbonaceous matrix; and the difference in thermal conductivity between said materials (a) and (b) being in a range of 30 to 450 W/m-K in a radial direction of each of said materials, wherein:

- said material (a) is prepared by impregnating the carbon fibers with a thermoplastic organic precursor and firing so impregnated carbon fibers;
- said material (b) is prepared by either 1) impregnating the carbon fibers with a thermoplastic organic precursor, firing so impregnated carbon fibers and then depositing pyrolytic carbon on so fired composite, or 2) depositing pyrolytic carbon on the carbon fibers, impregnating so obtained composite with a thermoplastic organic precursor and then firing so impregnated composite; and
- said carbon fibers used in at least either of said materials (a) and (b) are at least one member selected from the group consisting of pitch-based carbon fibers and precursors thereof.



to said brake element, said actuator being movable through a given spring displacement relative to said force-storing spring;

- a bridging spring interposed between said force-storing spring and said actuator and enabling said displacement; and
- a Wheatstone bridge comprising:
 - a variable resistor having a resistance varying with said displacement and a controllable setpoint resistor in series with said variable resistor and forming therewith one arm of said Wheatstone bridge,
 - an electrically modifiable resistor having a mean resistance equal substantially to a mean resistance of said setpoint resistor forming another arm of said bridge and having a first pair of terminals across which a potential is applicable for varying a resistance of said electrically modifiable resistor with an inverse current/resistance characteristic, said variable resistor, said controllable setpoint resistor and said electrically modifiable resistor forming a variable branch of said bridge,
 - a second pair of terminals connected across the controllable setpoint resistor, and
 - means for selectively short circuiting and open circuiting the terminals of said first and second pairs.

5,803,212
GRATING SYSTEM

Paul-Werner Reinehr, Iserlohn-Rheinen; Günter Dieterich, Dortmund; Hans-Werner Schulte, Schwerte; Karlheinz Piel, Schwerte, and Dirk Fenger, Lippstadt, all of Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany
Continuation of Ser. No. 887,687, May 22, 1992, abandoned.
This application Sep. 17, 1993, Ser. No. 123,700

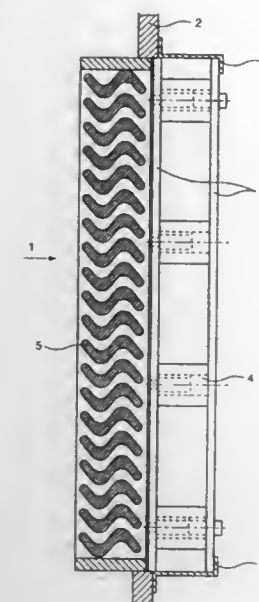
Claims priority, application Germany, May 25, 1991, 41 17 194.2

Int. Cl.⁶ F16F 7/12; F42B 33/06

U.S. Cl. 188—372

2 Claims

1. A grating system with parallel strips of structural section forming air channels for an armored special-purpose vehicle, comprising: a movable frame for holding said strips; means for mounting said frame on said vehicle; and movable energy absorbing means between said vehicle and said strips for reducing breakup of material having kinetic energy on impact with said strips of structural section by absorbing a part of said kinetic energy through said energy absorbing means and resisting penetration of said material into said air channels for increasing ballistic defense of the grating system, said energy absorbing means and said frame moving upon

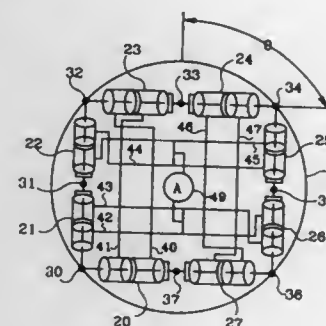


said impact to absorb said part of said kinetic energy; said energy absorbing means being operated with compressed gas.

5,803,213
HEAVY LOAD VIBRATION ISOLATION APPARATUS
Toren S. Davis, Peoria, and David A. Osterberg, Glendale, both of Ariz., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Feb. 3, 1997, Ser. No. 792,745
Int. Cl.⁶ F16F 7/10; 9/00

U.S. Cl. 188—378

14 Claims



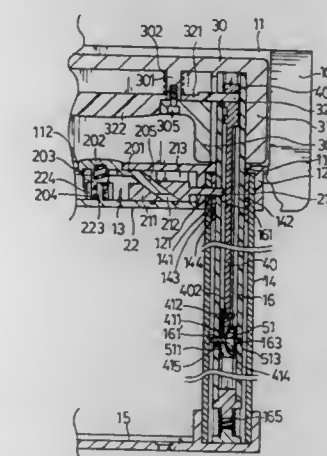
- 7. A damping system for use in mounting a first member to a second member, comprising:
 - a first fluid chamber connected to the first member;
 - a second fluid chamber connected to the second member;
 - first means connecting the first and second chambers so that an increase in volume of the first chamber is accompanied by a decrease in volume of the second chamber;
 - a third fluid chamber connected to the first member;
 - a fourth fluid chamber connected to the second member;
 - second means connecting the third and fourth chambers so that an increase in volume of the third chamber is accompanied by a decrease in volume of the fourth chamber;
 - a first fluid passage connecting the first and fourth chambers;
 - a second fluid passage connecting the second and third chambers;
 - a reservoir providing a source of pressurized fluid;
 - a fifth fluid chamber;
 - a sixth fluid chamber;
 - third means connecting the fifth and sixth chambers so that an increase in volume of the fifth chamber is accompanied by a decrease in volume of the sixth chamber;

- a seventh fluid chamber;
- an eighth fluid chamber;
- fourth means connecting the seventh and eighth chambers so that an increase in volume of the seventh chamber is accompanied by a decrease in volume of the eighth chamber;
- connection means connecting the first and third means and connecting the second and fourth means so that they move together; and
- a source of pneumatic pressure connected to the fifth, sixth, seventh and eighth chambers to provide a spring of stiffness which can be changed by changing the pressures in the fifth, sixth, seventh and eighth chambers.

5,803,214
RETRACTABLE HANDLE MOUNTING ASSEMBLY OF A TRAVEL BAG
King-Sheng Wang, No. 569, Ching-Kuo Rd., Ta-Chia Chen, Taichung Hsien, Taiwan
Filed Jul. 9, 1997, Ser. No. 891,620
Int. Cl.⁶ A45C 13/26

U.S. Cl. 190—115

1 Claim



- 1. A retractable handle mounting assembly comprising:
 - a casing fixedly mounted on a travel bag, said casing comprising a top receiving chamber, two tubular flanges bilaterally and downwardly extended from a bottom side thereof and having a respective transverse through hole at an inner side, two through holes respectively disposed in communication between said top receiving chamber and said tubular flanges, a bottom control box spaced between said tubular flanges and having a bottom open side covered with a bottom cover, and a button hole disposed in the middle in communication with said bottom control box;
 - a sleeve holder fixedly mounted on said travel bag remote from said casing;
 - two sleeves connected in parallel between said sleeve holder and said tubular flanges of said casing, each of said sleeves comprising an inside flange downwardly extended from its topmost edge on the inside, a transverse outside through hole made through the periphery and disposed in alignment with the transverse through hole of one tubular flange of said casing, an upper inside through hole made through said inside flange and disposed in alignment with said transverse outside through hole and the transverse through hole of the corresponding tubular flange of said casing, and a lower inside hole spaced below said upper inside through hole;
 - a control knob mounted in said control box, said control knob comprising a knob base stopped below said button hole of said casing, a knob head raised from said knob base and protruding out of said button hole of said casing, two bevel blocks respectively extended from two opposite ends of said knob base, a spring supported between the bottom cover of

said control box and said knob base to impart an upward pressure to said knob head;

two stop members respectively coupled to said bevel blocks of said control knob and moved relative to each other by means of the control of said control knob, each of said stop members comprising a stop member base, a bevel hole at one end of the said stop member base coupled to one bevel block of said control knob, and a stop rod horizontally extended from an opposite end of said stop member base and inserted into the transverse through hole of one tubular flange of said casing and the transverse outside through hole of one sleeve and the upper inside through hole of the inside flange of the corresponding sleeve;

two inner tubes respectively inserted through the through holes of said casing into said sleeves, having a respective bottom end mounted with a respective spring device, each of said inner tubes comprising a top notch, a first locating hole and a second locating hole disposed near two opposite ends, and a third locating hole opposite to said second locating hole, said first locating hole being adapted to receive the stop rod of one stop member to let the corresponding inner tube be locked in the corresponding sleeve;

a hollow, bottom-open hand grip covered with a bottom cover shell, having two downward coupling tubes at two opposite ends respectively connected to said inner tubes outside said sleeves, said bottom cover shell having a center opening, said downward coupling tubes having a respective opening at an inner side aligned with the top notch of the corresponding inner tube;

a press control device coupled to said hand grip on the inside, said press control device comprising a flat base plate, a press block raised from a bottom side of said flat base plate and protruding out of the center opening of said bottom cover shell for pressing by hand, two spring elements supported between said flat base plate and inside wall of said hand grip, and two coupling rods respectively extended from two opposite ends of said flat base plate in reversed directions and inserted through the openings of the downward coupling tubes of said hand grip and the top notches of said inner tubes;

two control rods respectively mounted in said inner tubes and lifted by said press control device, each of said control rods having a top coupling hole fastened to one coupling rod of said press control device, and a bottom coupling hole;

two elongated actuating members respectively mounted inside said inner tubes and coupled to said control rods, each of said elongated actuating members comprising a coupling rod at one end fitted into the bottom coupling hole of one control rod, two parallel side flanges raised along two long sides thereof, a longitudinal sliding slot in the middle between said parallel side flanges, and a bevel sliding track formed in said parallel side flanges; and

two resilient locating devices respectively mounted inside said inner tubes and coupled to said actuating members, each of said resilient locating devices comprising a loop-shaped resilient body moved between the parallel side flanges of one actuating member, a rear locating rod raised from said loop-shaped spring body at one side and fastened to the third locating hole of one inner tube, a transverse sliding block disposed at one side of said loop-shaped spring body opposite to said rear locating rod and adapted to move in the bevel sliding track of the corresponding actuating member, and a front locating rod perpendicularly raised from said transverse sliding block and inserted into the longitudinal sliding slot of the corresponding actuating member and the second locating hole of the corresponding inner tube and controlled by the corresponding control rod to move in and out of the lower inside through holes of the inside flanges of the corresponding sleeve.

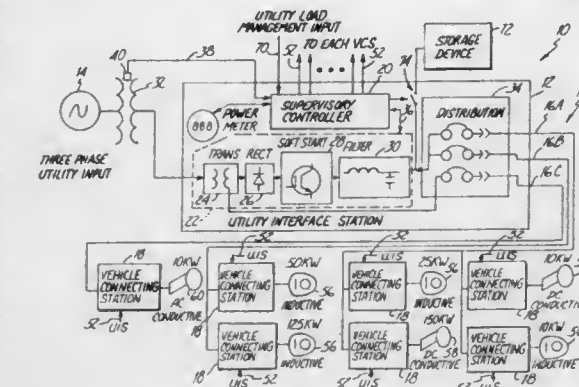
5,803,215
METHOD AND APPARATUS FOR CHARGING A PLURALITY OF ELECTRIC VEHICLES
Christopher P. Henze, Lakeville, and Kenneth E. Nicholls, Eden Prairie, both of Minn., assignors to Schott Power Systems Incorporated, Wayzata, Minn.

Filed Jan. 22, 1997, Ser. No. 787,208

Int. Cl.⁶ H02J 7/00

U.S. Cl. 191—2

31 Claims



1. An electric vehicle charging system receiving power from a power source and charging batteries of a plurality of vehicles, the system comprising:

a power source converter connectable to the power source to receive electrical power and for converting the electrical power to a selected voltage potential;
a distribution bus for carrying the selected voltage potential;
a plurality of vehicle connecting stations connected to the distribution bus wherein each vehicle connecting station comprises:

a station power converter having input terminals connected to the distribution bus for receiving electrical power from the power source converter at the selected voltage potential, and a coupler connectable to a vehicle battery; and
a station controller operably connected to the station power converter to control electrical power flow to the vehicle battery; and

means for measuring a temperature of the power source converter and allowing the power source converter to exceed a steady-state rating as a function of temperature of the power source converter.

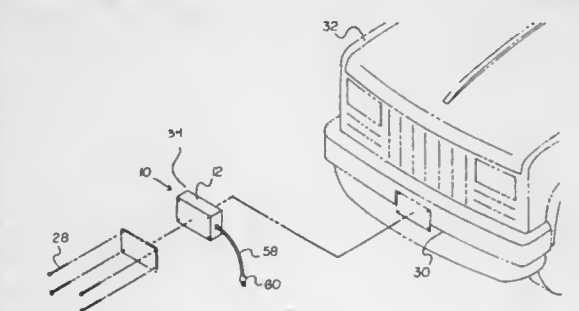
5,803,216
RETRACTABLE EXTENSION CORD HOLDER AND RECEPTACLE FOR AN AUTOMOBILE
Terry Joshua Robert McNaught, RR#3, Rimbey, Alberta, Canada, T0C-2J0

Filed May 30, 1997, Ser. No. 866,132

Int. Cl.⁶ H02G 11/02

U.S. Cl. 191—12.4

7 Claims



1. A retractable extension cord holder and receptacle for an automobile for providing a convenient means for power adjacent to the automobile comprising, in combination:

a housing having a generally rectangular configuration, the housing being defined by a front face, a rear face, a top face, a bottom face, two side faces and a hollow interior, the housing having apertures extending through the front face and the rear face in corners thereof for receiving fasteners there-through for securement to a front bumper of a vehicle;

an electrical receptacle disposed within one of the two side faces of the housing, an aperture formed through the side face opposite the electrical receptacle;

a spring-activated spool disposed within the hollow interior of the housing, the spool being rotatably positioned between the front face and rear face of the housing;

a grommet secured to an outer surface of the side face of the housing disposed over the aperture therethrough, an opening formed through the grommet having a plurality of scraping elements therein;

a length of cord having a first end coupled with the electrical receptacle, the length of cord wrapped about the spool, a second end of the length of cord extending outwardly of the aperture in the side face of the housing and through the grommet, the second end of the cord having a plug secured thereto and;

means for warming the length of the cord.

5,803,217
APPARATUS AND METHOD FOR CONTROLLING A DAMPER CLUTCH FOR A VEHICLE
Young-Jun Park, Seoul, Rep. of Korea, assignor to Hyundai Motor Co., Ltd., Seoul, Rep. of Korea

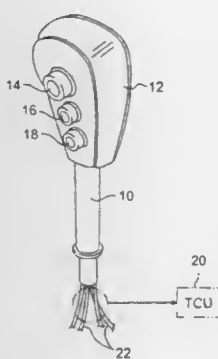
Filed May 31, 1996, Ser. No. 656,790

Claims priority, application Rep. of Korea, Jun. 1, 1995, 1995-14530

Int. Cl.⁶ F16H 61/14

U.S. Cl. 192—3.31

12 Claims



1. An apparatus for controlling a damper clutch for a vehicle, the apparatus comprising:

a shift lever for changing a transmission gear of the vehicle;
a shift handle connected to the shift lever for moving the shift lever;

switch means disposed on the shift handle for manually selecting an operation of the damper clutch and overdrive; and
control means for controlling the damper clutch according to the switch means and predetermined conditions,

wherein the control means determines, as one of the predetermined conditions, whether a temperature of transmission oil is below a predetermined temperature,

wherein if the control means determines that the temperature of the transmission oil is not below the predetermined temperature, the control means further determines whether an engine RPM is greater than a predetermined RPM, and
wherein if the control means determines that the engine RPM is greater than the predetermined RPM, the control means releases the damper clutch.

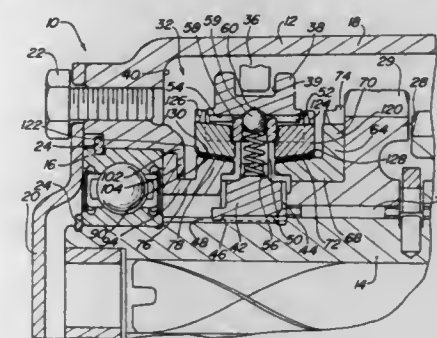
5,803,218
REVERSE BRAKE FOR MANUAL TRANSMISSIONS
Edward Perosky, Sterling Heights, Mich., and Mark A. Noto, Bloomington, Ill., assignors to New Venture Gear, Inc., Troy, Mich.

Continuation of Ser. No. 509,526, Jul. 31, 1995, Pat. No. 5,651,435. This application Jul. 29, 1997, Ser. No. 902,383

Int. Cl.⁶ F16H 3/38; F16D 23/06

U.S. Cl. 192—4 C

26 Claims



9. A reverse brake comprising:
a stationary member having first, second and third apertures;
a shaft;

a bearing disposed between said first aperture and said shaft for rotatably supporting said shaft from said stationary member;
a brake cone in coaxial relation to said shaft and having a first portion retained in said second aperture for limiting rotation of said brake cone relative to said stationary member, a second portion retained in said third aperture for limiting radial translation of said brake cone relative to said shaft, and a third portion;

a blocker ring mounted on said third portion of said brake cone; and

a shift sleeve mounted for rotation with said shaft and sliding movement relative thereto from a first position to a second position for urging said blocker ring into frictional engagement with said third portion of said brake cone for braking rotation of said shaft relative to said stationary member.

26. A method of arresting the rotation of a shaft rotatably supported in a housing of a transmission, the method comprising the steps of:

mounting a shift sleeve for rotation with the shaft and axial movement thereon;

mounting a brake cone in coaxial relation to the shaft adjacent said shift sleeve, said brake cone having a conical surface and at least one tang extending therefrom;

mounting a blocker ring coaxial with the shaft, said blocker ring including a conical surface adapted to be fitted on said conical surface of said brake cone;

axially translating said shift sleeve toward said brake cone;

urging said blocker ring against said brake cone; and
permitting limited rotation and radial translation of said brake cone as said blocker ring is urged against said brake cone.

5,803,219
COOLING MECHANISM OF ELECTROMAGNETIC POWDER CLUTCH
Hiroshi Ogawa, Fuchu, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1996, Ser. No. 731,662

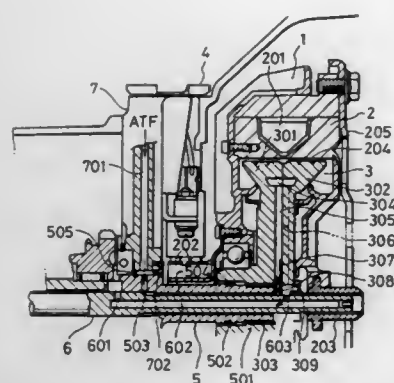
Claims priority, application Japan, Oct. 30, 1995, 7-305122

Int. Cl.⁶ F16D 13/72; 37/02

U.S. Cl. 192—21.5

13 Claims

1. A cooling mechanism of an electromagnetic powder clutch having a hydraulic pump, a drive member rotated by an engine, a driven member connected with a main drive shaft of a transmission, a pump drive shaft rotatably coupled with said main drive shaft and rotated by said engine for driving said hydraulic pump, a



metal powder interposed between said drive member and said driven member for transmitting torque from said drive member to said driven member and a cooling fluid for cooling said electro-magnetic powder clutch, comprising:

- a cooling passage provided in said driven member for letting flow said cooling fluid therein so as to cool said driven member;
- an oil supply passage provided in said driven member for supplying said cooling fluid to said cooling passage;
- an oil drain passage provided in said driven member for draining said cooling fluid from said cooling passage;
- a supply passage formed between the inner periphery of a center hole of said main drive shaft and the outer periphery of said pump drive shaft for supplying said cooling fluid therethrough to said oil supply passage; and
- a return passage formed in the center of said pump drive shaft for returning said cooling fluid therethrough from said oil drain passage to said transmission.

5,803,220

Patent Not Issued For This Number

5,803,221

VISCIOUS FLUID CLUTCH

Shinichi Kawada; Kenji Ohhara, both of Atsugi; Hirofumi Katoh, Kiyokawa, and Yasuo Fujita, Atsugi, all of Japan, assignors to Unisia Jecs Corporation, Atsugi, Japan

Filed Oct. 30, 1996, Ser. No. 739,834

Claims priority, application Japan, Oct. 30, 1995, 7-281766

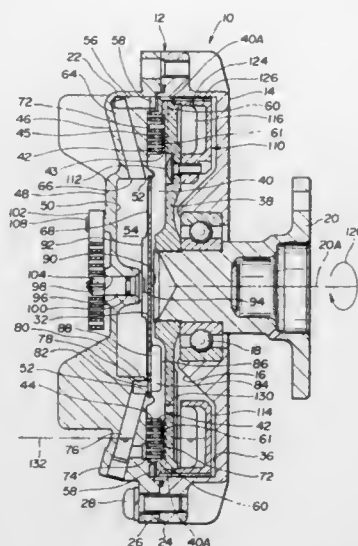
Int. Cl.⁶ F16D 35/02

U.S. Cl. 192—58.7

8 Claims

1. A viscous fluid clutch, comprising:

- first and second relatively rotatable drive members having an axis of rotation and rotatable in a predetermined direction about said axis, said first drive member having an operating chamber and a reservoir;
- fluid shear drive means on said first and second drive members and located in said operating chamber, operable with viscous fluid, for providing a shear-type fluid drive between said first and second drive members, wherein:
- said first drive member has a passage providing fluid communication between said operating chamber and said reservoir;
- said second drive member has wall means defining an auxiliary reservoir;
- said first drive member and said auxiliary reservoir define opposed spaced surfaces defining an annular passage that communicates with said operating chamber;
- said wall means has radial orifices that provide fluid communication between said auxiliary reservoir and said annular passage; and
- a plurality of blades formed on one of said opposed spaced surfaces defining said annular passage, and disposed in said annular passage.



wherein each of said plurality of blades is angled with respect to said predetermined direction by a predetermined angle so that rotation of said second drive member in said predetermined direction causes said plurality of blades to urge viscous fluid out of said annular passage toward said operating chamber.

5,803,222

TORQUE TRANSMITTING FRICTION MECHANISM WITH A PLATE HAVING A REACTION TAB

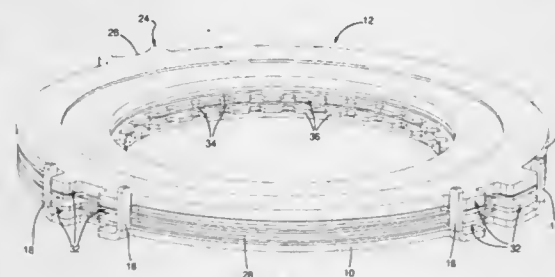
Randal William Arndt, Belleville, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 27, 1997, Ser. No. 810,967

Int. Cl.⁶ F16D 13/52

U.S. Cl. 192—70.2

4 Claims



in the direction of said axis and away from said pressure plate at least during a portion of said second stage in the course of disengagement of the clutch, said compensating means being at least substantially unaffected by the bias of said resilient component in the direction of said axis and away from said pressure plate.

5,803,225

Patent Not Issued For This Number

5,803,226

Patent Not Issued For This Number

5,803,227

BILL STACKER

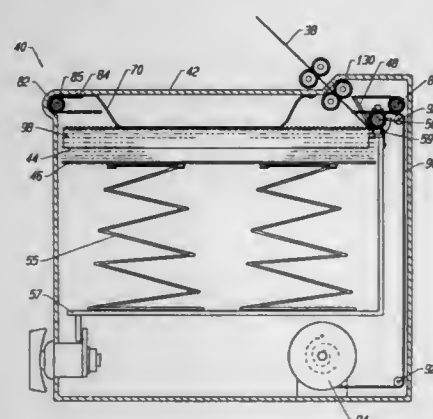
Matthew I. Stein, Truckee, Calif., and Robert A. Luciano, Reno, Nev., assignors to International Game Technology, Reno, Nev.

Filed Jun. 6, 1995, Ser. No. 486,411

Int. Cl.⁶ G07F 7/04; B65H 29/46

U.S. Cl. 194—206

44 Claims



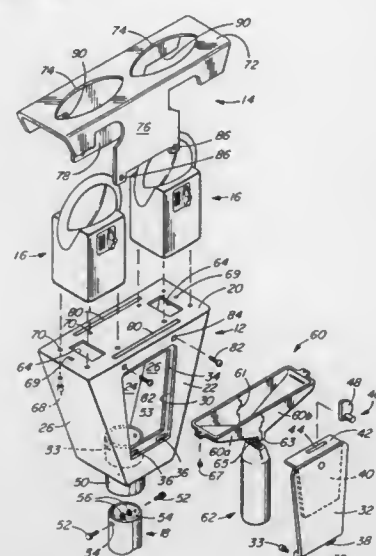
I. A bill stacker comprising:

- a housing arranged to receive a stack of bills;
- a stacking surface arranged to support the stack of bills, wherein a bottom end of the stack rests on the stacking surface;
- a stack roller arranged to travel across the stacking surface to roll a newly received bill onto a top end of the bill stack, wherein when no stack of bills is present on the stacking surface, the newly received bill is rolled onto the stacking surface to initiate a bill stack; and
- a stack positioning mechanism arranged to ensure that the top surface of the bill stack remains in substantially the same plane regardless of the number of bills in the stack and the stack roller is arranged to travel back and forth within a roller plane that is substantially parallel to the stacking surface, wherein the stacking surface is a surface of a stacking plate and the stack positioning mechanism includes a biasing mechanism that biases the stacking plate towards the roller plane and a stack stabilizing mechanism that biases the top surface of the bill stack in a direction opposite to the direction that the biasing mechanism biases the stacking plate to help prevent the top surface of the bill stack from moving into the roller plane, the stack stabilizing mechanism being independent from the stack roller such that the stack stabilizing mechanism is brushed away from the bill stack by the stack roller and is not rolled onto the stack by the stack roller as the stack roller travels across the stacking surface.

5,803,228
PARKING METER ASSEMBLIES
Tom Lucas, 421 East 29th Street, North Vancouver, British Columbia, Canada, V7N 1E2
Filed Sep. 26, 1996, Ser. No. 721,630
Int. Cl.⁶ G07F 17/24

U.S. Cl. 194—350

12 Claims



I. A parking meter assembly, comprising:

- a housing made of sheet steel;
- said housing having a hollow interior, an access opening providing access to said hollow interior, a sheet steel closure member shaped to fit and close said opening and a lock for releasably securing said closure member in a closure position in said opening;
- at least one parking meter head mounted on said housing; and
- a protective cover fitted over said parking meter head, said protective cover being made of sheet steel and comprising a top and a pair of walls depending from said top; said housing being formed with slots, said walls extending downwardly through said slots and retainers being provided within said housing and releasably engaging said cover for retaining said cover in position over said head.

5,803,229

PALLET CHANGER

Yutaka Hosokawa, Fuji, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo-To, Japan

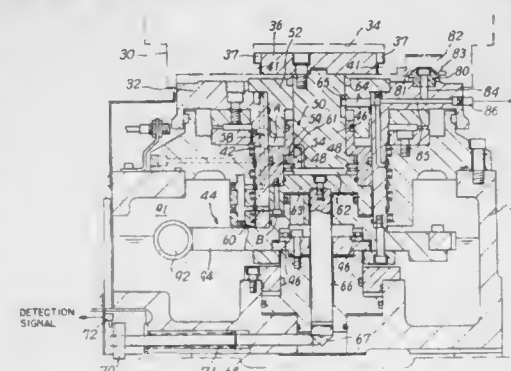
Filed Dec. 28, 1995, Ser. No. 580,123

Claims priority, application Japan, Dec. 28, 1994, 6-328843

Int. Cl.⁶ B65G 37/00

U.S. Cl. 198—345.3

16 Claims



I. An apparatus for clamping a pallet onto a pallet base on a table of a machine tool, comprising:

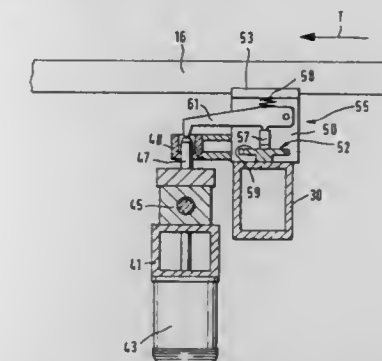
- a pallet arranged to have a workpiece mounted on an upper surface thereof and having an holding portion projected toward the inside thereof at a bore portion opened to a central portion of a bottom surface thereof;
- a clamping member having a circular plate form and having an engagement portion on the outer circumferential portion thereof, which is adapted to be in phase angle relative to the holding portion of the pallet at a predetermined rotational position so as to be engaged with the holding portion;
- a clamping shaft for supporting the clamping member rotatably on a horizontal plane and for supporting the clamping member movably in a vertical direction; and
- a clamp driving mechanism connected to the clamping shaft, and adapted for applying rotation and upper and lower movement to the clamping shaft and for producing a clamping force to draw the clamping member onto the pallet base when the engagement portion and the holding portion are engaged with each other to fix the pallet on the pallet base.

5,803,231
TRANSFER ARRANGEMENT WITH A THREE-AXLE
TRANSFER
Andreas Lauke, Grubingen, Germany, assignor to Schuler Pressen GmbH & Co., Germany
Filed Jul. 12, 1996, Ser. No. 678,820
Claims priority, application Germany, Jul. 20, 1995, 195 26 490.8

Int. Cl.⁶ B65G 25/00

U.S. Cl. 198—621.1

18 Claims



I. A transfer arrangement for machining workpieces in a plurality of machining stations succeeding one another along a transport direction, comprising

- a transfer unit configured to transport the workpieces from one of the machining stations to another of the machining stations, gripper rails selectively spaced from and parallel to one another, and arranged in the transport direction so as to be, while in a spaced apart position, adjustable at a right angle in a transverse direction to the transport direction in the transverse direction for carrying out a transfer movement in the transport direction;
- a transport driving unit for driving the gripper rails synchronously with respect to one another along the transport direction;
- a stroke driving unit for driving the gripper rails at a constant distance with respect to one another at a right angle along a stroke direction with respect to the transport direction, and a transverse driving unit for driving the gripper rails toward and away from one another in the transverse direction, wherein the gripper rails have gripping devices adapted to be engaged with and disengaged from the workpieces;
- the transport driving unit, the stroke driving unit and the transverse driving unit are each stationary;
- a coupling device is provided between the transverse driving unit and the gripper rails, and
- a drive of the transverse driving unit is operatively coupled with the gripper rails only when the latter are in a fixed position with respect to the stroke direction and otherwise are separated from the gripper rails.

5,803,230
DEVICE FOR MONITORING THE MOVEMENT OF THE
LOADING/UNLOADING BELT OF A TRANSPORTATION
CARRIAGE, ESPECIALLY FOR SORTING
APPARATUSES

Francesco Canziani, San Macario, and Attilio Soldavini, Ferno, both of Italy, assignors to Sandvik AB, Sandviken, Sweden

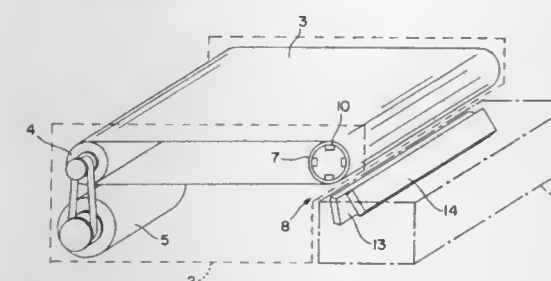
Filed Jul. 3, 1996, Ser. No. 675,690

Claims priority, application Italy, Jul. 4, 1995, MI95A1426

Int. Cl.⁶ B65G 47/46

U.S. Cl. 198—370.06

8 Claims



I. A device for monitoring the movement of a loading/unloading belt of a transportation carriage transported along a machine frame in a sorting plant, said device comprising:

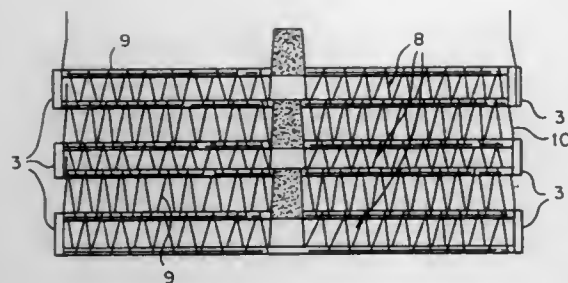
- means integral with the transportation carriage for providing a magnetic field, said magnetic field changing in time as a function of the speed of the loading/unloading belt;
- means located at a fixed position relative to the machine frame for generating a signal indicative of said changing magnetic field used to monitor the movement of said loading/unloading belt; and
- two coils integral with the transportation carriage and associated with said means for providing a magnetic field, said two coils being connected to two light emitting diodes, wherein said signal generating means includes a plurality of photo-transistors arranged along a path of said transportation carriage for receiving light from said two light emitting diodes.

5,803,232
CONVEYOR BELT
Ingemar Fröderberg, Höganäs, Sweden, assignor to Frigoscandia Equipment AB, Helsingborg, Sweden
Filed Sep. 6, 1996, Ser. No. 706,696
Int. Cl.⁶ B65G 21/18

U.S. Cl. 198—778

18 Claims

- I. A conveyor belt comprising
- a plurality of longitudinally spaced transverse rods,
- a plurality of side links at both lateral edges of the conveyor belt connected in pairs by the successive transverse rods, each side link being movable relative to adjoining side links about two axes perpendicular to the longitudinal direction of the conveyor belt and situated one in the plane of the belt and the other perpendicular thereto, and



a wire netting supported by the transverse rods and extending substantially over the whole width of the conveyor belt, said wire netting comprising a plurality of wires, wherein a separate one of said wires forms a joint intermediate the lateral edges of the conveyor belt between each pair of adjoining transverse rods, each transverse rod in said pair connecting a separate pair of side links, such that the joint takes up tractive forces at least along straight parts of the conveyor belt path.

5,803,233

VIBRATORY FINISHING EQUIPMENT

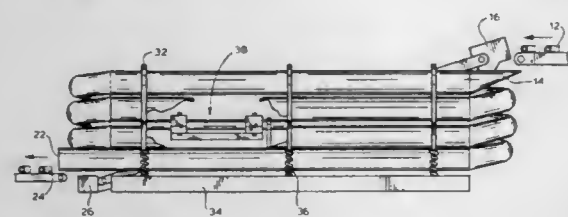
Nicholas K. Ferrara, Scottsdale, Ariz., and Giuseppe Astorino, Roselle, Ill., assignors to Ultramatic Equipment Co., Addison, Ill.

Filed Aug. 30, 1996, Ser. No. 704,882

Int. Cl.⁶ B65G 27/02

U.S. Cl. 198—756

12 Claims



1. Vibratory finishing equipment for vibrating piece parts in a finishing media comprising:
a base structure;
a pair of cylindrical tubes mounted to said base structure and defining an upper tube and a lower tube, each tube having an inlet and an outlet;
connecting means for selectively interconnecting said outlet of said upper tube to said inlet of said lower tube, wherein said connecting means comprises a tubular member exhibiting a series of three defined direction changes of approximately 60° each; and
vibrating means for causing vibratory motion within said cylindrical tubes.

5,803,234

ROLLER DRIVE SYSTEM FOR VEHICLE CONVEYOR
Tadeusz Podkanski, Anaheim, and Michael Graf, Lomita, both of Calif., assignors to Ancra International Corporation, Hawthorne, Calif.

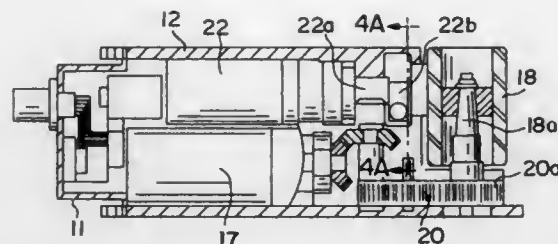
Filed Mar. 1, 1996, Ser. No. 609,195

Int. Cl.⁶ B65G 13/12

U.S. Cl. 198—782

11 Claims

1. A roller drive system for conveying cargo along the floor of a vehicle comprising:
a carrier attached to said vehicle floor;
a support frame removably mounted in said carrier for limited slidable vertical movement substantially normal to the longitudinal axis of said carrier;



first motor means for rotatably driving said roller, said first motor means comprising a motor which is first driven in a forward direction;
second motor means for driving said frame vertically relative to said carrier;
means for simultaneously providing power to said first and second motor means to effect rotation of said roller means by said first motor means and to cause said second motor means to drive said frame from a retracted position within the carrier to an extended position with the roller in driving abutment against the cargo; and
means for simultaneously removing power from said first motor means and providing power to said second motor means to drive said second motor means in a reverse direction to bring the frame and the roller to said retracted position, said means for providing power to drive said second motor means in a reverse direction comprising a capacitor and relay means for connecting said capacitor to said means for providing power to said second motor means to effect the charging thereof and for subsequently connecting said capacitor to said second motor means in a polarity to effect rotation thereof in a reverse direction.

5,803,235

IDLER ROLLER CONVERSION SYSTEM WITH IMPACT SHELL

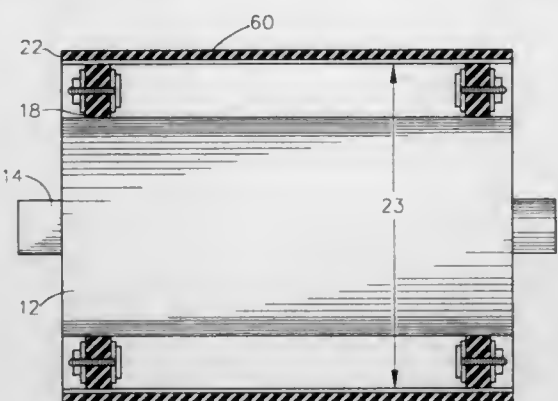
Herbert E. McGinnis, deceased, late of Akron, Ohio, and by Mary L. McGinnis, executor, 1638 S. Cleveland-Massillon Rd., Akron, Ohio 44321

Filed Feb. 13, 1995, Ser. No. 387,173

Int. Cl.⁶ B65G 39/10

U.S. Cl. 198—843

9 Claims



1. A roller arrangement for use in a conveyance system comprising:
a continuous cylindrical roller body, said body having a predetermined diameter, a predetermined length, an outer surface, and a central passage;
a shaft, said shaft extending through said central passage, said roller body being rotatable about said shaft;
an expander, said expander being annular about said roller body and;
an impact shell, said shell being outward of said expander.

5,803,236

DEVICE AT A CONVEYOR CHAIN

Mats Wahren, Huvudstagan 4, S-592 00 Vadstena, Sweden
PCT No. PCT/SE94/00399, § 371 Date Oct. 5, 1995, § 102(e)
Date Oct. 5, 1995, PCT Pub. No. WO94/26636, PCT Pub. Date Nov. 24, 1994

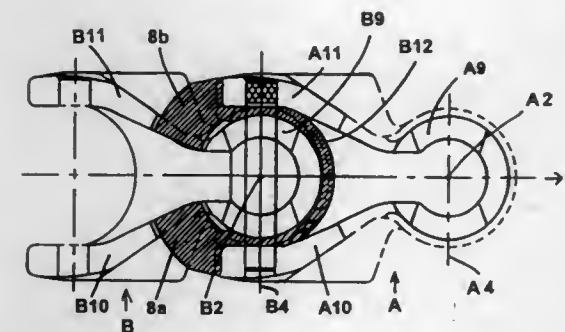
PCT Filed May 3, 1994, Ser. No. 537,664

Claims priority, application Sweden, May 13, 1993, 9301664

Int. Cl.⁶ B65G 17/38

U.S. Cl. 198—852

3 Claims



1. A conveyor chain arrangement, comprising:
a plurality of adjacent, identical links each of which has an upper surface, each said link being articulated to an adjacent said link whereby said links are pivotable relative to one another about two mutually orthogonal axes, one of said axes being perpendicular to said upper surface, and including gaps formed between each pair of adjacent said links;
each said link including a recess therein extending parallel to the upper surface thereof; and
at least one element disposed within each said recess of each said link and covering at least one of said gaps, said at least one element being connected to an adjacent said link so as to be movable therewith whereby when said adjacent link pivots about said one axis, the at least one element remains in a covering position over said one gap.

5,803,237

PUSHBUTTON SWITCH WITH DISABLING CAPABILITY

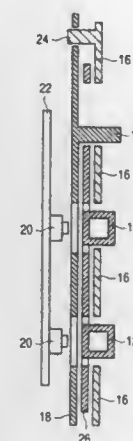
Jerry D. Gandre, 7408 Curly Leaf Cove, Austin, Tex. 78750; Steven Sands, 11509 Shade Tree Cove, Austin, Tex. 78759, and Timothy C. Dearborn, 12804 Bivins Ct., Austin, Tex. 78732

Filed Oct. 29, 1996, Ser. No. 739,341

Int. Cl.⁶ H01H 9/28

U.S. Cl. 200—43.01

11 Claims



1. A pushbutton switch comprising:
one or more normally open contact switches;

a moveable base plate having a handle, wherein said moveable base plate is moveable to either a disabled or an operational position by a force applied to the handle;
one or more pushbuttons, each pushbutton individually depressible to operate a respective one of said normally open contact switches to a closed condition when said moveable base plate is in the operational position;
a cover plate having apertures therein corresponding to the one or more pushbuttons and to the handle of the moveable base plate wherein the one or more pushbuttons and the handle are accessible through the apertures;
a support plate disposed adjacent to the cover plate in a fixed position wherein the one or more pushbuttons are attached to the support plate in a flexible manner; and
two or more fasteners slideably coupling the moveable base plate to the cover plate.

5,803,238

DOOR OPENER SWITCH

Ivan Roza, Olten, Switzerland, assignor to Elektro-Apparatebau Olten AG

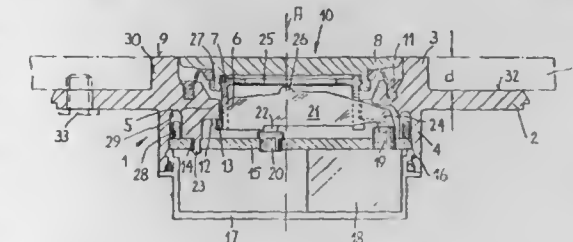
Filed May 22, 1996, Ser. No. 651,516

Claims priority, application Switzerland, Jun. 14, 1995, 1760/95

Int. Cl.⁶ H01H 9/02

U.S. Cl. 200—332.1

11 Claims



1. A door-switch comprising:
a cylindrical housing, a switch member fastened to the housing, and a button movable axially within the housing for actuation of the switch member;
wherein the button is adapted to be depressed against a restoring force;
the housing has, between front and rear ends, an outwardly radially protruding collar comprising a front side facing outwardly of a door upon which the door-switch is mounted and a rear side opposite the front side, a mounting plate of the door contacting the front side of the collar;
each of the front and rear sides of the collar forms a stop surface, the stop surfaces determining, by application against the mounting plate of the door a distance of a front side of the housing from a front of the mounting plate;
the housing is configured with a radially symmetrical outer surface; and
the collar has the form of a flange, and the collar has detent fastening means for engagement with a rosette which, in engaged condition, surrounds a front of the housing with radial symmetry and covers the collar.

5,803,239

POTENTIOMETER WITH CLEANING INLET

David William Bray, and Paul Ronald Petro, both of Rock Springs, Wyo., assignors to David W. Bray, Rock Springs, Wyo.

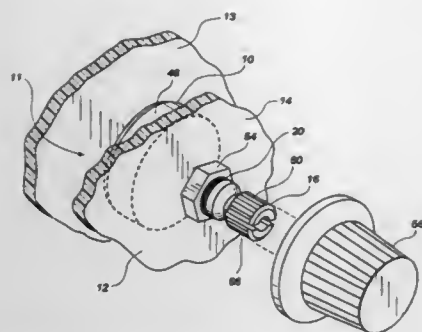
Filed Jun. 28, 1996, Ser. No. 670,881

Int. Cl.⁶ H01H 3/08

U.S. Cl. 200—336

16 Claims

1. A kit comprising
a rotary switch comprising:



a housing having a hollow interior;
a shaft rotatably mounted in said housing, said shaft having an exterior surface and defining a bore which extends through a length of said shaft, said bore further communicating with an inlet defined in said exterior surface of said shaft, said inlet being positioned externally of said housing, said outlet being positioned within said interior of said housing, said bore establishing a fluid communication between the environment and said interior;
a first contact connected to said shaft, said first contact being disposed within said interior; and
a second contact, disposed within said interior, positioned to contact said second contact;
wherein said bore provides a passageway whereby a cleaning fluid may be directed through said bore to said interior and thereafter to said first contact and said second contact to clean said contacts;
a tube dimensioned to be slidably received with said bore; and
a source of pressurized cleaning fluid, said tube being adapted for connection to said source of pressurized cleaning fluid.

5,803,240

ELECTRIC PUSH-BUTTON SWITCH

Norbert Swidersky, Heidenfahrt, and Gerd Rudolph, Hauptstrasse, both of Germany, assignors to Eaton Controls GmbH & Co. Kg, Germany

PCT No. PCT/DE94/00590, § 371 Date Sep. 3, 1996, § 102(e) Date Sep. 3, 1996, PCT Pub. No. WO94/28564, PCT Pub. Date Dec. 8, 1994

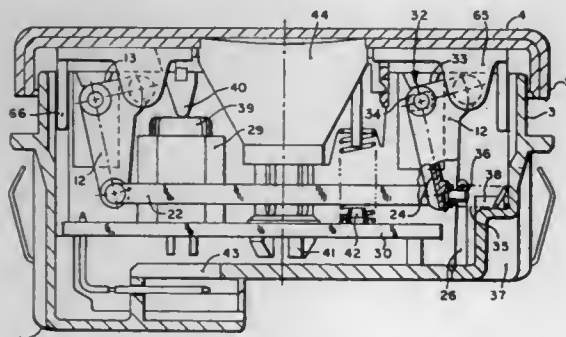
PCT Filed May 19, 1994, Ser. No. 553,561

Claims priority, application Germany, May 21, 1993, 43 16 998.8

Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—344

8 Claims



1. A push-button switch assembly comprising:
(a) a housing having a switching element therein with a moveable actuator;
(b) a pair of levers each pivotally mounted in spaced relationship on said housing for pivotal movement thereon about substantially parallel axes;
(c) a link having an end portion thereof pivotally connected to each of said levers on a common side of said pivotal mounts;

(d) an elongated push-button having an end portion pivotally connected to each of said levers on a common side of said pivotal mounts; and
(e) means biasing said push-button in a direction outwardly of said housing, wherein said pivotal mount for one of said levers is disposed for sliding movement on said housing.

5,803,241

PUSH-BUTTON MECHANISM FOR PLUNGER-TYPE ELECTRICAL SWITCH

Robert G. Capurso, Bergen, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

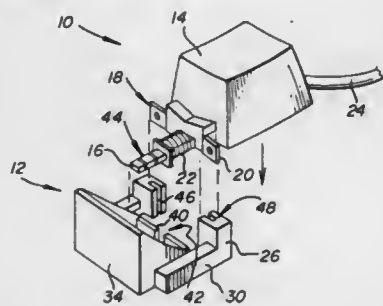
Continuation of Ser. No. 655,365, May 30, 1996, abandoned.

This application Jun. 10, 1997, Ser. No. 872,092

Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—345

4 Claims



1. A push-button mechanism for plunger-type electrical switches of the type having a housing and a push rod actuator movable relative to the housing in an actuation direction, said mechanism comprising:

a base unit having

means for connecting the base unit to the switch housing such that relative movement in the actuation direction between the base unit and the switch housing is prevented, said push rod actuator having a recess, and

a pair of undercut tabs; and

a button member having a pair of heels respectively receivable in the undercut of the tabs for sliding movement of the button relative to the base unit in the actuation direction to move the push rod actuator to thereby change state of the switch, said button member being retained to the base unit by snap-fit between the heels and the tab undercuts, said button member having a rib aligned with the recess and adapted to be removably received by the recess upon assembly of the switch to the base unit.

5,803,242

SWITCH CONNECTING STRUCTURE

Tsunetsuke Takano, Kouichi Sinzawa, and Yoji Yabata, all of Tokyo, Japan, assignors to Kabushiki Kaisha T An T, Japan

Filed Dec. 27, 1996, Ser. No. 789,105

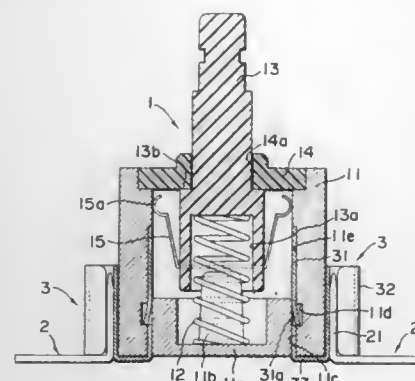
Claims priority, application Japan, Oct. 22, 1996, 8-279610

Int. Cl.⁶ H01H 13/14

U.S. Cl. 200—530

6 Claims

1. A switch connecting structure comprising:
a housing which includes an insertion hole;
an operation lever slidably mounted in said housing, said operation lever including a push member protruding from said housing;
a resilient contact plate carried by said operation lever so as to be slidable therewith; and
a connection terminal including a resilient clamp portion and a contact plate portion, said contact plate portion being inserted into said insertion hole of said housing and extending there-within over a range of slidable movement of said operation lever so as to be in contact with said resilient contact plate.



wherein said clamp portion is connectable to a bus bar for electrical connection of the switch to a circuit.

5,803,243

LATCHING ROCKER SWITCH

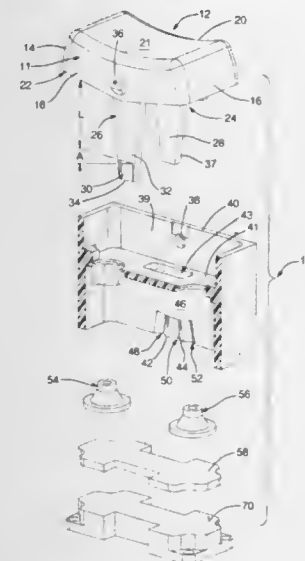
James Michael Nestor, Niles, and Samuel Edward Penn, Cortland, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 25, 1997, Ser. No. 900,670

Int. Cl.⁶ H01H 3/20

U.S. Cl. 200—556

19 Claims



1. A switch comprising:
a keycap, a housing, a substrate, and a first collapsible dome, the keycap being pivotally connected to the housing, the keycap having a body portion and at least a first audible lock arm extending from the body portion, the first audible lock arm having a first ridge, the substrate having at least a portion underlying the keycap and having at least a first pair of spaced apart electrical traces formed on a surface of the substrate, the first collapsible dome overlying the first pair of spaced apart electrical traces and having a conductive element on the underside of the dome positioned to engage the spaced apart electrical traces upon collapse of the first dome, a nub set for the first audible lock arm comprising at least a first nub formed in the housing and positioned to selectively be engaged by the first ridge, the keycap being movable to a first position in which the body collapses the dome and wherein the first ridge on a first side of the first nub locking the keycap in the first position, and the keycap being movable to a second position so that the first dome is fully extended opening the associated circuit and the first ridge is on a second side of the first nub locking the keycap in a second position, and so that upon movement of the keycap from the first position to the

second position, the first ridge engages and slides over the first nub to produce an operator audible sound.

5,803,244

EYEGLASS CASE WITH CLOSURE FLAP

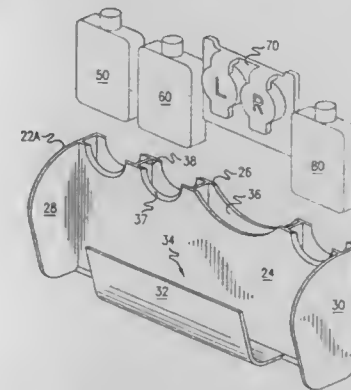
Don N. Sheffer, Las Vegas, Nev., and Charles H. Newcomer, Wilderville, Oreg., assignors to TEC Vision, Inc., Murray, Utah

Continuation-in-part of Ser. No. 41,179, Jul. 7, 1995. This application Apr. 4, 1997, Ser. No. 834,532

Int. Cl.⁶ A45C 11/04

U.S. Cl. 206—6

20 Claims



1. An eyeglass case, comprising:
an inner shell member;
a cover substantially surrounding said inner shell member and provided with a closure flap for selectively securing eyeglasses within said inner shell member;
said shell member comprising a pair of spaced, substantially aligned end panels, said end panels projecting forwardly of a front face of said shell to define an interior space adapted for receiving eyeglasses for protective storage therein; and
said shell member including a pair of spaced partition walls forming at least one internal receptacle for storage of accessory items.

5,803,245

CONDOM PACKAGE WITH CLOSURE CAP

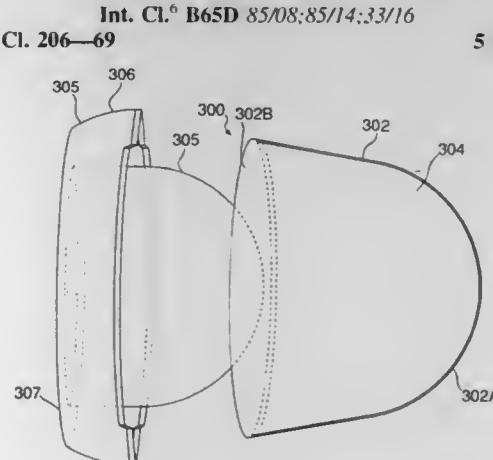
Frederick Wood, Medford, N.Y., assignor to Airtite Industries, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 502,926, Jul. 17, 1995, Pat. No. 5,662,214. This application Feb. 12, 1997, Ser. No. 799,534

Int. Cl.⁶ B65D 85/08; 85/14; 33/16

U.S. Cl. 206—69

5 Claims



1. A package for dispensing of a condom directly on a penis comprising:

a condom;
a container having the elongated shape of a condom closed at one end and open at another end, said container being made of a flexible material permitting said container to be flattened;
said container having a lip forming the open end thereof;
said container having a closure cap covering said open end of said container with said closure cap having a condom holder plate extending therefrom and inserted within said condom within said container, said closure cap having a snap hinge on the outside thereof for opening said closure cap.

5,803,246
SURFACE PACKAGE TYPE SEMICONDUCTOR
PACKAGE AND METHOD OF PRODUCING
SEMICONDUCTOR MEMORY

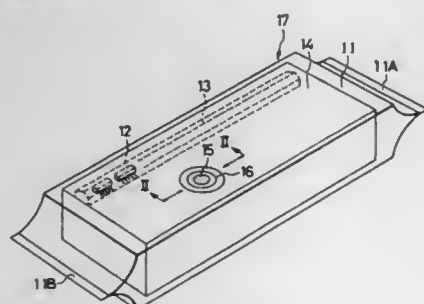
Wahel Kitamura; Gen Murakami, and Kunihiro Nishi, all of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 264,745, Jun. 23, 1994, Pat. No. 5,607,059, which is a continuation of Ser. No. 791,539, Nov. 14, 1991, which is a continuation of Ser. No. 392,029, Aug. 10, 1989, Pat. No. 5,095,626, which is a division of Ser. No. 124,925, Nov. 23, 1987, abandoned. This application Sep. 13, 1996, Ser. No. 712,559

Claims priority, application Japan, Nov. 25, 1986, 61-278610; Aug. 21, 1987, 62-206290

Int. Cl.⁶ B65D 73/02

U.S. Cl. 206—204

21 Claims



1. A packaged device comprising:
a moisture-proofing bag made of a laminate film, said laminate film being made of (a) a barrier layer for preventing intrusion of moisture, (b) an inner charge-preventing layer inside of said barrier layer and (c) an outer charge-preventing layer outside of said barrier layer;
a surface-mount resin molded semiconductor device, to be surface-mounted on a printed circuit board, sealed in said moisture-proofing bag, said surface-mount resin molded semiconductor device being a device subjected to heat when said surface-mount resin molded semiconductor device is surface-mounted on a printed circuit board; and
a desiccant sealed in said moisture-proofing bag.

5,803,247
PORTABLE HUMIDOR

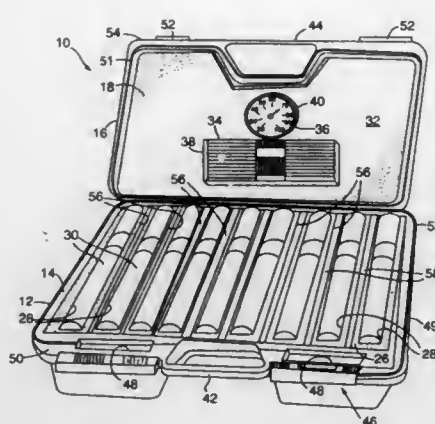
Jeremy S. Holmes, 16 High Hill Rd., Canton; Marc W. Trahan, 21 Robbinswood Dr., Wethersfield, both of Conn. 06109, and Peter V. Disch, 210 Wightman Ave., Norwich, Conn. 06360
Filed May 5, 1997, Ser. No. 850,999

Int. Cl.⁶ A24F 25/02

U.S. Cl. 206—213.1

20 Claims

1. A portable humidor comprising:
a base defining a first interior area;
a cover hingedly connected to the base and defining a second interior area, the cover being movable between an open and a closed position;
supporting means for supporting a plurality of cigars in an isolated relationship relative to one another in the base;

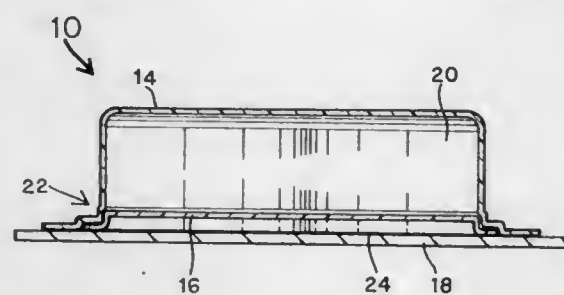


a permeable-shock-absorbing liner positioned in the second interior area and coupled to the cover, the liner defining at least two cutouts;
at least one humidifier coupled to the cover and positioned in at least one of the cutouts, for maintaining a proper humidity level in the humidor;
a hygrometer coupled to the cover and positioned in one of the cutouts for measuring the humidity level in the humidor;
sealing means interposed between the cover and the base for sealing the portable humidor when the cover is in the closed position; and
means for releasably, sealingly securing the cover to the base, such that the humidor is substantially vapor-tight.

5,803,248
VAPOR/MOISTURE PROOF BLISTER PACK
Nicholas Cox, South Route Box 12, Lavina, Mont. 59046
Filed Sep. 24, 1997, Ser. No. 937,091
Int. Cl.⁶ B65D 75/00

U.S. Cl. 206—213.1

12 Claims

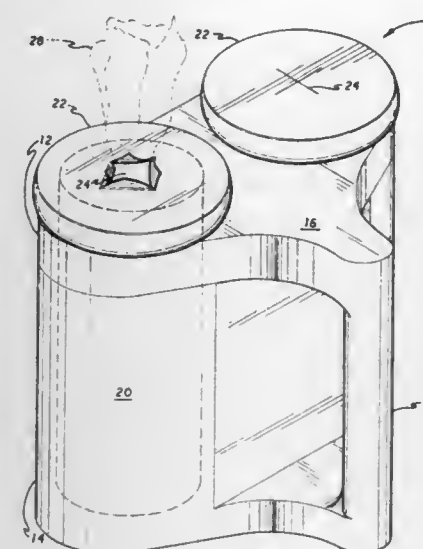


1. A packaging system comprising:
a plastic blister defining an interior space for receiving a product, the blister having an opening into the interior space, and having a flange around the opening with a lower surface and having a stepped surface near the flange;
a plastic lid extending across the opening of the blister to enclose the product, the lid having an outer perimeter that is generally parallel to the blister flange and that has a lower surface, an upper surface and a generally vertical side surface, the outer perimeter upper surface and vertical side surface mating and sealing with the stepped surface of the blister;
a backing sheet larger than the opening of the blister and having a top surface; and
sealing means extending continuously around substantially the entire lower surface of the blister flange and continuously around the lower surface of the outer perimeter of the lid for sealing the lid and blister lower surfaces to the top surface of the backing sheet;
wherein said stepped surface and said sealing means retain vapor and gasses inside the blister interior space.

5,803,249
MEDICAL CLEAN UP KIT
Steve Harsanyi, Jr., 13870 Laura Ratcliff Ct., Centreville, Va. 20120, and Dace L. Edwards, 8993 McDowell Commons, Manassas, Va. 22110
Filed Apr. 9, 1997, Ser. No. 826,966
Int. Cl.⁶ B65D 85/00

U.S. Cl. 206—233

6 Claims



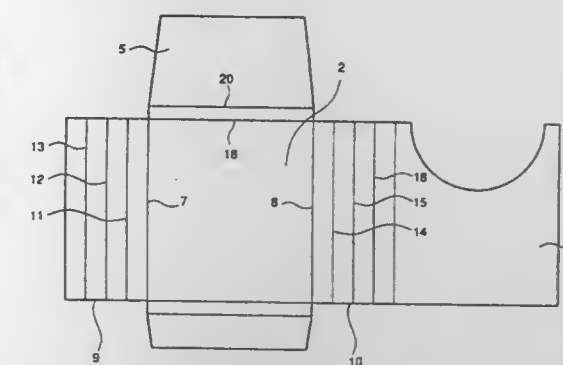
1. A medical cleanup kit for dispensing wet and dry towlelettes, comprising:
a rigid container of unitary construction having a top surface and an enclosed base, said top surface including first and second openings;
a first compartment and an adjacent second compartment, each comprising a cylindrical bore, said first and second compartments respectively communicating with the first and second openings, each said compartment extending from said top surface to said base;
a supply of moistened towlelettes housed in said first compartment and a supply of dry towlelettes housed in said second compartment;
a first and a second lid respectively engaging the first and second openings to provide closure for each said compartment, each said lid includes a flexible membrane having a centrally disposed aperture therein for separately dispensing the moistened and dry towlelettes; and
a vertically oriented handle integrally formed with said container and depending from said top surface.

5,803,250
CASE FOR DISK-TYPE RECORDING MEDIUM
Takanori Mori, 22-12 Igusa 3-chome, Suginami-ku, Tokyo-to, Japan
Continuation of Ser. No. 399,833, Mar. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 155,080, Nov. 19, 1993, Pat. No. 5,522,500. This application Jul. 16, 1997, Ser. No. 895,607
Int. Cl.⁶ B65D 85/30

U.S. Cl. 206—308.1

10 Claims

1. A case for receiving disk-type recording medium, comprising:
a single folded sheet of material defining a receiving chamber, the sheet comprising a planar four sided disk receiving surface having wings extending from at least three sides thereof, wherein,
first and second wings located on opposite sides of the disk receiving surface are folded along a plurality of creases to form a bellows for supporting the disk-type recording medium in valleys of the bellows.



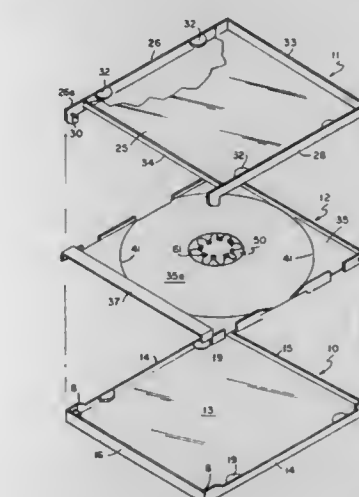
the first or second wing is folded along a crease to form a lid facing the disk receiving surface, the lid being co-extensive with the receiving chamber, and
a third wing is turned up thereby forming a bottom surface to the receiving chamber, and
a disk-type recording medium disposed in the receiving chamber.

5,803,251
CASE, TRAY AND METHOD FOR HOLDING COMPACT DISCS

Kaj Gartz, 275 Hemlock Dr., Orange, Conn. 06477
Filed Feb. 4, 1997, Ser. No. 795,385
Int. Cl.⁶ B65D 85/57

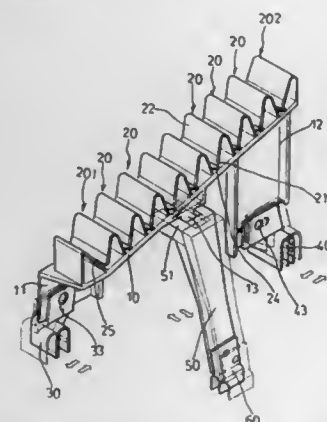
U.S. Cl. 206—310

21 Claims



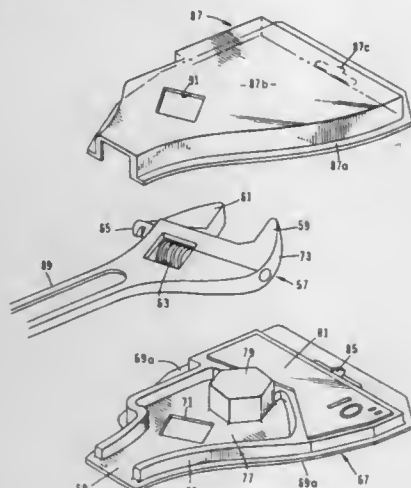
1. A double-sided tray having planar surfaces on each side, said tray comprising:
a radially inwardly-directed array of flexible tabs disposed around an opening in said tray, said tabs having first projections on one side and second projections on the other side thereof, said tabs being thinner relative to said tray to permit flexing of said tabs transversely within said opening when a first disc is placed upon said first projections to simultaneously move said second projections into a position to inhibit substantial lateral movement of a second disc on the other side of said tray.

5,803,252
SYSTEMATIC IRON GOLF CLUB HANGER DEVICE
 Chen Huo-Chuan, No. 1-2, Alley 44, Lane 148, Yuanshan Rd.,
 Chungho City, Taipei Hsien, Taiwan
 Filed Jan. 14, 1997, Ser. No. 783,493
 Int. Cl.⁶ A63B 55/00
 U.S. Cl. 206—315.6 20 Claims



1. A device for systematically hanging golf clubs in a golf bag having a top, comprising, in combination: a base plate; a plurality of clamps for clamping on the top of the golf bag, with the clamps mounted to the base plate, with the base plate including a surface; and a plurality of elastic clips for clamping the golf clubs, with said elastic clips being formed by extensions of said base plate, said extensions being folded back downwards to form respective pending portions which all keep a short distance from the surface of said base plate, with angles being formed between said extensions and said pending portions folded back from said extensions of each of the plurality of elastic clips.

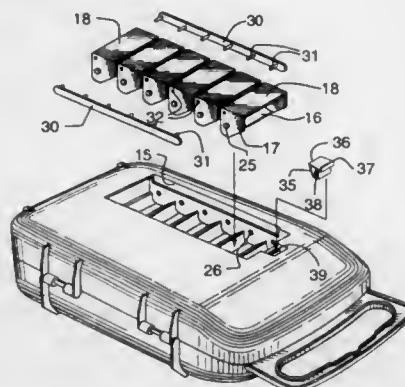
5,803,253
TOOL DISPLAY DEVICE
 Arthur Zakarian, City of Industry, Calif., assignor to Olympia Industrial Inc., City of Industry, Calif.
 Filed Jul. 15, 1997, Ser. No. 893,186
 Int. Cl.⁶ A45C 11/26
 U.S. Cl. 206—349 17 Claims



1. A display device for displaying an adjustable wrench having an elongated handle, a shaped head portion connected to the handle, the head portion including gripping jaws and an adjustment member for adjusting the spacing between the gripping jaws, said display device comprising:
 (a) a display platform formed of a thin rigid formable plastic material, said display platform having:

- (i) a base wall having an opening therein for receiving the adjustment member of the shaped head portion of the adjustable wrench;
- (ii) an upstanding curved side wall formed on said base wall, said curved side wall cooperating with said base wall to define a shaped cavity having the general shape of the shaped head portion of the adjustable wrench;
- (iii) an upstanding, multisided protuberance disposed within said cavity for engagement by the gripping jaws of the crescent wrench; and
- (b) capture means for retaining the adjustable wrench with said cavity of said display platform.

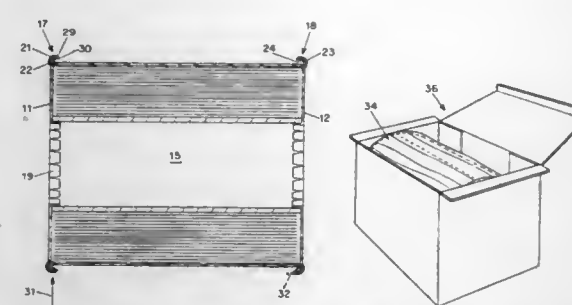
5,803,254
TOOL CASE WITH MULTIPLE STORAGE COMPARTMENTS
 Kailash C. Vasudeva, Waterloo, Canada, assignor to Maxtech, Inc., Roseville, Mich.
 Filed Apr. 11, 1997, Ser. No. 837,322
 Int. Cl.⁶ B65D 85/00
 U.S. Cl. 206—373 4 Claims



1. A tool case with multiple storage compartments comprising:
 a box portion;
 a lid securable onto said box portion;
 a recess defined in the bottom of said box portion;
 a plurality of containers pivotably mounted inside said recess connected along at least one side by a gang bar, said containers configured to pivot between open and closed positions, such that in said closed position, an outer face of each said container is coplanar and flush with the bottom surface of said box portion, and in said open position, said outer face projects outwardly, exposing openings into said containers.

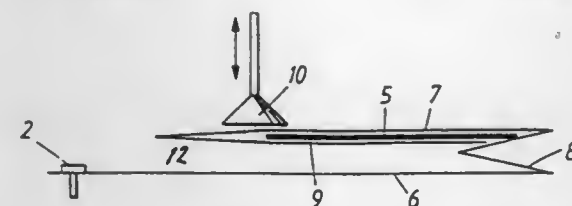
5,803,255
LIGHTTIGHTLY PACKAGED ROLL OF LIGHT-SENSITIVE FILM
 Dirk Peeters, Kontich, and Danny Van Geyte, Schilde, both of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium
 Filed Apr. 15, 1996, Ser. No. 631,918
 Claims priority, application European Pat. Off., Apr. 18, 1995, 95200966
 Int. Cl.⁶ B65D 85/66
 U.S. Cl. 206—398 9 Claims

1. A light-tightly packaged roll of a light-sensitive strip material to be packed in a cardboard box, the light-tightly packaged roll comprising:
 a hollow supporting core with a first end and a second end on which the light-sensitive strip material is wound;
 a first substantially annular, light-tight, flexible end cover light-tightly attached to the first end of the hollow supporting core, and a second substantially annular, light-tight, flexible end cover light-tightly attached to the second end of the hollow supporting core, each end cover having an outer diameter



greater than the diameter of the roll of light-sensitive strip material, the difference in diameters between the first end cover and the roll and the second end cover and the roll defining a first rim area and a second rim area, respectively; a circumferential cover comprising a strip of lighttight flexible material, which is attached to the roll of light-sensitive strip material and wound around the roll for at least one full revolution, the circumferential cover having a width greater than the width of the light-sensitive strip material, such that the circumferential cover has a first overhanging edge and a second overhanging edge over the sides of the roll; the first rim area being light-tightly attached to the first overhanging edge and the second rim area being light-tightly attached to the second overhanging area, thereby producing a first sealed rim and a second sealed rim, respectively; the first and second sealed rims being bent acutely toward an outer surface of the light-tightly packaged roll; and the cardboard box being without a flange means disposed therein for supporting the roll through engagement with the roll's hollow supporting core and for keeping the outer surfaces of the roll out of contact with the walls of the box.

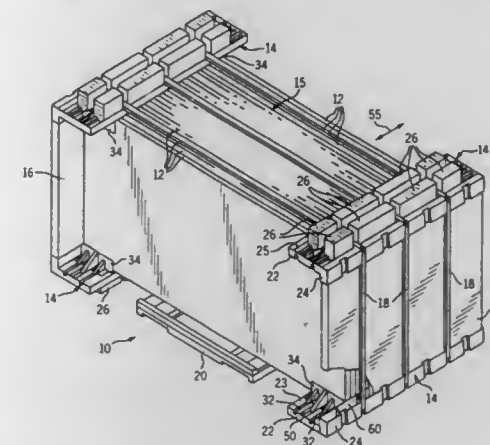
5,803,256
METHOD FOR PROVIDING BAG-LIKE PACKAGES OF DISPOSABLE ABSORBENT ARTICLES WITH BAGS FOR THE TEMPORARY KEEPING OF USED ARTICLES
 Thomas Lydhig, Göteborg, and Arne Frödh, Stenungsund, both of Sweden, assignors to Molnlycke AB, Gothenburg, Sweden
 PCT No. PCT/SE95/01272, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO96/13446, PCT Pub. Date May 9, 1996
 PCT Filed Oct. 26, 1995, Ser. No. 817,637
 Claims priority, application Sweden, Oct. 27, 1994, 9403690
 Int. Cl.⁶ A61B 00/00; B65B 43/04; B65D 30/22
 U.S. Cl. 206—440 10 Claims



1. A method for providing a packaging unit containing absorbent disposable articles selected from the group consisting of incontinence guards, sanitary napkins and diapers, and also bags in which used articles can be kept temporarily, the packaging unit including an infeed opening, a first large side and a mutually opposing second large side, which are joined together by two mutually opposing short sides, and a bottom, the method comprising: providing the first large side of the unit with a pocket which extends from the infeed opening towards the bottom, the end of the pocket turned against the bottom being open, and giving the pocket as seen in the direction for insertion of the articles a length which at least exceeds half the length of the first large side, inserting the bags into said pocket, and thereafter introducing said articles into the unit.

6. A packaging unit for disposable absorbent articles selected from the group consisting of incontinence guards, sanitary napkins and diapers, the packaging unit comprising: an infeed opening, a first large side and a mutually opposing second large side which are joined together by two mutually opposing short sides and a bottom, wherein the first large side is provided with a pocket which extends from the infeed opening towards the bottom of the packaging unit at least along half the length of the first large side, the end of the pocket turned against the bottom being open, and wherein the pocket contains a specific number of bags in which used articles can be kept temporarily.

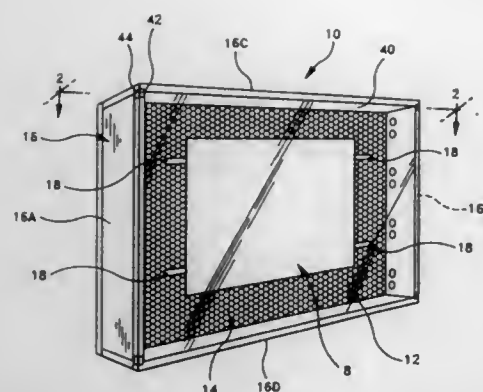
5,803,257
PANEL CRATING STRUCTURE
 David M. Bartholomew, Greensburg, Pa., assignor to Menasha Corporation, Neenah, Wis.
 Filed Nov. 7, 1996, Ser. No. 745,166
 Int. Cl.⁶ B65D 85/48
 U.S. Cl. 206—454 16 Claims



1. A packaging structure for a bundle of panels with each panel having two major surfaces and a plurality of edges connecting the two major surfaces, said packaging structure comprising:
 a plurality of corner caps with each one located at a corner of the bundle where two edges of each panel intersect and extend across the edges of every panel, and each corner cap having a base with a retainer extending therefrom at an angle for embracing one corner of the bundle, wherein the retainer of each corner cap has a plurality of ribs;
 a plurality of sheets with each sheet received within the retainer of two of the plurality of corner caps to prevent racking of the bundle of panels and wherein the plurality of ribs bite into the plurality of sheets; and
 a plurality of strapping bands extending around the plurality of corner caps and the bundle of panels.

5,803,258
SYSTEM FOR HOLDING FRAGILE ITEMS
 Ani Gonzalez-Rivera, Sea Cliff, N.Y., assignor to Archival Meters, Inc., Sea Cliff, N.Y.
 Filed Feb. 12, 1997, Ser. No. 799,780
 Int. Cl.⁶ B65D 85/48
 U.S. Cl. 206—454 40 Claims

1. A system for holding at least one fragile item comprising:
 a support panel, the support panel being dimensionally suitable for receiving the at least one fragile item, the support panel having at least one opening passing therethrough; and
 at least one fastening device for selectively securing the at least one fragile item to the support panel, the at least one fastening device including:



a fastener member, the fastener member having first and second end portions, the first end portion being formed to pass through the at least one opening in the support panel;

a fastener securing member, the fastener securing member being formed to engage the first end portion of the fastener member so that the fastener member is retained in the support panel after being passed through the at least one opening in the support panel; and

an item-attachment member for fixation to the at least one fragile item, the item-attachment member having an opening formed therein permitting the second end portion of the fastener member to pass therethrough when aligned with the opening in the item-attachment member and preventing the second end portion from passing therethrough when not aligned with the opening;

wherein the at least one fragile item is selectively secured to the support panel by aligning the second end portion of the fastener member with the opening in the item-attachment member so that the second end portion passes through the opening and, upon rotating the second end portion, the second end portion is not aligned with the opening thereby retaining the second end portion in the item-attachment member so the at least one fragile item may be shipped or stored on the support panel.

5,803,259

PACKAGE FOR PHOTOGRAPHIC FILMS

Gerd Riedel, München, Germany, assignor to Agfa-Gevaert AG, Germany

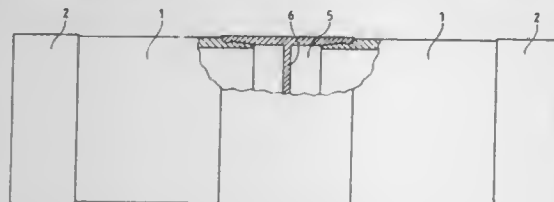
Filed Oct. 30, 1996, Ser. No. 741,367

Claims priority, application Germany, Nov. 8, 1995, 195 41 560.4

Int. Cl.⁶ B65D 85/672

U.S. Cl. 206—455

10 Claims



1. Film cartridges containing package in the form of a canister which consists essentially of the following parts:

- a. n hollow cylinders,
- b. 2 end caps,
- c. n-1 connecting elements and
- d. n film cartridges,

wherein n means an integer 2 to 6, the hollow cylinders are taller than both the end caps and the connecting elements, the hollow cylinders are positively connected with the end caps and with the connecting elements, the external diameter of the end caps and the connecting elements is no smaller than the diameter of the hollow

cylinders and said film cartridges are in the hollow cylinders so that one film cartridge is located in each hollow cylinders.

5,803,260

TOTAL PLASTIC PRODUCT-RETENTION PACKAGE

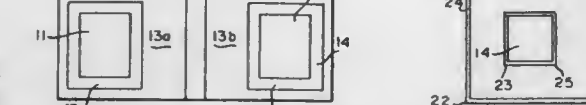
Christopher R. Tilton, Conyers, Ga., assignor to Walco Packaging Company, Inc., Conyers, Ga.

Filed Jun. 11, 1997, Ser. No. 873,249

Int. Cl.⁶ B65D 75/36

U.S. Cl. 206—463

10 Claims



1. A plastic package container, comprising:

a plastic backing sheet including at least one pair of spaced windows for receiving product;

a plastic film covering each one of the windows in said at least one pair of spaced windows and enclosing said product with said plastic backing sheet being folded to align each of the windows of said pair of plastic windows;

said flexible plastic films being sealed along a peripheral boundary of each of said at least one windows and to form a weld band around the peripheral edge of said windows;

a weld band formed around the peripheral edge of the plastic backing sheet, both weld bands having a width no greater than approximately 1/16 inch.

6. A plastic package container, comprising:

first and second separate plastic backing sheets each including at least one window for receiving product;

flexible plastic film covering each of the at least one windows and being sealed by a weld band along a peripheral boundary of the respective window;

product being enclosed between the at least one windows of the first and second plastic sheets with the corresponding at least one windows of the first and second plastic sheets being aligned with one another;

a weld band formed around the peripheral edge of the folded first and second plastic backing sheets, both weld bands having a width no greater than approximately 1/16 inch.

5,803,261

THREE DIMENSIONAL INSERT CONSTRUCTION

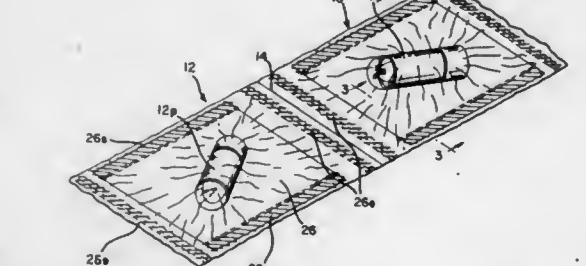
Anthony J. Nowakowski, Crystal Lake, and Gretchen J. Abel, Antioch, both of Ill., assignors to C. Joyce Witt, Barrington, Ill.

Continuation-in-part of Ser. No. 742,785, Oct. 31, 1996. This application Jun. 16, 1997, Ser. No. 876,611

Int. Cl.⁶ B65D 73/00

U.S. Cl. 206—466

11 Claims



1. An insert adapted for use in conjunction with packaging apparatus comprising:

a three-dimensional object;

a piece of cardstock including a top surface defined by first and second ends and first and second side edges;

thermo-sealable laminate applied to the top surface of the piece of cardstock; and

an overwrap material circumscribing the three-dimensional object and the cardstock, the overwrap material being in sealing relation with the laminate proximate to the first and second side edges to prevent lateral movement of the three-dimensional object toward the side edges of the cardstock.

5,803,262

Patent Not Issued For This Number

5,803,263

INFLATABLE PACKAGING CUSHION

Michel Pozzo, Neuilly S/Seine, France, assignor to Sealed Air Corporation, Saddle Brook, N.J.

Division of Ser. No. 7,857, Jan. 22, 1993, Pat. No. 5,348,157.

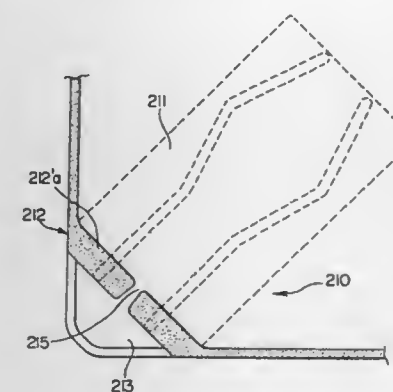
This application Sep. 6, 1994, Ser. No. 300,567

Claims priority, application France, Jan. 22, 1992, 92 00656

Int. Cl.⁶ B65D 81/02; 85/30

U.S. Cl. 206—522

7 Claims



1. Inflatable packaging cushion comprising sheets made from flexible plastic welded together in the region of their edges, said cushion including:

an external peripheral edge adapted to the shape and dimension of a packing receptacle;

a plurality of recesses extending from the outer periphery of said cushion towards the interior thereof; and

a weld line extending from each recess to the adjacent recess and having a discontinuous part of said weld line forming an opening, an articulated wedging part being defined by said weld line, parts of each adjacent recess and a portion of the peripheral edge, each articulated wedging part communicating with the rest of the cushion via said opening in said weld line and pivoting substantially about said weld line.

3. An inflatable cushion for use in packaging items in a box having at least one hinged closure flap which has one edge adjacent to a corner of the box, said cushion comprising a pair of air impervious layers of a size and shape to fit within the box with the items to be packaged, said layers being sealed together around the periphery thereof except in a corner region and defining an air chamber therebetween adapted to receive air under pressure to inflate the cushion, a self-sealing inflating valve located in said corner region of said cushion between said layers and being sealed to said layers, whereby said cushion may be inflated from outside, after closing said flap, by means of an inflating hose inserted into the said inflating valve and passing via a space located between the hinged closure flap and at least one face of the box adjacent to said corner.

5,803,264

FOOD AND BEVERAGE CONTAINER CARRIER

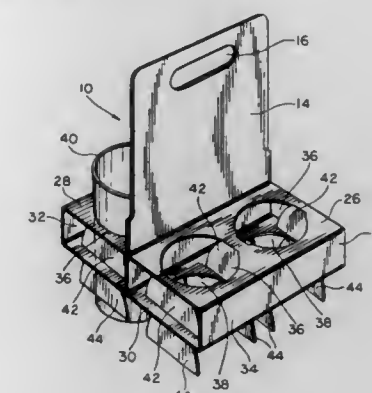
Albert Gersten, Malibu, Calif.; Ian Behar, New York, and Glen A. Thresher, Big Flats, both of N.Y., assignors to Alian Paper Products LLC, Encino, Calif.

Filed May 29, 1997, Ser. No. 865,002

Int. Cl.⁶ B65D 71/00

U.S. Cl. 206—549

11 Claims



1. A carrier for carrying one or more beverage containers comprising a beverage rack portion and a handle portion affixed to said beverage rack portion, said beverage rack portion including vertically spaced upper and lower horizontal panels having first and second axially aligned openings respectively formed therein, and at least one flap secured to and extending downward from at least said upper panel at the location of said first opening and extending downward toward the upper surface of the said lower panel for engaging a beverage container received in said first and second openings and for providing additional rigidity to said carrier.

5,803,265

PATIO TABLE TRAY

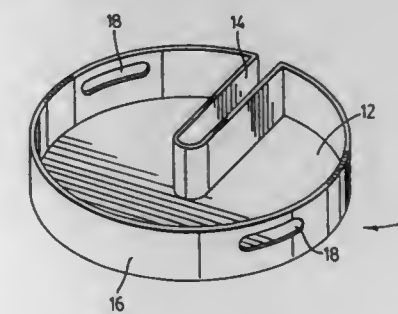
Jerome W. Bergerman, Victoria, Canada, assignor to Roman W. Bergerman, Canada, a part interest

Filed Nov. 15, 1996, Ser. No. 749,535

Int. Cl.⁶ B65D 1/34

U.S. Cl. 206—557

10 Claims

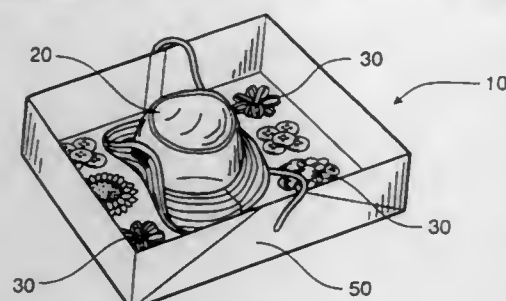


1. A service tray for placement on a table having a post extending above a top surface of the table, said tray comprising:

a base having a slot for receiving said post, said slot having a length and a substantially uniform width, said slot extending from an outward opening inwardly to a central region of said base, said slot defining first and second opposed side edges for guiding said tray about said post and an inner edge extending from said first side edge to said second side edge in said central region for engagement with said post wherein said length is substantially greater than said width;

a peripheral wall extending upwardly from said base, along a periphery of said base, and around a circumference of said base such that wall is continuous and said wall extends along side of, and around, said slot.

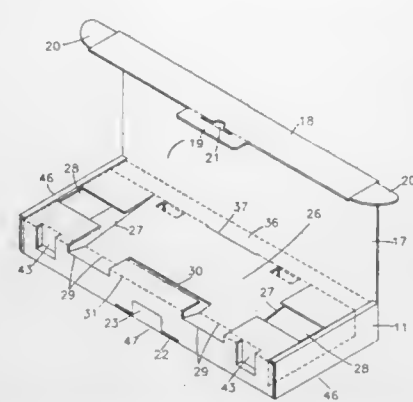
5,803,266
ACCESSORIES KIT HAVING INTERCHANGEABLE ORNAMENTS
Natalie A. Blackwelder, Charleston, W. Va., assignor to Hats By Annie, Inc., Charleston, W. Va.
Filed Dec. 6, 1996, Ser. No. 761,307
Int. Cl.⁶ B65D 73/00; A42B 1/24
U.S. Cl. 206—575 2 Claims



1. An accessories kit for allowing a user to wear or carry a clothing accessory with a variety of different outfits, said kit comprising:
 - a clothing accessory having an exterior surface;
 - a plurality of decorative, interchangeable ornaments selected from the group consisting of bows, buttons, ribbons and flowers, each of said ornaments selected to coordinate said clothing accessory with at least one of the variety of different outfits;
 - first fastening means comprising:
 - a hook material affixed to one of said clothing accessory and said plurality of ornaments; and
 - a loop material affixed to the other of said clothing accessory and said plurality of ornaments; and
 - a storage container comprising:
 - a bottom surface;
 - a plurality of second fastening means comprising a hook material affixed to one of said plurality of ornaments and said bottom of said storage container and a loop material affixed to the other of said plurality of ornaments and said bottom of said storage container; and
 - a retaining means comprising an elastic string having a first end and a second end, said first end and said second end of said elastic string affixed to said bottom surface of said storage container;
 - wherein said first fastening means secures at least one of said plurality of ornaments to the exterior surface of said clothing accessory;
 - wherein said plurality of second fastening means of said storage container secure said plurality of ornaments to said bottom surface of said storage container; and
 - wherein said retaining means of said storage container retains said clothing accessory within said storage container.

5,803,267
STRUCTURAL IMPROVEMENT ON KEYBOARD PACKAGING BOX
Jung-Pin Tu, and Tao-Kuan Chen, both of Taipei, Taiwan, assignors to Chicony Electronics Co., Ltd.
Filed Jul. 29, 1997, Ser. No. 902,041
Int. Cl.⁶ B65D 85/30
U.S. Cl. 206—576 2 Claims

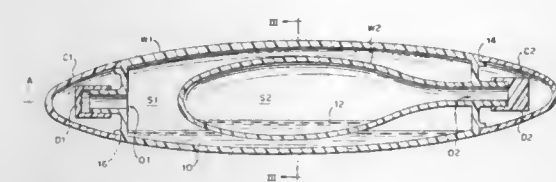
1. A integral cardboard blank for keyboard packaging box, comprising:
 - a longitudinally extended bottom plate having a pair of side insert grooves disposed adjacent opposing longitudinal ends thereof;
 - a pair of first side plates respectively joined to said opposing longitudinal ends of said bottom plate by respective fold lines;
 - a pair of second side plates respectively joined to said pair of first side plates by respective fold lines, each of said pair of



- second side plates having a pair of side inserts formed on a distal edge thereof for coupling with a respective pair of said side insert grooves subsequent to folding said first and second side plates;
- d. a rear plate having a first longitudinally extended side joined to a first longitudinally extended side of said bottom plate by a fold line;
- e. a top portion having a first longitudinally extended side joined to a second longitudinally extended side of said rear plate by a fold line;
- f. a front edge portion having a first longitudinally extended side joined to a second longitudinally extended side of said top portion by a fold line, said front edge portion having a top insert formed centrally on a second longitudinally extended side thereof, said top insert having a top insert groove formed therein;
- g. a pair of first inner side plates respectively joined to opposing longitudinal ends of said rear plate by respective fold lines;
- h. a front plate having a first longitudinally extended side joined to a second longitudinally extended side of said bottom plate by a fold line;
- i. a pair of second inner side plates respectively joined to opposing longitudinal ends of said front plate by respective fold lines;
- j. a separating plate having a first longitudinally extended side joined to a second longitudinally extended side of said front plate by a fold line;
- k. a pair of vertical plates respectively joined to opposing longitudinal ends of said separating plate by respective fold lines;
- l. a long plate portion having a first longitudinally extended side joined to a second longitudinally extended side of said separating plate by a fold line, said long plate portion having a rear insert formed on a second longitudinally extended side thereof in correspondence with said top insert groove, said long plate portion having a plurality of longitudinally directed fold lines for defining a plurality of long plates; and
- m. a pair of positioning plates formed from and bridging between said separating plate and said long plate portion, each of said positioning plates being joined on one end thereof to said separating plate by one fold line and joined on an opposing end to said long plate portion by another fold line.

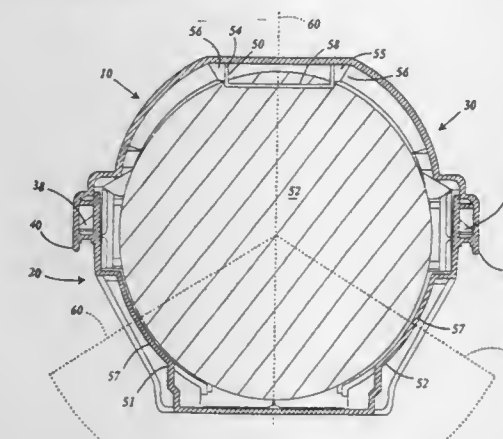
5,803,268
DOUBLE-ENDED PERFUME BOTTLE
Brad Levy; Judy Levy, both of Youngstown, Ohio, and Robert DuGrenier, New York, N.Y., assignors to Fragrance International, Inc., Youngstown, Ohio
Filed Feb. 29, 1996, Ser. No. 610,154
Int. Cl.⁶ A45D 34/00; B65D 1/04; 1/06
U.S. Cl. 206—581 9 Claims

1. A double-ended bottle comprising:
 - a container outer wall surrounding an outer space, the outer wall including a first neck structure defining a first opening to the outer space;



- a first closure for closing the first opening to contain a first liquid within the outer space;
- a container inner wall surrounding an inner space, the inner wall including a second neck structure defining a second opening to the inner space;
- each neck structure is spaced radially from and in contact with said outer wall;
- a second closure for closing the second opening to contain a second liquid within the inner space;
- and wherein:
 - (a) the outer wall and the inner wall are joined adjacent the second opening to form a continuous and unitary double envelope;
 - (b) the inner wall is disposed within the outer wall;
 - (c) the outer space is disposed between the outer wall and the inner wall, and the inner space is disposed substantially within the inner wall;
 - (d) the first opening is located at a first end of the bottle and the second opening is located at a second end of the bottle; and
 - (e) the outer space contains a first fragrance-containing toiletry liquid, and the inner space contains a second fragrance-containing toiletry liquid different from said first fragrance-containing toiletry liquid.

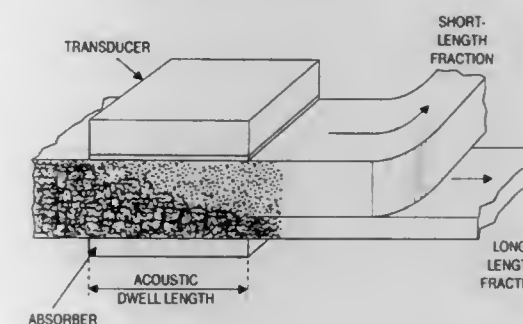
5,803,269
300MM SHIPPING CONTAINER
Robert Jacoby, Plymouth, and Barry Gregerson, Deephaven, both of Minn., assignors to Empak, Inc., Chanhassen, Minn.
PCT No. PCT/US95/12514, § 371 Date Sep. 9, 1997, § 102(e) Date Sep. 9, 1997, PCT Pub. No. WO97/13708, PCT Pub. Date Apr. 17, 1997
PCT Filed Oct. 13, 1995, Ser. No. 913,225
Int. Cl.⁶ B65D 85/90
U.S. Cl. 206—592 3 Claims



1. A container for holding a plurality of items, said container comprising:
 - a. a bottom having an opening for loading and unloading said items;
 - b. a removable top for covering the opening of the bottom; and
 - c. three cushions which cooperate with each other to retain each of said plurality of items in a parallel, spaced apart position with respect to each of the other of said items, one of said cushions attached to the top and the other two of said cushions attached to the bottom, each of said cushions supporting said items along a center line of support, the center line of support associated with each cushion being located approxi-

mately 120° from the center lines of support associated with each of the other two cushions when the top is covering the opening of the bottom.

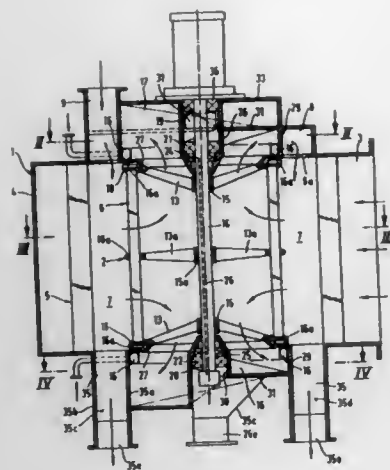
5,803,270
METHODS AND APPARATUS FOR ACOUSTIC FIBER FRACTIONATION
Pierre Brodeur, Smyrna, Ga., assignor to Institute of Paper Science & Technology, Inc., Atlanta, Ga.
Filed Oct. 31, 1995, Ser. No. 550,750
Int. Cl.⁶ B03B 5/28
U.S. Cl. 209—155 21 Claims



1. An acoustic cell for subjecting a suspension of fibers to deflection forces, the fibers being of differing relative sizes, the acoustic cell comprising:
 - an elongated tubular element having at least one inlet channel for receiving at least one continuously moving stream of a fiber suspension in a directed flow, said tubular element having more than one downstream outlet;
 - an input for receiving time varying signals; and
 - at least one transducer coupled to said input and coupled to said tubular element for generating at least one ultrasonic field which is transverse to said flow and responsive to the time varying signals received at said input, said transducer effective for generating at least one ultrasonic field transverse to said flow of sufficient energy to induce deflections of the fibers penetrating said at least one ultrasonic field, said at least one ultrasonic field effective for imposing agglomeration and reorientation on the fibers of the fiber suspension along a trajectory to separate the fibers into at least two fractions according to the relative sizes of the fibers, said at least one continuously moving stream flowing through said tubular element, and said at least one ultrasonic field separating the fibers of the fiber suspensions into at least two fractions corresponding to at least two outlet streams of fibers at the downstream outlets of said tubular element.

5,803,271
CENTRIFUGAL FORCE SEPARATOR
Ulrich Barthelmess, Niederstotzingen, Germany, assignor to Omya GmbH, Germany
Filed Mar. 26, 1996, Ser. No. 622,710
Claims priority, application Germany, Mar. 28, 1995, 195 11 314.4
Int. Cl.⁶ B04B 5/12 5 Claims

1. A centrifugal force separator comprising a separator rotor having a rotor shaft with at least two axial extremities and a bearing at each axial extremity, a substantially cylindrical housing having a tangential air inlet extending over the entire length of the separator rotor, wherein the rotor shaft extends outwardly at both axial extremities through the center of a first fines outlet chamber at one end of the rotor shaft and through the center of a second fines outlet chamber at the other end of the rotor shaft, said fines



outlet chambers having diameters which are substantially equal to the diameter of the separator, and wherein both first and second fines air outlet chambers have central bosses extending inwardly in the axial direction, in which bearings for the rotor shaft are inserted, and wherein the fines outlet chambers surrounding the bearings widen helically or spirally outwardly in the axial direction.

5,803,272

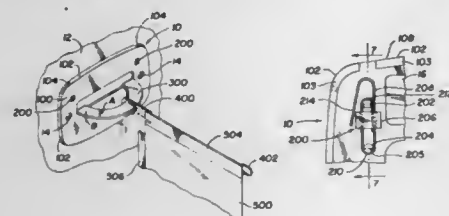
DOCUMENT HANGER APPARATUS AND METHOD
Dennis V. Jimenez, 2033 Greenstone Trail, Carrollton, Tex. 75010; Clarence D. Zierhut, Richardson, and Jerry W. Harrison, Garland, both of Tex., assignors to Dennis V. Jimenez, Carrollton, Tex.

Filed Sep. 26, 1996, Ser. No. 721,001

Int. Cl.⁶ A47F 7/16

U.S. Cl. 211—48

16 Claims



1. An apparatus for suspending documents from a substantially vertical support, the apparatus comprising:
 - a substantially planar base with a first face and a second face;
 - a mount attached to said first face, said mount adapted to suspend said planar base from the substantially vertical support;
 - a substantially planar hub longitudinally extending from said second face, said hub having a depth and a width, and an inner arcuate edge forming an aperture between the inner arcuate edge and said second face;
 - a substantially horizontally supported beam having first and second opposing ends, said first end adapted to slidably accept said inner arcuate edge of said hub, said first end having a hub slot with a height and length that are sufficiently larger than the depth and width of said hub to provide a loose fit when said first end slidably accepts said inner arcuate edge of said hub, said beam having a length extending substantially horizontally in an outward direction beyond the hub; and

a document pocket having a sleeve with a width that is less than the length of the beam, said sleeve being adapted to accept said beam such that said document pocket is suspendable from said beam.

5,803,273

ADJUSTABLE ARM FOR A MERCHANDISING DISPLAY SYSTEM

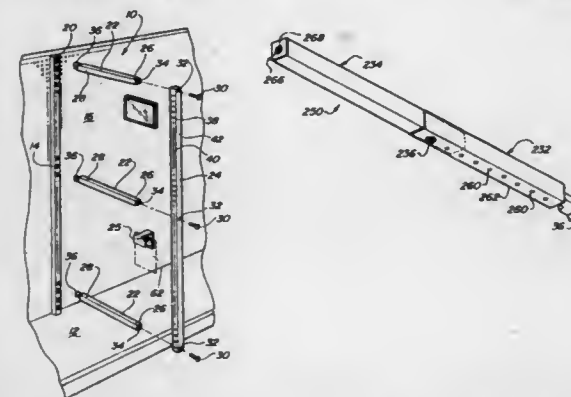
Neal M. Menaged, 1714 Fredendall Cir., South Hampton, Pa. 18966, and Lewis M. Hendler, 1420 Greenwalt Rd., Huntingdon Valley, Pa. 19006

Continuation-in-part of Ser. No. 517,448, Aug. 21, 1995, Pat. No. 5,678,702, which is a continuation-in-part of Ser. No. 250,051, May 27, 1994, Pat. No. 5,443,167. This application Apr. 12, 1996, Ser. No. 604,899

Int. Cl.⁶ A47F 5/00

U.S. Cl. 211—87.01

15 Claims



1. An adjustable arm for a merchandising display unit of the type including an upwardly extending wall portion, the adjustable arm comprising:

- a main body portion including first and second telescopically related members, said first telescopically related member including a plurality of apertures, said second telescopically related member including an aperture adapted to selectively align with the apertures of said plurality of apertures;
 - a fastener passing through a selected one of said plurality of apertures in said first telescopically related member and said aperture of second telescopically related member;
 - a mounting portion for attaching a free end of one of the first and second telescopically related members, said mounting portion interconnecting said main body portion and the upwardly extending wall portions, said mounting portion includes a hook member;
- whereby a longitudinal length of said main body portion is adjustable by telescopically moving said first telescopically related portion relative to said second part telescopically related portion.

5,803,274

ARTICLE DISPLAY SYSTEM

Saul Scheveloff, 1466 First Ave., Suite 2B, New York, N.Y. 10021

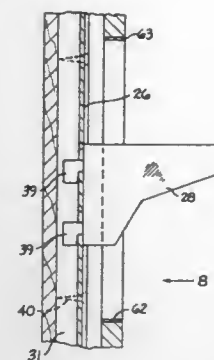
Filed Jan. 23, 1997, Ser. No. 786,874

Int. Cl.⁶ A47F 5/08

U.S. Cl. 211—87

12 Claims

1. An article display system comprising:
 - an upright unitary support panel having a front face and a rear face;
 - a plurality of vertical grooves in the panel front face;
 - a vertical plate (42) seated in each said groove, each said plate extending substantially the full length of an associated groove; plural sets of slots (47) located at vertically-spaced points along each plate;



an ornamental panel (50) located in front of said support panel; said ornamental panel having slot-type perforations therein registering with each set of slots in each vertical plate, and an annular ring in each perforation; and plural article-support brackets adapted for selective engagement with each set of slots; each said ring having facing surfaces that stabilize an associated bracket against lateral movement.

5,803,275

ARTICLE HOLDER

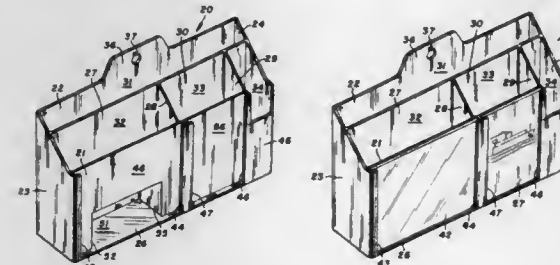
Robert A. Schweitzer, Robinsdale, Minn., assignor to Minnesota American, Inc., Minnetonka, Minn.

Continuation-in-part of Ser. No. 56,099, Jun. 21, 1996, Pat. No. Des. 383,633. This application Oct. 15, 1996, Ser. No. 730,074

Int. Cl.⁶ A47F 7/00

U.S. Cl. 211—88.01

30 Claims



1. A holder for one or more articles comprising: a receptacle having an open top, upright outer walls, a bottom wall joined to the upright outer walls defining an article carrying space, at least one transverse wall extending across the article carrying space separating the space into a plurality of pockets, an inner horizontal wall located in a longitudinal plane above the bottom wall, upright inside walls joined to the inner wall and bottom wall defining an inner compartment, said upright outer walls having an opening in communication with said inner compartment, and attachment means secured to one of the upright outer walls remote from the pockets for holding the receptacle on a support having a generally flat surface, the attachment means having a generally flat outer surface locatable in surface engagement with the flat surface of the support to retain the box on the support.

5,803,276

ADJUSTABLE SHELF DIVIDER

Michael N. Vogler, 49 Miranda Court, Thornhill, Ontario, Canada

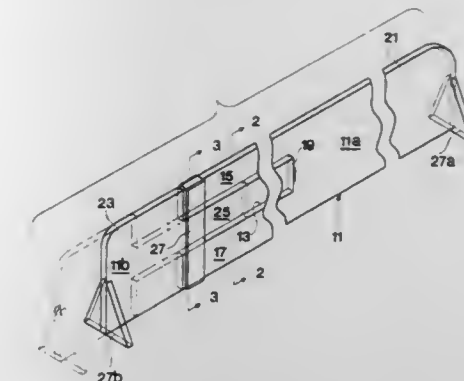
Filed May 27, 1997, Ser. No. 863,131

Int. Cl.⁶ A47F 5/00

U.S. Cl. 211—184

8 Claims

1. An adjustable shelf divider comprising at least two elongated panel sections arranged in co-planar relation to form together a partition for separating groups of products displayed on a generally



horizontal shelf surface, said panel sections being connected together by an elongated longitudinal telescoping tongue and slot connection between adjacent ends of said panel sections, said tongue projecting from one section and the slot being formed in the other section, to permit the sections to be extended lengthwise apart to accommodate to different shelf widths while remaining connected together in said co-planar relation, said tongue and slot having pairs of upper and lower edge surfaces in close proximity, each said pair of edge surfaces being shaped with a groove and protrusion for mating lengthwise slidable engagement for retaining said tongue in said slot, and a stabilizing foot adjacent an outer end of each said panel section and extending laterally on opposite sides of such section for contact with said shelf surface to maintain the connected together sections in upright generally vertical condition on said shelf surface, wherein the slot of said tongue and slot connection is defined between two generally parallel vertically spaced apart longitudinal legs extending along an end portion of one section and on each of the opposite sides of said legs a reinforcing strap is affixed at its ends to corresponding sides of said two legs adjacent free ends thereof to thereby bridge between the spaced apart legs, the two straps preventing said legs from moving vertically out of parallel relation while defining therebetween a narrow vertical channel for reception of the tongue of the other section.

5,803,277

MOUNTING SYSTEM FOR SHELVING FOR CROCKERY AND THE LIKE

Ignacio Alvarez-Momoiito, Sugarriale, 20, Sopelana (Vizcaya), D-48600, Spain

PCT No. PCT/ES94/00095, § 371 Date Mar. 29, 1996, § 102(e) Date Mar. 29, 1996, PCT Pub. No. WO96/04822, PCT Pub. Date Feb. 22, 1996

PCT Filed Sep. 29, 1994, Ser. No. 619,706

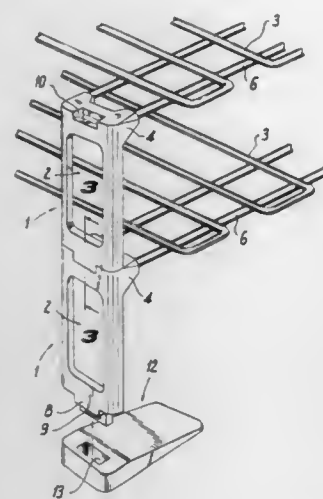
Claims priority, application Spain, Aug. 9, 1994, 9401801

Int. Cl.⁶ A47B 43/00

U.S. Cl. 211—188

6 Claims

1. A system for the mounting of shelving comprising a first module of a plurality of modules having means for vertical attachment at respective top and bottom surfaces thereof, for vertically moving while attaching and detaching said first module to a second module of said plurality of module to form a continuous vertical stack of said plurality of modules acting as a support for at least one shelf, said first module and said second module each having means for laterally attaching said at least one shelf to each said module of said plurality of modules; wherein the means for vertical movement and attachment for vertically attaching and detaching comprises a graduated front at the bottom end of each said module of said plurality of modules, with a small lateral protrusion on said graduated front acting as a clip and a slot at the top end of said module for receiving the graduated front of the module immediately above, there being a lateral fissure in the hollow of said slot



for the housing of the protrusion as a clip, and said module immediately above can be assembled or dismantled by pressure.

5,803,278

OVERHEAD TRAVELING CARRIAGE

Tamotsu Shiwaku, Kani, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

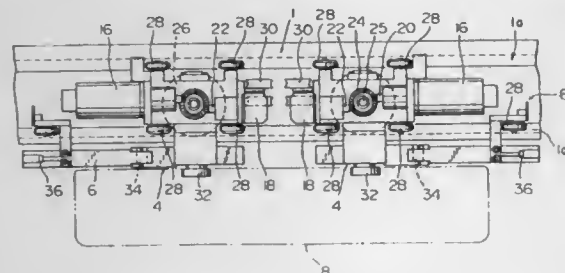
Filed Aug. 30, 1996, Ser. No. 705,654

Claims priority, application Japan, Aug. 9, 1995, 7-257091; Aug. 9, 1995, 7-257092

Int. Cl.⁶ B66C 13/06

U.S. Cl. 212—274

6 Claims



1. An overhead travelling carriage comprising:
a pair of cars supported by and movable backwards and forwards on a rail, wherein said rail is arranged along a ceiling of a building in which a work product must be transported, said rail including a rail part and a communication cable between said overhead travelling carriage and a control center;
a bumper provided to each car;
a main body connected to said pair of cars via a pivot shaft;
a hoist unit attached to a lower part of said main body;
means for gripping said work product, wherein said gripping means moves vertically up and down relative to said rail due to said hoist unit;
a plurality of drums and a plurality of motors located on a base of said hoist unit, wherein said arrangement is centered around a common shaft in a vertical direction of an object connecting a hypoid gear and a spur gear, wherein said motor is connected to said hypoid gear so as to rotate said spur gear, and said gripping means is vertically moved by rotation of said drum by said spur gear.

5,803,279
AUTOMATICALLY DEPLOYABLE LOAD-LINE
RECEIVING MAST STRUCTURE FOR LIMITING
DEFLECTION OF PROPORTIONALLY EXTENDABLE
BOOM SECTION CRANE

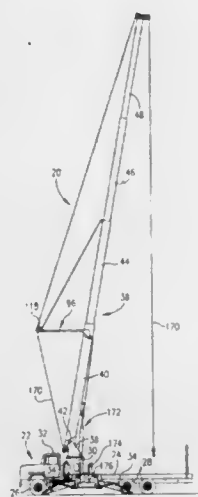
Richard J. Stallbaumer, Overland Park, Kans.; James A. Rusk, Jr., Kansas City, Mo., and Raymond F. Pitman, Leawood, Kans., assignors to Pioneer Engineering, Grandview, Mo.

Filed Sep. 13, 1996, Ser. No. 713,743

Int. Cl.⁶ B66C 23/04

U.S. Cl. 212—299

21 Claims



1. In a crane having a base assembly including a rotatable turret and a base boom section pivotally carried by the turret, a series of proportionally extendable boom sections supported by the base boom section, a winch unit on the base assembly having a winch drum, a primary sheave on the outer end of the outermost of the extendable boom sections, and a flexible load line trained around the winch drum and extending over the sheave on the outermost boom section for lifting of a load by the crane, the improvement comprising:

an erectable mast pivotally carried by one of the boom sections, said mast normally being positioned adjacent said one boom section on which it is mounted, said mast being movable to an erect position extending outwardly from said one boom section at an angle with respect to the latter in a direction toward the load line extending between the winch drum and the primary sheave,

there being a secondary sheave on the mast disposed in a position for the load line to pass thereover between the winch drum and the primary sheave; and

means on the boom sections and engageable with the mast for effecting erection of the mast as the boom sections are extended proportionally relative to the base boom section, said mast and secondary sheave thereon being located such that upon initiation of erection of the mast, the load line extending from the winch drum over the secondary sheave to the primary sheave structure in conjunction with the longitudinal axis of the boom sections defines triangulation geometry,

said load line serving to lift the load and also as a result of said triangulation geometry providing required offsetting boom deflection forces upon initiation of erection of the mast which are a direct function of the overall length and angle of the boom during extension and retraction, and a direct function of the specific load being lifted by the crane boom sections.

5,803,280

LIFTING AND TRANSPORT APPARATUS FOR
TRANSCONTAINERS

Burkhard Mende, and Andreas Baumann, both of Essen, Germany, assignors to Krupp Fordertechnik GmbH, Duisburg, Germany

Continuation of Ser. No. 374,793, Jan. 25, 1995, abandoned.

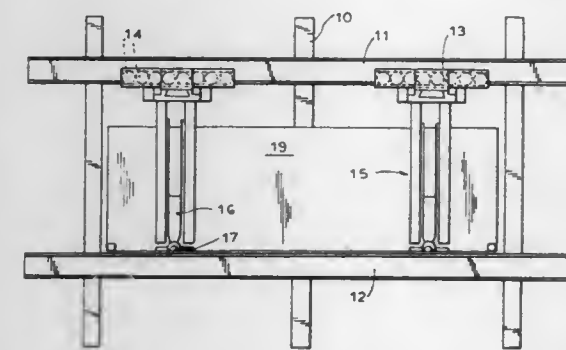
This application Nov. 4, 1996, Ser. No. 743,106

Claims priority, application Germany, Jun. 3, 1993, 43 18 461.8

Int. Cl.⁶ B66C 19/00

U.S. Cl. 212—330

3 Claims



1. A cable-suspension-free transcontainer transport apparatus comprising:

a fixed rigid horizontal beam having a lower flange;

a pair of lifting vehicles displaceable on said beam, each of said lifting vehicles being provided with:

a respective wheeled carriage riding directly on said lower flange in a travel direction, the carriages being shiftable jointly along said beam and being shiftable independently of one another along said beam to adjust a spacing between said wheeled carriages,

a respective support extending horizontally transverse to said beam and secured on one of said wheeled carriages,

a pair of vertical guide columns extending downwardly from each of said supports and fixed thereto at respective upper ends of said guide columns, said supports being adjustable in a direction transverse to said travel direction to vary a spacing between the guide columns of the respective lifting vehicle, and

a respective vertically elongated lifting element on each of said guide columns and guided thereon for vertical movement, said lifting elements having free lower ends and being displaceable independently of one another and linearly along respective guide columns to adjust engagement of said lifting elements with a transcontainer to be transported; and

attachment elements shaped to positively engage in respective formations in the transcontainer to be transported and provided at each of said lower ends of said lifting elements for engagement with said container and lifting and lowering thereof without sway, each of said adjustable supports of the respective lifting vehicle being a telescoping beam having respective two elongated parts telescopically connected with one another and provided with respective means for elongating and contracting the telescoping beam, each of said attachment elements comprising a generally U-shaped claw pivotally connected to the respective lifting element and having a spring-loaded pin projecting therefrom parallel to said horizontal beam and a gripping recess extending perpendicular to said pin and receiving a claw of the container to be transported.

5,803,281

SYNTHETIC RESINOUS CONTAINER CLOSURE
HAVING FRUSTOCONICAL SEALING SURFACES

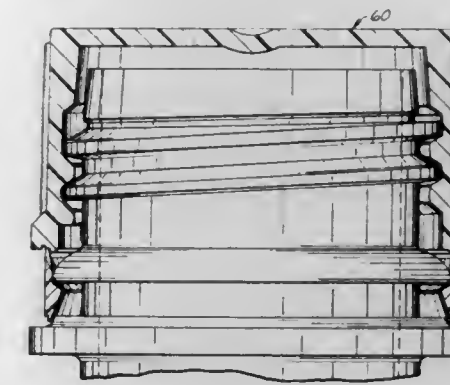
Edward J. Towns, Mathews, N.C., assignor to Oz Worldwide, Inc., Monroe, N.C.

Filed Jun. 14, 1993, Ser. No. 75,409

Int. Cl.⁶ B65D 1/02

U.S. Cl. 215—44

12 Claims



1. In combination, a synthetic resinous container and closure cap therefore particularly suited for storing liquid contents under pressure; said container having a principal longitudinal axis including a neck finish having an upper portion with an inner surface defining an opening, and an outer surface, said outer surface surrounding said opening and being of frustoconical configuration forming a sealing area, a medially disposed portion on said outer surface defining a closure retaining means; said closure being of flexible semi-rigid material and including an end wall and a generally cylindrical side wall formed integrally therewith; said side wall defining a frustoconical sealing area on an inner surface thereof corresponding to said sealing surface on said container finish adjacent said end wall; and means in the form of an annular bead on said side wall selectively engaging said closure retaining means to maintain said closure upon said finish; said means being distally positioned relative to said end wall, and having venting means operative upon the opening of said container.

5,803,282

VACUUM INDICATOR FOR A BOTTLE

Pao Ting Chen, No. 77, Wen Ah, Wen Ah Tsuen, Dong Shr Hsiang, Chia Yi Hsien; Hsin Yu Chen, No. 53, Hsin Yi St., Ben Hsiang Tsuen, Wu Fong Hsiang, Taichung Hsien, and Cai Lian Llu, 3F, No. 34, Lane 37, Sec. 1, Da Ching St., Taichung, all of Taiwan

Filed Dec. 13, 1996, Ser. No. 768,774

Int. Cl.⁶ B65D 51/24

U.S. Cl. 215—228

4 Claims

1. A bottle comprising:

a) a body including a hollow interior and an upper end;

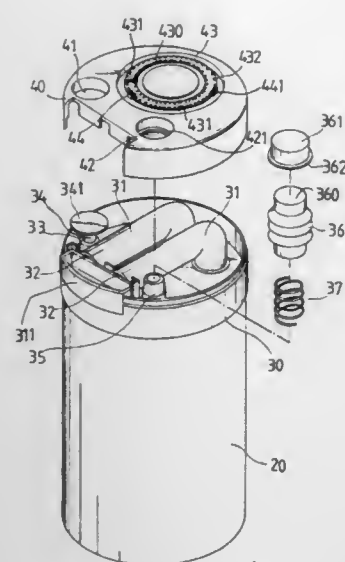
b) means for producing a vacuum within the interior of the body;

c) a cap secured on the upper end of the body, the cap including a pipe extending upwardly therefrom and communicating with the interior of the body;

d) a bellows member sleeved on the pipe, the bellows member including a lower end secured to the cap and an enclosed upper end;

e) a cover engaged on the cap, the cover including an aperture for slidable engagement with the enclosed upper end of the bellows member and permitting the enclosed upper end to extend upwardly beyond the cover to indicate the absence of a vacuum within the interior of the body; and

f) means for biasing the enclosed upper end of the bellows member upwardly and permitting the enclosed upward end to



extend downwardly against the biasing means to indicate the presence of a vacuum within the interior of the body.

5,803,283

SNAP-ON INDICATOR CAP

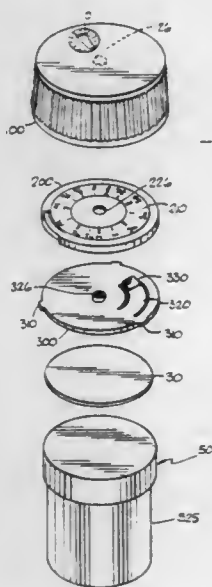
Allan E. Barker, and Gage Garby, both of Boulder, Colo., assignors to Senetics, Inc., Boulder, Colo.

Continuation of Ser. No. 153,531, Nov. 16, 1993, Pat. No. 5,732,836, which is a continuation of Ser. No. 21,735, Feb. 23, 1993, Pat. No. 5,261,548, which is a continuation of Ser. No. 718,354, Jun. 21, 1991, abandoned, which is a continuation-in-part of Ser. No. 641,759, Jan. 17, 1991, abandoned, which is a continuation-in-part of Ser. No. 306,485, Feb. 3, 1989, Pat. No. 5,009,338. This application Sep. 15, 1995, Ser. No. 529,135

Int. Cl.⁶ B65D 55/02

U.S. Cl. 215—230

12 Claims



1. An indicator device for mounting a closure for a container, to indicate the opening or closing of the container, comprising:
- (a) an outer cover including a top piece with an indicator window therein and a depending skirt extending axially downward from the top piece;
 - (b) a retainer attached to the outer cover, whereby the outer cover can limitedly rotate in relation to the retainer;

- (c) an indicator wheel disposed between the outer cover top piece and the retainer, having indicating symbols visible through the indicator window;
- (d) means for snapping the indicator device onto the closure;
- (e) a first-rotation mechanism engaging said indicator wheel with said outer cover for allowing rotation of the outer cover in relation to the indicator wheel in a first-rotational direction, but not in a second-rotation direction opposite the first-rotational direction, said rotation mechanism including a flexible pawl, whereby one cycle of opening and closing the container advances said indicator symbols exactly one position with respect to said indicator window.

5,803,284

STERILE CLOSURE ASSEMBLY FOR SEALING A MEDICAMENT CONTAINER

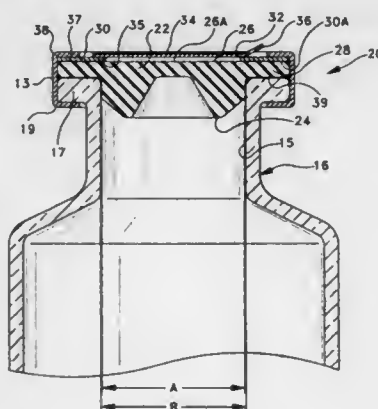
Jean-Pierre Grimard, Vif, France, assignor to Becton Dickinson and Company, Franklin Lakes, N.J.

Filed Sep. 27, 1996, Ser. No. 722,292

Int. Cl.⁶ B65D 39/00

U.S. Cl. 215—249

10 Claims



1. A sterile closure assembly for sealing a medicament container having an open top surrounded by a rim having an upper surface and a lower surface, said sterile closure assembly comprising:
- an elastomeric closure for sealing the open top of the container, the elastomeric closure including a plug and a flange portion extending radially beyond the plug for sealing the open top of the container and a top surface for facing away from the open top of the container, with the top surface of the elastomeric closure including an access area;
 - a washer secured in surface contact with the top surface of the elastomeric closure, the washer having an upper surface and a bottom surface and an opening over the access area of the top surface of the elastomeric closure; and
 - a membrane removably sealed to the upper surface of the washer and hermetically enclosing the opening over the access area of the top surface of the elastomeric closure; and
 - a crimping cap for engaging the upper surface of said washer and the rim of the container and for sealingly retaining the elastomeric closure and washer to the container;
- whereby when said elastomeric closure is placed over the open top of the container, the flange of the elastomeric closure engages the upper surface of the rim of the container and the plug engages the open top of the container to seal the container with said crimping cap surrounding the elastomeric closure and the washer and engaging the upper surface of the washer and the bottom surface of the rim of the container.

5,803,285
CORK CAP FOR USE WITH A CORK TO PLUG THE MOUTH OF A BOTTLE
Koji Hirota, 3-12-704, Tosabori 2-chome, Nishi-ku, Osaka, Japan

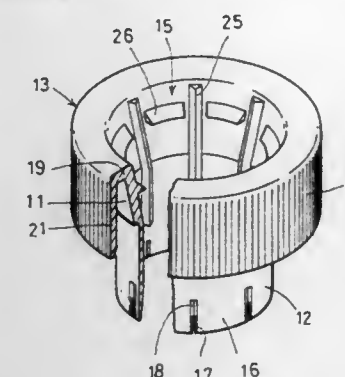
Filed Feb. 10, 1997, Ser. No. 798,470

Claims priority, application Japan, May 28, 1996, 8-133622

Int. Cl.⁶ B65D 39/00

U.S. Cl. 215—296

18 Claims



1. A cork cap for use with a cork to plug a bottle mouth, said cork cap comprising:
- a head having an outer diameter greater than a given diameter;
 - a leg provided concentrically with said head and having an outer diameter substantially equal to said given diameter;
 - wherein a hole is formed through said head and said leg, with inner surfaces of said head and said leg defining an inner surface of said hole;
 - wherein said hole has a top portion and a bottom portion and is tapered radially outwardly from said bottom portion to said top portion;
 - wherein a plurality of vertical ribs are formed on said inner surface of said hole and extend vertically from said head to said leg; and
 - wherein a plurality of horizontal ribs are formed on said inner surface of said hole between adjacent ones of said vertical ribs.

5,803,286

PLASTIC CLOSURE CAP WITH EARLY VENTING INNER SEAL

George Pfefferkorn, and Michael Kirchgessner, both of Egringen, Germany, assignors to Crown Cork AG, Rainach, Switzerland

Continuation of Ser. No. 363,383, Dec. 23, 1994, abandoned.

This application Oct. 2, 1996, Ser. No. 725,057

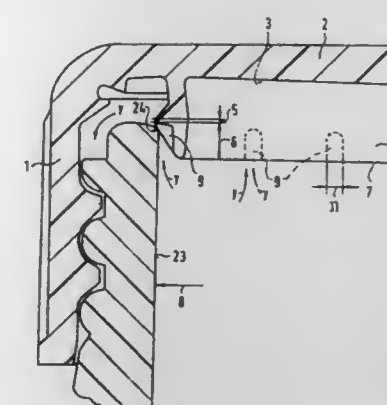
Claims priority, application Switzerland, Dec. 23, 1993, 387393

Int. Cl.⁶ B65D 51/16

U.S. Cl. 215—307

11 Claims

1. A screwably plastic closure cap for sealing a container at its orifice, said closure cap comprising:
- a cylindrical cap wall;
 - a cap base having an inner surface and being adjacent to said cylindrical cap wall;
 - an internal seal extending downwardly from the inner surface of said cap base, said internal seal possessing a radially outer surface comprising a surrounding sealing portion on its outer edge for internal sealing of the container orifice to be closed and possessing an insert portion beneath the sealing portion; said sealing portion being spaced from the cap base and defining a maximum outer diameter of the internal seal prior to placement on the container;
 - said insert portion comprising a compression zone, whereby the compression zone is designed to engage the container orifice and be compressed when the insert portion is inserted into the orifice;



wherein the radially outer surface of the internal seal possesses, in the area of said insert portion, at least one vent recess, said vent recess extending at least over the entire height of the compression zone, said compression zone and said at least one vent recess being axially below said sealing portion.

5,803,287

CONSUMER FRIENDLY PACKAGE

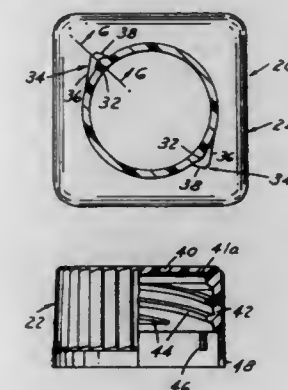
Maximillian Kusz, Waterville, Ohio, assignor to Owens-Illinois Closure Inc., Toledo, Ohio

Filed Apr. 22, 1997, Ser. No. 844,869

Int. Cl.⁶ B65D 41/04

U.S. Cl. 215—330

18 Claims



1. A consumer friendly package comprising
- a plastic container including a body and a finish,
 - a plastic closure including a base wall and a peripheral skirt, said container having a means for engagement on said finish, said closure having complementary means for engagement on the interior of the skirt,
 - said container including at least one radial abutment on the finish,
 - said container including at least one axial projection on the wall of the finish generally aligned with said abutment on said finish extending axially from said means for engagement on the container,
 - said closure having said means for engagement engaging said axial projection on the finish,
 - said closure including at least one lug thereon aligned with and engaging and passing over said radial abutments on the finish when the closure is threaded on the container to provide an audible click,
 - resilient sealing means on said closure engaging said finish.

5,803,288

CAP FOR BOTTLES HAVING RESILIENTLY BIASED SEAL MEMBER

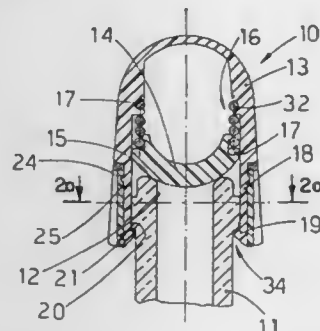
Dino Munini, S. Quirino, Italy, assignor to Microstamp Srl, Quirino, Italy

Filed Apr. 2, 1996, Ser. No. 626,331

Claims priority, application Italy, Apr. 6, 1995, UD95A0060
Int. Cl.⁶ B65D 41/30

U.S. Cl. 215—342

4 Claims



1. Cap of a type suitable to be used for the momentary closure of bottles containing gaseous liquids, the cap comprising an outer sheath open at its lower end, within which is installed a longitudinally slidable supporting and closure element including at its lower end a seal which is rested on the mouth of the bottle, the supporting and closure element cooperating at its upper end with a resilient thrust element firmly secured to the outer sheath and also comprising anchorage legs which can be deformed resiliently in a radial direction and which bear terminal claw elements, the anchorage legs cooperating with a clamping ring having at least one first working position, in which the cap is anchored to the bottle, and a second inactive position, in which the cap is free to be withdrawn from the bottle, the cap being characterized in that the anchorage legs are movably associated at least radially with the outer sheath and therewithin, coordinated projections being included and being arranged circumferentially to the anchorage legs and facing there-towards, the projections cooperating momentarily with the anchorage legs when the clamping ring is in the first working position so as to clamp the anchorage legs against the neck of the bottle, wherein the clamping ring can be rotated perpendicularly to a longitudinal axis of the cap, the coordinated projections being provided on an inner surface of the clamping ring and alternating with a plurality of spaces, the clamping ring being provided circumferentially to a lower part of the outer sheath.

5,803,289

CONTAINER HAVING DISAPPEARING AND REAPPEARING INDICIA

Thomas E. Brady, Sylvania, Ohio, assignor to Plastic Technologies, Inc., Holland, Ohio

Filed Jul. 14, 1997, Ser. No. 892,279

Int. Cl.⁶ B65D 1/02; 1/40

U.S. Cl. 215—365

11 Claims

1. A plastic container, comprising an upper section including a neck portion, a closed base section, and a central section interconnecting the upper section and the base section, said central section comprising an elastically deformable, substantially cylindrical sidewall, said sidewall including embossed indicia, said indicia substantially assuming the configuration of said sidewall when said



container is pressurized, and said indicia extending away from said sidewall when said container is depressurized.

5,803,290

PLASTIC BLOW MOLDED BOTTLE HAVING ANNULAR GRIP

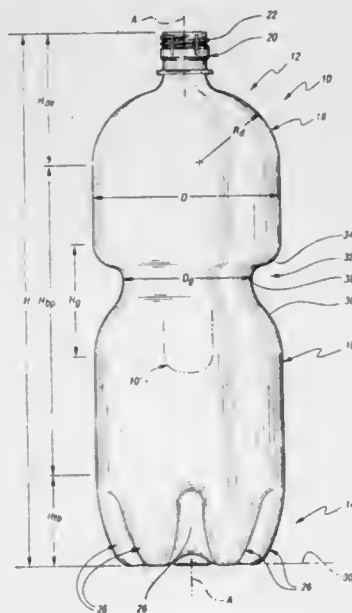
Joseph Bongiorno, Belleville, Mich., assignor to Plastipak Packaging, Inc., Plymouth, Mich.

Filed Aug. 12, 1996, Ser. No. 696,011

Int. Cl.⁶ B65D 1/02; 23/10

U.S. Cl. 215—384

9 Claims



1. A biaxially oriented plastic blow molded bottle comprising: an upper dispensing end including an upper dome and a dispensing spout that extends upwardly from the upper dome and has a closure retainer; a lower freestanding base including a central hub as well as hollow legs and curved ribs positioned around the hub in an alternating relationship such that the legs support the bottle in an upright position on a suitable horizontal support surface; and a round body portion that extends vertically between the upper dispensing end and the lower freestanding base, said round body portion having a generally cylindrical shape with a diameter D and also having an annular grip that extends inwardly from the cylindrical shape with a minimum diameter D_g that is less than 0.85 of the diameter D, the body portion having the same diameter D above and below the annular

grip, the annular grip including upper and lower ends having outwardly curved shapes with the upper end thereof having a more abrupt curvature than the lower end thereof, and the annular grip also having an intermediate portion that extends between the upper and lower ends thereof with an inwardly curved shape that defines the minimum diameter D_g above the midpoint of the height of the body portion between the upper dispensing end and the lower freestanding base.

5,803,291

METHOD AND ARRANGEMENT FOR POSITIONING A CONTAINER OR CONTAINER BLANK IN A PREDETERMINED ANGULAR ORIENTATION ON A CARRIER MANDREL

Thierry Valles, Etainhaus, France, assignor to Sidel, Le Harve, France

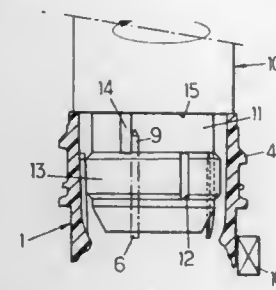
PCT No. PCT/FR94/00735, § 371 Date Mar. 4, 1996, § 102(e)
Date Mar. 4, 1996, PCT Pub. No. WO95/00315, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 17, 1994, Ser. No. 564,305

Claims priority, application France, Jun. 21, 1993, 93 07473
Int. Cl.⁶ B29C 49/58; B65D 1/02; 1/46

U.S. Cl. 215—386

13 Claims



1. A system for positioning a thermoplastic neck at a predetermined angular orientation comprising: a thermoplastic object selected from the set consisting of a thermoplastic container and a thermoplastic container blank, said thermoplastic object comprising a neck having a substantially cylindrical axisymmetric inside wall, said neck including a given axial portion and a radial projection disposed, at least in part, at an angularly predetermined point of said given axial portion of said inside wall; a carrier mandrel, including a mandrel body, a free end, means for securing said neck to said mandrel body, and a fixed stop projecting radially from said mandrel body and defining said predetermined angular orientation, said means for securing being freely rotatable on and axially secured to said mandrel body, said free end of said carrier mandrel being positioned inside said neck so that said means for securing secures said neck at said given axial portion of said neck; and means for causing a relative rotational movement between said mandrel body and said thermoplastic object so that said radial projection of said neck bears against said fixed stop of said mandrel at said predetermined angular orientation.

5,803,292

UNIFORM BUILDING ENTRANCE PROTECTOR HOUSING CONSTRUCTION WITH EXPANDABLE SPLICE CHAMBER

Bassel H. Daoud, Parsippany, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

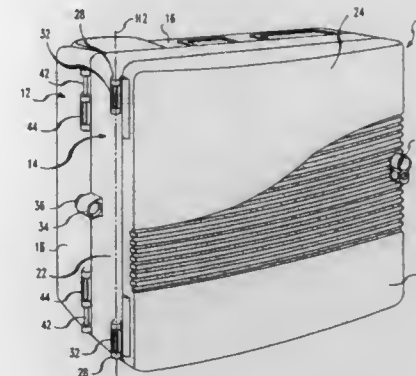
Filed Sep. 19, 1996, Ser. No. 716,002

Int. Cl.⁶ B65D 6/00

U.S. Cl. 220—4.02

14 Claims

1. A uniform building entrance protector housing construction, comprising:



a base layer in the form of a generally rectangular box having a back wall and a side wall extending from the perimeter of said back wall, the base layer having first base layer hinge parts on a first section of said side wall;
a number of equipment mounts inside said base layer which mounts are constructed to support wire cable equipment when mounted in the base layer;
a top layer including a frame portion comprising a frame wall having a top opening and a bottom opening, wherein the frame wall has a first frame wall section and first frame portion hinge parts on the first frame wall section constructed to engage the first base layer hinge parts for swinging movement about a first hinge axis, and a second frame wall section with second frame portion hinge parts, a cover member, and cover hinge parts on the cover member located and constructed to engage the second frame portion hinge parts for swinging movement about a second hinge axis between a covered position at which the cover member closes the top opening of the frame wall, and an uncovered position at which an inner region of the frame portion is accessible;
wherein, when hinged to one another, the frame portion and the cover member align with the base layer and shield the interior of the base layer when the cover member is at the covered position and the frame portion is swung about the first hinge axis to a closed position relative to the base layer, and the interior of the base layer is accessible when the frame portion is swung about the first hinge axis to an open position relative to the base layer; and
wherein the first frame portion hinge parts and the cover hinge parts are constructed so that the first frame portion hinge parts are separable from the first base layer hinge parts, and the cover hinge parts are operatively engageable with mating hinge parts on the base layer to permit swinging movement of the cover member on the base layer in the absence of the frame portion.

5,803,293

PET WASTE RECEPTACLE

Jennifer L. Lovekin, P.O. Box 578, Eatontown, N.J. 07724

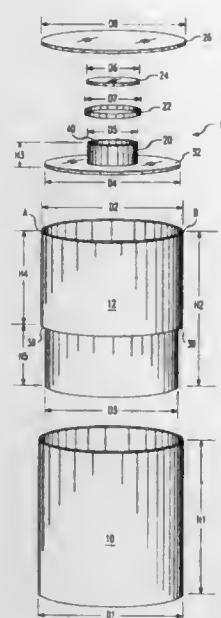
Filed Feb. 27, 1997, Ser. No. 807,525

Int. Cl.⁶ B65D 6/00

U.S. Cl. 220—4.03

14 Claims

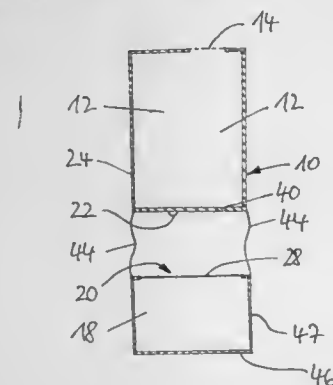
1. A pet waste receptacle comprising: a first section of a height H₁ and of a volume V₁; a second section of a height H₂ and of a volume V₂, having a lower portion placeable into said first section and a top portion which extends upwardly from said first section; a third section having a lower portion placeable into said top portion of said second section and a top portion which extends upwardly from said second section; with each of said top and lower portions of said third section having an aperture to receive a collecting bag inserted through



said third section to hang downwardly through said second section and into said first section;
a collecting bag of given size having an open upper end and a closed bottom end inserted through said apertures of said top and lower portions of said third section;
means on said top portion of said third section to cooperate with said collecting bag in holding said collecting bag in fixed position;
a lid closing off said apertures of said third section; and
with each of said lid, said means, said third section and said second section being removably insertable with said apertures of said third section, said top portion of said third section, said top portion of said second section and said top portion of said first section respectively, to seal off and retrieve said collecting bag when it is desired to dispose of any waste material accumulated therein.

5,803,294
CONTAINER FOR CONSERVATION AND CONSUMPTION OF SEVERAL FOODSTUFFS—FOODS AND BEVERAGES
Zvonimir Bello, Tatzelwurmweg 7, 82031 Grünwald, Germany, and Sinisia Klein, Gortanova 28, 4100 Zagreb, Croatia
PCT No. PCT/EP95/02489, § 371 Date Dec. 18, 1996, § 102(e) Date Dec. 18, 1996, PCT Pub. No. WO96/00177, PCT Pub. Date Jan. 4, 1996
PCT Filed Jun. 26, 1995, Ser. No. 765,057
Claims priority, application Croatia, Jun. 27, 1994, P940374A; Sep. 20, 1994, P941035A
Int. Cl.⁶ B65D 21/02
U.S. Cl. 220—4.27

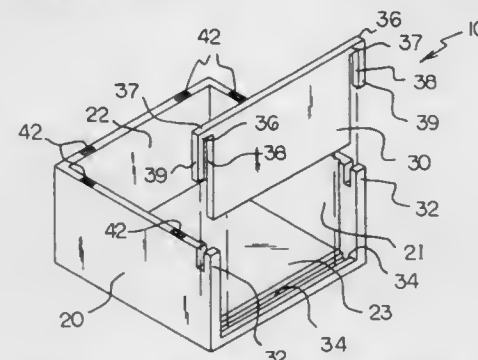
9 Claims



1. A container for conserving at least two of a group consisting of different solids and liquids, and for delivering these by corresponding openings, the container having a main chamber and at least one additional chamber whereby the main chamber and the at least one additional chamber are separated from each other by a partition wall for avoiding a mutual contact of the different contents conserved in the container, wherein the main chamber and the at least one additional chamber are formed separately from each other and wherein the main chamber and the at least one additional chamber are connected to each other by flexible connecting elements affixed to each of the chambers to permit the at least one additional chamber to be suspended in spaced relation from the main chamber.

5,803,295
CARGO CARRIER SYSTEM
Brian C. Tussey, 242 E. Butternut St. P.O. Box 285, Pine Grove Mills, Pa. 16868
Filed May 15, 1996, Ser. No. 648,381
Int. Cl.⁶ B65D 27/00
U.S. Cl. 220—4.31

3 Claims



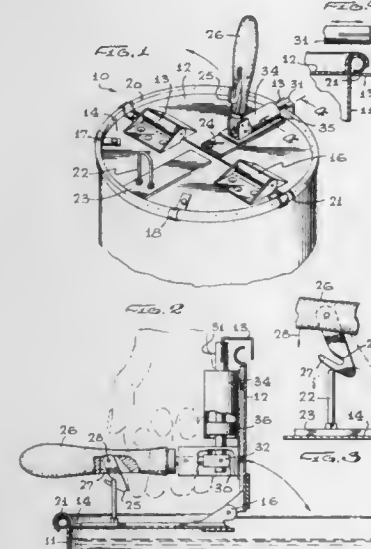
1. A cargo carrier system for removably placing in the rear compartment of a vehicle, comprising:
a box with a floor, a left lateral side, a right lateral side, a back side; said floor, lateral sides and back side formed from a single piece of material such that there are no gaps between said sides and floor through which any material stored in said box may escape from said box into a rear compartment of a vehicle; and
a removable tailgate located opposite the back side of said box; and
tailgate attachment means for releasably holding the tailgate in a substantially sealed tight relationship with respect to the left and right lateral sides and the floor of said box, wherein said tailgate attachment means comprises
tailgate locking means for locking said tailgate in a locked condition on said box, said locking means extending laterally outward from said tailgate to engage the left and right lateral sides of said box, wherein the tailgate locking means comprises a tailgate arm extending laterally outward from each lateral side of said tailgate, and wherein the tailgate arm includes a substantially horizontal upper arm portion and a substantially vertical lower arm portion fixed to said upper arm portion in a substantially normal orientation to said upper arm portion, said upper arm portion spacing the lower arm portion away from the lateral edge of said tailgate to permit a portion of a said lateral side of said box to be trapped between said lower arm portion and said tailgate to hold said tailgate securely to said lateral side, each said lower arm portion extending in substantially the same direction to permit sliding of said tailgate arms over the lateral sides of said box; and
receiving means on said left and right lateral sides for receiving the locking means of said tailgate in a manner such that said tailgate may be released from said locked condition by raising said tailgate upwardly and moving said tailgate outwardly from between said left and right lateral sides

without requiring the lower edge of said tailgate to be lifted above the upper edges of the lateral sides of said box, wherein the receiving means on each said lateral side comprises an upwardly-opening notch in the upper edge of said lateral side for receiving the upper arm portion of said tailgate arm;

wherein the floor, at an end opposite the back side, further includes a tailgate bottom groove for receiving the lower edge of the tailgate in a substantially sealed tight relationship with said floor when said tailgate is lowered into engagement with said tailgate attachment means to prevent rotation of said tailgate when said tailgate is in said locked condition, and wherein the tailgate bottom groove is located in a raised portion of the upper surface of said floor.

5,803,296
COLLAPSIBLE, STACKABLE, HARD-SIDED CONTAINER
David A. Olson, 12 Ridge Rd., St. Peter, Minn. 56082
Continuation of Ser. No. 714,580, Sep. 16, 1996. This application Apr. 10, 1997, Ser. No. 835,736
Int. Cl.⁶ B65D 21/00
U.S. Cl. 220—6

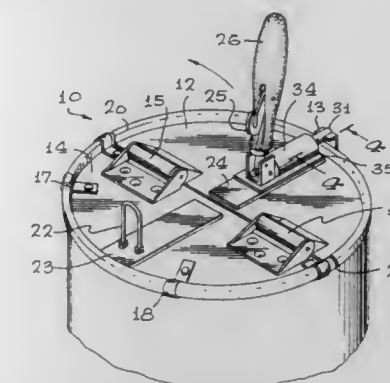
13 Claims



1. A collapsible, stackable container, comprising:
a base portion;
said base portion including a structural frame and sloped panels;
an opening assembly at the bottom of said base portion which divides an opening in the bottom of the container into a series of smaller spaced openings for emptying contents from said container;
a sliding door assembly under said opening assembly in the bottom of said base portion for closing the smaller spaced openings in the opening assembly of said container; and
an upper portion with a plurality of substantially rigid side walls; each of said side walls being pivotally connected to said base portion and movable from a horizontal position across the top of said base portion to a vertical position extending upwardly from said base portion and defining a containment cavity between said side walls.

5,803,297
CONTAINER LID
Rey Vasquez, P.O. Box 1841, Wilmington, Calif. 90748
Filed Dec. 16, 1996, Ser. No. 768,068
Int. Cl.⁶ B65D 25/28
U.S. Cl. 220—212.5

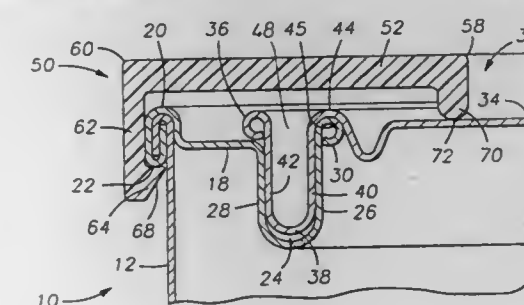
8 Claims



1. A container lid comprising:
a pair of sections hinged together to provide a fixed section and a movable section movable with respect to said fixed section; said sections having opposing edge marginal regions;
a hinge mechanism carried on said edge marginal region of each of said sections permitting movement of said movable section within at least a 90 degree angular range of movement constituting an open position;
spring biasing means having opposite ends secured respectively to said edge marginal regions normally urging said movable section to a closed position coextensive with said fixed section;
latch means cooperatively carried on said fixed section and said movable section for retaining said movable section in said open position;
said latch means includes an elongated handle fixed to said movable section; and
a latch pivotally carried on said fixed section having a retainer for selectively engaging and holding said handle when said movable section is in said open position.

5,803,298
CONTAINER AND CONTAINER LID ASSEMBLY WITH RETAINING RING
Donald H. Hausmann, 827 Harvard, Houston, Tex. 77007
Continuation of Ser. No. 651,768, May 22, 1996, abandoned, which is a continuation of Ser. No. 370,740, Jan. 10, 1995, abandoned. This application May 8, 1997, Ser. No. 852,916
Int. Cl.⁶ B65D 45/32
U.S. Cl. 220—319

14 Claims



1. A container assembly comprising:
(a) a double friction seal type container having a side wall and a top wall being secured to the side wall by an outer peripheral bead having a downwardly facing outer peripheral shoulder, said top wall defining a circular friction seal channel having a

- U-shaped cross-section and defining an opening for said top wall of said container;
- (b) a removable friction lid in pressure friction sealed relation with said top wall, said removable friction lid having a circular central lid panel having a center and having an outer U-shaped circular friction member in removable frictional sealing engagement with said U-shaped friction seal channel of said top wall of retainer body said container;
- (c) a lid retainer ring having a circular defining inner and outer peripheries and having a sufficient radial width to extend from the outer peripheral bead of said container to a location radially inwardly of said circular lid seal and to overlay an intermediate portion of said central lid panel of said container lid between said circular lid seal and said center of said removable friction lid when said container lid is in seated frictional sealing assembly with said top wall of said container;
- (d) a circular inner retainer flange extending downwardly from said inner periphery of said circular retainer body and having lid retaining engagement with said intermediate portion of said central lid panel of said removable friction lid at a location radially inwardly of said circular lid seal and between said circular lid seal and said center of said central lid panel and resisting container pressure induced bulging of said central lid panel and resisting container pressure induced unseating movement of said friction lid; and
- (e) an outer circular locking flange extending downwardly from said outer periphery of said circular retainer body and defining an upwardly facing locking shoulder having locking engagement with said downwardly facing outer peripheral shoulder of said outer peripheral bead of said container.

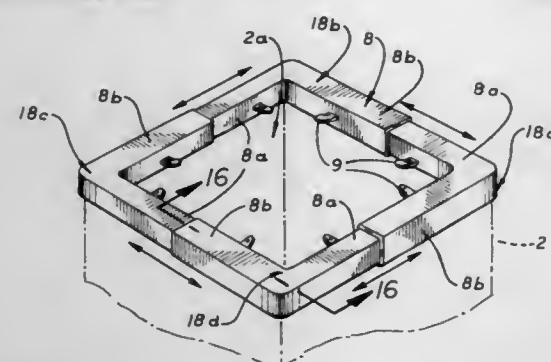
5,803,299

CONTAINER FOR MULTIPLE TRASH BAGS
Scott P. Sealy, Jr., 5750 E. University, Apt. 427, Dallas, Tex. 75206

Filed Aug. 5, 1996, Ser. No. 692,403
Int. Cl.⁶ B65D 90/04

U.S. Cl. 220—404

2 Claims



1. A container for multiple trash bags, comprising a container defining a container interior a bag support insert having telescoping insert members fitted on said container, said bag support insert members extending into said container interior and bag support means extending from said bag support insert members into said container interior in spaced relationship with respect to each other for suspending the trash bags in said container interior.

5,803,300

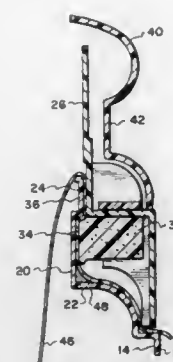
TRASH CONTAINER WITH BAG HOLDER
Robert A. DeMars, 5000 N. Parkway Calabasas, Suite 233, Calabasas, Calif. 91302

Filed Dec. 10, 1996, Ser. No. 762,765
Int. Cl.⁶ B65D 43/00

U.S. Cl. 220—404

6 Claims

1. A trash container with bag holder comprising:



- a trash can body having an internal chamber, said trash can body having a fixed rim, said rim surrounds an access opening, said access opening connecting with said internal chamber and provides access into said internal chamber;
- a ring separate from said trash can body, said ring being locatable about said rim in a close conforming manner, said rim being disengageable from said ring; and
- binding means mounted in conjunction with said ring, said binding means comprising a plurality of blocks located in a spaced apart arrangement, each said block being formed of deflectable material, said binding means for exerting a pressing force against said rim when said ring is mounted on said rim, whereby upon a flexible walled bag being inserted within said internal chamber and the mouth of the bag being draped over said rim said ring is to be placed on said rim with said blocks to cause securing in position of the bag by binding of the mouth area of the bag between said blocks and said rim.

5,803,301

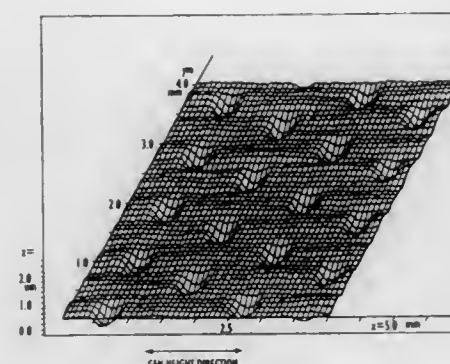
SEAMLESS CAN AND PROCESS FOR MAKING THE SAME

Kazuhiro Sato; Nobuyuki Sato; Tomomi Kobayashi; Akira Kobayashi, and Katsuhiko Imazu, all of Kanagawa, Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Filed Mar. 10, 1997, Ser. No. 813,431
Claims priority, application Japan, Sep. 12, 1996, 8-242067
Int. Cl.⁶ B65D 25/00

U.S. Cl. 220—457

8 Claims



1. A shock resistant seamless can comprising a side wall having an inside surface and an outside surface formed from a laminate of a metal substrate and a thermoplastic resin layer provided on the inside surface of the can side wall, wherein the inner surface of the side wall resin layer opposite the metal substrate comprises a plurality of dotted projections.

5,803,302

BAG-IN-CARTON, METHOD FOR FORMING THE BAG-IN-CARTON AND CARTON BLANK BODY

Masahisa Sato, Shibata; Yusuke Tanno, Yamamoto, and Takehiko Bizen, Tokyo, all of Japan, assignors to Toboku Ricoh Co., Ltd., and Dai Nippon Printing Co., Ltd., both of Japan

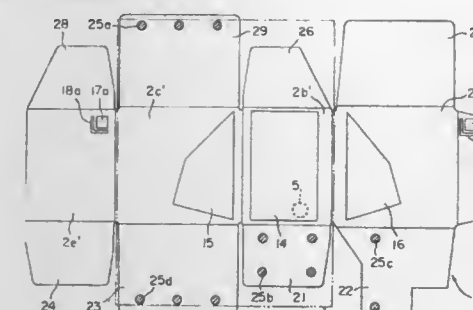
Filed Mar. 22, 1996, Ser. No. 620,329

Claims priority, application Japan, Mar. 27, 1995, 7-068135

Int. Cl.⁶ B65D 5/56

U.S. Cl. 220—462

11 Claims



1. A bag-in-carton comprising:
a closed box-shaped carton;
a flexible inner bag provided in the carton, for holding a content; and
a pouring spout provided in a pouring spout attached surface of the carton,
the inner bag being fixed to substantially the entire region of the pouring spout attached surface, and substantially half regions of a pair of opposed side surfaces bordering the pouring spout attached surface,
the inner bag being fixed to the carton at a location remotest from the pouring spout and normal to the direction of movement made by the inner bag when air is drawn therefrom.

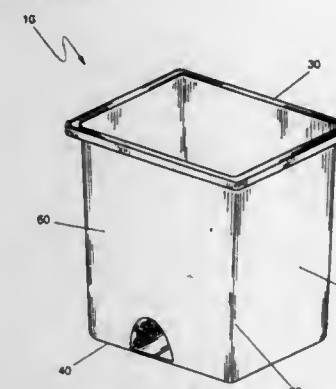
5,803,303

VENTED FOOT HELD WASTE BASKET
Rickey Timm, and Janine Timm, both of 2880 S. Hilltop Dr., Knox, Ind. 46534

Filed Apr. 7, 1998, Ser. No. 55,816
Int. Cl.⁶ B65D 25/16

U.S. Cl. 220—495.04

10 Claims



1. A vented, foot held waste basket comprising:
a main housing, constructed of plastic, of a vertically elongated, upstanding rectangular configuration, having an open top and a closed bottom, said bottom having an upper surface, and

generally impervious side walls, an anterior wall and a posterior wall, attached to the bottom along their common edges to form a receptacle for receiving a refuse liner that holds trash or debris therein;

an arched member of a generally linearly elongated, arch shape configuration, said arched member having a lower surface, and said arched member being connected to the bottom of said main housing;

a foot securement cavity; formed by said bottom of said main housing and said arched member, having a lower surface, sides and an upper surface, and designed to facilitate the sliding engagement of a traditional men's boot to secure said main housing to the floor during removal of said refuse liner; cavity openings, of a generally arched configuration, located along both said anterior wall and posterior wall of said main housing, and designed to permit entry of a men's boot into said foot securement cavity; and

vacuum holes, said vacuum holes located along the apex of said arched member and designed to reduce the vacuum created by said refuse liner and said main housing during removal of said refuse liner.

5,803,304

UNDERGROUND STORAGE TANK

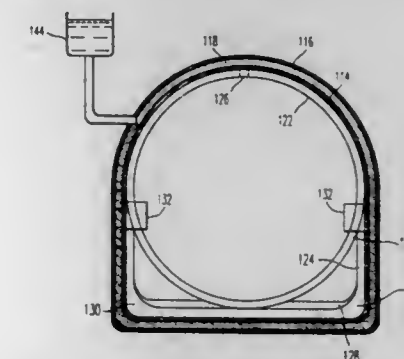
Robin Berg, Hudson, Wis., assignor to Xerox Corporation, Minneapolis, Minn.

Filed Aug. 22, 1995, Ser. No. 517,620

Int. Cl.⁶ B65D 90/06

U.S. Cl. 220—565

10 Claims



1. A storage tank for the containment of liquids underground comprised of reinforced resinous materials, said storage tank having an inner wall in contact with said liquid and being of a shape comprising a semi-cylindrical shaped top, said top extending integrally downward as vertical sidewalls, said vertical sidewalls terminating in an integrally formed, substantially flat bottom, said tank being reinforced with circumferential reinforcing rib means interior to the external surface of said tank.

5,803,305

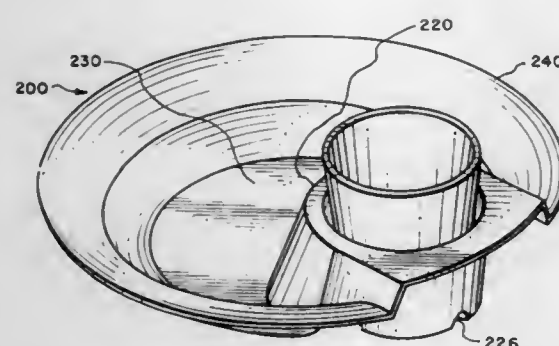
COMBINATION BUFFET PLATE AND CUP HOLDER
Robert Perlis, 1105 Del Mar Ave., Santa Barbara, Calif. 93109, and Thomas Prusinski, 854 Maple Ave., Carpinteria, Calif. 93013

Filed Aug. 4, 1997, Ser. No. 905,465
Int. Cl.⁶ B65D 1/36

U.S. Cl. 220—574

7 Claims

1. A combination small buffet plate and cup holder, comprising:
a) a small buffet plate formed of a thin, rigid material having a food-receiving upper surface, a lower surface, a center area and an outer edge;
b) a cup holder formed integrally near the outer edge of said small buffet plate and having an outer wall, a top rim, an inner wall, and a bottom; the upper surfaces of the inner wall and bottom forming a compartment to receive and firmly support



a drinking cup or standard beverage can; the inner wall and bottom approximating the shape of a drinking cup, with the diameter of said compartment adjacent to the bottom compatible for holding a standard beverage can; the top rim forming an annular ring spacing the outer wall away from the inner wall; the outer wall sloping away from the inner wall so as to provide space between the inner and outer walls for a diner's hand; the outer wall further having a gap providing access for the diner's hand; the lower surface of the cup holder bottom being substantially coplanar with the lower surface of the buffet plate, whereby the combination buffet plate and cup holder can sit stably on a flat surface;

c) a raised outer rim integral with the outer edge of said buffet plate surface serving to retain food on the plate and to stiffen the plate, having a gap providing access to said cup holder for a diner's hand.

5,803,306 NOVELTY CUP

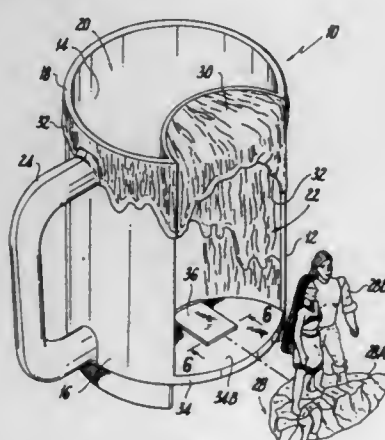
Stuart A. Lewis, Syosset, N.Y., assignor to High Point Accessories, Inc., New York, N.Y.

Filed Jan. 15, 1997, Ser. No. 783,274

Int. Cl.⁶ B65D 65/00

U.S. Cl. 220—662

11 Claims



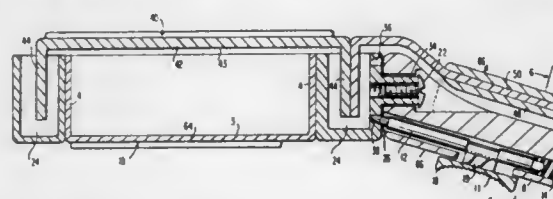
1. A fluid containing device comprising:

- (a) an outside wall;
- (b) at least one inwardly directed concavity for containing a scene display, the concavity being formed in said outside wall with a base portion having a first mating portion for selectively receiving another mating portion; and
- (c) a selectively removable scene display having a base portion extending substantially parallel to the concavity base portion wherein at least one component of said scene display is a second mating portion on the display base portion which engages said first mating portion whereby said at least one component of said scene display is selectively fitted in said concavity.

5,803,307
NESTABLE COOKING UTENSIL WITH AN ARTICULABLE HANDLE
Bruno Demetrio, P.O. Box 2988, Southampton, N.Y. 11969
Division of Ser. No. 571,078, Dec. 12, 1995, Pat. No. 5,660,300. This application Apr. 10, 1997, Ser. No. 833,839
Int. Cl.⁶ B65D 25/28

U.S. Cl. 220—763

24 Claims



1. A cooking apparatus comprising:

- a first pan including a bottom wall with a central portion and an outer margin, a side wall extending upwardly from said outer margin of said bottom wall, an articulating longitudinally extending handle, said handle having an upper surface, said handle being pivotally mounted on said pan for movement substantially about its longitudinal axis between a first handle position in which said handle is tilted upwards relative to said side wall when said first pan is oriented with its bottom wall at the bottom of said first pan and a second handle position in which said handle is out of said first handle position;
- a second pan having a bottom wall with a central portion and an outer margin, a side wall extending upwardly from said outer margin of said bottom wall, said pan having a handle mounted on said side wall, said handle having an upper surface and being tilted upwards relative to said side wall when said second pan is oriented with said bottom wall at the bottom of said second pan; and

means for registering said first and second pans together when said second pan is inverted and placed on top of said first pan.

5,803,308
BURGLARPROOF DEVICE FOR LOTTERY TICKET DISPENSER

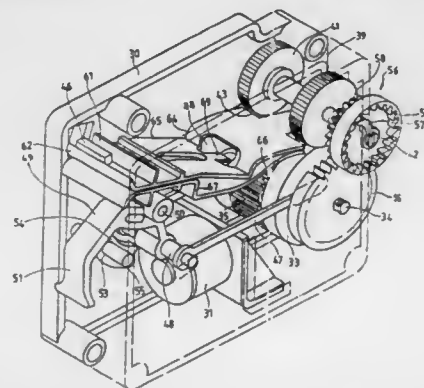
Chern-Bao Rong, P.O. Box 453, Taichung, Taiwan

Filed Dec. 12, 1995, Ser. No. 570,898

Int. Cl.⁶ G07F 11/00

U.S. Cl. 221—7

1 Claim



1. A burglarproof lottery ticket dispenser comprising:

- main body;
- a servomotor mounted longitudinally in said main body, said servomotor having a worm rod as an output shaft;
- a drive shaft positioned in said main body, said drive shaft having a driving roller mounted thereon, said driving roller being provided with a worm wheel engageable with said worm rod, said drive shaft further having a rotation gear mounted thereon, said main body provided therein with an upper guide plate and a lower guide plate, an auxiliary roller

means being mounted on a driven shaft such that said auxiliary roller means is in contact with said driving roller, said auxiliary roller means for dispensing a lottery ticket, said drive shaft of said driving roller fastened with a link rod and a slide rod fastened with a triggering element, said triggering element being mounted at a front end thereof on said slide rod, said triggering element having a handle means at a rear end thereof, said handle means for actuating said drive shaft, said driven shaft fastened with a driven element and a pawl, said driven element having a driven gear engageable with said rotation gear, said driven gear having a ratchet wheel capable of cooperating with said pawl, said upper and lower guide plates each being provided with a first stopping edge and a second stopping edge and a ticket guiding arcuate edge and an opening located between said ticket guiding arcuate edge and said second stopping edge, said opening having an electronic eye means mounted thereon, said electronic eye means for counting lottery tickets that have been dispensed, said upper guide plate provided at a midsegment thereof with a front baffle and a rear guide edge, said lower guide plate provided at a midsegment thereof with a front guide edge and a rear baffle.

5,803,309

TABLET FEEDER

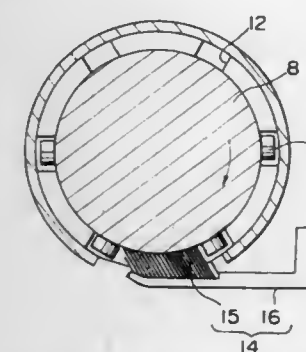
Shoji Yuyama; Itsuo Yasunaga, and Naoki Koike, all of Toyonaka, Japan, assignors to Yuyama Mfg. Co., Ltd., Osaka-fu, Japan

Filed Dec. 16, 1996, Ser. No. 767,063

Int. Cl.⁶ G07F 11/00

U.S. Cl. 221—82

4 Claims



1. A tablet feeder comprising: a tablet accommodating section capable of accommodating a multiplicity of tablets; a tablet array board which is disposed in the tablet accommodating section and which, while being driven and rotated, retains the tablets one by one in pockets defined on an outer periphery thereof and discharges them at a discharge position; and a partitioning member whose partitioning portion located at each of the pockets of the tablet array board partitions the pocket into upper and lower two divisions, thereby restricting a number of tablets to be discharged, the tablet feeder being characterized in that

the partitioning portion of the partitioning member comprises a plurality of elastic bristles formed into a comb shape.

5,803,310

BOTTLE CAP ADAPTABLE SPOUT

Min Tet Soon, P.O. Box 10341, 58803 Kota Kinabalu, Malaysia

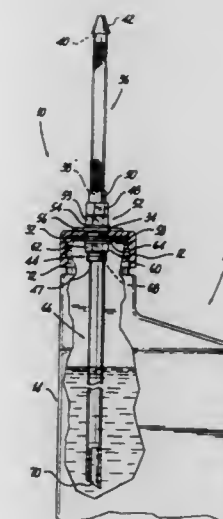
Filed Dec. 3, 1996, Ser. No. 759,163

Int. Cl.⁶ B67B 7/00

U.S. Cl. 222—1

18 Claims

1. A bottle cap adaptable spout attachable to a plastic cap of a spent motor oil bottle that has been appropriately modified by having a centrally-disposed and circular-shaped throughbore with a diameter punched into a closed and circular-shaped top of the



plastic cap of the spent motor oil bottle so as to convert the spent motor oil bottle into an oiler for dispensing oil contained therein wherein the closed and circular-shaped top of the plastic cap of the spent motor oil bottle has an outer surface and an inner surface with a gasket thereon, comprising:

- a) a hollow, elongated, slender, and cylindrically-shaped spout tube having an open proximal end and an open distal end;
- b) a hollow and generally conically-shaped nozzle extending coaxially outwardly from, and in fluid communication with, said open distal end of said hollow, elongated, slender, and cylindrically-shaped spout tube;
- c) a hollow, externally-threaded, and cylindrically-shaped tube having an open distal end, an open proximal end entering the centrally-disposed and circular-shaped throughbore in the closed and circular-shaped top of the plastic cap of the spent motor oil bottle and into the spent motor oil bottle, and a diameter;
- d) a hexagonally-shaped nut fixedly and coaxially attached to, and in fluid communication with, said open distal end of said hollow, externally-threaded, and cylindrically-shaped tube and providing a holding surface for at least one of turning said hollow, externally-threaded, and cylindrically-shaped tube and turning components relative thereto;
- e) a hollow and cylindrically-shaped collar extending coaxially outwardly from, and in fluid communication with, said hexagonally-shaped nut, and coaxially and fixedly receiving said open proximal end of said hollow, elongated, slender, and cylindrically-shaped spout tube and being in fluid communication therewith;
- f) a first combination hexagonally-shaped nut and washer having a hexagonally-shaped nut and a circular-shaped washer being integrally formed with, and in fluid communication with, said hexagonally-shaped nut of said first combination hexagonally-shaped nut and washer; said hexagonally-shaped nut of said first combination hexagonally-shaped nut and washer threadably engaging said hollow, externally-threaded, and cylindrically-shaped tube, with said circular-shaped washer of said first combination hexagonally-shaped nut and washer facing downwardly towards said open proximal end of said hollow, externally-threaded, and cylindrically-shaped tube;
- g) a first circular-shaped washer disposed on said hollow, externally-threaded, and cylindrically-shaped tube, between, and abutting against, said circular-shaped washer of said first combination hexagonally-shaped nut and washer and the outer surface of the closed and circular-shaped top of the plastic cap of the spent motor oil bottle;
- h) a second circular-shaped washer disposed on said hollow, externally-threaded, and cylindrically-shaped tube and abutting against the gasket on the inner surface of the closed and circular-shaped top of the plastic cap of the spent motor oil bottle;
- i) a second combination hexagonally-shaped nut and washer having a hexagonally-shaped nut and a circular-shaped

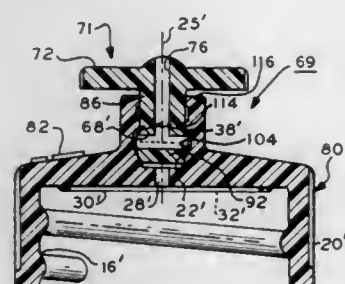
5,803,314
DISPENSING CLOSURE FOR A SQUEEZABLE
CONTAINER

William M. Lester, 4389 White Cedar La., Delray Beach, Fla.
33445

Continuation-in-part of Ser. No. 720,676, Oct. 2, 1996. This
application Jul. 28, 1997, Ser. No. 901,717
Int. Cl.⁶ B67D 5/32

U.S. Cl. 222—153.14

16 Claims



1. A closure for dispensing a fluid stored in a squeezable resilient container comprising:

- a housing having a valve cavity;
- means for securing the housing to the container with the cavity in fluid communication with the container interior;
- a valve seat coupled to the housing in said cavity;
- a valve member with a male valve having a surface complementary to said seat for providing a substantially fluid tight seal in a seated closed valve position and for providing a fluid passage at the interface between said valve surface and said seat in an open valve position;

valve member rotating means secured to said valve member for manually rotating said valve member;

said valve member for axially displacing along an axis in response to pressurized stored fluid in said container applied thereto so that said valve member displaces to the open valve position along said axis and said fluid enters into and forms a seal at said interface;

valve member displacement limiting means having locked and unlocked states coupled to said housing and valve member for settable limiting the maximum distance said valve member is permitted to axially displace to an open valve position from the closed valve position in the unlocked state to provide a settable range of maximum clearances in said interface between the valve member surface and seat from the closed valve position to a fully open valve position such that fluid in said interface tends to effectively seal said interface from passing ambient air therethrough when the container interior pressure is less than ambient pressure to thereby force said valve member to its closed valve position; and

locking means for locking the valve member in the closed valve state.

5,803,315
DISPENSER HAVING REMOVABLE CONTAINER

John G. Kaufman, Burlington, Canada, assignor to Kaufman Products Inc., Oakville, Canada

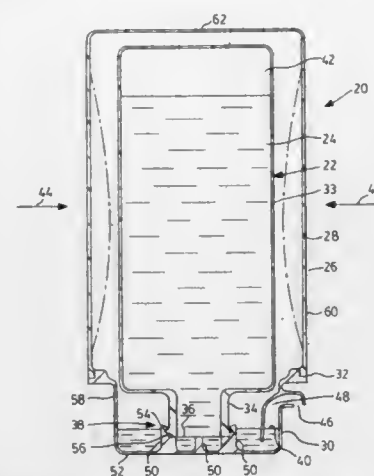
Filed Jan. 6, 1997, Ser. No. 779,317
Int. Cl.⁶ B65D 37/00

U.S. Cl. 222—183

15 Claims

1. A dispenser for liquids, the dispenser including:
a container for a liquid to be dispensed, the container having a bottom opening;

an envelope structure surrounding the container, the structure having an upper part and a lower part coupled to the upper part, at least a portion of the envelope structure being resiliently deformable for actuating the dispenser, and the lower part having a bottom wall and a peripheral wall extending upwardly from the bottom wall;



location structure attached to the bottom wall of the lower part and extending upwardly to support the container with the bottom opening of the container spaced from the bottom wall sufficiently to permit a pool of liquid to accumulate in the lower part with the bottom opening immersed in the liquid thereby trapping liquid in the container; and

a dispensing passage coupled to the lower part and extending upwardly from below said bottom opening and terminating outside the envelope structure whereby a user can actuate the dispenser by deforming said portion of the envelope structure to apply pressure on the surface of the pool of liquid to thereby cause liquid to exit via the dispensing passage and when said portion is released, to cause air to be sucked back into the dispenser and to allow the dispenser to return to the original shape.

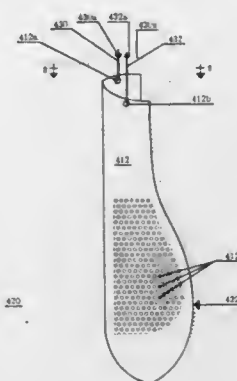
5,803,316
ADD-ON PARTITION SYSTEM TO BE REMOVABLY
MOUNTED INSIDE A PITCHER

Gilles Couture, 7580 Béique, Montréal, Qc, Canada, H4K 1A3
Filed Oct. 15, 1996, Ser. No. 730,399

Int. Cl.⁶ B67D 5/58

U.S. Cl. 222—189.07

20 Claims



1. An add-on partition system to be removably mounted inside a pitcher having a bottom and walls upwardly extending therefrom and said walls upwardly extending terminating into an uppermost portion, a portion of said uppermost portion of said walls defining a pouring lip,

a portion of said walls upwardly extending being on one side of said pouring lip and spaced therefrom, and another portion of said walls upwardly extending being on the other side of said pouring lip and spaced therefrom, and a portion of said walls upwardly extending being an intermediate portion between said portion of said walls upwardly extending on one side of said pouring lip, and said another

portion of said walls upwardly extending on the other side of said pouring lip, and adjacent to said pouring lip, comprising: an elongated partition plate inside said pitcher, said elongated partition plate having longitudinal sides, said longitudinal sides having a length, and the space between said longitudinal sides defining the width of said elongated partition plate,

said elongated partition plate being spaced from said intermediate portion of said walls upwardly extending so as to divide said inside of said pitcher into two zones, one of said two zones being a reservoir zone for quick liquid delivery from said reservoir zone to said pouring lip,

one of said longitudinal sides of said elongated partition plate to be held adjacent to said portion of said walls upwardly extending on one side of said pouring lip and distant from said pouring lip,

and the other of said longitudinal sides of said elongated partition plate to be held adjacent to said portion of said walls upwardly extending on the other side of said pouring lip,

the length of said longitudinal sides being such that the elongated partition plate extends adjacent from the bottom of the pitcher to said uppermost portion of said walls defining said pouring lip,

thus said elongated partition plate defining said two zones inside said pitcher:

said reservoir zone between said elongated partition plate and said intermediate portion of said walls upwardly extending adjacent to said pouring lip,

and a confinement zone for confining any oversize material therein,

and releasable hook means, said releasable hook means to be releasably mounted to said walls upwardly extending of said pitcher, inside said pitcher, for releasably holding said elongated partition plate spaced from said intermediate portion of said walls upwardly extending to provide for said reservoir zone and said confinement zone.

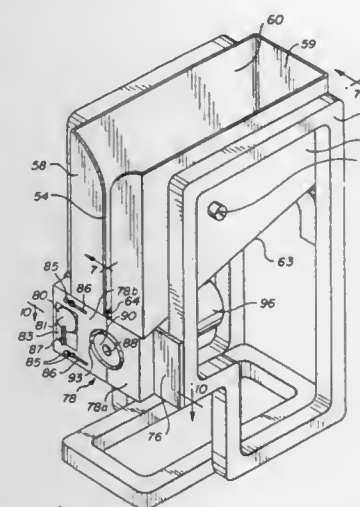
5,803,317
HEATED DISPENSING APPARATUS

James R. Wheeler, 1138 Bordeaux St., Pleasanton, Calif. 94566
Continuation-in-part of Ser. No. 596,868, Feb. 9, 1996. This
application Jul. 22, 1996, Ser. No. 681,186

Int. Cl.⁶ B65D 37/00

U.S. Cl. 222—214

7 Claims



1. A dispenser for products which are to be dispensed at elevated temperature and wherein the product is contained in a flexible bag having an outlet with a flexible discharge tube extending therefrom, comprising:

(a) a receptacle having an outlet opening in the lower portion thereof for receiving said bag with the discharge tube extend-

ing through the outlet opening, said receptacle having substantially vertical side walls and sloped bottom wall, the sloped bottom wall terminating in the outlet opening;

(b) a heating element for heating said sloped bottom wall adjacent said bag when received in the receptacle to a desired temperature range and maintaining the temperature of the product in that temperature range for a desired period of time, said vertical side walls and bottom wall being comprised of a heat conducting material and said heat being conducted through said sloped bottom wall to said side walls;

(c) a pump being positioned to conductively receive heat from said vertical side walls and bottom wall of said receptacle, said pump further including

(i) a housing being comprised of heat conducting material,

(ii) a rotor supported in said housing for rotation about a longitudinal axis of said rotor and being comprised of a heat conducting material,

(iii) a stator adjustably supported by said housing adjacent the rotor,

(iv) an adjustment mechanism operatively connected to said stator for moving said stator relative to said rotor between a pumping position wherein the stator holds a portion of the discharge tube in fixed pumping position adjacent to the rotor and a loading position where in the discharge tube can be placed between the stator and rotor,

(v) rotatable pinch rollers carried by said rotor and arranged to pinch the discharge tube when the discharge tube is held in pumping position, said pinch rollers moving along the portion of the discharge tube adjacent the rotor to thereby pump product through the discharge tube, and

(vi) a control device for controllably rotating the rotor thereby delivering a predetermined amount of product; and

(d) insulating material surrounding at least said vertical side walls and said sloped bottom wall said receptacle and said heating means.

5,803,318
PRECOMPRESSION PUMP

Jean-Pierre Lina, Le Neubourg, France, assignor to Valois S.A., Le Neubourg, France

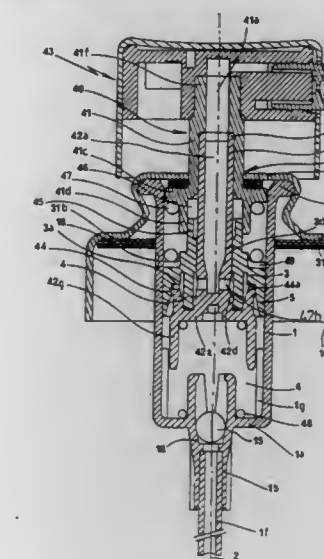
PCT No. PCT/FR95/00496, § 371 Date Oct. 28, 1996, § 102(e)
Date Oct. 28, 1996, PCT Pub. No. WO95/29016, PCT Pub.
Date Nov. 2, 1995

PCT Filed Apr. 14, 1995, Ser. No. 732,330

Claims priority, application France, Apr. 27, 1994, 94 05112
Int. Cl.⁶ G01F 11/00

U.S. Cl. 222—321.2

5 Claims



1. A precompression pump, comprising:
a) a hollow cylindrical pump body (1);

- b) an annular piston (3) sliding axially inside the pump body, the piston and the pump body (1) together defining a pump chamber (6);
- c) a push rod (40) for controlling the piston, having an outside end projecting out from the pump body, said push rod sliding axially in the center of the piston, said push rod including an outlet channel (41a, 42a) which opens out to the inside of the pump body via a lateral opening (42b), the piston being displaceable relative to the push rod to close the lateral opening or to put it into communication with the pump chamber;
- d) resilient precompression means (47) urging the piston towards the pump chamber and towards a rest position at which it closes the lateral opening of the outlet channel;
- e) a central sealing member (42c, 44) displaceable with the push rod and situated axially between the piston and the pump chamber, said central sealing member being in sealing contact with the piston when said piston is in its rest position, isolating the pump chamber from a central section (S2-S1) of the piston; and
- f) wherein the central sealing member comprises a radially outwardly directed circular lip member (44d) slidably disposed against a cylindrical inside surface (5a) of an outermost skirt (5) of the piston, such that a sufficient fluid flow rate for correct spraying is provided even when a user only presses lightly on a push rod.

5,803,319

INVERTIBLE SPRAY VALVE AND CONTAINER CONTAINING SAME

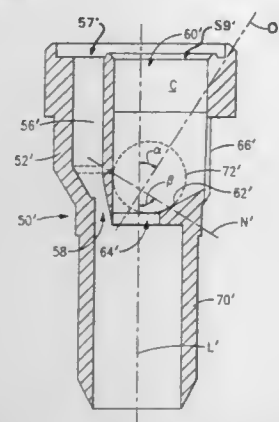
Jeremy Smith, Loudon, and Walter Richard Gallien, Raymond, both of N.H., assignors to Summit Packaging Systems, Inc., Manchester, N.H.

Continuation-in-part of Ser. No. 589,036, Jan. 19, 1996. This application Feb. 29, 1996, Ser. No. 609,951

Int. Cl.⁶ B65D 83/00

U.S. Cl. 222—402.19

16 Claims



1. An invertible valve comprising a valve body accommodating a valve element for controlling flow through the valve, the valve body defining a valve body longitudinal axis, the valve element having passage means, communicating with a product passage, for discharging product from the valve when the valve is opened, the valve body having a socket, at a lower end thereof, containing a product outlet, the socket receiving an appendage having a ball chamber and a valve inlet product passage, the ball chamber being provided with a ball chamber passage and a ball chamber bypass valve seat having a ball chamber bypass opening, a lower end of the product passage communicating with the ball chamber bypass opening while an upper end thereof communicating, via the product outlet of the socket, with the valve element, and a gravity-responsive ball chamber ball being provided in the ball chamber and normally seating on the ball chamber seat, the ball chamber providing an area for accommodating the ball when the ball becomes unseated from the ball chamber seat, a perimeter contact

between the ball chamber seat and the ball, when the ball is supported thereby, defining a ball chamber plane, and the ball chamber ball moving from the ball chamber seat when the valve is sufficiently inverted to permit passage of product through the ball chamber passage into the ball chamber, through the ball chamber bypass opening, through the product passage into the valve body and out the passage means when the valve is opened;

wherein the ball chamber plane is inclined relative to the valve body longitudinal axis at an angle of between from about 5° to about 85° and, an opening of the upper end of the product passage of the appendage and an opening of the ball chamber of the appendage, remote from the ball chamber bypass opening, are coplanar with one another and are both received within the socket.

5,803,320

CARBONATED COFFEE BEVERAGE DISPENSER

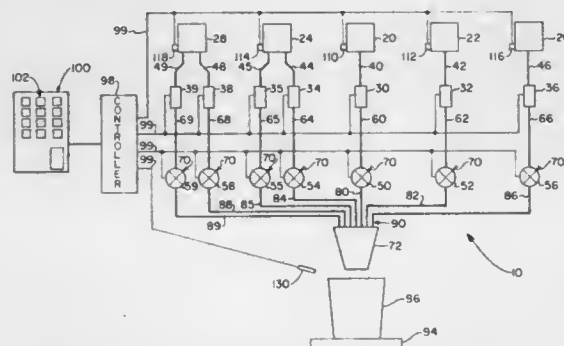
Robert A. Cutting, Kent; Gregory R. Gemmell, Akron, and Thomas S. Green, Atwater, all of Ohio, assignors to ABC Dispensing Technologies, Akron, Ohio

Continuation of Ser. No. 768,195, Dec. 17, 1996, abandoned, which is a continuation of Ser. No. 409,833, Mar. 27, 1995, abandoned. This application Aug. 11, 1997, Ser. No. 905,013

Int. Cl.⁶ B67D 5/56

U.S. Cl. 222—641

14 Claims



5,803,324

LIGHTWEIGHT STOWABLE TIRE CARRIER FOR AUTOMOTIVE VEHICLE AND METHOD OF USE

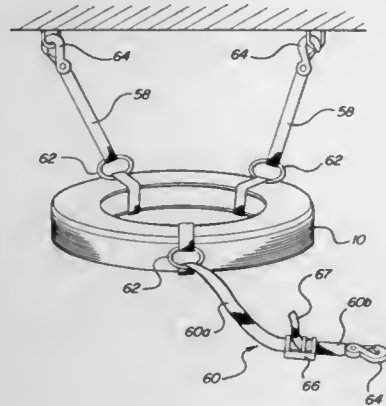
Scott A. Silberman, 1838 Doral Ct., Bloomfield Hills, Mich. 48302; John E. Male, 5122 Lake Bluff Rd., West Bloomfield, Mich. 48323, and John W. Helms, 106 Chipstone Ct., Peachtree, Ga. 30269

Filed May 7, 1997, Ser. No. 852,523

Int. Cl.⁶ B62D 43/04

U.S. Cl. 224—42.23

7 Claims



1. An improvement for carrying a tire on an automotive vehicle, the improvement comprising a lightweight, stowable carrier for removably attaching the tire to the automotive vehicle having a plurality of attachment points on a surface of said vehicle, the carrier comprising:

- three separate elongate, flexible members each having a first end and a second end, said members being of sufficient length to extend substantially radially outward from said tire to respective said attachment points when said tire is not in contact with said surface;
- means on said flexible members for securing said first ends of said flexible members to said tire at respective points spaced around a circumference of said tire;
- means on said flexible members for coupling said second ends of said flexible members to respective said attachment points; and
- means for reducing the effective length of one of said flexible members such that, when said first ends are secured to said tire and said second ends are coupled to said attachment points, all of said flexible members are made taut and said tire is held against said surface.

5,803,325

MULTIFUNCTIONAL ARTICLE REST BETWEEN TWO FRONT SEATS

Hsu-Yi Wang, No. 3, Lane 17, Jong-Jenq Street, Beei-Tour Chiu, Taipei, Taiwan

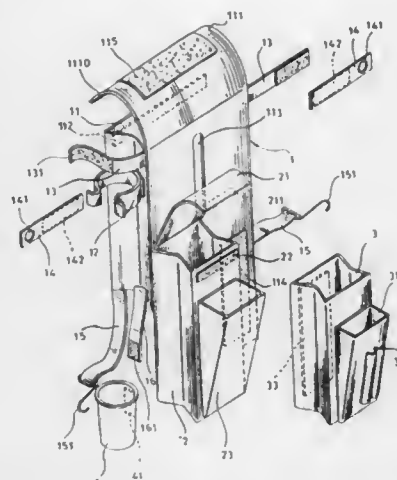
Filed Apr. 23, 1996, Ser. No. 636,368

Int. Cl.⁶ B60R 7/04

U.S. Cl. 224—275

3 Claims

1. A multifunctional article holder comprising:
- a main body including a facial tissue box container, a garbage collection bag, a mobile phone bag, and an article bag; the main body being disposed with fastening belts for securing the main body between two seats of a vehicle wherein;
 - said facial tissue box container is associated with said garbage collection bag, and said mobile phone bag and said article bag are independent bodies, said mobile phone bag and said article bag are removably attached to said facial tissue box container;
 - a first cover flap is connected to an upper end of said facial tissue box container, and a second cover flap is connected to an upper end of said garbage collection bag, said cover



flaps are secured by fastening belts to openings of said facial tissue box container and said garbage collection bag, said article bag includes a plurality of pen holders on an outer face,

at least two latch clips and at least two extensible belts are disposed on an outer side of said main body, a water collection cup is disposed on one said extensible belt, such that one of said latch clips is adapted to receive a handle of an umbrella with a tip of said umbrella being received in said water collection cup to collect rain water, said latch clips are also adapted to receive other cups.

5,803,326

TOUR GUIDE CABINET FOR USE IN A PASSENGER VEHICLE

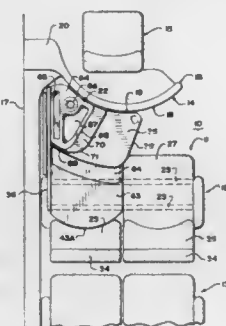
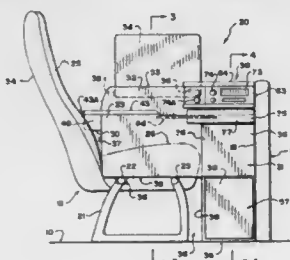
John W. Krieger, Oxnard, Calif., and Sandy S. Friesen, Regina, Canada, assignors to Motor Coach Industries Ltd., Winnipeg, Canada

Filed Sep. 27, 1996, Ser. No. 721,661

Int. Cl.⁶ B60R 7/04; B47B 83/00

U.S. Cl. 224—275

20 Claims

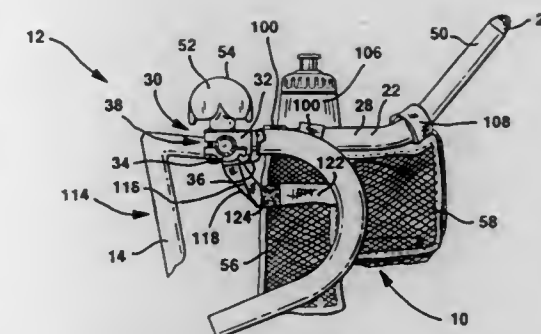


1. A combination of a passenger transport vehicle and a tour guide cabinet therefor;
- the vehicle comprising:
- a vehicle floor having at least one row of seats therein for receiving passengers thereon, at least one of the seats including a seat frame and seat cushions arranged to pro-

vide a first and a second location for supporting two passengers side by side, the vehicle floor having a floor area in front of the seat for receiving the legs of the passengers when seated;

the tour guide cabinet comprising:

- a cabinet body having a front a portion and a rear portion; the rear portion having a bottom surface arranged for resting upon the seat frame, the front portion having a bottom surface for resting upon the floor in the floor area forwardly of the seat;
- the front and rear portions each defining an upper surface spaced upwardly of the seat and arranged to define at least one storage compartment therein for receiving tour guide materials;
- the cabinet body having a width so as to overlie only the first location leaving the second location free from the cabinet body for receiving the tour guide seated therein;
- and a shelf arranged so as to extend from the cabinet body outwardly to one side for access by the tour guide seated in the second location.



5,803,327

CRUTCH CUP HOLDER

Dale L. Nipper, and Beverly J. Nipper, both of 801 S. Willis, Independence, Mo. 64052

Filed Apr. 3, 1997, Ser. No. 832,109

Int. Cl.⁶ B60R 7/00; 9/00

U.S. Cl. 224—407

6 Claims



1. A combined crutch and attachable container holder apparatus comprising:

- a crutch having a support handle;
- a support mounting assembly mounted on the crutch adjacent its handle with a bolt member extending from the crutch having an exposed threaded bolt end;
- a wing nut adapted to engage and fit on the threaded bolt end and be tightened thereto;
- a container holder having a pivotal joint thereon mounted on the bolt between the container holder and the support mounting assembly, said pivot joint permitting the container holder to pivot relative to the crutch when the wing nut is tightened on the bolt and engaged on the bolt's end.

5,803,328

BICYCLE AEROBAR BAG

Toshikazu Nakahara, 4-8-25 Aotani-cho Nada-ku, Kobe, Japan, 657

Filed Jan. 7, 1997, Ser. No. 779,714

Int. Cl.⁶ B62J 7/06; 11/00

U.S. Cl. 224—420

6 Claims

1. A bicycle aerobar arrangement and bag combination, with the combination comprising:

- a) a bicycle aerobar arrangement, with the bicycle aerobar arrangement being adapted for engagement to a bicycle having a handle bar and a direction of travel, with the handle bar

being engaged to the bicycle generally perpendicular to the direction of travel and such that the handle bar may be used to steer the bicycle, with the aerobar arrangement comprising a pair of elongate aerobar portions extending generally in the direction of travel and with each of the elongate aerobar portions being engaged to the handle bar such that each of the aerobar portions lies forwardly of the handle bar and such that the aerobar arrangement may be used to steer the bicycle;

- b) a bag engaged to and between the elongate aerobar portions, with the bag comprising first and second receptacle portions separated by a divider, with each of the receptacle portions being of a sufficient size to permit the insertion of a hand of an average sized adult, and with one of the receptacle portions disposed forwardly of the other receptacle portion to maximize bag size while minimizing resistance to air flow; and
- c) wherein one of the receptacle portions further comprises a perimeter and a means which allows at least a portion of the perimeter to be variable in length such that the perimeter of such receptacle portion may be reduced in length whereby such receptacle portion may be tightened about an article in such receptacle portion.

5,803,329

CARRIER RACK FOR A TWO-WHEELED VEHICLE, IN PARTICULAR FOR A BICYCLE

Heinz Weissenberger, Klettgau-Griessen, Germany, and Sylvain Thevoz, Payerne, Switzerland, assignors to Gebrüder Pletscher AG, Marthalen, Switzerland

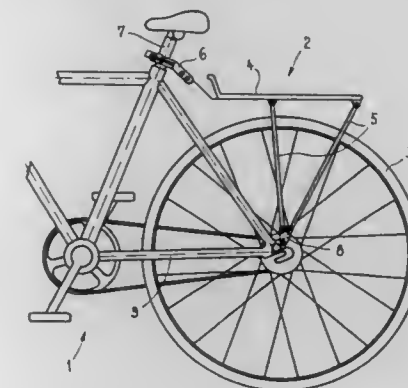
Filed Jan. 16, 1996, Ser. No. 585,103

Claims priority, application European Pat. Off., Apr. 24, 1995, 95106094

Int. Cl.⁶ B62J 7/04

U.S. Cl. 224—450

16 Claims



1. A carrier rack for a two-wheeled vehicle, in particular for a bicycle, comprising:

- a carrying body;
- struts supporting the carrying body;
- lower fastening elements mounted on the struts; and

an upper fastening element mounted on the carrying body for fastening the carrier rack on the vehicle, wherein each of the lower fastening elements is fitted onto a retaining part, which is fastenable on the vehicle, and is brought into operative connection with the retaining part, and released therefrom, by turning the carrier rack with respect to the retaining part, wherein the upper fastening element is a clamping-type closure which can be manually clamped on, and released from, a tube of the two-wheeled vehicle, wherein the lower fastening element and the retaining part are connected to one another by a twist connection, in particular a bayonet connection, and wherein the retaining part is a circular cylinder with two radially projecting retaining lugs, and the lower fastening element has a circular-cylindrical opening with radial cutouts for receiving to the retaining lugs.

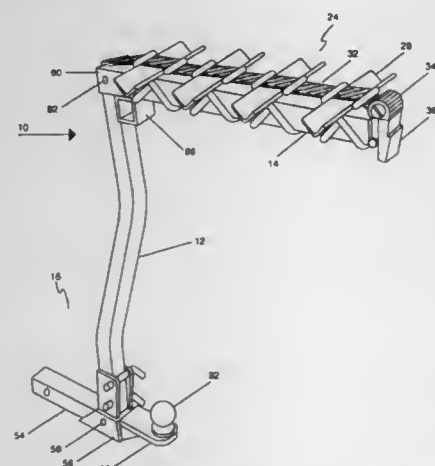
5,803,330 SPORT RACK

Martin O. Stack, 12031 Vulcan Way, Richmond, British Columbia, Canada, V6V 1J7, and Maximilian E. Burgess, 1 Maythorne Eastbourne Road, Blindley Heath, Lingfield, Surrey, RH7 6JN, United Kingdom

Filed Jan. 3, 1995, Ser. No. 369,121
Int. Cl.⁶ B60R 9/00

U.S. Cl. 224—518

33 Claims



1. An external rack for attachment to a vehicle comprising:
 - a base releasably mountable on a vehicle, said base comprising a horizontally aligned sleeve, other than a trailer hitch receiving tube, adapted for snug sliding fitment over a trailer hitch tube so as to journal said trailer hitch tube in said sleeve,
 - a generally vertical member having upper and lower ends, said generally vertical member lockably, releasably mountable on said sleeve at said lower end of said generally vertical member,
 - a generally horizontal member releasably mountable to said generally vertical member at said upper end of said generally vertical member,
 - a slidable frame adapted for snug fitment around said generally horizontal member, said slidable frame adapted to support an elongate object there-against and slidably positionable along said generally horizontal member,
 - a selectively tensionable strap releasably mountable to said generally horizontal member extending along said generally horizontal member and positionable over said slidable frame, whereby said selectively tensionable strap may be selectively tensioned to releasably frictionally hold an elongate object against said slidable frame and to simultaneously releasably frictionally secure said slidable frame against said generally horizontal member,
 - further comprising means for slidably lockably positioning said generally horizontal member on said upper end of said generally vertical member in releasably mountable engagement

with said upper end, whereby said generally horizontal member is slidably lockably positionable on said upper end of said generally vertical member;

wherein said means for slidably lockably positioning said generally horizontal member on said upper end further comprises means for releasably mounting said generally horizontal member in a first orientation longitudinally rearward of said vehicle and for releasably mounting said generally horizontal member in a second orientation transversely behind said vehicle,

wherein said means for slidably lockably positioning said generally horizontal member on said upper end of said generally vertical member comprises a sleeve mounted to said upper end of said generally vertical member through which may be snugly journaled said generally horizontal member,

wherein said means for releasably mounting said generally horizontal member in a first orientation longitudinally rearward of said vehicle and for releasably mounting said generally horizontal member in a second orientation transversely behind said vehicle comprises first and second orthogonally aligned sleeves mounted to said upper end of said generally vertical member, each of said first and second sleeves sized to snugly receive said generally horizontal member when journaled therethrough.

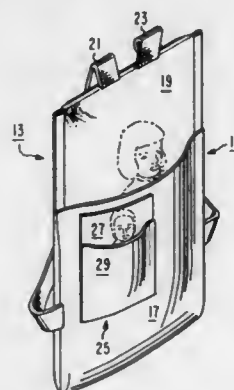
5,803,331 DOLL SLEEPING BAG STYLE BACK-PACK

Jodi L. Thorne, 3 Dogwood Dr., Yardley, Pa. 19067, and Kathleen M. Sheehan, 496 Trapp La., Langhorne, Pa. 19047

Filed Dec. 26, 1996, Ser. No. 773,104
Int. Cl.⁶ A45F 5/00

U.S. Cl. 224—627

15 Claims



1. A sleeping bag and display carrier for dolls, comprising:
 - an envelope shaped flexible enclosure portion being open on an upper side thereof, said enclosure portion having a back wall and a front wall;
 - a flexible head rest portion extending above the flexible enclosure portion and being connected thereto on the back wall thereof, said headrest portion having an opposing free end having a top edge and said carrier having an overall height defined by a bottom of the enclosure portion and the top edge of the headrest portion; and
 - a plurality of carrying straps each extending between the top edge of the free end of the flexible head rest portion and a respective outer edge of the flexible enclosure portion, said carrying straps acting to keep the flexible head rest portion extended above the flexible enclosure portion when said carrier is hung by said straps;
 - whereof said straps are of sufficient length to carry said flexible head rest portion and said connected flexible enclosure portion on one's back;
 - whereof said flexible head rest portion has a uniform width and is the same width as said flexible enclosure portion and is about 25 to 30 percent of the overall height of the carrier; and
 - whereof said carrier is usable as a doll sleeping bag when not in use as a carrier.

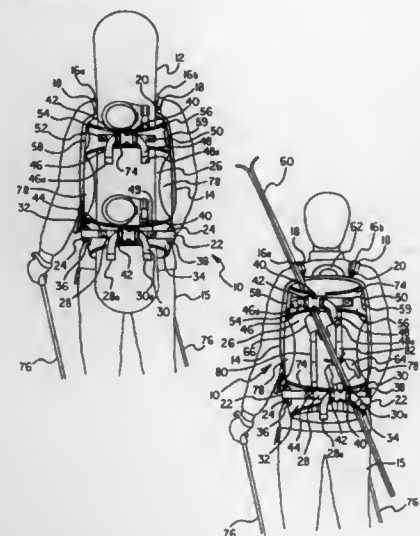
5,803,332 PACK WITH INTEGRATED SKI AND SNOWBOARD CUFF SYSTEM

Jesse B. Thompson, Bozeman, Mont., assignor to K-2 Corporation, Vashon, Wash.

Filed Jul. 9, 1997, Ser. No. 890,256
Int. Cl.⁶ A45F 5/00

U.S. Cl. 224—651

27 Claims



1. A pack for enabling a person to selectively carry either skis or a snowboard, comprising:
 - (a) a panel having a back surface facing away from the person when the pack is worn by the person;
 - (b) a pair of shoulder straps that are connected to the panel and adapted to support the pack at least partially on the person's shoulders;
 - (c) a first cuff for selectively securing one of the snowboard and the skis to the back surface of the panel, the first cuff having an end attached to a side of the lower portion of the panel and having a free end, a slot being formed through the end of the first cuff that is attached to the panel;
 - (d) a second cuff for selectively securing the one of the snowboard and the skis to the back surface of the pack, the second cuff having an end attached to a side of an upper portion of the panel and having a free end, a slot being formed through the end of the second cuff that is attached to the panel;
 - (e) a top compressor web attached to the second cuff, said top compressor web having a free end that is releasably coupled under tension to the panel to pull the second cuff so as to secure the second cuff around said one of the snowboard and the skis that is selectively carried on the pack; and
 - (f) a bottom compressor web attached to the first cuff, said bottom compressor web having a free end that is releasably coupled under tension to the panel to pull the first cuff so as to secure the first cuff around said one of the snowboard and the skis that is selectively carried on the pack, said one of the snowboard and the skis being held by the first cuff and the second cuff to prevent shifting relative to the panel.

5,803,333 PACK WITH EASY-ACCESS POCKET

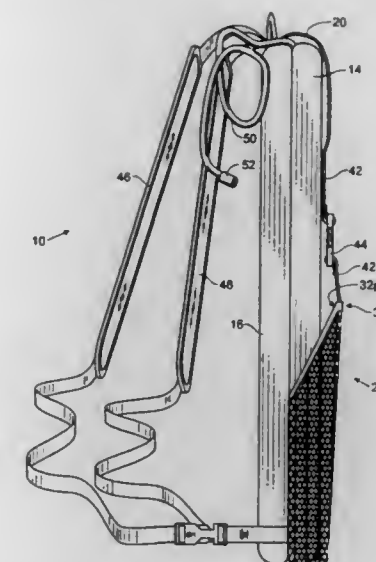
Roger R. Fawcett, Weatherford, Tex., assignor to FasTrak Systems, Inc., Weatherford, Tex.

Filed Aug. 14, 1996, Ser. No. 698,565
Int. Cl.⁶ A45F 5/00

U.S. Cl. 224—652

12 Claims

1. A pack for wearing on a person's back, comprising:
 - a front facing outwardly when the pack is worn;
 - a pocket attached to and extending at least partially across the front of the pack for overlying generally the small of the person's back when the pack is worn, the pocket including an



- open entrance defined by an upper edge oriented for readily being located by touch when the person reaches behind their back, thereby guiding and facilitating access into the pocket, and the pocket including an upwardly extending pocket flap that provides the upper edge of the pocket;
- a storage compartment defined by the front and a rear, the compartment including an open top; and
- a top flap attached to the rear of the storage compartment adjacent the open top, extendable from the rear to the front of the compartment to close at least partially the compartment and overlap at least a portion of the front of the compartment, and operatively connected to the pocket flap so that the top flap is maintained in a closed position overlapping the front of the compartment while the pocket flap is maintained simultaneously in an upwardly oriented article-retaining position.

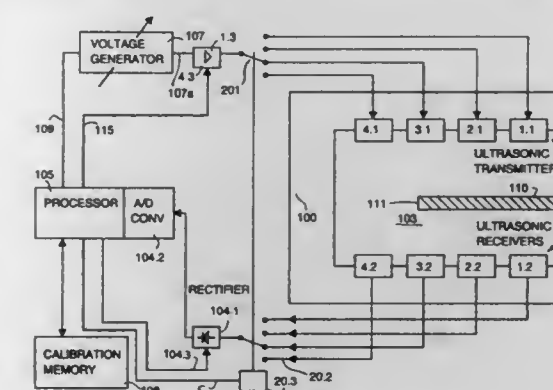
5,803,334 ULTRASONIC EDGE SENSOR FOR THE DETECTION OF A WEB EDGE

Arvind Ishwarial Patel, Unjha - Gujarat, India; Gerhard Alt, Kleinaitingen, Germany; Wolfgang Krauth, Friedberg-Wulfertshausen, Germany, and Hans Seibold, Anhausen, Germany, assignors to Erhardt + Leimer GmbH, Augsburg, Germany

Filed Jan. 5, 1996, Ser. No. 583,231
Claims priority, application Germany, Jan. 13, 1995, 195 00 822.7

Int. Cl.⁶ B23Q 15/00; B65H 26/00
U.S. Cl. 226—45

11 Claims



1. An ultrasonic edge sensor for detecting an edge position of a traveling web, said edge sensor comprising:
 - a support;

at least two ultrasonic sensor units on said support, each of said ultrasonic sensor units being comprised of a transmitter emitting short ultrasonic wave pulses and a receiver responsive to said ultrasonic wave pulses spaced apart across a gap through which an edge of said traveling web can pass, all of said ultrasonic sensor units producing measurement fields across said gap which can be masked by said webs, said receivers having respective receiver outputs dependent upon a degree of masking of the respective measurement field by said web; switching means connected to said ultrasonic sensor units and responsive to a degree of penetration of said edge into said gap for switching on the transmitter and the receiver of only a selected one of said ultrasonic sensor units depending upon the degree of penetration of said edge into said gap in a width direction of said web, and for switching over between said sensor units;

at least one signal converter for forming a digital receiver signal (W) from a respective receiver output of a switched on transmitter and receiver;

a computer connected to said at least one signal converter for producing a sensor output signal (S) representing an edge position of the edge from the digital receiver signal (W) for use in controlling a position of said web, said measurement fields each extending in said width direction between imaginary boundary edge positions at which the receiver signal (W) is a maximum at one side of the respective field and at which the receiver signal (W) is a minimum at the opposite side of the measurement field, said measurement fields being arrayed in said direction without a gap between them;

a forward/backward counter having a number of counter states equal to the number of said sensor units, said counter being connected to said switching means to shift from counter state to counter state and switch over from sensor unit to sensor unit successively as said counter states change and as said edge of the web changes position in said gap;

a comparator circuit connected to said signal converter for comparing a receiver signal (W) for an actual position of said edge with the maximum (W_{max}) and the minimum (W_{min}) of the respective sensor unit and stepping said counter forward and back selectively upon said receiver signal (W) exceeding said maximum (W_{max}) and said receiver signal (W) falling below said minimum (W_{min}), thereby turning on the transmitter and receiver of a respective one of the sensor units having an adjacent measurement field; and

a calibration data memory storing for receiver signals (W) of the respective switched-on transmitter and receiver and for respective sensor output signals (S) calibration values (W_{kn} , S_{kn}) associated with respective calibration edge positions (Z_{kn}) distributed over the measurement fields of all of said ultrasonic sensor units, the computer being provided with means for calculating an actual edge position (Z) from the sensor output signal (S) for a receiver signal (W) of the switched on sensor unit from the stored calibration values (W_{kn} , S_{kn}) thereof.

5,803,335

PINCH ROLLER ASSEMBLY HAVING A RUBBER CUSHION FOR MAKING A CONTACT SURFACE THEREOF PIVOTABLE

Chang-Ho Lee, Incheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Continuation-in-part of Ser. No. 424,743, Apr. 18, 1995, abandoned. This application Sep. 22, 1997, Ser. No. 934,687

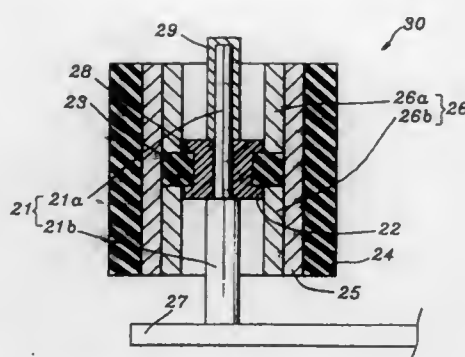
Int. Cl.⁶ B65H 20/02

U.S. Cl. 226—191

2 Claims

1. A pinch roller assembly, for use in a video cassette recorder, comprising:

- a cylindrical external contact having a contact surface for contacting a magnetic tape;
- a sleeve closely fitted into the cylindrical external contact;



a supporting shaft extending through the sleeve, the supporting shaft having a small diameter section and a large diameter section;

a plastic sliding bearing for carrying the cylindrical external contact and the sleeve about the supporting shaft, the plastic sliding bearing being rotatably retained around a lower portion of the small diameter section of the supporting shaft by an upper end of the large diameter section of the supporting shaft;

a fixing cap mounted around the small diameter section to keep the plastic sliding bearing in place on the supporting shaft;

a rubber member secured around an external surface of the plastic sliding bearing; and

a pair of cylindrical bushing members closely fitted into the sleeve so as to secure the rubber member on an inner surface of the sleeve to enable the cylindrical external contact and the sleeve to tilt with respect to the supporting shaft by using a resilient characteristic of the rubber member.

5,803,336

PINCH ROLLER TYPE TAPE DRIVE ASSEMBLY

Kenm-Mo Kim, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

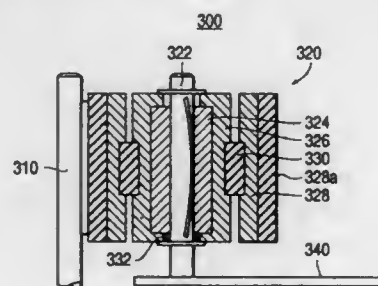
Filed Dec. 12, 1996, Ser. No. 766,204

Claims priority, application Rep. of Korea, Dec. 13, 1995, 1995-40752

Int. Cl.⁶ B65H 23/04; F16C 33/10

U.S. Cl. 226—194

6 Claims



1. A pinch roller type tape drive assembly comprising:

- a capstan which rotates at a constant velocity; and
- a self-aligning pinch roller for pressing a tape against said capstan so as to drive said tape at said constant velocity together with said capstan, said pinch roller comprising a pinch roller shaft,

a bearing rotatably mounted onto said pinch roller shaft, a cylindrical inner sleeve having a first groove formed along an outer peripheral surface of the cylindrical inner sleeve, and enclosing said bearing, a cylindrical outer sleeve, having a second groove formed along an inner peripheral surface of the cylindrical outer sleeve corresponding to said first groove, having an elastic material coated on an outer peripheral surface of the cylindrical outer sleeve, and enclosing said cylindrical inner sleeve, and an annular self-aligning member disposed between said first groove and said second groove, for connecting said cylindrical inner sleeve to said cylindrical outer sleeve.

5,803,337

ELECTRIC STAPLER

Shigeki Fukai, Tokyo, and Naoto Mochizuki, Yamanashi-ken, both of Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

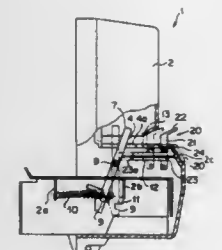
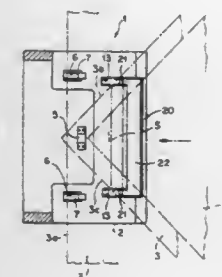
Filed May 13, 1997, Ser. No. 855,390

Claims priority, application Japan, May 13, 1996, 8-117515

Int. Cl.⁶ B27F 7/36

U.S. Cl. 227—7

2 Claims



1. An electric stapler comprising a stapling mechanism which is connected to a power source through a switch and staples a sheet stack inserted into a throat and an actuator which is adapted to abut against an edge of a sheet stack at a plurality of positions along the edge of the sheet stack and to be moved by the sheet stack in response to insertion thereof to an operative position where the actuator operates the switch to actuate the stapling mechanism, wherein the improvement comprises

a sub-actuator which is positioned in front of the actuator and is movable between an erected position where the sub-actuator stands into the sheet stack insertion passage to abut against a sheet stack when the sheet stack is inserted into the throat and a horizontal position where the sub-actuator is retracted from the sheet stack insertion passage not to abut against a sheet stack, the sub-actuator being adapted to abut against a pair of adjacent edges of a sheet stack forming a corner of the sheet stack when the sub-actuator is in the erected position and being movable to drive the actuator to said operative position pushed by the sheet stack as the sheet stack is further inserted into the throat.

5,803,338

FASTENER DRIVING TOOL FOR LOCATING A PRE-EXISTING HOLE IN A FIRST WORKPIECE AND DRIVING A FASTENER THERE THROUGH INTO A SECOND WORKPIECE

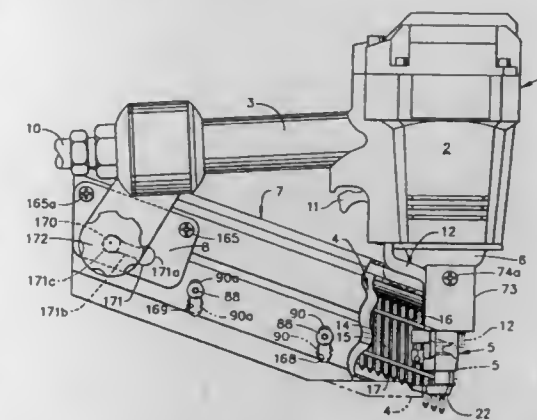
Edward H. Singer; Charles J. Moorman, both of Cincinnati, and Peter Hirt, Mason, all of Ohio, assignors to Senco Products, Inc., Cincinnati, Ohio

Filed Nov. 26, 1996, Ser. No. 753,552

Int. Cl.⁶ B25C 1/04

U.S. Cl. 227—8

22 Claims



1. A fastener driving tool capable of locating a preformed hole in a first workpiece and driving a fastener therethrough into a second workpiece, said tool comprising a body having a main body portion and a handle portion, a guide body affixed beneath said main body portion and terminating in a nose portion, a drive track in said guide body, a driver axially shiftable in said drive track to drive a fastener therefrom, a trigger actuated mechanism in said main body portion to shift said driver, a fastener magazine having a rearward end and having a forward end in communication with said drive track, a row of fasteners in said magazine joined together to form a strip of fasteners, a feed mechanism constantly urging the forwardmost fastener of said strip into said drive track, and a trigger enabling safety operatively connected to said magazine, said magazine being shiftable with respect to said tool body and guide body in directions parallel to the axis of said drive track between a first position wherein said forwardmost fastener of said strip extends below said guide body nose and constitutes a hole finding probe to find said first workpiece hole and a second position wherein said safety enables said trigger and said drive track is aligned with said first workpiece hole and said tool is ready to drive said forwardmost fastener through said first workpiece hole into said second workpiece.

5,803,339

PROCESS AND APPARATUS FOR FORMING BALL BUMPS

Hiroshi Hoshiba; Kohel Tatsumi, both of Kanagawa; Masashi Konda, and Yoji Kawakami, both of Tokyo, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

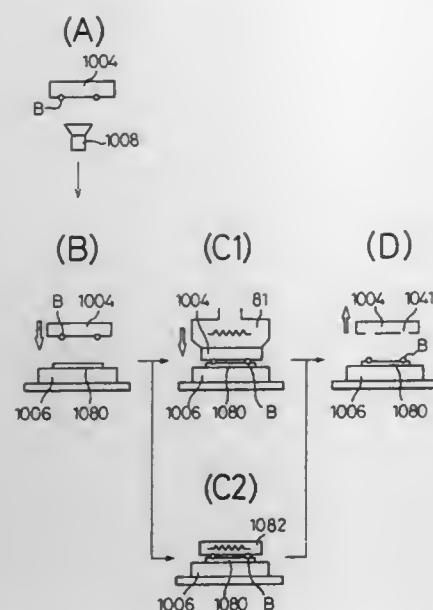
Division of Ser. No. 557,943, Nov. 14, 1995, Pat. No. 5,687,901. This application Apr. 28, 1997, Ser. No. 845,823

Int. Cl.⁶ H01L 21/60

U.S. Cl. 228—41

30 Claims

1. An apparatus for forming ball bumps for electrical connection to an integrated circuit, comprising: means for applying a vibration at a small amplitude to a vessel containing small balls of an electroconductive material to cause the small balls to jump up above the vessel; means for holding and arranging the small balls on an arrangement baseplate by attracting the jumping up small balls to attraction openings provided in the arrangement baseplate in positions corresponding to positions of at least one set of the electrode pads of one semiconductor chip;



means for removing excess small balls adhered either to the arrangement baseplate or to the small balls attracted to the openings; and
means for simultaneously bonding the small balls held and arranged on the arrangement baseplate to bonding spots arranged in positions corresponding to said positions of said at least one set of the electrode pads.

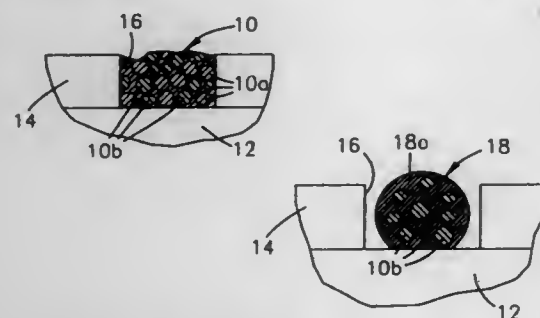
5,803,340
COMPOSITE SOLDER PASTE FOR FLIP CHIP BUMPING
Shing Yeh, Buffalo Grove, Ill., and Bradley Howard Carter, Kokomo, Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 29, 1995, Ser. No. 536,592

Int. Cl.⁶ H01L 21/441

U.S. Cl. 228—56.3

17 Claims

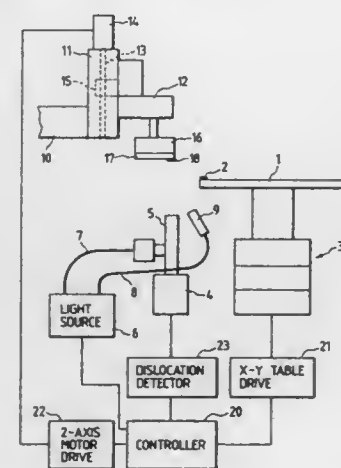


7. A spherical solder bump comprising:
a first solder constituent comprising a first metal alloy; and
a second solder constituent comprising a second metal alloy dispersed in the first solder constituent, the second solder constituent having higher liquidus and solidus temperatures than the first solder constituent, the second metal alloy being an indium-lead alloy containing up to about 2.5 weight percent silver and about 2.5 to about 5 weight percent indium; wherein the first solder constituent establishes a bumping reflow temperature for the solder bump at which the solder bump is formed without liquefying the second solder constituent, and the second solder constituent establishes a chip mount reflow temperature that is sufficient to cause both the first and second solder constituents to liquefy and form a solder having a liquidus temperature that is between that of the first and second solder constituents.

5,803,341
APPARATUS AND METHOD FOR MOUNTING TAPE CARRIER PACKAGE ONTO LIQUID CRYSTAL DISPLAY
Toshiki Abe, Fukuoka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of Ser. No. 540,826, Oct. 11, 1995, Pat. No. 5,639,009. This application Feb. 14, 1997, Ser. No. 800,469
Claims priority, application Japan, Oct. 21, 1994, 6-256804
Int. Cl.⁶ H05K 3/30

U.S. Cl. 228—102

15 Claims



1. A method for mounting an electronic component onto a liquid crystal display, wherein a first positioning object on said electronic component and a second positioning object on said liquid crystal display are monitored by a camera, and said electronic component is mounted onto said liquid crystal display after correcting a positional dislocation between said electronic component and said liquid crystal display, said method comprising:

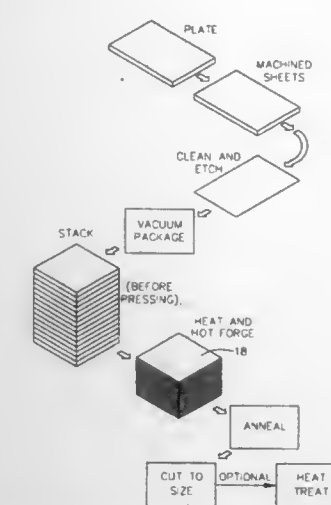
a first step of detecting a first positional data representing a position of said electronic component based on a monitoring of said first positioning object, said first positioning object of said electronic component coming in a focus range of a visual field of the camera after a liquid crystal display is removed out of the visual field of the camera in a horizontal direction; a second step of detecting a second positional data representing a position of said liquid crystal display based on a monitoring of said second positioning object, said liquid crystal display being shifted in the horizontal direction in such a manner that said second positioning object comes into the focus range of the visual field of the camera after said electronic component is lifted upward in a vertical direction until the electronic component goes out of the focus range of the camera; a third step of comparing an actual mutual position with a predetermined ideal position based on said first and second positional data, thereby correcting a mutual positional relationship between said electronic component and said liquid crystal display in the horizontal direction; and
a fourth step of mounting said electronic component onto said liquid crystal display.

5,803,342
METHOD OF MAKING HIGH PURITY COPPER SPUTTERING TARGETS
Janine K. Kardokus, Otis Orchards, Wash., assignor to Johnson Matthey Electronics, Inc., Spokane, Wash.
Filed Dec. 26, 1996, Ser. No. 780,166
Int. Cl.⁶ B23K 31/00

U.S. Cl. 228—173.2

4 Claims

1. A method of making a high purity copper sputtering target comprising:
providing a plurality of segments of high purity copper plates, each of said segments having bonding surfaces;
cleaning the bonding surfaces;

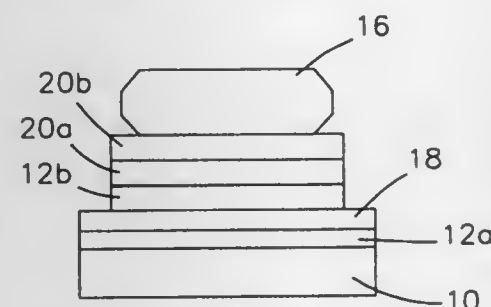


arranging the segments in a stack with bonding surfaces adjacent each other;
fixing the stacked segments in position to form an assembly;
heating and forging the assembly in an inert atmosphere whereby the thickness of the stack is reduced; and
annealing the forged assembly to produce a diffusion bonded unitary structure.

5,803,343
SOLDER PROCESS FOR ENHANCING RELIABILITY OF MULTILAYER HYBRID CIRCUITS
Dwadasi Hare Rama Sarma; Christine Ann Paszkiet, both of Kokomo; James Catlin Orem, Mc Cordsville, all of Ind., and Christopher Roderick Needes, Chapel Hill, N.C., assignors to Delco Electronics Corp., Kokomo, Ind.
Filed Oct. 30, 1995, Ser. No. 550,321
Int. Cl.⁶ H05K 3/34

U.S. Cl. 228—180.21

7 Claims

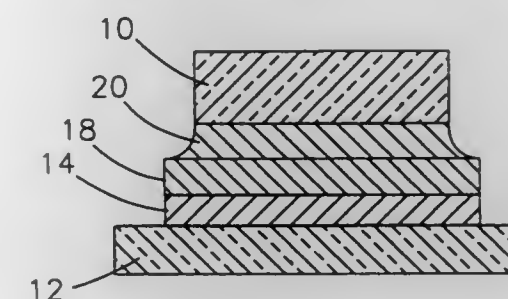


1. A method of forming a thick film hybrid multilayer circuit, the method comprising the steps of:
providing a substrate having a surface;
forming a thick film multilayer structure on said surface, said multilayer structure including a dielectric layer and a conductor layer supported on said dielectric layer;
depositing a first solder layer on a portion of said conductor layer, said first solder layer being formed of a first solder material;
depositing a second solder layer over said first solder layer, said second solder layer being formed of a second solder material having a higher tin content and a lower liquidus temperature than said first solder material, thereby to reduce diffusion of tin into said conductor layer, consequently reducing thermal stress in said dielectric layer and increasing its thermal-cycle life; and
electrically and mechanically connecting a circuit component to said conductor layer with said first and second solder layers.

5,803,344
DUAL-SOLDER PROCESS FOR ENHANCING RELIABILITY OF THICK-FILM HYBRID CIRCUITS
Anthony John Stankovich; Dwadasi Hare Rama Sarma; Christine Ann Paszkiet, and Marion Edmond Ellis, all of Kokomo, Ind., assignors to Delco Electronics Corp., Kokomo, Ind.
Filed Sep. 9, 1996, Ser. No. 709,886
Int. Cl.⁶ B23K 31/02;35/26

U.S. Cl. 228—180.22

16 Claims

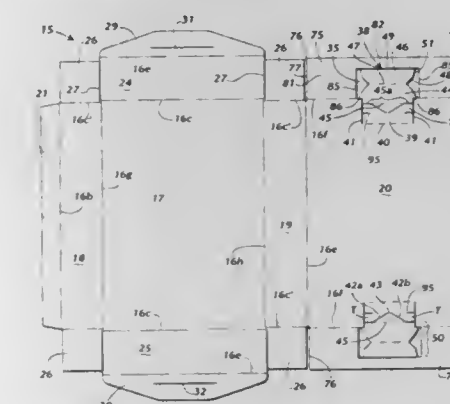


1. A method for mounting a circuit component to a thick-film hybrid circuit, the method comprising the steps of:
forming a conductor on a substrate;
printing a first solder paste on the conductor;
heating the first solder paste to form a first solder layer having a reflow temperature of greater than about 270° C.;
printing a second solder paste on the first solder layer so that the second solder paste is physically isolated from the conductor by the first solder layer; and
heating the second solder paste to a temperature of less than 270° C. so as to electrically and mechanically interconnect a circuit component to the conductor, the second solder paste yielding a second solder layer having a tin content that is higher than the first solder layer, the first and second solder layers having a combined thickness of not greater than about 0.3 millimeter, the second solder layer having a thickness approximately equal to or less than the first solder layer.

5,803,345
SELF-LOCKING BOX WITH OPENING DEVICE
M. Lee Jones, and H. English Robinson, Jr., both of Atlanta, Ga., assignors to Why Wrap? Incorporated, Atlanta, Ga.
Filed Jan. 30, 1997, Ser. No. 794,227
Int. Cl.⁶ B65D 5/43

U.S. Cl. 229—102

9 Claims



1. A box that is lockable when closed and selectively openable when locked, comprising:
a plurality of body panels interconnected to form the box;
a closure panel connected to one of said body panels to selectively close an opening of the box and having a flap extending

into the box to occupy a location adjacent to another of said body panels when the closure panel closes the opening; a slot associated with a first one of said body panels of the box; a locking tab associated with a second one of said body panels of the box and extending a predetermined dimension for selective interlocking engagement with the slot when the box is closed, thereby preventing opening the box without damaging the box; and

means on the locking tab to define an opening tab at one side of the locking tab and extending at least partially across the width of the locking tab, the opening tab operating to separate at least a portion of the opening tab in a predetermined manner in response to pulling the opening tab in a direction substantially outwardly from the locking tab,

whereby separating the locking tab in the predetermined manner permits opening the box without withdrawing the locking tab from the interlocking engagement with the slot.

5,803,346

PAPERBOARD CONTAINER FOR LIQUIDS INCLUDING AN IMPROVED STRUCTURE TO PREVENT FITMENT ROTATION

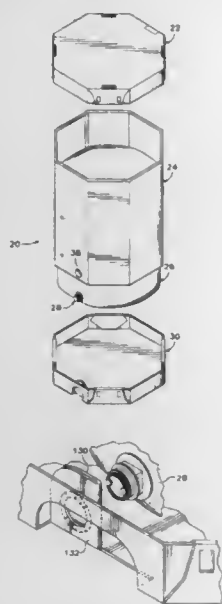
Harold L. Baker, Longview; Christopher T. Benner, Vancouver, and Terry Parks, Longview, all of Wash., assignors to Longview Fibre Company, Longview, Wash.

Filed May 15, 1996, Ser. No. 647,641

Int. Cl.⁶ B65D 5/32; 5/56

U.S. Cl. 229—117.3

38 Claims



1. A container for fluid materials comprising:

- (a) an upright tubular shell having a top end and a bottom end, said shell including a plurality of side-by-side sidewalls;
- (b) a flexible, impervious liner located within said shell;
- (c) a fitment attached to said liner for emptying said liner of fluid materials;
- (d) an outer opening defined in one of said sidewalls proximate said bottom end for receiving a portion of said fitment, said outer opening being in the plane of a major portion of said one of said sidewalls, said outer opening being integral with said major portion of said one of said sidewalls; and
- (e) an integral bottom cap defining a first opening and a second opening, said outer opening being interdisposed between and aligned with said first opening and said second opening.

5,803,347

PROTECTIVE DEVICE FOR USE WITH CONTAINERS HAVING HANDHOLD OPENINGS

Raymond R. Sainz, 3224 Bryant St., Denver, Colo. 80211; Joseph S. Sainz, 5010 Umatilla St., Denver, Colo. 80221, and Lynn J. McCarthy, 9856 Carmel St., Littleton, Colo. 80124

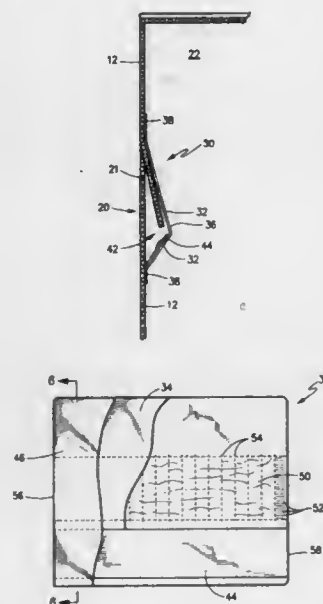
Continuation-in-part of Ser. No. 494,930, Jun. 26, 1995, Pat. No. 5,727,728. This application Nov. 15, 1996, Ser. No.

751,003

Int. Cl.⁶ B65D 5/468

U.S. Cl. 229—117.16

28 Claims



1. A protective device adapted to be used with a container when packaging an object wherein the container has an interior and a wall that is provided with a handhold opening of a selected size and configuration, the protective device operative to inhibit ingress of unwanted materials into the interior through the handhold opening while permitting insertion of a hand for grasping the handhold opening, comprising:

- (a) a mounting panel sized and configured to have a mounting panel size greater than the selected size and configuration of the handhold opening, said mounting panel having a portal formed therein;
- (b) a first adhesive material located on a first side surface of said mounting panel and operative to secure said mounting panel in a secured state to said wall in the interior of said container with the portal positioned over the handhold opening, said first adhesive material forming a continuous, uninterrupted seal around the handhold opening when in the secured state thereby to seal said mounting panel to said wall in a surrounding relation to the handhold opening;
- (c) a deadening material disposed on a selected area of said first adhesive material thereby to inhibit adherence of said mounting panel to a portion of said wall which confronts the deadening material thereby to provide a region of said mounting panel that is unsecured to said wall at a location alongside the handhold opening; and
- (d) an exclusion panel having a surrounding outer peripheral margin portion, said exclusion panel sized and configured to have a panel size greater than the selected size and configuration of the handhold opening, said exclusion panel located on a second side of said mounting panel opposite said adhesive material and with said outer peripheral margin portion secured to said mounting panel thereby to position and secure said exclusion panel in a position over the handhold opening.

5,803,348

DISPLAY CONTAINERS

Christian Daniel Verhelle, Mechelen, Belgium, assignor to The Procter & Gamble Company, Cincinnati, Ohio
PCT No. PCT/US95/13451, § 371 Date Apr. 11, 1997, § 102(e) Date Apr. 11, 1997, PCT Pub. No. WO96/11849, PCT Pub. Date Apr. 25, 1996

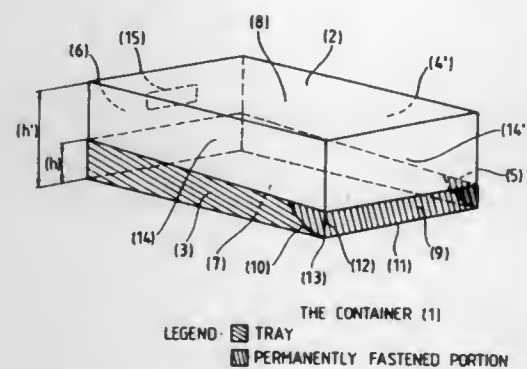
PCT Filed Oct. 12, 1995, Ser. No. 817,153

Claims priority, application European Pat. Off., Oct. 13, 1994, 948701600

Int. Cl.⁶ B65D 5/66

U.S. Cl. 229—125.08

12 Claims



1. A container (1) having a top wall (2), a bottom wall (3), side walls (4;4'), a front wall (5) and a back wall (6), said container comprising a tray (7) and a hood (8) which overlap partly, wherein said hood is permanently fastened to said tray only in a portion (9) of said tray which consists of the whole of said front wall of said tray and, optionally, a part of said side walls of said tray connected to said front wall, said portion being delimited from the remainder of said tray by a line of weakness (10).

5,803,349

INCREASED SPOUT ANGLE TO ASSIST WITH OPENING

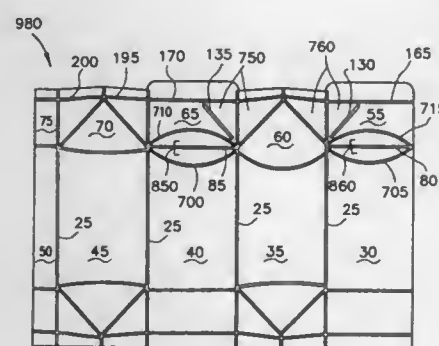
Tommy Bo Goran Ljungstrom, Ribbgrand 1, S 243 33 Hoor, Sweden

Filed Aug. 22, 1997, Ser. No. 918,494

Int. Cl.⁶ B65D 5/08

U.S. Cl. 229—137

32 Claims



9. A blank for forming a gable top carton comprising: first, second, third, and fourth side panels, the side panels divided from one another by a plurality of vertical score lines; first, second, third, and fourth top flaps respectively adjacent the first, second, third, and fourth side panels, wherein the first and third top flaps respectively form first and second oppositely angled roof portions of the gable top when the blank is folded to form the carton;

first, second, third, and fourth score lines formed at the engagement between the first, second, third, and fourth side panels and the first, second, third, and fourth top flaps;

a first complementary score line on the first side panel disposed adjacent the first score line and defining a first indent surface between the first score line and the first complementary score line when the blank is folded to form the carton; and

a second complementary score line on the third side panel disposed adjacent the third score line and defining a second indent surface between the third score line and the second complementary score line when the blank is folded to form the carton.

5,803,350

BEVERAGE CONTAINER WITH PULL TAB SPOUT

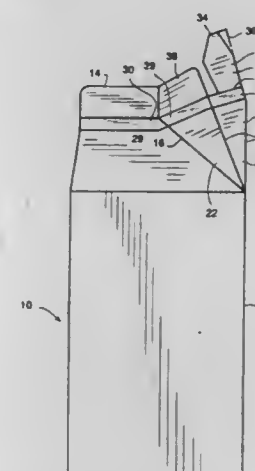
Harry Benet, 2675 Ocean Ave., Brooklyn, N.Y. 11229

Filed Jun. 13, 1997, Ser. No. 876,075

Int. Cl.⁶ B65D 43/00

U.S. Cl. 229—160.2

9 Claims



1. A beverage container, comprising:

- (a) a reservoir and a folding gabled top connected to said reservoir, said top having an open position forming a pouring spout;
- (b) said top including a plurality of front and rear panels, and including means on said front and rear panels to sealingly join said front panels to said rear panels for initial sealing closure of said beverage container; and
- (c) an opening aid comprising means for unsealing and separation of the front and rear panels to initially open said gabled top by the application of outward tensile force on said opening aid, said opening aid being hingedly connected to at least one of said front panels and pivotable between a first position, an intermediate second position and a third position; said opening aid is folded downward against said front panels to permit said initial sealing closure in said first position; said sealing aid extending approximately horizontally from said front panels when said unsealing means are enabled in said intermediate second position, said opening aid extending upwardly from a top edge of said front panels to provide an extension of said pouring spout to aid and direct fluid flow therethrough in said third position.

5,803,351

METHOD OF DETECTING INCORRECTLY CLOSED FREEZING FRAME LINERS, AND A LINER AND A SYSTEM THEREFOR

Mogens Nielsen, Risskov, Denmark, assignor to Cartolit ApS, Ahus N, Denmark

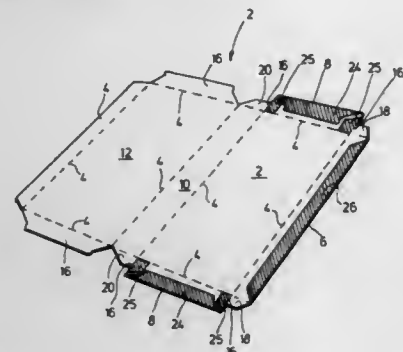
PCT No. PCT/DK95/00311, § 371 Date Jan. 17, 1997, § 102(e) Date Jan. 17, 1997, PCT Pub. No. WO96/02422, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 19, 1995, Ser. No. 776,017

Claims priority, application Denmark, Jul. 19, 1994, 0858/94 Int. Cl.⁶ B65D 5/42

U.S. Cl. 229—198.2

10 Claims



1. Method of detecting an incorrect mounting or closing of packings of the carton liner type as used for packing food products to be frozen in freezing frames, these frame liners comprising a bottom part with erectable wall flaps and a lid part with lid skirt flaps to be located at the outside of the corresponding wall flaps in correctly closed packings, characterized in using for the packaging carton liners provided with a colored or otherwise visually differentiated marking (24, 25, 26) on at least some of such sub areas, such as sub areas of the outsides of the innermost liner wall flaps (6, 8), which have to be externally covered by other portions of the liner, e.g. by lid skirt flaps (4, 16) and/or corner flaps (18, 20) and, after deframing of the frozen packings, effecting inspection of the packings so as to respond to a detection of any said marking being exposed on the packings.

5,803,352

TWO WAY MAILER

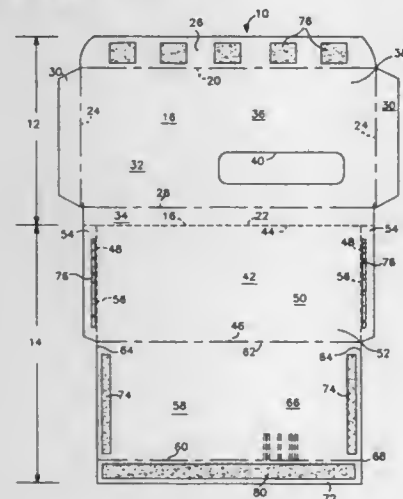
Lincoln Brooks Spaulding, 7 Oakshade Ave., Darien, Conn. 06820

Filed Dec. 24, 1996, Ser. No. 773,650

Int. Cl.⁶ B65D 27/04

U.S. Cl. 229—304

9 Claims



1. A two way mailer formed of a single blank of sheet material, comprising:

first and second sections, and a first perforated line for separately interconnecting said first and second sections;

said first section including bottom, top and side edges, and a non-perforated first fold line spaced inwardly from and parallel with at least a substantial portion of the bottom edge of said first section, said first fold line defining front and rear portions of said first section, and said first section further including tear means for facilitating separation of at least a portion of said rear portion of said first section from said front portion of said first section;

said second section including rear and return panels, each including bottom, top and side edges, the bottom edges of said rear and return panels coincidently defining a second fold line parallel with said first perforated line and about which said return panel may be folded onto said rear panel;

first means for adhering the return panel to said rear panel to thereby form a return envelope, the return envelope, together with said rear portion of said first section, being foldable about said first fold line onto said front portion of said first section; and

second means for adhering the return envelope to said first section, whereupon said return envelope may be separated from said first section along said first perforated line while said at least a portion of said rear portion of said first section is being separated from said front portion of said first section.

5,803,353

DEFLECTABLE MAILBOX ASSEMBLY

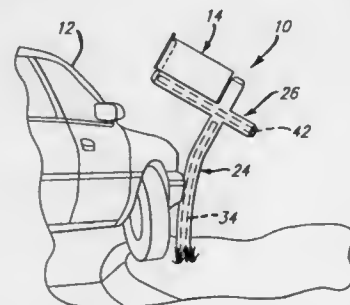
James P. Fisher, 19913 Rosin, Clinton Township, Mich. 48038

Filed Mar. 14, 1996, Ser. No. 616,058

Int. Cl.⁶ B65D 91/00

U.S. Cl. 232—39

20 Claims



1. A resiliently deflectable support structure in combination with an upper mailbox portion having an inner storage compartment and having a mailbox opening which allows material to be passed therethrough for depositing into the inner storage compartment, the resiliently deflectable support structure comprising:

a generally vertical support member including a flexible outer portion surrounding a resilient inner member, said inner member being a first coil spring; and

a generally horizontal support member interconnected to said generally vertical support member, said generally horizontal support member being attached to the upper mailbox portion, wherein said generally horizontal support member includes a second coil spring;

whereby said generally vertical support member is resiliently deflectable from a substantially vertical orientation.

5,803,354

TEMPERATURE RESPONSIVE FLUID FLOW CONTROLLERS

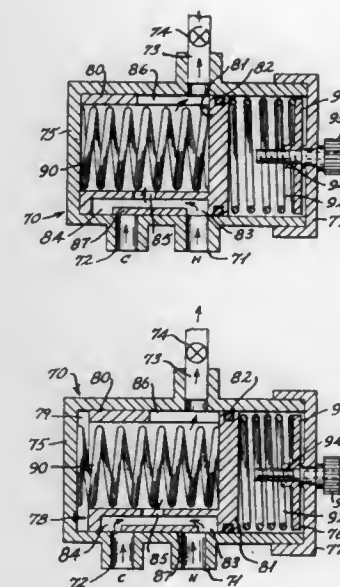
Charles E. Benedict, 3114 Lakeshore Dr., Tallahassee, Fla. 32312

Filed Jun. 17, 1996, Ser. No. 664,545

Int. Cl.⁶ G05D 23/13

U.S. Cl. 236—12.2

11 Claims



8. A temperature responsive fluid flow controller for regulating fluid flow to an outlet so as to regulate flow above a predetermined temperature, the controller comprising,

a housing having first and second spaced fluid inlets and a fluid outlet,

a fluid passageway communicating said first and second spaced fluid inlets and said outlet in said housing,

a bore extending transversely to said fluid passageway between opposite end walls of said housing,

a valve assembly slidably disposed within said bore and moveable between a first position wherein said valve assembly permits flow through said fluid passageway to a second position wherein said valve assembly at least partially regulates fluid flow through said fluid passageway,

said valve assembly including a tubular valve stem having first and second spaced fluid inlets and a fluid outlet, said first fluid inlet of said housing normally communicating with said first fluid inlet in said valve stem when said valve assembly is in said first position and said second fluid inlet of said housing normally communicating with said second fluid inlet in said valve stem when said valve assembly is in said second position, and

a first shaped memory alloy spring means of a type in which the alloy changes state dependent upon temperature mounted within said bore, said first spring means is mounted within said valve stem, said valve stem including a head portion, sealing means for sealing said head portion relative to side walls defining said bore within said housing, a first end of said first spring means engaging said end wall of said housing and a second end of said first spring means engaging said head portion of said valve stem, said first spring means communicating with said fluid passageway so as to be in heat exchange relationship to the fluid passing therethrough whereby when the fluid temperature increases to said predetermined temperature, said first spring means changes state to thereby shift said valve assembly from said first position to said second position.

5,803,355

CONTROL SYSTEM OF AUTOMOTIVE AIR CONDITIONING DEVICE

Hiroyuki Ureshino, Sano; Elji Takahashi, Ashikaga, both of Japan; Kouji Iwahashi, Teteboro, N.J.; Takashi Matsumoto, Yokohama, and Yoshinori Satoh, Yokosuka, both of Japan, assignors to Calsonic Corporation, Tokyo, and Nissan Motor Co., Ltd., Yokohama, both of Japan

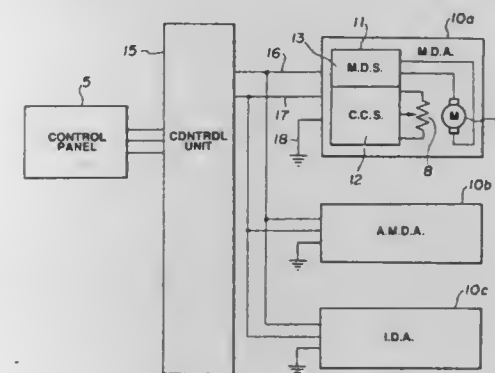
Filed Oct. 18, 1996, Ser. No. 733,935

Claims priority, application Japan, Oct. 19, 1995, 7-271599

Int. Cl.⁶ G05D 23/00; B60H 1/00

U.S. Cl. 236—13

6 Claims



1. A control system of automotive air conditioning device, comprising:

a heater/cooler unit having therein a plurality of control doors by which various air flow modes are provided;

a plurality of identical actuators for actuating the control doors, each actuator including an electric motor for driving the corresponding control door, a position detector for issuing a current position signal representative of the current angular position assumed by the corresponding control door, and a control circuit for controlling said electric motor by processing both said current position signal and a target position signal applied thereto; and

a control unit for totally controlling said actuators by means of a multiplex communication carried out between said control unit and each of the said actuators, said control unit issuing said target position signal to each of said actuators, wherein the multiplex communication means uses a serial signal having an address part for distinguishing instruction signals applied to the control circuit of said actuators.

5,803,356

THERMOSTAT BYPASS SYSTEM

George Robert Babinger, Vancouver, Canada, assignor to University of British Columbia, Vancouver, Canada

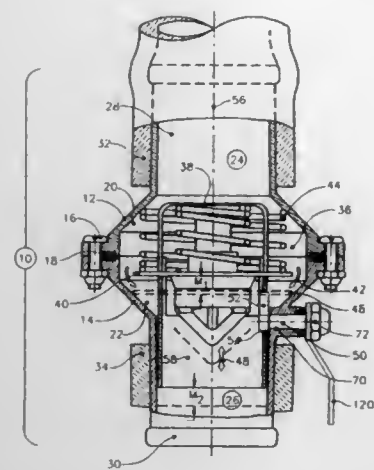
Filed May 5, 1997, Ser. No. 851,319

Int. Cl.⁶ F01F 7/16

U.S. Cl. 236—34.5

12 Claims

1. A thermostat bypass valve system comprising a housing defining a fluid flow passage between an inlet passage and an outlet passage, said fluid flow passage having a longitudinal axis and each of said inlet and outlet passages having longitudinal axes, means defining a fixed conical seat forming portion forming an annular seat in said fluid flow path in said housing, said conical seat forming portion having its conical axis concentric with said longitudinal axis at the location of said conical seat forming portion in said flow path, said annular seat extending circumferentially of said fluid flow passage, a thermostat having a circumferential flange with mating peripheral portion for cooperating with said annular seat, means mounting said thermostat in said fluid flow passage for movement in said fluid flow passage between a bypass closed position wherein said annular seat mates with said mating peripheral portion of said circumferential flange of said thermostat to form a seal around the circumference of said thermo-



stat and a bypass open position wherein said annular seat and said mating peripheral portion are separated, biasing means for urging said thermostat into said bypass closed position and a sleeve mounted for axial movement relative to said fluid flow passage and positioned with one axial end adjacent to said thermostat, means for axially moving said sleeve in one direction to displace said thermostat toward said bypass open position when said sleeve is in an extended position and to permit said biasing means to force said thermostat into said bypass closed position when said sleeve is fully retracted by movement in a direction opposite to said one direction.

5,803,357

THERMOSTAT WITH REMOTE TEMPERATURE SENSORS AND INCORPORATING A MEASURED TEMPERATURE FEATURE FOR AVERAGING AMBIENT TEMPERATURES AT SELECTED SENSORS

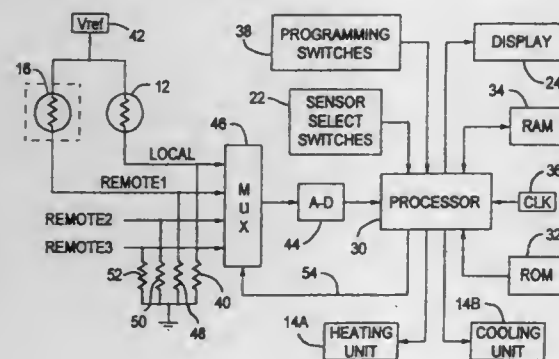
Brian Lakin, Elgin, Ill., assignor to Coleman Safety and Security Products, Inc., Downers Grove, Ill.

Filed Feb. 19, 1997, Ser. No. 801,346

Int. Cl.⁶ G05D 15/00; G01K 3/00

U.S. Cl. 236—78 B

4 Claims



1. A thermostat for controlling an environmental modification unit in accordance with differences between a reference temperature and a measured temperature comprising:

- setpoint means for establishing the reference temperature;
- at least two temperature sensors, at least one of which temperature sensors is remotely positioned with respect to said thermostat and one temperature sensor which is integral with the thermostat;
- sensor select switch means for selecting which temperature sensors are used by said averaging means to obtain the average measured temperature;

D) processing means for developing an average measured temperature and for comparing the averaged measured temperature to a current reference temperature to generate control signals based on the difference therebetween for selectively controlling the environmental modification unit, said processing means including:

- a processor;
- program entry means coupled to said processor for establishing the current reference temperature;
- analog switch means for selectively coupling voltages representative of the ambient temperatures sensed only by temperature sensors selected by said sensor select switch means to said processing means; and
- an analog-to-digital converter coupled to periodically receive voltages representative of temperatures measured by the temperature sensors selected by said sensor select switch means from said analog switch means, said analog-to-digital converter converting each voltage applied thereto to a digital count and providing the digital count to said processor for use in developing the averaged measured temperature;

E) said processor summing said digital counts received during each period to obtain a total digital count and dividing the total digital count by the number of temperature sensors selected by said sensor select switch means to establish an average digital count representative of the average measured temperature which is compared to the digital value representative of the reference temperature to determine the difference therebetween.

5,803,358

AIR CONDITIONER FOR MOTOR VEHICLE

Anton Ruettinger, Wildflecken, Germany, assignor to Preh-Werke GmbH & Co. KG, Bad Neustadt, Germany

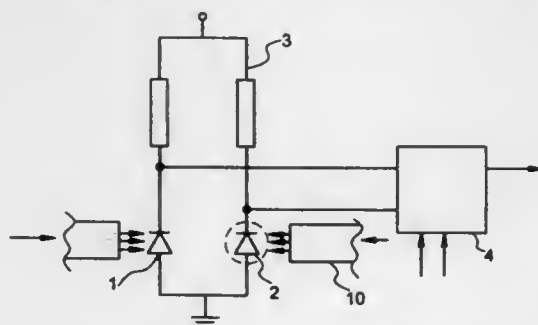
Filed Mar. 14, 1996, Ser. No. 616,010

Claims priority, application Germany, Mar. 14, 1995, 195 09 164.7

Int. Cl.⁶ G05D 23/00; H01J 40/14

U.S. Cl. 236—91 C

11 Claims



1. A regulating apparatus for a motor-vehicle air conditioning system which automatically influences a cab temperature set by a vehicle operator dependent upon sunshine striking the vehicle, wherein, the regulating apparatus includes a daylight measuring means for measuring daylight brightness and an intensity of an infrared portion of daylight and a control means for influencing the cab temperature as a function of the daylight brightness and the intensity of the infrared portion of the daylight.

5,803,359

DEVICE FOR GENERATING A FOG

Alfons Vandoninck, Duerne, Belgium, assignor to Jaico, Opgla-beek, Belgium

PCT No. PCT/BE94/00090, § 371 Date Jul. 3, 1996, § 102(e)

Date Jul. 3, 1996, PCT Pub. No. WO95/14981, PCT Pub.

Date Jun. 1, 1995

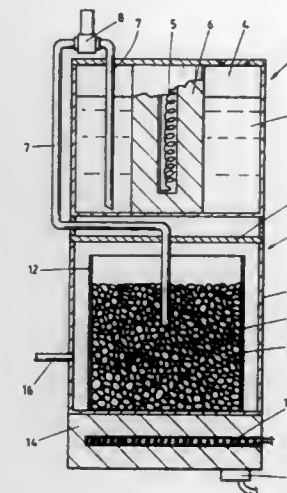
PCT Filed Nov. 24, 1994, Ser. No. 648,189

Claims priority, application Belgium, Nov. 24, 1993, 09301293

Int. Cl.⁶ H05B 3/48; G08B 15/02

U.S. Cl. 239—2.1

20 Claims



20. A method for generating fog, wherein a mixture of alcohols and a liquid contained in a pressurized vessel is heated to a first temperature so as to evaporate said liquid and to force said alcohols to flow to a heat exchanger at a second temperature above said first temperature for evaporating said alcohols to generate an alcohol vapor, whereafter vapor is expelled from said heat exchanger to give fog.

5,803,360

APPARATUS FOR PROVIDING ENHANCED SPRAY CAPABILITIES FOR A GRAVITY-FED SPRAY GUN

Max W. A. Spitznagel, 13207 Warren Ave., Los Angeles, Calif. 90066

Filed Nov. 27, 1995, Ser. No. 563,207

Int. Cl.⁶ B05B 7/30

U.S. Cl. 239—345

8 Claims

1. An apparatus for providing enhanced spray capabilities for a gravity-fed spray gun, said spray gun extending along a spray gun plane, a spray gun nozzle axis extending along said spray gun plane, comprising:

a swivel joint assembly for connecting said spray gun to a fluid cup having a fluid cup central axis, said swivel joint assembly providing rotation of said fluid cup about a fluid cup offset axis, said fluid cup offset axis being perpendicular to said fluid cup central axis, said fluid cup offset axis being along said spray gun plane, the position of said offset axis being defined by the intersection of said fluid cup central axis and said spray gun plane, wherein said swivel joint assembly, comprises:

- nipple having external threads on each end thereof, a first end for fastening to internal threads in said spray gun body;
- a first banjo fitting rotatably mounted about the periphery of said nipple, said first banjo fitting having an orthogonal extension with external threads on the end thereof;
- a first cup nut fastened to a second end of said nipple for rotatably mounting said first banjo fitting to said nipple;
- a first seal for sealing said first banjo fitting relative to said nipple;
- a second seal for sealing said first banjo fitting relative to said first cup nut;

5,803,361

FUEL INJECTOR FOR INTERNAL COMBUSTION ENGINES

Shigeaki Horiuchi, and Takeshi Tokumaru, both of Fujisawa, Japan, assignors to Isuzu Motors Limited, Tokyo, Japan

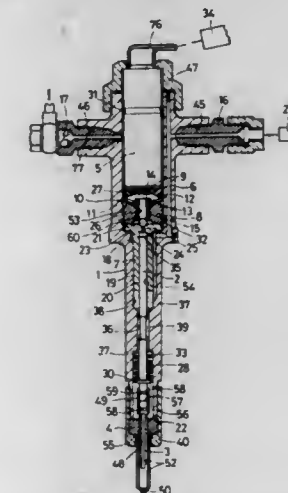
Filed Feb. 6, 1997, Ser. No. 796,427

Claims priority, application Japan, Feb. 13, 1996, 8-048463

Int. Cl.⁶ F02M 47/02

U.S. Cl. 239—88

7 Claims



1. A fuel injector for internal combustion engines, comprising an injector body provided with fuel injection ports, a needle valve

adapted to be lifted in said injector body and open said injection ports, a control piston joined to said needle valve and adapted to control a sliding movement of said needle valve, a fuel chamber formed in said injector body so as to store a fuel therein, a return spring provided in said fuel chamber and adapted to urge said needle valve in said fuel port closing direction, a piezoelectric element adapted to be displaced in accordance with voltage variation so as to control the lift of said control piston, and a displacement increasing mechanism adapted to increase the displacement of said piezoelectric element so as to lift said needle valve, and transmit the resultant displacement to said control piston,

wherein said displacement increasing mechanism comprises a pressure member fixed to said piezoelectric element and provided on its outer circumferential surface with projecting portions having points of application of a displacement force, a hollow support member fixed in the interior of said injector body provided with fulcrum projecting portions, a lift member provided liftably in a hollow portion of said support member, and a disc spring set between said pressure member and said support member with an inner circumferential end portion thereof engaged with said lift member.

5,803,362

ULTRASONIC AEROSOL APPARATUS

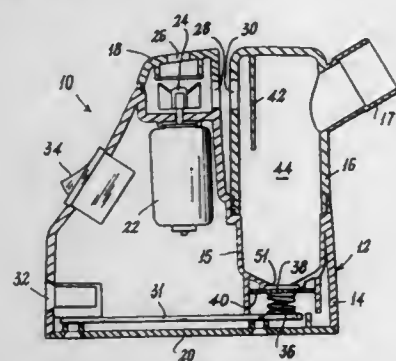
Nicola Fraccaroli, Brescia, Italy, assignor to Miat S.p.A., Milan, and MED 2000 Srl, Brescia, both of Italy
Filed Apr. 18, 1996, Ser. No. 634,270

Claims priority, application Italy, Aug. 3, 1995, MI95A1717

Int. Cl.⁶ B05B 17/06

U.S. Cl. 239—102.2

17 Claims



15. An ultrasonic aerosol apparatus comprising:
an oscillator circuit;
a piezoelectric element having a temperature, the piezoelectric element being connected to a transistor via a capacitor, and
a protective device responsive to the temperature of the piezoelectric element, said protective device reducing power to the oscillator circuit as the temperature of the piezoelectric element increases and increasing power to the oscillator circuit as the temperature of the piezoelectric element decreases.

5,803,363

LIQUID SPRINKLER HAVING A HEMISPHERICAL HEAD WITH A PATTERN OF NOZZLE OPENINGS

Shunji Matsumura, Hirakata; Keiichi Fujimoto, Toyonaka, and Hiroshi Ota, Kobe, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
Filed Oct. 25, 1994, Ser. No. 329,578

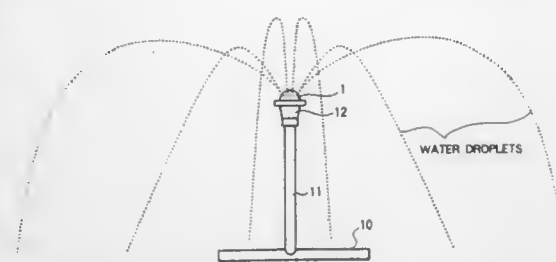
Claims priority, application Japan, Nov. 2, 1993, 05-274673; Jun. 30, 1994, 06-150141; Jun. 30, 1994, 06-150151

Int. Cl.⁶ B05B 1/14

U.S. Cl. 239—200

10 Claims

1. A liquid sprinkler for sprinkling a desired soil area, said sprinkler comprising:



a rise pipe upstanding generally perpendicularly above said desired soil area;
an upwardly protruding sprinkler head at an upper end of said rise pipe, said head being of substantially hemispherical shape with a vertex on the surface thereof in substantial alignment with a central axis of said rise pipe; said substantially hemispherical shaped head having a symmetrical center lying on said central vertical axis;
a plurality of nozzle openings in said head arranged in a pattern in relation to said vertex, said nozzle openings having longitudinal axes which, when extended, project radially outward from said symmetrical center, said nozzle having a diameter selected from a range of 0.1 mm to 2 mm;
all the nozzle openings in said head which are spaced a greater distance from said vertex having a greater diameter than all nozzle openings positioned close to said vertex.

5,803,364

AXIALLY SEPARABLE SELF-CLEANING NOZZLE

Javier Martin, Utmarksvägen 27, Gävle S-802 91, Sweden
PCT No. PCT/SE94/00648, § 371 Date Dec. 8, 1995, § 102(e)
Date Dec. 8, 1995, PCT Pub. No. WO95/01227, PCT Pub. Date Jan. 12, 1995

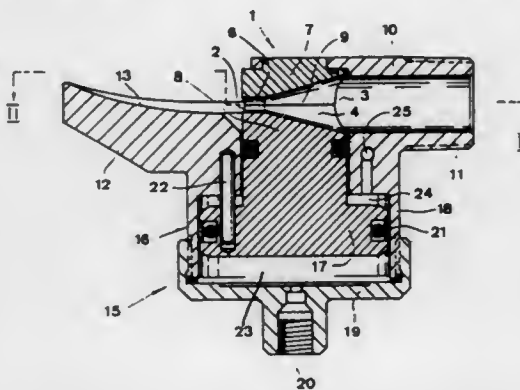
PCT Filed Jun. 30, 1994, Ser. No. 557,041

Claims priority, application Sweden, Jul. 2, 1993, 9302283

Int. Cl.⁶ B05B 15/02

U.S. Cl. 239—107

16 Claims



1. A nozzle device comprising a liquid spraying nozzle (1) including an outlet (2), an inlet (3) and a liquid nozzle passage (4) extending between the inlet and the outlet, said passage (4) being defined by at least two tapering nozzle parts (7,8) movable relative to each other, said parts being adapted to be moved away from each other by a relative movement so as to widen the passage, at least one of the parts (7,8) being movably received in a body (10) of the device, wherein

the parts (7,8) are movable relative to each other in a substantially rectilinear path of movement, the rectilinear path extending substantially transversely to the liquid flow path through the nozzle (4);
wherein at least one of the parts (7,8) is movable by a power-exerting mechanism (15) adapted to exert power for widening the passage independently of pressure and flow conditions of the liquid passing the nozzle.

5,803,365

FLOATING ROTATING SPRINKLERS

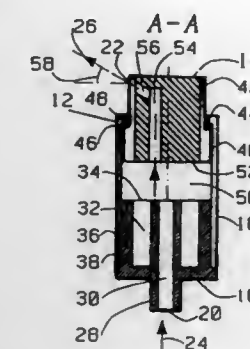
Gideon Rutenberg, 81-465 Date Palm Ave., Indio, Calif. 92201

Filed Aug. 6, 1996, Ser. No. 692,507

Int. Cl.⁶ B05B 15/10

U.S. Cl. 239—204

10 Claims



1. A rotating pulsating floating sprinkler for irrigation comprising:

(a) a rigid round cylinder having at least one fluid inlet and at least one fluid outlet in which:
said fluid outlet from said cylinder is in fluid communication with said fluid inlet to said cylinder
said cylinder has a round shoulder at its bottom
said fluid outlet of said cylinder is located at a distance from said shoulder at said bottom of said cylinder
said fluid outlet from said cylinder is formed at a distance and direction from the center of said cylinder such that fluid that flows into said cylinder through said fluid inlet and out through said fluid outlet will create a rotation momentum for rotating said cylinder around its axis

(b) a rigid round casing having:

a fluid inlet in one side
a flat inside top with a hole at its center, whereby the diameter of said hole is larger than the outside diameter of said cylinder and smaller than the outside diameter of said round shoulder

(c) a pulsating device with a fluid inlet and a fluid outlet which intermittently ejects jets of fluid through its outlet during operation

(d) a confined space formed inside said casing and said fluid outlet from said pulsating device

(e) said cylinder that is inserted inside said space so that it can freely move up and down inside said space and through said round hole in said casing so that:
at the highest position of said cylinder inside said space said shoulder of said cylinder is engaged and pressed against said flat top of said casing at the highest position of said cylinder inside said space said fluid outlet from said cylinder is located outside said casing

(f) one jet of fluid which flows from said fluid outlet of said pulsating device through said fluid inlet of said casing into said confined space causes:

said cylinder to freely move up inside said space
said cylinder to rotate as the fluid flows into said cylinder and out through said fluid outlet of said cylinder while said cylinder floats and moves up inside said space

said space to become pressurized and said cylinder to move to its highest position inside said space; then, said shoulder of said cylinder is engaged and pressed against said flat top of said casing, said fluid flows from said space through said fluid inlet of said cylinder, and ejects through said fluid outlet of said cylinder

(g) between each two consecutive pulses no fluid flows out from said outlet of said pulsating device and:

the pressure of fluid inside said space drops
said round shoulder disengages itself from said flat top

said cylinder freely moves inside said space, terminating one cycle of the pulsating floating rotating sprinkler, during which said cylinder is rotated a fraction of a circle and ejects pulse of fluid

(h) several such pulsating cycles cause said cylinder to complete a full round

(i) when said pulsating device is not in operation, said cylinder moves down inside said space to its lowest position.

5,803,366

MULTI-PORT DISTRIBUTION AXLE

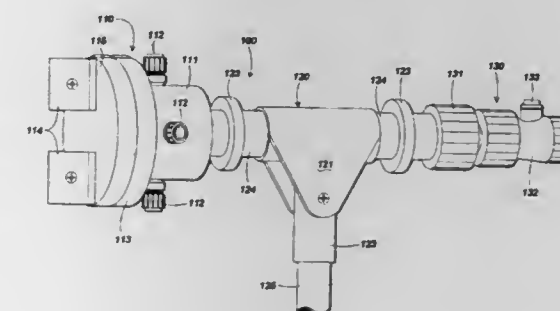
Anthony J. Musso, 300 Norwood Ave., Bessemer, Ala. 35020

Filed Oct. 22, 1996, Ser. No. 734,928

Int. Cl.⁶ B05B 3/06

U.S. Cl. 239—251

4 Claims



1. A multi-port axle assembly for directing and channeling liquids or dry chemicals under pressure from a single source to a plurality of outlet ports or spray nozzles rotating about the axis of the assembly comprising:

a hub means comprising:

a hub member having,
a wheel means and,
flexible tubing members attached to one or more of said outlet ports for supplying propulsion fluid and/or spray to a variety of rotatable mechanisms attached to said hub means;

a support assembly attached to said hub means comprising:

a support sleeve for receiving and slidably supporting,
a rotatable supply nipple; and,
a rotatable coupling assembly attached to said support assembly comprising:

an adapter for receiving one end of said rotatable supply nipple and,
a coupling member for releasable and rotatable leak-tight pressure connection with said adapter and for connection with a liquid or dry chemical supply means.

5,803,367

SPRAY GUN

Tony Heard; Andrew Edge; Anthony John Bate; Rowland Charles Smith, all of Dorset, and Neville Thomas Pettit, Lymington, all of United Kingdom, assignors to ITW Limited, United Kingdom

PCT No. PCT/GB95/00275, § 371 Date Jul. 30, 1996, § 102(e)
Date Jul. 30, 1996, PCT Pub. No. WO95/22409, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 10, 1995, Ser. No. 682,777

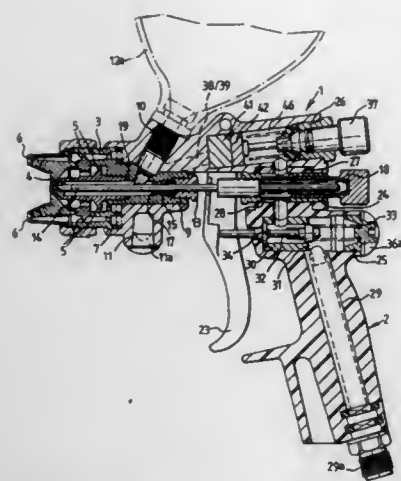
Claims priority, application United Kingdom, Feb. 18, 1994, 9403110; Dec. 8, 1994, 9424821

Int. Cl.⁶ B05B 7/02

U.S. Cl. 239—296

15 Claims

1. A spray gun comprising an aluminum gun body, and a



sprayhead made of a plastics material permanently secured to said gun body.

5,803,368

AERATOR FOR WATER TAPS

Avraham Shekalim, Neshet, Israel, assignor to Agroteam Consultants Ltd., Migdal Haemek, Israel

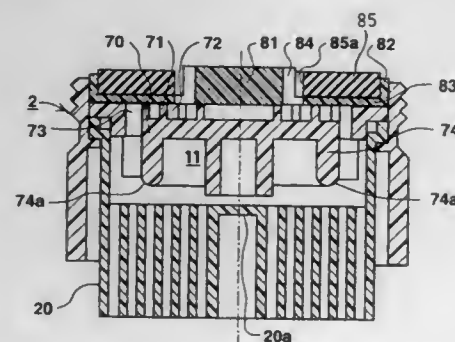
Filed Dec. 28, 1995, Ser. No. 579,992

Claims priority, application Israel, Dec. 29, 1994, 112194; Nov. 27, 1995, 116151

Int. Cl.⁶ E03C 1/08

U.S. Cl. 239—428.5

16 Claims



1. An aerator for attachment to a water tap, comprising:
 - a housing having an inlet attachable to the water tap for receiving water therefrom, and an outlet through which the water is discharged;
 - a labyrinth disc carried by said housing and having an inlet face facing the housing inlet, an outlet face facing the housing outlet, and a plurality of labyrinth passageways leading from said inlet face to said outlet face for reducing the water pressure at the outlet face of the labyrinth disc;
 - each of said plurality of labyrinth passageways including a radial flowpath extending in the radial direction of the housing for a major part of the length of the respective passageway, and an axial flowpath directly connected to said radial flowpath in the respective passageway and extending in the axial direction of the housing for a minor part of the length of the respective passageway;
 - a water-air mixing chamber at the outlet face of the labyrinth disc;
 - and an air passageway leading from externally of the housing to said mixing chamber for drawing air into the mixing chamber for mixing with the water therein;
 - said radial flowpaths extending radially from a first area on the inlet face of the disc facing the housing inlet to a second area thereon;

said axial flowpaths extending axially through the disc at said second area thereof to the outlet face of the disc;

said radial flowpaths being defined by a non-flat surface formation on said inlet face of the disc, and a flat closure disc overlying and in contact with said non-flat surface formation;

said closure disc being formed with a circular array of inlet holes therethrough leading from its inlet face facing the housing inlet into said labyrinth passageways, and including an elastomeric ring over the inlet face of the closure disc partially overlying said inlet holes and deformable such as to decrease their effective cross-sectional areas with increasing water inlet pressure.

5,803,369

ACCUMULATOR FUEL INJECTION DEVICE

Tatsuya Toyao, Kariya; Shuichi Matsumoto, Oobu; Masashi Murakami, Toyokawa; Yukihisa Arakoma, and Masatoshi Kuroyanagi, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

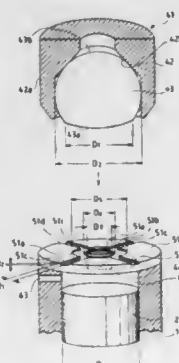
Filed Jul. 26, 1996, Ser. No. 686,774

Claims priority, application Japan, Jul. 26, 1995, 7-190464

Int. Cl.⁶ F02M 51/02

U.S. Cl. 239—533.8

34 Claims



33. A fuel supply system for supplying fuel toward an internal combustion engine, said fuel supply system comprising:
 - an accumulator accumulating high-pressure fuel;
 - a control piston controlling opening and closing of a fuel supplying hole;
 - a pressure control chamber urging said control piston in a direction to affect a closing of said fuel injection hole using fuel accumulated by said accumulator;
 - a restrictor hole formed between a low-pressure space and said pressure control chamber; and
 - a control valve controlling communication between said low-pressure space and said pressure control chamber, said control valve comprising:
 - a valve structure formed with said restrictor hole, said valve structure having a valve seat and a valve member constructed and arranged to engage one another, said valve member and said valve seat defining a tight contact region therebetween when said valve seat and said valve member are engaged;
 - an annular groove passage formed in said valve structure such that said annular groove is disposed in said tight contact region and communicates with said low-pressure space when said valve seat and said valve member are engaged, and
 - a wall separating said annular groove passage and said restrictor hole from each other, said wall having a thickness smaller than an inner diameter of said restrictor hole.

5,803,370

FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

Rudolf Heinz, Renningen; Roger Potschin, Brackenheim, and Friedrich Boecking, Stuttgart, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

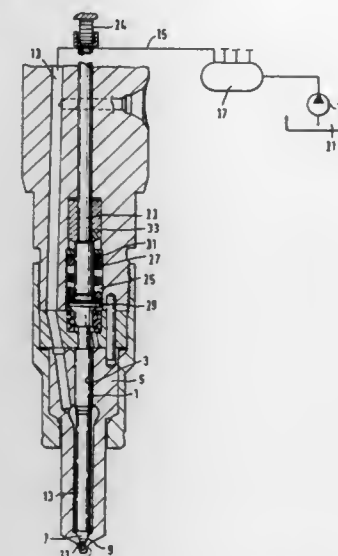
Filed Dec. 6, 1996, Ser. No. 761,589

Claims priority, application Germany, Dec. 9, 1995, 1 95 46 033.2

Int. Cl.⁶ F02M 63/00

U.S. Cl. 239—533.9

20 Claims



1. A fuel injection valve for injecting fuel into a combustion chamber of an internal combustion engine, comprising a valve body (5), a valve member (1) guided axially displaceably in said valve body (5), said valve member includes a sealing face (7) provided on an end toward the combustion chamber, said sealing face cooperates with a valve seat face (9) provided on the valve body (5) in order to control an injection port (11), an end of the valve member away from the combustion chamber is coupled to a piezoelectric final control element including a piezoelectric stack (24), a length of said piezoelectric stack is adjustable under an influence of a control voltage for actuating the valve member (1) to a partial open intermediate position and to a maximum open stroke position, and during a stoppage in the intermediate position of the valve member (1) between a closing stroke position and the maximum opening stroke position, a damping member (33) in a damping chamber acts on the valve member to control the stroke motion.

5,803,371

INJECTION NOZZLE

Tamotsu Sugiyama; Haruhide Tanaka; Kenichi Okabe, all of Tomakomai; Takayuki Ishihara, Okazaki; Yasuhiro Kishi, Yotsukaidou, and Toyofumi Kanamaru, Sagami, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota; Toyota Motor Hokkaido Inc., Tomakomai, and Spraying Systems Japan Co., Tokyo, all of Japan

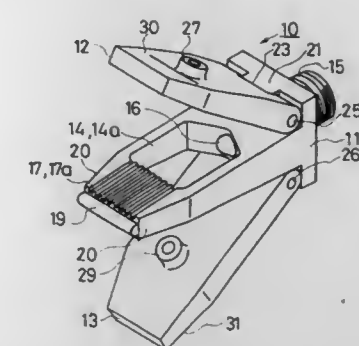
Filed Nov. 7, 1996, Ser. No. 744,459

Int. Cl.⁶ B05B 1/14

U.S. Cl. 239—555

5 Claims

1. An injection nozzle comprising:
 - a nozzle body,
 - an opening formed through top and bottom sides of said nozzle body,
 - an inlet passage communicating with the inside of said opening, at least two one-row-grooves formed on said top and bottom sides of said nozzle body respectively and extending from said opening towards outside, and



5,803,372

HAND HELD ROTARY ATOMIZER SPRAY GUN

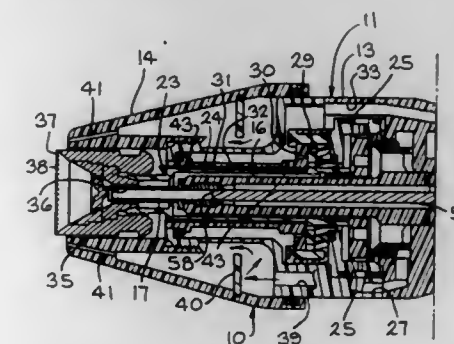
Richard Weinstein, Toledo, Ohio, and David M. Seitz, Temperance, Mich., assignors to Asahi Sunac Corporation

Filed Apr. 3, 1997, Ser. No. 833,189

Int. Cl.⁶ B05B 3/02; 5/04

U.S. Cl. 239—703

16 Claims



1. A hand held rotary atomizer spray gun comprising, a housing having a front end and a rear end, a handle mounted adjacent said rear end of said housing, a paint supply tube mounted within said housing, said paint supply tube having a discharge nozzle at one end, a turbine assembly mounted within said housing, said turbine assembly including a rotatable shaft, an atomizing bell mounted on said rotatable shaft, said atomizing bell defining an opening for receiving said discharge nozzle of said paint supply tube, said turbine shaft mounting a turbine rotor, said housing and said turbine shaft defining a generally tubular bearing space for receiving bearing air, whereby said turbine shaft is supported by said bearing air during rotation of said turbine shaft, a bearing air passageway for supplying bearing air to said bearing space and a turbine air passageway for supplying turbine air to said turbine rotor for rotating said turbine shaft and said atomizing bell and an air shuttle assembly for stopping said turbine air when said bearing air supply is closed and opening said turbine air supply when said bearing air supply is open.

5,803,373

WATER-RESISTANT ROLL TOWEL DISPENSER

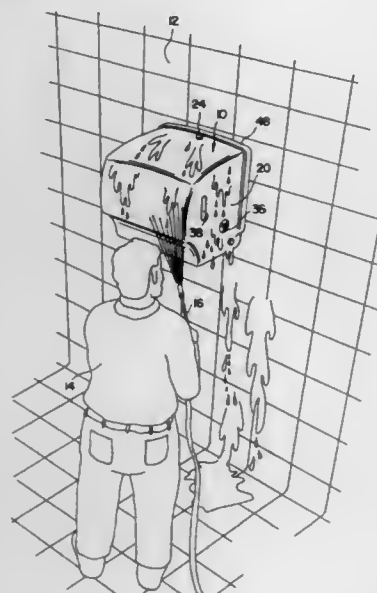
Ernest P. Sedlock, Jr., Marietta, Ga., and Robert M. Coggeshall, Meredith, N.H., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Mar. 10, 1997, Ser. No. 814,170

Int. Cl.⁶ B65H 16/00

U.S. Cl. 242—596.8

39 Claims



1. A water-resistant roll web dispenser comprising:
 - a back housing portion adapted to facilitate mounting of said dispenser to a mounting surface;
 - a front housing portion pivotally connected to said back housing portion, said front housing portion being closeable on said back housing portion to define a compartment and further defining a dispenser slot through which web product extends;
 - one of said front housing portion and said back housing portion defining a perimeter groove having opposed side walls and another of said front housing portion and said back housing portion defining a perimeter lip for receipt in said groove between said opposed side walls, said lip and groove mating to form a labyrinthine seal structure when said front housing portion is closed on said back housing portion; and
 - a support structure located in said compartment to rotatably support a roll of said web product.

5,803,374

BREAKDOWN TOOL

Heinrich Beckschulte, Salzkotten, Germany, assignor to Gebrueder Loedige Maschinenbaugesellschaft mbH, Paderborn, Germany

Filed May 29, 1997, Ser. No. 864,936

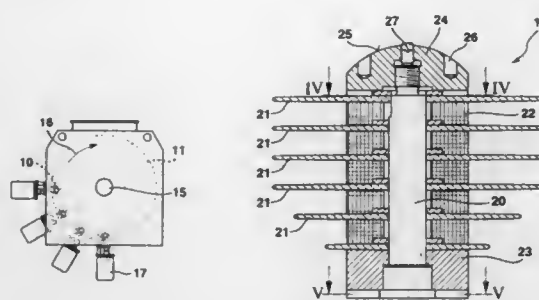
Claims priority, application Germany, Jun. 11, 1996, 196 23 217.1

Int. Cl.⁶ B02C 18/06; 18/18

U.S. Cl. 241—27

13 Claims

13. A method for breakdown of solid materials having fibrous constituents in a container using a breakdown tool means having a breakdown tool, the breakdown tool having a rotatable shaft with an outer girth, a first breakdown element disposed on the shaft, and a second breakdown element disposed on the shaft at a separation from the first breakdown element, the method comprising the steps of:



introducing the solid materials into the container in one of a batch and continuous fashion; and
 breaking-down the fibrous constituents to a maximum fiber length less than the outer girth of the rotatable shaft, wherein said shaft has an outer diameter greater than 80 mm and less than 130 mm.

5,803,375

VERTICAL MIXER

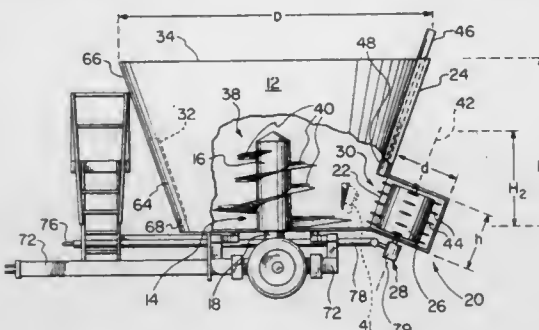
Gert Luthar Hartwig, Wetaskiwin, Canada, assignor to Alteen Distributors Ltd., Wetaskiwin, Canada

Continuation-in-part of Ser. No. 592,668, Jan. 26, 1996, abandoned. This application Mar. 25, 1996, Ser. No. 621,343

Int. Cl.⁶ B02C 18/08

U.S. Cl. 241—28

84 Claims



35. A method for the cutting, processing and discharge of material within an apparatus comprising a container having a first cutter rotating about a vertical axis, a housing having a radial opening thereto along a sidewall of said container, said housing having a second cutter rotating about a second substantially vertical axis, said method comprising the steps of:

- arranging a portion of said second cutter to project radially into said container;
- loading said material in bulk into said container;
- rotating said first cutter in a first direction to cut and rotate said material; and one of
 - (a) rotating said second cutter in a second direction thereby further cutting and processing said material within said container; and
 - (b) rotating said second cutter in a second direction while maintaining a discharge door on said housing in an open position.

5,803,376

CRUSHING MACHINE CONTROL SYSTEM FOR A SELF-TRAVELING CRUSHING MACHINE VEHICLE

Satoru Koyanagi; Katsuhiko Ikegami; Yukio Tamura; Toru Nakayama, and Yuji Ozawa, all of Kawasaki, Japan, assignors to Komatsu Ltd., Tokyo, Japan

PCT No. PCT/JP95/01437, § 371 Date Dec. 31, 1996, § 102(e)

Date Dec. 31, 1996, PCT Pub. No. WO96/02325, PCT Pub.

Date Feb. 1, 1996

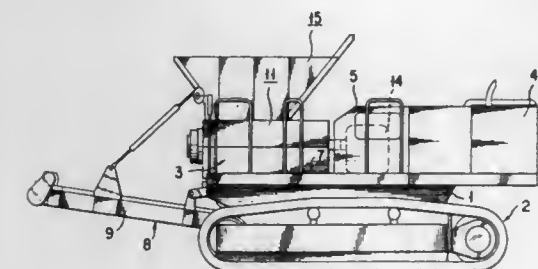
PCT Filed Jul. 19, 1995, Ser. No. 776,203

Claims priority, application Japan, Jul. 20, 1994, 6-167999

Int. Cl.⁶ B02C 25/00

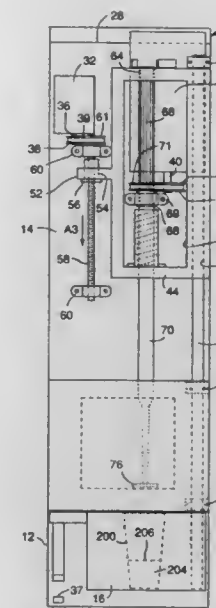
U.S. Cl. 241—36

6 Claims



1. A self-traveling crushing machine vehicle having mounted thereon a crushing machine driven by a single variable capacity type hydraulic motor, said self-travelling crushing machine vehicle including a control system comprising:

- a load sensor for detecting an inlet pressure of said hydraulic motor, said inlet pressure reflecting a magnitude of a load acting on said crushing machine; and
- a capacity controller for increasing a capacity of said hydraulic motor when the detected inlet pressure is greater than a predetermined value and for decreasing the capacity of said hydraulic motor when the detected inlet pressure is smaller than the predetermined value.



into a mixture of the ground substance formed by the grinding means and the liquid dispensed by the liquid dispenser.

5,803,378

ROTARY GRATER

Karen Wolters, Chicago, Ill., assignor to The Pampered Chef, Ltd., Addison, Ill.

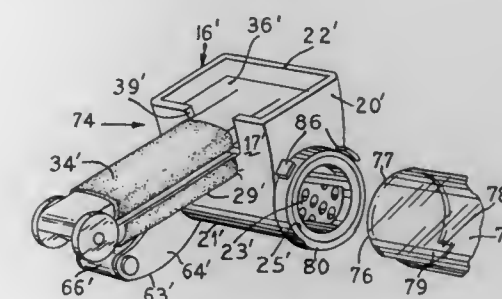
Continuation-in-part of Ser. No. 601,666, Feb. 15, 1996, Pat. No. 5,660,341. This application Aug. 26, 1997, Ser. No.

920,159

Int. Cl.⁶ B02C 19/20

U.S. Cl. 241—93

6 Claims



1. A grater for food products comprising:
 - a handle-equipped, integral housing defining both a hopper for receiving gratable food and an integral rotary drum cylindrical channel, said channel extending transversely across the bottom of said hopper, said channel having opposed channel ends that each extend outwardly from adjacent hopper portions, said channel ends each being exteriorly circumferentially rounded;
 - a hopper press plate and integral arm means, said arm means being hand graspable;
 - a drum having a cylindrical side wall that is perforated for grating and having a proximal end and an opposed distal end, said distal end having rim flange means, said proximal end having a threaded axial hub means, said proximal end being insertable into said channel from each said opposed ends;

5,803,377

APPARATUS AND METHOD FOR MAKING FROZEN DRINKS

James J. Farrell, Orinda, Calif., assignor to fReal! Foods, LLC, Orinda, Calif.

Division of Ser. No. 649,534, May 17, 1996. This application Feb. 5, 1997, Ser. No. 794,859

Int. Cl.⁶ B02C 19/12

U.S. Cl. 241—36

27 Claims

1. An apparatus for making frozen drinks from a frozen substance frozen into a cup, comprising:

- a housing;
- a cup support mounted to the housing;
- a liquid dispenser having an outlet positioned to direct liquid into a cup positioned in the cup support;
- grinding means for, when a cup containing a frozen substance is positioned in the cup support, grinding the frozen substance to form a ground substance; and
- aeration means for, when a cup containing a frozen substance is positioned in the cup support, causing air to be incorporated

a crank having a crank arm with opposite ends, a crank pin means at one said end, and a circumferentially threaded crank shaft means at the opposite said end, said crank having rim flange means located about said crank arm adjacent said crank shaft;

said crank shaft means being threadably engagable with said hub means, and, when so engaged, said crank pin means being hand turnable, thereby to revolve said drum in said channel; each of said channel ends being adapted to receive thereover slidably mouth-adjacent lip portions of a generally round mouthed-vessel;

said vessel mouth being further characterized by having a circumferentially elongated segment removed from a region of said mouth adjacent lip portions, thereby to define a segmental void adjacent to said mouth; and

said housing further defining on an exterior portion thereof adjacent to each of said channel ends aligning cam means for engaging said segmental void when said mouth-adjacent lip portions are so slidably received over either one of said channel ends.

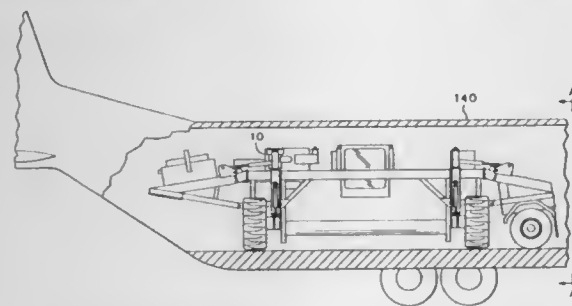
5,803,379

COMPOSTING APPARATUS

Bradley S. Glaze, 28100 North Fork Rd., Lyons, Ore. 97358
Continuation-in-part of Ser. No. 273,566, Jul. 11, 1994, Pat. No. 5,586,731, which is a continuation of Ser. No. 918,528, Jul. 21, 1992, abandoned. This application Jul. 30, 1996, Ser. No. 688,491

Int. Cl.⁶ B02C 21/02
U.S. Cl. 241—101.742

10 Claims



1. An improved apparatus for mixing and aerating a windrow of material comprising:

- a frame having a front, a rear, and first and second opposing sides;
- a plurality of wheels rotatably connected to the frame;
- means for driving at least one of said plurality of wheels;
- means for raising and lowering said frame relative to each said wheel;
- an elongate cylindrical drum journaled transversely in the frame;
- means drivably connected to the drum for rotating the drum;
- a cab mounted on said frame, said cab being operable between a raised position and a lowered position;
- a fifth-wheel member pivotably connected to the first side of said frame, the fifth-wheel member having a retracted position, an intermediate position for supporting the first frame side at a first height above an underlying surface, and an extended position for supporting the first frame side at a second height above an underlying surface; and

- a dolly assembly pivotably connected to the second side of said frame, the dolly assembly having a retracted position, an intermediate position for supporting the second frame side at a first height above an underlying surface, and an extended position for supporting the second frame side at a second height above an underlying surface.

5,803,380

TUB GRINDER

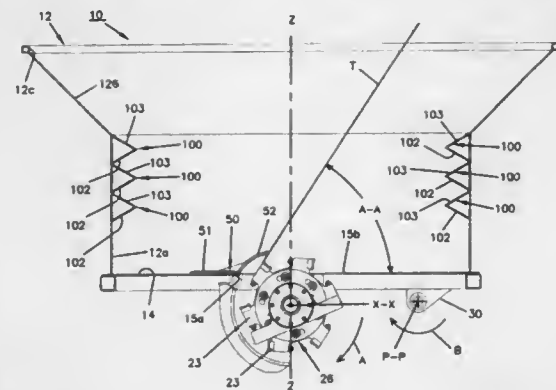
Ivan Ray Brand; Jeff Alan Fleenor, both of Pella, and Thomas Dean Ogle, Grinnell, all of Iowa, assignors to Vermeer Manufacturing Company, Pella, Iowa

Continuation-in-part of Ser. No. 642,054, May 3, 1996, abandoned. This application Nov. 13, 1996, Ser. No. 748,545

Int. Cl.⁶ B02C 13/286

U.S. Cl. 241—101.761

11 Claims



1. A tub grinder comprising:
 - a frame having a generally horizontal floor with a floor opening formed therethrough;
 - a tub mounted on said frame with a wall of said tub surrounding said floor opening, said tub having a lower end in close proximity to said floor, said tub having an opposite upper end defining a tub opening;
 - means for rotating said tub about a generally vertical axis;
 - a grinding member mounted on said frame, said grinding member mounted for rotation about a generally horizontal axis with at least a portion of a circumferential surface of said grinding member exposed through said floor opening, said circumferential surface rotating upwardly through said floor opening on a first side thereof and rotating downwardly through said floor opening on an opposite second side thereof;
 - a deflection plate secured to said floor and extending over said first side of said floor opening to partially cover said grinding member above said floor while leaving an exposed portion of said grinding member adjacent said second side of said floor opening; and
 - a deflection cover secured to said frame and positioned above said tub opening covering only a portion of said tub opening on a side thereof adjacent said second side of said floor opening.

5,803,381

Patent Not Issued For This Number

5,803,382

GYRATORY CRUSHER HAVING CORRUGATION-LIKE SEAL

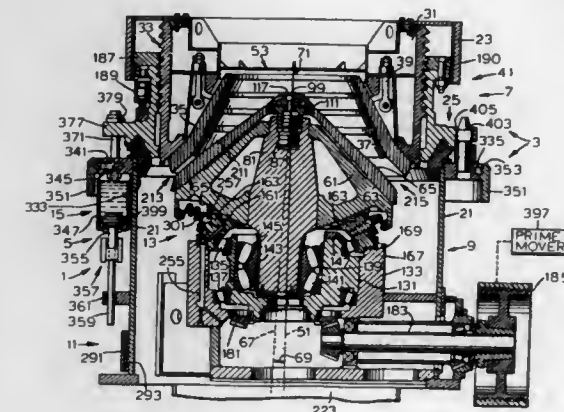
William A. Ganser, IV, Eugene, Ore.; Joseph E. Musil, Ely, Iowa; Donald W. Henry, Chelsea, Iowa; Mark Hunt, Cedar Rapids, Iowa; David A. Ostergaard, Cedar Rapids, Iowa; John C. Vendelin, Cedar Rapids, Iowa; Peter Alford, Cheshire, Ore.; Roger M. Clark, Springfield, Ore.; Jon Juhlin, Dexter, Ore.; James Mitchell, and Gerald E. Parker, both of Eugene, Ore., assignors to Cedarapids, Inc., Cedar Rapids, Iowa

Division of Ser. No. 617,346, Mar. 18, 1996. This application Jan. 21, 1997, Ser. No. 788,886

Int. Cl.⁶ B02C 2/04

U.S. Cl. 241—214

25 Claims



1. A gyratory crusher for crushing material, comprising:
 - (a) a lower frame portion;
 - (b) an upper frame portion supported by said lower frame portion;
 - (c) a bonnet supported by said upper frame portion, said bonnet having an upper opening for receiving the material;
 - (d) an eccentric member rotatably mounted in an encasement member;
 - (e) a crusher head having a lower peripheral portion;
 - (f) mounting means for pivotally mounting said eccentric member on said lower frame portion about a first axis spaced centrally and vertically relative to said lower frame member, and for pivotally mounting said crusher head on said eccentric member about a second axis spaced generally centrally and vertically relative to said lower frame portion wherein said second axis is angularly offset from said first axis and intersects said first axis above said crusher head and wherein a crushing chamber is formed between said crusher head and said bonnet, said mounting means permitting rotation of said lower peripheral portion relative to said encasement member and further permitting said lower peripheral portion to alternately approach and recede from said encasement member in response to rotation of said eccentric member;
 - (g) seal means for operably protecting said mounting means wherein said seal means includes a flexible member and a seal bearing having an outer race, an inner race and bearing balls captured therebetween; said flexible member having an outer edge secured to said crusher head and an inner edge secured to said outer race; said inner race secured to said mounting means said seal bearing permitting rotation of said flexible member relative to said encasement member in response to rotation of said crusher head lower peripheral portion relative to said encasement member; and
 - (h) drive means for rotating said eccentric member about said first axis.

5,803,383

METHOD FOR AVOIDING CONSTANT PATTERN WINDINGS IN WINDING YARN PACKAGES

Lothar Boekels, Mönchengladbach, Germany, assignor to W. Schalfhorst AG & Co., Mönchengladbach, Germany

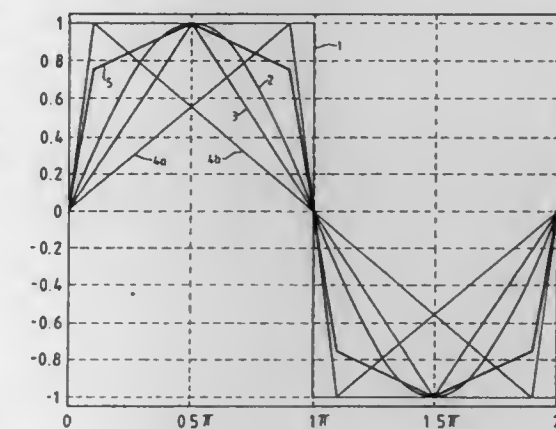
Filed Dec. 23, 1996, Ser. No. 772,694

Claims priority, application Germany, Dec. 22, 1995, 195 48 257.3

Int. Cl.⁶ B65H 54/38

U.S. Cl. 242—18.1

15 Claims



1. A method for avoiding constant pattern windings in the winding of yarn packages on a textile winding machine, comprising the steps of:

- traversing with a yarn guide at a traversing motion speed yarn being drawn onto a yarn package, and
- changing the traversing motion speed of the traversing yarn guide by accelerating the traversing yarn guide between an extreme maximum traversing motion speed and an extreme minimum traversing motion speed in accordance with a periodic disruption function, the periodic disruption function, when plotted against time in comparison with a sine function having the same amplitude and period, including:
 - at the arithmetic mean of said extremities, a slope having a magnitude greater than the corresponding magnitude of the slope of said sine function,
 - in an interval of time including a said extremity, a slope having a magnitude greater than the corresponding magnitude of the slope of said sine function, and
 - wherein, between each said arithmetic mean and the following extremity, the slope is changed at least once so that, between said change in slope and said interval of time, said periodic disruption function includes a slope having a magnitude that is less than the corresponding magnitude of the slope of said sine function.

5,803,384

CENTRIFUGAL CASTING CONTROL FOR FISHING REELS

Frank E. Epperson, 1235 S. Birch St., Apt. 505, Aurora, Colo. 80022

Filed Apr. 8, 1996, Ser. No. 629,341
Int. Cl.⁶ A01K 89/01

U.S. Cl. 242—234

18 Claims

8. A fishing line release mechanism comprising a rod, a reel mounted on said rod wherein a fishing line is wound upon a spool at one end of a drive shaft with first and second line pick-up members movable into and away from the path of advancement of said fishing line, said first line pick-up member movable out of the path of said fishing line in response to manual shifting of a casting control member, the improvement comprising:

release means mounted in said reel for retracting said second line pick-up member out of the path of said fishing line including a trip arm extending from said reel through an

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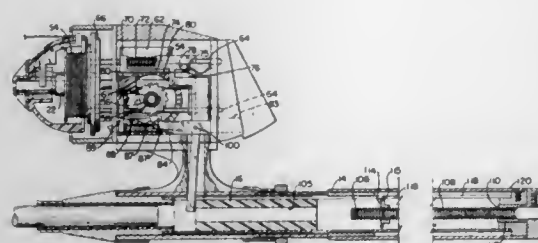
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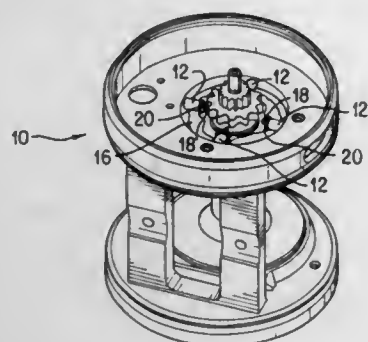
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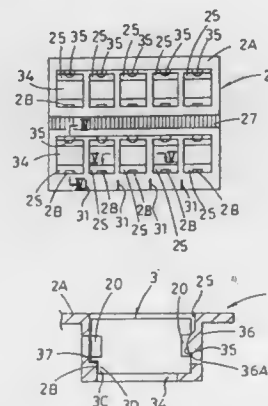
5,803,385
CENTRIFUGAL BRAKE SYSTEM FOR FISHING REEL
Eric Karl Baisch, Phila., Pa., assignor to Penn Fishing Tackle Manufacturing Company, Philadelphia, Pa.
Filed Jun. 20, 1997, Ser. No. 867,167
Int. Cl.⁶ A01K 89/0155
U.S. Cl. 242—289



1. In a centrifugally actuated brake system of a fishing reel, said system having a brake drum attached to said reel, a rotary member rotatably mounted in said reel, and a centrifugal brake means mounted on said rotary member and having at least one brake member radially slidably mounted thereto to engage said brake drum upon the rotation of said rotary member, the improvement comprising:

- a position maintaining and adjusting means mounted in said reel for engaging said brake member and affecting the radial position of said brake member with respect to said drum, without manual manipulation of the brake member; said position maintaining and adjusting means, comprising:
- an adjusting knob rotatably mounted in said reel and rotatable to a plurality of predetermined positions;
 - a shoulder on said brake member;
 - a cam surface means comprising a cam surface on said adjusting knob for engaging said shoulder and positioning said brake member radially by moving said member, and selectively either providing an impediment to the radial outward movement of said brake member or not impeding said radial outward movement; upon rotation of said knob; and
 - lock means to permit said knob to be rotated and to maintain said knob in said predetermined positions.

5,803,386
FILM CARTRIDGE CASE
Keigo Arimoto; Masayuki Kojima; Hisashi Negoro, and Takuya Yamamoto, all of Wakayama, Japan, assignors to Noritsu Koki Co., Ltd., Wakayama, Japan
Filed Sep. 12, 1996, Ser. No. 711,881
Claims priority, application Japan, Sep. 19, 1995, 7-240123; Oct. 13, 1995, 7-265711
Int. Cl.⁶ G03B 1/56
U.S. Cl. 242—332



1. A film cartridge case for holding and storing therein a plurality of film cartridges each having therein a barcode readout window, for use in an automatic film development processor apparatus, whereby undeveloped film sheets may be unloaded from the film cartridges, developed in a development unit of the automatic film development processor apparatus, and then reloaded back to the film cartridges, said case comprising:

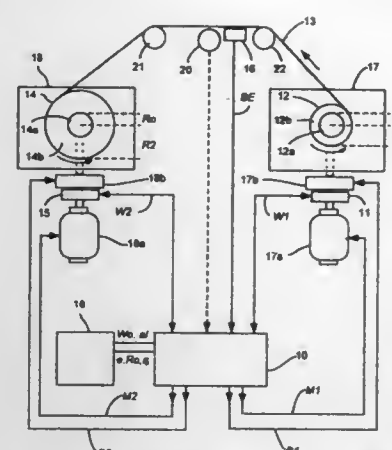
a plurality of pockets for receipt of respective film cartridges; and

each said pocket having an inner wall having on one side thereof a mispositioning preventing projection operable to engage the barcode readout window of a respective film cartridge when in a correct orientation and to prevent receipt of the film cartridge when in an incorrect orientation, and each said pocket having on another side of said inner wall thereof a resilient holding projection operable to fit into a center bore of a spool of the respective film cartridge and to resiliently hold the same in said pocket.

5,803,387
METHOD AND APPARATUS FOR THE QUICK REWINDING OF A RECORDING TAPE
Pilippe Macé, Kappel, Germany, assignor to Deutsche Thomson-Brandt GmbH, Germany
Continuation of Ser. No. 410,409, Mar. 3, 1995, abandoned, which is a continuation of Ser. No. 120,999, Sep. 13, 1993, abandoned. This application Nov. 21, 1996, Ser. No. 754,716
Claims priority, application Germany, Mar. 14, 1991, 41 08 340.7
Int. Cl.⁶ B65H 59/38; G11B 15/46
U.S. Cl. 242—334.4

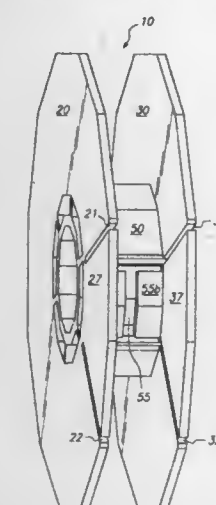
1. A method of rapidly transferring a recording tape from a first spool onto a second spool, said spools being driven by at least one motor, comprising the steps of:

increasing a rotational speed of said first spool in a tape unwinding direction, said tape being wound onto said second spool; measuring said rotational speed of said first spool; calculating a value representing a remaining unwinding time of said first spool based upon at least one stored parameter, a calculated value representing a number of windings remaining on said first spool, and said measured rotational speed; and, initiating deceleration of said first spool at a predetermined rate, when said remaining unwinding time is just sufficient to



complete a predetermined change of rotational speed to a predetermined non-zero rotational speed, said predetermined rate is selected to maximize deceleration while avoiding loop formation without use of mechanical braking means, said predetermined non-zero rotational speed is selected to permit mechanical braking from said non-zero rotational speed within a minimized time period without tape damage.

5,803,388
TAPE REEL WITH FLANGE SECTIONS FOR UNIFORM TAPE STACKING
George Saliba, Northboro, and Joseph Panish, Littleton, both of Mass., assignors to Quantum Corporation, Milpitas, Calif.
Filed Nov. 15, 1996, Ser. No. 749,598
Int. Cl.⁶ G03B 23/06
U.S. Cl. 242—348



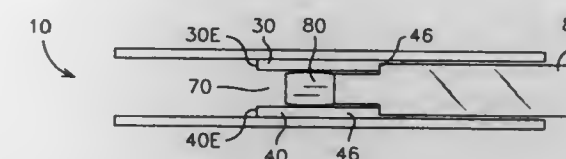
1. A reel for spooling tape uniformly thereon, the reel comprising:

a hub rotatably mounted about an axis of rotation;

two flanges, each flange having an outer surface and an inner surface, the flanges being located on opposite sides of the hub and being in spaced apart relationship along the axis of rotation, the inner surfaces of the flanges facing each other, the flanges extending outwardly from the hub in a diverging relationship with each other, each flange including at least one radial section, the at least one radial section being deflectable against a tape edge as the tape is spooled onto the hub to ensure uniform stacking of the tape; and

each radial section being defined by a pair of radially extending groove cutouts, each groove cutout having a first end defined substantially adjacent the hub and a second end defined at an outer diameter edge of the flange.

5,803,389
TAKE-UP REEL FOR MAGNETIC TAPE DATA SYSTEMS
Curtis Paul Gonzales, and Jeffrey S. McAllister, both of Boise, Id., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Aug. 27, 1997, Ser. No. 919,691
Int. Cl.⁶ G03B 1/58
U.S. Cl. 242—348.1



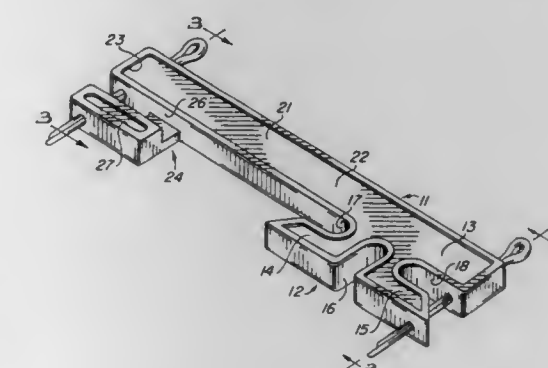
1. A recording tape take-up reel assembly, comprising:

an annular hub having a top, a bottom, an axis of rotation and a radial surface;

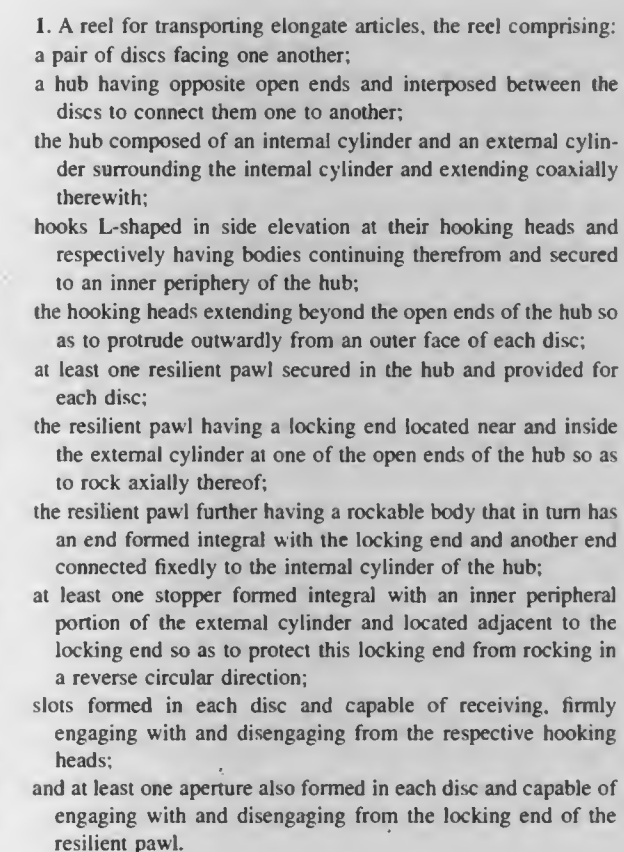
a first and second sub flange concentric with the annular hub, each sub flange having a top surface, a bottom surface and an outside circumferential edge surface, said edge surface adapted to have a tape wound thereon, and wherein the bottom surface of the first sub flange is concentrically attached to the top surface of the hub and the top surface of the second sub flange is concentrically attached to the bottom surface of the hub, wherein the hub and sub flanges are oriented and connected to form a leader block receptacle space; and

a first and second main flange concentric with the annular hub and the sub flanges, each main flange having a top surface and a bottom surface, wherein the bottom surface of the first main flange is concentrically attached to the top surface of the first sub flange and the top surface of the second main flange is concentrically attached to the bottom surface of the second sub flange.

5,803,390
LINE TIGHTENER
Thomas A. Clary, Pinal Ranch, Miami-Superior Highway, P.O. Box 2513, Globe, Ariz. 85502
Filed Aug. 21, 1997, Ser. No. 915,882
Int. Cl.⁶ B69H 77/00
U.S. Cl. 242—388.2



1. A line tightener comprising a rotatable mandrel having a transverse slot therein for receiving a line to be tightened, an elongated handle for rotating the mandrel and having a proximal end and a distal end, the proximal end of said handle being formed integral with said mandrel, the distal end of said handle having a line engaging stop thereon for preventing reverse rotation of the mandrel when the line has been tightened, and a removable retainer pin extending transversely through the distal end of the handle for preventing the stop from working free of the line.



5,803,402

SYSTEM AND METHOD FOR THE CONSTRUCTION OF SPACECRAFT STRUCTURES

Gary C. Krumweide; John Marks, both of Escondido; Chris Kingery, San Diego; John Richer, Carlsbad, and William Converse, Fountain Valley, all of Calif., assignors to Composite Optics, Inc., San Diego, Calif.

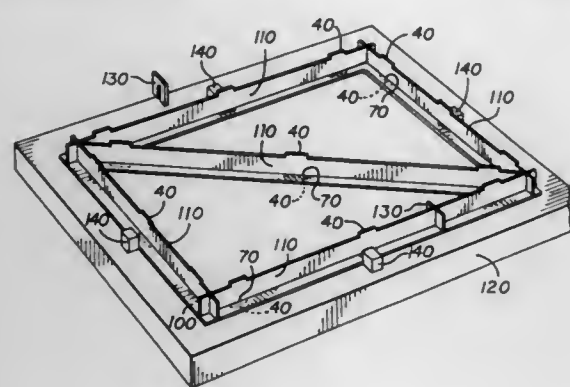
Continuation of Ser. No. 225,660, Apr. 11, 1994, abandoned.

This application May 13, 1996, Ser. No. 645,136

Int. Cl.⁶ B64C 1/06

U.S. Cl. 244—117 R

29 Claims



1. A structural member formed of multiple parts assembled together to form the structural member, the member comprising: first and second ribs each having a rigid tenon disposed along a longitudinal edge of each said rib, each of said ribs also having a first end and a second end, said first end having a slot extending inwards from the longitudinal edge of the first rib, the slot being formed such that said slots of the first and second ribs removably interlock;
- a third rib having a rigid tenon disposed along a longitudinal edge of the third rib;
- a flat plate having first, second and third mortises to receive the tenons of the first, second, and third ribs, respectively, the mortises being configured to receive the tenons such that each paired tenon and mortise form a friction fit so that the ribs and plate will remain temporarily assembled after the tenons have been inserted into the mortises, said third rib extending between said second ends of said first and second ribs to brace said first and second ribs and said flat plate; and
- adhesive means for permanently affixing the plate to the ribs.

5,803,403

Patent Not Issued For This Number

5,803,404

DOOR ACTUATION SYSTEM HAVING A VARIABLE DAMPING DEVICE

Anton A. Petrou, Lombard; Craig H. Scott, Prospect Heights; Stephen B. Warner, Evanston, and Jerry D. Hielkema, Franklin Park, all of Ill., assignors to MPC Products, Inc., Skokie, Ill.

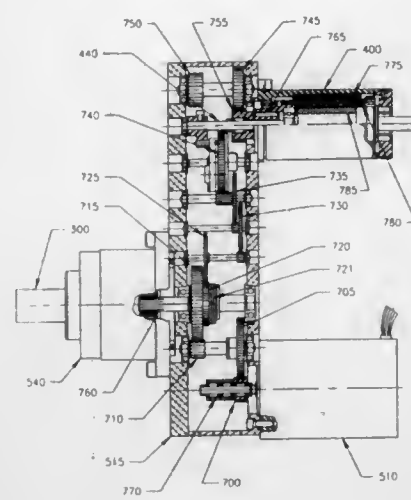
Filed Jan. 23, 1996, Ser. No. 590,121

Int. Cl.⁶ B64C 1/24

U.S. Cl. 244—129.5

20 Claims

1. A load damping system that provides a damping force for a load having a non-linear moment as it moves, the system comprising:



- a first set of magnets forming a cylindrical shape about a damper shaft, the first set of magnets having opposing north poles and opposing south poles;
- a conducting material laterally encircling the first set of magnets;
- a second set of magnets laterally encircling the conducting material, the second set of magnets having opposing north poles and opposing south poles; and
- a system of gears having an output shaft coupled to the load, the system of gears being coupled to the damper shaft, for controlling the rotation of the first set of magnets such that the first set of magnets is positionable relative to the second set of magnets.

5,803,405

EXPANDABLE AIRCRAFT SECTION

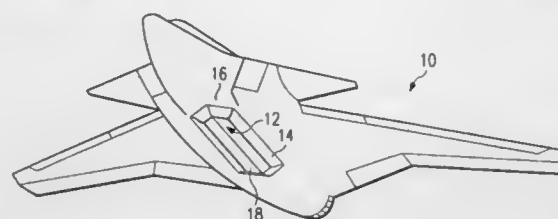
James R. Ellis, Carrollton, and Joseph B. Diller, Hurst, both of Tex., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Jun. 7, 1995, Ser. No. 484,127

Int. Cl.⁶ B64C 1/30; 1/38

U.S. Cl. 244—130

13 Claims



1. An expandable aircraft section, comprising: a rigid stationary aircraft portion defining an enclosed cavity having a perimeter;
- a rigid movable aircraft portion forming a closure of the cavity;
- an elastomeric transition section attached between the rigid stationary aircraft portion and the rigid movable aircraft portion about the entire perimeter of the cavity of the rigid stationary aircraft portion for permitting the rigid movable aircraft portion to move relative the stationary aircraft portion between a contracted position and an expanded position to increase the volume of the cavity.

5,803,406

INTEGRATED THERMAL INSULATION SYSTEM FOR SPACECRAFT

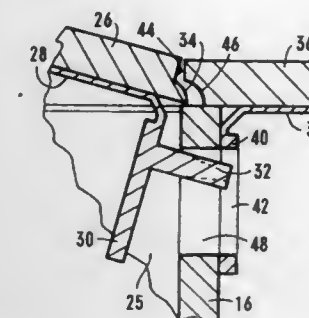
Paul Kolodziej, Redwood City; Jeff Bull, San Jose; Thomas Kowalski, Cupertino, and Matthew Switzer, Santa Clara, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 22, 1996, Ser. No. 656,144

Int. Cl.⁶ B64G 1/58

U.S. Cl. 244—158 A

10 Claims



1. A thermal protection system (TPS) for a spacecraft defining a front and a rear while in aerodynamic flight and having an external skin, the TPS comprising:

- a support frame attached to the skin of the spacecraft;
- at least a first thermally insulative panel positionable on the support frame, the first panel including a first edge;
- at least a second thermally insulative panel positionable on the support frame adjacent the first panel, the second panel including a second edge configured for interlocking engagement with the first edge of the first panel;
- at least one alignment pin on the second panel and engageable with the first panel to align and interlock the panels together; and
- at least one hold down fastener engageable with the support frame and the first panel to hold the first panel onto the frame.

5,803,407

APPARATUS AND METHODS FOR IN-SPACE SATELLITE OPERATIONS

David R. Scott, 1300-B Manhattan Ave., Manhattan Beach, Calif. 90266

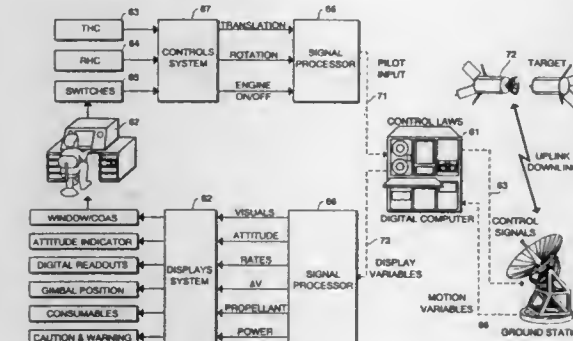
PCT No. PCT/US94/13052, § 371 Date Apr. 21, 1995, § 102(e) Date Apr. 21, 1995, PCT Pub. No. WO95/14611, PCT Pub. Date Jun. 11, 1995

Continuation-in-part of Ser. No. 152,459, Nov. 12, 1993, Pat. No. 5,511,748. This PCT application Nov. 14, 1994, Ser. No. 427,419

Int. Cl.⁶ B64G 1/24; H04B 7/155

U.S. Cl. 244—161

1 Claim



1. A ground control remote cockpit system for remotely controlling operations of an orbitable spacecraft comprising:

a cockpit system situated at a location remote from said spacecraft, said cockpit further including:

- (a) a guidance, navigation and control computer for said spacecraft, located in said cockpit remote from said spacecraft;
- (b) a spacecraft variables display system located in said remote cockpit, including a visual display for displaying signals down-linked through said computer from television camera means and motion sensor means onboard said spacecraft; and
- (c) control means adapted to be manually operated by a human pilot in said remote cockpit in response to displays on said display system, said control means including means to generate pilot input signals through said computer which provide control of attitude and velocity of said spacecraft, said pilot input signals up-linked to said spacecraft to control said spacecraft during operations of said spacecraft.

5,803,408

AUTOPILOT/FLIGHT DIRECTOR STALL PROTECTION SYSTEM

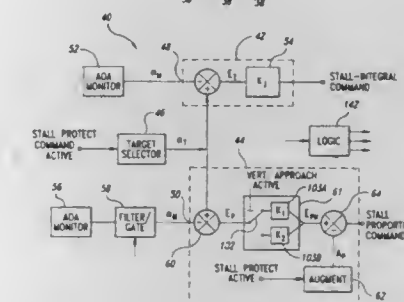
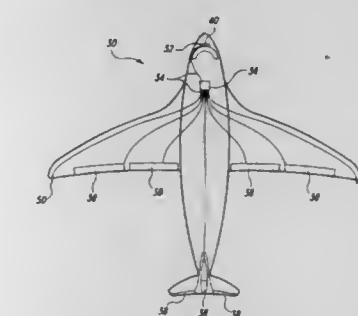
Mark E. Gast, Seabrook, Tex., assignor to The Boeing Company, Seattle, Wash.

Filed May 15, 1995, Ser. No. 441,683

Int. Cl.⁶ B64C 13/16

U.S. Cl. 244—178

17 Claims



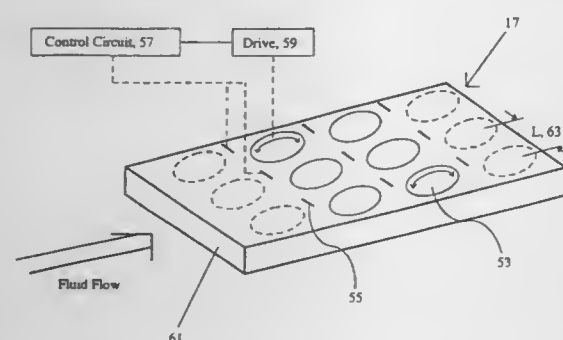
1. A method for preventing an aircraft under autopilot control from stalling, the autopilot establishing a set of flight control parameters to seek a selected flight condition of the aircraft, said method comprising the steps of:

- selecting a nominal maximum allowable angle of attack for the aircraft;
- selecting a trigger angle of attack above the nominal maximum allowable angle of attack;
- monitoring an actual angle of attack of the aircraft;
- comparing the actual angle of attack to the trigger angle of attack;
- if the actual angle of attack of the aircraft exceeds the trigger angle of attack, producing a first stall signal;
- supplying the first stall signal to an electronic flight controller; and
- in response to the first stall signal, overriding the set of flight control parameters with the flight controller by supplying a revised set of flight control parameters to seek a revised flight condition.

5,803,409
METHOD AND APPARATUS FOR REDUCING THE DRAG OF FLOWS OVER SURFACES
 Laurence R. Keefe, Mountain View, Calif., assignor to Nielsen Engineering & Research, Inc., Mountain View, Calif.
 Filed Jun. 6, 1996, Ser. No. 659,306
 Int. Cl.⁶ B64C 23/02

U.S. Cl. 244—206

19 Claims



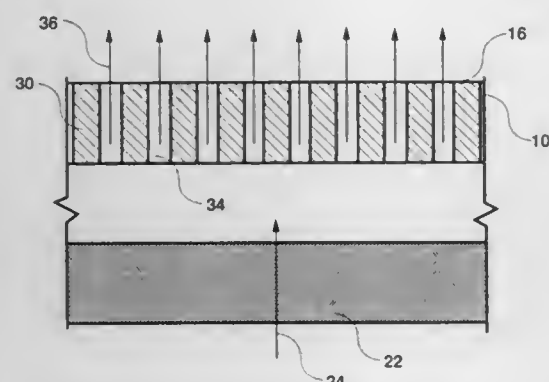
1. An apparatus for actively controlling a boundary layer over a surface comprising at least one actuator at scales less than a local boundary layer thickness positioned in a surface, the at least one actuator having a stationary part and a rotating part, wherein the rotating part rotates in the plane of the surface, wherein the rotating part has an axis of rotation that is substantially perpendicular to the surface, and wherein the at least one actuator is either embedded in the surface, or may extend above or be depressed below the surface to the extent it remains hydraulically smooth.

5,803,410
SKIN FRICTION REDUCTION BY MICRO-BLOWING TECHNIQUE
 Danny P. Hwang, Strongsville, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 1, 1995, Ser. No. 566,211
 Int. Cl.⁶ B64C 21/04; 21/06

U.S. Cl. 244—208

19 Claims



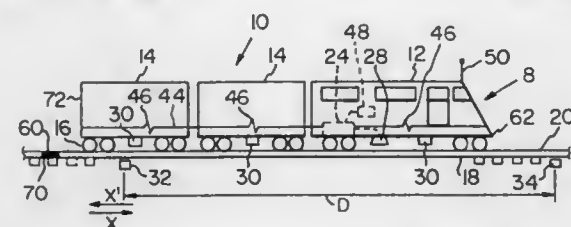
1. A system for reducing skin friction of an object in relative motion to an associated first fluid, said system comprising: a skin, said skin having attachment means to an outer surface of said object and forming a boundary between said object and the first fluid, said skin having holes therethrough and through which a second fluid is blown; and transmitting means for transmitting said second fluid through said holes in said skin at a rate not more than 0.042 lbm/s/sq-ft.

5,803,411
METHOD AND APPARATUS FOR INITIALIZING AN AUTOMATED TRAIN CONTROL SYSTEM
 Joseph R. Ackerman, West Mifflin; Kenneth A. Karg, Belle Vernon, and Angela C. Patel, Churchill, all of Pa., assignors to ABB Daimler-Benz Transportation (North America) Inc., Pittsburgh, Pa.

Filed Oct. 21, 1996, Ser. No. 734,120
 Int. Cl.⁶ B61L 3/02

U.S. Cl. 246—169 R

42 Claims



1. A vehicle initialization system for a vehicle control system, comprising:
 a vehicle to be initialized;
 a vehicle path adapted to coact with said vehicle;
 at least two spaced apart position identifiers positioned along said path, each of said position identifiers adapted to represent information identifying the location of said position identifier along said vehicle path;
 a reader attached to said vehicle and adapted to read information from said position identifier;
 a computer provided with said vehicle; and
 means for measuring the distance said vehicle has traveled interfaced with said computer, whereby when said vehicle passes said position identifiers, said position identifiers identify location information to said onboard reader which, in turn, relays the location information to said computer, so that said computer determines the vehicle direction of travel, calculates a distance between said position identifiers and calibrates said means for measuring the distance said vehicle has traveled, and said computer determines the orientation of said vehicle based upon information said computer receives from said means for measuring the distance said vehicle has traveled.

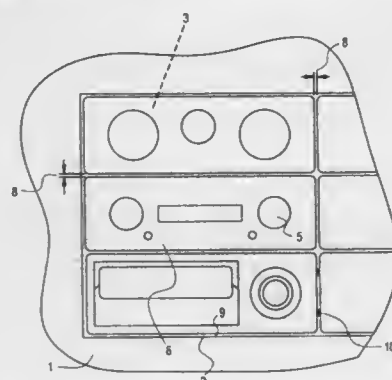
5,803,412
APPARATUS FOR MOUNTING A PLURALITY OF CONTROL ELEMENTS ON A VEHICLE DASHBOARD
 Joachim Storath, Bad Neustadt; Walter Voll, Sandberg, and Karl-Heinz Bauer, Bad Neustadt, all of Germany, assignors to Preh-Werke GmbH & Co. KG, Bad Neustadt, Germany
 Filed Aug. 5, 1996, Ser. No. 692,259

Claims priority, application Germany, Aug. 5, 1995, 195 28 868.8

Int. Cl.⁶ G12B 9/00

U.S. Cl. 248—27.1

10 Claims



1. Apparatus including a plurality of control elements for being mounted on a motor vehicle dashboard, with the control elements,

after they have been mounted, being framed and covered by at least one face plate, wherein:

each of the control elements includes a control element body and a spring attachment for springingly attaching the control element body of the control element to a fixed portion of the dashboard so that the control element body springingly moves against a spring bias relative to the fixed portion of the dashboard;
 the face plate includes an attachment member for mounting the at least one face plate on one of the control element bodies; said face plate includes spacers mounted thereon for being inserted between individual control element bodies and control element bodies and edges defined by the dashboard for causing the control element bodies to move against the bias of the spring attachment for determining spaces between individual control element bodies and control element bodies and edges defined by the dashboard.

5,803,413
CABLE TIE HAVING A STUD MOUNTABLE FASTENER
 James C. Benoit, Needham, and Clinton Noddin Matthews, Stoughton, both of Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Nov. 21, 1996, Ser. No. 753,155
 Int. Cl.⁶ F16L 3/00

U.S. Cl. 248—73

11 Claims



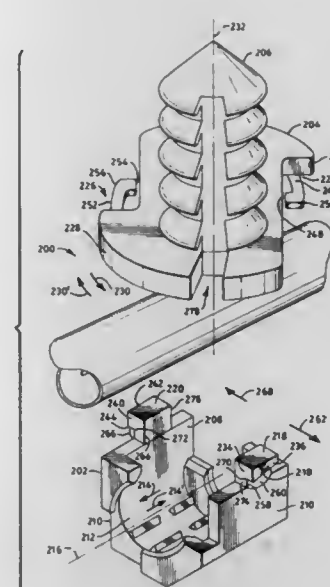
1. A cable tie for securing a cable to a mounting surface having a threaded stud attached thereto, said cable tie comprising:
 (a) an elongated strap having a first end and a second end,
 (b) a locking head integrally formed to the first end of said elongated strap, said locking head being adapted to cooperate with said strap to form a loop around the cable, and
 (c) a fastener coupled to said locking head for securing said cable to the mounting surface, said fastener comprising:
 i. a boss having a stud entry face, a stud exit face, an inner surface, an outer surface and a central bore, said central bore being sized and shaped so as to enable the threaded stud to extend therein, and
 ii. a plurality of flexible fingers formed to said boss, said fingers being disposed to project into said bore, each finger comprising an arm pivotally connected to said boss at the stud entry face and an engagement head formed to said arm for engaging the threaded stud, the arm of each of said fingers being biased to extend substantially parallel to the inner surface of said boss.

5,803,414
CABLE LOCATOR
 John O. Wright, 2710 St. Andrews Way, York, Pa. 17404
 Division of Ser. No. 688,569, Jul. 30, 1996, Pat. No. 5,601,262, which is a continuation of Ser. No. 412,628, Mar. 29, 1995, abandoned. This application Oct. 3, 1996, Ser. No. 725,370
 Int. Cl.⁶ F16L 3/08

U.S. Cl. 248—74.4

8 Claims

1. A cable locator comprising:
 a base having a first surface, at least one opposite second surface, and a cable-receiving channel formed by said first surface, said cable-receiving channel extending in the direction of a longitudinal axis of said base;
 a cover releasably attachable to said base for enclosing said cable-receiving channel in a closed mode and exposing said cable-receiving channel in an open mode;
 said base including a first flanged member located at one side of said cable receiving channel and a second flanged member



located at an opposite second side of said cable receiving channel, and further wherein said cover includes a first groove at one edge of said cover and a second groove at an opposite edge of said cover, said first flanged member mating with said first groove and said second flanged member mating with said second groove, in said closed mode;

said first flanged member comprising a first leg having a first tapered surface and said second flanged member comprising a second leg having a second tapered surface, said first tapered surface and said second tapered surface extending generally in the direction of said longitudinal axis, and further wherein said first groove comprising a first arm which includes a first tip at a distal end of said first arm, and said second groove comprises a second arm which includes a second tip at a distal end of said second arm, said first arm and said second arm extending in a circumferential direction relative to a longitudinal axis of said cover, said first tip and said second tip extending in the same direction relative to said circumferential direction; and
 a locating element forming a part of one of said base and said cover.

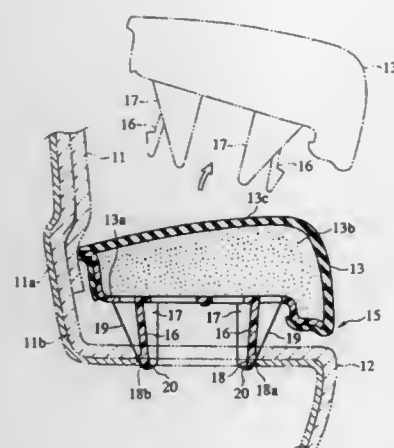
5,803,415
ARM REST DEVICE FOR VEHICLES
 Masaaki Konishi, and Masaru Onishi, both of Kanagawa-ken, Japan, assignors to Nissan Motor Co., Ltd., Kanagawa-ken, Japan

Filed Jan. 9, 1997, Ser. No. 780,922
 Claims priority, application Japan, Jan. 11, 1996, 8-003148
 Int. Cl.⁶ B68G 5/00

U.S. Cl. 248—18

6 Claims

1. An arm rest device comprising:
 an interior member adapted to be mounted on a side wall of a passenger room of a vehicle, the interior member having an arm rest body projecting inside the passenger room;
 a placed member on an upper surface of the arm rest body; and
 an engagement mechanism for releasably engaging the placed member and the arm rest body so that when a primary collision from a lateral side of the vehicle imposes a secondary collision load of a passenger on the arm rest body, the



placed member is released from engagement with the arm rest body and separated from the arm rest body.

5,803,416

HAND, WRIST AND/OR LOWER ARM SUPPORT PAD AND ASSEMBLIES

Alden B. Hanson, Boulder; David W. Claus, Longmont, and Philip C. Corbett, Westminster, all of Colo., assignors to Alden Laboratories, Inc., Boulder, Colo.

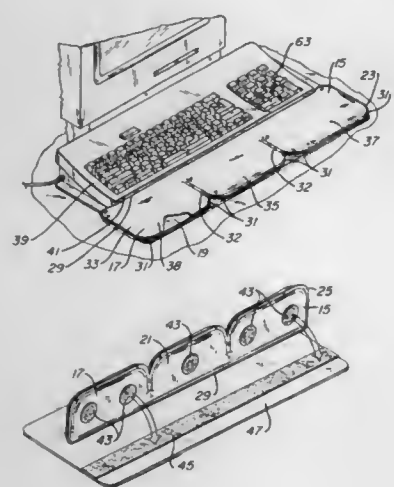
Continuation of Ser. No. 418,017, Apr. 6, 1995, abandoned.

This application Aug. 18, 1997, Ser. No. 912,796

Int. Cl.⁶ B43L 15/00

U.S. Cl. 248—118

18 Claims



1. A hand, wrist or lower arm support pad for use by an operator of a manually manipulable device maintained at a utilization surface, said support pad comprising:

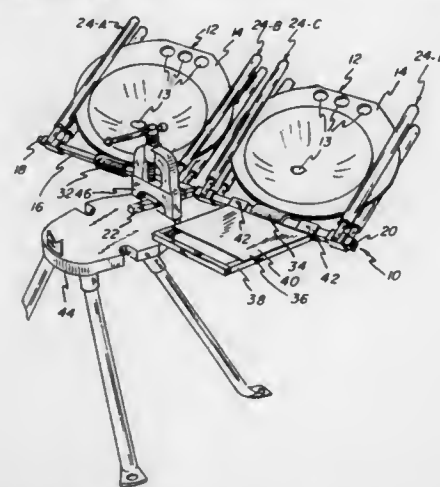
an enclosure formed by first and second flat flexible material sheets each having an outer edge defined thereby and extending therearound, said first and second sheets joined to one another at said outer edges thereof thus defining a containment area;

position retention structure applied to a portion of said first material sheet to enable retention of said enclosure at a selected location relative to one of the operator and the device, said portion of said first material sheet having an exposed surface area less than half that of said first material sheet of said enclosure; and a flowable pressure compensating composition exhibiting a non-constant shear rate to shear stress ratio in said containment area of said enclosure.

5,803,417
PORTABLE APPARATUS FOR SUPPORTING A SINK
James E. McNamara, 521 Reading Dr., and Joseph A. Gibson, 1722 Lexington Ave., both of Springfield, Ohio 45505
Filed Feb. 6, 1997, Ser. No. 796,895
Int. Cl.⁶ A47G 23/02

U.S. Cl. 248—149

19 Claims



17. An apparatus for supporting a sink having a laterally extending peripheral flange portion, said apparatus comprising:

an elongated horizontal support bar having opposing ends, said support bar including four flat sides defining a square cross section;

a mounting bar rigidly attached to said support bar substantially centrally between said ends and extending perpendicular relative to said support bar, said mounting bar extending at an obtuse angle relative to at least two of said flat sides;

a pair of sink support members supported on said support bar in spaced relation to each other;

each said sink support member comprising an engagement portion for engaging said support bar and a bifurcated arm portion extending from said engagement portion and comprising a pair of spaced, substantially straight arm members extending in parallel relation to each other for receiving a peripheral flange portion of a sink therebetween; and said engagement portion of each said sink support member and said support bar including cooperating means releasably holding said support members to said support bar whereby said support members are selectively movable to a plurality of lateral locations along said support bar to adjust the spacing between said pair of sink support members.

5,803,418

CONVERTIBLE STRUCTURAL ELEMENT

Serge Bringolf, La Chaux-de-Fonds, and Alain Burri, Conches/Genève, both of Switzerland, assignors to BBD, S.A., La Chaux-de-Fond, Switzerland

Filed Apr. 13, 1995, Ser. No. 422,506

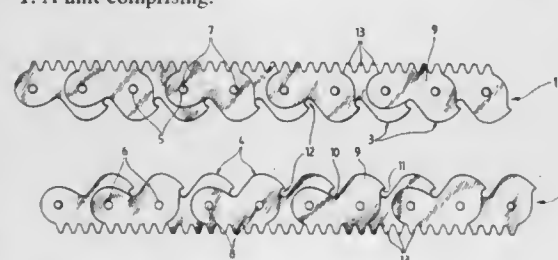
Claims priority, application Switzerland, Apr. 14, 1994, 01117/94

Int. Cl.⁶ E04H 12/18

U.S. Cl. 248—158

9 Claims

1. A unit comprising:



a structural element including:

two link chains capable of assuming a disassembled configuration wherein said chains are independent and flexible, and an interlocked configuration wherein said chains are interconnected to form a rigid beam,

each of said chains including a row of a plurality of partially overlapping links, and pins having axes extending orthogonally to said links and pivotally connecting successive links to one another, said row extending lengthwise along said element when said element is in said interlocked configuration, each of said links of said row having first and second opposing bearing points, the first bearing point of the n-th link of said row interacting with the second bearing point of the n-1-th link of said row for trapping one of said pins of the other chain when said chains are in said interlocked configuration, the links of said row of one of said chains each including a series of teeth having bearing surfaces extending in planes that are substantially parallel to said axes of said pins, such that, in said interlocked configuration, teeth at each of the extremes of said series of teeth on each of said links are in overlapping side-by-side relationship with the teeth at an extreme of the series of teeth of an adjacent link of said row, wherein said teeth project in a lengthwise continuous manner from one side of said chain for forming a gear rack along the length of said chain;

a chassis (14a, 14b);

three rolling members (17a, 17b and 17c) rotatable mounted on said chassis, a first (17a) of these rolling members being toothed for interacting with the teeth (13) of said row of links of said one of the chains of said structural element for longitudinal translation of said structural element relative to said chassis,

a drive motor (18) coupled to said first rolling member, the second and third of said rolling members (17b, 17c) being in contact with the side of the second of said chains that is positioned opposite to the side of the other chain from which said teeth project.

5,803,419

SUPPORT DEVICE FOR MEASURING SENSOR

Christophe Nicot, Annecy, France, assignor to The Torrington Company, Torrington, Conn.

Continuation of Ser. No. 454,991, May 31, 1995, abandoned.

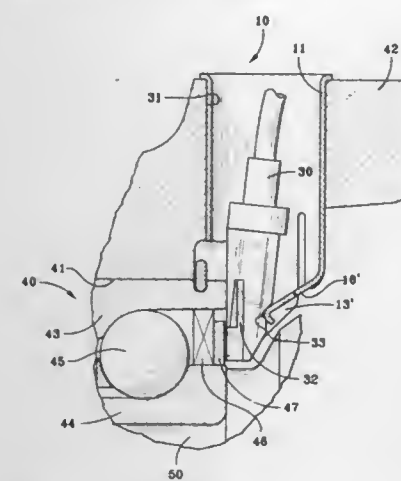
This application Dec. 6, 1996, Ser. No. 761,238

Claims priority, application France, Mar. 31, 1995, 95 03801

Int. Cl.⁶ F16L 3/08

U.S. Cl. 248—224.7

3 Claims



1. A support device in combination with a sensor including a groove, the support device to be received within a mounting hole, the combination comprising:

a securing sleeve having a wall that is provided with resilient securement means for locking said securing sleeve in said

mounting hole and axial retention elastic means for retaining said sensor in said securing sleeve, said elastic means respectively formed by at least one blocking finger and at least one elastic retention finger that are cut out from a metal plate that is subsequently rolled to form a substantially cylindrical configuration in which said at least one retention finger and said at least one blocking finger are connected to the wall, so that said at least one blocking finger is adapted to extend axially beyond the mounting hole, and a positioning rib that cooperates with the groove of the sensor to orientate the sensor in the securing sleeve.

5,803,420

UNIVERSAL SIGN MOUNTING DEVICE

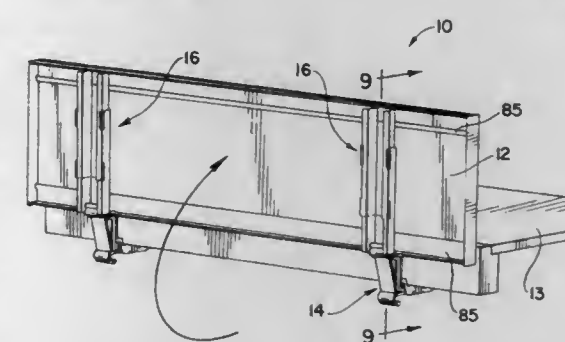
Thomas M. Conway, Chicago, and Scott Padiak, Winnetka, both of Ill., assignors to Cormark, Inc., Rosemont, Ill.

Filed Mar. 13, 1996, Ser. No. 614,470

Int. Cl.⁶ G09F 7/08

U.S. Cl. 248—231.41

18 Claims



1. A device for removably attaching a sign to a shelf, the device comprising:

a bracket to removably attach the device to the shelf, wherein the bracket includes an interchangeable pivot portion and lock portion;

a mount to support the sign to the device and which removably connects to the bracket so that the sign can rotate upwardly and downwardly about the pivot portion, the mount further comprising

a first elongated element to connect the mount to the bracket; a second elongated element slidably connected to the first elongated element to allow the mount to telescope to support signs of varying sizes.

5,803,421

CUP HOLDER WITH A HOUSING INTEGRATED INTO A CENTER CONSOLE OF A PASSENGER CAR

Wolfgang Kerner, Bondorf, and Peter Seifert, Weil der Stadt, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Sep. 16, 1996, Ser. No. 714,485

Claims priority, application Germany, Sep. 16, 1995, 195 34 435.9

Int. Cl.⁶ A47K 1/08

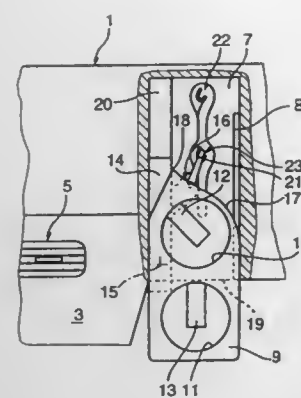
U.S. Cl. 248—311.2

20 Claims

1. A cup holder which is installable into a center console of a passenger car, comprising:

a housing having a linear guide;

a supporting carriage which is disposed in the housing and is movable out of the housing via the linear guide along a limited moving range, and which has receiving devices for two beverage containers, said supporting carriage being movable into a first operating position of the moving range, in which only an individual beverage container can be accommodated, and a second operating position of the moving range, in which both beverage containers can be accommodated; and



a supporting arm which is movable and guided linearly along the movement range;
wherein the supporting carriage has a stable one-piece frame in which two recesses are arranged as the receiving devices and which is arranged on said supporting arm in such a manner that, in the moving range between the first and the second operating position, the frame can additionally be swivelled about a swivel pin horizontally relative to the supporting arm.

5,803,422

TOOL AND PARTS TRAY

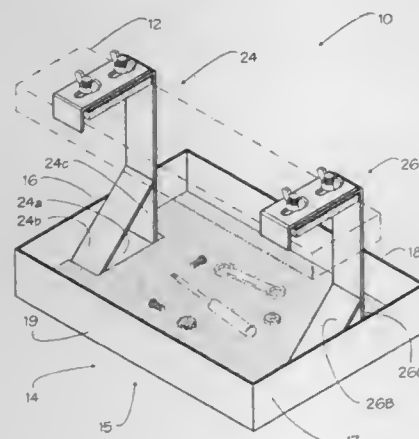
Dieter Buehler, 13303 Judah Ave., Hawthorne, Calif. 90250

Filed Apr. 30, 1997, Ser. No. 847,131

Int. Cl.⁶ B42F 13/00

U.S. Cl. 248—339

15 Claims

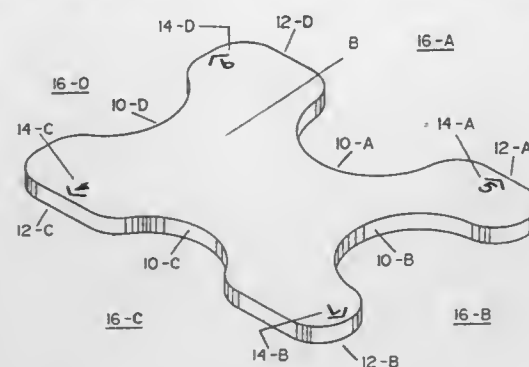


15. A tool and parts tray apparatus comprising:
a shallow generally rectangular configured tray member formed of bent and welded sheet metal and having a bottom and opposite pairs of sides;
first and second generally identical elongate suspension members formed of sheet metal bent and welded to said bottom and to an opposite pair of sides of said tray member;
said suspension members having the lower ends thereof triangularly configured to provide a base portion of the triangle for affixing to said bottom, and for affixing to said sides a leg portion perpendicular to the bottom and a hypotenuse portion providing bracing to said leg;
said leg portion extending generally perpendicularly from said tray and having adjustable L-shaped attachment means at the distal ends thereof for adjustable attachment to various sized support beams of a vehicle lift; and
said tray having means for enabling retention of tools and parts within said tray.

5,803,423
DEVICE FOR SPACING FURNITURE FROM A WALL
Joano W. Harrell, 6117 Indian Hill Rd., Orlando, Fla. 32808
Filed Sep. 17, 1996, Ser. No. 718,064
Int. Cl.⁶ A47B 97/00

U.S. Cl. 248—345.1

11 Claims



1. A device for maintaining a particular spacing, selected from a plurality of spacings, between an item and a wall-like surface, comprising:

a substantially flat body having a top surface and a bottom surface and a plurality of pairs of parallel sides;
each of said sides comprising a different sized incurvate void positioned between disparate arms wherein said incurvate voids are inset in an alternating pattern from said pairs of parallel sides by a predetermined amount whereby the shape of the device is asymmetric;

and wherein said incurvate voids form a first abutment surface for said item on a first side of one of said pairs of parallel sides, and said disparate arms form a second abutment surface of said wall-like surface on a second side of said pair of parallel sides, and said first and second sides are invertible whereby the amount of spacing between said item and said wall-like surface may be changed by various positioning of said device.

5,803,424

ADJUSTABLE HANGER FOR MOUNTING AN ANTI-GLARE FILTER ON A MONITOR

Donald L. Keehn, Healdsburg, and David L. Soberanis, Camarillo, both of Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

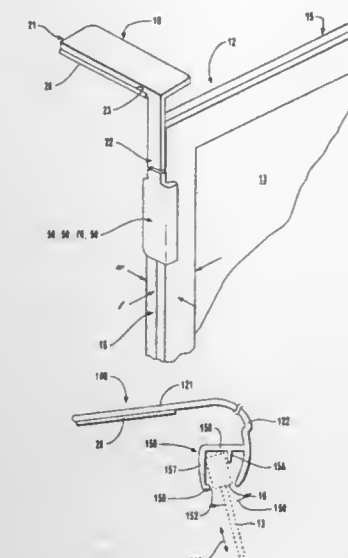
Continuation of Ser. No. 561,609, Nov. 21, 1995, abandoned, which is a continuation-in-part of Ser. No. 227,298, Apr. 13, 1994, abandoned, which is a continuation of Ser. No. 724,427, Jul. 3, 1991, abandoned. This application Nov. 13, 1997, Ser. No. 969,382

Int. Cl.⁶ A47G 1/16

U.S. Cl. 248—489

14 Claims

1. A hanger comprising (a) an elongated first leg member and (b) an elongated second leg member adapted for sitting on a top surface of an article such as a monitor and joined to the first leg member forming a generally L-shaped configuration such that when the second leg member rests on top of the monitor, the first leg member depends downward from the second leg member along the front of the monitor; and (c) a snap clamp joined to the first leg member, the snap clamp being adapted for holding a member such as a bezel of an anti-glare filter to orient the plane, of the filter



generally vertically along the monitor in front of the viewing screen or face of the monitor.

5,803,425

WALL HANGING DEVICES AND METHODS

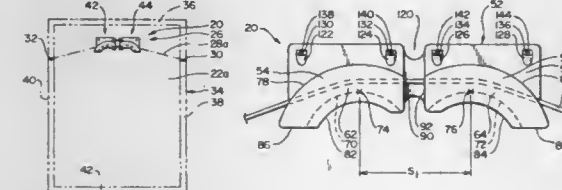
Charles A. McCoy, II, 1635 Huntley Rd., Bellingham, Wash. 98226

Filed Feb. 24, 1997, Ser. No. 803,690

Int. Cl.⁶ A47G 1/16

U.S. Cl. 248—493

13 Claims



1. A device for hanging one or two framed works on at least one vertical surface, where each framed work comprises a cord, the device comprising:

a backing plate having front and rear surfaces; and
slot structure extending from the front surface of the backing plate and having first and second structure portions having first and second rear surface portions, respectively; wherein
a first slot portion is defined between the first rear surface portion of the slot structure and the front surface of the backing plate;

a second slot portion is defined between the second rear surface portion of the slot structure and the front surface of the backing plate;

a first juncture line is formed where the first rear surface portion of the slot structure engages the front surface of the backing plate, the first juncture line having a first point of inflection;
a second juncture line is formed where the second rear surface portion of the slot structure engages the front surface of the backing plate, the second juncture line having a second point of inflection;

the first and second juncture lines are curved such that they contain portions that extend downwardly from either side of the first and second points of inflection;

the backing plate has a reduced dimension portion between the first and second structure portions to allow the device to be separated by the end user into first and second device portions, where the first slot portion is defined by the first device portion and the second slot portion is defined by the second device portion; and

the device may be used in

a first mode to suspend a single framed work in which the device is not separated into the first and second device portions, where the device is attached to a vertical surface and the cord of the framed work engages the first and second slot portions defined by the device,

a second mode to suspend a single framed work in which the backing plate is separated into the first and second device portions, where the first and second device portions are attached to a vertical surface at horizontally spaced locations and the cord of the framed work engages the first and second slot portions defined by the first and second device portions, and

a third mode to suspend two framed works in which the backing plate is separated into the first and second device portions, where the first and second device portions are attached to one or more vertical surfaces at spaced locations and the cord of one of the framed works engages the first slot portion defined by the first device portion and the cord of the other of the framed works engages the second slot portion defined by the second device portion.

5,803,426

LOCKING FOOTING SOCKET TO IMPROVE POST IMPLANTATION

James Fowler Hart, Lot 8, Gemvale, Mudgeeraba, Queensland 4213, Australia

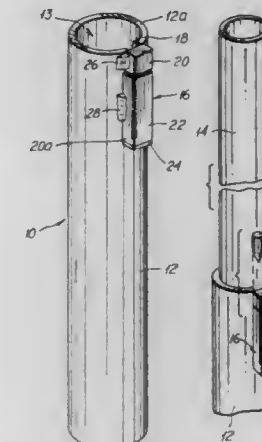
Filed Jul. 24, 1995, Ser. No. 506,076

Claims priority, application Australia, Jul. 25, 1994, PM7027; Sep. 28, 1994, 74259/94

Int. Cl.⁶ F16M 13/00

U.S. Cl. 248—523

11 Claims

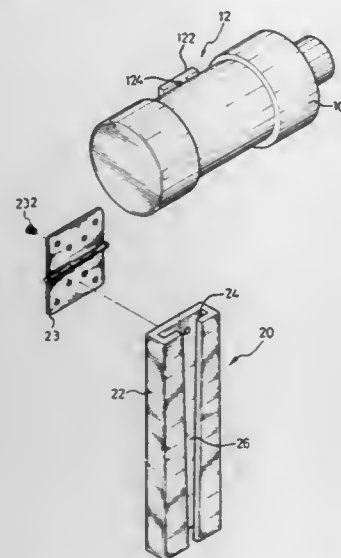


1. A post support socket in which an end portion of a post is supportable for securement by a wedge member; wherein the post support socket has an elongate body in which a longitudinal bore extends from an inlet end of the body; the body includes a peripheral wall having an internal surface defining the bore; the peripheral wall defines a slot which extends longitudinally from the inlet end of the body and which along the length of the slot opens to the bore; and the peripheral wall has a laterally offset portion which bridges the slot over part of the length of the slot from the inlet end of the body with the slot extending longitudinally beyond the offset portion; the offset portion forms part of a sub-assembly which defines a chamber exteriorly of the peripheral wall whereby the chamber and the bore are in communication along said slot; whereby, in use of the post support socket, a post having an end portion received in the bore can be secured by forcefully driving a wedge member longitudinally into the slot from the inlet end, between the offset portion and the post end portion, whereby the post then can be withdrawn from the post support socket after forcefully driving the wedge member longitudinally beyond the offset portion, for discharge of the wedge member laterally outwardly away from the bore, and whereby the wedge when driven beyond the offset portion is receivable in the chamber.

5,803,427
STRUCTURE FOR MOUNTING AN OIL-SINK MOTOR IN AN OIL TANK
 Tsung-jen Huang, No. 5, Alley 8, Lane 402, Sungchiang Rd., Taipei, Taiwan

Filed Nov. 14, 1996, Ser. No. 747,808
 Int. Cl.⁶ F16M 11/00
 U.S. Cl. 248—674

8 Claims

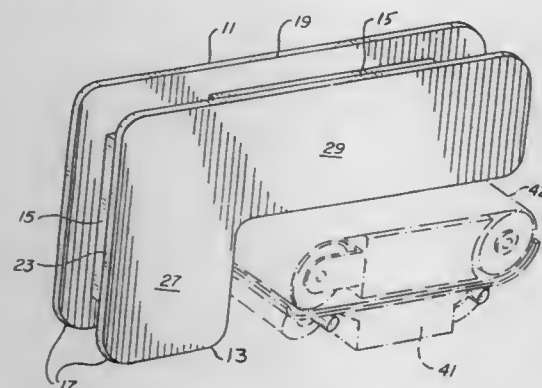


1. An oil-sink motor mounting structure, comprising:
 a motor;
 a door adapted to be pivotally connected to an oil tank;
 a hinge comprising a first leaf fixedly attached to a rear face of the door and a second leaf;
 a support comprising a top end fixedly attached to the second leaf of the hinge and a bottom end; and
 means for fixedly connecting the motor to the bottom end of the support.

5,803,428
SANDING FIXTURE
 Dino Marello, 556 Manorville Rd., Saugerties, N.Y. 12477
 Filed Apr. 10, 1996, Ser. No. 630,490
 Int. Cl.⁶ F16M 9/00

U.S. Cl. 248—676

3 Claims



1. A sanding fixture for use in combination with a portable electric belt sander mounted on the sanding fixture, such sanding fixture comprising:
 a base plate;
 a top plate having a L-shape, the base plate having a portion covered by the top plate and an open area, the open area having a multiplicity of openings in it, the base plate having a

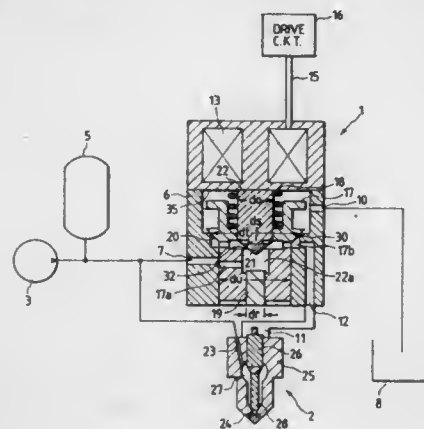
rectangular configuration with four edges and the top plate having two edges substantially the same length as two edges of the base plate;
 means secured to both the top plate and the base plate to hold fixedly the top plate and the base plate in a spaced relationship; and
 a series of pegs for insertion into the openings in the base plate to hold the portable electric belt sander adjacent the top plate.

5,803,429
SOLENOID-OPERATED HYDRAULIC CONTROL VALVE FOR USE IN FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE
 Yoshihiro Tsuzuki, and Kazuhide Watanabe, both of Nishio, Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Feb. 14, 1996, Ser. No. 601,579
 Claims priority, application Japan, Feb. 15, 1995, 7-026949; Jul. 11, 1995, 7-174733; Jul. 27, 1995, 7-191592
 Int. Cl.⁶ F16K 31/02

U.S. Cl. 251—30.04

15 Claims

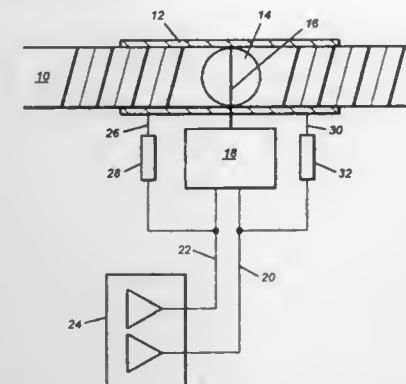


1. A solenoid-operated fluid control valve apparatus comprising:
 a valve housing having formed therein a fluid inlet and a fluid outlet communicating with the fluid inlet;
 a first valve member movable along a traveling path defined within said valve housing, said first valve member having formed therein a fluid chamber, the fluid chamber having a chamber inlet communicating with said fluid inlet and a chamber outlet communicating with said fluid outlet;
 a solenoid producing an attracting force acting on said first valve member to move said first valve member along said traveling path; and
 a second valve member disposed within said valve housing, the second valve member having a surface communicating with said fluid chamber formed in said first valve member, said second valve member being constructed and arranged to close said chamber outlet of said fluid chamber as said first valve member is moved along the traveling path by the attracting force of said solenoid;
 said surface of said second valve member, said fluid chamber, and said first valve member being constructed and arranged such that fluid pressure in said fluid chamber exerts force on said first valve member when said chamber outlet is closed and moves said first valve member along the traveling path in a direction opposite to that of the attracting force produced by said solenoid.

5,803,430
METHOD AND APPARATUS FOR DIVERTING ELECTROSTATIC CHARGES IN INLET PIPE MADE AT LEAST IN PART OF A PLASTIC MATERIAL
 Josef Buchl, Lenting, Germany, assignor to Audi AG, Germany
 Filed Mar. 8, 1996, Ser. No. 612,688
 Claims priority, application Germany, Mar. 10, 1995, 195 08 625.2

Int. Cl.⁶ F16K 31/02
 U.S. Cl. 251—129.11

5 Claims

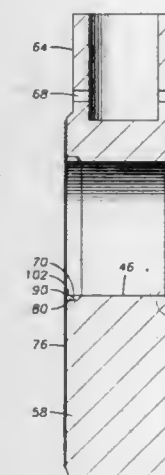


1. An apparatus for diverting electrostatic charges in an inlet pipe; said apparatus having a butterfly valve section and a regulating flap controlled by an electric motor having a plurality of terminals, the apparatus comprising:
 an automotive fluid inlet pipe made at least in part of a plastic material;
 a first electrically conductive connection between the butterfly valve section and at least one terminal of the electric motor;
 a second electrically conductive connection between the butterfly valve section and another terminal of the electric motor; and
 a resistor placed within said first electrically conductive connection.

5,803,431
SHEARING GATE VALVE
 Loc Gia Hoang, Houston, Tex., and Brian Haynes, Ackworth, England, assignors to Cooper Cameron Corporation, Houston, Tex.

Filed Aug. 31, 1995, Ser. No. 521,677
 Int. Cl.⁶ F16K 3/02
 U.S. Cl. 251—327

7 Claims



1. A gate for a shearing gate valve comprising:
 an elongated body having flat sides and an aperture therethrough and a counterbore at a mouth of said aperture;

a hard material filling said counterbore and forming an annular cutting edge at said mouth;
 said hard material bonding with said body; and
 hard facing material on said flat sides covering said bond.

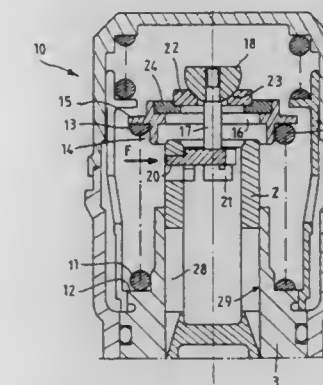
5,803,432
 Patent Not Issued For This Number

5,803,433
DEVICE FOR ORIENTING SPRING FORCES ON RELATIVELY MOVABLE ELEMENTS
 Jean-Marie Brocard, Rubelles; Christian Lacour, Vanves, and Michel Marie André Albert Lechevalier, Bombon, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.", Paris, France

Filed Mar. 20, 1997, Ser. No. 821,335
 Claims priority, application France, Mar. 28, 1996, 96 03855
 Int. Cl.⁶ F16K 31/00

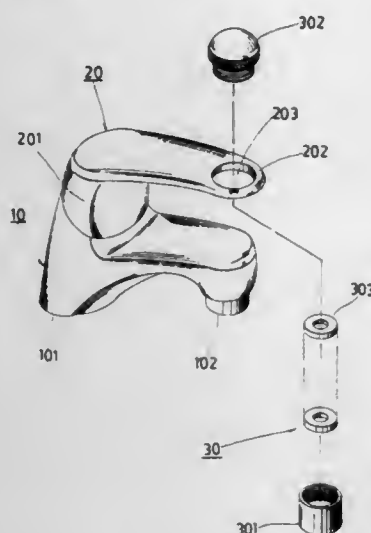
U.S. Cl. 251—337

10 Claims



1. An apparatus for orienting the forces exerted by a helical spring on relatively movable elements, the apparatus comprising:
 a) a casing;
 b) an element movably located in the casing so as to move along a movement axis;
 c) a helical coil spring having a longitudinal axis coaxial with the movement axis, the helical coil spring having two opposite ends and located so as to exert opposite forces on the casing and the movable element;
 d) a swivel joint interposed between at least one of the two opposite ends of the helical coil spring and the movable element, such that the resultant of the forces exerted by the helical coil spring on the at least one of the casing and movable element is coincident with the movement axis, wherein the swivel joint comprises:
 i) a first swivel member having a first bearing surface and connected to the movable element;
 ii) a washer on one end of the helical coil spring;
 iii) a second swivel member located on the washer and having a second bearing surface movably bearing against the first bearing surface; and
 iv) a shim removably located between the washer and the second swivel member.

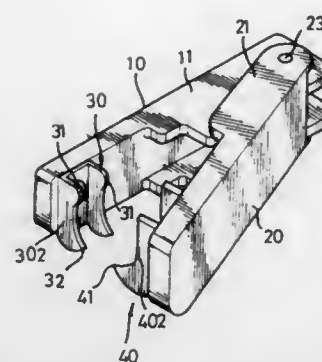
5,803,434
AUTOMATIC SHUT-OFF DEVICE FOR SINGLE LEVER TAP
 Ming-Jung Chuang, Taipei, Taiwan, assignor to Top Valve Co., Ltd., Taipei, Taiwan
 Filed Jan. 24, 1997, Ser. No. 788,263
 Int. Cl.⁶ F16K 31/44; 21/00
 U.S. Cl. 251—338 2 Claims



1. An automatic shut-off device for a water tap having a main body that includes a water inlet, a water outlet and a lever for operating a flow control valve, the lever having a front end for grasping by a user and a rear end pivotally mounted to the main body, whereby the lever is movable between an upper position in which water flow through the outlet is permitted and a lower position in which water flow through the outlet is terminated, the device comprising a load assembly mounted to the front end of the lever, the load assembly being of sufficient weight to move the lever from the upper position to the lower position under the force of gravity after the lever has been disposed in the upper position by the user, thereby automatically terminating flow through the outlet, wherein the load assembly includes a receptacle, at least one weight element disposed within the receptacle and a decorative lid covering the receptacle wherein the front end of the lever includes an aperture, the decorative lid includes a threaded portion extending through the aperture, and the receptacle includes an inner threaded portion disposed in threaded engagement with the threaded portion of the decorative lid to thereby attach the receptacle to the lever.

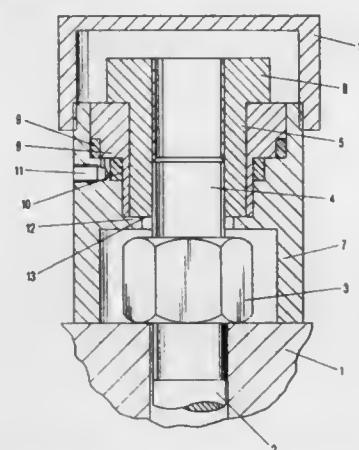
5,803,435
STAPLE REMOVER
 Nick Hsu, 17th Fl.-3, No. 424, Chungming Rd., Taichung, Taiwan
 Filed Nov. 5, 1996, Ser. No. 743,203
 Int. Cl.⁶ B25C 11/00
 U.S. Cl. 254—28 5 Claims

1. A staple remover comprising:
 a first arm having a first end and a second end, two first side walls extending from two opposite sides of said second end of said first arm and each of said first side walls having a first hole defined therein;
 a second arm having a first end and a second end, two second side walls extending from two opposite sides of said second end of said second arm and each of said second side walls having a second hole defined therein, said first arm and said second arm pivotally connected with each other by extending a first pin through said first hole and said second hole such that said first arm has a first inner side which faces a second inner side of said second arm;



a spring having two extending portions, said spring mounted to said first pin and said two extending portions respectively contacting against said first inner side of said first arm and said second inner side of said second arm;
 a first claw member disposed to said first inner side of said first end of said first arm, said first claw member including a bottom with two first plates extending perpendicularly from two opposite sides thereof, a longitudinal axis of said bottom of said first claw member being perpendicular to a longitudinal axis of said first arm; and
 a second claw member disposed to said second inner side of said first end of said second arm, said second claw member including a bottom with two second plates extending perpendicularly from two opposite sides thereof, a longitudinal axis of said bottom of said second claw member being perpendicular to a longitudinal axis of said second arm.

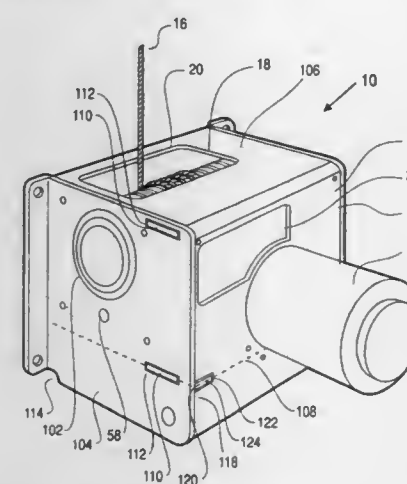
5,803,436
HYDRAULIC TENSIONING DEVICE FOR THREADED BOLT
 Frank Hohmann, Beethovenstrasse 9, and Jörg Hohmann, Hubertusweg 11, both of D-59581 Warstein, Germany
 PCT No. PCT/EP94/04072, § 371 Date Aug. 2, 1996, § 102(e)
 Date Aug. 2, 1996, PCT Pub. No. WO95/15835, PCT Pub. Date Jun. 15, 1995
 PCT Filed Dec. 7, 1994, Ser. No. 666,401
 Claims priority, application Germany, Dec. 8, 1993, 43 41 707.8
 Int. Cl.⁶ E21B 19/00
 U.S. Cl. 254—29 A 20 Claims



1. A hydraulic tensioning device for a threaded bolt, said tensioning device comprising:
 a cylinder resting on a machine part to be clamped with a threaded bolt and a nut;
 a threaded bushing threaded onto a free end of the threaded bolt;
 a piston, positioned radially inwardly in said cylinder and radially outwardly on said threaded bushing;

said piston guided sealingly in said cylinder and resting on said threaded bushing;
 a safety catch connected to said cylinder and engaging one of said nut and said threaded bushing;
 said safety catch preventing throwing off broken parts of said threaded bushing as well as preventing throwing off said cylinder and said piston upon breaking of said threaded bushing.

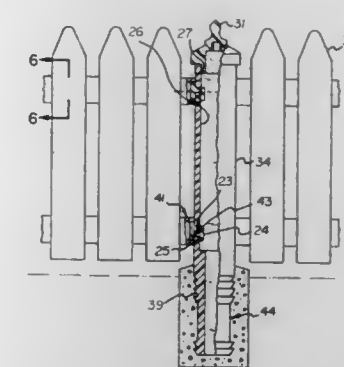
5,803,437
CHAINLESS DRIVE WINCH
 Richard Paterson, 413 Dixon Boulevard, Newmarket, Ontario, Canada, L3Y 5C5, and Patrick Kelly, 6823 Summer Heights Drive, Mississauga, Ontario, Canada, L5N 7E7
 Filed Mar. 26, 1997, Ser. No. 824,156
 Int. Cl.⁶ B66D 1/00
 U.S. Cl. 254—343 20 Claims



1. A chainless drive winch comprising:
 a cable cylinder rotatable about an elongate axis, the cylinder comprising a cable winding portion adapted to receive or dispense cable, integral with a worm gear at one end;
 a reduction gearing member rotatable about an axis orthogonal to the cable cylinder, the reduction gearing member comprising a helical worm meshing with said worm gear, and a driven worm wheel;
 drive means having a helical drive worm on a drive shaft, the helical drive worm meshing with the driven worm wheel of the reduction gearing; a brake on the reduction gearing member and a uni-directional clutch adapted to allow unbraked rotation of the cable cylinder in one direction for a lifting operation and adapted to brake rotation of the cable cylinder in another direction for lowering.

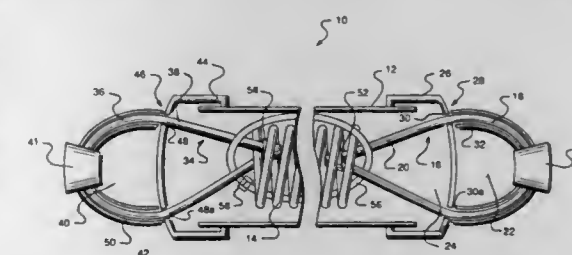
5,803,438
PLASTIC FENCING
 David A. Blouin, 75 Oak Ridge Rd., Weare, N.H. 03281
 Filed Apr. 24, 1997, Ser. No. 839,961
 Int. Cl.⁶ E04H 17/14
 U.S. Cl. 256—66 18 Claims

1. A plastic fencing comprising:
 at least one corner post having at least one pair of corner post recesses formed therein;
 at least one intermediate post having at least one pair of intermediate post recesses formed therein;
 at least one end post having at least one end post recess formed therein;
 a plurality of rails for horizontally spanning a plurality of distances between the corner posts, intermediate posts and end posts;



means for removably attaching the rails to the corner post recesses, intermediate post recesses and end post recesses;
 and
 wherein the means for removably attaching the rails to the corner post recesses, intermediate post recesses and end post recesses further comprise a post rail engaging member formed in the corner post recesses, intermediate post recesses and end post recesses, and a post engaging member integrally formed on each of a pair of rail end sections disposed on opposite ends of each said rail, the post engaging member being disposed perpendicular to a horizontal axis of the rail, the post engaging member having a protruding edge disposed substantially horizontally from the post engaging member, the protruding edge being for detachably engaging the post rail engaging member and being pivotable in a direction substantially parallel to the horizontal axis about a post engaging member channel formed in the post engaging member.

5,803,439
APPARATUS AND METHOD FOR REDUCING SHOCKS IN A LINE
 Peter Gilmore, 360 Newbury St., Boston, Mass. 02115
 Continuation-in-part of Ser. No. 527,791, Sep. 13, 1995, abandoned, which is a continuation of Ser. No. 248,969, May 25, 1994, abandoned. This application Sep. 6, 1996, Ser. No. 708,266
 Int. Cl.⁶ F16F 1/00
 U.S. Cl. 707—74 12 Claims



1. An in-line shock absorbing device for use with a line, comprising:
 a housing with at least two ends;
 a resilient member within said housing;
 a first flexible cable coupled to a first end of said resilient member passing outside of said housing;
 a second flexible cable coupled to a second end of said resilient member passing outside of said housing;
 a first line-receiving means at a distal end of said first flexible cable, outside of a first end of said housing, for incorporating a first end of said shock absorbing device into said line with which said shock absorbing device will be used;
 a second line-receiving means at a distal end of said second flexible cable, outside of a second end of said housing, for incorporating the second end of said shock absorbing device into said line with which said shock absorbing device will be used;

a first stop element at said first end of said housing defining an opening for said first flexible cable to pass through and prevent said first line-receiving means from being pulled into said housing by said resilient member, wherein said stop element includes a first sheath around said first flexible cable outside of said first end of said housing;

a second stop element at said second end of said housing defining an opening for said second flexible cable to pass through and prevent said second line-receiving means from being pulled into said housing by said resilient member, wherein said stop element includes a second sheath around said second flexible cable outside of said second end of said housing;

whereby said shock absorbing device is coupled to said line by said line-receiving means for incorporating said shock absorbing device into the line to provide shock absorption to the line.

5,803,440

MATTRESS INNERSPRING STRUCTURE HAVING COAXIAL COIL UNITS

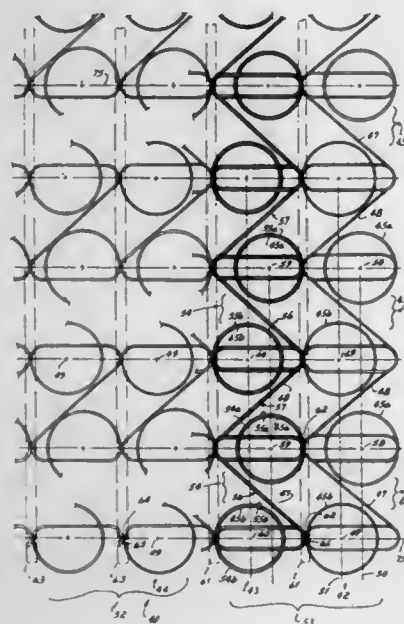
Thomas J. Wells, Carthage, Mo., assignor to L&P Property Management Company, Chicago, Ill.

Continuation-in-part of Ser. No. 406,694, Mar. 20, 1995, Pat. No. 5,509,642. This application Mar. 15, 1996, Ser. No. 612,490

Int. Cl.⁶ F16F 3/04

U.S. Cl. 267—92

21 Claims



1. An innerspring structure for a mattress comprising:

a row of non-pocketed outer coils, the row being formed from a single continuous piece of wire and containing outer coils interconnected by interconnection segments;

a row of non-pocketed inner coils, the row being formed from a single continuous piece of wire and containing inner coils interconnected by interconnection segments;

the row of inner coils being positioned together with said row of outer coils and the inner coils being positioned generally coaxially with the outer coils to form reinforced coil units which extend between top and bottom face surfaces of the innerspring structure;

interconnection segments of each row being overlapped relative to one another proximate both of said top and bottom face surfaces;

unitary, helically-shaped wire connectors wrapped around and engaging overlapped interconnection segments of the rows in both the top and bottom face surfaces of the innerspring structure, and engaging both the row of inner coils and the row of outer coils to directly secure the rows of inner and outer coils together in an assembled relation to form the reinforced coil units in the innerspring structure, the reinforced coil units having generally equal firmness along their individual lengths for supporting the top and bottom face surfaces of the innerspring structure.

5,803,441

DAMPER MECHANISM WITH UNDULATED RIBBON-LIKE SPRING HAVING MEANS FOR RESTRICTING RADIAL MOVEMENT OF THE SPRING

Kozo Yamamoto, Daitou, Japan, assignor to Exedy Corporation, Osaka, Japan

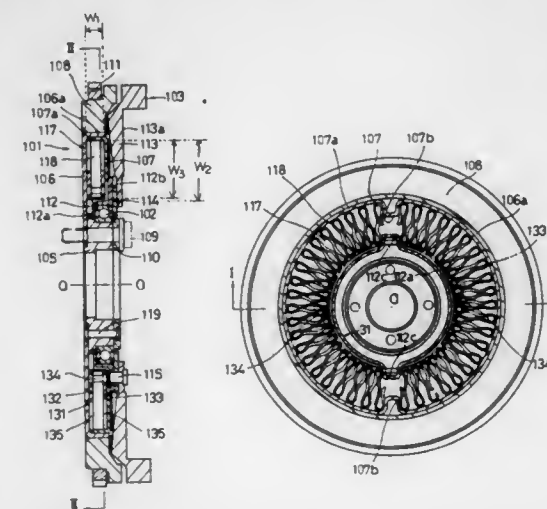
Filed Apr. 12, 1996, Ser. No. 631,197

Claims priority, application Japan, Apr. 21, 1995, 7-097293; Apr. 21, 1995, 7-097294; Apr. 25, 1995, 7-101501

Int. Cl.⁶ F16D 3/12; 3/80

U.S. Cl. 267—165

4 Claims



1. A damper mechanism comprising:

an input plate;

an output plate coupled to said input plate for limited rotary displacement therewith, said input plate and said output plate at least partially defining an annular chamber;

an undulated ribbon-like spring disposed in said annular chamber, said undulated ribbon-like spring disposed between said input and output plates damping vibrations therebetween in response to relative rotary displacement between said input and output plates;

a pair of opposing annular plates, said pair of plates disposed within said annular chamber with said undulated ribbon-like spring positioned therebetween; and

at least one pin extending through a portion of said undulated ribbon-like spring and said pair of plates for restraining radially outward movement of said undulated ribbon-like spring limiting contact between said undulated ribbon-like spring and a circumferentially outer surface of said annular chamber in response to centrifugal forces and compressive forces acting on said undulated ribbon-like spring.

5,803,442

TORSION DAMPING DEVICE HAVING TILTABLE SPRING SEATS OF COMPOSITE STRUCTURE, ESPECIALLY FOR MOTOR VEHICLES

Dominique Despres, and Olivier Bouchez, both of Amiens, France, assignors to Valeo, Cedex, France

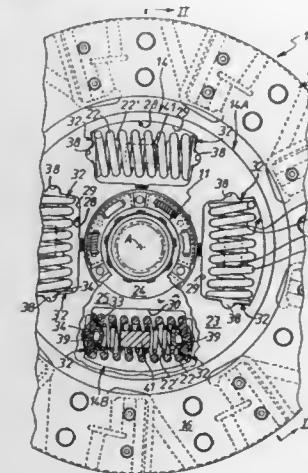
Filed Mar. 29, 1996, Ser. No. 623,791

Claims priority, application France, Mar. 31, 1995, 95 00843

Int. Cl.⁶ F16F 15/12

U.S. Cl. 267—168

19 Claims



1. A torsion damping device comprising: a first damper part; a second damper part coaxial with the first damper part, at least two springs interposed circumferentially between said first and second damper parts; means mounting said first and second damper parts coaxially with each other for rotation of one with respect to the other against the action of said springs; and at least one spring seat interposed circumferentially between at least one end of at least one of said springs and at least one of said damper parts, said spring seat having an anterior part and a posterior part joined to the anterior part, for engagement of the anterior part with at least one of said springs for at least one function selected from end thrust engagement with, and centering of, that spring, and for engagement of the posterior part on at least one of said coaxial damper parts of the torsion damping device, said damper parts defining a common axis, and the posterior part of the spring seat defining a pivot axis for the spring seat parallel to said common axis, said posterior part having a cylindrical surface defining a curved transverse cross section thereof and also defining said pivot axis, said cylindrical surface being in pivoting engagement with an associated one of said damper parts, wherein the anterior part of the spring seat is made at least partly of synthetic material, its posterior part being made at least partly of metal.

5,803,443

SHOCK ABSORBER FOR MOTOR VEHICLES

Wu-Sung Chang, No. 36, Lane 141, Chung San Rd., Sa Lu Chen, Taichung Hsien, Taiwan

Filed Sep. 24, 1997, Ser. No. 936,546

Int. Cl.⁶ B60G 1/00

U.S. Cl. 267—221

1 Claim

1. A shock absorber comprising a fixed shaft, a hollow adjustment shaft sleeved onto said fixed shaft and moved axially relative thereto, said adjustment shaft having an outer thread, an adjustment knob having a center screw hole threaded onto the outer thread of said adjustment shaft, and a shock absorbing coil spring mounted around said fixed shaft and said adjustment shaft and having a top end connected to said fixed shaft outside said adjustment shaft and a bottom end supported on said adjustment knob, wherein said adjustment knob comprises an annular groove spaced around the center screw hole; a plurality of steel balls movably mounted in the annular groove of said adjustment knob; a cap mounted in the annular groove of said adjustment knob and cov-



ered over said steel balls, having an upper part retained between the inner diameter of said shock absorbing coil spring and the outer thread of said adjustment shaft.

5,803,444

COILED WAVE SPRING AND PRODUCTION METHOD THEREOF

Minoru Shibuya, Chiba; Masayoshi Shimoseki, Tokyo; Minoru Sawayama, and Seiichi Inukai, both of Kyoto, all of Japan, assignors to Mitsubishi Steel Mfg. Co., Ltd., and Mitsubishi Jidosha Kogyo Kabushiki Kaisha, both of Tokyo, Japan

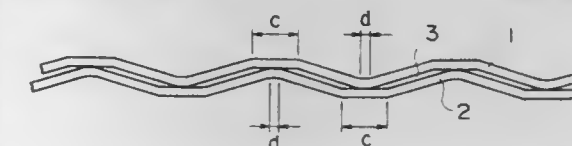
Filed Mar. 5, 1997, Ser. No. 812,004

Claims priority, application Japan, Mar. 12, 1996, 8-054704; Feb. 13, 1997, 9-028958

Int. Cl.⁶ F16F 1/06

U.S. Cl. 267—180

16 Claims



1. A coiled wave spring produced by winding a corrugated wire into a coil shape having a predetermined radius with a virtual axis as the center, comprising: a plurality of base portions; a plurality of top portions protruding from said base portions in an extending direction of said virtual axis; and a plurality of sloping portions connecting said top portions to said base portions, wherein said top portions overlapping one another and said base portions overlapping one another in the extending direction of the axis are in mutual contact, respectively, and predetermined gaps are defined between said sloping portions overlapping mutually in the extending direction of said axis.

5,803,445

ARRANGEMENT FOR DELIVERING PRINTED PRODUCTS TO A REMOVAL CONVEYOR

Jürg Eberle, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Jul. 30, 1996, Ser. No. 688,399

Int. Cl.⁶ B65H 5/22

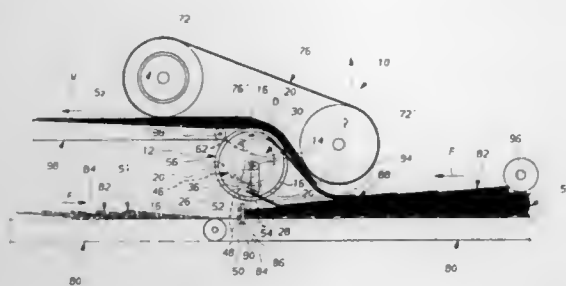
U.S. Cl. 271—3.11

20 Claims

1. An arrangement for delivering printed products into a range of action of a removal conveyor comprising:

a carrying element driven in a direction of rotation;

a rotor having rotor arms, an interior, and an axis of rotation, the rotor arms being arranged in a drum-like manner around the axis of rotation of the rotor, the rotor arms also extending in the direction of the axis of rotation of the rotor and projecting outwardly from a side of the carrying element, the rotor arms



being separated from one another by cutouts having an open side opposite the carrying element;
a sucker arrangement having a drive that is synchronized with the rotor, the drive being located on a side of the carrying element opposite the rotor, the sucker arrangement also having a carrying arm that is at least approximately parallel to the axis of rotation of the rotor, the carrying arm having an end connected to the drive, the carrying arm also having an extension arm connected to an end of the carrying arm opposite the drive, the extension arm running transversely with respect to the axis of rotation, the extension arm having a suction head attached to an end of the extension arm opposite the carrying arm, the suction head being periodically connected to a negative-pressure source and driven in circulation along a closed movement path by the drive, the movement path running in the interior of the rotor, the movement path having an approximately V-shaped section projecting in a radial direction through the cutouts and outside of the rotor, the approximately V-shaped section having a tip;
wherein the suction head grips a region adjoining a corner of a printed product at a receiving location provided at the tip of the approximately V-shaped section of the movement path, the suction head holding the printed product until the suction head reaches a discharge location located in the interior of the rotor, the printed product passing through the cutout into the interior of the rotor at the discharge location; and
wherein a rotor arm directly following the cutout, in the direction of rotation, butts against the printed product on a side located opposite the suction head, and the rotor supports the printed product released by the suction head and forces the printed product into a range of action of a removal conveyor.

5,803,446

METHOD AND APPARATUS FOR SINGLING LOOSE SHEET MATERIAL

Karl Leuthold, Munich; Karl Benker, Moosburg; Wolfgang König, Munich; Erwin Demmeler, Memmingen, and Josef Geier, Munich, all of Germany, assignors to Giesecke & Devrient GmbH, Munich, Germany

PCT No. PCT/EP96/01468, § 371 Date Apr. 24, 1997, § 102(e) Date Apr. 24, 1997, PCT Pub. No. WO96/31423, PCT Pub. Date Oct. 10, 1996

PCT Filed Apr. 3, 1996, Ser. No. 750,209

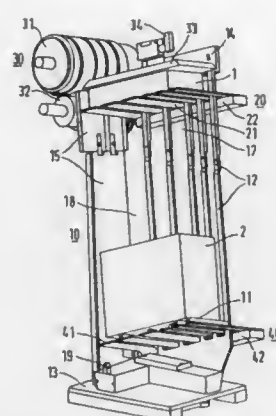
Claims priority, application Germany, Apr. 4, 1995, 195 12 505.3

Int. Cl.⁶ B65H 3/44; 5/26

U.S. Cl. 271—9.08

17 Claims

6. An apparatus for singling loose sheet material, in particular bank notes, comprising:
an input pocket for sheet material supplied in the form of a stack;
a rest disposed on a lower part of said input pocket on which said sheet material is supplied;
a singling device located adjacent said input pocket at a singling position above said rest, said singling device arranged to single said sheet material sheet-by-sheet out of said input pocket; and
a first feeding mechanism and a second feeding mechanism located on one side of said input pocket which are arranged to move vertically and horizontally so as to alternately feed



stacks of said sheet material on said rest vertically to said singling device, wherein said feeding mechanisms include devices that cooperate with said input pocket such that said feeding mechanisms are alternately movable into said input pocket from said one side at a feed position below said rest, vertically through said rest to said singling position, laterally out of said input pocket at said one side, and outside said input pocket along said one side to a position below said other feeding mechanism and below said rest.

5,803,447

METHOD AND APPARATUS FOR FEEDING SHEETS

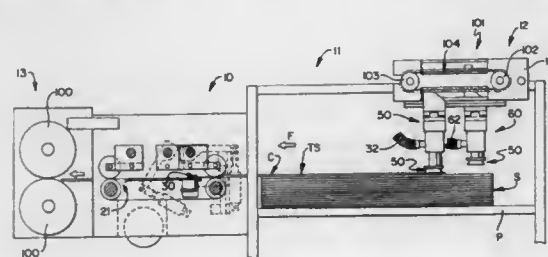
Karl Singer, Barrington Hills; Robert Allen Crimmins, Algonquin, and Lawrence B. LeStange, Elgin, all of Ill., assignors to D&K Custom Machine Design, Inc., Elk Grove Village, Ill.

Filed Sep. 25, 1996, Ser. No. 718,923

Int. Cl.⁶ B65H 5/08

U.S. Cl. 271—11

27 Claims



1. A sheet feeding apparatus comprising:

- A) a platform for supporting a stack of sheets with an exposed top sheet;
- B) a suction member having vacuum means for holding the top sheet and being movable along a generally horizontal path between a first horizontal position and a position downstream from the first horizontal position while holding the top sheet and between a position downstream from the first horizontal position and the first horizontal position without holding a sheet;
- C) means for driving the suction member along a generally vertical path between a first vertical position and a position above the first vertical position while holding a sheet and between a position above the first vertical position and the first vertical position without holding the top sheet;
- D) switch means for turning the vacuum means ON and OFF, the suction member being driven or holding the top sheet when the vacuum means is ON; and,
- E) guide means for supporting and moving the suction member between the first horizontal position and a position downstream from the first horizontal position, the guide means including a cage assembly having two sprockets therein with one sprocket proximate each end thereof and a belt entrained around the sprockets and a guide disposed between the

sprockets, the suction member being attached to the belt and having a glide frame cooperating with the guide and supporting the suction member.

5,803,448

DEVICE FOR THE SUSPENDED GUIDANCE OF SHEETS OR WEBS

Jürgen Alfred Stiel, Thüngen, and Volkmar Rolf Schwitzky, Würzburg, both of Germany, assignors to Koenig & Bauer-Albert Aktiengesellschaft, Würzburg, Germany

PCT No. PCT/DE95/00262, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO95/23755, PCT Pub. Date Sep. 8, 1995

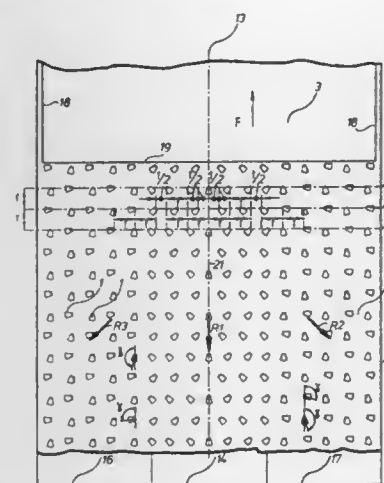
PCT Filed Mar. 1, 1995, Ser. No. 696,849

Claims priority, application Germany, Mar. 3, 1994, 44 06 847.6

Int. Cl.⁶ B65H 29/24

U.S. Cl. 271—195

6 Claims



1. A device for the suspended guidance of sheets or webs in a processing machine such as a rotary printing press comprising:
a closed guidance surface facing sheets or webs being guided in a conveying direction and having a longitudinal axis of symmetry;
a plurality of air discharge nozzles formed in said guidance surface, each of said nozzles having a nozzle blower opening with a longitudinal axis; and
at least a central stabilization zone located symmetrically to said longitudinal axis of symmetry and two tightening zones adjoining said stabilization zone, said zones being defined in said closed guidance surface by said air discharge nozzles, said nozzles in said tightening zones being alternately positioned so that said longitudinal axis of each said nozzle blower opening and said conveying direction alternately enclose an angle of 100° to 120° and 160° to 170° with said nozzles being arranged so that they blow away from said longitudinal axis of symmetry.

5,803,449

AUTOMATIC MANUSCRIPT SHEET FEEDER

Ritsuo Koga, and Kouichi Minami, both of Tokyo, Japan, assignors to Plus Corporation, Tokyo, Japan

Filed Sep. 5, 1995, Ser. No. 523,338

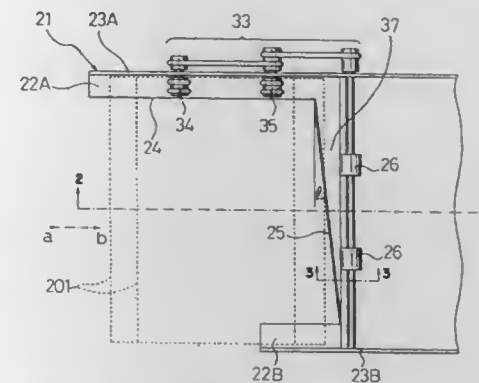
Claims priority, application Japan, Sep. 14, 1994, 6-247013

Int. Cl.⁶ B65H 9/16

U.S. Cl. 271—249

4 Claims

1. An automatic manuscript sheet feeder comprising:
a side guide plate fixedly positioned on a side edge of an overhead projector display stage,



a bottom plate which forms a manuscript set window with said side guide plate adjacent said display stage, and
a side plate perpendicular to said side guide plate,
a plurality of side feeding rollers, each of said feeding rollers having an outer circumference and each of said feeding rollers having a rotational axis supported by said side plate to carry the manuscript in both forward and backward directions, wherein said side guide plate has a plurality of elongated receiving notches formed therein immediately below said side feeding rollers to receive the manuscript with its side edge pressed downward by the outer circumference of each of said feeding rollers.

5,803,450

DEVICE FOR CONVEYING FLAT FLOPPY PRODUCTS

Heido Brokate, Itzehoe; Ralph Jakob, Hohenlockstedt; Friedrich Jarchow, Essen; Rudolf Stüb, Frankenthal; Klaus-Jürgen Taubert, Hohenlockstedt, and Ming Liu, Bochum, all of Germany, assignors to Koenig & Bauer-Albert Aktiengesellschaft, Würzburg, Germany

PCT No. PCT/SE94/00959, § 371 Date Jun. 21, 1996, § 102(e) Date Jun. 21, 1996, PCT Pub. No. WO95/12540, PCT Pub. Date May 11, 1995

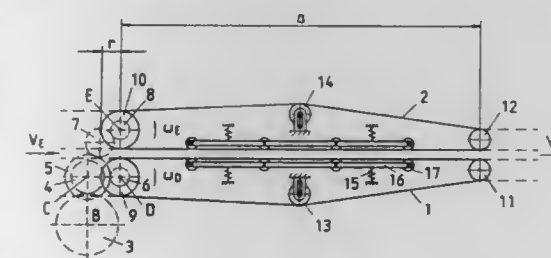
PCT Filed Oct. 12, 1994, Ser. No. 635,953

Claims priority, application Germany, Nov. 2, 1993, 43 37 410.7

Int. Cl.⁶ B65H 5/34

U.S. Cl. 271—270

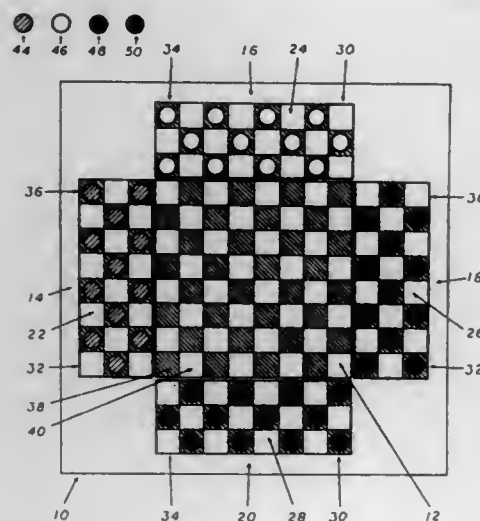
9 Claims



1. A device for conveying flat floppy products having a product length and for changing a velocity of said conveyed products over a time period comprising:
an inlet conveyor having a first, inlet conveyor constant velocity;
an outlet conveyor having a second, outlet conveyor constant velocity, said second, outlet conveyor constant velocity being different from said first, inlet conveyor constant velocity, said outlet conveyor being located downstream, in a direction of conveyance of said conveyed products from said inlet conveyor;
an intermediate conveyor located intermediate said inlet conveyor and said outlet conveyor, said intermediate conveyor having a third, intermediate conveyor variable velocity, said third, intermediate conveyor variable velocity varying periodically from said first velocity to said second velocity and back to said first velocity during twice each said time period.

said first type of spaces providing respective financial options, and instructions to said players to take a card from a first selected pack of cards offering other financial options, a second type of spaces placed peripherally within said first type of spaces on said board onto which a second movable marker for each of said players is positioned to be moved, said second movable markers moved according to a throw of a second die, said second type of spaces comprising options associated with political factors impacting said player's financial transactions and decisions carried out in accordance with said first type of spaces.

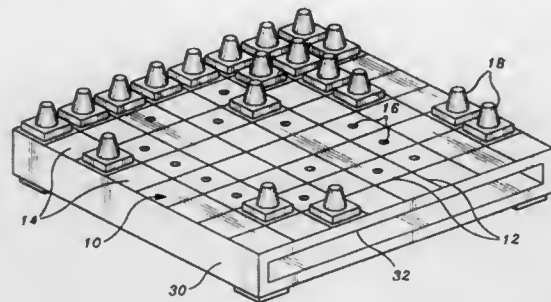
5,803,457
CHECKERS FOR TEAMS
Denis Martin Smith, R.R. 1, Box 65T, Williston, N. Dak. 58801
Filed Aug. 20, 1997, Ser. No. 915,404
Int. Cl.⁶ A63F 3/02
U.S. Cl. 273—261 5 Claims



1. A method of playing checkers by two three or four players, each player having a distinguishable set of checkers, played on a game board having a main playing area comprising a square matrix of eight by eight alternating colored playing spaces forming a battleground with three additional rows of eight alternately colored playing spaces adjacent to each side of the battleground forming four home bases, the method comprising:

- placing each players set of checkers on the game board so that each different set occupies three rows adjacent one side of the battleground in a conventional checkers arrangement;
- each player moving, in turn, one of his checkers anywhere on the game board according to standard checkers;
- jumping, during moving, other player's checkers anywhere on the game board according to standard checkers rules except that a first player may not jump an opposing player from said first players home base to another home base until the first player's checker has first landed on one square in the battleground;
- kinging a checker, when a player's playing piece reaches, or passes on a jump, the opposite king row of the battleground with the king row extending into each adjacent home base forming a king row that is 14 alternating squares wide, a checker that has been kinged being able to move according to the standard rules of checkers;
- removing a player from the game when all of his checkers have been jumped or he can no longer move any of his remaining pieces; and
- continuing the steps of moving, jumping, kinging when necessary, and removing a player when necessary until only one player remains and is the winner.

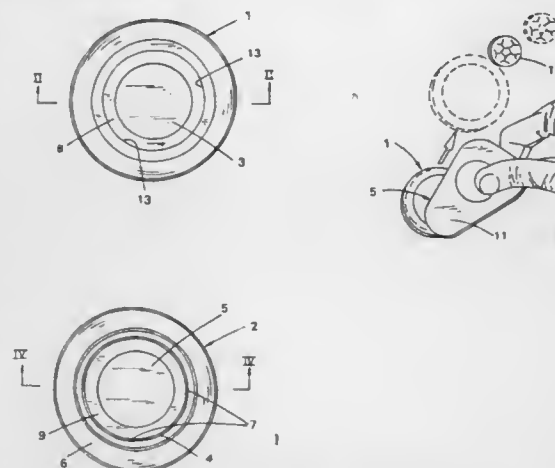
5,803,458
MEMORY MAZE GAME
Scott P. Snyder, 2593 W. Loma Vista Dr., Rialto, Calif. 92377
Filed Aug. 20, 1997, Ser. No. 915,458
Int. Cl.⁶ A63F 3/00
U.S. Cl. 273—273 4 Claims



1. A method of playing a maze game, using a game board having a grid defining a plurality of spaces, each space having a dot having a color selected from red, white, and black, further using playing pieces, each playing piece having a base for covering one of the spaces, comprising the steps of:

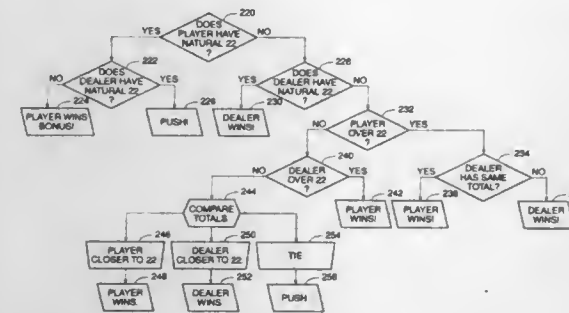
- a) covering all of the spaces with one of the playing pieces;
- b) lifting one of the playing pieces by one of the players to reveal the dot on the space that was covered by the playing piece; and then performing a step selected from:
- c) repeating step (b) by the player if a black dot was revealed;
- d) repeating step (b) by another player if a white dot was revealed;
- e) deeming the player the winner of the game if a red dot is revealed.

5,803,459
COUNTER FOR PARLOUR GAMES
Joaquin Gracia Casas-Salat, Barcelona, Spain, assignor to Grupo Promer Mon-Graphics, S.A., Spain
Filed May 9, 1997, Ser. No. 853,759
Claims priority, application Spain, May 30, 1996, 9601481
Int. Cl.⁶ A63F 3/00
U.S. Cl. 273—288 7 Claims



1. A combination for parlour games comprising
a first flat circular piece of a first color having a main face opposing an open cavity surface with a base surface in its main face and
a second circular piece of a second color comprising inner and outer annular members discontinuously joined by breakable material, the inner member having a shape complimentary to the open cavity of the first piece and adapted to snap fit in the open cavity of the first piece.

5,803,460
METHOD OF PLAYING A CARD GAME
Michael A. Hesse, Westlake Village, Calif., assignor to Helix Information Services, Inc., Westlake Village, Calif.
Continuation-in-part of Ser. No. 546,293, Oct. 20, 1995, Pat. No. 5,645,281, which is a continuation-in-part of Ser. No. 442,057, May 16, 1995, abandoned. This application May 8, 1997, Ser. No. 848,419
Int. Cl.⁶ A63F 1/00
U.S. Cl. 273—292 19 Claims



11. A method of playing a card game comprising:
providing at least one deck of standard playing cards;
establishing numerical values for each card in the deck;
identifying one player as the Dealer;
requiring each player and the Dealer to wager a sum of money before play begins;
dealing each player and the Dealer two cards to start, where these cards may be dealt face up, face down, or one face up and one face down;
optionally dealing one or more cards to each player at his/her request;
optionally adding one or more cards to the Dealer's hand at his/her request; and
comparing the numerical value of each player's hand in turn to the Dealer's hand and awarding the money to the one who has the closer numerical value to a specified target numerical value, wherein if both the Dealer's hand and the player's hand have the same numerical value either under or over the target numerical value, or if both the Dealer's hand and the player's hand have a numerical value that exceeds the target numerical value, determining if there is a winner according to predetermined criteria, wherein said predetermined criteria where both the Dealer's hand and the player's hand have the same numerical value that equals the target numerical value is that the player wins and is paid a bonus if predetermined special criteria are met.

5,803,461
MATHEMATICAL PUZZLE TYPE GAME
Zoran Pavlovic, 15445 Ventura Blvd., Suite 79, Sherman Oaks, Calif. 90403
PCT No. PCT/US95/16604, § 371 Date Jun. 19, 1997, § 102(e) Date Jun. 19, 1997, PCT Pub. No. WO96/19273, PCT Pub. Date Jun. 27, 1996
PCT Filed Dec. 19, 1995, Ser. No. 860,957
Int. Cl.⁶ A63F 1/00; 9/04; 9/20
U.S. Cl. 273—292 16 Claims

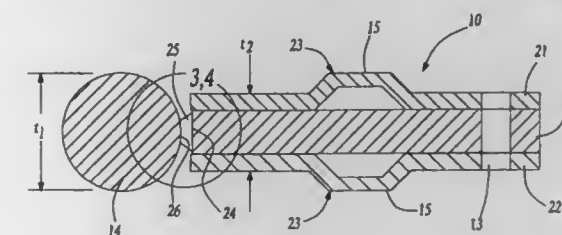
1. A game set comprising:
a predetermined total number of different game pieces, including cards, tiles or dice;
each said game piece having an at least two-dimensional body and at least one geometrically identical playing surface;
each said playing surface of each said game piece having at least four sides;
each said playing surface upon each of its at least four sides is characterized by a selected indicia, chosen from at least four and maximum five different types of said indicia, wherein each said type of said indicia appears at least once on some of



LEGEND:
■ BLUE
□ RED
■ BLACK

the playing surfaces, at least twice on some of the playing surfaces, at least three times on some of the playing surfaces, and at least four times on some of the playing surfaces said indicia on the sides of the playing surface of each of said game pieces forming a pattern wherein the playing surface of each of said game pieces and the pattern, on each of said game pieces being symmetrical about a central dividing line; each of said indicia having a different numerical significance and being laterally centered on the associated side of the playing surface, so as to facilitate alignment of two of said indicia whenever the playing surfaces of the two game pieces are placed in an abutting side-to-side relationship; and on each playing surface, where the particular type of said indicia appears only twice, it is on the opposite sides of the playing surface and not on the adjacent sides of said playing surface.

5,803,462
MLS GASKET WITH YIELDABLE COMBUSTION SEAL
Richard J. Kozerski, Lisle, Ill., assignor to Dana Corporation, Toledo, Ohio
Filed Dec. 6, 1996, Ser. No. 761,154
Int. Cl.⁶ F16J 15/12
U.S. Cl. 277—235 B 16 Claims



1. A multi-layer cylinder head gasket of an internal combustion engine having at least one cylinder bore opening, the cylinder head gasket comprising:
a central carrier plate, said carrier plate having an upper and a lower surface;
an upper plate located adjacent said carrier plate upper surface;
a lower plate located adjacent said carrier plate lower surface;
said carrier plate and said upper and lower plates each having a radially inner edge forming said cylinder bore opening;
a yieldable wire ring having a radially outer circumference, said wire ring directly bonded at a plurality of localized points along said radially outer circumference to only said inner

edge of said carrier plate about said cylinder bore opening when said gasket is in a relaxed state.

5,803,463 GREASE SEAL

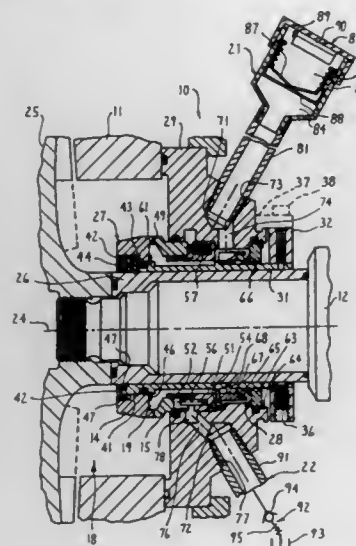
Clive A. Brooks, and Kenneth G. Kakabaker, both of Kalamazoo, Mich., assignors to Durametallic Corporation, Kalamazoo, Mich.

Filed Aug. 29, 1996, Ser. No. 704,964

Int. Cl.⁶ F16J 15/34

U.S. Cl. 277—361

20 Claims



1. In a mechanical seal assembly for creating a sealing relationship between a housing and a shaft rotatable relative thereto, said seal assembly including a seal chamber defined radially between said shaft and an interior surface of said housing and first and second coaxially aligned seal rings disposed in axially adjacent and surrounding relationship to the shaft, said first and second seal rings having opposed flat seal faces thereon which are normally maintained in directly opposed and close association with one another to define an annular sealing region therebetween to effectively separate a process fluid disposed in a housing chamber of said housing from said seal chamber, said housing chamber and said seal chamber being defined at opposite radial edges of said annular sealing region, said first seal ring being nonrotatably coupled to the housing, said second seal ring being nonrotatably coupled to said shaft so as to rotate in combination with the shaft, said seal assembly including secondary seal means which are axially spaced from said first and second seal rings for defining said seal chamber therebetween, and an inlet port and an outlet port each in communication with said seal chamber, comprising the improvement wherein said inlet port opens into said seal chamber in the region between said secondary seal means and said first and second seal rings, said seal assembly including grease supply means connected to said inlet port for supplying a flow of grease into said seal chamber, said grease flowing to said seal rings along a first flow path which extends axially through said seal chamber between said inlet port and said radial edge of said sealing region disposed in said seal chamber, and grease discharge means connected to said outlet port for permitting a flow of said grease out of said seal chamber along a second flow path, said second flow path being defined by said housing and extending between said radial edge of said sealing region disposed in said seal chamber and said outlet port, said housing separating said first flow path from said second flow path while permitting said grease to flow from said first flow path to said second flow path proximate said seal rings, said grease within said seal chamber being pressurized by said grease supply means and said grease discharge means at a positive pressure level which is less than a process fluid pressure of said process fluid within said housing chamber, said grease being sub-

stantially non-flowable into said sealing region when said process fluid is disposed in said housing chamber and being flowable into said sealing region upon a loss of said process fluid so as to lubricate said seal faces.

5,803,464 GLAND PACKING

Takahisa Ueda, and Masaru Fujiwara, both of Hyogo, Japan, assignors to Nippon Pillar Packing Co., Ltd., Osaka, Japan
PCT No. PCT/JP95/00862, § 371 Date Dec. 1, 1995, § 102(e)
Date Dec. 1, 1995, PCT Pub. No. WO95/30851, PCT Pub. Date Nov. 16, 1995

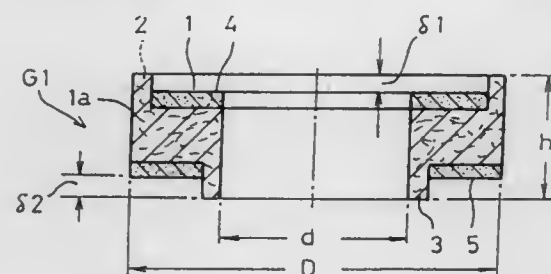
PCT Filed May 1, 1995, Ser. No. 549,783

Claims priority, application Japan, May 9, 1994, 6-094930

Int. Cl.⁶ F16J 15/28

U.S. Cl. 277—528

6 Claims



1. A gland packing, comprising: a die mold packing part configured as a wound laminated expanded graphite tape, said wound laminated expanded graphite tape defining a pair of parallel end faces; and at least one ring-like seal member engaging one of said end faces, wherein a circumferential projected part projects outward in an axial direction from at least one of said end faces said ring-like seal member having an outer face and being brought into tight contact with said one end face in the axial direction of said die mold packing part excluding said circumferential projected part, and said circumferential projected part projects in the axial direction beyond said outer face of said ring-like seal member.

5,803,465 GASKET INSERT

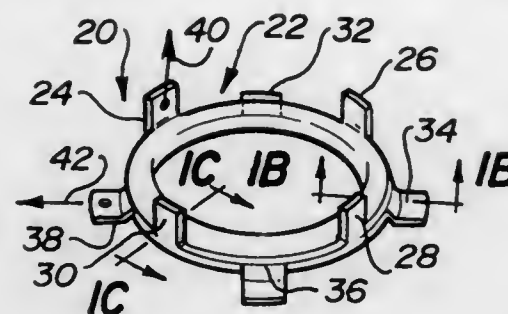
David J. Schweiger, Downers Grove, Ill., assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 10, 1996, Ser. No. 763,266

Int. Cl.⁶ F16J 15/12

U.S. Cl. 277—593

7 Claims



1. A gasket insert, comprising:
a one-piece carrier body comprised of a steel stamping folded upon itself,
said carrier body including an outer surface covered with a sealing material,
a first retaining arm having an end portion which extends from said carrier body in a first direction,

a second retaining arm having an end portion which extends from said carrier body in a second direction, and wherein said first direction is generally perpendicular to said second direction.

5,803,466 TOE PLATE WITH DUAL FLANGES FOR IN-LINE SKATE FRAME

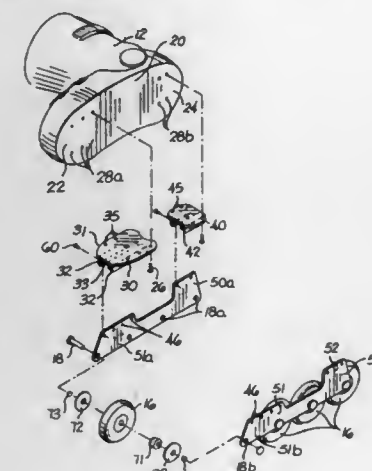
Michael C. Wrike, Jamestown, N.C., assignor to Rike Industries, Inc., Jamestown, N.C.

Filed Jan. 9, 1997, Ser. No. 779,921

Int. Cl.⁶ A63C 17/18

U.S. Cl. 280—7.13

19 Claims



1. An in-line roller skate, comprising:
a boot having a sole surface with toe and heel portions;
a frame, comprising:
a toe plate having an upper face and a lower face, said upper face being affixed to said sole surface toe portion, and two pair of spaced apart flanges extending downwardly from said toe plate lower face, each of said flange pairs defining a cavity therebetween;
a heel plate having an upper face and a lower face, said upper face being affixed to said sole surface heel portion, and two pair of spaced apart flanges extending downwardly from said heel plate lower face, each of said flange pairs defining a cavity therebetween;
first and second downwardly extending sidewalls having front and rear upper portions, wherein said first sidewall is configured such that said rear upper portion is received into a corresponding one of said heel plate cavities and said front upper portion is received into a corresponding one of said toe plate cavities, and wherein said second sidewall is received into the other opposing said toe and heel plate cavities;
a plurality of fasteners for releasably attaching said first and second sidewalls to respective ones of said toe and heel plate flange pairs; and
a plurality of wheels rotatably mounted between said first and second sidewalls.



a) a foot holding means having a toe end and a heel end for accommodating a foot, said foot holding means having a base portion with a curved bottom surface,
b) substantially rigid support means at said base portion, said support means including a toe portion at the toe end of the foot holding means and a heel portion at the heel end of the foot holding means, said support means having one side configured to receive the curved bottom surface of said base portion such that the toe portion and the heel portion of said support means engage said base portion to permit relative rotatable movement between said foot holding means and the toe and heel portions of said support means to selected angular orientations with respect to each other about an axis extending longitudinally of the base portion of said foot holding means, and said support means having an opposite side configured to permit engagement of said opposite side against a flat surface,
c) securing means for locking said support means and said base portion together at one of said selected angular orientations between the toe and heel portions of said support means and said foot holding means.

5,803,468 BRAKE AND REMOTE CONTROL SYSTEM FOR WHEELED SKATE

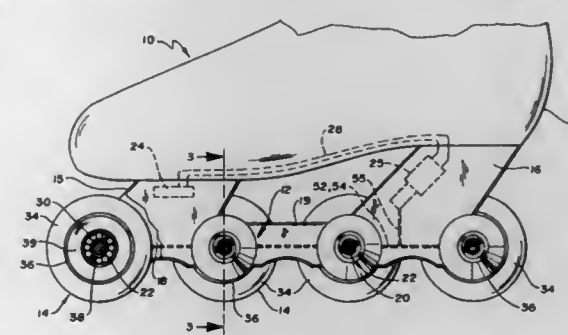
Gary M. Petrucci, 2975 County Rd. 24, Medina, Minn., and Johannes J. W. G. M. Huijbers, 14327 Valley View Rd. Apt. E, Eden Prairie, Minn. 55344

Filed May 14, 1996, Ser. No. 648,207

Int. Cl.⁶ A63C 17/14

U.S. Cl. 280—11.1

18 Claims



1. An in-line skate having a fluid pressure brake comprising:
a wheel support frame;

5,803,467
ADJUSTABLE FOOT EQUIPMENT
David J. Piotrowski, Larchmont, N.Y., assignor to DP Systems LLC, Champaign, Ill.
Division of Ser. No. 333,374, Nov. 2, 1994, Pat. No. 5,615,901.
This application Mar. 20, 1997, Ser. No. 822,241
Int. Cl.⁶ A63C 1/00

U.S. Cl. 280—7.14

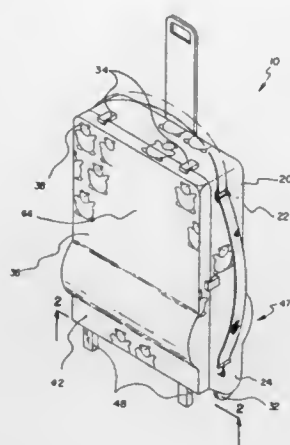
20 Claims

1. Adjustable foot equipment comprising

a plurality of wheels rotatably supported on a shaft between opposed portions of said support frame, at least one of said plurality of wheels including a first annular braking surface; a fluid pressure chamber defined by at least one of said support frame portions;

a brake piston encircling said shaft, and being moveable in response to fluid pressure in said fluid pressure chamber between a braking position and a non-braking position, said brake piston further having a second braking surface adapted for braking engagement with said first braking surface when said brake piston is in said braking position; and

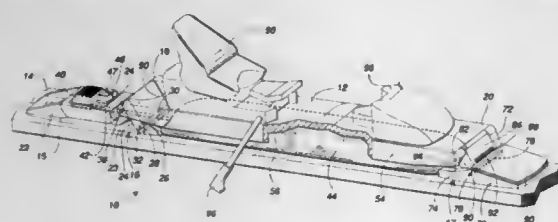
a fluid pressure port in said fluid pressure chamber for introducing fluid pressure into and exhausting fluid pressure from said fluid pressure chamber.



5,803,469
IN-LINE SKATE WITH COLLAPSIBLE WHEEL ASSEMBLY
Stephen Yoham, 11031 SW. 51 Ter., Miami, Fla. 33165
Filed Jan. 15, 1997, Ser. No. 779,652
Int. Cl.⁶ A63C 3/00

U.S. Cl. 280—11.27

11 Claims



1. An apparatus for use on a molded skate boot having a bottom, a toe portion, and a heel portion, said apparatus comprising:

a roller assembly including an elongate rail having a centrally disposed elongate channel with a longitudinal axis extending substantially along a length of said rail and a plurality of wheels rotatably mounted at spaced intervals along a length of said channel in aligned, co-planar relation, each of said wheels being mounted on an axis of rotation perpendicular to said longitudinal axis of said channel,

mounting means for mounting said apparatus to the bottom of the skate boot and including a mounting plate structured for mating, fixed attachment to the skate boot bottom, said mounting means being pivotally attached to said roller assembly allowing said roller assembly to move relative to said mounting means and the skate boot bottom between a raised position defining a walking mode, wherein said axis of rotation of each of said wheels is generally perpendicular to the skate boot bottom and a lowered position defining a skating mode, wherein said axis of rotation of each of said wheels is generally parallel to the skate boot bottom,

locking means for releasably locking said roller assembly in said raised and lowered positions, and

a cushion sole mounted on said roller assembly for engaging a ground surface when said roller assembly is in said raised position in the walking mode.

5,803,470
STROLLER TRANSPORTING DEVICE
Jayne E. Smith, 1385 Red Bank Dr., Grove City, Ohio 43123
Filed May 1, 1996, Ser. No. 640,480
Int. Cl.⁶ B62B 1/00

U.S. Cl. 280—37

1 Claim

1. A device for use in storing and transporting a child's stroller, the device comprising in combination:

a rear cover having an upper extent, a lower extent and an intermediate extent therebetween, an outer surface, an inner surface and a peripheral edge therebetween, the inner and

outer surfaces being rounded outwardly approximate the lower extent, a pair of recessed wheels rotatably secured to the lower extent of the rear cover, a pair of pivotal latches secured to the upper extent;

a front cover having an upper extent, a lower extent and an intermediate extent therebetween, an outer surface and an inner surface and a peripheral edge therebetween, the lower extent of the front cover being hingedly attached to the lower extent of the rear cover, the inner and outer surfaces of the front cover being rounded at the lower extent of the front cover, a pair of stops secured to the lower extent of the front cover, a pair of latch receptors secured to the upper extent of the front cover wherein the front and rear covers at their intermediate extents have a protrusion for accommodating wheels of a stroller to be stored inside the device;

a first closable container having a front side and a rear side, the rear side being detachably secured to the inner surface of the front cover approximate the upper extent of the front cover;

a second closable container having a front side and a rear side, the rear side being detachably secured to the inner surface of the front cover below the first closable container;

a handle assembly having a housing component and a pull arm, the housing component being secured to the outer surface of the rear cover, the pull arm being slidably received within the housing component and having a first orientation wherein the pull arm is extended from the housing component and a second orientation wherein the pull arm is positioned within the housing component;

a strap having a proximal end pivotally secured to the peripheral edge of the rear cover approximate the upper extent, the strap further including a distal end, a first anchor positioned upon the peripheral edge of the rear cover approximate the lower extent of the rear cover, a second anchor positioned upon the peripheral edge of the rear cover approximate the upper extent of the rear cover and opposite the first anchor, the distal end of the strap adapted for releasable engagement with either of the two anchors.

5,803,471
COLLAPSIBLE DOLLY
Robert A. DeMars, 5000 N. Parkway Calabasas, Suite 233, Calabasas, Calif. 91302, and Jack B. Cline, 12827 Bromwich St., Arleta, Calif. 91331
Filed May 23, 1997, Ser. No. 862,655
Int. Cl.⁶ B62B 1/04

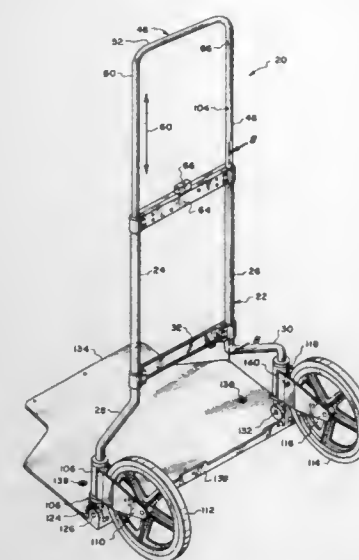
U.S. Cl. 280—40

12 Claims

1. A collapsible dolly comprising:

a support frame formed of a pair of elongated frame members located in a spaced-apart relationship, said support frame defining a plane, said frame members having a lower end and an upper end;

a wheel assembly mounted on said support frame at said lower end, said wheel assembly being pivotally movable between a



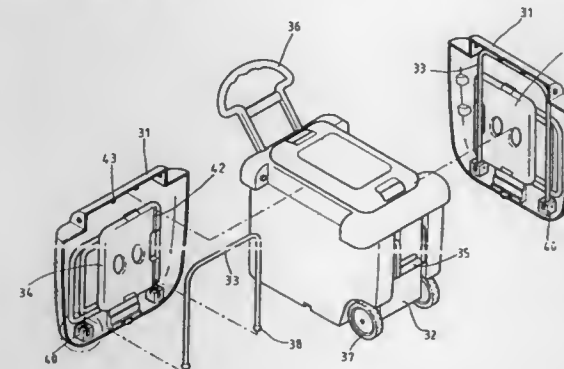
folded position and a usage position, said folded position being when said wheel assembly is located in juxtaposition with said plane, said usage position being when said wheel assembly is located transverse to said plane, said wheel assembly having a plurality of first short pins located in a circular arc arrangement; and

a platform mounted on said support frame at said lower end, said platform being pivotable between an loading position and a stowage position, said loading position being adapted to support an exterior weight, said loading position locating said platform transverse to said plane, said stowage position locating said platform parallel to said plane, said platform including a plurality of second short pins located in a circular arc arrangement, said second short pins being continuously engaged with said first short pins, whereby during movement of said platform from said loading position to said stowage position said wheel assembly is automatically moved from said usage position to said folded position by the engagement between said first short pins and said second short pins.

5,803,472
MULTIUSAGE ICE BOX
Chang Mei Lien, P.O. Box 453, Taichung, Taiwan
Filed May 30, 1997, Ser. No. 866,739
Int. Cl.⁶ B65D 45/00; 43/00

U.S. Cl. 280—47.26

4 Claims



1. A multiusage ice box comprises a main box, a first table 31 engaging with a first lateral of the main box 32, a second table 31 engaging with a second lateral of the main box 32, a first folded chair 34 disposed in the first table 31, a second folded chair 34 disposed in the second table 31, a handle 36 disposed on the main box 32, a first lug 35 disposed on the main box 32 and surrounded by the handle 36, a second lug 35 disposed on the main box 32

opposite to the first lug 35, a recess hole 45 and a cage flange 46 formed at a bottom of the main box 32, an axle 44 inserted in the recess hole 45, a first wheel 37 disposed on a first end of the axle 44, a second wheel 37 disposed on a second end of the axle 44, and the improvement wherein:

a first clamp seat 40 is disposed in a first corner of the first table 31,

a second clamp seat 40 is disposed in a second corner of the first table 31,

a third clamp seat 40 is disposed in a first corner of the second table 31,

a fourth clamp seat 40 is disposed in a second corner of the second table 31,

each of the clamp seats 40 has a slide slot 39 and two cage grooves 41 communicating with the slide slot 39,

a first U-shaped frame 33 has a first ball end 38 inserted in the first clamp seat 40 and a second ball end 38 inserted in the second clamp seat 40,

a second U-shaped frame 33 has a third ball end 38 inserted in the third clamp seat 40 and a fourth ball end 38 inserted in the fourth clamp seat 40.

5,803,473
CONFIGURABLE WHEEL TRUCK FOR SKATEBOARDS OR ROLLER SKATES INCORPORATING NOVEL WHEEL DESIGNS

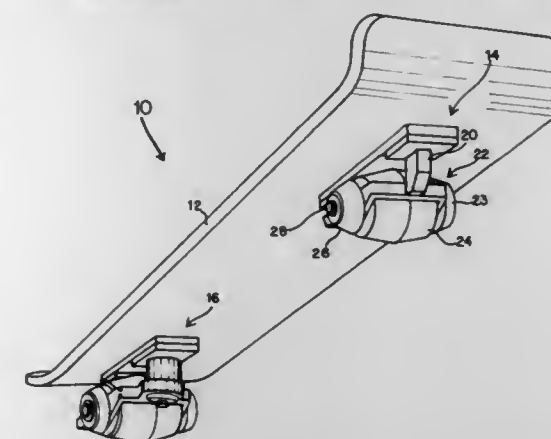
James D. Bouden, Boise, Id., assignor to Jerome F. Eberharter, Boise, Id.

Filed Feb. 12, 1996, Ser. No. 600,309

Int. Cl.⁶ A63C 17/00

U.S. Cl. 280—87.042

4 Claims



1. A wheel truck and wheel assembly for a skate platform, comprising:

a frame having a first and a second mounting means at opposing ends of the frame;

the frame further including at least a first and a second spaced apart sidemember, each extending between the first and second mounting means and defining a rectangular opening therebetween;

an axle extending across the rectangular opening between the first and second sidemembers and further extending through and beyond the first and second sidemembers;

a first wheel including a flat center surface and a first and a second edge around the circumference thereof and having a first and a second bevel formed on first and second edges of said first wheel;

said first wheel, rotatably mounted on the axle within said rectangular opening

a first and a second side wheel, rotatably mounted on the axle adjacent the first and second sidemembers, respectively, outside of the rectangular opening; and

each said first and second side wheel beveled around its respective circumference, having a larger diameter adjacent its associated sidemember.

5,803,474

TORSION BAR REAR SUSPENSION FOR RIDE-ON MOWERS

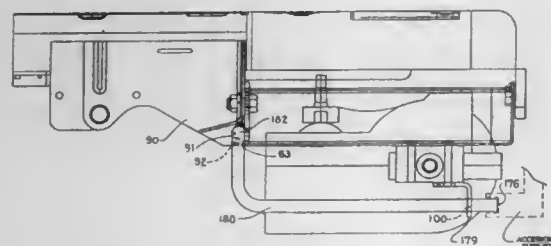
Kenneth H. Klas, Port Washington; Michael P. Schemelin, West Bend, and Daniel W. Schaefer, Port Washington, all of Wis., assignors to Simplicity Manufacturing, Inc., Port Washington, Wis.

Continuation-in-part of Ser. No. 437,156, Jun. 7, 1995, Pat. No. 5,570,570, which is a division of Ser. No. 92,971, Jul. 16, 1993, Pat. No. 5,474,315. This application Jul. 26, 1996, Ser. No. 687,683

Int. Cl.⁶ B60G 9/02; 11/18; A01D 34/64

U.S. Cl. 280—112.1

8 Claims



1. A rear suspension device in combination with a ride-on mower including a frame, the rear suspension device comprising: a pivoting assembly coupled to a rear portion of said frame of said ride-on mower;
 - a torsion bar including a first portion and a second portion that is integral with said first portion, said integral second portion of said torsion bar extending substantially parallel to a longitudinal axis of said ride-on mower and coupled to said pivoting assembly; and
 - a coupling structure coupled to said pivoting assembly, said coupling structure including an aperture, said torsion bar being coupled to said pivoting assembly by inserting at least one end of said torsion bar through said aperture in said coupling structure,
- wherein said first portion of said torsion bar is located between a rearward surface of said frame of said ride-on mower and a forward surface of said pivoting assembly and is trapped between said rearward surface of said frame of said ride-on mower and said forward surface of said pivoting assembly.

5,803,475

RECEIVER HITCH STEP ATTACHMENT

Edward R. Dick, 9841 Old 27, Waters, Mich. 49797-0158

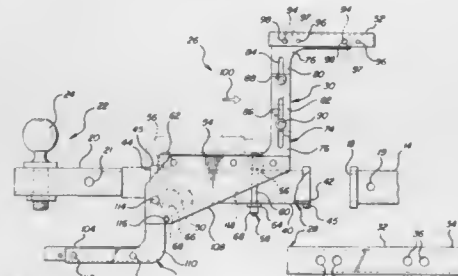
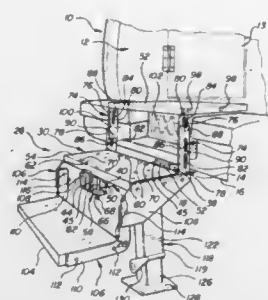
Filed Aug. 13, 1996, Ser. No. 696,351

Int. Cl.⁶ B60R 3/00

U.S. Cl. 280—163

23 Claims

1. A receiver hitch step attachment for a vehicle having an existing tubular receiver hitch, said attachment comprising: an elongate drawbar having a leading end slidable into supporting engagement with the existing receiver hitch of the vehicle and an opposite trailing end configured to support a hitch coupling releasably engageable with a mating hitch coupling of a trailer;
- at least an upper step and a lower step; and
- connecting structure connecting said steps to said drawbar and to one another and enabling lateral adjustment of said steps



relative to said drawbar and vertical adjustment of said steps relative to one another.

5,803,476

COMPOSITE BICYCLE FRAME AND METHOD OF MANUFACTURING

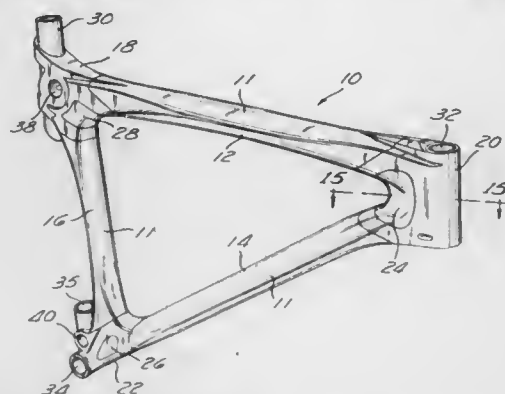
Steven H. Olson, Corona; James S. Busby, Costa Mesa, and Stanley A. Needle, Irvine, all of Calif., assignors to GT Bicycles, Inc., Santa Ana, Calif.

Filed Aug. 25, 1995, Ser. No. 519,568

Int. Cl.⁶ B62D 3/04

U.S. Cl. 280—281.1

19 Claims



1. A bicycle frame comprising:
 - a) a frame tube formed from a single, continuous section of polymer impregnated fiber material;
 - b) a seat tube fitting attached to said frame tube; and
 - c) a bottom bracket fitting attached to said frame tube.

5,803,477

BICYCLE FRAME CONSTRUCTION

Robert Reisinger, 2494 Victoria, Avenue, Calif. 93401

Filed Sep. 7, 1995, Ser. No. 525,333

Int. Cl.⁶ B62K 11/00

U.S. Cl. 280—284

2 Claims

1. A seatstay assembly for interconnecting a seat tube and rear wheel of a bicycle, comprising: a wishbone-shaped intermediate seatstay including an arcuate upper crown having a central apex and a pair of shoulders on

5,803,479

FIELD-ADJUSTABLE LOAD-ABSORBING SKI

Hans Meyer, Munich, and Lothar Meyer, Vaterstetten, both of Germany, assignors to Dural, Inc., Cumming, Ga.

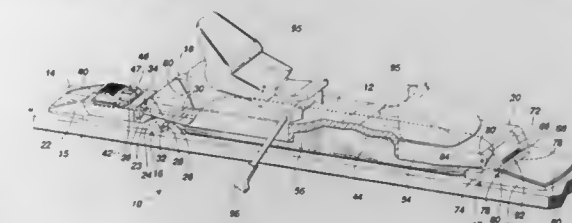
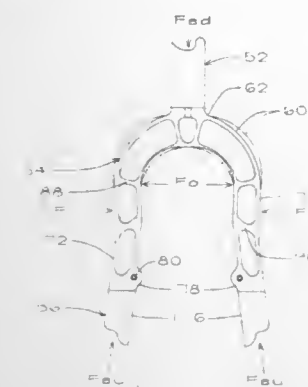
Filed Nov. 24, 1995, Ser. No. 562,473

Claims priority, application Germany, Nov. 25, 1994, 44 42 095.1

Int. Cl.⁶ A63C 9/00

U.S. Cl. 280—607

7 Claims



1. A field-adjustable load-absorbing ski, comprising: a ski;
 - a spring plate mounted by a rear base hinge and a forward base hinge to an upper surface of the ski for vertical movement of the spring plate relative to the ski;
 - an air bladder disposed between the upper surface of the ski and the spring plate;
 - an air pump attached to said ski, said air pump connected by an air pipe to the air bladder;
 - a valve operatively connected between the air pump and the air pipe, the valve movable between a closed position and an open position and selectively operable in the open position for communicating air under pressure from the pump into the air bladder and for communicating air from the air bladder to the atmosphere,
- whereby the skier, by selectively operating the open valve, adjusts the pressure of the air bladder which absorbs loads imposed on the skier during skiing.
- opposite sides of the apex and a pair of angulated legs integral with and extending downwardly from said shoulders, said crown being curved about an axis that is transverse to the legs, said legs having upper portions extending from said shoulders convergently inwardly toward each other and lower portions extending from said upper portions divergently outwardly away from each other, said legs and crown being formed by inner and outer flanges joined by a plurality of webs spaced lengthwise of the seatstay and located at said apex, at the juncture of said shoulders and upper leg portions, and at the juncture of said upper and lower leg portions, said webs and flanges defining openings through the intermediate seatstay;
- said flanges having width dimensions that extend generally parallel to said axis and thickness dimensions that extend transversely of said axis, said width dimensions being greater than said thickness dimensions;
- a rigid tubular upper seatstay interconnecting the apex of the crown and the seat tube; and
- a pair of rigid tubular lower seatstays interconnecting the lower ends of the lower portions of said legs and the rear wheel.

5,803,478

SKI

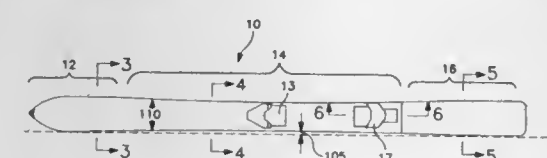
Richard Clifford Gavalis, 79 Paul Lemen Dr., Valley Forge, Pa. 19481

Filed Jun. 7, 1995, Ser. No. 472,124

Int. Cl.⁶ A63C 5/00

U.S. Cl. 280—601

13 Claims



1. A ski having a front tip and a rear tail comprising: a shovel portion adjacent said front tip, a middle portion, and a tail portion adjacent said rear tail,
- wherein said middle portion has a predetermined peak stiffness coefficient, and
- said tail portion has a peak stiffness coefficient which is less than 15 percent of said middle portion peak stiffness coefficient wherein said peak stiffness coefficient in said middle portion of said ski is at least about 200,000 lb-in².

5,803,480

SKI-BINDING ARRANGEMENT TO FIX A SKI BOOT TO A SKI, IN PARTICULAR A TOURING OR CROSS-COUNTRY SKI

Bernt-Otto Hauglin, Royken, Norway, and Rod Johnson, Colfax, Calif., assignors to Rottefella S.A., Norway

PCT No. PCT/IB94/00105, § 371 Date Apr. 12, 1996, § 102(e)

Date Apr. 12, 1996, PCT Pub. No. WO94/27692, PCT Pub.

Date Dec. 8, 1994

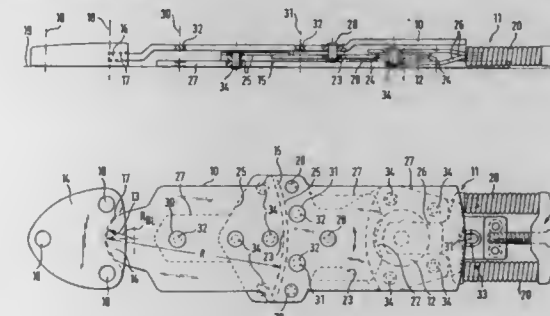
PCT Filed May 1, 1994, Ser. No. 553,451

Claims priority, application Germany, May 27, 1993, 43 17 735.2; Nov. 11, 1993, 43 38 590.7

Int. Cl.⁶ A63C 9/08

U.S. Cl. 280—615

16 Claims



1. A ski-binding apparatus to fix a ski boot to a ski including touring skis, comprising a ski holding plate including a first portion of a slideway having a front end and a back end, a front support having a member adapted to be releasably coupled to the front end of said holding plate (10) and permitting the holding plate to swing about an axis perpendicular to the surface (19) of the

ski, a locking mechanism (12) releasably coupled to the back end of the holding plate and permitting said swinging movement of the plate (11) to completely free the plates from the ski, and including a slideway (15) formed by a first and a second portion, the first portion is secured to the holding plate (10) between the front and back ends of the holding plate (10) and the second portion is adapted to be secured to the ski, said slideway (15) opening towards the sides of the plate and the ski and said slideway (15) establishing a radius of rotation (R) of the holding plate (10) about said front end (13).

5,803,481

FOOT MOUNTS FOR SNOWBOARDS

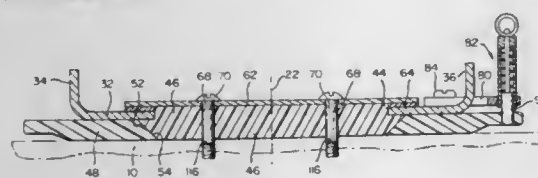
Eric L. Eaton, 6646 S. Prospect, Tacoma, Wash. 98409, and John C. Bitow, 4815 51st St. Court Test, Tacoma, Wash. 98443

Filed Mar. 1, 1996, Ser. No. 609,287

Int. Cl.⁶ A63C 7/10

U.S. Cl. 280—633

23 Claims



10. A snowboard, comprising:
a front foot component to which in use the front foot of a snowboard rider is secured;
a front foot station on the snowboard to which the front foot component is secured, for rotation about an axis, for azimuthal adjustment in position relative to the snowboard, in response to a rotation by the rider of his/her front foot and the front foot component, relative to the snowboard;
a releasable lock for locking the front foot component into a plurality of rider-selected positions on the snowboard;
wherein the lock includes a plurality of catches at the front foot station, spaced about said axis, and a lock pin carried by the front foot component that is selectively engageable in said catches, for locking the front foot component in a rider-selected azimuthal position on the snowboard;
wherein the lock pin is spring biased towards and into a catch as said pin moves into registry with the catch in response to said rotation by the rider of his/her front foot and the front foot component in position on the snowboard; and
wherein said catches each engage a short end portion of the spring biased lock pin so that the lock pin functions as a detent and is movable into and out from such catch by rider rotation of his/her front foot and the front foot component in position on the snowboard.

5,803,482

SHOCK ABSORBER FOR AUTOMOTIVE SUSPENSION

Ki-Won Kim, Kyungsaugnam-do, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Sep. 26, 1996, Ser. No. 715,839

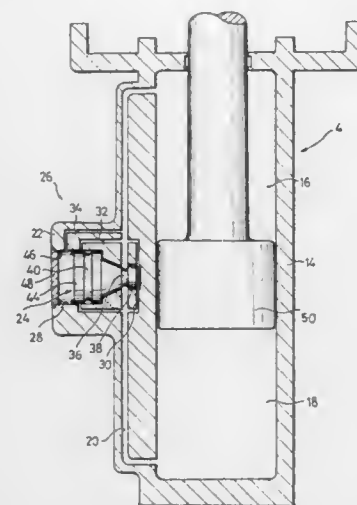
Claims priority, application Rep. of Korea, Sep. 30, 1995, 95-33189

Int. Cl.⁶ B60G 21/00

U.S. Cl. 280—703

3 Claims

1. A shock absorber of an automotive suspension for preventing dive of the front and rear end of the vehicle body, comprising:
a piston;
a cylinder divided into first and second hydraulic fluid chambers by the piston;
a hydraulic fluid passage for communicating the first and second hydraulic fluid chambers with each other; and
means for increasing flow resistance of fluid flowing in the hydraulic fluid passage when the front end of the vehicle body



dive by sudden braking force or the rear end of the vehicle body squats by sudden accelerating force, thereby minimizing the vehicle's dive and squat;

wherein said means comprises a valve having a valve body vertically formed so as to be an integral part of the cylinder and a valve chamber formed within the valve body, and a valve spool disposed within the valve chamber and biased by an elastic member, the valve body being provided with at least one bypass fluid passage bypassing the hydraulic fluid passage and having a smaller passage diameter than that of the hydraulic fluid passage, whereby when the front or rear end of the vehicle body dives or squats by abrupt braking or accelerating force, the valve spool is displaced by inertial force such that the hydraulic fluid passage is closed and the bypass fluid passage is opened, whereby the fluid flows by descending action of the piston through the bypass fluid passage while increasing flowing resistance thereof to minimize the vehicle's dive and squat.

5,803,483

AIRBAG CUSHION AND METHOD OF FOLDING THEREOF

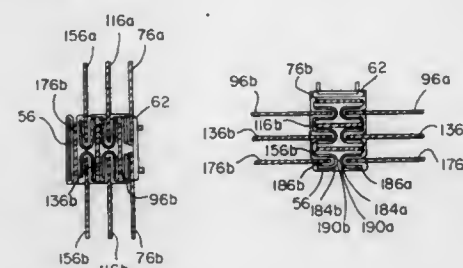
Larry F. Lunt, Brigham City, Utah, assignor to Autoliv ASP, Inc., Ogden, Utah

Filed Mar. 20, 1997, Ser. No. 821,131

Int. Cl.⁶ B60R 21/16

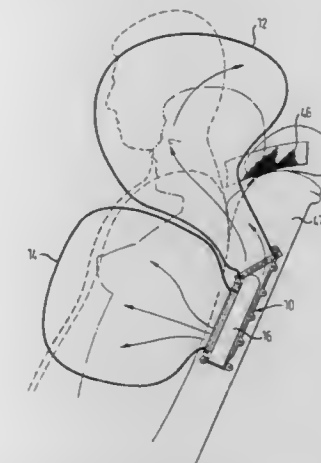
U.S. Cl. 280—728.1

15 Claims



12. A method of folding an inflatable airbag cushion having a mouth defined by a cushion retainer, the airbag cushion also having a front panel, a back panel and initially unfolded and uninflated with the back panel facing up and the mouth at a central position on the back panel, with the back panel having an upper portion above the mouth, a lower portion below the mouth, a first portion to the left of the mouth and a second portion to the right of the mouth, said method comprising the steps of:
tucking the centers of the airbag cushion back panel upper and lower portions, respectively, toward the mouth of the airbag

cushion, between the cushion retainer and the front panel, to form a first pair of upper and lower portion longitudinal pleats, respectively,
tucking the centers of the airbag cushion back panel first and second portions, respectively, toward the mouth of the airbag cushion, between the first pair of upper and lower portion longitudinal pleats and the front panel, to form a first pair of first and second portion lateral pleats, respectively,
tucking the centers of the unfolded cushion back panel upper and lower portions, respectively, toward the mouth of the airbag cushion, between the first pair of first and second portion lateral pleats and the front panel, to form a second pair of upper and lower portion longitudinal pleats, respectively, and
tucking the centers of the unfolded cushion back panel first and second portions, respectively, toward the mouth of the airbag cushion, between the second pair of upper and lower portion longitudinal pleats and the front panel, to form a second pair of first and second portion lateral pleats, respectively.



5,803,484

EXTRUDED CLIP FOR ATTACHING AIRBAG WIRE HARNESS TO EXTRUDED MODULE REACTION CAN

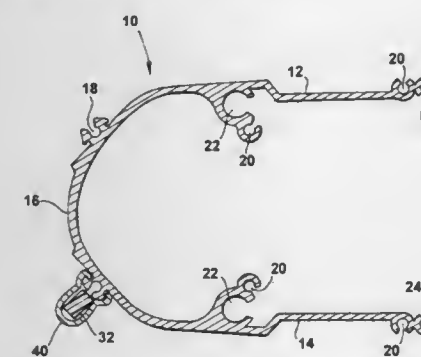
Bradley L. Orme, Knoxville, Tenn., assignor to Autoliv ASP, Inc., Ogden, Utah

Filed Jul. 8, 1996, Ser. No. 676,755

Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.2

10 Claims



1. An attachment system for retaining an accessory on an extruded module reaction can of a vehicle safety restraint system, comprising:

at least one channel formed integrally with the reaction can during extrusion thereof; and
an extruded attachment clip having opposed ends, one end of the attachment clip being capable of receiving the accessory and the other end of the attachment clip being attachable to the channel of the reaction can to secure the accessory thereon, wherein the attachment clip includes a pair of resilient legs and a rounded body portion joining the pair of legs.

5,803,485

GAS BAG LATERAL IMPACT PROTECTIVE DEVICE

Dominique Acker, Alfdorf, and Thomas Richter, Schwäbisch Gmünd, both of Germany, assignors to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany

Filed Oct. 8, 1996, Ser. No. 727,192

Claims priority, application Germany, Oct. 17, 1995, 195 38 657.4

Int. Cl.⁶ B60R 21/22

U.S. Cl. 280—728.2

9 Claims

1. A gas bag lateral impact protective device for vehicle occupants, which is integrated in the back of a vehicle seat and comprises a compressed gas source and further a thorax protecting gas bag and a head protecting gas bag which both are to be inflated

by said compressed gas source and which are adapted to deploy on inflation in a space to a side of the seat back, said head protecting gas bag, upon inflation, deploying above said thorax protecting gas bag, said gas bags being independent from each other, separate connection openings for said thorax protecting gas bag and said head protecting gas bag are provided in a housing, said connection opening for said head protecting gas bag extends in a plane running obliquely to a longitudinal axis of the seat back.

5,803,486

AIR BAG MODULE WITH MOUNTING AND DIFFUSER BRACKET

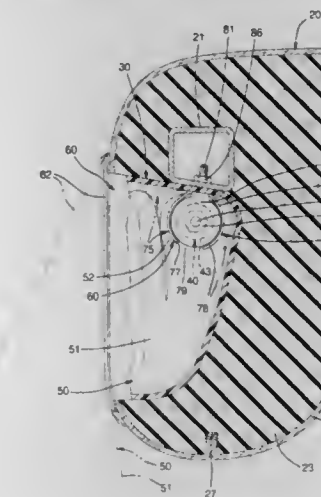
Graham Thornton Spencer, Tipp City; James Lloyd Webber, Centerville; Margaret Ann Fisher, Huber Heights; John Paul Sparkman, Dayton, and Mark Harvey Doney, Troy, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1996, Ser. No. 767,884

Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.2

23 Claims



1. An air bag module for attachment to a vehicle, the module comprising:

an axially elongated inflator for generating inflator gas, the inflator including an axially elongated body portion and a discharge end having discharge ports for discharging inflator gas therethrough;
an air bag deployable upon generation of inflator gas;
a mounting and diffuser bracket attached to the inflator, the inflator and mounting and diffuser bracket being positioned substantially within the air bag, the mounting and diffuser bracket for securing the inflator and air bag to the vehicle, the

mounting and diffuser bracket including a diffuser portion positioned radially outward of the discharge end of the inflator, the diffuser portion substantially surrounding the discharge ports of the inflator whereby upon discharge of gas by the inflator, the diffuser portion redirects and diffuses the discharging inflator gas into the air bag and provides a heat shield between the air bag and the discharge end of the inflator;

the mounting and diffuser bracket including a laterally bent end for capturing the discharge end of the inflator therein at a location axially outward of the discharge ports and the diffuser portion being positioned generally axially inward of the laterally bent end; and

the diffuser portion including at least one wing portion substantially surrounding the discharge ports, the wing portion being operatively connected to the laterally bent end for limiting movement of the wing portion during the discharge of inflator gas.

5,803,487

AIR BAG APPARATUS FOR VEHICLE

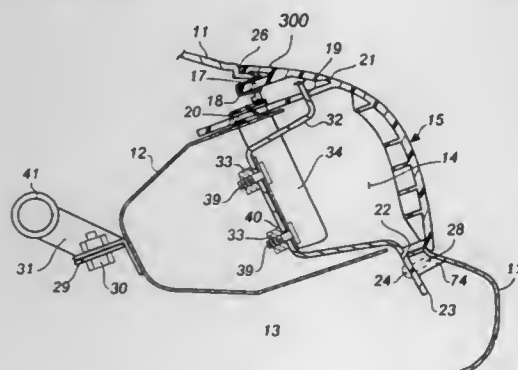
Ryo Kikuchi, Yokohama; Satoru Yamaguchi, Hiroshima, both of Japan; Robert E. Scriven, Farmington Hills, Mich., and Hirohiko Kikuchi, Kumagaya, Japan, assignors to AlliedSignal Inc., Morristown, N.J.; Isuzu Motors Ltd., Kanagawa-ken, and Kansei Corporation, Saitama-ken, both of Japan

Filed Feb. 19, 1997, Ser. No. 802,380

Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.2

14 Claims



1. An air bag apparatus for a vehicle comprising: an air bag module body housing, an air bag disposed below an underside of an instrument panel, said air bag inflating, upon detection of a crash of the vehicle thereby opening a tear seam portion of an air bag cover situated within an opening of said instrument panel, a lid bracket connected to said air bag cover, and panel brackets attached directly to the underside of said instrument panel, wherein said air bag cover is fixed, via said lid bracket, to said panel brackets after said air bag cover is inserted into the opening of said instrument panel from a top surface side thereof; and further, said air bag module body housing is secured to said panel brackets.

5,803,488

INFLATOR RETAINER AND AIR BAG MODULE

Brian J. Bailey; Patrick J. Fonk, both of Sterling Heights; Michael R. Dillon, Holly, and Albert Nawrot, Clinton Township, Macomb County, all of Mich., assignors to AlliedSignal Inc., Morristown, N.J.

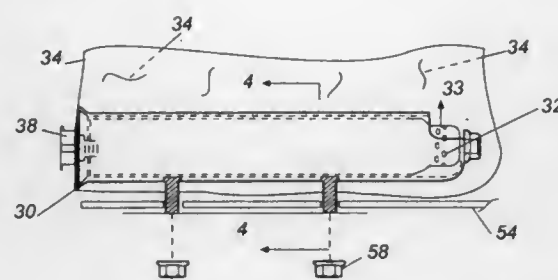
Filed Jun. 13, 1997, Ser. No. 874,606

Int. Cl.⁶ B60R 21/26

U.S. Cl. 280—728.2

5 Claims

1. A retainer assembly (22) for supporting an air bag inflator (24), the retainer assembly comprising:



a hollow body (40), through which the inflator (24) is inserted, having a first end (28) and a second end (32), the second end including first means for securing a cooperating second end of the inflator (36), the first end cooperating with a corresponding first end of the inflator to provide a seal which acts to reroute gas through a retainer vent notch (46); the retainer (22), along one side thereof including a set of access openings (48a) and (48b) and along an opposite side thereof a set of mounting holes (50a) and (50b), a respective one of the access openings aligned to corresponding mounting holes, a set of fasteners (52) mounted to the retainer (22) through corresponding mounting holes (50a) and (50b), the access openings (48a) and (48b) providing access to a portion of the fastener to permit the fastener (52) to be secured to the retainer (22) at the corresponding mounting holes (50a) and (50b).

5,803,489

GAS BAG COVER FOR A VEHICLE OCCUPANT RESTRAINING SYSTEM AND METHOD FOR TRW OCCUPANT RESTRAINT SYSTEMS GMBH, ALFDORF, GERMANY

Bernd Nussbör, Spraitbach, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany

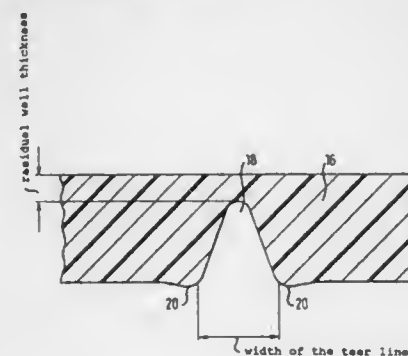
Filed Dec. 5, 1996, Ser. No. 759,470

Claims priority, application Germany, Dec. 13, 1995, 195 46 585.7

Int. Cl.⁶ B60R 21/16

U.S. Cl. 280—728.3

17 Claims



1. A gas bag cover for a vehicle occupant restraining system comprising an inner side and an outer side, and a tear line inwardly extending from said inner side of the cover as far as a predetermined residual wall thickness and taking a course on said inner side of the cover, wherein the cover has as a major constituent one or more layers in a composite structure, each of said one or more layers being formed of a material selected from the group consisting of elastomer alloys of a thermoplastic polymer with a non-cross-linked, partly cross-linked, or completely cross-linked ethylene-propylene-diene terpolymer, of block copolymers of alternating polyester and polyether blocks and of block copolymers of polystyrene and polyolefines, wherein said residual wall thickness amounts to between 0.3 and 1 mm along a major part of said course of said tear line, and wherein said tear line, starting from said inner side of the cover, steadily tapers toward said outer side

thereof, and wherein said tear line as measured at said inner side of the cover has a width between approximately 120 and 190 μm .

5,803,490

SIDE AIR BAG

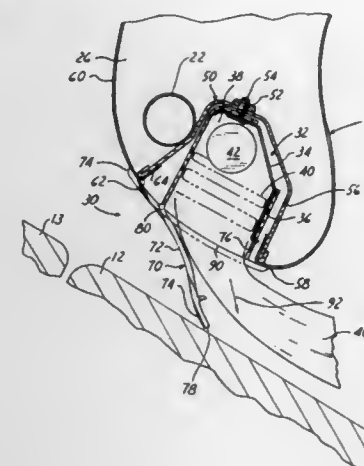
Michael J. Seventko, Berkley; John C. St. Pierre, Sterling Heights; Lawrence M. Marcinkowski, Auburn Hills, and Donald L. Silsbe, Woodhaven, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed May 5, 1997, Ser. No. 851,576

Int. Cl.⁶ B60R 21/22

U.S. Cl. 280—730.2

6 Claims



1. In combination, a motor vehicle seat provided with a seat back having a laterally outer side edge portion, said seat back having a frame adjacent said laterally outer side edge portion, an air bag module comprising a canister, an air bag stored in said canister, means mounting said canister on said frame, said canister having a door which is normally closed but is adapted to swing out and form an opening in said canister through which the air bag can deploy in a generally forward direction to help protect an occupant of the seat in a side impact, wherein said seat back has cushion material and said frame comprises an elongated, generally upright frame bar extending within said cushion material, wherein said mounting means comprises a bracket fitted in a cavity in the cushion material and secured to said frame bar and said canister is secured to said bracket, wherein said bracket is bowl-shaped facing laterally outwardly and having a rim disposed at the surface of the seat back, and an outer trim layer covering said cushion material, said trim layer having an opening exposing said door, wherein the material of said trim layer surrounding the opening therein forms a flap which is folded inwardly over the rim of said bracket.

5,803,491

SUPPLEMENTAL INFLATABLE RESTRAINT DISABLING SYSTEM

William Joseph Barnes, Waterford, and Lenore Walczak Kolhoff, Fenton, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

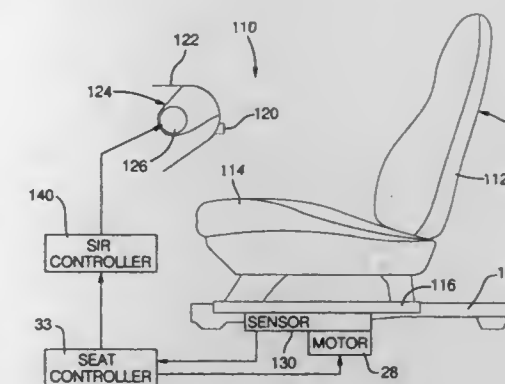
Filed Feb. 28, 1997, Ser. No. 808,751

Int. Cl.⁶ B60R 21/32

U.S. Cl. 280—735

13 Claims

1. A disabling system for a supplemental inflatable restraint system in a vehicle, the disabling system comprising:



a seat movable forward and rearward in the vehicle, the seat having a predetermined seat position; means for automatically disabling the supplemental inflatable restraint system when the seat is moved forward of the predetermined seat position and for automatically enabling the supplemental inflatable restraint system when the seat is moved rearward of the predetermined seat position.

5,803,492

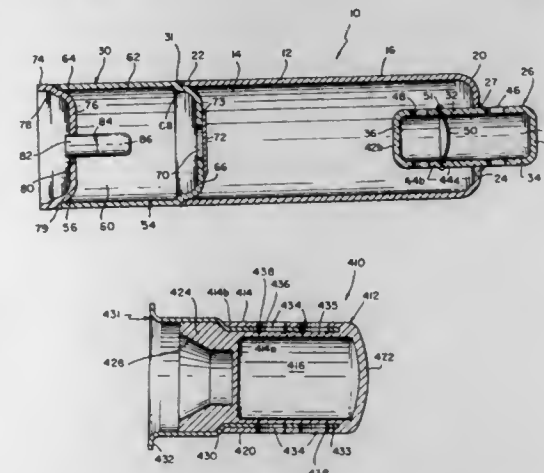
FUEL CONTAINMENT FOR FLUID FUELED AIRBAG INFLATORS

Karl K. Rink, Liberty; Bradley W. Smith, Ogden; David J. Green, Brigham City; Michael J. Ravenberg, Corinne; Walter A. Moore, Ogden; L. John Pierotti, Huntsville; Gregory J. Lang, and Harry W. Miller, both of Ogden, all of Utah, assignors to Morton International, Inc., Chicago, Ill. Continuation of Ser. No. 572,452, Dec. 14, 1995, abandoned, and a continuation-in-part of Ser. No. 437,911, May 10, 1995, abandoned, which is a continuation-in-part of Ser. No. 339,603, Nov. 15, 1994, Pat. No. 5,531,473, which is a continuation-in-part of Ser. No. 252,036, May 31, 1994, Pat. No. 5,470,104. This application Sep. 30, 1996, Ser. No. 723,796

Int. Cl.⁶ B60R 21/26

U.S. Cl. 280—737

65 Claims



1. An apparatus for inflating an inflatable device, said apparatus comprising:

a closed first chamber wherein at least one fuel in the form of a fluid is burned to produce combustion products, with said first chamber openable at predetermined conditions to permit release of the combustion products; a fuel containment assembly including a capsule having a unitary fixed outer wall defining an enclosed storage volume, with the storage volume containing at least a supply of the at least one fuel in the form of a fluid prior to installation of the capsule in the apparatus, with the capsule adapted to open at

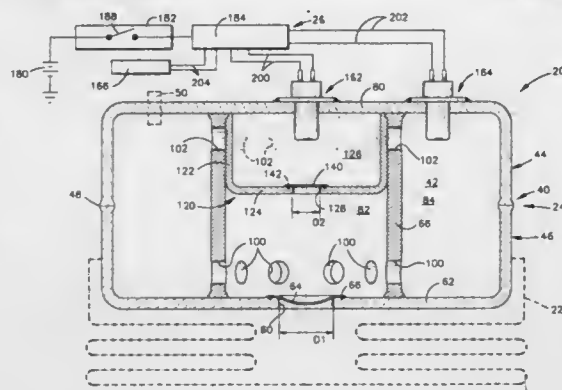
predetermined operating conditions to be in fluid communication with said first chamber; and
an initiator to initiate burning of the at least one fuel in said first chamber.

5,803,493
HYBRID BLOWDOWN INFLATOR WITH REDUCED PRESSURE BUILDUP
Donald J. Paxton, Romeo, Mich.; Mark L. Garcia, Logan, and David J. Green, Brigham City, both of Utah, assignors to Morton International Inc., Chicago, Ill.
Filed Apr. 17, 1997, Ser. No. 842,810
Int. Cl.⁶ B60R 21/26
U.S. Cl. 280—737 16 Claims



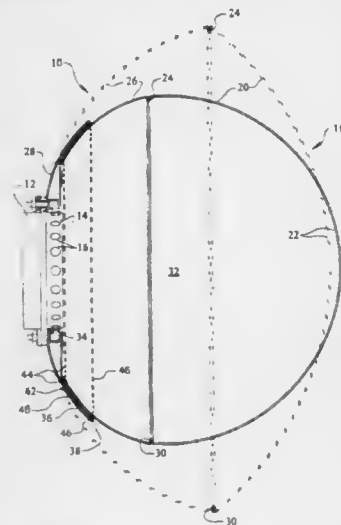
1. A pressurized gas inflator for a vehicle airbag module, said inflator comprising:
 - a) a pressure bottle having an outlet opening at one end, said outlet opening receiving and securing therein a first end of a tubular isolation housing,
 - b) the tubular isolation housing defining a sidewall projecting into the pressure bottle to a second end of the isolation housing, said second end of the isolation housing defining a mouth closed by a frangible burst means thereby forming in the pressure bottle a closed gas storage chamber containing stored, pressurized gas,
 - c) a combustion chamber coaxially positioned within the isolation housing and secured, at a first end thereof, in the outlet opening of the pressure bottle, said combustion chamber having an ignition source at said first end thereof and defining a sidewall having a neck terminating in a nozzle with a nozzle opening at a second end thereof, said nozzle having releasably positioned therein a projectile axially aligned with the frangible burst means in the isolation housing, the combustion chamber containing gas-generating combustible material adjacent the projectile,
 - d) gas exhaust ports located peripherally and exteriorly of the first end of the combustion chamber, and interiorly of the first end of the isolation housing adjacent the outlet opening of the pressure bottle, the projectile being explosively releasable from the nozzle opening for being propelled through the burst means by pressure created in the combustion chamber upon ignition of the combustible material for causing the projectile to rupture the burst means and pass into the gas storage chamber whereby, initially, unheated, stored, pressurized gas in the gas storage chamber is dischargeable into the mouth of the isolation housing for flowing between the sidewall of the combustion chamber and the sidewall of the isolation housing to and out the gas exhaust ports.

5,803,494
AIR BAG INFLATOR
Paul S. Headley, Mesa, Ariz., assignor to TRW Inc., Lyndhurst, Ohio
Filed Aug. 7, 1996, Ser. No. 692,945
Int. Cl.⁶ B60R 21/26
U.S. Cl. 280—741 20 Claims



1. An apparatus for inflating an inflatable vehicle occupant protection device, said apparatus comprising:
 - a) a container defining a chamber for material which effects inflation of the protection device, said container including a first opening of a first flow area through which fluid flows to inflate the protection device;
 - b) a rupturable first closure blocking fluid flow through the first opening in said container;
 - c) first actuatable means for, upon actuation, effecting the rupture of said first closure;
 - d) a member movable from a first position in which the fluid flow through the first opening is unrestricted when said first closure is ruptured to a second position in which fluid flow through the first opening is restricted by a portion of said member; and
 - e) second actuatable means for, upon actuation, moving said member from the first position to the second position and effecting the rupture of said first closure.

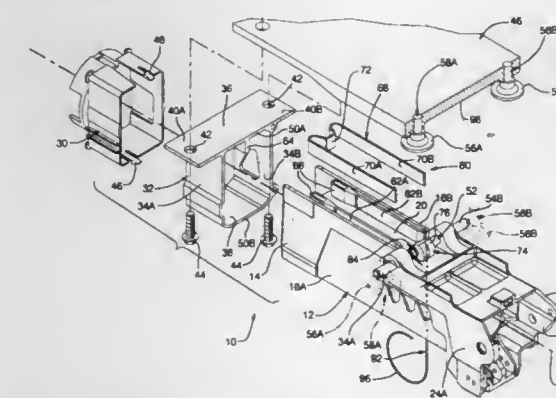
5,803,495
VARIABLE VOLUME AIRBAG CUSHION
Scott A. Jackson, Centerville, and Donald J. Cunningham, North Ogden, both of Utah, assignors to Autoliv ASP, Inc., Ogden, Utah
Filed Apr. 22, 1996, Ser. No. 636,077
Int. Cl.⁶ B60R 21/16
U.S. Cl. 280—743.1 8 Claims



6. An airbag cushion, comprising:

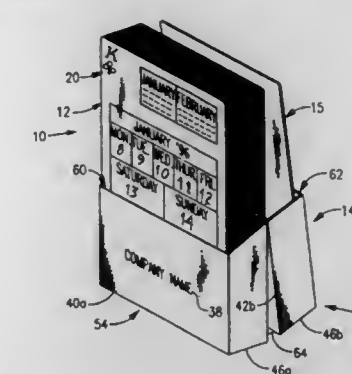
a front wall formed of flexible material and having a peripheral edge;
a rear wall formed of a flexible material and having a peripheral edge connected to said edge of said front wall, a gas opening extending through said rear wall, said front wall and said rear wall together defining a volume which may be inflated; and
at least one annular pleat formed in said rear wall intermediate said peripheral edge and said gas opening, said pleat being secured by a burst line which fails upon said volume reaching a predetermined pressure, failure of said burst line releasing said pleat and increasing the size of said rear wall, said volume and said cushion, and wherein said pleat is folded over to lie against said rear wall, and is frangibly secured to said rear wall.

5,803,496
ENERGY-ABSORBING STEERING COLUMN FOR MOTOR VEHICLE
William David Cymbal, Freeland, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 31, 1997, Ser. No. 829,032
Int. Cl.⁶ B62D 1/19
U.S. Cl. 280—777 6 Claims



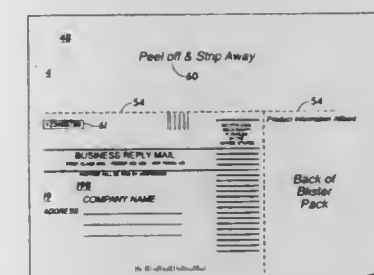
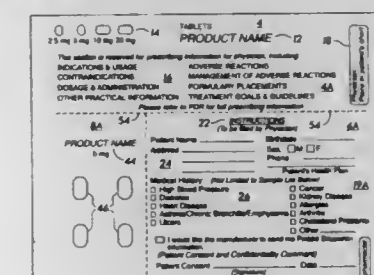
1. An energy-absorbing steering column for a motor vehicle comprising:
 - a) a housing having a first end and a second end,
 - b) a first support means operative to support vertically said first end of said housing on a body structure of said motor vehicle and to guide said housing for linear translation in a collapse direction in response to an impact on a steering wheel of said steering column in said collapse direction,
 - c) a second support means operative to support vertically said second end of said housing on said body structure and to release said housing from said body structure for linear translation in said collapse direction in response to said impact on said steering wheel in said collapse direction,
 - d) an energy absorber means between said housing and said body structure operative in response to linear translation of said housing in said collapse direction induced by said impact on said steering wheel to convert into work a fraction of the kinetic energy of said impact,
 - e) a cam rotatably supported on said housing near said second end thereof having a peripheral shoulder flaring outward relative to an axis of rotation of said cam, and
 - f) a spring rotatably biasing said cam to a position in which said peripheral shoulder on said cam bears against a reaction surface on said body structure to wedge said cam between said body structure and said housing to eliminate vertical lash between said body structure and said housing.

5,803,497
CARD CALENDAR
Sharon B. Suess, Halcottville, N.Y., assignor to Cullman Ventures, Inc., Norwalk, Conn.
Filed Mar. 19, 1996, Ser. No. 618,129
Int. Cl.⁶ B42D 5/04
U.S. Cl. 283—2 1 Claim



1. A card calendar for displaying the days of the year one week at a time, said calendar comprising:
 - a) a deck of 52 playing cards, each of said cards having indicia on a face side thereof indicating suit and rank of the card;
 - b) weekly calendar indicia on the face side of each of said cards indicating the days of the week and dates for each of the days of a particular week in a calendar year, said cards being arranged in said deck such that successive cards display the weeks of the year in chronological sequence; and
 - c) a special card containing on the face thereof indicia other than said weekly calendar indicia.

5,803,498
PHARMACEUTICAL MARKETING DEVICE AND SYSTEM
James C. Tung, 82 Highgate La., Blue Bell, Pa. 19422, and Norman Werther, 1323 Crosby Dr., Fort Washington, Pa. 19034
Filed May 12, 1995, Ser. No. 439,730
Int. Cl.⁶ B42D 15/00
U.S. Cl. 283—56 5 Claims



1. A device for marketing a drug by a pharmaceutical company, said device including multiple segments, one of said segments including said drug, a second of said segments including a label

2. An imagable business record in which different selected areas may be activated to form colored areas comprising:

a substrate having first and second major surfaces, at least one surface of said substrate including on selected areas thereof a plurality of initially colorless coatings which, when activated, form a plurality of different colored visible areas on said substrate; wherein said initially colorless coatings comprise self-contained coatings of color formers and color developers in which either said color formers or said color developers are contained in pressure rupturable microcapsules; and wherein said business record is in the form of a continuous web for producing a series of imagable business records.

5,803,506

FLEXIBLE PIPE LOOP

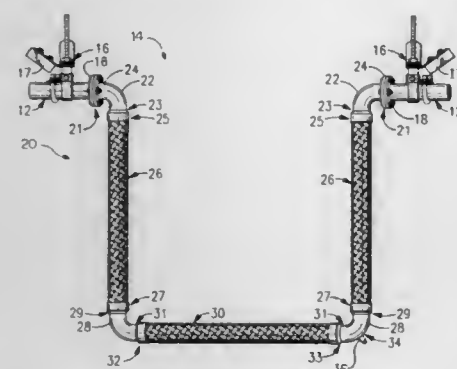
Philip B. Argersinger, West Monroe, and Robert J. Walsh, Camillus, both of N.Y., assignors to Flex-Hose Company, Inc., East Syracuse, N.Y.

Filed Sep. 10, 1997, Ser. No. 926,803

Int. Cl.⁶ F16L 55/02

U.S. Cl. 285—14

10 Claims



1. A flexible pipe loop for use in a pipe run which is divided at a location along its run, said loop comprising:
 - a pair of oppositely disposed pipe run elbows, each having a first open end to be connected to the pipe run at the divided location, and each having a second open end;
 - a pair of flexible tube members each having first and second open ends, the first open ends of said pair of tube members being connected to the second open ends of said pipe run elbows, respectively;
 - a pair of loop elbows, disposed in a spaced-apart opposing relation, and each having first and second open ends, the first open ends of said pair of loop elbows being connected to the second open ends of said pair of flexible tube members, respectively; and
 - a third flexible tube member connected between, and to the second open ends of, said pair of loop elbows, whereby a complete fluid path is established through said flexible pipe loop.

5,803,507

APPARATUS FOR HANDLING PROCESS FLUID

Kim N. Vu, Yorba Linda, Calif., assignor to Unit Instruments, Inc., Yorba Linda, Calif.

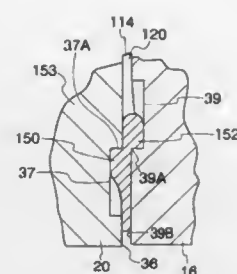
Continuation of Ser. No. 469,785, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 355,120, Dec. 13, 1994, abandoned, which is a continuation of Ser. No. 132,764, Oct. 6, 1993, abandoned. This application Nov. 13, 1995, Ser. No. 557,378

Int. Cl.⁶ F16L 55/00

U.S. Cl. 285—23

11 Claims

1. Apparatus for handling process fluid, comprising:
 - a metal block having a block sealing groove formed on a flat face thereof and terminating in a block sealing edge formed substantially flush with the flat face;



- a metal removable connection fitting connected to the metal block in fluid communication therewith, the metal removable connection fitting having a connection sealing groove formed on a flat face thereof, the connection sealing groove terminating in an offset, relative to said block sealing edge, connection sealing edge formed substantially flush with the flat face, the metal block and the metal removable connection fitting defining an internal flow path;
- a removable metal seal having an inner circumferential edge, an outer circumferential edge and a pair of flat faces and being positioned between the metal removable connection fitting and the metal block so that as the removable connection fitting and the metal block are assembled, the flat faces are moved toward each other and the offset block sealing edge and connection sealing edge engage said removable metal seal deforming said removable metal seal into a configuration having a pair of relatively wide end portions and relatively narrow middle portion with a seal being effected at the offset block sealing edge and connection sealing edge, the inner circumferential edge and the outer circumferential edge being substantially free of contact with the metal block and the metal removable connection fitting and the inner circumferential edge being in communication with the flow path, the seal being free of virtual leak paths and without the removable metal seal locking the metal block to the metal removable connection fitting; and
- a locator connected to the seal for positioning the seal with respect to the edges prior to sealing engagement.

5,803,508

WALL-ATTACHED PLUMBING CONNECTOR

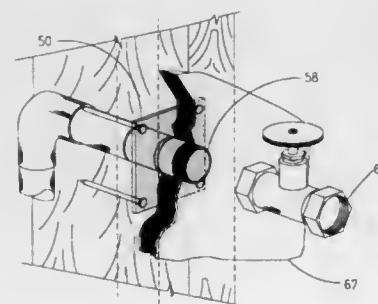
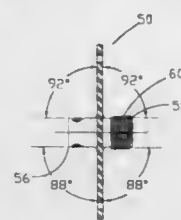
Monty Dale Lowella, Austin, Tex., assignor to Connection FX, Inc., Austin, Tex.

Filed Jun. 13, 1996, Ser. No. 662,647

Int. Cl.⁶ F16L 5/00

U.S. Cl. 285—64

20 Claims



1. A plumbing connector for effecting a plumbing penetration through a wall, the wall including a framing member having

sheathing of pre-determined thickness applied thereto, the plumbing connector comprising:

- a plate element, means on said plate element for connection of said plate element to said framing member prior to application of said sheathing to said framing member;
 - a connector tube rigidly disposed through and rigidly connected to said plate element, said connector tube having an inside portion for placement away from said sheathing, said inside portion of said connector tube defining a first bore having a first predetermined diameter, and an outside portion for placement through said sheathing, said outside portion of said connector tube defining a second bore having a second predetermined diameter, the length of said outside portion defining a predefined length required by said predetermined thickness of said sheathing;
 - first plumbing connection means, disposed at an outer end of said inside portion of said connector tube, for receiving at least one of pipe and plumbing fitting; and
 - second plumbing connection means, disposed at an outer end of said outside portion of said connector tube, for receiving at least one of pipe and plumbing fitting,
- whereby said at least one of said pipe and said plumbing fixture received in said second plumbing connection means is positioned a predetermined distance from an outer surface of said wall.

5,803,509

LINE CONNECTOR LOCK

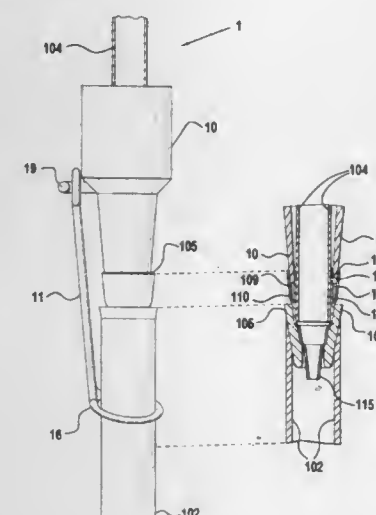
Robert D. Adams, 2 Meetinghouse Ct., Shamong, N.J. 08088

Filed Apr. 28, 1997, Ser. No. 847,698

Int. Cl.⁶ F16L 37/04

U.S. Cl. 285—114

17 Claims



1. A security device for a connection that joins the ends of tubular conductors, the device comprising:
 - a slotted hollow body having first and second ends and an attachment point for attaching an elastic element to the body; and
 - an elastic element having a first portion configured to mate with the attachment point and another portion configured for attachment at a position at a distance from the attachment point, the elastic element having a predetermined length in a relaxed state that is less than the distance between the point and the position so that the elastic element is under tension when both portions are attached.

5,803,510

QUICK DISCONNECT FITTING FOR COUPLING INTERCHANGEABLE PROBE TIP TO LAPAROSCOPIC INSTRUMENT

James H. Dorsey, III, Delray Beach, Fla., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 645,271, May 14, 1996, which is a

continuation of Ser. No. 286,949, Aug. 8, 1994, Pat. No.

5,586,977, which is a continuation of Ser. No. 989,109, Dec.

11, 1992, abandoned, which is a continuation-in-part of Ser.

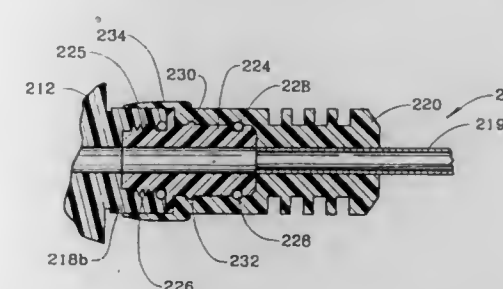
No. 470,771, Jan. 26, 1990, Pat. No. 5,188,591. This applica-

tion Sep. 10, 1997, Ser. No. 926,726

Int. Cl.⁶ A61M 5/00; F16L 37/00

U.S. Cl. 285—148.23

11 Claims



10. A combination endoscopic surgical valve and valve adaptor for coupling a non-threaded attachment member of an endoscopic surgical probe to a threaded probe accepting member at an outlet of an endoscopic surgical valve so that a plurality of different, interchangeable endoscopic surgical probes may be both rapidly engaged to and disengaged from the endoscopic surgical valve, comprising:

- a surgical valve having an inlet and an outlet including a probe mount member operatively associated with said outlet;
- an endoscopic surgical valve adaptor, comprising:
 - a first threaded end shaped for operative threaded association with the threaded probe accepting member of the endoscopic surgical valve;
 - a second non-threaded end shaped for operative association with the non-threaded attachment member of a surgical probe by linearly moving the attachment member with respect to said second non-threaded end of said endoscopic surgical valve adaptor; and
 - a connection assembly including a seal on said second end of said endoscopic surgical valve adaptor;
- wherein:
 - said seal provides a seal connection between said second end of said endoscopic surgical valve adaptor and the attachment member of the surgical probe coupled thereto;
 - said connection assembly permits rotation of the probe attachment member coupled to said endoscopic surgical valve adaptor with respect to said endoscopic surgical valve adaptor without disengagement of the probe attachment member from said endoscopic surgical valve adaptor; and
 - said connection assembly permits both rapid engagement with and disengagement from the probe attachment member by exclusively linear movement of the probe attachment member and said endoscopic surgical valve adaptor with respect to each other.

5,803,511

ADAPTORS AND METHOD OF ATTACHING METAL BRAID REINFORCED CONVOLUTED METAL HOSES TO SUCH ADAPTORS

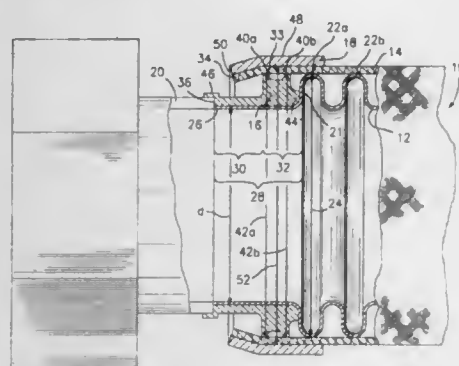
Arthur J. Bessette, Belchertown, Mass., assignor to Titeflex Corporation, Springfield, Mass.

Continuation of Ser. No. 453,670, May 30, 1995, abandoned. This application Mar. 31, 1997, Ser. No. 832,601

Int. Cl.⁶ F16L 13/14

U.S. Cl. 285—222.5

2 Claims



1. An adaptor, having a bore with a diameter, for attaching an end fitting to a metal braid reinforced convoluted metal hose, said hose having a first convoluted having an outside diameter, wherein said adaptor comprises: a first end for attachment to said end fitting; a radiused end adapted to fit against and conform to an outside contour of said first convoluted of said metal hose; and at least one external friction enhanced bearing surface, having a maximum outside diameter and having a total bearing surface area, wherein said maximum outside diameter of said bearing surface or surfaces is adapted to be greater than or equal to said outside diameter of said first convoluted of said metal hose, wherein said diameter of said adaptor bore ranges from about 0.48 to about 3.18 centimeters; and wherein said total bearing surface area of said external friction enhanced bearing surface or surfaces of said adaptor ranges from about 0.60 to about 2.79 square centimeters.

5,803,512

TUBE QUICK CONNECT TO FEMALE SOCKET

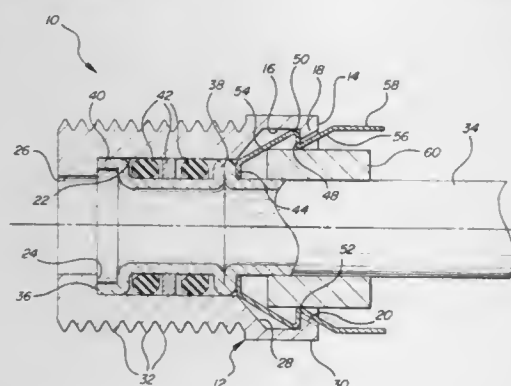
Harold E. Hollnagel, 9479 N. Riverbend Ct., Milwaukee, Wis. 53217

Continuation-in-part of Ser. No. 621,110, Mar. 22, 1996, Pat. No. 5,718,463. This application Aug. 14, 1997, Ser. No. 911,540

Int. Cl.⁶ F16L 37/12; 39/00

U.S. Cl. 285—319

17 Claims



1. A tube quick connect assembly (10) comprising: a socket member (12) defining a female socket,

a tube (34) having a forward end disposed in said socket member (12) and presenting a radially extending projection (38) disposed rearwardly of said forward end, said socket member (12) presenting a radially extending shoulder,

a quick connect member having a support portion (44) surrounding said tube (34) and in sliding engagement with said tube (34) and including a pair of arms with each arm extending axially along said tube (34) from said support portion (44) to an abutment (48) biased radially outwardly into a locked position in radial overlapping engagement with said shoulder and moveable radially inwardly to a release position wherein said abutment (48) clears said shoulder to axially remove said quick connect member from said socket,

said quick connect member characterized by said abutment (48) having a tip (50) at the radially outward extremity and a trough (52) at the radially inward extremity, said quick connect member presenting a forward extremity which applies a retention force to said projection (38) in a radial plane and rearwardly of said projection, each of said arms including a flared length (54) slanting radially outwardly and axially rearwardly immediately from said radial plane at said forward extremity to said tip (50), each of said arms extending radially inwardly through said abutment (48) to said trough (52), each of said arms including a lever length (56) extending from said trough (52) radially outwardly and axially rearwardly to a finger (58) extending axially from said lever length (56).

5,803,513

RESTRAINED SEALED BOLTED JOINTS OF FLUID PIPING SYSTEMS, INCLUSIVE OF AN IMPROVED GLAND, AN ADDED COMPRESSION CONTROL RING, AND/OR ADDED SKID PADS PLACED ON A GRIP RING

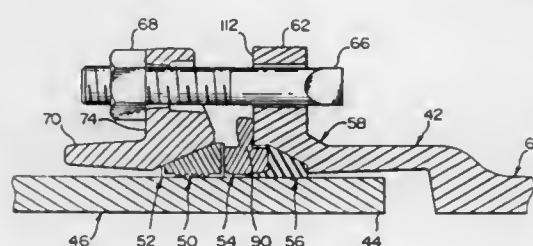
Robert J. Richardson, 20104 Cascade St. E., Bonney Lake, Wash. 98390

Filed Jun. 13, 1996, Ser. No. 662,919

Int. Cl.⁶ F16L 19/02; 19/065; 19/08

U.S. Cl. 285—342

35 Claims



1. A compression control ring adapted for use in fluid piping systems, which are primarily water and sewer piping systems, whereby this compression control ring is adapted to be included in a cooperating combination of a gland and a grip ring for installations in respective types of bolted joints, also referred to as mechanical joints, having flanges, which also include plain rubber gaskets, serving to create and to maintain a fluid seal, comprising the integral arrangement of:

a circular body having: an inside diameter larger than an outside diameter of a pipe of a fluid piping system; an outside diameter, of an interrupted circumferential surface structure thereof, slightly smaller than an outside diameter of a plain rubber gasket; and spaced radially and outwardly extending stop tabs spaced along the interrupted circumferential surface structure, creating the interruptions thereof, and adapted for contacting a portion of a flange of a mechanical joint fitting, and thereby to be ready to stop a compressive force previously moving a plain rubber gasket into sealing contact with a pipe and with a flange.

7. A skid pad adapted for use in fluid piping systems, which are primarily water and sewer piping systems, whereby this skid pad is

adapted to be included, with other skid pads, in a cooperating combination of a gland and a grip ring for installations in respective types of bolted joints, also referred to as mechanical joints, having flanges, which also include plain rubber gaskets, serving to create and to maintain a fluid seal, comprising the integral arrangement of:

a curved lower surface structure serving at the outset as a sliding surface structure, having an inside diameter substantially mating with an outside diameter of a pipe of a fluid piping system, and having an outside diameter substantially mating with an inside diameter of a grip ring;

a smaller upstanding radial positioning structure, at one end of the curved lower surface structure, adapted to snugly fit a smaller circular radial side of a grip ring; and

a larger upstanding radial positioning structure, at the other end of the curved lower surface structure, adapted to snugly fit a larger circular radial side of a grip ring;

whereby a selected number of these skid pads are arranged at spaced circumferential positions on a grip ring, to be subsequently effective, during an assembly of a bolted joint, also referred to as a mechanical joint, to keep the grip ring from making a too early gripping contact with a pipe, and then subsequently, when necessary, being penetrated by gripping teeth of a grip ring during a final tightening of nuts on bolts of a bolted joint.

14. For fluid piping systems, which are primarily water and sewer piping systems, a cooperating combination of a gland, a grip ring, a compression control ring, and skid pads, for installations in respective types of bolted joints, also referred to as mechanical joints, which include a gasket, comprising:

a. the grip ring having the integral arrangement of:

- i. a radial open through slot to accommodate the subsequent reduction of the internal diameter thereof;
- ii. a commencing internal diameter exceeding a diameter of a pipe to be subsequently engaged by the grip ring, when the diameter thereof is later reduced;
- iii. an internal surface structure having pipe gripping circumferential teeth;
- iv. an external inclined structure, commencing at a larger diameter end thereof, at a larger vertical shoulder thereof, which will initially face and later contact a compression control ring of a bolted joint, and terminating at a smaller diameter end at a smaller vertical shoulder thereof, which will initially face the gland of this cooperating combination;

b. the gland having the integral arrangement of:

- i. an internal surface structure, commencing at a larger diameter end thereof, at a vertical shoulder thereof, which faces the grip ring, and which faces in the direction of the gasket of the bolted joint, and terminating at a smaller diameter end thereof which initially faces and is nearer the smaller diameter end of the external inclined surface structure of the grip ring, when portions of this internal inclined surface structure are in forceful contact with portions of the external inclined structure of the grip ring, after installation, in a bolted joint, when the bolt and nut fasteners of the bolted joint are tightened; and
- ii. variable external surface structures including: a central body portion adjacent the internal inclined surface structure thereof; a flange extending out from the central body portion thereof; and spaced receiving hole structures extending out from the flange thereof to receive bolts of the bolted joint, which also will be received in spaced receiving hole structures of another piping structure, and thereafter, respective nuts are threaded on the installation bolts, and when these nuts are fully tightened a respective type of the bolted joint will be completed, insuring both the sealing contact of the gasket around the pipe as the grip ring presses the gasket into the sealing position, and providing adequate gripping contact of the grip ring about the pipe, whether it be a metal or plastic pipe;

c. the compression control ring having the integral arrangement of:

a circular body having:

an inside diameter larger than an outside diameter of a pipe of a fluid piping system;

an outside diameter, of an interrupted circumferential surface structure thereof, slightly smaller than an outside diameter of a plain rubber gasket; and

spaced radially and outwardly extending stop tabs spaced along the interrupted circumferential surface structure, creating the interruptions thereof, and adapted for contacting a portion of a flange of a mechanical joint fitting, and thereby to be ready to stop a compressive force previously moving a plain rubber gasket into sealing contact with a pipe and with a flange; and

d. the skid pads, each comprising the integral arrangement of:

a curved lower surface structure serving at the outset as a sliding surface structure, having an inside diameter substantially mating with an outside diameter of a pipe of a fluid piping system, and having an outside diameter substantially mating with an inside diameter of a grip ring;

a smaller upstanding radial positioning structure, at one end of the curved lower surface structure, adapted to snugly fit a smaller circular radial side of a grip ring; and

a larger upstanding radial positioning structure, at the other end of the curved lower surface structure adapted to snugly fit a larger circular radial side of a grip ring;

whereby a selected number of these skid pads are arranged at spaced circumferential positions on a grip ring, to be subsequently effective, during an assembly of a bolted joint, also referred to as a mechanical joint, to keep the grip ring from making a too early gripping contact with a pipe, and then subsequently, when necessary, being penetrated by gripping teeth of a grip ring during a final tightening of bolts of a bolted joint.

5,803,514

VEHICLE BUMPER MOUNTING STRUCTURE

Akihiro Shibuya, Kouji Yamada, and Yoshinobu Kanazawa, all of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 655,002, May 29, 1996, abandoned.

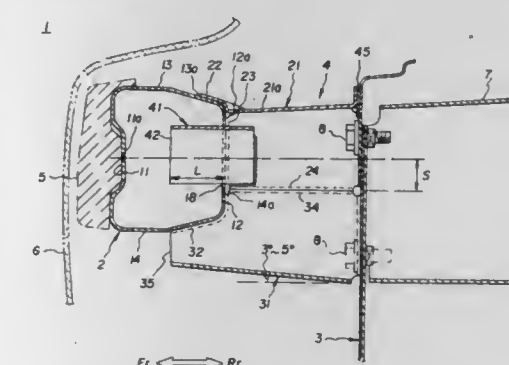
This application Jul. 17, 1997, Ser. No. 893,997

Claims priority, application Japan, Jun. 20, 1995, 7-153256

Int. Cl.⁶ B60R 19/34

U.S. Cl. 293—133

8 Claims



1. A vehicle bumper mounting structure comprising: a bumper beam extending transversely of a vehicle and mounted to a chassis through a support, wherein said bumper beam is covered with a bumper face, said bumper beam is comprised of a hollow body made of high-tension steel, and said bumper beam has a front portion, a rear portion and top and bottom portions joining said front and rear portions and forming said hollow body; said support has a front end extending forward beyond said rear portion of said bumper beam, said front end of said support being spaced from said front portion of said bumper beam for allowing plastic deformation of said bumper beam corresponding to a front end of said bumper beam.

sponding to a magnitude of collision energy when collision acts upon a bumper of said vehicle from a front of said bumper; wherein said rear portion of said bumper beam has an opening and said front end of said support is inserted into said hollow body of said bumper beam through said opening; and wherein said support has a top portion and a bottom portion tilted to approach each other toward said bumper beam.

5,803,515

VEHICLE DOOR LATCH

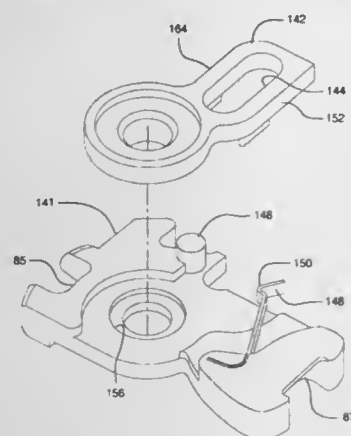
Frank Joseph Arabia, Jr., Macomb Township; Colby Lenn Bellew, Troy; Ian Martin, Pontiac, and Joseph Michael Johnson, Huntington, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Sep. 4, 1996, Ser. No. 707,467

Int. Cl.⁶ E05C 3/06

U.S. Cl. 292—216

3 Claims



1. A vehicle door latch operable between latched and unlatched conditions by at least one release handle and operable between locked and unlocked conditions by an inside actuatable locking/unlocking actuator, comprising:

- a fork bolt that is movable between a latched position and an unlatched position, the fork bolt having a latch shoulder;
- a detent engageable with the latch shoulder of the fork bolt to hold it in the latched position;
- an intermittent lever that is operatively connected to the detent for disengaging the detent from the latch shoulder of the fork bolt;
- a transfer lever movable by the release handle and being engageable with the intermittent lever to move the intermittent lever and disengage the detent from the latch shoulder of the fork bolt;

- a first locking lever operated between locked and unlocked positions by the inside actuatable locking/unlocking actuator
- a second locking lever operatively connected to the intermittent lever to shift the intermittent lever between a normal unlocked position and a locked position in which the transfer lever is unable to engage the intermittent lever so that operation of the handle is unable to unlatch the latch;

interengaging shoulders on the first and second locking levers, the shoulder of the first locking lever engaging with the shoulder of the second locking lever to ensure shifting of the intermittent lever to the locked position upon movement of the first locking lever to the locked position by the locking/unlocking actuator;

and a spring acting between the first and second locking levers to normally drive the second locking lever and shift the intermittent lever to the unlocked position upon movement of the first locking lever by the locking/unlocking actuator, and said spring yielding in the event that the intermittent lever is blocked from movement by premature operation of the transfer lever by the release handle so that the second locking lever

is unable to shift the intermittent lever whereby energy is stored in the spring to subsequently move the second locking lever to an unlocked position and shift the intermittent lever when the intermittent lever becomes unblocked.

5,803,516

LATCH ASSEMBLY

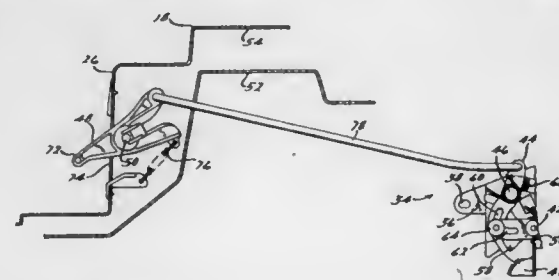
Conrad Frederick Hempel, Farmington Hills, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Aug. 1, 1996, Ser. No. 691,083

Int. Cl.⁶ E05B 3/00; E05C 3/16

U.S. Cl. 292—336.3

8 Claims



1. A latch disabbling assembly for a rear door of a vehicle having a front face positioned in juxtaposition with a rear face of a front door of the vehicle when the front door is moved into a closed position with respect to the vehicle, the latch disabbling assembly comprising:

- a latch release lever for being pivotally mounted on a rear door for movement between the latching and a releasing position;
- a release handle for being pivotally mounted on the rear door for movement between a first position corresponding to said latching position, and a second position corresponding to said latch releasing position;

linkage means for being pivotally mounted on the rear door for effecting movement between said release handle and said latch release lever;

- a lost motion mechanism operatively carried between said release handle and said linkage means for selectively preventing transmittal of motion therebetween when the front door and the rear door are both in the closed position; and
- an operating lever for being pivotally mounted on the rear door and operatively connected to the lost motion mechanism, and having a finger portion for projecting forwardly from the front face of the rear door and engaging the rear face of the front door as the front and rear doors move from open to closed position with respect to each other to operate said lost motion mechanism to prevent said transmittal of motion.

5,803,517

VEHICULAR BUMPER BEAM AND METHOD FOR FABRICATING THE SAME

Akihiro Shibuya, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 27, 1996, Ser. No. 671,552

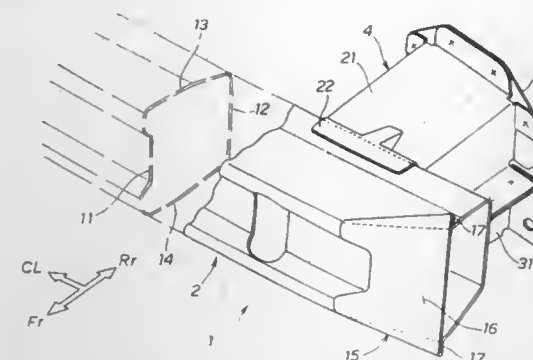
Claims priority, application Japan, Jul. 7, 1995, 7-172443

Int. Cl.⁶ B60R 19/02

U.S. Cl. 293—120

2 Claims

- 1. A vehicular bumper beam, comprising: a hollow member mounted to a front side or rear side of a vehicle and extending transversely with respect thereto, said hollow member having an upper side portion, a front side portion, a lower side portion and a rear side portion, each extending longitudinally between opposite ends of said hollow member to form a singular spaced box member; said front side portion having an inclined surface at a front corner portion of said hollow member, said inclined surface



being inclined toward said rear side portion and extending from said lower side portion to said upper side portion; wherein said hollow member is made from high tension steel; and wherein said inclined surface of said front side portion further extends outwardly from said upper side portion and said lower side portion to form a folded upper edge and lower edge, said upper and lower edges extending along an external surface of said hollow member.

5,803,518

TANDEM AXLE TRAILER PIN LEVERAGE HANDLE SYSTEM

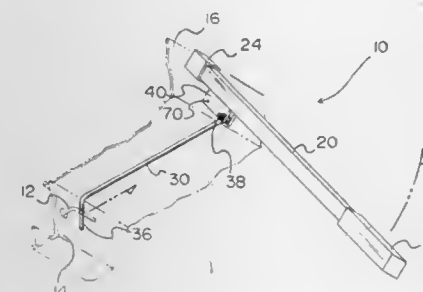
Brian Scott Gibbons, 19 Cherry St., Montrose, Pa. 18801

Filed Dec. 23, 1996, Ser. No. 771,473

Int. Cl.⁶ B66F 3/00

U.S. Cl. 294—18

12 Claims



- 1. A tandem axle trailer pin leverage handle system comprising: a substantially straight elongated handle having a first end, a second end and a longitudinal axis, wherein said first end is for removably engaging a trailer box for providing a leverage point, said elongated handle further having a pair of plates disposed therefrom positioned proximate said first end and parallel to said longitudinal axis; an elongated rod pivotally secured between said plates, said rod aligned parallel with a plane projecting through said longitudinal axis of said elongated handle; and a hook secured to said elongated rod opposite of said elongated handle for selectively engaging a tandem axle trailer pin.

5,803,519

ROD AND REEL CADDY

Francis P. Daigle, 220 Clara Dr., Slidell, La. 70458

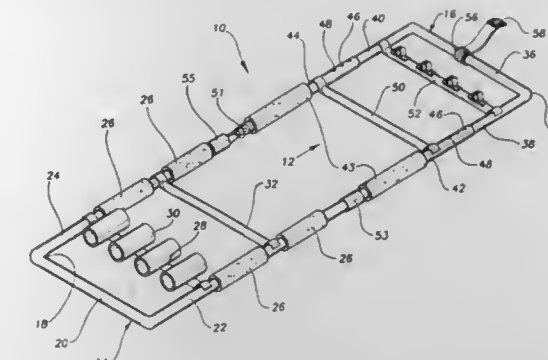
Filed Feb. 25, 1997, Ser. No. 805,421

Int. Cl.⁶ A01K 97/10; B65D 71/00

U.S. Cl. 294—159

20 Claims

- 1. A rod and reel caddy comprising: a folding frame structure including: a first U-shaped assembly having a first central bar, a first pair of parallel bars extending from ends of said first central bar



in a manner to form a U-shaped structure, a heel attachment bar connected between said first pair of parallel bars, and a plurality of rod heel receiving tubes attached and spaced along said heel attachment bar; and

a second U-shaped assembly having a second central bar, a second pair of parallel bars extending from ends of said second central bar in a manner to form a U-shaped structure, each of said second pair of parallel bars being adjustable in length, at least one of said second pair of parallel bars including a length locking mechanism for allowing a user to lock said second pair of parallel bars at a desired length, a rod gripping bar attached between and perpendicular to said second pair of parallel bars, and a plurality of rod gripping units secured along said rod gripping bar; said first and second U-shaped assemblies being pivotally connected by a pair of pivot pins inserted through far ends of said first and second pairs of parallel bars, said first and second U-shaped assemblies being lockable in a fixed position with respect to one another by a pair of tubular locking members, each tubular locking member being slidable over one each of a pair of pivot connections formed by said pair of pivot pins.

5,803,520

FIXTURE FOR HOISTING AND REMOVAL OF TRUCK BEDS

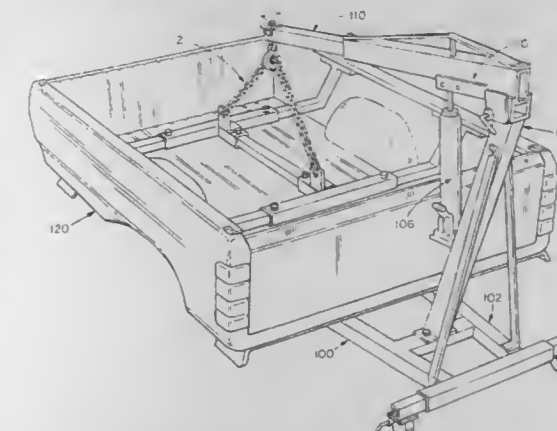
Henry Bagrowski, III, 668 Main St., Wilmington, Mass. 01887

Filed Mar. 5, 1996, Ser. No. 610,991

Int. Cl.⁶ B66C 1/66

U.S. Cl. 294—67.33

9 Claims



1. A fixture to be used in conjunction with an engine crane for the hoisting of trucks of the type which comprise a bed and a frame, the bed having an open part into which cargo can be loaded, the bed further having a lip formed about said open part, and the fixture comprising:

- a central beam having a first end and a second end;
- a left strut and a right strut, each strut having two ends and a midpoint, the central beam detachably attached at its first end

to the midpoint of the right strut, the central beam detachably attached at its second end to the mid point of the left strut, thereby forming an I-structure;
four strut extension arms, each of which is adjustably attached to a strut end and each strut extension arm comprising:
an extension main member; and
an extension diagonal member rigidly affixed to the extension main member and
extending diagonally from the extension main member;
a lift fitting rigidly attached to the I-structure; and
means for fixing the position of the strut extension arms on the struts, whereby the fixture may be lowered onto the bed and then the strut extension arms may be adjusted so that all four arms engage said lip and are captured therein, and so that the engine crane may be attached to the lift fitting and the bed lifted off the frame thereby.

5,803,521

APPARATUS FOR GRIPPING A FLAT SUBSTRATE

Jaroslav Zejda, Rodenbach, and Stefan Kempf, Alzenau, both of Germany, assignors to Balzers und Leybold Deutschland Holding AG, Hanau, Germany

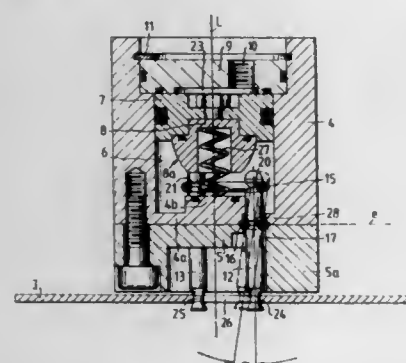
Filed Aug. 6, 1996, Ser. No. 692,536

Claims priority, application Germany, Aug. 11, 1995, 195 29 537.4

Int. Cl.⁶ B25J 15/10

U.S. Cl. 294—97

18 Claims



1. Apparatus for gripping a disk-like substrate having a central opening, said apparatus comprising:
a housing having a cavity, a longitudinal axis extending through said cavity, and stop surfaces in said cavity which face outward from said longitudinal axis,
said housing having therein passages communicating with said cavity and a space outside said housing;
a plurality of finger-like grippers, each gripper being supported by a bearing means in said housing to generally pivot about pivot axes in a common plane which is transverse to said longitudinal axis, each gripper having an inner end in said cavity and a middle portion extending through a respective passage from said housing into said outside space, each of said grippers having an outer end in said space, said bearing means sealing said passages so that said cavity is isolated from the space outside said housing;
elastic means urging said inner ends toward said stop surfaces; and
piston means supported in said housing for movement along said longitudinal axis, said piston means having a head which moves between said inner ends so as to urge said inner ends radially outward from said stop surfaces and to cause said grippers to pivot about said pivot axes so that said outer ends move radially inward.

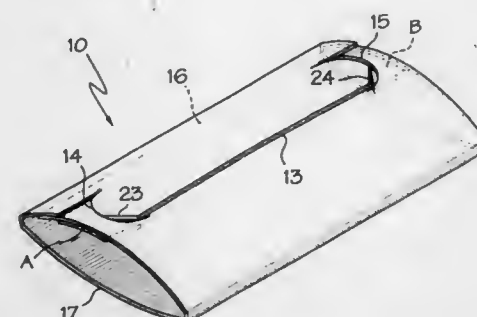
5,803,522
RECYCLABLE BAG-HANDLE GRIP
Alfred F. Lisbon, 1645 S. Shenandoah St., Los Angeles, Calif. 90035

Filed Sep. 19, 1997, Ser. No. 934,186

Int. Cl.⁶ A45F 5/10; B65D 33/06

U.S. Cl. 294—171

5 Claims



1. A disposable bag-handle grip comprising a rectangular pliable sheet of cardboard
having at one end two linear cuts, one linear cut of predetermined length cut from each side of said sheet of pliable cardboard, said cuts being parallel to said one end at a predetermined distance from said one end to form two locking tabs of predetermined width, and
having at an end opposite said one end two arcuate cuts for receiving said tabs, one arcuate cut for each tab near each side of said rectangular sheet of pliable cardboard, each arcuate cut having a distance between the ends thereof substantially equal to the predetermined width of said locking tabs.

5,803,523

EXTENDABLE SUPPORT SYSTEM

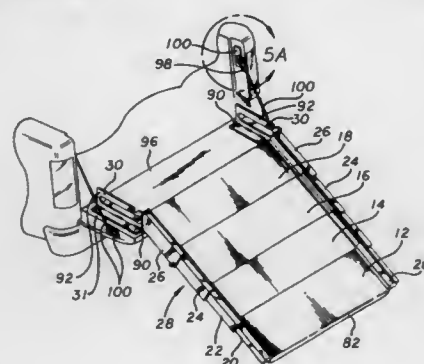
Jeffrey L. Clark, Robert M. Beard, and Lawrence E. Stoltz, all of Santa Barbara, Calif., assignors to Gator Ramp Systems, Inc., Santa Barbara, Calif.

Filed Jul. 26, 1996, Ser. No. 690,362

Int. Cl.⁶ B62C 1/06

U.S. Cl. 296—26.1

30 Claims



1. An extendable support system, comprising:
a plurality of support members, each said support member configured to move longitudinally and including a reinforcing member which provides said support members with a substantially L-shaped configuration, said reinforcing member extending substantially the width of each said support member and operating to limit longitudinal retraction of the extendable support system;
a plurality of stop tabs configured to limit longitudinal extension of the support system; and
a plurality of pairs of spaced-apart side rails, each pair of side rails being affixed to one support member and being arranged adjacent another pair of side rails;

wherein at least one said stop tab extending from an underside of one said support member, and at least one said stop tab extending from an upperside of an adjacent support member, said stop tabs configured to engage one another to limit the longitudinal extension of said extendable support system.

5,803,524

SIDEWALL PROTECTION PANEL WITH EXPANSION ACCOMMODATING MEMBERS

Jerry J. McCammon, Rochester Hills, Mich., assignor to Durakon Industries, Inc., Lapeer, Mich.

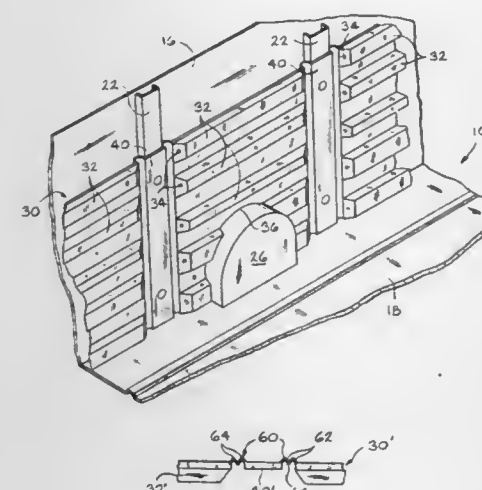
Continuation of Ser. No. 583,288, Jan. 5, 1996, abandoned.

This application Apr. 11, 1997, Ser. No. 839,403

Int. Cl.⁶ B60R 13/01

U.S. Cl. 296—39.1

17 Claims



7. A protective panel for the interior of a motor vehicle comprising, in combination,
a strip for vertical disposition adjacent an interior vertical member of such motor vehicle,
a panel for protecting the sidewall of such motor vehicle disposed adjacent said strip, said panel having a plurality of convolutions extending therealong, and
an expansion accommodating member formed in one piece with said strip and said panel section.

5,803,525

TAILGATE CONSTRUCTION

Paul Lawrence Lipinski, Plymouth; Terrance Dean Savitsky, Dearborn, and Stacey Ann Boersma, Livonia, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

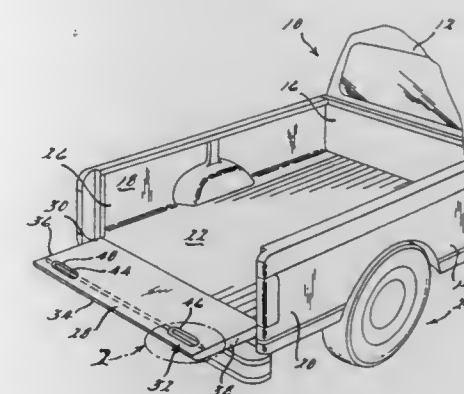
Filed Jan. 16, 1997, Ser. No. 784,331

Int. Cl.⁶ B62D 33/03

U.S. Cl. 296—57.1

1 Claim

1. A tailgate for a truck having a pair of laterally spaced side walls extending rearwardly from a cab, terminating in rear ends and joined by a laterally extending bed floor, the tailgate being pivotally mounted with respect to the side walls for movement between a vertical closed position and a horizontal open position, and comprising:
first and second lateral side portions;
a substantially imperforate outer surface panel facing external of the truck;
a substantially imperforate inner surface panel facing internal of the truck;



a rod member having opposed ends fixedly secured to the first and second lateral side portions, mounted between the tailgate inner surface and the tailgate outer surface; and
access window means formed in the tailgate inner surface to permit access to the rod member.

5,803,526

ERGONOMIC AUTOMOTIVE COMPARTMENT ACCESS SYSTEM

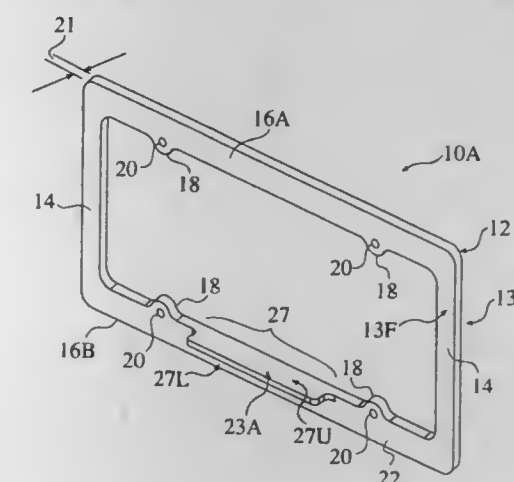
Roderick G. Rohrberg, 2742 W. 234th St., Torrance, Calif. 90505

Continuation-in-part of Ser. No. 273,518, Jul. 11, 1994, abandoned. This application Jan. 24, 1997, Ser. No. 787,997

Int. Cl.⁶ B62D 25/10

U.S. Cl. 296—76

12 Claims



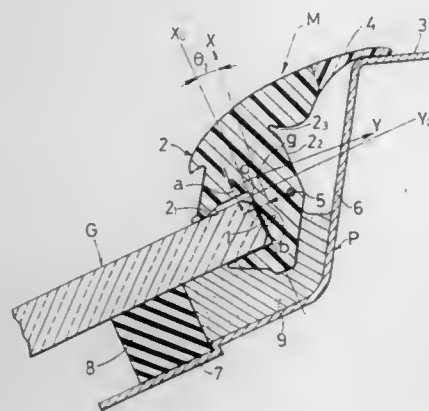
1. An apparatus for operating a deck lid (DL) of an automobile (A) comprising:
a license plate frame (12); said license plate frame (12) being mounted on said automobile (A);
a projection (23); said projection (23) being rigidly coupled to said license plate frame (12);
said projection (23) including
an upper surface (27U) and a lower surface (27L);
said upper and lower surfaces (27U) and (27L) each having a receiving surface (27) for safe contact with a user's fingertips (FT); and
said projection (23) being rigidly and integrally formed on said license plate frame (12) to enable the operation of said deck lid (DL).

5,803,527
SECTIONAL CONFIGURATION OF CORNER IN WINDOW MOLDING
 Hiroki Fujiya, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 26, 1996, Ser. No. 702,877
 Claims priority, application Japan, Sep. 1, 1995, 7-225549
 Int. Cl.⁶ B60J 10/02

U.S. Cl. 296—93

8 Claims



1. A sectional configuration of a corner in a window molding for use with a vehicle body, comprising:

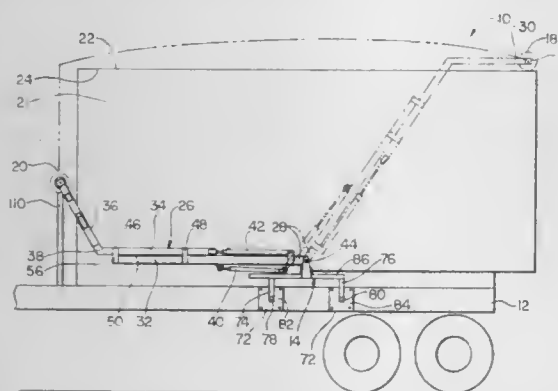
said window molding being provided, at a first end of a section of said sectional configuration, with a window pane-fitted groove (2) into which a peripheral edge (1) of a window pane (G) is fitted and at a second opposed end of said section of said window molding with a seal lip (4) for resiliently abutting against an outer surface of a vehicle body panel (P); wherein said window molding is formed, with a cut-off portion (22) which is triangular in section, at a portion of said window molding corresponding to a corner of said window pane (G) between said window pane-fitted groove (2) and said seal lip (4), said cut-off portion (22) being recessed from an inner side toward an outer side of said vehicle body.

5,803,528
TRUCK COVER
 Edward N. Haddad, Jr., Worcester, Mass., assignor to Pioneer Consolidated Corporation, North Oxford, Mass.

Filed Jul. 3, 1996, Ser. No. 675,573
 Int. Cl.⁶ B60P 7/04

U.S. Cl. 296—100

20 Claims



17. A truck container cover system, said system affixed to a truck frame by a support structure, for covering a container having an opening defined by an upper edge of the container with a flexible cover having a first end and a second end, said system comprising:

at least one elongate, nonlinear, movable arm having a first end engaged to said support structure and a second end secured to said first end of said flexible cover, said at least one arm including

an elongate base member and an elongate extension member, said extension member having an elongate first portion disposed at an obtuse angle and an elongate second portion, said second portion of said extension member being in noncoaxial parallel juxtaposition with said base member wherein said extension member second portion moves axially with respect to said base member,

a slide strip disposed between said base member and said extension member second portion, and a first retainer affixed to said at least one movable arm adapted for retaining said base member and said extension member in said juxtaposition;

a first actuator associated with each said at least one arm, each said first actuator linking said support structure to said elongate base member of said arm and being actuatable to move said arm; and

a second actuator associated with each said at least one arm, each said second actuator linking said elongate base member with said elongate extension member and being actuatable to move said elongate extension member axially with respect to said elongate base member;

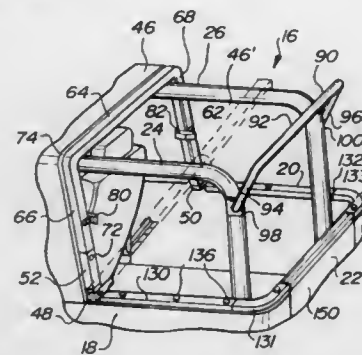
wherein said first and second actuators move said at least one movable arm from a position wherein said base member is substantially horizontal with respect to said truck frame, to a position wherein said base member defines an obtuse angle with respect to said position horizontal to said truck frame.

5,803,529
MECHANISM FOR SELECTIVELY INSTALLING AND REMOVING A CLOTH TOP FROM A JEEP-TYPE VEHICLE AND INCLUDING A SEPARATELY REMOVABLE FORWARD TOP PORTION
 Carol A. Perry-Bores, and Leonard F. Bores, both of 30606 Munger, Livonia, Mich. 48154

Filed Dec. 17, 1996, Ser. No. 769,222
 Int. Cl.⁶ B60J 7/00

U.S. Cl. 296—107

17 Claims



1. A removable vehicle top assembly for use with a Jeep-type vehicle, the vehicle including a forwardly situated seating area and a rearwardly situated storage area defined by sides and a rear of the vehicle, a pair of spaced apart roll bars extending along the seating and storage area of the vehicle, said vehicle top assembly comprising:

a first covering portion overlaying the passenger seating area and attachable to the vehicle;

a first generally U-shaped and extensible assembly pivotally secured to the sides of the vehicle proximate to a forward end of the storage area and enveloping the spaced apart roll bars;

a second generally U-shaped member having first and second opposing ends which are pivotally secured to the roll bars so that a middle elongated portion of said U-shaped member is spaced from the roll bars and is rotatable about a pivot point defined by said pivotal connection;

a flexible cover having an area defined by a top and at least one side which overlays said second U-shaped member and is secured to said first U-shaped and extensible assembly and to at least a portion of the sides and rear of the vehicle; and means for manipulating said first extensible assembly and said second pivotal U-shaped member to selectively install and remove said flexible cover from the vehicle.

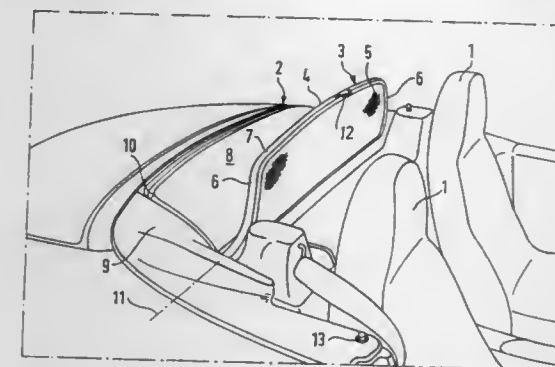
5,803,530
CONVERTIBLE HAVING A WIND DEFLECTING DEVICE
 Uwe Skrzypek, Bad Oeynhausen, and Andreas Zapatinas, Munich, both of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany

Filed Sep. 24, 1996, Ser. No. 718,934
 Claims priority, application Germany, Sep. 25, 1995, 195 35593.8

Int. Cl.⁶ B60J 7/22

U.S. Cl. 296—180.1

13 Claims



1. Convertible having a folding-top compartment lid and a wind deflecting device which is arranged on the folding-top compartment lid and can be swivelled about a transverse axis from an inoperative position on a top side of the folding-top compartment lid into an upwardly directed operative position,

wherein the wind deflecting device is integrated largely into the contour of the folding-top compartment lid in the inoperative position, and

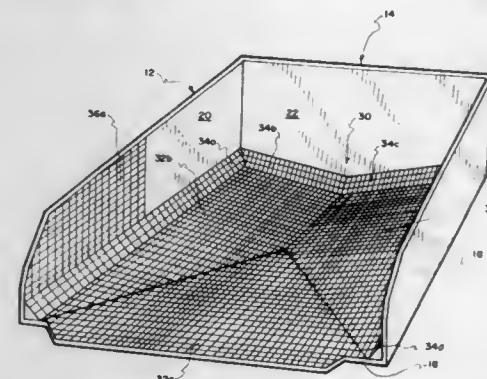
wherein the wind deflecting device includes a frame which mounts a net, said frame being lowered into the folding-top compartment lid in the inoperative position.

5,803,531
LINER SYSTEM FOR A HAULING COMPARTMENT
 Jack T. Nielsen, 3330 S. 8000 West, Magna, Utah 84044

Filed May 21, 1997, Ser. No. 861,377
 Int. Cl.⁶ B60P 3/00

U.S. Cl. 296—184

20 Claims



1. A system for lining the bed of a hauling compartment, comprising:

a containment structure adapted to be secured to a surface of the compartment for hauling material;

a plurality of holding areas formed in a particular plane in the containment structure, the holding areas being formed by a plurality of upstanding walls, the upstanding walls intersecting one another in the particular plane to define respective holding areas, the holding areas being bounded on all sides by the upstanding walls, the respective holding areas having a depth and a cross sectional area;

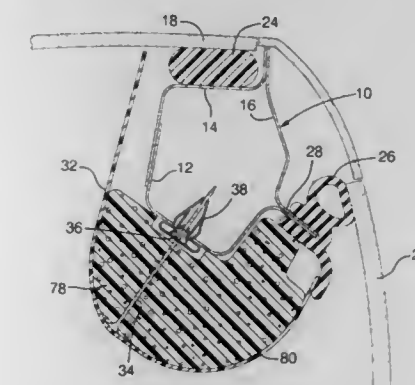
wherein the holding areas are adapted to contain a buffer material, the buffer material providing an impact wear surface to minimize direct contact between the surface of the hauling compartment and haul material being introduced into the hauling compartment.

5,803,532
ENERGY ABSORBING MOLDING ASSEMBLY
 Senthil Nathan Karuppaswamy, Southfield; Majid Rostami, Northville, and James Charles Loman, Brighton, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 17, 1996, Ser. No. 768,377
 Int. Cl.⁶ B60J 7/00

U.S. Cl. 296—189

3 Claims



1. An energy absorbing molding assembly for covering a vehicle body panel, comprising:

a molded plastic molding having a plurality of blades integrally molded therewith and extending generally perpendicularly off the back side thereof and spaced one from another;

a plurality of openings in the panel registering with the blades of the molding;

a fastener clip installed in each opening for retaining the registering blade upon insertion of the blade;

said fastener clip having opposed facing yieldable spring legs which project through the opening and have feet which bear against the panel to retain the clip to the panel, an aperture to receive the blade, said spring legs having opposed facing tip ends bearing on the blade to guide the blade upon insertion into the clip, and opposed facing tangs to enable one-way insertion of the blade into the fastener clip and to grip the blade and retain the molding to the clip;

and collapsible energy absorbing material interposed between the molding and the body panel to enable progressive movement of the molding toward the body panel as permitted by the progressive insertion of the blade into the opening and through the fastener clip.

5,803,533

MOTOR VEHICLE BODY, PARTICULARLY FOR A CONVERTIBLE

Robert Schulz, Osnabrueck, and Winfried Bunsmann, Bissendorf, both of Germany, assignors to Wilhelm Karmann GmbH, Osnabrueck, Germany

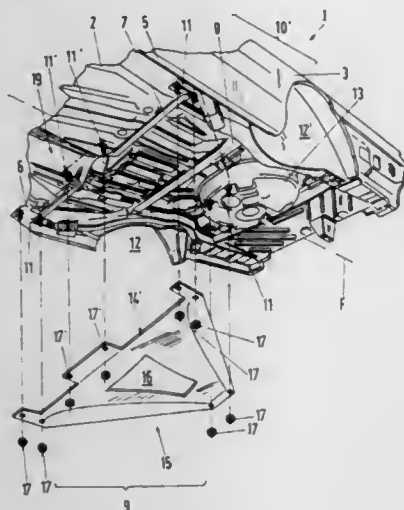
Filed Dec. 5, 1996, Ser. No. 760,538

Claims priority, application Germany, Dec. 20, 1995, 295 20 166.5

Int. Cl.⁶ B60J 7/00

U.S. Cl. 296—204

32 Claims



1. A motor vehicle body having a longitudinal axis extending in a direction from a front to a rear of the motor vehicle body, the motor vehicle body comprising:

a self supporting body unit having a bottom structure with front, middle, and rear portions, the bottom structure including longitudinal side beams extending along opposing sides of at least said middle portion and girders extending transversely to said longitudinal axis and interconnecting said longitudinal side beams;

at least one stiffening plate extending substantially parallel to said bottom structure, said stiffening plate extending from said middle portion of said self supporting body unit to one of said rear portion and said front portion of said self supporting body unit;

said stiffening plate having a generally polygonal configuration with a base portion extending generally transverse to said longitudinal axis; and

connecting means connecting said stiffening plate to said bottom structure including connecting said base portion to said middle portion of said self supporting body at said longitudinal side beams and connecting said stiffening plate to said one of said rear portion and said front portion at an area between wheel wells of said self supporting body unit.

5,803,534

PASSENGER CAR WITH A TRANSPARENT TOP ASSEMBLY

Stephen Murkett, Gerlingen, and Juergen Bayer, Weissach, both of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany

Continuation-in-part of Ser. No. 324,395, Oct. 17, 1994, Pat. No. 5,544,934. This application May 10, 1996, Ser. No. 644,824

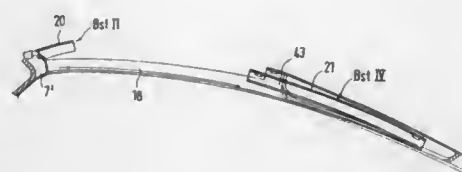
Claims priority, application Germany, Oct. 15, 1993, 43 35 653.2

Int. Cl.⁶ B60J 7/047

U.S. Cl. 296—215

31 Claims

1. An automobile body with a roof that covers a passenger compartment above a belt line of the body, said roof comprising:



first and second roof sections made of transparent material and located one behind the other,

a third roof section located behind the second roof section,

said first roof section being movable angle-wise as a wind deflector and said second roof section being designed to be movable beneath the third roof section in the manner of a sliding roof without requiring movement of said third roof section to accommodate movement of the second roof section beneath the third roof section,

said first and second roof sections being arranged with their surfaces flush with one another when in a closed roof position,

a sealing body provided at least between the first roof section and the second roof section,

and an adjustable sunblind provided on the interior of at least the first and second roof sections.

5,803,535

SEAT FOR BABY BUGGIES

Jane Ramón Cabagnero, Barcelona, Spain, assignor to Jane, S.A., Barcelona, Spain

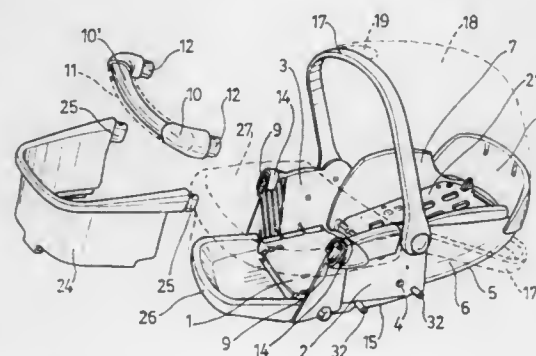
Filed Jul. 14, 1997, Ser. No. 892,086

Claims priority, application Spain, Jul. 15, 1996, 9602007

Int. Cl.⁶ A47C 4/52

U.S. Cl. 297—183.3

18 Claims



1. A seat for baby buggies, including:

a seat member,

a back rest member having a front edge hingedly coupled to a rear edge of said seat member,

first and second opposed ear flaps coupled to said back rest member,

a head rest member coupled to a rear edge of said back rest member,

first and second opposed side arm rests coupled to said seat member,

a leg rest coupled to a front edge of said seat member,

a substantially U-shaped front handrail having a first end coupled to said first side arm rest and a second end coupled to said second side arm rest, and

a substantially U-shaped handle having a first end hingedly coupled to said first side arm rest and a second end hingedly coupled to said second side arm rest and being extendable over said seat member for transporting the seat manually.

brackets for detachably connecting the second bench seat to the upper end of the second leg of the second support frame.

5,803,537

STORABLE VEHICLE ARM REST WITH IMPROVED LATCH BLOCK OUT

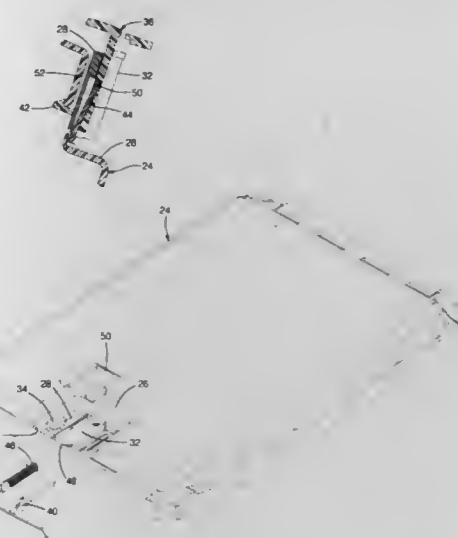
Walter Michael Langmeser, Macomb, and James Bolsworth, Sterling Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 20, 1997, Ser. No. 915,424

Int. Cl.⁶ A47C 7/54

U.S. Cl. 297—188.19

3 Claims



5,803,536

COLLAPSIBLE AND PORTABLE PICNIC TABLE

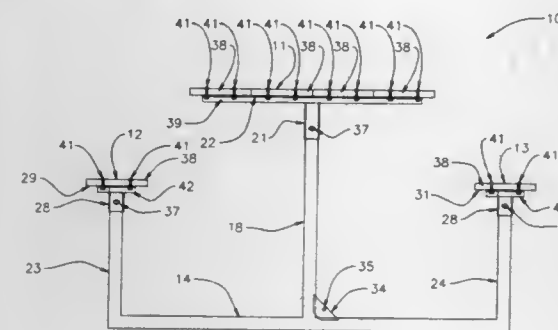
Rodney B. Perzee, Chebanse, and Henry O. Perzee, Beaver-ville, both of Ill., assignors to Perzee, Inc., Chebanse, Ill.

Filed Mar. 31, 1997, Ser. No. 829,732

Int. Cl.⁶ A47B 39/00

U.S. Cl. 297—158.5

17 Claims



1. A collapsible and portable table comprising:

a table top, a first bench seat, a second bench seat, a first support frame for detachably connecting the table top to the first and second bench seats and a second support frame for detachably connecting the table top to the first and second bench seats, each support frame comprising a middle leg comprising an upper end for engaging the table top, a first opposing leg comprising an upper end for engaging the first bench seat and a second opposing leg comprising an upper end for engaging the second bench seat,

the table top comprising a first bracket for detachably connecting the table top to the upper end of the middle leg of the first support frame and a second bracket for detachably connecting the table top to the upper end of the middle leg of the second support frame,

the first bench seat comprising a pair of spaced-apart brackets, one of said spaced-apart brackets for detachably connecting the first bench seat to the upper end of the first leg of the first support frame, the other of said spaced-apart brackets for detachably connecting the first bench seat to the upper end of the first leg of the second support frame, each of said spaced-apart brackets of the first bench seat comprise a downwardly extending sleeve for receiving the upper end of one of the first legs of the first and second support frames respectively, each of said downwardly extending sleeves of each of said spaced-apart brackets of the first bench seat comprise a hole for accommodating a pin that is threadably connected to the sleeve, the pin passing through the hole in the downwardly extending sleeve and engaging the leg which has been received in said bracket,

the second bench seat comprising a pair of spaced-apart brackets, one of said spaced-apart brackets for detachably connecting the second bench seat to the upper end of the second leg of the first support frame, the other of said spaced-apart

1. In a vehicle arm rest having a hollow base and a pivoted upper lid that is raised with said base from a substantially horizontal position and past absolute vertical to a stored position, a low profile lid latch with a fast acting latch block out mechanism, comprising,

a latch housing contained entirely within said lid and having a substantially flat bottom wall,

a substantially flat plunger slidably contained and movable straight back and forth within said latch housing along said bottom wall, from a latched position hooked to said base to a released position, said plunger having a notched undersurface located just above said bottom wall, and,

a substantially flat flip lever freely pivoted to said latch housing and contained between said latch housing bottom wall and said notched plunger undersurface so as to rest against said bottom wall in alignment with said notched undersurface when said arm rest is in any position between its lowered position and absolute vertical,

whereby, when said arm rest is any position between its lowered position and absolute vertical, said flip lever remains against said latch housing lower wall, allowing said plunger to slide freely, and when said arm rest moves toward its stored position and past absolute vertical, said flip lever pivots quickly and freely away from said latch housing bottom wall and into said plunger notched undersurface, thereby blocking said plunger from moving to its released position.

5,803,538

Patent Not Issued For This Number

5,803,539

AUTO SEAT COVER

Sam D. Dewar, Ft. Lauderdale; Joseph Kavana, North Miami, and Randolph J. Sanchez, Pembroke Pines, all of Fla., assignors to Sagaz Industries, Inc., Miami, Fla.

Filed Jun. 17, 1997, Ser. No. 877,274

Int. Cl.⁶ A47C 31/11

U.S. Cl. 297—228.12

8 Claims



1. An auto seat cover (14) comprising:

a cover portion (18) having first and second ends interconnected by side edges;

an end portion (22) extending about said first end and first (26) and second (30) side portions extending along said side edges of said cover portion (18),

strap means interconnecting said second end of said cover portion (18) and said side portions (26, 30) for retaining said seat cover (14) in place on an auto seat,

a buckle strap (34) and a buckle (36) attached to said buckle strap (34), a lap strap (38) having a free end (40) for threading through said buckle (36) and a working length (42) extending to said buckle (36) for tightening whereby said buckle strap (34) and said working length (42) of said lap strap (38) may be placed in tension by said buckle (36) to retain said seat cover (14) on the auto seat, and pile fastening structure (44) for securing said free end (40) of said lap strap (38) to said working length (42) of said lap strap (38) after said working length (42) of said lap strap (38) is placed in tension by said buckle (36),

said pile fastening structure (44) including a plurality of pile loops on one of said working length (42) and said free end (40) of said lap strap (38) and a plurality of pile hooks on the other of said working length (42) and said free end (40) of said lap strap (38), said pile hooks being removably fastenable to said pile loops,

said second end of said cover portion (18) defining a flap (46), and

a U-shaped back portion (50) extending about said end portion (22) with legs extending along said side portions (28 and 32) to open ends, a pair of said buckle straps (34) and a pair of said buckles (36) with one of said buckle straps (34) attached to each of said open ends of said legs of said U-shaped portion (50).

5,803,540

STACKABLE ARM CHAIR

Larry Schwartz, Franklin Lakes, N.J., assignor to Sun Isle Casual Furniture, LLC, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 697,464, Aug. 26, 1996, Pat.

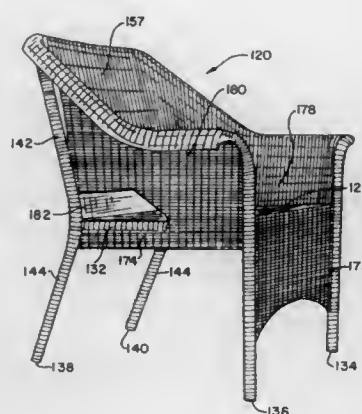
No. 5,704,690. This application Apr. 30, 1997, Ser. No.

846,368

Int. Cl.⁶ A47C 3/04

U.S. Cl. 297—239

35 Claims



1. A stackable arm chair comprising a frame forming a seat, a back, a pair of front legs, a pair of back legs and a pair of side arms; a seat cushion; a side wall extending between said seat and each of said side arms, said side wall arranged at an angle extending upwardly and outwardly from said seat, each of said side walls having an opening adjacent said seat and a corresponding one of said back legs, said opening extending in a horizontal and vertical plane to allow passage of said back legs therethrough, the size of said opening being substantially the same or less than the height of said seat cushion positionable on said seat between said side arms such that said opening is substantially covered by said cushion, said opening being of sufficient size and location to permit passage therethrough of a corresponding back leg of another stackable arm chair of substantially the same construction for arranging said chairs in a nested stack thereof.

5,803,541

Patent Not Issued For This Number

5,803,542

SUPPLEMENTARY SEAT-BACK FOR VEHICLES

Juan Garmendia Insausti, Paseo Zarategui, 52 -20015 San Sebastian, Spain

Filed May 13, 1997, Ser. No. 855,551

Claims priority, application Spain, May 16, 1996, 9601304 U

Int. Cl.⁶ A47C 1/08

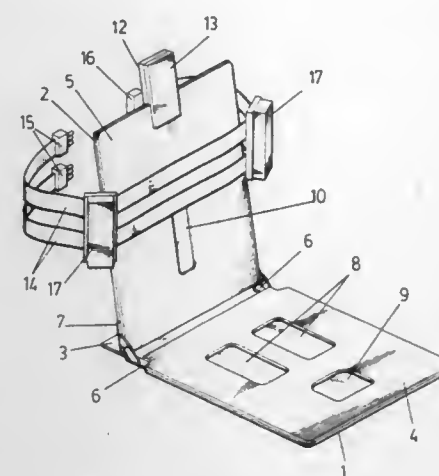
U.S. Cl. 297—256

4 Claims

1. A supplementary seat-back for vehicles comprising first and second plates formed as a seat portion and a back portion, respectively;

hinge elements joining the plates to each other to allow the plates to be folded one upon the other;

seat and back cushions secured to the seat and back portions, respectively, the seat cushion having recesses therein corresponding to the user's buttocks and scrotum, and the back cushion having a vertically positioned recess corresponding to the user's spinal column,



the back portion having a spine support mounted on a top edge thereof, said support being higher than the back portion.

5,803,543

CHILD'S SEAT FOR MOUNTING ON A STANDARD SEAT FOR ADULTS

Johannes Hartmann, Maintal, Germany, assignor to Ekkehard Grimm, Offenbach am Main, Germany

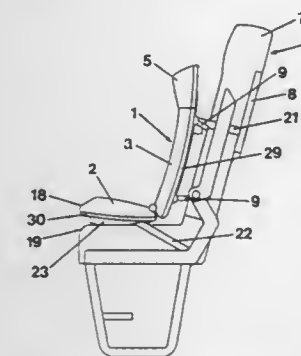
Filed May 15, 1997, Ser. No. 857,189

Claims priority, application Germany, May 17, 1996, 296 08 894 U; Oct. 26, 1996, 196 44 325.1

Int. Cl.⁶ A47C 1/02; B60N 2/26

U.S. Cl. 297—256

11 Claims



1. A child's seat for mounting on an adult seating unit of the type comprising a seat having a front edge, backrest, and seat belt means, said child's seat comprising:

a seating surface part having a top surface and a bottom surface which, in use, faces said seat;

a backrest part having a front surface and rear surface which, in use, faces said backrest of said adult seating unit;

connecting means connecting said backrest part to said seating surface part so that said backrest part is pivotable from a use position, wherein said front surface and said top surface are substantially perpendicular, to a collapsed position, wherein said front surface and said top surface are in mutually facing relationship; and

spacing means fixed to said rear surface of said backrest part, said spacing means being movable from a first position, wherein said spacing means extends substantially flush with said rear surface;

said spacing means comprising two spacing members which are pivotally fixed to said rear surface;

each said spacing member being pivotable toward the other spacing member as said spacing means are moved from said first position to said second position;

each said spacing member being in the form of a bail having opposite ends which are pivotally fixed to said rear surface.

5,803,544
SEAT CONSTRUCTION WITH REMOVABLE SIDE CUSHIONS

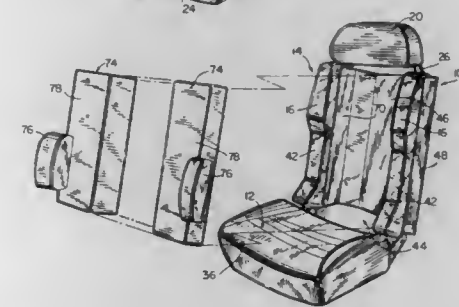
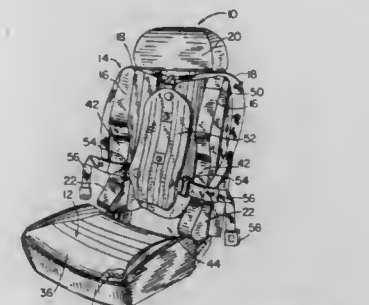
Wayne R. Block, South Milwaukee; Douglas P. Gennrich, Cudahy, and Paul C. Bostrom, Wauwatosa, all of Wis., assignors to H.O. Bostrom Company, Inc., Waukesha, Wis.

Filed Aug. 16, 1996, Ser. No. 699,111

Int. Cl.⁶ A47C 7/14

U.S. Cl. 297—284.3

12 Claims



1. A seat construction comprising a base and a back extending upwardly from said base, said back having a pair of elongated side pads spaced apart to provide a forwardly facing cavity therebetween, a life support unit adapted to be disposed in said cavity, said life support unit with a portion extending laterally outwardly from at least one side thereof, each of said side pads being formed with a recessed area, at least one of said recessed areas being adapted to receive said portion of said life support unit, and a pair of removable side cushions, each of said cushions being adapted to be disposed in one of said recessed areas immediately forwardly of and against one of said side pads when said portion of said life support unit is adapted to be removed from said at least one of said recessed areas, each of said cushions having a size and a shape complementary to one of said recessed area.

5,803,545

CHAIR, ESPECIALLY A CHAIR FOR THE HANDICAPPED

Pascal Guguin, Auray, France, assignor to Le Couvreur Mobilier spécialisé santé, Pluvigner, France

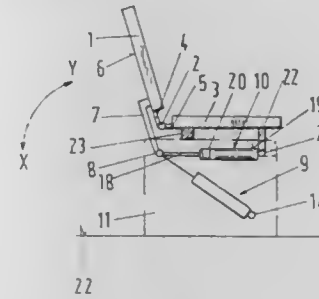
Filed Dec. 18, 1996, Ser. No. 769,221

Claims priority, application European Pat. Off., Dec. 18, 1995, 95 119 928

Int. Cl.⁶ A47C 1/02; A61G 15/06

U.S. Cl. 297—316

21 Claims



1. A chair, comprising:
a backrest;
a seat, said seat being connected to said backrest by a first pivot axis;
a retaining structure on which said backrest and said seat are mounted; and
a motor and a spring element, each having two ends, each of said motor and said spring element being pivotably mounted at one of the two ends to move in a substantially vertical plane, on respective fixed pivot axes mounted on the retaining structure, and with both said motor and said spring element being pivotably mounted, at the other of the two ends, to a common pivot axis which is connected to said backrest so as to move with said backrest in said substantially vertical plane such that said common pivot axis migrates in said substantially vertical plane during pivoting, with said first pivot axis, fixed pivot axes and common pivot axis extending perpendicular to said substantially vertical plane and parallel to each other.

5,803,546

TURNING MECHANISM FOR CHAIR SEAT

Ryokichi Yamazaki, Tokyo, Japan, assignor to Kabushiki Kaisha Kotobuki, Tokyo, Japan

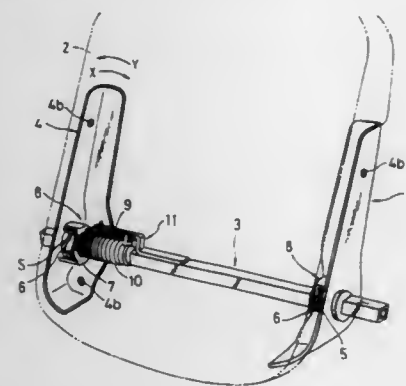
Filed Jan. 7, 1997, Ser. No. 779,561

Claims priority, application Japan, Aug. 2, 1996, 8-235753

Int. Cl.⁶ A47C 1/12

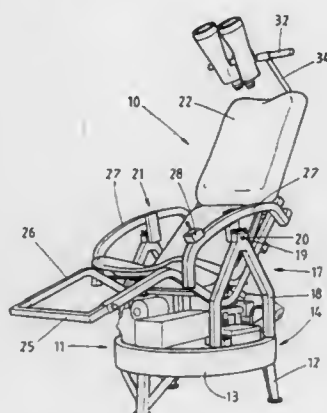
U.S. Cl. 297—333

8 Claims



1. A turning mechanism for a chair seat, comprising:
a shaft having a square cross section;
a spring disposed on said shaft with an end thereof locked to said shaft and an opposite end thereof engaged so as to be associated with said seat of said chair;
a stopper having a square hole defined at the center thereof, said stopper inserted onto and engaged with said shaft through said square hole in said stopper;
a stopper receiver having abutting portions formed thereto and abutted against projections formed on said stopper;
a first bushing having a square hole defined at the center thereof, said first bushing inserted into and engaged with said shaft through said square hole in said first bushing; and
a second bushing having a square hole defined at the center thereof, said second bushing inserted onto and engaged with the shaft through said square hole in said second bushing, wherein said first bushing, said stopper and said second bushing are contained in said stopper receiver.

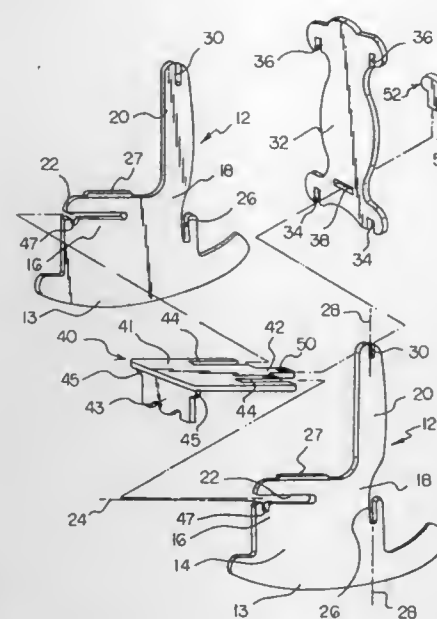
5,803,547
RECLINING SUPPORT FOR ASTRONOMY
OBSERVATIONS
Christopher Andrew Brown, 1 First Street, Gawler, SA 5118, Australia
PCT No. PCT/AU96/00359, § 371 Date Feb. 11, 1997, § 102(e)
Date Feb. 11, 1997, PCT Pub. No. WO97/00034, PCT Pub. Date Jan. 3, 1997
PCT Filed Jun. 14, 1996, Ser. No. 750,924
Claims priority, application Australia, Jun. 16, 1995, PN3599
Int. Cl.⁶ A47C 3/18
U.S. Cl. 297—344.23 23 Claims



1. A reclining support assembly comprising:
a) a base sub-assembly including a central upstanding pin and a toothed wheel concentrically fixed to the pin;
b) a chassis sub-assembly rotatively supported by the base sub-assembly, the chassis and base sub-assemblies forming a turntable with the base sub-assembly being a fixed and lower portion of the turntable, and the chassis sub-assembly forming a rotatable and upper portion of the turntable when the assembly is in use;
c) a chair frame sub-assembly supported by the chassis sub-assembly the frame sub-assembly including a chair frame and a binocular mount;
d) chair rotating means supported by the chassis sub-assembly, the chair rotating means including a first motor for controllably driving a drive, the drive engaging the toothed wheel whereby rotation of the drive effects rotation of the chassis sub-assembly about the toothed wheel thereby effecting rotation of the chassis sub-assembly with respect to the base sub-assembly;
e) a tilt drive sub-assembly for effecting tilting of the chair frame sub-assembly with respect to the chassis sub-assembly, the tilt drive sub-assembly being supported by the chassis sub-assembly and including a second motor controllably driving a linkage, the linkage being coupled to the chair frame sub-assembly and to the second motor whereby movement of the linkage tilts the chair frame sub-assembly with respect to the chassis sub-assembly; and
f) releasable coupling means between the chassis and chair sub-assemblies for permitting ready disassembly and reassembly of the reclining support assembly.

5,803,548
COLLAPSIBLE CHAIR APPARATUS
Elizabeth Taylor Battle, P.O. Box 315, Fernandina Beach, Fla. 32035
Filed Apr. 3, 1996, Ser. No. 626,808
Int. Cl.⁶ A47C 4/03
U.S. Cl. 297—440.13 6 Claims

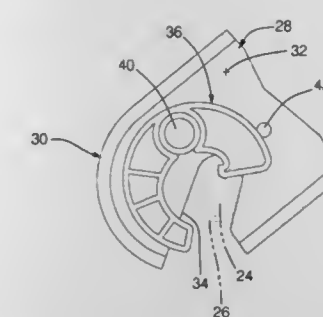
1. A collapsible chair apparatus, comprising:
a pair of planar side panels each of which includes a lower side panel portion which includes a front lower region and a rear lower region, an upper side panel portion which extends



upward from said rear lower region, a front slot extending from a forward edge of the side panel and into said front lower region at a first orientation, a lower rear slot extending into said rear lower region at a second orientation, and an upper rear slot extending into said upper side panel portion at said second orientation coplanar with said lower rear slot, a planar back panel which includes a pair of lower rear slots oriented at said second orientation and registrable with said lower rear slots of said side panels, a pair of upper back slots oriented at said second orientation and registrable with said upper rear slots of said side panels, and a lock-tab receiving channel coplanar with said front slots of said side panels, a seat assembly which includes a planar seat panel and a spacer element which projects downward from a front portion of said seat panel, wherein said seat panel includes a rear locking tab that is registrable with said lock-tab receiving channel in said back panel and a pair of rear seat slots oriented at said first orientation and registrable with said front slots of said side panels, and a locking element attachable to said rear locking tab of said seat assembly for locking said seat assembly onto said back panel; wherein the spacer element is secured to the seat panel, the spacer element including a pair of laterally extending spacer lock tabs; wherein each of said front lower regions of said side panels includes a spacer-tab receiving notch for receiving one of the spacer lock tabs, the spacer-tab receiving notch extending into communication with the front slot of the respective side panel; wherein the spacer lock tabs each have an unobstructed free end such that when the spacer element is positioned between the two side panels, the front lower region of each of the side panels is laterally positionable over the unobstructed free end of the respective spacer lock tab of the spacer element.

5,803,549
SELF-LOCKING FORKBOLT
James Bolsworth, Sterling Heights, and Julie Beth Williquette, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Jun. 6, 1997, Ser. No. 870,644
Int. Cl.⁶ B60N 2/44
U.S. Cl. 297—463.1 3 Claims

1. A self-locking forkbolt which attaches a generally planar portion of a structural member pivotally to a pin that is oriented substantially perpendicularly to said structural member planar portion, comprising:



an open ended slot formed in said structural member planar portion,
a generally C shaped combination spring and latch pivoted flat to said structural member planar portion adjacent said open ended slot such that said latch can pivot from an open position clear of said slot to a closed position blocking said slot, said latch being substantially rigid in a plane parallel to said structural member planar portion but resilient in a direction substantially perpendicular thereto, said latch also having a locking tab extending toward said structural member planar portion to flex said latch partially away from planar portion when said latch is in said open position, and, a tab reception hole formed in said structural member planar portion into which said locking tab is freely received when said latch has been rotated to said closed position, whereby said structural member may be pivotally attached to said pin by rotating said latch from the open to closed position, whereupon said tab enters said reception hole and said latch flexes back to its flat position, thereby locking said structural member to said pin.

5,803,550
METHOD FOR CONTROLLED FRAGMENTATION OF
HARD ROCK AND CONCRETE BY THE COMBINATION
USE OF IMPACT HAMMERS AND SMALL CHARGE
BLASTING

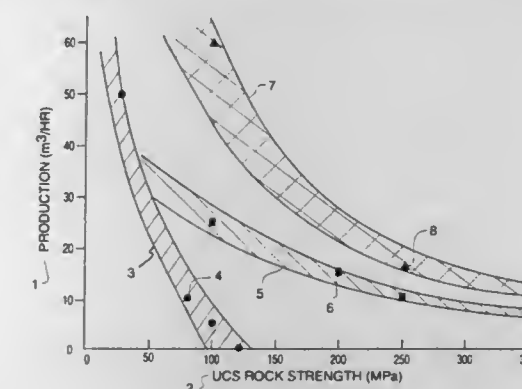
John David Watson, Evergreen, and Brian P. Micke, Golden, both of Colo., assignors to Bolinas Technologies, Inc., Golden, Colo.

Filed Aug. 7, 1996, Ser. No. 689,317

Int. Cl.⁶ E21C 3/04; 37/14; F42D 3/04

U.S. Cl. 299—13

11 Claims



1. A method for controlled fragmentation of a hard material, comprising:
(a) releasing gas in the bottom of a hole located in a free surface of the hard material;
(b) sealing the gas in the bottom of the hole to pressurize the hole bottom and cause a fracture to propagate from the bottom of the hole, thereby forming a fractured portion of the hard material a portion of which is exposed in the free surface surrounding the hole; and

(c) impacting the fractured portion exposed at the free surface with an impact breaker to remove the material in the fractured portion from the free surface.

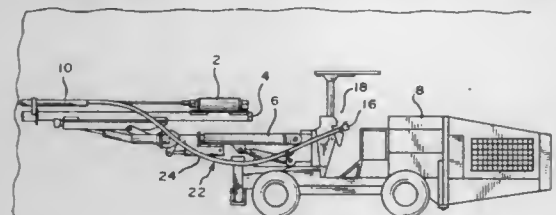
5,803,551

METHOD APPARATUS AND CARTRIDGE FOR NON-EXPLOSIVE ROCK FRAGMENTATION

Donald E. McCarthy, Littleton, Colo., assignor to First National Corporation, Belize City, Belize
Continuation-in-part of Ser. No. 529,063, Sep. 15, 1995, Pat. No. 5,611,605. This application Sep. 13, 1996, Ser. No. 713,618
Int. Cl.⁶ E21C 37/14

U.S. Cl. 299—13

21 Claims



1. A non-explosive rock breaking method, comprising the following steps:

- drilling a hole into a rock;
- positioning a charging system in proximity to the hole;
- inserting a propellant cartridge within the charging system, the propellant cartridge containing a propellant and means for igniting the propellant;
- forcing the propellant cartridge through the charging system and into the hole, wherein the propellant cartridge is forced through the charging system by a push rod; and
- igniting the propellant.

5,803,552

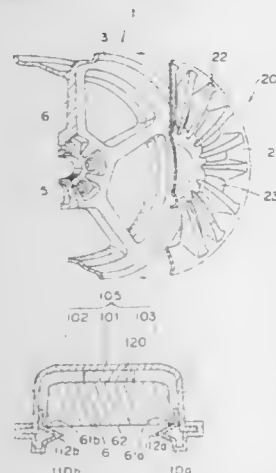
ALUMINUM WHEEL

Tadayoshi Kato; Atsushi Mizutani, and Takashi Ichikawa, all of Aichi-ken, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan
Filed Nov. 13, 1996, Ser. No. 747,660
Claims priority, application Japan, Nov. 13, 1995, 7-294352; Nov. 11, 1996, 8-298285

Int. Cl.⁶ B60B 7/06

U.S. Cl. 301—37.41

5 Claims



1. An aluminum wheel for an automobile, comprising: an aluminum body part which has a rim part and a disc part and which gives the aluminum wheel a predetermined strength; a cover which has a substantially disc-shaped cover body that serves as a design part covering a front face of the aluminum

body part and which has a plurality of fixing means that are provided on a rear surface of the cover body in a circumferential direction thereof with a spacing between the fixing means so that the cover body is removably attached to the aluminum body part, the disc part of the aluminum body part includes a plurality of spokes which extend radially, each of the plurality of fixing means includes an elastic member which is pinched in a compressed state between the rear surface of the cover body and a surface of the spoke and a pair of fitting clip pieces which support the spoke against elastic force by the elastic member from its opposite side; and each of the clip pieces includes a pinching part for elastically pinching a part of the cover body and an engaging part which extends in an axial direction of the wheel and which has an elastic engaging projection, each of the spokes is pinched in three directions by the elastic member and the elastic engaging projections of the clip pieces so that the cover body is fixed to the aluminum body part.

5,803,553

TWO PIECE VEHICLE WHEEL WITH MECHANICALLY LOCKED SECTIONS

Daniel C. Wei, Ann Arbor, Mich., assignor to Hayes Lemmerz International, Inc., Romulus, Mich.

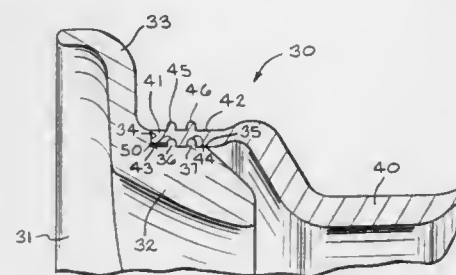
Continuation of Ser. No. 569,824, Dec. 8, 1995, abandoned.

This application Jul. 29, 1997, Ser. No. 902,181

Int. Cl.⁶ B60B 23/04

U.S. Cl. 301—63.1

24 Claims



1. A vehicle wheel comprising:

- an annular wheel rim having an outboard end, said outboard end defining a cylindrical inner surface;
- a circular wheel disc which extends radially across said outboard end of said wheel rim, said wheel disc having a central hub connected by a plurality of spokes to an annular-shaped sidewall, said sidewall including an uninterrupted cylindrical collar having an outer periphery which defines a first diameter, said collar extending axially into said wheel rim outboard end with said outer periphery adjacent to said cylindrical inner surface; and
- a coupling to secure said wheel rim to said wheel disc, said coupling including at least one segmented bead formed on said wheel rim cylindrical inner surface and at least one segmented groove which is complementary to said segmented bead formed in said outer periphery of said wheel disc collar, said groove segment being formed separately from said bead segment and defining a second diameter which is less than said first diameter, said groove segment receiving said bead segment and cooperating therewith to retain said wheel disc collar within said wheel rim with said bead segment and said groove segment having sufficient circumferential length to prevent axial movement of said wheel rim relative to said wheel disc.

5,803,554

BRAKE MONITORING DEVICE FOR RAILROAD CARS

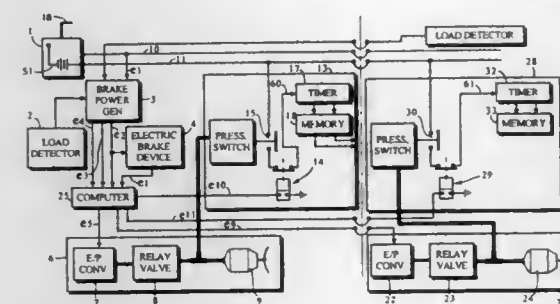
Seiki Maruta, and Shigeaki Doto, both of Kobe, Japan, assignors to Nabco Ltd., Kobe, Japan

Filed May 21, 1996, Ser. No. 653,076

Int. Cl.⁶ B60T 13/74

U.S. Cl. 303—3

13 Claims



1. A brake system for a train having at least one locomotive and at least one trailer car, said brake system comprising:

- (a) a brake controller means disposed on such locomotive for transmitting a brake command signal according to a manipulated variable and a pneumatic brake deficit check line signal;
- (b) a brake power generator means disposed on such locomotive connected to receive said brake command signal from said brake controller means for transmitting a brake power signal required by such locomotive, a brake power signal required by such trailer car and a composite brake power command signal equal to a sum of said brake power signal required by such locomotive and said brake power signal required by such trailer car;
- (c) computer means disposed on such locomotive connected to receive said brake power signal required by such locomotive, said brake power signal required by such trailer car and said composite brake power command signal equal to a sum of said brake power signal required by such locomotive and said brake power signal required by such trailer car for generating and communicating a locomotive supplementary pneumatic brake power command signal, a trailer car supplementary pneumatic brake power command signal, a first monitoring signal and a second monitoring signal;
- (d) an electrical brake device connected to receive said composite brake power command signal equal to a sum of said brake power signal required by such locomotive and said brake power signal required by such trailer car for generating and communicating an electrical brake power equivalent signal to said computer means;
- (e) a pneumatic brake device disposed on such locomotive connected to receive said locomotive supplementary pneumatic brake power command signal for generating and communicating a brake power signal corresponding to a difference between electrical brake power and overall brake power;
- (f) a pneumatic brake device disposed on such trailer car connected to receive said trailer car supplementary pneumatic brake power command signal for generating and communicating a brake power signal corresponding to a difference between electrical brake power and overall brake power;
- (g) a monitoring device disposed on such locomotive connected to receive said pneumatic brake deficit check line signal transmitted from said brake controller means, said brake power signal from said locomotive pneumatic brake device and said first monitoring signal from said computer, for monitoring output status of such locomotive brake device and for generating and communicating a signal for at least one of opening and closing a brake deficit check circuit for such locomotive; and

(h) a monitoring device disposed on such trailer car connected to receive said pneumatic brake deficit check line signal transmitted from said brake controller means, said brake power signal from such trailer car pneumatic brake device and said second monitoring signal from said computer for monitoring output status of such trailer car brake device and for generating and communicating a signal for at least one of opening and closing a brake deficit check circuit for such trailer car.

5,803,555

DAMPER FOR DAMPING PRESSURE FLUCTUATIONS IN BRAKE FLUID OF HYDRAULIC BRAKE SYSTEMS OF A VEHICLE

Ernst-Dieter Schaefer, Brackenheim, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

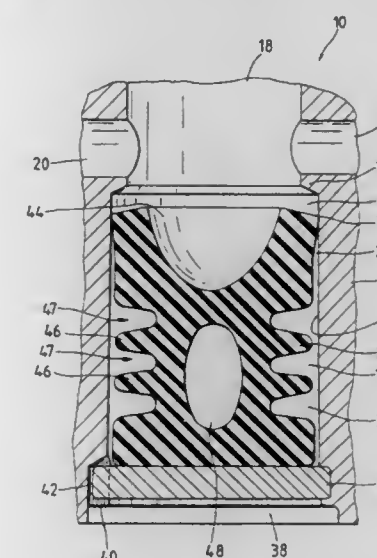
Filed Nov. 27, 1996, Ser. No. 757,884

Claims priority, application Germany, Nov. 28, 1995, 1 95 44 221.0

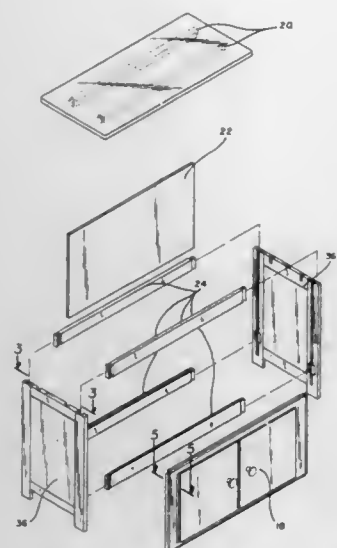
Int. Cl.⁶ F16L 55/04

U.S. Cl. 303—87

12 Claims



1. A damper for a hydraulic brake system of a vehicle comprising a slip-control device, having an elastic damper body (24) supported in a bottom end by a support plate (36) in a damper chamber (14) that can be filled with a fluid in an area (32) of said damper chamber above an upper end of said elastic damper body which exposes said upper end to said fluid, said elastic damper body (24) located within said damper chamber can be elastically compressed and expanded in a longitudinal direction of the damper chamber (14) by pressurization of said fluid in said upper end of the damper chamber (14), said upper end of said damper body (24) that is exposed to said fluid has an encompassing sealing edge (30) which rests, sealingly on a circumferential wall (26) of said damper chamber (14) so as to be axially displaced in a longitudinal direction by said fluid on said upper end, said elastic damper body (24) includes recesses (47) on a circumference which define a fluid free volume (34) in said damper chamber that communicates with an outside atmosphere through a throttle restriction (42).



- a second lower support member having dove tail shaped ends, each second lower support member end coupled to a respective said side panel rear channel such that said second lower support member is positioned between said side panels and substantially horizontally parallel to said first lower support member, the dove tail ends of said second lower support member being positioned at the lower end of the rear channel of each of said side panels;
- a front panel having dove tail shaped vertical ends and at least one door, each front panel end coupled to a respective said side panel front channel such that said front panel is positioned between said side panels and resting on said first lower support member;
- a rear panel having ends, each rear panel end coupled to a respective side panel rear channel such that said rear panel is positioned between said side panels and opposite said front panel and resting on said second lower support member;
- a first upper support member having dove tail shaped ends, each first upper support member end coupled to a respective said side panel front channel such that said first upper support member is positioned between said side panels and resting on said front panel;
- a second upper support member having dove tail shaped ends, each second upper support member end coupled to a respective said side panel rear channel such that said second upper support member is positioned between said side panels and resting on said rear panel; and
- a top panel having a front bracing member and a rear bracing member, said front bracing member having dove tail shaped ends, each front bracing member end coupled to a respective dove tail shaped front brace receiver space from said front vertical channels in said first and said second side panels, said rear bracing member having dove tail shaped ends, each rear bracing member end coupled to a respective dove tail shaped rear brace receiver spaced from said rear vertical channels in said first and said second side panels, said top panel further resting on and being supported by said first and second upper support members.

5,803,562

SELF-CONTAINED PORTABLE OFFICE

Ronna L. Jacobs, Saugatuck; Allen B. Belka, Wayland; Bruce J. Cutean, and Barry L. Andersen, both of Holland, all of Mich., assignors to Haworth, Inc., Holland, Mich.

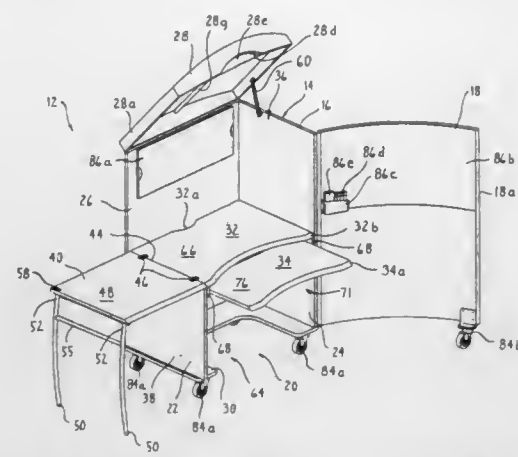
Filed Feb. 7, 1996, Ser. No. 598,202

Int. Cl.⁶ A47B 81/00

U.S. Cl. 312—283

22 Claims

1. A portable workstation, comprising:
an upright multi-sided hollow enclosure defined by a cabinet having opposed first and second side walls joined to an



upright rear wall extending therebetween, said cabinet defining an interior compartment accessible through an open upright front side of said cabinet, and a door having opposite first and second side edges; said first side edge being hingedly connected to one front edge of said first side wall of said cabinet by hinge means for horizontal swinging movement of said door between open and closed positions, said door when in said closed position extending between said first and second side walls and having said second side edge disposed closely adjacent said second side wall so as to close off said open front side, said second side edge of said door being swingingly positioned outwardly away from said open front side of said cabinet when disposed in said open position; and

a first table top disposed within said interior compartment which defines an upward facing first work surface, said side wall, said rear wall and said door extending upwardly a substantial distance above said first work surface;

said second side wall comprising a fixed first side wall portion joined to said upright rear wall, and a second side wall portion having pivot means disposed proximate a side edge of said first work surface for hingedly supporting said second side wall portion vertically above said first side wall portion for vertical swinging movement of said second side wall portion between open and closed positions, said second side wall portion being swingable outwardly into said open position wherein said second side wall portion extends horizontally sidewardly to define an upward facing second work surface, said second side wall including support means for releasably supporting said second side wall portion in said open position independent of said door, said second side wall portion when in said closed position being upwardly aligned with said first side wall portion.

5,803,563

CABINET WITH REMOVABLE TAMBOUR DOOR

Bruce Woodward, Louisville, Ky., assignor to National Products, Incorporated, Louisville, Ky.

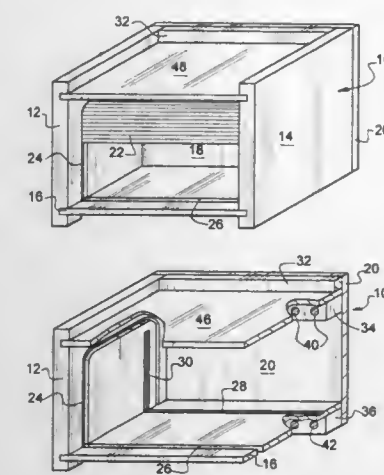
Filed Jul. 11, 1997, Ser. No. 893,887

Int. Cl.⁶ E06B 9/15

U.S. Cl. 312—297

8 Claims

1. A cabinet comprising:
a pair of spaced sidewalls;
a back wall extending between the sidewalls and an intermediate wall spaced between said sidewalls and connected thereto, said back wall and said intermediate wall being in parallel, said intermediate wall being disposed interiorly of said back wall;
- a bottom wall extending between the sidewalls with a slot therein disposed along a front portion of said bottom wall, said slot spaced inwardly of a front side edge of said bottom wall, said slot being parallel to said intermediate wall and said back wall;
- tambour door tracks of inverted U-shaped configuration extending along opposed inner surfaces of said sidewalls having one



downwardly terminating end of each track being in alignment with said slot, each of said inverted U-shaped configured tracks having a first leg and a second leg with a base portion connected to said first and said second leg, said first leg being disposed on one side of said intermediate wall and said second leg being on an opposed side of said intermediate wall, said base portion being above an upper end of said intermediate wall; and,

- a removable tambour door mounted in said U-shaped tracks having a width less than said slot.

5,803,564

METHOD AND APPARATUS FOR VIEWING DEPTH IMAGES

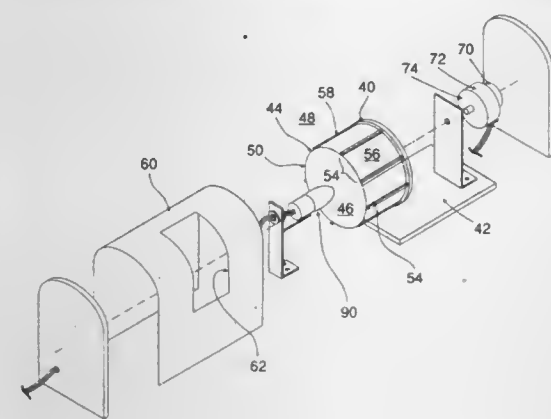
Michael R. Bruinsma; Jeffrey P. Bruinsma, both of 76 Angean Dr., Webster, N.Y. 14580, and Jonathan E. Forward, 53 Flower Valley Cir., Penfield, N.Y. 14526

Filed Jan. 21, 1997, Ser. No. 785,893

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—10

13 Claims



1. An apparatus for displaying an image substrate to a stationary position, comprising:

- (a) an image substrate including at least two images;
- (b) a rotatable frame defining an interior and an exterior, the frame including a viewing port between the interior and the exterior;
- (c) a retainer connected to the frame to retain the depth image adjacent to the viewing port;
- (d) a light projector for projecting light in the interior of the frame to pass through the viewing port to the exterior of the frame; and
- (e) a motor for rotating the frame about an axis to move the image substrate through a sufficient change of orientation with

respect to the stationary position to present the two images to the stationary position.

5,803,565

ORIENTING PROJECTOR

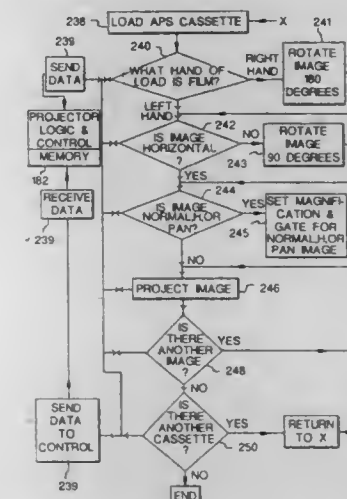
Dale F. McIntyre; Daniel M. Pagano, both of Honeoye Falls; David L. Patton, Webster, and Edward Weissberger, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 31, 1996, Ser. No. 775,321

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—26 R

20 Claims



1. A film projector, for use with frames of processed photographic film having frame-associated image orientation data, comprising:

- a light source emitting a collimated beam
- a film holder disposed to hold individual frames of said film in said beam, said film holder being pivotable between a first orientation and a second orientation, said orientations being substantially orthogonal;
- an optical projection system receiving said beam from said film holder, said optical system propagating and focusing at least a portion of said beam on a viewing plane external to said projector;
- a sensor disposed to read said frame-associated image orientation data, said sensor producing a signal responsive to said frame-associated image orientation data;
- a controller receiving said signal from said sensor; and
- a repositioner connected to said film holder, said repositioner being operatively connected to said controller to move said film holder between said orientations responsive to said controller;
- wherein said processed film is held by a slide mount and said sensor is disposed to read said frame-associated image configuration information.

5,803,566

PROJECTION TYPE LIQUID CRYSTAL DISPLAY DEVICE

Masanori Ogino, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 8, 1997, Ser. No. 835,781

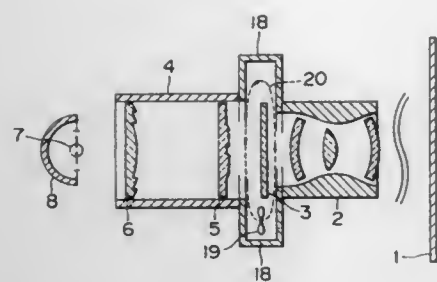
Claims priority, application Japan, Apr. 17, 1996, 8-095037

Int. Cl.⁶ G03B 21/16

U.S. Cl. 353—60

21 Claims

13. A projection type liquid crystal display device comprising:
a light source;
a plurality of collimator elements;



a liquid crystal panel which produces an image;
a light path wall which defines a closed space and which surrounds and supports at least one of said collimator elements and said liquid crystal panel;
a projection lens; and
a screen,
wherein any one of rotating blades driven by a motor and a pump is installed in said closed space defined by said light path wall, which produces a convection gas flow in said closed space whereby heat releasing is promoted through said light path wall.

5,803,567

PROTECTION-TYPE DISPLAY DEVICE

Yasuaki Nakanishi, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

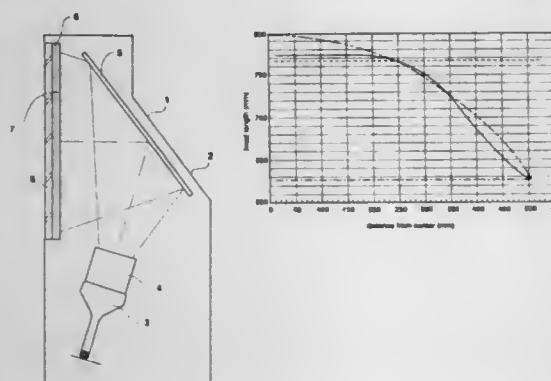
Filed Oct. 18, 1996, Ser. No. 733,925

Claims priority, application Japan, Oct. 30, 1995, 7-303354

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—74

18 Claims



1. A projection-type display device comprising:
an image projector for projecting image light rays; and
a screen being disposed on a side of said image projector to which said image light rays are projected and including a Fresnel lens sheet with one side thereof facing said image projector and a lenticular sheet disposed on the other side of said Fresnel lens sheet for transmitting said image light rays that are formed into a picture on said screen,
wherein said Fresnel lens sheet has a fixed focal length in a region extending a predetermined distance from a center of said Fresnel lens sheet and having focal lengths gradually decreasing toward the outer periphery of said Fresnel lens sheet in a region exceeding said predetermined distance.

5,803,568
DUAL GROOVED FRESNEL LENS FOR OVERHEAD PROJECTION

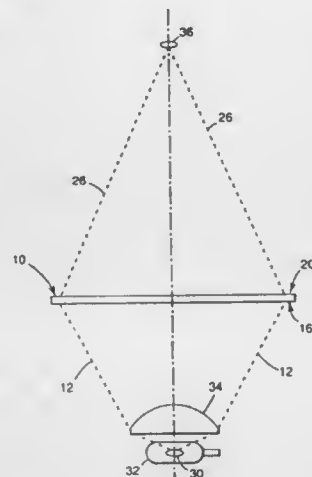
Stephen K. Eckhardt, Austin, Tex., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
PCT No. PCT/US95/01796, § 371 Date Aug. 1, 1996, § 102(e)
Date Aug. 1, 1996, PCT Pub. No. WO95/22772, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 16, 1995, Ser. No. 696,982

Int. Cl.⁶ G03B 21/14; 21/132

U.S. Cl. 353—102

13 Claims



7. A projection system comprising:

a light source;
a projection lens; and
a Fresnel lens interposed between said light source and said projection lens, said Fresnel lens having a bottom surface and a top surface, each of said surfaces having a plurality of concentric, circular grooves, defining a bottom groove angle and a top groove angle for a given entrance angle of a light ray from said light source, said groove angles being selected such that an angle of incidence of said light ray with said bottom surface is less than an angle of refraction of said light ray at said top surface, and said bottom groove angle is less than said top groove angle.

5,803,569

NOTEBOOK COMPUTER WITH PROJECTION FUNCTION

His-Kuang Ma, 4F, No. 48, Sec.2, Chung Cherrng Road, Taipei, Taiwan

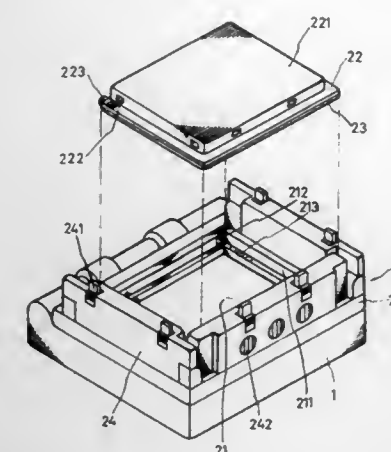
Filed Jun. 20, 1997, Ser. No. 879,770

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—120

5 Claims

1. A notebook computer with a projecting function comprising:
a mainframe having input devices and circuits passing through a rotary shaft; and
a display having four sides, said display being connected to said mainframe via said rotary shaft at one side thereof and comprising a liquid crystal display, a cover plate, an assembly of a reflective plate and a luminous body, and a frame, said liquid crystal display having a display frame at a peripheral rim thereof and being connected to said cover plate and said assembly by connecting means, said frame being formed at the other three sides of said display and capable of 90 degrees of rotation, wherein at least one portion of said frame at one side of said display is provided with fans and fan switches which, when pressed by said cover plate and said assembly, are electrically disconnected,
when said cover plate and said assembly are disposed on said display frame and when said frame is insertably connected to said cover plate, the notebook computer acts as an ordinary



computer notebook computer, but when said cover plate and said assembly are disengaged from said display frame and said frame is turned through 90 degrees, the images displayed on said liquid crystal display are projected with the use of a projector.

5,803,570

CALIBRATION SYSTEM AND METHOD FOR DISPLAY OPTICAL SYSTEMS

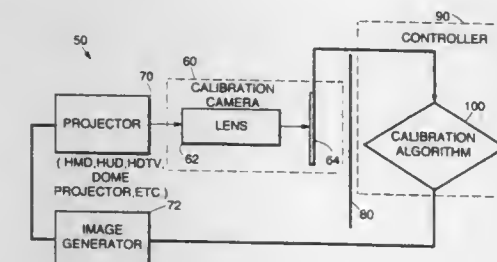
Chungte W. Chen, Irvine; James D. Zimmerman, Venice, both of Calif., and David A. Ansley, Sterling, Va., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 10, 1996, Ser. No. 762,114

Int. Cl.⁶ G03B 21/14

U.S. Cl. 353—122

16 Claims



1. A projection optical system including a calibration optical system for performing in-situ calibration of the projection optical system, comprising:

an image generator for generating image signals representing an image to be projected;
an optical projector responsive to said image signals for projecting optical radiation producing an optical image corresponding to said image signals; and
a calibration optical system for performing in-situ calibration on said optical images, comprising a calibration camera disposed to receive directly from said optical projector said optical radiation and capture an electronic image of said projected optical image, and a controller responsive to said captured electronic image for generating a correction signal to said image generator to improve the quality of the image projected by said optical projector.

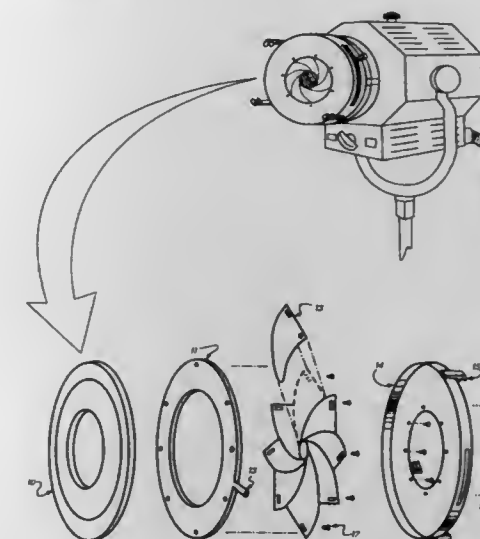
5,803,571
I-SNOOT

Rick McEntyre, 109 Bradley Dr., Baldwin, Ga. 30511, and
Jerry R. London, 858 Gerrells Rd., Cleveland, Ga. 30528
Filed Oct. 20, 1995, Ser. No. 513,456

Int. Cl.⁶ G01D 15/02

U.S. Cl. 362—18

3 Claims



1. A lighting accessory which allows complete annular control of light produced from various sized light fixtures by changing the emission of light depending on the desired setting of a large circular central aperture comprising:

a housing including a first male end piece having a central opening and a flange about its periphery and a second female end piece having a central opening and flange about its periphery, said flange of said first end piece being inserted within the flange of said second end piece and secured in place, an annular actuator plate located in said housing having a handle extending through a slot located in an outer periphery of said housing, a plurality of light control blades located about the inner periphery of said housing and adapted to form an adjustable central aperture, each of said light control blades being pivotally connected to said actuator plate and also pivotally connected one of said end pieces.

5,803,572

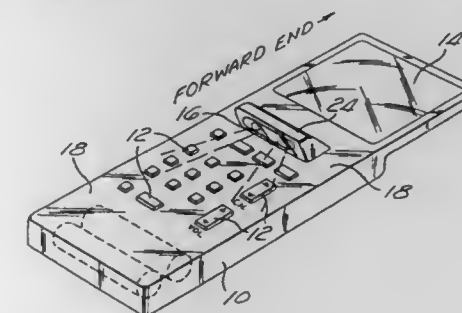
REMOTE CONTROL ILLUMINATED MAGNIFIER
Carla Raye Brada, 28072 Via Del Cerro, San Juan Capistrano, Calif. 92675

Division of Ser. No. 221,086, Mar. 29, 1994, Pat. No. 5,486,986. This application Sep. 18, 1995, Ser. No. 529,381

Int. Cl.⁶ G01D 11/28

U.S. Cl. 362—23

10 Claims



1. A television remote control comprising:

- a) a housing having first and second opposed sides thereof and having a plurality of controls formed upon the first side thereof;
- b) a first light source formed upon the first side of said housing; and
- c) a second light source formed upon the second side of said housing;
- d) wherein said first and second light sources are configured to facilitate substantially simultaneous viewing of said controls and reading of printed matter remote from the television remote control.

5,803,573

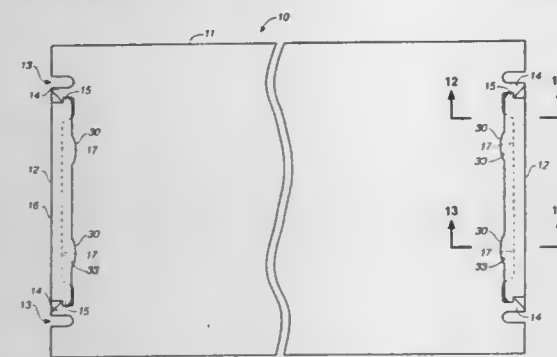
ILLUMINATING WITH LIGHT-EMITTING SURFACE
Hideharu Osawa, and Kazuyoshi Tsuji, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Mar. 25, 1997, Ser. No. 824,358

Claims priority, application Japan, May 2, 1996, 8-111466
Int. Cl.⁶ G01D 11/28; F21V 7/04; 21/00; H01R 33/00

U.S. Cl. 362—31

6 Claims



1. An illuminator with a light-emitting surface comprising: a light-conducting plate having a thickness and a side surface; a light source device for projecting light into said light-conducting plate through said side surface; and an engagement mechanism by which said light source device can be automatically engaged directly to said side surface if said light source device is pressed against said side surface, said engagement mechanism including engagement protrusions formed at both end parts of said light source device and a flexible and deformable hook protruding from said side surface of said light-conducting plate within said thickness.

5,803,574

SAFETY LIGHT

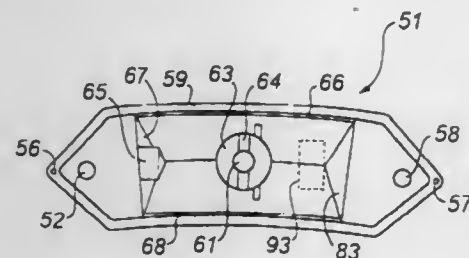
John Szaniszló, 1224 - 45 Street, Edmonton, Alberta, Canada, T6L 3N8

Filed May 8, 1995, Ser. No. 436,815

Int. Cl.⁶ B62J 6/00

U.S. Cl. 362—32

8 Claims



1. A safety light for attachment on a bicycle wheel comprising:

- a light source for emitting an output signal having a frequency in a visible range domain;
- light detecting means for generating a first control signal when ambient illumination is under a threshold;
- a control unit for receiving said first control signal and accordingly generating an actuating signal for switching on or off said light source; and
- a housing of multi-faceted transmissive walls for enclosing said control unit and for receiving and transmitting said output signal from said light source to produce a highly visible light, wherein
- a light path is provided about a periphery of said housing for guiding the output signal from the light source to the multi-faceted transmissive walls, said light path including a light pipe entry node and light pipes arranged about the periphery of said housing in optical contact with the walls of said housing.

5,803,575

LIGHT GENERATOR FOR INTRODUCING LIGHT INTO OPTICAL FIBERS

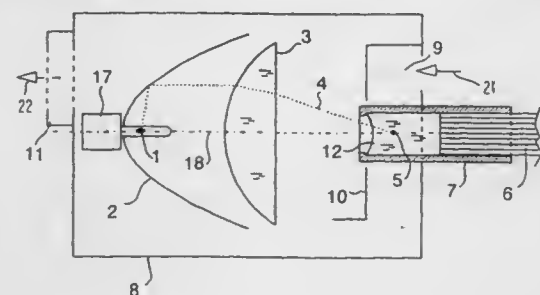
Johan Ansems, Hulsel, Netherlands; Pierre Dufresne, La Ferte St Aubin, and Antonio Hernandez, Theilay, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 15, 1996, Ser. No. 616,422

Claims priority, application France, Mar. 22, 1995, 95 03351
Int. Cl.⁶ F21V 7/04

U.S. Cl. 362—32

16 Claims



1. A light generator for introducing light into a bundle of optical fibers, which light generator comprises an assembly of a lamp, an optical unit for concentrating light from said lamp around an axial image point, and a ferrule for said optical-fiber bundle, said ferrule comprising a cylindrical part which holds an end of the optical-fiber bundle and surrounds a transparent rod having a first end which is in contact with the end of the optical-fiber bundle and a second end which faces the optical unit and the lamp, characterized in that the end of the transparent rod facing the optical unit and the lamp has a concave surface, that the end of the rod contacting the optical-fiber bundle is planar, and that the axial image point around which the optical unit concentrates the light is a virtual image which is situated inside said rod.

5,803,576

MOTOR VEHICLE HEADLAMP HAVING DIOPTRE LENS MEANS INTERPOSED BETWEEN THE LIGHT SOURCE AND THE REFLECTOR

Yann LE Gallo, Saint-Maur, France, assignor to Valeo Vision, Bibogny Cedex, France

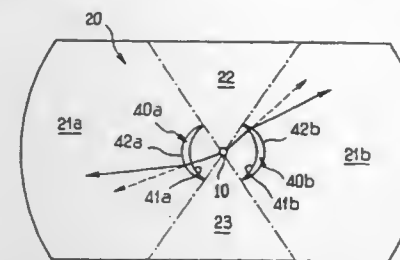
Filed Jan. 18, 1996, Ser. No. 591,228

Claims priority, application France, Jan. 19, 1995, 95 00576
Int. Cl.⁶ B60Q 1/04

U.S. Cl. 362—61

7 Claims

1. A vehicle headlamp comprising: a light source, a reflector for reflecting light from the light source to produce a light beam, said reflector having an optical axis generally coincident with the light source, the reflector having a plurality of reflecting zones; at least



one dioptric lens adjacent to the light source in which the dioptric lens is interposed optically between the light source and at least one of the reflecting zones of the reflector to modify the light beam by refraction, wherein the dioptric lens has an inner surface which is a part of a cylinder of revolution having an axis essentially coincident with the optical axis, and an outer surface having a variable inclination with respect to the inner surface, the inclination varying progressively to establish by refraction a progressive defocussing of the light, along the optical axis and perpendicular to the optical axis, and to displace images of the light source, relative to the light source, the dioptric lens having an angular extent so that the lens is interposed optically between the light source and an adjoining zone of the reflector.

5,803,577

DECORATIVE LIGHTING DEVICE FOR VEHICLE

Andrew J. Stratton, 209 Al Fan Ct., Winchester, Ky. 40391

Filed Dec. 3, 1996, Ser. No. 764,684

Int. Cl.⁶ F21S 1/14; F21P 1/02

U.S. Cl. 362—80

3 Claims



1. A decorative lighting device for attachment to metal exterior parts of a vehicle, comprising:
- a clear plastic coated lighting strip including 12 volt lights connected to a bulb base, and a wire located within said clear plastic coated lighting strip;
- a magnetic strip attached to said lighting strip along the length thereof;
- a power cord electrically connected to said wire;
- a male electrical connector adapted for electrically connecting to an existing power outlet in the vehicle for powering a cigarette lighter, wherein said male electrical connector is electrically connected to said power cord;
- a female electrical connector electrically connected to said power cord, wherein said female electrical connector is adapted to electrically couple to said male electrical connector, for electrically connecting together more than one of the decorative lighting device;
- a protector slidably disposed around said power cord for protecting said power cord from damage resulting from contact with a door or window of the vehicle; and
- a holder adapted for attachment to a dashboard of the vehicle and to retain a portion of said power cord to prevent said power cord from interfering with operation of the vehicle, wherein said holder is attached to said dashboard by a double sided adhesive tape.

5,803,578

HEADLAMP MOUNTING SYSTEM

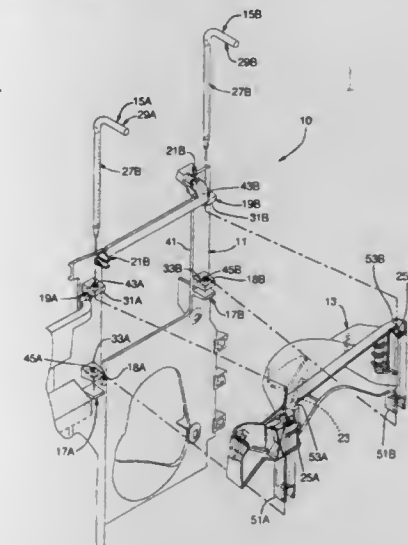
Steven Raymond Madsen, Muncie, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 28, 1997, Ser. No. 919,545

Int. Cl.⁶ B60Q 1/04

U.S. Cl. 362—80

8 Claims



1. A vehicle headlamp mounting system comprising: a support bracket secured to a vehicle; a headlamp assembly; and a cam pin inserted through respective apertures formed in the headlamp assembly and the support bracket, the headlamp assembly and the support bracket having a first positional relationship characterized by an offset of the respective apertures when the cam pin is in a first rotational orientation and a second positional relationship characterized by substantial alignment of the respective apertures when the cam pin is in a second rotational orientation.

5,803,579

ILLUMINATOR ASSEMBLY INCORPORATING LIGHT EMITTING DIODES

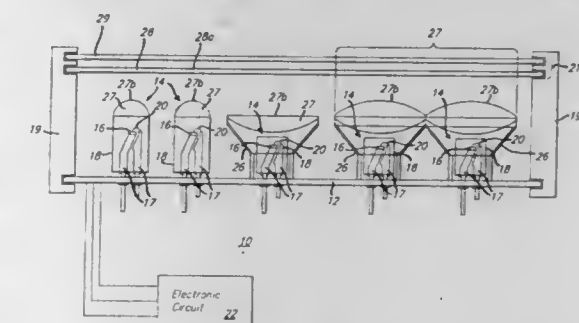
Robert R. Turnbull, Holland; Robert C. Knapp, Coloma, and John K. Roberts, Holland, all of Mich., assignors to Gentex Corporation, Zeeland, Mich.

Filed Jun. 13, 1996, Ser. No. 664,055

Int. Cl.⁶ B60Q 1/00

U.S. Cl. 362—83.1

39 Claims



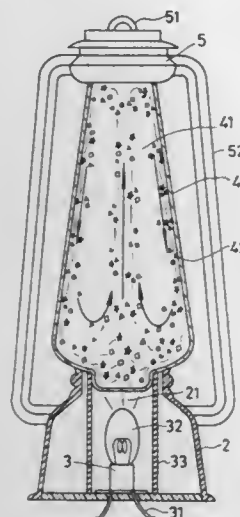
1. An illuminator assembly, comprising a plurality of LEDs disposed on a support member such that, when at least two of said LEDs are energized, illumination exhibiting a first hue having and wavelength below 505 nm and projected from at least one of said plurality of LEDs overlaps and mixes with illumination exhibiting a second hue having a do said first hue and projected from at least

one of the remaining LEDs of said plurality, where said overlapped and mixed illumination forms effective metameric white illumination.

5,803,580
DECORATIVE LIGHT
Yang-Hsu Tseng, P.O. Box 2103, Taichung, Taiwan
Filed Aug. 22, 1997, Ser. No. 935,055
Int. Cl.⁶ F21V 9/00

U.S. Cl. 362—96

5 Claims



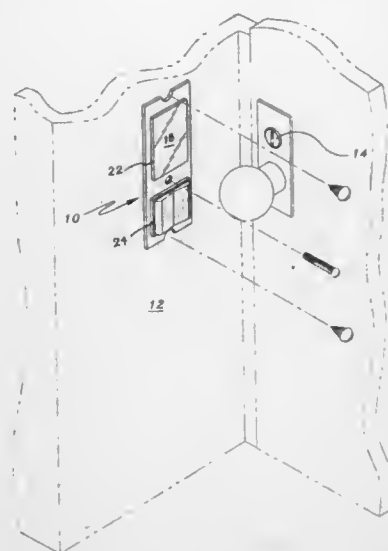
1. A decorative light comprising a hollow base seat having a bulb seat on a bottom portion, the bulb seat being connected with a power wire, a bulb being fitted in the bulb seat, the bulb being surrounded by a thermally insulated sheet which is spaced from the base seat and the bulb by a certain distance, a top end of the base seat being formed with a through hole in which a container is fitted, the container containing a liquid therein, the liquid being dyed into a predetermined color and mixed with a plurality of polished plates, a top end of the container being disposed with a cover body having a hooking lug on a top face.

5,803,581
DEVICE TO ILLUMINATE KEYHOLE AREA
Eric E. Brockmann, 1237 Harmony Station Rd., Phillipsburg, N.J. 08865
Filed Mar. 11, 1997, Ser. No. 815,126
Int. Cl.⁶ E05B 17/10

U.S. Cl. 362—100

9 Claims

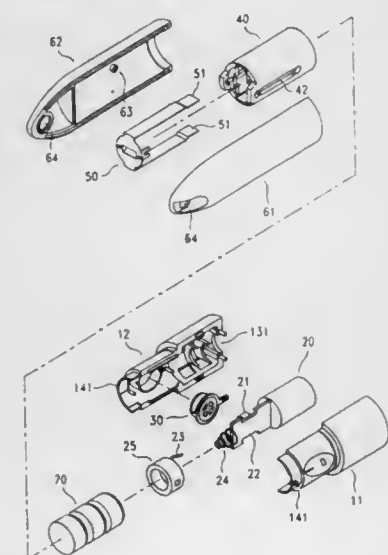
1. A keyhole illumination device for use with an existing low-voltage power supply comprising:
a plate defining a first window for passing light and a second window;
a housing, having a back wall and a plurality of side walls, dimensioned and configured to engage said plate so as to form an enclosure with said plate, said enclosure having an exterior and an interior;
a plurality of circuit terminals disposed on said exterior of said housing, said plurality of circuit terminals for electrically connecting wiring to the existing low-voltage power supply;
a first light-emitting means having a low-voltage lamp operably disposed within said housing proximate to said first window;
a back-lit toggle switch for controlling illumination of said first light emitting means, said toggle switch closely passing through said second window and including a second light emitting means for continually illuminating said toggle switch from within; and,



circuiting means for operably and electrically connecting said circuit terminals to said toggle switch and said first light emitting means and said second light emitting means.

5,803,582
LASER POINTER
Chaochi Hunag, Taipei Hsien, Taiwan, assignor to Quarton, Inc., Taipei Hsien, Taiwan
Filed Mar. 11, 1996, Ser. No. 613,912
Int. Cl.⁶ F21V 33/00; F21L 15/06; 7/00; F21K 27/00
U.S. Cl. 362—109

7 Claims



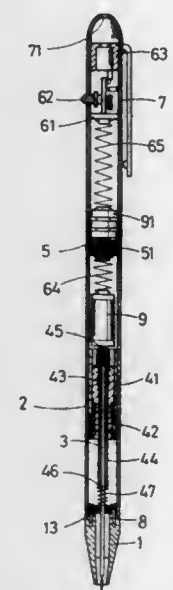
1. A laser pointer comprising a casing, a battery set mounted inside said casing, and a semiconductor laser module mounted inside said casing and connected to said battery set and controlled to emit a laser beam, wherein said casing comprises:
a barrel having two inside pins raised from an inside wall thereof at two opposite locations;
a socket sliding in said barrel at one end to hold said battery, said socket comprising two retaining grooves on an inside thereof at two opposite locations, and two opposite elongated sliding slots longitudinally disposed at two opposite sides and respectively coupled to said inside pins of said barrel; and
a laser module holder shaped like a steeped tube fastened to one end of said socket to hold said semiconductor laser module on an inside thereof of said laser module holder, said laser module holder comprising a hand-hold portion of relatively bigger outer diameter at one end, and a neck portion of relatively smaller outer diameter at an opposite end connected to said socket, said hand-hold portion defining a fire hole for passing the laser beam from said semiconductor laser module, said neck portion being mounted with a press button controlled to turn on/off said semiconductor laser module and having two side pins respectively raised from the periphery at two opposite sides and respectively fastened to said retaining grooves of said socket, said press button being received inside said barrel and concealed from sight when said barrel is moved relative to said socket in one direction to force said inside pins to one end of each of said elongated sliding slots of said socket, said press button being moved out of said barrel for operation when said barrel is moved relative to said socket in opposite reversed direction to force said inside pins to an opposite end of each of said elongated sliding slots of said socket.

module holder comprising a hand-hold portion of relatively bigger outer diameter at one end, and a neck portion of relatively smaller outer diameter at an opposite end connected to said socket, said hand-hold portion defining a fire hole for passing the laser beam from said semiconductor laser module, said neck portion being mounted with a press button controlled to turn on/off said semiconductor laser module and having two side pins respectively raised from the periphery at two opposite sides and respectively fastened to said retaining grooves of said socket, said press button being received inside said barrel and concealed from sight when said barrel is moved relative to said socket in one direction to force said inside pins to one end of each of said elongated sliding slots of said socket, said press button being moved out of said barrel for operation when said barrel is moved relative to said socket in opposite reversed direction to force said inside pins to an opposite end of each of said elongated sliding slots of said socket.

5,803,583
PEN WITH LIGHT-EMITTING MEANS
Chi-Li Hsieh, No. 8, Alley 1, Lane 76, Sec. 2, Li Shyng Road, Dan Chong City, Taipei County, Taiwan
Filed Jul. 31, 1996, Ser. No. 688,971
Int. Cl.⁶ B43K 29/10

U.S. Cl. 362—118

6 Claims



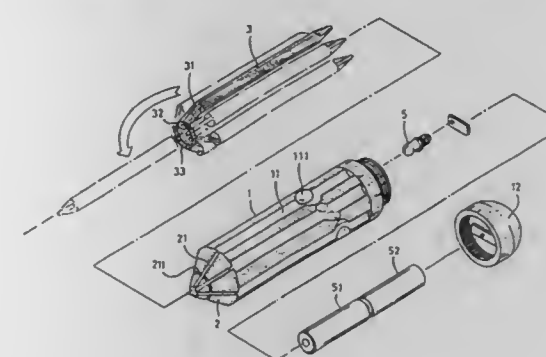
1. A pen with light-emitting means comprises:
a head member formed of transparent material, said head member having a conic hollow lower portion and an upper retaining portion having a recess formed therein, said head member including a conductive ring disposed in said recess;
a light bulb disposed in an opening formed in said head member and having a positive electrode wire and a negative electrode wire, said negative electrode wire contacting said conductive ring;
a lower tube member formed of metal and having a first end coupled to said upper retaining portion of said head member, said lower tube member contacting said positive electrode wire of said light bulb for making an electrical connection therewith;
an adjusting assembly disposed within said lower tube member, said adjusting assembly including (a) a longitudinally extended sleeve member, (b) a hollow insulator longitudinally displaceably disposed within said sleeve member, (c) an ink tube holder threadably engaged with an upper end of said hollow insulator and extending therethrough, said ink tube holder having a hemispherically shaped conductive body formed on an upper end thereof and an opening formed in an opposing lower end, (d) a first spring coupled to a lower end

of said ink tube holder, and (e) a first battery having one terminal thereof contacting said conductive body;
a non-conductive ink tube having one end disposed in said opening of said ink tube holder and an opposing end extending therefrom;
an insulative ring having a first end coupled to a second end of said lower tube member;
an upper tube member formed of metal and having a lower end coupled to a second end of said insulative ring;
a set of second batteries disposed in said upper tube adjacent said insulative ring;
a second spring disposed in said upper tube and having a first end contacting said second batteries; and,
an IC board disposed in said upper tube and having a lower base portion contacting a second end of said second spring, said IC board including a focusing ring disposed adjacent an upper end of said upper tube member and a light source mounted on said IC board for directing light through said focusing ring.

5,803,584
STRUCTURE OF HAND TOOL
Chih-Wen Chung, P.O. Box 82-144, Taipei, Taiwan
Filed Apr. 14, 1997, Ser. No. 834,139
Int. Cl.⁶ B25B 23/18

U.S. Cl. 362—120

3 Claims



1. A hand tool comprising:
a cylindrical casing having a plurality of longitudinal grooves equiangularly spaced around and along a periphery of the casing, and a tapered front end, a plurality of radial grooves on said front end and respectively extended from said longitudinal grooves and met at a point, and an annular groove disposed around a periphery of said tapered front end and intersecting said radial grooves; and
a tool bit unit mounted on said casing, said tool bit unit comprising a binding ring mounted in the annular groove of the tapered front end of said casing, and a set of bits respectively pivoted to said binding ring and turned between a first position received in the radial grooves and longitudinal grooves of said casing, and a second position retained in alignment with said casing longitudinally, each of said bits having a bit body configured to be received in one longitudinal groove of said casing, and a flat oblique head pivoted to said binding ring and adapted to be received in one radial groove of the tapered front end of said casing.

5,803,585

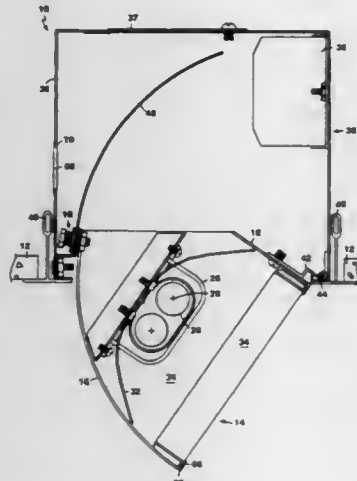
ADJUSTABLE LIGHT FIXTURE

Eugene Littman, Newburgh; Steven Proner, Hurley; Barry D. White, Newburgh, and Douglas Highbridge, New Paltz, all of N.Y., assignors to Lightron of Cornwall Incorporated, New Windsor, N.Y.

Continuation of Ser. No. 267,611, Jun. 29, 1994, Pat. No. 5,564,815. This application Aug. 30, 1996, Ser. No. 705,729
Int. Cl.⁶ F21V 21/04

U.S. Cl. 362—147

17 Claims



1. A light fixture comprising:
 - a mounting structure defining an opening;
 - a lamp assembly including an elongated lamp extending along an axis and an elongated reflector, the lamp assembly being oriented inside the mounting structure to direct illumination out of the opening when the lamp is energized;
 - a coupling between the mounting structure and the lamp assembly, the coupling being configured to permit the lamp assembly to pivot with respect to the mounting structure about an axis parallel to and spaced apart from the axis of the elongated lamp; and
 - a stop carried by the mounting structure, the stop being configured to prevent the lamp assembly from pivoting through the opening in the mounting structure.

5,803,586

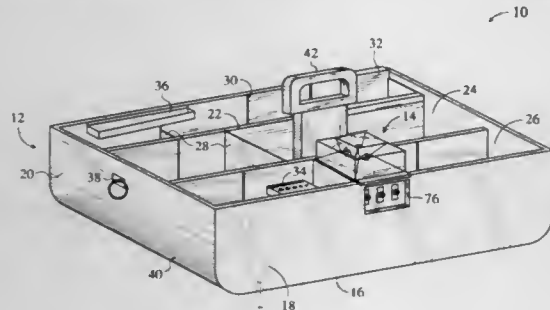
ILLUMINATED TOOL CADDY

Salvador A. Velez, P.O. Box 354, Hollister, Calif. 95024; Filiberto Rodriguez, 1330 Ramona Ave., and Carlos A. Ruiz, 1081 Wood Ct., both of Hollister, Calif. 95023

Filed Feb. 13, 1996, Ser. No. 600,681
Int. Cl.⁶ F21V 33/00

U.S. Cl. 362—154

16 Claims



1. A portable lighting system, comprising:
 - a carrier portion, said carrier portion having side walls, end walls, and a carrier portion interior, said carrier portion including handle means for toting said carrier portion;

a light source operatively associated with said carrier portion, said light source including a bulb housing, the bulb housing containing a plurality of light bulbs and a multiplicity of reflector facets, the light cast by each light bulb being reflected and directed by the reflector facets, at least one of the reflector facets positioned so as to reflect and direct light in a generally downward direction so as to cast light upon at least one of the carrier portion interior and a ground area; and said operative association includes said light source being located within the carrier portion interior and wherein the bulb housing extends above at least one of the side walls and end walls.

5,803,587

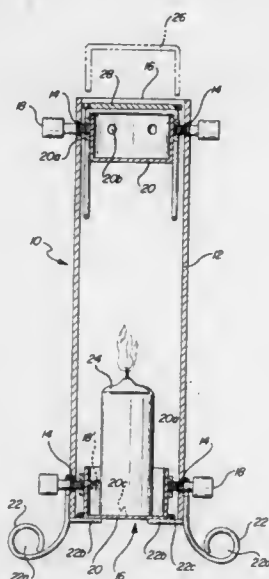
CANDLE LANTERN

Chin S. Chen, 3126 Lexington Dr., Ann Arbor, Mich. 48105
Filed Jul. 25, 1997, Ser. No. 900,657

Int. Cl.⁶ F21L 19/00

U.S. Cl. 362—161

12 Claims



1. A candle lantern comprising:
 - a body comprising an open-ended tube of an at least translucent material;
 - a removable cup adapted to be inserted into the open ended tube as a candle holder;
 - a first set of holes in a lower end of the tube, and a first set of set screws adapted to be inserted through the holes to engage and secure the cup;
 - a second set of holes in an upper end of the tube, adapted to receive the set screws to engage and secure the removable cup at the upper end.

5,803,588

LUMINAIRE FOR LUMINESCENT LIGHT SOURCES

Paul D. Costa, Burlingame, Calif., assignor to Videssence, Inc., Burlingame, Calif.

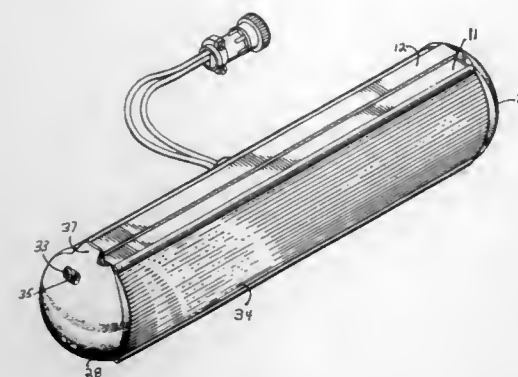
Continuation-in-part of Ser. No. 675,945, Jul. 5, 1996, and Ser. No. 56,121, Jun. 24, 1996. This application Sep. 10, 1996, Ser. No. 709,253

Int. Cl.⁶ F21S 3/00

U.S. Cl. 362—223

7 Claims

1. A luminaire for a luminescent light tube comprising in combination:
 - a. an extruded 'U'-shaped tubular housing having two diametrically opposing interior longitudinal 'C'-channels, and two



- terminating longitudinal 'C'-channel tracks one along each edge of each side leg of the extruded 'U'-shaped tubular housing;
- b. a mounting plate secured by means received and captured within the respective internal 'C'-channels at each end of the tubular housing;
- c. a mounting and electrical connection socket secured to each mounting plate electrically connectable to a source of electrical power;
- d. at least one luminescent light tube extending longitudinally within the 'U'-shaped tubular housing mounted and electrically connected to at least one of the sockets;
- e. a light reflecting surface mounted curling around the luminescent tube within the tubular housing for reflecting light from surfaces within the 'U'-shaped tubular housing; and
- f. an end cap secured to each mounting plate for closing each end of the 'U'-shaped tubular housing;
- g. a longitudinal curved transparent lens element having beaded side edges shaped for capture by and sliding within the terminating longitudinal 'C'-channel tracks along the edge of each side leg;
- h. means for resiliently securing each cap to each of the mounting plates urging each end cap against the end of the housing, and for allowing each end cap to translate perpendicularly with respect to the longitudinal axis of the tubular housing.

5,803,589

CEILING LIGHTING FIXTURE

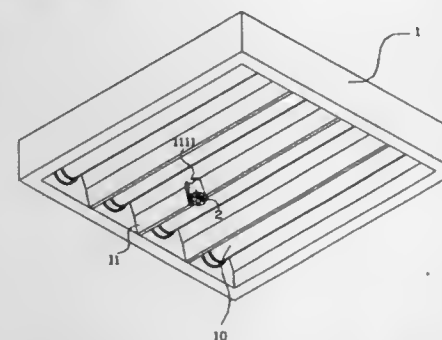
Chi-Hsiang Lee, No. 22, Lane 67, Ta Chih Street, Taipei, Taiwan

Filed Jan. 10, 1997, Ser. No. 783,293

Int. Cl.⁶ F21S 3/00

U.S. Cl. 362—225

1 Claim



1. A ceiling lighting fixture, comprising a rectangular bottom-open casing having a plurality of parallel partition frames and an electric connector connected to external power supply, a plurality of lamp tubes respectively mounted in said casing and separated by said partition frames and electrically connected to said electric connector, and a cylindrical sensor-controlled switch adapted for detecting the presence of persons and switching on/off said electric

connector subject to its detection result, wherein one of said partition frames comprises a rounded switch mounting hole, and a plurality of bendable locating strips respectively projecting into said switch mounting hole at different angles; said cylindrical sensor-controlled switch is mounted in said rounded switch mounting hole and connected to said electric connector, having a plurality of recessed holes spaced around the periphery and forced into engagement with said locating strips.

5,803,590

ROADWAY LUMINAIRE

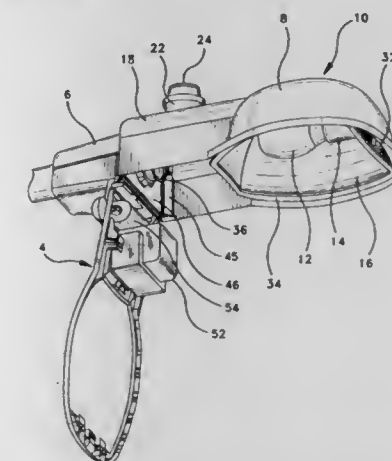
Mark Taylor Wedell, Germantown; Edward Bernard Bilson, Memphis, both of Tenn.; Thomas A. Zimmerman, Southaven, Miss., and Glenn A. Ellis, III, Memphis, Tenn., assignors to Thomas & Betts Corporation, Memphis, Tenn.

Filed Mar. 8, 1996, Ser. No. 610,575

Int. Cl.⁶ F21S 1/10

U.S. Cl. 362—226

12 Claims



1. A luminaire for mounting to a pole which comprises:
 - a mast mount docking station including a clamp for attaching to the pole at one end of the docking station and a keyed coupling means at an opposite end of the docking station;
 - an electrical plug connector disposed in the coupling means end of the docking station;
 - a luminaire including a mating electrical plug connector for electrically connecting the mast mount docking station to the luminaire, the luminaire further including a connection end having keyways therein such that the luminaire is removably mechanically and electrically coupled to the mast mount docking station by a twist-lock mating between the mating electrical plug connectors and keyed coupling means of the mast mount docking station and the keyways in the connection end of the luminaire.

5,803,591

FASTENING MECHANISM USED IN MINIATURE LIGHT BULB SERIES

Francis Lin, No. 196, Chin Long Road, Hsiao Chin Ko Cheng, Whair Chou City, Kanton, China

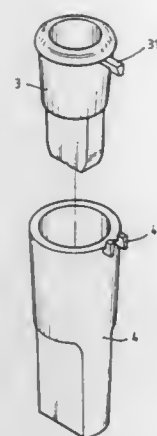
Filed Jan. 23, 1997, Ser. No. 792,855

Int. Cl.⁶ H01R 33/00

U.S. Cl. 362—226

2 Claims

1. An improved fastening mechanism used in a decorative light series, comprising a light bulb socket and a housing, and characterized in that said housing is provided with two opposite flexible lugs and said light bulb socket has a locating post horizontally extending from a side surface thereof, said two lugs each having an opposed inclined internal surface to form therebetween a passage-way with a narrower upper opening and a wider lower opening;



said locating post being configured to have a wider top surface and a narrower bottom surface and the top surface of said locating post being slightly wider than the upper opening of said passageway defined by said two lugs so that when said light bulb socket is placed into said housing said locating post will extend into said passageway so that the two lugs forcefully press against the locating post to constitute a firm engagement.

5,803,592

LIGHT SOURCE

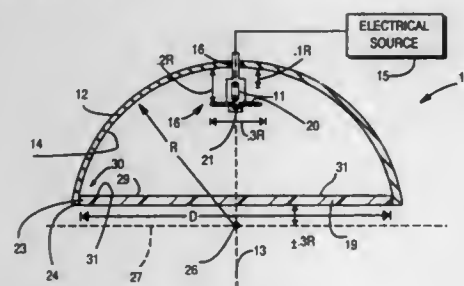
Lawrence Richard Lawson, Bradford, Pa., assignor to Austin Air Systems Limited, Buffalo, N.Y.

Filed Nov. 22, 1996, Ser. No. 755,011

Int. Cl.⁶ F21V 13/10

U.S. Cl. 362—300

20 Claims



19. A light source assembly, comprising:
a single metal halide lamp;
a housing containing said lamp and including an interior and an exterior;
at least about half of said housing interior having a diffuse reflective surface;
a diffuser defining part of said exterior; and
when said lamp is energized said assembly at said diffuser having a surface brightness of at least about 2000 footlamberts and a non uniformity of 10% or less.

5,803,593

REFLECTOR SYSTEM FOR A LIGHTING FIXTURE

Michael J. Siminovich, El Sobrante; Erik Page, Berkeley, both of Calif., and Carl T. Gould, Medford, Oreg., assignors to The Regents, University of California, Oakland, Calif.

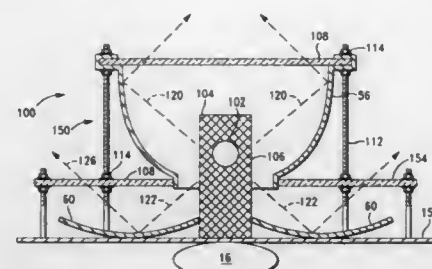
Filed Oct. 24, 1996, Ser. No. 735,990

Int. Cl.⁶ F21V 13/10

U.S. Cl. 362—304

12 Claims

1. A fixture for a reflector-based illumination device, comprising:



a light source having a fill and an envelope containing the fill surrounding the light source, the fill being selected from the group consisting of: sulfur, selenium, or phosphorus;
a first reflector member surrounding the envelope;
a second reflector member, non-contiguous with the first reflector member and surrounding the light source;
the light source generating light rays creating an angle of incidence and an angle of reflection with each of the first and second reflectors and each of the reflectors being designed so that the angle of reflection, substantially causing the reflected rays not to cross the envelope surrounding the light source; whereby, the light rays emitted from the light source illuminate without crossing the envelope and thereby illuminate without being attenuated.

5,803,594

METHOD AND OUTDOOR LIGHT ACCESSORY FOR ENHANCING THE APPEARANCE OF LANDSCAPE LIGHTING

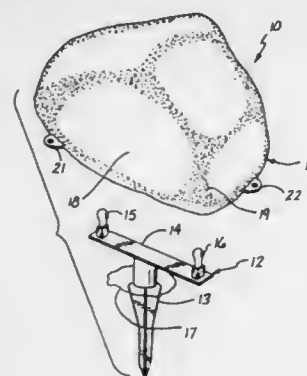
Linda L. Fredrickson, and Ann Hoch, both of Anlin Worldwide, 32213 Placer Belair, Temecula, Calif. 92592

Filed Dec. 23, 1996, Ser. No. 771,949

Int. Cl.⁶ F21V 1/00

U.S. Cl. 362—351

6 Claims



1. A method for enhancing the appearance of landscape lighting, comprising:
providing a shell having a size and shape adapted to cover an outdoor light fixture of predetermined size, the shell being composed at least partially of a translucent material, the shell having an exterior with a stone-like appearance, and the shell having means in the form of a plurality of flanges extending outwardly from the exterior of the shell for enabling a user to secure the shell to the ground with stakes driven into the ground through holes in the flanges after the shell is placed over the outdoor light fixture; and
covering the outdoor light fixture with the shell in order to conceal the outdoor light fixture with a decorative cover while still enabling light to pass outwardly through the shell.
3. An outdoor light accessory for enhancing the appearance of landscape lighting, comprising:
a shell having a size and shape adapted to cover an outdoor light fixture of predetermined size;

the shell being composed at least partially of a translucent material;
the shell having an exterior with a stone-like appearance; and
the shell having a plurality of flanges extending outwardly from the exterior of the shell that function as means for enabling a user to secure the shell to the ground with stakes driven into the ground through holes in the flanges after the shell is placed over the outdoor light fixture.

5,803,595

LUMINAIRE

Godefridus N. M. Verspaget, and Hendrikus A. M. Van Dulmen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

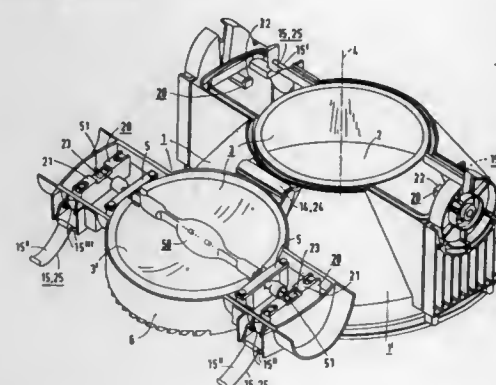
Filed Jun. 12, 1997, Ser. No. 873,390

Claims priority, application European Pat. Off., Jun. 12, 1996, 96201638

Int. Cl.⁶ F21S 3/00

U.S. Cl. 362—374

7 Claims



1. A luminaire comprising
a housing (1) with a light emission window (2);
reflector means (3) having an optical axis (4) which passes through the light emission window (2), which reflector means (3) are arranged in the housing (1) for directing light generated in the housing (1) through the light emission window (2);
a pair of lampholders (5) in the housing for mechanically mounting a double-ended electric lamp transversely to the optical axis (4) between the reflector means (3) and the light emission window (2);
a double-ended electric lamp mounted in said lampholders;
a pair of electrical contact members (20) at a distance from the lampholders (5) for connecting respective current conductors of the electric lamp to a supply source, which contact members (20) each comprise a first body (21) with an electrical contact (23) and a second body (22) for cooperating with the first such that a current conductor of the electric lamp is kept pressed against the electrical contact (23),
a hinged joint (24) interconnecting the first body (21) and the second body (22) of each contact member (20), and
a lock (25) spaced from the hinged joint (24) for urging the first body (21) and the second body (22) towards one another.

5,803,596

METHOD AND APPARATUS FOR HIGH CAPACITY PRODUCTION OF FINISHED AQUEOUS FOAM WITH CONTINUOUSLY ADJUSTABLE PROPORTIONING

Patrick J. Stephens, 1276 Chuckanut Dr., Bellingham, Wash. 98225

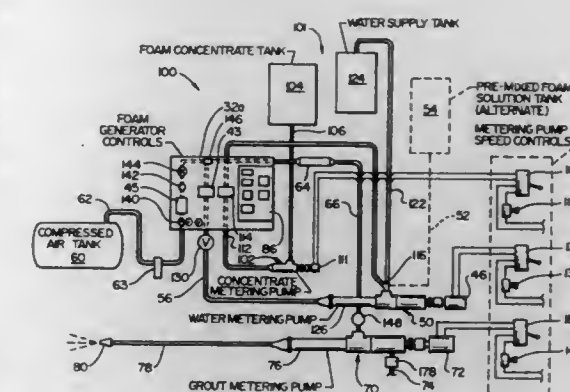
Filed May 17, 1996, Ser. No. 650,919

Int. Cl.⁶ B28C 7/04; A62C 5/02

U.S. Cl. 366—10

42 Claims

1. An apparatus for continuous production of finished foam, said apparatus comprising:



supply means, comprising:
a positive displacement metering pump configured to deliver a substantially continuous flow of aqueous foam solution at a rate which is directly proportional to a rate of operation of said pump;
an air supply for delivering a substantially continuous flow of compressed air; and
blending means for combining said aqueous foam solution which is delivered by said pump with compressed air which is delivered by said air supply, so as to form a finished foam material;
monitoring means, comprising:
means for monitoring a rate of flow at which said compressed air is delivered to said blending means by said air supply;
means for monitoring a rate of flow at which said foam solution is delivered to said blending means by said metering pump; and
control means, comprising:
speed control means for selectively adjusting said rate of operation of said metering pump so as to proportionally adjust the amount of said foam solution which is delivered to said blending means; and
means for selectively adjusting said rate of flow of said compressed air so as to proportionally adjust the amount of said compressed air which is delivered to said blending means.

5,803,597

MACHINE FOR THE EXTRUSION OF POLYMERS AND THE LIKE WITH CONVERGING THREADED ROTORS EACH ACTUATED BY MEANS OF ITS OWN ACTUATING MOTOR

Mauro Matteo Giani, Guanzate, Italy, assignor to Pomini S.p.A., Castellanza, Italy

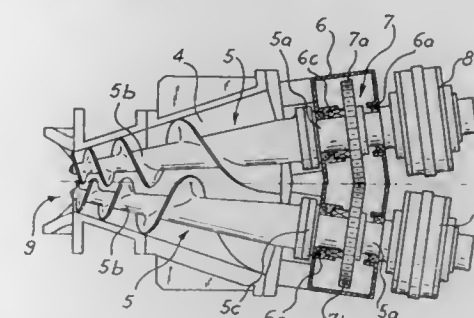
Filed Oct. 29, 1996, Ser. No. 741,382

Claims priority, application Italy, Nov. 21, 1995, MI95 A 02416

Int. Cl.⁶ B29B 7/22; B01F 7/08

U.S. Cl. 366—83

7 Claims



1. An extruder comprising:

a pair of elongated rotors extending along respective longitudinal axes, said axes converging toward each other, each of said pair of rotors comprising:
a respective rotor shaft having opposite ends and rotatable about a respective one of the longitudinal axes, and
a respective extruder screw extending axially from one end of the rotor shaft and rotatably fixed therewith;
first and second motors each driving a respective one of said rotors and mounted coaxially and directly on the respective other end of the rotor shaft of the respective rotor; and
gear means for synchronizing rotation of said rotors upon actuating each of said rotor shafts by the respective motor and including two gears dimensioned to synchronize said rotors but insufficient to drive said rotors without respective motors, each of the gears being rotatably fixed on the respective shaft and meshing with the other gear.

5,803,598

HAND-HELD ELECTRIC BEATER-MIXER

Jean-Michel Harry, Marolles-Jes-Braults; Jean-Pierre Troche-rie, Saint-Pierre-des-Nids, and Jean-Jacques Linger, Laval, all of France, assignors to Moulinex S.A., Paris, France
PCT No. PCT/FR96/00219, § 371 Date Sep. 18, 1997, § 102(e)
Date Sep. 18, 1997, PCT Pub. No. WO96/25080, PCT Pub.
Date Aug. 22, 1996

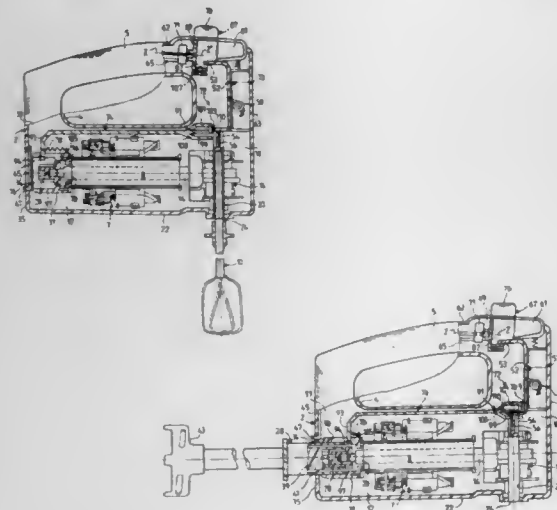
PCT Filed Feb. 12, 1996, Ser. No. 894,016

Claims priority, application France, Feb. 16, 1995, 95 01795

Int. Cl.⁶ A47J 43/07; B01F 13/04

U.S. Cl. 366—129

6 Claims



1. In a hand-held electric beater-mixer adapted to drive selectively at least one of a beating accessory and a mixing accessory, the beater-mixer comprising:

- a housing of generally prismatic shape having a base, an upper wall, a rear wall, a hollow portion delimiting a handle, and enclosing an electric motor provided with a shaft;
- two rotatable coupling devices operatively connected to the shaft of the motor, a first opening in the base for fixing the beating accessory to a first coupling device, a second opening for fixing the mixing accessory to the second coupling device;
- an operating button for actuating a switch which controls the electric motor, said button having a body mounted in an upper portion of the housing in a region overhanging the beating accessory, the switch adapted to occupy a stop position, at least one continuous operation position, and an instantaneous operation position;
- an ejection member co-acting with the first coupling device and vertically displaceable between a low position in the absence of the beating accessory to a high position when the beating accessory is engaged in the first coupling device; and

mechanical means for preventing actuation of the switch into the continuous operation position or into the instantaneous operation position when the beating accessory is inserted in the first coupling device;

the improvement wherein the second opening is provided in the rear wall, the ejection member comprises in its upper portion a drive finger, and the mechanical means comprise a movable member interposed between the ejection member and the second coupling device, said movable member having a displacement which is subordinated to emplacement of the mixing accessory in the second coupling device, against resilient return means, and being adapted to occupy a beating position wherein the ejection member is free to pass from its low position to its high position with the drive finger freeing actuation of the button, and a mixing position wherein the ejection member is blocked in the low position with the drive finger blocking actuation of the button from a side corresponding to the continuous operation position.

5,803,599

APPARATUS AND METHOD FOR MIXING CHEMICALS TO BE USED IN CHEMICAL-MECHANICAL POLISHING PROCEDURES

Edward T. Ferri, Jr., Gilroy, Calif.; J. Tobin Geatz, Durham, N.C., and Gary L. Corlett, Hollister, Calif., assignors to Applied Chemical Solutions, Hollister, Calif.

Continuation of Ser. No. 667,360, Jun. 21, 1996, abandoned,

which is a continuation of Ser. No. 277,229, Jul. 19, 1994,

abandoned, which is a continuation-in-part of Ser. No.

948,392, Sep. 21, 1992, Pat. No. 5,330,072, which is a

continuation-in-part of Ser. No. 583,826, Sep. 17, 1990, Pat.

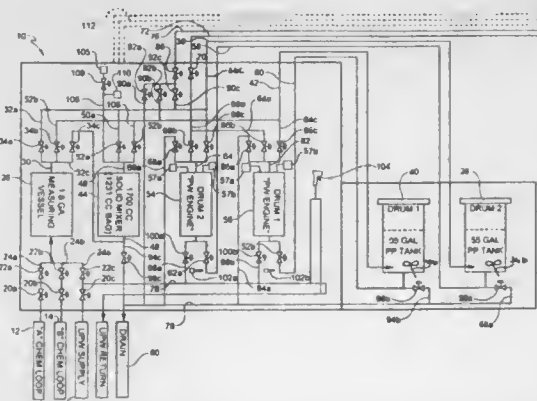
No. 5,148,945. This application Jun. 27, 1997, Ser. No.

898,882

Int. Cl.⁶ B01F 15/02; B67D 5/54

U.S. Cl. 366—134

4 Claims



1. Apparatus for the delivery of a chemical slurry to at least one downstream facility that comprises

- a measuring vessel of predetermined volume into which a liquid chemical component is introduced;
- a conduit connecting the measuring vessel to multiple chemical sources, wherein each of said chemical sources comprises a liquid chemical component;
- a conduit connecting the measuring vessel to at least one mix tank;
- a pressure vacuum vessel in communication with said at least one mix tank whereby chemical is drawn from said at least one mix tank to the pressure-vacuum vessel under negative pressure and chemical is delivered from the pressure-vacuum vessel to said at least one downstream facility under positive pressure, the pressure-vacuum vessel being in fluid communication with both said at least one mix tank and said at least one downstream facility;
- valves on each of the conduits so as to control chemical flow therethrough;

wherein the chemical slurry is produced in said at least one mix tank by combining chemicals from at least one of the multiple chemical sources and the slurry is delivered from said at least one mix tank to said at least one downstream facility.

5,803,600

STATIC MICROMIXER WITH HEAT EXCHANGER

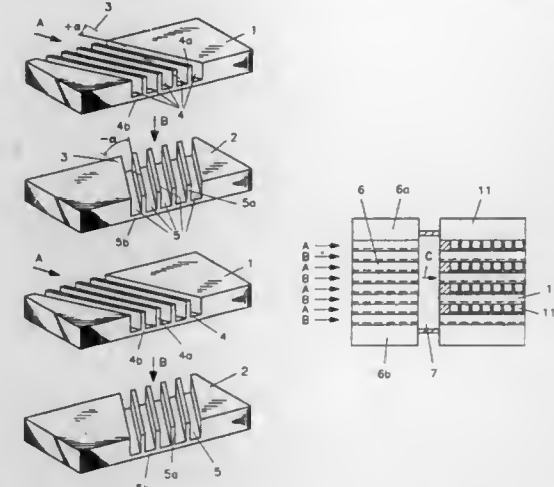
Klaus Schubert, Karlsruhe; Wilhelm Bier, Eggenstein-Leopoldshafen; Gerd Linder, Karlsruhe, and Dieter Seidel, Eggenstein-Leopoldshafen, all of Germany, assignors to Forschungszentrum Karlsruhe GmbH, Karlsruhe, Germany
Filed Oct. 9, 1996, Ser. No. 728,344

Claims priority, application Germany, May 9, 1994, 44 16 343.6

Int. Cl.⁶ B01F 5/06; 15/06

U.S. Cl. 366—144

3 Claims



1. A static micromixer for mixing at least two fluids including: a flow guide structure having a longitudinal axis extending in the general flow direction of said fluids through said flow guide structure, said flow guide structure having a fluid entrance end with at least two separate entrance areas and a fluid exit end with a fluid mixing chamber and comprising flow guide elements disposed on top of one another and having flow channels with exit openings extending from said separate entrance areas at an angle with respect to said longitudinal axis such that the flow channels of adjacent elements cross each other without intersecting and extend to said mixing chamber where the channel exit openings of flow channels extending from said separate entrance areas are disposed, aligned in rows, on top of one another, said flow guide elements of said guide structure being guide foils having a thickness of 100 μm and a length and width in the millimeter range, and said flow channels being grooves having a width of less than 250 μm with a wall thickness between adjacent grooves and a groove depth of less than 70 μm so that the channel density at the fluid mixing chamber is several thousand per cm², an intermediate foil disposed between adjacent guide foils and including grooves extending normal to the longitudinal axis of the flow guide structure for conducting heating or cooling fluid therethrough, and at least an upper or lower cover plate disposed on said flow guide structure so as to form a vacuum and pressure tight arrangement.

5,803,601

HORIZONTAL FLOW GENERATION SYSTEM

David D. Dean, Dayton, Ohio, assignor to Robbins & Myers, Inc., Dayton, Ohio

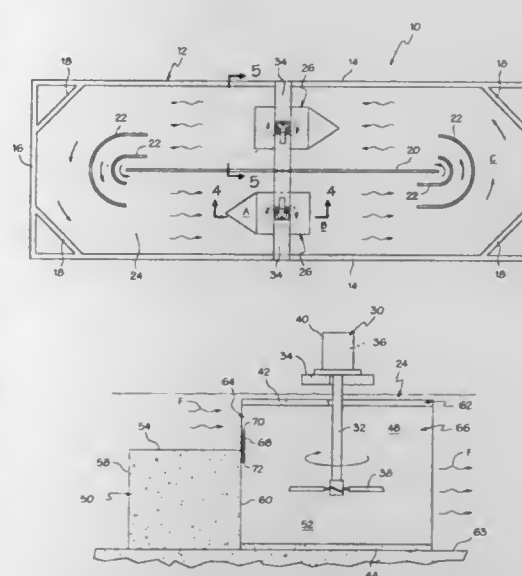
Filed Oct. 7, 1996, Ser. No. 726,680

Int. Cl.⁶ B01F 7/22; 5/12

U.S. Cl. 366—270

39 Claims

1. A reactor vessel and circulation system comprising:



a tank having outer side walls, opposing end walls and a central, longitudinal partition positioned to form a continuous circuit within said tank to allow for the circulation of a liquid;
a drive motor having a substantially vertically-oriented, rotatable output shaft;
a first impeller mounted on said output shaft; and
a housing enclosing said impeller, said housing being shaped and positioned within said tank between said partition and one of said side walls to form at least one channel for liquid to pass around said housing; and
said housing having an upstream and a downstream opening for entrance and egress, respectively, of liquid, whereby rotation of said impeller causes liquid to enter said housing through said upstream opening and be propelled downwardly and outwardly through said downstream opening.

5,803,602

FLUID MIXING DEVICE WITH VORTEX GENERATORS

Adnan Eroglu, Untersiggenthal; Wolfgang Polifke, Windisch, both of Switzerland, and Peter Senior, Leicestershire, United Kingdom, assignors to ABB Research Ltd., Zurich, Switzerland

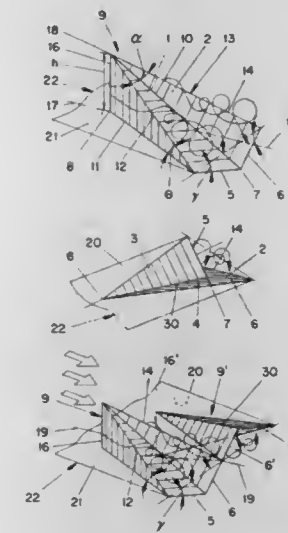
Filed Nov. 6, 1996, Ser. No. 744,270

Claims priority, application Germany, Dec. 1, 1995, 195 44 816.2

Int. Cl.⁶ B01F 5/00

U.S. Cl. 366—337

7 Claims



1. A mixing device for mixing two or more flowing fluids having the same or a dissimilar mass flow, comprising:

a flow channel for fluids to be mixed having a dividing wall, a plurality of vortex generators mounted at a downstream end of the dividing wall, each vortex generator projecting into the flow channel to provide surfaces around which flow occurs freely, the vortex generators being arranged next to one another across the flow channel,

each vortex generator having two side surfaces with a first longitudinally directed edge attached to a first side of the dividing wall, leading edges of the side surfaces being connected at a lead connecting edge with the side surfaces oriented with one another at a sweepback angle, second longitudinally directed edges of the side surfaces being disposed in the flow channel and oriented at a setting angle to the wall, the lead connecting edge being oriented perpendicularly to the wall and providing an upstream edge acted upon first by the flow, a top surface including two sectional top surfaces, with longitudinally directed edges of the sectional top surfaces being joined with the second longitudinally directed edges of the side surfaces, and the sectional top surfaces being connected to one another by a top connecting edge, downstream rear edges of the sectional top surfaces being oriented at an angle with the dividing wall so that the rear edges lie substantially opposite the first side of the dividing wall, and a base surface including two sectional base surfaces which are connected to one another by a bottom connecting edge and connected to the sectional top surfaces by the rear edges.

5,803,603

PORTABLE THERMOSTAT TESTING DEVICE

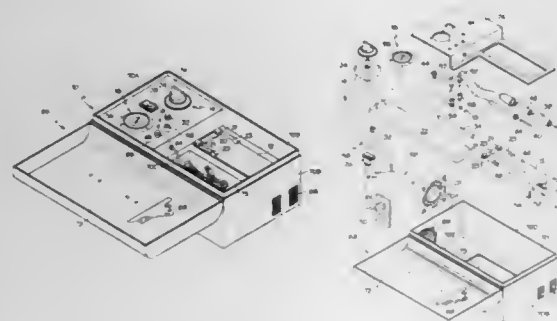
Robert Lawrence Schlueter, 182 Farragut Rd., Cincinnati, Ohio 45218

Filed Dec. 20, 1996, Ser. No. 769,461

Int. Cl.⁶ G01K 15/00; G01R 31/02

U.S. Cl. 374—1

19 Claims



2. A portable thermostat testing device for testing a thermostat having a trip temperature, a first terminal and a second terminal, said thermostat testing device comprising:

a testing block interfacing with said thermostat to be tested, said testing block including a bottom section having at least one leg to dissipate heat therefrom;

a heater assembly having a heater coupled to said testing block and electrically coupled to a power supply;

a temperature sensor assembly coupled to said testing block to measure a temperature of said testing block; and

a continuity checker having a first probe electrically coupled to said first terminal of said thermostat and a second probe electrically coupled to said second terminal of said thermostat; wherein said bottom section of said testing block further includes a pair of grooved surfaces, and said heater is mounted between said pair of grooved surfaces; and wherein said temperature sensor assembly indicates said trip temperature of said thermostat when said continuity checker indicates an open circuit between said first and second terminals of said thermostat.

5,803,604

THERMOCOUPLE TRANSMITTER

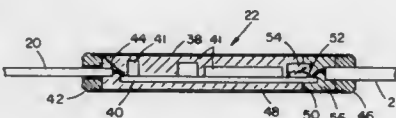
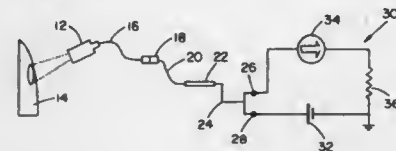
Francesco Pompei, Boston, Mass., assignor to Exergen Corporation, Watertown, Mass.

Filed Sep. 30, 1996, Ser. No. 720,448

Int. Cl.⁶ G01J 5/16; 5/02; G01K 7/12

U.S. Cl. 374—181

10 Claims



1. A thermocouple transmitter comprising: an elongated cylindrical metal housing having a diameter not greater than about one inch;

a transmitter circuit in the housing including a sensor for sensing a thermocouple junction temperature and an amplifier for amplifying a thermocouple voltage, the voltage being dependent on the sensed thermocouple junction temperature and a remote thermocouple junction temperature, the transmitter circuit being potted in thermally conductive potting material within the housing;

thermocouple leads extending from the transmitter circuit through an input end of the housing; and

output leads extending from the transmitter circuit through an output end of the housing, and wherein the thermocouple leads, the housing and the output leads effectively form a single cable.

5,803,605

COMPARTMENTAL LAUNDRY BAG

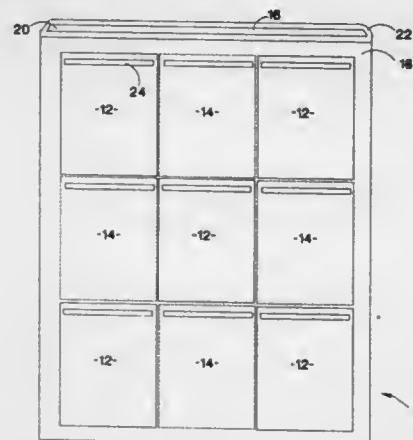
Sherrill A. Masi, 441 George St., Ridgewood, N.J. 07450

Filed Nov. 7, 1996, Ser. No. 744,465

Int. Cl.⁶ B65D 30/22

U.S. Cl. 383—38

9 Claims



1. A multi-pocketed bag for retaining articles comprising:

a center pocket, said center pocket having:

a first side,

a second side, and

an exterior perimeter, said first side and said second side being secured along at least two sides of said exterior perimeter, the unsecured sides having open and closure means;

at least two exterior pockets, said exterior pockets having a first side,

a periphery, said periphery being less than said exterior perimeter, and

open and closure means,

said at least two exterior pockets are secured to said first side and said second side and positioned to prevent said exterior pockets secured to said first side from being directly opposite and overlapping said exterior pockets secured to said second side thereby maintaining said exterior pockets on said first side off-set to exterior pockets on said second side.

5,803,606

SURFACE PHOTOTHERMIC TESTING DEVICE

Harald Petry, Saarbrücken, and Helmut Prekel, Lindau, both of Germany, assignors to Phototherm Dr. Petry GmbH, Saarbrücken, Germany

PCT No. PCT/DE94/01448, § 371 Date May 8, 1996, § 102(e) Date May 8, 1996, PCT Pub. No. WO95/16907, PCT Pub. Date Jun. 22, 1995

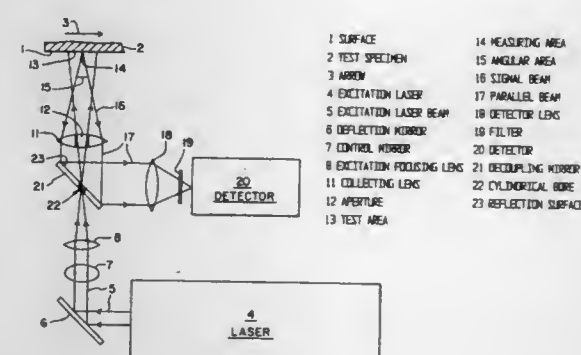
PCT Filed Dec. 7, 1994, Ser. No. 637,822

Claims priority, application Germany, Dec. 16, 1993, 43 43 076.7

Int. Cl.⁶ G01N 25/00

U.S. Cl. 374—45

2 Claims



1. Device for photothermic testing of a surface of a notably moving test specimen, the device comprising:

an illuminating device for producing an intensity-modulated excitation radiation;

an optical system for applying the excitation radiation to a test area on the surface and transmitting a portion of thermal radiation given off by a measuring area of the surface to a detector, the portion represented by an angular area;

a reflection device with a reflection surface with which the excitation radiation and the thermal radiation passed to the detector can be aligned coaxially;

a focusing device acted upon only by the excitation radiation operatively associated with the illuminating device;

an imaging device disposed between the surface and the detector along a path of the thermal radiation;

the imaging device having an aperture through which passes the excitation radiation;

the imaging device collecting the thermal radiation emitted from the measuring area situated in a focal range of the imaging device;

the reflection surface of the reflection device having a reflectivity optimized for one of the excitation radiation and the thermal radiation, whereby the radiation for which the reflectivity is optimized is substantially completely reflected and the reflection device is substantially traversed by the other one of the excitation radiation and the thermal radiation; and

a focal range of the focusing device is situated between the surface and the focusing device, thereby causing the excitation radiation to fall on the surface in divergent fashion.

5,803,607

METHOD AND APPARATUS FOR MEASUREMENT OF UNSTEADY GAS TEMPERATURES

Julian D C Jones, West Linton; James S Barton, Gorebridge; Stephen R Kidd, Moringside, and Kamaljit S Chana, Farnborough, all of Great Britain, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, Hants, United Kingdom

PCT No. PCT/GB95/00132, § 371 Date Jan. 6, 1997, § 102(e) Date Jan. 6, 1997, PCT Pub. No. WO95/20752, PCT Pub. Date Aug. 3, 1995

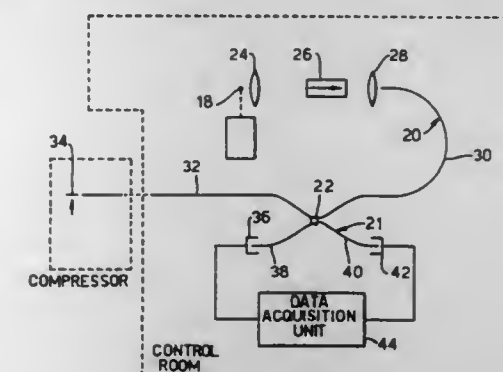
PCT Filed Jan. 24, 1995, Ser. No. 682,731

Claims priority, application United Kingdom, Jan. 26, 1994, 9401459

Int. Cl.⁶ G01B 9/02

U.S. Cl. 374—161

28 Claims



1. Apparatus for the measurement of unsteady gas temperatures comprising:

(a) a temperature sensing element comprising an optical interferometer optically coupled to a first end of a first, addressing optical fibre, said interferometer comprising an optical film comprising a partially reflective surface defined at said first end of said addressing fibre and a second partially reflective surface spaced from said first partially reflective surface;

(b) a light source optically coupled to a second end of said addressing fibre;

(c) an interrogating optical path optically coupled to said addressing fibre by a beam splitter whereby a portion of an optical signal from said sensing element is directed to a first end of said interrogating path and a portion of the input light from said light source is directed to a second end of said interrogating path;

(d) a first photodetector coupled to said first end of said interrogating path; and

(e) data acquisition processor connected to said first photodetector, said data acquisition processor being adapted to derive the temperature of said sensing element from said phase signal.

5,803,608

METHOD FOR GENERATING A SIGNAL RESPONSIVE TO THE INDUCTION AIR TEMPERATURE OF AN INTERNAL COMBUSTION ENGINE

Helmut Randoll, Vaihingen, Germany, and Andreas Roth, Domont, France, assignors to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE95/01560, § 371 Date Apr. 16, 1997, § 102(e) Date Apr. 16, 1997, PCT Pub. No. WO96/18090, PCT Pub. Date Jun. 13, 1996

PCT Filed Nov. 11, 1995, Ser. No. 817,394

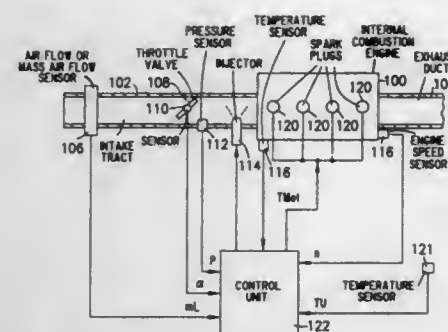
Claims priority, application Germany, Dec. 9, 1994, 44 43 812.5

Int. Cl.⁶ G01K 1/14; 13/02; 3/08

U.S. Cl. 374—144

8 Claims

1. A method for generating an induction air temperature signal, comprising the steps of:



providing a temperature signal indicative of a temperature of an internal combustion engine;
providing an ambient air temperature signal; and
generating the induction air temperature signal as a function of the engine temperature signal and the ambient air temperature signal.

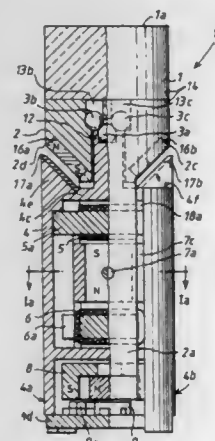
8. A device for generating an induction air temperature signal, comprising:
means for providing a temperature signal indicative of a temperature of an internal combustion engine;
means for providing an ambient air temperature signal; and
means for generating the induction air temperature signal as a function of the engine temperature signal and the ambient air temperature signal.

5,803,609 PROCESS FOR PROVIDING A BEARING OF A TILTING DEVICE AND TILTING DEVICE

Horst Stacklies, Aalen; Steffen Pommerening, Heilbronn;
Bruno Schweizer, Oberkochen, and Jurgen Schweizer,
Westerhofen, all of Germany, assignors to Carl-Zeiss-
Stiftung, Germany

Filed Sep. 19, 1997, Ser. No. 934,291
Claims priority, application Germany, Sep. 19, 1996, 196 38
213.0; Jan. 17, 1997, 197 01 485.2

Int. Cl.⁶ F16C 32/00
U.S. Cl. 384—2 10 Claims



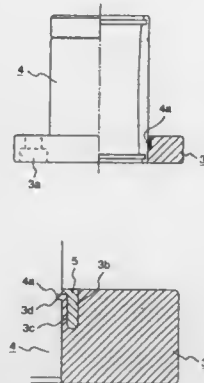
1. A tilting device that is tiltable around at least one axis, comprising:
a tilting member (14),
a base member (4), and
a bearing (3a, 3b, 3c, 3d) with a pivot point situated between said tilting member (14) and said base member (4), wherein:
a first portion (1) of said tilting member (14) is arranged above said pivot point,
a second portion (2) of said tilting member (14) is arranged below said pivot point, and
the weight of said first portion (1) and the weight of said second portion (2) correspond to each other.

5,803,610 LINEAR BALL BEARING MOUNTING FLANGE AND FABRICATION OF LINEAR BALL BEARING WITH FLANGE

Mitsuo Takeuchi, Iwaki, Japan, assignor to Takeuchi Precision
Works Co., Ltd., Fukushima-ken, Japan

Filed Apr. 24, 1997, Ser. No. 842,275
Claims priority, application Japan, Apr. 25, 1996, 8-105303;
Aug. 27, 1996, 8-025267

Int. Cl.⁶ F16C 29/06 4 Claims
U.S. Cl. 384—43



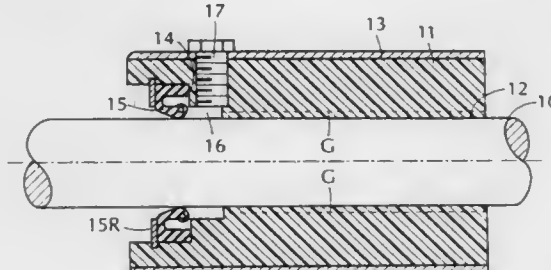
1. A linear ball bearing mounting flange, which is provided on at least one end of an outer cylinder of a linear ball bearing and is used for mounting said linear ball bearing on a machine or apparatus, said flange comprising:

a flange-shaped structure having a thick wall and provided separately from said outer cylinder, said flange-shaped structure having an annular recess extending from one end surface of said flange-shaped structure along the inner peripheral surface thereof; a peripheral wall on the inner peripheral side of said recess, which has a jagged structure in which projections and recesses are alternately arranged along the circumferential direction; and a locking piece projecting inward from said inner peripheral wall, which is formed at the leading end of each of said projecting portions of said jagged structure.

5,803,611 MARINE BEARING ASSEMBLY

John R. Newton, 485 Royal Palm Way, Boca Raton, Fla. 33432,
and Jeffrey W. Strong, 207 Elsa Rd., Jupiter, Fla. 33477

Filed May 15, 1997, Ser. No. 856,637
Int. Cl.⁶ F16C 3/00; 17/22 9 Claims
U.S. Cl. 384—97



1. A marine bearing assembly for a rotatable propeller shaft suitable for vessels which travel in very cold seawater where a conventional bearing as a result of contraction may seize the shaft, said assembly comprising:

A. a cylindrical bearing body having a bore therein to receive the rotating shaft whose diameter is such that the shaft is free to rotate, said body being formed of an ultra-high molecular weight polymer having a low coefficient of sliding friction and a high coefficient of thermal contraction; and

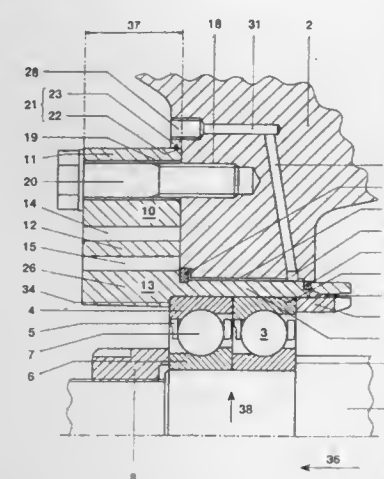
B. a sleeve in which said body is press-fitted in a contracted state at a below-freezing temperature whereby the body at higher temperatures is then held under compression within the sleeve, and when the vessel travels in said cold seawater, the body does not then contract around the shaft but contracts away from the sleeve and is then under reduced compression whereby the diameter of the bore is not significantly altered and the shaft remains free to rotate.

5,803,612 BEARING SUPPORT ARRANGEMENT FOR RAPIDLY ROTATING ROTORS

Josef Bättig, Eggliswil, Switzerland, assignor to Asea Brown
Boveri AG, Baden, Switzerland

Filed Mar. 14, 1997, Ser. No. 818,981
Claims priority, application Germany, Apr. 4, 1996, 196 13
471.4

Int. Cl.⁶ F16C 27/04 10 Claims
U.S. Cl. 384—99



1. A bearing support for rapidly rotating rotors, in particular for the bearing arrangement of turbocharger shafts, which is disposed in a housing (2) and radially supports at least one bearing (3) with respect to the housing (2), an annular gap (25) which is connected to an oil supply arrangement (31) and is used as a trapped oil damper being formed between said housing (2) and the bearing support arrangement (10), wherein

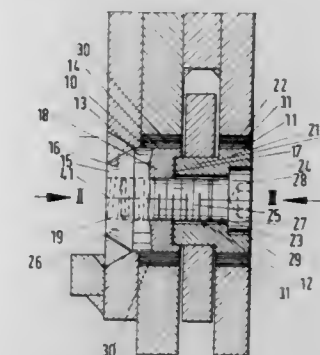
a) the bearing support arrangement (10) is of one-piece design,
b) the bearing support arrangement (10) comprises an outer flange (11) connected to the housing (2), a gimbal ring (12) and an inner bearing bush (13) which receives the bearing or bearings (3),
c) in each case a circumferential slot (14, 15) is formed both between the gimbal ring (12) and the outer flange (11) and between the gimbal ring (12) and the bearing bush (13),
d) the gimbal ring (12) is respectively connected to the bearing bush (13) and to the outer flange (11) via two inner and two outer webs (16, 17) which interrupt the respective circumferential slot (14, 15),
e) the annular gap (25) is formed between the bearing bush (13) and the housing (2) and is arranged axially offset with respect to the gimbal ring (12),
f) in each case at least one centering surface (22, 23) is arranged both on the outer flange (11) and on the housing (2), said centering surfaces (22, 23) being arranged so as to correspond to one another and so as to be concentric with respect to the bearing/bearings (3).

5,803,613 BEARING BODY

Norbert Riedel, Rheinberg, and Ludger Riedel, Xanten, both
of Germany, assignors to Riedel und Sohne oHG, Kamp-
Linfort, Germany

Filed Mar. 15, 1996, Ser. No. 616,808
Claims priority, application Germany, Mar. 17, 1995, 195
096 29.0

Int. Cl.⁶ F16C 11/00 11 Claims
U.S. Cl. 384—276

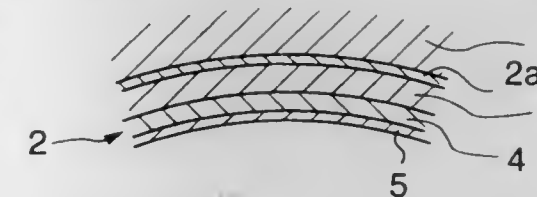


1. A combination of a swivel member for engagement with a workpiece for gripping, lifting and rotating the workpiece and a bearing unit for supporting the swivel member and for moving the swivel member along a circular arc, said bearing unit comprising:
a front axial body part which has a first end, an opposite second end, a central bore therein, and an axial outer bearing surface, said front axial body part supporting said swivel member,
a rear axial tap element which has a first end, an opposite second end, a bore therethrough, and an axial outer bearing surface, a fastening means which extends through said axial bore of said rear axial tap element and into said axial bore of said front axial body part so as to abut said first end of said rear axial tap element against said second end of said front axial body part and fasten said front axial body part and said rear axial tap element together.

5,803,614 BEARING STRUCTURE OF SLIDING BEARING

Hideo Tsuji, Hideo Ishikawa, Motomu Wada, and Takayuki
Shibayama, all of Nagoya, Japan, assignors to Daido Metal
Company, Ltd., Nagoya, Japan

Filed Jun. 6, 1997, Ser. No. 870,828
Int. Cl.⁶ F16C 9/02; 33/02 6 Claims
U.S. Cl. 384—276



1. A bearing structure comprising a housing, a sliding bearing which is mounted at its back face on said housing and which rotatably supports a rotation shaft on an inner face thereof, and a covering layer of an amorphous alloy formed on at least one of the back face of said sliding bearing and an inner surface of said housing.

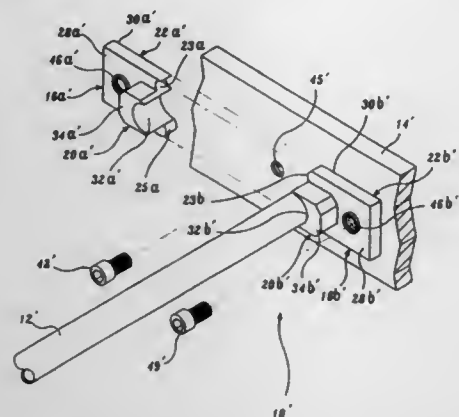
5,803,615

SPLIT BEARING

Alan R. Cohn, Lockeford, Calif., assignor to Lift-U, Division of Hogan Mfg., Inc., Escalon, Calif.
Division of Ser. No. 375,916, Jan. 20, 1995, Pat. No. 5,678,932.
This application May 15, 1997, Ser. No. 857,104
Int. Cl.⁶ F16C 35/02

U.S. Cl. 384—428

9 Claims



1. A split bearing for supporting a shaft from a fixed object, comprising:
a first bearing section having a first concave inner surface and a first pair of contact surfaces; and
a second bearing section having a second concave inner surface and a second pair of contact surfaces, the first pair of contact surfaces of the first bearing section interfacing with the second pair of contact surfaces of the second bearing section in unattached mating contact such that the first and second concave inner surfaces adjacent to the shaft maintain mated contact due to independent securement to the fixed object, when the first and second bearing sections are fit on the shaft adjacent one side of the fixed object such that the first and second concave inner-surfaces support the shaft and allow the shaft to rotate freely.

5,803,616

GREASE RETAINER AND TAPER ROLLER BEARING HAVING SAME

Mats Johan Persson, Amsterdam, and Nicolaas Kollaard, Montfoort, both of Netherlands, assignors to SKF Industrial Trading & Development Company B.V., Nieuwegein, Netherlands

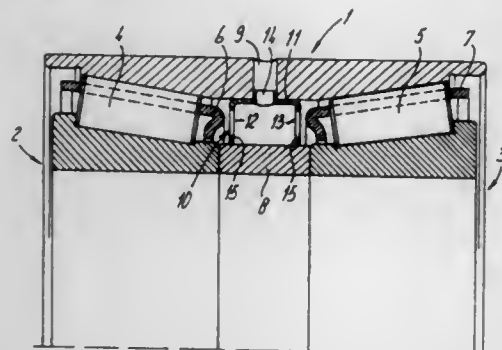
Filed Apr. 28, 1997, Ser. No. 842,115

Claims priority, application Netherlands, May 14, 1996, 1003110

Int. Cl.⁶ F16C 33/66

U.S. Cl. 384—473

16 Claims



1. A taper roller bearing comprising:

an inner ring and an outer ring defining at least one tapered raceway, the tapered raceway having a small diameter portion and a large diameter portion;
tapered rollers conveyed in a bearing space defined in the tapered raceway between the inner and outer rings;
a cage arranged for spacing the rollers; and
a grease retainer connected to one of the inner and outer rings, wherein the grease retainer is connected to the outer ring adjacent a portion of the inner ring having the small diameter portion of the raceway.

5,803,617

ROLLING BEARING UNIT WITH SEAL DEVICE

Yoshihisa Ohnuki, Hiroya Miyazaki, and Hiroaki Sasa, all of Fujisawa, Japan, assignors to NSK Ltd., Tokyo, Japan

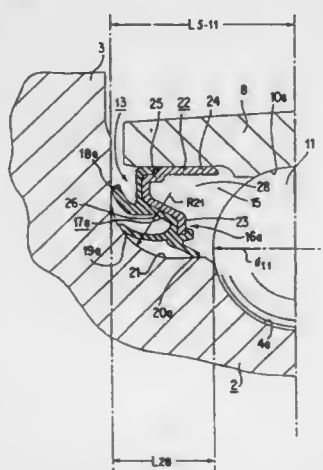
Filed Feb. 19, 1997, Ser. No. 803,025

Claims priority, application Japan, Feb. 23, 1996, 8-36802; Feb. 2, 1997, 9-22303

Int. Cl.⁶ F16C 33/78

U.S. Cl. 384—486

5 Claims



1. A rolling bearing unit with seal device comprising, an outer ring member having an open end portion and an inner peripheral surface formed with outer ring raceways in double rows, an inner ring assembly having an outer peripheral surface comprising a first portion which is formed with inner ring raceways in double rows opposed to the outer ring raceways and a second portion projected from the open end portion of the outer ring member and formed with an outward flange, a plurality of rolling elements provided between the outer ring raceways and the inner ring raceways, respectively, and a seal ring provided to cover an annular space between the outer ring member and the inner ring assembly at the open end portion, the seal ring comprising a reinforcing metal, side seal lips on the radially outer and inner sides each extending radially outward and having a tip edge in sliding contact relation with a contact portion from a side face of the outward flange to a curved surface portion through which the side face is continued to the outer peripheral surface of the inner ring assembly, and a radial seal lip extending axially inward and having a tip edge in sliding contact relation with the outer peripheral surface of the inner ring assembly, and the rolling bearing unit with seal device satisfying at least one of the following conditions (1) and (2):

- (1) the thickness of the side seal lip on the radially inner side is smaller than the thickness of the side seal lip on the radially outer side, and
(2) the tip edge of the side seal lip on the radially inner side is placed in sliding contact relation with the curved surface portion.

5,803,618

COMPOUND BALL BEARING

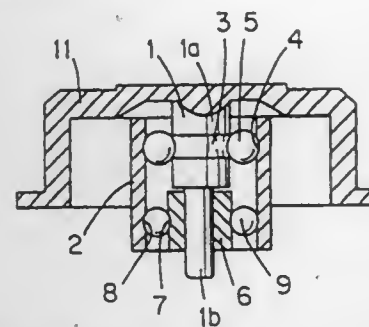
Rikuro Obara, and Katashi Tatsuno, both of Nagano-ken, Japan, assignors to Minebea Kabushiki-Kaisha, Nagano-ken, Japan

Continuation-in-part of Ser. No. 131,400, Oct. 5, 1993, Pat. No. 5,560,717. This application Jul. 29, 1996, Ser. No. 688,008
Claims priority, application Japan, Oct. 7, 1992, 4-293858; Nov. 9, 1992, 4-323646

Int. Cl.⁶ F16C 19/08

U.S. Cl. 384—512

1 Claim



1. A compound ball bearing comprising:
a bearing assembly including a spindle (1), a sleeve (2) surrounding said spindle (1) and double-row balls (5, 9), said spindle being formed as a stepped spindle (1) having a large diameter portion (1a) and a small diameter portion (1b), said double-row balls comprise a first row balls (5) and a second row balls (9),
said first row balls (5) being provided between an outer race (3) formed on said large diameter portion (1a) of said spindle (1) and a corresponding first inner race (4) formed in said sleeve (2),
said second row balls (9) being provided between an outer race (7) formed on an inner ring (6) fitted-on said small diameter portion (1b) of said spindle (1) and a corresponding second inner race (8) formed in said sleeve (2),
said spindle (1) being integrally formed as a one-piece unit with the hub (11) which is a rotor of a motor.

5,803,619

ANTIFRICTION BEARING PRE-LOADING DEVICE AND SHAFT BEARING STRUCTURE

Shinsuke Tabata; Kiyoshi Ogino, both of Kashiwara, and Kouichi Ueda, Shiki-gun, all of Japan, assignors to Koyo Seiko Co., Ltd., and Koyo Machine Industries Co., Ltd., both of Osaka, Japan

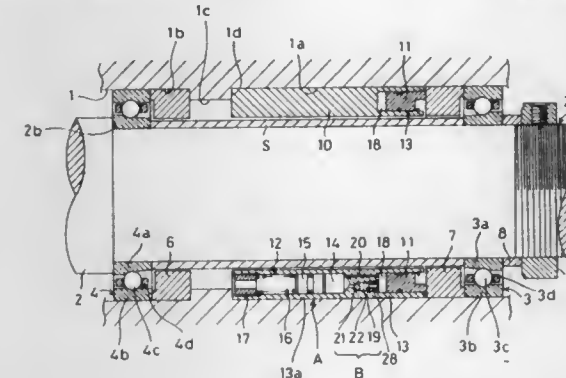
Filed Dec. 12, 1995, Ser. No. 571,184

Claims priority, application Japan, Dec. 13, 1995, 6-308757

Int. Cl.⁶ F16C 33/66; 43/04; 23/10

U.S. Cl. 384—518

30 Claims



1. An antifriction bearing pre-loading device comprising:
a pre-loading cylinder;

a pre-loading piston arranged axially displaceably in said cylinder for pre-loading an antifriction bearing;
a working oil chamber adjacent to said cylinder having a first volume of oil which changes when a second volume of working oil is received from an oil pressure generating means, said working oil displacing said piston axially in said cylinder; said oil pressure generating means including a working oil reservoir for reserving the working oil to be fed to said working oil chamber and for pressurizing and feeding the working oil reserved in said working oil reservoir to said working oil chamber; and
a working oil passage including a small-diameter passage for providing a connection between said working oil reservoir and said working oil chamber, said working oil passage further includes a large-diameter passage for providing a connection between said working oil reservoir and said working oil chamber; a block mechanism for closing said large-diameter passage to block the flow of the working oil if the working oil flows in the direction from said working oil chamber to said working oil reservoir; and a bias mechanism for urging said block mechanism in said direction, and wherein said large-diameter passage has a larger diameter than that of said small-diameter passage; said working oil passage, pre-loading cylinder, working oil chamber, and oil pressure generating means are formed by a unit casing.

5,803,620

ROLLER AND CAGE ASSEMBLY

Yasunori Yokota, Kanagawa-ken, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/00231, § 371 Date Feb. 13, 1997, § 102(e)
Date Feb. 13, 1997, PCT Pub. No. WO96/24778, PCT Pub. Date Aug. 15, 1996

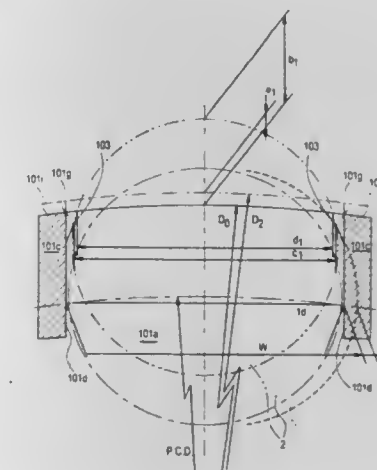
PCT Filed Feb. 5, 1996, Ser. No. 722,113

Claims priority, application Japan, Feb. 8, 1995, 7-043447

Int. Cl.⁶ F16C 33/46

U.S. Cl. 384—580

4 Claims



1. A roller and cage assembly comprising:
a substantially cylindrical cage, having rings on both ends and a plurality of columns which are arranged integrally with each of said rings in a circumferential direction of said cage so as to define pockets parallel with said columns in an axial direction of said cage; and
rollers having a diameter larger than a wall thickness of said cage, said rollers being inserted, respectively, into each of said pockets, wherein
said columns include a substantially U-shaped recess, which extends outside a pitch circle diameter of said rollers and

which has an axial length shorter than said pockets, said recess being formed at an inside portion of said columns and centered in the axial direction, and said columns further having thick-walled portions on both ends and a thin-walled portion in the center of said columns, wherein

said thick-walled portions of said columns include outer retaining projections that are projected into said pockets to prevent said rollers from coming off outwardly, said outer retaining projections being formed by machining a portion of said columns formed thicker than a predetermined outer diameter which functions as a guide surface for an outer diameter surface of said cage after said cage is subjected to cutting, into a recess, wherein

an outer circumferential side of said cage is subjected to cutting to remove said recess from said columns, wherein

outer surfaces of said outer retaining projections coincide with said predetermined outer diameter which functions as said guide surface for said outer diameter surface of said cage, and wherein

an outer surface of said columns is level with an outer circumferential surface of said rings over the entire axial length of said columns.

5,803,621

AXIAL ROLLER BEARING ASSEMBLY

Joerg Assmann, and Klaus Kispert, both of Schweinfurt, Germany, assignors to SKF GmbH, Germany

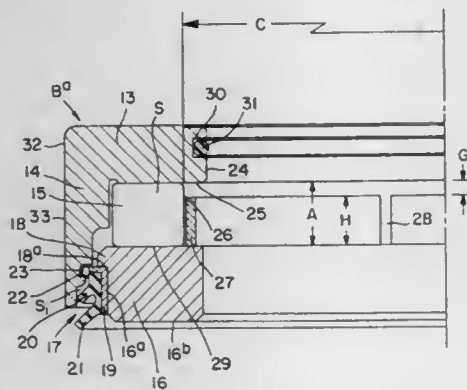
Filed Jan. 10, 1997, Ser. No. 782,529

Claims priority, application Germany, Jan. 17, 1996, 29600704 U

Int. Cl.⁶ F16C 19/30; 33/76

U.S. Cl. 384—620

7 Claims



1. An axial roller bearing assembly comprising a first bearing disk (13) having a generally cylindrical sleeve (14) formed integrally with said first bearing disk (13) and projecting from an outer peripheral edge of said first disk (13), a second bearing disk (16), said bearing disks (13, 16) having confronting, circumferentially extended spaced raceways (25, 29) and a plurality of rolling elements (15) in the annular space (S) between the raceways (25, 29), means detachably inmounting said second bearing disk (16) interiorly of said sleeve (14) whereby the rollers are contained from escaping radially outwardly, a circumferentially extending sealing ring (17) mounted between the sleeve (14) and second disk (16) and a stop ring (27) elastically engaging the inner axial radial envelope of the rolling elements (15) to prevent escape of the rolling elements (15) radially inwardly.

5,803,622

IMAGE FORMING DEVICE HAVING CONVENIENT ACCESS TO SERVICEABLE COMPONENTS

Takashi Mama, and Takeshi Yamakawa, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

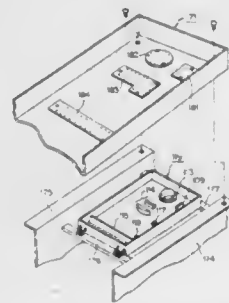
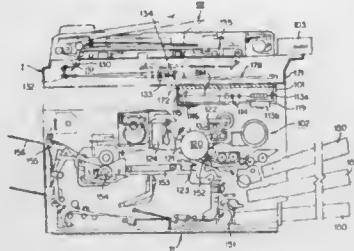
Filed May 11, 1995, Ser. No. 439,561

Claims priority, application Japan, May 11, 1994, 6-121840; Mar. 20, 1995, 7-061285

Int. Cl.⁶ G03G 15/00; 21/00

U.S. Cl. 399—4

31 Claims



1. An image forming device having an image reading section at least partially housed by a first casing for reading image information from an original and an exposure section housed by a second casing beneath the first casing for exposing a photosensitive body with the image information from said image reading section, said exposure section comprising at least a light source, a deflecting system to deflect a beam produced by said light source and optics to image the beam scanned by said deflecting system on said photosensitive body, wherein at least one of said light source, deflecting system and optics is a serviceable component, and at least one access opening is provided between the interiors of said first and second casings in a position opposing the at least one serviceable component within said second casing, and including at least one cover member for covering the at least one access opening.

5,803,623

PRINTING SYSTEM AND A PRINTING METHOD

Takumi Iwasaki, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Aug. 20, 1996, Ser. No. 699,934

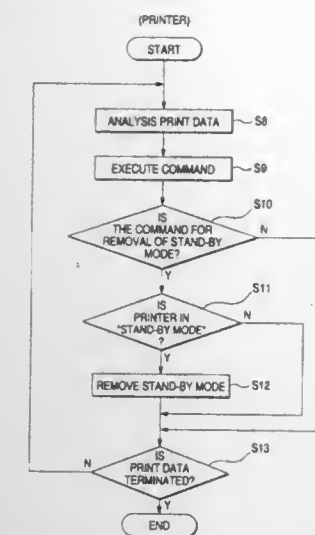
Claims priority, application Japan, Aug. 22, 1995, 7-213842

Int. Cl.⁶ B41J 29/38

U.S. Cl. 400—54

19 Claims

1. A printing system, comprising:
a printing device having a stand-by mode for conserving power when not printing; and
a host device including:
print data generating means for generating print data compatible with said printing device and for outputting said print data thereto, and
outputting means for outputting removal data to said printing section prior to said generating of said print data generating means;
said printing device having a printing mechanism which performs a printing operation in accordance with said print data,



and having control means for removing said stand-by status of said printing mechanism in response to detecting said removal data;

said removal data and said print data share an identical signal path between said host device and said printing device.

5,803,624

METHODS AND APPARATUS FOR COMPENSATING STEP DISTANCE IN A STEPPING MOTOR DRIVEN LABEL PRINTER

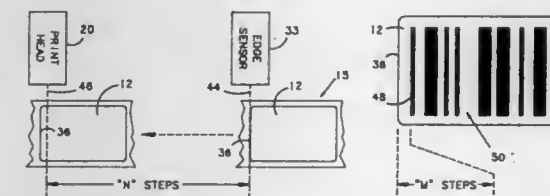
Jay M. Miazga, Marysville; Thomas A. Sweet, Everett, and Glenn D. Wildfong, Woodinville, all of Wash., assignors to Intermec Corporation, Everett, Wash.

Filed Aug. 31, 1995, Ser. No. 522,738

Int. Cl.⁶ B41J 21/16

U.S. Cl. 400—103

4 Claims



1. A method of controlling a barcode label printer having a printhead positioned to print barcodes on labels moving thereunder, a drive roller positioned to move a plurality of labels carried by a backing strip under the printhead for printing thereon, and a stepping motor driving the drive roller so as to accurately control longitudinal label registration as a function of steps of the stepping motor comprising the steps of:

- outputting a number of steps to the stepping motor to move each label from a known longitudinal position to a registered position under the printhead,
- continuously sensing a start of label point and a start of barcode point on each label just printed and counting steps of the stepping motor required to move each just printed label from the start of label point to the start of barcode point,
- comparing the number of steps of the stepping motor required to move each just printed label from the start of label point to the start of barcode point to a baseline value, and
- adjusting the number of steps to the stepping motor employed to move one label from the known longitudinal position to the registered position under the printhead as a function of any change between a latest counted value of the number of steps of the stepping motor required to move each just printed label from the start of label point to the start of barcode point to a baseline value.

5,803,625
BAR CODE PRINTING DEVICE

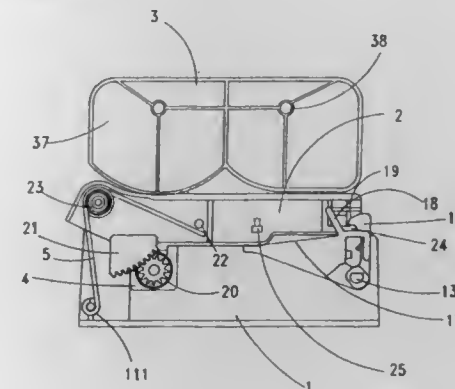
Chih Jung Lee, Taipei Hsien, Taiwan, assignor to Taiwan Semiconductor Co., Ltd., Taipei Hsien, Taiwan

Filed Aug. 12, 1996, Ser. No. 696,641

Int. Cl.⁶ B41J 5/00

U.S. Cl. 400—103

5 Claims



1. A bar code printing device comprising:

a base frame, said base frame comprising a horizontal pivot at a rear side thereof, a sticker reel horizontally disposed near a front side thereof, a step motor controlled to turn said sticker reel in letting off a sticker for printing, an axle horizontally at the front side, two spring-supported hooks pivoted to two opposite ends of said axle, and a guide block mounted on said axle adjacent to one spring-supported hook;

a cover turned about the horizontal pivot of said base frame and adapted for covering on said base frame, said cover comprising two retainer rods bilaterally disposed near a front side thereof for engagement with said spring-supported hooks, and a press block adapted for pressing on the lever of said base frame to turn said axle for permitting said retainer rods to be guided by said guide block into engagement with said spring-supported hooks;

spring means mounted between said base frame and said cover to force said cover outwards from said base frame;

buffer means mounted between said base frame and said cover to buffer the spring force of said spring means;

a ribbon reel mount fixedly secured to said cover on the outside by screws, said ribbon reel mount comprising a bottom ribbon guide, two upright supports at two opposite sides, a wheel and a spring-supported cushion respectively mounted on said upright supports and facing each other for mounting a ribbon reel, said spring-supported cushion sliding on a post at one upright support, a DC motor, and a reducing gear coupled between said DC motor and said wheel for permitting said wheel to be turned by said DC motor to rotate a ribbon reel; and

a ribbon reel mounted on said ribbon reel mount between said wheel and said cushion for the loading of a ribbon for printing a bar code on the sticker being let off from said sticker reel, said ribbon reel comprising a first coupling at one end adapted for coupling to said wheel of said ribbon reel mount, a second coupling at an opposite end adapted for coupling to said spring-supported cushion of said ribbon reel mount, a longitudinal recess, and a tension spring mounted in said longitudinal recess and adapted for adjusting the diameter of said ribbon reel to fit the ribbon loaded thereon.

5,803,626

Patent Not Issued For This Number

5,803,627

COMBINATION INK OR DYE RIBBON AND APPARATUS FOR NONIMPACT PRINTING

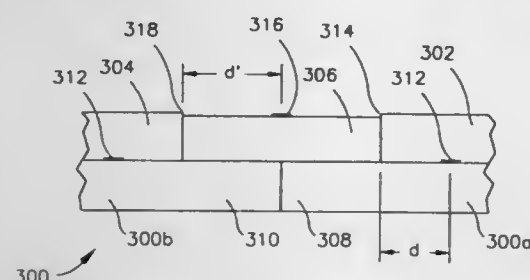
Suresh C. Paranjpe, 2105 Ridge Point Dr., Lake Oswego, Oreg. 97034

Division of Ser. No. 39,871, Mar. 30, 1993, Pat. No. 5,445,463. This application May 31, 1995, Ser. No. 455,019

Int. Cl.⁶ B41J 33/00

U.S. Cl. 400—240

18 Claims



1. A ribbon for use in a non-impact printer comprising: an elongate foundation having a beginning end, a terminal end, and oppositely facing sides;
- a first panel group comprised of first transfer materials carried on the foundation for transferring an image from the foundation to a substrate; and
- a second panel group comprised of second transfer materials carried on the foundation for transferring an image from the foundation to a substrate;
- the first transfer materials comprising, in combination, an ink, means for releasing the ink, and means for adhering the ink to the substrate in a thermal transfer process;
- the second transfer materials comprising dye diffusion type of transfer materials different from the first transfer materials for transferring an image to the substrate using a sublimation transfer process;
- said first and second panel groups are disposed on one of said sides of said foundation to respective predetermined lengths thereon; and wherein
- at least one of said first and second panel groups comprises repeating panels of yellow, magenta and cyan transfer materials.

5,803,628

PRINTING APPARATUS INCLUDING ENCODER PENDING

Frederick A. Donahue, Walworth, N.Y., assignor to Xerox Corporation, Stamford, Conn.

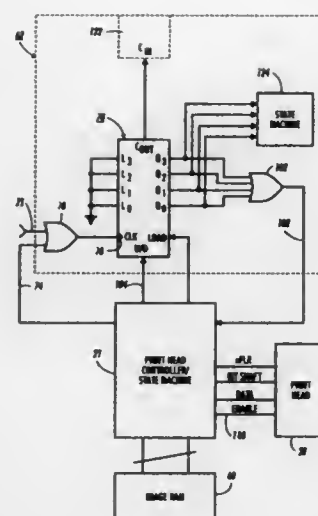
Filed Jul. 1, 1996, Ser. No. 673,482

Int. Cl.⁶ B41J 19/00

U.S. Cl. 400—279

20 Claims

1. A printing apparatus printing on a recording medium in response to encoder pulses of an encoder signal generated by an encoder, comprising:
 - a. encoder pending circuit, coupled to the encoder, receiving the encoder pulses therefrom, outputting an encoder pending signal indicating the generation of one of the encoder pulses during a current printing operation; and
 - a controller, coupled to said encoder pending circuit, receiving the encoder pending signal, completing the current printing operation in response to the received encoder pending signal, and generating an enable signal after the completion of the



current printing operation to start a new printing operation immediately thereafter.

5,803,629

METHOD AND APPARATUS FOR AUTOMATIC, SHAPE-BASED CHARACTER SPACING

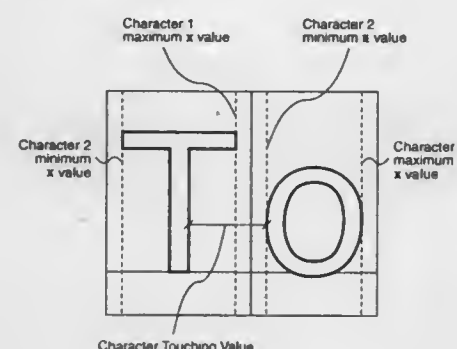
Paul H. Neville, 11 Webster St., Winchester, Mass. 01890-2117, and William J. Fox, Winchester, Mass., assignors to Paul H. Neville, Winchester, Mass.

Filed Mar. 14, 1997, Ser. No. 818,234

Int. Cl.⁶ B41J 19/32

U.S. Cl. 400—304

41 Claims



1. Apparatus for setting character placement for rendering on an output device, the apparatus comprising:
 - a. means for storing specifications of at least two characters to be rendered adjacently along a spacing axis, the specifications including a font associated with each of the characters, each character having an associated interior portion defined by a surrounding contour, adjacent characters having opposed contour segments separated, at an initial intercharacter spacing, along the spacing axis by a plurality of intercharacter contour distance measurements between the opposed contour segments, each intercharacter contour distance measurement being taken in a direction parallel to the spacing axis at a different location along an axis perpendicular to the spacing axis; and
 - b. means for analyzing at least some of the intercharacter contour distance measurements and deriving therefrom a final intercharacter spacing between pairs of adjacent characters along the spacing axis.

5,803,630

PRINTER HAVING AN IMPROVED SHUTTLE POSITION SENSOR

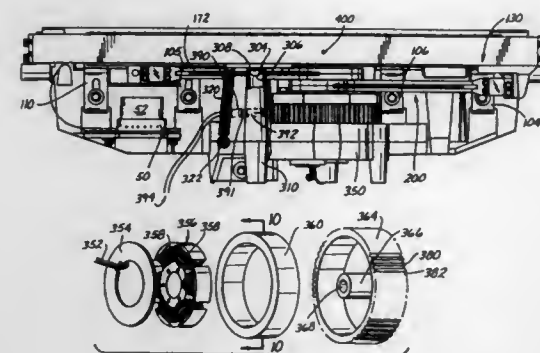
Gordon Brent Barrus, San Juan Capistrano; Robert P. Ryan, Mission Viejo, and Kevin P. Moore, Anaheim, all of Calif., assignors to Printronix, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 512,367, Aug. 8, 1995, Pat. No. 5,666,880. This application Sep. 11, 1996, Ser. No. 712,453

Int. Cl.⁶ B41J 9/04

U.S. Cl. 400—323

19 Claims



1. A dot matrix printer comprising:
 - a plurality of hammers forming in part a hammerbank;
 - a motor means for driving said hammerbank;
 - means for releasing said hammers for printing on a print media;
 - a counterbalance having at least a portion underlying said hammerbank mechanically linked to said hammerbank;
 - lands and grooves connected for rotation directly on said motor means;
 - a sensor comprising a magnetic sensor for sensing the lands and grooves;
 - means for linking the position of said lands and grooves to the position of said hammerbank; and,
 - means connected to said sensor for reading pulses therefrom after a prescribed speed of rotation of said motor has been achieved.

5,803,631

PRINT MEDIA ALIGNMENT APPARATUS AND METHOD

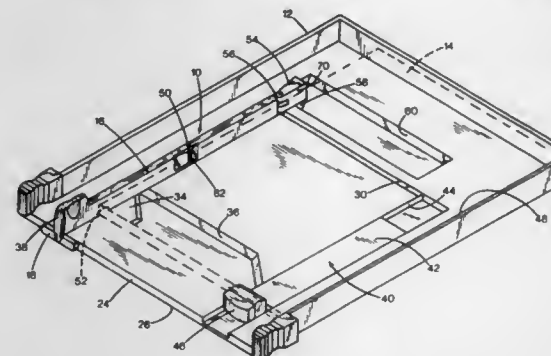
Jeffrey Glen Bingham; Carl David Beckett, and Craig Daniel Sunada, all of Vancouver, Wash., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 12, 1997, Ser. No. 873,529

Int. Cl.⁶ B41J 11/26

U.S. Cl. 400—624

26 Claims



1. A print media alignment apparatus for use in a printing device, the print media alignment apparatus comprising:
 - a first member coupled to the printing device, the first member configured to apply a varying force to at least one print media sheet of a print media stack, this force varying from a mini-

mum below a first print media stack height to a maximum at a second print media stack height; and

a second member coupled to the printing device, the second member configured to apply a constant force to the print media stack irrespective of print media stack height.

5,803,632

METHOD AND APPARATUS FOR PREVENTING ENVELOPE FLAPS FROM SEALING IN LASER PRINTERS

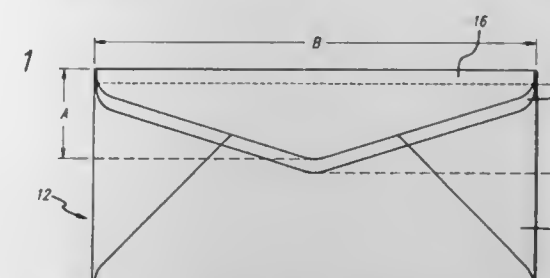
Carl Grossman, 1410 Castec Dr., Sacramento, Calif. 95864

Filed Jun. 13, 1996, Ser. No. 663,382

Int. Cl.⁶ B41J 13/12

U.S. Cl. 400—626

12 Claims



1. A method for preventing an envelope from sealing while printing in a printer which generates heat, the envelope having a flap and a body portion, the flap having gum applied to an inside surface thereof, the method comprising the steps of:
 - (a) providing a flexible insert,
 - (b) positioning the flexible insert between the gum on the flap and the body portion of the envelope, the flexible insert being nonadherent to the gum;
 - (c) feeding the envelope with the flexible insert positioned between the flap and the body portion through the printer, and
 - (d) removing the flexible insert from the envelope when the envelope is discharged from the printer;
 - (e) repeating steps (b) through (d) with the same flexible insert.

5,803,633

PRINTER FOR FEEDING PRINTING SHEETS OF DIFFERENT THICKNESSES

Takashi Akahane; Shigeki Hayashi; Kazuo Saitou, and Kiyoto Komuro, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

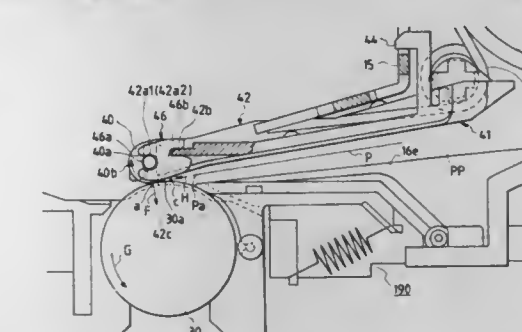
Filed May 23, 1996, Ser. No. 652,076

Claims priority, application Japan, May 24, 1995, 7-149637

Int. Cl.⁶ B41J 13/10

U.S. Cl. 400—642

8 Claims



1. A printer for imprinting information onto recording media, comprising:
 - at least one sheet feeding roller for conveying a recording medium through the printer;

at least one supporting member pivotably mounted for displacement relative to said sheet feeding roller;
a roller shaft rotatable supported by said supporting member;
at least one pinch roller mounted on said roller shaft, said at least one pinch roller for pressing the recording medium against said sheet feeding roller, a nipping region being substantially formed where said sheet feeding roller meets said pinch roller; and
at least one guide member for guiding the recording medium to said nipping region without regard for minor variation in the relative position of said roller shaft, said at least one guide member being articulably, supportably mounted between said supporting member and said roller shaft.

5,803,634

Patent Not Issued For This Number

5,803,635

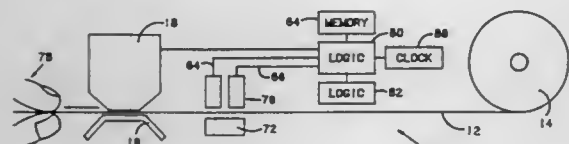
METHOD AND APPARATUS TO DETERMINE POSITION AND SENSE MOTION OF LINERLESS MEDIA
Pixie Ann Austin, Marysville, and Cathy Aragon, Kirkland, both of Wash., assignors to Intermec Corporation, Everett, Wash.

Filed May 4, 1995, Ser. No. 435,024

Int. Cl.⁶ B41J 29/00

U.S. Cl. 400—708

12 Claims



1. A method of detecting a critical speed of linear movement of a strip media comprising the steps of:

- pre-marking the strip media along the length thereof with equally spaced marks wherein the distance between adjacent marks corresponds to a critical speed of the media; and
- at a time of printing onto the media, sensing the frequency of occurrence of the marks and indicating that said critical speed has been attained when the sensed frequency is equal to a pre-established frequency of a critical speed.

5,803,636

APPLICATOR FOR THERMOPLASTIC PRODUCT, PARTICULARLY DEPILATORY WAX
Marc Legrain, Civrieux en Dombres, and Jean Berthier, Villefranche sur Saone, both of France, assignors to Seb S.A., Ecully, France

Filed Jan. 29, 1997, Ser. No. 792,675

Claims priority, application France, Jan. 29, 1996, 96 01364

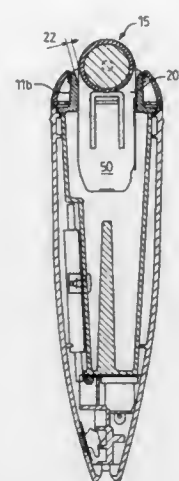
Int. Cl.⁶ A45D 40/00; 40/26; 34/04

U.S. Cl. 401—1

10 Claims

1. An applicator for a thermoplastic product, said applicator comprising:

- a housing (1) constructed to be held by a user and having a longitudinal axis and an end provided with two mutually parallel longitudinal walls (11b) and two transverse walls (11c) delimiting a product outlet opening (20);
- a reservoir (2) for holding the product, said reservoir being installed in said housing, being constructed to be in thermal communication with a heating means (4) and being open at one end to permit product in said reservoir to flow into said product outlet opening;



an applicator roller (15) located in said product outlet opening and having an axis of rotation which is parallel to said longitudinal walls; and
means for displacing said applicator roller parallel to said longitudinal axis, wherein
said applicator roller displacing means comprise a slider mounted in said housing and supporting said applicator roller; and detent means for holding said slider in a selected one of a plurality of positions which are spaced apart along said longitudinal axis.

5,803,637

STICK-SHAPED MATERIAL PROPELLING CONTAINER
Yoshihide Mitsuya, Kawagoe, Japan, assignor to Kotobuki & Co., Ltd., Kyoto, Japan

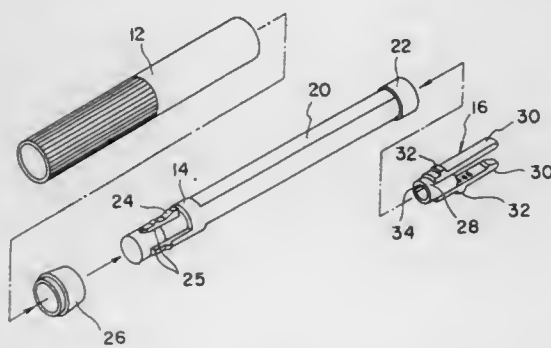
Continuation of Ser. No. 349,463, Dec. 5, 1994, abandoned, which is a continuation of Ser. No. 137,616, Oct. 15, 1993, abandoned. This application Aug. 13, 1996, Ser. No. 696,105

Claims priority, application Japan, Apr. 12, 1993, 5-018343

Int. Cl.⁶ B43K 25/00; A45D 40/04

U.S. Cl. 401—52

5 Claims



1. A stick-shaped material propelling container comprising:
a tubular body having a spiral groove on an interior surface thereof;
a guide sleeve inserted into said tubular body, said guide sleeve having an axially extending guide groove means and an annular portion at an upper end thereof;
retaining means for retaining said guide sleeve in said tubular body, said retaining means preventing axial movement while allowing rotational movement in said tubular body; and
holding means for holding a stick-shaped material, said holding means comprising a tubular holder body, a pair of clamping

pieces disposed at about a 180° interval to each other around the tubular holder body for clamping the stick-shaped material, a projection provided on each of said clamping pieces engaging said spiral groove through said guide groove means in said guide sleeve, an axially lengthwise slit extending the entire length of a side wall portion of said tubular holder body, said axially lengthwise slit positioned at about a 90° interval from the clamping pieces;

said axially lengthwise slit in said holding means having a width that is at least equal to the height of said projections; whereby said tubular holding body may be compressed radially inwardly so that said holding means can be inserted through said annular portion of the guide sleeve with the projections on each clamping piece during assembly.

5,803,638

DEVICE FOR DISPENSING A LIQUID OR PASTY PRODUCT, COMPRISING A WRINGER PART
Jean-Louis Gueret, Paris, France, assignor to L'Oreal, Paris, France

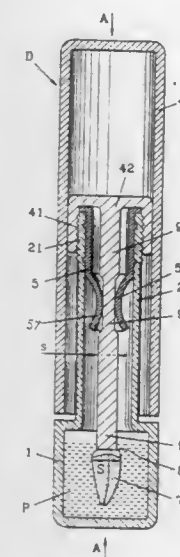
Filed Feb. 23, 1996, Ser. No. 606,406

Claims priority, application France, Feb. 24, 1995, 95 02197

Int. Cl.⁶ A45D 40/00

U.S. Cl. 401—122

17 Claims



1. A device for dispensing a liquid or pasty product, comprising a product reservoir having a longitudinal axis surmounted by a neck and provided with a wringer part made of a resiliently deformable material; and

- a cap to close the neck of the reservoir, the cap having a rod passing through the wringer part, one end of the rod being provided with an applicator part extending into the reservoir when the cap is in the closed position;
- the wringer part being so shaped that during the extraction of the applicator part out of the reservoir, the wringer part first wipes the rod and is subsequently expanded under the pressure of the applicator part, the applicator part having a cross-section (S) measured perpendicularly to the longitudinal axis that is distinctly greater than that (s) of the rod; wherein in the wringer part has a portion in the shape of an inner portion of a torus whose convexity is turned towards the longitudinal axis of the reservoir and with one end of the torus being free.

5,803,639

APPARATUS FOR REMOVING MEDICAL ADHESIVE DEVICES FROM SKIN

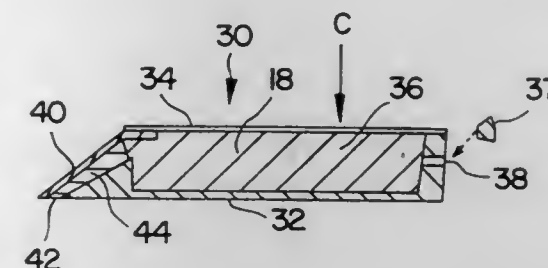
Ignaty Gusakov, Aurora, and George T. Bauer, Williamsville, both of N.Y., assignors to Graphic Controls Corporation, Buffalo, N.Y.

Filed Apr. 1, 1996, Ser. No. 626,056

Int. Cl.⁶ A61B 19/00

U.S. Cl. 401—139

40 Claims



1. A scraping apparatus for contacting an adhesive device and skin to which the adhesive device is attached, at an interface between the adhesive device and the skin, to remove the adhesive device from the skin, said apparatus comprising:

- fluid;
- means for holding said fluid, said fluid holding means having a semi-rigid, non-elastic housing surrounding a cavity;
- semi-rigid, non-elastic pointed means for scraping the adhesive device from the skin, said scraping means having a top, a bottom and an end, and connected to and in fluid communication with said fluid holding means and having at least one first opening distal to said fluid holding means; and
- means for closing said first opening.

5,803,640

APPLICATOR

Nobuyuki Nakajima, Takasaki; Mitsuru Endou, Tano-gun, and Takashi Umeno, Sawa-gun, all of Japan, assignors to Mitsubishi Pencil Kabushiki Kaisha, Tokyo, Japan

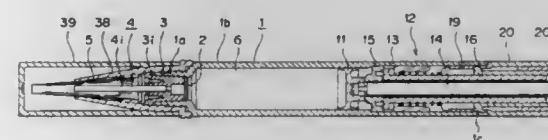
Filed Feb. 3, 1997, Ser. No. 792,842

Claims priority, application Japan, Jun. 4, 1996, 8-141893

Int. Cl.⁶ A46B 11/02

U.S. Cl. 401—174

5 Claims



2. An applicator comprising:
a barrel cylinder;
an application portion in front of said barrel cylinder;
a tank disposed behind said application portion for storing liquid inside said barrel cylinder;
a conduit for conducting the liquid ejected from said tank to said application portion;
a piston which is fitted in said tank as to slide in the axial direction; and
a liquid pushing means disposed in the rear part of said barrel cylinder for pushing the liquid from said tank to said application portion via said conduit by moving said piston forwards, wherein said barrel cylinder is made from PP (polypropylene) and said piston is made from HDPE (high density polyethylene) or LLDPE (linear low density polyethylene).

5,803,641

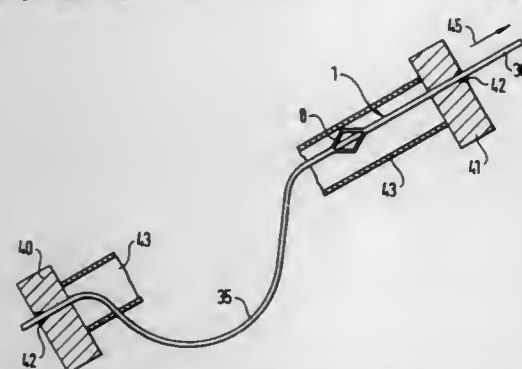
DEVICE FOR USE IN INSERTING INDIVIDUAL TENSION ELEMENTS OF A FREELY TENSIONED MEMBER INTO A TUBULAR SHEATHINGOswald Nützel, Munich, Germany, assignor to Dyckerhoff & Widmann Aktiengesellschaft, Munich, Germany
Filed Apr. 3, 1996, Ser. No. 627,088

Claims priority, application Germany, Apr. 15, 1995, 295 06 476 U

Int. Cl.⁶ B25G 3/00

U.S. Cl. 403—20

10 Claims



1. A device in combination with individual tension elements of a freely tensioned tension member for facilitating insertion of the individual tension elements into a tubular sheathing, the device comprising a guide element for attachment to a forward end of one of the individual elements, the guide element comprising an expansion member, and a central guide rod axially extending through the expansion member, at least one coupling element connected by a tension-proof connection to the guide rod, and a threaded sleeve and two tubular connecting members mounted between the expansion member and the at least one coupling element for applying an axial compressive force to the expansion member, wherein the guide rod extends through the connecting members, wherein the connecting members have ends, and wherein the threaded sleeve is screwed with internal threads onto the ends of the connecting members, the expansion member having expanding means movable by the threaded sleeve between an expanded position and a non-expanded position, the expansion member having a diameter in the expanded position of the expanding means and a diameter in the non-expanded position of the expanding means, wherein the diameter in the non-expanded position corresponds approximately to a diameter of said one of the individual elements, while the diameter in the expanded position is greater than the diameter of said one of the individual elements.

5,803,642

ADJUSTING DEVICE ON LENGTH—AND INCLINATION ADJUSTABLE SUPPORTS, IN PARTICULAR FOR PERCUSSION MUSICAL INSTRUMENTSWerner Sassmannshausen, Bad Berleburg, Germany, assignor to Sonor Johns Link GmbH, Berleburg, Germany
Continuation of Ser. No. 134,223, Oct. 8, 1993, abandoned.

This application Sep. 20, 1996, Ser. No. 717,146

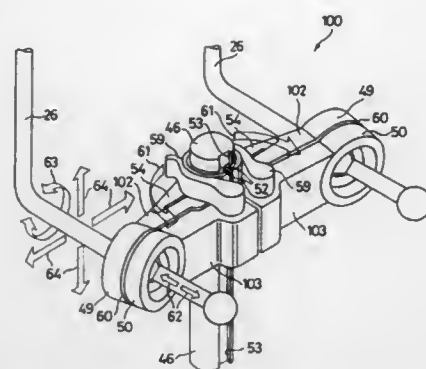
Claims priority, application Germany, Oct. 9, 1992, 42 34 001.2

Int. Cl.⁶ F16D 1/12

U.S. Cl. 403—90

11 Claims

1. A device for adjusting length and inclination of a support for a percussion musical instrument, said adjusting device comprising: two articulated balls formed each of a plurality of sector members having wall faces defining a central opening for receiving an adjusting rod-shaped member; two clamping jaw units formed each of inner and outer clamping jaws provided at respective free ends thereof with housings each of which is formed integrally with a respective one of the inner and outer clamping jaws of a respective clamping jaw unit, with two housings of each clamping jaw unit form-



ing together a socket for receiving and retaining a respective one of the two articulated balls; a central column for supporting the two clamping jaw units which are arranged symmetrically thereon; two threaded bolts each for retaining the inner and outer clamping jaws of a respective one of the two clamping jaw units and arranged between a respective articulated ball and the central column adjacent to the respective articulated ball; and means for eccentrically adjusting the clamping jaws of each of the clamping jaw units for releasably securing a respective clamping jaw unit in both length and inclination adjustment positions of the adjusting member; wherein ones of the inner and outer clamping jaws of the two clamping jaw units are adjustably secured to the central supporting column, and wherein the adjusting device further comprises two supporting members for adjustably securing the ones of the inner and outer clamping jaws directly to the central supporting column, respectively.

5,803,643

DEVICE ACTUATED AND MAINTAINED BY AXIAL PRESSURE FOR MUTUAL LOCKING OF TUBULAR SECTIONS OF A TELESCOPIC TUBE

Quinto Patelli, Via Fratelli Cervi 33, 40054 Budrio, Bologna, and Giuseppe Patelli, Via Bentivogli 6, 40138 Bologna, both of Italy

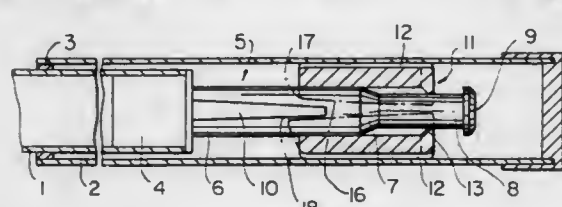
Filed Oct. 31, 1996, Ser. No. 741,823

Claims priority, application Italy, Oct. 31, 1995, BO950154 U

Int. Cl.⁶ F16B 7/10

U.S. Cl. 403—109

15 Claims



1. A device for locking along mutual lengths of at least two tubular sections of a telescopic tube comprising: an external tubular section having an open end; an internal tubular section having a front end size so as to be insertable coaxially with in the open end of said external tubular section; a retention pin having a circumference, a proximal end mounted to the front end of said internal tubular section and an end cap connected to a distal end of said pin, said pin having a wedge-shaped tongue axially projecting from the circumference of said pin and oriented such that an apex of said tongue is further away from the front end of said internal tubular section than an opposite wider end of the tongue; and a tubular expansion bush having a longitudinal central lumen and a longitudinal wedge-shaped expandable slot sized so that the tongue is insertable therein, the bush being slidably mounted onto said pin so that said pin slides within the lumen

and so that the tongue of said pin cooperates with the slot of said bush and so that upon sliding of said internal tubular section into the open end of said external tubular section the tongue of said retention pin slides into the slot of said bush to expand the bush so that said bush contacts an inner surface of said external tubular section to lock said internal and external tubular sections together by friction, and wherein said bush has an entrance end through which said pin is inserted, the entrance end of said bush having two asymmetrical entrance shoulders which form the wedge-shaped slot, one of said entrance shoulders protruding in an axial direction toward said internal tubular section relative to the other entrance shoulder.

5,803,644

REINFORCED FASTENING CONNECTION

Ernesto Bravo, Cambiano, Italy, and Peter Höbel, Neuhausen, Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany

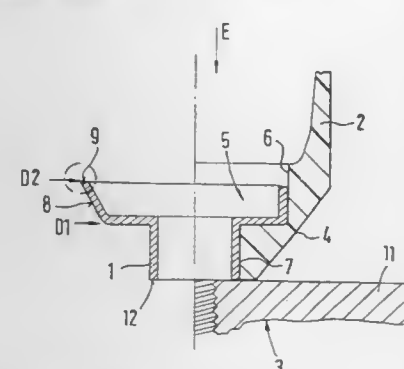
Filed Mar. 31, 1997, Ser. No. 829,290

Claims priority, application Italy, Mar. 29, 1996, T096A0246

Int. Cl.⁶ F16B 9/00

U.S. Cl. 403—185

8 Claims



1. A fastener assembly comprising: a reinforcement part with an axially extending through opening for accommodating an axially extending fastener and which, in an unstressed condition, includes a conical frustum section at one axial end thereof which widens in a direction toward said one axial end, and a casing with an axially extending through opening for accommodating said reinforcement part and the insertable fastener, said through opening being dimensioned with a section having a diameter smaller than an unstressed condition diameter of said conical frustum section such that axial insertion of the reinforcement part deforms said conical frustum section to fix the reinforcement part in said through opening of the casing.

5,803,645

SPINDLE GUIDE

Gregory C. Moser; Jerry R. Smith, both of Columbus, and William R. Horton, Jr., Hope, all of Ind., assignors to Cosco, Inc., Columbus, Ind.

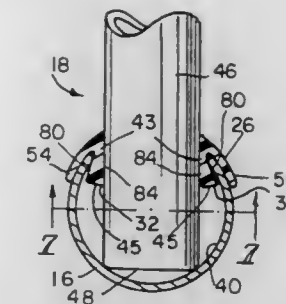
Filed Oct. 30, 1996, Ser. No. 740,442

Int. Cl.⁶ A47C 19/02

U.S. Cl. 403—243

30 Claims

1. A spindle-tube connector comprising a base formed to include a circular rim defining an aperture adapted to receive a spindle therein, first and second guide tabs appended to an inner face of the base at the circular rim and positioned to lie in circumferentially spaced apart and confronting relation to one another on opposite sides of the circular rim, a first flexible retaining tab including a first end and an opposite free end, the first end being appended to the inner face of the



base at the circular rim in a first space between the first and second guide tabs, and a second flexible retaining tab including a first end appended to the inner face of the base at the circular rim in a second space between the first and second guide tabs.

5,803,646

APPARATUS FOR THE DETACHABLE FASTENING OF CLEANING IMPLEMENTS

Georg Weihrach, Wald-Michelbach, Germany, assignor to Coronet-Werke GmbH, Wald-Michelbach, Germany

PCT No. PCT/EP95/02654, § 371 Date Dec. 31, 1996, § 102(e)

Date Dec. 31, 1996, PCT Pub. No. WO96/01723, PCT Pub.

Date Jan. 25, 1996

PCT Filed Jul. 7, 1995, Ser. No. 765,355

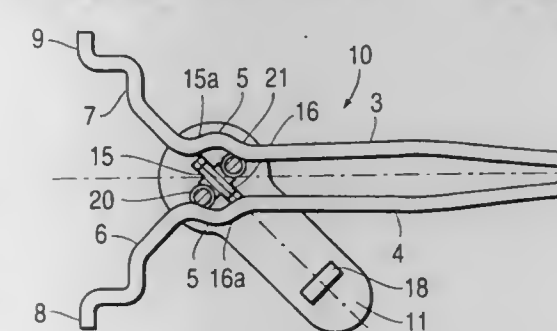
Claims priority, application Germany, Jul. 12, 1994, 44 24

428.2

Int. Cl.⁶ F16B 2/04

U.S. Cl. 403—290

20 Claims



1. An apparatus for detachable fastening of cleaning implements comprising:

a handle having two fork-shaped resilient arms, a fixing device for fixing the two resilient arms in bores in the cleaning implements, the fixing device having a handle, a one-piece toggle body coupled to the handle positioned between the arms, and contact faces which engage the arms by spreading the two resilient arms outwardly or drawing the two resilient arms inwardly by rotation or displacement, the contact faces being formed on at least two rotary bearing parts mounted on the toggle body which, during an adjusting movement of the one-piece toggle body, rolls on the arms with at least one rotary bearing part engaging each arm.

5,803,647

HANDRAIL CONNECTION DEVICE

Ceiriog Hughes, 8447 Edwood Rd., Pittsburgh, Pa. 15237

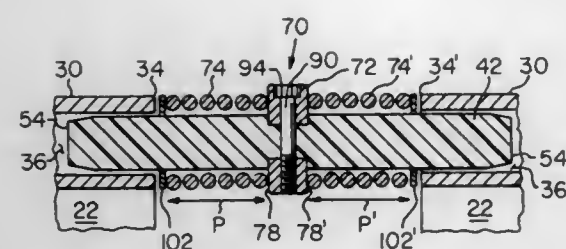
Filed Jan. 31, 1997, Ser. No. 791,593

Int. Cl.⁶ B25G 3/00

U.S. Cl. 403—306

14 Claims

1. A connector for longitudinally spaced apart handrails having a pair of opposing ends each defining an opening, said connector comprising:



a flexible member having a pair of ends sized to be fitted within the opposing openings and being adapted to be retained within the handrail openings; and
means for centering said flexible member between said handrails, wherein said means for centering comprises:
a stop mounted on said flexible member between said ends of said flexible member; and
a pair of biasing members, each said biasing member being adapted to extend between said stop and one of said handrail ends whereby said biasing members are adapted to urge said stop to be centered between the handrail openings.

5,803,648

HARNESS PLATE

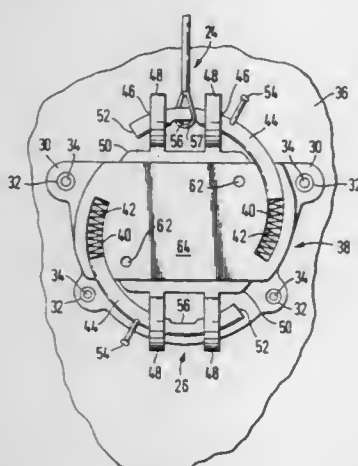
Peter S. Foy, c/o Foy Invention Enterprises, Inc. 3275 E. Patrick La., Las Vegas, Nev. 89120

Filed Aug. 14, 1996, Ser. No. 696,440

Int. Cl.⁶ B25G 3/18

U.S. Cl. 403—325

5 Claims



1. Theatrical apparatus for suspending persons so as to perform an illusion of flying, said apparatus comprising a harness plate including:

a rotationally symmetrical body;
means for attaching said plate to a harness intended to be worn by a first person;
a first release mechanism for releasably attaching said plate to a first suspended cable;
a second release mechanism for releasably receiving a second cable from which a second person can be depended;
said first and second release mechanisms including means for operating said mechanisms independently of each other; each release mechanism comprising substantially semi-circular recess formed in said rotationally symmetrical body and two protruding bars having aligned holes and a space therebetween; a spring located in said recess; an arcuate shackle pin having a first portion and a second portion, said first portion being located in said recess and urged by said spring into a first position in which said second portion passes through both of said aligned holes; and means for moving the shackle pin

in a rotational manner against said spring to a second position in which said second portion is moved clear of at least one of said bars, whereby said second portion of said shackle pin can be inserted into and removed from an eye of a cable when said shackle pin is in said second position and said cable can be securely attached to said release mechanism when said shackle pin is in said first position; and
means for rotating the rotationally symmetrical body relative to the harness when the plate is attached thereto, whereby either release mechanism can be used independently to attach either cable to the harness plate and the attached persons can perform somersaults and other theatrical flying acts in close proximity to each other without entangling said cables.

5,803,649

LOCKING MECHANISM

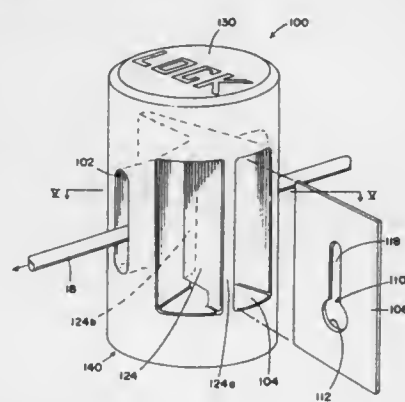
Thomas J. Hoogeboom, 7544 Oak Shore South, Portage, Mich. 49024-7850

Filed Nov. 14, 1996, Ser. No. 749,108

Int. Cl.⁶ B25G 3/12

U.S. Cl. 403—325

3 Claims



1. A locking mechanism for releasably holding a rod in a fixed position, comprising:

a rod;
a lock body slidably retained in a housing, the rod extending through the lock body; and
a lockplate being disposed in the lock body and having an elongate opening through which the rod extends, the opening having a width which varies along the length of the opening, the lockplate being linearly movable with the lock body when the lock body is slid within the housing, the linear movement being between a first position in which the rod extends through a narrow portion of the opening and a second position in which the rod extends through a wide portion of the opening, the lockplate being pivotally movable within the lock body between a first orientation wherein the edges of the opening engage the rod to prevent axial movement of the rod through the opening when the rod extends through the narrow portion of the opening, and a second orientation wherein the edges of the opening do not engage the rod to allow free axial movement of the rod through the opening when the rod extends through the narrow portion of the opening, the wide portion of the opening being sufficiently wide so that the edges of the opening will not engage the rod when the rod extends through the wide portion of the opening irrespective of the pivotal orientation of the lockplate.

5,803,650

JOINT STRUCTURE OF COLLAPSIBLE PLAYPEN

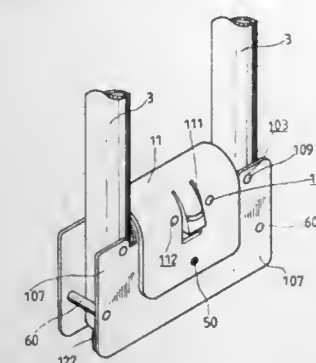
Sung-Tsun Wu, 8F-1, No. 249, Chung-Ching Road, Panchiao, Taiwan

Filed Feb. 4, 1997, Ser. No. 794,954

Int. Cl.⁶ A47D 7/00

U.S. Cl. 403—329

2 Claims



1. In a collapsible playpen comprising a top rail frame comprising four rails each having two bars pivotally connected to a joint located therebetween, the joint comprising:

a U-channel like joint body comprising two spaced side plates connected to each other with a saddle section, each of the side plates having two end extensions in opposite directions to receive an end of each of the bars, a pin being provided to pivot the bar to the joint body to allow the bars to rotate between an expanded position and a collapsed position, the joint body comprising an opening on each of the side plates, the opening being larger than a hole formed on each side plate;
a U-shaped leaf spring received and retained within a hollow section of each of the bars, comprising two spaced legs each having a sideways projection received within and extendable through a hole formed on the bar to be receivable within the hole formed on the respective side plate to maintain the bar in the expanded position, each of the legs having a free end section extending out of the bar to be located within the joint body to be exposed through the opening of the joint body; and
a releaser attached to the joint body, comprising two movable tabs corresponding in position to the openings of the joint body to be movable into the openings to contact at a position distal to the projections of the legs of the leaf springs and depress the legs of the leaf spring inward so as to disengage the projections of the leaf spring from the holes formed on the side plates of the joint body and thus releasing the bars from the expanded position.

5,803,651

DOUBLE LOCKING CONNECTOR

Hitoshi Saito, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Feb. 5, 1997, Ser. No. 795,994

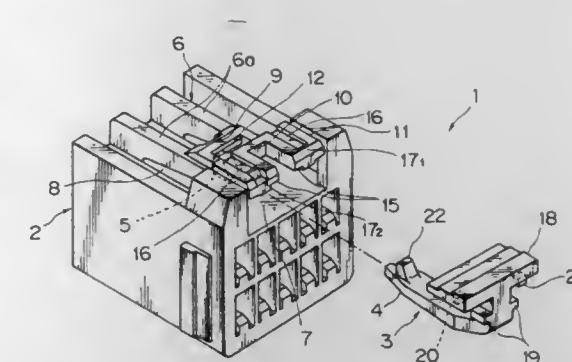
Claims priority, application Japan, Feb. 7, 1996, 8-021142

Int. Cl.⁶ B25G 3/18

U.S. Cl. 403—329

11 Claims

1. A double locking connector comprising:
a pair of mating connector housings in which one of said housings contains a flexible locking arm depressible into a flexure space between said connector housings and having a locking projection cooperable with a locking projection on the other of said housings for maintaining locked interconnection of said connector housings; an engagement detection member slidably disposed on said flexible locking arm, said engagement detection member having a locking lug engageable with said locking projection of said locking arm when said connector housings are completely interconnected; said one connector housing having an abutting projection disposed within said flexure space of said flexible locking arm; said abutting pro-



jection extending from said one connector housing to a position in close proximity below the engagement detection member and being operative to engage said engagement detection member to prevent flexure of said flexible locking arm, and wherein said flexible locking arm is defined by a pair of mutually spaced arm pieces and said abutting projection is positioned within said flexure space between said arm pieces of said flexible locking arm.

5,803,652

SYSTEM FOR ALIGNING CANTILEVERED SHAFTS

Andre Robert Martin, Chalon-Sur-Saone Cedax, France, assignor to Eastman Kodak Company, Rochester, N.Y.

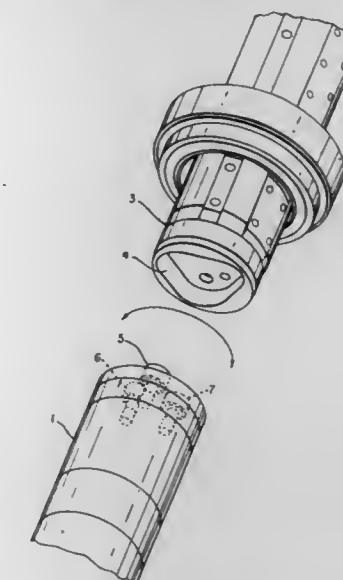
Filed Jun. 21, 1996, Ser. No. 668,110

Claims priority, application France, Jul. 13, 1995, 95 08769

Int. Cl.⁶ B25G 3/16

U.S. Cl. 403—348

4 Claims



1. A system for precisely aligning a first cylindrical cantilevered shaft with respect to a second cylindrical cantilevered shaft, said first cylindrical cantilevered shaft has an axis and comprises a free end, said second cylindrical cantilevered shaft has an axis substantially aligned with the axis of said first cylindrical cantilevered shaft and comprises a free end; the system comprising:

a) a regular polygonal recess having N faces adapted to be disposed within the free end of one of said shafts, a first circle with a given diameter being inscribed by said N faces of said polygonal recess;
b) N cylindrical rollers adapted to be rotatably mounted on the free end of the other one of said shafts, said rollers being positioned in such a way as to be equally angularly spaced and inscribed in a second circle whose diameter is substantially equal to the diameter of the first circle;

- c) the N cylindrical rollers being received into said polygonal recess, wherein each of the rollers substantially faces a corresponding vertex of the polygonal recess;
- d) whereby one of said shafts is rotated with respect to the other one of said shafts through an angle substantially equal to $180/N^\circ$ once when the N cylindrical rollers are in the polygonal recess in order to precisely align the two cantilevered shafts with respect to each other.

5,803,653

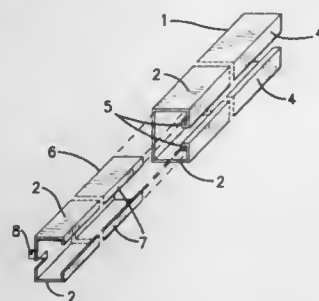
TELESCOPIC MOUNT FOR TEMPORARY WALLS
Gianfranco Zuffetti, 2, Via Vespucci, I-26027 Rivolta D'Adda Cremona, Italy

Filed Jan. 7, 1997, Ser. No. 779,743

Claims priority, application Italy, Feb. 2, 1996, AR960004 U
Int. Cl.⁶ F16B 7/10

U.S. Cl. 403—363

5 Claims



1. A telescoping mount for a wall, comprising:
- a first structural bar having two opposing parallel surfaces of sheet metal constructed to mount a panel, said two parallel surfaces being joined at one side by a sheet metal surface and at the other side by a sheet metal surface with a lengthwise first opening, said first opening having edges that each fold inwardly to form a U-shape that is open toward a respective one of said two parallel surfaces of said first bar;
- a second structural bar sized to fit within said first bar and having two opposing parallel surfaces of sheet metal constructed to mount the panel, said two parallel surfaces of said second bar being joined at one side by a sheet metal surface and at the other side by a sheet metal surface with a lengthwise second opening, said second opening having edges that extend towards each other across said second opening, said edges of said second bar being of a length so that said two parallel surfaces of said second bar are urged against corresponding ones of said two parallel surfaces of said first bar when said second bar is inserted into said first bar with said edges of said second opening inserted into and urged against a bottom of said U-shape edges of said first opening; and
- a gripping member extended outwardly from one of said first and second bars for moving said one bar relative to the other of said bars.

5,803,654

CONTROL CABLE MOUNTING SYSTEM

Arthur L. Spease, Montgomery; James G. Ryan, Conroe; Stephen A. Sauer, Montgomery, all of Tex.; Bernard Driggers, Wichita, Kans., and William H. Grojean, Nashville, Ark., assignors to Capro, Inc., Willis, Tex.

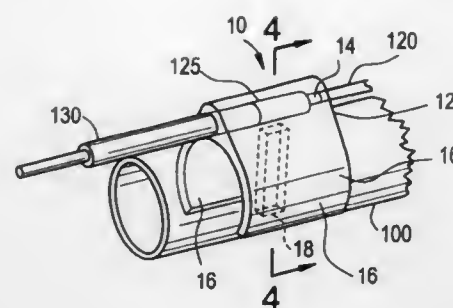
Continuation-in-part of Ser. No. 550,452, Oct. 30, 1995, abandoned. This application Oct. 29, 1996, Ser. No. 738,771

Int. Cl.⁶ F16C 1/10

U.S. Cl. 403—384

8 Claims

1. A mounting system for positioning and returning at least one control cable and conduit assembly near a tubular handlebar or frame member, said at least one control cable and conduit assembly having a conduit portion and a cable portion, and said tubular



handlebar or frame member having an outer surface and at least one hole formed through a wall thereof, said mounting system comprising:

- means for positioning and retaining the at least one control cable and conduit assembly,
- said means for positioning and retaining the at least one control cable and conduit assembly comprising a passage having a first section constructed and arranged to engage the conduit portion, and a second section constructed and arranged to allow the cable portion to pass therethrough, wherein said second section is of smaller diameter than said first section;
- a pair of integrally molded, arcuate, spaced-apart, flexible flanges depending from said means for positioning and retaining the at least one control cable and conduit assembly;
- said integrally molded, arcuate, spaced-apart, flexible flanges constructed and arranged to substantially encircle the outer surface of the tubular handlebar or frame member when attached thereto;
- a post emanating outwardly from said means for positioning and retaining the at least one control cable and conduit assembly and positioning between said integrally molded, arcuate, spaced-apart, flexible flanges,
- said post being constructed and arranged to fit through the at least one hole formed through the wall of the tubular handlebar or frame member when attached thereto.

5,803,655

LOCK MECHANISM

Yoshinobu Furuya, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

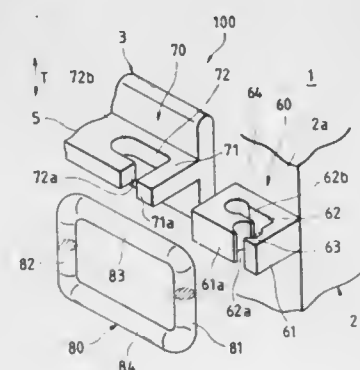
Filed Jan. 30, 1997, Ser. No. 792,837

Claims priority, application Japan, Feb. 2, 1996, 8-017792

Int. Cl.⁶ F16B 2/20

U.S. Cl. 403—398

5 Claims



1. A lock mechanism, comprising:

- two plate-like lock piece portions provided respectively at first and second members and juxtaposed to each other substantially in a common plane when locking said first and second members together;

5,803,657

POWER TROWEL HANDLE MOUNTED CONTROLS

James A. Hodgson, 1321-42nd St., Sacramento, Calif. 95819

Filed Jul. 24, 1996, Ser. No. 690,251

Int. Cl.⁶ E01C 19/22

U.S. Cl. 404—112

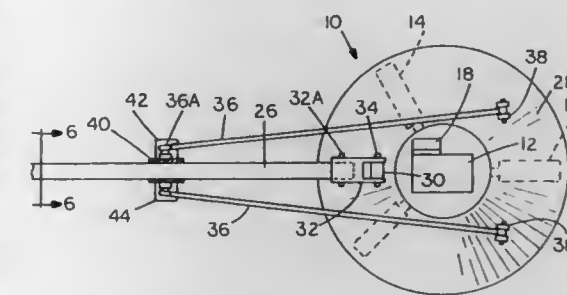
7 Claims

engagement grooves formed through said lock piece portions in a direction of a thickness of said lock piece portions, and said engagement grooves having openings formed respectively in end surfaces juxtaposed to each other and facing in the same direction; and

a lock ring of a square-loop shape having opposed straight portions to be fitted respectively in said engagement grooves in said lock piece portions to interconnect said lock piece portions,

wherein when viewed in the direction of the thickness of said lock piece portions, each of said engagement grooves has an L-shape defined by an introduction groove portion extending from the opening in a direction substantially perpendicular to the end surface, and a slide groove portion extending from an inner end of said introduction groove portion in a direction substantially parallel to the end surface;

wherein said introduction groove portion in said lock piece portion of said first member has a first holding portion for rotatably holding the straight portion of said lock ring; and wherein at least one of an inner end of said slide groove portion in said lock piece portion of said first member and an inner end of said slide groove portion in said lock piece portion of said second member has a second holding portion for holding the straight portion of said lock ring.



1. A power trowel machine having a housing for surrounding a plurality of troweling blades, an extension pole pivotally mounted to said housing about a generally horizontal axis on one side of the housing and extending laterally from the housing;

a brace assembly for said pole comprising a pair of arms pivotally mounted on the housing on an opposite side thereof from the pivotal mounting of the pole, said mounting of said arms to said housing being spaced laterally apart in a direction parallel to the axis of pivoting of the pole, and a slider slidably mounted on said pole at a location between the first pivot and an outer end of the pole and slidable to permit the pole to pivot about its pivotal mounting, the arms being pivotally mounted to the slider about axes substantially parallel to the pivot axis of the extension pole to transfer loading of the arms under torque generated about an upright axis of the housing to the pole.

5,803,656

POWERED, ROLER-TYPE CONCRETE SCREED

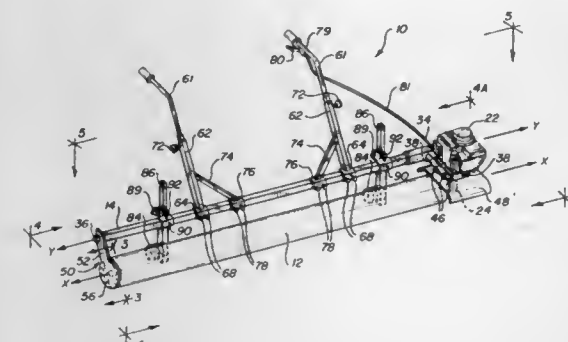
Jeffrey Turck, 23671 Alexandria St., Carthage, N.Y. 13619

Filed Oct. 31, 1996, Ser. No. 741,559

Int. Cl.⁶ E01C 19/22

U.S. Cl. 404—103

55 Claims



20. An apparatus for screeding concrete, comprising:

- a) an elongated chassis having first and second opposed, terminal ends, and extending along a first longitudinal axis;
- b) an elongated roller of predetermined diameter rotatably connected to said chassis, said roller including first and second open, opposed, terminal ends, said roller extending in spaced parallel relation to said chassis along a second longitudinal axis;
- c) motor means mounted to one of said first and second terminal ends of said chassis;
- d) gear means operably interconnecting said motor means to said roller, whereby actuation of said motor means causes said gear means to effect rotation of said roller about its said second longitudinal axis;
- e) means for mounting said motor means to one of said first and second terminal ends of said chassis; and
- f) first and second handles extending upwardly from and mounted to said chassis for independent sliding movement along said first longitudinal axis, whereby the distance separating said first handle from said second handle may be selectively adjusted.

5,803,658

RIDING TROWEL WITH COUNTER ROTATING ROTORS

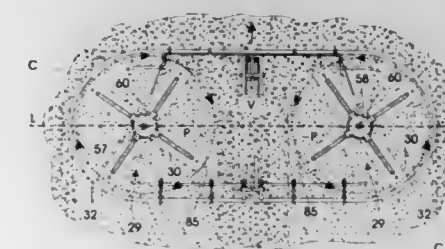
J. Dwayne Allen, Paragould, Ark., assignor to Allen Engineering Corp., Paragould, Ark.

Filed Jan. 15, 1997, Ser. No. 783,332

Int. Cl.⁶ E01C 19/22

U.S. Cl. 404—112

2 Claims



1. A self-propelled, motorized riding trowel comprising: a frame supporting a pair of spaced apart rotor assemblies, each rotor having an axis of rotation separated by a predetermined length;

each of said rotor assemblies comprising a rotor, a plurality of radially spaced apart blades attached to and extending radially outwardly from said rotor, said blades having tips circumscribing a circular path of a predetermined diameter, and each said blade having tangential forces developed at said tips along the circumference of said circular path during rotor operation;

motor means for powering said rotor assemblies;
each of said adjacent rotor assemblies being driven so as to rotate in opposite directions relative to one another;
said adjacent rotor assemblies being supported by said frame in such relative position, said circular paths circumscribed by rotation of said blades of each said rotor are spaced apart by a distance sufficient to preclude said tangential forces developed at said tips as said tips move along said circular path from being reinforced by the tangential forces developed at said tips of an adjacent rotor;
wherein said predetermined length between the axis of rotation of each rotor assembly is approximately 1.5 times said diameter.

5,803,659

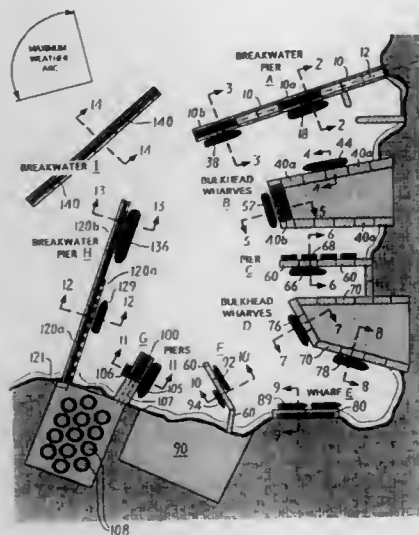
MODULAR CAISSONS FOR USE IN CONSTRUCTING, EXPANDING AND MODERNIZING PORTS AND HARBORS.

Nigel Chattey, 22 Cedarlawn Rd., Irvington-on-Hudson, N.Y. 10533-1924

Filed Dec. 8, 1995, Ser. No. 569,656
Int. Cl.⁶ E02D 23/02

U.S. Cl. 405—8

39 Claims



34. A marine structure installed in water at a port or harbor installation site, comprising: a plurality of modular caissons combined in a predetermined configuration to define at least one marine structure, at least some of the caissons being combined in a line to define a wharf having a landward side and a docking side, the docking side having a shape effective to enable vessels to dock alongside the wharf; each modular caisson having one or more internal storage spaces and being constructed of one or more floatable parts preconstructed onshore and towed in the water to the installation site; and each floatable part having means including trim and ballast tanks for precisely trimming and ballasting the floatable part to enable precise positioning and alignment thereof at the installation site.

5,803,660

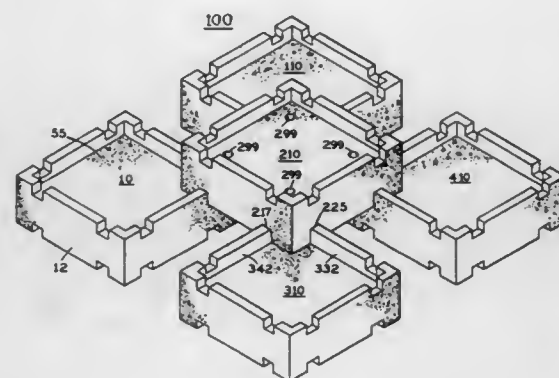
INTEGRATED REEF BUILDING SYSTEM

Donald J. Warren, 10437 Heritage Farm Rd., Lake Worth, Fla. 33467, and Daniel T. Warren, 3940 NW. 83 La., Coral Springs, Fla. 33077

Filed Apr. 12, 1996, Ser. No. 631,415
Int. Cl.⁶ F02B 3/00; H01K 61/00

U.S. Cl. 405—25

10 Claims



1. An artificial reef structure of interlocking blocks for use in an underwater environment, the structure comprising:

- a first hollow block having four substantially identical side walls connected together in a substantially block shape, each of the side-walls having grooves on both an upper side edge and on a lower side edge;
- a second hollow block having four substantially identical side walls connected together in a substantially block shape, each of the side-walls having grooves on both an upper side edge and on a lower side edge, wherein the lower side edge grooves of the first hollow block interlock to certain side walls of the second hollow block;
- a third hollow block having four substantially identical side walls connected together in a substantially block shape with each of the side-walls having grooves on both an upper edge and a lower side edge, wherein the lower side edge grooves of the first hollow block interlock to certain side edge grooves of the second hollow block, and said second and third blocks are separated horizontally from each other; and elastic support seat mounts for fitting in the grooves of the lower side edge grooves of the first hollow block.

5,803,661

METHOD AND APPARATUS FOR ROAD HOLE REPAIR INCLUDING PREPARATION THEREOF

Jerome Lemelson, 868 Tyner Way, Incline Village, Nev. 89450
Continuation of Ser. No. 701,019, Aug. 21, 1996, abandoned, which is a division of Ser. No. 403,652, Mar. 14, 1995, Pat. No. 5,584,597. This application Nov. 25, 1997, Ser. No. 969,958

Int. Cl.⁶ E01C 23/06

U.S. Cl. 404—75

10 Claims

1. A method for treating a pothole comprised of a cavity in a road surface with a rotatably mounted treatment member, comprising the steps of:

- (a) lowering said treatment member into a pothole to engage a surface of the pothole cavity; and

5,803,663

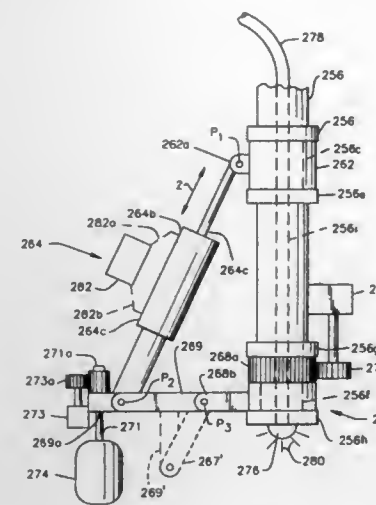
MERCURY-REMOVAL METHOD

Akito Matsuyama; Kanji Higaki, and Hiroe Hayasaka, all of Tokyo, Japan, assignors to Taisei Corporation, Tokyo, Japan
Filed Jun. 28, 1996, Ser. No. 672,715

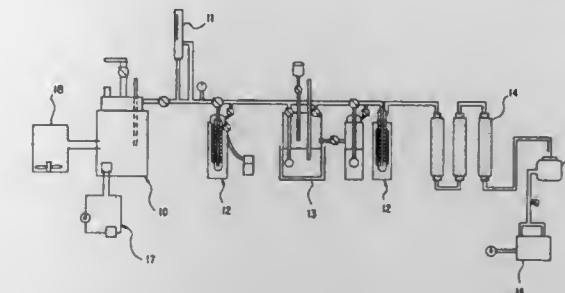
Claims priority, application Japan, Jul. 18, 1995, 7-203805
Int. Cl.⁶ B09C 1/06

U.S. Cl. 405—128

13 Claims



(b) rotating said treatment member and urging the rotating member against the surface of the pothole so as to compact material immediately adjacent to the surface of said pothole preparatory to filling and repair thereof.



1. A method of removing one or more mercury compounds from mercury-contaminated soil, comprising:
mixing the mercury-contaminated soil with an additive selective from the group consisting of a transition metal, zinc and aluminum, or a compound thereof, to produce a soil/additive mixture;
heating the soil/additive mixture to a temperature which is below the boiling point of the one or more mercury compounds; and
thereafter recovering the one or more mercury compounds.

5,803,662

DRAINAGE CHANNEL AND ASSOCIATED METHOD

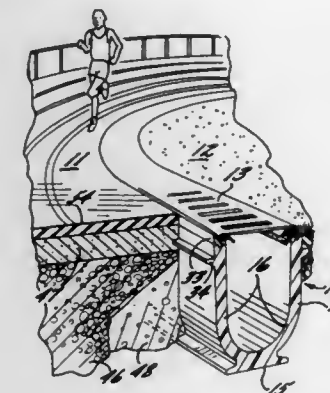
Charles E. Gunter, Statesville, N.C., assignor to ABT, Inc., Troutman, N.C.

Division of Ser. No. 568,205, Dec. 6, 1995, Pat. No. 5,653,553.
This application May 16, 1997, Ser. No. 857,784

Int. Cl.⁶ E02B 5/00

U.S. Cl. 405—119

6 Claims



1. A method of installing a channel capable of receiving runoff from an athletic surface comprising the steps of:
providing a channel body having an open top and comprising at least one sidewall having a projection extending outwardly from an exterior surface thereof at a predetermined distance below the open top to thereby provide an installation guide during fabrication of the athletic surface;
positioning the channel body upon a base surface; and
forming a subsurface layer for supporting the athletic surface adjacent said channel body, said forming step comprising a step of forming the subsurface layer to a level defined by the projection such that the sidewall extends above the subsurface layer by the predetermined distance so as to thereby space the subsurface layer below the open top of the channel body by the predetermined distance.

5,803,664

PROCESS FOR REMEDIATING SOIL

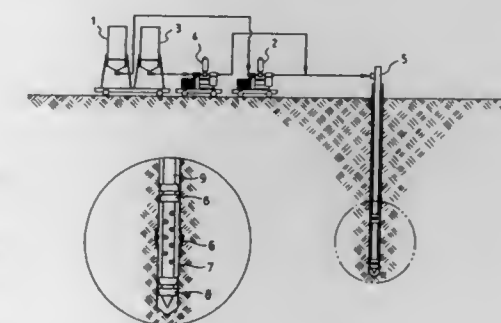
Yuji Kawabata; Tetsuya Yano, both of Isehara; Yoshiyuki Touge, Sagami-hara; Shinya Kozaki, Tokyo; Takeshi Imamura, Chigasaki; Masatoshi Iio, Funabashi; Michio Suzuki, Yotsukaido, and Yuri Senshu, Kashiwa, all of Japan, assignors to Canon Kabushiki Kaisha, and Raito Kogyo, Co., Ltd., both of Tokyo, Japan

Filed Dec. 18, 1996, Ser. No. 768,585
Claims priority, application Japan, Oct. 25, 1999, 8-284212;
Dec. 19, 1995, 7-330428

Int. Cl.⁶ B09B 1/10

U.S. Cl. 405—128

9 Claims



1. A process for remediating a soil contaminated with a pollutant by using a microorganism, comprising the steps of:
injecting a liquid containing a microorganism capable of degrading the pollutant into a predetermined site of the soil region to be remedied; and
injecting gas into the predetermined site where the liquid agent is injected, wherein the gas injection step is conducted when a water content of the site is 0.6 or more times a saturation water content of the soil.

5,803,665

METHOD AND APPARATUS FOR CONTINUOUS PRODUCTION OF QUICK-SETTING FOAMED CEMENT GROUT WITH SELECTIVELY ADJUSTABLE PROPORTIONS

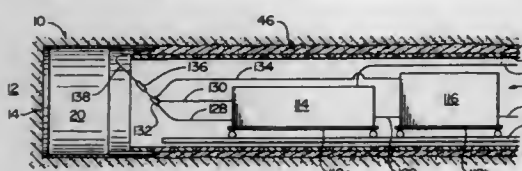
Patrick J. Stephens, 1276 Chuckanut Dr., Bellingham, Wash. 98225

Continuation-in-part of Ser. No. 472,115, Jun. 7, 1995, Pat. No. 5,645,375. This application May 17, 1996, Ser. No. 650,890

Int. Cl.⁶ E21D 11/10

U.S. Cl. 405—146

17 Claims



1. Apparatus for forming a flow of quick-setting foamed cement grout, said apparatus comprising:

means for providing a flow of finished foam material at a metered rate;

pump means for mixing said flow of finished foam material with a flow of cement slurry which is received by said pump means at a metered rate, so as to entrain air therein and thereby form a viscous, low shear-strength foamed cement grout which is discharged from said pump means, said finished foam being added to said cement slurry in an amount sufficient to provide said foamed cement grout with a viscosity which is sufficiently high to minimize flow of said grout through and out of a void prior to a predetermined initial set of time of said grout; and

means for adding a flow of sodium silicate solution to said flow of foamed cement grout downstream of said pump means so as to form said quick-setting foamed cement grout, said sodium silicate solution being added at a metered rate selected to accelerate hardening of said quick-setting foamed cement grout to said predetermined initial set time.

5,803,666

HORIZONTAL DRILLING METHOD AND APPARATUS

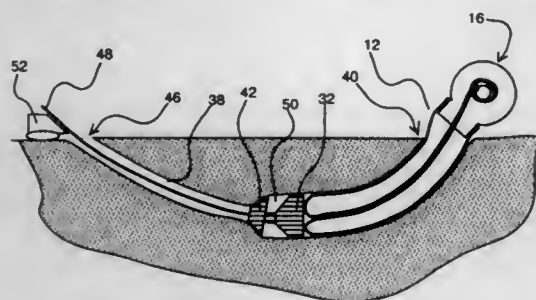
Carl E. Keller, P.O. Box 9827, Santa Fe, N. Mex. 87504

Filed Dec. 19, 1996, Ser. No. 769,656

Int. Cl.⁶ E21D 11/00; F16L 1/00

U.S. Cl. 405—146

14 Claims



1. A support system for supporting a horizontal bore hole having a known length during installation of a casing comprising:

a flexible liner defining a generally cylindrical shape with an interior and an exterior when everted and having distal and proximal ends, wherein said flexible liner has a length at least twice said length of said bore hole to support said bore hole along a first length when fully everted within said bore hole and a second length to grip and surround said casing as said casing is installed within said bore hole and said first length of said liner;

a canister for housing said liner in an inverted condition;

a first cord connected to said distal end of said liner and extending through said interior of said liner to said canister for inverting said liner; and

a second cord connected to said distal end of said liner and extending along said exterior of said liner to said canister for everting said liner.

5,803,667

COMBINATION SPIDER AND BUOYANCY COMPENSATOR, WITH INSERTABLE WEIGHTS

Scott Seligman, Carlsbad, Calif., assignor to Sea Quest, Inc., Carlsbad, Calif.

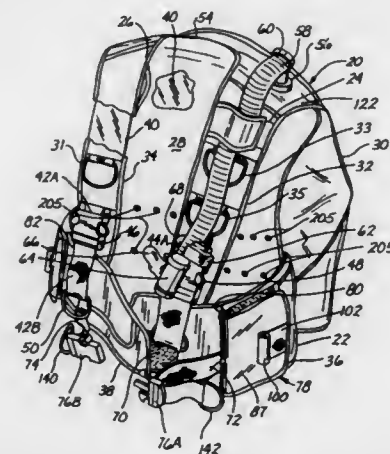
Division of Ser. No. 512,443, Aug. 8, 1995, Pat. No. 5,641,247.

This application May 2, 1997, Ser. No. 850,233

Int. Cl.⁶ B63C 11/02

U.S. Cl. 405—186

20 Claims



1. A combination buoyancy compensator and means for securing said buoyancy compensator to a diver with an insertable weight system wherein said buoyancy compensator has at least a front portion, or a side portion, or a back portion and said insertable weight system comprises:

at least one pocket in connected relationship to said front portion or to said back portion or to said side portion of said combination buoyancy compensator and securing means;

at least one envelope having stiffening means for containing at least one weight;

said at least one envelope adapted for removable insertion within said at least one pocket; and,

means for securing and removably releasing said envelope from said at least one pocket.

5,803,668

METHOD OF CONSTRUCTING GRAVITY-TYPE MARINE STRUCTURE AND STRUCTURE BY SAME

Atushi Seki; Yoichi Nojiri; Kenji Yanagiya, and Jiro Takase, all of Tokyo, Japan, assignors to Kajima Corporation, Tokyo, Japan

PCT No. PCT/JP93/01836, § 371 Date Sep. 3, 1996, § 102(e) Date Sep. 3, 1996, PCT Pub. No. WO95/16829, PCT Pub. Date Jun. 22, 1995

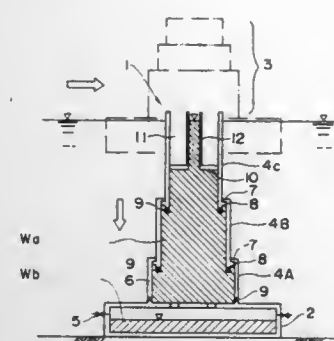
PCT Filed Dec. 17, 1993, Ser. No. 663,275

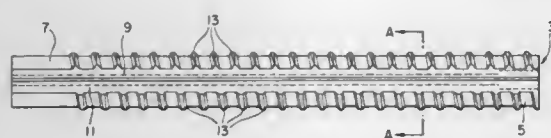
Int. Cl.⁶ E02B 17/00

U.S. Cl. 405—204

10 Claims

1. A method of constructing a gravity-type marine structure in case of installing the gravity-type marine structure in a sea area with a comparatively great depth of water, comprising the steps of: constructing a hollow footing for the gravity-type marine structure in a dry dock, the footing exerting buoyancy in water to





5,803,673 PORTABLE PNEUMATIC PRECISION METERING DEVICE

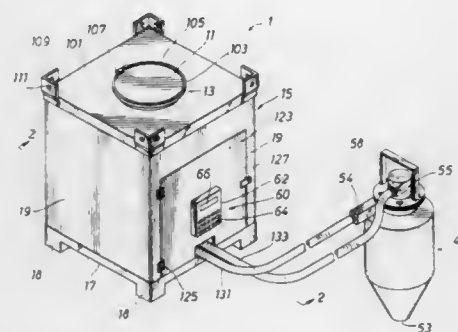
Frank G. Reinsch, and Kevin Kwanghyon Park, both of Kansas City, Mo., assignors to Pathfinder Systems, Inc., and Bayer Corporation, both of Kansas City, Mo.
Filed Jul. 10, 1996, Ser. No. 678,033
Int. Cl.⁶ B65G 53/66

U.S. Cl. 406—31

15 Claims

(a) forming by a method selected from the group consisting of rolling and die drawing two or more elongate members, each of which forms a lengthwise extending segment of the rock bolt or the drill rod and comprises an internal wall and an external wall; and

(b) connecting the members together along the longitudinal edges thereof by gluing or welding to form the rock bolt or the drill rod with the internal walls of the members defining the axially extending bore.



1. A device for transporting and metering of particulate matter, comprising:

storage means for storing said particulate matter during the transport of the device and prior to the use of some or all of the particulate matter;

metering means connected to said storage means for dispensing a desired amount of particulate matter from said storage means;

pneumatic conveying means connected to said metering means for transporting a mixture of a pneumatic gas and said particulate matter from said metering means to a separator means downstream of said metering means;

said separator means having an inlet for receiving said mixture of pneumatic gas and said particulate matter, a particulate matter outlet for discharging said particulate matter, and a pneumatic gas return outlet for returning said pneumatic gas to said pneumatic conveying means after said particulate matter has been discharged; and

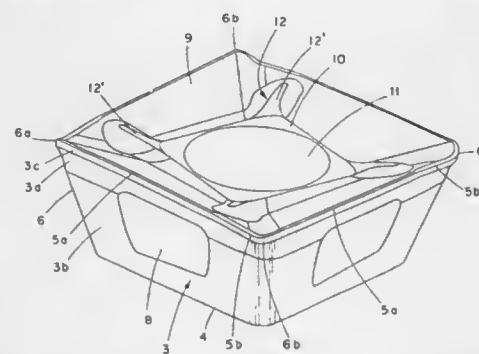
portable enclosure means encasing at least said storage means and said metering means.

5,803,674 EXCHANGEABLE CUTTING INSERT

Amir Satran, Kfar Vradim, and Rafael Margulis, Karmiel, both of Israel, assignors to Iscar, Ltd., Migdal Tefen, Israel
Filed Oct. 13, 1995, Ser. No. 542,858
Claims priority, application Israel, Oct. 23, 1994, 111367
Int. Cl.⁶ B23C 5/20

U.S. Cl. 407—42

22 Claims



1. An exchangeable, indexable cutting insert of a substantially prismatic shape having an upper rake surface, an opposite, substantially parallel base surface and side surfaces with each pair of side

5,803,672 METHOD AND APPARATUS FOR INSERTING SHEET PILES UTILIZING A PROTECTIVE HOUSING

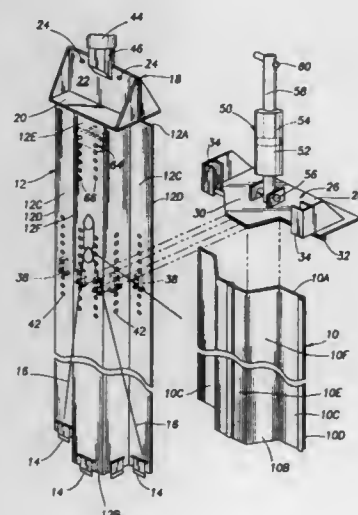
James O. Glass, and Sami M. Glass, both of Anahuac, Tex., assignors to Stab Cat, Inc., Anahuac, Tex.

Filed Dec. 23, 1996, Ser. No. 773,209

Int. Cl.⁶ E02D 5/02

U.S. Cl. 405—274

7 Claims



1. A sheet pile installation apparatus for assisting the insertion of a sheet pile within an earth formation comprising:

an outer protective housing having a cross section generally similar to the cross section of the sheet pile for positioning in a generally vertical relation adjacent one side of said sheet pile for releasable connection to said sheet pile;

a separate force transmitting member for contacting the upper end of said pile in a driving relation to force said pile downwardly into the formation, said outer protective housing having means engaging said force transmitting member to force said force transmitting member downwardly for pushing said sheet pile within the formation; and

separate force exerting means positioned between said force transmitting member and said protective housing to force said protective housing upwardly relative to said sheet pile and said force transmitting member upon positioning of said sheet pile at a predetermined depth in the formation.

surfaces intersecting at an insert corner, each side surface intersecting with said rake surface so as to define a cutting edge, each cutting edge comprising a major cutting edge portion extending from one insert corner and a succeeding minor cutting edge portion terminating in a successive insert corner, and chip diverting ribs respectively associated with said cutting edges and formed on said rake surface, each rib extending from an area adjacent a region of merger of said major and minor portions of the associated cutting edge such that a width of the rib is substantially co-extensive with said region.

5,803,675

HOLDER FOR METAL-CUTTING TOOL INSERTS

Rainer Von Haas, Geesthacht, Germany, assignor to Widia GmbH, Essen, Germany

PCT No. PCT/DE94/00975, § 371 Date Jun. 7, 1996, § 102(e)
Date Jun. 7, 1996, PCT Pub. No. WO95/13892, PCT Pub.
Date May 26, 1995

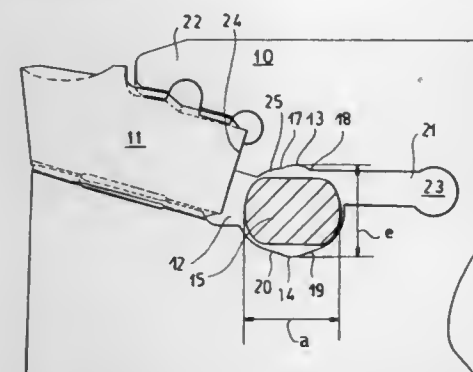
PCT Filed Aug. 20, 1994, Ser. No. 649,668

Claims priority, application Germany, Nov. 16, 1993, 93 17
533.7 U

Int. Cl.⁶ B23B 27/04

U.S. Cl. 407—107

7 Claims



1. A holder assembly for a chip-removal tool insert comprising: a holder member formed with first and second spaced apart jaws each having respective inner surfaces facing one another and forming an elongated slot therebetween,

each of said inner surfaces being formed with a respective front portion thereof extending rearwardly from a front face of the holder member and with a respective rear portion, each of said rear and front portions of the respective inner surface being bridged by a respective curved surface extending outwardly into the respective jaw, so that an enlarged opening is formed in said slot, each of said curved surfaces being formed with:

a respective front arcuate recess merging into a rear arcuate recess and forming a respective first bump therewith which extends inwardly into said enlarged opening, the respective rear recess running into the rear portion of the inner surface of the respective jaw to form a respective second bump therewith, said second rear recesses of said inner surfaces of said first and second jaws being formed with respective apexes which are spaced apart at a first distance; and

an expansion key formed with two parallel opposite sides bridged by two outwardly convex sides which are spaced apart at a second distance greater than said first distance, said key being rotatably insertable in said opening for spreading said jaws further apart upon contact of said convex sides with said first and second bumps of each of the inner surfaces of the jaws to receive a chip-removal tool between front portions of the inner surfaces of the jaws.

5,803,676 METHOD AND TOOL FOR REPAIRING DAMAGED THREADS

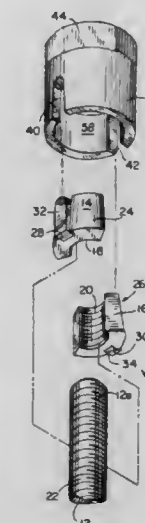
Dietrich E. Wiens, N32 W22198 Shady La., Pewaukee, Wis. 53072, assignor to Dietrich E. Wiens, Pewaukee, Wis.

Filed Mar. 20, 1996, Ser. No. 618,851

Int. Cl.⁶ B23G 5/00

U.S. Cl. 408—1 R

18 Claims



1. A thread repair tool capable of repairing damaged threads on a threaded object comprises:

at least two chaser sections each having a threaded inner diameter, the threads matching those of the threaded object to be repaired, each chaser section having a tapered outer diameter and a longitudinal keyway in the tapered outer diameter; a pair of keys engagable with the keyways of the chaser sections; and

a driver having a tapered inner diameter substantially matching the tapered outer diameter of the chaser sections, and having a pair of keyway slots spaced apart to match engagement with the keys and keyways of the chaser sections.

5,803,677 HOLE SAW

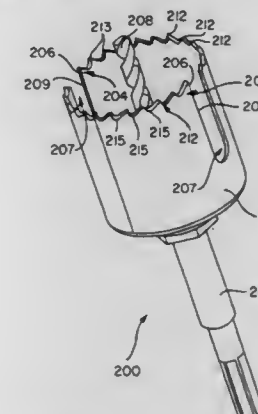
David T. Brutscher, Louisville, and Donald M. Szymanski, Prospect, both of Ky., assignors to Credo Tool Company, Woodburn, Oreg.

Filed Aug. 9, 1996, Ser. No. 738,758

Int. Cl.⁶ B23B 51/04

U.S. Cl. 408—204

14 Claims



1. A hole saw comprising a cup with at least two cutting teeth positioned on the open end of the cup, said at least two cutting teeth disposed to provide balanced engagement of said cutting

teeth to a work surface, one of said teeth having a cutting edge directed outward of the circumference of the cup and the one of said cutting teeth having a cutting edge directed inwardly of said circumference of said cup, said at least two teeth spaced apart by a chord of between about 45 to about 180 degrees, a plurality of raker teeth positioned on said chords between said cutting teeth, said raker teeth disposed below said cutting teeth to engage and move cutting debris formed by said cutting teeth, said cup defining secondary gullets positioned proximate to the cutting edge of said at least two cutting teeth, said gullets having a predetermined depth and shape along a longitudinal axis of said cup to remove debris from the cup during a portion of the duration of the hole cut.

5,803,678

HOLE CUTTING TOOLS

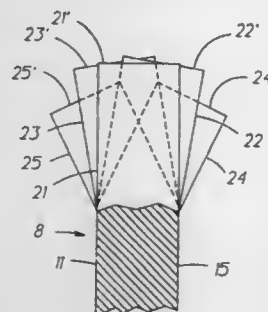
William B. Korb, Melrose, Conn.; James R. Holston, Orange, and Stephen A. Hampton, East Longmeadow, both of Mass., assignors to American Saw & Mfg. Company, East Longmeadow, Mass.

Filed Jun. 20, 1995, Ser. No. 492,801

Int. Cl.⁶ B23B 51/05

U.S. Cl. 408—206

12 Claims



1. Cutting tool of generally cylindrical configuration rotatable about a central axis and defined by coaxial inner and outer surfaces and an axially forward portion defining a saw tooth cutting edge disposed generally between said surfaces and comprising a plurality of repetitive groups of teeth, each group including at least four set saw teeth having cutting edges radially displaced inwardly and outwardly of said inner and outer surfaces, said teeth being disposed successively in the direction of rotation of the tool with the cutting edge of each tooth of the group being disposed generally in a surface of rotation separate and distinct from the surfaces of rotation of the other cutting edges of the teeth in said group and said teeth being variably set radially so that the cutting edge of each tooth of said group includes an effective portion unmasked by any portion of said teeth rotatable in advance of said each tooth whereby when moving relative to the work at a given rotational speed and urged into the work at a given pressure, each tooth cuts a chip of generally the same thickness and width as each of the other teeth of said group.

5,803,679

DEBURRING TOOL FOR DEBURRING THE EDGES OF BOREHOLES

Ulf H. Heule, Jacob-Schmid-Heinrich-Str. 12, CH-9436 Balgach, Switzerland

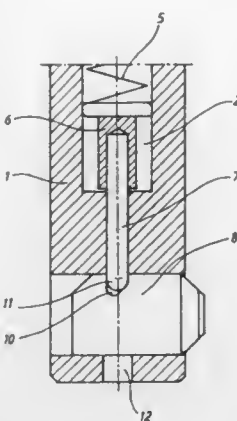
Filed Jul. 9, 1996, Ser. No. 680,517

Int. Cl.⁶ B23B 51/08; 51/10

U.S. Cl. 408—211

11 Claims

1. Deburring tool for deburring the edges of boreholes, comprising a base body (1) in which there is at least one recess (9) running across the longitudinal axis of the base body, at least one blade (8) mounted in said recess to be displaced rectilinearly under spring load in the longitudinal direction of the recess (9), a spring (5) mounted in a longitudinal borehole in the base body (1) and in



contact with one end of a control pin, (7) the control pin having an other end engaging in a control recess (10) in the blade, (8) the control recess having a sloping camming surface whereby the said other end exerts on the blade (8) at least a holding force in the direction of displacement (20, 20').

5,803,680

INSTRUMENT FOR MACHINING THE SURFACE OF PARTS IN TECHNICAL CAVITIES

Jörg Diener, Oberderdingen, Germany, assignor to Richard Wolf GmbH, Knittlingen, Germany

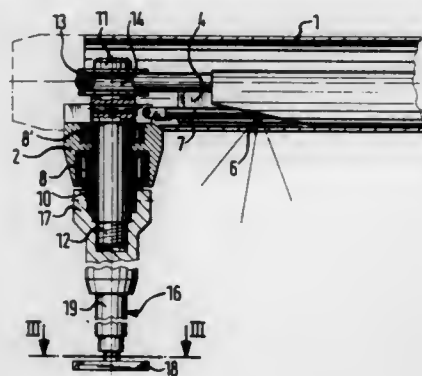
Filed Oct. 8, 1996, Ser. No. 727,816

Claims priority, application Germany, Oct. 11, 1995, 195 37 812.1

Int. Cl.⁶ B23C 9/00; B23Q 15/20

U.S. Cl. 409—130

18 Claims



1. An instrument for machining a surface of parts in technical cavities and simultaneous observation of the surface at a machining location with an optic, comprising a shank (1) having a longitudinal axis, an instrument head (2) attached to a distal end of the shank, the instrument head pivoting relative to the longitudinal axis of the shank, a tool (3, 16, 32-34) carried by the head, and a measuring template adapted to be carried by said instrument head or said tool (18, 25-28) which is pivotable into a field of view of the optic.

5,803,681

HANDLE RETAINER FOR MILLING MACHINES

Joseph E. Landwerlen, Shelbyville, Ind., assignor to J&L Tool & Machine, Inc., Shelbyville, Ind.

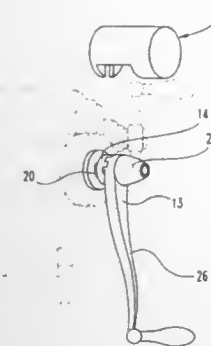
Filed Jun. 18, 1997, Ser. No. 877,666

Int. Cl.⁶ B23C 9/00; B23Q 11/00; F16H 27/00; G05G 5/00

U.S. Cl. 409—134

5 Claims

1. A retainer for a rotatable coupling of a handle and a receiver, the receiver having first and second sides and being mounted on a



shaft, the second side defining a plurality of axially extending projections and recesses, the handle including a head and a lever, the head having a plurality of axially extending recesses and projections complementary to the projections and recesses of the receiver, the head and the receiver in the coupled condition having the complementary projections and recesses interlocking, said retainer comprising:

a generally hollow body having a central axis and including first and second ends, the first end being C-shaped with a central opening, the first end being receivable adjacent the first side of the receiver and about the shaft on which the receiver is mounted with the shaft being received within the central opening,

the second end being closed and having a surface receivable against the head of the handle when the handle is in the coupled condition, said retainer being positionable over the coupled receiver and handle head to maintain the complementary projections and recesses in interlocking condition.

5,803,682

EDGE MILLING DEVICE

Roland Henzler, Raidwangen, and Helmut Brandstetter, Nürtingen, both of Germany, assignors to Reich Spezialmaschinen GmbH, Nürtingen, Germany

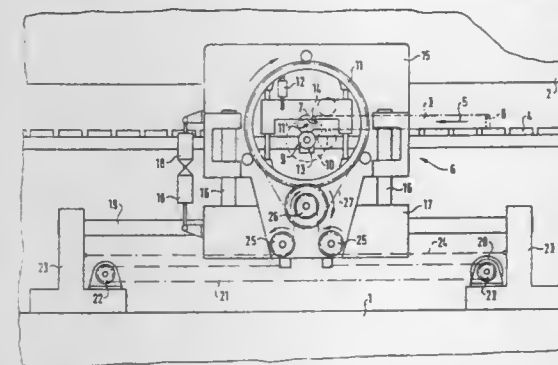
Filed Sep. 9, 1996, Ser. No. 708,754

Claims priority, application Germany, Mar. 15, 1994, 44 08 596.6

Int. Cl.⁶ B23C 3/12

U.S. Cl. 409—138

12 Claims



1. Apparatus for machining corners of plate-like workpieces comprising: a base frame, a conveyor device associated with said base frame and arranged for the transport of plate-like workpieces to be machined, a milling device for machining corners of the workpieces, said milling device including a milling tool held on a pivoting device so as to be drivable, said milling tool being pivotable by means of said pivoting device about an axis arranged parallel to the plane of conveyance of the workpieces and at right angles to the direction of conveyance of the workpieces, said milling device being mounted for displacement parallel to the direction of conveyance of the workpieces, and a drive motor for facilitating displacement of said milling device said drive motor

being operatively connected to a synchronizing member for synchronizing the displacement movement of said milling device with the speed of conveyance of the workpieces, and wherein pivoting movement of said pivoting device is mechanically coupled to the displacement movement of said milling device.

5,803,683

MILLING SYSTEM

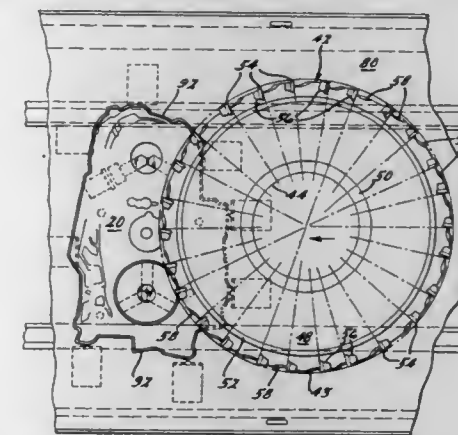
Manuel C. Turchan, 42288 Crestview Cir., Northville, Mich. 48167

Continuation of Ser. No. 444,221, May 18, 1995, abandoned, which is a division of Ser. No. 875,231, Apr. 28, 1992. This application Jul. 31, 1997, Ser. No. 903,654

Int. Cl.⁶ B23Q 3/06

U.S. Cl. 409—277

9 Claims



1. The fixturing device for supporting a workpiece during a machining operation, said fixturing device comprising: means for supporting said workpiece on at least three points; means adjacent said support means for engaging at least one edge of said workpiece, said engaging means deflecting at least a portion of said workpiece in a direction towards said support means; and secondary means for supporting said workpiece located adjacent said engaging means, said secondary support means having an elevation which is a predetermined distance below a plane defined by said at least three points, said secondary support means limiting the deflection of said workpiece to said predetermined distance; whereby added rigidity is induced in said workpiece as a result of deflecting said workpiece said predetermined distance.

5,803,684

TABLE TOOL HAVING AN ADJUSTABLE SECURING DEVICE

Tian Wang Wang, No. 45, Yi Chang East Road, Taiping City, Taichung Hsien, Taiwan

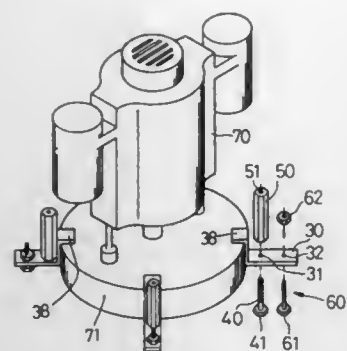
Filed Jun. 20, 1997, Ser. No. 879,312

Int. Cl.⁶ B23C 1/00

U.S. Cl. 409—229

2 Claims

1. A table tool comprising: a table including two channels, a block for supporting a tool device, four pressers each including a first end having an extension for engaging with said block and each including a second end, means for slidably securing said pressers along said channels and for allowing said pressers to secure said block of different size, and means for spacing said second ends of said pressers from said table, said spacing means including four bolts threadably engaged with said second ends of said pressers for spacing said second ends of said pressers from said table and for



Preventing said second ends of said pressers from being bent when said slidably securing means is forced against said pressers.

5,803,685

Patent Not Issued For This Number

5,803,686

REACTOR CORE SHROUD REPAIR USING SPLICE PLATE TO BRIDGE WELD SEAM

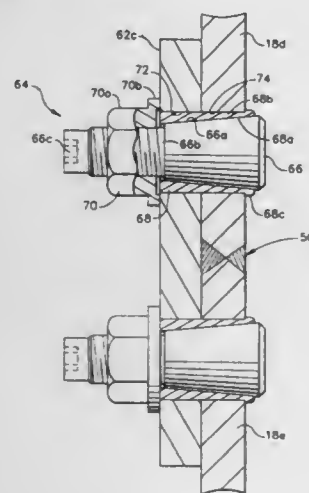
John Geddes Erbes, Mt. View; Grant Clark Jensen, Morgan Hill, and James Edward Charnley, Nevada City, all of Calif., assignors to General Electric Company, San Jose, Calif.

Division of Ser. No. 653,219, May 24, 1996, which is a continuation-in-part of Ser. No. 311,300, Sep. 23, 1994, Pat. No. 5,521,951. This application Mar. 24, 1997, Ser. No. 823,355

Int. Cl.⁶ F16B 13/06; F16D 1/00

U.S. Cl. 411—55

13 Claims



1. A fastening assembly comprising:
 - a tapered shank having a threaded surface and a conical surface which is coaxial with said threaded surface;
 - sleeve means comprising a longitudinal slot, an internal surface which matches said conical surface of said tapered shank, an external surface which matches a circular cylindrical surface, and a flange which extends radially outward beyond said external surface; and
 - a threaded bolt having a threaded surface threadably engaged with said threaded surface of said tapered shank, wherein said threaded bolt comprises a threaded shank, a bolt head connected to one end of said threaded shank and a flange con-

nected to a periphery of said bolt head, said threaded shank and said flange being separated by an annular recess.

5,803,687

SELF-TIGHTENING COMPRESSION CLIP

Stuart J. Ledingham, Coto de Caza, Calif., assignor to Valu Engineering, Inc., Irvine, Calif.

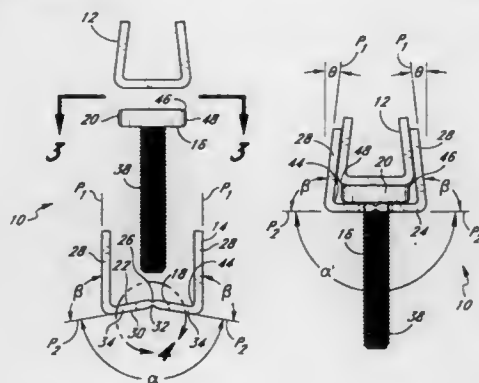
Continuation of Ser. No. 871,284, Jun. 9, 1997, which is a continuation of Ser. No. 540,339, Oct. 6, 1995, abandoned.

This application Nov. 14, 1997, Ser. No. 970,294

Int. Cl.⁶ F16B 39/24

U.S. Cl. 411—85

21 Claims



1. A guide rail assembly of a conveyor system defining a pathway along which articles travel, comprising:
 - an elongate guide rail extending alone said pathway for guiding said articles along said pathway; and
 - at least one guide rail support engaging said guide rail, said support comprising:
 - a self-tightening member having two side sections and an intermediate section therebetween, said intermediate section having a hole, a grooved interior surface and a grooved exterior surface, said intermediate section defining an obtuse angle α prior to tightening of said clip; and
 - a bolt received in said hole of said member for attaching said clip to said guide rail and for tightening of said clip;
- wherein after tightening said clip, said intermediate section substantially flattens to form an obtuse angle α' and said side sections are compressed inward whereby said guide rail is securely engaged within said clip.

5,803,688

METHODS AND APPARATUS FOR SECURING COMPONENTS IN NUCLEAR REACTORS

Thomas Edward Gleason, Monte Sereno, and Jonathan D. Lazarus, Sunnyvale, both of Calif., assignors to General Electric Company, Schenectady, N.Y.

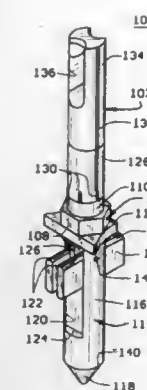
Filed Feb. 9, 1996, Ser. No. 599,128

Int. Cl.⁶ F16B 21/00; 13/04

U.S. Cl. 411—344

15 Claims

1. A toggle bolt assembly, comprising:
 - a toggle bolt body, said toggle bolt body comprising a tie rod engaging portion, a threaded portion and a lower toggle engaging portion, said tie rod engaging portion secured to one end of said threaded portion and said lower toggle engaging portion secured to the other end of said threaded portion,
 - a toggle rotatably secured to said toggle bolt body at said lower toggle engaging portion,
 - a crimp nut comprising a threaded nut portion and a crimp collar, said crimp nut threadably secured to said upper threaded portion of said toggle bolt body, and
 - a sleeve sized to have at least a portion of said toggle bolt body and said toggle located therein, said sleeve having a toggle opening so that said toggle can rotate from a first position in



which said toggle is substantially located within said sleeve to a second position in which surface engaging portions of said toggle extend beyond said sleeve, a lower portion of said sleeve having a toggle rotation surface to facilitate rotation of said toggle.

5,803,689

DEVICE FOR INTERCONNECTION OF TWO OBJECTS

Heyn Halfdan Magnus, and Torstein Kasin, both of Kongsberg, Norway, assignors to Kongsberg Offshore AS, Kongsberg, Norway

PCT No. PCT/NO96/00191, § 371 Date Apr. 25, 1997, § 102(e)

Date Apr. 25, 1997, PCT Pub. No. WO97/05397, PCT Pub. Date Feb. 13, 1997

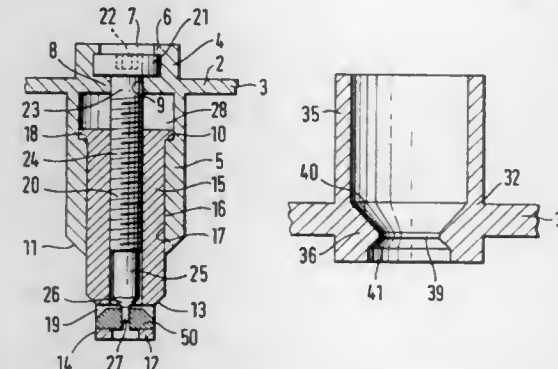
PCT Filed Jul. 25, 1996, Ser. No. 809,773

Claims priority, application Norway, Jul. 27, 1995, 952986

Int. Cl.⁶ F16B 19/00; A41F 1/00

U.S. Cl. 411—355

4 Claims



1. A device for fastening together two parts, comprising:
 - a first part which comprises:
 - a first frame carrying a screw which has a conical, pointed first end section having a longitudinal axis, said screw being rotatable, but axially immovable in relation to the first frame;
 - an internally threaded piece mounted axially movable but rotatably immovable in the first frame for receiving said screw;
 - at least one engagement element mounted in the internally threaded piece, and having a first contact section arranged to abut against the end section, the engagement element being movable relative to the end section in the direction of the end section's longitudinal axis, the engagement element being also movable radially in relation to the end section between a first position, wherein the distance between the longitudinal axis and the engagement element's radially outer end is minimal, and a second position, wherein said distance is at a maximum;

a second part which comprises:

- a second frame having an opening with a narrowed section which forms a shoulder section, and through which the

engagement element can be inserted when located in the first position, and said narrowed section being arranged to engage with a second contact section of the engagement element when the engagement element has passed through the opening and is located in the second position; said screw comprising an externally threaded sleeve surrounding a stem part which is rotationally fixed in relation to the sleeve and which comprises the first end section, said stem part being axially movable relative to the sleeve; and retaining means for preventing an unintentional relative axial movement.

5,803,690

LOCKING SYSTEM FOR VEHICLE WHEELS

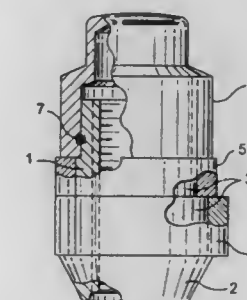
Stanislav Savinsky, 12-59 George St., Fairlawn, N.J. 07410

Filed Mar. 27, 1997, Ser. No. 827,179

Int. Cl.⁶ F16B 23/00; 37/08

U.S. Cl. 411—432

4 Claims



1. A locking system for a vehicle wheel, comprising a threaded member having a threaded part which has an axis and is screwable in a corresponding counter part, said threaded part having portions which are offset relative to one another in a direction perpendicular to said axis, and a plurality of rings which are freely rotatable relative to said threaded part on said portions; and a key having an axis and a part engageable with said threaded member and is provided with a plurality of formations which engage said rings of said threaded member and portions of said threaded part are offset relative to one another in said perpendicular direction exactly in correspondence with the offset of said portions.

5,803,691

STRIP FOR SUPPORTING NAILS

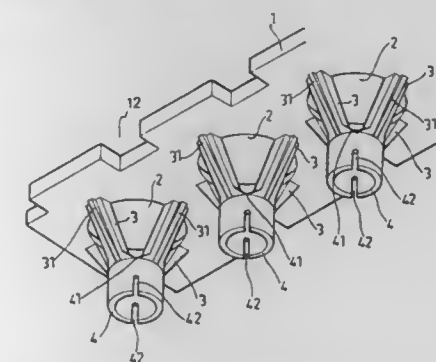
Shih Chang Huang, No. 134, Yiau San Street, San Min Chu, Kaoshiung, Taiwan

Filed Jun. 9, 1997, Ser. No. 871,422

Int. Cl.⁶ B65D 85/24

U.S. Cl. 411—442

3 Claims



1. A strip for supporting fasteners and for supplying the fasteners into a stapling mechanism and for allowing the fasteners to be punched by the stapling mechanism, said strip comprising:

a strip body including a plurality of holes each having a peripheral portion for engaging with the fasteners, said strip body including at least three bars extended downward from said peripheral portion of each of said holes for decreasing a contact area between said strip body and the fasteners, said at least three bars including a bottom portion, and said strip body including a cylindrical member secured to said bottom portion of said bars, said cylindrical member including at least one slit formed therein and opposite to said bars and forming at least one coupling portion and for allowing said at least one coupling portion to be easily broken when the fasteners are punched against said cylindrical member and punched away from said strip body.

5,803,692

PUSHNUT FOR USE IN CONJUNCTION WITH A CYLINDRICAL SHAFT HAVING A PAIR OF OPPOSED FLAT SURFACES

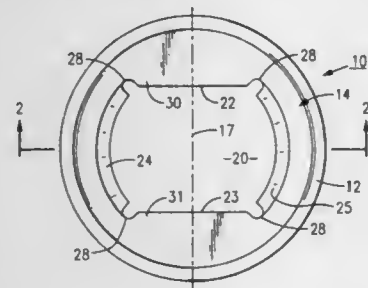
Reynaldo M. Postadan, Jersey City, N.J., assignor to Trans Technology Corp., Liberty Corner, N.J.

Filed May 23, 1996, Ser. No. 652,092

Int. Cl.⁶ F16B 21/18

U.S. Cl. 411—526

12 Claims



1. A pushnut fastener for engaging a cylindrical shaft or stud having a pair of parallel opposed flat surfaces, said pushnut including:

- a sheet metal cup-shaped member having a flat horizontally disposed rim and a raised center section having a top surface that is parallel with said rim, said rim and center section being coaxially aligned about a vertical axis,
- said raised section of said member having a stud receiving opening that is symmetrical about said vertical axis, said opening having a pair of parallel opposed side walls and a pair of arcuate end walls, each end wall having a radius centered upon said vertical axis,
- said end walls and side walls forming corners to establish an elongated straight blade along each of said side walls and an arcuate shaped blade along each of said end walls, whereby the blades are deformable by a shaft or stud passing downwardly through said opening,
- a radially extended cutout at each of said corners, and
- each of said arcuate shaped blades being turned inwardly toward said rim of said members at an angle of about 45° with said rim.

5,803,693

SWIVELING ROOFING WASHER

Stanley W. Choiniere, Southwick; Martin G. Riccitelli, Westfield, and Tad A. Weiss, Westhampton, all of Mass., assignors to Olympic Manufacturing Group, Inc., Agawam, Mass.

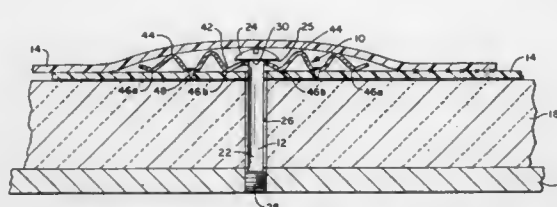
Filed Apr. 17, 1997, Ser. No. 842,808

Int. Cl.⁶ F16B 43/00; 43/02

U.S. Cl. 411—537

21 Claims

1. A swiveling roofing washer for use with a roofing fastener having a shank portion and an expanded head portion comprising:



a plate defining a centrally positioned fastener opening and comprising a bottom surface for engagement to a roofing membrane, an opposite top surface including an upper portion and a swivel surface portion adjacent said fastener opening and disposed between said bottom surface and said upper portion, said swivel surface portion defining a convex surface adjacent and coaxial with said fastener opening and a fastener head receiving channel disposed between said bottom surface and said upper portion and adjacent said convex portion, said channel being coaxial with said fastener opening for engagement with the head portion of a roofing fastener.

5,803,694

PORTABLE TREE PLATFORM ELEVATED VIA A WINCH

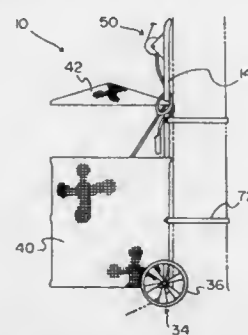
Jackie R. Steele, R.R. #5, Bloomfield, Ind. 47424

Filed Dec. 30, 1996, Ser. No. 775,250

Int. Cl.⁶ B66C 23/60

U.S. Cl. 414—23

9 Claims



- 9. A portable tree platform for elevating via a winch comprising: a planar platform with at least one support means;
- a winch unit including a spool means and a motor connected to a battery, the spool means connected to the support means for effecting the gathering of cable on the spool means upon the actuation thereof in a first mode of operation and further effecting the dispensing of the cable from the spool means upon the actuation thereof in a second mode of operation, whereby an end of the cable may be fixed in an upper extent of a tree such that upon the actuation of the motor in the first mode of operation, the platform may be elevated; and
- a weapon holder having a cylindrical configuration with a bottom face coupled to the platform and a periphery extending upwardly therefrom defining an interior space and a top opening for allowing the storage of a weapon.

5,803,695

GRAIN DISTRIBUTION APPARATUS AND METHOD

William A. Schlager, Coon Rapids, Minn., assignor to Schlager, Inc., Cambridge, Minn.

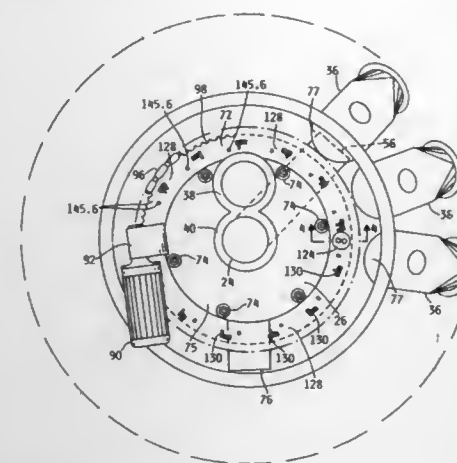
Continuation-in-part of Ser. No. 227,063, Apr. 13, 1994, abandoned. This application Jan. 13, 1995, Ser. No. 372,315

Int. Cl.⁶ B65G 11/00

U.S. Cl. 414—301

38 Claims

- 1. A grain distribution apparatus comprising: a housing with an open interior;
- a plurality of receiving ducts extending from the housing, each receiving duct having a receiving portion in the interior of the housing;



- c. an inner distribution spout pivotally moveable and stoppable among the receiving portions, the inner distribution spout having a plurality of pivotal positions;
- d. a drive motor connected to the housing and distribution spout for moving and stopping the distribution spout;
- e. a coded portion with a plurality of code clusters, each code cluster comprised of a unique series data digits indicative of a pivotal position of the distribution spout;
- f. a sensor configured to sense the differentiated data digits and generate corresponding signals, the sensor and coded portion connected to the distribution spout and housing such that the sensor confronts the coded portion and such that pivotal movement of the distribution spout moves the coded portion with respect to the sensor, the code clusters arranged such that the data digits of each code cluster move sequentially past the sensor whereby the code clusters are serially read; and
- g. a control processor connected to the sensor, the control processor configured to receive the signals from the sensor and to determine the pivotal position of the distribution spout.

5,803,696

SAFETY INTERLOCK DEVICE FOR A STANDARD MANUFACTURING INTERFACE ARM AND EQUIPMENT

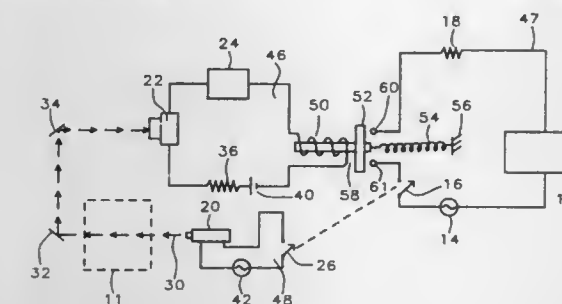
Po-Yueh Tsai, Peng-Hong Rea-Chang Wang, Hsin-Chu; Te Yun Lin, Chin-Chu, and Y. F. Lin, Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed May 16, 1997, Ser. No. 857,965

Int. Cl.⁶ B65G 1/04

U.S. Cl. 414—416

21 Claims



- 1. A safety interlock, comprising: an opaque device wherein said opaque device is located at a home position or a number of secondary positions;
- an electromechanical device having electrical input terminals mechanically coupled to said opaque device wherein said electromechanical device supplies mechanical power to said opaque device when electrical power is supplied to said input terminals of said electromechanical device;
- a first electrical switch;

5,803,697

CHARGER ASSEMBLY FOR A WAFER CARRYING APPARATUS

Jung-Bong Yun; Gee-Il Seo, and Hee-Jun Kim, all of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

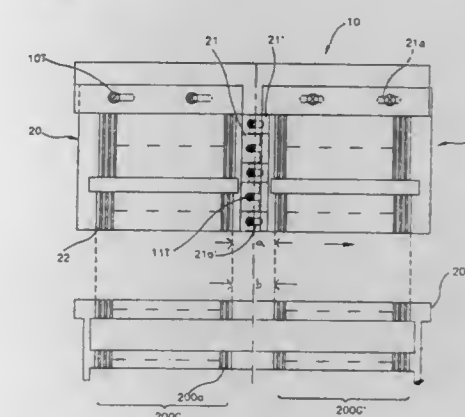
Filed Dec. 27, 1996, Ser. No. 774,274

Claims priority, application Rep. of Korea, Dec. 29, 1995, 95-67538

U.S. Cl. 414—417

Int. Cl.⁶ B65G 65/02

7 Claims



- 1. A charger assembly for a wafer carrying apparatus, comprising: a charger disposed directly above a wafer boat, which wafer boat has a plurality of groove groups for holding wafers, the

charger conveying the wafers loaded in the plurality of grooves of the boat to a subsequent manufacturing process, said charger comprising

a plurality of wafer guiders disposed side by side in a horizontal line above the wafer boat, said wafer guiders having a first gap therebetween, each of said wafer guiders having a plurality of grooves extending longitudinally therein for receiving the wafers from the wafer boat, and

an adjusting means by which a center line of the first gap, formed between said plurality of wafer guiders, is vertically aligned with a center line of a second gap, formed between the plurality of groove groups of the wafer boat, thereby vertically aligning the plurality of wafer guiders disposed above the wafer boat, each holding a plurality of wafers, with the plurality of groove groups of the wafer boat.

5,803,698

BODIED VEHICLE

Klaus Hoenersch, Bgm.-Schlosser-Str. 5, D-86199 Augsburg; Rudolf Helget, Vordere Berstr. 10, D-89428 Syrgenstein, and Walter Hurler, Eppaner Str. 19, D-86316 Friedberg, all of Germany

PCT No. PCT/EP94/04224, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO95/17319, PCT Pub. Date Jun. 29, 1995

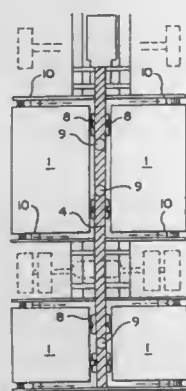
PCT Filed Dec. 19, 1994, Ser. No. 656,364

Claims priority, application Germany, Dec. 21, 1993, 43 43 655.2; Dec. 2, 1994, 44 42 939.8

Int. Cl.⁶ B60P 3/055

U.S. Cl. 414—495

8 Claims



1. Bodied vehicle for transporting containers, boxes or other cargo in which a plurality of loading boxes for the reception of the containers, boxes or the other cargo are provided and at least part of the loading boxes can be lowered from a first position in said vehicle to a lowered position outside said vehicle, the loading boxes being fastened to both sides of a middle member running in a longitudinal direction of the vehicle and being mounted on a take-up device extending perpendicular to said middle member, a means for lifting and lowering the take-up device, said lifting and lowering means mounted to said middle member, vertical guide rails mounted to vertical side portions of said middle member for guiding said loading boxes in the movement of lifting and lowering and a fixed roof being provided above the loading boxes, wherein the roof has roof stays for absorbing at least part of the forces acting upon the vehicle and in that the loading boxes can be raised to a raised position above said first position, a free space being left between the loading boxes and the roof during normal running of the vehicle.

5,803,699
APPARATUS AND METHOD FOR LOADING AND UNLOADING CONTAINERS

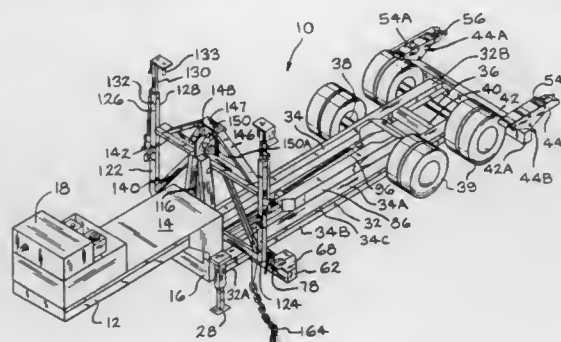
Donald L. Pinkston, Williamston, Mich., assignor to Capitol Tool and Die Co., Williamston, Mich.

Filed Nov. 12, 1996, Ser. No. 747,324

Int. Cl.⁶ B60P 1/00

U.S. Cl. 414—498

25 Claims



13. An improved attachment structure for use with a trailer which connects to a vehicle and adjacent a container having opposed end walls, with opposed sidewalls spaced between the end walls and a top wall extending between the sidewalls and the end walls of the container with a pair of top corners located in the top wall of the container and a pair of side corners located in the side walls of the container adjacent each end wall, the trailer having a lifting means with a connector means for connecting to the attachment structure for loading of the container on the trailer for transport by the vehicle and for unloading the container from the trailer, the attachment structure which comprises:

- two spaced apart, parallel and adjustable elongate side members with a top end and a bottom end, wherein each of the elongate side members have extensions which are telescopically mounted and configured to be fixedly attached and locked to the top corners of the container at one end wall;
- a pair of flexible, linkage securing means attachable between each of the side corners of the container at one end wall and one of each of the elongate side members for securing the attachment structure onto one end wall of the container and wherein a length of the flexible, linkage securing means is adjustable to allow for variations in the orientation of the container prior to lifting of the container onto the trailer; and
- a connection means mounted on the attachment structure between the elongated side members on a side opposite the container when the attachment structure is attached to one end wall of the container, wherein the connection means engages the connector means on the lifting means of the trailer to enable the lifting means to load the container onto the trailer.

5,803,700

DEVICE FOR MOUNTING AND DISMOUNTING A HEAVY WEIGHT

Byung-Kwan Lee, Inch'eon-Kwangyeok, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Feb. 24, 1997, Ser. No. 804,829

Claims priority, application Rep. of Korea, Feb. 28, 1996, 1996-4977

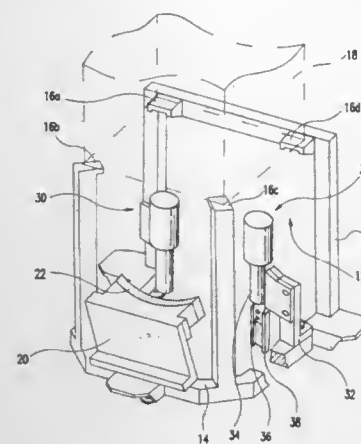
Int. Cl.⁶ B66F 1/00

U.S. Cl. 414—589

7 Claims

1. A device for mounting and dismounting a heavy weight comprising:

- a vertical frame having four fixed vertical posts defining first, second, third and fourth sides and an opening formed on said first side thereof, through which a heavy weight may be received into said vertical frame;
- a lateral frame extending along a lower part of said second, third and fourth sides of said vertical frame;



a stopping member attached to the lateral frame along said third side and arranged between adjacent of said fixed vertical posts defining said third side, opposite to said opening, to prevent said heavy weight from being moved outside said vertical frame;

moving means for moving said heavy weight to, and placing said heavy weight into said vertical frame; and

a first lifting device and a second lifting device mounted to said lateral frame along said second and fourth sides, respectively, each lifting device being arranged between adjacent of said fixed vertical posts defining said second and fourth sides for raising and lowering said heavy weight received in said vertical frame.

5,803,701

SYSTEM AND METHOD FOR CONVEYING CARGO CONTAINERS THROUGH ENVIRONMENTALLY CONTROLLED ENCLOSURES

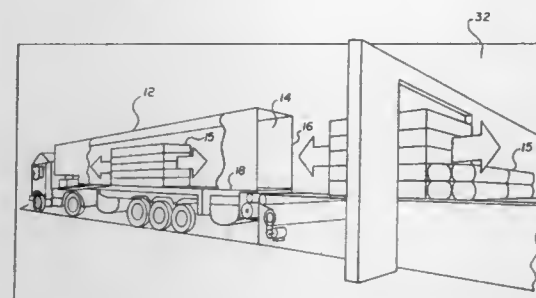
Richard J. Filiberti, Rochester; Fredric Salsburg, Victor, and William E. Roberts, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 267,262, Jun. 27, 1994, Pat. No. 5,645,390. This application Mar. 27, 1997, Ser. No. 825,078

Int. Cl.⁶ B65G 47/00

U.S. Cl. 414—786

4 Claims



1. Method of conveying cargo containers through a vehicle and selective environmentally controlled enclosures substantially without operator intervention and exposure of said cargo containers to particulate contamination, the vehicle having a storage compartment for said cargo containers and an exit end for passing said cargo containers therethrough, said environmentally controlled enclosures comprising an entrance port, and at least one of said enclosures being positioned proximal to said exit end of said vehicle, the method comprising the steps of:

- providing a load bearing powered conveying means structurally connected inside said storage compartment of said vehicle;
- providing means for precisely aligning and snugly positioning said exit end of said vehicle against said entrance port of said proximal enclosure;

aligning and positioning the exit end of the vehicle against the entrance portion of said proximal enclosure;

conveying said cargo from said vehicle conveyor means to said proximal enclosure; and,

providing means cooperatively associated with said vehicle and said environmentally controlled enclosures for selectively controlling the flow and distribution of said cargo containers from said vehicle, through said entrance port and into any one of said environmentally controlled enclosures or to said cargo compartment of said vehicle; and

actuating said controlling means.

5,803,702

VISION INSPECTION SYSTEM FOR DOUBLE STACKED PACKS

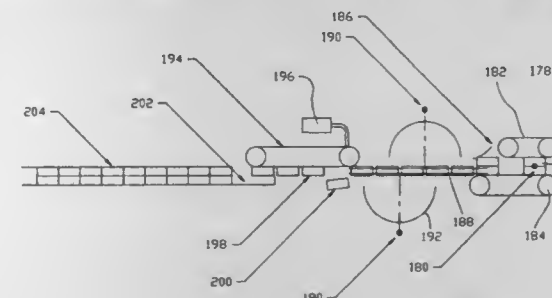
Michael J. Mullins, Chesterfield; Barry S. Smith, Hopewell, both of Va., and Roy E. Vanderlinden, Frederick, Md., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Nov. 8, 1996, Ser. No. 746,402

Int. Cl.⁶ B65G 57/00

U.S. Cl. 414—788.7

16 Claims



12. An apparatus for the inspection of uniform packages of goods which move along a path in stacked relation, said stacks being formed from a plurality of packages having faces and sides, at least some of said faces being hidden by the stacked relation of the packages, said apparatus comprising:

- a destacking device having a plurality of endless belts moving in essentially parallel direction, said belts mounted on a capstan having a varied diameter, said belts removing the stacked packages from stacked relation by gripping the sides of the packages and transporting them at different speeds,
- an inspection device for inspecting the single packages, and
- a restacking device which returns the inspected packages to a stacked relation.

5,803,703

CASE LOADING SYSTEM

Ernest P. Winski, Oshkosh, Wis., assignor to Goldco Industries, Inc., Loveland, Colo.

Continuation-in-part of Ser. No. 100,271, Aug. 2, 1993, abandoned, which is a continuation-in-part of Ser. No. 76,272, Jun. 11, 1993, abandoned, which is a continuation of Ser. No. 653,302, Feb. 11, 1991, abandoned. This application May 9, 1994, Ser. No. 240,167

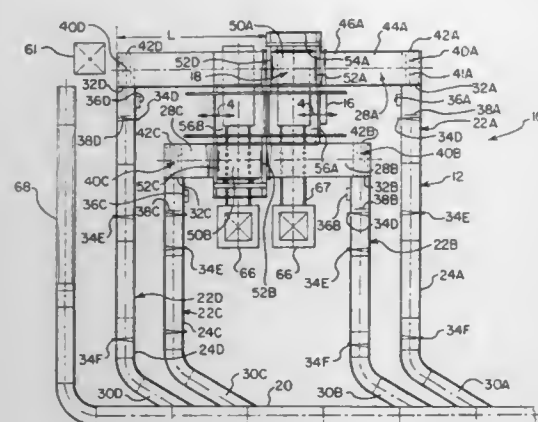
Int. Cl.⁶ B65G 37/00

U.S. Cl. 414—741.6

34 Claims

1. A case loading system for receiving cases of product, and for forming loads of the cases, in layers, with said case loading system having an overall designed throughput capacity, said case loading system comprising:

- a product conveyor;
- a layer creating subsystem comprising at least first and second case converting subsystems, said at least first and second case converting subsystems comprising corresponding (i) at least first and second layer forming stations, and (ii) at



least first and second in-feed conveyors, each said in-feed conveyor having a receiving locus configured and positioned to receive cases of product from said product conveyor, and a discharge locus configured and positioned to discharge cases of product to the corresponding said layer forming station, whereby both of said first and second case converting subsystems receive cases of product from said product conveyor, said first and second layer forming stations being configured and positioned to receive cases of product from the corresponding said in-feed conveyors and to form the cases of product into layers;

(c) a load creating subsystem, comprising at least one load forming station for receiving layers of cased product formed in said layer creating subsystem, and for forming the layers into loads; and

(d) at least one of said product conveyor, layer creating subsystem, and said load creating subsystem being designed to have a throughput capacity greater than said overall designed throughput capacity of said case loading system.

5,803,704
APPARATUS AND METHOD FOR ACCUMULATING AND TRANSFERRING ONE OR MORE STACKS OF ARTICLES

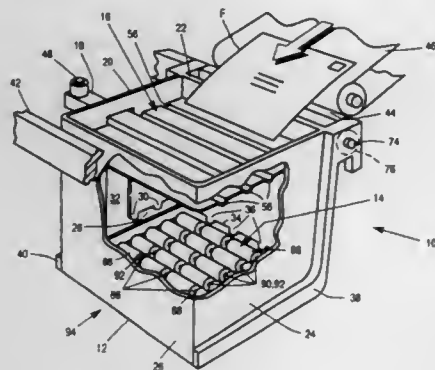
S. James Lazzarotti, Broomall, Pa., assignor to Lockheed Martin Corporation, Bethesda, Md.

Filed Feb. 1, 1994, Ser. No. 190,808

Int. Cl.⁶ B65H 29/26

U.S. Cl. 414—793.4

38 Claims



1. Apparatus for receiving and releasing a plurality of articles that may be of nonuniform dimensions, comprising:
a bin having at least four walls and open at its top and bottom;
first retaining means disposed within said bin for retaining any articles provided to said bin;
sensing means for sensing whether the location in said bin of the top of said first retaining means or of any articles retained thereby exceeds a predetermined level;

first moving means, connected to said first retaining means and responsive to said sensing means, for moving said first retaining means within said bin when the predetermined level is exceeded, to remove the excess over the predetermined level;
second, flexible retaining means removably disposed at the bottom of said bin for releasably closing off the bottom of said bin below said first retaining means; and
second moving means connected to said bin and to said second retaining means for removing said second retaining means from, and replacing said second retaining means at the bottom of said bin;
wherein said first moving means is located outside of said bin;
wherein a first said wall of said bin has a first opening through which part of said first retaining means extends for said connection to said first moving means;
wherein said first retaining means is provided with at least one groove;
and wherein said first wall is provided with a second opening connected to said first opening and having at least one projection configured to enter said at least one groove.

5,803,705
DISK TYPE INVERTER-STACKER WITH IMPROVED SHEET HANDLING SLOTS FOR DIFFERENT PAPER WEIGHTS

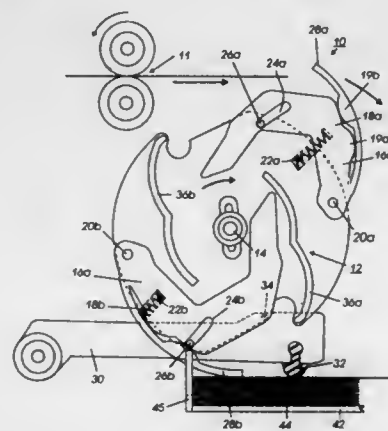
Thomas C. Keyes, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 3, 1997, Ser. No. 832,251

Int. Cl.⁶ B65H 29/20

U.S. Cl. 414—793.9

1 Claim



1. In a disk type sheet inverting and stacking system, for stacking sheets inverted in a stacking position, with rotatable disk units with narrow sheet transporting slots, in which a single printed sheet outputted by a reproduction system is sequentially fed into a single said sheet transporting slot of said disk units to be transported therein and inverted by rotation of said disk units and then released from said sheet slot of said disk units at said stacking position; the improvement wherein:

said narrow sheet transporting slots of said disk units have a convolute sheet path formed by plural internal transverse sheet corrugating protuberances extending transversely past one another within said sheet transporting slots;

wherein respective said plural internal transverse sheet corrugating protuberances are alternately spaced along said sheet transporting slot and extend towards and transversely past one another from opposing sides of said sheet transporting slot to form a convolute sheet transporting slot which forces the corrugation of said single sheet in said sheet transporting slot; and

wherein said protuberances have smoothly arcuate large diameter surfaces, with small surface angles in the direction of sheet insertion, to provide relatively low resistance to the insertion of a sheet into said sheet transporting slots; and

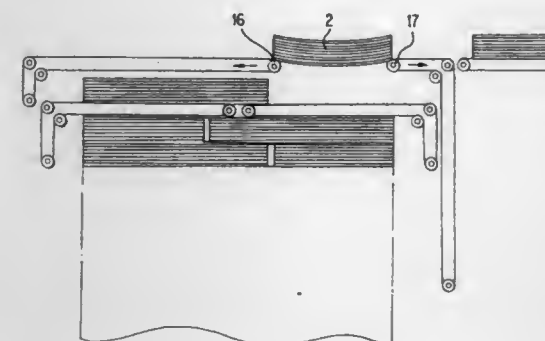
wherein said plural internal transverse sheet corrugating protuberances increase the retention of said sheet within said sheet transporting slot without substantially increasing the resistance to lateral movement of said sheet within said sheet transporting slot.

5,803,706
PALLETING DEVICE FOR PALLETING STACKS OF FLAT OBJECTS
Fritz Achelpohl, Lienen, Germany, assignor to Windmüller & Hölscher, Lengerich/Westf., Germany
Filed Dec. 12, 1996, Ser. No. 764,468
Claims priority, application Germany, Dec. 12, 1995, 195 46 389.7

Int. Cl.⁶ B65G 57/11

U.S. Cl. 414—794.4

4 Claims



1. A palleting device for palleting stacks of flat objects with a pallet having an adjustable height comprising:
a supply conveyor for supplying said stacks of flat objects, a moving support device, located above the pallet, onto which the stacks are delivered from said supply conveyor in formation on the pallet and from which a stack is ejected by a release motion of the moving support device while retaining a stacking pattern of the stack, the supply conveyor including two conveyor belts which are separately controllable and aligned with each other in a common plane parallel to the moving support device, and
front delivery rollers for said two conveyor belts which are movable in both the same and opposite directions due to movement of lower conveyor belt strands.

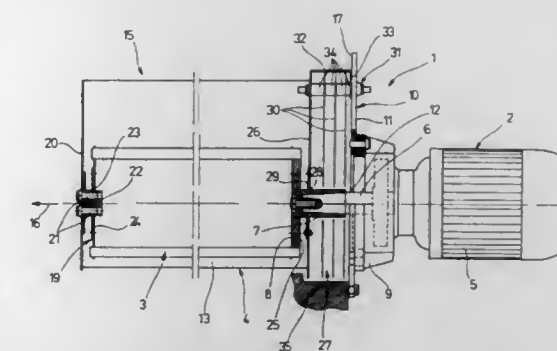
5,803,707
SLIDE-IN CROSS CURRENT VENTILATOR
Karl Schips, Urbach, and Rolf Fichter, Fellbach, both of Germany, assignors to LTG Lufttechnische Gesellschaft mit beschränkter Haftung, Stuttgart, Germany
Filed Aug. 30, 1994, Ser. No. 297,997
Claims priority, application Germany, Aug. 30, 1993, 43 28 945.2

Int. Cl.⁶ F04D 5/00

U.S. Cl. 415—53.1

14 Claims

1. A slide-in cross-current ventilator, comprising:
an impeller;
drive means for driving said impeller, said impeller being connected to said drive means in a cantilever manner so that in a mounting position of said slide-in ventilator at an installation site, said impeller is supported in an overhung position;
an air guide shrouding associated with said impeller; and
a flange for mounting said slide-in ventilator as a unit at the installation site and located between said drive means and said impeller, said mounting flange being formed as a sealing flange for preventing communication between environment,

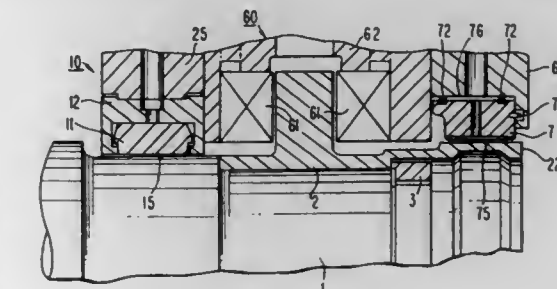


in which said impeller operates, and surrounding environment in the mounting position of said slide-in ventilator at the installation site.

5,803,708
DAMPING DEVICE FOR A ROTATING MACHINE
Yasushi Mouri, and Yoshikuni Kohno, both of Hiroshima, Japan, assignors to Mitsubishi Heavy Industries, Ltd., Tokyo, Japan
Filed Mar. 3, 1997, Ser. No. 807,259
Claims priority, application Japan, May 30, 1996, 8-136436
Int. Cl.⁶ F01D 3/04

U.S. Cl. 415—104

4 Claims



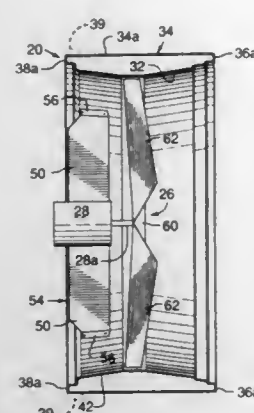
1. A damping device for damping vibration of a rotatable shaft having a shaft end portion, said damping device comprising:
a detachable thrust collar arranged on said rotatable shaft, said collar having an elongated portion extending in the direction of the axis of said shaft, said elongated portion being hollow and overhanging said shaft end portion; and
said damping device having a stationary portion associated with said elongated portion of said thrust collar.

5,803,709
AXIAL FLOW FAN
Douglas Matthews, John McBride, both of Brockville, and Tim Sutton, Kemptville, all of Canada, assignors to Canarm Limited, Brockville, Canada
Filed Dec. 6, 1995, Ser. No. 568,237
Int. Cl.⁶ F04D 29/42

U.S. Cl. 415—182.1

9 Claims

1. A fan comprising:
housing in the form of a one-piece moulded unit having an inner surface defining in air flow opening which extends about an axis, an outer perimeter surface, and front and rear surfaces extending between said inner surface and said outer surface;
a fan blade assembly supported in the housing for rotation about said axis; and
a motor carried by the housing and coupled to the fan blade assembly for rotating said assembly about said axis;
wherein the air flow opening has a generally cylindrical shape defined by an inlet section, an outlet section and a throat



between the sections, the inlet section having a conically tapered shape which converges smoothly in a direction towards the throat, and the outlet section having a conically tapered shape which diverges smoothly in a direction away from the throat, the inlet and outlet sections merging smoothly with the throat so that turbulence in the air flow through the opening is minimized;

wherein said motor is coupled directly to the fan assembly coaxially therewith, and wherein the fan further includes means supporting the motor in the housing, comprising at least three support arms which are of substantially equal length and spaced substantially equi-angularly about said axis, extending generally radially between the motor and the housing, each arm having a relatively thin and flat cross-sectional shape which is substantially uniform throughout the length of the arm, so that the arm has a major dimension and a minor dimension, and each arm being disposed with its major dimension in line with said axis and its minor dimension facing in the direction of air flow through said opening, and coupled to each of the housing and motor respectively at points spaced along the major dimension of the arm, so as to resist misalignment of the motor with respect to the axis of the air flow opening.

5,803,710

TURBINE ENGINE ROTOR BLADE PLATFORM SEALING AND VIBRATION DAMPING DEVICE

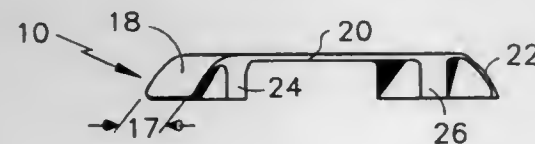
Douglas J. Dietrich, West Palm Beach, Fla.; Alan W. Stoner, Tullahoma, Tenn., and David J. Wiebe, Palm Beach Shores, Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 24, 1996, Ser. No. 772,838

Int. Cl.⁶ F04D 29/34

U.S. Cl. 416—248

8 Claims



1. An apparatus for sealing between and damping adjacent rotor blade platforms, comprising:

- a forward seal member, having a width;
 - a compliant center seal member, having a width;
 - a first damper, disposed between said forward and compliant center seal members;
 - an aft seal member, having a width; and
 - a second damper, disposed between said center seal member and said aft seal member;
- wherein said compliant center seal member is disposed between said first and second dampers; and

wherein said compliant center seal member selectively deflects to accommodate misalignment between the adjacent rotor blade platforms, thereby enabling said first and second dampers to remain in contact and damp said misaligned adjacent rotor blade platforms.

5,803,711

CONTROL CIRCUIT FOR SOLENOID VALVE

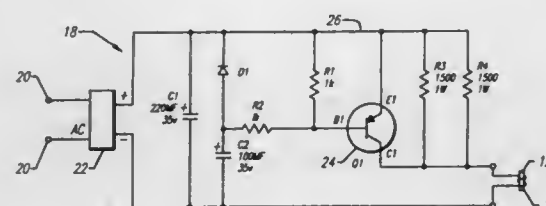
Ivar Schoenmeyr, 27126 Cipres, Mission Viejo, Calif. 92692
Division of Ser. No. 22,724, Feb. 24, 1993, Pat. No. 5,632,468.

This application Feb. 5, 1996, Ser. No. 595,474

Int. Cl.⁶ F04B 49/00

U.S. Cl. 417—36

15 Claims



1. A water purification system coupled to a source of water, comprising:

- a filter unit;
- a pump connected to said filter unit;
- a solenoid valve comprising a fluid valve and a coil, connected to said pump and the source of water, said coil being adapted to move said fluid valve from a closed position to an open position when a first voltage is supplied to said coil, and maintains said fluid valve in said open position when a second voltage is supplied to said coil, wherein said first voltage is greater than said second voltage; and,
- a valve circuit that initially supplies said first voltage to said coil to move said fluid valve to said open position and then subsequently supplies said second voltage to said coil to maintain said fluid valve in said open position, said second voltage being supplied to said coil a predetermined time interval after application of said first voltage to said coil.

5,803,712

METHOD OF MEASURING AN OCCLUSION IN AN INFUSION DEVICE WITH DISPOSABLE ELEMENTS

David L. Davis; Richard F. Hatch, and David A. Poirier, all of San Diego, Calif., assignors to Patient Solutions, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 40,106, Mar. 30, 1993, which is a continuation of Ser. No. 426,988, Oct. 25, 1989, Pat. No. 5,246,347, which is a division of Ser. No. 194,865, May 17, 1988, Pat. No. 5,074,756. This application Feb. 14, 1995, Ser. No. 388,679

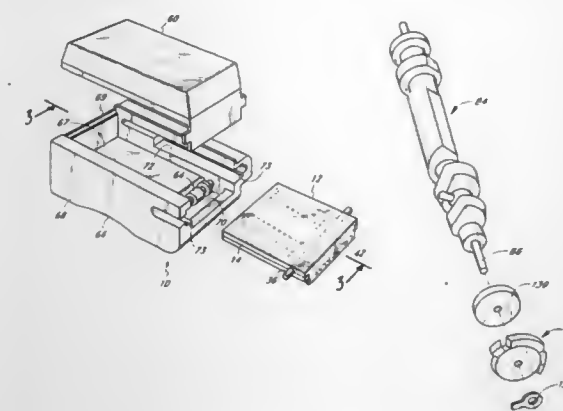
Int. Cl.⁶ F04B 49/06

U.S. Cl. 417—45

10 Claims

6. A method of detecting when an occlusion is present in an infusion apparatus having plural followers, a delivery tube adjacent said followers, a rotatable cam shaft having an actuator adjacent each of said followers and a detection pin mounted on and rotatable with said rotatable cam shaft, said method comprising:

- rotating said cam shaft such that each of said actuators contacts a respective follower and said detection pin contacts said delivery tube;
- squeezing a portion of said delivery tube closed with at least one of said followers;
- contacting said delivery tube with said detection pin while said delivery tube is squeezed close; and



determining a relative amount of force exerted between said detection pin and said delivery tube.

5,803,713

MULTI-STAGE LIQUID RING VACUUM PUMP-COMPRESSOR

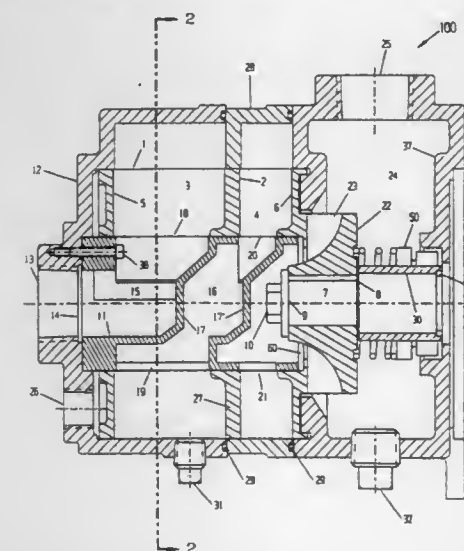
Henry Huse, Darien, Conn. 06820

Filed Aug. 28, 1996, Ser. No. 704,262

Int. Cl.⁶ F04C 19/00

U.S. Cl. 417—68

11 Claims



1. A liquid ring pump including:

- a casing defining an interior compression space;
- a port cylinder within said interior compression space;
- a bladed rotor journaled for rotation about said port cylinder, said bladed rotor including a wall for axially dividing said interior compression space into a first stage compression space and a second stage compression space;
- means for providing a liquid within said interior compression space to form a ring about an interior of said casing, thereby providing a compression action within said first stage compression space and said second stage compression space upon rotation of said bladed rotor;

said port cylinder including a port cylinder inlet; a port cylinder discharge; a first stage inlet aperture and a first stage outlet aperture in communication with said first stage compression space; and a second stage inlet aperture and a second stage outlet aperture in communication with said second stage compression space; said port cylinder further providing a first gas communication path from said port cylinder inlet to said first stage inlet aperture, a second gas communication path from said first stage outlet aperture to said second stage inlet

aperture, and a third gas communication path from said second stage outlet aperture to said port cylinder discharge; whereby gas enters said first compression space by said first gas communication path, is compressed within said first gas compression space by rotation of said bladed rotor, is communicated to said second compression space by said second gas communication path, is further compressed within said second gas compression space by rotation of said bladed rotor, and is communicated by said third gas communication path to said port cylinder discharge.

5,803,714

SWASH PLATE TYPE AXIAL PISTON PUMP AND METHOD OF ASSEMBLING THE SAME

Tsutomu Tominaga; Kazuyoshi Yamamoto; Daisuke Ochi, and Yoshihiko Onishi, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

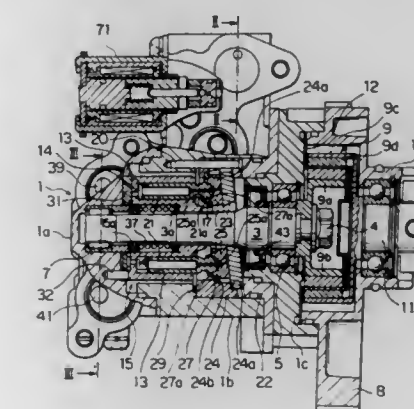
Filed Apr. 2, 1996, Ser. No. 626,550

Claims priority, application Japan, Oct. 24, 1995, 7-275886

Int. Cl.⁶ F04B 1/12; 1/26

U.S. Cl. 417—269

6 Claims



1. A swash plate type axial piston pump, comprising:

- a first housing section provided with an intake passage which can be connected to an external oil reservoir and a discharge passage capable of discharging a pressurized oil to an exterior device, said first housing section having one end opened;
- a second hollow housing section connected at one end thereof to said open end of said first housing section;
- a third housing section attached to other end of said second housing section;
- a rotatable shaft disposed within a housing formed by said first housing sections, said second housing section and said third housing section and having one end rotatably supported in said first housing section by means of a first bearing and the other end rotatably supported in said third housing section by means of a second bearing;
- a cylinder block disposed within said first housing section and said second housing section and mounted on said rotatable shaft slideably in an axial direction thereof and corotatably therewith, said cylinder block having a plurality of cylinders each defining therein a pump chamber;
- a valve plate having one end surface bearing against an inner surface of said first housing section and an other end surface bearing slideably on a bottom surface of said cylinder block, said valve plate having an intake port and a discharge port for allowing said intake passage and said discharge passage formed in said first housing section to be selectively communicated to said pump chamber defined within each of said cylinders, said rotatable shaft rotatably extending through said valve plate;

an annular supporting member disposed within and mounted to an inner wall of said second housing section;
 an annular shoe holder having a plurality of retaining holes and slideably held at an outer peripheral portion thereof by means of said supporting member;
 a plurality of pistons each having one end portion slideably fit into each of said cylinders;
 shoes pivotally coupled to other ends of said pistons, respectively, and retained by said retaining holes, respectively, of said annular shoe holder; and
 a swash plate installed within said second housing section and having an outer peripheral portion directly bearing against said annular supporting member in a state inclined relative to a center axis of said rotatable shaft, said swash plate being capable of slideably bearing against said shoes, wherein said rotatable shaft extends rotatably through said swash plate.

5,803,715

INLET CONTROL COMBINATION FOR A COMPRESSOR SYSTEM

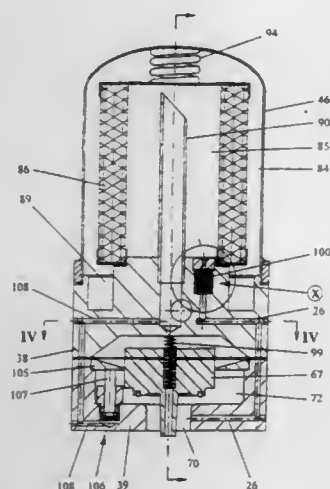
Anthony John Kitchener, East St. Kilda, Australia, assignor to Cash Engineering Research Pty. Ltd., Richmond, Australia
 Continuation of Ser. No. 204,424, Mar. 16, 1994, abandoned.

This application Nov. 12, 1996, Ser. No. 745,315
 Claims priority, application Australia, Oct. 14, 1996, PK 8876

Int. Cl.⁶ F04B 49/00

U.S. Cl. 417—295

13 Claims



1. A control valve for a compressor system including a gas compressor of the type which is flooded with a liquid lubricant, a separator for separating the liquid lubricant from the compressed gas and a receiver for receiving the compressed gas, said control valve comprising:

- a support member;
- a throttle valve for receiving a gas flow from the atmosphere and throttling the gas flow to the compressor, said throttle valve being supported within said support member; and
- a filter for receiving a compressed gas flow from the separator and filtering entrained liquid droplets from the gas flow before passing the gas to the receiver, wherein said filter is supported by said support member.

5,803,716
SCROLL MACHINE WITH REVERSE ROTATION PROTECTION

Frank S. Wallis, Sidney; Jean-Luc Caillat, Dayton; Francis M. Simpson; Gary J. Anderson, both of Sidney; Donald W. Rode, Marietta, and Norman G. Beck, Sidney, all of Ohio, assignors to Copeland Corporation, Sidney, Ohio

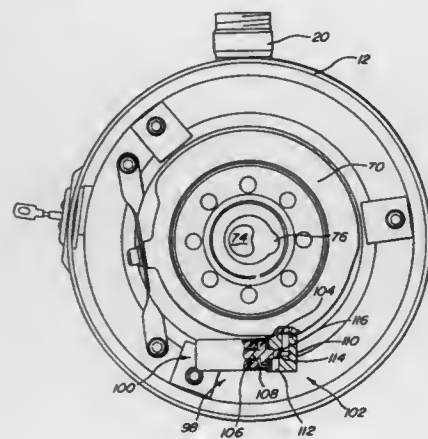
Continuation of Ser. No. 342,813, Nov. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 237,756, May 4, 1994, Pat. No. 5,607,288, which is a continuation-in-part of Ser. No. 158,754, Nov. 29, 1993, Pat. No. 5,591,014. This

application Apr. 5, 1996, Ser. No. 629,330

Int. Cl.⁶ F04B 49/00

U.S. Cl. 417—310

8 Claims



1. A scroll machine comprising:
 - a first scroll member having a first spiral wrap projecting outwardly from an end plate;
 - a second scroll member having a second scroll wrap projecting outwardly from an end plate; and
 - a drive member for causing said scroll members to orbit relative to one another whereby said spiral wraps will create pockets of progressively changing volume between a suction pressure zone at a suction pressure and a discharge pressure zone at a discharge pressure;
- means defining a leakage path disposed between two elements of said scroll compressor, said leakage path extending from said discharge pressure zone to said suction pressure zone;
- means defining a chamber containing an intermediate pressurized fluid, said intermediate pressurized fluid being at pressure between said suction pressure and said discharge pressure, said chamber being in communication with one of said two elements of said scroll machine to bias said one element into engagement with the other of said two elements to close said leakage path; and
- a valve assembly in fluid communication with said chamber and movable between an open condition and a closed condition, said intermediate pressurized fluid biasing said elements to close said leakage path when said valve assembly is in said closed condition, said intermediate pressurized fluid being released from said chamber to said suction pressure zone to open said leakage path when said valve assembly is in said open condition, said valve assembly being located in said closed condition during operation of said scroll machine, said valve assembly being moved from said closed condition to said open condition when pressure of said intermediate pressurized fluid within said chamber exceeds a predetermined value to provide a pressure relief system.

5,803,717
REFRIGERANT COMPRESSOR ARRANGEMENT
Frank Holm Iversen, Padborg; Svend Erik Outzen, and Hans Christian Andersen, both of Sønderborg, all of Denmark, assignors to Danfoss Compressors GmbH, Flensburg, Germany

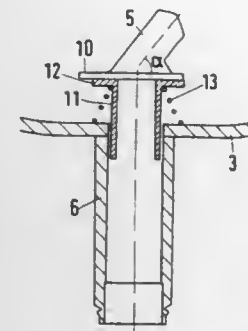
PCT No. PCT/DK95/00129, § 371 Date Jan. 3, 1997, § 102(e) Date Jan. 3, 1997, PCT Pub. No. WO95/27141, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 27, 1995, Ser. No. 718,478
 Claims priority, application Germany, Mar. 30, 1994, 44 11 191.6

Int. Cl.⁶ F04B 39/00

U.S. Cl. 417—312

15 Claims



1. A refrigerant compressor arrangement having a compressor arranged in a housing, the compressor having a suction connection, the housing being provided with a suction connector which is joined to the suction connection by way of a suction channel, the suction channel including a telescope tube located at a housing end of the suction channel and formed to be telescoped into the suction connector, and including means urging the telescope tube toward the suction channel and in a direction out of the suction connector.

5,803,718
OIL SUPPLYING APPARATUS FOR HERMETIC TYPE COMPRESSOR

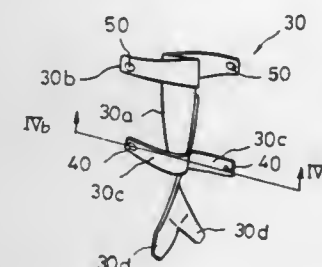
Jin Hyun Woo, Kyungsangnam-Do, Rep. of Korea, assignor to LG Electronics Inc., Rep. of Korea

Filed Jan. 5, 1996, Ser. No. 583,440
 Claims priority, application Rep. of Korea, Apr. 3, 1995, 1995/7726

Int. Cl.⁶ F04B 39/02

U.S. Cl. 417—372

8 Claims



1. An oil supplying apparatus for a hermetic type compressor, comprising:
 - a crank shaft having an outer guide groove formed on an outer surface thereof and an inner guide groove formed on an inner portion thereof;
 - a casing connected to the lower portion of a lower portion of said inner guide groove of said crank shaft; and
 - oil supplying means having an oil supply unit for supplying oil into the casing, a supporting unit engaging an inner surface of the casing, and having at least one pair of blades and protrusions formed on a radially outer surface of the at least one pair of blades, the protrusions serving to prevent scratching of the inner surface of the casing by the at least one pair of blades, said oil supply unit, said supporting unit, and said protrusions being disposed within said casing.

sions formed on a radially outer surface of the at least one pair of blades, the protrusions serving to prevent scratching of the inner surface of the casing by the at least one pair of blades, said oil supply unit, said supporting unit, and said protrusions being disposed within said casing.

5,803,719

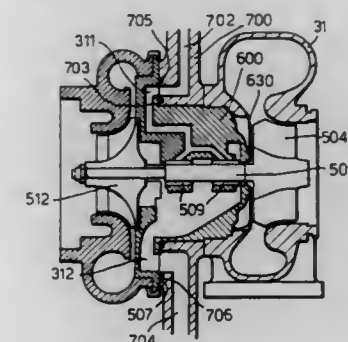
TURBOCHARGED INTERNAL COMBUSTION ENGINE
John Nigel Ramsden, Suffolk, and Ian Walter Drake, Essex, both of England, assignors to GEC-Alsthon Diesels Limited

Division of Ser. No. 630,788, Apr. 10, 1996, Pat. No. 5,619,854, which is a continuation of Ser. No. 248,876, May 25, 1994, abandoned. This application Jul. 10, 1996, Ser. No. 677,921

Int. Cl.⁶ F04B 17/00

U.S. Cl. 417—407

5 Claims



1. A supercharged internal combustion engine comprising a turbocharger, said turbocharger comprising a shaft, bearings for the shaft, a bearing housing for the bearings, a turbine rotor and a compressor impeller mounted on the shaft, a turbine housing and a compressor housing, said turbine housing having a circular register,

said bearing housing, bearings, shaft, turbine rotor and compressor impeller constituting a cartridge assembly, said bearing housing having first and second axially facing faces and a spigot adapted to engage said register to align said turbine rotor with said turbine housing,
 said turbocharger further comprising support means mounted on said engine, said support means having a first face and a second face arranged parallel to and spaced apart from said first face of said support means,
 a bore extending through said support means between said first and second faces thereof,
 said turbine housing being secured to said second face of said support means,
 said cartridge being secured to said first face of said support means at said second face of said bearing housing with said spigot engaging said register,
 said compressor housing being secured over said first face of said bearing housing.

5,803,720

BLOOD PUMP

Yasuhisa Ohara; Kenzo Makinouchi, and Yukihiko Nose, all of Houston, Tex., assignors to Kyocera Corporation, Kyoto, Japan, and Baylor College of Medicine, Houston, Tex.

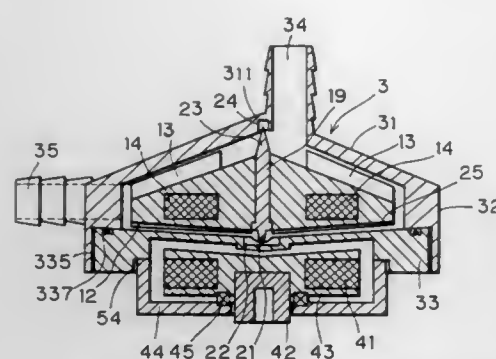
Division of Ser. No. 488,719, Jun. 8, 1995, Pat. No. 5,601,418, which is a continuation of Ser. No. 55,233, Apr. 28, 1993, abandoned. This application Oct. 30, 1996, Ser. No. 739,544

Int. Cl.⁶ F04B 17/00; F04D 29/04

U.S. Cl. 417—420

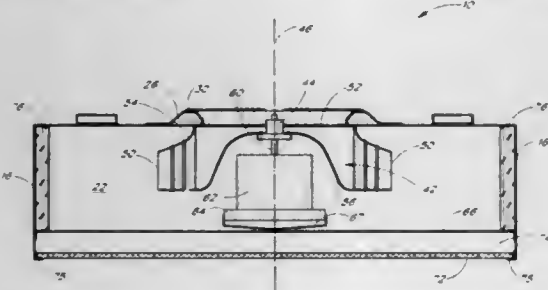
14 Claims

1. A blood pump, comprising:
 - a casing having an inlet defining an inlet port, an outlet, a bottom and a substantially conical top section defining a



center line, the inlet being disposed substantially adjacent to and eccentric from the top section of the casing, an impeller rotatably accommodated in the casing, the impeller defining a side portion and a rotational shaft having a lower end and an upper end, the inlet port opening substantially adjacent to the upper end of the rotational shaft and directed eccentrically offset from the rotational shaft of the impeller to avoid direct collision of blood flow against the rotational shaft, pump vanes provided on the side portion of the impeller, magnet means provided on the impeller for rotating the impeller, magnet drive means disposed opposite to the magnet means with the casing intervened therebetween for rotating the impeller around the rotational shaft of the impeller in cooperation with the magnet means, a bearing disposed on the bottom of the casing for supporting the lower end of the rotational shaft of the impeller, and a bearing disposed in the casing at the conical top section of the casing for supporting the upper end of the rotational shaft, at least one of the bearings comprising a pivot bearing.

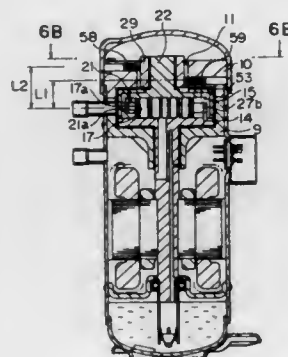
5,803,721
CLEAN ROOM FAN UNIT
Soonku Lee, Seoul, Rep. of Korea, assignor to Enviroflex, Inc., Anaheim, Calif.
Filed Oct. 29, 1996, Ser. No. 741,189
Int. Cl.⁶ F04B 17/00
U.S. Cl. 417—423.14 32 Claims



1. A clean room fan unit, comprising:
a rectangular main housing having two substantially parallel side walls joined to two substantially parallel end walls and further having the side and end walls joined to a rectangular top wall to define a rectangular cavity, the top wall having an exterior surface and interior surface with a generally circular aperture extending through the top wall and located at the center of the top wall;
a bell mouth surrounding the aperture in the top wall and configured to cause air flowing through the aperture to enter the aperture in a laminar flow;
a fan located below the aperture and inside the rectangular cavity and in fluid communication with the bell mouth, the fan rotating about a longitudinal axis that passes through the center of the aperture to take incoming air from the bell mouth and expel the air into the cavity in a plane generally

perpendicular to the rotational axis, the fan having a plurality of fan blades mounted between top and bottom support surfaces, the blades having an airfoil cross-sectional shape and mounted a uniform distance from the rotational axis and orientated at a pitch angle selected to move air efficiently at a predetermined rotational speed of the fan;
a fan motor inside the cavity and drivingly connected to the fan to rotate the fan about the axis at a predetermined speed;
a motor mounting plate extending between the side walls and connected to the motor to support the motor in the cavity;
an air guide plate below the motor and extending between the side walls, the air guide plate having a longitudinal center line and edges and being angled along the center line so the center line of the air guide plate is further from the motor than the edges, at least one of the air guide or motor mounting plate blocking air in the cavity from flowing along the motor toward the bell mouth;
a perforated plate below the air guide plate, the perforated plate being connected to the side and end walls to enclose the cavity so the fan can create a high pressure within the cavity and force air through the perforated plate;
a mounting bracket connected to at least one of the end or side walls for mounting a filter within the end and side walls such that the filter is below and spaced apart from the perforated plate to define a plenum above the filter to allow air flowing through the perforated plate to be distributed below the entire surface of the perforated plate.

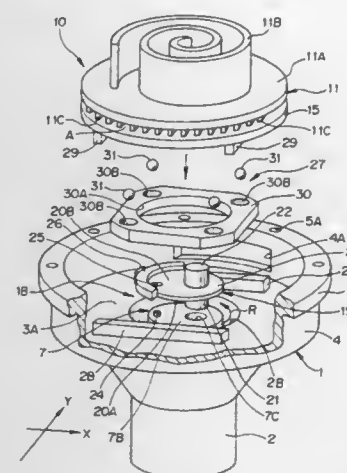
5,803,722
ROTATING SCROLL COMPRESSOR HAVING A MOVABLE BEARING MEMBER
Yoshinori Noboru, and Kazuyoshi Sugimoto, both of Gunma-ken, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Continuation of Ser. No. 409,710, Mar. 24, 1995, abandoned.
This application May 28, 1996, Ser. No. 654,018
Claims priority, application Japan, Mar. 24, 1994, 6-076300
Int. Cl.⁶ F04C 18/04
U.S. Cl. 418—55.5 3 Claims



1. A rotating scroll compressor comprising:
a scroll compressing unit including a drive scroll member having a spiral-shaped wrap extending in a first direction from an end plate,
a follower scroll member having a center axial line that deviates from a center axial line of said drive scroll member by an eccentric amount and having a spiral-shaped wrap extending in a direction opposite to said first direction and interfitting with said spiral-shaped wrap of said drive scroll member, compression spaces being formed between said drive scroll member and said follower scroll member, the side walls of said wraps of said drive scroll member and said follower scroll member being in contact with each other so as to seal the compression spaces in the radial direction;
an electric drive unit having a first shaft portion coupled to said drive scroll member to rotate said drive scroll member;
a main bearing within which said first shaft portion rotates;

means for coupling said drive scroll member to said follower scroll member to rotate said follower scroll member;
an upper shaft portion connected to said follower scroll member and an auxiliary bearing member within which said upper shaft portion rotates;
an auxiliary frame secured to said main bearing within which said auxiliary bearing is moveable;
said rotating upper shaft portion being subject to the applied radial force of the fluid compressed by said rotating drive scroll member and said follower scroll member, and said auxiliary bearing member being moveable in a direction toward said auxiliary frame; and
an elastic member on each of two spaced planes perpendicular to and opposite the axial line of the axis of rotation of said rotating upper shaft portion for tensioning said auxiliary bearing member to increase the eccentric amount of said upper shaft portion relative to the center axial line of said drive scroll member.

5,803,723
SCROLL FLUID MACHINE HAVING SURFACE COATING LAYERS ON WRAPS THEREOF
Kazutaka Suefui, Kanagawa-ken; Yuji Komai, Tokyo; Yoshio Kobayashi, and Hiroyuki Mihara, both of Kanagawa-ken, all of Japan, assignors to Tokico Ltd., Kawasaki, Japan
Filed Nov. 14, 1996, Ser. No. 752,438
Claims priority, application Japan, Nov. 20, 1995, 7-325178
Int. Cl.⁶ F01C 1/04; 17/06; 21/08; 21/10
U.S. Cl. 418—55.2 3 Claims



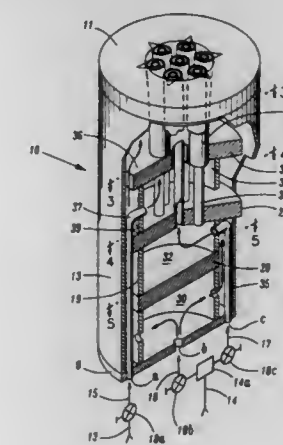
1. In a scroll fluid machine comprising a casing; a fixed scroll member integral with said casing, said fixed scroll member having a spiral wrap standing on an end plate; a driving shaft rotatably supported at a proximal end thereof by said casing, said driving shaft having a distal end portion extending into said casing; and an orbiting scroll member orbitably provided on the distal end portion of said driving shaft, said orbiting scroll member having a spiral wrap standing on an end plate so as to overlap said wrap of said fixed scroll member to define a plurality of compression chambers therebetween;
the improvement which comprises:
a surface coating layer formed on at least either one of the wraps of said orbiting scroll member and fixed scroll member, said surface coating layer being made of a material less rigid than said wraps;
an orbiting radius varying mechanism provided between the distal end of said driving shaft and said orbiting scroll member to vary an orbiting radius of said orbiting scroll member;
a stopper mechanism provided on said orbiting radius varying mechanism to limit a variation in the orbiting radius of said orbiting scroll member to a value smaller than the thickness of said surface coating layer; and

said orbiting radius varying mechanism having a variable crank comprising a first shaft rotatable mounted on the distal end of said driving shaft with an eccentricity with respect to an axis of said driving shaft, and a second shaft for rotatable supporting said orbiting scroll member, said second shaft being eccentric with respect to both an axis of said first shaft and the axis of said driving shaft, said stopper mechanism being arranged to limit relative rotation between said variable crank and said driving shaft to a predetermined rotation angle.

5,803,724
METHOD FOR FLAME STABILIZATION IN A PROCESS FOR PREPARING SYNTHESIS GAS
Peter Oortwijn, The Hague, and Hendrik Martinus Wentink, Amsterdam, both of Netherlands, assignors to Shell Oil Company, Houston, Tex.
Filed Jun. 4, 1996, Ser. No. 657,574
Claims priority, application European Pat. Off., Jun. 6, 1995, 95201487
Int. Cl.⁶ F23J 7/00
U.S. Cl. 431—4 15 Claims

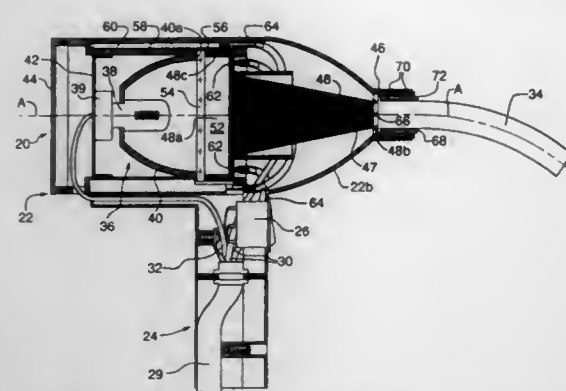
1. A method for stabilizing a flame on tips of burner internals in a process for preparing synthesis gas by partial oxidation of a gaseous hydrocarbon-containing fuel comprising the steps of:
a) supplying a gaseous hydrocarbon-containing fuel, a moderator gas and an oxidizer through a burner to a reactor, wherein each of said fuel, moderator gas and oxidizer is supplied at a velocity and mass flow, and wherein the mass flow of the moderator gas is adjusted such that the moderator gas concentration does not exceed a predetermined limit;
b) effecting process conditions such that the flame is contacting the burner internal tips; and
c) re-adjusting the velocity and mass flow of the fuel and/or oxidizer and/or moderator gas in case of flame-lifting from the burner internal tips in such a manner that the flame is restabilized on the burner internal tips, wherein the re-adjusted mass flow of the moderator gas does not cause the moderator gas concentration to exceed said predetermined limit of step a).

5,803,725
TRIPLE-MIX SURFACE-MIX BURNER
Wallace E. Horn, and William A. Horn, both of 1988 Herbert Ave., Hellertown, Pa. 18055-1739
Filed Jun. 13, 1997, Ser. No. 874,510
Int. Cl.⁶ F23C 7/00
U.S. Cl. 431—187 19 Claims



1. A gas burner, comprising:
a hollow burner body, comprising side outer walls, a base plate at the bottom, and a burner face at the top;

U.S. Cl. 433—29 8 Claims
 1. A hand-held device for curing light curable materials, comprising:
 a light-tight housing which includes means for permitting the device to be gripped and manipulated in use, and an elongate body part having a removable end wall;
 and, within the housing:



a light source which is accessible through said removable end wall of the housing;

a non-imaging light concentrator element having an input end for receiving light from said light source and an output end through which a concentrated beam of light leaves the concentrator element in use; and,

means at the output end of the concentrator element for receiving a light guide capable of extending outwardly of the housing for directing light to a target material to be cured; wherein the light concentrator element has a generally frusto-conical shape, extends about a longitudinal axis and tapers towards said output end, the element having a half cone angle in the range 7 to 12 degrees and including a chamber at said input end for containing a liquid that is selected to both cool the concentrator element and filter out light of a wavelength above a predetermined threshold, the chamber having parallel end faces normal to said axis and a thickness in the range 5 to 21 mm so that light passing through the chamber is refracted towards said axis for concentrating the light;

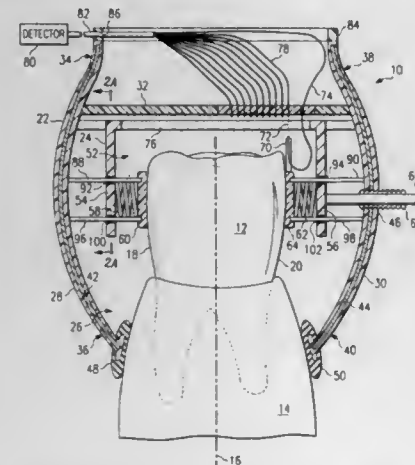
and wherein said body part of the housing includes a jacket for cooling liquid, said jacket extending around the light source and communicating with said chamber for permitting circulation of liquid through the chamber and the jacket.

5,803,730 MOBILOMETER

Behrooz Khademazad, 1524 Tuley St., Cedar Hill, Tex. 75104; Kamrooz Khademazad, Private Mail Bag/University of Technology, Department of Electrical Engineering, Lae, Papua, Guinea, and Coursh Mehanian, 160 Rio Robles, San Jose, Calif. 95134

Filed Mar. 15, 1996, Ser. No. 616,691
Int. Cl.⁶ A61C 19/04

U.S. Cl. 433—72



1. An apparatus for measuring the mobility of an object having a longitudinal axis, a portion of said object being within and at least loosely secured by a securing medium, said apparatus comprising:

an outer housing at least partially defining a cavity, said outer housing having a first cavity wall portion and a second cavity wall portion, said first and second cavity wall portions facing said cavity, whereby said first and second cavity wall portions are adapted to position said outer housing with respect to said securing medium when said object is disposed in said cavity, said first inner cavity wall portion having an opening there-through;

an inner housing disposed within said cavity and at least partially defining a chamber capable of receiving said object, said inner housing having a first chamber wall portion facing said chamber and a second chamber wall portion facing said chamber, said first and second chamber wall portions extending generally parallel to the longitudinal axis of said object when said object is disposed within said chamber, said inner housing being adapted for relative movement with respect to said outer housing along a radius to said longitudinal axis;

first and second object contact members for contacting opposing surfaces of said object;

a first compression spring positioned between and in contact with said first chamber wall portion and said first object contact member, a second compression spring positioned between and in contact with said second chamber wall portion and said second object contact member, whereby said first and second object contact members engage opposing sides of said object when said object is disposed within said chamber;

a force transmitting member extending through said opening in said first cavity wall portion so that when said force transmitting member is pressed, said inner housing is moved relative to said outer housing in a direction that is generally radial to the longitudinal axis of said object;

a directional light source for emitting a beam of light, said light source being fixed to one of said object contact members; and

a plurality of optic fibers being fixed to said outer housing so as to receive a beam of light emitted from said directional light source; said plurality of optic fibers being in communication with a detector for ascertaining which of said optic fibers receive light emitted from said light source when said apparatus is disposed about said object, said force transmitting member is pressed and said object moves in a direction that is generally radial to the longitudinal axis of said object, said detector providing an output indicative of the amount of mobility of said object with respect to said securing medium.

5,803,731 METHOD FOR THE PRODUCTION OF A SUCTION HOSE FOR SALIVA EJECTION AND A SUCTION HOSE FOR SALIVA EJECTION

Kaj Arne Lennart Nordström, Vellingevägen, Sweden, assignor to Kanor Plast AB, Vellinge, Sweden

Filed Nov. 22, 1996, Ser. No. 755,389

Claims priority, application Sweden, Nov. 23, 1995, 9504184
Int. Cl.⁶ A61C 17/04

U.S. Cl. 433—96

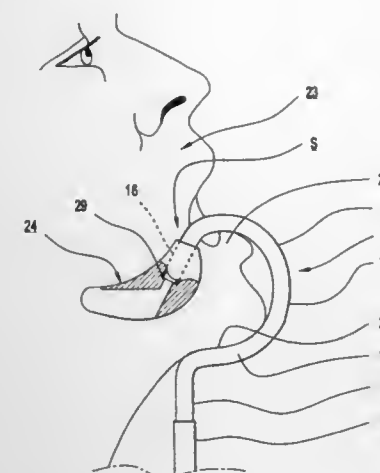
14 Claims

1. An apparatus for ejecting saliva from a mouth of a person, said apparatus comprising:

a hose member comprising a one-piece tubular part made of a homogeneous material having elastic properties, said hose member having a continuous outer surface and a continuous inner surface defining a fluid passage through said hose member for ejecting saliva,

said hose member including a middle portion extending between first and second shank portions located adjacent respective terminal ends of said hose member, said first and second shank portions being elastically movable away from one another against a return force tending to oppose movement of said shank portions away from one another,

said middle portion of said hose member having a C-shape defined by an upper section, a lower section and a central section extending between said upper and lower sections, said upper section adjoining said first shank portion of said hose



member and said lower section adjoining said second shank portion of said hose member,

said upper section for extending into and engaging the mouth of the person and said lower section for directly clampingly engaging a chin of the person to hold said hose member in a suction position on the person using said return force.

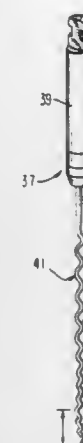
5,803,732 SLOTTED TAP AND LENTULO DRILL FOR DENTAL POST SYSTEM

Barry Musikant, Tenafly, N.J.; Allan S. Deutsch, New York, and Brett I. Cohen, Nanuet, both of N.Y., assignors to Essential Dental Systems, Inc., South Hackensack, N.J.

Continuation-in-part of Ser. No. 645,263, May 13, 1996, Pat. No. 5,632,620, which is a continuation-in-part of Ser. No. 381,428, Jan. 31, 1995, abandoned. This application Jan. 29, 1997, Ser. No. 789,389
Int. Cl.⁶ A61C 5/02

U.S. Cl. 433—102

7 Claims



1. A lentulo drill comprising a shaft and a longitudinally extending wire bar of substantially uniform dimension in a longitudinal direction with forward and apical ends and having a first portion thereof running from the forward end to a location between said forward and apical ends, said first portion including a series of helical spirals running about the surface thereof in either a clockwise or counterclockwise rotational direction, and a second portion thereof running from said location between said forward and apical ends to the apical end, said second portion including a series of reverse helical spirals running along the surface thereof in a rotational direction opposite that of said first portion, such that cement radially sprayed from said second portion when operating said drill does not spray in an apical direction.

5,803,733 PNEUMATIC SURGICAL HANDPIECE AND METHOD

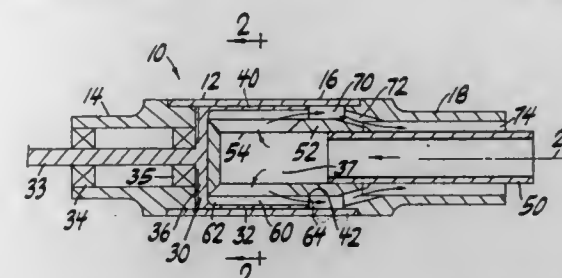
A. Frank Trott, Largo, and W. Lane Ector, Jr., Seminole, both of Fla., assignors to Linvatec Corporation, Largo, Fla.

Filed May 6, 1997, Ser. No. 851,902

Int. Cl.⁶ A61C 1/05

U.S. Cl. 433—132

22 Claims



1. A pneumatic surgical handpiece for driving a surgical instrument comprising:

a tubular housing having proximal and distal ends and an axis;

a rotor means for converting forces within a pressurized fluid to motion of the surgical instrument, said rotor means rotatably secured to said housing and comprising an axially aligned turbine body and an axially aligned output shaft extending distally from said turbine body, said turbine body comprising a distal end wall adjacent said output shaft, an open proximal end and an imperforate, axially aligned cylindrical wall extending proximally from said distal end wall toward said open proximal end, said imperforate cylindrical wall surrounding an interior chamber bounded circumferentially by the interior surface of said imperforate cylindrical wall;

a fluid inflow conduit means attached to said tubular housing for communicating pressurized fluid to said interior surface of said turbine body to rotate said rotor about said axis; and

means for securing a surgical instrument to said output shaft for motion therewith.

5,803,734 DENTAL DAM SUPPORT AND METHOD OF USE

Eric J. Knutson, 11443 Hesperian Cir., Gold River, Calif. 95670

Filed Dec. 23, 1996, Ser. No. 773,266

Int. Cl.⁶ A61C 5/14; 5/12

U.S. Cl. 433—136

24 Claims



1. A method for supporting a dental clamp having opposing jaw members for engaging oral structures, such as teeth and gingiva, said jaw members biasable toward each other, said method comprising the steps of:

introducing a pliable mass of hardenable dental material onto portions of the teeth, portions of the gingiva, or portions of the teeth and gingiva, on which a dental clamp is desired;

molding said pliable mass of hardenable dental material to form a support of hardenable dental material;

restrainingly seating said jaw members partly into said support of hardenable dental material, such that said jaw members

imprint said support of hardenable dental material, but do not completely penetrate said support of hardenable dental material, to form an imprinted support of hardenable dental material;

substantially hardening said imprinted support of hardenable dental material to form an imprinted support of substantially hardened dental material; and

nonrestrainingly seating said jaw members partly into said imprinted support of substantially hardened dental material, such that jaw members are biased toward each other.

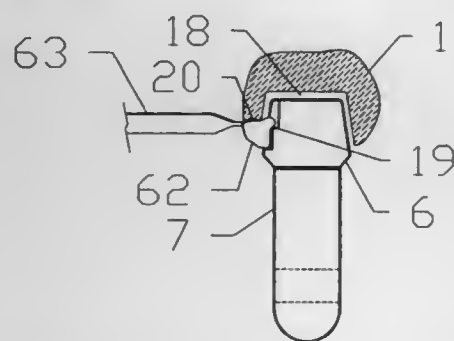
5,803,735

FOOD INGRESS SHIELD FOR DENTAL PROSTHODONTIC APPARATUS

Neal Gittleman, 15 Greenway Plz. #1D, Houston, Tex. 77046
Continuation-in-part of Ser. No. 374,933, Jan. 18, 1995, Pat. No. 5,564,928. This application Oct. 15, 1996, Ser. No. 730,092
Int. Cl.⁶ A61C 13/225; 13/263

U.S. Cl. 433—180

4 Claims



1. A dental restoration having at least one dental implant and at least one dental implant abutment, the at least one abutment having at least one flat shelf;

a cementable retrievable prosthesis, mating with said at least one abutment, thereby forming a window;

the prosthesis having at least one flat window ledge in proximity to and parallel to said at least one abutment shelf, forming a gapped space of opposing surfaces for the entrance of a prying instrument;

the improvement comprising, in combination:

a conformal plug of resilient durable polymer insertable within said window, said plug having a smooth lingual side, the side being continuous and aligned with said cemented restoration to prevent the ingress of food particles and the concomitant development of bacterial fermentation.

5,803,736

DENTAL CAST POST FOR DIRECT INTRAORAL PATTERNS

Kenneth L. Merritt, Jr., 406 Estate Dr., Hendersonville, N.C. 28739

Filed Apr. 25, 1994, Ser. No. 232,987
Int. Cl.⁶ A61C 05/08

U.S. Cl. 433—213

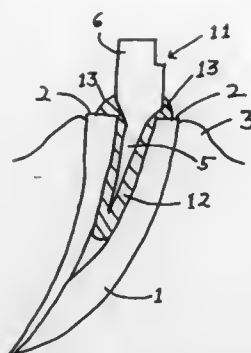
17 Claims

1. An apparatus for forming a removable pattern of an apical canal comprising:

an elongated apical shaft;

a transfer head axially attached to one end of said apical shaft;

a thermoplastic encasing said apical shaft wherein said thermo-



plastic, said transfer head and said elongated apical shaft are suitable for forming a removable pattern of said apical canal.

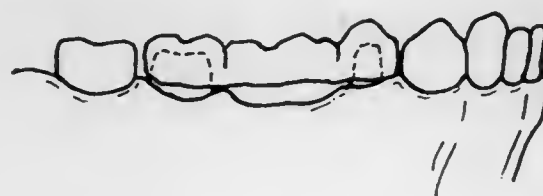
5,803,737

PREFABRICATED TEMPORARY BRIDGE SYSTEM AND METHOD OF MAKING

Oleg Lyalin, 2078 E. 55th St., Brooklyn, N.Y. 11234
Filed Aug. 20, 1997, Ser. No. 915,486
Int. Cl.⁶ A61C 5/10

U.S. Cl. 433—223

1 Claim



1. A method for constructing a temporary bridge which fills an edentulous space located between a pair of abutment teeth in a human mouth, the temporary bridge installed by anchoring it at each end to the abutment teeth which flank the edentulous space located therebetween; comprising the steps of:

a) obtaining a measurement between the pair of abutment teeth and then selecting a prefabricated temporary bridge mold from a group of various pre-sized molds, said selection also dependent upon choosing the prefabricated temporary bridge mold which best duplicates the size and configuration of the teeth located in the human mouth for which temporary bridge construction is intended;

b) locating a section of the temporary bridge mold which corresponds to the edentulous space and flanking abutment teeth, and cutting said section away from the remainder of the temporary bridge mold, said retained section comprising a mold subsection;

c) pouring a hardenable acrylic liquid mix into the mold subsection, said acrylic liquid to eventually harden into a cast temporary bridge;

d) waiting a pre-determined period of time sufficient for the acrylic liquid to cure into a semi-hardened state;

e) placing said acrylic filled mold subsection on top of the edentulous space and flanking abutment teeth such that the flanking abutment teeth form hollowed cavities in the cast temporary bridge;

f) removing the filled mold subsection from on top of the edentulous space and flanking abutment teeth, and waiting a further pre-determined period of time for the acrylic to cure into a hardened cast temporary bridge;

g) removing the hardened cast temporary bridge from the mold subsection, and performing adjustments to the length and width of said cast temporary bridge; and

h) placing the removed, hardened cast temporary bridge over the edentulous space and on top of the flanking abutment teeth, the temporary bridge receiving said abutment teeth into the

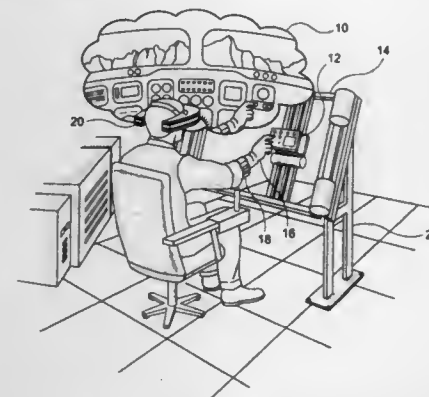
hollowed cavities, creating a firm anchoring to hold the temporary bridge in place.

5,803,738

APPARATUS FOR ROBOTIC FORCE SIMULATION
Roy Westlake Latham, Fremont, Calif., assignor to CGSD Corporation, Mountain View, Calif.
Continuation of Ser. No. 264,924, Jun. 24, 1994, abandoned.
This application Aug. 5, 1996, Ser. No. 692,422
Int. Cl.⁶ G09B 9/02; 19/16

U.S. Cl. 434—29

12 Claims



1. Apparatus for providing force feedback to a user in a virtual reality simulation system, said apparatus comprising:

means for generating a visual scene directly to the eye of said user;

said visual scene including a predetermined number of objects of different types in predetermined locations to be selected and touched by said user while operating said simulation system;

panel means supporting at least one actual object of each type of said objects in said visual scene;

means for sensing the state of said actual object after it is touched by said user;

means for providing said user with a force feedback indicative of the correct position of said object after it has been actuated;

robotic positioning means including means attached mechanically to said panel means for moving said actual objects to predetermined locations;

means for determining the positions of the fingers of said user's hand and generating measurements indicative of said positions;

computer means including means for storing programs and means for storing data, and having means connected with said means for determining the positions of fingers of said user's hand; and

a control program stored in said means for storing programs for computing the positions of said user's fingers relative to the locations of objects in said visual scene, and connecting commands to said robotic positioning means;

whereby said panel means is positioned so that said actual object selected and touched provides a force feedback to said user.

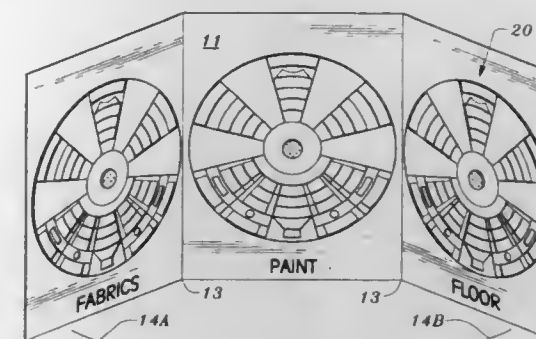
5,803,739

TOTAL ENVIRONMENT DECORATING AID
Sherry Hitchcock, 1225 Yankee Jim Ct., Cool, Calif. 95614
Filed May 12, 1997, Ser. No. 855,839
Int. Cl.⁶ G09B 25/00

U.S. Cl. 434—78

23 Claims

1. A coordination kit for choosing suitable fabrics, paints, wall coverings, window treatments, and the like to achieve a desired decorator effect, which kit includes at least two nomographs, each of which is mounted to a panel of a substrate, wherein each



nomograph comprises at least two layers pinningly connected for independent rotation; a first rotatable upper layer having at least two windows, which upper layer overlies a lower layer having viewable segments,

wherein each nomograph's upper layer is configured as a wagon wheel having a central hub, an outer peripheral member, an inner circular member spaced from the hub and spaced from the peripheral member, and at least two pairs of spokes each of which pairs is connected to the hub and to the circular member and the peripheral member, wherein the space between each pair of the at least two pairs of spokes is open thereby defining a window therebetween, the balance of the wagon wheel being closed off by filler sections, said upper layer being rotatable with respect to the lower layer, said lower layer being removably fixed to said substrate;

and wherein each of which segments has a plurality of cells, all of which cells contain a set of predetermined generally accepted color spectrum specimens, which specimens are used in the selection of the coordinated decorator effect desired.

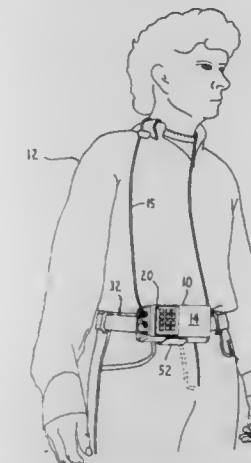
5,803,740

LEARNING AND ASSESSMENT AID FOR A SEVERELY VISUALLY IMPAIRED INDIVIDUAL

John Gesink, Kalamazoo; David Guth, Portage, and Bernard Fehr, Okemos, all of Mich., assignors to Board of Trustees of Western Michigan University, Kalamazoo, Mich.
Filed Apr. 22, 1997, Ser. No. 837,660
Int. Cl.⁶ G08B 13/00

U.S. Cl. 434—112

25 Claims



1. A learning aid for use by a visually impaired individual, said learning aid including:

a housing, said having a clasp for securing said housing to an article of clothing worn by the individual;

a first motion-sensitive transducer mounted in said housing, said first motion-sensitive transducer being configured to generate

rotational displacement signals representative of the rotational movement of said housing;

- a data entry unit attached to said housing for allowing the individual to enter commands thereto, said data entry unit configured to generate user command signals in response to the commands entered by the individual;
- a speaker mounted in said housing and a speech generator disposed in said housing that is attached to said speaker for generating audible messages through said speaker, said speech synthesizer being configured to cause the generation of audible speech in response to the receipt of speech command signals; and
- a processor disposed in said housing, said processor being connected to said first motion-sensitive transducer for receiving said rotational displacement signals, to said data entry unit for receiving said command signals and to said speech generator for transmitting said speech command signals thereto, said processor being configured to: calculate a cumulative rotational displacement of said housing from an initial position based on said rotational-displacement signals; and, based on said command signals received from said data entry unit and said cumulative rotational displacement of said housing, generate speech command signals to said speech synthesizer so as to cause said speaker to produce audible messages regarding the displacement of said housing relative to the initial position.

5,803,741

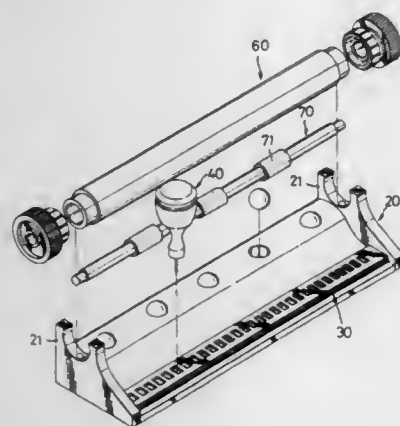
APPARATUS FOR INSCRIBING BRAILLE CHARACTERS ON A SHEET OF PAPER

Jyh-Jeng Deng, No. 451, Lu-Kuang-1 Tsun, Wu-Ku Hsiang, Taipei Hsien, and Ming-Hung Sung, No. 7, Alley 7, Lane 808, Nan-Ta Rd., Hsin-Chu City, both of Taiwan

Filed May 12, 1997, Ser. No. 854,408
Int. Cl.⁶ G09B 21/02

U.S. Cl. 434—115

3 Claims



1. An apparatus for inscribing braille characters on a sheet of paper, comprising:

an elongated base having front and rear edge portions, two opposite end portions which interconnect said front and rear edge portions, a pair of journal seats formed at said end portions adjacent to said rear edge portion of said base, and a rotatable abutment member disposed on said base between said journal seats, said rotatable abutment member includes a plurality of balls embedded partially and rotatably in said base;

an elongated composing ruler fixed longitudinally to said front edge portion of said base and having upper and lower plates spacedly connected to one another in a parallel relationship, thereby defining a clearance therebetween in order to provide an access for said paper sheet, said lower plate having a plurality of sets of cavity matrices which are arranged longitudinally and spacedly therein, said upper plate having a

plurality of openings which are aligned correspondingly with said sets of cavity matrices;

- a punching pen with a tip for inscribing a braille character on said paper sheet through one of said openings and a corresponding one of said sets of cavity matrices when said paper sheet is disposed between said upper and lower plates of said composing ruler; and
- a roller shaft journaled on said journal seats and contacting said rotatable abutment member, said roller shaft having two knobs connected to two ends thereof, each of said knobs having a rotary shaft and a plurality of equally spaced grooves circumferentially formed around said rotary shaft, each of said journal seats having a spring-loaded latch member which engages one of said grooves of a respective one of said knobs; whereby, said paper sheet clamped between said roller shaft and said rotatable abutment member can be moved forward and backward by a predetermined distance by rotating said knobs of said roller shaft in order to enable each of said spring-loaded latch members to disengage said one of said grooves and engage an adjacent one of said grooves of the respective one of said knobs.

5,803,742

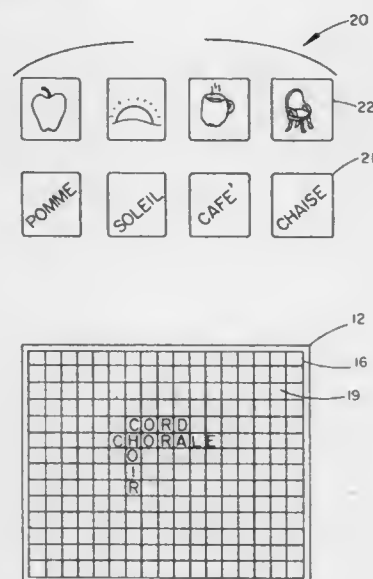
LANGUAGE GAME

Amekossou J. Buti, 16840 Telegraph Rd. #47, Detroit, Mich. 48219

Filed Dec. 15, 1997, Ser. No. 990,238

Int. Cl.⁶ A63F 1/00

5 Claims



2. A language game comprising:

a game board having a front face, a rear face and a square configuration, the front face having a matrix of a first number of squares each having a first surface area; and

a set of blocks each having a thin square configuration with a pair of faces each having the first surface area, the set of blocks including a first subset of blocks having a written word of a foreign language representative of a unique object thereon and a second subset of blocks having a pictorial representation of one of the objects thereon.

3. A language game as set forth in claim 2 wherein the rear face of the game board has a matrix of a second number of squares greater than the first number and each having a second surface area less than the first surface area and further included is a second set of blocks each having a thin square configuration with a pair of faces each having the second surface area, the second set of blocks each having a letter printed thereon and a number printed thereon representative of a score value of the letter associated therewith.

5. A method of playing a dual foreign language game comprising the steps of:

providing a planar rigid game board having a front face, a rear face and a square configuration, the front face having a matrix of a first number of squares each having a first surface area, the rear face having a matrix of a second number of squares greater than the first number and each having a second surface area less than the first surface area;

providing a first set of blocks each having a thin square configuration with a pair of faces each having the first surface area, the first set of blocks including a first subset of blocks having a written word of a foreign language representative of a unique object thereon and a second subset of blocks having a pictorial representation of one of the objects;

providing a second set of blocks each having a thin square configuration with a pair of faces each having the second surface area, the second set of blocks each having a first side face having a letter printed thereon and a second side face having a number printed thereon representative of a score value of the letter associated therewith, wherein each block of the second set of blocks has one of two colors;

playing a first game with the front face of the game board and the first set of blocks with each of the blocks situated on the square of the matrix, wherein each of a plurality of players takes turns with each turn comprising the steps of:

picking up one of the blocks of the first subset of blocks and one of the blocks of the second subset of blocks such that the pictorial representation corresponds to the written word,

awarding each player a predetermined amount of points for each pair of blocks picked up, and

allowing each player to continue to picking up blocks until a wrong match is made at which time a subsequent player takes a turn; and

playing a second game with the rear face of the game board and the second set of blocks with a plurality of the blocks of the second set being distributed to each of a plurality of players prior to play, wherein each of the plurality of players takes turns with each turn comprising the steps of:

making a first word in a first language on adjacent squares of the matrix of the rear face of the game board with the word being constructed from blocks of a first one of the colors, making a second word in a second language on adjacent squares of the matrix of the rear face of the game board with the word being constructed from blocks of a second one of the colors,

awarding a number of points to the current player corresponding to the number on each block of the first word, and awarding a number of points to the current player corresponding to twice the number on each block of the second word.

5,803,743

ALPHABET BLOCK BOOKS

Shari Kaufman, Westport, Conn., assignor to Innovative USA, Inc.

Filed Jun. 2, 1997, Ser. No. 866,979

Int. Cl.⁶ G09B 11/08

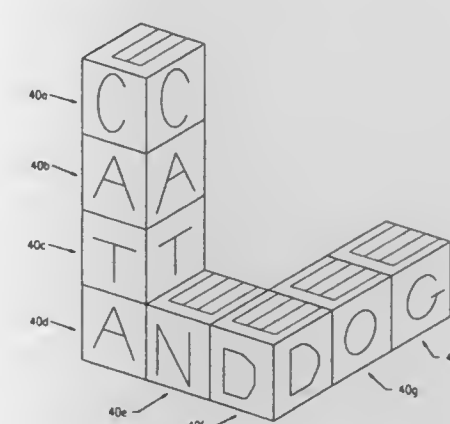
16 Claims

U.S. Cl. 434—159

1. An educational device comprising a series of books each said book being comprised of a front cover, a back cover and at least one interior page

wherein each said book is adapted for use as a building block wherein each said book has a character, word or symbol printed on at least one outer surface of said book

wherein said at least one interior page contains information related to the character, word or symbol printed on the outer surface of said book and



wherein each said book has dimensions of x length, y width and z height wherein x:y ranges from 3:1 to 0.33:1, x:z ranges from 3:1 to 0.33:1 and y:z ranges from 3:1 to 0.33:1.

5,803,744

COMPUTER TYPING LEARNING DEVICE

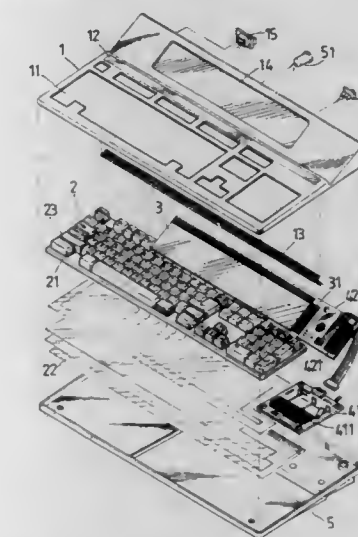
Jung-Chuan Yen, No. 1, Lane 633, Sec. 1, Ching-Sha Street, Tainan, Taiwan

Filed Jun. 17, 1997, Ser. No. 877,178

Int. Cl.⁶ B41J 29/12

U.S. Cl. 434—227

5 Claims



1. A computer typing learning device, comprising:

a cover having a plurality of openings in a front portion in relation with keys of a key board;

said key board having a base plate, a plurality of keys arranged on said base plate in the same way and size as a standard keyboard, a printed circuit board fixed under said base plate and having its printed circuit connected with a circuit of a signal transmitting and treating circuit board;

a seat being covered by said cover to form a hollow space for disposing said key board and an electronic circuit board therein; and,

characterized by said cover provided with a view window in a rear sloped up portion for a screen to be fixed under it, said screen connected via lead wires with a letter treating and producing circuit board, which includes two CPU a ROM and a RAM for performing operation to a signal coming from said keys of said keyboard, said letter treating and producing circuit feeding result treated to said screen 3, said screen displaying letters, figures and symbols typed to compare with an reference letter row, without need to use a common computer and a large terminal.

5,803,745

SYSTEM AND METHOD FOR EXERCISING A USER'S CONCENTRATION AND MOTOR SKILLS

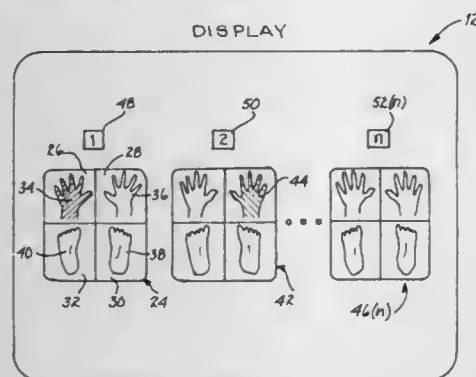
Edward J. Kozak, Shreveport, La.; James L. Bailey, and John W. Quinley, both of Provo, Utah, assignors to I-O-X Corporation, Shreveport, La.

Filed Jul. 2, 1996, Ser. No. 677,349

Int. Cl.⁶ G09B 19/00

U.S. Cl. 434—236

18 Claims



1. A system for exercising a user's concentration and motor skills, comprising, in combination:

control means for providing a plurality of visual images and sounds;

first sensor means coupled to said control means for providing a first input to said control means when said first sensor means is activated by a hand on a selected side of said user, said selected side being one of said user's left and right sides;

second sensor means coupled to said control means for providing a second input to said control means when said second sensor means is activated by a foot on said selected side of said user;

third sensor means coupled to said control means for providing a third input to said control means when said third sensor means is activated by a hand located opposite said selected side; and

fourth sensor means coupled to said control means for providing a fourth input to said control means when said fourth sensor means is activated by a foot located opposite said selected side;

wherein each visual image of said plurality of visual images includes four separate quadrants wherein each quadrant corresponds to one of said first, second, third, and fourth sensor means.

5,803,746

BODY PART MODEL AND METHOD OF MAKING SAME

Lorne K. Barrie, and Leo J. Mahoney, both of Toronto, Canada, assignors to Medisim Corporation, Toronto, Canada

Filed Jan. 23, 1996, Ser. No. 589,921

Int. Cl.⁶ G09B 23/28; 23/30; A61F 2/12

U.S. Cl. 434—267

11 Claims

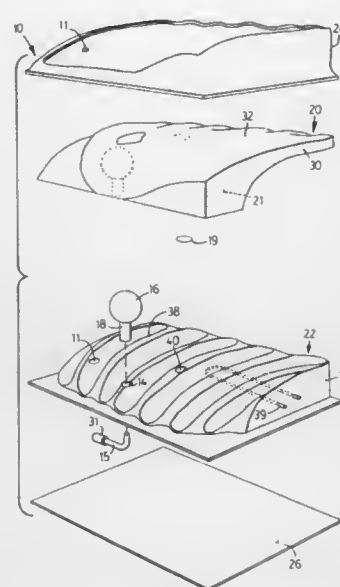
1. A medical teaching aid for cyst location and aspiration, comprising:

a base;

an elastomeric bulb fabricated of an elastomer of a hardness and thickness sufficient to reseal after puncture by a needle;

a resilient body covering said base and said elastomeric bulb;

a passageway extending from an exteriorly accessible inlet through said base to an inlet of said bulb;



means to impede fluid flow through said passageway at least in a one-way direction out of said bulb.

5,803,747

KARAOKE APPARATUS AND METHOD FOR DISPLAYING MIXTURE OF LYRIC WORDS AND BACKGROUND SCENE IN FADE-IN AND FADE-OUT MANNER

Takuro Sone; Keizyu Anada; Shingo Kamiya, and Hirokazu Kato, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

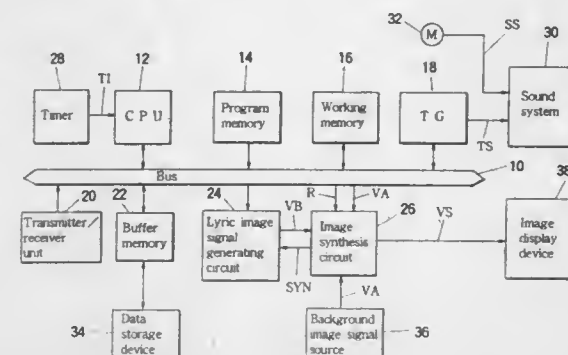
Filed Apr. 18, 1995, Ser. No. 423,369

Claims priority, application Japan, Apr. 18, 1994, 6-103362

Int. Cl.⁶ G09B 5/00; 15/04

U.S. Cl. 434—307 A

10 Claims



1. A karaoke apparatus comprising:

information source means for providing a performance data containing musical tone designation information, lyric indication information and fading control information according to progression of a karaoke song in response to a request;

performance means operative according to the musical tone designation information for generating musical tones of the karaoke song;

first signal generating means operative according to the lyric indication information for generating a lyric image signal indicative of lyric words of the karaoke song;

second signal generating means for generating a background image signal representative of a background scene of the karaoke song;

image synthesis means operative according to the fading control information for mixing the lyric image signal and the background image signal with each other to synthesize a compos-

ite image signal such that a mixing ratio of the lyric image signal and the background image signal is time-variably controlled according to the fading control information during the course of the progression of the karaoke song; and

display means operative according to the composite image signal for displaying a mixture of the lyric words and the background scene in either of fade-in and fade-out manners relative to each other during the course of the progression of the karaoke song.

5,803,748

APPARATUS FOR PRODUCING AUDIBLE SOUNDS IN RESPONSE TO VISUAL INDICIA

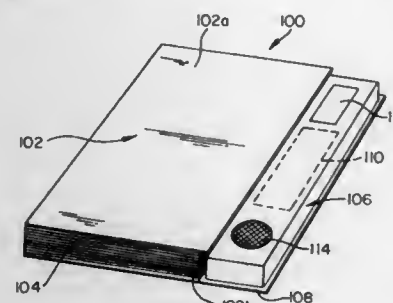
Richard Maddrell, Barrington, Ill., and Thomas L. Maser, Mequon, Wis., assignors to Publications International, Ltd., Lincolnwood, Ill.

Filed Sep. 30, 1996, Ser. No. 723,681

Int. Cl.⁶ G09B 5/00

U.S. Cl. 434—317

66 Claims



1. An electronic book comprising a plurality of leaves forming pages of said book, at least one of said leaves including an internal passageway having an opening thereinto along an edge of said at least one leaf; a flexible substrate having an elongated finger segment and a tail segment, said flexible substrate being arranged so that said elongated finger segment extends into said internal passageway through said opening in said one leaf and said tail segment is external of said internal passageway; a switch circuit formed on said flexible substrate, said switch circuit having at least one switch located on said elongated finger segment in said internal passageway and operable in response to pressure applied to said at least one leaf overlying said switch, and said switch circuit having an external portion located on said tail segment of said flexible substrate; and sound generating means operatively connected to said external portion of said switch circuit for generating an audible sound in response to operation of said switch.

5,803,749

Patent Not Issued For This Number

5,803,750

SWIVELING ELECTRICAL CONNECTOR

Kim Purington, 245 Keaniani Pl., Kailua, Hi. 96734; Jeffrey Powers, 570 Hermes Ave., Encinitas, and Robert J. Wright, 307 Leeann La., Leucadia, both of Calif. 92024

Filed Apr. 18, 1996, Ser. No. 637,001

Int. Cl.⁶ H01R 39/00

U.S. Cl. 439—17

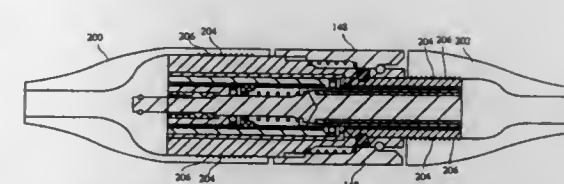
14 Claims

1. An electrical connector, comprising:

a male assembly having three conductors electrically isolated from each other;

a female assembly having three conductors electrically isolated from each other, and a receptacle for receiving the assembly;

and



a locking mechanism coupled to the female assembly for locking the male and female assemblies together when the male assembly is inserted into the female assembly thereby providing electrical contact between the male assembly conductors and the female assembly conductors, the locking mechanism being operable to facilitate a quick release of the male assembly from the female assembly;

wherein the male and female assemblies rotate relative to each other when locked together.

5,803,751

SOFT DOCKING INTERFACE

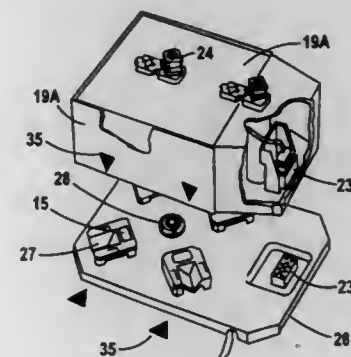
King-Heng Liu, Thornhill, Canada, assignor to Canadian Space Agency, Montreal, Canada

Filed May 23, 1996, Ser. No. 652,224

Int. Cl.⁶ H01R 11/30

U.S. Cl. 439—39

8 Claims



1. A connection interface for the coupling of two objects to be mated, such interface having at least two pairs of coupling members, the members of each pair being respectively positioned on the surfaces of the objects to be mated, said members of said pairs having coupling surfaces wherein the surfaces of each member within each pair are complementary male/female shapes to each other for guiding said members into alignment, wherein:

- one male member of each pair of coupling members is provided with a protrusion having three planar surface sections that meet at a common point;
- each of the three surfaces correspond in their orientations to portions of the surfaces of three sides of a four-sided equilateral pyramid having the common point as its apex;
- two opposed surfaces of the three surfaces bound the third contained surface and share a common line of intersection, defining along such line of intersection a ridge that terminates at the common point; and
- the ridges of the male members of said at least two pairs of coupling members are aligned with each other to provide two pairs of aligned opposed coupling members.

5,803,752

BOARD-TO-BOARD CONNECTOR

Robert G. McHugh, Evergreen, Colo., assignor to Hon Hai Precision Industry Co., Ltd., Taiwan

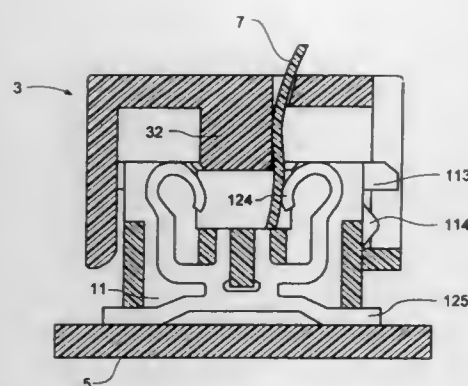
Filed Dec. 4, 1995, Ser. No. 566,958

Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—74

12 Claims

1. A board-to-board connector comprising:



a first connector body having a first side wall, a second side wall, a third side wall opposite to said first side wall, a fourth side wall opposite to said second side wall, a base connected to said first, second, third and fourth side walls, a plurality of through holes penetrate through said base, a plurality of receiving spaces defined by said through holes and first and second grooves located on end portions of said first and third walls, each groove communicates with each through hole, said receiving spaces are provided in said first connector body, a first protrusion formed on an exterior surface of at least one of said first and second sidewalls, a second protrusion formed on the exterior surface having said first protrusion, said second protrusion is spaced apart from said first protrusion according to a predetermined spacial relationship, an interior cavity;

a plurality of first contact terminals firmly mounted in said receiving spaces, each of which has a first terminal body, a first terminal arm extending out from said first terminal body, a first contact portion curved and formed at a free end of said first terminal arm, said first contact portion extending into the interior cavity formed by said side walls, an engaging portion formed at one end of said first terminal body and fitted in one of said through holes, a terminal leg extending out from said first terminal body;

a second connector body having a main body inserted into said interior cavity formed by said side walls, and two wings extending from said main body to make the cross section of said second connector body substantially T-shaped, wherein a plurality of passages are provided in each of said wings; and a plurality of second contact terminals firmly mounted in said passages, each of which has a second terminal body correspondingly touching said first curved contact of one of said first contact terminals, whereby said first connector provides a connection between at least one of a hard circuit board to a flexible circuit board wherein said first connector body connects to a cap, said flexible circuit board being inserted into said cap, and a hard circuit board to a hard circuit board.

5,803,753

TERMINAL ARRANGING BOARD FOR A CIRCUIT BOARD CONNECTOR

Eiji Fukuda, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

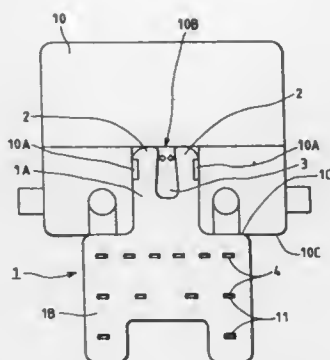
Continuation of Ser. No. 450,850, May 25, 1995, abandoned. This application May 6, 1997, Ser. No. 852,053

Claims priority, application Japan, May 30, 1994, 6-117099 Int. Cl.⁶ H01R 9/09

U.S. Cl. 439—79

7 Claims

1. A terminal arranging board which is receivable in a connector housing, comprising:
a terminal arranging portion having a plurality of terminal inserting holes;
a lock arm portion for retaining said terminal arranging board in said connector housing, said lock arm portion extending from said terminal arranging portion, and having a pair of flexible engaging pieces engageable with an engaging recess formed



in a connector housing, said engaging recess having a pair of opposed side surfaces, each of said engaging pieces comprising an outer side portion;
said engaging pieces being urged against said side surfaces of said engaging recess when said terminal arranging board is engaged with said engaging recess; and
wherein said lock arm portion is completely contained within said engaging recess when said terminal arranging board is engaged with said engaging recess and,
wherein a distance between said outer side portions of said engaging pieces in an undeformed state is larger than a width of said engaging recess formed in said connector housing and equal to said width when said lock arm portion is engaged with said engaging recess.

5,803,754

MODIFIED RECEPTACLE AND PLUG FOR LOW VOLTAGE DC DISTRIBUTION

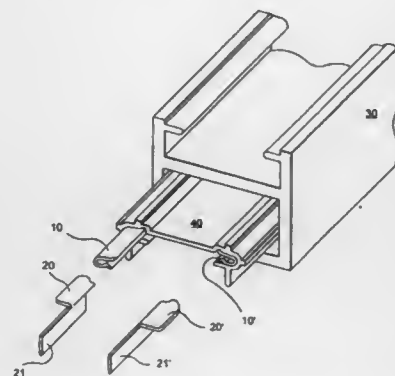
William George Wilhelm, Mastic, N.Y., assignor to Nextek Power Systems Inc., Shirley, N.Y.

Continuation-in-part of Ser. No. 606,219, Mar. 7, 1996, which is a continuation-in-part of Ser. No. 328,574, Oct. 24, 1994, Pat. No. 5,500,561, which is a continuation of Ser. No. 129,375, Sep. 29, 1993, Pat. No. 5,363,333, which is a continuation of Ser. No. 944,796, Sep. 14, 1992, abandoned, which is a continuation of Ser. No. 638,637, Jan. 8, 1991, abandoned. This application Mar. 19, 1997, Ser. No. 820,497

Int. Cl.⁶ H01R 4/66

U.S. Cl. 439—107

15 Claims



1. A receptacle for low voltage DC power applications comprising:
at least one receptacle surface in which are located only a single pair of female connections;
first female connection of said single pair of female connections being a terminal normally connected to the neutral line of an AC power grid;
a second female connection of said single pair of female connections being a terminal connected to a ground line of said AC power grid; and

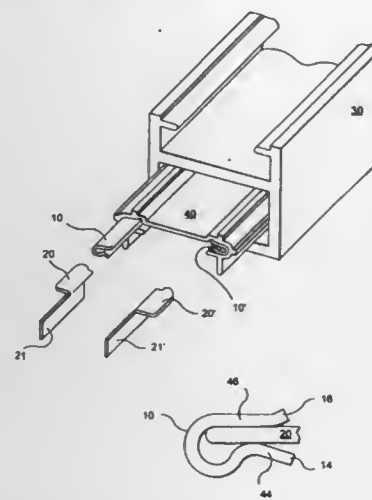
said single pair of female connections being arrayed to correspond with the neutral and ground terminals of a three prong AC receptacle.

5,803,755

ELECTRICAL CONNECTION FOR TRACK LIGHTING
James Kuchar, Fall River; Anthony Donato, Wellesley, and Mete Kantar, Fall River, all of Mass., assignors to The Genlyte Group Incorporated, Union, N.J.
Continuation of Ser. No. 729,775, Oct. 8, 1996, abandoned, which is a continuation of Ser. No. 331,714, Oct. 31, 1994, abandoned. This application Nov. 10, 1997, Ser. No. 967,072 Int. Cl.⁶ H01R 25/00

U.S. Cl. 439—110

8 Claims



1. An improved electrical connection for track lighting, comprising:
a track housing for holding at least one conductive buss;

at least one formed, conductive buss structure positioned within said track housing, said buss structure having a substantially curved wall portion and an opposing, substantially flat wall portion, said substantially curved wall portion and said substantially flat wall portion being normally biased towards each other and forming a groove therebetween; and
said buss structure adapted to engage at least one electrically conductive contact, wherein said contact fits into said groove and is held firmly between said substantially curved wall portion and said substantially flat wall portion of said conductive buss structure to provide an electrical connection for said track lighting.

5,803,756

ELECTRICAL CONNECTOR WITH SHORT CIRCUIT TERMINAL

Mitsugu Furutani; Takatoshi Katsuma, and Masaaki Tabata, all of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

Filed Aug. 8, 1996, Ser. No. 689,469

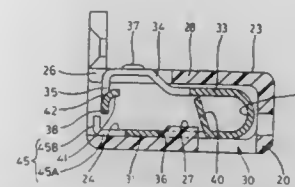
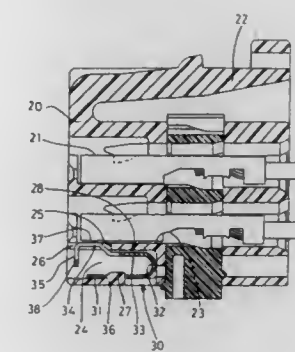
Claims priority, application Japan, Aug. 8, 1995, 7-224733; Aug. 8, 1995, 7-224736

Int. Cl.⁶ H01R 29/00

U.S. Cl. 439—188

19 Claims

1. An electrical connector assembly comprising a first connector and a second connector, the first connector having a first terminal and a short circuit terminal biased into electrical contact at a contact point with said first terminal, the second connector having a second terminal for connection with said first terminal and an insertion member for insertion between the short circuit terminal and first terminal in an insertion direction to break electrical



contact therebetween, the short circuit terminal having an abutment spaced from the contact point for engagement by a first part of the insertion member to separate the contact point and the first terminal, said abutment having an arcuate surface which curves generally about an axis perpendicular to the insertion direction to contact said first part of said insertion member and thereby facilitate sliding engagement between said abutment and said first part of the insertion member, a second part of the insertion member being of insulative material and movable between the contact point and first terminal when separated, and said first part of said insertion member extending forward of said second part and being spaced from said second part in a direction perpendicular to the insertion direction and away from the first terminal.

5,803,757

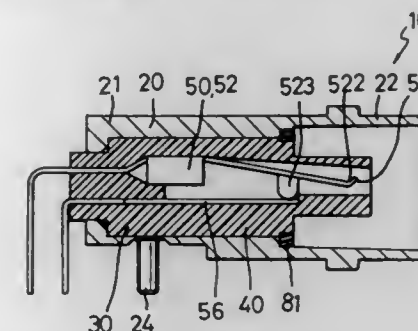
AUTO-TERMINATION SINGLE JACK BNC CONNECTOR
Tsai-Chi Wang, 4th Floor, No. 8, Alley 8, Lane Ssu-Wei, Chung Cheng Rd., Hsin-Tien City, TaipeiHsien, Taiwan

Filed Jan. 29, 1997, Ser. No. 789,791

Int. Cl.⁶ H01R 29/00

U.S. Cl. 439—188

7 Claims



1. An auto-termination single jack BNC connector comprising a metal casing, a front insulating socket, a rear insulating socket, a signal terminal, and a circuit termination terminal, wherein:

said metal casing having an inner volume for supporting said front insulating socket and said rear insulating socket, said metal casing having a front end, and a rear end, the rear end of said metal casing being adapted for receiving a BNC plug; said front insulating socket is mounted within said metal casing near a front end of the front insulating socket, said front insulating socket having a first passage, and a first locating groove and a second locating groove axially disposed on an inner wall of the front insulating socket defining the first passage;

said rear insulating socket is mounted within said metal casing near a rear end of the rear insulating socket and abutted against said front insulating socket, said rear insulating socket having a second passage, and a first locating groove and a second locating, groove axially disposed on an inner wall of the second insulating socket defining the second passage;

said signal terminal is made from metal and mounted in the first locating groove of said front insulating socket and the first locating groove of said rear insulating socket, said signal terminal partially extending out of the front end of said metal casing for connection to a printed circuit board;

said circuit termination terminal is made from metal and mounted in the second locating groove of said front insulating socket and the second locating groove of said rear insulating socket, and partially extending out of the front end of said metal casing, said circuit termination being electrically connected directly to said printed circuit board, said circuit termination terminal being disposed in contact with said signal terminal to terminate the circuit when the auto-termination single jack BNC connector is not connected with a BNC plug, said circuit termination terminal being disconnected from said signal terminal when a BNC plug is installed and connected to said signal terminal.

5,803,758

SWITCH BOX MOUNTING STRUCTURE

Isao Kameyama, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

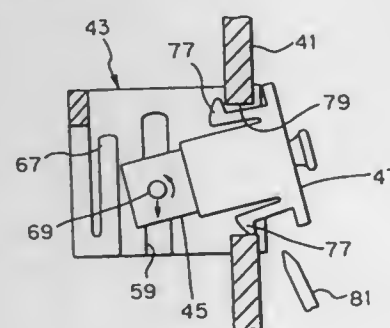
Filed Dec. 27, 1996, Ser. No. 774,224

Claims priority, application Japan, Dec. 28, 1995, 7-342960

Int. Cl.⁶ H01R 13/74

U.S. Cl. 439—248

9 Claims



1. A switch box mounting structure, comprising:
 - a connector holder having a pair of shaft receiving grooves in opposite first and second sidewalls thereof and including retaining means for retaining said connector holder in a mounting hole of a panel, said connector holder defining a space therein;
 - a connector including a housing having electrical terminals therein, said housing including a pair of shafts respectively extending from opposite sides thereof, said connector being received in said space and coupled to said connector holder with said shafts engaged with said shaft receiving grooves in such a manner that said connector is rotatable about said shafts; and
 - a switch box insertable into said connector holder to engage with said connector, said switch box having a pair of locking pawls which are locked to edges of said panel defining said mounting hole, said locking pawls being respectively located on opposite sides of said panel which face in directions perpendicular to said shafts.

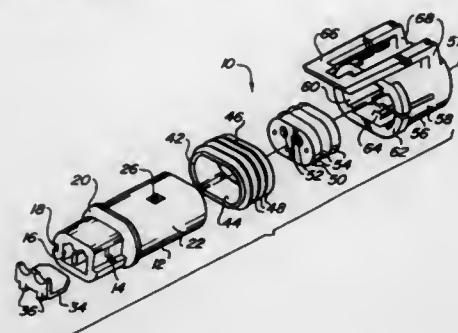
5,803,759
TWO WAY ELECTRICAL CONNECTOR
Samuel G. Griffith, 7463 Vintage Ln., West Bloomfield, Mich. 48322, and John V. Antilla, 11946 Lewlund, Sterling Heights, Mich. 48313

Filed Jul. 26, 1996, Ser. No. 690,429

Int. Cl.⁶ H01R 13/52

U.S. Cl. 439—274

16 Claims



1. A two way electrical connector for an automotive vehicle comprising:
 - a terminal insulator having at least one passage to receive at least one socket terminal staked wire, said terminal insulator having a first flange extending outwardly from an outer periphery thereof;
 - a wedge member cooperating with said terminal insulator to retain the at least one socket terminal staked wire in said at least one passage;
 - a ring seal disposed about an outer periphery of said terminal insulator; and
 - an end cap having a first cavity to receive a portion of said terminal insulator and a second flange extending outwardly from an outer periphery thereof to engage said ring seal and to retain said ring seal between said terminal insulator and said end cap.

5,803,760

RELEASABLE CONNECTOR

Hikaru Ito; Masashi Saito; Eiji Saijo, and Shinichi Yamada, all of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

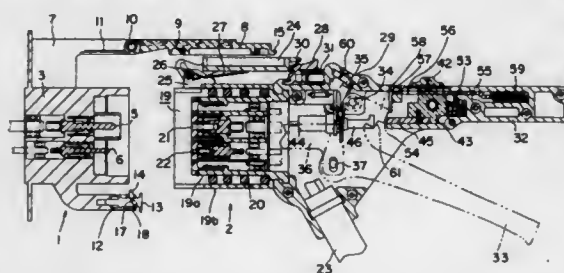
Filed Aug. 7, 1995, Ser. No. 511,957

Claims priority, application Japan, Aug. 8, 1994, 6-207968

Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—310

22 Claims



1. A connector adapted for releasable electrical connection to a mating fixture, said connector comprising:
 - a front interface having a power terminal adapted for connection to said mating fixture;
 - a generally cylindrical grip shaft extending from said interface longitudinally away from said mating fixture;
 - a securing device comprising a lever mounted on said connector and pivotable about a pivot point between an open position, pivoted away from said grip shaft, and a closed position, adjacent said grip shaft, when said lever is moved from said open position to said closed position, said connector and said fixture are drawn together thereby into a fully mated position;

a charging controller which opens and closes a circuit being actuable only when said lever is in said closed position, said charging controller comprising a slide switch, actuated by an operator, and a micro-switch, actuated by said slide switch.

5,803,761

EDGE CONNECTOR

Shoichi Mochizuki, Tokyo, Japan, assignor to Kel Corporation, Tokyo, Japan

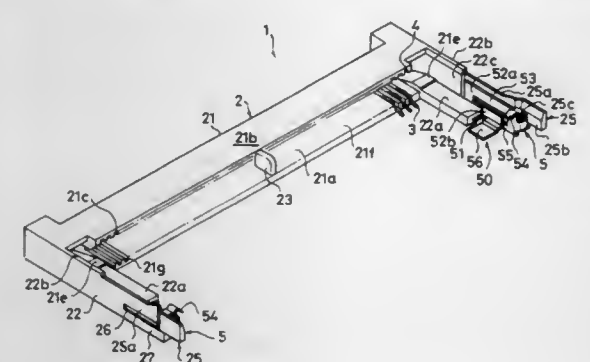
Filed Apr. 24, 1997, Ser. No. 847,312

Claims priority, application Japan, Apr. 30, 1996, 8-109560

Int. Cl.⁶ H01R 13/62

U.S. Cl. 439—326

6 Claims



1. An edge connector comprising:
 - a housing formed by a resin material, said housing having a main body, and arms respectively extending rearward from right and left ends of the main body, said main body having an accommodating space which is adapted to accommodate a front end portion of a substrate;
 - a plurality of contacts arranged within said accommodating space, said contacts abutting to conductive pads formed at the front end portion of said substrate while said front end portion is accommodated in said accommodating space; and
 - lock means attached to said arms, said lock means securing and holding said substrate at an implementation position where said front end portion is accommodated in said accommodating space and extends along said arms;wherein said substrate is pushed down from a raised position where the front end portion of said substrate is inserted into said accommodating space while a rear portion of said substrate is tilted up with respect to said arms to said implementation position where said substrate extends along said arms so that said substrate is attached to said edge connector; and wherein said lock means comprises:
 - an engagement member made of a metal material and attached to said housing, said engagement member being movable between an engagement position for engaging and holding said substrate positioned at said implementation position and a release position for releasing said substrate from being engaged and held;
 - a release lever integrally formed with said housing by the resin material so as to be able to engage said engagement member, said release lever moving said engagement member from said engagement position to said release position when opened outward in the right or left direction; and
 - a stopper integrally formed with said housing, said stopper abutting to said engagement member when said engagement member moves to said release position so as to prevent said engagement member from moving beyond said release position.

5,803,762

DATA INTERFACE ASSEMBLY

Graeme Allan Green, Mitchell, Australia, assignor to COMS21 Limited, Mitchell, Australia

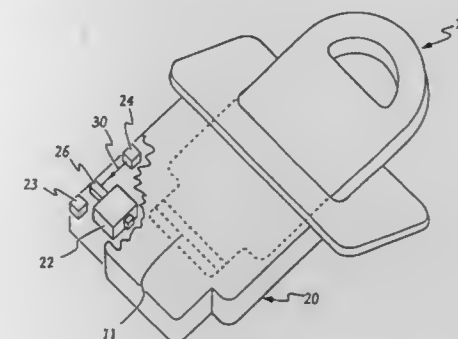
Filed May 30, 1996, Ser. No. 655,565

Claims priority, application Australia, Nov. 30, 1993, PM2711

Int. Cl.⁶ G06K 7/015; 19/077

U.S. Cl. 439—347

7 Claims



1. A data interface assembly for the transfer of data between a processor unit and a smart card, said data interface assembly including:
 - a receptacle for receiving said smart card, said receptacle having electrical communication means for establishing electrical communication with electrical communication means on said smart card;
 - locking means responsive to establishment of electrical communication between said respective electrical communication means for locking said smart card in said receptacle, and data transfer enabling means operable in response to operation of said locking means to allow data transfer for modifying data stored in said smart card and/or said processor unit when said smart card is locked in said receptacle by said locking means and to prevent such data transfer when said smart card is not locked in said receptacle by said locking means; wherein said data transfer enabling means includes sensing means for sensing the condition of said locking means.

5,803,763

BULKHEAD/IN-LINE SEALED CONNECTION SYSTEM

Mark S. Grant, Livonia, Mich., assignor to Yazaki Corporation, Tokyo, Japan

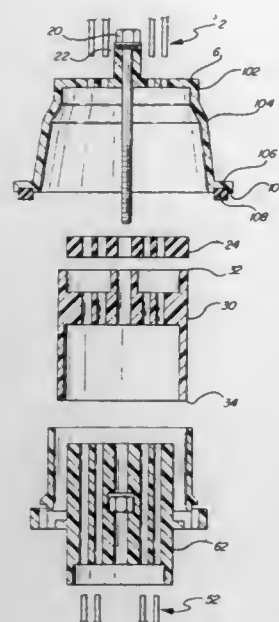
Filed Oct. 22, 1996, Ser. No. 735,173

Int. Cl.⁶ H01R 13/627

U.S. Cl. 439—364

6 Claims

1. A modular electrical wire connector system for both in-line and bulkhead applications in automotive vehicles, comprising:
 - an interchangeable male terminal housing having chambers for receiving a first set of terminated wires, the male housing being adapted to receive a wire seal;
 - an interchangeable female terminal housing having terminal chambers for receiving a second set of terminated wires, the female housing having a body portion for mating with the male housing such that the first and second sets of terminated wires are electrically connected, the female housing being adapted to receive a wire seal and a female cover, the female housing further including bulkhead retaining means located on the female housing radially outward of the male housing when the male housing is inserted in the female housing, the bulkhead retaining means on the female housing comprising at least one projection and one adjacent tab on a side of the female housing for lockingly engaging a bulkhead when the female housing is inserted through an aperture in the bulkhead; and
 - a male cover for the male housing, the male cover being selected from one of an in-line cover adapted to mate with the male housing in a sealing fit for an in-line application, and a



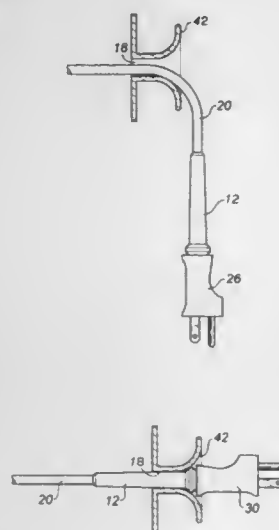
bulkhead cover adapted to mate with the male housing and engage the bulkhead in a sealing fit for a bulkhead application, wherein the male housing with the in-line cover is adapted to mate with the female housing in a sealing fit in an in-line application, and the male housing with the bulkhead cover is adapted to mate with the female housing in a bulkhead application.

5,803,764

METHOD OF WEATHER PROOFING AN OPENING THROUGH WHICH AN ELECTRICAL CORD PASSES, AND ASSOCIATED APPARATUS
Randolph Peter Ness, Edmonton, Canada, assignor to The Reel-Thing Innovations Inc., Alberta, Canada
Filed Dec. 26, 1996, Ser. No. 773,107
Int. Cl.⁶ H01R 13/72

U.S. Cl. 439—501

5 Claims



1. In combination:
an opening;
an electrical cord extending through the opening, the electrical cord comprising:
a length of insulated wire having a first end and a second end;
a male electrical plug at the first end of the insulated wire;
a female electrical plug at the second end of the insulated wire;

an elongate resilient deformable truncated conical sealing element positioned on the length of insulated wire, with the insulated wire passing through a longitudinal passage of the truncated conical sealing element, the truncated conical sealing element being secured to the electrical cord in a manner that precludes liquid passing along the longitudinal passage;

the truncated conical sealing element being positioned in the opening through which the electrical cord passes, the truncated conical sealing element sealingly engaging the opening in interference fit relation along the entire perimeter of the opening.

5,803,765

ELECTRICAL CONNECTOR WITH UNIVERSAL BOARDLOCK

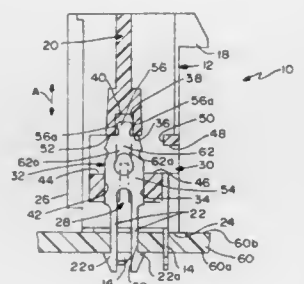
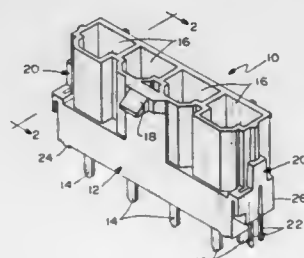
Kirk B. Pelozo; Dennis W. Berek, both of Naperville; Gary E. Polgar, Bolingbrook; Edward S. Sommer, Addison; Rupert J. Fry, Mount Prospect; John S. Luthy, Naperville, and Keith Samuel Maranto, Frankfort, all of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Apr. 2, 1996, Ser. No. 627,671

Int. Cl.⁶ H01R 13/66

U.S. Cl. 439—567

11 Claims



1. A surface mount electrical connector adapted for mounting to the surface of a printed circuit board in either of two orientations generally perpendicular to each other, comprising:

a molded dielectric housing having first and second board mounting faces disposed generally perpendicular to each other, the housing adapted for molding by only two mold dies separable in a given parting direction,

a first boardlock-receiving passage in the housing communicating with the first board mounting face and extending in the given parting direction of the two separable mold dies,

a second boardlock-receiving passage in the housing generally perpendicular to the first passage and communicating with the second board mounting face,

each passage including a set of bearing walls for engaging a boardlock means inserted into the respective passage with no one bearing wall in either set thereof being in alignment with any other bearing wall in the other set thereof in said given direction, and

boardlock means insertable into said passages for selectively mounting either board mounting face of the housing to the printed circuit board.

5,803,766

LAMP SOCKET

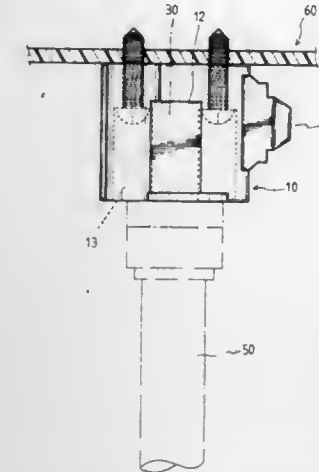
Henry W. H. Yang, No. 54-164, ShangLun Tzu, Shang Lun Tsun, Jenteh Hsiang, Tainan Hsien, Taiwan

Filed Jul. 22, 1997, Ser. No. 898,596

Int. Cl.⁶ H01R 13/60

U.S. Cl. 439—567

1 Claim



1. A tubular lamp socket comprising a body provided with a hollow chamber in an upper portion for an end of a tubular lamp to fit therein and wire connecting holes in a lower portion, two elastic metal clamps fitted in said hollow chamber for respectively clamping an end of a tubular lamp and not affected by high temperature, two terminals for connecting a cord of power inserted in said wire connecting holes, and characterized by a screw holes respectively provided beside said wire connecting holes for screws to insert through to fix said tubular lamp socket on a wall, and by an engage arm provided respectively on two opposite sides and protruding out of said two opposite sides, each said engage arm having a triangular outer end provided with a flat face, which may sit on a surface in a hole of a wall so that said tubular lamp socket may be secured on the wall, said body thus having two selectable modes for fixing.

5,803,767

INSULATING STRUCTURE FOR A COAXIAL CONNECTOR

Mitsuhiro Matsumoto, and Hidehiko Kuboshima, both of Shi-zuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation of Ser. No. 621,056, Mar. 22, 1996, abandoned.

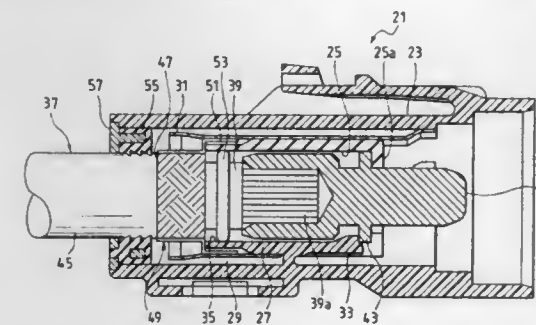
This application Nov. 20, 1997, Ser. No. 975,188

Claims priority, application Japan, Mar. 23, 1995, 7-064404

Int. Cl.⁶ H01R 13/40

U.S. Cl. 439—587

5 Claims



1. An insulating structure for a shielded connector having a terminal connected to a conductor of an insulated core wire, and further having the terminal inserted within a terminal accommodating chamber of a housing and having a shielding braid sur-

rounding the insulated core wire, said shielding braid being folded back from said insulated core wire by a predetermined length, and electrically connected to a metallic shell inserted within said housing and covering the terminal accommodating chamber, wherein a single annular insulator fits over an outer circumference of the insulated core wire between the terminal and the shielding braid; and wherein said insulator has a width in an axial direction which is smaller than said predetermined length.

5,803,768

PLUG-TYPE CONNECTOR FOR BACKPLANE WIRINGS

Karl Zell, Niederpoecking; Juergen Seibold, Baierbrunn, and Peter Seidel, Groebenzell, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

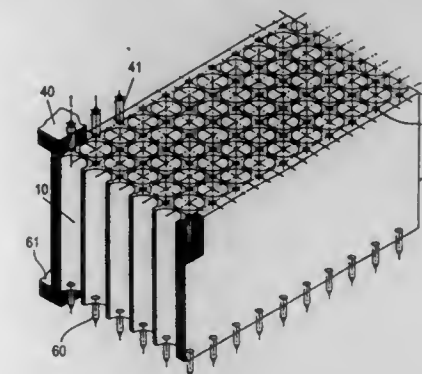
Filed Apr. 11, 1995, Ser. No. 420,211

Claims priority, application Germany, Apr. 14, 1994, 44 12 949.1

Int. Cl.⁶ H01R 13/648

U.S. Cl. 439—608

17 Claims



1. A shielded plug-type connector connectable between a wiring backplane and a printed circuit board, the connector comprising:

a conductive spring clip housing;

a plurality of parallel receptacle chambers defined through the spring clip housing and arranged in at least one row;

a plurality of conductive contact springs, each contact spring having a backplane end insertable onto a contact blade extending from the wiring backplane and an opposite circuit board end being engageably connectable to the printed circuit board, each contact spring being disposed in one of the receptacle chambers so that the contact springs are insulated from the receptacle chambers;

a plurality of shield contacts charged with a shield potential, the shield contacts adapted to contact the backplane and the printed circuit board and to contact opposite ends of the spring clip housing proximal to each receptacle chamber forming an electromagnetic shield around each said contact spring; and

wherein the spring clip housing has a plurality of first metal tubes arranged parallel to each other, each first tube defining one of the receptacle chambers, and

a plurality of second metal tubes disposed parallel to and in between the first metal tubes defining a honey-comb like arrangement, the second metal tubes each having a smaller diameter than the first metal tubes, each end of the second metal tube receiving one of the shield contacts, wherein the tubes are soldered to one another.

5,803,769

LOW COST FILTERED AND SHIELDED ELECTRONIC CONNECTOR AND METHOD OF USE

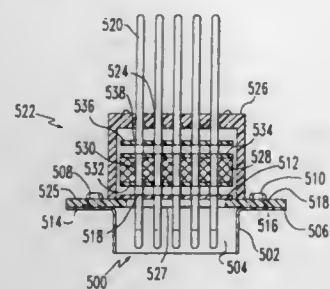
Yakov Belopolsky, Harrisburg, Pa., assignor to Berg Technology, Inc., Reno, Nev.

Continuation of Ser. No. 608,686, Feb. 29, 1996, Pat. No. 5,639,264, which is a division of Ser. No. 332,691, Oct. 31, 1994, Pat. No. 5,580,279. This application Jun. 16, 1997, Ser. No. 876,471

Int. Cl.⁶ H01R 13/66

U.S. Cl. 439—620

20 Claims



- I. An electrical connector comprising:
- (a) a front retaining means comprising a conductive shell having a peripheral flange and a pin receiving passageway;
 - (b) a plurality of conductive pins extending through the passageway of the front retaining means;
 - (c) a concave insulative rear retaining means having a plurality of apertures through which the conductive pins pass;
 - (d) a board retainer means having a central aperture interposed between said front retaining means and said rear retaining means;
 - (e) a capacitive means comprising a printed wiring board having a plurality of central apertures and being interposed between said front retaining means and said rear retaining means so as to receive the pins in said apertures such that the pins also pass through the central aperture in the board retainer means, and said board having a component side oriented toward the rear retaining means and a reverse side oriented toward the front retaining means and fixed to the peripheral flange thereof and a peripheral edge, and on the component side of said board there is a conductive strip adjacent the peripheral edge on said component side, and outwardly adjacent at least some of the central apertures there are conductive bands and a capacitor is positioned between at least some of said conductive bands and the conductive strip adjacent the peripheral edge, and on the reverse side of said board a non-conductive area surrounds at least some of the central apertures and said non-conductive areas are surrounded by conductive areas; and
 - (f) a filter means positioned within the rear retaining means.

5,803,770

CONNECTOR FOR ELECTRICAL CABLE AND METHOD OF MAKING

David L. Swendson, Garden Grove, and David J. Evans, Irvine, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.

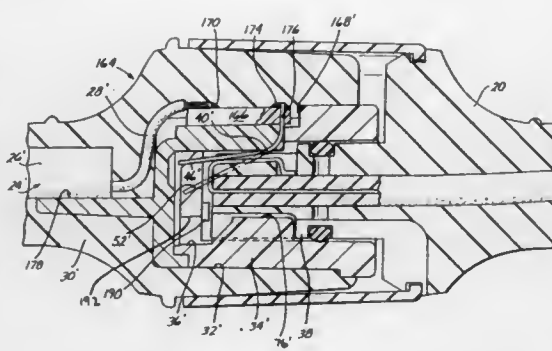
Continuation-in-part of Ser. No. 200,619, Feb. 23, 1994, Pat. No. 5,564,951. This application Jun. 6, 1995, Ser. No. 468,088

Int. Cl.⁶ H01R 23/02

U.S. Cl. 439—676

14 Claims

- I. A female electrical connector molded onto a distal end of a cable and adapted to mate with a male connector, comprising:
- a length of cable having a plurality of conductor wires enclosed within a sheath-like insulative jacket;
 - an insulative female connector assembly having a distally opening blind cavity for receiving a male connector inserted therein, the cavity defining an axis extending in a proximal-distal orientation;



- an axially extending outer wall portion on the assembly defining an outer recess and a plurality of openings in the recess arrayed transversely to the axis;
- a comb on the assembly located within the cavity and proximally with respect to the openings, the comb defining a plurality of alternating teeth and slots arrayed transversely to the axis;
- a printed circuit board positioned in the recess of the outer wall portion and having a plurality of contact pads on a proximal end to which the cable conductor wires are soldered;
- a plurality of apertures extending through the circuit board in registration with the openings;
- a plurality of resilient wire-like contacts soldered into the circuit board apertures and projecting through the openings into the cavity, a free end of each contact being bent proximally and captured in an associated slot of the comb while remaining free to be displaced proximally;
- a plurality of conductive traces on the circuit board connecting respective pairs of contact pads and contacts; and
- an insulative outer body molded over the cable sheath, conductors, circuit board, and connector assembly, and leaving the cavity open in the distal direction.

5,803,771

ELECTRICAL CONNECTOR THAT MINIMIZES BENT PINS

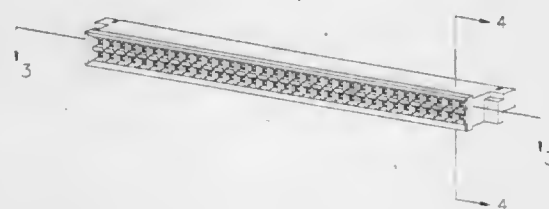
Donald Lee Knapp, Pasadena, Md., assignor to The United States of America as represented by the Director National Security Agency, Washington, D.C.

Filed May 29, 1996, Ser. No. 655,014

Int. Cl.⁶ H01R 13/10

U.S. Cl. 439—682

9 Claims



- I. A female portion of an electrical connector, comprising:
- (a) a dielectric housing having a top and a bottom, having one or more hole openings in the top, where each hole opening is comprised of:
 - (i) a surface opening in the top having a diameter greater than a pin that may be inserted into the connector so that only non-flat surfaces exist in the top of the housing, where the surface opening tapers down in single-angle fashion to an internal opening between the top and the bottom of the housing, where the internal opening will accommodate the pin snugly, where the internal opening has a diameter that is smaller than the diameter of the surface opening, where

the internal opening extends to the bottom of the housing, and where the internal opening is clad with conductive material.

5,803,772

TERMINATION DEVICE FOR TELECOMMUNICATION AND DATA TRANSMISSION APPLICATIONS

Manfred Müller, and Dieter Gerke, both of Berlin, Germany, assignors to Krone Aktiengesellschaft, Berlin-Zehlendorf, Germany

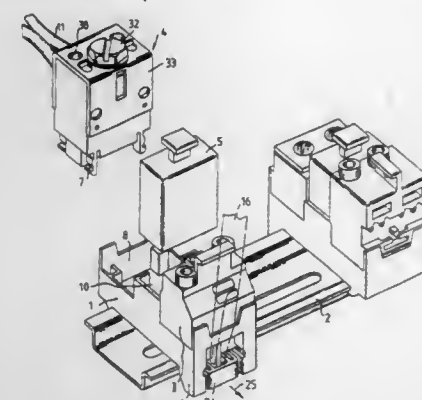
Filed Sep. 24, 1996, Ser. No. 719,094

Claims priority, application Germany, Sep. 29, 1995, 195 37 528.9

Int. Cl.⁶ H01R 9/26

U.S. Cl. 439—716

19 Claims



- I. A termination device for telecommunication and data transmission applications, comprising:

- a carrier rail;
- a base element with a receiving opening, said base element including holding means for holding said base element to said carrier rail, said base element including slots;
- contact tracks received within said slots;
- a removable and insertable termination element for incoming cables latched in said receiving opening, said receiving opening including an incoming termination element receiving portion of said receiving opening, said oncoming termination element receiving portion providing space for inserting said termination element for incoming cables for latching and for removal of said termination element for incoming cables upon unlatching, said termination element for incoming cables having one of cutting clamping contacts, dropwise contacts and screw contacts;
- a removable and insertable termination element for outgoing cables latched in another receiving portion of said receiving opening, said receiving opening including an outgoing termination element receiving portion of said receiving opening, said outgoing termination element receiving portion providing space for inserting said termination element for outgoing cables for latching and for removal of said termination element for outgoing cables upon unlatching, said termination element for outgoing cables having one of cutting clamping contacts, dropwise contacts and screw contacts;
- a functional module, said functional module being disposed in said receiving opening between said termination element for incoming cables and said termination element for outgoing cables, said functional module being one of a voltage surge protection module, a remote test module and a RE tapping module, whereby various combinations of said termination element for incoming cables, said termination element for outgoing cables and said functional module are possible using said base element, said termination element for incoming cables and said termination element for outgoing cables being functionally connected to said functional module via said contact tracks.

5,803,773

CONNECTOR WITH REAR HOLDER

Motohisa Kashiya, and Toshifumi Suzuki, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

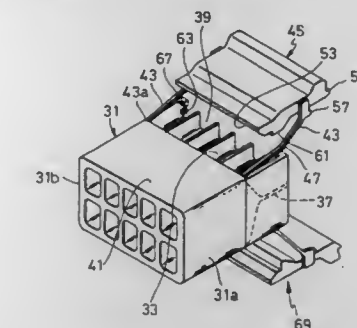
Filed Nov. 26, 1996, Ser. No. 757,739

Claims priority, application Japan, Nov. 29, 1995, 7-310930

Int. Cl.⁶ H01R 13/436

U.S. Cl. 439—752

11 Claims



- I. A connector, comprising:
- a housing;
 - terminal accommodating chambers, for accommodating terminals, formed in said housing;
 - an opening formed in an upper plate of said housing to expose a part of said terminal accommodating chambers;
 - a rear holder having a retaining projection engageable with a terminal placed within one of said terminal accommodating chambers;
 - flexible hinges having base portions unitized with said housing and front ends unitized with said rear holder;
 - a temporary retaining portion formed on an edge portion of said opening of said upper plate;
 - a retaining plate portion formed on a front portion of said rear holder, said retaining plate portion being retained by said temporary retaining portion while said retaining plate portion is inserted under a lower surface of said upper plate;
 - temporary retaining claws formed on a rear portion of said rear holder; and extending rearwardly therefrom; and
 - temporary retaining projections formed on said housing, said temporary retaining projections retaining said temporary retaining claws, respectively;
- wherein said hinges are disposed so as to bend toward an inside of said housing, said retaining plate portion is retained by said temporary retaining portion, said temporary retaining claws are retained by said temporary retaining projections, so that said rear holder is selectively retained temporarily inside said opening such that said rear holder does not interfere with insertion or withdrawal of the terminals.

5,803,774

INTEGRATED SYSTEM FOR LAND AND WATER RECREATION

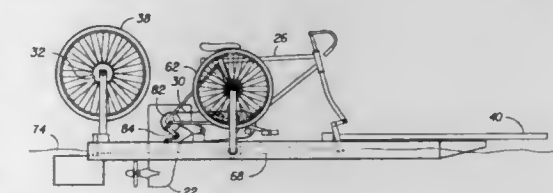
Robert D. White, P.O. Box 334, Newton, Ill. 62448-0334

Filed Nov. 22, 1996, Ser. No. 755,106

Int. Cl.⁶ B63H 21/175

U.S. Cl. 440—12

9 Claims



- I. An amphibious transportation system, comprising:
- a) a bicycle having a frame; a front fork and detachable front and back wheels, the fork being coupled to a handlebar for

- steering, the detachable back wheel having a sprocket coupled to a drive chain and pedals for providing a motive force to the sprocket and back wheel, and a hitch;
- b) a water flotation device having a pair of pontoons, a propeller drive assembly adapted for detachably coupling with the bicycle drive chain, and a rudder assembly adapted for detachably coupling with the bicycle front fork; the pair of pontoons being attached by front, middle, and rear crossbars, the crossbars being positioned perpendicularly to the long axis of the pontoons;
- c) a pair of side wheels adjustably attached to the flotation device; and
- d) a tongue and hitching apparatus adapted for detachably coupling the water flotation device to the bicycle hitch; wherein the tongue and hitching apparatus further comprising: a triangular-shaped yolk having a first frame side and a second frame side, each frame side having a first base end connecting to the flotation device and to the front crossbar; the frame sides being connected by at least one transverse member, the frame sides tapering to form a second apex end; the apex end ending in an attachment device; and a hitch being attached to means for propulsion on land, the hitch accepting the attachment device.

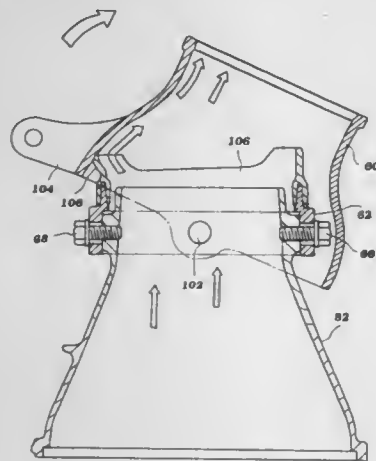
5,803,775

STEERING ARRANGEMENT FOR JET PROPULSION UNIT

Yasuhiko Henmi, Hamamatsu, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Shizuoka, Japan
Filed Aug. 28, 1996, Ser. No. 704,154
Int. Cl.⁶ B63H 11/113

U.S. Cl. 440-42

18 Claims

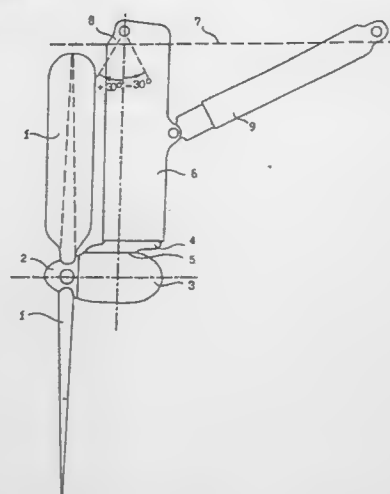


1. A jet propulsion unit for a watercraft comprising a housing, said housing including an inlet end and a discharge end, an impeller provided within said housing for drawing water from said inlet end and discharging the water in the form of a pressurized jet stream to the discharge end of said housing, said discharge end including a fixed nozzle having a discharge opening through which said jet stream of pressurized water flows rearward, a pivoting nozzle pivotally coupled to said fixed nozzle for guiding the jet stream of pressurized water for steering operation of the watercraft, and means for inhibiting a generally forward flow of water between the fixed nozzle and the pivoting nozzle upon pivoting action of said pivoting nozzle, said means circumscribing said discharge end of said fixed nozzle.

5,803,776
PARTIALLY IMMERSIBLE PROPELLER
Petr Petrovich Slynko, 4 Michurina St., Apt.68, Kiev 252014, Ukraine
Continuation of Ser. No. 578,673, Feb. 1, 1996, abandoned.
This application Jul. 17, 1997, Ser. No. 896,161
Claims priority, application Ukraine, Jul. 15, 1993, 93005357
Int. Cl.⁶ B63H 11/14

U.S. Cl. 440-49

7 Claims



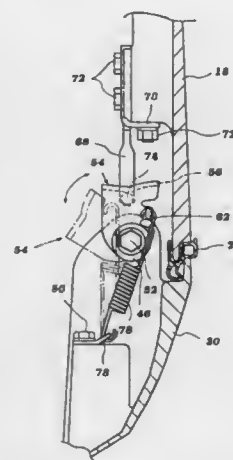
1. A partially immersible propeller comprising a propeller shaft having propeller blades mounted thereon and disposed in an angular relationship to the longitudinal center plane of a ship for movement from 0° to 90° to said plane for varying the position relative to said plane, said propeller blades being constructed so that, being immersed in water, the driving face thereof is positioned substantially perpendicular to said plane.

5,803,777
LATCH FOR OUTBOARD MOTOR PROTECTIVE COWLING

Noriyoshi Hiraoka, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan
Filed Mar. 27, 1996, Ser. No. 624,881
Claims priority, application Japan, Mar. 28, 1995, 7-094402
Int. Cl.⁶ B63H 21/26

U.S. Cl. 440-77

15 Claims



1. A latching assembly for engaging and disengaging an upper cover portion of a cowl and a lower tray portion of a cowl of an outboard engine, wherein one of said cowl portions includes a recess, said latching assembly comprising a shaft mounted to one of said cowl portions, a latch rotatably secured to said shaft and

movable between an engaged and a disengaged position, said latch including a latch handle and a latch hook, said latch handle disposed within said recess when engaged so that it is flush with the exterior of said cowl, a catch mounted to said other cowl portion and engageable by said latch hook, and means for biasing said latch to said engaged or disengaged position so as to yieldably retain said latch in said position.

5,803,778

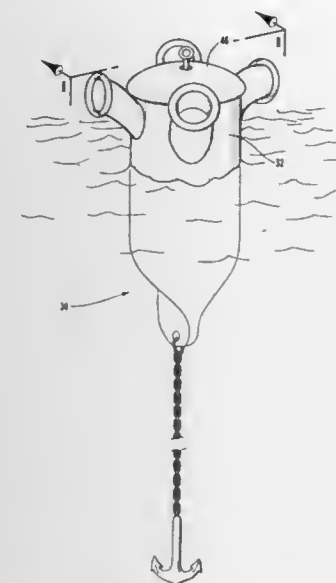
METHODS AND APPARATUS FOR HANDLING WASTE

David E. Hardy, 2255 Dallin St., Salt Lake City, Utah 84109
Filed Jan. 10, 1997, Ser. No. 781,725

Int. Cl.⁶ B63B 22/00

U.S. Cl. 441-1

1 Claim



1. An apparatus for receiving containers of human waste, the apparatus comprising:
- a floating receiving station;
 - a receiving aperture projecting from the receiving station, the receiving aperture being so sized and configured as to be capable of admitting containers of human waste;
 - an inner receiving vessel within the floating receiving station in communication with the receiving aperture capable of being removed from the receiving station; and
 - attached to the inner receiving vessel, means for removing the vessel from the receiving station.

5,803,779

DYNAMICALLY POSITIONED LOADING BUOY

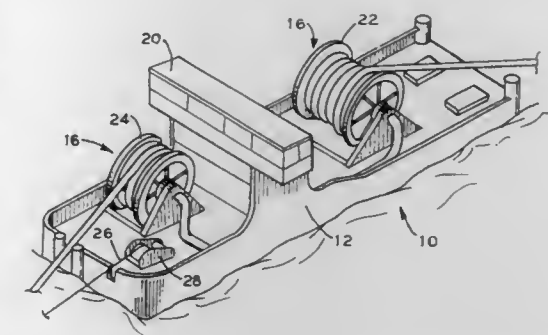
Edward E. Horton, III, Houston, Tex., assignor to Deep Oil Technology, Incorporated, Houston, Tex.
Filed Feb. 26, 1997, Ser. No. 805,811

Int. Cl.⁶ B63B 22/02

U.S. Cl. 441-4

3 Claims

1. A loading buoy for transferring liquid from an offshore structure to a tanker, comprising:
- a floating hull;
 - a hawser line having a first end attached to said hull and a second end adapted to be attached to the tanker during liquid transfer operations;
 - propulsion means provided on said hull for actively maintaining said hull and the tanker, during liquid transfer operations, at a predetermined distance from the offshore structure and in a position such that environmental forces will move said hull and the tanker away from the offshore structure in the event said hawser line fails; and



d. liquid transfer means provided on said hull for transferring liquid from the offshore structure to the tanker.

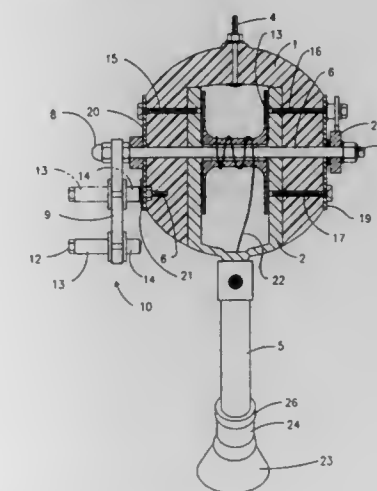
5,803,780

MARKER BUOY WITH SELF-ADJUSTING INTEGRAL REEL

Salvatore Gutierrez, Jr., P.O. Box 987, Mango, Fla. 33550
Continuation-in-part of Ser. No. 619,834, Mar. 19, 1996, abandoned. This application May 30, 1997, Ser. No. 866,595
Int. Cl.⁶ B63H 22/18

U.S. Cl. 441-25

19 Claims



1. A marker buoy, comprising:

- a buoyant housing having a top and a bottom,
- a reel mounted rotatably within said buoyant housing,
- a weight,
- a line connected at one end to said weight and at the other end to said reel,
- line retrieval means operatively associated with said reel for manual retrieval of line, said line retrieval means including a crank operatively associated with the reel for reeling in said line, said crank comprising a crank shaft connected to said reel, a crank arm having a slot defined therein and connected to said crank shaft, and a crank handle slidably situated in said slot of said crank handle for sliding between a radially outward and a radially inward position,
- engagement means provided on said housing for releasably engaging said crank arm when said crank arm is in the radially inward position,
- wherein said engagement means engages said crank handle to lock said reel against rotation so long as the tension on said line is below a predetermined threshold value, releases said crank handle to release said reel for rotation so long as the tension on said line exceeds said threshold value, and again engages said crank handle to locks said reel against rotation so long as the amount of tension again drops below said threshold value, such that during deployment of said line and

wherein said motor means is contained within said housing, said curved arm is attached to said housing offset from a center of said housing, and wherein when rotary motion is imparted to said connector means by said motor means, said curved arm and said motor means are configured and arranged to impart an up and down motion to said curved arm and to said connector means, and whereby said offset attachment of said curved arm is configured and arranged to enhance the up and down motion of the curved arm.

5,803,787

APPARATUS AND METHOD FOR SECURING A WING TO A TORSO OF A DOLL

Emily Kulchyski, 73 N. Park Pl., New Orleans, La. 70124
Continuation-in-part of Ser. No. 300,920, Sep. 6, 1994, abandoned. This application Mar. 12, 1997, Ser. No. 815,735
Int. Cl.⁶ A63H 3/36

U.S. Cl. 446—268

10 Claims



1. A guardian angel doll comprising a doll body having a structure defining a back and at least one torso cavity, said back having a recess with a recess bottom including at least one opening communicating with said torso cavity;
a wing support member having at least one channel and at least one dowel passing through said opening and extending into said torso cavity, said dowel having a dowel aperture for receiving a pin member;
at least one wing member having a wing structure, a wing base secured to said wing structure and a wing lug secured to said wing base and removably lodged within said channel for removably mounting said wing member to said doll body.

5,803,788

FIGURINE HAVING A SUBLIMATED IMAGE FOR A FACE

Doreen T. Penberthy, 29711 Wells Rd., Wesley Chapel, Fla. 33544, and Darci T. Wattam, 2210 Minneola Rd., Clearwater, Fla. 34624

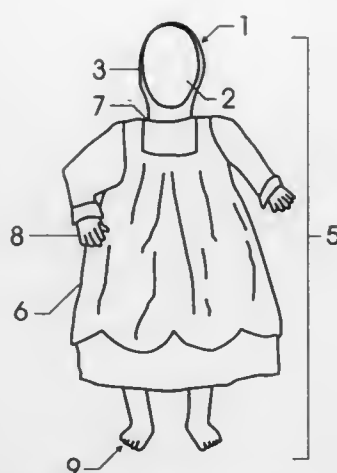
Filed May 2, 1996, Ser. No. 643,083

Int. Cl.⁶ A63H 3/36

U.S. Cl. 446—391

3 Claims

1. A method of manufacturing a figurine having an image permanently transferred into the facial region thereof by means of sublimation transfer, comprising:
providing a figurine having a molded rigid head, wherein the head includes an essentially planar facial region and a substantially spherical region said planar facial region having sublimation transfer receptor surface coating thereon;
introducing the image to be transferred by means of sublimation transfer into a computer scanner;
creating a digital image of said image;
manipulating said digital image to achieve desired size parameters; editing said digital image to produce desired color and image qualities;



printing said digital image using sublimatable dyes on a sublimatable transfer image sheet;
placing said transfer image sheet against said substantial planar facial region of said rigid head;
applying heat and pressure to sublimatable dyes from the transfer image sheet onto said planar facial region of said figurine whereby said image is permanently transferred into the facial region of said figurine.

5,803,789

REMOTE CONTROL TOY INCLUDING TILT SWITCH HAND CONTROLLER

Bryan L. Dean, 145 Mountain View Manor, Torrington, Conn. 06790; Victor G. Reiling, 209 Sharon Rd., Lakeville, Conn. 06039; Loren T. Taylor, 822 Topsail La., Secaucus, N.J. 07094; Todd W. Wise, 11 Lafayette Rd., Barrington, R.I. 02806, and Charles W. Miga, 15 Woodvine La., Exeter, R.I. 02822

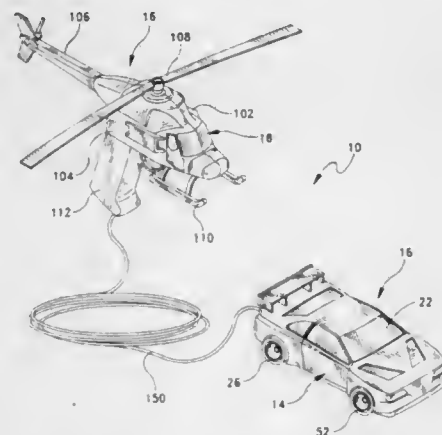
Continuation of Ser. No. 580,586, Dec. 29, 1995, abandoned.

This application Aug. 28, 1997, Ser. No. 919,632

Int. Cl.⁶ A63H 17/39

U.S. Cl. 446—455

11 Claims



1. A remote control toy comprising:
a remote vehicle including a body configured in the shape of a land vehicle, a plurality of wheels on said body for movably said body on a supporting surface, a drive mechanism for rotating at least one of said wheels, and a steering mechanism for steering said remote vehicle; and
a flying vehicle including a body portion configured in the shape of a body of a flying vehicle, said flying vehicle being of a type in which sharp turning movements during flight characteristically cause corresponding transverse tilting movements thereof, said flying vehicle body having front and rear ends and opposite left and right sides, said flying vehicle body

having a normal substantially horizontal flying attitude in which it is normally operative for traveling in a forward direction in a substantially horizontal plane,
a hand controller attached to said flying vehicle and associated with said land vehicle, said hand controller including a first control mechanism selectively independently controlling said drive mechanism, a second control mechanism for selectively independently controlling steering of said land vehicle, said second control mechanism including a tilt mechanism wherein downward tilting movement of said flying vehicle embodied in said hand controller to the left or right from the normal attitude thereof causes concurrent steering of the land vehicle to the left or right, respectively, thereby creating the appearance that the flying vehicle is chasing the remote land vehicle,
said flying vehicle further comprising a simulated propulsion mechanism.

5,803,790

TOY VEHICLE WITH SELECTIVELY POSITIONABLE WING

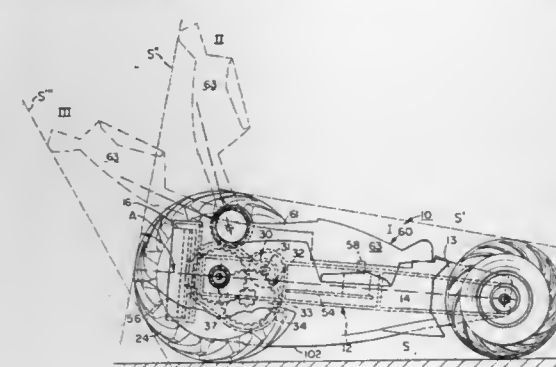
Neil Tilbor; Michael G. Hetman, both of New Smyrna Beach, Fla., and Anthony R. Garr, Voorhees, N.J., assignors to Mattel, Inc., Mount Laurel, N.J.

Filed Jan. 22, 1997, Ser. No. 785,404

Int. Cl.⁶ A63H 17/00; 29/00

U.S. Cl. 446—470

12 Claims



1. A toy vehicle comprising:
a chassis having lateral sides and an imaginary central plane extending longitudinally and vertically through the chassis centered between the lateral sides;
at least one road-contacting front wheel coupled with the chassis for rotation about a front rotational axis fixed perpendicular to the central plane;
at least a pair of road-contacting rear wheels coupled with the chassis for rotation about a common rear rotational axis perpendicular to the central plane, separate rear wheels of the pair being located on either lateral side of the chassis and the central plane;
motor means for selectively driving the rear wheels simultaneously in at least a first linear direction and simultaneously in opposite linear directions; and
a support member selectively positionable on the chassis fixed in any of at least three different positions, a first position juxtaposed to the chassis, a second position extending generally vertically upward from the chassis above the pair of rear wheels and a third position extending generally rearwardly from the chassis and behind the pair of rear wheels;
wherein the chassis, the support member and the road-contacting front and rear wheels are sized and positioned such that in the first position of the support member, the road-contacting front and rear wheels define an envelope fully surrounding the chassis and the support member such that only road-contacting wheels contact a planar surface supporting the vehicle in any possible orientation of the vehicle;

wherein the support member is sized with respect to the vehicle and the second position is selected such that the vehicle is stably supported at rest on a planar horizontal surface on only the pair of road-contacting rear wheels and the support member with the at least one road-contacting front wheel located vertically directly above the rear wheels; and wherein the support member is located sufficiently behind the pair of road-contacting rear wheels in the third position that the vehicle cannot be stably supported at rest on a planar horizontal surface on only the pair of road-contacting rear wheels and the support member.

5,803,791

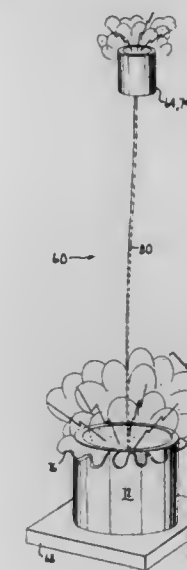
LAUNCHER AND POD COMBINATION, FOR DISPENSING MINIATURE FLYERS AT ALTITUDE

Daniel T. Chiles, 1972 S. Oak Grove, Springfield, Mo. 65804
Filed Aug. 29, 1997, Ser. No. 920,968

Int. Cl.⁶ A63H 37/00

U.S. Cl. 446—475

20 Claims



1. A non-pyrotechnic amusement device comprising:
a pod;
a launcher for the pod including non-pyrotechnic launching means for launching the pod to altitude;
an altitude-limit tether connected between the launcher and the pod to jerk the flight of the pod to an abrupt halt at the limit of the tether; and
multiple miniature flyers contained in the pod before launch to be dispensed by the pod at altitude when jerked at the limit of the tether;
wherein the miniature flyers are given a shape for a chosen slow descent including by gliding, fluttering, drifting, and helicoptering.
12. A non-pyrotechnic launcher and pod combination for showing mass quantities of miniature flyers at altitude over an audience crowd for their amusement, the non-pyrotechnic launcher and pod combination comprising:
a pod;
a launcher for the pod including non-pyrotechnic launching means for launching the pod to altitude;
non-pyrotechnic dispensing means for dispensing the flyers from the pod after sufficient altitude has been reached; and
mass quantities of miniature flyers closely packed in the pod before launch to be dispensed from the pod at altitude by the non-pyrotechnic dispensing means;
wherein the miniature flyers are given various shapes for chosen slow descents for soft, safe landings upon the audience crowd, the given shapes including shapes for gliding, drifting, fluttering, and helicoptering.

5,803,792

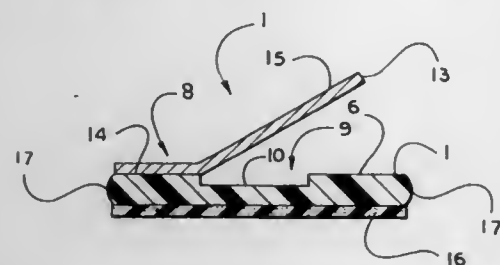
ANTI-SLIPPING BRASSIERE STRAP BRIDGING AND SUPPORT MEMBER

Warren H. Roush, and Anne F. Roush, both of 400 Flint Lock Dr., SE., Dacula, Ga. 30211-1493

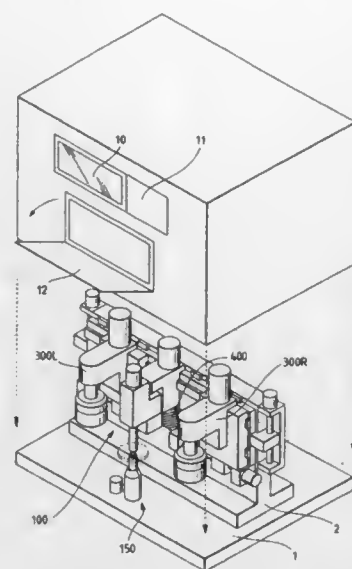
Continuation-in-part of Ser. No. 569,675, Dec. 8, 1995. This application Nov. 20, 1996, Ser. No. 754,885
Int. Cl.⁶ A41D 27/26

U.S. Cl. 450—86

21 Claims



1. An anti-slipping brassiere-shoulder-strap support comprising: a pliant bridge plate having a first end, a second end and an elongate curvature which conforms to a portion of a woman's shoulder between a position proximate a clavicle bone and a top-rear portion of the woman's shoulder, the bridge plate having an upper surface, a lower surface and a bonding side, a bridge plate width greater than a width of a brassiere shoulder strap that is placeable on the bridge plate, a cushion pad on the lower surface of the bridge plate to be placeable on the woman's shoulder in cushioning relationship between the bridge plate and the woman's shoulder, a mounting means to affix the cushion pad to the lower surface of the bridge plate, a groove proximate the elongate axis between the first end and the second end of the bridge plate and on the upper surface of the bridge plate, the groove having a securing surface, and a pliant flap having a top surface and a bonding surface, the bonding surface of the flap mounted to the upper surface of the bridge plate on the bonding side, whereby the flap exerts pressure upon the strap and engages the strap with the securing surface of the groove to secure the bridge plate from movement along the strap and to provide a smooth top surface.



wherein a maximum diameter of each of said first and second grinding wheels is substantially equal to a maximum diameter of said grinding wheel for lens edge grinding in rough processing and in bevel processing; and wherein each of said first and second grinding wheels is located at an outermost position with respect to said grinding wheel for lens edge grinding in rough processing and in bevel processing;

means for rotating the grinding-wheel shaft on its axis; moving means for moving the grinding-wheel shaft toward a rotation axis of the lens holding shafts, and for moving the grinding-wheel shaft in a longitudinal direction thereof relative to the subject lens, to grind or chamfer the subject lens; and control means for controlling the grinding-wheel shaft moving means based on the processing data in rough and bevel processing and chamfering.

5,803,794

COMBINED GRINDING MACHINE FOR PROVIDING AN INTERNAL SPLINE

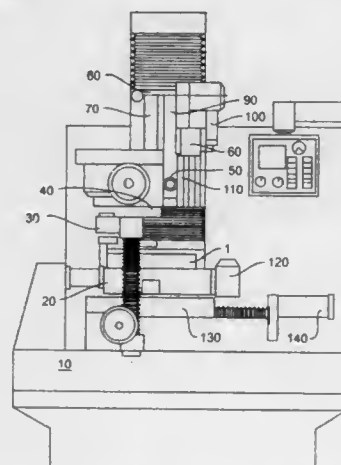
Xu Xian Hua, Tiexi Qu, Fugong Er Jie, 6-223, Shenyang City 110024, China

Filed Feb. 7, 1994, Ser. No. 193,503

Claims priority, application China, Feb. 8, 1993, 93227249.5
Int. Cl.⁶ B24B 49/00

U.S. Cl. 451—24

8 Claims



1. A grinder for performing multiple grinding operations on single workpiece:

5,803,793

LENS GRINDING APPARATUS HAVING CHAMFERING AND OTHER GRINDING WHEELS MOUNTED ON THE SAME SHAFT

Toshiaki Mizuno; Ryoji Shibata; Masahiko Kobayashi; Yoshinori Matsuyama; Hirokatsu Ohbayashi, and Masakazu Funakura, all of Aichi, Japan, assignors to Nidek Co., Ltd., Gamagori, Japan

Filed Jul. 12, 1996, Ser. No. 682,884

Claims priority, application Japan, Mar. 26, 1996, 8-097445
Int. Cl.⁶ B24B 9/14

U.S. Cl. 451—5

7 Claims

1. A lens grinding apparatus for performing frame-fit processing on an eyeglass lens, comprising: input means for obtaining data for the frame-fit processing including lens edge position data; means for calculating processing data based on the data obtained by the input means; lens holding shafts for holding a subject lens in between; means for rotating the lens holding shafts; a grinding-wheel shaft on which a grinding wheel for lens edge grinding in rough processing and in bevel processing and a grinding wheel for chamfering are mounted coaxially; wherein said grinding wheel for chamfering has a first grinding wheel for chamfering a front side of the lens and a second grinding wheel for chamfering a rear side of the lens;

5,803,796

MICROFINISHING MACHINE

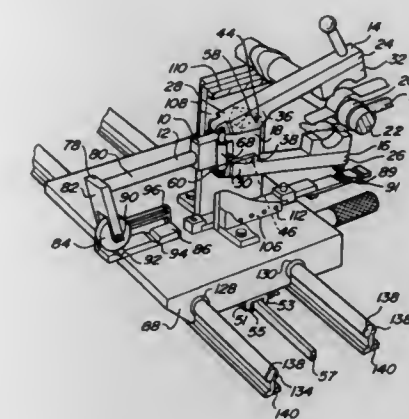
Kenneth A. Barton, II, 1477 Haslett Rd., Haslett, Mich. 48840

Filed Dec. 18, 1996, Ser. No. 769,703

Int. Cl.⁶ B24B 19/12

U.S. Cl. 451—168

27 Claims



a machine body;
a vertical shaft connected to said machine body;
a working table connected to said machine body;
a rotary table secured to said working table, said rotary table having a clamping positioner for securing the workpiece to said grinder on said rotary table, said rotary table being capable of horizontal movement, said rotary table having a driving unit located on one end thereof for controlling the operation of said rotary table;
a first grinding head for grinding an end face of the workpiece, said first grinding head being movably mounted on said machine body;
a second grinding head for grinding a bore in the workpiece, said second grinding head being movably mounted on said vertical shaft; and,
a third grinding head for grinding a spline in the bore of the workpiece, said third grinding head being movably mounted on said vertical shaft,
wherein said grinder permitting grinding of the end face, the bore and the spline of the workpiece while requiring only a single clamping operation to secure the workpiece to the rotary table.

5,803,795

METHOD OF TREATING INNER SURFACE OF HIGH-PRESSURE GAS VESSEL

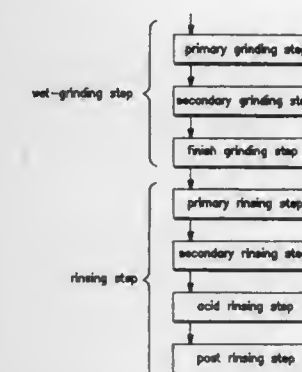
Shigeyoshi Nozawa, Tokyo, Japan, assignor to Teisan Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,672

Claims priority, application Japan, Jul. 12, 1995, 7-175667
Int. Cl.⁶ B24B 1/04

U.S. Cl. 451—35

7 Claims



1. A method of treating an inner surface of a high-pressure gas vessel, the method comprising the steps of: introducing an abrasive (2) containing rust preventive into the high-pressure gas vessel (1) comprising at least one of manganese steel or chrome-molybdenum steel; wet grinding the inner surface of the vessel (1); and rinsing the inner surface of the vessel; wherein said wet-grinding step is effected to obtain in the vessel interior a maximum inner-surface roughness, Rmax, of no more than 3 μm; and said rinsing step is performed using an acidic rinsing solution comprising at least one selected from the group consisting of diammonium citrate, sodium dihydrogen phosphate and sodium hydrogen diphosphate.

1. A surface polishing tool for attachment to various power means for rotating a workpiece about an axis in a finishing process, said workpiece having at least one process surface, said surface polishing tool comprising:

a body adapted to be positioned adjacent said workpiece and having first and second pivot means for supporting a pair of spaced apart polishing arms;
a first polishing arm pivotable on said first pivot means, said first arm having a first end including a surface grinding means for finishing said process surface of said workpiece and a second end;
a second polishing arm pivotable on said second pivot means, said second arm having a first end including a surface grinding means for finishing said process surface of said workpiece and a second end;

an actuating means for moving the first and second polishing arms about said first and second pivot means from a respective treatment enabling position adjacently spaced from said workpiece to a respective treatment position wherein said surface grinding means engages said workpiece, said actuating means having a stationary end and a reciprocating end, said stationary end of said actuating means connected to the second end of the first polishing arm and said reciprocating end of said actuating means connected to the second end of the second polishing arm, whereby said actuating means forces said respective second ends of the first and second polishing arms away from each other thereby moving the first and second polishing arms about said first and second pivot means and producing a grinding pressure at said surface grinding means of each respective first and second polishing arms when said polishing arms are in said treatment position;
a rolling support assembly for pivotably supporting and horizontally transferring said surface polishing tool in a first direction toward said workpiece and in a second opposite direction away from said workpiece thereby affording manual movement of the first and second polishing arms to assist in locating the first and second polishing arms in said treatment position; and
a sliding base affixable to said body and manually moveable linearly with respect to said workpiece along and adjacent to said axis thereby allowing said polishing arms to be located with respect to said process surface on said workpiece and allowing said first and second polishing arms to be manually

oscillated along a predetermined length of the process surface during said finishing process.

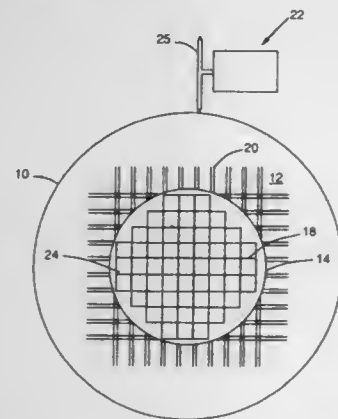
5,803,797
METHOD AND APPARATUS TO HOLD INTEGRATED CIRCUIT CHIPS ONTO A CHUCK AND TO SIMULTANEOUSLY REMOVE MULTIPLE INTEGRATED CIRCUIT CHIPS FROM A CUTTING CHUCK

John G. Piper, Midvale, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Nov. 26, 1996, Ser. No. 756,981
 Int. Cl.⁶ B24B 7/00; 9/00

U.S. Cl. 451—182

11 Claims

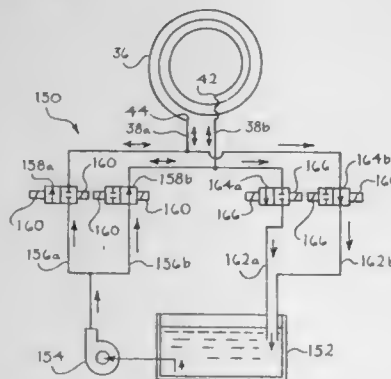


1. A cutting chuck for holding a wafer, comprising:
 a surface;
 a plurality of ports in said surface, said ports being in fluid communication with a vacuum source; and
 a porous layer between said surface and the vacuum source, said porous layer being in fluid communication with both said ports and the vacuum source.

5,803,798
DUAL COLUMN ABRADING MACHINE
 Joseph V. Cesna, Niles, Ill., and Lawrence O. Day, Fremont, Calif., assignors to Speedfam Corporation, Chandler, Ark.
 Division of Ser. No. 638,678, Apr. 29, 1996, which is a division of Ser. No. 218,611, Mar. 28, 1994, Pat. No. 5,595,529. This application Oct. 30, 1997, Ser. No. 962,979

Int. Cl.⁶ B24B 7/22
 U.S. Cl. 451—269

8 Claims



1. In an abrading device, the combination of:

an upper lap plate and lower lap plate, each mounted for rotation about an axis and having an outer rotary portion and inner rotary portion adjacent the axis of rotation; and
 a temperature control device comprising,
 at least one tube disposed adjacent the lower lap plate for coolant fluid flow, the at least one tube includes a first end centrally located relative to the abrading device adjacent the axis of rotation and a second end located outwardly of the first end adjacent the outer rotary portions,
 fluid supply lines capable of supplying coolant fluid to the at least one tube at both the first end and the second end, and
 means for reversing the coolant flow supply from the first end to the second end while the abrading device is operational for effectuating more even temperature control across the lap plates.

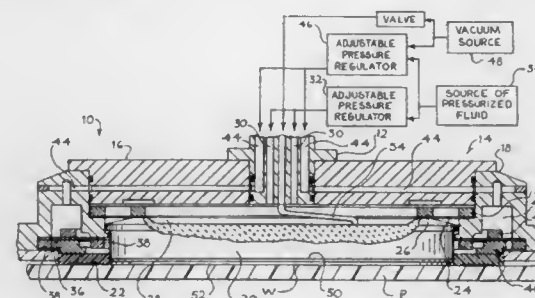
5,803,799
WAFER POLISHING HEAD
 Konstantin Volodarsky, San Francisco, and David E. Weldon, Los Gatos, both of Calif., assignors to OnTrak Systems, Inc., Fremont, Calif.

Continuation of Ser. No. 590,861, Jan. 24, 1996, abandoned.
 This application Jun. 20, 1997, Ser. No. 879,862

Int. Cl.⁶ B24B 5/00; 29/00

U.S. Cl. 451—288

13 Claims



1. A polishing head for polishing a semiconductor wafer, said polishing head comprising:
 a housing;
 a wafer carrier mounted to the housing, said wafer carrier comprising a wafer-supporting surface;
 a wafer retainer mounted to the housing, said wafer retainer shaped to retain a wafer in place on the wafer-supporting surface;
 at least one of the wafer carrier and the wafer retainer movably mounted to the housing;
 means for adjusting a biasing force on the wafer retainer independently of biasing force on the wafer carrier during a wafer polishing operation.

5,803,800
VIBRATORY FINISHING MACHINE HAVING A HELICAL AND TUBULAR CONTAINER
 Hisamine Kobayashi, and Katsuhiko Izuhara, both of Nagoya, Japan, assignors to Tipton Corp., Nagoya, Japan
 Filed Oct. 30, 1996, Ser. No. 742,180

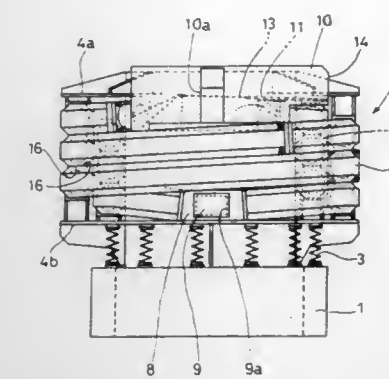
Claims priority, application Japan, Oct. 30, 1995, 7-306778; Mar. 6, 1996, 8-048819

Int. Cl.⁶ B24B 31/073

U.S. Cl. 451—326

11 Claims

1. A vibratory finishing machine comprising:
 a base having an upper face;
 resilient support means mounted on said upper face of said base;
 a vibrator having an outer peripheral face, said vibrator being mounted on said base via said resilient support means;
 excitation means mounted on said vibrator;



a helical tubular container into which an admixture of work-pieces to be finished and finishing media are loaded, said container having upper and lower flat superposed faces extending lengthwise thereof and being helically wound on said outer peripheral face of said vibrator at a plurality of turns such that said upper and/or lower superposed faces of each turn of said container are superposed on said lower and/or upper superposed faces of an adjacent turn or turns of said container respectively,

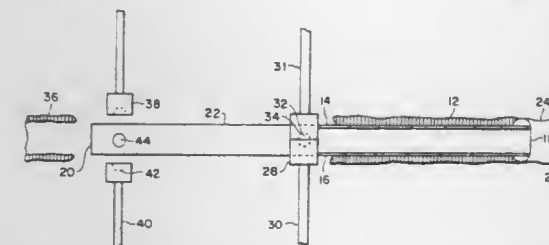
wherein said helical tubular container comprises a plurality of split tubes, each of said split tubes having first and second ends, and said helical container is formed by connecting one of said first and second ends of one of said split tubes to one of said first and second ends of another of said split tubes so as to form a tubular path having two open ends.

5,803,801
METHOD FOR CONTINUOUS STUFFING OF SHIRRED TUBULAR SAUSAGE CASINGS
 Marc Joseph Martin Vrijzen, Zonhoven, Belgium, assignor to Devro-Teepak, Inc., Westchester, Ill.

Filed Apr. 2, 1997, Ser. No. 832,148
 Int. Cl.⁶ A22C 11/02

U.S. Cl. 452—35

4 Claims



1. A method for continuous stuffing of food product into a tubular food casing which comprises:
 a) placing a first shirred food casing strand onto a stuffing horn comprising a hollow tube having a front open end, a rear end and an intermediate outer surface;
 b) extending an end position of the food casing over the open end of the stuffing horn and closing said end position;
 c) suspending said stuffing horn within the food casing by means of a first suspension means engaging the outer surface behind the shirred food casing;
 d) injecting foodstuff into the stuffing horn through a hole in the first suspension means which mates with a first inlet hole in the stuffing horn outer surface so that foodstuff flows through the stuffing horn through the open end into the food casing;
 e) placing a subsequent food casing strand onto the stuffing horn over the stuffing horn rear end;
 f) suspending said stuffing horn by means of a second suspension means engaging the stuffing horn behind the subsequent food casing strand;

- g) injecting foodstuff into the stuffing horn through a hole in the second suspension means which mates with a second inlet hole in the stuffing horn so that foodstuff flows through the stuffing horn through the open end into the food casing;
 h) disengaging said first suspension means so that said stuffing horn is suspended by said second suspension means and simultaneously closing the first hole in the first suspension means and first inlet stuffing horn hole;
 i) moving a front of the subsequent strand in contact with a rear of the first strand and connecting the strands together;
 j) engaging said first suspension means when sufficient casing has been used so that the subsequent strand passes said first inlet hole and the subsequent strand replaces the first strand;
 k) injecting foodstuff into the stuffing horn through the first suspension means;
 l) disengaging said second suspension means;
 m) placing another subsequent food casing strand onto the stuffing horn over the stuffing horn rear end; and
 n) repeating steps c through m above for so long as stuffing of food product continues.

5,803,802
APPARATUS FOR OPENING THE BODY CAVITY OF A SLAUGHTERED BIRD

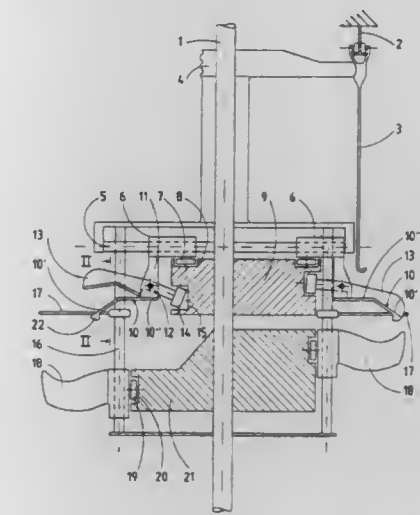
Tom Cornelis Jansen, Oostzaan, Netherlands, assignor to Machinefabriek Meyn B.V., Oostzaan, Netherlands

Filed Aug. 22, 1996, Ser. No. 701,441

Claims priority, application Netherlands, Aug. 25, 1995, 1001058

Int. Cl.⁶ A22B 5/20
 U.S. Cl. 452—160

9 Claims



1. An automated apparatus for providing access to a body cavity of slaughtered poultry by cutting skin adjacent a cloaca of said poultry, said apparatus comprising a tensioning device movable into the body cavity of said poultry through said cloaca to a position so as to engage and tension said skin adjacent said cloaca from inside said cavity, and a cutting device movable relative to said tensioning device to subsequently cut said tensioned skin from generally said cloaca to generally a tip of a chest of said poultry, said tensioning device comprising spaced apart members automatically movable into said cavity to tension the skin from inside the cavity, said spaced apart members defining a space therebetween for receipt of said cutting device to cut the tensioned skin.

5,803,803

SWITCHGEAR WITH IMPROVED VENTILATION
Michael P. O'Dell, Oak Park, and Phillip J. Fahey, Evanston,
both of Ill., assignors to S&C Electric Company, Chicago, Ill.
Filed Dec. 23, 1996, Ser. No. 777,913
Int. Cl.⁶ H05K 5/00

U.S. Cl. 454-184

8 Claims

1. A kit of component parts capable of being assembled with either an existing installed electrical equipment enclosure or during the fabrication and assembly of the electrical equipment enclosure to increase the ventilation characteristics of the electrical equipment enclosure while maintaining desirable tamper resistance characteristics, the electrical equipment enclosure being defined by at least one sidewall, at least one access panel carried by the at least one sidewall, at least one support member spanning portions of the at least one sidewall, and a roof being carried above the at least one sidewall and the at least one access panel, the roof defining a roof perimeter; the at least one sidewall, the at least one access panel, the roof and the at least one support member including predetermined turned edges forming flanges and being assembled so as to define predetermined passageways therebetween which provide predetermined ventilation characteristics and tamper resistance characteristics, the kit comprising:

spacing means for increasing the spacing of the roof from the at least one sidewall and the at least one support member when assembled with the electrical equipment enclosure; and first means for affixing to the support member and extending along and therefrom to resist tampering, said first means comprising a generally planar member affixed to the at least one support member and being adapted to extend beyond the at least one support member toward the roof perimeter, said first means further comprising a flange extending downwardly from said generally planar member at approximately a right angle thereto.

5,803,804

METHOD AND DEVICE FOR SENSOR-CONTROLLED DEMAND-CONTROLLED VENTILATION
Simon Meier, Meilen, and Willi Breitenmoser, Uetikon am See,
both of Switzerland, assignors to Staefa Control System AG,
Staefa, Switzerland

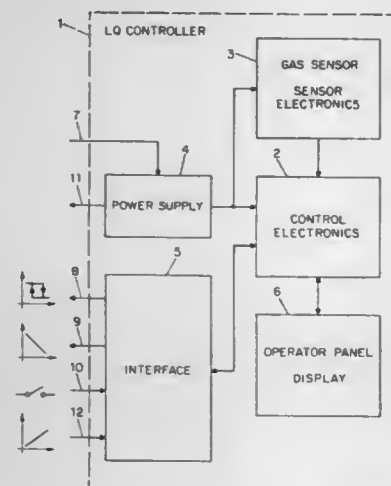
Filed Feb. 7, 1997, Ser. No. 796,929

Claims priority, application European Pat. Off., Feb. 9, 1996,
96101859

Int. Cl.⁶ F24F 7/00

U.S. Cl. 454-256

7 Claims



1. A method of ventilating an interior space, comprising: reference ventilating the interior space with outside air and obtaining a sensor measurement value for an air quality in the interior space, and using the sensor measurement value in determining a reference value; and

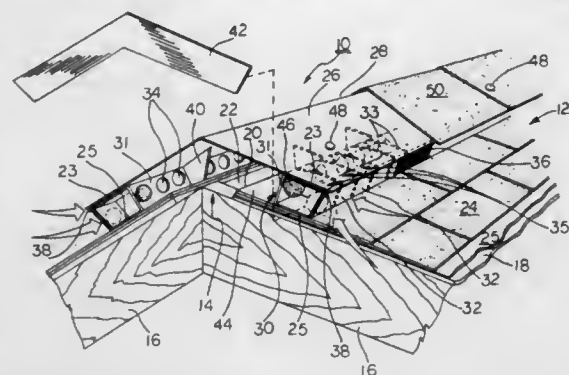
repeatedly obtaining a further sensor measurement value for the air quality in the interior space, comparing the obtained further sensor measurement value with the reference value and, depending on by how much the obtained further sensor measurement value differs from the reference value, adjusting an air flow magnitude, of an air flow from outside into the interior space, wherein the reference ventilating is effected at a time of day when the outside air has a quality which is relevant in determining how to adjust the air flow magnitude.

5,803,805

STRUCTURE VENTILATING DEVICE
Gary L. Sells, P.O. Box 428, Mishawaka, Ind. 46546-0428
Filed Feb. 12, 1997, Ser. No. 799,779
Int. Cl.⁶ F24F 7/02

U.S. Cl. 454-364

23 Claims



1. A ventilating device for a structure having a ventilating opening, said device comprising:
a frame extending across said ventilating opening, said frame defining a passage extending from one end exposed to atmosphere to another end exposed to said ventilation opening, said other end being oriented above said one end for communicating said ventilating opening to ambient atmosphere; and
a valve member enclosed within said passage movable between an opened position wherein said valve member is urged by gravity toward said one end of said passage to communicate said ventilation opening to atmosphere when the ambient wind speed is below a predetermined speed, said valve member being moved by ambient wind pressure toward said valve seat at said other end of said passage to block said passage to prevent ingestion of wind blown moisture into said structure through said ventilation opening when said ambient wind speed exceeds said predetermined speed.

5,803,806

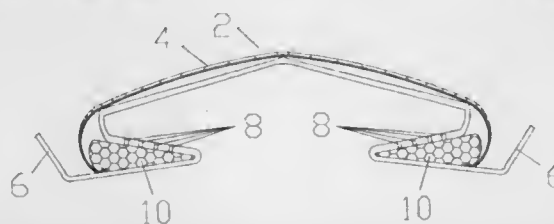
APPARATUS AND METHOD FOR INSULATING ROOFRIDGE VENTILATOR SYSTEMS
James Blessinger, 21718 Ocean Pines Dr., Land O Lakes, Fla. 34639

Filed Oct. 23, 1997, Ser. No. 956,853

Int. Cl.⁶ F24F 7/02

U.S. Cl. 454-365

4 Claims



1. Insulation apparatus for a roof ridge ventilation system having a plurality of vent openings on its underside surfaces and protec-

tive flashing depending downwardly and outwardly from each of said underside surfaces to prevent rain and snow from blowing into said vent openings, said insulation apparatus comprising at least two lengths of molding and a plurality of elongated wire-like clamps, each of said wire-like clamps having opposite ends, each of said lengths of molding having a bottom surface and being made from flexible material having a configuration conformable to a vent space for exhausting hot air which exists between each of said underside surfaces of said roof ridge ventilator and said protective flashing which is adjacent thereto so that when placed into each of said vent spaces said lengths of molding completely block said vent openings in said roof ridge ventilator, each of said wire-like clamps being made from a flexible material and positioned over said roof ridge ventilator and extending around one of said lengths of molding so that each of said opposite ends of said wire-like clamp is positioned between said bottom surface of said molding and said protective flashing to tightly position said molding against said vent openings and prevent air flow therefrom.

5,803,807

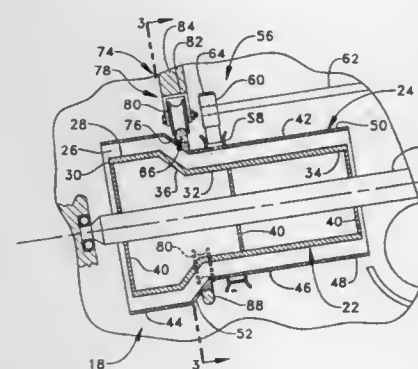
SUPPORTING SYSTEM FOR A ROTATING CONCAVE GRAIN THRESHING MECHANISM
Ronald L. Satzler, Princeville, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Nov. 27, 1996, Ser. No. 757,389

Int. Cl.⁶ A01F 12/56

U.S. Cl. 460-69

13 Claims



1. In a grain threshing mechanism having a rotatable concave assembly and a rotor assembly positioned within the concave, said rotor assembly being rotatable independently of the rotation of the concave assembly, said concave assembly having a concave receiving end portion, a concave middle portion, a concave discharge end portion, and support structure which supports and maintains said concave assembly substantially coaxially aligned with said rotor assembly, the improvement wherein:

said concave receiving end portion is supported directly by said support structure, and said concave middle portion and said concave discharge end portion are cantilevered from said support structure and free from discharge obstruction.

5,803,808

CARD GAME HAND COUNTER/DECISION COUNTER DEVICE
John M. Strisower, 376 Brookside Dr., Chico, Calif. 95928,
assignor to John M. Strisower, Loma Rica, Calif.

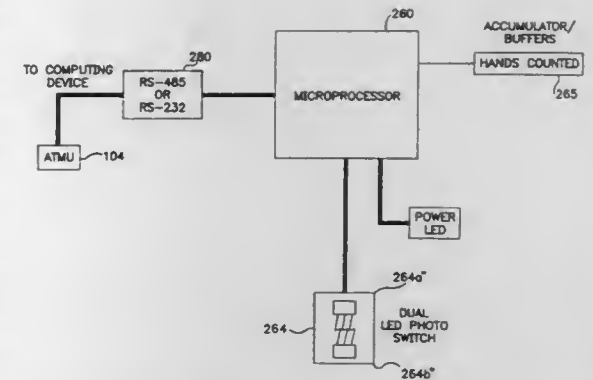
Filed Aug. 18, 1995, Ser. No. 516,651

Int. Cl.⁶ A63F 1/18

U.S. Cl. 463-11

34 Claims

1. A card hand counter device comprising:
reader means for receiving and recognizing that a card hand is within the device; and



memory means coupled to reader means for accumulating the number of hands inserted into the reader means.

5,803,809

METHOD OF PLAYING A MULTI-DECKED POKER TYPE GAME

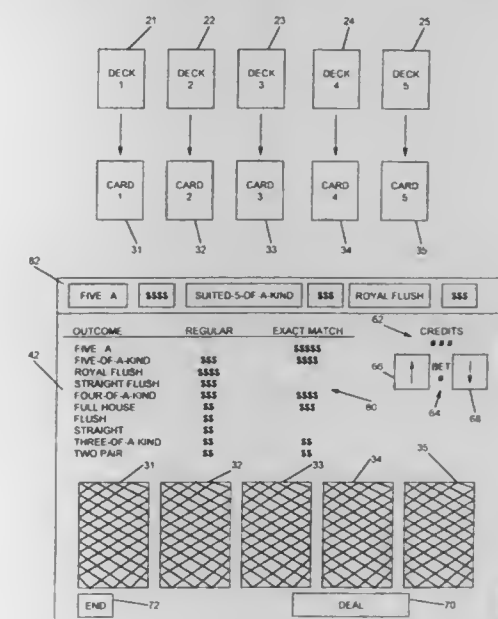
Mark L. Yoseloff, South Glastonbury, Conn., assignor to Shuffle Master, Inc., Eden Prairie, Minn.

Filed Sep. 18, 1996, Ser. No. 715,597

Int. Cl.⁶ A63F 1/00

U.S. Cl. 463-13

37 Claims



1. A method of playing a poker type card game comprising the steps of:

- a player initiating the game;
- providing a plurality of decks of playing cards, each deck sharing a multiplicity of identical cards;
- keeping each deck separate from each other wherein the decks are never shuffled or mixed together;
- dealing an initial poker hand to the player in a preselected pattern, wherein the player's initial poker hand has at least one card from each deck; and
- the player receiving a predetermined amount based on the poker hand that the player holds.

5,803,810
VELOCITY-BASED COMMAND RECOGNITION TECHNOLOGY

John Mark Norton, Santa Clarita, and Bela Laszlo Brozsek, Topanga, both of Calif., assignors to Perception Systems, Inc., Santa Clarita, Calif.

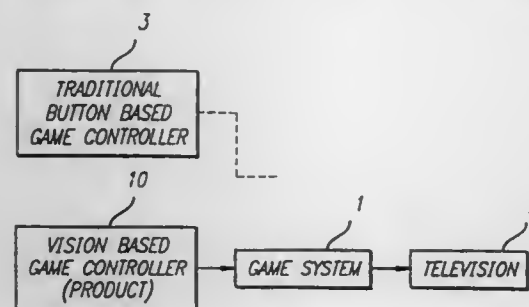
Filed Nov. 7, 1995, Ser. No. 554,473

Claims priority, application United Kingdom, Mar. 23, 1995, 9505916

Int. Cl.⁶ A03F 9/22; G01V 9/04

U.S. Cl. 463—36

3 Claims



1. A method of providing control signals to a computer the method comprising the steps of:
optically detecting movement of a user;
outputting a control signal to a computer in accordance with the detected movement; and
determining the position of a user's torso and using said determination to generate a buffer region in which user movement is not detected.

5,803,811
TORQUE OVERLOAD CLUTCH AND CLUTCH PLATE

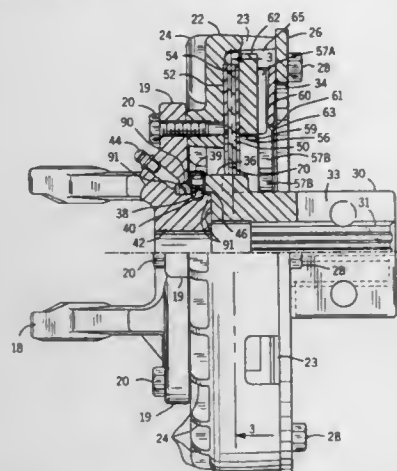
Mark A. Fechter, West Bend, Wis., assignor to Weasler Engineering, Inc., West Bend, Wis.

Filed Dec. 24, 1996, Ser. No. 772,820

Int. Cl.⁶ F16D 1/12

U.S. Cl. 464—46

8 Claims



1. In a dry friction torque overload clutch which has a clutch plate with an axially facing side force biased in continuous face to face contact with an axially facing side of a friction disc of relatively soft friction material, the improvement wherein said axial face of said clutch plate defines a knurl pattern of a series of peaks separated from one another by one or more valleys in said clutch plates and said peaks are impressed into said axially facing side of said friction disc so as to hold said friction disc rotatably and radially fixed to said axial face of said clutch plate without slippage between said clutch plate and friction disc.

5,803,812
FLEXIBLE SHAFT STRUCTURE FOR TRANSMITTING HIGH TORQUE

Eisaku Kakiuchi, Toyota; Tadao Ota, Okazaki; Yoshikazu Kameda, and Masahiko Asano, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

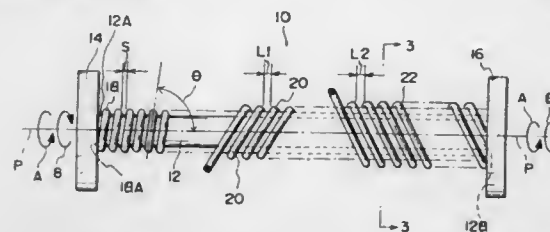
Filed Jul. 10, 1996, Ser. No. 677,959

Claims priority, application Japan, Aug. 7, 1995, 7-200751

Int. Cl.⁶ F16C 1/00

U.S. Cl. 464—58

26 Claims



1. A flexible shaft structure comprising:
a core wire having flexibility, said core wire having ends; holding portions provided on each end of said core wire;
a first wire wound around said core wire at substantially at right angles with respect to an axial line of said core wire; and
a second wire wound around said first wire at acute angles with respect to the axial line, said acute angles being smaller than the substantially right angles of said first wire, said second wire not being wound at substantially right angles, both ends of said second wire being respectively fixed to said holding portions.

5,803,813
TRIPOD ROLLER FOR A CONSTANT VELOCITY UNIVERSAL JOINT

Didier Hosdez, Haguenau, and Pierre Alber, Reichshoffen, both of France, assignors to Ina Walzager Schaeffler KG, Germany

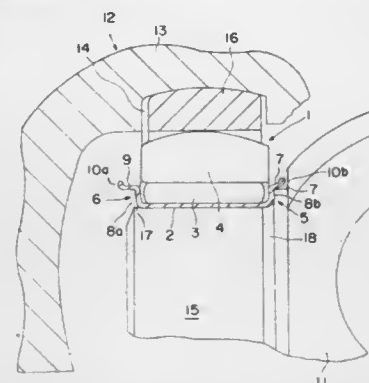
Filed Jul. 11, 1996, Ser. No. 676,115

Claims priority, application Germany, May 16, 1994, 9408057 U

Int. Cl.⁶ F16D 3/205

U.S. Cl. 464—111

11 Claims



1. A tripod type constant velocity universal joint comprising an outer joint member having longitudinal recesses arranged in spaced relationship on a periphery thereof, and trunnions symmetrically arranged on a tripod spider, said trunnions located in said recesses of the outer joint member, rolling elements surrounding the trunnions and having tripod rollers mounted thereon, characterized in that an inner ring (2) formed without chip removal from sheet metal is arranged between each trunnion (15) and the respective rolling elements (3), the inner ring (2), the tripod roller (4) and the rolling elements (3) form a roller assembly (1), and the inner ring (2) comprises at least first and second radially stepped end flanges

(5, 6) extending so to radially overlap the radially inner and outer surfaces of the rolling elements and the tripod roller, each of the stepped flanges including radially inner stops (8a, 8b) for engaging the rolling elements (3) and radially outer stops (10a, 10b) for engaging the tripod roller (4).

5,803,814
TRIPOD JOINT WITH SPHERICAL ARMS

Hans-Heinrich Welschhof, Rodenbach, Germany, assignor to Lohr & Bromkamp GmbH, Offenbach am Main, Germany

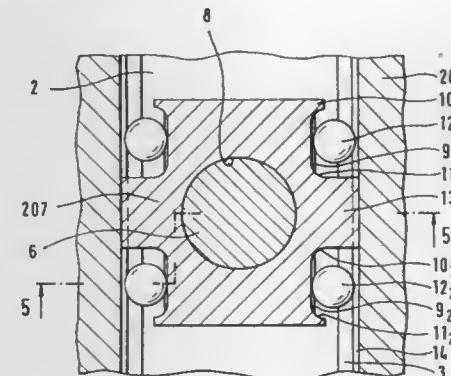
Filed Mar. 20, 1997, Ser. No. 821,522

Claims priority, application Germany, Mar. 20, 1996, 196 10 916.7

Int. Cl.⁶ F16D 3/205

U.S. Cl. 464—111

13 Claims



1. A constant velocity universal joint of the tripod type comprising:
an outer joint part with three axis-parallel recesses, each forming circumferentially opposed pairs of running grooves;
an inner joint part with three circumferentially distributed radial arms with spherical heads, each of said heads located in one of said recesses;
guiding pieces supporting rolling contact members, said guiding pieces comprising a radially extending cylindrical inner aperture radially movably and articulately slidingly engaged by one of said spherical heads and longitudinally directed guiding grooves holding said rolling contact members rolling in said running grooves;
wherein said guiding grooves are provided with end stops at both ends and a free rolling path between said end stops for said rolling contact members in said guiding grooves, and guiding tracks in said outer joint part for said guiding pieces being provided in the form of recessed longitudinal flutes inside said running grooves.

5,803,815
ECCENTRIC ARM AMUSEMENT RIDE

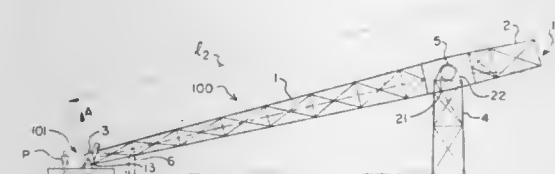
William Joel Kitchen, Longmont, Colo., assignor to Skymax, Inc., Longmont, Colo.

Filed Jan. 24, 1997, Ser. No. 788,165

Int. Cl.⁶ A63G 31/08

U.S. Cl. 472—44

19 Claims



1. An amusement ride comprising:
a base mounted on a planar surface;

an arm having a non-centric fulcrum mounted to the base;
a rider capsule mounted to a distal end of the arm;
a fixed counterweight having a weight greater than the rider capsule loaded to a maximum capacity mounted to a proximal end of the arm; and
a release mechanism to lock the arm in a rider-load mode and release the arm to launch the rider capsule in an upward arc powered by the counterweight, thereby causing a rider to experience first a positive "g" force and then a negative "g" force and causing the rider capsule to oscillate above the planar surface.

5,803,816
AMUSEMENT RIDE

Alfeo Moser, and Claudio Soriani, both of Melara, Italy, assignors to Soriani & Moser, Melara, Italy

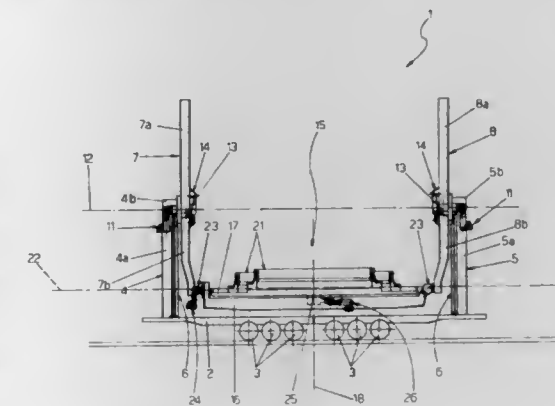
Filed Oct. 18, 1995, Ser. No. 544,685

Claims priority, application Italy, Oct. 19, 1994, B094 A 000459

Int. Cl.⁶ A63G 27/04

U.S. Cl. 472—46

12 Claims



1. An amusement ride comprising:
a platform;
two parallel vertical posts extending upwards from the platform;
two arms fitted to respective said posts and rotatable about a horizontal axis by a first drive; and
a passenger car presenting a circular supporting structure fitted to an axial end of said arms, a circular plate fitted to said structure and rotatable freely about said plate's own central axis by a second drive, and a number of seats fitted to said plate.

5,803,817
INFANT SWING

Carl M. Stern, Pennington, N.J., assignor to Fisher-Price, Inc., East Aurora, N.Y.

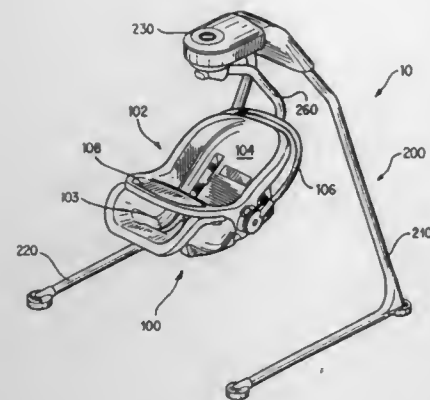
Filed Aug. 15, 1996, Ser. No. 698,371

Int. Cl.⁶ A63G 9/00

U.S. Cl. 472—118

13 Claims

1. An infant swing comprising:
a swing arm having a lower portion with a longitudinal axis and first and second posts extending laterally away from said longitudinal axis;
a seat having a front, child-receiving surface and a rear mounting surface;



a connector coupled to said rear mounting surface and having first and second slots sized to slidably receive said first and second posts, respectively.

5,803,818 SWING

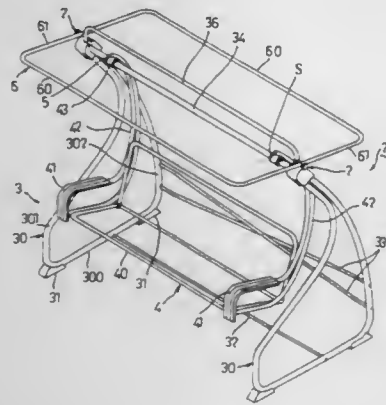
Chuen-Jong Tseng, Chiayi Hsien, Taiwan, assignor to Shin Yen Enterprises Co., Ltd., Taiwan

Filed Jun. 2, 1997, Ser. No. 867,439

Int. Cl.⁶ A63G 9/12

U.S. Cl. 472—118

7 Claims



1. A swing comprising:

- a swing frame including left and right upright side frames and a horizontal connecting rod which interconnects top ends of said side frames;
- a seat member disposed between said side frames, said seat member having a pair of upwardly extending swing arms, each of which has a distal top end formed with an inverted U-shaped hook that opens downwardly toward said connecting rod; and
- a pair of generally C-shaped coupling units clamped spacedly and fittingly on said connecting rod, said hooks on said swing arms of said seat member engaging slidably and respectively said coupling units on said connecting rod to permit forward and rearward swinging movement of said seat member relative to said connecting rod, said coupling units preventing direct contact between said hooks on said swing arms and said connecting rod to minimize wearing between said hooks and said connecting rod and to reduce noise that is generated when said seat member swings.

5,803,819 SOLID STATE PINSPOTTER CONTROLLED CHASSIS AND METHOD THEREFOR

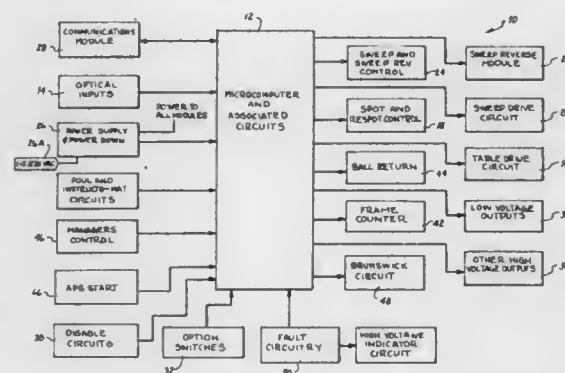
William J. Tuten, 8708 E. Malcomb Dr., Scottsdale, Ariz. 85253, and Kenneth D. Crosby, 10199 E. Sweetwater, Scottsdale, Ariz. 85260

Filed Nov. 13, 1995, Ser. No. 558,625

Int. Cl.⁶ A63D 5/00

U.S. Cl. 473—65

20 Claims



1. A solid state chassis for controlling a bowling pin pinspotter comprising, in combination:

- microcontroller means for controlling said solid state chassis by receiving inputs from a plurality of elements coupled to said microcontroller means and for producing an output signal to control said solid state chassis based on said inputs;
- optical input means coupled to said microcontroller means for buffering inputs to said microcontroller means to prevent noise associated with said plurality of elements from causing false outputs by said microcontroller means;
- means coupled to said microcontroller means for sending a signal to a pinspotter assembly that controls placement of bowling pins;
- sweep means coupled to said microcontroller means for sending a signal to a sweep type device that removes said bowling pins; and
- power supply/power down means coupled to said microcontroller means and said plurality of elements for providing power to said plurality of elements and for detecting and controlling said solid state chassis during a power failure.

5,803,820 PORTABLE SAND TRAP

George J. McCarty, 2829 Sherbrooke Rd., Toledo, Ohio 43606

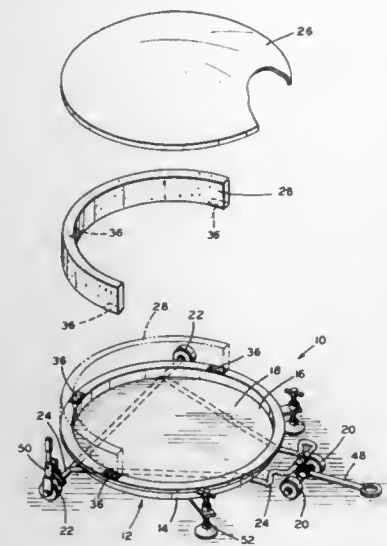
Filed Mar. 21, 1997, Ser. No. 822,231

Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—173

25 Claims

- 1. A portable sand trap for practicing golf shots, comprising:
 - (a) a base having a bottom section, a sidewall, and an open top, the bottom section and sidewall forming an internal retention area in said base;
 - (b) a plurality of ground engaging wheels attached to said base, the wheels rendering said base mobile;
 - (c) sand held within the internal retention area of said base, wherein said base allows water to pass through and drain from the internal retention area while inhibiting said sand from passing through said base from the internal retention area; and
 - (d) a means for immobilizing said base in a fixed position relative to the ground so that the portable sand trap does not



move while an individual, standing in the portable sand trap, swings a golf club and strikes a golf ball placed in the sand.

5,803,821 GOLF CLUB GRIPPING AID AND METHOD OF MAKING SAME

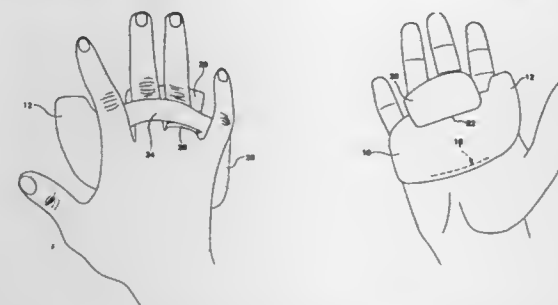
Geno J. Lupinacci, 304 Westhill Rd., Stamford, Conn. 06902

Filed Jul. 22, 1997, Ser. No. 898,214

Int. Cl.⁶ A63B 69/36; A41D 13/08

U.S. Cl. 473—205

8 Claims



1. A hand-held device for use in gripping the shaft of a golf club, comprising:

- a main component in the form of a sheet of flexible material shaped to fit protectively over at least part of the palm of a person's hand;
- said main component being formed with an opening extending in a direction generally transverse to the fingers of the hand; and
- an ancillary component having a tongue-like shape secured at one end to and extending away from the side of said main component which is to face the palm of the hand;
- said ancillary component extending through said opening in a direction towards the tips of the fingers and providing space for fingers of the hand to fit in between the ancillary component and a part of the main component adjacent said opening so as to hold said device in place on the hand while gripping an object.

5,803,822 GOLF TRAINING AID

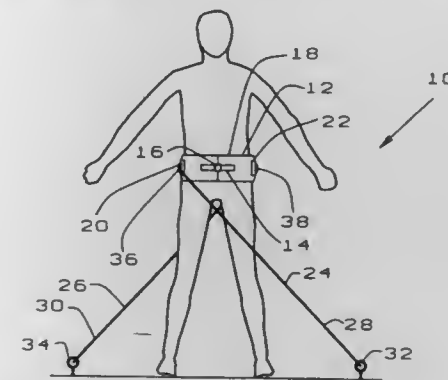
Kenneth Pursell, 1161 W. Norwood St., Rialto, Calif. 92377

Filed Apr. 21, 1997, Ser. No. 844,632

Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—216

6 Claims



1. A golf training aid attached between a golfer and the ground to cause proper rotation of the golfer's hips during a stroke, said golfing aid comprising:

- a belt worn by a golfer,
- a pair of ground attaching means located on opposite sides of the golfer, and
- a pair of elastic bands each having one end connected to a respective right or left side of said belt and having the other end connected to the ground attaching means on the remote side of said golfer.

5,803,823 METHOD AND APPARATUS TO DETERMINE OBJECT STRIKING INSTRUMENT MOVEMENT CONDITIONS

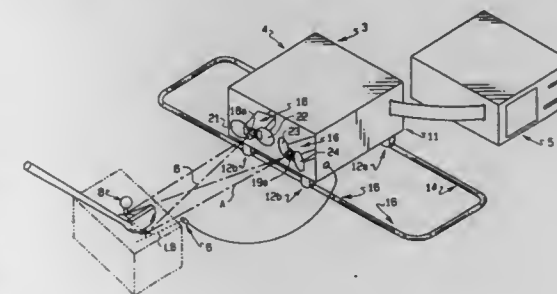
William Gobush, North Dartmouth; Diane Pelletier, Fairhaven, and Charles Days, South Dartmouth, all of Mass., assignors to Acushnet Company, Fairhaven, Mass.

Continuation of Ser. No. 510,085, Aug. 1, 1995, Pat. No. 5,575,719, which is a division of Ser. No. 209,169, Feb. 24, 1994, Pat. No. 5,501,463, which is a continuation of Ser. No. 979,712, Nov. 20, 1992, abandoned. This application Nov. 18, 1996, Ser. No. 751,447

Int. Cl.⁶ A63B 69/36; G06F 51/00; H04N 7/18

U.S. Cl. 473—223

29 Claims



1. A monitoring system for analyzing the movement of a striking instrument and an object in a three dimensional field of view, the system comprising:

- first and second cameras directed toward the three dimensional field of view;
- a control operative to activate the first and second cameras during movement of the instrument through the field of view;
- a shuttering system connected with the control and operative to provide light to the cameras at predetermined intervals during movement of the instrument through the field of view; and

a light sensor associated with each camera and connected with the control for receiving light reflected from the object and the instrument;

wherein the control discriminates between light reflected from the object and light reflected from the instrument to determine the speed, orientation and path of the instrument in the field of view.

5,803,824

GOLF PUTTER WITH LIE AND OFFSET ADAPTER

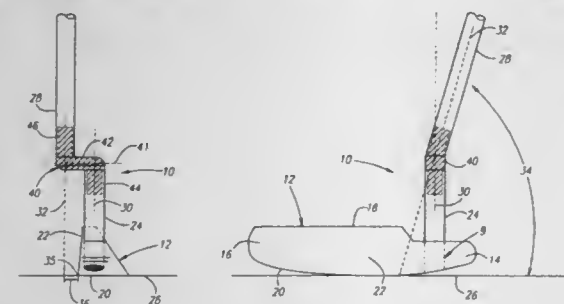
Augustin Whittingham Rollinson, Carlsbad, Calif., assignor to Callaway Golf Company, Carlsbad, Calif.

Filed Jan. 13, 1997, Ser. No. 783,588

Int. Cl.⁶ A63B 53/02

U.S. Cl. 473—246

7 Claims



1. A golf putter comprising a putter head having a face for striking a golf ball, an upper shaft segment having an upper end portion and a lower end portion, a lower shaft segment having an upper end portion and a lower end portion, said lower end portion of said lower shaft segment connected to said putter head, and an adapter for setting the lie and offset of the putter, said adapter comprising a spacer, an upper connector and a lower connector, said upper connector extending from a first surface of said spacer and coupling with the lower end portion of said upper shaft segment, said lower connector extending from a second surface of said spacer and coupling with the upper end portion of said lower shaft segment, said spacer extending longitudinally in a direction that is substantially parallel to a direction of forward motion of the putter head such that the upper shaft segment is forward of the lower shaft segment, wherein said upper connector comprises a socket adapted to mate with a first cavity formed in the lower end portion of said upper shaft segment and said lower connector comprises a socket adapted to mate with a second cavity formed in the upper end portion of said lower shaft segment.

5,803,825

GOLF PUTTER HEAD

Richard F. Hamilton, Murietta, Calif., assignor to Rick Hamilton Golf Co., Inc., Murietta, Calif.

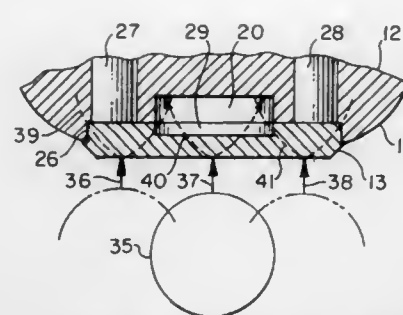
Filed Sep. 12, 1997, Ser. No. 928,449

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—252

8 Claims

1. A golf putter head comprising:
 - (a) a weighted body having forward, rearward, top and bottom surfaces, a central recess being formed in said forward surface;
 - (b) a first uniform depression located in said recess;
 - (c) a striking plate having forward and rearward surfaces having an elevated member uniformly depending from said rearward surface;
 - (d) means for securely coupling the rearward surface of said striking plate to the forward surface of said weighted body, said elevated member being disposed within said recess; and



- (e) a second uniform depression disposed in the elevated member, said first and second depressions forming a resonant cavity when the forward surface of said weighted body and said rearward surface of said striking plate are adjacent one another.

5,803,826

USER-FRIENDLY GOLF SWING PRACTICE MAT

James J. Perrine, 5330 N. Via Celeste, Tucson, Ariz. 85718

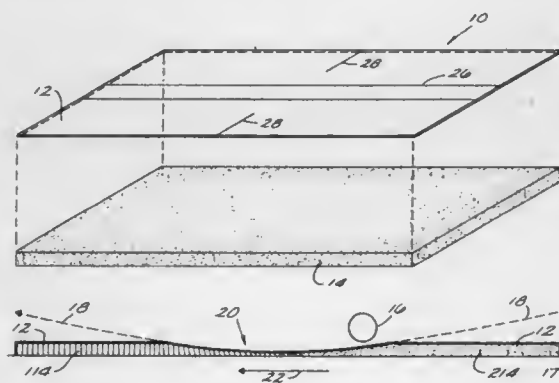
Continuation of Ser. No. 448,296, Feb. 28, 1995, abandoned.

This application Aug. 6, 1996, Ser. No. 689,241

Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—278

12 Claims



1. A golf swing practice mat for placement on an underlying base to aid a golfer in improving his or her swing of a golf club having a club head, said swing comprising a swing-arc having a bottom-most portion thereof, said golf swing practice mat comprising:
 - (a) a low friction, flexible and resilient top sheet that is directly contacted by said club head during said swing and has a rigidity of 40 pounds per square inch or less; and
 - (b) a means for supporting said top sheet a finite distance above said underlying base and for providing space for said top sheet to yield to and accommodate said bottom-most portion of a reasonably well-aligned golf club swing-arc, such that said mat has an aggregate, total rigidity of 40 pounds per square inch or less.

5,803,827

GOLF CLUBHEAD AND ITS METHOD OF USE

Jack Kuykendall, Hoffman Estates, Ill., assignor to Natural Golf Corporation, Hoffman Estates, Ill.

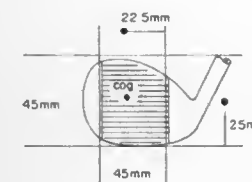
Filed Jan. 18, 1995, Ser. No. 374,249

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—300

4 Claims

1. A golf club having an elongate shaft, a grip and a clubhead including a heel, toe and sole with a hosel connecting said clubhead to said shaft, wherein:
 - a) said clubhead has a striking surface, said striking surface having a grooved area thereon, said grooved area being at



least 45 millimeters in height and at least 45 millimeters in width, said striking surface further having a center of gravity at least 25 millimeters above said clubhead sole and equidistant from said heel and said toe;

- b) said clubhead has its weight distributed evenly around a specified portion of the clubhead, said specified portion starting at the hosel and proceeding down and around said hosel, along the sole to the top of the toe; and
- c) said clubhead has a lie angle between 60 and 65 degrees.

5,803,828

SLIP-ON GOLF CLUB GRIP

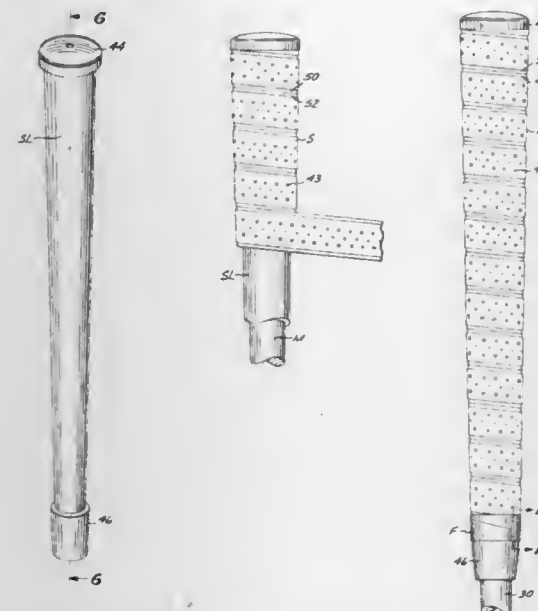
Ben Huang, 19472 Woodlands La., Huntington Beach, Calif. 92648

Continuation-in-part of Ser. No. 637,931, Jan. 14, 1991, abandoned, Ser. No. 890,383, May 26, 1992, abandoned, Ser. No. 953,190, Sep. 29, 1992, abandoned, Ser. No. 58,313, May 3, 1993, Ser. No. 278,186, Jul. 21, 1994, Pat. No. 5,397,123, Ser. No. 542,009, Nov. 13, 1995, Pat. No. 5,645,501, Ser. No. 567,339, Dec. 28, 1995, abandoned, Ser. No. 595,445, Feb. 26, 1996, and Ser. No. 656,942, Jun. 14, 1996. This application Jul. 16, 1996, Ser. No. 682,929

Int. Cl.⁶ A63B 49/08

U.S. Cl. 473—300

10 Claims



1. A slip-on golf club grip that is positioned on and adhered to the upper portion of a golf club shaft, said grip comprising: a resilient sleeve; and

5,803,829

GOLF CLUB

Toshiaki Hayashi, Sanjo, Japan, assignor to S.I.N.C. Corporation, Sanjo, Japan

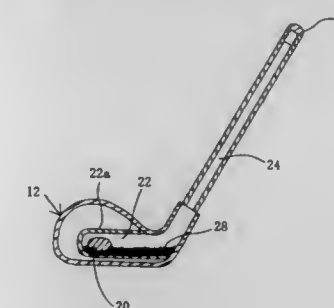
Filed May 29, 1997, Ser. No. 865,515

Claims priority, application Japan, Mar. 27, 1997, 9-074880

Int. Cl.⁶ A63B 53/08; 69/36

U.S. Cl. 473—326

8 Claims



1. A golf club comprising:
 - a grip;
 - a shaft having a hollow portion therein, said shaft being attached to said grip;
 - a head having a front surface, a sweet spot on the front surface, and a hollow passage formed inside the head and communicating with said hollow portion of said shaft, said hollow passage extending behind the sweet spot and having an enlarged portion behind the sweet spot, which is greater in size than other portions of the hollow passage; and

movable material means movable in said hollow passage and hollow portion and being contained therein so that when said golf club is swung, said movable material means is moved in said hollow passage and hollow portion for changing the location of the center of gravity of the golf club, and when the head comes to a point of impact, the movable material means is located in the hollow passage including the enlarged portion behind the sweet spot.

5,803,830

OPTIMUM DYNAMIC IMPACT GOLF CLUBS

Michael Hoke Austin, 5446 Irondale Ave., Woodland Hills, Calif. 91367, and Arthur Sydney Forster, 3434 Shoreheights Dr., Malibu, Calif. 91265

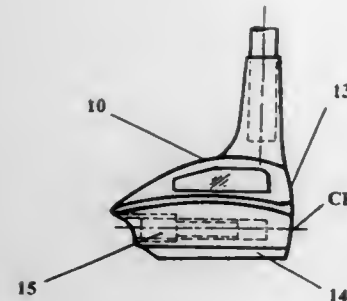
Filed Aug. 1, 1994, Ser. No. 286,374

Int. Cl.⁶ A63B 53/04

U.S. Cl. 473—328

24 Claims

1. An driver/fairway club(s) (woods) type golf clubhead for hitting a golf ball comprising:
 - (a) a golf clubhead body having a heel section, a toe section, a mass optimized double sculptured bottom sole with single triangular-shaped rider, an upper double curvature aerodynamic wing surface, a lofted ball striking faceplate with a double curvature external surface and mass distribution controlled internal surface, a centralized mass optimized angular momentum control member, a centralized balance/control mechanism, and low density-high damping shock/vibration system;



- (b) a hosel adjacent said heel portion and said upper double curvature aerodynamic wing surface and having a front and rear surface, said rear surface smoothly transitions into the said heel portion of said clubhead body, and said front surface smoothly transitions into the external surface of the said aerodynamic wing;
- (c) said clubhead body is of preferred all-metal (magnesium or other low density metal) construction with two centrally located cavities that are set-back from the said lofted ball striking faceplate and separated by the said mass optimized angular momentum control member that is located at the clubhead center of percussion and houses the centralized balance/control mechanism, said cavities are filled with said low density-high damping material;
- (d) said clubhead body toe section extends beyond and smoothly transitions into the said lofted ball striking faceplate, the overhanging leading edge of the said double curvature aerodynamic wing, and said double sculptured bottom sole surfaces.

5,803,831

GOLF BALL AND METHOD OF MAKING SAME

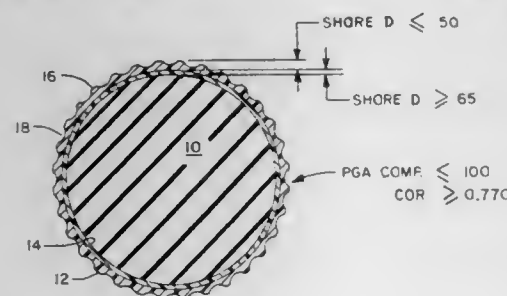
Michael J. Sullivan, Chicopee; John L. Nealon, Springfield, and Mark Binette, Ludlow, all of Mass., assignors to Lisco Inc., Tampa, Fla.

Continuation-in-part of Ser. No. 591,046, Jan. 25, 1996, Ser. No. 542,793, Oct. 13, 1995, and Ser. No. 562,540, Nov. 20, 1995, which is a continuation of Ser. No. 70,510, Jun. 1, 1993, abandoned, said Ser. No. 542,793 is a continuation-in-part of Ser. No. 70,510. This application Apr. 10, 1996, Ser. No. 631,613

Int. Cl.⁶ A63B 37/06;37/12

U.S. Cl. 473—374

38 Claims



1. A golf ball, comprising:
a solid core;
a thermoplastic inner cover layer having a Shore D hardness of at least 65 formed over the core, and
an outer cover layer formed over the inner cover layer, the outer cover layer comprising an ionomeric resin, more than 75 wt % of the ionomeric resin consisting of one or more copolymers, each of which is formed from (a) an olefin having 2 to 8 carbon atoms, (b) an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms, and (c) an acid which includes at least one member selected from the group consisting of α , β -ethylenically unsaturated mono- or dicar-

boxylic acids with a portion of the acids being neutralized with cations, the outer cover layer having a Shore D hardness of no more than 50 and a flex modulus of 1,000 to 10,000 psi, the golf ball having a PGA compression of 100 or less and a coefficient of restitution of at least 0.770.

5,803,832

SOLID GOLF BALL

Atsushi Nakamura, and Hisashi Yamagishi, both of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

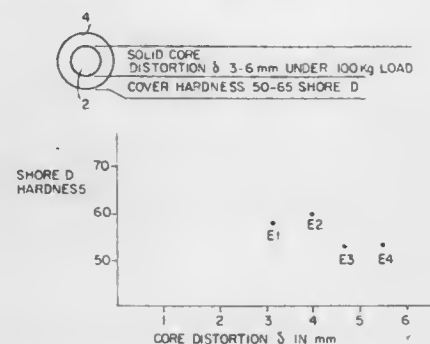
Filed Oct. 28, 1996, Ser. No. 738,828

Claims priority, application Japan, Oct. 26, 1995, 7-302012

Int. Cl.⁶ A63B 37/06;37/12

U.S. Cl. 473—377

3 Claims



1. A solid golf ball comprising a solid core and a cover wherein said solid core has a distortion of 8 mm under a load of 100 kg and said cover has a Shore D hardness d which satisfies the expression: $d \leq -4.6 \times \delta + 83.4$ and the ball has a weight of 41 to 44.5 grams.

5,803,833

TWO-PIECE SOLID GOLF BALL

Atsushi Nakamura, and Hisashi Yamagishi, both of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

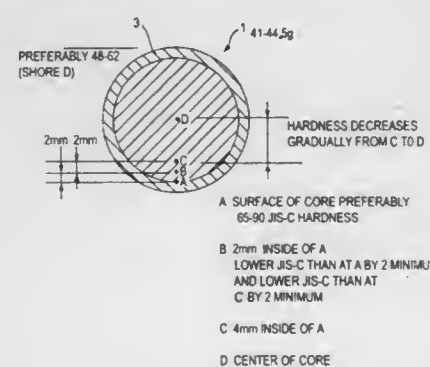
Filed Feb. 7, 1997, Ser. No. 797,609

Claims priority, application Japan, Feb. 7, 1996, 8-045444

Int. Cl.⁶ A63B 37/06;37/12

U.S. Cl. 473—377

3 Claims



1. A two-piece solid golf ball comprising a solid core having a spherical surface and a cover enclosing the core, wherein the golf ball has a weight of 41 to 44.5 grams, and said solid core has such a distribution of hardness as measured by a JIS-C scale hardness meter that the hardness at 2 mm inside the core surface is at least 2° lower than the hardness at the core surface and the hardness at 4 mm inside the core surface and the hardness gradually decreases from 4 mm inside the core surface to the core center.

5,803,834

TWO-PIECE SOLID GOLF BALL

Hisashi Yamagishi, and Jun Shindo, both of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Feb. 27, 1997, Ser. No. 810,337

Claims priority, application Japan, Mar. 1, 1996, 8-071135

Int. Cl.⁶ A63B 37/06;37/12

U.S. Cl. 473—377

4 Claims

1. A two-piece solid golf ball comprising a solid core and a cover enclosing the core and having a number of dimples in its surface, wherein
said solid core has such a distribution of hardness as measured by a JIS-C scale hardness meter that a surface hardness is up to 85 degrees, a center hardness is lower than the surface hardness by not less than 8 to less than 20 degrees, and a hardness within 5 mm inside the core surface is up to 8 degrees lower than the surface hardness,
said cover has a hardness which is higher than the surface hardness of the core by 1 to 15 degrees and a gage of 1.5 to 1.95 mm, and
the number of dimples is 360 to 450.

5,803,835

MUSICAL HOP SCOTCH GAME KIT

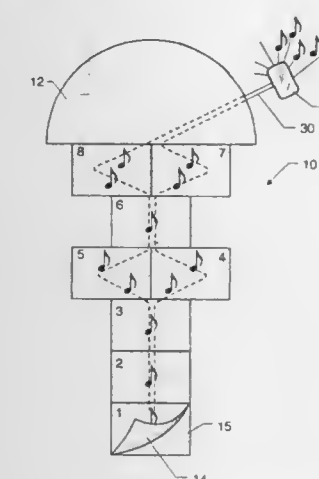
James M. Moton; Shelia H. Moton, and Gia T. Moton, all of 14138 Bradby La., Smithfield, Va. 23430

Filed Dec. 9, 1996, Ser. No. 762,161

Int. Cl.⁶ A63B 67/00

U.S. Cl. 473—414

4 Claims



1. A game kit comprising:
a pliable mat having indicia thereon representing a hop scotch game with individual positions thereon to be stepped on by a game player;
an electrical switch carried by said mat at each position to be stepped on by a game player;
said electrical switch being a pressure actuated switch and normally in the open position when no pressure is applied thereto and being movable to a closed position when stepped on by a game player;
an electrical circuit in connection with each said electrical switch;
a control unit electrically connected through said electrical circuit to each said electrical switch;
said control unit containing (a) a power supply, (h) a music producing device and (c) at least one speaker;
said power supply consisting of at least one battery for supplying power to operate said music producing device;
each said electrical switch serving to close said electric circuit and initiate a music response from said music producing device when stepped on by a game player.

5,803,836

HITTING PRACTICE DEVICE

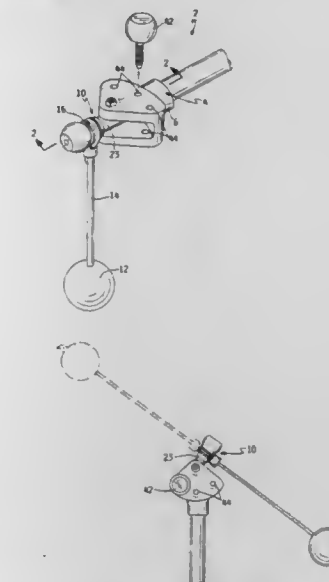
John L. Beintema, 10531 Maryland Cir., Bloomington, Minn. 55438

Filed Oct. 25, 1996, Ser. No. 740,296

Int. Cl.⁶ A63B 69/00

U.S. Cl. 473—429

15 Claims



1. A device for practicing hitting a ball, which comprises:
(a) a support member;
(b) means for suspending a ball from the support member such that the ball swings generally vertically on the support member in a substantially upright plane of rotation when the ball is struck substantially squarely; and
(c) selectively adjustable means for providing a plurality of different, substantially upright rotational planes in which the ball can swing on the support member when the ball is struck squarely, thereby to be able to practice different hitting skills depending upon which rotational plane has been selected.

5,803,837

BASKETBALL PRACTICE DEVICE

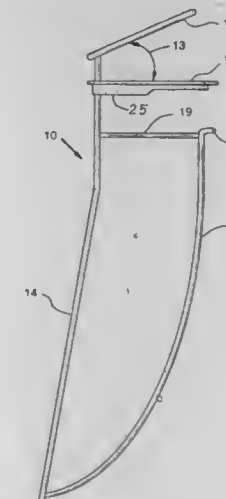
Samuel J. LoFaso, Sr., Sewickley, Pa., assignor to LoFaso and LoFaso Incorporated, Sewickley, Pa.

Filed Jun. 25, 1997, Ser. No. 882,374

Int. Cl.⁶ A63B 69/00

U.S. Cl. 473—433

11 Claims



1. A basketball practice device comprising an auxiliary target ring supported in general above a basketball supporting ring in a

plane disposed at an acute angle from the plane of said supporting ring, and a curved basketball guide chute depending downwardly from said supporting ring for guiding a basketball falling through said supporting ring back toward a basketball shooter, said supporting ring including a basketball ring mount for aligned support of said supporting ring on a standard basketball ring, said mount comprised of a skirt depending downwardly from said supporting ring and dimensioned to seat inside a standard basketball ring for retaining said basketball practice device in aligned position on a standard basketball ring.

5,803,838

DROGUE FOR SPORT BATS AND CLUBS

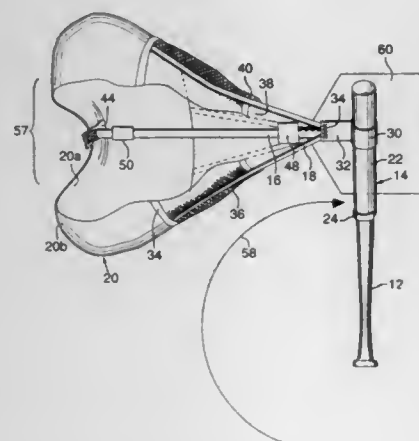
Raymond DeMarini, Hillsboro, Oreg., and Troy Loney, Mount Holly, N.J., assignors to DeMarini Sports, Inc., Hillsboro, Oreg.

Filed Mar. 8, 1996, Ser. No. 612,641

Int. Cl.⁶ A63B 69/00

U.S. Cl. 473—437

12 Claims



1. A training system for increasing air resistance against the movement of a sport implement, comprising:

- (a) a sport implement that can be used in a sport in which the implement is swung to strike an object; and
- (b) an inflatable canopy coupled to the sport implement and wherein motion of the sport implement inflates the canopy so that the canopy exerts aerodynamic drag on the sport implement when the sport implement is moving.

5,803,839

BACKYARD BASEBALL GAME

Robert Palmer, 16 Burnwood Dr., Bloomfield, Conn. 06002, and Kenneth Vayda, 21 Horseshoe Cir., Simsbury, Conn. 06070

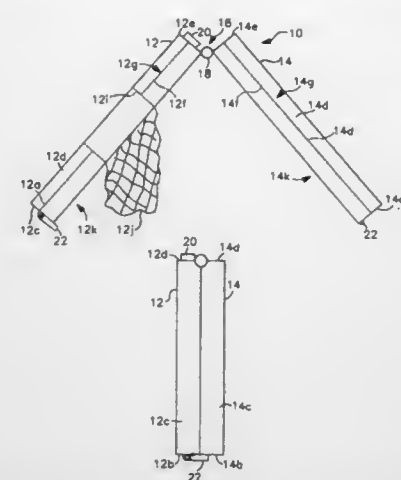
Filed May 13, 1996, Ser. No. 645,238

Int. Cl.⁶ A63B 63/00

U.S. Cl. 473—439

2 Claims

1. An equipment set for playing a backyard game of baseball comprising a carrying case defined by a pair of similar, generally rectangular panels joined along a common margin by means of a hinge, each receptacle having a panel, upstanding wall members along the periphery thereof for defining an interior chamber for receiving, and storing game equipment when said panels are pivoted to a face-to-face position; inner face for receiving and storing game equipment, one of said panels having an outer face defining a backstop functioning as a strike zone target, said strike zone being defined by a border surrounding an opening in the backstop panel, a net surrounding the opening to catch any pitched ball passing directly through the opening, and an outer face of the other



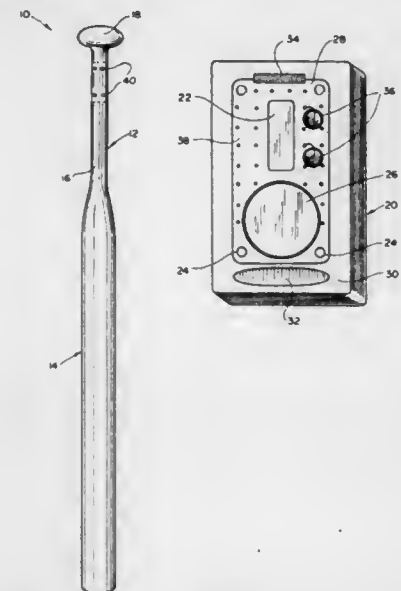
5,803,840

SOUND PRODUCING BASEBALL BAT

Gary Young, P.O. Box 1003, Westwego, La. 70094
Continuation-in-part of Ser. No. 512,614, Aug. 8, 1995, Pat. No. 5,590,875. This application Jul. 26, 1996, Ser. No. 692,913
Int. Cl.⁶ A63B 69/36

U.S. Cl. 473—457

2 Claims



1. A baseball bat device, comprising:

- a handle portion;
- a striking portion fixedly attached to said handle portion;
- a sound module mounted within said handle portion for producing an audible signal in a form of a speech sound, said sound module comprising a housing securely attached to said handle portion, a sound producing unit for generating said audible signal mounted within said housing and a movable object positioned within said housing for activating said sound producing unit when said baseball device is oriented by a player in such a manner that the striking portion is oriented above the handle portion, said sound module further comprising at least one contact member operationally connected to said sound producing unit, said contact member transferring an activation signal to said sound producing unit when said movable object contacts said at least one contact member; and
- means for absorbing shock mounted opposite said at least one contact member within said housing.

5,803,841

PITCHER'S TRAINING AID

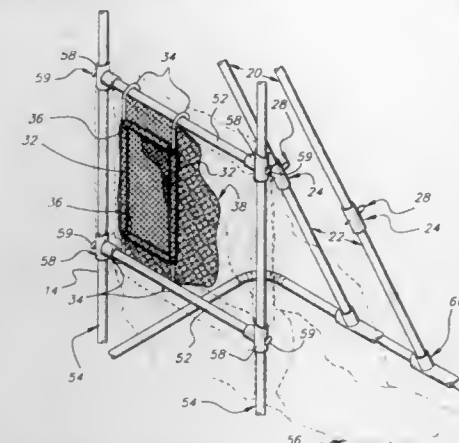
Raymond S. Daskoski, R.R. 1, 4169 Drake Hill Rd., Albion, Me. 04910

Filed May 21, 1997, Ser. No. 870,580

Int. Cl.⁶ A63B 69/38

U.S. Cl. 473—454

20 Claims



1. A training aid comprising:

- a frame including:
 - a base structure;
 - a target support structure attached to said base structure, and
 - a first brace member attached between said target support structure and said base structure;
- a first adjustable support member slidably mounted on said target support structure;
- a second adjustable support member slidably mounted on said target support structure;
- means for locking said adjustable support members in position upon said target support structure, said adjustable support members and said target support structure thereby defining an opening;
- a first net contiguous with said opening and attached to said pair of adjustable support members and said target support structure; and
- a second net assembly removably attached to said pair of adjustable support members, said second net assembly being within said first net and within said opening.

5,803,842

COLLAPSIBLE PITCHER'S PRACTICE CAGE

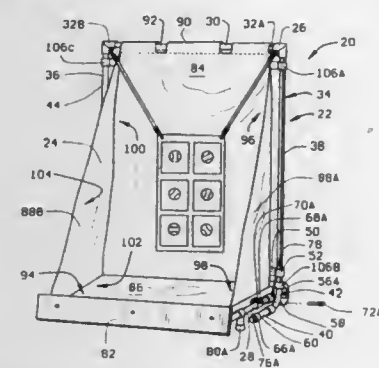
Charles E. Ross, 2414 Lakeside Dr., Centralia, Ill. 63801

Filed Feb. 11, 1997, Ser. No. 798,658

Int. Cl.⁶ A63B 69/00

U.S. Cl. 473—456

18 Claims



1. An apparatus comprising:

- a frame comprising a first portion and a second portion, said frame second portion pivotally coupled to said frame first portion and movable to a first position in which said frame

second portion is substantially perpendicular to said frame first portion, and a second position in which said frame second portion is substantially parallel to said frame first portion; and

a fabric enclosure comprising a rear wall and a bottom wall, said rear wall coupled to said frame first portion and said bottom wall coupled to said frame second portion; and

a pitching target coupled to said frame first member.

5,803,843

LOCKABLE ARROW NOCK

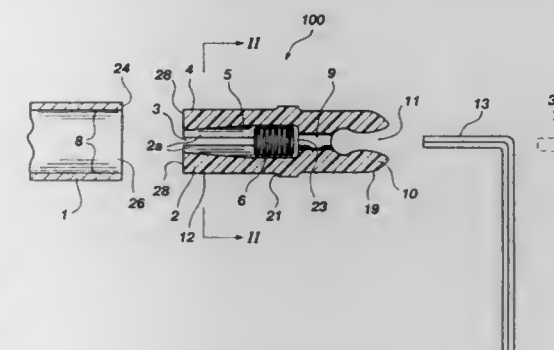
Vaughn R. Anderson, 217 N. 260 West, Orem, Utah 84057, and Marvin L. Carlston, 430 N. 470 West, Lehi, Utah 84043

Filed Jun. 29, 1994, Ser. No. 268,246

Int. Cl.⁶ F42B 6/06

U.S. Cl. 473—578

11 Claims



1. An arrow nock for attachment to a tubular end of an arrow shaft as part of an arrow, said tubular end having interior side walls defining an open receiving cavity of the arrow shaft, said arrow nock comprising:

- an arrow nock body including an insert end portion and an opposing nock end portion,
- said insert end portion including exterior side walls and being configured and dimensioned for telescopic insertion into the open receiving cavity of the arrow shaft in an axial direction with respect to the arrow shaft,
- said nock end portion including a receiving slot configured for receiving a bowstring therein; and
- locking means for locking the arrow nock body to the arrow shaft, including means engageable with the nock body for selectively moving the exterior side walls of the insert end portion radially outward into contact with the interior side walls of the arrow shaft such that said insert end portion is held in frictional engagement with said interior side walls to thereby lock said insert end portion to the arrow shaft.

5,803,844

RING ACTUATED ARROWHEAD

Jeffrey J. Anderson, 71 Ravine Lake Rd., Bernardsville, N.J. 07924

Filed May 29, 1997, Ser. No. 865,398

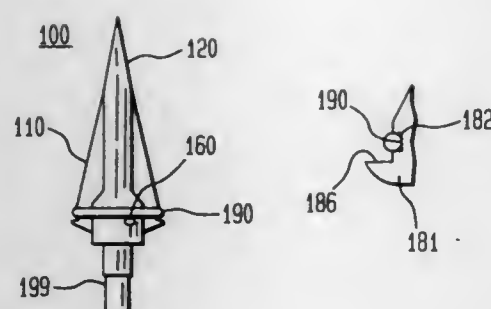
Int. Cl.⁶ F42B 6/08

U.S. Cl. 473—583

18 Claims

1. An arrowhead adapted for penetration of an object, said arrowhead comprising:

- a slotted ferrule;
- at least two blades, each of said blades having a notch and a rim;
- said at least two blades rotatably coupled to said slotted ferrule; and
- a blade locking ring, said rim being sized relative to a width of said blade locking ring to achieve an aerodynamic profile, wherein said at least two blades are in a closed position when said blade locking ring is positioned in said notch and said at



least two blades are in an open position when said blade locking ring is positioned at said rim, wherein said at least two blades go from said closed position to said open position after said arrowhead pierces a surface of said object, said surface of said object displacing said blade locking ring from said notch to said rim causing said at least two blades to pivot outward.

5,803,845

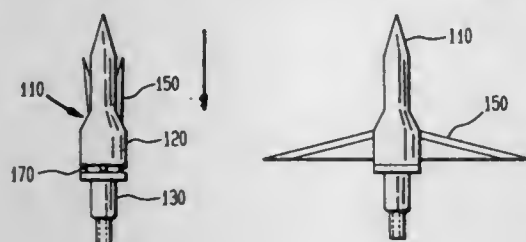
TIP ACTUATED ARROWHEAD

Jeffrey J. Anderson, 71 Ravine Lake Rd., Bernardsville, N.J. 07924

Filed May 29, 1997, Ser. No. 865,581
Int. Cl.⁶ F42B 6/08

U.S. Cl. 473—583

20 Claims



1. An arrowhead adapted for penetration of an object, said arrowhead comprising:
a tip ferrule, said tip ferrule having at least two blade slots;
a body ferrule, said body ferrule having at least two blade slots;
and
at least two blades, said at least two blades rotatably coupled to said body ferrule;
each of said blades having a blade ear, wherein said tip ferrule is positioned on each said blade ear to retain said at least two blades in a closed position;
wherein said at least two blades go from said closed position to an open position when said arrowhead impacts said object, said tip ferrule pushing directly down on each said blade ear to cause said at least two blades to pivot outward.

5,803,846

CONTINUOUSLY VARIABLE TRANSMISSION WITH MOVABLE FLANGE

Masahiko Yamada, Suya; Makoto Imaida, Zama, and Kiyofumi Tanaka, Machida, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, and Aichi Machine Industry Co., Ltd., Nagoya, both of Japan

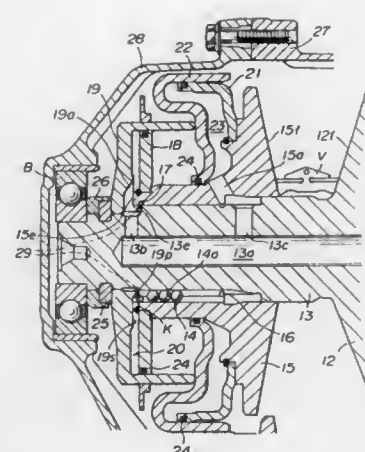
Filed Jan. 5, 1996, Ser. No. 583,601

Claims priority, application Japan, Jan. 10, 1995, 7-001860
Int. Cl.⁶ F16H 61/00

U.S. Cl. 474—18

4 Claims

1. A continuously variable transmission, comprising:
a main shaft having a stepped portion in the vicinity of an end thereof;



a first flange integrated with said main shaft, said first flange having a first face;
a second flange axially movably supported on said main shaft through a ball spline having balls, said second flange having a second face facing said first face of said first flange, an interval between said first face of said first flange and said second face of said second flange being changed by moving said second flange to achieve a continuous shifting;
snap rings mounted to said main shaft and said second flange at an inner periphery thereof, respectively, said snap rings serving to prevent said ball spline from disengaging by restricting motion of said balls; and
a stopper arranged on said main shaft at said end thereof, said stopper contacting an end of said second flange to prevent a movement thereof,
wherein said stepped portion of said main shaft, said end of said second flange, and said stopper cooperates to define a space around said main shaft.

5,803,847

VARIABLE SPEED MECHANISM AND METHOD FOR CONTROLLING THE SPEED OF AN ASSOCIATED VEHICLE

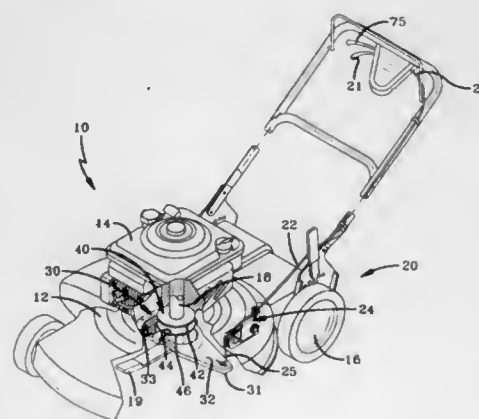
Michael Kamm, Lyndhurst, Ohio, assignor to MTD Products Inc., Cleveland, Ohio

Filed Sep. 5, 1996, Ser. No. 708,373

Int. Cl.⁶ F16H 9/12; 55/56

U.S. Cl. 474—37

18 Claims



12. A control arm assembly for use with a lawn mowing apparatus having a variable speed mechanism which provides propulsion to the lawn mowing apparatus, the lawn mowing apparatus

also having a body, a transmission which is operatively connected to a drive axle, a shaft, and rotating means for rotating the shaft, the variable speed mechanism having a variable pitch pulley assembly, pulley connecting means for operatively connecting the variable pitch pulley assembly to the transmission and, selective adjusting means for selectively adjusting the control arm assembly, the variable pitch pulley assembly having first and second pulley halves, the second pulley half being selectively movable along the length of the shaft, the pulley connecting means fitting between said first and second pulley halves, the control arm assembly for moving the second pulley half along the length of the shaft, the control arm assembly comprising:

a control arm having first and second ends and an opening, said second end of said control arm being pivotably connected to the body, said first end of said control arm being operatively connected to the selective adjusting means, the shaft rotatably received within said opening in said control arm.

5,803,848

GEAR CHANGE SYSTEM

Rolf Nier, Bad Urach, Germany, assignor to Gustav Magenwirth GmbH & Co., Germany

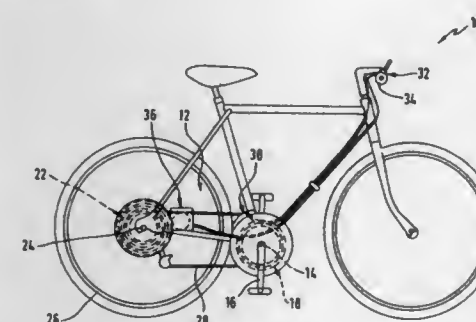
Filed Mar. 5, 1997, Ser. No. 810,774

Claims priority, application Germany, Mar. 6, 1996, 196 08 717.1

Int. Cl.⁶ F16H 59/00; 61/00; 63/00

U.S. Cl. 474—81

29 Claims



1. A gear change system for derailleur gears, comprising:

a first chain changer for shifting a chain to different chain wheels on a pedal-crank side;
a second chain changer for shifting the chain to different pinions on a wheel side; and
a gear change device with a first switching unit for the first chain changer, a second switching unit for the second chain changer, and a manually operated switching element by means of which both of said first and second switching units can be simultaneously operated so that, by means of the simultaneously operated first and second switching units, the chain can be shifted to a chain wheel/pinion combination selected for a gear sequence, and from a switched gear a transition is possible only to a next closest gear in the gear sequence;
wherein the first chain changer is a mechanical chain changer mechanically controllable by the first switching unit, and the second chain changer is a chain changer electrically controllable through the second switching unit.

5,803,849

BELT TENSIONER

Kazumasa Ayukawa, Nara, Japan, assignor to Unitta Company, Osaka, Japan

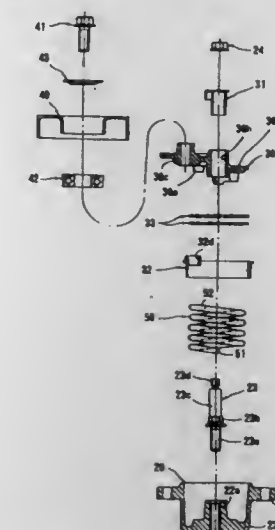
Filed Jun. 11, 1996, Ser. No. 661,559

Claims priority, application Japan, Jun. 14, 1995, 7-171359; Oct. 23, 1995, 7-299206

Int. Cl.⁶ F16D 3/12

U.S. Cl. 474—94

17 Claims



1. A belt tensioner comprising:

a tensioner cup having an opening;
a tensioner arm having a lid portion formed at one end, said lid portion being rotatably connected to said tensioner cup and extending so as to close said opening of said tensioner cup; elastic urging means provided in said tensioner cup to act between said tensioner cup and said tensioner arm so as to elastically urge said tensioner arm in a rotational direction; and
a damping member secured to said lid portion of said tensioner arm such that an outer circumferential surface of said damping member is in sliding contact with an inner circumferential surface of said tensioner cup,
wherein said lid portion of said tensioner arm is provided with at least two columnar pin-like elements protruding parallel to a swing axis of said lid portion of said tensioner arm, and said columnar pin-like elements inserted in holes formed in said damping member, whereby said damping member is prevented from being moved in both rotational and radial directions with respect to said lid portion of said tensioner arm.

5,803,850

TENSIONER FOR A POWER TRANSMISSION BELT AND METHOD OF MAKING THE SAME

Richard Hong, Grosse Pt. Wds., and Joseph W. Zamm, Rochester Hills, both of Mich., assignors to Dayco Products, Inc., Dayton, Ohio

Division of Ser. No. 603,044, Feb. 16, 1996, Pat. No.

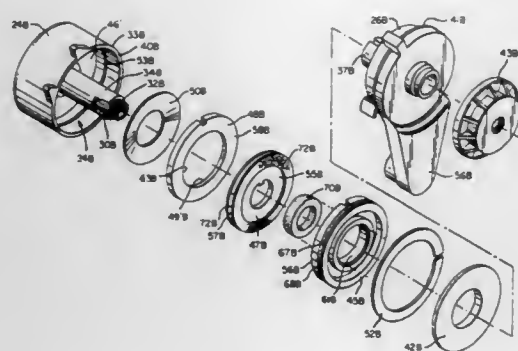
5,718,649. This application Dec. 3, 1997, Ser. No. 984,469

Int. Cl.⁶ F16H 7/12; 7/08; 7/22

U.S. Cl. 474—135

20 Claims

1. In a tensioner for a power transmission belt that is carried by a support means including a housing having a chamber formed therein, said tensioner comprising an arm that carries belt engaging means and is adapted to be pivotably mounted to said support means, mechanical first spring means operatively associated with said support means and said arm for urging said arm, and hence said belt engaging means, relative to said support means and against said belt for tensioning same, and dampening means operatively associated with said support means and said arm to dampen movement of said arm relative to said support means, the improve-



ment wherein said dampening means is a fluidic dampening means and comprises first and second plate means disposed in said chamber, said first plate means fixed to said support means, said second plate means fixed to said arm for rotation therewith and relative to said first plate means, second spring means urging said first and second plate means against one another, friction material disposed between part of facing surfaces of said first and second plate means, and fluid disposed between said facing surfaces of said first and second plate means.

5,803,851

CHAIN DRIVE WITH SECTIONAL STEEL CHAIN

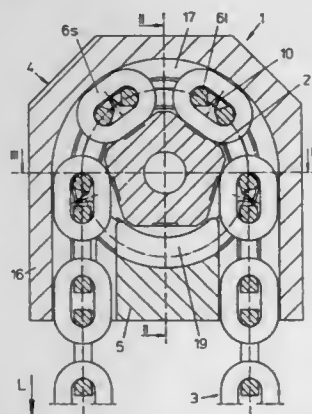
Gerard Walenta, Graz, and Franz Fuchs, Kapfenberg, both of Austria, assignors to Pewag Austria GmbH, Graz, Austria
Filed Jun. 26, 1997, Ser. No. 882,842

Claims priority, application Austria, Jul. 3, 1996, 1179/96

Int. Cl.⁶ F16H 7/06; F16G 13/02

U.S. Cl. 474—155

15 Claims



1. Chain wheel (2) for a chain, which consists of oval, vertical and horizontal links which are rotated in an alternate manner about 90°, having pockets (7), which comprise substantially planar support surfaces (8), for the purpose of receiving the horizontal links (6), and having teeth (10) for the purpose of supporting the horizontal links with their curved ends (6), wherein the teeth comprise convex flanks (12) and the vertical links (6s) are received in a groove (11) between the teeth, characterized in that the convex flanks (12) and the planar support surface (8) contact each other in a substantially direct manner, along a transition edge (13).

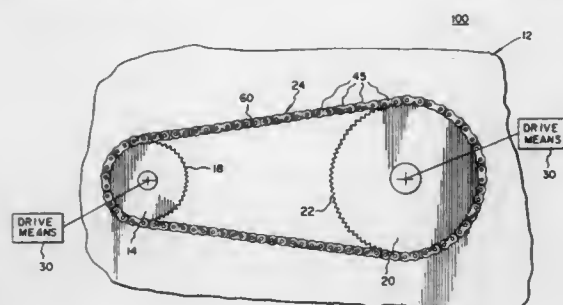
5,803,852
CERAMIC DRIVE SYSTEM
John A. Agostinelli, Dilip K. Chatterjee, and Syamal K. Ghosh, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 3, 1997, Ser. No. 826,628

Int. Cl.⁶ F16H 55/48; F16G 13/06

U.S. Cl. 474—161

6 Claims



1. A drive system, comprising:

a rigid frame;

a first motion generating means mounted for rotation about said frame, said first motion generating means having a first surface comprising a zirconia-alumina ceramic composite material;

a second motion generating means mounted for rotation about said frame, said second motion generating means having a second surface comprising a zirconia-alumina ceramic composite material, and wherein said first motion generating means is spaced apart from said second motion generating means;

means cooperatively associated with said first and second motion generating means for transferring motion between said first motion generating means and said second motion generating means, said means for transferring having a third surface comprising a tetragonal zirconia ceramic material; and,

drive means for rotating at least one of said first and second motion generating means;

whereby motion is transferred from one of said first and second motion generating means to the other when said third surface of said means for transferring is in moving contact with said first and second surfaces of said first and second motion generating means, said moving contact being enabled when one of said first and second motion generating means is rotated by said drive means.

5. A self-lubricating chain of the type having a plurality of interconnected main links, each of said main links including a pair of opposing link plates, a pair of connecting link plates arranged between said opposing link plates, and a pair of connecting pins and rollers disposed in aligned through openings in said link plates and connecting plates, the improvement comprising said opposing link plates and said connecting link plates being made of zirconia-alumina ceramic composite and said rollers being made of tetragonal zirconia polycrystal ceramic.

5,803,853

BICYCLE DRIVE CHAIN

Nick Wu, Tainan, Taiwan, assignor to KMC Chain Industrial Co., Ltd., Taiwan

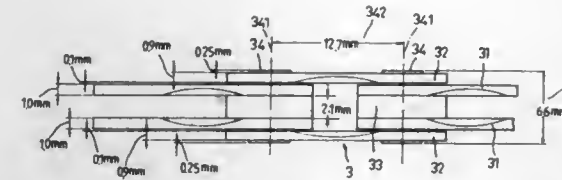
Filed Jun. 30, 1997, Ser. No. 885,300

Int. Cl.⁶ F16G 13/02; F16H 55/00

U.S. Cl. 474—206

1 Claim

1. A bicycle drive chain for training on a rear speed changing gear assembly having up to nine concentric sprocket wheels, each of the sprocket wheels having a thickness of about 1.8 mm, an outermost one of the sprocket wheels having an outer face that is displaced from an inner face of an innermost one of the sprocket wheels by a distance not greater than 37 mm, said bicycle drive



chain comprising inner and outer chain plates, pins for connecting said inner and outer chain plates, and rollers provided respectively on said pins for spacing apart said inner chain plates, said bicycle drive chain having a pitch defined by distance between axes of two adjacent ones of said pins and equal to about 12.7 mm, wherein said pitch is 1.924±0.060 times a total thickness of said bicycle drive chain.

5,803,854

SILENT CHAIN HAVING A SHEARED LINK BEARING SURFACE

Naosumi Tada, Nabari; Kensuke Nakamura, Wako; Kazushige Yakubo, and Yoshiyuki Ohtaka, both of Wako, all of Japan, assignors to Borg-Warner Automotive, K.K., and Honda Giken Kogyo Kabushiki Kaisha, both of Japan

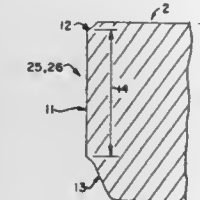
Filed Mar. 7, 1997, Ser. No. 813,240

Claims priority, application Japan, Mar. 18, 1996, 8-090100

Int. Cl.⁶ F16G 13/02

U.S. Cl. 474—213

5 Claims



1. A silent chain comprising:

a plurality of rows of interleaved links, each of said links having a pair of teeth and a pair of apertures and a thickness, each of said teeth being defined by an outside flank and an inside flank;

a plurality of pivot pins being inserted into said apertures to interconnect said links and to permit the articulation of said rows of interleaved links;

said inside and outside flanks of said link teeth each having at least one bearing surface that includes a shear surface along a portion of the thickness of the flank; and said shear surface being at least approximately 70% of the thickness of the link.

5,803,855

POWER TRANSMISSION BELT

Jeffrey D. Russell, 345 Lysander Rd., Rochester, Mich. 48307

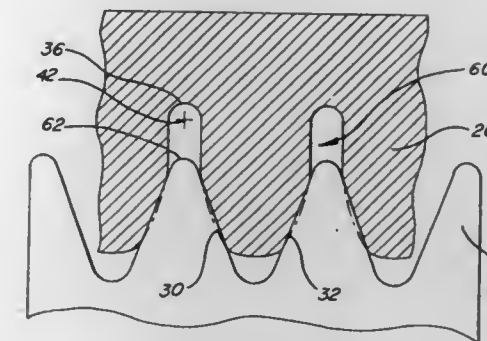
Filed Jan. 14, 1997, Ser. No. 783,505

Int. Cl.⁶ F16G 5/00

U.S. Cl. 474—238

19 Claims

1. An improved power transmission belt said belt comprising: a load carrying tension section with a plurality of ribs extending longitudinally from said load carrying tension section, each of said ribs having a cross sectional profile defined by opposing pulley contact surfaces, a portion of said opposing pulley contact surfaces having a non-linear profile, each of said opposing pulley contact



surfaces of adjacent ribs including a clearance surface extending upwardly therefrom toward said load carrying tension section to a top portion, said clearance surfaces having a profile different than the profile of said opposing pulley contact surface; and a third surface connecting each of said top portions of said clearance surfaces of adjacent ribs, said third surface extending generally transverse to said clearance surfaces of adjacent ribs, said clearance surfaces of adjacent ribs and said third surface defining a clearance space between adjacent ribs.

5,803,856

HYDRAULIC/MECHANICAL POWER TRANSMITTING SYSTEM

Takashi Iino, and Mikihiro Takano, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

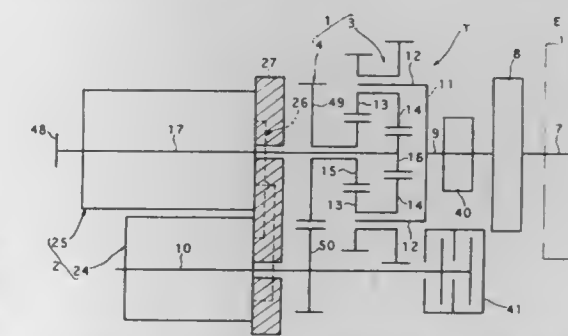
Filed Feb. 19, 1997, Ser. No. 803,143

Claims priority, application Japan, Feb. 22, 1996, 8-034524

Int. Cl.⁶ F16H 3/72

U.S. Cl. 475—72

4 Claims



a power dividing means having an input shaft and first and second output members, for dividing power supplied from a prime mover to the input shaft to distribute the power to the first and second output members;

a hydrostatic continuously variable transmission means connected to the power dividing means, and having a hydraulic pump driven by the power distributed to the first output member, for providing continuously variable drive power, said hydrostatic variable transmission means also having a hydraulic motor communicating with the hydraulic pump through a hydraulic closed circuit, and a control plate having the hydraulic closed circuit disposed thereupon, with at least one of said hydraulic pump and said hydraulic motor being of a variable-displacement type; and

a power collecting shaft for collecting the power output from the hydraulic motor and the power distributed to the second output member, and for supplying the power to a loading member,

wherein said input shaft and said power collecting shaft are disposed coaxially with each other, said first output shaft

being relatively rotatably disposed on said power collecting shaft and connected through an interlocking device to a pump shaft which disposed parallel to said power collecting shaft, wherein said second output member is fixedly mounted on said power collecting shaft, said hydraulic pump including a pump cylinder which is coupled to said pump shaft for rotation in unison with said pump shaft, and wherein said hydraulic motor includes a motor cylinder which is coupled to said power collecting shaft for rotation in unison with said power collecting shaft.

5,803,857
CONTINUOUSLY VARIABLE TRACTION ROLLER TRANSMISSIONS

Takeshi Yamamoto, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

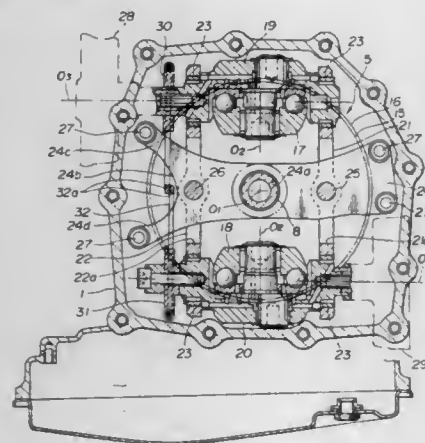
Filed Feb. 13, 1997, Ser. No. 799,809

Claims priority, application Japan, Feb. 13, 1996, 8-025045

Int. Cl.⁶ F16H 15/38

U.S. Cl. 475—192

4 Claims



1. A mechanism for a continuously variable transmission including a casing, input and output disks, traction rollers disposed between the disks, each traction roller having a rotation axis and an oscillation axis which crosses the rotation axis at right angles, and support members for rotatably supporting the traction rollers, the mechanism comprising:

- a wire arranged to interconnect first ends of the support members, said wire serving to secure simultaneousness and equiphase of inclined rotation of the traction rollers about the oscillation axes thereof, said wire having an intersection;
- links arranged to connect the support members;
- a link support connected to the casing, said link support supporting said links at a center thereof so that the support members make synchronous strokes in opposite directions along the oscillation axes of the traction rollers, said link support having an end located near said wire, said end being formed with a recess to obtain a bifurcated form having leg portions, said leg portions being fixed to the casing,
- said intersection of said wire being located within said recess.

5,803,858
POWERTRAIN TRANSMISSION WITH TORQUE CONVERTER PLANETARY GEARING AND A CONTINUOUSLY VARIABLE TRANSMISSION UNIT

Raymond James Haka, Brighton, Mich., assignor to General Motors Corporation, Detroit, Mich.

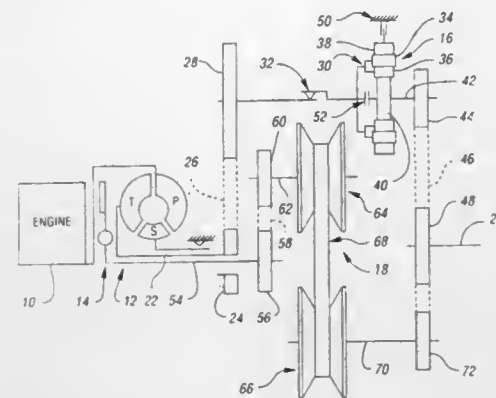
Filed May 23, 1997, Ser. No. 862,883

Int. Cl.⁶ F16H 37/02

U.S. Cl. 475—210

2 Claims

1. A powertrain comprising:
an engine having an output member;



- a torque converter having an input member connected with said engine and an output member;
- a first input shaft drivingly connected with said torque converter output member;
- a second input shaft;
- a selectively engageable input clutch for selectively connecting said engine with said second input shaft;
- a planetary gearset having a sun gear, a ring gear and a planet carrier assembly, said planet carrier assembly being drivingly connectable with said first input shaft;
- a selectively engageable forward clutch connecting said sun gear and said carrier assembly for conjoint rotation;
- a reverse brake selectively restraining rotation of said ring gear;
- a first output member drivingly connected with said sun gear;
- a variable ratio flexible drive mechanism having an input sheave member drivingly connected with said second input shaft, an output sheave member drivingly connected with a second output shaft and a flexible drive transmitting interconnecting said sheave members; and
- a disconnect clutch for disconnecting said carrier assembly from said first input shaft when said input clutch is connected to provide an input torque to said input sheave.

5,803,859
POWERTRAIN WITH PLANETARY GEARING AND A CONTINUOUSLY VARIABLE RATIO UNIT

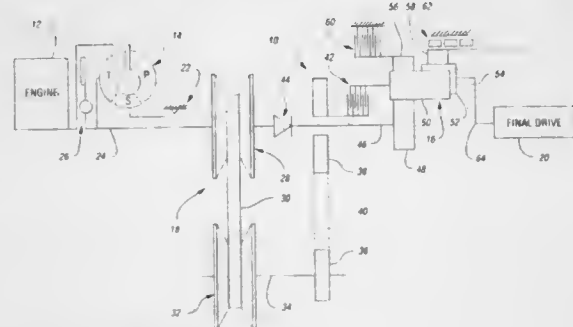
Raymond James Haka, Brighton, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 23, 1997, Ser. No. 862,882

Int. Cl.⁶ F16H 37/02

U.S. Cl. 475—211

4 Claims



1. A powertrain comprising:
an engine having an output shaft;
a torque converter having an input member drivingly connected with said engine output shaft and an output member;
a direct clutch selectively engageable to connect said engine output shaft with said output member;
a continuously variable transmission having an input sheave drivingly connected with said output member and an output sheave;

- a planetary gear arrangement having an input member, an output member, a rotatory member and first and second reaction members;
- a one-way clutch device selectively connecting said planetary input member with said torque converter output member; and
- a selectively engageable clutch for selectively connecting said output sheave with said rotatory member of said planetary gear arrangement.

5,803,860
THREE MODE STEPLESS SPEED CHANGING DEVICE

Eui Han Kim, Kwangmung, Rep. of Korea, assignor to LG Cable Co., Ltd., Seoul, Rep. of Korea

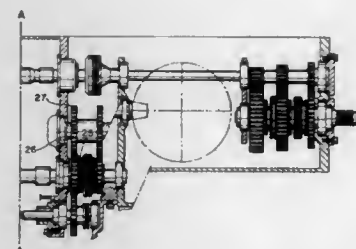
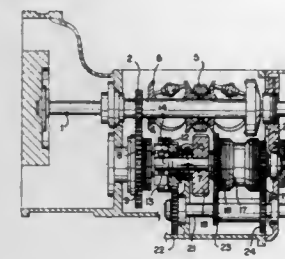
Filed Oct. 21, 1996, Ser. No. 731,869

Claims priority, application Rep. of Korea, Mar. 21, 1996, 1996-7667

Int. Cl.⁶ F16H 37/02

U.S. Cl. 475—215

1 Claim



1. A three operational mode stepless speed changing device having a stepless speed changing unit and a summarizer and converting the operational mode by a clutching motion in a synchronous speed condition to transmit input torque to an output shaft while changing a rotating speed, wherein the improvement comprises:

- first and second gears fixedly and rotatably fitted over a torque input shaft and a driven shaft, respectively, said second gear being selectively clutched by a first clutch in order to convert the operational mode into a first mode and to transmit the input torque to the output shaft through the summarizer;
- the stepless speed changing unit mounted to the input shaft and adapted for transmitting the input torque to the driven shaft connected to the summarizer by power transmission means composed of:
- a first sprocket rotatably fitted over said input shaft in a changed speed output part of the stepless speed changing unit; and
- a second sprocket fixedly fitted over said driven shaft and connected to said first sprocket by a chain;
- the summarizer mounted to said driven shaft and having an epicycloidal gear train composed of:
- a planetary gear carrier transmitted with the input torque from the second gear in the first mode;
- a sun gear fixed to the driven shaft and gearing into a planetary gear;
- a ring gear gearing into said planetary gear; and
- a third gear rotatably fitted over the driven shaft and fixed to said ring gear;

- a fourth and fifth gears rotatably fitted over said driven shaft, said fourth and fifth gears being selectively clutched by second and third clutches in order to convert the operational mode into second and third modes, respectively; and
- sixth, seventh and eighth gears fixed to an intermediate shaft, said sixth and seventh gears gearing into said third and fifth gears of the driven shaft, respectively, while said eighth gear gearing into the fourth gear of the drive shaft.

5,803,861
TOROIDAL TYPE CONTINUOUSLY VARIABLE TRANSMISSION

Takeshi Yamamoto, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Kanagawa, Japan

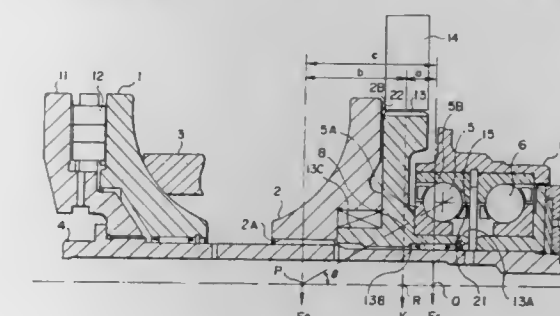
Filed Jul. 24, 1996, Ser. No. 686,627

Claims priority, application Japan, Jul. 24, 1995, 7-187240

Int. Cl.⁶ F16H 15/36

U.S. Cl. 476—40

8 Claims



1. A toroidal type continuously variable transmission adapted to be interposed between an input shaft and a drive shaft for transmitting a rotation of said input shaft to said drive shaft at any rotational speed ratio within a continuous range, comprising:

- an input disk supported on said input shaft so as to rotate together with said input shaft,
- an output disk supported on said input shaft so as to be free to rotate on said input shaft,
- a toroidal cavity formed in confronting faces of said input and output disks,
- a roller member fitted into said toroidal cavity and having a part spherical rolling surface,
- means for mutually biasing together said input disk and said output disk so as to contact both of said confronting faces against said part spherical rolling surface of said roller member and to support said roller member within said toroidal cavity;
- a first output gear disposed on the other side of said output disk from said input disk and coupled to said output disk;
- a second output gear meshed with said first output gear for transmitting driving force to said drive shaft;
- an angular bearing disposed on the other side of said first output gear from said output disk and supporting a thrust load and a radial load imposed upon an assembly of said output disk and said first output gear; and
- a radial bearing provided between an inner circumference of said first output gear and said input shaft for supporting a radial load imposed upon said assembly, a central position of said radial bearing being located between a central position of said angular bearing and a central position of said first output gear along a central axis of said input shaft.

- a first solenoid valve for generating a first hydraulic pressure exclusively for regulating a first hydraulic pressure to be supplied to said hydraulic servos of said friction engagement elements;
- a second solenoid valve for generating a second control hydraulic pressure in a first control region for carrying out control other than regulating said first hydraulic pressure to be supplied to said hydraulic servos of said friction engagement elements and, in addition, in a second control region virtually different from said first control region for regulating a second hydraulic pressure;
- a first pressure regulating valve for generating said first regulated hydraulic pressure with a relatively small control gain in accordance with said first control hydraulic pressure generated by said first solenoid valve;
- a second pressure regulating valve for generating said second regulated hydraulic pressure with a relatively large control gain in accordance with said second control hydraulic pressure generated by said second solenoid valve in said second control region; and

switching means for selectively passing on either said first regulated hydraulic pressure generated by said first pressure regulating valve or said second regulated hydraulic pressure generated by said second pressure regulating valve to either a hydraulic servo of said first friction engagement element or a hydraulic servo of said second friction engagement element;

said first friction engagement element being used in a self-loosening direction in said first transmission-ratio shift and in a self-tightening direction in said second transmission-ratio shift;

said switching means, in said first transmission-ratio shift, passing on said first regulated hydraulic pressure generated by said first pressure regulating valve to said second hydraulic servo of said second friction engagement element and said second regulated hydraulic pressure generated by said second pressure regulating valve to said first hydraulic servo of said first friction engagement element; and

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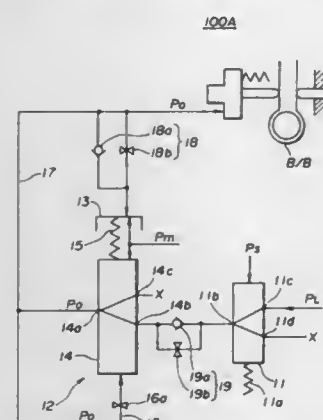
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said switching means, in said second transmission-ratio shift, passing on said first regulated hydraulic pressure generated by said first pressure regulating valve to said first hydraulic servo of said first friction engagement element.

5,803,867
FLUID CONTROL CIRCUIT OF AUTOMATIC TRANSMISSION
Osamu Sato, Fujisawa, and Kazuhiro Takatori, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Feb. 13, 1997, Ser. No. 800,199
Claims priority, application Japan, Feb. 15, 1996, 8-27762
Int. Cl.⁶ F16H 61/06
U.S. Cl. 477-151 13 Claims



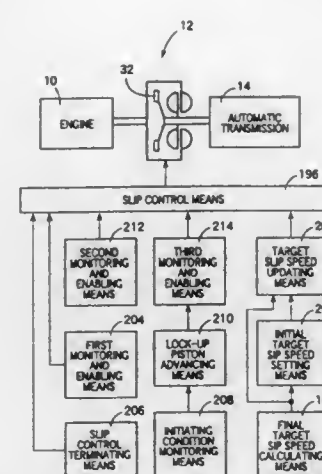
1. A fluid control circuit of an automatic transmission having a friction element which induces a certain speed gear of the transmission when hydraulically operated, said fluid control circuit comprising:

- an accumulator valve unit which receives a line pressure for regulating a pressure of an operation fluid applied to the friction element in accordance with an engine load;
- a shift valve which feeds the line pressure to said accumulator valve unit when assuming a first position and drains said operation fluid when assuming a second position; and
- a flow restriction device for restricting the draining flow of said operation fluid.

5,803,868
SLIP CONTROL APPARATUS FOR MOTOR VEHICLE LOCK-UP CLUTCH
Katsumi Kono, Toyota; Shinya Nakamura, Owariasahi, and Atsushi Honda, Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Division of Ser. No. 501,341, Jul. 12, 1995, Pat. No. 5,683,329.
This application Jun. 3, 1997, Ser. No. 867,692
Claims priority, application Japan, Jul. 13, 1994, 6-161294
Int. Cl.⁶ B60K 41/12
U.S. Cl. 477-168 4 Claims

1. An apparatus for controlling an amount of slip of a lock-up clutch disposed between a pump impeller and a turbine impeller in a fluid-filled power transmitting device of a motor vehicle, said lock-up clutch having a piston, said apparatus including slip control means for controlling the amount of slip of said lock-up clutch while a running condition of the vehicle is in a predetermined slip control area, such that an actual slip speed of said lock-up clutch coincides with a target slip speed, said apparatus comprising:

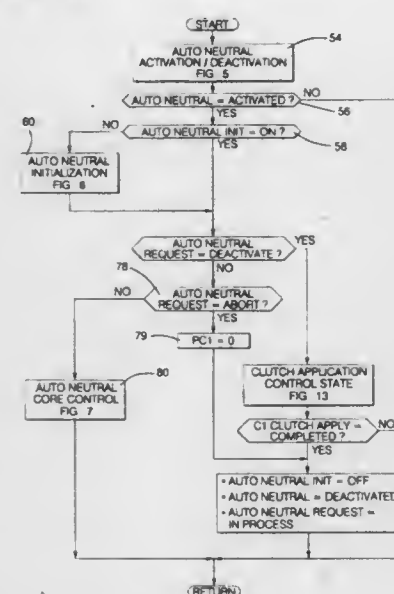
- initiating condition monitoring means for determining whether a condition of the vehicle for initiating a slip control operation of said slip control means is satisfied;



lock-up piston advancing means for advancing said piston of said lock-up clutch by a predetermined distance and at a predetermined rate if said initiating condition monitoring means determines that said condition of the vehicle is satisfied; and

monitoring and enabling means for determining whether said piston has been advanced by said predetermined distance by said lock-up piston advancing means, and enabling said slip control means to initiate a slip control operation to control the amount of slip of said lock-up clutch after said piston has been advanced by said predetermined distance.

5,803,869
AUTOMATIC TRANSMISSION AUTO NEUTRAL CLUTCH CONTROLS WITH INTERMITTENT SLIP AND A METHOD OF CONTROL
Fereydoon Jamzadeh, Indianapolis, and Goetz William Schaefer, Brownsburg, both of Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Mar. 17, 1997, Ser. No. 819,404
Int. Cl.⁶ F16H 59/38; B60K 41/22
U.S. Cl. 477-168 10 Claims

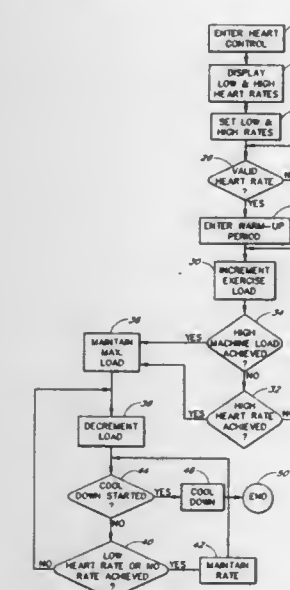


1. A power transmission and control for a vehicle: said transmission comprising: a torque converter having an input speed and an output speed; an input shaft drivingly connected with said torque converter; an output shaft;

a planetary gear arrangement disposed between said input shaft and said output shaft comprising a plurality of fluid operated torque transmitting devices, planetary gear means controlled by selective engagement of said torque transmitting devices at predetermined torque capacities to establish a plurality of drive ratios between the input and output shafts including forward, reverse and neutral ratios;

- said control comprising:
 - means for determining the drive ratio established;
 - means for determining the presence of a zero speed at said input shaft and said output shaft;
 - means for determining a presence of an operator demand;
 - first means for reducing said torque capacity of one of said torque transmitting devices at a first controlled ramp rate until a first minimum capacity is achieved when said output shaft and said input shaft have a zero speed, a predetermined one of said drive ratios other than neutral is established and an operator demand is present;
 - second means for increasing said torque capacity at a first controlled rate until a first predetermined maximum capacity is achieved and said input speed is not zero and said operator demand is present;
 - said first means reducing said torque capacity from said first predetermined maximum capacity to a second predetermined minimum capacity;
 - said second means increasing said torque capacity until a second predetermined maximum capacity less than said first predetermined is achieved;
 - said first means reducing said torque capacity from said second predetermined capacity until at least the second predetermined minimum is achieved; and
 - said first and second means maintaining said torque capacity alternately between said second predetermined maximum and minimum capacity when the operator demand is present.

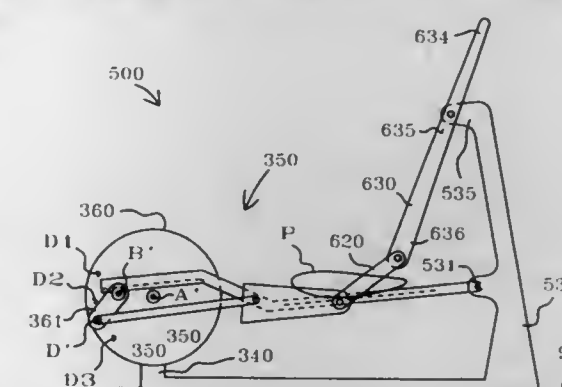
5,803,870
EXERCISE MACHINE USING HEART RATE CONTROL FOR CARDIOPULMONARY INTERVAL TRAINING
Kirk A. Buhler, Corona, Calif., assignor to Unisen, Inc., Tustin, Calif.
Filed May 6, 1996, Ser. No. 643,745
Int. Cl.⁶ A63B 21/005
U.S. Cl. 482-8 23 Claims



1. A method for cardiopulmonary interval training with an exercise apparatus having a controllable load comprising:

- determining a first target heart rate for a user and a first load setting which corresponds to the first target heart rate for the user;
- determining a second target heart rate for the user and a second load setting which corresponds to the second target heart rate for the user;
- measuring the user's heart rate as the user exercises on the exercise apparatus; and
- varying the load from the first load setting toward the second load setting at a predetermined rate or over a predetermined time period until the second target heart rate is achieved, said predetermined rate or predetermined time period being dependent on the difference between the first and second load settings corresponding to the first and second target heart rates for the user;
- whereby the predetermined rate or predetermined time period varies from user to user depending upon the physical conditioning of the user as determined by the first and second load settings.

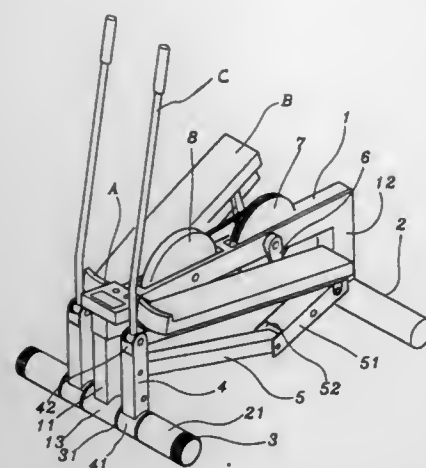
5,803,871
EXERCISE METHODS AND APPARATUS
Kenneth W. Stearns, 8009 Cedel, Houston, Tex. 77055, and Joseph D. Maresh, 19919 White Cloud Cir., West Linn, Oreg. 97068
Filed Apr. 24, 1997, Ser. No. 839,991
Int. Cl.⁶ A63B 69/16; 22/00
U.S. Cl. 482-52 22 Claims



- 15. An exercise apparatus, comprising:
 - a frame;
 - a crank rotatably mounted on the frame;
 - a support member pivotally connected to the frame;
 - a force receiving member, sized and configured to support a foot of a standing person, wherein the force receiving member is movably mounted on the support member;
 - a first means, interconnected between the support member and the crank, for linking rotation of the crank to pivoting of the support member relative to the frame; and
 - a second means, interconnected between the force receiving member and the crank, for linking rotation of the crank to movement of the force receiving member and the foot of the standing person relative to the support member.

5,803,872
STEP EXERCISER
Shao Ying Chang, 1F, No. 764, Chung Hsang S. Rd., Yang-Mai Town, Tao-Yuan Town, Taiwan
Filed Oct. 6, 1997, Ser. No. 944,587
Int. Cl.⁶ A63B 22/04
U.S. Cl. 482-52 5 Claims

- 1. A step exerciser comprising:
 - a main shaft having a downwardly vertically extended front rod and a downwardly vertically extended rear rod at two oppo-



- site ends thereof, a front wheel slot and a rear wheel slot spaced between said downwardly vertically extended front rod and said downwardly vertically extended rear rod, said downwardly vertically extended front rod having a bottom end terminating in a horizontal barrel for supporting on the ground;
- a transverse rear bar fixedly connected to the downwardly vertically extended rear rod of said main shaft and adapted to support it on the ground;
- two horizontal tubes connected to the horizontally disposed barrel of said downwardly vertically extended front rod of said main shaft at two opposite sides by an axle and two end caps;
- two oscillating bars turned about said axle and connected between the horizontally disposed barrel of said downwardly vertically extended front rod of said main shaft and said horizontal tubes, each of said oscillating bars having a bottom end terminating in a horizontal barrel sleeved on said axle and connected between the horizontally disposed barrel of said downwardly vertically extended front rod of said main shaft and one horizontal tube by ring caps, and a top end terminating in a pair of upwardly extended parallel lugs;
- two front links having a respective front end respectively pivoted to said oscillating bars at an elevation below the upwardly extended parallel lugs of said oscillating bars, and a respective rear end respectively pivoted to a respective rear link;
- two rear links having a respective notched front end respectively pivoted to the rear ends of said front links, and a respective rear end respectively pivoted to a respective actuating bar;
- two actuating bars having a respective rear end fixedly mounted with a pair of downwardly extended parallel lugs respectively pivoted to the rear ends of said rear links, and a respective front end terminating in a pair of forwardly extended parallel lugs respectively pivoted to the upwardly extended parallel lugs of said oscillating bars;
- a driving wheel revolvably supported in said rear wheel slot of said main shaft;
- a fly wheel revolvably supported in said front wheel slot of said main shaft and coupled to said driving wheel by a transmission belt; and
- two cranks bilaterally coupled between said driving wheel and said rear links.

5,803,873

Patent Not Issued For This Number

5,803,874
UNIVERSALLY ADAPTABLE ADJUSTABLE ARM
EXERCISE DEVICE TO SUPPLEMENT LEG
EXERCISING

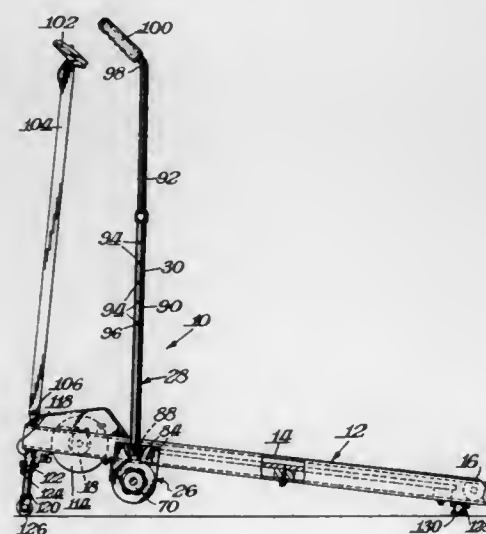
William T. Wilkinson, P.O. Box 73, Salem, N.J. 08079

Continuation of Ser. No. 299,242, Aug. 31, 1994, Pat. No. 5,460,586, which is a continuation of Ser. No. 55,250, May 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 945,373, Sep. 16, 1992, Pat. No. 5,207,622, and Ser. No. 986,487, Dec. 7, 1992. This application Jun. 7, 1995, Ser. No. 473,269

Int. Cl.⁶ A63B 22/02

U.S. Cl. 482—54

25 Claims



1. An arm exercise device to supplement leg exercising comprising a leg exercise unit in the form of a treadmill, said treadmill including a frame and a rotatably mounted foot contact surface mounted about a pair of spaced shafts for rotating around said shafts as the user walks or runs by lifting and lowering the user's legs while on said foot contact surface, a pair of poles, each of said poles terminating in an upper end comprising a handle for being grasped by the user, each of said poles being mounted to said frame by mounting structure, part of said mounting structure being adjacent to said foot contact surface, said foot contact surface being between said handles whereby the user may walk or run on said foot contact surface while grasping said handles, said mounting structure including shaft means, each of said poles being rotatably mounted to said shaft means for back and forth pivotal movement around said shaft means, adjustable friction resistance means on said shaft means for creating a resistance to the pivotal movement of said poles, structure separate from said resistance means for locking said poles to said mounting structure, separate resistance setting means for each of said poles rotatably mounted on said shaft means for controlling the resistance force of said resistance means for each of said poles in accordance with the rotation of said resistance setting means on said shaft means to thereby control the force required by a user to pivot each of said poles back and forth to provide for an arm exercise simultaneously with the use of said treadmill, each of said resistance setting means having a disengaging setting position which sufficiently disengages said adjustable friction resistance means from frictional contact with said poles to permit said poles to freely rotate toward said foot contact surface, and said poles having sufficient clearance with respect to said mounting structure and said frame to permit said poles to be disposed in a plane generally parallel to the plane of said foot contact surface when said resistance setting means is in said disengaging setting position for rendering said device more compact during periods of non-use of said poles.

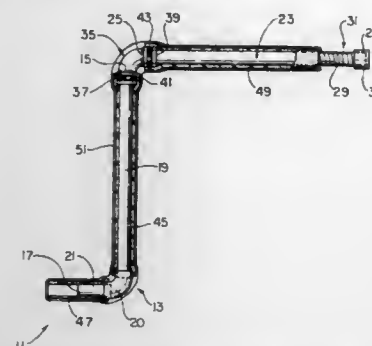
5,803,875
WRESTLING TRAINING APPARATUS

Carmine Colace, 125 E. Central St., Franklin, Mass. 02038
Filed Mar. 17, 1997, Ser. No. 818,852

Int. Cl.⁶ A63B 69/00

U.S. Cl. 482—83

6 Claims

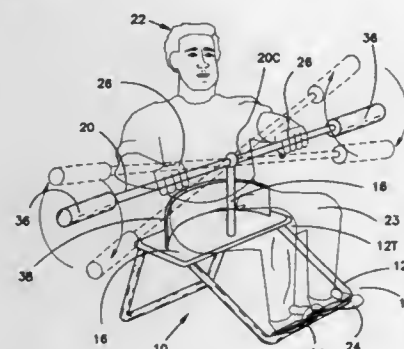


1. An apparatus simulating a human leg for use in wrestling training comprising:
- (a.) a lower leg assembly having a first end and a second end, said lower leg assembly having an L-shaped configuration and being sized and shaped so as to simulate the lower portion of a human leg, said lower leg assembly comprising an elongated, straight, vertical member made of rigid material, a curved member having a 90 degree bend and made of rigid material and a first elongated, straight, horizontal member made of rigid material;
 - (b.) a second elongated, straight, horizontal member made of rigid material and having a first end, a second end and being sized and shaped to simulate the region of the human leg from just above the knee to just below the pelvis; and
 - (c.) a central linking member connecting the first end of said lower leg assembly to the first end of said second elongated, straight, horizontal member in a Z-shaped configurations, said central linking member having a 90 degree bend and being constructed of a flexible resilient material to permit resilient articulation of said elongated, straight, vertical member in both an anterior-posterior direction and rotationally relative to said second elongated, straight, horizontal member so as to simulate the range of motion of a knee joint of a human leg, and
 - (d.) padding on said first elongated, straight, horizontal member and said elongated, straight, vertical member to prevent injury during use.

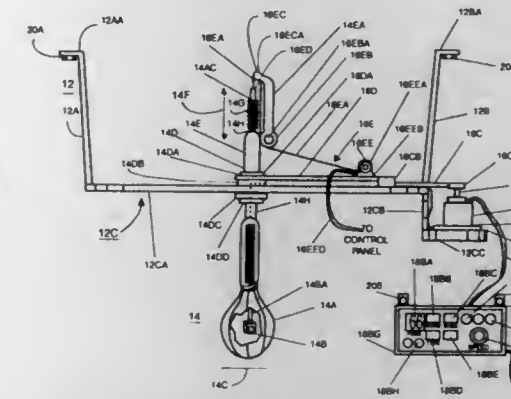
5,803,876
KAYAK EXERCISE SIMULATOR
 Lucille Hickman, 2937 W. Warren Blvd., Chicago, Ill. 60612
 Filed Aug. 20, 1997, Ser. No. 915,262
 Int. Cl.⁶ A63B 69/06

U.S. Cl. 482-72

1 Claim



1. A kayak exercise simulator, for allowing a user to simulate the movements employed while rowing with a double bladed oar, comprising:



1. A programmable sparing partner (10) comprising:
A) a support structure (12) which comprises: a left vertical support member (12A) securely attached to a left distal end of a motion control support member (12C), a right distal end of the motion control support member (12C) is securely attached to a right vertical support member (12B), the motion control support member (12C) functions to support a motion means propelling a target article (14) along a prescribed path, the motion control support member (12C) comprises a motion control horizontal support member (12CA) securely attached

on one distal end to an upper distal end of a motion control vertical motor support (12CB), the motion control vertical motor support (12CB) is attached at a lower distal end to a motion control horizontal motor support (12CC) functioning to support a drive means motor (16A) thereon, the motion control horizontal motor support (12CC) further comprises a motion control linear track (12CD) functioning to guide the motion of the target article (14);

- B) a target article (14) movably mounted upon the motion control support member (12C), the target article (14) comprises a boxing bag (14A) movably mounted thereon, the boxing bag (14A) comprises a boxing bag impact sensor (14B) securely mounted within the boxing bag (14A), the boxing bag impact sensor (14B) is electronically connected to the control panel (18) by a boxing bag impact sensor data wire (14BA), the boxing bag impact sensor (14B) functions to send electronic signals to the control panel (18) proportional to the force of the punch delivered to the boxing bag (14A), the boxing bag impact sensor (14B) provides a means of counting the number of punches hitting the boxing bag (14A);
- C) a drive means (16) attached to and functioning to move the target article (14) in a vertical and horizontal direction;
- D) a control panel (18) electronically connected to the drive means (16) functioning to control motion of the target article (14); and
- E) a power means (22) electrically connected to the control panel (18) functioning to provide power thereto.

5,803,878

EXERCISING MACHINE

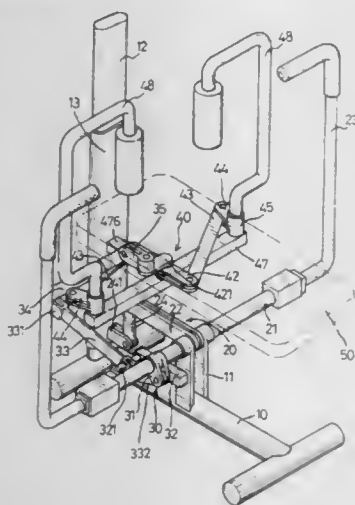
Yao-Chin Chiang, No. 122, Shui Nan Rd., Pei Tun Dist., Tainan, Taiwan

Filed Aug. 7, 1997, Ser. No. 906,639

Int. Cl.⁶ A63B 21/068

U.S. Cl. 482—96

6 Claims



1. An exercising machine comprising:

- a base (10);
- an upright post (12) fixedly mounted on one distal end portion of said base (10);
- a sliding sleeve (13) slidably mounted on said upright post (12);
- a seat (50) fixedly mounted on an upper end portion of said sliding sleeve (13);
- at least one supporting strut (11) vertically mounted on a medial portion of said base (10); and
- an arm training mechanism (20) comprising:
- a connecting rod (21) rotatably mounted on said supporting strut (11) and including two end portions;
- two handles (23) each including a lower end portion detachably attached to a corresponding one of said two end portions of said connecting rod (21) for rotating said connecting rod (21) along a horizontal axis thereof;

- a drive lever (22) having a first end fixedly mounted on a medial portion of said connecting rod (21) to rotate therewith;
- an intermediate lever (24) having a first end pivotally connected with a second end of said drive lever (22); and
- a driven lever (241) including a first end pivotally connected with a second end of said intermediate lever (24) and a second end fixedly mounted on a lower end portion of said sliding sleeve (13).

5,803,879

DOUBLE-ACTING HYDRAULIC CYLINDER FOR USE IN AN EXERCISING APPARATUS

Chen-tan Huang, 3F., No. 7-2, Alley 10, Kungyan Rd., Hsinchuang City, Taipei Hsien, Taiwan

Continuation-in-part of Ser. No. 697,189, Aug. 20, 1996, Pat.

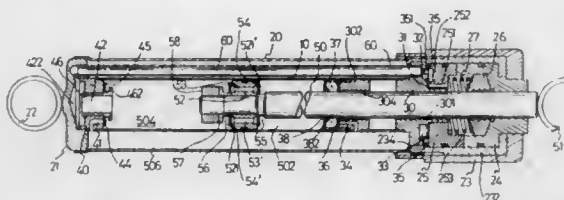
No. 5,618,248. This application Dec. 31, 1996, Ser. No.

775,568

Int. Cl.⁶ A63B 21/008

U.S. Cl. 482—112

10 Claims



1. A double-acting hydraulic cylinder for use in an exercising apparatus to provide a resistance to a user thereof, comprising:
- a cylindrical body comprising an outer wall and an inner wall and defining a front end and a rear end;
- a piston rod extending into an inner space of the inner wall and attached with a piston to divide the inner space into a front chamber and a rear chamber;
- a communicating tube extending between the outer and inner walls;
- a rear seat mounted on the rear end of the cylindrical body and adapted to be fixedly attached to an exercising apparatus, comprising a first communicating passage communicating the communicating tube with the rear chamber and a first bypass communicating a space defined between the outer and inner walls with the rear chamber;
- a first blocking member provided in the rear chamber for normally closing the first bypass, said first blocking member opening the first bypass when the piston is forced to move toward the front end;
- a front seat mounted on the front end of the cylindrical body and defining a plurality of first passages extending therethrough and a first control channel and a second control channel and a communicating conduit, said communicating conduit being formed into a circular conduit portion with a communication hole, said communication hole being arranged in communication with the communicating tube, said first and second control channels respectively having a variable depth along their lengths and communicating with each other at a common end by a communicating channel, said communicating channel communicating with the space defined between the inner and outer walls;
- a block mounted between the inner wall and the piston rod and located a distance behind the front seat, said block defining a plurality of second passages extending therethrough and communicating with the front chamber and the first passages in the front seat and a second L-shaped bypass communicating the space defined between the inner and outer walls with the front chamber;
- a cup-shaped stop member mounted between the inner wall and the piston rod and located a distance behind the block, said stop member having a front end clamped between the block and the inner wall and defining a plurality of bores on a rear side thereof;

- a second blocking member provided in the front chamber and located between the stop member and the block;
- a spring compressed between the second blocking member and the stop member to push the second blocking member toward the second L-shaped bypass and thus the second L-shaped bypass being normally closed by the second blocking member, said second blocking member opening the second bypass when the piston is forced to move toward the rear end;
- a sleeve rotatably mounted around the piston rod and located at a front end of the front seat, said sleeve defining a second communicating passage in communication with the first passages in the front seat and the first control channel and a third communicating passage in communication with the second control channel and the communication conduit, wherein said third communicating passage is always kept in communication with said circular conduit portion of the communication conduit irrespective of rotation of the sleeve;
- a control ring fixedly mounted on the sleeve so that when the control ring is rotated, the sleeve rotates accordingly; and
- a mounting ring mounted between the sleeve and the control ring, said mounting ring having a rear end hermetically and fixedly connected with a front end of the outer wall and an inner periphery hermetically engaging with the sleeve.

5,803,880

STEPPER/CLIMBER EXERCISER

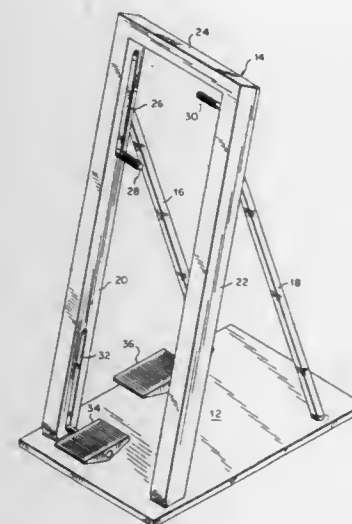
Temple W. Allen, 13631 Stoney Hill, San Antonio, Tex. 78231

Filed Dec. 12, 1995, Ser. No. 571,119

Int. Cl.⁶ A63B 21/008;23/04

U.S. Cl. 482—113

16 Claims



13. A stepper/climber machine comprising:

- a base;
- a frame extending upwardly from the base;
- a first foot pedal and a first handgrip positioned in spaced relation for movement on the frame through rising and descending strokes;
- a second foot pedal and a second handgrip positioned in spaced relation for movement on the frame through rising and descending strokes;
- a selector for pre-selecting a length for the strokes; and
- a connection for controlling the lengths of the strokes by preventing the foot pedals and handgrips from changing from a rising stroke to a descending stroke and from a descending stroke to a rising stroke until the pre-selected length has been traversed by the foot pedals and handgrips, whereby a person using the device is precluded from making strokes which are less than the length of the pre-selected strokes.

5,803,881

ATHLETIC TRAINING BELT

Wendy Jo Miller, 360 Flowerfield Rd., Circle Pines, Minn. 55014

Filed May 1, 1997, Ser. No. 847,054

Int. Cl.⁶ A63B 21/02

U.S. Cl. 482—124

15 Claims



1. A training harness comprising:

- a) a hip strap including buckle means for fixing the length of the hip strap and attaching the hip strap about the torso and a plurality of attachment means arrayed about the circumference of said hip strap;
- b) first and second thigh straps, wherein a portion of each of the first and second thigh straps is sewn to the hip strap at a surface of the hip strap that aligns to a lateral outside surface of the hips and such that each of the first and second thigh straps depend from the hip strap to mount around front and back surfaces of the thighs and extend beneath the crotch;
- c) a training strap; and
- d) means for securing said training strap to a selected one of said attachment means, whereby a counter force can be applied to the torso to resist torso motion and without rotation of said hip strap.

5,803,882

ARTICULATED UPPER ARM EXERCISER

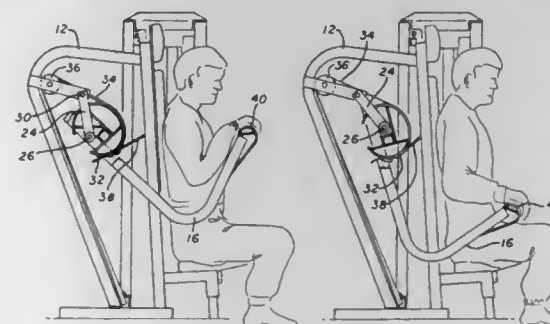
Douglas J. Habing, Long Beach, and Theodore G. Habing, Santa Ana, both of Calif., assignors to Pacific Fitness Corporation, Cypress, Calif.

Filed May 29, 1997, Ser. No. 865,217

Int. Cl.⁶ A63B 21/00

U.S. Cl. 482—136

10 Claims



6. An exercise apparatus comprising:

- a frame;
- a support attached to the frame for supporting a user of the apparatus;

a pair of exercise arms pivotally coupled to the frame for movement about a first axis and a second axis;
 a linkage member pivotally coupled to the frame on said first axis;
 a cross member connecting said pair of exercise arms and pivotally coupled to the linkage member on said second axis; means for supplying exercise resistance;
 resistance communication means comprising a first flexible member coupled to the means for supplying exercise resistance;
 a cam secured to said cross member, said flexible member guided on a surface of the cam;
 means for controlling motion of said cam so as to coordinate relative movement of the exercise arms about the first and second axes as the user applies an exercise force to the exercise arms.

5,803,883

MUSCLE TONE UP DEVICE FOR THE FRONT AND BACK SIDE OF THE THIGH

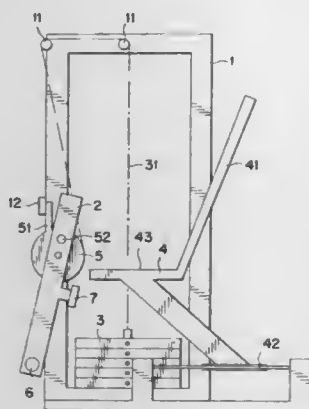
Ján Patrylák, Lúčky, and Jiří Pyřta, Liptovský Mikuláš, both of Slovakia, assignors to Vojtech Druska, Czech Rep.
 PCT No. PCT/CZ95/00026, § 371 Date Oct. 7, 1996, § 102(e) Date Oct. 7, 1996, PCT Pub. No. WO96/15831, PCT Pub. Date May 30, 1996

PCT Filed Nov. 16, 1995, Ser. No. 682,600
 Claims priority, application Czech Rep., Nov. 24, 1994, 2897-94

Int. Cl.⁶ A63B 21/00

U.S. Cl. 482—133

8 Claims



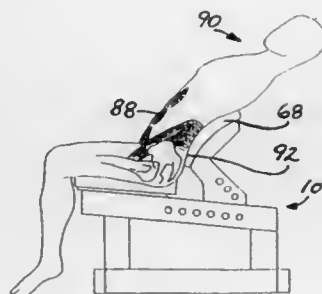
1. A strengthening device for the muscle groups of the front or back side of the thighs of a human comprising:
 - 1) a frame having a horizontal base and a vertical part substantially perpendicular to the base;
 - 2) a swinging arm having:
 - i) a rotation axle fastened to the vertical part of the frame,
 - ii) a free end distal to the rotation axle with the free end being provided with an action rest, and
 - iii) a reaction rest between the rotation axle and the free end;
 - 3) a weight set capable of vertical movement;
 - 4) a kinematic connecting means whereby the weight set is connected to the swinging arm;
 - 5) a weight lifting means whereby rotation of the swinging arm about its rotational axle acts through the kinematic connecting means to lift the weight set;
 - 6) a seat having a back, front, front edge, and a seating surface; and
 - 7) a sliding means whereby the seating surface of the seat is attached to the horizontal base of the frame so that the seat is free to move within a fixed range, forward or backward with respect to the swinging arm and in a plane parallel to the vertical part of the frame during operation of the device.

5,803,884 ABDOMINAL EXERCISE MACHINE WITH CURVED BACK SUPPORT

Gary Owen Sharp, 1320 Cherry Ave., Columbus, Ga. 31902
 Continuation of Ser. No. 917,195, Jul. 22, 1992, abandoned.
 This application Jul. 15, 1994, Ser. No. 276,038
 Int. Cl.⁶ A61F 5/00

U.S. Cl. 482—142

3 Claims



1. An exercise apparatus comprising:
 - (a) a base assembly adapted to rest on a floor, comprising:
 - (i) a lower base member having a forward end and a rearward end;
 - (ii) a forward vertical support and a rearward vertical support which vertical supports are mounted on said lower base member, the forward vertical support toward the forward end of said lower base member and the rearward vertical support toward the rearward end of said lower base members; and
 - (iii) a parallel pair of back support assembly mounting members which extend between and are supported by said forward and rearward vertical supports to form a slot between said parallel pair of back support assembly mounting members, said slot adapted to receive a back support assembly therein;
 - (b) means for supporting a seat on said base assembly;
 - (c) a substantially horizontal seat mounted on said means for supporting a seat; and
 - (d) a back support assembly having a curved upper portion and a lower mounting portion, said back support assembly being mounted by the lower mounting portion on said base assembly adjacent to said seat, said curved upper portion including a forward portion adjacent to said seat and a rearward portion more remote from said seat than said forward portion, whereby a user of the apparatus can sit on said seat with the small of the user's back in contact with said forward portion of said curved upper portion of said back support while said user is in a substantially upright position, and whereby said user can lean back onto said curved upper portion of said back support while retaining the small of his back in contact with said forward portion of said curved back until said user's entire back makes contact with the entire curved upper portion of said back support, which back support remains stationary during use.

5,803,885

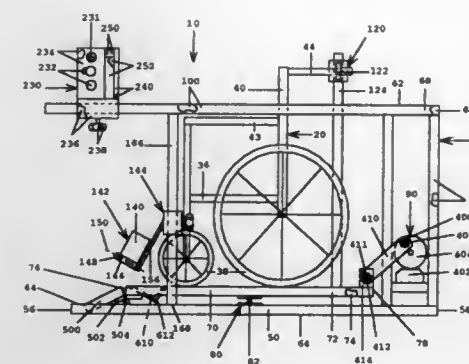
EXERCISER FOR ROCKING A WHEELCHAIR

Howard M. Tiller, 202 Galvin Rd., Bellevue, Nebr. 68005
 Filed Jul. 5, 1995, Ser. No. 498,081
 Int. Cl.⁶ A63B 26/00

U.S. Cl. 482—146

8 Claims

1. An exercise device comprising:
 - a frame having a forward end, a rearward end, and right and left sides, said frame having a platform receiving section;
 - a platform above said platform receiving section, said platform having a forward end, a rearward end, and right and left sides;
 - a means for rotatably mounting said platform on said frame for rotation of said platform about a substantially horizontal plat-



form axis, said platform axis being spaced substantially between said forward and rearward ends of said platform; a power drive means interconnecting said platform and said frame for rotating said platform about said platform axis; means for attaching a chair to said platform; and at least one exercise foot rest assembly attached to said frame substantially above the forward end of the platform so that when a chair is attached to the platform and a user is seated in the chair, the user can place his feet on the exercise foot rest assembly to exercise his legs when said platform is rotated about said platform axis.

5,803,886

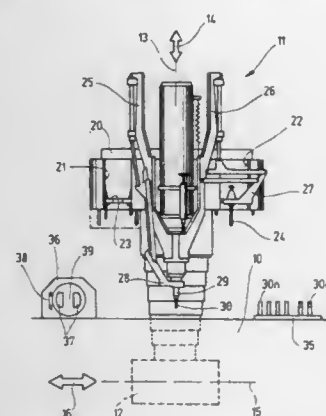
WORKPIECE GRIPPER

Anton Schweizer, Wurmlingen, Germany, assignor to Chiron-Werke GmbH & Co. KG, Tuttlingen, Germany
 Filed Feb. 21, 1997, Ser. No. 804,734
 Claims priority, application Germany, Feb. 24, 1996, 196 07 001.5

Int. Cl.⁶ B23Q 3/157; B66C 1/10

U.S. Cl. 483—31

13 Claims



1. A workpiece gripper for gripping workpieces at a machine tool having a spindle head and a spindle mounted rotatably in said spindle head, said spindle having a receptacle for receiving tool holders, comprising:
 - a housing part,
 - an adapter rotatably mounted on said housing part,
 - a gripper element arranged on said adapter for gripping said workpieces,
 - a joining part arranged at said housing part for attaching said workpiece gripper to a tool holder, said tool holder designed to be transferred between a magazine position on said machine tool and a working position at said receptacle, and
 - a connecting element provided at the housing part and assigned to a joining element arranged non-rotatably with respect to said spindle head such that the connecting element is in engagement with the joining element when the tool holder is inserted into the receptacle, such that the housing part is held nonrotatably with respect to the spindle head.

said connecting element and joining element provided for delivering energy for actuation of the gripper element.

5,803,887

HEAT-FIXING ROLL FOR FIXING DEVICE

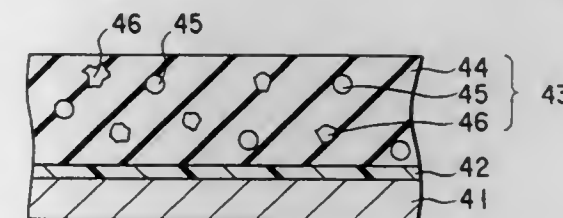
Noritomo Fukunaga, Tokyo, Japan, assignor to Kinyosha Co., Ltd., Tokyo, Japan

Filed Jun. 30, 1997, Ser. No. 885,133

Int. Cl.⁶ B25F 1/00

U.S. Cl. 492—59

4 Claims



1. A heat-fixing roll which comprises a core shaft, and a rubber layer formed on an outer peripheral surface of said core shaft; wherein said rubber layer is formed of a silicone rubber compound of addition reaction curing type having a thermal conductivity of 1.5×10^{-3} cal/cm-sec.°C. or more and containing 1.5 parts by weight or more of silicone resin powder having an average particle diameter of 1 to 20 μm per 100 parts by weight of said silicone rubber compound.

5,803,888

MULTI-WEB CARRIER

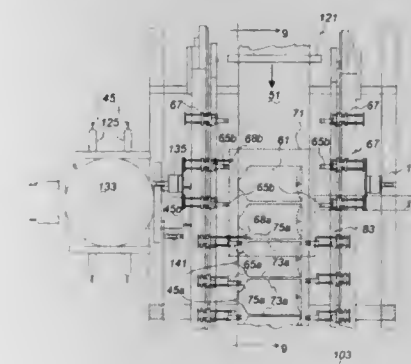
Dale R. Severs, Gurnee, Ill.; David Frankenberger, Mountain Home, Ark.; Richard Williams, Norfolk, Ark., and Michael Kemp, Mountain Home, Ark., assignors to Baxter International Inc., Deerfield, Ill.

Filed Aug. 19, 1994, Ser. No. 292,851

Int. Cl.⁶ B31B 1/84; 1/64

U.S. Cl. 493—210

22 Claims



1. An apparatus for joining plastic webs together to form a package or the like, comprising:
 - a guide for guiding the webs together for the formation of a seal between the webs to join said webs together;

a conveyor means for moving the joined webs along a predetermined path of travel to a discharge station;
 a carrier on the conveyor and reciprocating means for insertion of said carrier between the webs and for exerting a force on the joined webs to move said joined webs forwardly along a the direction of conveyor and carrier travel to said discharge station; and
 a sealer located at a sealing station for forming fused plastic web seals between the webs and for forming a seal adjacent the carrier to detachably connect the carrier to the webs so that the carrier pulls on the webs to transport said webs in the carrier travel direction.

5,803,889

PACKET MAILERS AND THE METHODS AND APPARATUS FOR MAKING THEM

Gerald A. Littman, 638 The Strand, Hermosa Beach, Calif. 90254

Continuation of Ser. No. 315,335, Sep. 29, 1994, abandoned, which is a division of Ser. No. 29,157, Mar. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 919,168, Jul. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 635,956, Dec. 28, 1990, abandoned. This application Aug. 30, 1996, Ser. No. 706,297

Int. Cl.⁶ B31B 1/24; B65B 11/48

U.S. Cl. 493—267

6 Claims



1. A method for making a plurality of packet mailers from a substantially continuous web of printable paper comprising:
 substantially continuously feeding said web through at least two printing stations for ink printing at least one side of said web with information in at least two different colors, one color at each of said at least two stations in order to form packet mailers having printed information thereon;
 substantially continuously feeding said web through a station for applying re-moistenable adhesive at pre-determined re-moistenable adhesive locations for making resealable enclosures, when in use, within said plurality of packet mailers;
 passing said web, substantially continuously, through a drying station for drying said re-moistenable adhesive and for drying the inks placed on the surfaces of said web;
 passing said web, substantially continuously, through a perforating station for placing on said web, at predetermined perforation locations, perforated lines that extend at least partially across said web to form removable inserts within said plurality of packet mailers and allow each respective individually formed packet mailer to be opened from a closed position;
 passing said web, substantially continuously, through a station for applying wet adhesive in discontinuous streaks at pre-determined locations on said web to seal each individual packet mailer in the closed position;
 passing said web, substantially continuously, through a plurality of adjustable gluing scoring and folding stations sequentially applying, at predetermined wet glue locations, streaks of wet glue to and in the direction of feeding of said web, and sequentially folding said web upon itself to enclose the applied glue within said folds to seal each individual packet mailer in the closed position;
 at each of said adjustable stations creating score lines, running with said web, at predetermined score line locations on said web to form fold lines at said pre-determined score-line locations; and
 passing said web, substantially continuously through a cutter to separate individually-formed packet mailers from said web, thereby completing formation of a plurality of packet mailers from said web.

5,803,890

BUCKLE FOLDING MACHINE

Karl Zechner, Wiener Strasse 25, A-8630 Mariazell, Austria
 PCT No. PCT/AT93/00154, § 371 Date Apr. 14, 1995, § 102(c)
 Date Apr. 14, 1995, PCT Pub. No. WO94/08882, PCT Pub. Date Apr. 28, 1994

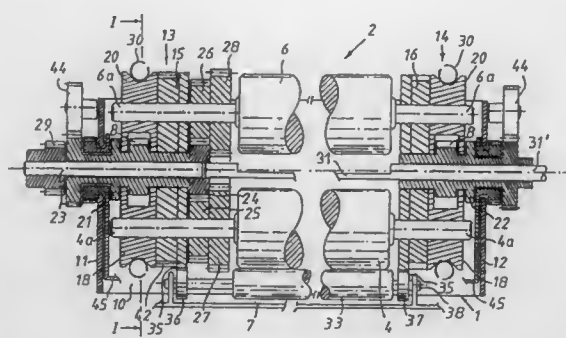
PCT Filed Oct. 13, 1993, Ser. No. 424,253

Claims priority, application Austria, Oct. 19, 1992, 2060/92

Int. Cl.⁶ B65B 57/10; B31F 1/00; B65H 45/14

U.S. Cl. 493—419

33 Claims



1. A buckle folding machine for folding material, which comprises

- (a) a stationary machine frame,
- (b) a rotary frame revolvable with the stationary machine frame about a rotary frame axis, the rotary frame comprising
 - (1) four adjacent working cylinders comprising journals,
 - (2) the working cylinders having the same outside diameters, being arranged around the rotary frame axis, being rotatable about their own axes in opposite directions and at the same speed, and defining roll nips, one of the roll nips defining a first folding nip for folding the material once and at least one further roll nip for folding the material once more,
 - (3) the working cylinders functioning as cylinders for drawing in the material, as cylinders for buckling the drawn-in material to form loops, as cylinders for flattening the loops into folds, and as cylinders for ejecting the folded material,
 - (4) at least one of the working cylinders forming an openable and closeable roll nip with an adjacent one of the working cylinders and being positively displaceably arranged within the rotary frame relative to said adjacent working cylinder,
 - (5) two opposite rotary heads comprising journal guide elements receiving the journals,
 - (6) the rotary heads being rotatably mounted within said stationary machine frame and disposed at opposite ends of said working cylinders, each rotary head comprising at least one journal guide element receiving the journal of a working cylinder displaceable within the rotary head against the force of at least one spring, and
 - (7) a common transmission arranged in the rotary frame for rotating the working cylinders, at least one rotary head being a driving rotary head comprising said common transmission for driving said working cylinders revolving with said rotary frame,
- (c) a mechanical control device for positively displacing the at least one working cylinder within the rotary frame relative to the adjacent working cylinder for opening and closing the roll nip and for changing the function of the working cylinders defining said roll nip,
- (d) a rotary frame drive means for revolving the rotary frame and for drawing in, folding and ejecting the material by the rotating working cylinders, and
- (e) drawing-in means arranged within the stationary frame adjacent the rotary frame for cooperating with the rotary frame and the working cylinders for drawing in and folding the material in the first folding nip.

5,803,891

APPARATUS OF ACCUMULATING SHEETS FOR A BOOKLET

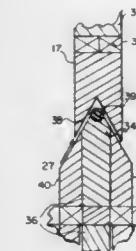
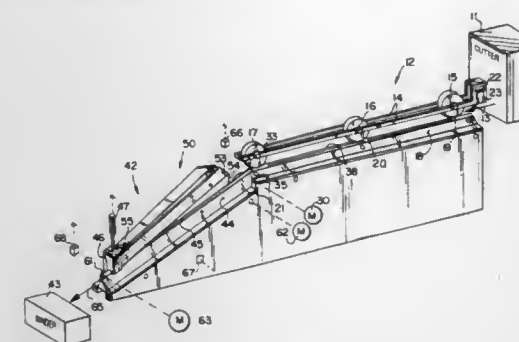
Henk Haan, Niagara Falls; R. Joseph Varieur, Sanborn; John A. Sabatowski, and John Van de Ven, both of Grand Island, all of N.Y., assignors to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Feb. 1, 1996, Ser. No. 595,585

Int. Cl.⁶ B65H 45/22

U.S. Cl. 493—442

17 Claims



lines which cross the perimeter of each of the plurality of main fold lines.

5,803,893

CUSHIONING CONVERSION MACHINE AND METHOD

Steven E. Armington, Gates Mills; Richard O. Ratzel, Westlake; Michael J. Lencoski, Claridon Township; James A. Simmons, Painesville Township, and David V. Murphy, Concord, all of Ohio, assignors to Ranpak Corp., Concord Township, Ohio

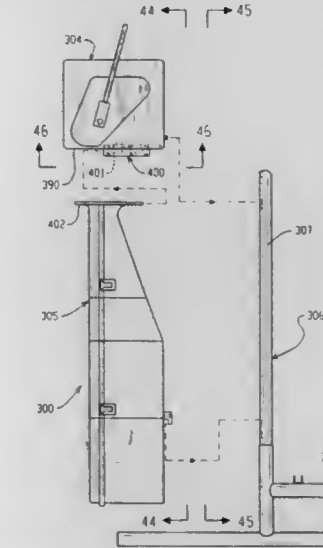
Continuation-in-part of Ser. No. 386,355, Feb. 8, 1995, which is a continuation-in-part of Ser. No. 337,929, Nov. 10, 1994, Pat. No. 5,607,383, which is a continuation-in-part of Ser. No. 326,782, Oct. 20, 1994, abandoned, which is a continuation-in-part of Ser. No. 279,150, Jul. 22, 1994, Pat. No. 5,593,376.

This application Jun. 7, 1995, Ser. No. 487,181

Int. Cl.⁶ B31D 5/00

U.S. Cl. 493—477

50 Claims



1. In combination, a cushioning conversion machine for converting sheet-like material into a relatively low density cushioning dunnage product, and a support for holding said machine, said machine and support having cooperating hooks and catches which hold said machine to said support and which are disengagable upon

5,803,892

PROCESS FOR FOLDING AN AIRBAG

Thomas Marotzke, Berlin, Germany, assignor to Petri AG, Aschaffenburg, Germany

Division of Ser. No. 261,992, Jun. 17, 1994. This application Jun. 6, 1995, Ser. No. 468,361

Int. Cl.⁶ B65H 45/12

U.S. Cl. 493—451

10 Claims

1. An improved process for folding airbags of the type wherein a substantially flat spread-out airbag which is inflatable is folded up in space-saving manner into a predetermined shape with a predetermined volume, characterized in that a first step folding is carried out along a plurality of main fold lines each of said plurality of main fold lines having a perimeter running round a point on the airbag wherein the airbag folded in this way is then in a second step folded or pressed over a plurality of secondary fold

relative movement of said machine and said support for removal of said machine from said stand.

5,803,894

PROCESS FOR PREPARING ENVIROMENTALLY STABLE PRODUCTS BY THE REMEDIATION OF CONTAMINATED SEDIMENTS AND SOILS

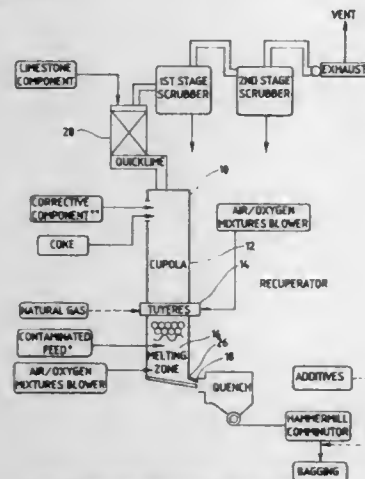
Richard L. Kao, Naperville; Sarabjit S. Randhava; Surjit S. Randhava, both of Evanston; Michael C. Mensinger; Amirali G. Rehmat, both of Darien, and Anthony L. Lee, Glen Ellyn, all of Ill., assignors to Cement-Lock L.L.C., Mt. Prospect, Ill.

Filed Dec. 24, 1996, Ser. No. 772,780

Int. Cl.⁶ A62D 3/00; B09B 3/00; C04B 7/24

U.S. Cl. 588—257

14 Claims



1. A process for the thermo-chemical remediation and decontamination of contaminated materials comprising sediments and soils contaminated with organic materials, inorganic materials and heavy metals comprising the steps of:

- combining said contaminated materials with a calcium oxide source, alumina, ferric oxides and fluxing agent to form a mixture;
- heating the mixture to produce a molten reaction product;
- bubbling oxygen through the heated mixture for destruction of said organic material;
- quenching the melt in the presence of moist air, steam or water to form an amorphous material, and thereby immobilizing the inorganic contaminants and the heavy metals;
- pulverizing the amorphous material to form a reactive melt product powder;
- blending the powder with cement to yield a blended cement.

5,803,895

FLEXIBLE ADAPTABLE PLASTIC ELEMENTS WITH EQUIDISTANTLY EMBEDDED CATHETERS FOR RADIOTHERAPY

Hans Kronholz, Duellmen-Buldern; Michael Schmilowski, Muenster; Christine Anders; Reinhold Brathun, both of Haltern; Lothar Heinrich, and Normann Willich, both of Muenster, all of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Jul. 22, 1996, Ser. No. 685,944

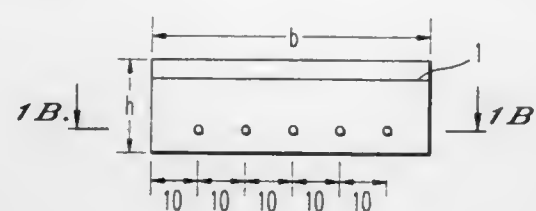
Claims priority, application Germany, Jul. 21, 1995, 195 26 680.3

Int. Cl.⁶ A61M 36/04

U.S. Cl. 600—3

24 Claims

1. A plastic catheter system for irradiation therapy, comprising:



TYPE A

a flexible plastic matrix having opposed sides and at least one catheter embedded therein, and having a synthetic fabric contained within said plastic matrix or on a side of said plastic matrix, wherein

said plastic matrix has all flat surfaces, and said synthetic fabric is located on a side opposite the location of said at least one catheter and facing away from a side from which irradiation occurs and wherein said synthetic fabric covers said entire side in area.

5,803,896

METHOD AND DEVICE FOR THE TREATMENT OF DIABETES MELLITUS

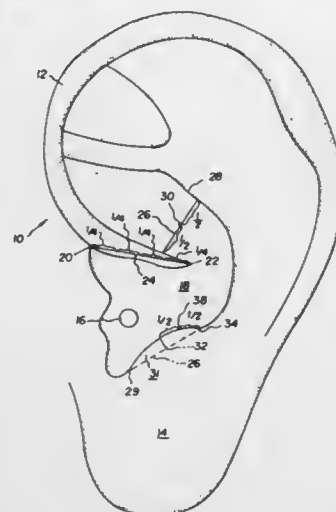
Yu Chen, P.O. Box 10982, Baltimore, Md. 21234

Filed Aug. 9, 1996, Ser. No. 694,746

Int. Cl.⁶ A61N 2/00

U.S. Cl. 600—9

21 Claims



1. A method for the treatment of diabetes comprising:
 - (a) placing a magnet in the ear at the pancreas gland point in the auricle of said ear; and
 - (b) supplementing the pancreatic hormones of the subject.

5,803,897

PENILE PROTHESIS WITH PUMP ROTOR DIRECTLY ACTUATED BY ROTATING MAGNETIC FIELD

Michael Mooreville, 287 Sycamore Ave., Merion Station, Pa. 19066, and Sorin Adrian, 311 Fawn Hill La., Penn Valley, Pa. 19072

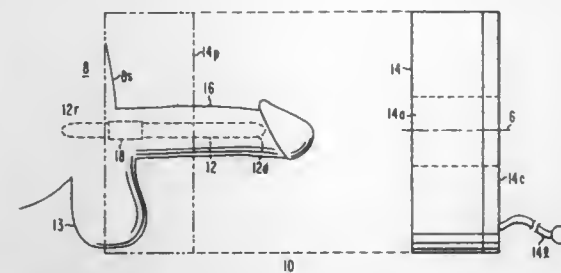
Filed Apr. 12, 1997, Ser. No. 832,700

Int. Cl.⁶ A61F 5/00

U.S. Cl. 600—40

5 Claims

1. A penile prosthesis system comprising:
 - at least one pressurizable chamber including a fluid port, said chamber adapted to be located within the penis of a patient for tending to make the penis rigid in response to fluid pressure within said chamber;



- a fluid reservoir;
 - a rotary pump adapted to be implanted within the body of a user, said rotary pump being coupled to said reservoir and to said chamber, said rotary pump including a magnetically responsive rotor adapted for rotation in the presence of a rotating magnetic field, and an impeller for tending to pump fluid at least from said reservoir to said chamber under the impetus of fluid pressure, to thereby pressurize said chamber in response to operation of said pump; and
 - a rotary magnetic field generator for generating a rotating magnetic field, for, when placed adjacent to the skin of said user at a location near said rotary pump, rotating said magnetically responsive rotor in response to said rotating magnetic field, to thereby tend to pressurize said chamber and to render the penis rigid;
- controllable valve means operable in response to motion of said rotor of said rotary pump, for tending to prevent depressurization of said chamber when said rotating magnetic field no longer acts on said rotor, said controllable valve means comprising a unidirectional check valve located in the fluid path extending between said rotary pump and said port of said chamber.

5,803,898

INTUBATION SYSTEM

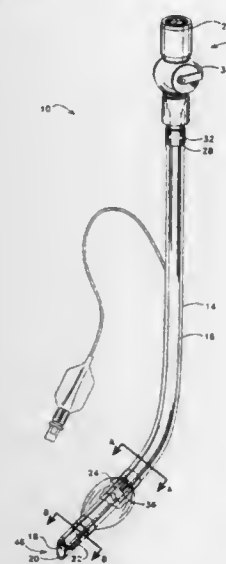
Charles Allen Bashour, 2224 Fenwick Rd., University Heights, Ohio 44118-3118

Filed May 5, 1997, Ser. No. 850,934

Int. Cl.⁶ A61B 1/22

U.S. Cl. 600—120

2 Claims



1. An intubation system comprising:
 - a fiberoptic having a handle/eye piece member attached to an elongate insertion cord, said insertion cord having a proximal insertion cord end which is attached to said handle/eye piece member, and a distal insertion cord end, an elongate rigidity member being encased within said insertion cord and extending within said insertion cord substantially from said proximal

insertion cord end through a semi-rigid segment of said insertion cord, said rigidity member being fashioned from a shape memory material;

an endotracheal tube having a length which is approximately equal to the length of said insertion cord of said fiberoptic between the juncture of said handle/eye piece member and said insertion cord and said distal insertion cord end, said endotracheal tube having an interior diameter sufficient for telescopic reception of said insertion cord therethrough.

5,803,899

Patent Not Issued For This Number

5,803,900

LIGHT SOURCE DEVICE FOR ENDOSCOPE PROVIDED WITH NONCIRCULAR OPENING

Seiji Matsumoto, Omiya; Etsuo Nakano, and Suwao Satoh, both of Okaya, all of Japan, assignors to Fuji Photo Optical Co., Ltd., Omiya, Japan

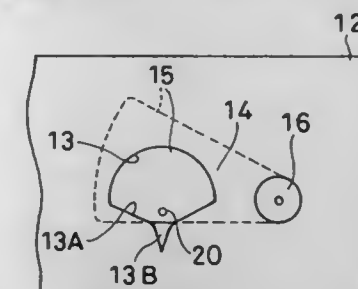
Filed Dec. 3, 1997, Ser. No. 984,021

Claims priority, application Japan, Dec. 9, 1996, 8-346752

Int. Cl.⁶ A61B 1/04

U.S. Cl. 600—181

2 Claims



1. A light source device for an endoscope comprising:
 - a gate portion including a noncircular opening for passing the light from a light source therethrough and linearly changing the quantity of light from said light source;
 - a stop blade for controlling the quantity of light passing through said noncircular opening of said gate portion; and
 - a driving member for driving said stop blade, wherein said stop blade is a single blade with an auxiliary opening for passing part of light therethrough formed therein and said auxiliary opening is moved to a noncircular portion of said noncircular opening.

5,803,901

INFLATABLE DEVICES FOR SEPARATING LAYERS OF TISSUE AND METHODS OF USING

Albert K. Chin, Palo Alto, and Todd A. Thompson, Sunnyvale, both of Calif., assignors to Origin Medsystems, Inc., Menlo Park, Calif.

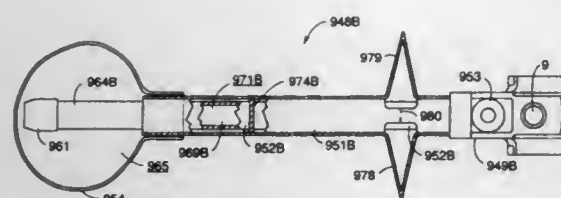
Continuation of Ser. No. 365,096, Dec. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 319,552, Oct. 7, 1994, Pat. No. 5,643,310, which is a continuation-in-part of Ser. No. 282,287, Jul. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 911,714, Jul. 10, 1992, which is a continuation-in-part of Ser. No. 794,590, Nov. 19, 1991, Pat. No. 5,309,896, which is a continuation-in-part of Ser. No. 706,781, May 29, 1991, abandoned. This application Mar. 13, 1997, Ser. No. 816,251

Int. Cl.⁶ A61B 19/00

U.S. Cl. 600—190

14 Claims

1. A device for separating tissue layers, comprising:
 - a delivery device having an inflation port;



- a) a balloon having an interior;
 a fluid path fluidly coupling the inflation port and the interior of the balloon;
 an outer cannula having a distal end and a proximal end, the balloon being mounted to the distal end of the outer cannula;
 an inner cannula at least partially disposed within the outer cannula, the inner cannula having a supporting portion movable between an extended position relative to the outer cannula, in which the supporting portion is positioned within the interior of the balloon, and a retracted position relative to the outer cannula, in which the supporting portion is positioned outside the interior of the balloon, wherein the inner cannula is slidably coupled to the outer cannula so that the supporting portion is movable between the retracted position and the extended position relative to the interior of the balloon, and wherein at least one of the inner and outer cannulas is mounted to the delivery device; and
 an insert, wherein the inner cannula is a portion of the insert, wherein the outer cannula has an interior and is mounted to the delivery device, the delivery device includes a port leading to the interior of the outer cannula, and the insert passes through the port, and wherein the insert includes an opening and a lock, the opening being adapted to receive an endoscope and the lock being movable between a locked position, in which the endoscope is locked to the insert with a substantially fluid tight seal, and an unlocked position, in which the endoscope is unlocked with respect to the insert so that the endoscope is slidably movable relative to the insert.

5,803,902

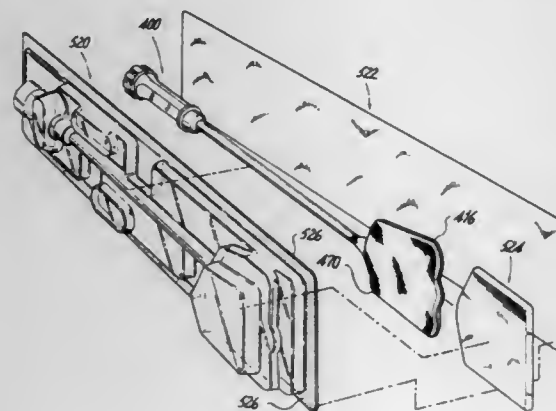
SURGICAL RETRACTOR

Henry R. Sienkiewicz, Stamford; Robert C. Savage, Stratford; Stanley J. Mahinowski, Guilford; Douglas M. Dunklee, Bridgeport, and Henry Holsten, Wolcott, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 319,172, Oct. 6, 1994, Pat. No. 5,656,012. This application Sep. 20, 1996, Ser. No. 710,747
 Int. Cl.⁶ A61B 11/02

U.S. Cl. 600—203

10 Claims



1. A surgical retractor kit comprising:
 a) a surgical package having an indentation configured to receive a surgical retractor and an opening;

- b) a surgical retractor having a handle member, an elongated body portion, a retractor assembly and a sheath configured to enclose the retractor assembly;
 c) a base panel configured to enclose the surgical package opening; and
 d) a static barrier configured to enclose at least a portion of the retractor assembly and sheath.

5,803,903

SURGICAL RETRACTOR AND METHOD OF USE WITH BALLOON DISSECTION

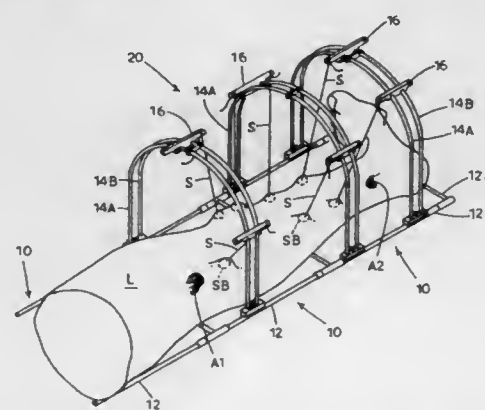
William L. Athas; William S. Eubanks, Jr., both of Durham, and Thomas B. Miller, Garner, all of N.C., assignors to MIST, Inc., Smithfield, N.C.

Filed Aug. 15, 1997, Ser. No. 911,609

Int. Cl.⁶ A61B 17/02

U.S. Cl. 600—231

24 Claims



1. A retractor apparatus for use with balloon dissection of internal body tissue of a human body part, said apparatus comprising:

- (a) a frame comprising a base with opposing sides and at least one arcuate body tissue support element extending upwardly from one side to the other side of said base, said support element defining an arc extending transversely over and in spaced-apart relationship to a human body part being balloon dissected; and
 (b) at least one suture anchor element located at a location along the length of the arc of said body tissue support element to allow a tensioning suture extending from a human body part being balloon dissected to be secured thereto to maintain an open cavity within the dissected internal body tissue.

5,803,904

NERVE ROOT RETRACTOR AND DISC SPACE SEPARATOR

Hamid Mehdizadeh, 14928 Didenca Way, Los Gatos, Calif. 95032

Filed Oct. 28, 1997, Ser. No. 958,997

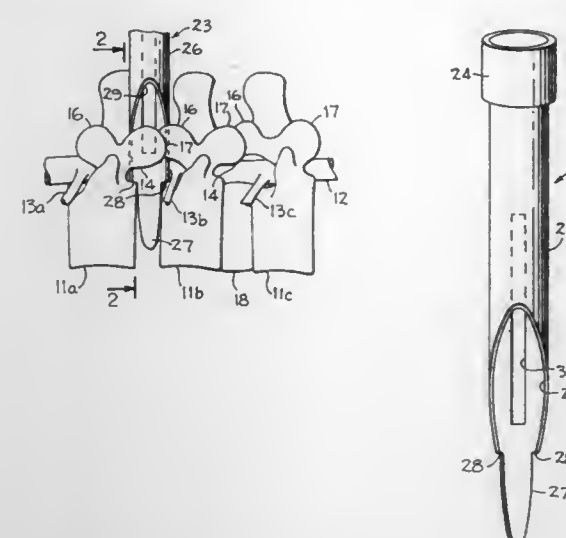
Int. Cl.⁶ A61B 17/00

U.S. Cl. 600—235

11 Claims

5. A nerve root retractor and disc space spreader for contacting vertebral bodies in posterior lumbar surgical procedures, comprising

- a tubular body having a body wall, a proximal end and a distal end, and
 a tang extending from one side of said body wall at said distal end, said body wall having a removed portion on an opposing side from said one side, said removed portion extending from said distal end toward said proximal end,



- whereby said tang when seated between vertebral bodies retracts and protects the nerve root and spreads the vertebral bodies.

5,803,905

SURGICAL CAMERA AND LIGHT ALLOWING ADJUSTABLE FOCUS AND ZOOM CAPABILITY AND METHOD OF USE

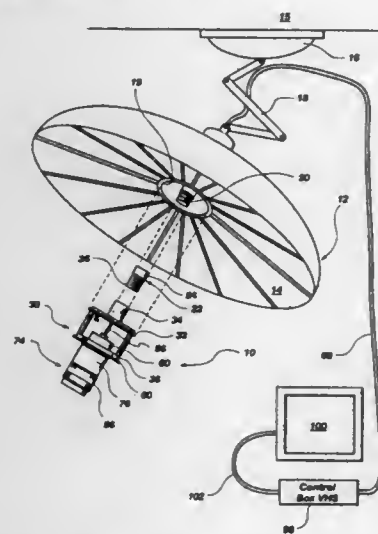
Jeff L. Allred, West Jordan; Oscar C. Johnson; Gene R. Oakes, both of Centerville, and G. Lynn Rasmussen, Salt Lake City, all of Utah, assignors to Ajor Medical Technologies, L.L.C., Centerville, Utah

Filed Mar. 28, 1996, Ser. No. 623,589

Int. Cl.⁶ A61B 1/06

U.S. Cl. 600—249

39 Claims



1. A surgical camera assembly operatively disposed in connection with a light source to provide means for visually producing for demonstration an operative field with enhanced focal illumination, said camera assembly comprising:

- a support structure for supporting said light source adjacent said operative field;
 a retaining assembly comprising a first end, a second opposing end, and at least one gripping member, said first end of said retaining assembly removably engaging said light source, said second end of the retaining assembly forming a closeable opening;
 an optical lens for producing visual images of said operative field, said optical lens having a first end, an elongated body, a variable focus and zoom capability, and means for adjusting

- said focus and zoom capability, said first end of said optical lens adapted for engaging said second end of said retaining assembly;

- a housing assembly including a first end and an elongated channel extending from said first end, said channel having an internal periphery sufficient for housing said elongated body of said optical lens therein, said housing assembly providing a sterile surface for manipulating said means for adjusting said focus and zoom capability of the optical lens; and
 a camera head for converting said visual images provided by said optical lens into electrical signals, said camera head including a first end and a second opposing end, said first end disposed between said first and second ends of said retaining assembly, said second end disposed in connection with said first end of said optical lens providing an operational engagement therebetween.

5,803,906

METHOD AND SYSTEM FOR PROVIDING ANIMAL HEALTH HISTORIES AND TRACKING INVENTORY OF RELATED DRUG USAGE

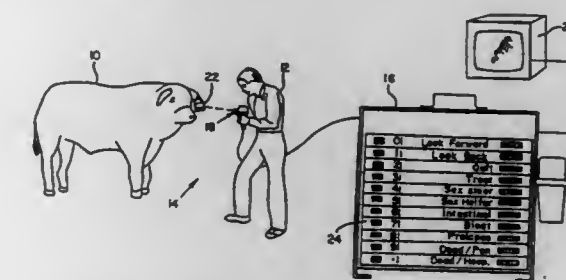
William C. Pratt, Canyon, and William D. McKillip, Amarillo, both of Tex., assignors to Micro Chemical, Inc., Amarillo, Tex.

Continuation of Ser. No. 827,843, Jan. 29, 1992, Pat. No. 5,315,505, which is a continuation of Ser. No. 457,338, Dec. 27, 1989, abandoned, which is a continuation of Ser. No. 85,073, Aug. 12, 1987, abandoned. This application Apr. 11, 1994, Ser. No. 226,292

Int. Cl.⁶ A61B 5/02; C06F 15/14

U.S. Cl. 600—300

18 Claims



1. A method of providing drug treatment to animals which are selected from a group of retained animals, the method comprising the following steps:

- entering a selected animal's identity into a computer;
 in response to entry of the animal's identity, providing through the computer the animal's health and drug treatment history to assist in diagnosing the condition of the identified animal;
 diagnosing the condition of the identified animal;
 entering the diagnosed condition into the computer;
 selecting a drug treatment having a withdrawal period which may be administered to the animal based at least in part on the animal's health and drug treatment history and the animal's diagnosed condition;
 entering the drug treatment into the computer;
 providing through the computer withdrawal information for the drug treatment for determining whether the drug treatment should be administered; and
 if desired, administering the drug treatment to the animal.

5,803,907

PERIPHERAL VASCULAR DISEASE TESTING

Kim Patchett, Auvier, Switzerland, and Stuart Wallace, Frinton-on-Sea, Great Britain, assignors to Stu-Ert Medical Devices Limited, Essex, United Kingdom

PCT No. PCT/GB94/01217, § 371 Date Mar. 5, 1996, § 102(e) Date Mar. 5, 1996, PCT Pub. No. WO94/28794, PCT Pub. Date Dec. 22, 1994

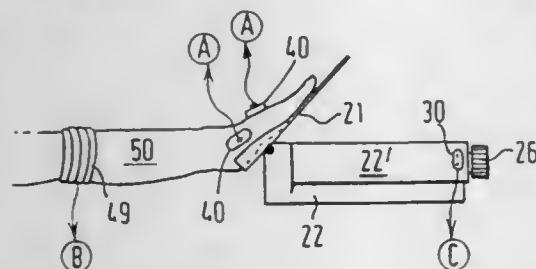
PCT Filed Jun. 3, 1994, Ser. No. 557,021

Claims priority, application United Kingdom, Jun. 8, 1992, 9311816; Mar. 29, 1994, 9406174

Int. Cl.⁶ A61B 5/02

U.S. Cl. 600—301

30 Claims



1. A diagnostic apparatus comprising a resistance device to resist a force applied thereto by a selected group of limb muscles during exercise, and test means for physiologically measuring a biological component resultant from said limb exercise, wherein the resistance device comprises a pressure plate pivoted about an axle, spring means operatively connected to said plate to bias the plate to an at rest position, and adjustment means for preloading the spring means, characterized by means for indicating spring means preload, such that the spring means can be preloaded to a desired value, whereby in use the plate is reciprocable by a limb against the spring means bias to induce fatigue or claudication on a basis which is standardizable between patients.

5,803,908

SYSTEM FOR NONINVASIVE HEMATOCRIT MONITORING

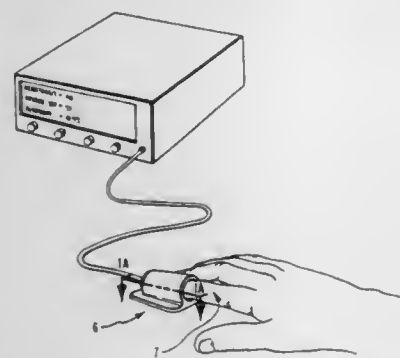
Robert R. Steuer, Pleasant View, and David H. Harris, Ogden, both of Utah, assignors to In-Line Diagnostics Corporation, Riverdale, Utah

Continuation of Ser. No. 317,726, Oct. 4, 1994, Pat. No. 5,499,627, which is a division of Ser. No. 11,882, Feb. 1, 1993, Pat. No. 5,372,136, which is a continuation of Ser. No. 598,189, Oct. 16, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 479,352

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—314

19 Claims



1. A method for noninvasively determining hematocrit as a first biological constituent value of the blood of a patient, the blood having a second biological constituent competing with said hematocrit and flowing in a pulsatile fashion in a body part of the patient or in an extracorporeal passageway in communication with the

circulatory system of the patient so as to be subjectable to transcutaneous examination in the body part or to noninvasive examination in the extracorporeal passageway, the body part or the extracorporeal passageway defining a blood conduit, the method comprising the steps of:

selecting a first radiation wavelength;

selecting a second radiation wavelength which exhibits a greater absorption coefficient to water than said first radiation wavelength;

directing said first and second radiation wavelengths into the blood conduit;

detecting the amount of first radiation after passing through the blood conduit, said detected amount of first radiation having at least one extinction characteristic that constitutes one of a first curvature, first offset, first linearity, or a first sign;

detecting the amount of second radiation after passing through the blood conduit, said detected amount of first radiation having at least one extinction characteristic that constitutes one of a second curvature, second offset, second linearity or a second sign and said characteristic in said detected amount of first radiation being different from the corresponding characteristic in the detected amount of second radiation; and

comparing the detected amount of first and second radiations to determine the hematocrit value; wherein said hematocrit value is determined without knowing blood volume.

5,803,909

OPTICAL SYSTEM FOR MEASURING METABOLISM IN A BODY AND IMAGING METHOD

Atsushi Maki, Hachioji; Hideaki Koizumi; Fumio Kawaguchi, both of Tokyo; Yuichi Yamashita, Kawagoe, and Yoshitoshi Ito, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

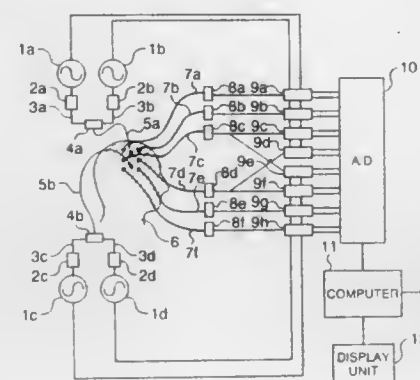
Filed Oct. 6, 1995, Ser. No. 539,871

Claims priority, application Japan, Oct. 6, 1994, 6-242592; Feb. 20, 1995, 7-030972; Jul. 5, 1995, 7-169820

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—310

18 Claims



14. An imaging system comprising:

means for irradiating light rays onto a subject at a plurality of light irradiation positions;

means for detecting light rays transmitted through an interior of said subject at a plurality of light detecting positions, wherein distances between each light irradiation position and associated light detecting positions are substantially equidistant;

means for calculating signals based upon light rays detected by said means for detecting light rays; and

image preparation and display means for obtaining signals of measuring points determined from the light irradiation positions and the light detecting positions on a basis of the signals and displaying an estimated inhomogeneous signal distribution as an image.

5,803,910

CONDENSED OXIMETER SYSTEM AND METHOD WITH NOISE REDUCTION SOFTWARE

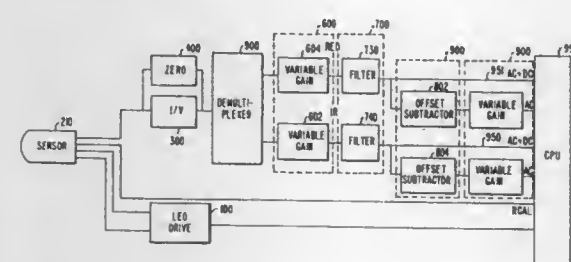
Robert S. Potratz, Lenexa, Kans., assignor to Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.

Continuation of Ser. No. 447,665, May 23, 1995, Pat. No. 5,577,500, which is a continuation of Ser. No. 225,486, Apr. 8, 1994, Pat. No. 5,533,507, which is a continuation of Ser. No. 740,362, Aug. 5, 1991, Pat. No. 5,351,685. This application Sep. 6, 1996, Ser. No. 709,414

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—330

34 Claims



34. An apparatus for measuring a parameter of the blood, comprising:

at least two emitting means for emitting first and second wavelengths of electromagnetic energy toward a tissue sample; means responsive to the emitting means for detecting the first and second wavelengths of electromagnetic energy scattered by the tissue sample, the detection means producing first and second analog signals, each of said first and second analog signals having an AC and a DC component, the first analog signal corresponding to the first wavelength of electromagnetic energy and the second analog signal corresponding to the second wavelength of electromagnetic energy;

an analog to digital converter coupled to the means for separating the analog to digital converter converting the first analog signal into a first digital signal and the second analog signal into a second digital signal; and

means for taking a linear regression of a ratio of derivatives of the first and second analog signal for a plurality of sample points in a period, the means for taking a linear regression including a microprocessor which computes the parameter of blood from the first and second digital signals, wherein the value of the parameter of blood corresponds to the derivative of the first analog signal and the derivative of the second analog signal.

5,803,911

ELECTROCARDIOGRAPHIC WAVEFORM DETECTION SYSTEM

Hidekatsu Inukai, Nagoya, and Hiroshi Sakai, deceased, late of Komaki, both of Japan, by Hiroko Sakai, his legal heir, assignors to Colin Corporation, Komaki, Japan

Filed May 5, 1997, Ser. No. 851,497

Int. Cl.⁶ A61B 5/04

U.S. Cl. 600—387

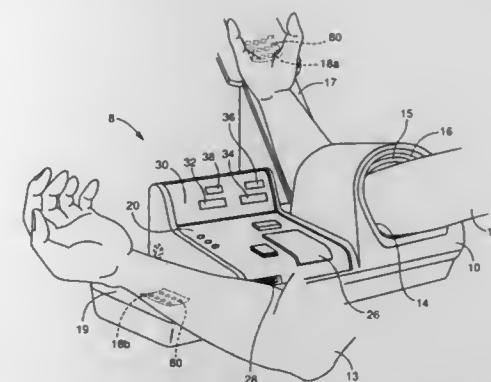
33 Claims

23. An automatic blood pressure measurement device for measuring a blood pressure and an electrocardiographic waveform of a living subject, comprising:

a frame;

a first arm rest attached to the frame and capable of supporting a right arm of the living subject;

a first electrocardio electrode attached to the first arm rest and positioned to physically contact an arm of the living subject when the living subject's arm is resting on the first arm rest, the first electrode having a plurality of air openings and being capable of detecting an electrocardiographic signal from the living subject when the living subject is in physical contact with the first electrocardio electrode;



a second arm rest attached to the frame and capable of supporting a left arm of the living subject;

a second electrocardio electrode attached to the second arm rest and positioned to physically contact an arm of the living subject when the living subject's arm is resting on the second arm rest, the second electrode having a plurality of air openings and being capable of detecting an electrocardiographic signal from the living subject when the living subject is in physical contact with the second electrocardio electrode;

an air pump connected to the first and second electrocardio electrodes;

a blow control circuit that controls the air pump to blow air out of the air openings of the first and second electrocardio electrodes when the electrocardio electrodes are not in physical contact with the living subject;

a suction control circuit that controls the air pump to suck air through the air openings of the first and second electrocardio electrodes when the electrocardio electrodes are in physical contact with the living subject;

a blood pressure measuring circuit that measures a blood pressure of the living subject; and

an electrocardiographic waveform determiner that determines the subject's electrocardiographic waveform based on the electrocardiographic signals from the first and second electrocardio electrodes.

5,803,912

POSITIONING FUNCTION MAMMOGRAPHIC BIOPSY FUNCTION SYSTEM WITH OFFSET

Bernard Siczek, Boulder; Menachem Assa, Englewood, and Michael A. DePourbaix, Arvada, all of Colo., assignors to Fischer Imaging Corporation, Denver, Colo.

Continuation of Ser. No. 18,805, Feb. 17, 1993, Pat. No. 5,415,169, which is a continuation-in-part of Ser. No. 817,722, Jan. 7, 1992, abandoned, which is a continuation of Ser. No. 440,775, Nov. 21, 1989, Pat. No. 5,078,142, and Ser. No. 799,418, Nov. 27, 1991, Pat. No. 5,240,011. This application Apr. 25, 1995, Ser. No. 428,563

Int. Cl.⁶ A61B 5/00

U.S. Cl. 600—407

7 Claims

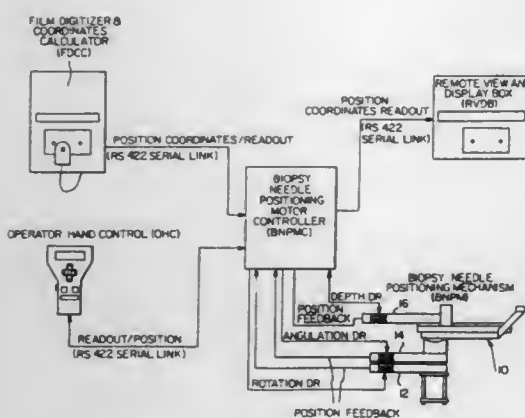
1. A method for performing medical procedures on a patient's breast, comprising the steps of:

a) displaying a first image of said patient's breast corresponding to a first viewpoint;

b) displaying a second image of said patient's breast corresponding to a second viewpoint;

c) providing an input device for obtaining positional information regarding locations of interest within said patient's breast, said input device including a visual cue which is positionable relative to said displayed images, wherein positional data relative to a position of said visual cue is obtained by activating said input device;

d) viewing said displayed images of said patient's breast to identify and determine three-dimensional coordinates of a selected location of interest within said patient's breast by positioning said visual cue relative to said selected location of



interest as viewed in said first image of said patient's breast and activating said input device to obtain first image data, positioning said visual cue relative to said selected location of interest as viewed in said second image of said patient's breast and activating said input device to obtain second image data and employing said first image data and said second image data to determine said three-dimensional coordinates of said selected location of interest within said patient's breast; and

e) viewing only one of said displayed images of said patient's breast to identify and determine three-dimensional coordinates of at least one offset location which is spatially offset relative to said selected location of interest by positioning said visual cue relative to said offset location as viewed in said only one of said displayed images of said patient's breast and activating said input device to obtain offset data.

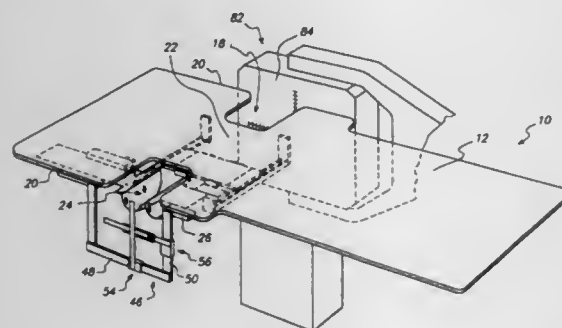
5,803,913
NUCLEAR MEDICINE STEREOTAXIC LOCALIZATION APPARATUS FOR BREAST CARCINOMAS AND METHOD

Iraj Khalkhali, 6412 Corsini Pl., Rancho Palos Verdes, Calif. 90732; Ismael Mena, Elcanal 8122, Santiago, Chile; Linda Diggle, 21210 Hobart Blvd., Torrance, Calif. 90501; Douglas M. Diggle, Sr., 754 S. Alpine Way, Bodfish, Calif. 93205, and Robert E. Diggle, 21210 Hobart Blvd., Torrance, Calif. 90501

Continuation-in-part of Ser. No. 253,419, Jun. 3, 1994, Pat. No. 5,595,177. This application Feb. 6, 1996, Ser. No. 597,139 Int. Cl.⁶ A61B 5/05

U.S. Cl. 600—407

22 Claims



1. A nuclear medicine guided system for stereotaxic localization of breast carcinomas, adapted for use in conjunction with a nuclear medicine detection device, of a patient who has been injected with a radioactive substance which preferentially accumulates in carcinoma lesion sites, said system comprising:

a table means, with a top and bottom surface, upon which the patient lies in a prone position, said table means having at least one opening through which the patient's breast being examined will pendulously protrude therethrough;

a pair of fenestrated paddles positioned under the bottom surface of the table means in the vicinity of said at least one opening, said pair of fenestrated paddles being moveable relative to each other to compress the patient's breast therebetween; and

a guide means positioned under the table means in the vicinity of the opening, said guide means having a plurality of moveable sighting guides, each moveable along one of three orthogonal axes, each sighting guide having a radioactive sighting line located thereon, wherein said moveable sighting guides will be moved to line up with the lesion site in the breast, as detected by the nuclear medicine detector device, to localize the lesion in three dimensions and in real-time in the breast.

5,803,914
METHOD AND APPARATUS FOR DISPLAYING DATA IN A MEDICAL IMAGING SYSTEM

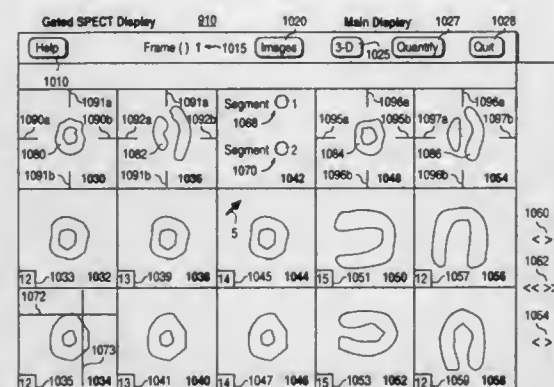
Carl J. Ryals, Fremont; Stanley H. Wong, Cupertino; Edward M. Goldberg, Sunnyvale, and Robert C. Hudson, San Jose, all of Calif., assignors to ADAC Laboratories, Milpitas, Calif.

Division of Ser. No. 393,447, Feb. 23, 1995, Pat. No. 5,722,405, which is a division of Ser. No. 48,751, Apr. 15, 1993, Pat. No. 5,431,161. This application Oct. 3, 1996, Ser. No. 720,896

Int. Cl.⁶ A61B 5/05

U.S. Cl. 600—407

5 Claims



5,803,918

SYRINGE FOR MEDICINAL PURPOSES

Helmut Vetter, Ravensburg; Thomas Otto, Vogt; Eugen Frisch, Oberteuringen, all of Germany, and Ralf Bitdinger, Herbeys, France, assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

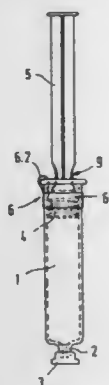
Continuation of Ser. No. 674,047, Jul. 1, 1996, abandoned, and a continuation of Ser. No. 356,357, Dec. 20, 1994, abandoned. This application Apr. 2, 1997, Ser. No. 831,840

Claims priority, application Germany, May 6, 1993, 43 14 987.1; Sep. 14, 1993, 43 31 137.7

Int. Cl.⁶ A61M 5/00

U.S. Cl. 604—110

14 Claims



1. A syringe comprising an elongate hollow barrel having a distal end, an open proximal end and a chamber therebetween for retaining fluid, said barrel defining an inside diameter, a tip at said distal end of said barrel having a passageway therethrough in fluid communication with said chamber, a plunger rod assembly including a piston in slidable fluid tight engagement with the inside diameter of said barrel, an elongate plunger rod connected to said piston and extending proximally through said open end of said barrel and a complementary protrusion provided on the plunger assembly, a plunger rod assembly brake removably attached to said open proximal end of said barrel including a rest piece housing portion partially surrounding and removably engaging said open proximal end of said barrel, said rest piece housing portion including a projection wing for applying axial force to said barrel, said projection wing emanating radially from said rest piece housing portion, and said plunger rod assembly brake including a projection for engaging said complementary protrusion on said plunger rod assembly so that proximal movement of said plunger rod assembly with respect to said barrel will cause said projection and said complementary protrusion to engage and prevent removal of said plunger rod assembly from said barrel during normal use of said syringe.

5,803,919

TROCAR VALVE ASSEMBLY

Charles C. Hart, Huntington Beach, and Henry Kahle, Irvine, both of Calif., assignors to Applied Medical Resources Corporation, Laguna Hills, Calif.

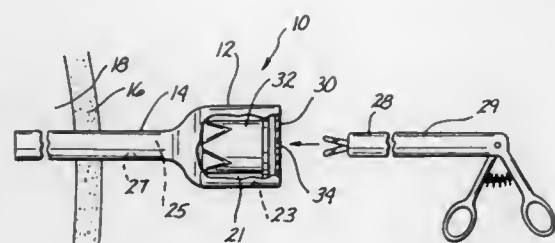
Continuation-in-part of Ser. No. 51,609, Apr. 23, 1993, Pat. No. 5,443,452, which is a continuation of Ser. No. 907,706, Jul. 2, 1992, abandoned. This application Dec. 23, 1994, Ser. No. 363,734

Int. Cl.⁶ A61M 5/178

U.S. Cl. 604—167

17 Claims

1. A valve having an axis extending between a proximal end and an opposing distal end, comprising:
an outer wall forming a continuous surface around the axis, the continuous surface extending progressively radially inwardly between the proximal end to the distal end
a flange extending radially outwardly at a proximal end of the outer wall;



a plurality of fold sections extending inwardly of the outer wall and forming a continuous inner wall of the valve, each of the fold sections having an open state and a closed state;
a first one of the fold sections having a generally concave distal facing surface and a generally convex proximal facing surface;
a second one of the fold sections disposed in juxtaposition to the first fold section and defining with the first fold section a slit which is sealed when the fold sections are in the closed state and is unsealed when the fold sections are in the open state.

5,803,920

THIN ABSORBENT ARTICLE

Thomas Harry Gilman, Spring Grove, Ill., assignor to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

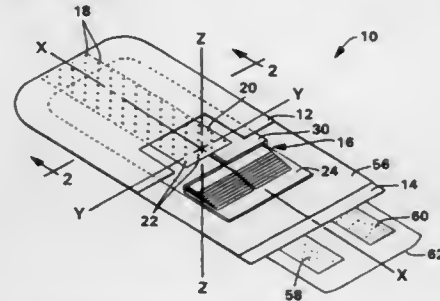
Continuation of Ser. No. 474,838, Jun. 7, 1995, abandoned.

This application Sep. 4, 1996, Ser. No. 707,567

Int. Cl.⁶ A61F 13/15; 13/20

U.S. Cl. 604—378

41 Claims



1. An absorbent article comprising:
a) a liquid-permeable cover;
b) a liquid-impermeable baffle; and
c) an absorbent positioned between said cover and said baffle, and said article having a crush recovery value of at least about 15 mm, a wet load value of at least about 300 grams, a stress value of less than about 100 grams/mm, and a thickness of less than about 5 millimeters;

wherein the crush recovery value and wet load value are measured by

(1) providing a Sintech® I/S testing apparatus or an Instron® testing apparatus having opposed, coaxially aligned arms, one of which arms is movable relative to the other arm at a predetermined speed, said testing apparatus further having first and second rectangular frame members which are interleaved to operate in unison; the first frame member having a first plate and a second plate, each of the first and second plates having an inner surface and an outer surface, and the inner surface of the second plate having a shoulder; the testing apparatus further having at least two support members, said support members being located at the corners of the first and second rectangular frame members and joining the plates on the first frame member; the shoulder on the second plate being provided with a first set of flexible wands oriented parallel to and spaced apart from one another; the second frame member having a third plate and a fourth plate, each of the third and fourth plates having an inner surface and an outer surface, and the inner surface of the fourth plate having a shoulder; the testing apparatus

further having at least two additional support members, said additional support members being located at the corners of the third and fourth rectangular frame members and joining the plates on the third frame member; the shoulder on the second plate being provided with a second set of flexible wands oriented parallel to and spaced apart from one another; the first and second sets of wands being arranged to intermesh with but not contact one another;
(2) securing the testing apparatus in a vertical orientation;
(3) adjusting the first and second frame members a predetermined distance apart;
(4) removing any wings, flaps, panels, tabs or appendages from the absorbent article to be tested;
(5) wetting the absorbent article with 25 cubic centimeters of 0.9 percent saline solution;
(6) centering the wetted absorbent article in the apparatus;
(7) zeroing the load cell of the testing apparatus;
(8) actuating the tester to separate the arms at a predetermined rate, whereby to crush the wetted absorbent article;
(9) measuring the distance to which the absorbent article was crushed;
(10) measuring and recording the maximum force applied to the wetted absorbent article as it is crushed, as the wet load value of the absorbent article;
(11) retracting the arms of the tester to their original preset position;
(12) measuring the recovered width of the absorbent article after approximately 30 seconds;
(13) recording the crush recovery value as the recovered width minus the distance to which the absorbent article was crushed;
and wherein the stress value is determined by running a test identical to that outline above, except that the absorbent article is not wetted with saline, to determine the dry load value of the absorbent article and recording the stress value as the dry load value of the article divided by the thickness of the article.

5,803,921

ACCESS PORT DEVICE FOR USE IN SURGERY

Frank Bonadio, County Wicklow, Ireland, assignor to Gaya Limited, Dublin, Ireland

PCT No. PCT/IE95/00020, § 371 Date May 8, 1995, § 102(e) Date May 8, 1995, PCT Pub. No. WO95/22289, PCT Pub. Date Aug. 24, 1995

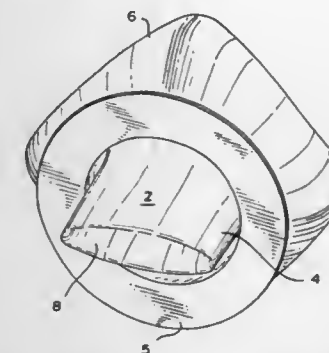
PCT Filed Feb. 20, 1995, Ser. No. 433,498

Claims priority, application Ireland, Feb. 18, 1994, S940150; Aug. 5, 1994, S940613; Dec. 7, 1994, S940960; Jan. 25, 1995, S950055

Int. Cl.⁶ A61M 29/00

U.S. Cl. 606—1

43 Claims



1. An access port for use in surgery comprising:
an elongate sleeve of flexible material having an entry opening located at a proximal end of the sleeve and an exit opening located at a distal end of said sleeve,
an inflatable chamber surrounding said sleeve and extending substantially coaxially therewith from the proximal end of the

sleeve for a distance along the length of said sleeve, said inflatable chamber when inflated operating to collapse said sleeve to close said entry opening, said sleeve being attached to and surrounded by said inflatable chamber with said sleeve extending through said inflatable chamber and outwardly therefrom to provide a projecting flexible sleeve portion extending outwardly from the inflatable chamber to the exit opening at the distal end of said sleeve whereby said projecting sleeve portion can be inserted through an incision and into a patient's body cavity to provide a flexible sleeve portion adjacent to said exit opening within said body cavity free of a surrounding inflatable chamber.

5,803,922

ENDOSCOPIC WOUND ACCESS, ANCHORING, AND INSUFFLATION DEVICE AND METHOD

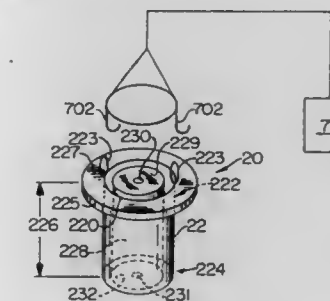
William J. Christy, 1325 Sunset Dr., Winter Park, Fla. 32789

Continuation-in-part of Ser. No. 495,179, Jun. 27, 1995, Pat. No. 5,683,378. This application Feb. 3, 1997, Ser. No. 794,731

Int. Cl.⁶ A61B 17/00

U.S. Cl. 606—1

19 Claims



1. A device for insufflating a body cavity preparatory to and during an intracavity procedure, the device comprising:
a generally cylindrical body having:
a proximal end;
a distal end; and
a longitudinal bore extending from the proximal end to the distal end, the bore dimensioned to admit a surgical implement thereinto;
means for anchoring the cylindrical body to skin surrounding the incision generally adjacent the cylindrical body proximal end, the anchoring means dimensioned to restrain the cylindrical body proximal end from entering the incision;
sealing means affixed within the cylindrical body bore, the sealing means having a perforation expandable to admit and closely surround the surgical implement for maintaining insufflation during insertion of the surgical implement into the incision; and
means mechanically coupled to the anchoring means for elevating the anchoring means in a proximal direction, thereby permitting a mechanical insufflation of the body cavity.

5,803,923

PRESBYOPIA CORRECTION USING A PROTECTED SPACE PATTERN, METHODS AND APPARATUS

Jugvir Inder Singh-Derewa, Orlando, Fla.; Heraldo Sa Martins, and Etelvino Teixeira Coelho, both of Recife, Peru, assignors to Jugvir I. Singh-Derewa, Darien, Conn.

Filed Sep. 15, 1994, Ser. No. 306,660

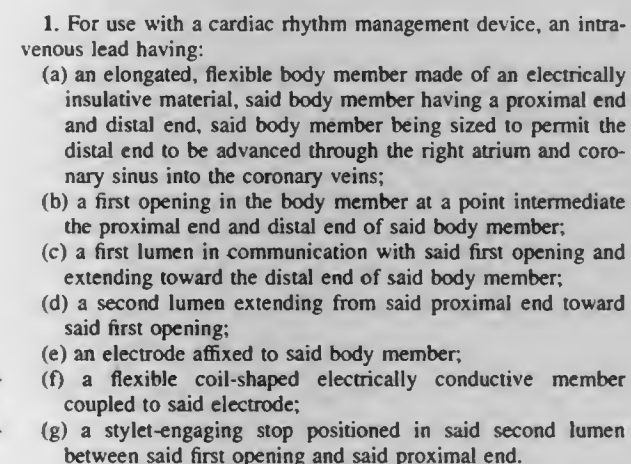
Int. Cl.⁶ A61N 5/02

U.S. Cl. 606—5

2 Claims

1. A method of correcting presbyopia in a human eye comprising:
applying fixation means to fixate an eye;
applying an ablation mask to at least a portion of a corneal surface of the eye;

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5,803,929

ULTRAVIOLET ABSORBER CONTAINING A
BENZOTRIAZOLE COMPOUND

Hajime Saito, and Masahiro Makino, both of Sabae, Japan, assignors to Nicca Chemical Co., Ltd., Fukui, Japan
Division of Ser. No. 591,791, Jan. 25, 1996, abandoned. This application Mar. 20, 1997, Ser. No. 821,717

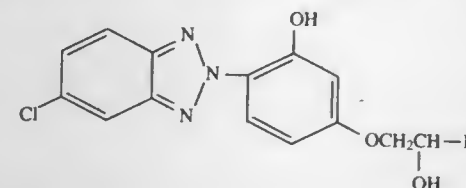
Claims priority, application Japan, Sep. 29, 1995, 7-253276

Int. Cl.⁶ D06P 1/642; 5/06; D06M 13/352

U.S. Cl. 8—115.58

20 Claims

1. A method of improving a light fastness to ultraviolet light of a synthetic fiber material comprising applying a benzotriazole compound represented by the following general formula (I)



wherein R represents hydrogen, methyl, ethyl or phenyl, to the synthetic fiber material by post-treatment.

5,803,930

DYEING PREPARATIONS (COMPOSITIONS) OF FIBER-
REACTIVE DYES

Werner Hubert Russ, Flörsheim, Germany, and Mike Elliott, Greetland Halifax, United Kingdom, assignors to DyStar Textilfarben GmbH & Co. Deutschland KG, Frankfurt am Main, Germany

Filed Sep. 26, 1996, Ser. No. 721,233

Claims priority, application Germany, Sep. 28, 1995, 195 36 222.5

Int. Cl.⁶ D06F 3/10

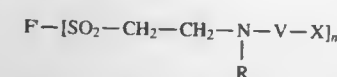
U.S. Cl. 8—549

18 Claims

1. A dyeing composition comprising a dye of the formula (1) defined below and a dye of the formula (2) defined below with a dye radical F which is identical to the dye of the formula (1)

F—(SO₂—CH=CH₂)_n

(1) (III), para-cumenyl phenols having general formula IV:



(2)

or a mixture of different dyes of the formula (1) and of different dyes of the formula (2) with dye radicals F which are identical to the respective dyes of the formula (1), the dye or dyes of the formula (1) and the dye or dyes of the formula (2) being present in the preparation in a molar-equivalent ratio to one another, in terms of the groups —(SO₂—CH=CH₂)_n and —[SO₂—CH₂—CH₂—N(R)—V—X]_n, of from 90:10% to 60:40%, and in the formulae (1) and (2):

F is the radical of a mono-, dis- or polyazo dye or anthraquinone, azomethine, phenazine, stilbene, triphenyl-methane, xanthene, thioxanthene, nitroaryl, naphthoquinone, perylenetetracarbinide, formazan, copper formazan, phthalocyanine, copper phthalocyanine, nickel phthalocyanine or cobalt phthalocyanine dye or triphenyldioxazine dye, which possesses 1 or 2 groups which impart water-solubility;
n is the number 1 or 2;

R is hydrogen or alkyl of 1 to 6 carbon atoms which can be interrupted by 1 or 2 hetero-groups and can be substituted by a substituent from the group consisting of sulfo, carboxy, hydroxy, sulfato, phosphato and alkanoylamino of 2 to 5 carbon atoms;

V is a covalent bond or alkylene of 1 to 4 carbon atoms, or a group of the formula —CO—NH—CH₂—CH₂—;

X is a group which imparts water-solubility.

5,803,931

NON-SOLVENT POLYESTER DYE AUXILIARY

Susan C. Glenn, Howard Cole, and Brian C. Francois, all of Charlotte, N.C., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation of Ser. No. 694,347, Aug. 7, 1996, abandoned.

This application Oct. 1, 1997, Ser. No. 942,310

Int. Cl.⁶ D06P 1/90; 3/34

U.S. Cl. 8—613

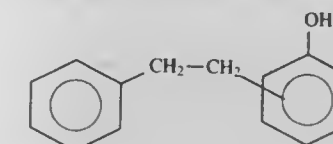
11 Claims

1. A composition for dyeing polyester fibers comprising:

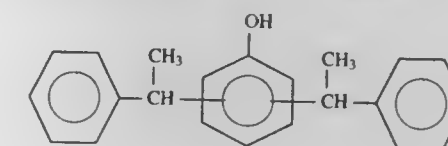
(a) a dye;

(b) an acid;

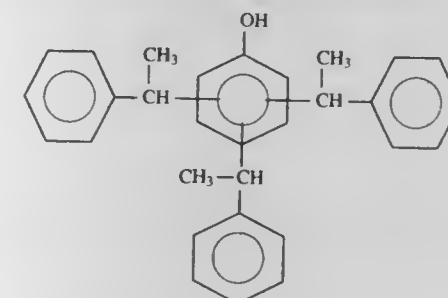
(c) a solvent-free dye carrier selected from the group consisting of mono-styrenated phenols having general formula I:



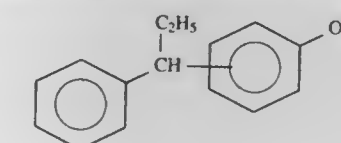
(I), di-styrenated phenols having general formula II:



(II), tri-styrenated phenols having general formula III:



(III), para-cumenyl phenols having general formula IV:



(IV), and mixtures thereof;

(d) an emulsifier; and

(e) water.

5,803,932

RESIST PROCESSING APPARATUS HAVING AN
INTERFACE SECTION INCLUDING TWO STACKED
SUBSTRATE WAITING TABLES

Masami Akimoto, Shizuo Ogawa, and Toshihiko Nagano, all of Kumamoto, Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Kyushu Limited, Tosu, both of Japan

Filed Apr. 26, 1995, Ser. No. 427,871

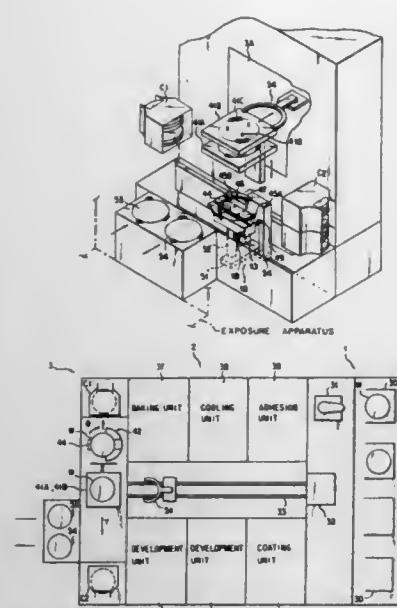
Claims priority, application Japan, Apr. 26, 1994, 6-110421

Int. Cl.⁶ B65G 49/07; B05C 13/02

U.S. Cl. 29—25.01

18 Claims

1. A resist-coating/developing system used in combination with an exposure apparatus, said system comprising:



a main processing section having a plurality of processing units including a coating unit for applying a resist on target substrates and a developing unit for developing the resist on the target substrates after the resist is exposed;

a loading/unloading section arranged on one side of said main processing section;

an interface section arranged on another side of said main processing section to face said exposure apparatus;

a first convey mechanism movable between said loading/unloading section and said interface section, for conveying said target substrates to and from said processing units in said main processing section; and

first and second waiting tables arranged in said interface section, each for temporarily holding one of said target substrates, said first and second waiting tables being stacked in a vertical direction such that the second waiting table is located above the first waiting table, and said target substrates are conveyable to and from said first and second waiting tables by said first convey mechanism.

5,803,933

PROCESS FOR THE PRODUCTION OF PRISMATIC ALKALINE ACCUMULATOR CELLS

Manfred Kilb, Frankfurt am Main, Germany, assignor to Christoph Emmerich GmbH & Co. KG, Frankfurt am Main, Germany

Filed Nov. 25, 1996, Ser. No. 755,934
Claims priority, application Germany, Nov. 25, 1995, 195 44 050.1

U.S. Cl. 29—623.1 11 Claims

1. A process for the production of prismatic alkaline accumulator cells of rectangular cross-section, characterized by the following process steps:

- (1) production of an electrode unit with the following process steps:
 - a) supplying a strip (5) of nickel fleece or nickel foam,
 - b) pasting the strip (5) with the active material for positive and negative electrodes (10, 11) respectively, leaving free one or more strip portions (7) which are in the region of the later electrode connectors (8),
 - c) drying and calendaring the strip (5) to the desired thickness,
 - d) dividing the strip (5) into electrodes (10, 11) of the desired width and partial disengagement of the strip portion or portions (7) without active material, in such a way that a connecting strip portion (8) remains at an electrode edge, and

- e) alternate superimposition in coincident relationship of positive and negative electrodes (10, 11), with the interposition of respective separators (12), in such a way that the connecting strip portions (8) of the positive and negative electrodes (10, 11) are respectively separately disposed in superposed relationship and an electrode pack is produced,
- (2) producing covers (14) of plastic material with connecting contacts (16) for the cells comprising the following process steps:
 - a) supplying covers (14) of plastic material which each have two bores (17) for the connecting contacts (16),
 - b) inserting rivets (16) as connecting contacts into the bores (17) in the covers,
 - c) fitting electrode delivery conductors (15) which are each provided with a bore on to the free ends of the rivets (16),
 - d) initial shaping and final shaping of the rivets (16) for fixing the electrode conductors (15) on the inside of the covers (14) and thus producing an electrolyte-tight feedthrough means through the covers (14), and
 - e) inserting and fixing a safety valve (19, 21) in a central shaped recess (18) in the cover (14),
- (3) finishing the electrode unit comprising the following process steps:
 - a) pressing the connecting strip portions (8) together to the positive and negative electrodes (10, 11) respectively of a pack, and
 - b) spot-welding of the pressed-together connecting strip portions (8) to the electrode conductors (15) on the inside of the cover (14), and
- (4) finishing the cell comprising the following process steps:
 - a) supplying a prismatic plastic casing (24) which is open at one end for closure with a cover (14) in accordance with (2),
 - b) filling a casing (24) with a measured amount of electrolyte (25),
 - c) lowering the electrode pack of an electrode unit into the casing (24) in a plurality of steps which are separated in respect of time,
 - d) welding the cover (14) of the electrode unit to the casing (24),
 - e) high-speed forming of the cell in a test station, and
 - f) sorting out failed cells on the basis of the values in the high-speed forming operation.

5,803,934

METHOD OF PRODUCING AN ELECTRODE LAYER ON A SOLID OXIDE ELECTROLYTE OF A SOLID STATE FUEL CELL

John David Carter, Roskilde, Denmark, assignor to Forskningscenter RISØ, Roskilde, Denmark

PCT No. PCT/DK94/00304, § 371 Date Feb. 20, 1996, § 102(e) Date Feb. 20, 1996, PCT Pub. No. WO95/05685, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 12, 1994, Ser. No. 596,314
Claims priority, application Denmark, Aug. 18, 1993, 0943/93

U.S. Cl. 29—623.5 14 Claims

1. A method for making an electrode layer comprising the steps of:

- providing a substrate having a surface;
- depositing a layer of an electrode material on a said surface, said electrode material comprising $\text{La}_x\text{Ca}_y\text{CrO}_3$, wherein $x+y \geq 1$ and $y > 0$;
- adding an amount of vanadium to said electrode material before or after said depositing step to improve sinterability of the electrode material; and
- thereafter, sintering the layer to provide said electrode layer.

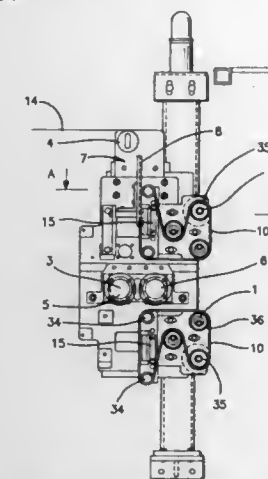
5,803,935

DEVICE FOR CONVEYING AND SECTIONING OF SEPARATOR STRIP

Anton Schwetz, Ebersdorf; Josef Gruber, Birkfeld, and Anton Papst, Hirsndorf, all of Austria, assignors to BM Battery Machines GmbH, Sebersdorf, Austria

Filed Dec. 19, 1996, Ser. No. 770,163
Int. Cl. B23P 19/00

U.S. Cl. 29—730 16 Claims



1. Device for conveying and sectioning of separator strip (14) in devices for producing pockets for battery plates with conveyor means (2) which conveys separator strip (14) to device (3) for dividing separator strip (14) into separator strip sections, and with another conveyor means (1) which feeds the separator strip sections to a means for folding the separator strip sections around the battery plates, characterized in that conveyor means (1, 2) for separator strip (14) or separator strip sections have conveyor belts (10) supplied with negative pressure.

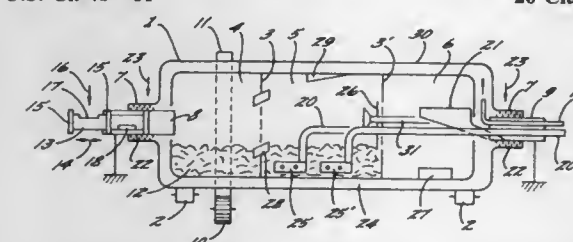
5,803,936

REACTOR FOR THE CONTINUOUS PRODUCTION OF A FLAMMABLE GAS

Jakob Huber, 8 Chemin des Avenyrs, 1806 St. Legier, Switzerland

Filed Sep. 26, 1996, Ser. No. 721,117
Claims priority, application Switzerland, Sep. 27, 1995, 02724/95

Int. Cl. B01J 7/00; F02B 43/00; F23G 5/12
U.S. Cl. 48—61 20 Claims



1. A reactor for the continuous production of a combustible gas through the incomplete combustion of a combustible material and supplied air, and comprising

- a generally tubular combustion chamber (1) having two opposite ends and a portal (7) at each end thereof, with said combustion chamber being mounted for rotation about an axis which at least closely approximates the horizontal,
- a stationary closure (8,9) closing each of said portals,
- means for feeding a combustible material into the interior of said combustion chamber through one of said closures, means for delivering air into the interior of the combustion chamber so as to pass through the combustible material in said combustion chamber in an up draft mode, or a down draft mode, or in a combination of an up draft mode and a down draft mode,

5,803,937

METHOD OF COOLING A DUST-LADEN RAW GAS FROM THE GASIFICATION OF A SOLID CARBON-CONTAINING FUEL

Ralf-Uwe Hartermann, Wiehl; Arno Hendricks, Gummersbach; Leszek Gawlowski, Retschhof-Wolfseifen, and Hubert Scheid, Gummersbach, all of Germany, assignors to L. & C. Steinmüller GmbH, Gummersbach, Germany

Continuation-in-part of Ser. No. 302,849, Oct. 5, 1994, abandoned. This application Jul. 24, 1996, Ser. No. 685,791
Claims priority, application Germany, Jan. 14, 1993, 43 00 776.7

Int. Cl. C10J 3/46

U.S. Cl. 48—210 20 Claims

1. A method of cooling a dust-laden raw gas from the gasification of a solid carbon-containing fuel in a pressurized reactor that is disposed in a pressure vessel, said method including the steps of: introducing said gas from said reactor into a quench pipe that is disposed in said pressure vessel and has a cross-sectional area that is smaller than a cross-sectional area of said reactor; supplying a quenching medium to said quench pipe for direct cooling of said gas; deflecting gas that issues from a discharge end of said quench pipe by essentially 180°; subsequently guiding said deflected gas into a first end of an annular chamber formed within said pressure vessel between said quench pipe and a wall of said pressure vessel, said annular chamber containing an elongated cooling heat transfer surface means that surrounds said quench pipe and is incorporated in a water-steam circuit, said gas being guided in said annular chamber and about said cooling heat transfer surface means in a direction of flow countercurrent to the direction of flow of gas in said quench pipe; and withdrawing said gas from a second end of said annular chamber that is remote from said first end thereof.

5,803,938

LIQUID VAPORIZING APPARATUS

Tooru Yamaguchi; Kouichirou Tsutahara, and Takayuki Suenaga, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Ryoden Semiconductor System Engineering Corporation, Hyogo, both of Japan

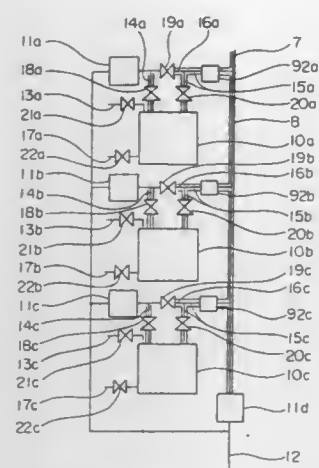
Division of Ser. No. 592,449, Jan. 26, 1996, Pat. No. 5,662,838, which is a division of Ser. No. 244,265, Jul. 25, 1994, Pat. No. 5,520,858. This application May 15, 1997, Ser. No. 856,575
Claims priority, application Japan, Sep. 21, 1992, 4-251461; Sep. 21, 1993, PCT/JP93/01353

Int. Cl. B01F 3/04

U.S. Cl. 55—257.7 2 Claims

1. A liquid vaporizing apparatus comprising:

- a container for holding a liquid to be vaporized;
- a bubbling tube inserted into said container for vaporizing the liquid by blowing a gas into the liquid;
- a gas ejection pipe for ejecting blown gas and vaporized liquid outside of said container;
- a liquid-supply pipe for supplying the liquid into said container;
- temperature detection means for detecting the temperature of the liquid in said container;
- temperature adjustment means responsive to said temperature detection means for maintaining the liquid in said container at a predetermined temperature; and

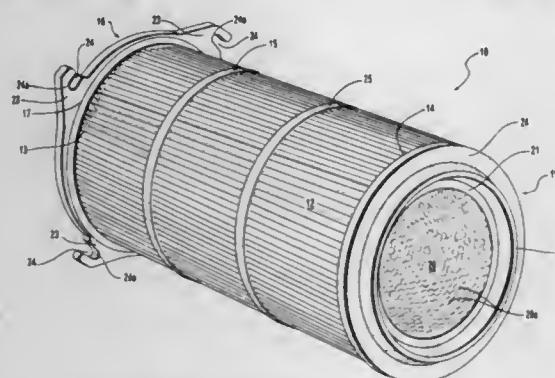


vaporizing-gas stabilizing means disposed at a junction of said gas ejection pipe with another pipe for controlling flow of the vaporized liquid flowing in said gas ejection pipe to a control valve.

5,803,939
INDUSTRIAL DUST COLLECTOR AND METHOD FOR ITS USE
Leon A. Huning, Morrill, Kans., assignor to Alanco Environmental Resources Corp., Scottsdale, Ariz.
Filed Apr. 24, 1997, Ser. No. 839,985
Int. Cl.⁶ B01D 46/48

U.S. Cl. 55—369

14 Claims



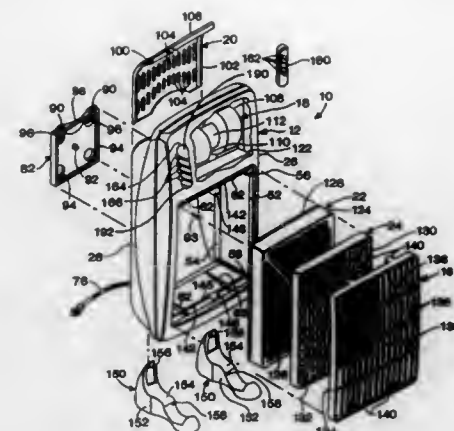
1. A cartridge filter element comprising, a section of a filter media for removing particulates as are contained in an air flow and is formed into an open cylinder; a closed access plate secured across a rear end of said filter medium cylinder that includes a plurality of equal spaced mounting lugs formed on the bias across edge sections of said closed access plate, which said mounting lugs each to receive a fastener means fitted therein that extend at intervals outwardly from around a filter access opening of a filtration housing that is arranged to receive a cartridge filter element fitted therein; and a seal collar means secured to a forward end of said filter media cylinder.

5,803,940
AIR TREATMENT SYSTEM
Bradley G. Rick, Belmont; Bradley J. Pippel, Grandville, both of Mich., and Dale Aberegg, New Albany, Ohio, assignors to Amway Corporation, Ada, Mich.
Filed Jun. 11, 1996, Ser. No. 661,375
Int. Cl.⁶ B01D 39/00

U.S. Cl. 55—490

3 Claims

1. An air treatment system comprising:

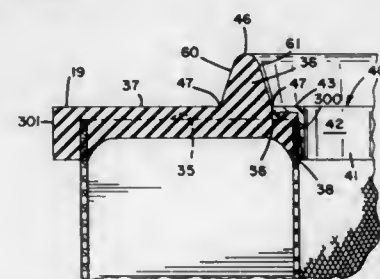


a housing having a rear extent and a contoured, non-planar bottom, said housing defining an interior space, said housing defining a pair of mounting slots;
a blower mounted within said space for moving air through said housing;
a filter element mounted within said space;
a pair of feet attached to said bottom for supporting said housing at a reversely inclined angle, said feet spaced apart from one another and each including a top wall having a periphery and being contoured to correspond in shape to said bottom of said housing and a side wall extending downwardly from said periphery of said top wall, said feet extending beyond said rear extent of said housing whereby said feet prevent said rear extent of said housing from abutting a vertical wall, each of said feet including a mounting flange extending from said top wall and fitted within one of said mounting slots; and
a threaded fastener means for securing said feet to said housing, said threaded fastener means extending through said top wall inwardly from said side wall whereby said threaded fastener means is hidden from view during normal use by said side wall.

5,803,941
FILTER ELEMENT
James Leonard Berkhoe, Woodbury, Minn.; Dolan D. Bartels; Michael S. Bergeson, both of Cresco, Iowa; Bruce A. Johnson, Lake Elmo, and Steven D. Schmeichel, Invergrove Heights, both of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 371,809, Jan. 12, 1995, abandoned. This application Oct. 23, 1995, Ser. No. 551,898
Int. Cl.⁶ B01D 27/00; 46/02

U.S. Cl. 55—598

20 Claims



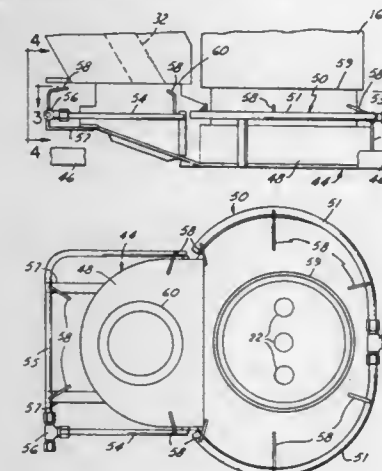
1. A filter element for mounting on a yoke assembly of an air filter system; said filter element comprising:
(a) first and second end caps having cylindrically disposed filter media extending therebetween; said filter media being embedded within said first and second end caps; said cylindrically disposed filter media defining a cylindrical interior in said filter element;
(i) at least said first end cap comprising a soft polymeric material having a central air flow aperture;

(b) a cylindrical inner liner positioned to line said cylindrical interior of said filter element; said inner liner extending between said first and second end caps;
(c) a first slide construction; said first slide construction having a central mounting rim, said rim being positioned within said central air flow aperture of said first end cap and within an inner diameter of said cylindrical inner liner, to slidably engage the yoke assembly of an air filter system, and be positioned between the yoke assembly and both of said inner liner and said first end cap, when said filter element is installed on the yoke assembly;
(i) said first slide construction comprising a rigid plastic construction;
(ii) said first end cap having a first coefficient of friction and said first slide construction having a second coefficient of friction; said second coefficient of friction being less than said first coefficient of friction; and
(iii) said first slide construction being a separate member from said cylindrical inner liner and said first soft polymeric end cap.

5,803,942
METHOD AND APPARATUS FOR DELIVERING A CASED GLASS STREAM
Garrett L. Scott, Toledo, Ohio, assignor to Owens-Brockway Glass Container Inc., Toledo, Ohio
Filed Apr. 14, 1997, Ser. No. 840,164
Int. Cl.⁶ C03B 7/00; 7/094

U.S. Cl. 65—121

12 Claims



1. Apparatus for forming a cased glass stream having an inner core glass surrounded by an outer casing glass, said apparatus including means for delivering core glass from a first source through a first orifice, means forming a second orifice vertically spaced beneath and aligned with said first orifice with a chamber surrounding said second orifice and communicating with said second orifice through a gap between said first and second orifices, and means for delivering casing glass from a second source to said chamber such that glass flows by gravity through said orifices from said first and second sources to form said cased glass stream, said first and second orifices being carried by an orifice housing assembly with means for moving said assembly into seating engagement against said means for delivering core and casing glass so as to form an area of seating engagement, wherein said orifice housing assembly further includes a fluid manifold mounted on said housing assembly, and having inlet means for connection to a source of cooling fluid and outlet means directed toward the area of seating engagement between said assembly and said means for delivering core and casing glass from said assembly and said means for delivering core and casing glass.

10. In an apparatus for forming a cased glass stream in which an orifice housing is in abutting engagement with means for delivering streams of core and casing glass, said abutting engagement

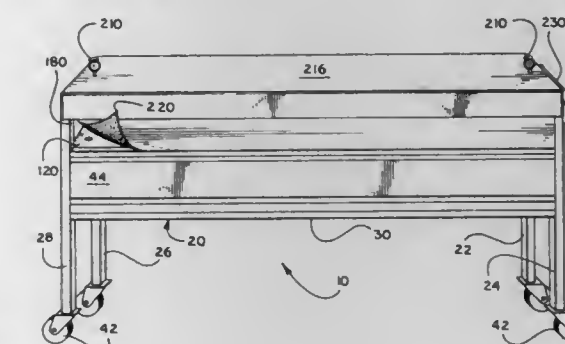
forming an area of seating engagement between said orifice housing and said means for delivering streams of core and casing glass, a method of cooling the area of seating engagement between said orifice housing and said means for delivering streams of core and casing glass, and thereby reducing glass leakage through said area, said method comprising the steps of:

(a) providing a fluid manifold having inlet means for receiving cooling fluid and outlet means for delivering cooling fluid;
(b) mounting said manifold on said orifice housing in such a way that said outlet means are directed to the area of seating engagement when said orifice housing is in abutting engagement with said means for delivering streams of core and casing glass, and
(c) bringing said orifice housing into said abutting engagement with said means for delivering streams of core and casing glass so that said outlet means on said manifold is directed toward the area of seating engagement between said orifice housing and said means for delivering streams of core and casing glass, and
(d) delivering cooling fluid to said inlet means of said manifold and discharging said cooling fluid through said outlet means to cool said area of seating engagement between said housing and said means for delivering core and casing glass.

5,803,943
APPARATUS FOR FORMING INSULATED GLASS
Charles Stanley Parsons, Dallas, Ga., assignor to SIG Industries, Inc., Atlanta, Ga.
Filed Mar. 5, 1996, Ser. No. 611,191
Int. Cl.⁶ C03B 23/00; 29/00; 11/00; 11/12

U.S. Cl. 65—269

20 Claims



1. An apparatus for forming insulated glass from a first and a second sheet of glass, comprising:
a) a frame assembly comprising a plurality of generally rigid horizontal and vertical supports;
b) a lower platen associated with said frame assembly comprising a generally flat rigid sheet containing metal and having a plurality of spaced apertures therein;
c) an upper platen associated with said frame assembly comprising a generally flat sheet of rigid material;
d) means associated with said frame assembly and said lower platen for raising and lowering said lower platen in response to a signal;
e) means associated with said frame assembly for providing heat comprising at least one heating element;
f) means for controlling said apparatus associated with said frame assembly; and
g) means associated with said controller means for monitoring the temperature between said upper and lower platens.

5,803,944

LATHE FOR BLOWING GLASS

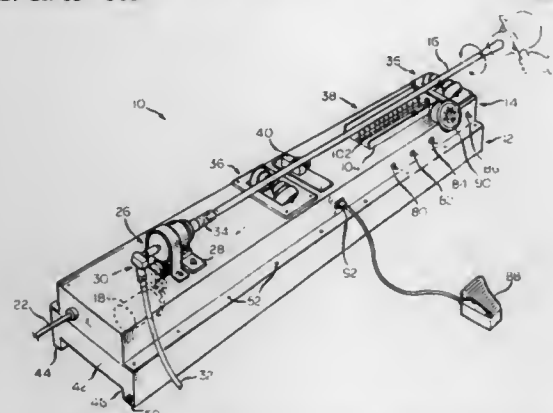
Robert Domka, 6412 Brace, Detroit, Mich. 48228

Filed Mar. 26, 1997, Ser. No. 824,505

Int. Cl.⁶ C03B 9/00; B23B 3/00

U.S. Cl. 65—300

23 Claims



1. An apparatus for rotating a blowpipe while blowing a glass article, comprising:
a lower section;
an upper section removably attached to said lower section;
a motor mounted on said lower section, said motor having an output shaft;
a gear assembly mounted on said upper section and operably connected to the output shaft of said motor;
at least one roller assembly mounted on said upper section for rotatably supporting a blowpipe;
an air coupling assembly having an input and an output, said air coupling assembly rotatably attached to said gear assembly;
an air tube connected to the output of said air coupling assembly, said air tube frictionally engaging the blowpipe; and
a blowhose connected to the input of said air coupling assembly, wherein said apparatus is capable of rotating the blowpipe while blowing the glass article.

5,803,945

MOLD OPENING AND CLOSING MECHANISM FOR AN I.S. MACHINE

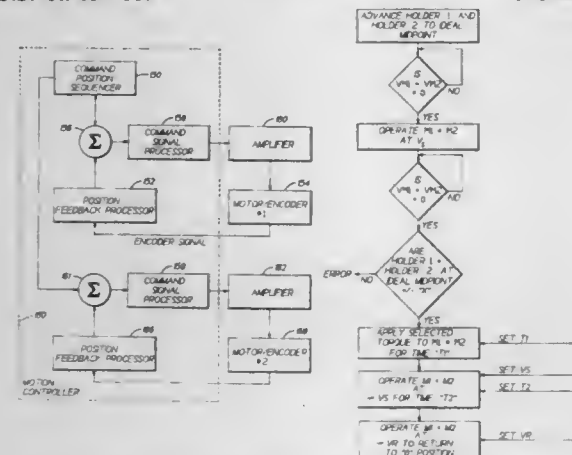
Marty J. Grant, Wethersfield, Conn., assignor to Emhart Glass Machinery Investments Inc., Wilmington, Del.

Filed Nov. 6, 1997, Ser. No. 965,175

Int. Cl.⁶ C03B 9/40; 9/13

U.S. Cl. 65—359

3 Claims



1. A mold opening and closing mechanism for an I.S. machine having a plurality of individual sections each comprising a pair of opposed mold support mechanisms displaceable between a separated retracted position whereat each mold support mechanism is located at a start position and an

advanced position whereat molds carried by said mold support mechanisms will forcefully engage,
drive means operatively associated with each of said mold support mechanisms for displacing the associated mold support mechanism between said retracted and advanced positions, including
an electronic motor,
means for driving said electronic motor to apply a predetermined torque for a selected period of time when said opposed pair of mold support mechanisms are at said advanced position,
means for returning said mold support mechanism to said start position following said selected period of time including
means for operating said electronic motor to displace said mold support mechanism at a selected slow velocity for a predetermined period of time, and
means for operating said electronic motor to displace said mold support mechanism to rapidly displace said mold support mechanism to said start position following said predetermined period of time.

5,803,946

CONTROLLED RELEASE PLANT NUTRIENTS

Robert J. Petcavich, and Xiaoming Yang, both of San Diego, Calif., assignors to Planet Polymer Technologies, Inc., San Diego, Calif.

Filed Jun. 20, 1996, Ser. No. 666,226

Int. Cl.⁶ C05C 9/00

U.S. Cl. 71—64.11

18 Claims

18. A controlled release plant nutrient comprising particles of plant nutrient comprised in whole or in principal part of urea and having urea at or on the exterior surfaces thereof and a water resistant biodegradable interpenetrating polymer network reacted with the urea at or on the exterior surfaces and comprised of a biuret, a urethane and tung oil cross-linked with the biuret and urethane.

5,803,947

METHOD OF PRODUCING METALLIC MAGNESIUM, MAGNESIUM OXIDE OR A REFRACTORY MATERIAL

John Engell, Rungsted Kyst; Jens Sønderberg Frederiksen, Copenhagen, and Karsten Agersted Nielsen, Gentofte, all of Denmark, assignors to Mineral Development International A/S, Birkerød, Denmark

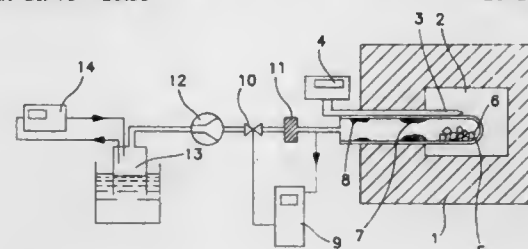
PCT No. PCT/DK92/00339, § 371 Date Jul. 13, 1995, § 102(e) Date Jul. 13, 1995, PCT Pub. No. WO94/11539, PCT Pub. Date May 26, 1994

PCT Filed Nov. 16, 1992, Ser. No. 436,213

Int. Cl.⁶ C22B 26/22

U.S. Cl. 75—10.33

28 Claims



1. A method of producing metallic magnesium by carbothermal reduction of a starting material selected from the group consisting of magnesium oxide containing minor amounts of oxides of Fe, Si, Ca and Al; natural and industrially produced magnesium silicate minerals; and mixtures thereof which comprises:
mixing the starting material with carbon to form a reaction mixture, the carbon being present in an amount of at least 1 mole C/mole SiO₂ plus at least 1 mole C/mole FeO plus at least 3 mole C/mole Fe₂O₃ plus at least 1 mole C/mole MgO;

heating the reaction mixture in a reduction zone to a temperature T_r of from 1400° to 1700° C. and at a pressure p_r of from 0.01–1.75 kPa;
reducing iron oxide components of the starting material to iron in the reduction zone;
reducing a silica component of the starting material to SiO, which is partly converted to SiC and an alloy of Si and Fe, "Si-Fe", in the reduction zone, partly evaporated from the reduction zone and converted to SiC, Si, and/or Mg₂SiO₄ by reaction with carbon in a separate first condensation zone at a pressure p_1 of from 0.01–1.1 kPa and at a temperature T_1 higher than:

$$T_{min}^{\circ}C. = \frac{-32217}{2 \log p_1 - 19.92} - 273.15$$

and lower than $T_{min} + 100^{\circ}C.$ and in any case lower than T_r ;
reducing a magnesium oxide component of the starting material to gaseous metallic magnesium in the reduction zone;
evaporating said gaseous metallic magnesium from the reduction zone and condensing said gaseous metallic magnesium in a separate second condensation zone arranged downstream from the first condensation zone at a pressure p_2 of from 0.01–1.1 kPa and at a temperature T_2 less than 638° C.; and withdrawing CO formed by the reduction processes from the second condensation zone and maintaining the pressure p_2 at a preselected value with a pump;
whereby the temperature gradient between the first condensation zone and the second condensation zone is kept as steep as possible; and
whereby $p_2 \leq p_1 \leq p_r$.

5,803,948

PROCESS AND DEVICE FOR INTRODUCING GASES INTO METAL MELTS

Anatoly Sizov, St. Petersburg, Russian Federation; Horst-Dieter Schöler, and Ulrich Meyer, both of Duisburg, Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany

PCT No. PCT/DE94/01180, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/10634, PCT Pub. Date Apr. 20, 1995

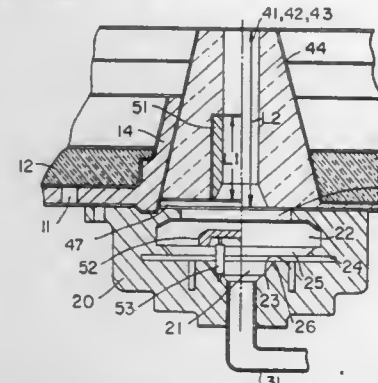
PCT Filed Sep. 28, 1994, Ser. No. 628,682

Claims priority, application Germany, Oct. 15, 1993, 43 35 643.5

Int. Cl.⁶ C21C 7/00

U.S. Cl. 75—556

13 Claims



1. A process for introducing gas into a metal melt present in a metallurgical vessel via ducts arranged in a refractory lining of the vessel, the process comprising the steps of:
introducing gas into a gas distribution antechamber;
subsequently passing the gas around a first acoustic generator to create an oscillating jet of gas;
feeding the oscillating jet of gas to at least one second acoustic generator and exciting the jet of gas to periodic oscillations;
conducting the oscillating, excited gas jet into a gas-distribution main chamber; and

feeding the gas jet from the main chamber via the ducts to the melt contained in the vessel.

5,803,949

FLUIDIZED BED ROASTING PROCESS

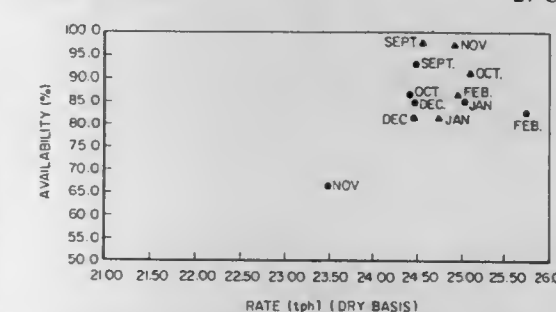
Murray J. Brown, Rossland, and David W. Goosen, Castlegar, both of Canada, assignors to Cominco Ltd., Vancouver, Canada

Filed Apr. 29, 1996, Ser. No. 641,006

Int. Cl.⁶ C22B 5/00

U.S. Cl. 75—751

27 Claims



1. A method of stabilizing a fluidized bed in a fluidized bed roasting process for metal sulphide concentrate, comprising the step of controlling the particle size distribution of particulate material in the bed so that a minimum amount of no less than about 30% of the material falls in a size range of from about 100 to about 420 microns.

5,803,950

MEMBRANE CONTROL SYSTEM AND PROCESS

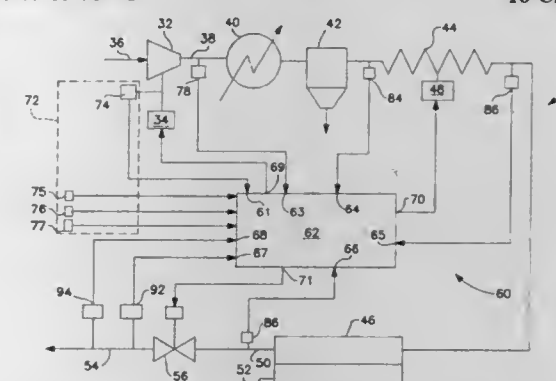
Jeffrey Charles Barnhard, Williamsville; Brian Michael Meredith, Amherst, and Edward Holmes Zander, E. Amherst, all of N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.

Filed Dec. 31, 1996, Ser. No. 775,848

Int. Cl.⁶ B01D 53/22

U.S. Cl. 95—8

16 Claims



1. A method of controlling a permeable membrane system for separating at least one gas product from a gaseous mixture to utilize excess capacity from a membrane system feed compressor operating at a predetermined optimal load for feeding said gaseous mixture to a membrane unit having a controllable heating means to establish a variable operating temperature and a permeable membrane having a permeability and product gas supply rate dependent upon said operating temperature, said method including the steps of:

detecting the actual loading of said compressor;
determining the level of compressor capacity that is unused; and
raising said operating temperature, when said determining step indicates unused compressor capacity, to increase said membrane permeability.

5,803,951

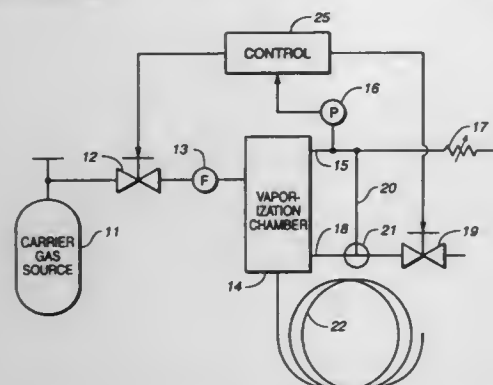
GAS CHROMATOGRAPH AND METHOD OF
OPERATING SAME

Toyohito Wada, Sagami-hara; Kazuya Nakagawa, Kyoto;
Satoru Miyoshi, Kyoto, and Hiroyuki Tsujide, Kyoto, all of
Japan, assignors to Shimadzu Corporation, Kyoto, Japan
Filed Apr. 3, 1997, Ser. No. 826,623

Claims priority, application Japan, Apr. 3, 1996, 8-108477
Int. Cl.⁶ B01D 15/08

U.S. Cl. 95—22

11 Claims



1. A method of operating a gas chromatograph for having a liquid sample injected into a vaporization chamber and vaporizing said liquid sample to be sent into a column, said method comprising the steps of:

- adjusting the flow rate of a carrier gas supplied into said vaporization chamber;
- monitoring pressure inside said vaporization chamber;
- normally carrying out a pressure control so as to keep the pressure inside said vaporization chamber at a specified target level while keeping the flow rate of said carrier gas constant;
- temporarily stopping said pressure control for a finite period of time immediately after said liquid sample is injected into said vaporization chamber.

5,803,953

PROCESS FOR TREATMENT OF NATURAL GAS AT A
STORAGE SITE

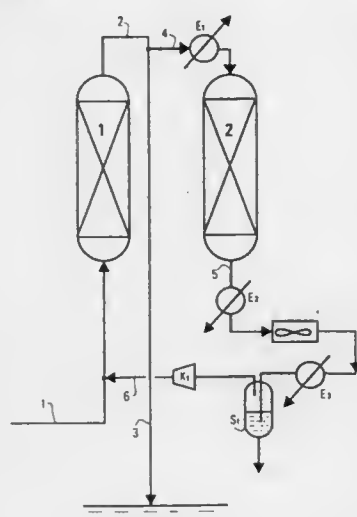
Alexandre Rojey, Michel Thomas, and Sophie Jullian, all of
Rueil Malmaison, France, assignors to Institut Français du
Pétrole, Cedex, France

Filed Dec. 26, 1996, Ser. No. 774,700

Claims priority, application France, Dec. 27, 1995, 95 15524
Int. Cl.⁶ B01D 53/04

U.S. Cl. 95—105

16 Claims



1. A natural gas treatment process comprising passing natural gas containing condensable odorant through a storage phase and a draw-down phase, characterized in that at least two adsorbers A and B that operate alternately in at least one adsorption mode and in at least one desorption mode are used to remove the condensable odorant present in the gas that is to be fed into storage during the storage phase, and to remove impurities, at least water and hydrogen sulfide, present in the gas that comes from storage during the draw-down phase.

5,803,954

PARTICULATE FILTER COLLECTOR ARRANGEMENT
AND METHOD

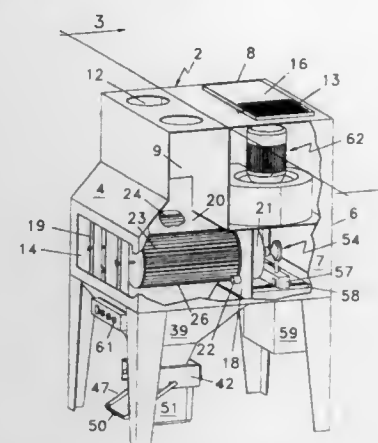
L. Alan Gunter, County of Jefferson; Keiron P. O'Connell,
County of Oldham, and George Matis, County of Jefferson,
all of Ky., assignors to AAF International, Louisville, Ky.

Filed Apr. 11, 1997, Ser. No. 835,996

Int. Cl.⁶ B01D 46/04; 50/00

U.S. Cl. 95—268

34 Claims



1. A particulate filter structure comprising: an enclosed outer housing wall having inner and outer faces with said inner face thereof defining a particulate separation chamber therein, said outer housing wall having spaced dirty gas inlet means and clean gas outlet means in communication with said particulate separation chamber defined by said inner face of said outer housing wall; longitudinally and horizontally extending particulate filter cartridge means supportively disposed within said particulate separation chamber, said particulate filter cartridge means having spaced opposed ends; cartridge fastening means and centering means at spaced opposed ends of said particulate filter cartridge means to maintain said particulate filter cartridge means in suspended removable preselected fastened position within said particulate separation chamber with both ends of said filter cartridge means each being in spaced and independently supported relation by vertically extending spaced support members fastened at vertically opposed ends thereof and which are each spaced from a directly opposed portion of said inner face of said outer housing wall; reverse fluid flushing means disposed within said particulate separation chamber in aligned communication with said filter cartridge means to reverse flush entrained particulate particles therefrom; blower means to move a particulate laden gas stream from said dirty gas inlet means through said particulate filter cartridge means to said clean gas outlet means; particulate hopper means with a particulate release opening; and particulate catcher means adapted to be mechanically leveraged and sealed into removable communicative relationship with said release opening of said particulate chamber.

32. A method of removing particulate matter from a particulate laden gas stream comprising: introducing said gas stream into an enclosed gas treating zone having a spaced dirty gas inlet and a clean gas outlet with communicating first, second, third and fourth treating sections therebetween; moving said gas stream vertically through spaced particulate deflection and filtration stations in said first section of said gas treating zone at sufficient velocity to deflect and divert large particulates from said gas stream around said filtration station directly to a particulate collection station in said communicating second section in said zone while passing said gas stream through said filtration station into said third and fourth communicating sections having reverse flushing and blower stations respectively therein; and, passing a reverse flushing fluid stream from said reverse flushing station in said third communicating treating section in said zone to said first communicating section in said zone to move entrained particulate matter from said filtration station therein to said particulate collection station in said second communicating section.

5,803,955

APPARATUS FOR DUST CONTROL

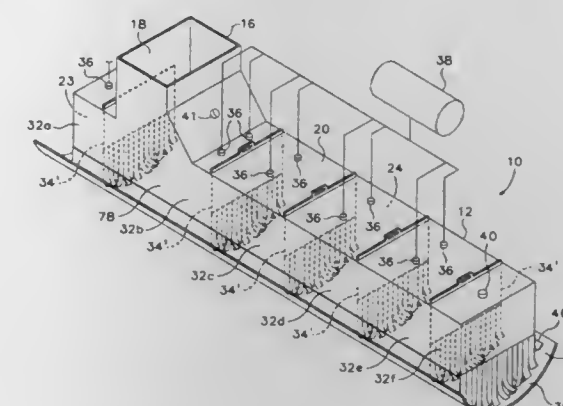
David L. Raring, Battleground, Wash., assignor to The Raring Corporation, Vancouver, Wash.

Continuation of Ser. No. 580,798, Dec. 28, 1995, Pat. No. 5,713,970. This application Jul. 14, 1997, Ser. No. 892,613

Int. Cl.⁶ B01D 47/00

U.S. Cl. 96—239

10 Claims



1. An apparatus for controlling dust in a material transfer operation comprising:

- (a) a conveyor system having a conveyor bed for moving material;
- (b) an enclosure at least partially surrounding the conveyor system, said enclosure having at least a top and two sidewalls, said enclosure being segmented into a plurality of scrubbing chambers by baffles having vents for permitting air flow between said scrubbing chambers; and
- (c) a fog generator for directing fine liquid droplets into at least one of said chambers to agglomerate the dust created by material flow on said conveyor system.

5,803,956

SURFACE TREATING COMPOSITION FOR MICRO
PROCESSING

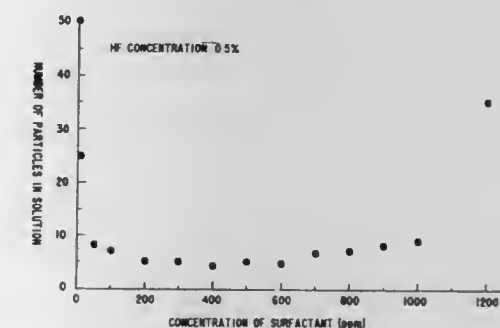
Tadahiro Ohmi, Sendai; Matagoro Maeno, Izumi, and Hirohisa Kikuyama, Nara, all of Japan, assignors to Hashimoto Chemical Company, Ltd., Osaka-fu, Japan

Continuation-in-part of Ser. No. 281,659, Jul. 28, 1994, abandoned. This application Jan. 11, 1996, Ser. No. 938,469

Int. Cl.⁶ C09K 13/08

U.S. Cl. 106—1.05

4 Claims



1. A micro processing surface treating composition having an excellent wetting property and consisting essentially of hydrofluoric acid and a hydrocarbon nonionic surfactant having an HLB value of 7 to 17.

5,803,957

ELECTROLESS GOLD PLATING BATH

Tooru Murakami; Keizun Morimoto; Isamu Yanada, and Masanobu Tsujimoto, all of Hirakata, Japan, assignors to C. Uyemura & Co., Ltd., Osaka, Japan
Continuation of Ser. No. 479,773, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 217,720, Mar. 25, 1994, abandoned. This application Jan. 10, 1997, Ser. No. 782,564

Claims priority, application Japan, Mar. 26, 1993, 5-092202
Int. Cl.⁶ B22F 7/00

U.S. Cl. 106—1.13

3 Claims

1. An electroless gold plating bath comprising a water-soluble gold plating bath comprising a water-soluble salt of a gold sulfite in an amount of 1 to 20 grams/liter of gold ion, a complexing agent selected from the group consisting of alkali metal and ammonium salts of sulfite, and EDTA in an amount of 5 to 200 grams/liter, a reducing agent selected from the group consisting of ascorbic acid and water-soluble salts thereof in an amount of 1 to 100 grams/liter, and polyvinyl pyrrolidone in an amount of 0.1 to 100 mg/liter, said electroless gold plating bath having a pH of 6 to 9.

5,803,958

BLACK INK JET INK COMPOSITION

Boris Joseph Katsen, Longmeadow; Richard S. Himmelwright, Wilbraham; Nate R. Schwartz, South Hadley, and Barbara Jones Stewart, Springfield, all of Mass., assignors to Rexam Graphics Inc., South Hadley, Mass.

Filed Aug. 16, 1996, Ser. No. 698,868
Int. Cl.⁶ C09D 11/02

U.S. Cl. 106—31.65

25 Claims

1. An ink jet ink formulation comprised of carbon black, cyan and magenta pigments, water, a water immiscible organic compound exhibiting a high boiling point, and a water miscible compound, with at least a portion of the water immiscible organic compound being absorbed by the cyan and magenta pigments.

5,803,959

MODIFIED CARBON PRODUCTS AND INK JET INKS, INKS AND COATINGS CONTAINING MODIFIED CARBON PRODUCTS

Joseph E. Johnson, Nashua, N.H., and James A. Belmont, Acton, Mass., assignors to Cabot Corporation, Boston, Mass.
Continuation-in-part of Ser. No. 663,707, Jun. 14, 1996, Pat. No. 5,707,432. This application Jan. 14, 1997, Ser. No. 783,411
Int. Cl.⁶ C09D 11/02

U.S. Cl. 106—31.75

23 Claims

1. An ink jet ink composition comprising 1) an aqueous vehicle and 2) a modified carbon product comprising carbon having attached at least one organic group, the organic group comprising a) at least one aromatic group or a C₁-C₁₂ alkyl group, and b) at least one ionic group, at least one ionizable group, or a mixture of an ionic group and an ionizable group, wherein the at least one aromatic group or C₁-C₁₂ alkyl group of the organic group is directly attached to the carbon and the organic group is present at a level of from about 0.10 to about 4.0 micromoles/m² of the carbon used based nitrogen surface area of the carbon.

5,803,960

GLASS FORMULA FOR AVOIDING ASR

Steven Z. Baxter, Brooklyn, N.Y., assignor to The Trustees of Columbia University in the City of New York, New York, N.Y.

Filed Jan. 17, 1997, Ser. No. 784,046
Int. Cl.⁶ C04B 14/22

U.S. Cl. 106—711

24 Claims

1. An ASR-resistant set glass/concrete composition which comprises lithium glass particles dispersed in concrete, wherein said

lithium glass particles have an average diameter of less than 0.5 mm and comprise a sufficient amount of lithium to suppress alkali-silica reaction between the concrete and a silica-containing concrete aggregate additive, wherein the lithium glass particles do not contain an amount of zirconium which is sufficient to impart enhanced alkali resistant properties to the glass particles.

5,803,961

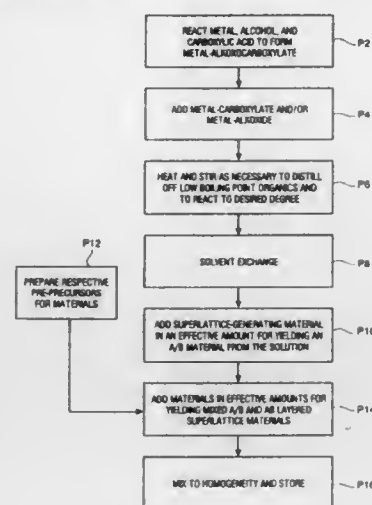
INTEGRATED CIRCUITS HAVING MIXED LAYERED SUPERLATTICE MATERIALS AND PRECURSOR SOLUTIONS FOR USE IN A PROCESS OF MAKING THE SAME

Masamichi Azuma; Carlos A. Paz De Araujo, and Larry D. McMillan, all of Colorado Springs, Colo., assignors to Symetrix Corporation, Colorado Springs, Colo., and Matsushita Electronics Corporation, Takatsuki, Japan

Division of Ser. No. 406,374, Mar. 17, 1995, which is a continuation-in-part of Ser. No. 965,190, Oct. 23, 1992, abandoned. This application May 10, 1996, Ser. No. 644,588
Int. Cl.⁶ C09D 5/00; 5/24

U.S. Cl. 106—287.18

23 Claims



1. A liquid precursor solution for use in making thin-film ferroelectric capacitor devices, comprising: a substantially homogeneous liquid mixture of polyoxyalkylated metal moieties including an A-site metal moiety, a B-site metal moiety, a superlattice-generator metal moiety, and a solvent.

said respective metal moieties, being mixed in effective amounts for spontaneously yielding, upon annealing of said mixture, a solid layered superlattice material having a plurality of collocated layers in a sequence of an A/B layer including an A/B ionic subunit cell, a superlattice-generator layer including a superlattice-generator ionic subunit cell, and an AB layer including an AB octahedral ionic subunit cell different from said A/B ionic subunit cell.

5,803,962

DISAZO PIGMENT COMPOSITION AND PRINTING INK
Nagatoshi Kobayashi, Kashima-gun; Sadayuki Tomioka, Kashima; Shigeto Aoki, Kashima-gun, and Hirohito Ando, Namekata-gun, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

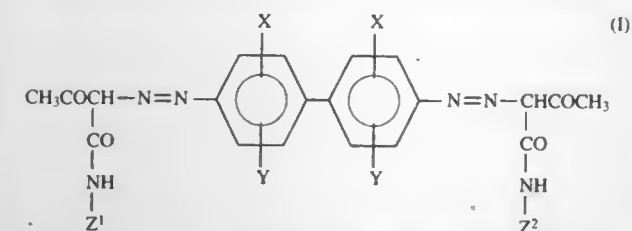
Filed Aug. 7, 1997, Ser. No. 908,463
Claims priority, application Japan, Aug. 8, 1996, 8-209794
Int. Cl.⁶ C09B 27/00

U.S. Cl. 106—496

16 Claims

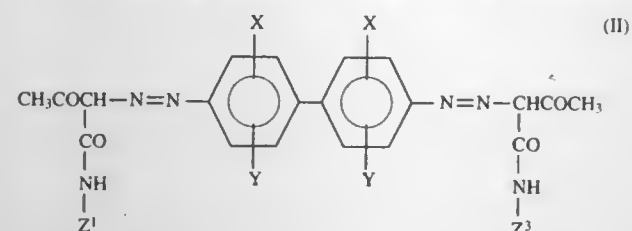
1. A disazo pigment composition containing:
(a) a disazo pigment;

(b) a disazo compound expressed by the following Formula (I):



wherein X and Y each independently denote a hydrogen atom, a halogen atom, an alkyl group with 1-4 carbon atoms, an alkoxy group with 1-4 carbon atoms or an alkoxy carbonyl group having an alkoxy group with 1-4 carbon atoms, provided that X and Y never simultaneously denote hydrogen atoms, Z¹ denotes a phenyl group or a naphthyl group which may have 1-4 identical or different substituent groups selected from the group consisting of lower alkyl groups, lower alkoxy groups, halogen atoms, hydroxyl groups and lower alkoxy carbonyl groups, and Z² denotes a phenyl group or a naphthyl group which may have 1-4 identical or different substituent groups selected from the group consisting of lower alkyl groups, lower alkoxy groups, halogen atoms, hydroxyl groups and lower alkoxy carbonyl groups, and having a carboxylic acid group and/or a sulfonic acid group which may be a salt of a metal of at least one type selected from the group consisting of alkali earth metals, aluminum, magnesium and zinc; and

(c) a disazo compound expressed by the following Formula (II):



wherein X and Y each independently denote a hydrogen atom, a halogen atom, an alkyl group with 1-4 carbon atoms, an alkoxy group with 1-4 carbon atoms or an alkoxy carbonyl group having an alkoxy group with 1-4 carbon atoms, provided that X and Y never simultaneously denote hydrogen atoms, Z¹ denotes a phenyl group or a naphthyl group which may have 1-4 identical or different substituent groups selected from the group consisting of lower alkyl groups, lower alkoxy groups, halogen atoms, hydroxyl groups and lower alkoxy carbonyl groups, and Z³ denotes a benzimidazolone residue, a phthalimide residue, or a phenyl group or naphthyl group which may have 1-4 identical or different substituent groups selected from the group consisting of lower alkyl groups, lower alkoxy groups, halogen atoms, hydroxyl groups and lower alkoxy carbonyl, and having 1-4 substituent groups selected from the group consisting of carboxylic amide groups, sulfonic amide groups and acetamido groups.

5,803,963

SMART-FIBER-REINFORCED MATRIX COMPOSITES

Carolyn M. Dry, 1505 Park Haven Dr., Champaign, Ill. 61821
Continuation-in-part of Ser. No. 189,665, Feb. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 174,751, Dec. 29, 1993, Pat. No. 5,575,841, which is a continuation of Ser. No. 540,191, Jun. 19, 1990, abandoned. This application Nov. 8, 1995, Ser. No. 555,361

Int. Cl.⁶ C04B 14/38; 14/42; 16/06

U.S. Cl. 106—677

60 Claims

1. A method for making a shaped fiber-matrix composite material comprising the steps of:
preparing a plurality of hollow fibers, each hollow fiber including a pair of opposed open end portions and an intermediate portion extending between the opposed ends, the intermediate

portion having a sidewall structure permitting outward release of a reactive component through the sidewall from an interior portion of the fiber;
surrounding the intermediate portions of the hollow fibers with a shapeable curable matrix composition;
introducing a reactive component into the interior portion of at least one of the hollow fibers;
releasing reactive component from the intermediate portion of the hollow fiber into the curable matrix composition; and
curing the matrix composition and reactive component to form the shaped fiber matrix composite material.

5,803,964

COMPOSITE BUILDING MATERIAL AND SYSTEM FOR CREATING STRUCTURES FROM SUCH BUILDING MATERIAL

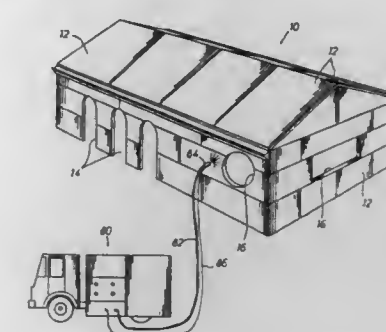
Walter W. Scarborough, Houston, Tex., assignor to Sequoyah eXo Systems, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 242,412, May 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 912,803, Jul. 13, 1992, abandoned. This application Sep. 27, 1995, Ser. No. 534,839

Int. Cl.⁶ C04B 14/38

U.S. Cl. 106—724

2 Claims



1. A sprayable concrete mixture, comprising solids in the amount of:

- 30-45% by weight of silica selected from the group consisting of quartz, flint, or sand;
- 5-15% by weight of silicates sized to pass an ASTM standard No. 4-sized mesh screen;
- 20-30% by weight of marble aggregate of varying size ranging from powder up to 0.1";
- 20-25% by weight of Portland cement;
- 0-10% by weight lime; and
- 0-1% by weight of polypropylene monofilament fibers; and further including sufficient water to form a sprayable concrete mixture.

5,803,965

METHOD AND SYSTEM FOR MANUFACTURING SEMICONDUCTOR DEVICE

Jung Kee Yoon, Seoul, Rep. of Korea, assignor to LG Electronics, Inc., Seoul, Rep. of Korea

Filed Aug. 13, 1996, Ser. No. 689,682

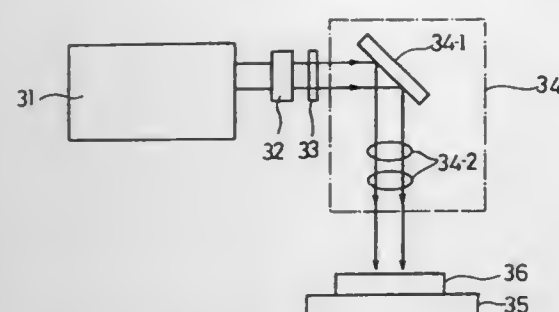
Claims priority, application Rep. of Korea, Oct. 17, 1995, 1995/35772

Int. Cl.⁶ C30B 1/02

U.S. Cl. 117—4

25 Claims

1. A method of manufacturing a semiconductor device including a semiconductor layer, the method comprising the steps of:
generating a laser beam using a solid laser source;
generating a multi-harmonic wave from the laser beam using a multi-harmonic oscillator;



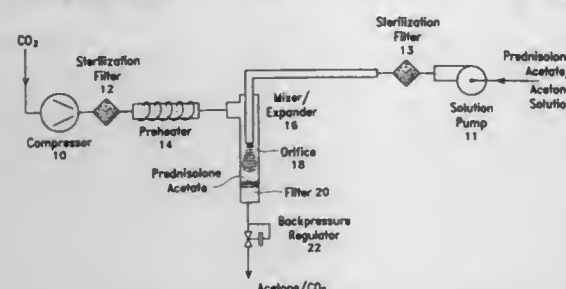
filtering the multi-harmonic wave; and irradiating the filtered wave onto the semiconductor layer to crystallize the semiconductor layer.

5,803,966

PROCESS FOR SIZING PREDNISOLONE ACETATE USING A SUPERCRITICAL FLUID ANTI-SOLVENT
Alok K. Kulshreshtha, Arlington; Garnet G. Smith, Colleyville, both of Tex.; Scott D. Anderson, Marlboro, and Val J. Krukonis, Lexington, both of Mass., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Filed Nov. 1, 1995, Ser. No. 551,549
Int. Cl.⁶ G30B 7/00; A61K 9/14
U.S. Cl. 117—68

18 Claims



1. A process for sizing prednisolone acetate which produces a number average particle size of 1 μ m or less, a particle size distribution having no particles greater than 10 μ m (based on number distribution), and a particle size distribution index of less than 4, wherein the process comprises the steps of:

- forming a solution by dissolving prednisolone acetate in acetone so that the concentration of prednisolone acetate in the solution is approximately 80% or less of its solubility in acetone; and
- transporting the solution formed in step (a) through an orifice having a diameter of 50–100 μ m into a mixer/expander containing compressed CO₂, wherein the compressed CO₂ is at a temperature from about 40° to 80° C. and has a density less than the density of the solution by at least 0.3 g/cc, wherein the solution is expanded so that the acetone dissolves in the CO₂ and the prednisolone acetate precipitates.

5,803,967

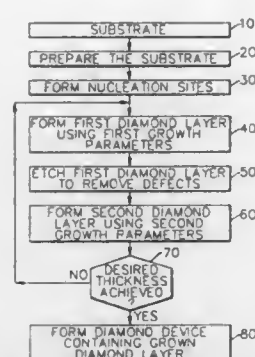
METHOD OF FORMING DIAMOND DEVICES HAVING TEXTURED AND HIGHLY ORIENTED DIAMOND LAYERS THEREIN

Linda S. Plano, Raleigh, and Brian R. Stoner, Chapel Hill, both of N.C., assignors to Kobe Steel USA Inc., Research Triangle Park, N.C.

Filed May 31, 1995, Ser. No. 457,388
Int. Cl.⁶ C30B 29/04

29 Claims

10. A method of forming a diamond layer on a semiconductor substrate, comprising the steps of:



forming a first diamond layer, having {100} and {111} facets at an exposed face thereof, by growing diamond on the substrate using first growth parameters which favor growth of diamond in a direction normal to the respective {100} facets relative to growth of diamond in a direction normal to the respective {111} facets;

forming a second diamond layer, having {100} and {111} facets at an exposed face thereof, on the first diamond layer, by growing diamond using second growth parameters which favor growth of the respective {100} facets of the second diamond layer relative to growth of the respective {111} facets of the second diamond layer, and wherein a ratio which equals a rate of growth of diamond in a direction normal to the respective {100} facets relative to a rate of growth of diamond in a direction normal to the respective {111} facets during the first diamond layer forming step is greater than a ratio which equals a rate of growth of diamond in a direction normal to the respective {100} facets relative to a rate of growth of diamond in a direction normal to the respective {111} facets during the second diamond layer forming step; and

repeating said first and second diamond layer forming steps in sequence at least once to obtain a diamond layer which has an outermost face and comprises a plurality of side-by-side columnar monocrystalline diamond grains extending outwardly from the semiconductor substrate to the outermost face.

5,803,968

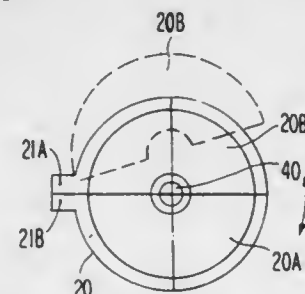
COMPACT DISC SPIN COATER

Vladimir Schwartz, 12 Revolutionary Rd.; Michael Schwartz, 314 Bedford St., both of Lexington, Mass. 02173, and Klaus Bierwagen, 45 Wadsworth Ave., Waltham, Mass. 02154

Filed Aug. 21, 1995, Ser. No. 517,388
Int. Cl.⁶ B05C 11/02

U.S. Cl. 118—52

5 Claims



1. An apparatus for the spin coating of substrates comprising: means for carrying a substrate; motor means for rotating said substrate carrier means; a spinning bowl surrounding said substrate carrier means; and a lid member at least partially covering said spinning bowl for diminishing the escape of fumes into the ambient atmosphere

during the spin coating of a substrate carried by said substrate carrier means wherein said lid member comprises two semi-circular portions having semi-circular openings therein which are pivotally mounted on a support post and are movable between an opened position, wherein said semi-circular portions are moved away from each other to expose said spinning bowl, and a closed position, wherein said semi-circular portions are moved into alignment with each other such that said semi-circular openings form an aperture which thereby modifies air flow through said spinning bowl and prevents toxic fumes from escaping out of said spinning bowl.

5,803,969

DEVICE FOR TWO-SIDED COATING OF A WEB OF MATERIAL

Reinhard Knop, Essen, Germany, assignor to Jagenberg Papiertechnik GmbH, Neuss, Germany

PCT No. PCT/EP95/02602, § 371 Date Feb. 28, 1997, § 102(e) Date Feb. 28, 1997, PCT Pub. No. WO96/07791, PCT Pub. Date Mar. 14, 1996

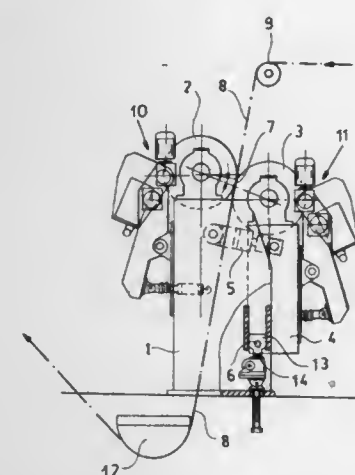
PCT Filed Jul. 5, 1995, Ser. No. 809,002

Claims priority, application Germany, Sep. 2, 1994, 44 31 202.4

Int. Cl.⁶ B05C 1/00

U.S. Cl. 118—227

4 Claims



1. A device for coating opposite sides of a web, comprising: a frame; guide means for guiding a web to be coated along a web path; first and second pressure rollers mounted on said frame along said web path and juxtaposed with one another and forming a nip through which said web runs, said rollers being rotatable about respective parallel axes and having a common tangent extending perpendicular to a line connecting said axes of rotation; pivot means for supporting the first roller so that it is circumferentially movable against the second roller; metering means mounted on said frame outside said path for controllably applying a coating substance on each of circumferences of the rollers; and actuating means for relatively displacing first and second rollers with a component of the displacement lying in the direction of said common tangent for adjusting said nip.

5,803,970

METHOD OF FORMING A COATING FILM AND COATING APPARATUS

Kiyohisa Tateyama; Kimio Motoda, both of Kumamoto; Kenji Sekiguchi, Yamanashi-ken, and Tsutae Omori, Kumamoto, all of Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Kyochu Limited, Tosu, both of Japan

Division of Ser. No. 512,018, Aug. 7, 1995, Pat. No. 5,695,817.

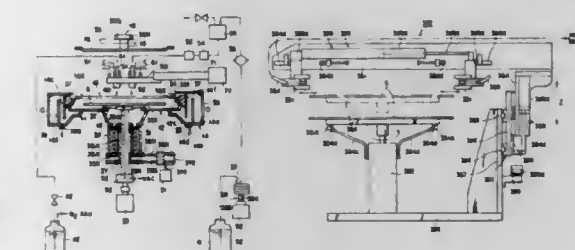
This application Nov. 29, 1996, Ser. No. 753,768

Claims priority, application Japan, Aug. 8, 1994, 6-204196; Mar. 15, 1995, 7-083206; Mar. 15, 1995, 7-083207; Apr. 12, 1995, 7-111330

Int. Cl.⁶ B05B 13/02; B05C 11/00; B08B 3/00

U.S. Cl. 118—319

38 Claims



1. A coating apparatus comprising: a spin chuck for supporting a substrate with a surface of said substrate being set horizontal; a substrate rotation mechanism for rotating said spin chuck about a axis perpendicular to a surface of said supported substrate to rotate said substrate, said rotation mechanism mechanically interfaced with said spin chuck; a cup, having an upper opening for taking in and out said substrate, for surrounding said substrate on the spin chuck; a lid for closing said upper opening of said cup; means for forming a diffused layer of solvent directly on said substrate on the spin chuck, said means for forming a diffused layer having a solvent supply source, a first nozzle connected to said solvent supply source and means for adjusting a solvent supply mount for the first nozzle; and means for supplying coating liquid to said diffused layer of solvent on said substrate on the spin chuck

33. A coating apparatus comprising: a coating mechanism for supplying a coating liquid to a rectangular substrate to form a coating film on a surface of said substrate, having a spin chuck for supporting a substrate with a rectangular surface of said substrate being set horizontal, substrate rotation mechanism for rotating said spin chuck about an axis perpendicular to said supported substrate, said rotation mechanism mechanically interfaced with said spin chuck, a cup having an upper opening for taking in and out a substrate, for surrounding said substrate on the spin chuck, a cup rotation mechanism for rotating said cup together with said substrate, a lid for closing an upper opening of said cup, and coating liquid supply means for supplying a coating liquid to said substrate on the spin chuck;

a coating film removing mechanism for removing the coating film formed by said coating mechanism from a peripheral portion of said substrate, comprising a substrate support portion for substantially horizontally, rotatably supporting said substrate, a movement mechanism and a removing liquid spray nozzle for spraying a coating film removing liquid to said peripheral portion of said substrate while being moved by said movement mechanism along a side of the substrate, of; a first convey mechanism for loading said substrate in said coating mechanism and unloading said substrate from said coating film removing mechanism; and a second convey mechanism for conveying said substrate from said coating mechanism to said coating film removing mechanism.

UMI

1. Apparatus for vacuum web coating comprising a vacuum chamber containing at least one rotatable cooling drum providing at a curved surface thereof at least one deposition zone;
a web transport system for advancing a web substrate to be coated over said curved surface along a path through said deposition zone;
and evaporation means for vaporizing coating material to be deposited on said web;
said evaporation means providing a plurality of separately spaced outlet nozzles operatively disposed to convey a vapour from said evaporation means to portions of said deposition zone along said web path, at which portions said vapour is in operation condensed on the surface of the advancing web, said evaporation means further comprising at least two sealed retorts having a common heating means adapted to vaporize coating material in said retorts, and at least one of said plurality of nozzles connected to each of said at least two retorts; and
a single or plurality of outlet ends of said nozzles being disposed on an arcuate surface around but spaced from the curved surface of the drum.

5,803,977

APPARATUS FOR FULL WAFER DEPOSITION

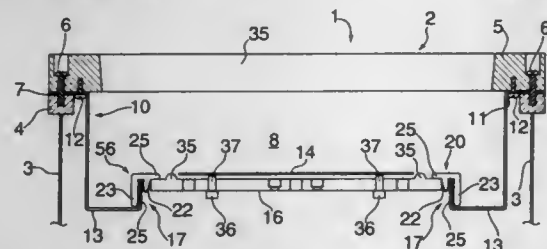
Avi Tepman, Cupertino, and Robert E. Davenport, San Jose, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 461,575, Jun. 2, 1995, which is a continuation of Ser. No. 954,860, Sep. 30, 1992, abandoned. This application Dec. 5, 1995, Ser. No. 567,601

Int. Cl.⁶ C23C 16/00

U.S. Cl. 118—728

26 Claims



1. A substrate support apparatus comprising:

- a pedestal having a support surface for supporting a substrate and having a flange extending from the outer edge of the pedestal;
- a deposition ring, circumscribing said support surface and removably supported by said flange, for shielding said pedestal wherein said deposition ring contains a centering portion, located proximate to said support surface, for centering a substrate upon the support surface as the substrate is placed upon the pedestal.

5,803,978

METHOD OF REMOVING BLADES FROM A TURBO MACHINE

Dennis Ray Amos, Rock Hill, S.C.; Kent Wixon Beedon, Charlotte; Timothy Lee Driver, Waxhaw, both of N.C.; David Joseph Knapp, and Delbert Eugene Conklin, both of Fort Mill, S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 19, 1996, Ser. No. 684,958

Int. Cl.⁶ B08B 3/12

U.S. Cl. 134—1

15 Claims

1. A method of removing blade roots from retaining grooves in a turbo machine rotor into which said blade roots have been bonded by material deposits formed in gaps between the blade roots and retaining grooves, comprising the steps of:

- a) submersing at least one of said blade roots and its respective groove into a liquid medium;
- b) radiating pressure waves into said liquid medium in which said blade root and groove are submersed until a sufficient portion of said material deposits formed in said gaps have been broken up so as to loosen said bond between said blade root and said groove, thereby allowing said blade root to be slid out of said groove; and
- c) applying a force to slide said blade root out of said groove.

5,803,979

TRANSPORT APPARATUS FOR SEMICONDUCTOR WAFERS

Derek Hine, Roger Hine, both of Portola Valley; Eric Selvik, San Francisco; Kenneth Lorell, Los Altos, and Jeffrey Marical, San Mateo, all of Calif., assignors to Hine Design Inc., Sunnyvale, Calif.

Filed Jul. 15, 1996, Ser. No. 680,366

Int. Cl.⁶ B25J 15/06

U.S. Cl. 134—2

22 Claims

1. Apparatus for transporting a semiconductor wafer from one location to another, the apparatus comprising

(1) a base;

- (2) an articulated arm comprising two or more arm members which (a) are rotatably secured together and (b) comprise (i) a near end member which is rotatably secured to the base and (ii) a far end member remote from the base;
- (3) an end effector which (a) is removably and replaceably secured to the far end member of the articulated arm, (b) has a predetermined spatial relationship to the articulated arm, and (c) comprises a vacuum chuck for a semiconductor wafer; the end effector and the far end member of the articulated arm including guides which ensure that when the end effector has been removed from the articulated arm and is being replaced on the articulated arm, it is replaced in the predetermined spatial relationship; and
- (4) a vacuum passage which has (a) a near end at the base, and (b) a far end at the vacuum chuck, so that a reduced gas pressure at the near end of the passage causes a vacuum to be exerted at the vacuum chuck.

5,803,980

DE-IONIZED WATER/OZONE RINSE POST-HYDROFLUORIC PROCESSING FOR THE PREVENTION OF SILICIC ACID RESIDUE

Michael F. Pas, Plano, Tex., and Jin-goo Park, Ansan, Rep. of Korea, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 4, 1996, Ser. No. 725,446

Int. Cl.⁶ B08B 3/00

U.S. Cl. 134—2

12 Claims

1. A method of preventing the formation of at least one water mark on exposed silicon of an electronic device formed on a silicon wafer, said method comprising:

- exposing at least some portion of said silicon substrate or said exposed silicon;
- subjecting said silicon wafer to an ozonated solution; and
- drying said silicon wafer.

5,803,981

METHOD AND APPARATUS FOR CONTINUOUS PICKLING OF METAL STRIP

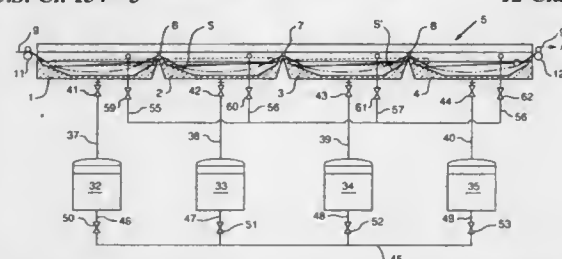
Richard Lordo, West Middlesex, Pa., assignor to Danielli Wean, A Division of Danielli Corporation, Youngstown, Ohio

Filed Jan. 13, 1997, Ser. No. 782,935

Int. Cl.⁶ C23G 1/02; 3/02

U.S. Cl. 134—3

12 Claims



8. A continuous metal strip pickling line comprising a plurality of serially arranged pickling tanks, means to pass a metal strip continuously through the tanks whereby pickling liquid is pushed from a low liquid level end of each tank corresponding to a strip entry end of the tank to a high liquid level end of the tank corresponding to a strip exit end of the tank, and piping means external to the tanks to cascade pickling liquid from the high liquid level end of each tank to a low liquid level end of an adjacent tank upstream thereof in a direction opposite to the direction of strip travel.

10. A method of continuous pickling of metal strip, comprising continuously passing the strip through a series of pickling tanks containing a pickling liquid wherein passage of the strip through the liquid pushes liquid from a low liquid level strip entry end of each tank to a high liquid level strip exit end of the tank, and

cascading pickling liquid through external piping from a high liquid level end of each tank to a low liquid level end of an adjacent tank upstream thereof in a direction opposite to the direction of movement of the strip.

5,803,982

PRESSURE WASHING APPARATUS WITH OZONE GENERATOR

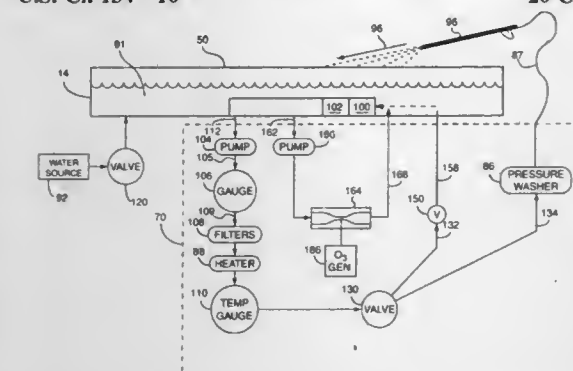
Howard B. Kosofsky, Menlo Park; Lawrence A. Shrieber, Woodside; Richard O. Rhodes, San Francisco; Michael D. Damron, San Jose, and Eduardo M. Garcia, Belmont, all of Calif., assignors to EZ Environmental Solutions Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 732,638, Oct. 15, 1996. This application Mar. 7, 1997, Ser. No. 813,919

Int. Cl.⁶ B08B 3/02; 13/00

U.S. Cl. 134—10

20 Claims



1. An apparatus for washing an object having a contaminant and for recovering the contaminant, comprising:

- a floor arranged to support said object;
- a flowing mechanism arranged to flow a washing agent over said object to remove said contaminant;
- a receptacle arrangement at least partially mounted below said floor for receiving said washing agent and said contaminant, said receptacle arrangement including a first filter and a plurality of interconnected compartments, wherein the washing agent flows through the first filter prior to passing through the plurality of compartments, the plurality of compartments including at least one receiving chamber arranged to receive the washing agent after the washing agent has been flowed over the object and through the first filter, the plurality of compartments further including at least one staging chamber that does not directly receive the washing agent after the washing agent has been flowed over the object and through the first filter but is in fluid communication with the at least one receiving chamber, the plurality of compartments being arranged such that the washing agent generally becomes less contaminated as the washing agent passes from the at least one receiving chamber to the at least one staging chamber, said flowing mechanism drawing said washing agent from said receptacle arrangement to form a substantially closed loop;

- an ozone generator;
- a gas-liquid mixer connected to said ozone generator to inject ozone into said washing agent; and
- a first pump for drawing said washing agent from the at least one staging chamber through a first inlet to said receptacle arrangement, forcing said washing agent through said mixer, and returning said washing agent through a first outlet to said receptacle arrangement.

20. A method for washing an object with a washing agent, said object having a contaminant and debris, said method comprising: placing said object on a floor, said floor being arranged substantially over a receptacle arrangement, said receptacle arrangement including a basin and a filter, the basin further including at least one receiving chamber and at least one staging chamber, wherein the filter is mounted below said floor;

flowing a washing agent over said object to remove said contaminant and said debris;

capturing said debris in said filter, wherein said filter is arranged to enable said washing agent and said removed contaminant to flow therethrough and into the least one receiving chamber; circulating the washing agent through a circulation path defined by the at least one receiving chamber and the at least one staging chamber, wherein the washing agent becomes less contaminated as the washing agent passes from the at least one receiving chamber to the at least one staging chamber; injecting ozone into said basin;

pumping said washing agent from the at least one staging chamber; and

returning said washing agent through a first outlet to said basin.

5,803,983

METHOD FOR REMOVING SOLID PARTICULATE MATERIAL FROM WITHIN LIQUID FUEL INJECTOR ASSEMBLIES

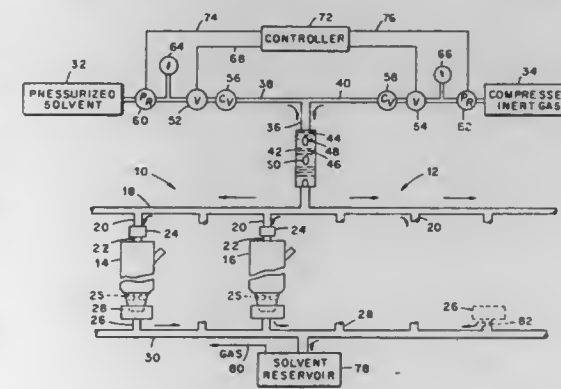
Ronald F. Simandl, Knoxville; John D. Brown, Harriman; John B. Andriulli, Kingston, and Paul D. Strain, Eads, all of Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Filed Jun. 26, 1996, Ser. No. 670,869

Int. Cl.⁶ B08B 9/00

U.S. Cl. 134—22.12

19 Claims



1. A method for removing solid particulate material lodged within internal cavities and supported on internal surface regions of a fluid flow control means utilizable for controlling the flow of a fluid being passed therethrough and having fluid inlet means and fluid outlet means, comprising the steps of alternately introducing into the inlet means of the fluid flow control means a stream of compressed gas followed by a stream of a pressurized liquid for contact with the particulate-containing cavities and the particulate-supporting internal surface regions, sequentially discharging the alternately introduced stream of the gas and the stream of the liquid from the fluid flow control means through the outlet means, and establishing a flow restriction in close proximity to the outlet means with said flow restriction being of a size adequate to effect a sufficiently rapid expansion of the compressed gas stream to sufficiently accelerate the stream of the liquid following the expanding gas stream towards the outlet means for producing adequate turbulence in the liquid stream while within the fluid flow control means and in contact with the particulate-containing cavities and the particulate-supporting internal surface regions of the fluid flow control means.

5,803,984

METHOD AND APPARATUS FOR RINSING STEEL PRODUCT

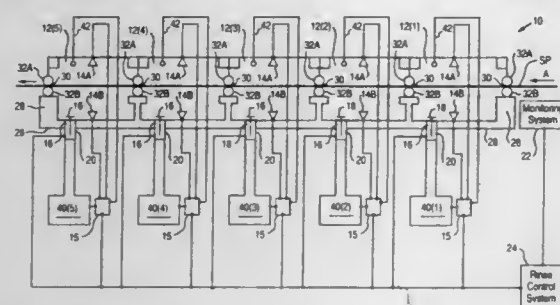
Richard Lardo, West Middlesex, Pa.; John J. White, Warren, and Walter C. Grischow, Austintown, both of Ohio, assignors to Danieli Wean, A Division of Danieli Corporation, Youngstown, Ohio

Filed Feb. 9, 1996, Ser. No. 599,089

Int. Cl.⁶ B08B 1/02;3/02

U.S. Cl. 134—18

18 Claims



1. A method for removing residue from a steel strip product with a fluid while the strip is moved through a treatment tank, and to minimize staining of the strip during periods when the strip is stopped, the method comprising the steps of:

spraying fluid onto the strip as it moves through the tank; monitoring movement of the steel product through at least one rinse tank and generating a run signal when the steel product is moving and a stop signal when the steel product has stopped moving; and

controlling a pumping system to pump fluid to at least one sprayer in the rinse tank and an actuator to open a drain seal in a drain in the rinse tank when the run signal is received and to control the actuator to close the drain seal to accumulate a predetermined level of fluid in the tank when the stop signal is received.

5,803,985

WATER FILL SENSING FOR A DISHWASHER

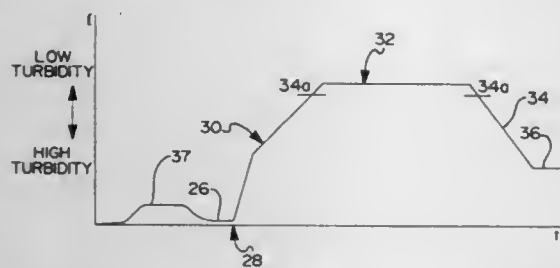
Robert J. Alvord, Elmwood Park, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 13, 1996, Ser. No. 617,519

Int. Cl.⁶ B08B 7/04

U.S. Cl. 134—18

4 Claims



1. A method of controlling an appliance during a fill cycle thereof comprising the steps of:

providing an appliance having a chamber into which articles are to be placed; introducing a liquid into the chamber until a minimal amount of liquid sufficient to start operating a pump which circulates the liquid in the chamber is introduced; thereafter starting the pump and circulating the liquid in the chamber; continuing introducing the liquid into the chamber while measuring the turbidity of the liquid in the chamber with a turbidity sensor;

continuing the introducing step until the turbidity of the liquid in the chamber stops increasing or until the turbidity reaches a predetermined level or until an amount of liquid sufficient to fill the chamber to a maximum fill level is introduced, whichever is first; and thereafter stopping the introduction of the liquid into the chamber.

5,803,986

DETERGENT COMPOSITIONS

Andre Baeck, Bonheiden, Belgium; Linda Anne Jones, Newcastle Upon Tyne, United Kingdom; Chandrika Kasturi, Fairfield, Ohio; Michael Stanford Sbowell, and Ann Margaret Wolff, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 529,816, Sep. 18, 1995, Pat. No. 5,629,278. This application Mar. 17, 1997, Ser. No. 819,622

Int. Cl.⁶ C11D 3/38; B08B 9/20;3/14

U.S. Cl. 134—25.2

6 Claims

1. A machine dishwashing detergent composition comprising: (a) from 0.1% to 60% by weight of a surfactant; (b) from about 0.0001% to about 2% by weight of polygalacturonase enzyme comprising less than about 25%, by weight of the polygalacturonase enzyme, of other pectic enzymes; (c) from about 1% to about 80% by weight of a phosphate builder; and (d) a suds suppressing component.

5,803,987

MULTI-TIP WASH STATION FOR ROBOT

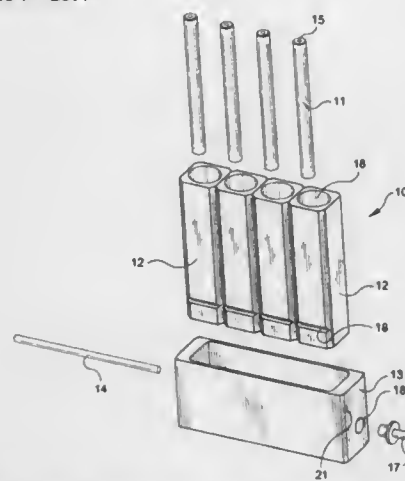
Sheila DeWitt, Clinton; Alice Mensch, Ann Arbor, and Russell Rhoton, Manchester, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed Jan. 17, 1997, Ser. No. 785,264

Int. Cl.⁶ B08B 3/04

U.S. Cl. 134—25.4

15 Claims



1. A wash station for simultaneously washing multiple robotic system probes comprising:

a plurality of cylinders, wherein each cylinder has an upper end and a lower end and is provided with an opening throughout the entire length of the cylinder sufficient to accommodate one probe and allow for liquid to flow within the cylinder to wash the probe; a plurality of chambers, wherein each of the chambers has an upper portion and a lower tip and is provided with an opening throughout the entire length of the chamber sufficient to accommodate at least one of the cylinders; and a base unit which is provided with an opening sufficient to accommodate the plurality of chambers.

5,803,989

PROCESS FOR PRODUCING NON-ORIENTED ELECTRICAL STEEL SHEET HAVING HIGH MAGNETIC FLUX DENSITY AND LOW IRON LOSS

Ryutaro Kawamata; Takeshi Kubota, both of Futtsu, and Tomoji Kumano, Kitakyusyu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

PCT No. PCT/JP95/00234, § 371 Date Dec. 19, 1996, § 102(e)

Date Dec. 19, 1996, PCT Pub. No. WO96/00306, PCT Pub. Date Jan. 4, 1996

PCT Filed Feb. 17, 1995, Ser. No. 765,858

Claims priority, application Japan, Jun. 24, 1994, 6/143181

Int. Cl.⁶ H01F 1/147

U.S. Cl. 148—120

6 Claims

1. A process for producing a non-oriented electrical steel sheet having high magnetic flux density and low iron loss, comprising the steps of: hot rolling a slab of a steel having a composition, having $\alpha\gamma$ transformation, comprising at least one element selected from the group consisting of Si, Mn, and Al in respective amounts, in terms of by weight, satisfying the following requirements:

$$0.10\% \leq \text{Si} \leq 2.50\%,$$

$$0.10\% \leq \text{Al} \leq 1.00\%,$$

$$0.10\% \leq \text{Mn} \leq 2.00\%, \text{ and}$$

the total amount of Si and Al being

$$\text{Si} + 2\text{Al} \leq 2.50\%,$$

with the balance consisting of Fe and unavoidable impurities; coiling the hot rolled strip, after the finish hot rolling, at a coiling temperature of the A_1 point or above; self-annealing the coiled strip in such a manner that the coil is held in the temperature range of from $(A_1 - 50)^\circ \text{C}$. to below $\{(A_1 + A_3)/2\}^\circ \text{C}$. for 2 min to 3 hr; pickling the self-annealed, hot rolled strip and then subjecting the strip to single pass cold rolling to a final sheet thickness; and finish annealing the cold rolled steel sheet.

5,803,988

METHOD FOR MANUFACTURING NON-ORIENTED ELECTRICAL STEEL SHEET SHOWING SUPERIOR ADHERENCE OF INSULATING COATED LAYER

Byung Keun Bae; Sam Kyu Chang; Jong Soo Woo, and Wun Gul Lee, all of Pohang, Rep. of Korea, assignors to Pohang Iron & Steel Co., Ltd., Pohang, Rep. of Korea

PCT No. PCT/KR96/00078, § 371 Date Aug. 18, 1997, § 102(e)

Date Aug. 18, 1997, PCT Pub. No. WO97/22723, PCT Pub. Date Jun. 26, 1997

PCT Filed Jun. 1, 1996, Ser. No. 894,394

Claims priority, application Rep. of Korea, Dec. 19, 1995, 1995 51874

Int. Cl.⁶ H01F 1/147

U.S. Cl. 148—111

4 Claims

1. A method for manufacturing a non-oriented electrical steel sheet having a superior adherence of an insulating coated layer, comprising the steps of:

making a steel slab composed of in weight %: 0.05% or less of C, 3.5% or less of Si, 1.5% or less of Mn, 0.15% or less of P, 0.015% or less of S, 1.0% or less of Al, the balance Fe and unavoidable impurities;

reheating said steel slab, and carrying out a hot rolling to produce a hot rolled steel sheet;

pickling said hot rolled steel sheet after annealing or without annealing said hot rolled steel sheet;

cold-rolling said pickled hot rolled steel sheet to produce a cold rolled steel sheet;

carrying out a low temperature annealing on said cold rolled steel sheet at a temperature of 750°C to 850°C . for 30 seconds to 5 minutes under a humid atmosphere having a dew point of 25°C to 65°C ;

carrying out a high temperature annealing on said low-temperature-annealed cold rolled steel sheet at a temperature of 800°C to 1070°C . for 10 seconds to 3 minutes under a dry atmosphere having a dew point of 0°C . or below so as to produce a high temperature annealed steel sheet; and coating insulating layers on the surfaces of said high-temperature-annealed steel sheet, and carrying out a hardening heat treatment on said coated steel sheet.

5,803,990

ENVIRONMENTALLY FRIENDLY COATING COMPOSITIONS, BONDING SOLUTION, AND COATED PARTS

Mark F. Mosser, Perkiomenville, and Kevin B. Eddinger, Gilbertsville, both of Pa., assignors to Sermatech International, Inc., Limerick, Pa.

Continuation of Ser. No. 364,786, Dec. 27, 1994, Pat. No.

5,478,413. This application Jun. 6, 1995, Ser. No. 467,738

Int. Cl.⁶ C23C 22/07

U.S. Cl. 148—261

11 Claims

1. An aqueous phosphoric acid bonding solution which comprises a source of magnesium ions, a source of aluminum ions, and a source of zinc ions, the solution having a pH in the range of 2 to 4.5, and the amount of aluminum in solution being less than necessary to equilibrate the solution with respect to addition of aluminum, the solution being substantially free of chromate and molybdate.

5,803,991

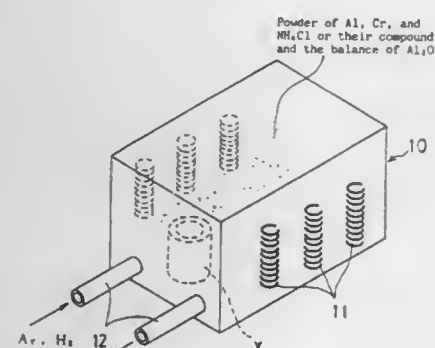
CORROSION-RESISTANT METALLIC POROUS MEMBER AND METHOD OF MANUFACTURING THE SAME

Toshiyasu Tsubouchi; Satoru Okamoto, and Tomohiko Ihara, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 493,461, Jun. 22, 1995, Pat. No. 5,582,867. This application Sep. 11, 1996, Ser. No. 712,549
Claims priority, application Japan, Jun. 28, 1994, 6-146590
Int. Cl.⁶ B01D 46/00

U.S. Cl. 148—280

3 Claims



1. A corrosion-resistant metallic porous member manufactured by a method comprising the steps of providing a metallic porous member of a metal or metal alloy selected from the group consisting of Ni, Fe, Ni-Cr and Fe-Cr having a heat resistance higher than 500° C. and a corrosion resistance, burying said porous member in a powder containing Al, Cr and NH₄Cl or their compound, and subjecting said porous member to heat treatment at temperatures suitable for said metal or metal alloy in an inert gas atmosphere or in a gas whose components are the same as those of a gas produced by the powder when heating said porous member to vapor diffuse aluminum and chromium into the porous member, said heat treatment comprising at least two heat cycles to provide a thickness of 1–10 mm to the metallic porous member, each heat cycle including heat increase and heat decrease wherein the heat decrease step occurs when the vapor is supersaturated with chromium, thereby promoting chromium diffusion.

said porous member comprising 5–20% by weight of Ni 10–40% by weight of Cr 1–15% by weight of Al, and the balance being Fe and inevitable components.

5,803,992

CARBIDE/NITRIDE GRAIN REFINED RARE EARTH-IRON-BORON PERMANENT MAGNET AND METHOD OF MAKING

R. William McCallum, and Daniel J. Branagan, both of Ames, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

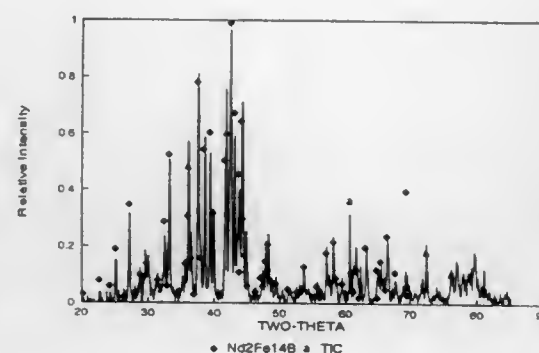
Division of Ser. No. 232,837, Apr. 25, 1994, Pat. No. 5,486,240.
This application Nov. 29, 1995, Ser. No. 564,425

Int. Cl.⁶ H01F 1/057

U.S. Cl. 148—302

5 Claims

1. Rapidly solidified particulates comprising RE, at least one of Fe and Co, and B, where RE is one or more rare earth elements, in proportions for forming a hard magnetic phase, said particulates having an amorphous or microcrystalline structure and having



precipitates comprising at least one of a carbide, nitride and carbonitride of a transition metal dispersed throughout the structure.

5,803,993

OUTER RING FOR HIGH STRENGTH CONSTANT VELOCITY JOINT AND PRODUCTION PROCESS FOR SAME

Kazuhiko Yoshida; Tatsuhiro Goto; Akira Wakita, all of Iwata; Toshio Kawasaki, Kobe; Toyofumi Hasegawa, Kobe; Hideo Takeshita, Kobe, and Toshiki Suwa, Kobe, all of Japan, assignors to NTN Corporation, Iwata, Japan

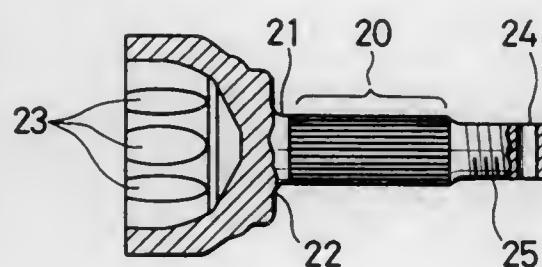
Filed Oct. 17, 1996, Ser. No. 733,186

Claims priority, application Japan, Oct. 17, 1995, 7-268745; Sep. 5, 1996, 8-235547

Int. Cl.⁶ C22C 38/04; 38/06; C21D 8/00

U.S. Cl. 148—320

4 Claims



1. An outer ring used for a high strength constant velocity joint having an involute serration part, a screw part, and a mouth part, the outer ring made of a steel containing:

C: 0.45 to 0.53%, Si: 0.05 to 0.25%, Mn: 0.7 to 1.0%, Al: 0.01 to 0.05%, Mo: 0.2 to 0.4%, N: 0.003 to 0.012%, the remainder being Fe and inevitable impurities, the inevitable impurities including:

Cr: 0.05% or less than 0.05%, P: 0.015% or less than 0.015%, S: 0.01% or less than 0.01%, and O: 0.002% or less than 0.002%,

wherein an original austenite crystal grain at an involute serration end towards the mouth part is 8 or more in JIS grain size classification; a surface hardness at the involute serration end is 720 or more in Hv; and a ratio (CD/R) is 0.35 to 0.60 where CD is an effective hardened layer depth at which an inner hardness at the involute serration end is 450 in Hv and R is a radius of a shaft part of the involute serration part.

5,803,994

ALUMINUM-COPPER ALLOY

Norman Leroy Coats, II, and Larry Eugene Farrar, Jr., both of Jackson, Tenn., assignors to Kaiser Aluminum & Chemical Corporation, Pleasanton, Calif.

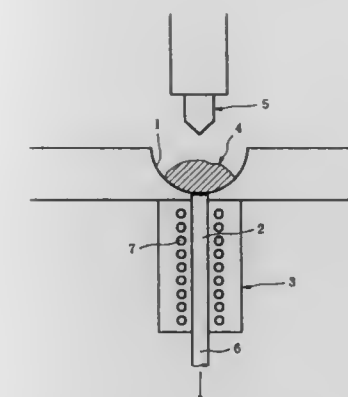
Continuation of Ser. No. 452,814, May 30, 1995, abandoned, which is a division of Ser. No. 151,681, Nov. 15, 1993. This application Mar. 19, 1997, Ser. No. 820,029

Int. Cl.⁶ C22C 21/12

U.S. Cl. 148—416

4 Claims

1. An essentially lead-free, extruded and then solution heat-treated aluminum screw machine stock alloy consisting essentially of from about 4.5% to 6.0% copper, a maximum of about 0.4% silicon, a maximum of about 0.7% iron, not more than about 0.3% zinc, from about 0.1% to 1.0% bismuth, from about 0.2% to 0.5% tin, balance aluminum and unavoidable impurities.



5,803,995

CALCIUM-ALUMINUM SYSTEM HYDROGEN ABSORBING ALLOY

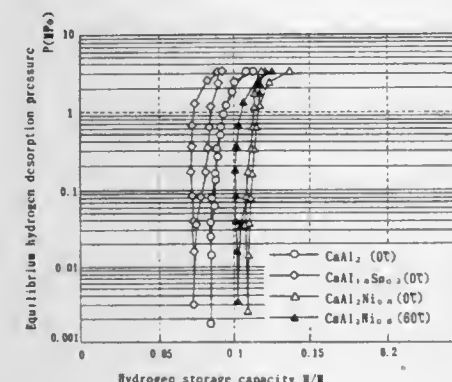
Hideaki Tanaka; Hiroshi Miyamura; Nobuhiro Kuriyama; Tetsuo Sakai, and Itsuki Uehara, all of Ikeda, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Continuation of Ser. No. 495,744, Jun. 27, 1995, Pat. No. 5,656,105. This application Feb. 10, 1997, Ser. No. 797,897
Claims priority, application Japan, Jun. 28, 1994, 6-170290

Int. Cl.⁶ C22C 21/00

U.S. Cl. 148—437

1 Claim



1. Ca—Al system hydrogen absorbing alloy consisting essentially of a mixture P of Ca with Mg represented by the general formula, (1- α)Ca+ α Mg (providing 0 $\leq\alpha\leq$ 0.2) and an Al base alloy Q represented by the general formula, Al_{1- β} B _{β} (providing 0 $\leq\beta\leq$ 0.3), wherein the element M means at least one element selected from the group consisting of carbon, silicon, germanium, tin, lead, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper and zinc and which has a molar ratio of P:Q= 1:1.5 to 2.8 and a fundamental structure of a Laves phase with C15 structure.

5,803,996

ROD-SHAPED OR TUBULAR AMORPHOUS ZR ALLOY MADE BY DIE CASTING AND METHOD FOR MANUFACTURING SAID AMORPHOUS ZR ALLOY

Akihisa Inoue; Tsuyoshi Masumoto; Tao Zhang, and Yoshiyuki Shinohara, all of Sendai, Japan, assignors to Research Development Corporation of Japan, Saitama-ken, Japan

Filed May 21, 1996, Ser. No. 651,668

Int. Cl.⁶ C22F 1/18

U.S. Cl. 148—672

9 Claims

1. A Method of manufacturing a rod-shaped or tubular amorphous Zr alloy, comprising:

providing a forced-cooled die at the bottom of a melting hearth, said melting hearth having an opened upper surface, said die having a cavity defining the profile of a cast body; melting a Zr alloy containing at least one noncrystallizing element in said melting hearth; transferring the molten Zr alloy into said forced-cooled die; and rapidly cooling and solidifying said molten Zr alloy in said forced-cooled die so as to transform said Zr alloy to an amorphous phase.

5,803,997

MANUFACTURE OF THICK ALUMINUM ALLOY PLATE

Alfred J. P. Haszler, Vallendar; Alfred L. Heinz, Niederahr, and Otmar M. Müller, Koblenz, all of Germany, assignors to Hoogovens Aluminium Walzprodukte GmbH, Koblenz, Germany

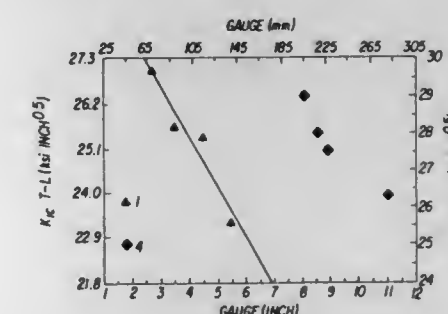
Filed Jan. 17, 1996, Ser. No. 588,026

Claims priority, application European Pat. Off., Jan. 19, 1995, 95200134; May 12, 1995, 95201243

Int. Cl.⁶ C22F 1/04; 1/053; 1/00

U.S. Cl. 148—692

32 Claims



1. A process for manufacturing thick aluminum alloy plate by hot deformation of an ingot, wherein the hot deformation comprises the combination of

performing at least one hot rolling operation, and performing at least one forging operation, wherein at least one of said hot rolling and forging operations is at least partly executed in the width direction of the ingot, with the proviso that, in the case where forging in the width direction is followed by hot rolling, the forging in the width direction results in a final thickness dimension which is larger than the final width dimension and with the further proviso that the steps of the invention do not include an upsetting step.

5,803,998

PNEUMATIC RADIAL TIRES WITH AT LEAST THREE TREAD RADII OF CURVATURE

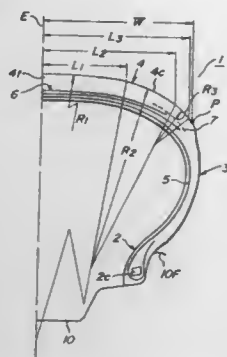
Yasuo Ohsawa, and Hiroshi Kadowaki, both of Kodaira, Japan, assignors to Bridgestone Corporation, Tokyo, Japan
Filed Apr. 25, 1996, Ser. No. 637,375

Claims priority, application Japan, Apr. 27, 1995, 7-103482;
Jun. 30, 1995, 7-165627

Int. Cl.⁶ B60C 3/00; 3/04; 11/00

U.S. Cl. 152—209 R

1 Claim



1. In a small-size pneumatic radial tire comprising: a pair of bead portions, a pair of sidewall portions and a tread portion toroidally extending between the sidewall portions, the improvement wherein a crown of the tread portion at a section of a plane including a rotational axis of a tire-wheel assembly when the tire is mounted onto a standard rim and inflated under a standard internal pressure is comprised of a composite arc smoothly connecting at least three arcs having different radii of curvature to each other; and

when the crown is divided from an equatorial plane of the tire toward an end of the crown into a center region, a middle region and a shoulder region in this order and an axial distance ranging from the equatorial plane to an outer end of each of these regions is L and a radius of curvature of an arc in each of these regions is R, distance (L₁) and radius of curvature (R₁) of the center region, distance (L₂) and radius of curvature (R₂) of the middle region and distance (L₃) and radius of curvature (R₃) of the shoulder region satisfy the following relations with respect to a distance W ranging from an outermost end of the crown to the equatorial plane at a contact zone when the above assembly is pushed onto a flat plate under a standard load and after the load is released: wherein the distances (L₁—L₃) and radii of curvature (R₁—R₃) with respect to the distance W satisfy the following relations:

$$L_1 = (0.5-0.6) \times W, R_1 = (8-12) \times W, \\ L_2 = (0.8-0.9) \times W, R_2 = (1.5-2.5) \times W, \\ L_3 = (0.9-1.0) \times W, R_3 = (0.5-0.75) \times W.$$

5,803,999

PNEUMATIC RADIAL TIRE WITH SPECIFIED TREAD PROFILE

Kouji Shibata, Nishinomiya, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Jan. 21, 1997, Ser. No. 785,769

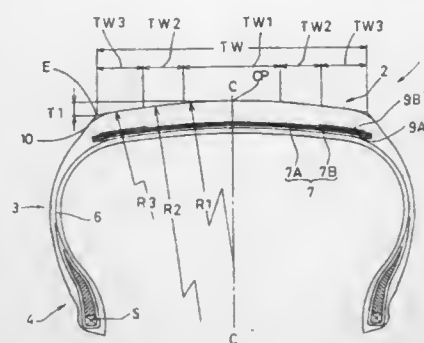
Claims priority, application Japan, Feb. 14, 1996, 8-026716;
Nov. 21, 1996, 8-310939

Int. Cl.⁶ B60C 3/00; 11/00; 11/01

U.S. Cl. 152—209 R

4 Claims

1. A pneumatic radial tire comprising a carcass extending between bead portions through a tread portion and sidewall portions and a belt disposed radially outside the carcass and inside the tread portion, the tread portion, when the tire is mounted on a standard rim and inflated to a standard pressure and loaded with no tire load, having a tread axial width TW and a profile comprising



a curved crown part having a radius of curvature R1 and an axial width TW1 and extending from the tire equator toward both sides thereof;

a pair of curved middle parts having a radius of curvature R2 and each having an axial width TW2 and an axially inner edge which is connected to one of the axial edges of the curved crown part without forming any inflection point therebetween; and

a pair of curved shoulder parts having a radius of curvature R3 and each having an axial width TW3 and an axially inner edge which is connected to the axially outer edge of one of the curved middle parts without forming any inflection point therebetween, each of the shoulder parts extending to or near an axially outermost edge of the ground contacting region of the tread portion, wherein

the radius of curvature of R1 of the curved crown part is in the range of from 2.0 to 3.5 times the tread width TW and is less than the radius of curvature R2 of the curved middle parts and more than the radius of curvature R3 of the curved shoulder parts; and

the camber quantity T1, which is the radial distance of the tread profile at the tread edges from the tread profile at the tire equator is 0.038 to 0.050 times the tread width TW.

5,804,000

PNEUMATIC RADIAL TIRE INCLUDING MAIN GROOVES AND SUB-GROOVES

Kenichi Shirai, and Toshihiko Suzuki, both of Hiratsuka, Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

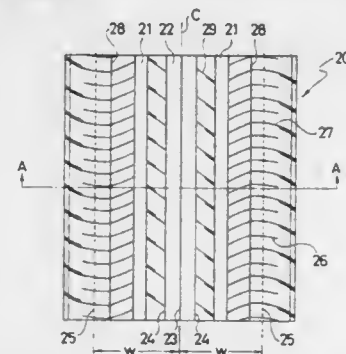
PCT No. PCT/JP96/02991, § 371 Date Jun. 5, 1997, § 102(e)
Date Jun. 5, 1997, PCT Pub. No. WO97/14567, PCT Pub.
Date Apr. 24, 1997

PCT Filed Oct. 16, 1996, Ser. No. 849,135

Claims priority, application Japan, Oct. 17, 1995, 7-268876
Int. Cl.⁶ B60C 11/12; 101/00; 103/00; 105/00

U.S. Cl. 152—209 R

8 Claims



1. A pneumatic radial tire characterized in that one wide main groove having a groove width of at least 10 mm is disposed on each side of a tire equator on a tread surface, the area interposed between the two main grooves includes a rib, two kinds of large and small sub-grooves having mutually different groove widths and extending from a main groove toward a ground contact end in

a tire width-wise direction are alternately disposed throughout one circumference of said tire in each outside area between a main groove and a ground contact end, sub-main grooves extending in a tire circumferential direction are disposed between a main groove and a ground contact end in the tire width-wise direction in each outside area, and the groove width a of each main groove, the distance b from the tire equator to the groove center of a main groove, the ground contact half width W of the tread surface, the groove width cw and the groove depth cd of each sub-groove having a smaller groove width, the groove width dw and the groove depth dd of each sub-groove having a greater groove width, and the groove depth ed of said sub-main grooves satisfy the following relations:

$$0.14 < a/W < 0.2,$$

$$0.3 < b/W < 0.4,$$

G,20

$$dw \geq 2cw, dw \leq 1.5 \text{ mm, and}$$

$$ed \geq cd, dd.$$

5,804,001

SNOW CHAINS FOR VEHICLES

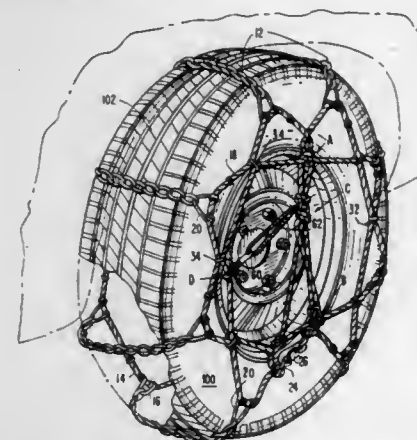
Joseph A. Christian, 592 John St., Peekskill, N.Y. 10566

Filed Jan. 3, 1997, Ser. No. 778,546

Int. Cl.⁶ B60C 27/10

U.S. Cl. 152—241

22 Claims



1. A quick connect and release vehicle tire chain structure for connection to a stationary vehicle tire comprising:

a plurality of metal cross chains, having inboard and outboard ends, for positioning across the tread of a tire, at arcuately spaced locations, to enhance tire traction;

a flexible non-metallic inboard rope connector successively connected to said inboard ends of said cross chains by threading through inboard end links of each of said cross chains;

said inboard rope connector including releasable inboard attachment elements at the ends of the inboard rope connector for attaching the ends of said inboard rope connector to one another when the inboard rope connector encircles the tire;

a flexible non-metallic outboard rope connector successively connected to each of said outboard ends of said cross chains by threading through outboard end links of said cross chains;

said outboard rope connector including releasable outboard attachment elements at the ends of said outboard rope connector for attaching the ends of said outboard rope connector to one another when the outboard rope connector encircles the tire;

a spreader rope connector connected to said outboard rope connector by a flexible non-metallic plurality of spreader rope connecting rings, each of said spreader rope connecting rings connecting said spreader rope to a location on said outboard

rope intermediate two successive connections of said outboard rope connector to two successive cross chains, whereby said spreader rope connector is successively connected to said outboard rope connector at locations intermediate the connections between said outboard rope connector and said cross chains;

said spreader rope connector freely passing through said spreader connecting rings;

a first end of said spreader rope connector fixedly secured to said outboard rope connector at a first securement point;

a second end section of said spreader rope connector being threaded through a first securement ring connector carried by said outboard rope connector at a second securement point;

a free end portion of said second end section of said spreader rope connector freely passing through said first securement ring; the pulling of said free end portion through said first securement ring to a taut condition while the vehicle tire is stationary urging said outboard and inboard rope connectors and cross chains radially inward to tighten the engagement of the chain structure on the tire;

the free end portion of said spreader rope connector after passing through said first securement ring including a spreader rope connecting element for connection to a first intermediate securement location of said spreader rope connector as said spreader rope is pulled to its taut condition;

said first spreader rope connecting element connection to said first intermediate securement location being at the bottom of the tire, whereby the second end section of said spreader connector rope is pulled vertically upward to its taut condition to securely install the tire chain structure while the vehicle tire is stationary.

5,804,002

PNEUMATIC TIRE WITH CIRCUMFERENTIAL BELT LAYER/INCLINED BELT LAYER LAMINATE

Tatsuo Nakano, Tokyo, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Sep. 8, 1995, Ser. No. 525,025

Claims priority, application Japan, Sep. 19, 1994, 6-223307

Int. Cl.⁶ B60C 9/18; 9/20; 9/22

U.S. Cl. 152—527

17 Claims

1. A pneumatic tire comprising: a belt and a tread disposed radially outside the crown portion of a carcass toroidally extending between a pair of beads, said belt being a laminate of a circumferential belt layer and an inclined belt layer, said circumferential belt layer comprising a plurality of metallic reinforcing elements arranged substantially in parallel with the equatorial plane of the tire and coated with rubber, and said inclined belt layer comprising a plurality of reinforcing elements inclined with respect to the equatorial plane of the tire and coated with rubber, wherein with respect to the coating rubber of said circumferential belt layer and the coating rubber of said inclined belt layer adjoining each other, the coating rubber of the circumferential belt layer has a lower modulus of elasticity than that of the coating rubber of the inclined belt layer and is not thinner than the coating rubber of the inclined belt layer, wherein a control rubber layer having a higher modulus of elasticity than that of said coating rubber of the circumferential belt layer is disposed outside of the widthwise edge of said circumferential belt layer.

5. A pneumatic tire comprising: a belt and a tread disposed radially outside the crown portion of a carcass toroidally extending between a pair of beads, said belt being a laminate of a circumferential belt layer comprising a plurality of metallic reinforcing elements arranged substantially in parallel with the equatorial plane of the tire and coated with rubber, and said inclined belt layer comprising a plurality of reinforcing elements inclined with respect to the equatorial plane of the tire and coated with rubber, wherein with respect to the coating rubber of said circumferential belt layer and the coating rubber of said inclined belt layer adjoining each other, the coating rubber of the circumferential belt layer has a lower modulus of elasticity than that of the coating rubber of the inclined belt layer and is not thinner than the coating rubber of the

inclined belt layer, and wherein, in the rubber layer between the reinforcing elements in the circumferential belt layer and the reinforcing elements in the inclined belt layer adjoining each other in the vicinity of both edge portions of the belt, the thickness of the coating rubber of the circumferential belt layer accounting for said rubber layer is larger than the thickness of the coating rubber of said inclined belt layer.

14. A pneumatic tire comprising: a belt and a tread disposed radially outside the crown portion of a carcass toroidally extending between a pair of beads, said belt being a laminate of a circumferential belt layer and an inclined belt layer, said circumferential belt layer comprising a plurality of metallic reinforcing elements arranged substantially in parallel with the equatorial plane of the tire and coated with rubber, and said inclined belt layer comprising a plurality of reinforcing elements inclined with respect to the equatorial plane of the tire and coated with rubber, wherein with respect to the coating rubber of said circumferential belt layer and the coating rubber of said inclined belt layer adjoining each other, the coating rubber of the circumferential belt layer has a lower modulus of elasticity than that of the coating rubber of the inclined belt layer, and wherein said circumferential belt layer is positioned radially outside of said inclined belt layer.

16. A pneumatic tire comprising: a belt and a tread disposed radially outside the crown portion of a carcass toroidally extending between a pair of beads, said belt being a laminate of a circumferential belt layer and an inclined belt layer, said circumferential belt layer comprising a plurality of metallic reinforcing elements arranged substantially in parallel with the equatorial plane of the tire and coated with rubber, and said inclined belt layer comprising a plurality of reinforcing elements inclined with respect to the equatorial plane of the tire and coated with rubber, wherein with respect to the coating rubber of said circumferential belt layer and the coating rubber of said inclined belt layer adjoining each other, the coating rubber of said circumferential belt layer has a lower modulus of elasticity than that of the coating rubber of the inclined belt layer, and wherein said inclined belt layer is positioned radially outside of said circumferential belt layer, and wherein said coating rubber of said circumferential layer is thicker than said coating rubber of said inclined belt layer.

5,804,003

METHOD OF MANUFACTURING AN INORGANIC BOARD

Kazuhide Nishizawa, Toyooka, Japan, assignor to Nichiha Corporation, Nagoya, Japan

Filed Dec. 2, 1996, Ser. No. 757,100

Claims priority, application Japan, Feb. 28, 1996, 8-069119

Int. Cl.⁶ B32B 13/02; 31/04

U.S. Cl. 156—42

4 Claims

1. A method of manufacturing an inorganic board comprising forming a plurality of single mats wherein each single mat is formed from a slurry of a raw material mixture substantially consisting of cement material, fiber material and inorganic filler which has a shell inside of which is empty wherein the slurry is prepared by mixing water, the empty inorganic filler, the cement material and the fiber material; treating the inorganic filler with an alkali treatment to dissolve the surface of the shell of the empty inorganic filler to increase the hydrophilic property of the surface of the shell before mixing the water, the empty inorganic filler, the cement material and the fiber material; laminating a plural number of said single mats to form a laminated mat; and molding, incubating and curing said laminated mat.

5,804,004

STACKED DEVICES FOR MULTICHIP MODULES

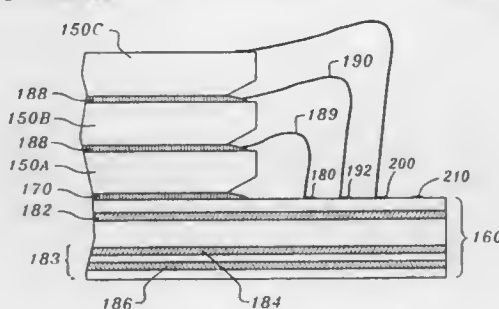
David B. Tuckerman, Dublin; Nicholas E. Brathwaite, Hayward; Paul Marella, Palo Alto, and Kirk Flatow, San Jose, all of Calif., assignors to nChip, Inc., San Jose, Calif.

Division of Ser. No. 300,575, Sep. 2, 1994, which is a continuation of Ser. No. 881,452, May 11, 1992, abandoned. This application May 24, 1996, Ser. No. 655,338

Int. Cl.⁶ H05K 3/32

U.S. Cl. 156—60

18 Claims



1. A method for fabricating a multichip module comprising the steps of:

attaching a first integrated circuit having a bonding pad region to a surface of a silicon circuit board; wire bonding a conductor between said bonding pad region of said first integrated circuit and a first set of bond pads located on said circuit board;

placing a layer of adhesive atop said first integrated circuit; placing a second integrated circuit having a recessed bottom surface along a bottom edge of said second integrated circuit atop said layer of adhesive wherein at least a portion of said recessed bottom surface of said second integrated circuit overhangs said bonding pad region of said first integrated circuit; and

wire bonding a conductor between said bonding pad region of said second integrated circuit and a second set of bond pads located on said circuit board.

5,804,005

BONDING FIBROUS BATTS WITH THERMOSETTING FIBER-BINDERS OF CERTAIN EXPOXY RESINS

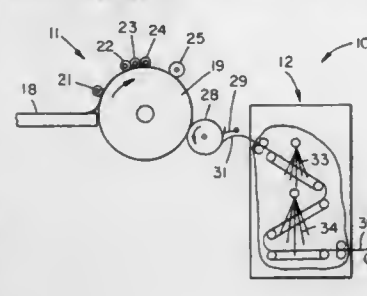
George S. Buck, 6707 Fletcher Creek Cove, Memphis, Tenn. 38133

Filed May 9, 1996, Ser. No. 647,409

Int. Cl.⁶ D04H 5/04; B05D 1/12

U.S. Cl. 156—62.2

37 Claims



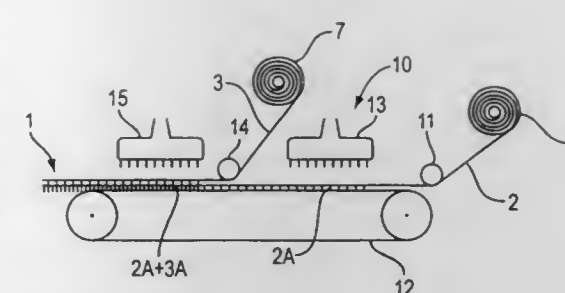
1. A dry process for producing a bonded, non-woven, batt of fibers comprising the steps of;

1. providing a dry, solid, particulate, partially cross-linked, fiber-binder consisting essentially of:

A. a solid epoxy resin having:
(a) an epoxide equivalent weight of above about 500;
(b) a glass transition temperature above about 40° C.;
(c) a melting point above about 70° C.; and

B. a coreactive effective amount of at least one cross-linking agent which reacts with epoxide groups of the epoxy resin; and then

- II. contacting fiber-binding amounts of the dry fiber-binder with the fibers to form a raw batt with the fiber-binder loosely adhering to the fibers of the batt; and then
- III. heating the raw batt to a cross-linking temperature above the melting point of the fiber-binder but below the scorching or melting point of the fibers thereby melting the fiber-binder whereupon the fiber-binder flows to intersections of the fibers and subsequently the cross-linking agent reacts with the epoxide groups of the epoxy resin thereby converting the raw batt into a hot cross-linked batt; and then
- IV. cooling the hot cross-linked batt.



5,804,006

METHOD FOR JUDGING THE PROPERTIES OF MOLTEN CAST IRON

Toshitake Kanno; Jun Iwahashi; Eiichi Sahara; Hidetaka Hiraoka; Mayuki Morinaka; Tsuneharu Sugie, and Yasushi Kubota, all of Shizuoka-ken, Japan, assignors to Kimura Foundry Co., Ltd., and Nippon Sublance Probe Engineering Ltd., both of Japan

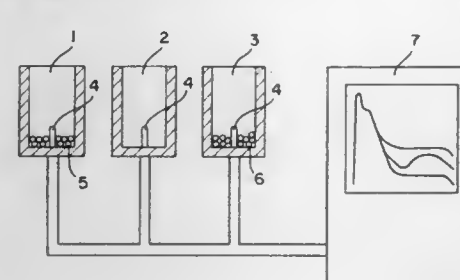
Filed Apr. 30, 1996, Ser. No. 643,076

Claims priority, application Japan, May 16, 1995, 7-140099

Int. Cl.⁶ C21D 1/54

U.S. Cl. 148—511

6 Claims



1. A method for judging the properties of molten cast iron, comprising:

- (a) measuring a cementite eutectic temperature (TEC) of molten cast iron poured into a first sampling vessel in which chilling agent is contained;
- (b) measure an eutectic freezing temperature of molten cast iron poured to a second sampling vessel free of any additive;
- (c) measuring a graphite eutectic temperature (TEG) of molten cast iron poured to a third sampling vessel into which graphitizer is contained; and
- (d) determining the temperature difference (DT) between the cementite eutectic temperature (TEC) and the graphite eutectic temperature (TEG) within the range of the eutectic freezing temperature change of molten cast iron to determine the properties of the cast iron melt.

5,804,007

METHODS OF MANUFACTURING COMPOSITE FIBER SHEET

Tadao Asano, Hashima-gun, Japan, assignor to Sunchemical Co., Ltd., Gifu, Japan

Filed Jun. 9, 1997, Ser. No. 871,299

Int. Cl.⁶ B32B 31/08

U.S. Cl. 156—72

3 Claims

1. A method of manufacturing a composite fiber sheet comprising:

- forming a first pile layer on the upper surface of a first fiber sheet by a first needling from the back-side of the first fiber sheet;
- joining a second fiber sheet on the back-side of the first fiber sheet to form a two layer fiber sheet; and

forming a second pile layer on the upper surface of the first fiber sheet by a second needling from the back-side of the two layer fiber sheet and combining the first fiber sheet and second fiber sheet at the same time to form the composite sheet; wherein the second pile layer is formed from the second fiber sheet.

5,804,008

METHOD AND APPARATUS FOR MAKING A TUFTSTRING CARPET

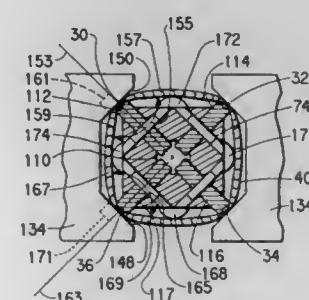
Jeffrey Lee Kennard, Hockessin; Carl Frederick Morin, Wilmington, and Kalika Ranjan Samant, Hockessin, all of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 513,734, Aug. 10, 1995, abandoned, which is a continuation-in-part of Ser. No. 298,642, Aug. 31, 1994, abandoned. This application Aug. 27, 1997, Ser. No. 919,420

Int. Cl.⁶ B32B 31/20; 5/08

U.S. Cl. 156—72

2 Claims



1. A method of bonding two support strands to yarn wrapped thereon, comprising:

- placing a first strand in a first groove and a second strand in a second groove, said grooves being spaced apart on adjacent ridges on a mandrel which acts as an ultrasonic anvil;
- wrapping yarn over said first strand so that yarn on the two sides of the first strand defines a first included angle;
- wrapping yarn over said second strand so that yarn on the two sides of the second strand defines a second included angle; and
- pressing the wrapped yarn against the two strands with an ultrasonic horn energized by a single ultrasonic driver wherein said horn has a first surface contacting said yarn so that said first surface is essentially perpendicular to a first imaginary plane passing through said first strand and essentially bisecting said first included angle for forming a first bond at said first strand, and said horn has a second surface angled to said first surface for contacting said yarn so that said second surface is essentially perpendicular to a second imaginary plane passing through said second strand and essentially bisecting said second included angle for simultaneously forming a second bond at said second strand.

5,804,009

METHOD OF PROVIDING A PATTERN OF APERTURES AND/OR CAVITIES IN A PLATE OR LAYER OF NON-METALLIC MATERIAL

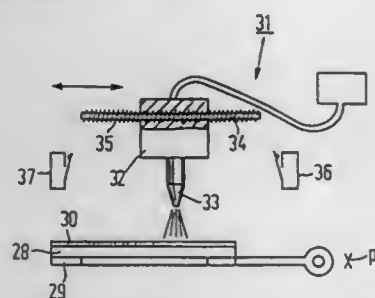
Jacobus M. Dings; Remko Horne; Gerardus N. A. Van Veen, and Joseph C. M. Bosman, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 359,377, Dec. 20, 1994, Pat. No. 5,593,528. This application Oct. 15, 1996, Ser. No. 731,622. Claims priority, application Belgium, Dec. 20, 1993, 09301422

Int. Cl.⁶ B24C 1/00

U.S. Cl. 156—154

17 Claims



1. A method of manufacturing a plate for a microelectronic device, said plate comprising a non-metallic material having a predefined pattern of precisely-positioned passages or cavities in which charged particles are guided, characterized in that the passages or cavities are made by means of the following steps:

- securing to the plate, by means of an adhesive layer, a mask having apertures arranged in the predefined pattern and having areas substantially corresponding to cross-sectional areas of the passages or cavities, said adhesive layer having a predetermined thickness;
 - producing at least one jet of abrasive-powder particles having a predetermined average size;
 - directing the at least one jet at a surface of the plate through the apertures in the mask;
 - performing a relative movement between the at least one jet and the plate to effect formation of the cavities; and
 - removing the mask from the plate;
- said adhesive layer thickness being smaller than said abrasive-powder particle size.

5,804,010

METHOD OF FORMING REUSABLE SEAMLESS MANDRELS FOR THE FABRICATION OF HOLLOW WOUND VESSELS

Daniel J. Moser, Magna, Utah, assignor to EDO Corporation, Fiber Science Division, Salt Lake City, Utah. Continuation of Ser. No. 542,819, Oct. 13, 1995, abandoned, which is a continuation of Ser. No. 193,427, Feb. 8, 1994, Pat. No. 5,460,675, which is a continuation of Ser. No. 909,045, Jul. 6, 1992, abandoned. This application Feb. 14, 1997, Ser. No. 800,406

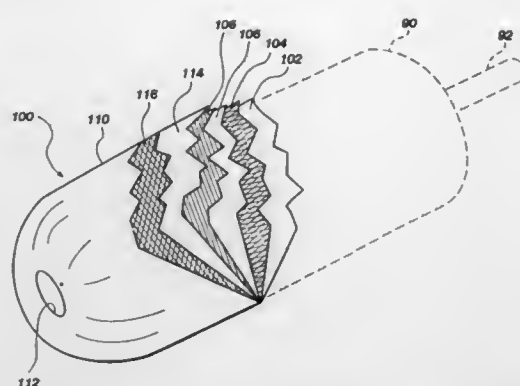
Int. Cl.⁶ B65H 81/00

U.S. Cl. 156—155

18 Claims

1. A method of fabricating a seamless, reusable and collapsible mandrel suitable for forming a plurality of seamless and hollow fiber wound vessels upon and forming such seamless and hollow fiber wound vessels upon said mandrel, the method comprising the steps of:

- readying a destructible mandrel, the destructible mandrel being at least somewhat the general shape of a desired seamless and hollow fiber wound vessel to be produced using the resulting seamless, reusable and collapsible mandrel, wherein the step of readying a destructible mandrel comprises the steps of: forming at least one layer of plaster and cut fibers over a destructible material by forming a layer of plaster and cut



fibers over the destructible material; and forming a layer of plaster over the layer of plaster and cut fibers; and forming the at least one layer to the shape and size of the seamless, reusable and collapsible mandrel by screeding the surface of the plaster mandrel;

applying a layer of generally gas impermeable material about the destructible mandrel to form a first layer of the seamless, reusable and collapsible mandrel;

winding a layer of at least one fiber about the destructible mandrel to form a second layer of the seamless, reusable, and collapsible mandrel, the second layer functioning as a reinforcement layer;

forming a release surface on the exterior of the outermost layer, the release surface being formed in the shape of the interior of the desired seamless and hollow fiber wound vessel and the outermost layer being suitable for winding a fiber wound vessel upon such that the reinforcement layer limits the expansion of the seamless, reusable and collapsible mandrel when pressurized gas is introduced therein such that as the pressure inside the mandrel is increased as the material forming the vessel is added to the seamless, reusable, and collapsible mandrel and such that the mandrel maintains its shape as the seamless and hollow fiber wound vessel is formed thereon;

removing the destructible mandrel from the interior of the seamless, reusable and collapsible mandrel such that no structures remain within the interior of the seamless, reusable and collapsible mandrel which interconnect portions of an interior wall of the mandrel while not disrupting the integrity of the removable mandrel nor forming any seams therein; and forming a plurality of seamless and hollow fiber wound vessels upon seamless, reusable and collapsible mandrel.

5,804,011

PROCESS OF MAKING A TWO-WAY STRETCHABLE FABRIC LAMINATE AND ARTICLES MADE FROM IT

Anit Dutta, Wilmington, Del.; Edward J. Daniel, Landenberg, Pa., and Robert C. Willmann, Port Deposit, Md., assignors to W. L. Gore & Associates, Inc., Newark, Del.

Division of Ser. No. 248,999, May 25, 1994, Pat. No. 5,529,830. This application Jun. 28, 1996, Ser. No. 672,801. Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—160

3 Claims

1. A process for making a stretchable layered fabric laminate stretchable in both the machine and transverse directions comprising the steps of:

- forming a composite of two microporous polymeric outer layers capable of elongating at least 50% of the original length in a transverse direction;
- said layers joined by an intermediate layer of a non-porous water-vapor-permeable polymer partially impregnated into the micropores of the polymeric layers;

5,804,013

PROCESS FOR MANUFACTURE BY ENDOTHERMIC HEATING OF PLASTIC LAMINATES IN A CONTINUOUS BAND PRESSED IN CYCLES

Bruno Ceraso, Milan, Italy, assignor to Cedral S.r.l., Milan, Italy

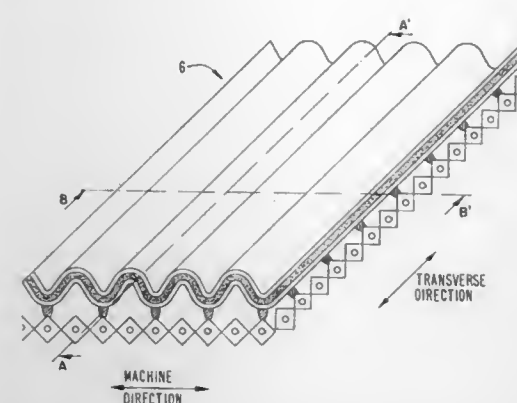
PCT No. PCT/IT93/00104, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO94/29093, PCT Pub. Date Dec. 22, 1994

PCT Filed Oct. 9, 1993, Ser. No. 553,681. Claims priority, application Italy, Jun. 15, 1993, MI93A01275

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—202

5 Claims

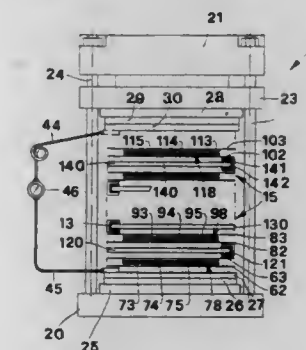


(b) stretching an elastic fabric in the machine direction so as to reduce its width to a width of 90 percent or less of its initial relaxed width,

said fabric having elastic properties in at least the machine direction;

(c) maintaining said fabric in the stretched state while adhesively laminating said composite to said stretched fabric with a non-continuous pattern of adhesive,

(d) reducing the force stretching said fabric, thereby allowing said fabric to elastically retract to a relaxed state whereby in the machine direction said composite layer is bunched and folded as said fabric elastically recovers from being stretched.



1. A process of manufacturing plastic laminates with metal laminates composed of copper in a cold press with endothermic heating by electricity, the process comprising the steps of obtaining the metal laminae of copper and the band of prepreg from a multiposition band formed by two metal laminae and intermediate bands of prepegs; unwinding one or more of the multicomposition bands in cycles from reels of a feeder; passing the unwound multicomposition bands through a press; pressing the multicomposition bands when the press closes; applying endothermic heating by circulation of electric current in fractions of the metal laminae that remain closed when the press is closed; completing a pressing cycle so that the multiposition bands are transformed inside the press into plastic laminates; opening the press and moving the plastic laminates forward for a length substantially that all the press; moving the plastic laminates outside of the press; and replacing the plastic laminates by other fractions of the multicomposition bands, to form a continuous rigid strip of plastic laminates.

5,804,012

PROCESS FOR MANUFACTURING A FILAMENT WOUND, LOCALIZED STRENGTH TOOL HANDLE

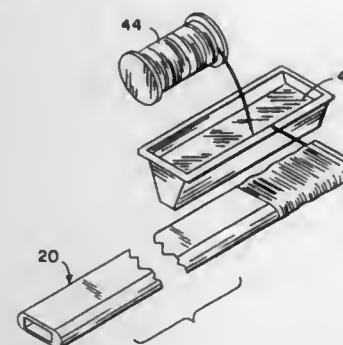
Joseph Allen Carmien, 525 N. Maple Dr., Beverly Hills, Calif. 90210

Filed Jan. 21, 1997, Ser. No. 781,360

Int. Cl.⁶ B65H 81/00; B25G 1/01; 3/00; B32B 31/00

U.S. Cl. 156—172

19 Claims



1. A process for manufacturing a hand tool, comprising the steps of:

- providing an elongate substantially hollow rod having an end segment for receiving a mounting tang of a tool head;
- wrapping a filament about the rod end segment perpendicularly to a longitudinal axis of the rod;
- molding onto the rod an encasement over the filament; and
- then inserting the mounting tang into the rod end segment.

5,804,014

PROCESS FOR PROVIDING A FILTER INSERT

Kai Kähler, Hamburg, Germany, assignor to Detroit Holding Limited, Cork, Ireland

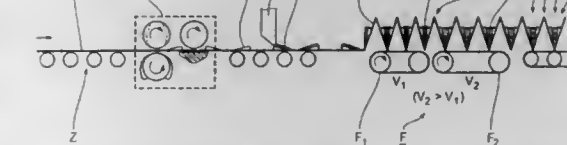
PCT No. PCT/DE94/01559, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/17944, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 30, 1994, Ser. No. 663,100. Claims priority, application Germany, Dec. 30, 1993, 43 45 122.5

Int. Cl.⁶ B01D 29/07; 29/31; B31F 53/00

U.S. Cl. 156—204

15 Claims



1. A process for producing a filter insert for a fluid filter, the insert comprised of filter material having a number of fold walls arranged in a zigzag-shaped continuous fold, adjacent fold walls

being connected to one another and resting on one another at least in part by means of an adhesive spacer, the process comprising the steps of:

- providing a strip of the filter material with indentations which determine positions of fold edges;
- applying the adhesive spacers to at least corresponding areas of those parts of the strip of filter material which will become adjacent fold walls when the filter insert is complete; and
- folding the strip of filter material at the indentations in partial steps, including a first partial step of folding the filter material into folds at a small spacing such that the adjacent fold wall edges are at a small spacing from each other and the adhesive spacers contact each other, and a second partial step of pulling the folds apart again by a predetermined amount to extend the adhesive spacers so that at least some of the adhesive spacers have a height which is not constant in a direction at right angles to the fold edges, then curing the adhesive spacers.

5,804,015

TEXTURED BALLISTIC ARTICLE

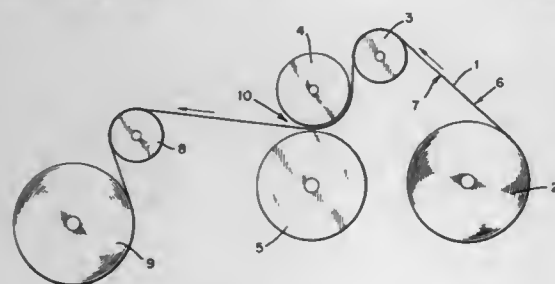
Kevin Scott McCarter; Steven Anthony Young, and Pamela Kay Laws, all of Richmond, Va., assignors to AlliedSignal Inc., Morristown, N.J.

Division of Ser. No. 126,838, Sep. 24, 1993, Pat. No. 5,567,498. This application Jun. 7, 1995, Ser. No. 484,581

Int. Cl.⁶ B29C 59/02; B32B 31/22

U.S. Cl. 156—209

8 Claims



4. A method for imparting flexibility to a composite element, wherein the composite element includes at least two adjacent fiber network layers, each of the fiber network layers comprises a network of high strength fibers having a tenacity of at least about 7 g/d, a tensile modulus of at least about 100 g/d and an energy-to-break of at least about 8 J/g, in a matrix material, the composite element has a first plane profile and a second plane profile, and the matrix material is distributed substantially uniformly over the textured plane profile, the method comprising embossing at least one of the first and second plane profiles to create a textured pattern thereacross, such that the matrix material is distributed substantially uniformly based on weight over the textured plane profile.

5,804,016

MULTILAYER CONTAINER RESISTANT TO ELEVATED TEMPERATURES AND PRESSURES, AND METHOD OF MAKING THE SAME

Steven L. Schmidt, Bedford; Suppayan M. Krishnakumar, Nashua, and Wayne N. Collette, Merrimack, all of N.H., assignors to Continental PET Technologies, Inc., Florence, Ky.

Filed Mar. 7, 1996, Ser. No. 610,810

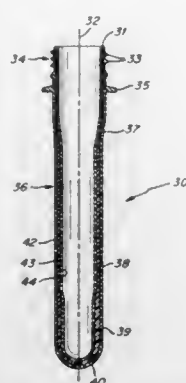
Int. Cl.⁶ B29C 49/22

U.S. Cl. 156—242

24 Claims

1. A method of making a multilayer container, the method comprising the steps of:

- injecting a first thermoplastic material having a first intrinsic viscosity (IV) into a preform mold cavity at a first injection rate to form a first layer of a preform;



injecting a second thermoplastic material having a second IV, which differs by at least about 0.10 dl/g from the first IV, into the mold cavity at a second injection rate to form a second layer of the preform adjacent the first layer; applying a pressure to the first and second layers in the mold cavity, the injection rates and the pressure being selected to promote layer adhesion between the first and second layers; and blow molding a container from the preform which can withstand a 1 meter drop onto a hard rigid surface without layer separation.

5,804,017

METHOD AND APPARATUS FOR MAKING AN OPTICAL INFORMATION RECORD

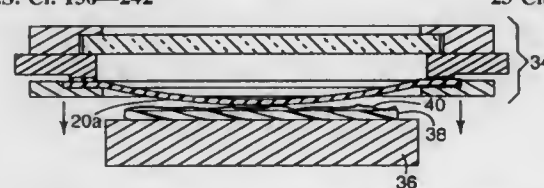
Wayne M. Hector, Shoreview, Minn., assignor to Imation Corp., Oakdale, Minn.

Filed Jul. 27, 1995, Ser. No. 508,038

Int. Cl.⁶ B32B 31/20; 31/28

U.S. Cl. 156—242

23 Claims



1. A method of making an optical information record, comprising the steps of

- a) providing a substrate having a surface for carrying an information bearing layer;
- b) providing a curable polymer on said surface of the substrate;
- c) providing a flexible stamper having an information bearing pattern on a first surface thereof, said first surface having inner and outer regions, wherein the step of providing a stamper comprises providing an assembly including a manifold body, defining a chamber having a first opening and a second opening opposed to said first opening, and securing the stamper to the first opening such that the surface of the stamper having the information bearing pattern faces outward away from the chamber;
- d) subjecting the outside of the chamber to a vacuum to provide a differential pressure between the inside and outside of the chamber to distort the stamper such that the inner region of the first surface bearing the information pattern bulges outward relative to the outer region, providing the first surface with a generally convex contour in at least one direction;
- e) positioning the distorted stamper relative to the substrate such that the convex surface of the stamper having the information bearing pattern is capable of being pressed against the surface of the substrate bearing the curable polymer on the substrate;
- f) pressing the distorted first surface of the stamper and the polymer bearing surface of the substrate together, causing the inner region of the stamper to first contact the substrate surface and the remainder of the distorted stamper to progressively contact the remainder of the stamper surface as the

respective surfaces are further pressed together, thereby distributing the polymer across the substrate surface and forming a replica of the information bearing pattern in the polymer surface.

- g) curing the polymer while maintaining the pressure differential, thereby fixing the replica on the cured polymer surface, to provide a formed, information bearing layer on the substrate, and
- h) separating the stamper from the substrate.

5,804,018

METHOD FOR MAKING VEHICULAR PANEL ASSEMBLY

Daniel J. Fisher; Raj Kumar Agrawal; Douglas Crank, and John W. Carter, all of Holland, Mich., assignors to Donnelly Corporation, Holland, Mich.

Division of Ser. No. 405,897, Mar. 17, 1995, Pat. No.

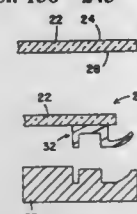
5,614,051, which is a division of Ser. No. 898,094, Jun. 12, 1992, Pat. No. 5,443,673. This application Nov. 27, 1996, Ser.

No. 757,375

Int. Cl.⁶ B60J 10/02; C09J 5/06

U.S. Cl. 156—245

4 Claims



1. A method for making a panel assembly for use in a vehicle opening comprising:

- providing a glass panel in the form of a sheet of predetermined size and geometry;
- priming at least a portion of said panel adapted to receive a separately formed gasket; heating at least that portion of said panel adapted to receive the gasket to a temperature greater than 100° F.;
- molding, separate from said panel, a polymeric gasket of predetermined profile having a surface adapted to engage said portion of said panel;
- locating said primed and heated panel to said newly molded gasket while said gasket retains heat generated during molding;
- forcing said panel and said gasket into direct contact with each other to form a contact area therebetween; and
- heating said contact area between said panel and said gasket for improving adhesion of said gasket to said panel.

5,804,019

APPARATUS AND METHOD FOR APPLYING ADHESIVE AND RELEASE PAPER TO WOODEN FLOORING STRIPS

James C. Sweet, Troutman; Ernest E. Cline, Monroe, and Alan E. Cline, Marshville, all of N.C., assignors to Triangle Pacific Corporation, Dallas, Tex.

Filed Jan. 31, 1997, Ser. No. 792,520

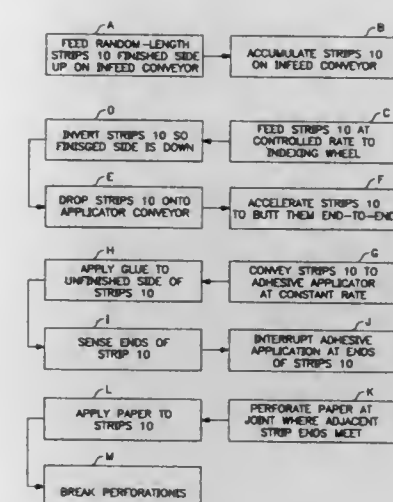
Int. Cl.⁶ B32B 31/10; 31/12; 35/00

U.S. Cl. 156—250

15 Claims

9. A method for applying adhesive and a protective release paper to successive elongate wooden flooring strips having a top decorative side, and a bottom adhesive side for being adhered to a supporting subfloor, comprising:

- (a) receiving successive wooden flooring strips top side-up from an upstream processing station in parallel lengthwise alignment to each other;
- (b) moving the flooring strips on an infeed conveyor in a direction of movement perpendicular to the length of the flooring strips;



- (c) spacing the flooring strips apart on the infeed conveyor;
- (d) inverting the flooring strips from top decorative side-up to bottom adhesive side-up;
- (e) receiving the inverted flooring strips and moving the flooring strips end-to-end in a direction of movement parallel to the length of the flooring strips;
- (f) applying adhesive to the bottom adhesive side of the flooring strips as they move beneath an adhesive application means; and
- (g) applying release paper to the adhesive on the flooring strip.

5,804,020

PROCESS FOR PRODUCING A LAMINATED FILM THAT IS FORMED BY BLOCKING

Mutsuo Akao; Hiroyuki Osanai; Makoto Kawamura, all of Kanagawa, and Koji Nakai, Shizuoka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

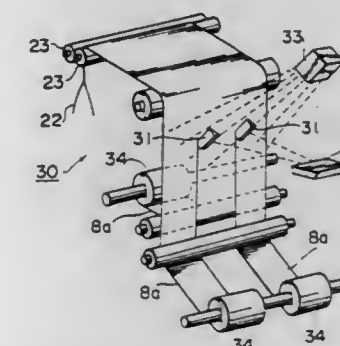
Division of Ser. No. 888,845, May 27, 1992, Pat. No. 5,358,785. This application Jun. 3, 1994, Ser. No. 253,946

Claims priority, application Japan, May 28, 1991, 3-123964; Jun. 3, 1991, 3-131056; Jun. 17, 1991, 3-171615; Dec. 19, 1991, 3-337194; Dec. 19, 1991, 3-337200

Int. Cl.⁶ B32B 31/02; 31/18

U.S. Cl. 156—251

4 Claims



1. A process for producing a laminated film comprising molding a tubular film having an inner surface by an inflation process, pressing the formed tubular film flat with a pressure roll to join the inner surface by blocking thereby producing a laminated film, and then cutting with heat sealing the laminated film of which the inner surface has been joined by blocking, by a fixed heated cutting blade heated to a temperature of 50° to 150° C. so as to obtain a laminated film in the form of a web having an inner surface joined by blocking so as to provide a peel strength in the range of 0.1 g/15 mm to 250 g/15 mm and a heat sealed edge.

5,804,021

SLIT ELASTIC FIBROUS NONWOVEN LAMINATES AND PROCESS FOR FORMING

Frank Paul Abuto, Alpharetta; Andrew Edward Diamond, Roswell; Ruth Lisa Levy, Sugar Hill, and Stephen Clark Smith, Atlanta, all of Ga., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

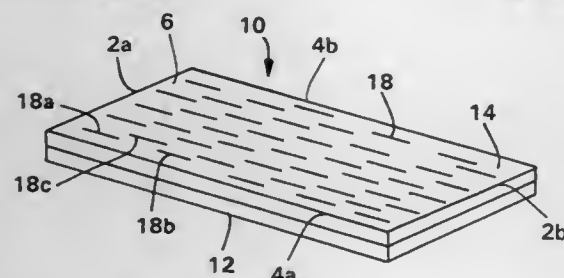
Continuation of Ser. No. 236,785, Apr. 29, 1994, abandoned.

This application May 10, 1996, Ser. No. 644,462

Int. Cl.⁶ B32B 31/12; 5/04; 27/12

U.S. Cl. 156—252

20 Claims



1. A process for forming an elastic, fibrous nonwoven laminate comprising:

creating a first set of slits in a first nonwoven facing layer; said first nonwoven facing layer including first and second longitudinal edges and first and second transverse edges; said first set of slits including a first plurality of generally parallel rows of slits extending in a first direction from said first longitudinal edge to said second longitudinal edge; each of said first rows of slits including a first plurality of individual discontinuous slits;

creating a second set of slits in said first nonwoven facing layer; said second set of slits including a second plurality of generally parallel rows of slits extending in a second direction from said first transverse edge to said second transverse edge;

each of said second rows of slits including a second plurality of individual discontinuous slits; said first direction of said first slits being not generally parallel with said second direction of said second slits; said first and second sets of slits each are formed into said first nonwoven facing layer in an overlapping brick pattern and attaching an elastic substrate layer to said first nonwoven facing layer while said elastic substrate layer is in a nonstretched condition and said first nonwoven facing layer is in a nonstretched condition to form a laminate having an exposed surface;

creating a second set of slits in a second nonwoven facing layer; said second nonwoven facing layer including first and second longitudinal edges and first and second transverse edges; said first set of slits in said second nonwoven facing layer including a first plurality of generally parallel rows of slits extending in a first direction from said first longitudinal edge to said second longitudinal edge; each of said first rows of slits in said second nonwoven facing layer including a first plurality of individual discontinuous slits;

creating a second set of slits in said second nonwoven facing layer;

said second set of slits in said second nonwoven facing layer including a second plurality of generally parallel rows of slits extending in a second direction from said first transverse edge to said second transverse edge;

each of said second rows of slits in said second nonwoven facing layer including a second plurality of individual discontinuous slits;

said first direction of said first slits in said second nonwoven facing layer being not generally parallel with said second direction of said second slits in said second nonwoven facing layer;

said first and second sets of slits each are formed into said second nonwoven facing layer in an overlapping brick pattern, and

attaching said second nonwoven facing layer to a surface of said elastic substrate layer which is opposed to said first nonwoven facing layer while said elastic substrate layer is in a nonstretched condition and said second nonwoven facing layer is in a nonstretched condition to form a laminate having an exposed surface;

whereby said laminate has elastic properties in at least two directions across said exposed surface of said laminate.

5,804,022

METHOD FOR MAKING MINIATURIZED PLANAR COLUMNS IN NOVEL SUPPORT MEDIA FOR LIQUID PHASE ANALYSIS

Patrick Kaltenbach, Bischweiler, Germany; Sally A. Swedberg, Los Altos, Calif.; Klaus E. Witt, Keltern; Fritz Bek, Waldbronn, both of Germany, and Laurie S. Mittelstadt, Belmont, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

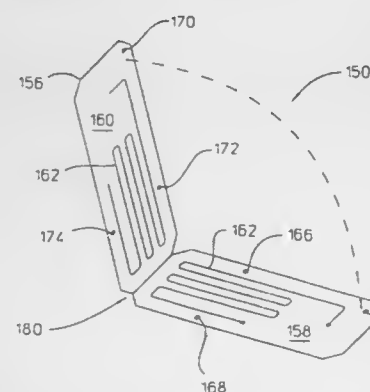
Continuation of Ser. No. 482,245, Jun. 7, 1995, Pat. No.

5,658,413, which is a continuation-in-part of Ser. No. 326,111, Oct. 19, 1994, Pat. No. 5,500,071. This application Aug. 18, 1997, Ser. No. 914,297

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—257

19 Claims



1. A method of forming a microchannel device, comprising the steps of:

(a) providing a first substrate having a substantially planar surface;

(b) forming by laser ablation a microchannel in the planar surface of the first substrate substantially parallel to the planar surface;

(c) providing a second substrate having a substantially planar surface and miniaturized feature in that substantially planar surface;

(d) deriving a first plate from the first substrate and deriving a second plate from the second substrate, the first plate having a planar surface and a microchannel corresponding to the planar surface and microchannel of the first substrate, and the second plate having a planar surface and miniaturized feature corresponding to the planar surface and the miniaturized feature of the second substrate; and

(e) aligning two or more plates, including: aligning the first plate and the second plate such that the planar surface of the first plate and the planar surface of the second plate are in facing abutment and the miniaturized feature of the second plate is aligned with the microchannel of the first plate, thereby providing a miniaturized column device with a microcompartment including a microchannel.

5,804,023

LABEL CUTTING AND APPLYING APPARATUS

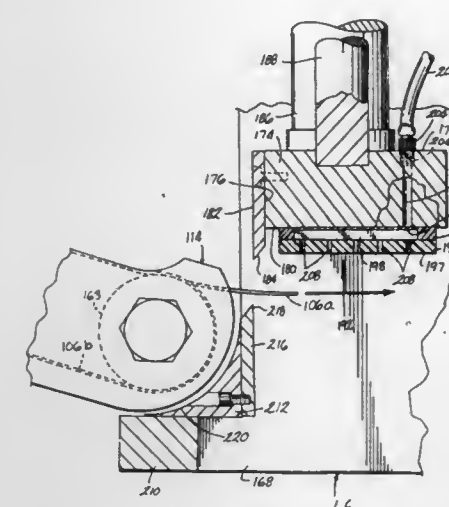
George F. Carpenter, Rockford; Jeffrey A. Engelsman, Hudsonville; Karl J. Burdick, Comstock Park; John T. Doornbos, Grandville, and Daniel B. Jones, Wyoming, all of Mich., assignors to Grand Rapids Label Company, Grand Rapids, Mich.

Filed Sep. 20, 1996, Ser. No. 717,497

Int. Cl.⁶ B65C 9/14; 9/18

U.S. Cl. 156—261

6 Claims



1. A method of applying a label to an object, the method comprising the steps of:

providing a strip of web material and a printer having a leading edge and adapted to receive the strip of web material; advancing the strip of web material to the printer and printing indicia on the web material;

providing a movable label applicator having a label receiving surface for receiving a section of the web material and having a cutting blade;

advancing a section of the web material from the printer to the label receiving surface;

moving the label applicator to the object and severing the section from the strip of web material by the cutting blade while the applicator is moved toward the object; and applying the severed section to the object.

2. Label application apparatus comprising:

a cutter/applicator housing having a frontal wall; a first cutting blade fixedly mounted adjacent the frontal wall and having a cutting edge;

a cutter/applicator head movably supported by the housing and comprising a label support surface and a second cutting blade having a cutting edge and mounted on one side of the cutter/applicator head adjacent the frontal wall, the cutting edge of the second cutting blade being aligned relative to the cutting edge of the first blade; and

an actuator for moving the cutter/applicator head from a first position on one side of the first cutting blade to a second position on another side of the first cutting blade and adjacent an object to be labeled while moving the second cutting blade past the first cutting blade, whereby movement of the cutter/applicator head from the first position to the second position causes a portion of the label material to be severed from the continuous web.

5,804,024

PAPER-FILM LAMINATE SEALING TAPE

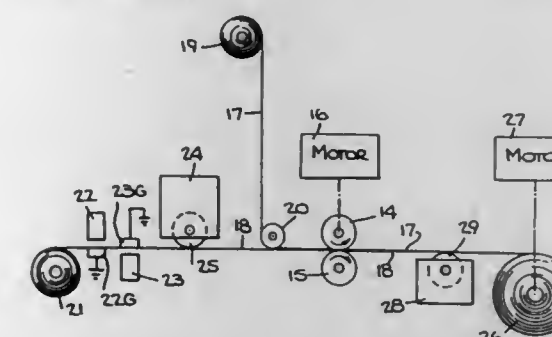
Gilbert Bloch, 3349 S. Malo Ct., Palm Beach Gardens, Fla. 33410; Gerald Bloch, 21 E. 87th St., New York, N.Y. 10028, and Arnold B. Finestone, 2400 Presidential Way, West Palm Beach, Fla. 33401

Continuation-in-part of Ser. No. 232,648, Apr. 25, 1994, abandoned, which is a continuation-in-part of Ser. No. 169,007, Dec. 20, 1993, abandoned. This application Aug. 8, 1996, Ser. No. 693,482

Int. Cl.⁶ B32B 7/12

U.S. Cl. 156—272.6

13 Claims



1. A method of making sealing tape comprising the steps of: dispensing a roll of water-impermeable plastic film having opposite first and second surfaces; applying adhesive to the first surface of the plastic film; adhering a paper layer to the first surface of the plastic film to produce a laminate; corona discharge treating the second surface of the plastic film to render it wettable and receptive to adhesives; and applying a water-removable starch-based adhesive to the corona-discharge treated second surface of the plastic film while it remains wettable and receptive to the adhesive.

5,804,025

PROCESS FOR INCIPENT OR COMPLETE MELTING OF POLYESTER-COMPRISING SHAPED STRUCTURES BY HIGH FREQUENCY WELDING AND USE OF SUCH POLYESTERS

Dieter Disselbeck, Bad Soden; Hans-Joachim Brüning, Augsburg; Bernhard Jahn, Klosterlechfeld, and Klaus Bender, Wehringen, all of Germany, assignors to Hoechst Trevira GmbH & Co KG, Germany

Filed Mar. 14, 1997, Ser. No. 818,178

Claims priority, application Germany, Mar. 16, 1996, 196 10 481.5

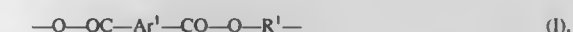
Int. Cl.⁶ B32B 31/28

U.S. Cl. 156—274.4

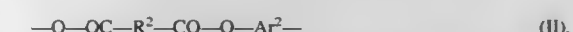
11 Claims

1. A process for incipient or complete melting of shaped structures, which comprises:

a) providing a shaped structure composed of a polyester containing at least 5 mol % of the structural repeat unit of the formula I and/or at least 5 mol % of the structural repeat unit of the formula II



and



where Ar¹ and Ar² are each independently of the other a bivalent mono- or polycyclic aromatic radical, R¹ is a bivalent aliphatic or cyc

5,804,026

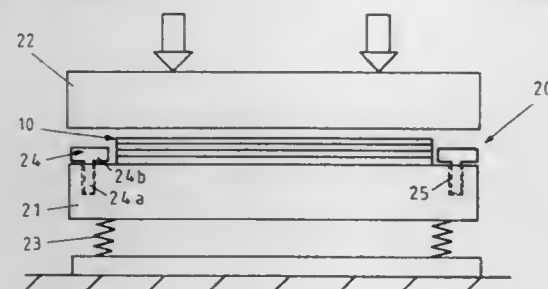
METHOD FOR PRODUCING IDENTITY CARDS, AND
IDENTITY CARD PRODUCED ACCORDING TO THAT
METHODWerner Vogt, Schlieren, Switzerland, assignor to Interlock AG,
Schlieren, Switzerland

Filed Feb. 8, 1996, Ser. No. 598,672

Claims priority, application Germany, Feb. 9, 1995, 195 04
194.1Int. Cl.⁶ B42D 15/10

U.S. Cl. 156—295

18 Claims



1. A method for producing an identity card sandwich, said method comprising the steps of:
positioning a plurality of card layers one on top of another, said plurality of card layers including at least an intermediate layer adjacent to a first of said plurality of card layers and at least one electronic component initially positioned on said intermediate layer;
applying adhesive to at least one out of a first surface of said intermediate layer and an inner surface of said first card layer adjacent to said first surface;
applying pressure without applying heat to said plurality of card layers to compress said card layers to a predetermined width; and
curing said adhesive layer to secure said electronic component.

5,804,027

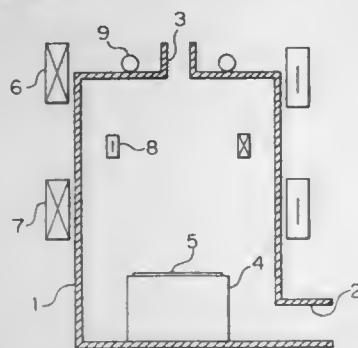
APPARATUS FOR GENERATING AND UTILIZING
MAGNETICALLY NEUTRAL LINE DISCHARGE TYPE
PLASMATaijiro Uchida, Chigasaki, Japan, assignor to Nihon Shinku
Gijutsu Kabushiki Kaisha, Chigasaki, Japan

Filed Feb. 6, 1997, Ser. No. 796,568

Claims priority, application Japan, Feb. 9, 1996, 8-023835;
Feb. 21, 1996, 8-033441Int. Cl.⁶ H05H 1/00

U.S. Cl. 156—345

14 Claims



1. An apparatus for utilizing magnetically neutral line discharge type plasma comprising a magnetic field generating means for forming a magnetically neutral line defined by continuously and spatially connecting points of zero-intensity magnetic field and an electric field generating means for generating plasma by applying an electric field along the magnetically neutral line to cause the gas

therein to break down to electric discharge, the generated plasma being sufficiently thermalized to show a Maxwell distribution.

5,804,028

APPARATUS FOR LOOPING A COATING STRUCTURE
AROUND A BEAD CORE IN MOTOR-VEHICLE TIRESAugusto Pizzorno, Milan, Italy, assignor to Pirelli Coordinamento
Pneumatici S.p.A., Milan, Italy

Division of Ser. No. 320,689, Oct. 11, 1994, Pat. No. 5,651,849.

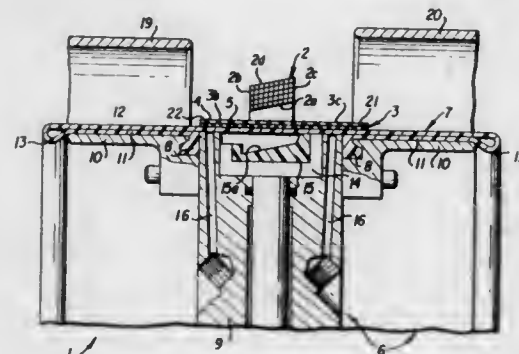
This application Feb. 19, 1997, Ser. No. 802,555

Claims priority, application Italy, Oct. 11, 1993, MI93A2147

Int. Cl.⁶ B29D 30/50

U.S. Cl. 156—421.4

8 Claims



1. An apparatus for looping a coating structure on a motor-vehicle tire bead core comprising:
a support drum;
an inflatable air bag having two circumferential anchoring beads coaxially fastened to the support drum, two connecting portions extending mutually away from said anchoring beads and one work portion radially external to said drum and extending between opposite ends of said connecting portions;
a plurality of radially movable clamping sectors distributed circumferentially on the drum and radially movable relative thereto between a rest position in which they are radially retracted towards the drum, and a work position in which they are radially extended and project from the drum in order to urge said work portion of the air bag against the radially internal surface of a tire bead core which is coaxially positioned on the drum;
fluid feeding means communicating with the inside of the air bag for inflating said air bag from a deflated condition in which it is disposed substantially flattened in a cylindrical configuration against said drum to an inflated condition in which it is radially expanded so as to form first and second lobes located on axially opposite sides relative to said plurality of clamping sectors urged against said bead core;
a first annular opposition bell to be coaxially positioned around the air bag to counteract the radial expansion of said first lobe, means for mounting said first annular bell to be axially movable relative to the drum for enfolding the first lobe around one side surface and the radially external surface of the bead core;
a second annular opposition bell disposed coaxially opposite to said first bell for positioning around the air bag in order to counteract the radial expansion of said second lobe, means for mounting said second bell to be axially movable relative to the drum, independently of said first bell, for enfolding the second lobe around a second side surface and the radially external surface of the bead core, wherein said annular opposition bells have different diameters.

5,804,029

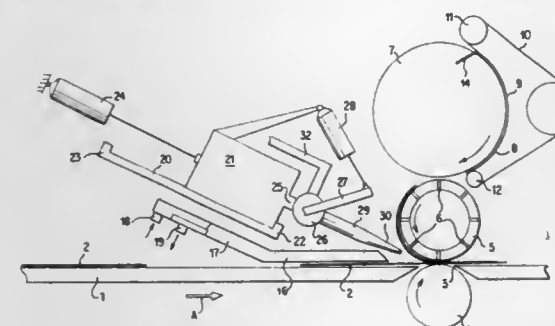
APPARATUS FOR ATTACHING LEAVES OF PLASTIC
FILM MATERIAL TO LAID FLAT WORKPIECESFritz Achelpohl, Lienen; Richard Feldkamper; Andreas Kamp-
schulte, both of Lengerich, and Uwe Köhn, Osnabrück, all of
Germany, assignors to Windmüller & Hölscher, Lengerich/
Westf., Germany

Filed Jan. 18, 1996, Ser. No. 588,359

Claims priority, application Germany, Jan. 25, 1995, 195 02
255.6Int. Cl.⁶ B65C 9/25; 9/32

U.S. Cl. 156—497

8 Claims



1. An apparatus for attaching leaves to laid flat workpieces, comprising:
a frame with a table plate including a transverse gap defined therein;
a conveyor device for continuously feeding laid flat workpieces over said table plate;
a suction cylinder and a counterpressure roller disposed below said suction cylinder, said suction cylinder and said counterpressure roller defining a roller gap which is aligned with said transverse gap and substantially aligned with a surface of the table plate;
a delivery cylinder for successively delivering the leaves to the suction cylinder;
a fishtail nozzle directed towards the roller gap and effective for discharging heated air into the roller gap in a controlled manner;
a displaceable heating unit for supplying the heated air to the fishtail nozzle; and
means for modifying a flow of said heated air from said heating unit through the fishtail nozzle so that the heated air is discharged in said controlled manner.

5,804,030

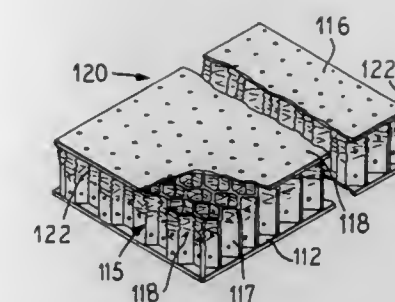
APPARATUS FOR MAKING PRESTRESSED
HONEYCOMBRobert E Jaegers, Lake Zurich, Ill.; Rueben C Carder, Michi-
gan City, Ind.; William B Woodward, Jr., Irving, Tex., and
Robert R Reed, Wallingford, Conn., assignors to Hexacomb
Corporation, Lake Forest, Ill.PCT No. PCT/US94/05950, § 371 Date Mar. 18, 1996, § 102(e)
Date Mar. 18, 1996, PCT Pub. No. WO94/27814, PCT Pub.
Date Dec. 8, 1994Continuation-in-part of Ser. No. 70,097, May 28, 1993, Pat.
No. 5,540,972. This PCT application May 26, 1994, Ser. No.
553,582Int. Cl.⁶ B32B 3/12

U.S. Cl. 156—510

21 Claims

1. An apparatus for cutting and forming a resilient prestressed paper honeycomb structure of a predetermined size and shape in one step, the apparatus comprising:

- a) means for cutting through a paper honeycomb structure comprising opposed hollow-cell faces defining planar surfaces along a predetermined line to form a predetermined shape;
b) at least one plate cooperatively associated with the cutting means, the plate being capable of compressing the paper honeycomb structure substantially continuously along at least



- one of its planar surfaces to form a resilient prestressed cushioned face portion; and
c) means for simultaneously driving the cutting means through the honeycomb structure while laterally compressively deforming the selected planar surface to a predetermined depth, such that a prestressed honeycomb structure having a substantially continuous resilient cushioned planar surface is obtained.

5,804,031

DEVICE FOR APPLYING TEAR-STRIPS

Mario Cavanna, Romagnano Sesia, Italy, assignor to Cavanna
S.p.A., Italy

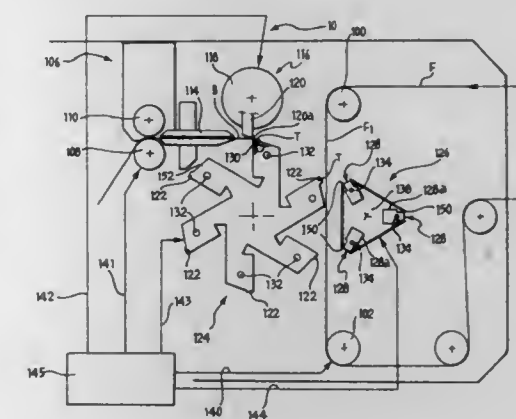
Filed Sep. 29, 1997, Ser. No. 939,609

Claims priority, application Italy, Oct. 3, 1996, T096A0806

Int. Cl.⁶ B32B 31/00

U.S. Cl. 156—518

24 Claims



1. A device for applying, to a ribbon of sheet wrapping material moving at a given speed, tear-strips oriented transverse the direction of advance of the ribbon, the device comprising:
guide means defining a path of advance of the ribbon through the device,
supply means for supplying, in use, a further sheet material for forming the tear-strips,
cutting means for cutting the further sheet material so as to form the tear-strips,
a movable transfer member acting between a first region facing the cutting means and a second region facing the path of advance defined by the guide means, the movable member acting on the tear-strips in use in order to pick them up from the cutting means in the first region and then to apply them to the ribbon of sheet wrapping material in the second region, the improvement wherein:
the cutting means comprise cutting elements which can cut the further sheet material forming the tear-strips as a result of a movement in the direction in which the further sheet material is supplied by the supply means.

the movable member comprises a plurality of elements for holding the tear-strips, the holding elements being movable continuously and being able to adopt, at least in the second region, a speed of advance substantially equal to the given speed of the ribbon of sheet wrapping material, and the elements for holding for the tear-strips are disposed on the movable member in a manner such that, when one of the holding elements is in one of the first and second regions, no other holding element is in the other of the first and second regions.

5,804,032

DEVICE FOR INTRODUCING A FOIL STRIP INTO THE PINCH BETWEEN TWO ROLLERS

Johannes Antonius Maria Reinders, De Braak 2, 8101 GJ, Raalte, Netherlands

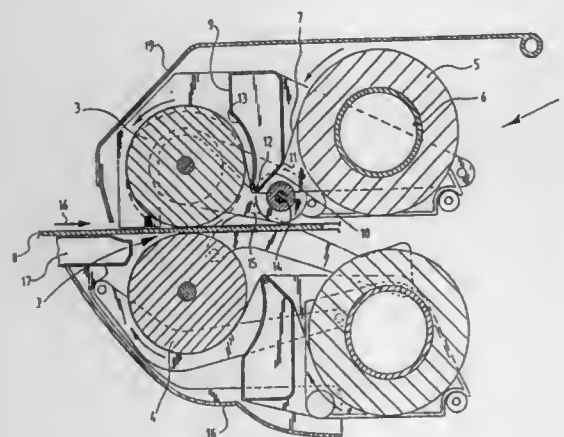
PCT No. PCT/NL95/00003, § 371 Date Sep. 10, 1996, § 102(e) Date Sep. 10, 1996, PCT Pub. No. WO95/18056, PCT Pub. Date Jul. 6, 1995

PCT Filed Jan. 2, 1995, Ser. No. 666,456

Claims priority, application Netherlands, Dec. 31, 1993, 9302291

Int. Cl.⁶ B65H 23/10; 37/04

U.S. Cl. 156—555



1. An apparatus comprising:

a pair of rollers with a pinch formed therebetween, wherein at least one of the rollers is heated;

at least one stock roll of foil, the foil having a glue layer on an outer surface of the foil;

braking means positioned between the at least one stock roll and at least one roller of the pair of rollers to exert a braking force on the foil, wherein the foil is in contact with the braking means via the glue layer,

wherein the braking means includes a stationary braking surface having a curved input edge, a flat middle part and a curved output edge, and

wherein the braking means further includes a curved surface complementary to and adjacent the at least one heated roller such that the curved surface absorbs heat from the at least one heated roller to heat the stationary braking surface thereby preheating the foil.

**5,804,033
MICROWAVE PLASMA PROCESSING METHOD AND APPARATUS**

Saburo Kanai, Hikari, Yoshino Kawasaki, Yamaguchi-Ken; Kazuaki Ichihashi, Kudamatsu; Seichi Watanabe, Kudamatsu; Makoto Nawata, Kudamatsu; Munio Furuse, Kudamatsu, and Tetsunori Kaji, Tokuyama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

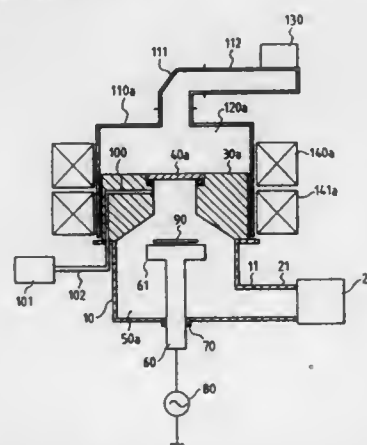
Continuation-in-part of Ser. No. 765,834, Sep. 26, 1991. This application Mar. 10, 1993, Ser. No. 29,241

Claims priority, application Japan, Sep. 26, 1990, 2-254162; Oct. 31, 1990, 2-292049; Dec. 18, 1990, 2-403054; Mar. 10, 1992, 4-051275

Int. Cl.⁶ H01L 21/302; 21/205; 21/31

U.S. Cl. 156—643.1

6 Claims



1. A plasma processing apparatus for generating a plasma in response to microwaves supplied to a plasma generating chamber, comprising:

a microwave generator for generating microwaves; a waveguide for guiding said microwaves to an end thereof; a cavity resonator connected to said end of said waveguide, for resonating said microwaves, supplied through said waveguide, at a first mode;

a microwave transmitting window; and the plasma generating chamber, for generating said plasma by using at least a part of said microwaves supplied from said cavity resonator, wherein said microwaves in the cavity resonator are transferred to the plasma generating chamber through only said microwave transmitting window, wherein the cavity resonator is connected to the plasma generating chamber by a connector, such that microwaves can pass from the cavity resonator to the plasma generating chamber via the connector, both the cavity resonator and the connector having a diameter, and wherein a ratio of the diameter of the connector to the diameter of the cavity resonator is 0.1 to 0.6.

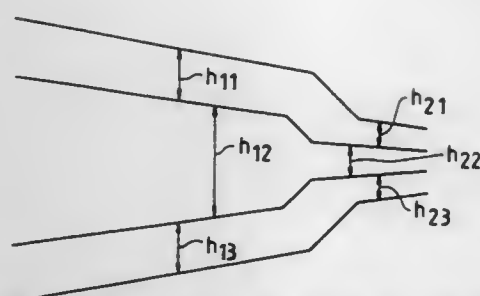
5,804,034

METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE

Toshiyuki Kaeriyama, Ibaraki-ken, Japan, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 21, 1994, Ser. No. 210,964

Int. Cl.⁶ H01L 21/306



that subdivides the nozzle into at least two machine-wide nozzle ducts, said fin having a downstream end area of decreasing thickness, the mean value of the clearance of at least one of said ducts diminishes continuously in the flow direction, the percentage decrease of said clearance in the downstream end area of the nozzle being at least twice as large as the percentage decrease of said clearance in the upstream inlet area of said nozzle, and the higher convergence downstream end area is followed by a short parallel to slightly converging section, whereby turbulences in the suspension and droplets of the suspension separating from the jet surface are essentially eliminated thereby resulting in a relatively low mixing of the individual layers.

5,804,038

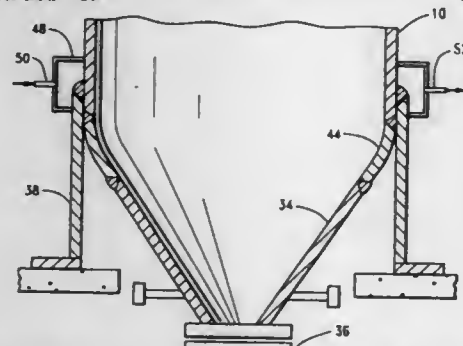
REDUCTION OF METAL STRESSES IN DELAYED COKING DRUMS

David K. Nelsen, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Sep. 8, 1997, Ser. No. 925,229
Int. Cl.⁶ C10B 39/00; 45/00; 29/00

U.S. Cl. 201-39

8 Claims



1. In a delayed coking process in which a pair of coke drums each supported by a skirt section welded to said drum are alternately filled and emptied, and in which the emptying portion of the cycle comprises the steps of:

- (a) steaming out the filled coke drum to remove residual volatile matter from the drum;
- (b) quenching the hot coke bed with water;
- (c) draining quench water from the coke drum;
- (d) opening the top of the coke drum and drilling a pilot hole through the coke bed therein;
- (e) drilling out the coke from the coke bed between the pilot hole and the coke drum wall by radially directed drill water and removing the coke through an opening in the bottom of the coke drum;
- (f) closing the top and bottom openings of the coke drum; and
- (g) prior to introducing feed into the emptied drum, preheating the empty drum by passing hot coke drum vapors through the drum;

the improvement wherein the metal stresses at the junction of the coke drum and skirt are reduced by applying cooling fluid to the exterior portion of said coke drum adjacent the junction of the drum shell and the skirt of said drum during the introduction of quench water into said drum, thereby preventing excessive thermal stresses.

5,804,039

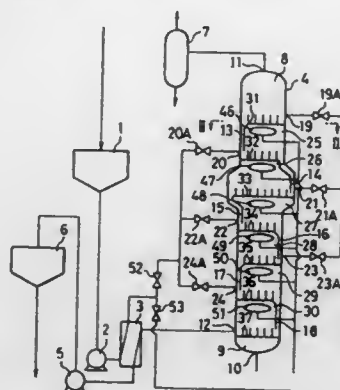
METHOD FOR REMOVING RESIDUAL MONOMERS

Toshinobu Kurazono, Minamata; Seichi Uchida, Chiba; Selgo Ishibashi, Ichihara, and Etsuro Matsuda, Minamata, all of Japan, assignors to Chisso Corporation, Osaka-fu, Japan

Filed Jul. 31, 1996, Ser. No. 690,143
Claims priority, application Japan, Aug. 4, 1995, 7-200038
Int. Cl.⁶ B01D 3/38

U.S. Cl. 203-49

5 Claims



1. A method for removing residual monomers from a polyvinyl chloride containing slurry comprising: using an apparatus consisting essentially of (i) a hollow cylindrical tower, the tower being generally vertically oriented and having a top region and a bottom region; (ii) a plurality of plates vertically spaced within the tower, each plate defining a plurality of perforations; (iii) a plurality of chambers, each chamber defined between adjacent plates and each respective plate constituting the floor of a respective chamber; (iv) a plurality of slurry introducing ports defined in at least two of the chambers; (v) plurality of flow-down sections, each flow-down section defined between two adjacent plates for allowing the slurry to sequentially flow downward from a first plate of the two adjacent plates, to a second plate disposed below a first plate; (vi) a steam introducing port defined within said bottom region of the tower, and (vii) a slurry discharging port defined in a chamber below a lowermost chamber defining at least one of the slurry introducing ports, wherein the plate in one of the chambers defining a slurry introducing port has a diameter of 1.05 to 5 times larger than the diameter of each of the plates disposed in chambers immediately above and below that chamber;

introducing a polyvinyl chloride containing slurry into said tower from one of said slurry introducing ports; delivering steam to said tower from said steam introducing port; allowing said slurry to contact said steam while said slurry flows downward through said plates, thereby separating residual monomers from said slurry and producing a first stream comprising separated residual monomers and a second stream from which said separated residual monomers have been removed;

discharging said first stream comprising said separated residual monomers from said top region of said tower; and discharging said second stream from which said residual monomers have been removed from said slurry discharging port; wherein the step of introducing said polyvinyl chloride containing slurry is performed in accordance with either (1) or (2), depending upon the porosity of polyvinyl chloride in said slurry:

- (1) introducing said polyvinyl chloride containing slurry from said slurry introducing port of said chamber having a plate with a diameter of 1.05 to 5 times larger than the diameter of each of the plates disposed in chambers immediately above and below that chamber when the porosity of the polyvinyl chloride in said slurry is not less than 0.300 ml/g; and
- (2) introducing said polyvinyl chloride containing slurry from said slurry introducing port of a chamber disposed above said chamber having a plate with a diameter of 1.05 to 5 times larger than the diameter of each of the plates disposed in chambers immediately above and below that chamber

when the porosity of the polyvinyl chloride in said slurry is less than 0.300 ml/g.

5,804,040

PURIFICATION PROCESS FOR SILANE COMPOUND

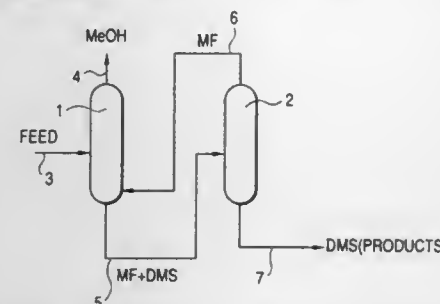
Yousuke Asai, Kobe, and Nobuo Ogawa, Akashi, both of Japan, assignors to Kaneka Corporation, Osaka, Japan

Filed Sep. 6, 1996, Ser. No. 709,534
Claims priority, application Japan, Sep. 8, 1995, 7-255824;
Sep. 8, 1995, 7-255825

Int. Cl.⁶ B01D 3/34; 3/36; C07F 7/20

U.S. Cl. 203-57

7 Claims



1. A method of purification of dimethoxymethylsilane from a starting mixture comprising methanol and dimethoxymethylsilane, said method comprising:

distilling the starting mixture in the presence of a sufficient amount of methyl formate to prevent formation of an azeotropic mixture between said dimethoxymethylsilane and said methanol,

in order to produce (A) a distillate fraction comprising methanol and methyl formate and (B) a balance fraction comprising dimethoxymethylsilane, methyl formate and methanol, whereby said balance fraction (B) is substantially reduced in methanol relative to the starting mixture.

6. A method of purification of dimethoxymethylsilane from a starting mixture comprising methanol and dimethoxymethylsilane, said method comprising:

distilling the starting mixture in the presence of methoxytrimethylsilane to form an azeotropic mixture with the methanol contained in said starting mixture,

in order to produce (A) a distillate fraction comprising methanol and methoxytrimethylsilane and (B) a balance fraction comprising dimethoxymethylsilane and methanol, whereby said balance fraction (B) is substantially reduced in methanol relative to the starting mixture.

5,804,041

METHOD AND APPARATUS FOR FORMING A MAGNETICALLY ORIENTED THIN FILM

Steven Hurwitz, Park Ridge, N.J., assignor to Sony Corporation, Tokyo, Japan, and Materials Research Corp., Orangeburg, N.Y.

Filed Jun. 10, 1996, Ser. No. 662,731

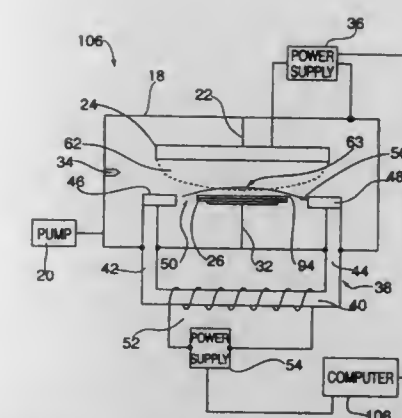
Int. Cl.⁶ C23C 14/34

U.S. Cl. 204-192.2

26 Claims

1. A method for forming a magnetically oriented thin film on a substrate, comprising the steps of:

- (a) sputtering a target to deposit a first incremental layer of target material on said substrate, said target being sputtered for a first sputtering time period and said first incremental layer having randomly oriented first domains;
- (b) generating a magnetic field for orienting said first domains in a desired direction, said magnetic field being generated for a first magnetic field time period which begins after said first sputtering time period ends;
- (c) sputtering said target to deposit a second incremental layer of target material upon said first incremental layer; said target



being sputtered for a second sputtering time period which begins after said first magnetic field time period ends, said second incremental layer having randomly oriented second domains;

- (d) generating said magnetic field for orienting said second domains in said desired direction, said magnetic field being generated for a second magnetic field time period which begins after said second sputtering time period ends; and
- (e) repeating steps (c) and (d) to form successive incremental layers each having associated domains which are oriented in said desired direction by said magnetic field to form a thin film on said substrate whose domains are oriented in said desired direction.

5,804,042

WAFER SUPPORT STRUCTURE FOR A WAFER BACKPLANE WITH A CURVED SURFACE

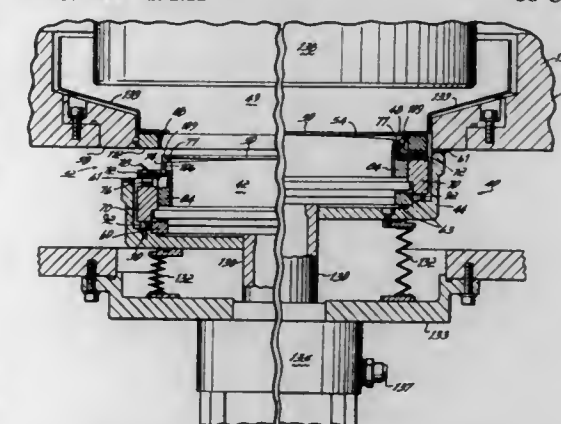
John Ferreira, Chester, N.Y.; Tatsuo Onozaki, Chiba, and Hiroichi Ishikawa, Kanagawa, both of Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 488,063

Int. Cl.⁶ C23C 14/34

U.S. Cl. 204-192.12

38 Claims



1. A wafer support assembly for supporting a wafer and subsequently holding said wafer during processing comprising:

- a wafer clamping structure;
- a movable backplane positioned for alternate movement toward and away from said clamping structure, the backplane having a process position against the clamping structure for clamping said wafer between an upper surface of the backplane and the clamping structure and an access position spaced away from the clamping structure to allow access to the wafer;
- a guide ring surrounding said backplane and vertically movable with the backplane;
- a floating ring surrounding said backplane and positioned generally concentrically with said guide ring and above the guide ring, the floating ring including a wafer support positioned above the upper surface of the backplane and configured to

support the wafer above and away from said upper surface when the backplane is in said access position; the floating ring movably mounted on the guide ring and vertically movable alternately toward and away from said guide ring to lower and raise the wafer support, respectively, the floating ring operable to lower the wafer support below said upper surface of the backplane, thereby transferring the wafer to the upper surface of the backplane, when the backplane and guide ring are moved into the processing position to clamp the wafer between said backplane and said clamping structure; whereby the wafer is stably supported by the wafer support away from the backplane during access of the wafer and is securely clamped between the backplane and the clamping structure away from the wafer support during processing of the wafer.

5,804,043

SURFACE TREATMENT DEVICE

Hirohiko Ikegaya, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

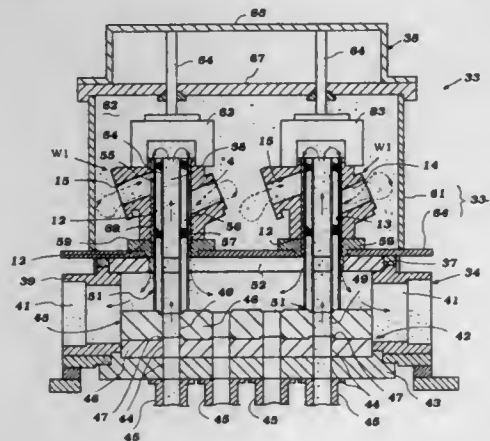
Filed Jan. 30, 1996, Ser. No. 593,494

Claims priority, application Japan, Feb. 2, 1995, 7-016087

Int. Cl.⁶ C25D 5/02; 17/00

U.S. Cl. 204—224 R

9 Claims



1. A surface treatment device for applying a surface treatment employing a fluid to the cylinder bores of a wide variety of cylinder blocks having cylinder bores opening through one face thereof and having their cylinder bore axes spaced at a pitch dimension, said device being comprised of a base having fluid inlet port means for delivering the treatment fluid and fluid outlet port means for discharging the treatment fluid, at least one of said fluid port means being comprised of a plurality of ports and flow control means for selectively controlling the flow therethrough, the ports of said plurality extending through a base plate portion of said base, a detachable adapter plate adapted to be affixed in abutting relationship with said base plate and having a plurality of flow openings therein extending from an electrode receiving surface thereon to selected of said ports for enabling a flow therethrough, said fluid openings being spaced from each other in said electrode receiving surface in a pitch corresponding to the pitch between the cylinder bores of the cylinder blocks to be surface treated, and a cylinder block mounting plate fixed in spaced relationship to said adapter plate and adapted to support the one face of a cylinder block with the cylinder bores thereof in alignment with the flow openings in said electrode receiving surfaces, said mounting plate being formed with a number of openings equal to the number of cylinder bores formed in the supported cylinder block, said mounting plate openings being sized and configured to pass electrodes fixed to said adapter plate and to define a plurality of flow paths between the outer surface of the respective electrode and the adjacent cylinder bore for communication with the other of said base fluid port means.

5,804,044
ELECTROLYSIS DEVICE AND METHOD USING A
POROUS ELECTRODE

Claude Richard Bertorelli, Givry, and Germain Marcel Lacoste, Tournefeuille, both of France, assignors to Eastman Kodak Company, Rochester, N.Y.

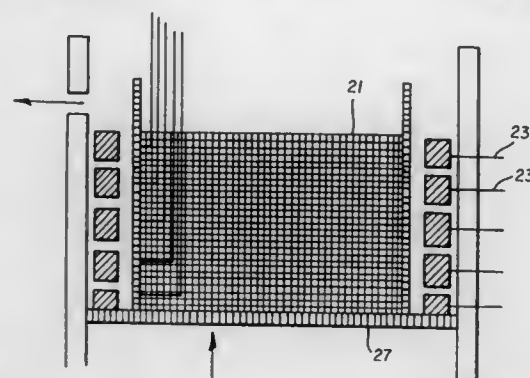
Continuation of Ser. No. 321,077, Oct. 11, 1994, abandoned, which is a continuation of Ser. No. 949,532, Nov. 6, 1992, abandoned. This application Aug. 31, 1995, Ser. No. 522,888

Claims priority, application France, May 7, 1990, 90 05962

Int. Cl.⁶ C02F 1/461

U.S. Cl. 204—253

10 Claims



1. Electrolytic cell for percolating a solution containing metal ions in order to perform an electrochemical reaction to recover metal, comprising electrodes wherein said electrodes consist of a single electrode consisting of a bed of electro-conductive particles having a first polarity; and, a plurality of first counter-electrodes, having a second polarity, located at the periphery of said bed and at least one second counter-electrode located substantially at the center of the bed of particles so that the resulting electric field between the electrode and the first and second counter-electrodes is radial and substantially perpendicular to the solution flow in the bed of particles; and, wherein said cell further comprises a porous support beneath said bed, wherein the solution is introduced in order to fluidize said bed during the electrochemical reaction and means for subjecting said bed of particles to pulsation.

5,804,045

CATHODE FOR REDUCTION OF CARBON DIOXIDE
AND METHOD FOR MANUFACTURING SUCH A
CATHODE

Marc Orillon, La Crau; Sylvie Chardon-Noblat, Echirrolles; Marie Noëlle Colomb-Dunand Sauthier, La Tronche; Alain Deronzier, Meylan; Raymond Ziesel, Souffelweyheim, and Daniela Zsoldos, Noyarey, all of France, assignors to Etat Francais as represented by Delegation Generale Pour L'Armement, Armees, France

Filed Apr. 18, 1997, Ser. No. 839,311

Claims priority, application France, Apr. 18, 1996, 96.04840

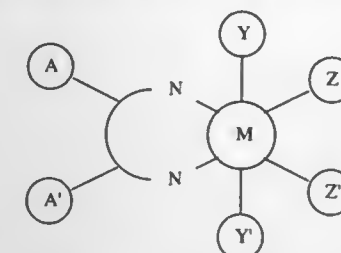
Int. Cl.⁶ C25B 11/00

U.S. Cl. 204—280

12 Claims

1. A cathode based on a transition metal, M, for reduction of carbon dioxide into formate in a hydro-organic or purely aqueous medium comprising: a transition metal molecular complex further comprising: a bidentate ligand functionalized by identical or different electroattractive groups A and A', said ligand comprising a basic molecular group allowing the reduction redox potential of the complex to be reduced in a range of -1.40 to +0.80 V relative to an Ag/Ag⁺ reference electrode, at least one of the groups A or A' being electropolymerizable; two identical or different labile groups Y and Y' with trans stereochemistry which are selected from the group consisting of a halide anion selected from Cl⁻, Br⁻, and I⁻, an acetate

anion (CH₃COO⁻), a neutral acetonitrile, a dimethylformamide molecule and a dimethylsulfoxide molecule; two identical or different stabilizing ligands Z and Z' with cis stereochemistry, representing a donor and attractor group of the carbonyl (—CO), or phosphine (PR₃), wherein R=alkyl, aryl, or pyridine; wherein the complex has the following general Formula (I):



and wherein the complex is modified by a polymer film obtained electrochemically by formation of metal-metal bonds.

5,804,046

THIN-FILM FORMING APPARATUS

Susumu Sawada, Tokyo; Junichi Anan, Kitaibaraki; Yoshitaka Kakutani, Kitaibaraki; Hironori Wada, Kitaibaraki; Fumihiko Yanagawa, and Roderick Craig Mosely, both of Tokyo, all of Japan, assignors to Japan Energy Corporation, Tokyo, Japan

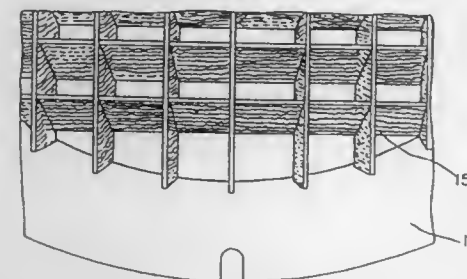
Filed Jul. 1, 1994, Ser. No. 269,971

Claims priority, application Japan, Jul. 6, 1993, 5-191612

Int. Cl.⁶ C23C 14/04

U.S. Cl. 204—298.11

4 Claims



1. A collimator for a thin film forming apparatus comprising a plurality of collimator cells for directional film forming, the collimator being constructed solely of slitted particle getter metal sheets assembled in a lattice pattern by engaging their slits with each other to form the collimator cells, each of the particle getter metal sheets being an electrolytic copper sheet with a knobbed rough surface matte side further electrolytically treated to have fine particles of copper or copper oxide deposited on the knobbed rough surface, the surface of the matte side adapted to capture and hold particulate film matter deposited and formed thereon, and thereby inhibit the captured and held particulate film matter from peeling off, without impairing the function of the collimator, each of the electrolytic copper sheets having a thickness sufficient to define a self-supporting structure, wherein the thickness is 2 to 3 millimeters.

5,804,047

ENZYME-IMMOBILIZED ELECTRODE, COMPOSITION
FOR PREPARATION OF THE SAME AND
ELECTRICALLY CONDUCTIVE ENZYME

Isao Karube, 1-3-16, Higashi-Arima, Miyamae-Ku, Kawasaki-shi, Kanagawa-ken, Japan; Susan Anne Clark, Leatherhead, United Kingdom, and Ryobei Nagata, Shinjuku-Ku, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo-to, and Isao Karube, Kawasaki, both of Japan

Continuation of Ser. No. 37,102, Mar. 26, 1993, abandoned.

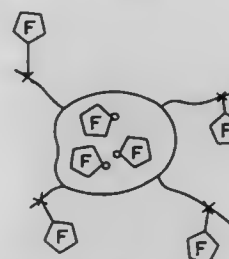
This application Dec. 16, 1994, Ser. No. 357,987

Claims priority, application Japan, Mar. 31, 1992, 4-108706;

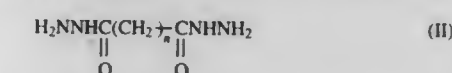
Sep. 10, 1992, 4-269552

U.S. Cl. 204—403

7 Claims



1. A process for producing an electrically conductive enzyme comprising an enzyme and a mediator attached to a side chain and the body of the enzyme through a covalent bond wherein said enzyme is glucose oxidase and said mediator is a ferrocene derivative attached to the side chain of the enzyme through a spacer, comprising the steps of oxidizing a glucose oxidase with an oxidizing agent to form an aldehyde group on an oligosaccharide of the glucose oxidase; reacting said glucose oxidase with a dihydrazide represented by the following formula (II):



wherein n is an integer of 1 to 7; and reacting the reaction product with a ferrocenecarboxylic acid.

5,804,048

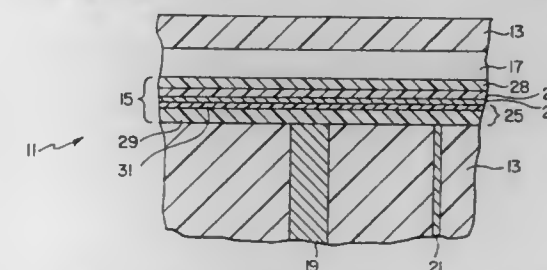
ELECTRODE ASSEMBLY FOR ASSAYING GLUCOSE
David K. Wong, Del Mar, and Joseph Y. Lucisano, San Diego, both of Calif., assignors to Via Medical Corporation, San Diego, Calif.

Filed Aug. 15, 1996, Ser. No. 698,045

Int. Cl.⁶ G01N 27/26; C12Q 1/00

U.S. Cl. 204—403

17 Claims



12. An electrode assembly for use in assaying glucose in a solution, the electrode assembly comprising: a sensor electrode; and a membrane assembly overlaying the sensor electrode, the membrane assembly including an outer, diffusion-barrier layer positioned to contact the solution, the outer layer having a uniform thickness and a distribution of pores of a specific density and a specific size,

an inner, interference-barrier layer contacting a face of the sensor electrode and including a relatively thick, porous backing film and a relatively thin, porous overlying film that overlays the backing film, the two films together having a uniform thickness, and
an immobilized glucose oxidase layer interposed between the outer and inner layers,
wherein the outer layer is configured to allow glucose and oxygen to diffuse through it to reach the glucose oxidase layer, where the glucose and oxygen react to form reaction products that include hydrogen peroxide,
and wherein the inner layer is configured to have a permeability sufficient to pass hydrogen peroxide from the glucose oxidase layer to the face of the sensor electrode.

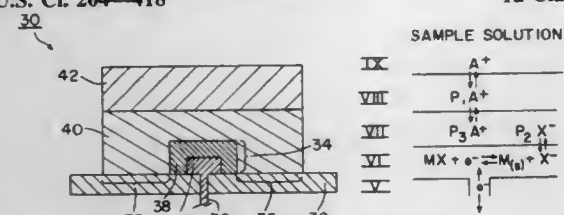
5,804,049

MATERIAL FOR ESTABLISHING SOLID STATE CONTACT FOR ION SELECTIVE ELECTRODES
Andy D. C. Chan, Franklin, Mass., assignor to Chiron Diagnostics Corporation, East Walpole, Mass.

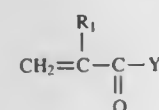
Filed Sep. 15, 1993, Ser. No. 121,822
Int. Cl.⁶ G01N 27/333

U.S. Cl. 204—418

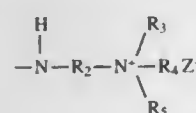
12 Claims



I. A ion selective sensor comprising:
an electrically conductive material providing a reference redox couple, said electrically conductive material including mobile ions having a first charge;
and acrylic polymeric material having immobilized charge sites, said immobilized charge sites having a second charge opposite said first charge, said acrylic polymeric material swelling to a weight of not more than 5 times its dry weight when contacted with water, said acrylic polymeric material being provided on said electrically conductive material;
an ion selective material covering said acrylic polymeric material, wherein said electrically conductive material and said ion selective material are not in direct physical contact; and
said acrylic polymeric material including less than 1.63×10^{21} immobilized charge sites per gram,
wherein said acrylic polymeric material comprises the copolymerization product of at least one charged monomer and at least one member selected from the group consisting of neutral monomers and polymers,
wherein said acrylic polymeric material comprises the copolymerization product of at least one charged acrylic monomer and at least one neutral acrylic monomer,
wherein said at least one charged acrylic monomer has the formula;



where R_1 is selected from the group consisting of hydrogen, hydrocarbons groups, and alcohol groups, and Y has the formula;



where R_2 is selected from the group consisting of straight saturated hydrocarbon chains, branched saturated hydrocarbon chains, straight unsaturated hydrocarbon chains, branched unsaturated hydrocarbon chains, straight saturated hydrocarbon chains having hydroxy functionalities, branched saturated hydrocarbon chains having hydroxy functionalities, straight unsaturated hydrocarbon chains having hydroxy functionalities, and branched unsaturated hydrocarbons having hydroxy functionalities, R_3 , R_4 , and R_5 are each selected from the group consisting of hydrogen, hydrocarbon groups, and alcohol groups, and can be the same or different, and Z^- is selected from the group consisting of halides, acetate, and methylsulfate ion,

wherein R_1 is selected from the group consisting of H and CH_3 , R_2 is selected from the group consisting of straight and branched saturated hydrocarbon chains,

R_3 , R_4 , and R_5 are each selected from the group consisting of H and CH_3 and can be the same or different, and

Z is a halide, wherein R_3 , R_4 , and R_5 each comprise CH_3 , and

Z is a chloride,

wherein said at least one charged acrylic monomer comprises methacrylamidopropyltrimethylammoniumchloride.

5,804,050

OXYGEN SENSOR WITH A HEATER
Nobuhiro Hayakawa, Syogo Kawajiri, Yoshiro Noda, Hiroshi Miyata, Satoshi Ishikawa, and Shoji Akatsuka, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

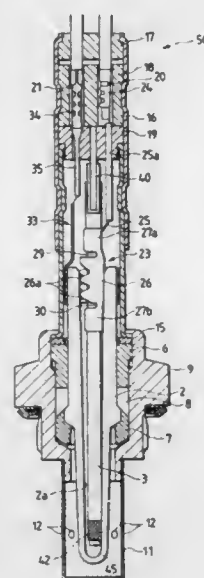
Filed Jun. 4, 1997, Ser. No. 869,414

Claims priority, application Japan, Jun. 5, 1996, 8-166717; Apr. 28, 1997, 9-124987

Int. Cl.⁶ G01N 27/26; 7/00

U.S. Cl. 204—424

24 Claims



1. An oxygen sensor comprising:
an oxygen sensing element of a hollowed shaft-like member which is closed at one end and has electrode layers on the inner and outer sides thereof; and
a shaft-like heating member, disposed within said oxygen sensing element, for heating said oxygen sensing element;
wherein a center line of said heating member is eccentric to a center line of a hollow portion of said oxygen sensing element in the vicinity of the heating portion of said heating member.

5,804,051

ELECTRODEPOSITABLE COATING COMPOSITIONS CONTAINING HYDROXAMIC ACID AND DERIVATIVES THEREOF, AND THEIR USE IN A METHOD OF ELECTRODEPOSITION

Donald W. Boyd, Cheswick; Robert R. Zwack, Allison Park; Raphael O. Kollah, Pittsburgh, and Gregory J. McCollum, Gibsonia, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

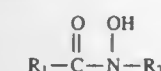
Filed Aug. 29, 1996, Ser. No. 705,480

Int. Cl.⁶ C25D 13/06; 13/10

U.S. Cl. 204—501

32 Claims

18. A method of electrocoating an electroconductive substrate which serves as a cathode in an electrical circuit comprising said cathode and an anode immersed in an aqueous electrodepositable composition containing a cationic water dispersible resin, said method comprising passing an electric current between the anode and the cathode to cause electrodepositable composition to deposit on the cathode as a substantially continuous film, and heating the electrodeposited film at an elevated temperature to cure the film, wherein the electrodepositable composition comprises (a) active hydrogen-containing, cationic salt group-containing resin electrodepositable on a cathode; (b) at least one at least partially capped polyisocyanate curing agent; (c) at least one metal-containing catalyst select from the group consisting of lead-containing compounds; and (d) at least one material having the following general formula:



wherein R_1 is alkyl or substituted alkyl having 1 to 18 carbon atoms or aryl or substituted aryl; and R_2 is hydrogen, alkyl or substituted alkyl having 1 to 18 carbon atoms or aryl or substitute aryl.

5,804,052

METHOD AND DEVICE FOR CONTINUOUS UNIFORM ELECTROLYTIC METALLIZING OR ETCHING

Reinhard Schneider, Cadolzburg, Germany, assignor to Ato- tech Deutschland GmbH, Berlin, Germany

PCT No. PCT/DE95/00706, § 371 Date Nov. 26, 1996, § 102(e)

Date Nov. 26, 1996, PCT Pub. No. WO95/33086, PCT Pub.

Date Dec. 7, 1995

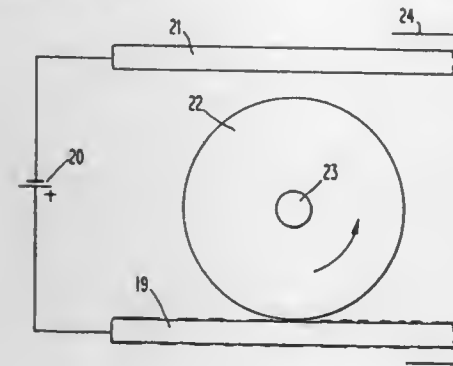
PCT Filed May 26, 1995, Ser. No. 750,314

Claims priority, application Germany, May 26, 1994, 44 18 278.3

Int. Cl.⁶ C25D 5/02; 5/22; C25F 7/00

U.S. Cl. 205—96

10 Claims



1. Method of uniform electrolytic metallizing, etching or demetallizing of a metal surface, comprising
bringing the metal surface and at least one electrode lying opposite it into contact with an electrolyte;
applying an electrical voltage between the metal surface and the electrode;

positioning between the electrode and the metal surface at least one electrically unconnected insoluble intermediate member comprising a roller with an electrically conductive material on at least a part of its outer surface, and rolling each intermediate member along the metal surface, each intermediate member acting as a bipolar electrode;

wherein at least one electrically insulating member is interposed between each intermediate member and the metal surface to form a gap between each intermediate member and the metal surface.

5,804,053

CONTINUOUSLY ELECTROPLATED FOAM OF IMPROVED WEIGHT DISTRIBUTION

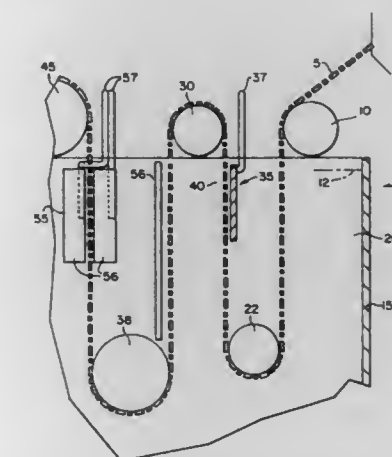
Anthony J. Vaccaro, Sugarland, Tex.; Janet S. Gregg; Daniel W. Gibbons, both of Mentor, Ohio; James R. Brannan, Perry, Ohio; Gerald R. Potho, Mentor, Ohio, and Jean M. Hinden, Chambes, Switzerland, assignors to ELTECH Systems Corporation, Chardon, Ohio

Filed Oct. 25, 1996, Ser. No. 738,080

Int. Cl.⁶ C25D 7/06; 5/54; 17/00

U.S. Cl. 205—138

37 Claims



1. In a process for continuously electroplating a strip of reticulated foam and providing electroplated foam of improved weight distribution, in which process multiple electroplating zones are provided and each zone has an electroplating bath, a cathode and an anode and with the reticulated foam being introduced into the electroplating bath and guided in a path of travel past the anode and cathode of each electroplating zone, the improvement comprising:

- providing a cathode roll outside of said electroplating bath as a cathode;
- positioning an insoluble anode as a sole anode in a first electroplating zone for said electroplating process;
- positioning at least one soluble anode within one, but less than all, of the electroplating zones of said electroplating process;
- separating the electroplating bath of said first electroplating zone from the electroplating bath of subsequent electroplating zones;
- guiding said reticulated foam in said electroplating bath in a path of travel past both said insoluble anode and said soluble anode, and past said cathode roll positioned outside of said electroplating bath; and
- removing electroplated conductive reticulated foam of improved weight distribution from said electroplating bath.

5,804,054

**PREPARATION OF COPPER INDIUM GALLIUM
DISELENIDE FILMS FOR SOLAR CELLS**

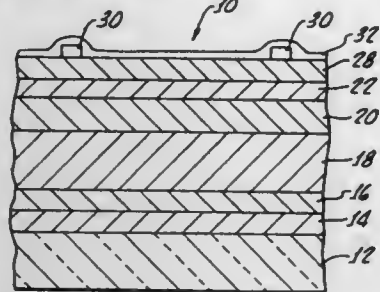
Raghu N. Bhattacharya, Littleton; Miguel A. Contreras, Golden; James Keane, Lakewood; Andrew L. Tennant; John R. Tuttle, both of Denver; Kannan Ramanathan, Lakewood, and Rommel Noufi, Golden, all of Colo., assignors to Davis, Joseph & Negley, Austin, Tex.

Division of Ser. No. 571,150, Dec. 12, 1995, Pat. No. 5,730,852. This application Nov. 26, 1997, Ser. No. 979,358

Int. Cl.⁶ H01L 31/18; C25D 3/56

U.S. Cl. 205—239

8 Claims



1. A process for electrodepositing a solar cell precursor thin film, the process comprising the steps of:
electrodepositing a thin film containing copper, indium, gallium, and selenium onto a substrate, the electrodeposition proceeding in an electrodeposition solution comprising copper, indium, gallium, and selenium ions.

5,804,055

**ELECTRODE, ELECTROCHEMICAL CELL AND
ELECTROCHEMICAL PROCESSES**

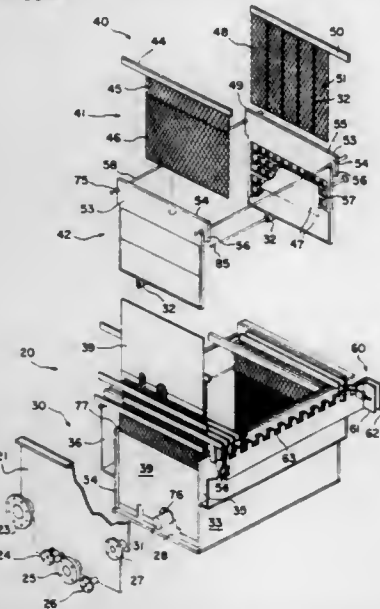
Richard J. Coin, Mentor; Lynne M. Ernes, Willoughby; Andy W. Getsy, Eastlake; Edward M. Halko, Mentor; Kenneth L. Hardee, Middlefield, and Marilyn J. Niksa, Chardon, all of Ohio, assignors to Eltech Systems Corporation, Chardon, Ohio

Division of Ser. No. 434,871, May 4, 1995. This application Feb. 19, 1997, Ser. No. 808,978

Int. Cl.⁶ C25B 9/00; H103; H110; H1308

U.S. Cl. 205—334

60 Claims



47. An electrolytic process providing intimate electrolyte contact with an electrode in an electrolytic cell, which process comprises:
(a) supplying electrolyte to said cell at the bottom of the cell;
and

(b) establishing in at least one electrode chamber of said cell a porous, flow-through, fiber-free electrode comprising a rigid core member and autogenously springy exterior wrapping member, which rigid core member comprises a valve metal reinforcement, which core member is in integral engagement with an exterior wrapping member of a multitude of expanded valve metal layers from at least one continuous strip of valve metal mesh wound tightly around said core member, which mesh is a thin, highly flexible mesh of extremely thin strands and small voids, the layers being tightly engaged face-to-face contact with one another.

5,804,056

**PROCESS AND APPARATUS FOR PRODUCING STRIP
PRODUCTS FROM STAINLESS STEEL**

Franz Gerhard Pempera, Neuwied; Michael Haentjes, Essen; Andreas Jaenichen, Düsseldorf; Rainer Kilb, Düsseldorf; Horst Edel, Düsseldorf, and Jürgen Flügge, Dulsburg, all of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany

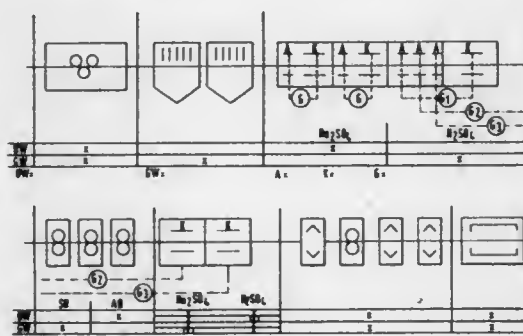
Filed Sep. 13, 1996, Ser. No. 715,394

Claims priority, application Germany, Sep. 15, 1995, 195 35 844.9; Sep. 26, 1995, 195 37 501.7

Int. Cl.⁶ C25F 1/06; 7/00

U.S. Cl. 205—661

17 Claims



1. A process for continuous treatment of a non-annealed hot strip of stainless steel in a descaling unit, comprising the following steps:

- breaking a scale by stretching, bending and straightening of the non-annealed hot strip;
- electrolytic pickling in an electrolyte with multiple alternating anodically-connected and cathodically-connected strip polarization;
- pickling in an electrolyte with multiple anodically-connected electrodes arranged directly behind one another and corresponding cathodic strip polarization, followed by anodic strip polarization produced by means of a cathodically-connected electrode;
- abrasively treating a surface of the hot strip;
- renewed electrolytic pickling in an electrolyte with multiple exclusively cathodically-connected electrodes and anodic strip polarization; and
- post-treating the surface of the hot strip.

5,804,057

**METHOD OF REMOVING METAL SALTS FROM
SOLUTION BY ELECTROLYSIS AN ELECTRODE
CLOSELY ASSOCIATED WITH AN ION EXCHANGE
RESIN**

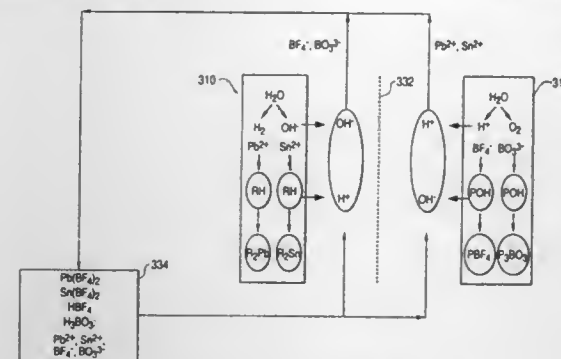
Chengdong Zhou, Centerville; E. Jennings Taylor, Troy; Robert P. Renz, Centerville; Eric C. Stortz, Kettering, and Jenny J. Sun, Tipp City, all of Ohio, assignors to Faraday Technology, Inc., Dayton, Ohio

Filed Jun. 7, 1996, Ser. No. 659,926

Int. Cl.⁶ C02F 1/469

U.S. Cl. 205—702

14 Claims



1. A method for removing a metal salt from an electrolyte containing the salt comprising

- introducing a solution of a metal salt in an electrolyte wherein said metal salt is dissociated into a cation species and an anion species into an electrolytic cell having a first compartment and a second compartment, said compartments being separated by a selectively permeable membrane favoring the passage of hydrogen ions over the passage of said cation species and said anion species, said cell having a first electrode in said first compartment and a second electrode in said second compartment, said second electrode having closely associated therewith an anion exchange resin capable of sequestering said anion species;
- retaining said metal salt in said electrolytic cell and passing an electric current through said cell from said second electrode to said first electrode for a period of time sufficient to sequester a fraction of said cation species at said first electrode and a fraction of said anion species in said ion exchange resin associated with said second electrode, whereby an electrolyte depleted of said metal salt is generated;
- removing said depleted electrolyte from said electrolytic cell.

5,804,058

**CATALYTIC DEWAXING PROCESSES USING ALUMINA
FREE COATED CATALYST**

Pierre Grandvallet; Laurent Georges Huve, both of Grand Couronne, France, and Theodor Ludovic Michael Maesen, Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 13, 1996, Ser. No. 662,596

Claims priority, application European Pat. Off., Jun. 13, 1995, 95401379

Int. Cl.⁶ C10G 47/04

U.S. Cl. 208—171

14 Claims

1. In a process for the catalytic dewaxing of a hydrocarbon oil feed consisting essentially of a gas oil and a lubricating base oil, wherein both have waxy molecules therein, which process comprises the steps of:

- contacting the feed under catalytic dewaxing conditions with a catalyst composition comprising a molecular sieve containing crystallites covalently bound alumina moieties in its framework and having pores with a diameter in the range of from 0.35 to 0.80 nm, wherein said crystallites have a surface, and
- recovering a product having a reduced pour point,

wherein the improvement of the process consists of modifying said molecular sieve to reduce the mole percentage of alumina by coating said surface of said crystallites with a refractory inorganic oxide which is essentially free of alumina.

5,804,059

**PROCESS OF PREPARING A C₆ TO C₈ HYDROCARBON
WITH A STEAMED, ACID-LEACHED, MOLYBDENUM
CONTAINING MORDENITE CATALYST**

An-hsiang Wu, Bartlesville, and Charles A. Drake, Nowata, both of Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 30, 1997, Ser. No. 797,433

Int. Cl.⁶ C10G 35/095

U.S. Cl. 208—135

10 Claims

1. A process comprising contacting a fluid, which comprises a hydrocarbon, with a catalyst composition under a condition sufficient to effect the conversion of said hydrocarbon to a C₆ to C₈ aromatic hydrocarbon wherein said catalyst composition is prepared by the steps comprising:

- contacting a mordenite zeolite with steam, under a condition sufficient to effect the production of a mordenite zeolite having a reduced coking rate in a transalkylation process, whereby a steamed mordenite zeolite is formed,
 - contacting said steamed mordenite zeolite with an acid in an amount and under a condition effective to reduce the aluminum content of said steamed mordenite zeolite to produce an acid-leached mordenite zeolite, and
 - contacting said acid-leached mordenite zeolite with a molybdenum compound under a condition effective to incorporate said molybdenum compound or the molybdenum into said acid-leached mordenite zeolite to produce a molybdenum-promoted mordenite zeolite.
2. A process comprising contacting a fluid, which comprises a hydrocarbon, with a catalyst composition under a condition sufficient to effect the conversion of said hydrocarbon to a C₆ to C₈ aromatic hydrocarbon wherein said catalyst composition is prepared by the steps comprising:
- contacting a mordenite zeolite with an acid in an amount and under a condition effective to reduce the aluminum content of said mordenite zeolite to produce an acid-leached mordenite zeolite,
 - contacting said acid-leached mordenite zeolite with steam, under a condition sufficient to effect the production of a mordenite zeolite having a reduced coking rate in a transalkylation process, whereby a steamed mordenite zeolite is formed, and
 - contacting said steamed mordenite zeolite with a molybdenum compound under a condition effective to incorporate said molybdenum compound or the molybdenum into said steamed mordenite zeolite to produce a molybdenum-promoted mordenite zeolite.

- b) expanding said stream of vaporized solvent in a solvent vapor turbine for producing power and a stream of expanded vaporized solvent; and
- c) cooling and condensing said stream of expanded vaporized solvent.

6. Apparatus for producing power in an evaporative solvent recovery section of a solvent deasphalting unit that produces a plurality of different liquid product streams, said apparatus comprising:

- a) a flash drum for flashing at least one of said liquid product streams for producing a stream of vaporized solvent, and a reduced solvent liquid product stream;
- b) a solvent vapor turbine for expanding said stream of vaporized solvent and producing power and a stream of expanded vaporized solvent; and
- c) cooler apparatus for cooling and condensing said stream of expanded vaporized solvent.

5,804,061

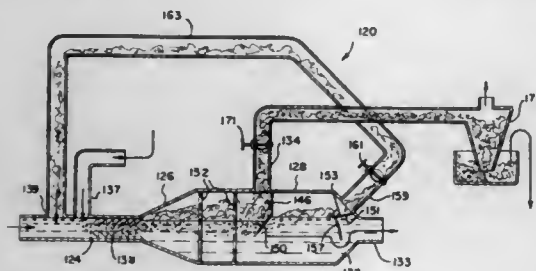
MULTIFLOW PRESSURIZED DEINKING APPARATUS
Richard P. Hebert, Cherry Valley, and David B. Grimes, Greenfield, both of Mass., assignors to Beloit Technologies, Inc., Wilmington, Del.

Division of Ser. No. 834,606, Apr. 14, 1997. This application Dec. 18, 1997, Ser. No. 993,474

Int. Cl.⁶ B03D 1/24; 1/14

U.S. Cl. 209—170

16 Claims



1. A foam floatation module for separating ink particles by floatation from a stock fed therethrough, the module comprising: a sealed horizontally disposed, substantially cylindrical container, the container having a generally conical shell forming a stock inlet at one end and a generally conical shell forming a stock outlet at the other end;

a quantity of papermaking stock, mixed with air and containing ink particles flowing through the container;

the container having an uppermost portion and a foam outlet connected to the uppermost portion;

a first baffle extending downward from the uppermost portion of the container positioned near the foam outlet and located between the foam outlet and the stock outlet and having a portion which extends towards the stock inlet;

an outlet baffle extending across and spaced from the stock outlet and extended to the conical shell of the stock outlet; and

the container further including a foam recirculation outlet located above the outlet baffle and said foam recirculation outlet communicating with a recirculation conduit extending from above the outlet baffle to the stock inlet.

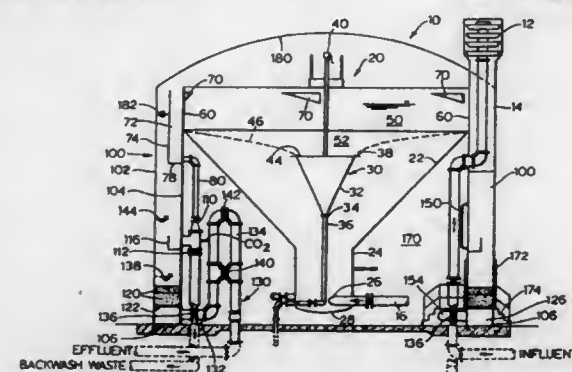
5,804,062 WATER TREATMENT PLANT WITH CLARIFIER AND PERIPHERAL FILTER

David K. Wyness, 1624 Willemore, Springfield, Ill. 62704
Continuation of Ser. No. 318,143, Oct. 5, 1994, abandoned.
This application Oct. 28, 1997, Ser. No. 959,716

Int. Cl.⁶ B01D 21/02

U.S. Cl. 210—86

27 Claims



1. Apparatus for treating a liquid containing suspended solids comprising:

a) a walled clarifying vessel having a conical portion having a lower portion with a lower diameter and an upper portion with an upper diameter larger than the lower diameter;

means for feeding a liquid containing suspended solids to the clarifying vessel so that the liquid flows in a helical path in the upper portion of the vessel;

withdrawing means for receiving liquid from a location adjacent the surface of the liquid in the clarifying vessel;

a filter cell positioned at the periphery of the clarifying vessel, the filter cell having means for receiving clarified liquid from the withdrawing means and at least partially defining a piping room beneath the clarifying vessel;

a filter positioned inside of the filter cell having means for filtering clarified liquid; and

a filter effluent control means for receiving filtered liquid from the filter cell and for maintaining the minimum level of liquid in the filter cell at a predetermined elevation.

5,804,063

COOLING SYSTEM CHANGE-OVER APPARATUS AND PROCESS

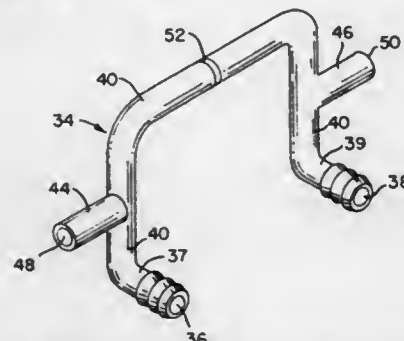
Richard F. Creeron, Valley Stream, N.Y.; Aleksei V. Gershun, Danbury, Conn.; Stephen M. Woodward, Lakeside, Conn., and Peter M. Woylesjes, Woodbury, Conn., assignors to Prestone Products Corporation, Danbury, Conn.

Continuation of Ser. No. 431,494, Feb. 13, 1995, Pat. No. 5,571,420, which is a continuation of Ser. No. 751,411, Aug. 28, 1991, abandoned. This application Aug. 12, 1996, Ser. No. 695,638

Int. Cl.⁶ F16K 11/00

U.S. Cl. 210—167

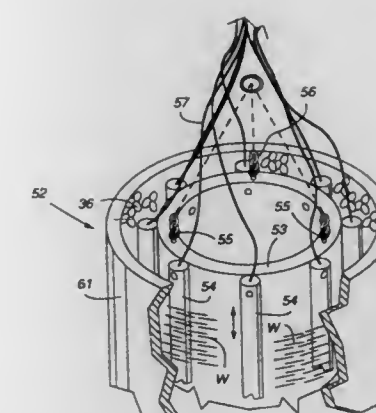
8 Claims



1. A liquid change-over apparatus for replacing a first liquid with a second liquid in a cooling system of a vehicle having an engine

with an upper engine hose section attached thereto, and a radiator with an upper radiator hose section attached thereto, said apparatus comprising:

- a) a tubular body having a first end configured to be in fluid communication with the upper radiator hose section and a second end configured to be in fluid communication with the upper engine hose section;
- b) an ingress tube depending from said tubular body and proximate said first end to provide a passageway through which the second liquid is admitted to the cooling system;
- c) an egress tube depending from said tubular body and proximate said second end to provide a passageway through which the first liquid is evacuated from the cooling system; and
- d) a fluid regulator disposed in said tubular body between said ingress tube and said egress tube, said regulator adjustable between a closed position and an open position to allow the regulated passage of fluid through said tubular body.



5,804,064

SWIMMING POOL SKIMMER HAVING A DEFLECTOR MEMBER

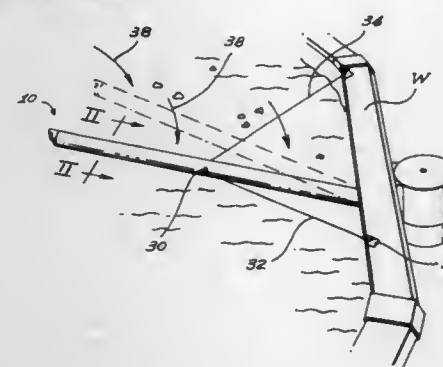
Jacques Desrochers, 574, Alexandre, Laval, Quebec, Canada, H7G 3M5

Filed Aug. 21, 1997, Ser. No. 915,768

Int. Cl.⁶ B01D 35/05; E04H 11/16; E02B 15/04

U.S. Cl. 210—169

13 Claims



1. In a pool having a skimmer inlet and a recirculating means to set up a peripheral flow of pool water, said improvement comprising a deflector mounted adjacent said skimmer inlet, said deflector comprising:

- a) an elongated member having first and second ends;
- b) a substantially planar deflector blade extending outwardly from said elongated member along an axial length thereof;
- c) attachment means for securing said elongated member to said pool such that said first end lies adjacent said skimmer inlet and seats thereon, said elongated member extending outwardly into the pool;
- d) said attachment means maintaining said elongated member and said deflector blade in a position such that said deflector blade extends downwardly from said elongated member into said pool water, a distal end of said deflector blade extending forwardly in a direction of said peripheral flow of pool water, said deflector blade lying in a plane forming an angle of between 32 degrees and 42 degrees with a horizontal plane.

5,804,065

CONTROL APPARATUS FOR MARINE ANIMALS
Arvin L. Kolz, Lakewood, Colo., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Nov. 17, 1995, Ser. No. 560,385

Int. Cl.⁶ C02F 1/48

U.S. Cl. 210—170

16 Claims

1. Control apparatus for marine animals comprising:

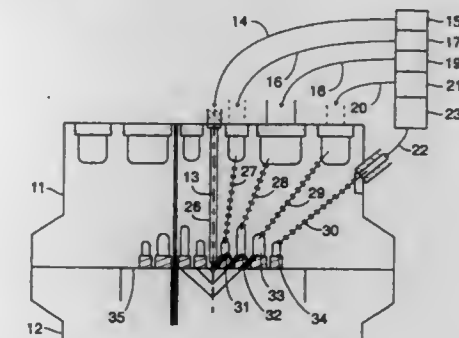
5,804,066
INJECTOR FOR SCWO REACTOR
H. Harry Mueggenburg, Carmichael; Donald C. Rousar, Fair Oaks, and Marvin F. Young, El Dorado Hills, all of Calif., assignors to Aerojet-General Corporation, Rancho Cordova, Calif.

Filed Feb. 8, 1996, Ser. No. 598,938

Int. Cl.⁶ C02F 1/72

U.S. Cl. 210—177

19 Claims



1. An injector for a supercritical water oxidation reactor or fluid oxidizable matter, said injector comprising:
a fuel port and a supply of fuel thereto;

1. A rotating disc filter for separating a coarse phase from a liquid mixture, comprising:
 - a horizontal hollow shaft;
 - at least one vertical filter disc arranged on the hollow shaft and having a filtering means, the filter disc forming a space defined by the filtering means on the sides of the filter disc, said space communicating with the hollow shaft;
 - an inlet for supplying the liquid mixture to be separated into the hollow shaft and further into said space;
 - a collecting vessel in the hollow shaft for collecting a coarse phase developed in said space during operation of the disc filter;
 - carrier elements arranged on the filter disc in said space such that the carrier elements receive coarse phase dropping from the filtering means and carry said coarse phase to said collecting vessel during rotation of the filter disc, each carrier element being elongated and having an inner end and an outer end in relation to the filter disc; and
 - barrier elements attached to the filter disc at the inner ends of the carrier elements, respectively, each barrier element having a straight part extending forward from its carrier element as seen in the direction of rotation, said straight part being positioned relative to the filter disc such that it extends horizontally when it passes a position above said collecting vessel during rotation of the filter disc, whereby each barrier element prevents coarse phase from dropping from its associated carrier element before the coarse phase is carried to said collecting vessel during rotation of the filter disc.

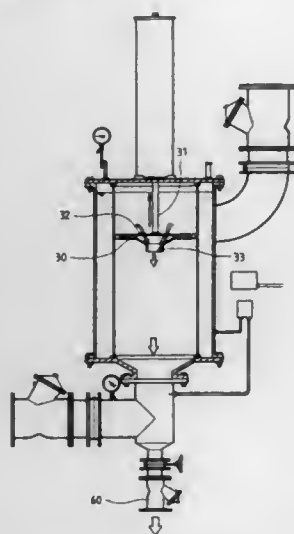
5,804,072

WATER FILTER WITH STRAINER SCRAPING MEANS
Yang Chi-Hua, No. 13, Feng Gong Road, Taichung City, Taiwan

Filed Sep. 29, 1997, Ser. No. 939,686
Int. Cl.⁶ B01D 29/64

U.S. Cl. 210—411

1 Claim



1. A water filter comprising a housing, a strainer mounted inside said housing and defining said housing into an inner water chamber and an outer water chamber around said inner water chamber, a water intake valve adapted for guiding water into said housing, a water outlet adapted for guiding filtered water out of said housing, and a drain valve connected to said housing at a bottom side and adapted for carrying off waste water from said housing, wherein a reciprocating device is mounted on said housing at a top side and controlled by a pressure differential controller to reciprocate a disk-like scraper in said inner water chamber along an inside wall of said strainer, causing it to scrape out dirt from said strainer, said disk-like scraper comprising a center water hole, and a check valve mounted in said center water hole for permitting water to flow downwards in said inner water chamber through said center water hole and stopping water from flowing upwards in said inner water chamber through said center water hole.

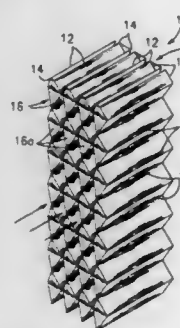
5,804,073

METHOD OF MAKING A PLEATED STRUCTURE HAVING A PLEATED MEMORY SHAPE AND THE FILTER MEDIA MADE THEREFROM
Dirk Dieter Hans Ter Horst, Apartado 80 150, Caracas 1080A, Venezuela

Filed Jul. 22, 1996, Ser. No. 681,456
Int. Cl.⁶ B01D 27/06

U.S. Cl. 210—493.3

41 Claims



1. A method for making a pleated structure having a pleated shape memory, comprising the steps of:
providing an elongated material having a longitudinal axis;

pleating said material to form a pleated structure having a plurality of substantially parallel pleats substantially parallel to said longitudinal axis;
folding the material along a plurality of axes substantially perpendicular to the longitudinal axis to form folds and provide a folded structure defining wall portions between the folds and face portions at the folds;
heating the material in the pleated structure so as to provide a heated material; and
cooling the heated material so as to provide the material with shape memory toward the pleated structure.

5,804,074

POROUS PLASTIC FILTER AND PROCESS FOR ITS PRODUCTION

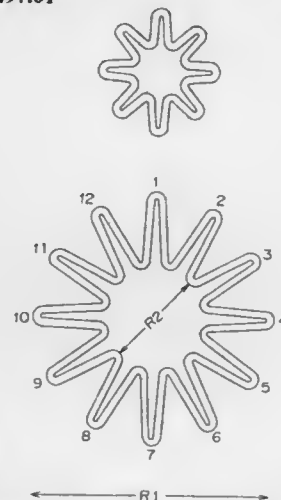
Yoshimi Takiguchi; Yosuke Egawa; Takayuki Watanabe, and Hiroharu Masano, all of Hiratsuka, Japan, assignors to Mitsubishi Plastics, Inc., Tokyo, Japan

Filed May 8, 1996, Ser. No. 643,455

Claims priority, application Japan, May 16, 1995, 7-117142
Int. Cl.⁶ B01D 39/16

U.S. Cl. 210—497.01

27 Claims



1. A porous plastic filter for separating fine particles comprising a thermoplastic material, wherein the porous plastic filter is obtained by sinter-forming particles of the thermoplastic material, wherein the contact angle to water of at least one surface of the porous plastic filter is at least 60°, and wherein the thermoplastic material consists of an ultrahigh molecular weight polyethylene having an average particle size within a range of from 10 to 90 μm.

5,804,075

PAPERMAKING SCREEN HAVING FIRST AND SECOND ANNULAR SUPPORTS WITH IMMOVABLE SPACE HOLDING AND PARALLEL ELONGATED MEMBER EXTENDING THERE BETWEEN

Yoshihiko Aikawa, Shizuoka, Japan, assignor to Aikawa Iron Works Co., Ltd., Shizuoka, Japan

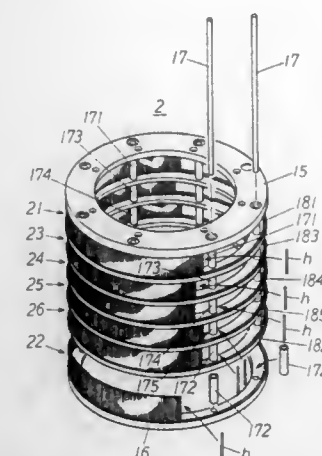
Filed Oct. 31, 1996, Ser. No. 741,718

Claims priority, application Japan, Jun. 20, 1996, 8-159551
Int. Cl.⁶ B01D 39/10; B07B 1/46

U.S. Cl. 210—497.01

10 Claims

1. A papermaking screen comprising:
a first annular supporting member having an outer curved surface, a flat side surface, and a plurality of first recesses formed in the flat side surface and arranged annularly along an entire length thereof;
a second annular supporting member having an outer curved surface, a flat side surface, and a plurality of second recesses formed in the flat side surface and arranged annularly along an entire length thereof, said first and second annular support-



ing members being spaced apart from each other so that the first and second recesses face and correspond to each other, a plurality of space holding members immovably fixed to the first and second annular supporting members and laterally spaced apart from each other to establish a predetermined distance between the first and second annular supporting members, and
a plurality of elongated members disposed in and held by the first and second recesses, said elongated members extending parallel to the space holding members and being arranged parallel to each other to form a space between two elongated members situated adjacent to each other, said space forming a slit for screening a paper material.

5,804,076

METHOD FOR TREATMENT OF WASTE WATER AND/OR EXHAUST GASES CONTAINING FLOURINE AND SURFACE ACTIVE AGENTS

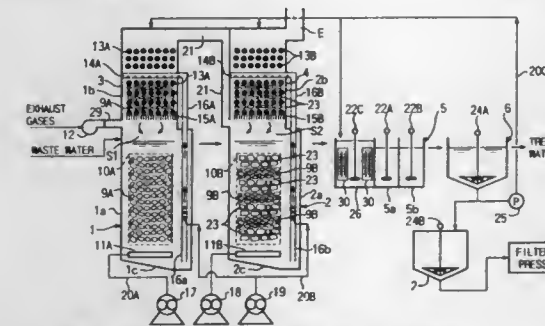
Kazuyuki Yamasaki, Hiroshima; Masaki Kataoka, Fukuyama; Kazuyuki Sakata, Fukuyama, and Shirou Imazu, Fukuyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 465,755, Jun. 6, 1995, Pat. No. 5,702,594.
This application Sep. 22, 1997, Ser. No. 934,742

Claims priority, application Japan, Aug. 26, 1994, 6-201854
Int. Cl.⁶ C02F 3/10; I/58

U.S. Cl. 210—609

3 Claims



1. A waste water treating method which comprises:
introducing waste water into a lower portion to cause a calcium carbonate mineral packed in the lower portion to be submerged in the waste water, and agitating the waste water under aeration;
pumping up the waste water from the lower portion and spraying the waste water over an upper portion located above the lower portion which is filled with a calcium carbonate mineral and a plastic filler;
introducing exhaust gas into a space between the lower portion and the upper portion;
causing the waste water to pass by gravity through the calcium carbonate mineral and plastic filler;

causing the waste water to pass by gravity through the space in which the exhaust gas is present; and
returning the waste water to the lower portion under the law of gravity.

5,804,077

INCREASING SETTLING RATE OF FINE SOLIDS IN OIL SAND TAILINGS

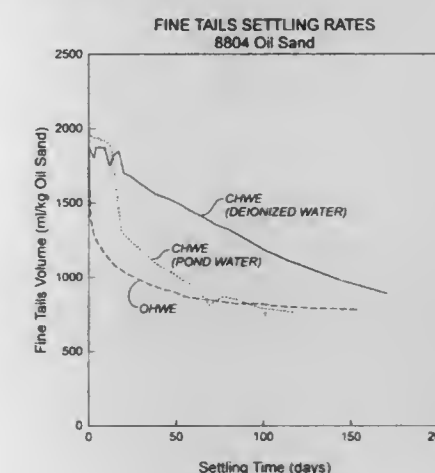
Russell G. Smith, 5807 - 94A Avenue, Edmonton Alberta, Canada, T6B 0Y7, and Jonathan R. Spence, 17835 - 93 Street, Edmonton Alberta, Canada, T5Z 2H8

Continuation-in-part of Ser. No. 578,385, Dec. 26, 1995, abandoned, which is a continuation of Ser. No. 395,833, Feb. 28, 1995, abandoned. This application Aug. 16, 1996, Ser. No. 700,682

Int. Cl.⁶ C02F 1/52; B01D 21/01

U.S. Cl. 210—702

3 Claims



1. A method for treating whole aqueous tailings, produced by a water-based extraction process to recover bitumen from oil sand, said tailings containing suspended coarse sand and clay fines, comprising:

desanding the whole tailings by settling out substantially all of the sand to yield desanded tailings;
adding about 100 to 200 ppm of calcium sulphate to the desanded tailings;
settling the mixture to produce clarified water and sludge; and
recycling the clarified water to the plant as process water.

5,804,078

METHOD OF REMOVING WATER SOLUBLE ORGANICS FROM OIL PROCESS WATER

Lawrence Robert Morrow, Sugarland; Nellie R. Miranda; Wilson Kirkpatrick Martir, both of Houston, and Hossein Aghazeynali, Sugarland, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Mar. 13, 1997, Ser. No. 816,480

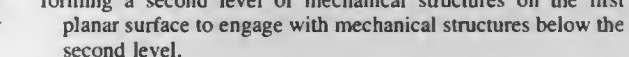
Int. Cl.⁶ C02F 1/52

U.S. Cl. 210—708

13 Claims

1. A method for removing water soluble organics from oil process water comprising:
adding to said water a chemical comprising
sodium bisulfite in an amount sufficient to adjust the pH of the oil process water to a range of about 5.5 to about 6.5;

UMI



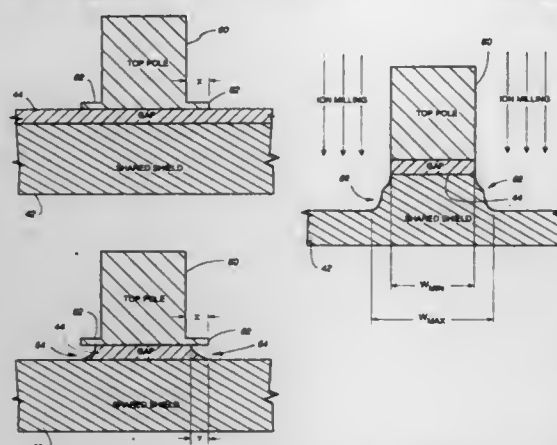
5,804,085

PROCESS FOR PRODUCING A POLE-TRIMMED WRITER IN A MAGNETORESISTIVE READ/WRITE HEAD AND A DATA TRANSDUCER MADE THEREBY
Andrew L. Wu, Shrewsbury; Paul Duval, Lexington, and Thomas Ferraguto, Woburn, all of Mass., assignors to Quantum Corporation, Milpitas, Calif.

Filed Jan. 30, 1997, Ser. No. 791,401
Int. Cl.⁶ G11B 5/127

U.S. Cl. 216—22

22 Claims



1. A process for forming a write head including a lower pole element and an overlying gap layer, said process comprising the steps of:

forming an upper pole of said write head overlying said gap layer, said upper pole presenting a pair of laterally extending flanges adjoining said gap layer; and
removing portions of said upper pole, said laterally extending flanges and a portion of an upper surface of said lower pole element to produce a lower pole of a width substantially equal to that of said upper pole.

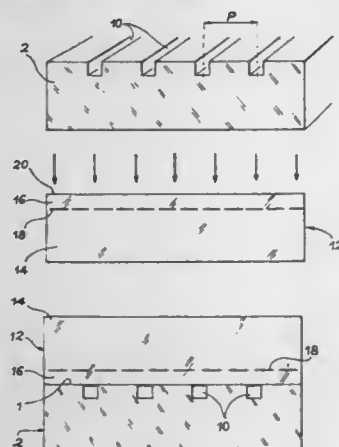
5,804,086

STRUCTURE HAVING CAVITIES AND PROCESS FOR PRODUCING SUCH A STRUCTURE
Michel Bruel, Veurey, France, assignor to Commissariat a l'Energie Atomique, Paris, France
PCT No. PCT/FR95/00078, § 371 Date Aug. 1, 1996, § 102(e) Date Aug. 1, 1996, PCT Pub. No. WO95/20824, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 25, 1995, Ser. No. 676,228
Claims priority, application France, Jan. 26, 1994, 94 00835
Int. Cl.⁶ H01L 21/58

U.S. Cl. 216—33

11 Claims



1. A process for producing a structure having a substrate, a thin surface film of a non-conducting material, joined to one face of the

substrate, said substrate having cavities flush with said face, the process comprising the following successive steps:

etching cavities in one face of a substrate, the cavities having in the plane of the substrate face at least one dimension which is a function of the thickness of the surface film in order to correctly secure the latter;

joining a non-conducting material wafer having a solid portion, an intermediate layer and a thin film to the face of the substrate wherein said thin film is adjacent said face of the substrate;

thinning the wafer to obtain a thin surface section, the thinning of the wafer being obtained by separating the film of the solid portion from the intermediate layer;

wherein the intermediate layer is a layer of microbubbles between the thin film and the solid portion and obtained by prior implantation of gas in the wafer, and the separation of the film is brought about by cleaving the wafer along a cleaving plane defined by the microbubble layer.

5,804,087

METHOD OF ADJUSTING NATURAL FREQUENCY OF DUAL-AXIS VIBRATORY STRUCTURE

Ki-bang Lee, Seoul; Young-bo Cho, Daejeon, and Ci-moo Song, Sungnam, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, and Korea Advanced Institute of Science and Technology, Taejeon, both of Rep. of Korea

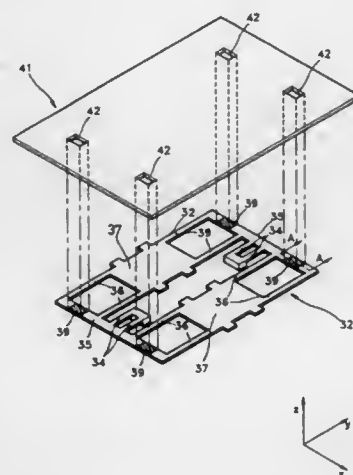
Filed May 21, 1996, Ser. No. 646,817

Claims priority, application Rep. of Korea, May 25, 1995, 1995-13256

Int. Cl.⁶ H01L 22/027

U.S. Cl. 216—41

7 Claims



1. A method of adjusting the natural frequency of a dual-axis vibratory structure having: a first spring member having a lengthwise direction coinciding to a first axis direction receiving an electrostatic force; a second spring member having a lengthwise direction coinciding to a second direction perpendicular to the first axis direction and having a width narrower than that of the first spring member; and a mass portion, said method comprising the steps of:

measuring the natural frequencies relative to the first axis direction of the vibratory structure and a third axis direction perpendicular to a plane formed by the first and second axes; varying the thickness of the first spring member so as to adjust the natural frequency of the third axis direction while fixing the natural frequency of the first axis direction; and
repeating said measuring step and said thickness varying step until the natural frequencies of the first and third axes directions are within the scope of a permissible error.

5,804,088

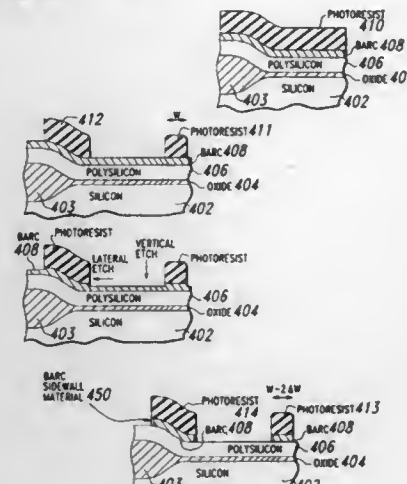
INTERMEDIATE LAYER LITHOGRAPHY
Jeffrey Alan McKee, Hamura, Japan, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jul. 12, 1996, Ser. No. 679,041

Int. Cl.⁶ G03C 5/00

U.S. Cl. 216—47

5 Claims



1. A method of lithography, comprising the steps of:

(a) providing a bottom layer to be patterned;
(b) forming an intermediate layer over said bottom layer;
(c) forming a radiation sensitive top layer over said intermediate layer;
(d) patterning said top layer with radiation to form a patterned top layer;
(e) simultaneously laterally removing portions of said patterned top layer and vertically removing exposed portions of said intermediate layer to form a reduced patterned top layer on a patterned intermediate layer; and
(f) removing portions of said bottom layer using said patterned intermediate layer as at least a portion of a mask.

5,804,089

PLASMA PROCESSING APPARATUS AND METHOD
Masaki Suzuki, Hirakata, and Shigeyuki Yamamoto, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

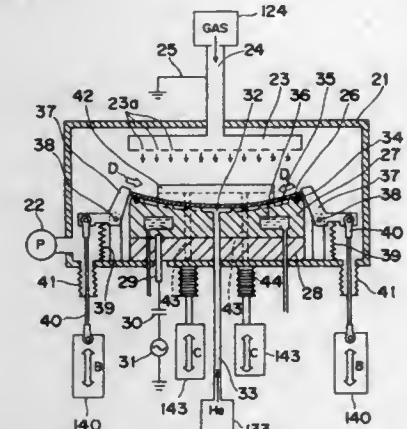
Filed Oct. 30, 1995, Ser. No. 550,116

Claims priority, application Japan, Oct. 31, 1994, 6-267189

Int. Cl.⁶ C23F 1/02; C23C 14/50; 16/00

U.S. Cl. 216—71

18 Claims



1. A plasma processing apparatus, comprising:
a vacuum container accommodating a rectangular substrate that is to be processed;
a vacuum discharge device for discharging gas from the container;

a gas feed device for feeding a gas in to the container;
a pair of electrodes, one of said pair of electrodes having a concave surface for holding the rectangular substrate thereon;
a high frequency power supply device for supplying high frequency power to said electrodes;
a second gas feed device for feeding an inert gas between the rectangular substrate and the one of said pair of electrodes for cooling the rectangular substrate; and
a holding means comprising a shaping and pressing element for pressing the surface of the rectangular substrate against said concave surface of the one of said pair of electrodes so as to shape the surface of the rectangular substrate into a concave, said holding means being further for pressing a side end face of the rectangular substrate in a direction along a surface of the rectangular substrate so as to shape the rectangular substrate into a concave shape and hold the rectangular substrate on said concave surface of the one of said pair of electrodes.

5,804,090

PROCESS FOR ETCHING SEMICONDUCTORS USING A HYDRAZINE AND METAL HYDROXIDE-CONTAINING ETCHING SOLUTION

Yasukazu Iwasaki; Norihiko Kiritani, both of Yokosuka; Makiko Mitamura, Fujisawa; Takatoshi Noguchi, Yokosuka, and Makoto Uchiyama, Miura, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 18, 1996, Ser. No. 617,215

Claims priority, application Japan, Mar. 20, 1995, 7-060259; Nov. 30, 1995, 7-312032

Int. Cl.⁶ B44C 1/22; H01L 21/306

U.S. Cl. 216—99

18 Claims

1. An etching process for a semiconductor, comprising the following steps:

preparing an alkali system etching solution containing at least hydrazine (N₂H₄), a metal hydroxide (MOH), and water (H₂O), the alkali system etching solution containing the metal hydroxide in an amount of not less than 0.3% by weight; and
dipping the semiconductor in the etching solution to etch the semiconductor.

5,804,091

METHOD OF PREVENTING DEFECTS AND PARTICLES PRODUCED AFTER TUNGSTEN ETCH BACK

Yung Tsun Lo, Yi Lan Hsien; Guan Jian Yi, Chu Tung Chen; Chi Hen Lin, Taipei, and Jyh Ming Jih, Ta Chia Chen Taichung Hsien, all of Taiwan, assignors to Mosel Vitelic Inc., Hsinchu, Taiwan

Filed Jul. 18, 1996, Ser. No. 683,248

Int. Cl.⁶ H01L 21/205; 21/318

U.S. Cl. 216—100

13 Claims

1. A method of preventing defects and particles produced after tungsten etch back in a wafer, the method comprising:

forming a first conductive layer on a titanium nitride (TiN) layer, wherein said titanium nitride (TiN) layer is formed on the substrate of a wafer;
removing said first conductive layer until said titanium nitride (TiN) layer is exposed, thereby some residues are produced on the surface of said titanium nitride (TiN) layer, wherein said residues include defects and particles;
removing the residues on the surface of said titanium nitride (TiN) layer by using a plasma etch;
baking the wafer;
secondly removing the residues on the surface of said titanium nitride (TiN) layer again by using megasonic shaking in deionized water; and
forming a second conductive layer on said titanium nitride (TiN) layer.

5,804,092

MODULAR CERAMIC IGNITER WITH METALLIZED COATINGS ON THE END PORTIONS THEREOF AND ASSOCIATED TERMINAL SOCKET

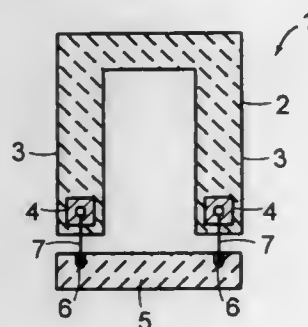
Scott R. Axelson, Milford, N.H., and Thomas E. Salzer, Bedford, Mass., assignors to Saint-Gobain/Norton Industrial Ceramics Corporation, Worcester, Mass.

Filed May 31, 1995, Ser. No. 454,760

Int. Cl.⁶ F23Q 7/22; H05B 3/08; H01C 1/012

U.S. Cl. 219—270

39 Claims



1. A modular igniter system comprising:

a) a ceramic igniter comprising:

i) a ceramic hot surface element comprising first and second ends, and

ii) a metallized coating which covers at least a portion of each end of the ceramic hot surface element;

b) a socket comprising i) first and second grooves, each groove shaped to receive only one end of the hot surface element, and ii) a contact positioned within each groove to produce electrical connection with the metallized coating of the end of the hot surface element to be received therein,

wherein each end of the hot surface element is plugged into one of the grooves of the socket, thereby producing electrical connection between each metallized coating and its corresponding contact.

5,804,093

JOINT INFILL MOLD

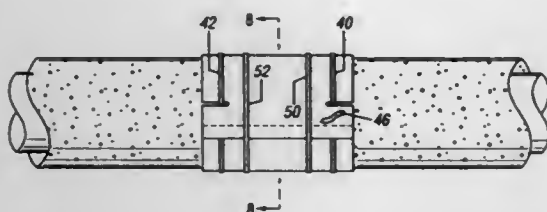
Richard L. Wyke, Missouri City; David C. Dressel, Friendswood, and James H. McBrien, Houston, all of Tex., assignors to Foam Enterprises, Inc., Minneapolis, Minn.

Filed Nov. 2, 1995, Ser. No. 556,861

Int. Cl.⁶ B29C 39/26; B29C 39/28

U.S. Cl. 249—90

20 Claims



13. A mold for molding an infill in a gap at a pipe joint between lengths of jacketed tubing, comprising:

a strip of material encircling the joint and enclosing the gap, said strip having a first end, first and second sides and a second end that overlaps said first end and having a slot in each of said sides at some distance from said first end, the distance between said slots and said first end being approximately equal to the circumference of the jacketed tubing;

first and second straps encircling said strip and passing under said second end and through said slots, for retaining said strip around said joint; and
at least a third strap encircling said mold and passing over said second end.

5,804,094

LOW BASE NUMBER SULPHONATES

Kenneth Alcock, Oxfordshire, United Kingdom; Dominique Moulin, N. D. de Gravenchon, France; John Arthur Cleverly, and Charles Herbert Bovington, both of Oxfordshire, United Kingdom, assignors to Exxon Chemical Patents, Inc., Wilmington, Del.

PCT No. PCT/EP96/00812, § 371 Date Sep. 3, 1997, § 102(e) Date Sep. 3, 1997, PCT Pub. No. WO96/26919, PCT Pub. Date Sep. 6, 1996

PCT Filed Feb. 27, 1996, Ser. No. 875,251

Claims priority, application United Kingdom, Feb. 28, 1995, 9504034

Int. Cl.⁶ C07C 303/02; C10M 129/00

U.S. Cl. 252—18

21 Claims

1. A calcium or Group 1 metal low base number sulphonate composition comprising from at least 10% by weight of at least one sulphonate prepared from neutralisation of a sulphonic acid having a number average molecular weight of 500 or greater, being an oil-soluble synthetic sulphonic acid or an alkaryl sulphonic acid; a calcium or Group 1 metal carboxylate; and diluent, wherein the sulphonate composition has 0.5% by weight or less of hydroxide expressed as the calcium or group 1 metal hydroxide, and has a chloride content of 100 ppm by weight or less.

5,804,095

MAGNETORHEOLOGICAL FLUID COMPOSITION

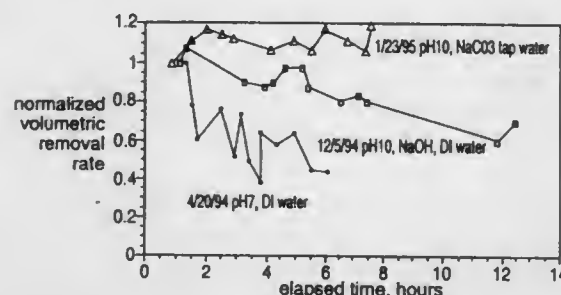
Stephen David Jacobs, Pittsford, N.Y.; William Kordonski; Igor Victorovich Prokhorov, both of Minsk, Belarus; Donald Golini, Rochester, N.Y.; Gennadii Rafailovich Gorodkin, Minsk, Belarus, and Tyasta David Strafford, Rochester, N.Y., assignors to Byelocorp Scientific, Inc., New York, and University of Rochester, Rochester, both of N.Y.

Division of Ser. No. 543,426, Oct. 16, 1995. This application Dec. 12, 1996, Ser. No. 761,994

Int. Cl.⁶ H01F 1/44; 1/02

U.S. Cl. 252—62.52

1 Claim

1. A magnetorheological fluid comprising non-colloidal magnetic particles, an aqueous carrier fluid wherein the pH of the magnetorheological fluid is between 7 and 11, wherein the fluid comprises about 5.7 volume percent CeO₂ abrasive, about 36.05 volume percent carbonyl iron, about 55.11 volume percent water, about 2.41 volume percent glycerol, and about 0.74 volume percent Na₂CO₃.

5,804,096

REFRIGERATING MACHINE OIL

Takehisa Sato; Satoshi Ogano, and Toshiaki Kuribayashi, all of Ohi-Machi, Japan, assignors to Tonen Corporation, Tokyo, Japan

PCT No. PCT/JP94/00747, § 371 Date Dec. 15, 1994, § 102(e) Date Dec. 15, 1994, PCT Pub. No. WO94/28092, PCT Pub. Date Dec. 8, 1994

Continuation of Ser. No. 351,397, Dec. 15, 1994, abandoned.

This PCT application May 9, 1994, Ser. No. 689,990

Claims priority, application Japan, May 27, 1993, 5-125591; Sep. 29, 1993, 5-242524

Int. Cl.⁶ C09K 5/04

U.S. Cl. 252—68

8 Claims

1. A composition for use in refrigerating machines comprising: a refrigerating machine oil comprising an ester oil selected from the group consisting of polyol esters, polycarboxylates, fumarate oligomers, carbonic acid esters, hydroxypivalates, and mixtures thereof, and an additive comprising an antiwear agent selected from the group consisting of a phosphate compound, a phosphorus compound, and a compound of the formula (RO)₃P=S, wherein R is an alkyl, allyl, or phenyl group, wherein the refrigerating machine oil has a sodium or potassium concentration of not higher than 0.1 ppm and a volume resistivity of 1×10^{13} Ω-cm at 25° C. or higher, and a non-chlorine, fluorine-containing refrigerant.

5,804,097

LIQUID-CRYSTALLINE COMPOUNDS

Paul Delavier, Ludwigshafen; Karl-Heinz Eitzbach, Frankenthal; Andreas Johann Schmidt, Freinsheim; Karl Siemensmeyer, Frankenthal, and Gerhard Wagenblast, Wachenheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03069, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/08604, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 14, 1994, Ser. No. 648,134

Claims priority, application Germany, Sep. 25, 1993, 43 32 733.8

Int. Cl.⁶ C09K 19/34; 19/52; 19/30; 19/20

U.S. Cl. 252—299.63

11 Claims

1. A liquid-crystalline compound of the formula I

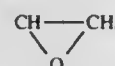


where

X is trisubstituted cyclohexyl wherein the (—Y—A—Y—M—Y—B) substituents are in the meta-position with respect to one another,

each Y, independently of the others, is a direct bond, —COO—, —OCO—, —O—, —COHN— or —CON(R)—, where R is C₁- to C₄-alkyl,

A is a spacer,

B is a C₂- to C₃₀-alkyl or -alkenyl, where the radicals may be linear or branched, may be interrupted once or more than once by O, OCO, COO,NH or N(CH₃), and may be substituted by phenyl, fluorine, chlorine, bromine, cyano or hydroxyl, and

M is a mesogenic group of the formula



where

each T, independently of the others, is an aromatic or heteroaromatic radical,

each Y', independently of the others, is O, COO, OCO, CH₂O, OCH₂ or a direct bond, and
r is from 1 to 3.

5,804,098

LOW-VELOCITY ELECTRON EXCITED PHOSPHOR

Yoshitaka Satoh; Hitoshi Toki; Fumiaki Kataoka, and Shigeo Itoh, all of Mohara, Japan, assignors to Futaba Denshi Kogyo Kabushiki Kaisha, Chiba-ken, Japan

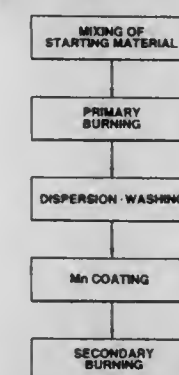
Continuation of Ser. No. 247,994, May 24, 1994, Pat. No. 5,520,847. This application Feb. 29, 1996, Ser. No. 610,054

Claims priority, application Japan, Jun. 2, 1993, 5-131839

Int. Cl.⁶ C09K 11/54; 11/62; 11/64

U.S. Cl. 252—301.6 F

1 Claim



1. A low-velocity electron excited phosphor having a composition represented by the general formula



wherein x=0.001 to 0.024.

5,804,099

POLYSILOXANE-POLYOXYETHYLENE-POLYOXYPROPYLENE TRIBLOCK COPOLYMERS AND DEFOAMING COMPOUNDS CONTAINING THEM

Wernfried Heilen, Alpen; Hans-Leo Karminski, Essen; Michael Keup, Essen; Otto Klockner, Essen; Stefan Silber, Krefeld; Roland Spiegler, Wiesbaden, and Roland Sucker, Werne, all of Germany, assignors to Th. Goldschmidt AG., Essen, Germany

Filed Nov. 20, 1996, Ser. No. 752,510

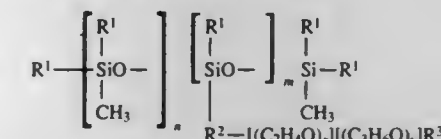
Claims priority, application Germany, Nov. 30, 1995, 195 44 586.4

Int. Cl.⁶ C08G 77/04; 77/42; B01D 19/04

U.S. Cl. 252—358

5 Claims

1. Polysiloxane-polyoxyethylene-polyoxypropylene triblock copolymers having a general formula:



where

R¹=alkyl group with 1 to 8 carbon atoms,R²=(CH₂)_pO—, where p=2, 3, or 4,R³=hydrogen or alkyl group with 1 to 4 carbon atoms,

n=40 to 80,

m=3 to 10,

x=3 to 6, and

y=20 to 30,

with the proviso that the x/y ratio is about 0.12 to 0.20.

5,804,100

DEAGGREGATED ELECTRICALLY CONDUCTIVE POLYMERS AND PRECURSORS THEREOF

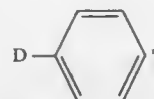
Marie Angelopoulos, Cortlandt Manor, and Bruce K. Furman, Beacon, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 9, 1995, Ser. No. 370,127

Int. Cl.⁶ H01B 1/12; C08L 39/00; 41/00; 43/00; C08G 73/00
U.S. Cl. 252—521 37 Claims

1. A composition of matter consisting essentially of: polymer molecules in conductive form having regions of aggregation less than 100 nm, said polymer molecules being selected from the group consisting of one or more of substituted and unsubstituted polyparaphenylenes, polyparaphenylenevinyls, polyanilines, polyazines, polythiophenes, poly-p-phenylene sulfides, polyfurans, polypyrroles, polyselelenophenes, polyacetylenes formed from soluble precursors and combinations thereof and blends thereof with other polymers and copolymers of the monomers thereof and a surfactant as a deaggregating agent; and said surfactant is selected from the group consisting of one or more of carboxylates, sulfonates, sulfates, phosphates, glycerol esters, polyoxyethylene esters, carboxylic amides, polyoxethylenes, polyalkylene oxides, poly(oxyethylene-co-oxypropylenes), aliphatic amines, amine oxides, alkoxylates of ethylenediamine, imidazolines, quaternary ammonium salts, imidazolium derivatives, alkylbetaines and amidopropylbetaines.

wherein B is



D is ORⁿ, NR^mRⁿ or SRⁿ; where Rⁿ is aryl; R^m is aryl; or where NR^m or Rⁿ are derived from a cyclic amine of the form N(CH₂)_m, where m is 2 or 3; and wherein the asterisk indicates the point of attachment on the acceptor and donor; and B) means for directing at least one incident beam of electromagnetic radiation having at least one frequency into said element whereby electromagnetic radiation emerging from said element has at least one frequency which is different from said at least one frequency of said incident beam of electromagnetic radiation.

5,804,102

PLASMA DISPLAY FILTER

Ryu Oi; Kazuhiro Seino; Yoriaki Matsuzaki, all of Yokohama; Yuko Mochizuki, Nagoya; Keisuke Takuma; Shin Fukuda, both of Yokohama, and Yojiro Kumagai, Kawachinagano, all of Japan, assignors to Mitsui Chemicals, Inc., Tokyo, and Yamamoto Chemicals, Inc., Osaka-fu, both of Japan

Filed Dec. 17, 1996, Ser. No. 768,327

Claims priority, application Japan, Dec. 22, 1995, 7-334854; Jul. 12, 1996, 8-183141

Int. Cl.⁶ F21V 9/04; G02B 5/22; H01J 7/24
U.S. Cl. 252—587 18 Claims

1. A plasma display and a plasma display filter comprising a base material and at least one near infrared ray absorbing compound having a maximum absorption wavelength at 800 nm to 1,200 nm.

5,804,103

DI-SUBSTITUTED 1,2-DIOXETANE COMPOUNDS HAVING INCREASED WATER SOLUBILITY AND ASSAY COMPOSITIONS

Hashem Akhavan-Tafti, Brighton; Renuka DeSilva, Northville, and Arthur Paul Schaap, Grosse Pointe Park, all of Mich., assignors to Lumigen, Inc., Southfield, Mich.

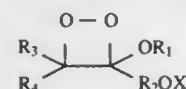
Division of Ser. No. 509,305, Jul. 31, 1995, Pat. No. 5,777,135. This application Apr. 16, 1997, Ser. No. 842,728

Int. Cl.⁶ C09K 3/00

U.S. Cl. 252—700 7 Claims

1. A composition for producing light comprising in an aqueous solution;

(a) a stable dioxetane of the formula:



wherein R₁ is a hydrophilic organic group comprising a substituted alkyl, heteroalkyl, alkenyl or alkynyl group containing 1 to 20 carbon atoms and at least two groups which provide increased solubility in aqueous solution and optionally containing at least one oxygen atom, wherein R₂ and R₄ are each selected from the group consisting of acyclic, cyclic and polycyclic organic groups which can optionally be substituted with heteroatoms and which can optionally be joined together to form a cyclic or polycyclic ring group spiro-fused to the dioxetane ring, wherein R₃ is an aryl ring group selected from the group consisting of phenyl and naphthyl

5,804,105

DEVICE FOR DIFFUSING A FIRST FLUID INTO A SECOND FLUID

William Allison, 54 River View Tarleton, Preston, Lancashire PR4 6BQ, England

PCT No. PCT/GB94/02195, § 371 Date Apr. 5, 1996, § 102(e) Date Apr. 5, 1996, PCT Pub. No. WO95/09819, PCT Pub. Date Apr. 13, 1995

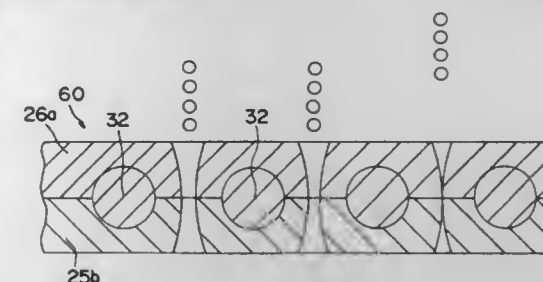
PCT Filed Oct. 7, 1994, Ser. No. 624,448

Claims priority, application United Kingdom, Oct. 7, 1993, 9320698

Int. Cl.⁶ B01F 3/04

U.S. Cl. 261—122.2

15 Claims



1. A device for diffusing a first fluid into a second fluid, comprising:

- (a) a tubular member which includes pores for passage of fluid from inside the tubular member to the outside, said pores being arranged to be self-closing when a fluid is not flowing therethrough, said tubular member including a restraining layer; and
- (b) an inner layer arranged inwardly of said restraining layer and an outer layer arranged outwardly of said restraining layer, wherein said restraining layer cooperates with said inner layer and said outer layer for restraining an increase in pore size as the pressure of fluid flowing to the outside through the pores of said member is increased.

5,804,106

MANUFACTURING METHOD FOR UV-SCREENING PHOTOCHROMISM EYE GLASSES

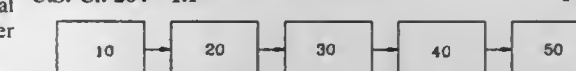
Chiu Jen Yi, Taipei Hsien; Cheng Tsu Chen, No. 27-14, Hsia Hu, Quai Shan County, Taipei Hsien; Huang Lung Shen, Pan Chiao, and Yang Yeh Ho, No. 15, Alley 21, Lane 56, Sec. 1, Chung Yuan Road, Long Tan County, Tao Yuan Hsien, all of Taiwan, assignors to Cheng Tsu Chen, and Yang Yeh Ho, both of Tao Yuan Hsien, Taiwan

Filed Jul. 10, 1997, Ser. No. 889,964

Int. Cl.⁶ B29D 11/00

U.S. Cl. 264—1.1

1 Claim



1. A method of forming a UV-screening photochromic lens material for eye glasses, comprising the steps of:

- a. providing a polycarbonate polymer as a substrate material for said lens;
- b. providing spiro-naphthoxazine as a photochromic composition;
- c. providing a carrier for said photochromic composition;
- d. combining 7 weight percent of said spiro-naphthoxazine and 2 weight percent of said carrier with 82.8 weight percent of said polycarbonate;
- e. providing a silicone coupling agent;
- f. providing a hindered phenol antioxidant;
- g. combining 2 weight percent of said silicone coupling agent and 2 weight percent of said antioxidant with said combination of step d;
- h. providing an organic phosphorous stabilizer;
- i. providing an amine light stabilizer;
- j. providing an ultraviolet light absorbent;

- k. combining 2 weight percent of said organic phosphorous stabilizer and 1 percent of said amine light stabilizer and 1.2 weight percent of said ultraviolet light absorbent with said combination of step g;
- l. mixing said combination of step k;
- m. cooling said mixture of step l to a temperature within a range of 0° to -40°C;
- n. pulverizing said cooled mixture of step m to a particulate diameter size within a range of 0.1-0.7 mm; and,
- o. molding said pulverized mixture at a temperature within a range of 180°-200° C. and a pressure within a range of 500-2000 kg/cm².

5,804,107

CONSOLIDATED CONTACT LENS MOLDING

Wallace Anthony Martin, Orange Park; Jonathan Patrick Adams, Jacksonville, both of Fla.; Finn Thrige Andersen, Vedbaek, Denmark; Stephen Robert Beaton, Neptune Beach, Fla.; Svend Christensen, Allinge, Denmark; Allan G. Jensen, Hørsholm, Denmark; Ture Kindt-Larsen, Holte, Denmark; Victor Lust, Jacksonville, Fla.; Craig William Walker, Jacksonville, Fla.; and Daniel Tsu-Fang Wang, Jacksonville, Fla., assignors to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

Filed Jun. 10, 1994, Ser. No. 258,654

Int. Cl.⁶ B29D 11/00

U.S. Cl. 264-1.36

109 Claims



1. An apparatus for the automated molding of contact lenses from a polymerizable hydrogel, said apparatus comprising:
- a transport means for transporting a plurality of contact lens molds to and from a plurality of stations, each of said contact lens molds having first and second mold parts;
 - a first automated station for receiving a plurality of first mold parts and depositing therein a predetermined amount of a polymerizable hydrogel;
 - a second automated station for receiving said plurality of first mold parts and assembling each first mold part with a second mold part under vacuum to prevent entrapment of air between the mold parts;
 - a first means for clamping said first mold half against said second mold half for a predetermined pressure and time to define a contact lens mold cavity and to remove any excess hydrogel from said cavity;
 - a lens cure station having a radiant energy source for polymerizing said polymerizable hydrogel in said cavity after said first and second halves are clamped together; and
 - an automated demolding station for removing said second mold part and any excess hydrogel from said first mold part and said molded contact lens.

5,804,108

PROCESS FOR THE PREPARATION OF CARBON FIBER
Kenneth Wilkinson, 1010 Glenwood Blvd., Waynesboro, Va. 22980

Filed Oct. 31, 1996, Ser. No. 742,200

Int. Cl.⁶ D01F 9/22

U.S. Cl. 264-29.2

8 Claims

1. A process for preparing an oxidized precursor for a carbon fiber of high strength comprising the steps of:
- obtaining an extruded fiber comprising a substantially metal-free, substantially vinyl-sulfonic acid monomer-free polyacrylonitrile copolymer wherein the copolymer is prepared from acrylonitrile in an amount of about 95% to about 98% based

- on weight, a vinyl carboxylic acid monomer in an amount sufficient to retain in the copolymer ammonium ion or amine catalyst in an amount of about 1% to about 4% based on molar ratio, and optionally a vinyl carboxylic acid ester monomer in an amount up to about 2% based on weight;
- adding to the fiber an oxidation catalyst which is a member selected from the group consisting of ammonia and low molecular weight amines;
- washing, drying and stretching the fiber to form a precursor;
- removing the precursor to an oxidation zone;
- heating the precursor at a temperature below the fusion temperature of said precursor for a time sufficient to initiate crosslinking reactions between the ammonium ion or amine catalyst and pendant cyano groups of the copolymer;
- increasing the heating in subsequent stages, as the fusion temperature of the precursor increases, to a temperature of about 400° C. for a time sufficient to increase the fiber density to about 1.40 g/cc; and
- withdrawing the oxidized precursor from the oxidation zone.

5,804,109

METHOD OF PRODUCING AN EAR CANAL IMPRESSION

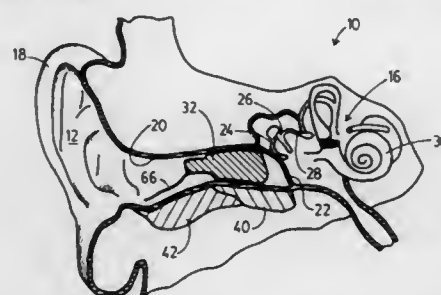
Rodney C. Perkins, Woodside, Calif., assignor to ReSound Corporation, Redwood City, Calif.

Filed Nov. 8, 1996, Ser. No. 748,488

Int. Cl.⁶ B29C 33/40; H04R 25/02; G01B 5/04

U.S. Cl. 264-40.1

6 Claims



1. A method of fabricating an ear canal impression to be used for fabrication of an ear canal mold which does not have a surface that comes into contact with cartilaginous portions of a hearing impaired person's auditory canal which comprises the steps of:
- placing a covering on a tympanic membrane of the hearing-impaired person;
 - identifying a junction between bony and cartilaginous portions of the person's auditory canal;
 - marking the junction between the bony and cartilaginous portions of the auditory canal;
 - introducing an ear canal impression material into the auditory canal; and
 - allowing the ear canal impression material to harden to form the ear canal impression whereby the ear canal impression includes an indentation on its surface corresponding to said junction.

5,804,110

CONTROL FOR SPRAYING FOAM INTO HOLLOW BODY CAVITIES

Bruce T. Guilmette, Ortonville, Mich., assignor to Foamseal, Inc., Oxford, Mich.

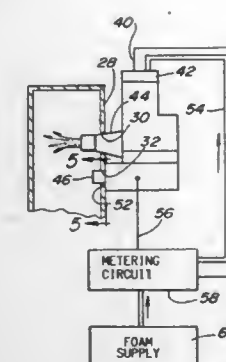
Filed Oct. 6, 1994, Ser. No. 319,130

Int. Cl.⁶ B29C 44/18

U.S. Cl. 264-40.4

20 Claims

1. A method of filling a hollow body cavity with foam, said method comprising the steps of:
- providing machine readable indicia on a body associated with a dispense hole in said body to receive a desired amount of



- resin foam, said body having a plurality of holes, said indicia being selected to correspond to the desired amount of foam to be dispensed from a supply of foam material into said dispense hole;
- placing a spray gun adjacent to said indicia, said spray gun having a sensor capable of reading said indicia and a dispense nozzle, said sensor communicating with a control for the supply of foam material to said dispense nozzle on the foam spray gun;
 - reading said indicia with said sensor and sending a signal to said control from said sensor, said signal being dependent upon the desired amount of foam for said dispense hole as read by said sensor; and
 - supplying foam material to said dispense nozzle from the supply of foam in an amount equivalent to the desired amount of foam.

5,804,111

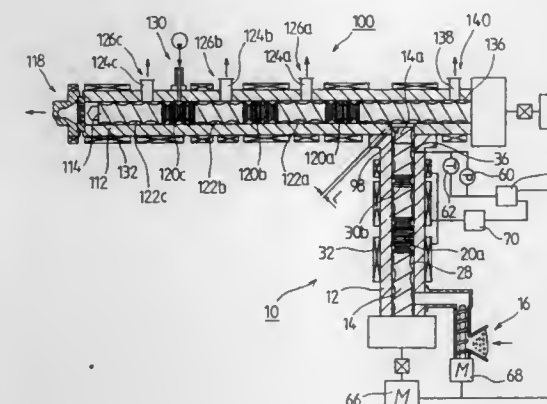
EXTRUSION METHOD FOR REMOVING VOLATILE CONTENTS FROM SOLID STATE RESIN MATERIALS AND APPARATUS THEREFOR

Akiyoshi Kobayashi, and Junya Ishibashi, both of Shizuoka, Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan
Filed Mar. 22, 1996, Ser. No. 622,457

Claims priority, application Japan, Mar. 24, 1995, 7-066387
Int. Cl.⁶ B29C 47/50; 47/92

U.S. Cl. 264-40.5

19 Claims



1. A method for removing volatile contents from solid state resin material during extrusion using a cascade-type extruding device having a first extruder and a second extruder, a top end portion of the first extruder communicating with a side portion of the second extruder, comprising the steps of:

- supplying a solid state resin material to said first extruder to produce melted resin in a first region of said first extruder;
- controlling pressure and temperature of said melted resin in said first region;
- supplying said melted resin in said first region to a second region of said second extruder; and
- removing volatile contents from said melted resin in both said first region and said second region using means disposed on the second extruder upstream of the top end portion of the first extruder.

5,804,112

METHOD OF CO-EXTRUDING A BLOWN-FILM TEXTURED LINER

Jimmy D. Greene, Grand Prairie, Tex., assignor to Olympic General Corporation, Reno, Nev.

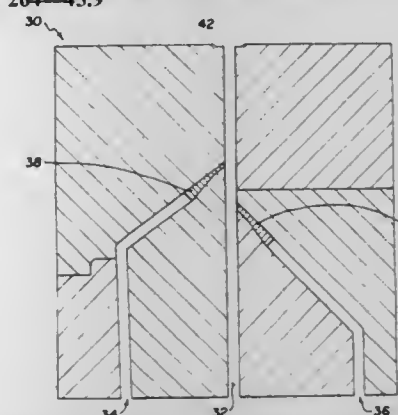
Division of Ser. No. 625,696, Apr. 3, 1996. This application

Feb. 10, 1997, Ser. No. 797,132

Int. Cl.⁶ B29C 44/24

U.S. Cl. 264-45.9

2 Claims



1. A method for forming a blown-film textured liner, comprising the steps of:
- extruding molten thermoplastic material through a central passage of a blown-film extrusion die;
 - extruding molten thermoplastic material containing a blowing agent through a first side passage of a blown-film extrusion die; and
 - extruding molten thermoplastic material containing a blowing agent through a second side passage of a blown-film extrusion die;
- wherein said molten thermoplastic material extruded through said first and second side passages is merged with said molten thermoplastic material in said central passage;
- wherein a textured portion of the blown-film textured liner is formed by action of said blowing agent; and
- wherein a first plug is disposed in said first side passage to partially block the extrusion of said molten thermoplastic material from said first side passage.

5,804,113

METHOD AND DEVICE FOR THE CONTINUOUS MANUFACTURE OF SLABSTOCK POLYURETHANE FOAM WITHIN A PREDETERMINED PRESSURE RANGE

Brian James Blackwell, Cheshire, United Kingdom; Lucien Jourquin, Wetteren, Belgium; Johannes A. M. G. Derksen, Nijmegen, Netherlands; and Rudi Mortelmans, Temse, Belgium, assignors to Prefoam AG, Basel, Switzerland

Continuation of Ser. No. 232,154, Nov. 30, 1994, abandoned.

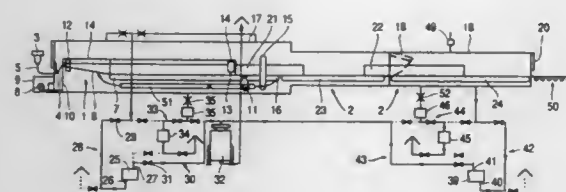
This application Sep. 18, 1996, Ser. No. 715,488

Int. Cl.⁶ B29C 44/28

U.S. Cl. 264-51

27 Claims

1. A method for the continuous manufacture of slabstock polyurethane foam comprising applying a polymerizable reaction mix-



ture of polyurethane reaction components containing a blowing agent substantially continuously onto a moving conveyor means, allowing a free rise expansion and polymerization of this reaction mixture on the conveyor means so as to form polyurethane foam, which expansion and polymerization produces blowing gas, the free rise expansion and polymerization of the reaction mixture being carried out in a substantially closed space under substantially steady state conditions, surrounding the reaction mixture at least partially with a layer of gas and during said free rise expansion and polymerization of the reaction mixture maintaining the pressure of the gas substantially constant within a predetermined pressure range by continuously exhausting gas from said space while simultaneously and continuously supplying gas to said space in addition to the blowing gas produced whereby fluctuations of the pressure within said pressure range are reduced.

5,804,114

PROCESS OF MAKING A POLYURETHANE ROLLER WITH HIGH SURFACE RESISTANCE

Todd Lucas Janes; Johnny Dale Massie, II; Joan Marie Massie; Ronald Lloyd Roe, and Donald Wayne Stafford, all of Lexington, Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Division of Ser. No. 629,855, Apr. 9, 1996, Pat. No. 5,707,743.

This application Jun. 6, 1997, Ser. No. 870,782

Int. Cl.⁶ C04B 40/00; 35/00; B05D 5/12; 5/06

U.S. Cl. 264—82

12 Claims

1. The process of making a developer roller comprising casting a mixture of polydiene diol or a prepolymer of polydiene diol with toluene diisocyanate, a urethane prepolymer, a polyol with functionality greater than 2, and a powder of a conductive metal salt which catalyzes the oxidation of said polydiene during baking to form a roller having an outer surface,

curing said cast mixture and

then baking said cured mixture to oxidize said outer surface of said roller.

5,804,115

ONE STEP, READY-TO-TUFT, MOCK SPACE-DYED MULTIFILAMENT YARN

Wendel L. Burton, Arden, and Robert H. Blackwell, Candler, both of N.C., assignors to BASF Corporation, Mt. Olive, N.J.

Filed Dec. 13, 1996, Ser. No. 766,724

Int. Cl.⁶ D02G 3/00; D02J 1/08

U.S. Cl. 254—103

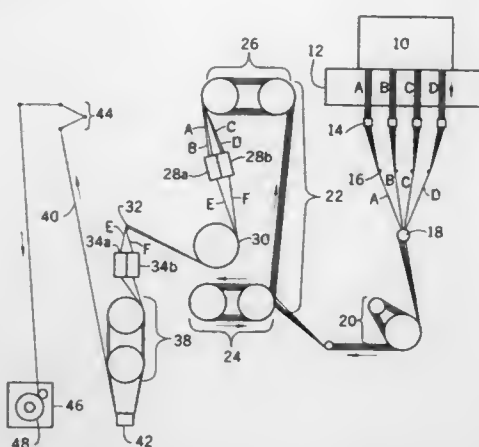
20 Claims

1. A process for making ready-to-tuft, mock space-dyed bulked continuous filament yarn comprising the sequential steps of:

(a) extruding two or more strands having two or more colors in separated color blocks or combined color groupings such that the color of each strand is different than the color of at least one other strand;

(b) combining said strands to create at least two fractions from said two or more strands;

(c) independently texturing at least one fraction;



(d) combining the fractions in an interlacer to yield a yarn suitable for tufting directly into carpet without further texturing or twisting; and

(e) winding said yarn after said combining step (d).

5,804,116

METHOD FOR THE MANUFACTURE OF SHAPED BODIES FORMED FROM PLASTICS-FILLER MIXTURES HAVING A HIGH FILLER CONTENT

Manfred Schmid, Augsburg, and Ernst Tetzlaff, Heidenheim, both of Germany, assignors to SGL Technik GmbH, Germany

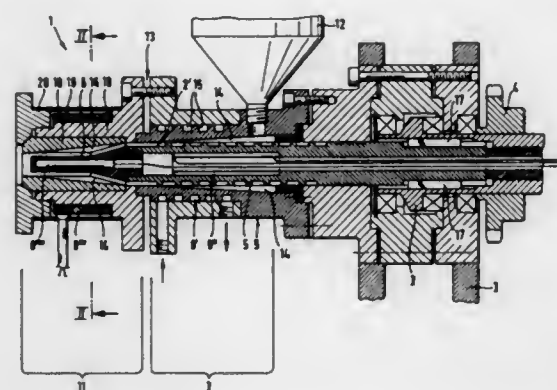
Filed Nov. 14, 1996, Ser. No. 749,221

Claims priority, application Germany, Nov. 16, 1995, 195 42 721.1

U.S. Cl. 264—104

Int. Cl.⁶ B29C 47/38

24 Claims



1. Method for the manufacture of shaped bodies by extrusion moulding of plastic-filler mixtures containing more than 50% by volume of fillers, characterised in that

in a first method step there is manufactured in a mixer from a plastic and a filler having good thermal conductivity a mixture in which the filler is uniformly distributed and the plastic is present in molten form,

in a second method step the mixture is discharged from the mixer and is allowed to harden,

in a third method step the hardened mixture is broken up and ground

and in a fourth method step the ground mixture or fractions of this which have been separated off and made uniform as to grain size is extruded by means of an extruder with conveying input zone to form moulded bodies.

5,804,117

MOLDING METHOD FOR RESIN ARTICLES

Nobuyoshi Baba, and Tadamasa Kidera, both of Aichi, Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-Ken, Japan

Continuation of Ser. No. 417,054, Apr. 5, 1995, abandoned.

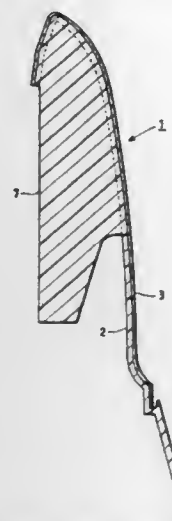
This application Aug. 20, 1997, Ser. No. 915,082

Claims priority, application Japan, Apr. 5, 1994, 6-067458; Apr. 26, 1994, 6-088918

Int. Cl.⁶ B29C 45/14; 45/27; 45/38; 45/40

U.S. Cl. 264—161

34 Claims



1. A method for molding a sheet material to at least a portion of a resin substrate, comprising the steps of:

positioning a first sheet material portion and a second sheet material portion in an open first mold part in a non-overlapping orientation;

engaging the first mold part with a second mold part to thereby form a closed molding cavity therebetween;

injecting a molten resin material into the closed molding cavity through a plurality of gates provided in one of the first and second mold parts to form a molded resin substrate, the temperature of the molten resin material being sufficient to cause the first and second sheet material portions to fuse to the resin material as the resin material cools;

forming a plurality of laterally spaced-apart reinforcing portions from the molten resin material integral with the molded resin substrate at positions corresponding to the plurality of gates, said reinforcing portions extending perpendicularly outward from the molded resin substrate;

opening the closed molding cavity; and

removing a molded resin article having first and second sheet material portions fused to at least a portion of the molded resin substrate.

5,804,118

MOLDING AND METHOD OF PRODUCING THE SAME

Yukihiko Yada, and Kazuyoshi Higuchi, both of Oobu, Japan, assignors to Tokai Kogyo Kabushiki Kaisha, Oobu, Japan

Division of Ser. No. 130,392, Oct. 1, 1993, Pat. No. 5,534,316, which is a division of Ser. No. 781,374, Oct. 23, 1991, Pat. No. 5,281,291. This application Apr. 24, 1996, Ser. No. 637,172

Claims priority, application Japan, Oct. 24, 1990, 2-286708; Nov. 8, 1990, 2-304884

Int. Cl.⁶ D01D 5/20

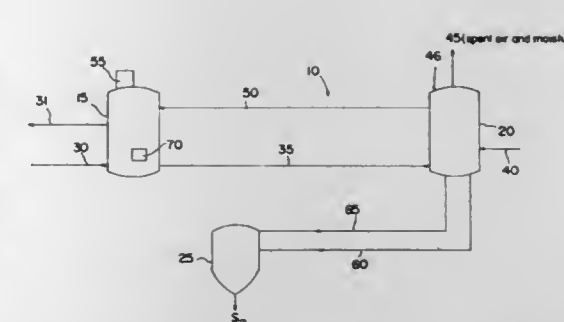
U.S. Cl. 264—167

19 Claims

1. A molding for an automobile which is mounted between a pillar of the automobile body and a window glass of the automobile, said molding comprising:

a protector in contact with a surface of the window glass;

a water guide spaced from said protector such that an open channel is defined between said water guide and said protector, and wherein said channel is open toward a center of said window glass; and



wherein a gap between said protector and said water guide gradually decreases in size toward an upper portion of said window, and wherein said protector and said water guide are monolithically molded by extrusion molding.

5,804,119

PROCESS FOR PRODUCING BIAXIALLY ORIENTED POLYESTER FILM AS A BASE FILM FOR A PHOTOGRAPHIC FILM

Norio Takagi, Sagamihara, Japan, assignor to Teijin Limited, Osaka, Japan

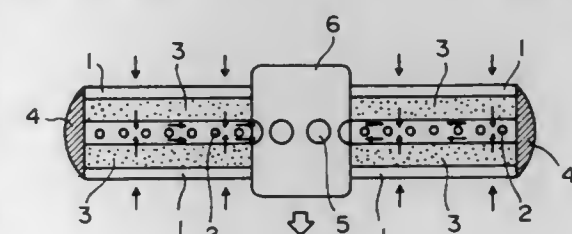
Filed Sep. 6, 1996, Ser. No. 708,963

Claims priority, application Japan, Sep. 7, 1995, 7-230108

Int. Cl.⁶ B29C 47/88; B29D 7/01

U.S. Cl. 264—169

20 Claims



1. A process for producing a biaxially oriented polyester film comprising the steps of:

causing a molten aromatic polyester which contains naphthalene-2, 6-dicarboxylic acid as a main dicarboxylic acid component and ethylene glycol as a main glycol component and polymer gel particles larger than 40 μm in diameter to pass through a single-layer or multi-layer metal fiber nonwoven fabric which satisfies the following expression (1):

$$1.8 < \ln \left(\sum_{i=1}^n 10 \times (100 - e_i) \times L_i / d_i^2 \right) < 6 \quad (1)$$

wherein e_i is a porosity (%) of an i -th layer of the metal fiber nonwoven fabric, L_i is a thickness (mm) of the i -th layer of the metal fiber nonwoven fabric, d_i is an average fiber diameter (μm) of the i -th layer of the metal fiber nonwoven fabric, and n is a number of layers, whereby the polymer gel particles are cut and dispersed;

melt extruding the molten polymer into a form of a sheet;

quenching a solidifying the sheet to produce an unoriented film;

biaxially orienting the unoriented film; and

thermally setting the biaxially oriented film to form a biaxially oriented polyester film, as a base film for a photographic film, which contains substantially no gel polymer particles as large as 40 μm or more in diameter.

5,804,120

PROCESS FOR MAKING CELLULOSE EXTRUDATES
Hanneke Boerstel, Arnhem, and Marco Ypma, Duiven, both of Netherlands, assignors to Akzo Nobel N.V., Arnhem, Netherlands

PCT No. PCT/EP95/03271, § 371 Date Feb. 19, 1997, § 102(e)
Date Feb. 19, 1997, PCT Pub. No. WO96/06207, PCT Pub. Date Feb. 29, 1996

PCT Filed Aug. 17, 1995, Ser. No. 793,760

Claims priority, application Netherlands, Aug. 19, 1994, 9401351

Int. Cl.⁶ D01D 5/06; D01F 2/02

U.S. Cl. 264—187

4 Claims

1. A process for making cellulose extrudates from an optically anisotropic solution comprising 94–100 wt. % of the following constituents:

cellulose,
phosphoric acid and/or its anhydrides, and
water,

by extruding the solution to form extrudates and then coagulating the formed extrudates, characterised in that the extrudates are aftertreated such that after the aftertreatment the extrudates have a degree of acidity which at least equals 7.

5,804,121

METHOD OF FORMING A MOTOR VEHICLE INSTRUMENT PANEL WITH A FLEXIBLY TETHERED AIR BAG DEPLOYMENT DOOR

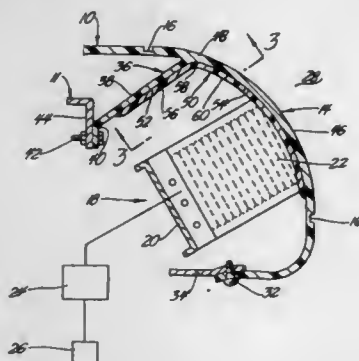
Michael J. Gallagher, Hampton, N.H., assignor to Davidson Textron Inc., Dover, N.H.

Filed Apr. 21, 1995, Ser. No. 426,104

Int. Cl.⁶ B29C 39/10; 45/02; 45/14; 67/08

U.S. Cl. 264—250

12 Claims



1. A method of forming a motor vehicle instrument panel with an integral flexibly tethered air bag deployment door comprising the steps of:

providing a first plastics material;
providing a second plastics material bondable to the first plastics material and remaining ductile to a substantial degree at low temperatures substantially below a temperature at which the first plastics material becomes brittle;
molding an instrument panel with the first plastics material to a desired shape that includes an integral air bag deployment door and an integral mounting/hinge flange molded with the panel and extending inward from an inner side of said door; and
integrally molding a tethering layer of the second plastics material onto a bonding area of a back inner side of the instrument panel, the bonding area including one side of said mounting/hinge flange, an inner side of a frangible portion of said door, and a potential fracture zone disposed between and adjoining the mounting/hinge flange and the frangible portion of the door to prevent the frangible portion of the door from breaking loose from the mounting/hinge flange if a fracture forms in the potential fracture zone as the door opens in response to air bag inflation.

5,804,122

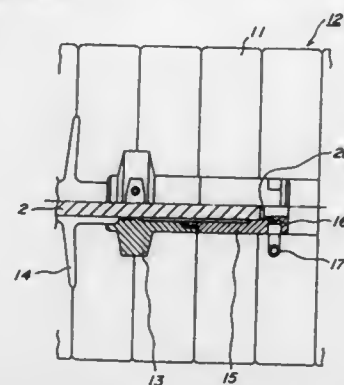
METHOD OF PRODUCING COMPOSITE INSULATOR
Shigeo Ishino, Niwa-Gun, Japan, assignor to NGK Insulators, Ltd., Japan

Filed Feb. 26, 1997, Ser. No. 806,401

Claims priority, application Japan, Mar. 18, 1996, 8-061033
Int. Cl.⁶ B29C 45/14; 35/16

U.S. Cl. 264—261

6 Claims



1. A method of producing a composite insulator having a core portion, a sheath portion arranged on an outer surface of said core portion, and a plurality of shed portions projected from said sheath portion by using a die and heating said die, further comprising: molding said sheath portion and said plurality of shed portions on said core portion, cooling both end portions of the core portion by a cooling means arranged in said end portion, said cooling reducing the temperature of both end portions of said core portion during molding of the plurality of shed portions and sheath portion.

5,804,123

METHOD OF MAKING PLASTIC PART HAVING PARTING LINE FREE O-RING GROOVE FOR FLUID OUTLET

Jaime L. Klonhaus, Shelby Township, and Richard J. Barton, Port Huron, both of Mich., assignors to Huron Plastics Group, Inc., Port Huron, Mich.

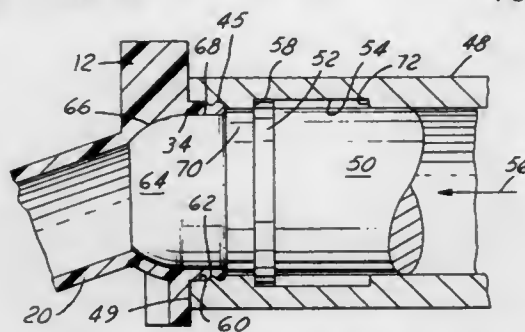
Continuation of Ser. No. 964,513, Oct. 21, 1992, abandoned.

This application May 5, 1994, Ser. No. 238,573

Int. Cl.⁶ B29C 45/44

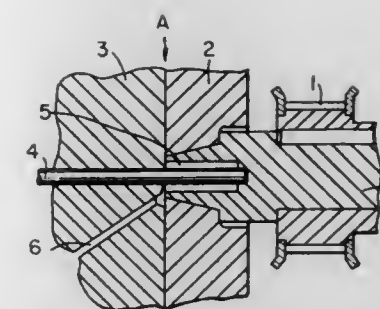
U.S. Cl. 264—318

4 Claims



1. A method of making a plastic part having a tubular portion with an external encircling O-ring groove with a sealing surface without a parting line at such groove comprising the steps of: providing an injection mold having a sleeve member formed with an internal cylindrical surface having an encircling inwardly extending rib located to form said O-ring groove, and a core member axially moveable in said sleeve member and disposed in a first position in spaced cooperation with said cylindrical surface to form a cavity around said rib, said cavity enclosed by mating wall portions of said sleeve and said core for receiving and supporting molten plastic adjacent said rib;

injecting a molten plastic material into said cavity to fill it and extend around said core member and around said rib; after the plastic material in said cavity has solidified enough to retain its tubular shape and acquire some resiliency but before it has assumed its final solidification, withdrawing in one continuous motion said core member from said first position along a line extending axially of said cylindrical surface to a second position spaced outwardly from the tubular plastic material, and during such motion of the core member and immediately it has cleared the tubular plastic material withdrawing said sleeve member in the same direction as and with the moving core member from the tubular plastic material axially along said line causing said rib to resiliently deflect the tubular portion away from said sleeve concentrically as the rib is drawn thereover with the tubular sleeve of plastic material concentrically springing back to its molded tubular shape to form the O-ring groove with said sealing surface in said tubular portion.



selecting a thermoplastic polymer from a class consisting of liquid crystal polymers, fiber-filled or mineral-filled thermoplastics, the liquified polymer having a linear coefficient of thermal expansion between $6 \times 10^{-6}/^{\circ}\text{K}$ and $2 \times 10^{-6}/^{\circ}\text{K}$; injecting said selected polymer into said mold in a direction generally perpendicularly toward said cylindrical center core and forming a flow path in said mold for said selected polymer in two directions around said cylindrical center core; rotating one of said mold or said cylindrical center core only simultaneously with said step of injecting and without rotation after the mold is filled and producing a tangential force on said selected polymer disorienting said rigid rod-shaped molecules, thereby preventing flow lines; and cooling said mold, thereby producing a ferrule having a linear coefficient of thermal expansion between $6 \times 10^{-6}/^{\circ}\text{K}$ and $2 \times 10^{-6}/^{\circ}\text{K}$.

5,804,124

METHOD OF MANUFACTURING A MAGNETIC DISK CARTRIDGE

Tosio Sata, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 718,469, Jun. 20, 1991, Pat. No.

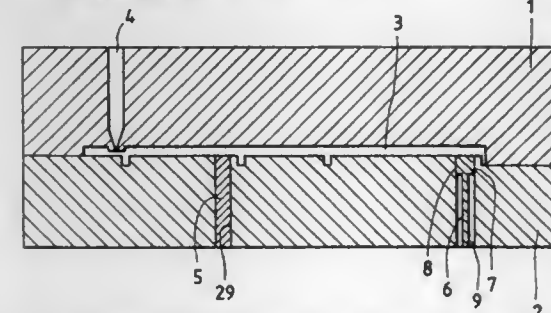
5,307,227. This application Jan. 28, 1994, Ser. No. 187,510

Claims priority, application Japan, Jun. 21, 1990, 2-161437; Jun. 21, 1990, 2-161438

Int. Cl.⁶ B29C 33/10; 45/63

U.S. Cl. 264—328.12

5 Claims



1. A magnetic disk cartridge manufacturing method comprising the steps of: preparing master batch pellets of SAN resin at least 100 gm/10 min in melt flow rate in which a pigment having a desired color has been mixed to a high density; preparing natural pellets of ABS resin at least 25 gm/10 min in melt flow rate; mixing said master batch pellets and said natural pellets in a ratio of 1:50 to 1:15 by weight; and effecting injection molding of said magnetic disk cartridge.

5,804,125

PROCESS FOR PRODUCING FERRULES BY INJECTION MOLDING POLYMERS WHILE ROTATING A MOLD PART

Etienne Aepli, Speicherschwendi, Switzerland, assignor to Huber & Suhner AG, Herisau, Switzerland

Continuation-in-part of Ser. No. 351,121, Nov. 30, 1994, abandoned. This application May 10, 1996, Ser. No. 644,724

Claims priority, application Switzerland, Dec. 17, 1993, 3778/93

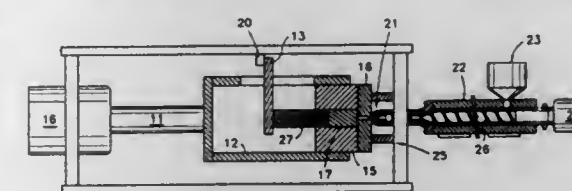
Int. Cl.⁶ B29C 45/26

3 Claims

1. A process for producing thin walled ferrules by injection-molding a liquefied thermoplastic polymer having rigid rod-shaped molecules into a mold having a rotatable cylindrical center core, including the steps of:

1. A method of preparing preforms suitable for encapsulating electrical or electronic devices comprising:

A. introducing a thermoset resin formulation into an injection molding device via a powder feeding unit connected thereto and then warming said thermoset resin formulation to form a warm melt without substantially curing said resin;
B. injecting said warm melt into a mold without substantially curing said thermoset resin;
C. cooling said warm melt in said mold to form a solidified molding in the form of a preform, and removing said preform from said mold without substantially curing said thermoset resin, said preform having a density that is at least 95% of a theoretical maximum preform density.



5,804,127

BLOW MOLDING METHOD

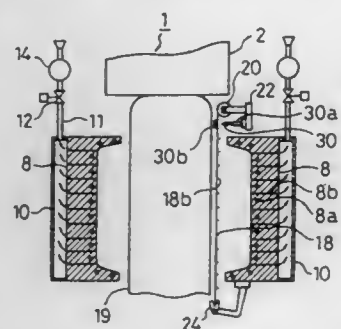
Hirofumi Takatori, and Toyoyuki Miyazaki, both of Yamaguchi, Japan, assignors to Ube Industries, Ltd., Ube, Japan
Filed May 23, 1996, Ser. No. 653,684

Claims priority, application Japan, May 29, 1995, 7-130136; Jul. 11, 1995, 7-174725; Jul. 28, 1995, 7-192792; Aug. 11, 1995, 7-205728; Sep. 8, 1995, 7-230863; Sep. 22, 1995, 7-244108

Int. Cl.⁶ B29C 49/20

U.S. Cl. 264—515

3 Claims



1. A laminating blow molding method for making a hollow article, comprising:

forming 1 to 500 fine holes per an area of 100 cm² in a resin sheet by punching to thereby form projections as burrs on one side of the resin sheet, the diameter of the holes being between 0.1 mm and 1 mm;

disposing the resin sheet between an outer surface of a parison extruded from a die and a mold so that said one side with the projections faces a cavity face of the mold;

closing the mold so that the resin sheet is held between the cavity face of the mold and the outer surface of the parison;

blowing the parison thereby laminating the parison to the resin sheet to form said hollow article, wherein during blowing, the resin sheet contacts the cavity face of the mold and air is released from between the parison and the resin sheet through the fine holes;

heating the mold to a temperature exceeding a softening temperature of the resin sheet, the temperature being high enough to squash the fine holes by melting of the surface of the resin in contact with the mold so that the fine holes substantially do not remain in the resin sheet;

cooling the mold; and

taking out the hollow article.

5,804,128

CYLINDRICAL FILTER AND PROCESS FOR PRODUCING THE SAME

Satoshi Ogata, and Yoshimi Tsujiyama, both of Shiga-ken, Japan, assignors to Chisso Corporation, Osaka-fu, Japan
Continuation-in-part of Ser. No. 449,082, May 24, 1995, Pat. No. 5,670,044, which is a continuation-in-part of Ser. No. 057,116, May 4, 1993, Pat. No. 5,429,745. This application

Mar. 17, 1997, Ser. No. 818,914
Int. Cl.⁶ B29C 49/00

U.S. Cl. 264—516

7 Claims

1. A process for producing a cylindrical filter, which comprises subjecting a higher melting point component and a lower melting point component, each comprised of a fiber-forming thermoplastic polymer, to conjugate melt-blow spinning so that microfibrillar fibers are formed and the diameter of the fibers becomes smaller during spinning in the thickness direction of the filter and along the direction of passage of a fluid to be filtered, said process consisting essentially of winding up and stacking the fibers on a core to form a cylindrical shape on the core, heat-treating the resulting web at a temperature higher than the melting point of the lower melting point component and lower than the melting point of the higher melting point component before and/or at the time of or after the winding up, and drawing out the core, said melt-blow

spinning is carried out by blowing a pressurized air so that it is decreased continuously or stepwisely during said spinning.

5,804,129

METHOD AND APPARATUS FOR MANUFACTURING A PACK FOR FLOWABLE CONTENTS

Wilhelm Reil, Bensheim; Heiko Bub, Bodenheim; Bernhard Korus, Darmstadt, and Gottfried Pusch, Tsungstadt, all of Germany, assignors to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

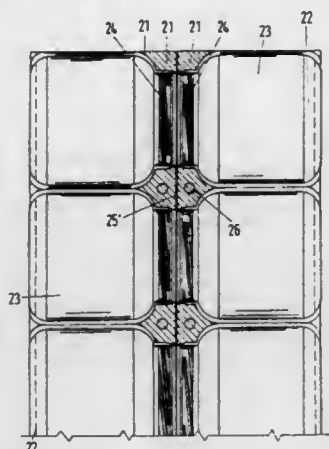
Continuation of Ser. No. 449,364, May 24, 1995, abandoned, which is a division of Ser. No. 202,076, Feb. 25, 1994, Pat. No. 5,477,974. This application Oct. 15, 1996, Ser. No. 731,460

Claims priority, application Germany, Feb. 26, 1993, 43 05 913.9

Int. Cl.⁶ B29C 51/08

U.S. Cl. 264—545

10 Claims



1. A method for manufacturing simultaneously two packs for flowable contents from a flat deep-drawable plastic material, each pack having tubular side walls, a bottom wall and a top wall, the top wall having an open upstanding threaded collar defining a pouring opening closable by a screw-on top, and including a seam which passes around the pack in a plane which is parallel to a longitudinal center axis, the seam being arranged in the top wall in such a way that the seam is interrupted by the pouring opening and projects on diametrically oppositely disposed sides almost as far as a free, upper edge of the upstanding collar, the method comprising the steps of:

deep-drawing into a mold half the flat, deep-drawable plastic material to form at least a first and a second mold half part, each mold half part comprising two pack half-shells connected by a semi-cylindrical connecting passage, wherein said two pack half-shells in each mold half part are aligned on a common longitudinal axis and are symmetrical about a symmetry plane perpendicular to the common longitudinal axis and located at a center of the semi-cylindrical connecting passage, wherein a closed outer edge encloses the mold half to provide uniform holding forces in the mold half, and wherein deep drawing forms the semi-cylindrical connecting passage with thread portions in a central enclosed portion of the mold half where sufficient mold heat is present to accurately shape the semi-cylindrical connecting passage and thread portions, and wherein the closed outer edge forms a continuous edge flange disposed in a common plane that surrounds said two pack half-shells of each said mold half part,

joining the continuous edge flange of the first mold half part to the continuous edge flange of the second mold half part so that the two pack half shells of the first mold part align with the two pack half shells of the second part to form a pair of packs having a seam formed by the joining of edge flanges of the first and the second mold half part, wherein the symmetry planes of the mold half parts coincide at a single coincident

5,804,131

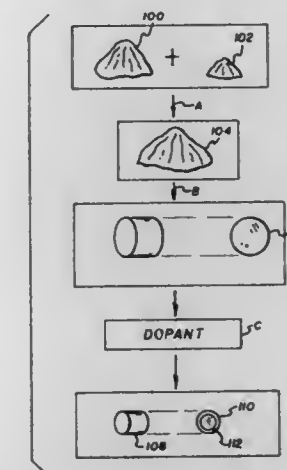
METHOD OF MANUFACTURING A CERAMIC ARTICLE
Debasis Majumdar; Dilip K. Chatterjee, and Syamal K. Ghosh, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 7, 1997, Ser. No. 946,046

Int. Cl.⁶ C04B 33/32

U.S. Cl. 264—621

15 Claims



1. A method of preparing a ceramic article having a core with a tetragonal crystal structure and an outer layer with a monoclinic crystal structure comprising:

compacting a particulate alloy of a primary oxide and a secondary oxide to form a blank, said primary oxide comprising zirconium oxide, said secondary oxide selected from the group consisting of MgO, CaO, Y₂O₃, Sc₂O₃, CeO₂, rare earth oxides and combinations thereof; and sintering said blank in contact with a smectite containing sol.

5,804,130

EMBEDDING A MULTIWOOUND MICROCOIL IN A CERAMIC STRUCTURE

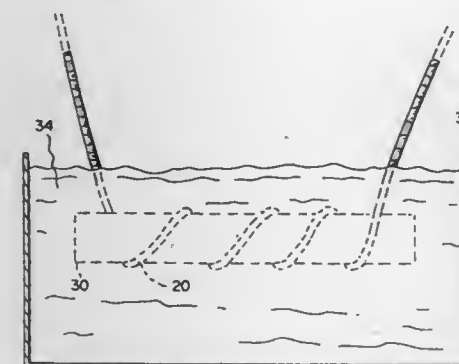
Edward P. Furiani, Lancaster; Syamal K. Ghosh, and Dilip K. Chatterjee, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 18, 1997, Ser. No. 896,901

Int. Cl.⁶ B28B 1/38

U.S. Cl. 264—610

4 Claims



1. A method for forming an embedded multiwound microcoil in a ceramic substrate comprising the steps of:

a) forming a sacrificial multiwound microcoil to be used in the ceramic substrate by;

(i) wrapping a first sacrificial coil winding about the midsection of a sintered ceramic bar thereby forming a first winding sacrificial coil structure;

(ii) dipping the first winding sacrificial coil structure in a sol-gel precursor and then drying the sol-gel precursor;

(iii) wrapping a second sacrificial coil winding about the midsection of said first winding sacrificial coil structure thereby forming a second winding sacrificial coil structure;

(iv) repeating steps (a)(ii) and (a)(iii) until the desired number of sacrificial coil windings are formed;

b) inserting the multiwound sacrificial coil structure into a green ceramic substrate cavity sized to accommodate for 20–30% shrinkage of the green ceramic substrate upon sintering to provide an assembled structure;

c) sintering the assembled structure at a sufficient temperature to burn away the sacrificial coil windings thereby forming a unitary ceramic structure having embedded coil receiving cavities;

e) flowing molten electrically conductive material into the embedded coil receiving cavity; and

f) cooling the molten electrically conductive material to form the multiwound microcoil embedded in a ceramic substrate.

5,804,132

METHOD FOR FIRING CERAMIC PRODUCT

Toshinori Kawahara, Fukui, Japan, assignor to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan

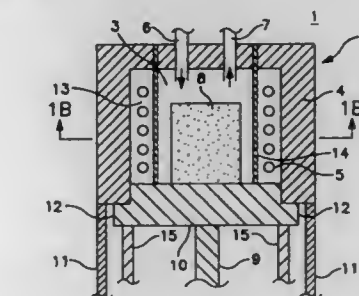
Filed Mar. 20, 1997, Ser. No. 821,644

Claims priority, application Japan, Mar. 22, 1996, 8-066454

Int. Cl.⁶ C04B 33/32

U.S. Cl. 264—671

7 Claims



1. A method for firing a green ceramic compact including the steps of:

preparing a furnace which includes a firing tube of highly heat-conductive material;

placing a casing containing a green ceramic compact into said firing tube so as to substantially enclose said casing;

firing said green ceramic compact in the furnace;

cooling the fired ceramic compact by directly exposing the outer surface of said firing tube to open air; and

removing said casing from said firing tube.

UMI

1. A composition of matter suitable for use as a flux for use in the production of magnesium or magnesium-containing alloys, the composition comprising 75 to 80 per cent by weight KCl, and 20 to 30 per cent by weight $MgCl_2$.

5,804,139

TWO-STEP STERILIZATION PROCESS USING LIQUID STERILANT

Szu-Min Lin, Laguna Hills, and Paul Taylor Jacobs, Trabuco Canyon, both of Calif., assignors to Ethicon, Inc., Somerville, N.J.

Filed Dec. 20, 1996, Ser. No. 770,867
Int. Cl.⁶ A61L 2/08; 9/00

U.S. Cl. 422—27

17 Claims

1. A method for sterilizing a device having a diffusion restricted area and a non-diffusion restricted area comprising the steps of: contacting said device with liquid sterilant outside or inside a sterilization chamber fluidly connected to at least one pump; placing said device in said chamber before or after the contacting step; bringing the pressure of said chamber to a first pressure range at which liquid sterilant is vaporized from the non-diffusion restricted area to sterilize the non-diffusion restricted area; and bringing the pressure of said chamber to a second pressure range at which the liquid sterilant is vaporized from the diffusion restricted area to sterilize the diffusion restricted area, wherein the minimum pressure in the second pressure range is lower than the maximum pressure in the first pressure range.

5,804,140

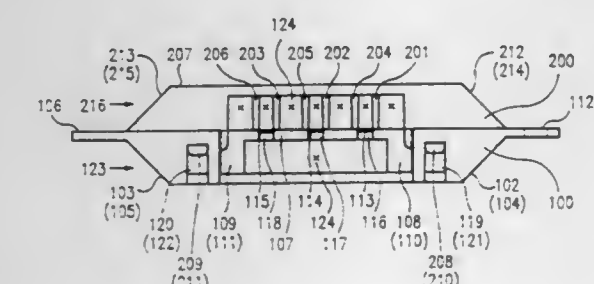
CORROSION INSPECTION PLATE, MEASUREMENT FOR CORROSIVE ENVIRONMENT AND CASE FOR THE CORROSION INSPECTION PLATE

Tadashi Kishi; Xinmin Xu, and Nobuteru Sawayama, all of Tokyo, Japan, assignors to Yokogawa Engineering Service Corporation, Tokyo, Japan

Continuation of Ser. No. 573,475, Dec. 15, 1995, abandoned.
This application Sep. 22, 1997, Ser. No. 934,949Claims priority, application Japan, Dec. 20, 1994, 6-316779
Int. Cl.⁶ G01N 17/00

U.S. Cl. 422—53

5 Claims



1. In a corrosion inspection apparatus comprising a corrosion inspection plate having a surface which forms a corrosion film when exposed to a corrosive environment, means for holding said corrosion inspection plate, and means for measuring the depth of said corrosion film formed on said surface of said corrosion inspection plate; the improvement comprising:

said corrosion inspection plate consisting of a metal film of copper or silver formed by sputtering or vacuum deposition on an entire surface of a flat silicon substrate and at a temperature which enables the surface of said metallic film which is exposed to the corrosive environment to have a constant roughness value which is 10% or less than the thickness of said metallic film; and said means for measuring comprises:

a secondary ion mass spectrometer for counting secondary ions of a compound formed by the corrosive environment acting on said metallic film surface per unit time;

means for storing data of secondary ion counts per unit time for different compounds formed by the corrosive environment; and

means for comparing the detected ion count per unit time with the stored data of ion count per unit time for the different compounds thereby to determine the depth of said corrosive film and type of compound formed by the corrosive environment; wherein

said means for holding comprises:

a base for accommodating said corrosion inspection plate, said base comprising:

shelf means attached to a corner of said base; and

a plurality of support means attached to said shelf means for holding said corrosion inspection plate; and

a cover removably attached to said base, said cover comprising fixing paw means for interconnecting said cover to said base.

5,804,141

REAGENT STRIP SLIDE TREATING APPARATUS

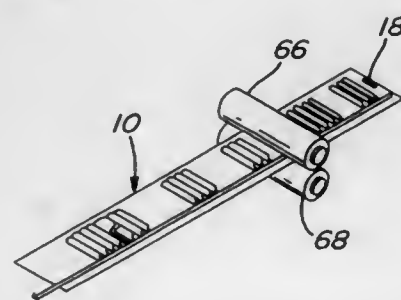
David Chianese, 41 St. Paul Rd., Ardmore, Pa. 19003

Filed Oct. 15, 1996, Ser. No. 720,979

Int. Cl.⁶ G01N 35/10

U.S. Cl. 422—63

11 Claims



9. A reagent strip slide treating apparatus, comprising:

a reagent strip, said reagent strip comprising a plurality of chambers and a reagent passageway, said reagent passageway connecting to each of said chambers and connecting to a common passageway, said plurality of chambers being arranged at variable predetermined distances along said strip; a plurality of capsules containing reagents, one of said capsules being contained within at least selected ones of said plurality of chambers, said capsules having walls adapted to burst upon application of pressure;

structure for providing pressure to said reagent strip and said capsules in said chambers, said pressure being applied at a uniform rate of speed along a predetermined length of said strip whereby reagent may be squeezed out of said capsules in said chambers into said common passageway in a predetermined sequence and at variable predetermined intervals as determined by said variable predetermined distances;

means adapted for supplying reagent from said common passageway to biological material contained on a microscope slide; and

said microscope slide being provided with a structure for forming an enclosed space in which said biological material is present and in which said reagent may treat said biological material, said space being formed by a second microscope slide spaced from said microscope slide by a gasket having an opening therein, said gasket being selected to have a predetermined thickness sufficient to prevent capillary draw into said space.

5,804,142

CHROMATOGRAPH SYSTEM AND METHOD FOR MAINTAINING SYSTEM SUITABILITY THEREOF

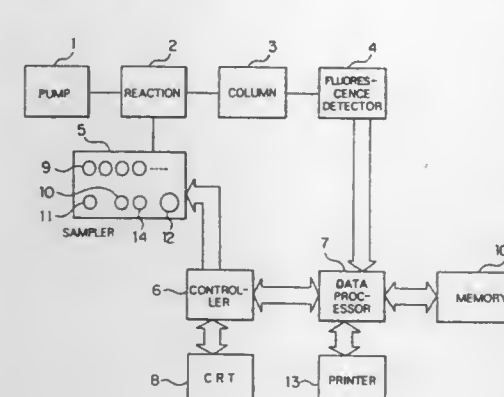
Masahito Ito; Junkichi Miura; Yoshio Fujii; Hiroshi Satake, all of Katsuta, and Kasumi Yoshida, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 364,440, Dec. 27, 1994, abandoned, which is a continuation of Ser. No. 149,701, Nov. 9, 1993, abandoned, which is a continuation of Ser. No. 763,203, Sep. 20, 1991, abandoned. This application Nov. 26, 1996, Ser. No. 756,430

Claims priority, application Japan, Sep. 21, 1990, 2-252302
Int. Cl.⁶ G01N 30/02

U.S. Cl. 422—70

25 Claims



1. A chromatograph system for analyzing a specific sample, comprising:

first storage means for storing a predetermined number indicative of a number of peaks of components to be detected; second storage means for storing a reference retention time range;

analysis means for exclusively analyzing a predetermined check sample and a specific sample of interest to obtain chromatograms thereof;

means for comparing a number of peaks detected in the chromatograms of the check sample and the predetermined number, each detected peak being of a size greater than a predetermined lower-limit value;

means for inhibiting the specific sample of interest from being subjected to analysis by said analysis means and for informing an operator of a guidance indication that the check sample or a reagent may be deteriorated when the predetermined number and the detected number of peaks in the check sample chromatogram are not coincident;

first identification means for comparing the retention time of a predetermined peak in the chromatogram of the predetermined check sample and the reference retention time range when the predetermined number and the detected number of peaks in the check sample chromatogram are coincident;

first information means for informing an operator of a first guidance indication regarding an eluent when the retention time of the predetermined peak is out of the reference retention time range when the predetermined number and the detected number of peaks in the check sample chromatogram are coincident;

third storage means for storing a reference peak size range; second identification means for comparing the peak size of the predetermined peak and the reference peak size range when the predetermined number and the detected number of peaks in the check sample chromatogram are coincident; and

second information means for informing the operator of a second guidance indication regarding the predetermined check sample and a reagent being employed when the peak size of the predetermined peak is out of the reference peak size range when the predetermined number and the detected number of peaks in the check sample chromatogram are coincident.

5,804,143

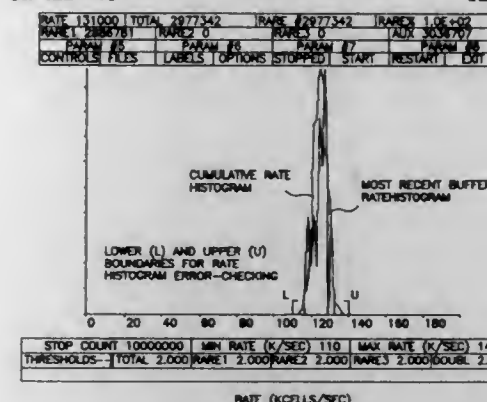
SYSTEM FOR HIGH-SPEED MEASUREMENT AND SORTING OF PARTICLES

James F. Leary; Mark A. Corio, and Scott R. McLaughlin, all of Rochester, N.Y., assignors to University of Texas Medical Branch at Galveston, Galveston, Tex.

Continuation of Ser. No. 323,530, Oct. 14, 1994, abandoned, which is a continuation of Ser. No. 39,921, Mar. 29, 1993, abandoned, which is a division of Ser. No. 585,732, Sep. 20, 1990, Pat. No. 5,231,623, which is a continuation of Ser. No. 990,628, Dec. 14, 1992, abandoned, which is a division of Ser. No. 671,009, Mar. 18, 1991, Pat. No. 5,204,884. This application Aug. 23, 1996, Ser. No. 702,209
Int. Cl.⁶ G01N 33/00; B07C 5/02

U.S. Cl. 422—73

12 Claims



1. A system for sorting particles in a sample, comprising: a source of a flow of particles; a measuring circuit determining a plurality of digital signal indications representing the presence or absence of multiple parameters on each particle in said flow; logic circuitry for determining whether or not a logic condition is satisfied for each particle on the basis of said plurality of digital signal indications representing the presence or absence of said multiple parameters; and a sorter, responsive to the logic circuitry, to output only those particles for which said logic condition is satisfied, wherein said plurality of digital signal indications are derived from a plurality of detection signals respectively indicating the presence or absence of said multiple parameters, and wherein said measuring circuit, said logic circuitry and said sorter are configured to sort said particles at a rate of at least 100,000 particles/second.

5,804,144

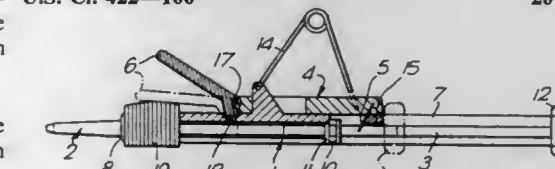
PISTON PIPETTE

Jukka Tervamäki, Helsinki, Finland, assignor to Labsystems OY, Helsinki, Finland

Continuation of Ser. No. 537,671, Oct. 19, 1995, abandoned.
This application Jun. 6, 1997, Ser. No. 870,291Claims priority, application Finland, Apr. 21, 1993, 931806
Int. Cl.⁶ B01L 3/02

U.S. Cl. 422—100

20 Claims



1. A piston pipette having a longitudinal body having a cylinder space and forming a pen-shaped handle and having a top end and a lower end, a cylinder in said cylinder space, said cylinder having a point extending outwardly from said lower end of said body and having a liquid opening in said point and an open upper end, a piston extending inwardly into said open upper end of said cylinder and having an integral rod emerging from an upper end of said piston.

cylinder and moving means for moving said piston upward and downward in said cylinder, said moving means including transfer means movable in the longitudinal direction of said piston rod between a top position and a bottom position of said longitudinal body for moving said piston downward in said cylinder, said transfer means having attached thereto a gripping means which, when moved downward, moves said piston upward in said cylinder, said transfer means extending below said gripping means, said pipette further including a control rod for determining the position of engagement of said gripping means with said piston rod; a spring attached to said transfer means and to said control rod, said spring being arranged to pull said transfer means, with said attaching means, in the direction toward said top end of said longitudinal body and toward said piston rod upon movement of said transfer means toward said bottom position of said longitudinal body.

5,804,145

APPARATUS FOR THE PREPARATION OF MICROSCOPE SLIDES

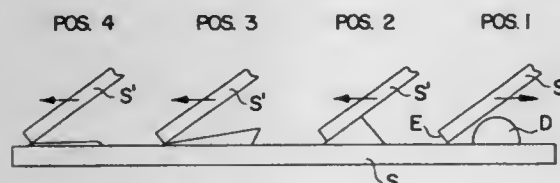
Daniel Dashui Gao, Miami, and Cynthia J. Sperber, Fort Lauderdale, both of Fla., assignors to Coulter International Corp., Miami, Fla.

Division of Ser. No. 555,688, Nov. 14, 1995, Pat. No. 5,650,332. This application Mar. 21, 1997, Ser. No. 821,839

Int. Cl.⁶ G01N 33/49

U.S. Cl. 422—101

3 Claims



1. Apparatus for making a blood smear on a microscope slide, comprising:
 - slide support means for supporting a microscope slide on which a blood smear is to be made;
 - blood supply means for depositing a drop of blood of predetermined volume on a normally planar surface of said microscope slide at a predetermined location thereon;
 - drop-spreading means for spreading said blood drop on a slide supported by said slide support means, thereby producing a blood smear on said slide; and
 - slide deformation means for deforming said normally planar surface of a slide supported by said slide support means in a direction away a drop deposited thereon, said deformation being effected prior to and during the spreading of said drop by said drop spreading means, said slide deformation means comprising a vacuum source operatively connected to said slide support means for generating a vacuum pressure on said slide at a location to both hold said slide on said support means and to deform said slide.

5,804,146

CHEMICAL OXYGEN GENERATOR

Harald Heyer, Wesenberg; Udo Burchardt, Gross Grönu, and Rainer Ernst, Stockelsdorf-Curau, all of Germany, assignors to Drägerwerk AG, Lübeck, Germany

Filed Mar. 4, 1997, Ser. No. 810,400

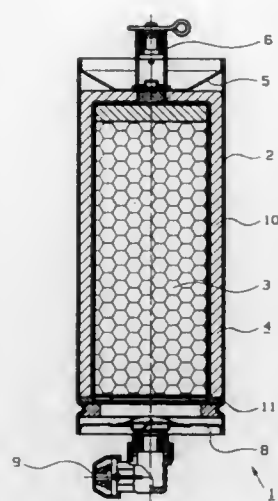
Claims priority, application Germany, Apr. 19, 1996, 196 15 501.0

Int. Cl.⁶ A62B 7/08; B01J 7/00

U.S. Cl. 422—126

8 Claims

1. A chemical oxygen generator, comprising:
 - a container;
 - a chemical mass, which is accommodated inside said container, for generating oxygen by a chemical reaction;



a gas-permeable fibrous material arranged around said chemical mass for holding said chemical mass; and
a sorption material impregnated in said gas-permeable fibrous material; said gas-permeable fibrous material and said sorption material form a sorption filter and a sorbent for chlorine is provided in said sorbent material and is sodium hydroxide or calcium hydroxide.

5,804,147

EXHAUST GAS MANAGEMENT APPARATUS AND METHOD

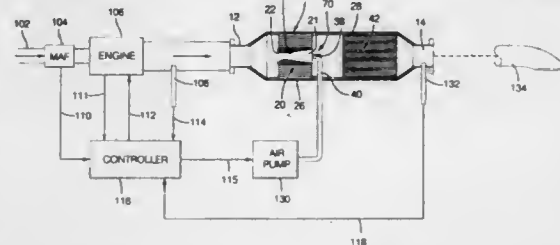
Scott Christopher Blanchet, Imlay City; Wayne Richard Moore, Goodrich; Russell Paul Richmond, Clifford, and Michael Ralph Foster, Columbiaville, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 797,545, Feb. 3, 1997, Pat. No. 5,766,559. This application Jun. 30, 1997, Ser. No. 885,968

Int. Cl.⁶ B01D 53/34; F01N 3/28

U.S. Cl. 422—171

15 Claims



1. An exhaust gas management apparatus comprising:
 - a first substrate coated with a first oxidizing catalyst, wherein the first substrate includes a bypass passage therethrough, wherein the bypass passage includes an axial opening extending along an axial direction through the first substrate, and wherein the first substrate includes a body portion radially exterior of the axial opening;
 - an air source located downstream in an exhaust flow path of the axial opening;
 - a controllable air pump unit forcing secondary air through the air source wherein, during an activation of the controllable air pump unit, the bypass passage is valved shut by the secondary air flowing out of the air source and blocking the bypass passage; and
 - a second substrate coated with a second oxidizing catalyst located in the path of exhaust downstream of the first substrate
- wherein the bypass passage also includes an air flow directing body including an inlet end and an outlet end and defining a region located between the inlet end and the outlet end and having a first diameter smaller than second and third diam-

eters of the inlet and outlet ends, respectively, wherein the air flow directing body is mounted proximate the axial opening, wherein during the activation of the controllable air pump unit, the bypass passage is valved shut at the region having the first diameter, wherein a first air flow rate of the secondary air forced through the air source is required to valve shut the bypass passage at the region having the first diameter, wherein the first air flow rate is less than a second air flow rate that would be required to valve shut the bypass passage at a location within the bypass passage other than the region having the first diameter.

5,804,148

ENGINE EXHAUST PURIFIER

Hiroyuki Kanesaka, Narita, and Yasuyuki Murofushi, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

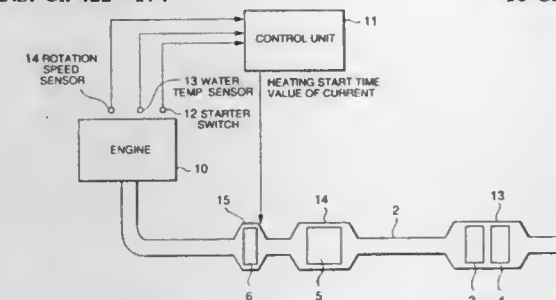
Filed Mar. 17, 1997, Ser. No. 819,181

Claims priority, application Japan, Mar. 22, 1996, 8-065683

Int. Cl.⁶ F01N 3/10

U.S. Cl. 422—174

16 Claims



1. An exhaust purifier provided in an exhaust passage of an engine for purifying exhaust gas from the engine, comprising:
 - an adsorbent disposed in said exhaust passage which absorbs hydrocarbons from the exhaust gas in a predetermined temperature region and discharges adsorbed hydrocarbons at a temperature higher than said temperature region, said adsorbent having an inlet;
 - a catalyst disposed in said exhaust passage downstream from said adsorbent, said catalyst oxidizing hydrocarbons at a temperature higher than said temperature region;
 - an electric heater for heating exhaust in said exhaust passage according to a power supply, said heater being disposed in said exhaust passage upstream from said adsorbent; and
 - a microprocessor programmed to:
 - determine a temperature at said inlet of said adsorbent;
 - calculate an adsorption capacity of said adsorbent from said temperature at said inlet;
 - determine a timing at which power supply to said heater is started based on the adsorption capacity; and
 - start power supply to said heater at said timing.

5,804,149

GAS-CLEANING EQUIPMENT AND ITS USE

Hiroaki Ota; Daihei Kobayashi; Takeshi Yanobe; Fujio Sakamoto, all of Yokohama, and Yuji Hayashi, Kawasaki, all of Japan, assignors to Hokushin Industries, Inc., Kanagawa, and Fujitsu Limited, Kawasaki, both of Japan

Continuation of Ser. No. 582,900, Jan. 4, 1996, abandoned, which is a division of Ser. No. 278,069, Jul. 20, 1994, Pat. No. 5,492,678. This application May 9, 1997, Ser. No. 853,416

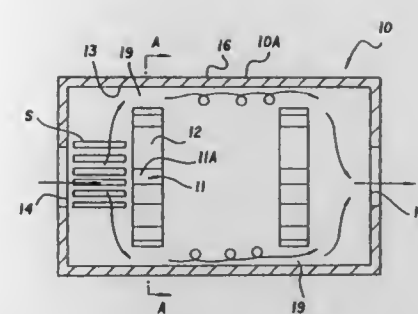
Claims priority, application Japan, Jul. 23, 1993, 5-183100; Nov. 30, 1993, 5-299474; Dec. 28, 1993, 5-336902; May 11, 1994, 6-097783

Int. Cl.⁶ F01N 3/10

U.S. Cl. 422—174

6 Claims

1. A gas cleaning equipment comprising a housing having a suction port and a discharging port, at least one fan with at least



one rotating blade disposed in said housing between the suction port and the discharge port, wherein a gap is formed between said at least one rotating blade and an internal wall of the housing, means for generating a plasma in form of a ring in said gap, and a metallic layer having a catalytic effect is formed on a surface of at least one of said at least one rotating blade and said internal wall of the housing.

5,804,150

PROCESS FOR TREATING GOLD-CONTAINING SULFIDE ORES

Michael Tacke, Friedrichsdorf; Walter Pierson, Eschborn, and Eberhard Stolarski, Oberursel, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Feb. 24, 1997, Ser. No. 805,409

Claims priority, application Germany, Mar. 9, 1996, 196 09 286.8

Int. Cl.⁶ C22B 11/00; 1/00; 3/00

U.S. Cl. 423—23

9 Claims

1. A process for treating a granular sulfide ore containing gold and at least one accompanying metal other than gold, said accompanying metal being iron or a non-ferrous metal selected from the group consisting of silver, copper, nickel and zinc, which comprises the steps of:
 - (a) calcining the granular sulfide ore at a temperature of 500° to 900° C. with addition of gas containing free oxygen to produce a gold-containing, metal oxide-containing solids mixture and an SO₂-containing exhaust gas;
 - (b) forming an aqueous sulfite solution by contacting the SO₂-containing exhaust gas with an aqueous solution;
 - (c) cooling the gold-containing, metal oxide-containing solids mixture formed in step (a) to a temperature of 50° to 300° C. to form a cooled gold-metal oxide-containing mixture;
 - (d) combining the aqueous sulfite solution with the cooled gold-metal oxide-containing mixture and stirring the cooled gold-metal oxide-containing solids mixture in the aqueous sulfite solution formed in step (b) to dissolve the metal oxides in the aqueous sulfite solution to form therein the corresponding metal sulfates thereby forming an aqueous sulfite and sulfate solution; and
 - (e) separating the solids containing gold from the aqueous sulfite and sulfate solution containing the dissolved metal sulfates.

5,804,151

PROCESS FOR AUTOCLAVING MOLYBDENUM DISULFIDE

William H. Sweetser, Tucson, Ariz., and Leonard N. Hill, Silverthorne, Colo., assignors to Cyprus Amax Minerals Company, Englewood, Colo.

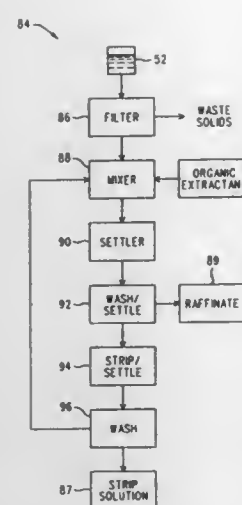
Filed Sep. 16, 1997, Ser. No. 931,147

Int. Cl.⁶ C01G 37/14

U.S. Cl. 423—58

25 Claims

25. A method for producing MoO₃ from MoS₂ comprising the steps of:
 - providing a supply of MoS₂;



combining said MoS_2 with H_2O to form a slurry having a slurry density of about 5–20% by weight solids; heating said slurry to a temperature in the range of about 175°–225° C. for a time period in the range of about 50–75 minutes in an atmosphere comprising at least one oxygen-containing oxidizing gas selected from the group consisting of O_2 , air, and mixtures thereof which is maintained at a pressure in the range of about 50–300 psig in order to initiate said oxidation and conversion of said MoS_2 into MoO_3 ; terminating said oxidation and conversion of said MoS_2 into MoO_3 when about 70–95% by weight MoS_2 has been oxidized and converted into MoO_3 in order to generate a solid reaction product comprising said MoO_3 and unreacted MoS_2 in combination with a residual liquid product comprising dissolved Mo therein; separating said solid reaction product from said residual liquid product; combining said residual liquid product with at least one extractant in order to generate a first liquid fraction and a second liquid fraction, said second liquid fraction comprising said dissolved Mo and said extractant; transferring said second liquid fraction containing said dissolved Mo back to said reaction chamber so that said dissolved Mo is combined with incoming additional supplies of MoS_2 for subsequent conversion into additional amounts of MoO_3 ; removing said unreacted MoS_2 from said solid reaction product; and transferring said unreacted MoS_2 back to said reaction chamber for combination with said incoming additional supplies of MoS_2 for subsequent conversion into said additional amounts of MoO_3 .

5,804,152

METHOD FOR PURIFYING EXHAUST GASES

Naoto Miyoshi, Nagoya; Hiromasa Suzuki, Kasugai; Osamu Ogawa, Toyota; Mareo Kimura, Nagoya; Yuzo Kawai, Nishin; Koji Yokota; Naoki Takahashi, both of Nagoya, and Toshiyuki Tanaka, Aichi-gun, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, both of Japan
Filed Oct. 23, 1995, Ser. No. 551,918

Claims priority, application Japan, Oct. 21, 1994, 6-256976; Jan. 13, 1995, 7-004396

Int. Cl. B01D 53/94

U.S. Cl. 423—213.5

18 Claims

1. A process for purifying carbon monoxide, hydrocarbons and nitrogen oxides at the stoichiometric point or in exhaust gases in oxygen-rich atmosphere, thereby purifying the exhaust gases, the process comprising the step of:

bringing exhaust gases at stoichiometric point or in oxygen-rich atmosphere, whose oxygen concentration is more than

required for oxidizing the components to be oxidized therein, into contact with a catalyst:

the catalyst comprising:

an alumina support;

a Ti—Zr composite oxide loaded on said alumina support; at least one NO_x storage compound selected from the group consisting of alkali metals and alkaline-earth metals loaded on said alumina support; and

a noble metal element loaded on said alumina support,

whereby said nitrogen oxides in said exhaust gases are adsorbed to said NO_x storage compound on said alumina support under an oxygen-rich atmosphere in which oxygen concentration is above the stoichiometric point that is required for oxidizing components to be oxidized in said exhaust gases, and said adsorbed nitrogen oxides are released and purified by a reaction with said hydrocarbons and carbon monoxide in said exhaust gases under a stoichiometric atmosphere or a reduction atmosphere in which oxygen concentration is below the stoichiometric point, and

whereby said Ti—Zr composite oxide inhibits said NO_x storage compound from reacting with sulfur oxides contained in said exhaust gases to form sulfates and sulfites.

5,804,153

CATALYTIC REMOVAL OF SULFUR DIOXIDE FROM FLUE GAS

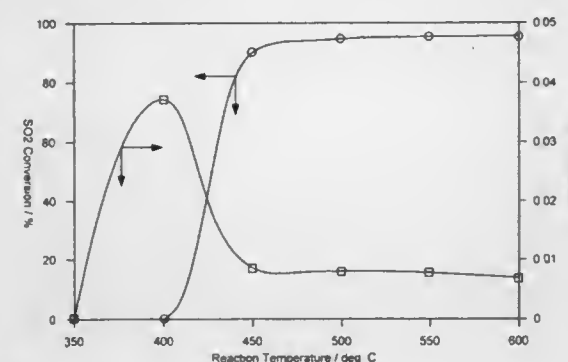
Ming Fang; Jian Xin Ma, both of Clearwater Bay, and Ngai Ting Lau, Tai Po, all of Hong Kong, assignors to The Hong Kong University Of Science & Technology, Hong Kong

Continuation-in-part of Ser. No. 357,028, Dec. 16, 1994, abandoned. This application Jul. 2, 1996, Ser. No. 674,715

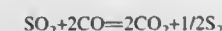
Int. Cl. B01D 53/50; 53/62

U.S. Cl. 423—242.1

8 Claims



1. A method for the catalytic reduction of sulfur dioxide to elemental sulfur employing the reduction reaction



wherein said reaction is carried out in the presence of a catalyst consisting essentially of a rare earth oxysulfide or oxysulfide/oxydisulfide mixture as the only active component at a reaction temperature of between 350° C. and 750° C. wherein said rare earth oxysulfide or oxysulfide/oxydisulfide is prepared by sulfidization of a hydrated rare earth oxide at a temperature between about 400° C. and about 900° C.

5,804,154

PROCESS FOR THE PRODUCTION OF A SILICA-SUBSTANCE CONTAINING MATERIALS AND MATERIALS PRODUCED THEREFROM

Victor Alexander Milles, Wilfriedstrasse 2, 8032 Zürich, Switzerland

PCT No. PCT/CH93/00269, § 371 Date Aug. 2, 1994, § 102(e)

Date Aug. 2, 1994, PCT Pub. No. WO94/13597, PCT Pub.

Date Jun. 23, 1994

PCT Filed Nov. 26, 1993, Ser. No. 284,413

Claims priority, application Switzerland, Dec. 9, 1992, 3763/92

Int. Cl. C01B 33/12

U.S. Cl. 423—338

29 Claims

1. A process for the preparation of stable, reactive semfinished product based on sol oxides, polysilicates and fillers for use in solid mineral materials, said process comprising the steps of:

a) mixing together

i) a filler component containing macroparticles having a size above the colloid limit of the particles in the sol-gel dispersion;

ii) a reaction component containing an acid component, and

iii) a buffer component containing sol oxides and polysilicates to form a first mixture;

b) forming granulates by adding a first hydrating agent to said first mixture until substantially dry granulates are obtained; and

c) setting and stabilizing said granulates by mixing said granulates with a second hydrating agent while maintaining an excess of said second hydrating agent to form said stable, reactive semfinished product.

5,804,155

BASIC ZEOLITES AS HYDROCARBON TRAPS FOR DIESEL OXIDATION CATALYSTS

Robert J. Farrauto, Westfield, and Michel Deeba, North Brunswick, both of N.J., assignors to Engelhard Corporation, Iselin, N.J.

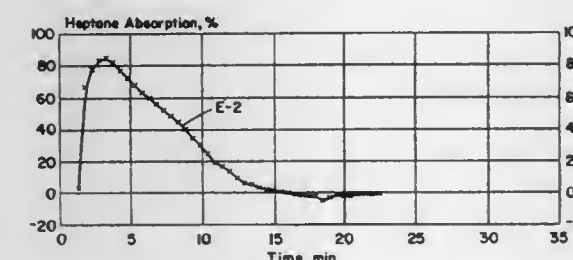
Continuation-in-part of Ser. No. 255,289, Jun. 7, 1994, which is a continuation of Ser. No. 38,378, Mar. 29, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,461, Nov. 19, 1992, abandoned. This application Dec. 18, 1995, Ser.

No. 576,423

Int. Cl. B01J 8/02

U.S. Cl. 423—239.2

8 Claims



1. A method of treating gas streams comprising hydrocarbons comprising the steps of:

adsorbing the hydrocarbons on to basic magnesium Beta zeolites at a low adsorption temperature range;

releasing the hydrocarbons from the zeolite at a high release temperature range;

catalytically oxidizing the hydrocarbons.

5,804,156

IRON CARBIDE PROCESS

Gordon H. Geiger, Minneapolis, Minn.; Arden W. Swanson, North Olmsted, Ohio; Frank A. Stephens, and Frank M. Stephens, Jr., both of Lakewood, Colo., assignors to Iron Carbide Holdings, Ltd., Lakewood, Colo.

Filed Jul. 19, 1996, Ser. No. 684,408

Int. Cl. C01B 31/30

U.S. Cl. 423—439

3 Claims

1. A process for producing iron carbide in a fluid bed reactor comprising:

(a) preheating an iron-containing feed material comprising hematite in a reducing atmosphere to produce a reduced iron-containing reactor feed.

(b) introducing said reduced iron-containing reactor feed into a fluid bed reactor,

(c) contacting said feed in said reactor with a reactant gas comprising hydrogen, methane, carbon dioxide, carbon monoxide and water to convert at least a portion of said feed to iron carbide, and

(d) contacting said reactor feed with said reactant gas under a total gas pressure of at least 8 atmospheres and at a temperature in the range from about 550° C. to 650° C.

5,804,157

PEPTIDE COMPOSITIONS AND METHOD OF RADIOLABELING

Ananthachari Srinivasan, St. Charles; Mary Marmion Dyszlewski, Maryland Heights, and Joseph E. Bugaj, St. Charles, all of Mo., assignors to Mallinckrodt Medical, Inc., St. Louis, Mo.

Continuation of Ser. No. 480,373, Jun. 7, 1995. This application Dec. 12, 1997, Ser. No. 989,434

Int. Cl. A61K 51/00; A61M 36/14

U.S. Cl. 424—1.69

6 Claims

1. The peptide

D-Phe-Cys-XXX-D-Trp-Lys-Thr-Cys-Thr-OH

wherein

XXX represents Phe or Tyr, and

—OH indicates that the carboxy terminal amino acid is in its carboxylic acid form.

5,804,158

SEQUESTERED IMAGING AGENTS

Alfred Pollak, Toronto, Canada, assignor to Resolution Pharmaceuticals Inc., Mississauga, Canada

Filed May 31, 1995, Ser. No. 454,859

Int. Cl. A61K 51/00; A61M 36/14

U.S. Cl. 424—1.69

19 Claims

1. A compound useful for diagnostic imaging at a site of diagnostic interest, comprising an imaging agent-ligand complex comprising:

an imaging agent comprising a chelator for a traceable metal; a ligand capable of localizing in vivo at a site removed from the site of diagnostic interest; and

a metal-cleavable bond coupling the chelator of the imaging agent to the ligand, wherein the metal-cleavable bond is cleavable in vivo or in vitro to form a metal-imaging agent complex and a cleaved ligand;

wherein the metal-imaging agent complex localizes selectively in vivo at the site of diagnostic interest and the cleaved ligand and any uncleaved imaging agent-ligand complex present localize in vivo at the site removed from the site of diagnostic interest.

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5,804,159

ANTIPLASMA ANIMAL MODEL

Johann Eibl, Vienna; Peter Turecek, Klosterneuburg Weidling, and Hans Peter Schwarz, Vienna, all of Austria, assignors to Immuno Aktiengesellschaft, Vienna, Austria

Filed Jun. 7, 1996, Ser. No. 663,031

Claims priority, application Austria, Jun. 9, 1995, 987/95

Int. Cl.⁶ A61K 48/00; C12N 15/63; C07K 16/00

U.S. Cl. 424—9.1

3 Claims

1. A method of generating a mammalian blood clotting disorder model comprising administering an effective amount of a polyspecific anti-plasma antibody preparation to a non-human mammal, wherein several blood factors are functionally inhibited and/or eliminated in said non-human mammal thereby changing the blood clotting time when compared to a non-human mammal that has not received said polyspecific anti-plasma antibody preparation.

5,804,160

ANIMAL MODEL FOR HEPATITIS VIRUS INFECTION

Yair Reisner, Tel Aviv, Israel, assignor to Yeda Research and Development Co. Ltd, Rehovot, Israel

Division of Ser. No. 337,925, Nov. 10, 1994, which is a continuation-in-part of Ser. No. 242,580, May 13, 1994, and Ser. No. 61,706, May 17, 1993, Pat. No. 5,652,373, which is a continuation-in-part of Ser. No. 892,911, Jun. 2, 1992, abandoned, said Ser. No. 242,580 is a continuation-in-part of Ser. No. 61,706. This application Apr. 8, 1997, Ser. No. 832,172

Claims priority, application Israel, Jun. 4, 1991, 98369; Sep. 8, 1993, 106951

Int. Cl.⁶ A61K 39/395; 49/00; C12N 5/09; 15/09

U.S. Cl. 424—9.1

5 Claims

1. A method of obtaining xenogeneic anti-HV immune cells or antibodies from a host mouse or rat, comprising:

- providing a mouse or rat M5 having xenogeneic hematopoietic cells, said mouse or rat M5 being a mouse or rat M1, the hematopoietic cells of which have been substantially destroyed, and then transplanted with cells or tissue from at least three different sources, at least one of said sources being hematopoietic cells from a mouse M2 having a severe combined immunodeficiency, at least a second of said sources being xenogeneic hematopoietic cells from a mammal M6 of a species other than that of mouse or rat M1 and mouse M2, and at least a third of said sources being liver tissue from a xenogeneic mammal M3 of a species capable of being infected by HV, wherein the xenogeneic liver tissue in the mouse or rat M5 is infected by HV;
- recovering xenogeneic immune cells or antibodies from said rat or mouse M5; and
- selecting cells or antibodies having an anti-HV reactivity from the recovered xenogeneic immune cells or antibodies.

5,804,161

CONTRAST AGENTS

Jeffrey R. Long; Xhiping Xheng; Richard H. Holm, all of Cambridge, Mass.; Shi-Bao Yu, Wayne, Pa.; Michael Droegge, Livermore, Calif., and William A. Sanderson, Wayne, Pa., assignors to Nycomed Salutar Inc., Wayne, Pa.

Continuation of Ser. No. 649,000, May 14, 1996, abandoned.

This application Aug. 26, 1996, Ser. No. 704,009

Int. Cl.⁶ A61K 49/04; C07F 15/00

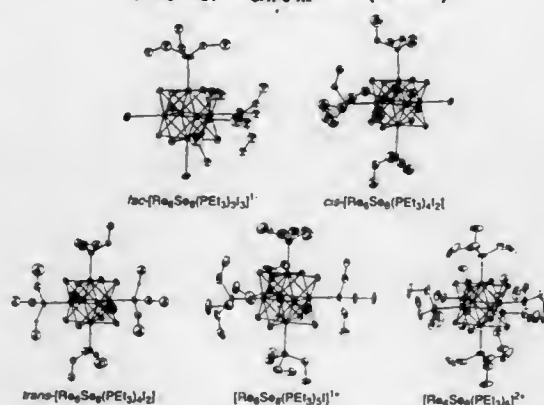
U.S. Cl. 424—9.42

9 Claims

1. A compound of formula (I)



where M is Re or Rh;
each Q is a bridging atom selected from O, S, Se and Te;
B is a monovalent non-bridging atom or moiety;
L is a PR₃ group in which R is C₁₋₆ alkyl or aryl, optionally substituted on the alkyl or aryl group by one of more water-



solubilising groups such as an amine or hydroxyl group, or the three R groups together form a C₆₋₁₀ trivalent group which may also contain up to three nitrogen or oxygen atoms;

n is an integer from 0 to 6;

and x is an integer from -2 to +4, representing the overall charge of the cluster, which when non-zero is accompanied by one or more counter ions of equal and balancing charge with the proviso that where M is Re₃, Q is Te₃, n=6, and x=+2, then B cannot be TeBr₂.

5,804,162

GAS EMULSIONS STABILIZED WITH FLUORINATED ETHERS HAVING LOW OSTWALD COEFFICIENTS

Alexey Kabalnov; Ernest George Schutt, and Jeffrey Greg Weers, all of San Diego, Calif., assignors to Alliance Pharmaceutical Corp., San Diego, Calif.

Filed Jun. 7, 1995, Ser. No. 479,621

Int. Cl.⁶ A61K 49/00; G01N 31/00; 33/48

U.S. Cl. 424—9.51

89 Claims

1. A gas emulsion for ultrasound contrast enhancement comprising a plurality of microbubbles in a liquid medium, said microbubbles comprising a gas or vapor selected from the group consisting of fluoromonoethers, fluoropolyethers, and mixtures thereof.

5,804,163

CONTRAST AGENTS FOR MAGNETIC RESONANCE IMAGING AMINOSACCHARIDE

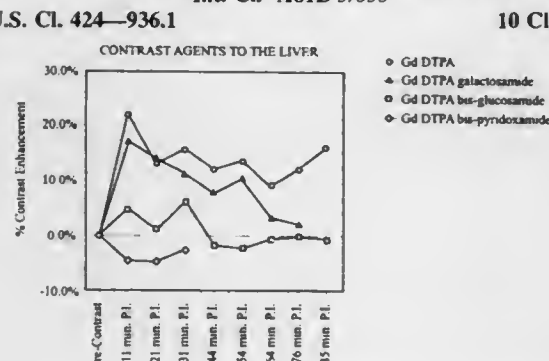
Wendell A. Gibby, Mapleton, and N. Rao Puttagunta, Provo, both of Utah, assignors to Magnetic Research, Inc., Provo, Utah

Division of Ser. No. 975,607, Nov. 12, 1992, Pat. No. 5,330,743. This application Jul. 14, 1994, Ser. No. 274,966

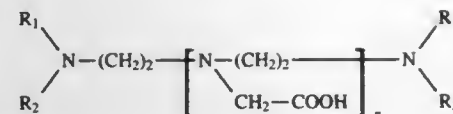
Int. Cl.⁶ A61B 5/055

U.S. Cl. 424—936.1

10 Claims



1. A contrast enhancing agent comprising a chelating agent represented by the formula:



wherein n=an integer between 1 and 3; and

R₁ and R₂ are the same or different, independently, and are selected from the group consisting of H, Alkyl (C₁₋₁₈), aryl, arylalkyl, mono and polyhydroxyaryl, mono and polymethoxyaryl, substituted aryl, substituted hydroxyaryl, alkoxyalkyl, arylalkoxyalkyl, cyclohexyl, mono or polyhydroxy cyclohexyl, furfuryl, pyranlylalkyl, tetrahydropyranlylalkyl, and monosaccharide, and wherein at least one of R₁ or R₂ is a monosaccharide.

5,804,164

WATER-SOLUBLE LIPOPHILIC CONTRAST AGENTS

Gabriel A. Elgavish, Hoover, Ala., assignor to Research Corporation Technologies, Inc., Tucson, Ariz.

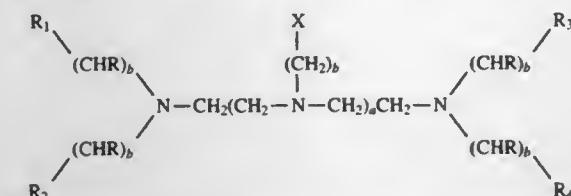
Filed Mar. 13, 1996, Ser. No. 615,661

Int. Cl.⁶ A61B 5/055

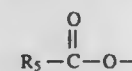
U.S. Cl. 424—9.364

42 Claims

1. A water-soluble contrast-enhancing agent comprising a complexing acid or a salt thereof and at least one paramagnetic, diamagnetic or ferromagnetic metal ion, in any stoichiometric ratio between said metal ion and said complexing acid or salt, wherein said complexing acid or salt has the formula:



wherein a is 0 to 5; b is 1 to 5; each of a and b can be the same or different; each R is the same or different and is hydrogen, lower alkyl, hydroxy, halo, lower alkoxy, aryl, or lower aralkyl; at least one of R₁, R₂, R₃, R₄, or X has the formula:



wherein R₅ is hydrogen or a saturated or unsaturated, substituted or unsubstituted hydrocarbon chain having less than 6 carbon atoms; and the others of R₁, R₂, R₃, R₄, or X are hydrogen, hydroxyl, —COOR₆, —CONR₇R₈ or a chelating moiety, wherein R₆, R₇ and R₈ are the same or different and represent hydrogen, lower alkyl, lower alkoxy, lower carboxyalkylene, a saturated or unsaturated, substituted or unsubstituted hydrocarbon chain having from about 1 to about 30 carbon atoms, or a chelating moiety.

5,804,165

ANTIPLAQUE ORAL COMPOSITION

Michael J. Arnold, 791 Newton Way, Costa Mesa, Calif. 92627

Filed Jul. 24, 1996, Ser. No. 685,703

Int. Cl.⁶ A61K 7/16; 9/46; 9/20; 9/48

U.S. Cl. 424—44

8 Claims

1. An effervescent tablet or capsule of effervescent powder for oral use comprising:
a) a non-aqueous, water soluble pharmaceutically acceptable carbon dioxide source selected from the group consisting of bicarbonate salt, carbonate salt, and mixtures thereof;
b) silica; and
c) xylitol wherein the ratio of the weight of said xylitol to the weight of said bicarbonate and silica is between about 0.5 to

3 and about 7 to 3 and the ratio of the weight of said xylitol to said silica is less than 10 to 1.

5,804,166

LOW VOC HAIR SPRAYS CONTAINING CELLULOSE ETHERS

Anita N. Chan; Anthony B. Clayton, both of Wilmington, and Jashwant J. Modi, Hockessin, all of Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed May 9, 1997, Ser. No. 854,049

Int. Cl.⁶ A61K 7/00

U.S. Cl. 424—47

47 Claims

1. A hair spray composition comprising at least one water-soluble, non-ionic cellulose ether dissolved in a base comprising water and volatile organic solvent, wherein the level of volatile organic solvent in the composition is about 80% by weight or less, and wherein the non-ionic cellulose ether is characterized by a solution viscosity less than about 50 cps. at 25° C. for an aqueous solution containing 3 wt. % solids, 55 wt. % ethanol and 42 wt. % water, and wherein the hair spray composition is characterized by a viscosity satisfactory for spraying performance.

5,804,167

EMULSIFIER-FREE, FINELY DISPERSE COSMETIC OR DERMATOLOGICAL FORMULATIONS OF THE WATER-IN-OIL TYPE

Uwe Schönrock, Norderstedt; Michael Christiansen, Tornesch, and Sigrid Steinke, Hamburg, all of Germany, assignors to Beiersdorf AG, Hamburg, Germany

Filed Oct. 2, 1996, Ser. No. 724,939

Claims priority, application Germany, Oct. 24, 1995, 195 39 428.3

Int. Cl.⁶ A61K 7/42; 6/00; 7/00

U.S. Cl. 424—59

7 Claims

1. Finely disperse, emulsifier-free cosmetic or dermatological formulations of the water-in-oil type, comprising an oily phase comprising, as the main constituent, one or more non-polar fats or waxes, an aqueous phase, one or more salts of di- or trivalent metal cations and one or more alkylcarboxylic acids having 10–24 C atoms, and, optionally, comprising cosmetic or dermatological auxiliaries, additives or active compounds.

5,804,168

PHARMACEUTICAL COMPOSITIONS AND METHODS FOR PROTECTING AND TREATING SUN DAMAGED SKIN

Howard Murad, 4316 Marina City Dr., Marina del Rey, Calif. 90292

Filed Jan. 29, 1997, Ser. No. 790,190

Int. Cl.⁶ A61K 7/42; 7/44; 7/00

U.S. Cl. 424—59

21 Claims

1. A pharmaceutical composition for the protection from or treatment of skin damage resulting from exposure to skin damaging light in a patient comprising:
at least one primary antioxidant component in an amount sufficient to reduce free radicals in the patient's body;
at least one anti-inflammatory component in an amount sufficient to reduce inflammation of the patient's skin; and
at least one immunity boosting component in an amount sufficient to stimulate the patient's immune system response to protect skin or facilitate repair of damaged skin.

5,804,169

QUICK-DRYING AGENT FOR A NAIL VARNISH FILM AND DRYING PROCESS USING THE SAID AGENT
Roland Ramin, Itteville, France, assignor to L'Oreal, Paris, France

Filed Nov. 30, 1995, Ser. No. 565,757
Claims priority, application France, Dec. 1, 1994, 94 14462
Int. Cl.⁶ A61K 7/00;7/04

U.S. Cl. 424—61 19 Claims
1. A quick-drying agent for a film of nail varnish comprising at least one silicone oil and at least one solvent, wherein the solvent comprises petroleum ether.

5,804,170

DEODORANT COMPOSITION
Osamu Negishi, Saitama, and Tetsuo Ozawa, Ibaraki, both of Japan, assignors to Takasago Koryo Kogyo Kabushiki Kaisha (Takasago International Corporation), Tokyo, Japan
Filed Jul. 30, 1996, Ser. No. 681,913
Claims priority, application Japan, Jul. 31, 1995, 7-212999
Int. Cl.⁶ A61K 7/32;35/78;7/00

U.S. Cl. 424—65 17 Claims
1. A composition comprising a phenolic compound and an enzyme capable of oxidizing said phenolic compound wherein said composition has a deodorizing effect.

5,804,171

COMPOSITION FOR THE OXIDATION DYEING OF KERATINOUS FIBRES AND DYEING PROCESS EMPLOYING THIS COMPOSITION
Marie-Pascale Audoussot, Asnières, and Jean Cotteret, Verneuil Sur Seine, both of France, assignors to L'Oreal, Paris, France

Filed Jan. 22, 1996, Ser. No. 589,372
Claims priority, application France, Jan. 20, 1995, 95-00663
Int. Cl.⁶ A61K 7/13;7/06

U.S. Cl. 424—70.1 18 Claims
1. A composition for the oxidation dyeing of keratinous fibres, comprising, in a medium suitable for dyeing, at least one oxidation dye precursor of 3-fluoro-4-aminophenol and N,N'-bis(β-hydroxyethyl)-N,N'-bis(4'-aminophenyl)-1,3-diamino-2-propanol or their addition salts with an acid, and 4-hydroxyindole, as a coupler.

5,804,172

COMPOSITIONS AND METHODS FOR REMOVING MINERALS FROM HAIR
Frederick K. Ault, Muncie, Ind., assignor to Vitachlor Corporation, Muncie, Ind.

Continuation of Ser. No. 387,608, Feb. 13, 1995, abandoned, which is a continuation of Ser. No. 41,530, Apr. 1, 1993, abandoned, which is a continuation of Ser. No. 807,086, Dec. 13, 1991, abandoned. This application Aug. 29, 1996, Ser. No. 705,545
Int. Cl.⁶ A61K 7/00;7/06

U.S. Cl. 424—70.1 6 Claims
1. An acidic aqueous composition suitable for removing iron from hair comprising:
(a) an acidifying agent effective to provide an acidic environment of pH between about 2 and about 5 when the composition is used in solution on hair;
(b) an ascorbic acid reducing agent present at a concentration of at least 2.1 percent w/w effective to reduce the oxidation state of iron ions bonded to hair from the Fe³⁺ oxidation state to the Fe²⁺ oxidation state;
(c) a chelating agent effective to remove iron ions covalently bonded to hair, said chelating agent comprising 1.5 percent

disodium EDTA, 2.7 percent sodium gluconate, 0.42 percent citric acid and 0.42 percent sodium citrate (w/w) of composition;
(d) a gelling agent; and
(e) water.

5,804,173

PERSONAL CARE COMPOSITIONS
Thomas Allen Hutchins; Jose Antonio Carballada, both of Cincinnati; Raymond Edward Bolich, Jr., Maineville; Peter Marte Torgerson, Washington Courthouse; Michael Albert Snyder, and Mario Paul Clarizia, both of Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 736,316, Oct. 23, 1996, abandoned, which is a continuation of Ser. No. 707,775, Sep. 4, 1996, abandoned. This application Apr. 9, 1997, Ser. No. 833,817
Int. Cl.⁶ A61K 7/09

U.S. Cl. 424—70.16 22 Claims
1. A personal care composition, comprising:
A.) a copolymer complex comprising:

a.) a copolymer having a backbone formed from the copolymerization of repeating A monomer and B monomer units wherein the backbone has optionally grafted to it hydrophobic C macromonomer units wherein the copolymer is prepared by the polymerization combination of the following relative weight percentages of the A, B, and C units:

i) from about 10% to about 99% by weight of the copolymer of one or more hydrophobic A monomer units selected from the group consisting of t-butyl acrylate, t-butyl methacrylate, t-butyl styrene, 2-ethylhexyl methacrylate and mixtures thereof, wherein the A monomer units are copolymerizable with the B monomer and C macromonomer units;

ii) from about 1% to about 40% by weight of the copolymer of one or more hydrophilic B monomer units selected from the group consisting of N,N-dialkylaminoethylmethacrylate, N,N-dialkylaminoethylmethacrylate, N,N-dialkylaminopropylmethacrylate, N,N-dialkylaminopropylmethacrylate, N,N-dialkylaminopropylmethacrylamide, acid salts thereof, quaternary addition salts thereof and mixtures thereof, wherein the B monomer units are copolymerizable with the A monomer and C macromonomer units; and

iii) from 0 to about 50% by weight of the copolymer of one or more C macromonomer units wherein the C units are hydrophobic macromonomer units selected from the group of polymers consisting of poly(n-butyl acrylate), poly(dodecyl acrylate), poly(2-ethylhexyl acrylate), poly(2-ethylbutyl acrylate), poly(n-ethyl acrylate), poly(n-heptyl acrylate), poly(n-hexyl acrylate), poly(isobutyl acrylate), poly(iso-decyl acrylate), poly(iso-propyl acrylate), poly(3-methylbutyl acrylate), poly(2-methylpentyl acrylate), poly(nonyl acrylate), poly(octyl acrylate), poly(propyl acrylate), poly(2-ethylhexyl methacrylate), poly(tridecyl methacrylate), poly(hexyl methacrylate), poly(decyl methacrylate), poly(octyl methacrylate), poly(octadecyl methacrylate), poly(dodecyl methacrylate), poly(n-pentyl methacrylate), poly(isobutylene), poly(isoprene), hydrogenated poly(1,4-butadiene), hydrogenated poly(isoprene), poly(1,2-butadiene), poly(1-butene), poly(5-methyl-1-hexene), poly(6-methyl-1-heptene), poly(4,4-dimethyl-1-pentene), poly(isobutyl vinyl ether), poly(4-t-butyl vinyl benzene-co-2-ethylhexyl acrylate), poly(2-ethylhexyl acrylate-co-octyl acrylamide), poly(2-ethyl vinyl benzene-co-octyl-methacrylate), and mixtures thereof wherein the polymers are endcapped by an endcapping group selected

from the group consisting of acryloyl, methacryloyl, 2-vinylbenzyl, 3-vinylbenzyl, and 4-vinylbenzyl, and wherein the C macromonomer units are copolymerizable with the A monomer units and the B monomer units, the C macromonomer units having a number average molecular weight of from about 1,500 to about 50,000, and

b.) a complexing fatty acid selected from the group consisting of fatty acid sulfonates, fatty acid carboxylates, polycarboxylates, salts thereof and mixtures thereof and wherein the fatty acid forms a complex with the nitrogen containing functional group of the B monomer units; wherein the weight ratio of the copolymer to the fatty acid is from about 50:1 to about 1:1; and

B.) a volatile, hydrophobic solvent component for the copolymer complex having a boiling point at 1 atmosphere of about 260° C. or less and a solubility parameter of about 8.5 (cal/cm³)^{1/2} or less wherein the copolymer complex is soluble or dispersible in the volatile, hydrophobic solvent component.

5,804,174

DEODORIZER

Sadami Ishibashi, Sakado; Tadao Hamaya, Ageo; Tadashi Imai, and Masao Iijima, both of Tokyo, all of Japan, assignors to Ricom Corporation; Zeria Pharmaceuticals, and Mitsui & Company Ltd., all of Tokyo, Japan

Division of Ser. No. 107,333, Aug. 16, 1993, Pat. No. 5,639,470, which is a continuation of Ser. No. 469,330, Jan. 24, 1990, abandoned. This application Dec. 31, 1996, Ser. No. 777,603

Claims priority, application Japan, Jan. 25, 1989, 1-14055; Jul. 7, 1989, 1-176842

Int. Cl.⁶ A61L 9/01

U.S. Cl. 424—76.9 2 Claims
1. A food containing a hydrophilic solvent extract of fruit-bodies of champignon mushroom (*Agaricus bisporus*) or powder of the extract in an amount of 0.01% to 50% by weight based on the total weight of the food.

5,804,175

METHOD FOR PRODUCING CEMENT

Vladimir P. Ronin, Assistentvägen 334, S-951 64 Luleå, and Marwin Häggström, Ladstigen 31, S-954 34 Gammelstad, both of Sweden

PCT No. PCT/SE94/00389, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO94/25411, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 29, 1994, Ser. No. 535,051

Claims priority, application Sweden, Apr. 30, 1993, 9301493
Int. Cl.⁶ C04B 14/04;24/00;24/12

U.S. Cl. 106—757 20 Claims
1. A method for producing cement useful for preparing pastes, mortars, concretes or other cement-based materials, which method comprises: providing cement particles and at least one of a first component including an SiO₂ containing microfiller and a second component including a polymer in the form of a powdery water-reducing agent, mixing the cement and said at least one component intensively in a first treatment stage and in a dry state, whereby particles of the at least one component are adsorbed on surfaces of the cement particles to produce a resulting mixture of dry, coated cement particles, impacting the dry, coated cement particles from the first treatment stage during a second treatment stage in a milling device in which the coated cement particles in said mixture receive in quick succession a plurality of direct-changed impact impulses for producing shape deformations and microdefects in surfaces of the cement particles, resulting in modification of surface activity properties of the cement particles which provide to the cement particles increased surface energy and chemical reactivity so that the cement particles are attracted to each other to promote

5,804,176

COMPOSITIONS COMPRISING LEUKOCYTE-DERIVED GROWTH FACTORS AND METHODS OF ADMINISTERING SAME TO FACILITATE WOUND HEALING

Gary Robert Grotendorst, Lutz, Fla., assignor to The University of South Florida, Tampa, Fla.
Continuation of Ser. No. 77,312, Jun. 14, 1993, abandoned, which is a continuation of Ser. No. 472,377, Feb. 1, 1990, abandoned. This application Apr. 4, 1995, Ser. No. 416,500
Int. Cl.⁶ A61K 38/19;38/18;38/16

U.S. Cl. 424—85.1 13 Claims
1. A method of facilitating the healing of a wound, comprising: treating the wound with a chemotactically or mitogenically effective amount of a purified leukocyte-derived growth factor comprising the amino acid sequence depicted in FIG. 1 such that facilitation of the healing of the wound occurs.

5,804,177

METHOD OF USING CD24 AS A CELL MARKER

R. Keith Humphries, 7625 Borden Street, Vancouver, British Columbia, Canada, VSP 3CP
Continuation of Ser. No. 538,052, Oct. 2, 1995, abandoned, which is a continuation of Ser. No. 151,672, Nov. 15, 1993, abandoned. This application Apr. 29, 1997, Ser. No. 848,252
Int. Cl.⁶ A61K 49/00; C12Q 1/68;1/70; C12N 15/86

U.S. Cl. 424—93.2 10 Claims
1. A method of marking a hemopoietic cell and progeny thereof comprising introducing in vitro into a hemopoietic cell of a mammal a recombinant retroviral vector comprising a nucleic acid molecule having a sequence encoding a protein which is not native to the mammal and having the nucleotide sequence of CD24 as shown in the Sequence Listing as SEQ ID No:1 or having a nucleotide sequence encoding the murine M1/69-J11d heat stable antigen as shown in the Sequence Listing as SEQ ID NO:2 under suitable conditions to allow expression of the protein on the surface of the hemopoietic cell or progeny thereof.

5,804,178

IMPLANTATION OF CELL-MATRIX STRUCTURE ADJACENT MESENTERY, OMENTUM OR PERITONEUM TISSUE

Joseph P. Vacanti, Winchester; Robert S. Langer, Newton, and Lynt Johnson, Randolph, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, and Children's Medical Center Corporation, Boston, both of Mass.
Continuation of Ser. No. 680,608, Apr. 1, 1991, abandoned, which is a continuation of Ser. No. 343,158, Apr. 25, 1989, abandoned, which is a continuation of Ser. No. 123,579, Nov. 20, 1987, abandoned, which is a continuation-in-part of Ser. No. 933,018, Nov. 20, 1986, abandoned. This application Feb. 28, 1994, Ser. No. 203,509

Int. Cl.⁶ C12N 11/08;5/00; A61F 2/28;2/18
U.S. Cl. 424—93.7 14 Claims

1. A method of implanting a matrix structure having cells attached thereto comprising
a) providing a biocompatible polymeric matrix structure having attached thereto viable animal cells exhibiting normal growth and proliferation selected from the group consisting of endocrine cells, fibroblasts, endothelial cells, and genitourinary cells, which are allowed to attach thereto; and

b) implanting the matrix structure having cells attached thereto into a patient in need thereof, wherein the matrix structure is juxtaposed with tissue having high surface area and vasculature; adjacent the surface of the tissue selected from the group consisting of mesentery, omentum and peritoneum, and wherein the matrix structure is configured to allow adequate nutrients and gas exchange between the attached cells and the blood for the cells to remain viable and to form tissue.

5,804,179

LACTOBACILLUS COMPOSITIONS AND METHODS FOR TREATING URINARY TRACT INFECTIONS

Andrew W. Bruce, Toronto, and Gregor Reid, London, both of Canada, assignors to Research Corporation Technologies, Inc., Tucson, Ariz.

Continuation of Ser. No. 555,905, Jul. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 290,251, Dec. 27, 1988, abandoned, which is a continuation-in-part of Ser. No. 814,997, Dec. 31, 1985, abandoned. This application Sep. 30, 1994, Ser. No. 315,665

Int. Cl.⁶ C12N 1/20

U.S. Cl. 424—93.45

20 Claims

1. A method for reducing the occurrence of urinary tract infections in a mammal which comprises administering a therapeutically effective amount of Lactobacillus viable whole cells.

5,804,180

BACILLUS THURINGIENSIS STRAINS SHOWING IMPROVED PRODUCTION OF CERTAIN LEPIDOPTERAN-TOXIC CRYSTAL PROTEINS

James Baum, Doylestown, Pa., assignor to Ecogen, Inc., Langhorne, Pa.

Filed Jul. 17, 1996, Ser. No. 682,325

Int. Cl.⁶ A01N 63/00; C12N 1/20; 1/21; 1/5/32

U.S. Cl. 424—93.461

6 Claims

1. *Bacillus thuringiensis* kurstaki strain EG4923-4 having the NRRL accession number B-21577, which has been transformed with a heterologous δ -endotoxin gene.

5,804,181

PHARMACEUTICAL PREPARATION FOR THE PREVENTION AND TREATMENT OF BLOOD COAGULATION DISORDERS

Johann Elbl; Hans Peter Schwarz, and Katalin Varadi, all of Vienna, Austria, assignors to Immuno Aktiengesellschaft, Vienna, Austria

Filed May 26, 1995, Ser. No. 452,169

Claims priority, application Germany, May 27, 1994, 44 18 635.5

Int. Cl.⁶ A61K 38/36

U.S. Cl. 424—94.1

15 Claims

1. A pharmaceutical preparation for the prevention and treatment of thrombotic or thromboembolic disorders comprising Factor V and Protein S.

5,804,182

Patent Not Issued For This Number

5,804,183

ARGININE DEMINASE DERIVED FROM MYCOPLASMA ARTHRITIDIS AND POLYMER CONJUGATES CONTAINING THE SAME

David Ray Filpula, Piscataway, and Maoliang Wang, E. Brunswick, both of N.J., assignors to Enzon, Inc., Piscataway, N.J. Filed Jan. 31, 1997, Ser. No. 792,283

Int. Cl.⁶ A61K 38/46; 38/43; C12N 9/78

U.S. Cl. 424—94.6

10 Claims

1. An isolated arginine deiminase comprising the amino acid sequence of SEQ ID NO:2.

5,804,184

TRANSGENIC PATHOGEN-RESISTANT ORGANISM

Jürgen Logemann, NB Leiden, Netherlands; Guido Jach; Birgit Görnhardt, both of Köln, Germany; John Mundy, V Copenhagen, Denmark; Jeff Schell, Köln, Germany, and Peter Eckes, Kelkheim, Germany, assignors to Max Planck Gesellschaft Zur Forderung der Wissen Schäften, e.v., Göttingen, Germany

Division of Ser. No. 457,797, Jun. 1, 1995, Pat. No. 5,689,045, which is a continuation of Ser. No. 134,416, Oct. 8, 1993, abandoned. This application Mar. 6, 1997, Ser. No. 812,025

Claims priority, application Germany, Oct. 9, 1992, 42 34 131.0

Int. Cl.⁶ A61K 38/54; 38/47; 38/16

U.S. Cl. 424—94.61

2 Claims

1. A process for producing a plant having increased resistance to fungal attack, comprising topically applying, to a transgenic plant, a first gene product of a gene selected from the group consisting of a ChiG gene from barley, a GluG gene from barley, a PSI gene from barley, and an AFP gene from *Aspergillus giganteus*, wherein the transgenic plant carries at least two transgenes, each operably linked to a plant-functional promoter, wherein one transgene is a ChiS gene from *Serratia marcescens* and a second transgene is a gene selected from the group consisting of a ChiG gene from barley, a GluG gene from barley, a PSI gene from barley, and an AFP gene from *Aspergillus giganteus*, provided that the second transgene does not encode the first gene product.

5,804,185

RNA EDITING ENZYME REE-2

Olga Bandman, Mountain View, and Surya K. Goli, Sunnyvale, both of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Mar. 13, 1997, Ser. No. 816,241

Int. Cl.⁶ A61K 38/46; C12N 9/78; 15/55

U.S. Cl. 424—94.61

13 Claims

1. A substantially purified human RNA editing enzyme comprising the amino acid sequence of SEQ ID NO:1.

5,804,186

NERVE CELL DIFFERENTIATION PROMOTER

Daisuke Komagata, Tokyo, and Tomio Morino, Oumiya, both of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP95/00925, § 371 Date Nov. 13, 1996, § 102(e) Date Nov. 13, 1996, PCT Pub. No. WO95/31992, PCT Pub. Date Nov. 30, 1995

PCT Filed May 15, 1995, Ser. No. 737,242

Claims priority, application Japan, May 23, 1994, 6-130796

Int. Cl.⁶ A61K 35/74

U.S. Cl. 424—117

2 Claims

1. A method for promoting nerve cell differentiation comprising administering an effective amount of the substance NK175203 or a pharmacologically acceptable salt thereof together with a pharmaceutically acceptable excipient or carrier to an individual in need thereof.

5,804,187

MODIFIED ANTIBODIES WITH HUMAN MILK FAT GLOBULE SPECIFICITY

Fernando J. R. do Couto, Pleasanton; Roberto L. Ceriani, and Jerry A. Peterson, both of Lafayette, all of Calif., assignors to Cancer Research Fund of Contra Costa, Walnut Creek, Calif.

Continuation-in-part of Ser. No. 977,696, Nov. 16, 1992. This application Sep. 30, 1993, Ser. No. 129,930

Int. Cl.⁶ A61K 39/395; 39/40; 39/42; G01N 33/574

U.S. Cl. 424—134.1

72 Claims

1. A modified antibody which selectively binds the human milk fat globule (HMFG) antigen, and competes as well or better with the unmodified antibody for binding the HMFG, comprising a non-HMFG antigen-binding peptide from a first species; and an HMFG antigen-binding peptide comprising the light and heavy chains of the variable region of an antibody of a second species; wherein at least one chain of the non-HMFG antigen-binding peptide is linked to the HMFG antigen-binding peptide, the chains may be linked to one another at a site other than the antigenic binding site, and at least one chain of the HMFG antigen-binding peptide has 1 to 46 amino acids substituted with amino acids selected from the group consisting of the following amino acids at the specific sites and chains;

Position	Light Chain Amino Acid Substitution	Heavy Chain Amino Acid Substitution
1	D	PVLKARGHDE or Q
2	WKRHV or I	M or V
3	V or L	LQR or K
4	MPTQLV or I	M or L
5	T	VD or E
6	Q	QD or E
7	TIAD or S	T or S
8	PA or E	G or E
9	LF or P	G
10	T or S	DA or G
11	NL or V	VF or L
12	S or P	I or V
13	V	KE OR Q
14	S or T	P
15	PFI or L	G
16	G	RSE or G
17	TEQ or D	PA or S
18	PS or Q	M
19	V or A	R or K
20	S	V or L
21	I	S
22	S	C
23	C	TSE or A
24		V or A
25		S
26		G
27		F
28		AINS or T
29		F
30		S
35	W	
36	IVHNYF or L	WE
37	WLVRTHDE or Q	WFLVMATG or Q
38	Q	R
39	R or K	Q
40	FLKARTGPQ or S	VA or S
41	G	PLVARTSHNE or Q
42	Q	G or E
43	P or S	K
44	P	SR or G
45	EQR or K	L
46	RV or L	Q or E
47	WILMTSN or V	W
48	FLVMTS or I	STG or V
49	T or S	A
57	WVTSGDNE or Q	
58	IYFLVMAT or Q	
59	S or P	
60	N or D	
61	T or R	

-continued

Position	Light Chain Amino Acid Substitution	Heavy Chain Amino Acid Substitution
62	F	
63	IYPLKARSG or T	
64	D or G	
65	S	
66	G	R
67	A or S	F
68	VMCARSGQD or E	IS or T
69	T	I
70	D	L or S
71	F	R
72	T	VKRTSGHDE or N
73	L	N or D
74	NLRE or K	PPLVTGDNA or S
75	L or I	EN or K
76	IT or S	NTRK or S
77	S OR r	TNIVSM or R
78	ALI or V	LA or V
79	KGQ or E	FH or Y
80	P or A	L
81	ILVKMAGDN or E	E or Q
82	D	M
82a		SDN or I
82b		IR or S
82c		PLVMAG or E
83	NV or L	EKT or R
84	LVARTS or G	SPVTI or A
85	IM or V	WIYFPLMCRGD or E
86	Y	D
87	IMSHEFY or L	M or T
88	C	A or G
89		ITVM or L
90		HF or Y
91		Y
92		C
93		ASHAV or T
94		TSDQLAWR or G
98	F	
99	G	
100	IPVKRTGAS or Q	
101	G	
102	T	
103	IYMATGHDEQNR or K	A or W
104	LG or V	YH or G
105	ILVTSGHNE or Q	THR or Q
106	YLVKMRTD or I	G
106a	PLVTI	
107	ILVMATSGNER or K	AQ or T
108		STGM or L
109		IKLT or V
110		SL or T
111		V
112		T or S
113		PVATG or S

5,804,188

METHOD AND COMPOSITION FOR TREATMENT OF DISORDERS INVOLVING IMMUNOLOGICAL DYSFUNCTION

Ellis L. Kline, Pendleton, S.C., assignor to Molecular Rx, Inc., Pendleton, S.C.

Continuation of Ser. No. 46,611, Apr. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 871,968, Apr. 22, 1992, abandoned. This application Mar. 29, 1995, Ser. No. 413,921

Int. Cl.⁶ A61K 39/00; 39/395; 38/00; G01N 33/564

U.S. Cl. 424—184.1

20 Claims

1. A method for treating an inflammatory autoimmune dysfunction disorder in a human or animal comprising the step of administering to the human or animal a therapeutically effective amount of RNA polymerase, wherein the therapeutically effective amount of RNA polymerase is between 10⁻² and 10⁻⁸ mg.

5,804,189

TREATMENT OF LIPOPOLYSACCHARIDE- OR CD14-MEDIATED CONDITIONS USING SOLUBLE CD14
Sanna M. Goyert, 10 Waterside Plz., Apt. 36F, New York, N.Y. 10010, assignor to Sanna M. Goyert, New York, N.Y.
Continuation-in-part of Ser. No. 863,913, Apr. 6, 1992, abandoned. This application Jun. 6, 1994, Ser. No. 254,095
Int. Cl.⁶ A61K 38/17

U.S. Cl. 424—185.1

12 Claims

1. A method for preventing or treating a condition that is mediated by the action of lipopolysaccharide (LPS) or membrane-bound CD 14, comprising administering a soluble mammalian CD14 fragment which has LPS binding activity in an amount effective to prevent or treat at least one symptom of a condition that is mediated by the action of said LPS or membrane-bound CD14.

5,804,190

RECOMBINANT VACCINE FOR PORCINE PLEUROPNEUMONIA

Douglas K. Struck; Ryland F. Young, both of College Station, Tex., and Yung-Fu Chang, Ithaca, N.Y., assignors to The Texas A&M University System, College Station, Tex.
Division of Ser. No. 429,273, Oct. 31, 1989, Pat. No. 5,641,653.
This application May 2, 1997, Ser. No. 850,379
Int. Cl.⁶ A61K 39/102

U.S. Cl. 424—190.1

25 Claims

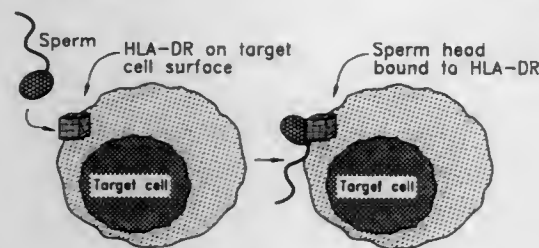
1. An isolated *Actinobacillus pleuropneumoniae* hemolysin antigen which comprises an amino acid sequence AppA shown in FIG. 1.

5,804,191

SPERM AS IMMUNOGEN CARRIERS

Virginia L. Scofield, 372 Redwood Dr., Pasadena, Calif. 91105
Continuation-in-part of Ser. No. 406,299, Mar. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 343,008, Nov. 21, 1994, abandoned. This application May 30, 1997, Ser. No. 865,724
Int. Cl.⁶ A61K 39/385; 45/00; 9/127; G01N 33/567
U.S. Cl. 424—193.1

17 Claims



1. A composition, comprising:
a sperm cell carrier; and
an antigen exogenous to said carrier.

5,804,192

PROCESS FOR OBTAINING PROCYANIDOL OLIGOMERS FROM PLANTS BY EXTRACTIONS

Bruno Franc, Saze, and Christian Hoff, St Laurent des Arbres, both of France, assignors to Sanofi, Paris, France
Filed Oct. 5, 1995, Ser. No. 539,463
Claims priority, application France, Oct. 11, 1994, 94 12126
Int. Cl.⁶ A01N 65/00; A61K 35/78; 39/385; B01D 61/00
U.S. Cl. 424—195.1

10 Claims

1. A process for obtaining procyanidol oligomers, by extraction from plants containing them comprising the steps of:

- a) treating a plant with an extractive mixture comprising water, water-miscible organic solvent capable of dissolving the procyanidol oligomers, in a proportion of 25 to 50% of the weight of the water, and sodium chloride, in a proportion of 15 to 20% of the weight of the water to obtain a crude mixture of procyanidol oligomers,
- b) concentrating the crude mixture of step (a),
- c) purifying the concentrated crude mixture of step (b) by removing the extractive mixture and extracting the residue,
- d) recovering the procyanidol oligomers in a pure form by precipitation; and
- e) drying said precipitation of procyanidol oligomers from step (d).

5,804,193

TRUNCATED PSPA LACKING A FUNCTIONAL CELL MEMBRANE ANCHOR REGION

David E. Briles, and Janet L. Yother, both of Birmingham, Ala., assignors to UAB Research Foundation, Birmingham, Ala.
Division of Ser. No. 835,698, Feb. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 656,773, Feb. 15, 1991, abandoned. This application Mar. 17, 1994, Ser. No. 214,222
Int. Cl.⁶ A61K 39/09; 39/385; C07K 14/315; C12N 1/21
U.S. Cl. 424—197.11

10 Claims

1. A purified and isolated immunoprotective truncated form of pneumococcal surface protein (PspA) which contains the immunoprotective epitopes of the protein and up to about 90% of the whole PspA protein and from which the functional cell membrane anchor region is absent.

5. The truncated form of pneumococcal surface protein of claim 1 comprising the 43 kD N-terminal region of an 84 kD PspA protein.

5,804,194

VACCINES CONTAINING A SALMONELLA BACTERIA ATTENUATED BY MUTATION OF THE HTRA GENE

Gordan Dougan; Ian George Charles, both of Beckenham; Carlos Estenilo Hormaeche; Kevin Stuart Johnson, both of Cambridge, and Steven Neville Chatfield, Beckenham, all of United Kingdom, assignors to Glaxo Wellcome Inc., Research Triangle Park, N.C.
Continuation of Ser. No. 239,910, May 9, 1994, abandoned, which is a continuation of Ser. No. 952,737, Nov. 30, 1992, abandoned. This application Dec. 7, 1994, Ser. No. 350,741
Claims priority, application United Kingdom, Mar. 30, 1990, 9007194

Int. Cl.⁶ A61K 39/112

U.S. Cl. 424—200.1

18 Claims

10. The method of prophylactic treatment of a host for an infection caused by Salmonella which comprises administering to said host a prophylactically effective dose of a Salmonella bacterium attenuated by a non-reverting mutation in the htra gene.

5,804,195

VACCINE COMPRISING AN INFECTIOUS BURSAL DISEASE VIRUS MB, MB-1 OR MB-2 STRAIN

Bezalel Gutter, Jerusalem, Israel, assignor to ABIC Ltd., Netanya, Israel

Filed Nov. 30, 1993, Ser. No. 159,424

Claims priority, application Israel, Dec. 1, 1992, 103939

Int. Cl.⁶ A61K 39/12; 39/295; C12N 7/00; 7/02; 7/11; 7/12

U.S. Cl. 424—202.1

19 Claims

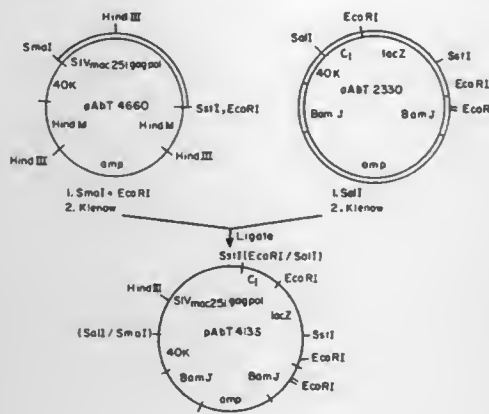
7. A vaccine for the prevention of Infectious Bursal Disease in poultry comprising an effective immunizing amount of at least one live attenuated Infectious Bursal Disease virus selected from the group consisting of the strains deposited at the ECACC under Nos. V92052301 (MB), V92100106 (MB-2) and V92102209 (MB-1).

5,804,196

SELF ASSEMBLED, DEFECTIVE, NONSELF-PROPAGATING VIRAL PARTICLES

Gail P. Mazzara, Winchester; Dennis L. Panicali, Acton; Bryan Roberts, Cambridge; Linda R. Gritz, Somerville, all of Mass., and Virginia Stallard, Seattle, Wash., assignors to Therion Biologics Corporation, Cambridge, Mass.
Division of Ser. No. 18,344, Feb. 16, 1993, Pat. No. 5,631,154, which is a continuation of Ser. No. 580,538, Sep. 11, 1990, abandoned, which is a continuation-in-part of Ser. No. 540,109, Jun. 19, 1990, abandoned, which is a continuation-in-part of Ser. No. 360,027, Jun. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 205,454, Jun. 10, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 481,031
Int. Cl.⁶ A61K 39/21; C12N 15/00; A01N 43/04
U.S. Cl. 424—208.1

6 Claims



1. A pharmaceutical composition, comprising a self-assembled, defective nonself-propagating viral particle produced by a eukaryotic host cell transformed by a avipox virus vector, said avipox virus vector having inserted therein, at least two DNA sequences from a single species of lentivirus DNA sequences wherein one of the lentivirus DNA sequences is selected from the group consisting of the gag gene and gag-pol gene and portions thereof, such that the lentivirus DNA sequences express gag, gag-pol proteins, and portions thereof, referred to as said first lentivirus DNA sequence and a second lentivirus DNA sequence encoding another lentiviral protein, in the eukaryotic host cell infected with the pox virus vector, wherein the lentivirus proteins or portions thereof, self-assemble into defective, non-self-propagating lentivirus particles, in a pharmaceutically acceptable vehicle.

5,804,197

RECOMBINANT CANINE HERPESVIRUSES

Elizabeth J. Haanes, Berthoud, and Rexann S. Frank, Wellington, both of Colo., assignors to Heska Corporation, Ft. Collins, Colo.
Continuation-in-part of Ser. No. 602,010, Feb. 15, 1996. This application Jul. 12, 1996, Ser. No. 680,726
Int. Cl.⁶ A61K 39/245; 39/00; C12N 7/01; 15/00
U.S. Cl. 424—229.1

51 Claims

1. An isolated canine herpesvirus (CHV) nucleic acid molecule that hybridizes under stringent hybridization conditions with a CHV nucleic acid region selected from the group consisting of a CdUTPase gene, a CgE gene, a CgG gene, a CgI gene, a CPK

5,804,198

VACCINES AGAINST DISEASE CAUSED BY PATHOGENIC PILUS-FORMING BACTERIA

Frederik Carl Lindberg, Sandviken; Björn Olof Lund, Umeå; Britt Monika Båga, Umeå; Mari Elisabet Norgren, Umeå; Mikael Göransson, Umeå; Bernt Eric Uhlin, Umeå; Jan Staffan Normark, Holmsund, and David Lee Lark, Umeå, all of Sweden, assignors to Symbicom Aktiebolag, Umea, Sweden

Continuation of Ser. No. 123,032, Sep. 20, 1993, abandoned, which is a continuation of Ser. No. 856,829, Mar. 23, 1992, abandoned, which is a continuation of Ser. No. 678,167, Mar. 28, 1991, abandoned, which is a continuation of Ser. No. 245,469, Sep. 16, 1988, abandoned, which is a division of Ser. No. 817,849, Feb. 19, 1986, Pat. No. 4,795,803. This application May 23, 1995, Ser. No. 447,685

Claims priority, application Denmark, May 2, 1984, 2190/84
Int. Cl.⁶ A61K 39/108; 39/112; 39/106; 39/085

U.S. Cl. 424—242.1

38 Claims

1. A vaccine for immunizing a subject against disease caused by pathogenic pilus-forming bacteria, the pilus of said bacteria comprising both a minor and a major molecular component, which bind to a cell surface receptor of a cell of the subject by means of an adhesin polypeptide which is a minor molecular component of the pilus, which vaccine contains, as a major immunogenic component thereof,

an immunogenically effective amount of an antigen which is an isolated adhesin polypeptide or
an isolated polypeptide which comprises an antigenic determinant of an adhesin polypeptide,

which adhesin polypeptide is a minor molecular component of the pilus of a pathogenic pilus-forming bacterium capable of adhering to a tissue of the subject, which adhesin polypeptide is distinct from the major molecular component (pilin) of the pilus,

said adhesin polypeptide being a molecular component of the pilus which binds the receptor,

said antigenic determinant is distinct from the antigenic determinants of the major molecular component of the pilus,

said antigen being one which elicits antibodies reacting with the adhesin polypeptide, said antigen not comprising pilin or pilin-specific antigenic determinants.

5,804,199

OIL-BASED AND WATER-BASED ADJUVANT MIXTURE

Per Martin Aasjord, Flaktveit; Audun Helge Nerland, Skjoldtun, and Dag Harald Knappskog, Sandviken, all of Norway, assignors to Akzo Nobel N. V., Arnhem, Netherlands
Continuation of Ser. No. 278,431, Jul. 21, 1994, abandoned.
This application Jul. 22, 1996, Ser. No. 681,130
Claims priority, application European Pat. Off., Jul. 26, 1993, 93202206

Int. Cl.⁶ A61K 39/106; 9/127; 39/335; 31/715

U.S. Cl. 424—261.1

9 Claims

1. A vaccine comprising an antigenic substance and an adjuvant comprising a combination of a water-in-oil emulsion and an immunostimulatory glucan.

5,804,200

PARASITIC NEMATODE PROTEINS AND VACCINES
Robert B. Grieve, La Porte, and Glenn R. Frank, Fort Collins, both of Colo., assignors to Colorado State University Research Foundation, and Heska Corporation, both of Ft. Collins, Colo.

Continuation of Ser. No. 3,257, Jan. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 654,226, Feb. 12, 1991, abandoned. This application Mar. 20, 1995, Ser. No. 408,120

Int. Cl.⁶ A61K 39/00; 39/002; C07K 14/00; 14/44
U.S. Cl. 424—265.1

1 Claim

1. An isolated protein isolatable from the L3 or L4 larval stage of *D. immitis*, said protein having amino acid sequence ESQEETVSF EESDEDYEDD SEDQTKKEEH SKEEDRSEEH DDHSAEDDKF VTKGKFVESD GKMCKTHE ACYDQREPOS WCILKPHQSW TQRCFCESK KHACVIERKS GDKLEYSYCS PRKNWQCSYD (SEQ ID NO:27).

5,804,201

IMMUNOMODULATORY PEPTIDES OF VESPID ANTIGEN 5

Te Piao King, New York, N.Y., assignor to The Rockefeller University, New York, N.Y.

Filed Mar. 11, 1996, Ser. No. 614,935

Int. Cl.⁶ A61K 39/35; 38/04

U.S. Cl. 424—275.1

12 Claims

1. A peptide characterized by the following properties:
a. having between 8 and 35 amino acid residues of vespid venom antigen 5; and
b. said peptide is antigenic for T cell proliferation in a mouse immunized with a vespid venom antigen 5, which mouse is a strain selected from the group consisting of BALB/c, ASW/Sn, C3H/He, and P/J.

5,804,202

THICKENERS FOR PRODUCTS FOR TOPICAL APPLICATION

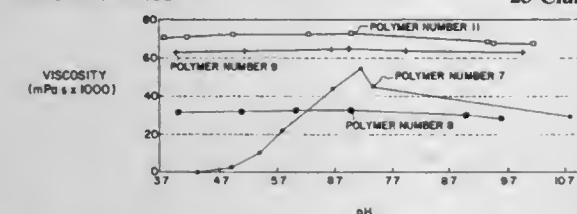
Arshad-Ul-Haq Chaudhry, Wellingborough, and Roman J. Mikolajewicz, Rushden, both of Great Britain, assignors to Scott Bader Company Limited, Wellingborough, England
Continuation of Ser. No. 847,739, Mar. 9, 1992, abandoned.
This application Jul. 22, 1993, Ser. No. 95,475

Claims priority, application United Kingdom, Mar. 9, 1992, 9104878

Int. Cl.⁶ A61K 7/48; 9/10

U.S. Cl. 424—401

23 Claims



1. A method of preparing a composition for topical application, which method comprises admixing a topically acceptable, liquid-containing, formulation containing a topically acceptable adjuvant with a water in oil emulsion containing a polymeric material, at least 98% of the polymeric material in the emulsion being water soluble, which polymeric material consists of units derived from monomer components (a) acrylamide, (b) 2-acrylamido-2-methylpropanesulphonic acid and (c) a polyfunctional monomer which is allyl sucrose, allyl pentaerythritol or methylene-bisacrylamide for cross linking with said monomer components (a) and (b), which said units derived from monomer components (a) and (b) are present in the polymeric material in a molar ratio (a)/(b) of from 85/15 to 15/85 inclusive and which polyfunctional monomer is present in an amount of from 0.12 to 2 milliequivalents

inclusive per mole of total monomer units, at least some of the 2-acrylamido-2-methylpropanesulphonic acid units being in the form of a neutral salt thereof such that the water phase of the water in oil emulsion has a pH of at least 5.5, whereby on admixing the topically acceptable liquid-containing formulation containing a topically acceptable adjuvant with the said water in oil emulsion, an increase in viscosity of said formulation occurs so as to thicken said formulation and said formulation being so thickened that it has an essentially constant viscosity over a pH range of the said composition from 5.5 to 9.

5,804,203

TOPICAL PRODUCT FORMULATIONS CONTAINING STRONTIUM FOR REDUCING SKIN IRRITATION

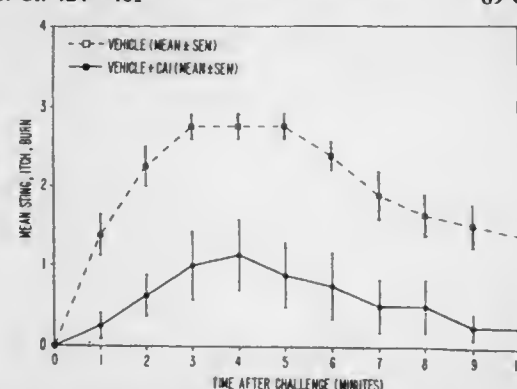
Gary S. Hahn, Cardiff by the Sea; David O. Thueson, Poway, and Timothy W. Quick, San Diego, all of Calif., assignors to Cosmederm Technologies, La Jolla, Calif.

Continuation-in-part of Ser. No. 362,100, Dec. 21, 1994, Pat. No. 5,716,625. This application Jun. 20, 1996, Ser. No. 666,978

Int. Cl.⁶ A61K 7/48; 33/24

U.S. Cl. 424—401

89 Claims



1. A topical formulation for reducing skin irritation in animals comprising an irritant ingredient selected from the group consisting of carboxylic acids, keto acids, α -hydroxy acids, β -hydroxy acids, retinoids, peroxides and organic alcohols; about 0.5 to about 14% by weight of the total formulation of an anti-irritant metal cation consisting essentially of aqueous-soluble divalent strontium cation; an active ingredient selected from cosmetically active ingredients and therapeutically active ingredients; and a suitable topical formulation vehicle.

5,804,204

POTASSIUM SALTS FOR TREATMENT OF HYPERTENSION

R. Curtis Morris, Jr., and Anthony Sebastian, both of San Francisco, Calif., assignors to The Regents of the University of California, Oakland, Calif.

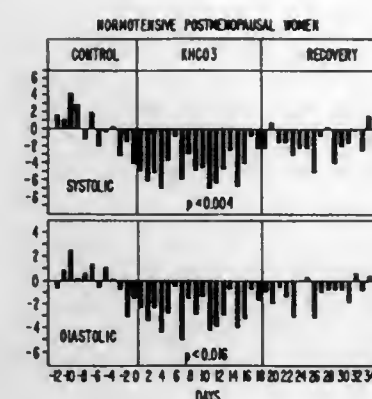
Continuation of Ser. No. 186,257, Jan. 10, 1994, Pat. No. 5,498,428, which is a continuation-in-part of Ser. No. 260,856, Oct. 21, 1988, abandoned. This application Jun. 6, 1995, Ser. No. 465,043

Int. Cl.⁶ A61K 9/14

U.S. Cl. 424—439

36 Claims

1. A method for treating hypertension in a person on a diet having a normal range of salt content, which comprises: orally administering to such a person a composition containing at least one active ingredient for treating hypertension, a principal active ingredient being a pharmacologically-acceptable potassium salt of a carboxylic acid which generates or is metabolized to bicarbonate ion after ingestion, which salt is thus capable of reducing acidity in vivo, and the composition being substantially free of potassium chloride, the potassium salt being administered in an amount sufficient



to have a measurable blood pressure lowering effect on the person treated due to the presence of potassium bicarbonate in a manner similar to the results shown in FIGS. 1-3 of the drawing, but not in an amount sufficient to induce undesirable toxic effects.

5,804,205

SKIN CARE COMPOSITIONS

Howard Epstein; Thomas Menzel, both of Rochester, and Zhenze Hu, Pittsford, all of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Oct. 16, 1996, Ser. No. 732,083

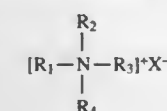
Int. Cl.⁶ A61K 7/48

U.S. Cl. 424—401

8 Claims

1. A skin care composition in the form of an oil-in-water emulsion that provides moisturization of the skin, said composition comprising:

(a) from about 2 to about 10 weight percent of a quaternary ammonium compound having the formula



wherein R_1 and R_2 are each alkyl groups having from 16 to about 22 carbon atoms, R_3 and R_4 are each lower alkyl groups having from 1 to 3 carbon atoms and X is a salt-forming anion;

(b) from greater than about 12 to about 40 weight percent of glycerine; and
(c) from about 0.01 to about 5 weight percent of non-irritating hydrophobic polymeric microspheres having an average particle size of less than 50 microns wherein said polymeric microspheres are made from nylon.

5,804,206

THERAPEUTIC COMPOSITION AND METHOD FOR TREATING SKIN USING CENTIPEDE CUNNINGHAMII EXTRACT

Frank S. D'Amelio, Huntington, and Youssef W. Mirhom, Huntington Station, both of N.Y., assignors to Bio-Botanica, Inc., Hauppauge, N.Y.

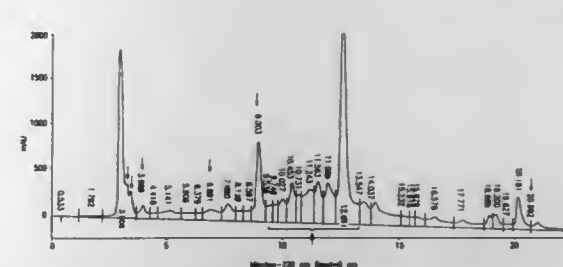
Filed Mar. 6, 1997, Ser. No. 812,270

Int. Cl.⁶ A61K 7/48

U.S. Cl. 424—401

37 Claims

1. A process for obtaining a plant extract comprising the steps of providing a plant material of the Centipede genus in powder form, sequentially macerating and extracting said plant material with a plurality of aqueous-ethanolic solvents and obtaining an extract solution of each of said solvents, wherein each sequential extraction solvent has a different ethanol concentration,



and wherein said solvents have an ethanol concentration ranging from about 80% by volume to 20% by volume, and combining said extract solutions to obtain a plant extract.

5,804,207

DETERGENT COSMETIC COMPOSITIONS

Claude Dubief, Le Chesnay, and Danièle Cauwet-Martin, Paris, both of France, assignors to L'Oréal, Paris, France
Filed Mar. 19, 1997, Ser. No. 816,800

Claims priority, application France, Mar. 21, 1996, 96 03542; European Pat. Off., Feb. 7, 1997, 97400283

Int. Cl.⁶ A61K 6/00; 7/00; 7/06

U.S. Cl. 424—401

36 Claims

1. A detergent cosmetic composition comprising:

(a) at least one anionic surfactant;
(b) at least one nonionic or amphoteric co-surfactant;
(c) at least one thickening polyacrylamide; and
(d) at least one electrolyte;

wherein said at least one nonionic or amphoteric co-surfactant and said at least one anionic surfactant are present in a co-surfactant/anionic surfactant weight ratio of less than or equal to 1; and further wherein said at least one anionic surfactant, said at least one nonionic or amphoteric co-surfactant, said at least one thickening polyacrylamide and said at least one electrolyte are each present in an amount effective to provide said composition with:

(i) a rheological flow behavior having a stress range for which the viscosity is constant, followed by a stress range for which the viscosity decreases as the stress increases, and
(ii) a lamellar phase structure capable of maintaining in suspension water-insoluble particles which may be present in said composition.

5,804,208

GRANULATES CONTAINING MICRO-ORGANISMS

Wolfram Andersch, Bergisch Gladbach; Rüdiger Hain, Langenfeld, and Michael Kilian, Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP95/04491, § 371 Date May 20, 1997, § 102(e) Date May 20, 1997, PCT Pub. No. WO96/16547, PCT Pub. Date Jun. 6, 1996

PCT Filed Nov. 15, 1995, Ser. No. 836,883

Claims priority, application Germany, Nov. 28, 1994, 44 42 255.5

Int. Cl.⁶ A01N 25/26; 63/00

U.S. Cl. 424—407

9 Claims

1. A pesticidal composition comprising granules, microorganisms and an adhesive, wherein said granules consist of semolina particles having a mean diameter of 0.05 to 3.0 mm, said granules contain 2×10^3 to 2×10^{10} spores or conidia of said microorganisms per gram of said granules, said microorganisms are selected from the group consisting of *Metarhizium anisopliae* strain P 0001 deposited under Accession No. DSM 3884 and *Metarhizium anisopliae* strain P 0003 deposited under Accession No. DSM 3885, the adhesive is non-toxic to said microorganisms and is selected from the group consisting of cellulose adhesives, starch adhesives, dextran adhesives, alginate adhesives, agar-agar adhesives, gelatin adhesives, gum arabic adhesives, tragacanth adhe-

sives, casein size adhesives, gluten size adhesives, polyvinyl alcohol adhesives, polyvinyl acetate adhesives and mixtures thereof, and said microorganisms and said adhesive are coated on the surface of said granules.

5,804,209

BIOADHESIVE STARCHES AND PROCESS FOR THEIR PREPARATION

Roberto De Ponti; Alessandro Martini, both of Milan, and Lorena Muggetti, Meda, all of Italy, assignors to Pharmacia S.p.A., Milan, Italy

PCT No. PCT/EP95/02044, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO95/34582, PCT Pub. Date Dec. 21, 1995

PCT Filed May 30, 1995, Ser. No. 592,301

Claims priority, application United Kingdom, Jun. 16, 1994, 9412064; Feb. 1, 1995, 9501936

Int. Cl.⁶ A61F 13/00; A61K 9/14; 9/16; C08B 30/00

U.S. Cl. 424—434 17 Claims

1. A process for preparing a bioadhesive starch, which comprises grinding or milling a non bioadhesive starch in a high energy ball mill, a high energy rod mill, or a high energy vibrating mill.

5,804,210

METHODS OF TREATING ANIMALS TO MAINTAIN OR ENHANCE BONE MINERAL CONTENT AND COMPOSITIONS FOR USE THEREIN

Mark E. Cook, and Michael W. Pariza, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Aug. 7, 1996, Ser. No. 693,577

Int. Cl.⁶ A61K 9/68

U.S. Cl. 424—440 12 Claims

1. A method of maintaining or enhancing the mineral content of bone in an animal, said method comprising administering orally or parenterally to said animal a safe amount of conjugated linoleic acid, said amount being effective to maintain or enhance said mineral content, the conjugated linoleic acid comprising an isomer having a pair of conjugated double bonds, the isomer being selected from a group consisting of cis-9, cis-11-octadecadienoic acid, cis-9, trans-11-octadecadienoic acid, trans-9, cis-11-octadecadienoic acid, trans-9, trans-11-octadecadienoic acid, cis-10, cis-12-octadecadienoic acid, cis-10, trans-12-octadecadienoic acid, trans-10, cis-12-octadecadienoic acid, and trans-10, trans-12-octadecadienoic acid.

5,804,211

COMPOSITION AND METHOD SUPPRESSING OR ELIMINATING SNORING

Lydia Robertson, and Edward M. Harris, both of Little Rock, Ark., assignors to Health Pharm USA, Inc., Little Rock, Ark.

Filed Jun. 5, 1996, Ser. No. 658,693

Int. Cl.⁶ A61F 13/02; A01N 65/00

U.S. Cl. 424—434 18 Claims

1. A method for suppressing snoring, comprising administering to a soft palate and uvula of a host a solution comprising zingiber officinale, dioscorea, chamomile and a salt.

5,804,212

SMALL PARTICLE COMPOSITIONS FOR INTRANASAL DRUG DELIVERY

Lisbeth Illum, The Park, England, assignor to Danbiosyst UK Limited, Nottingham, England

Division of Ser. No. 359,937, Dec. 20, 1994, Pat. No.

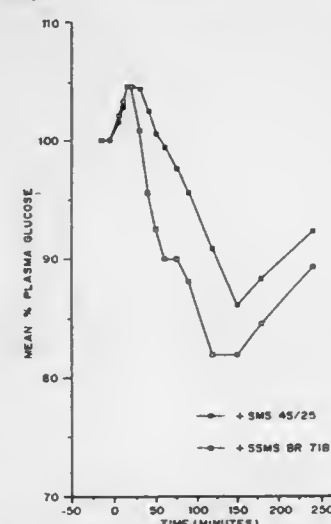
5,707,644, which is a continuation of Ser. No. 65,676, May 21, 1993, abandoned, which is a continuation-in-part of Ser. No. 842,351, Mar. 24, 1992, abandoned. This application Jun. 17, 1997, Ser. No. 877,273

Claims priority, application United Kingdom, Nov. 4, 1989, 8924935

Int. Cl.⁶ A61K 9/16

U.S. Cl. 424—434

14 Claims



1. A particulate drug delivery composition for intranasal delivery comprising a plurality of bioadhesive microspheres comprising a material selected from the group consisting of polysaccharides, proteins, and synthetic polymers, wherein the polysaccharide is selected from the group consisting of a starch, a dextran, a hyaluronic acid, a gellan gum and pectin and the protein is selected from the group consisting of gelatin, albumin, and collagen, and a systemically active drug selected from the group consisting of proteins and peptides, and non-protein drugs selected from the group consisting of antibiotics, anesthetics, vasoconstrictors, cardiotonics, vasodilators, antiseptics, bone metabolism controlling agents, hypotensives, sedatives, anti-tumour agents, anti-inflammatory agents, anti-histaminic agents, anti-allergic agents, and antitussive-expectorant agents, wherein at least 90 wt % of the microspheres of the composition have a diameter of between 0.1 μm and 10 μm, and wherein the composition is capable of systemic delivery of a therapeutically effective amount of the drug to a mammal upon intranasal administration.

5,804,213

BIOLOGICALLY ACTIVE AQUEOUS GEL WOUND DRESSING

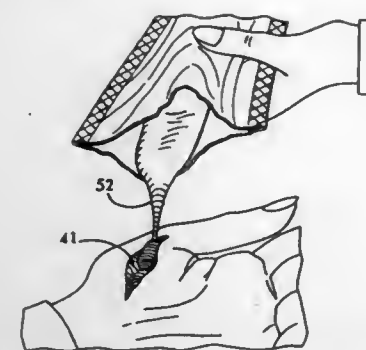
David Rolf, Minneapolis, Minn., assignor to LecTec Corporation, Minnetonka, Minn.

Continuation-in-part of Ser. No. 774,064, Oct. 9, 1991, abandoned. This application Jul. 15, 1992, Ser. No. 914,751

Int. Cl.⁶ A61F 13/00; A61K 9/00

U.S. Cl. 424—445 14 Claims

1. A pre-packaged wound dressing contained in a package for storing and mixing the dressing from which the dressing can be poured as a liquid and set up as a solid elastic body on the surface of a wound, said dressing comprising, about 3%—15% by weight of a natural or synthetic hydrocolloid polymer in dry particulate form contained in a compartment of said pouch, said polymer is a water soluble or water swellable hydrocolloid comprising a member selected from the group consisting of



guar gum, locust bean gum, hydroxypropyl guar gum, polyglucosaccharin gum, cationic guar gum, anionic guar gum, alginate and xanthan gum.

about 70%—95% by weight water contained in a second compartment of the package, the amount of said dry polymer relative to the amount of said water being effective to produce a liquid hydrocolloid dispersion of an initial viscosity which can be poured or spread onto a surface after said dry hydrocolloid polymer is mixed with said water and is capable of setting up to form a solid.

said pre-packaged wound dressing including a biologically active substance for treating the wound, the water and the polymer being separated by a removable barrier that is a part of the package separating the polymer from the water to prevent communication between the dry hydrocolloid polymer and water for maintaining the hydrocolloid in the dry state.

said dry hydrocolloid polymer, the biologically active substance and water being mixed together by rupturing or removing said barrier to form said liquid dispersion for being poured onto a wound or spread onto a wound after the water and polymer are mixed together, and

after application to the wound, said dispersion solidifies to form a gel which is an elastic solid resting upon the wound, said elastic solid gel has a lower surface that corresponds to the shape of the wound surface, said elastic solid gel protects the wound, maintains the wound in a moist condition and maintains said biologically active substance in contact with the wound to promote healing or patient comfort.

5,804,214

MONOLITHIC MATRIX TRANSDERMAL DELIVERY SYSTEM FOR DELIVERING KETOROLAC TROMETHAMINE

Ooi Wong, Fremont, Calif., and Thuytien N. Nguyen, Seattle, Wash., assignors to Cygnus, Inc., Redwood City, Calif.

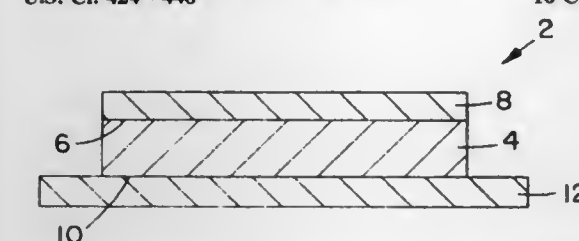
PCT No. PCT/US94/07544, § 371 Date May 20, 1996, § 102(e) Date May 20, 1996, PCT Pub. No. WO95/01767, PCT Pub. Date Jan. 19, 1995

Continuation-in-part of Ser. No. 88,877, Jul. 8, 1993, abandoned. This PCT application Jul. 6, 1994, Ser. No. 581,531

Int. Cl.⁶ A61F 13/02

U.S. Cl. 424—448

10 Claims



1. A laminated device for transdermal administration of ketorolac tromethamine comprising a backing layer and a matrix layer, the matrix layer comprising: ketorolac tromethamine, and

5,804,215

TRANSDERMAL PATCH DISPOSAL SYSTEM AND METHOD

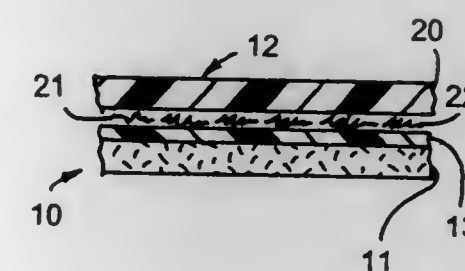
Robert C. Cabbage, Kalamazoo; Robert B. Hamly, Kentwood, and Todd C. Swartz, Wyoming, all of Mich., assignors to L. Perrigo Company, Allegan, Mich.

Filed Mar. 21, 1997, Ser. No. 821,467

Int. Cl.⁶ A61F 13/00; A61K 9/70

U.S. Cl. 424—449

21 Claims



1. A transdermal patch disposal member comprising: a generally planar sheet made of a tear-resistant flexible material; and an adhesive applied to at least an outer periphery of one surface of said sheet, wherein said sheet has a size sufficient to allow a transdermal patch to be placed upon said sheet such that when said sheet is folded said adhesive coated one surface bonds to itself for encapsulating the transdermal patch and preventing removal of the transdermal patch from said sheet of tear-resistant material.

5,804,216

ACIDIC COMPOSITION BASED ON LIPID VESICLES AND ITS USE IN TOPICAL APPLICATION

Nadia Terren, Chevilly Larue; Jacques Michelet, Champlan, and Martine Perrin, Savigny sur Orge, all of France, assignors to L'Oreal, Paris, France

Filed Feb. 23, 1996, Ser. No. 605,921

Claims priority, application France, Feb. 23, 1995, 95 02136

Int. Cl.⁶ A61K 9/127; 9/133; 7/42; 9/10

U.S. Cl. 424—450 30 Claims

1. A composition comprising an aqueous dispersion of lipid vesicles having an oily core, or a mixture of lipid vesicles having an aqueous core and lipid vesicles having an oily core, said composition further comprising at least one acidic compound in an amount which is sufficient to impart a pH of less than 5 to the said composition, provided that a lipid membrane of the vesicles with an aqueous core does not contain acidic amphiphilic lipids, and does not contain non-hydrogenated soya lecithin when the dispersion comprises glycerol.

5,804,217

MANUFACTURING MATRICES

Seth Björk, Hågersten; Ragnar Ek, Stockholm, and Gert Ragnarsson, Bro, all of Sweden, assignors to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden
PCT No. PCT/SE94/00331, § 371 Date Oct. 11, 1995, § 102(e)
Date Oct. 11, 1995, PCT Pub. No. WO94/23703, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 14, 1994, Ser. No. 532,716

Claims priority, application Sweden, Apr. 14, 1993, 9301200
Int. Cl.⁶ A61K 9/20

U.S. Cl. 424—488

30 Claims

1. A process for the manufacture of porous cellulose matrices from a cellulose raw material selected from the group consisting of cellulose, cellulose chemical derivative and mixture thereof, having a mean fiber length less than the desired mean diameter of the resulting particles and further having a solids content of at least 70%, by mechanically treating said cellulose raw material with a low-adhesion mixing device during a controlled, gradual addition of an aqueous mixing fluid, into mainly spherical particles, and finally drying the resulting particles to obtain dry porous cellulose matrices with a particle size distribution in the range of about 0.1 to 3 mm with reference to the largest diameter of the particles, and a tap bulk density less than 0.8 mg/ml in the dry state.

5,804,218

METHODS AND COMPOSITIONS FOR INHIBITING ENTEROHEPATIC CYCLING OF BILIRUBIN

Martin C. Carey, Wellesley, Mass., assignor to Brigham & Women's Hospital, Inc., Boston, Mass.

Filed Aug. 28, 1997, Ser. No. 924,055

Int. Cl.⁶ A61K 33/32; 31/315

U.S. Cl. 424—641

20 Claims

1. A method for removing bilirubin from a patient by adsorption of a soluble bilirubin in the gastrointestinal tract, the method comprising:

orally administering to the patient, a composition comprising a zinc salt, wherein the zinc salt is present: (i) in a therapeutically effective amount and (ii) in a form that is insoluble in the gastrointestinal tract.

5,804,219

FABRIC SOFTENING COMPOSITIONS WITH DYE TRANSFER INHIBITORS FOR IMPROVED FABRIC APPEARANCE

Toan Trinh, Maineville; Stephanie Lin-Lin Sung, Cincinnati; Helen Bernardo Tordil, West Chester, and Paul Arthur Wendland, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 976,781, Nov. 16, 1992, abandoned.

This application Mar. 10, 1994, Ser. No. 209,694

Int. Cl.⁶ A01N 59/00; D06M 0/00; H01B 1/06

U.S. Cl. 424—719

8 Claims

1. A method of minimizing dye transfer during the wash cycle of a laundering process comprising the following steps:

(a) washing a load of fabrics in a wash solution containing a detergent composition;
(b) rinsing said load of fabrics with an effective amount of a liquid rinse added fabric softening composition capable of reducing the transfer of dyes during subsequent wash cycles, comprising:

I. from about 3% to about 50% of fabric softening agent; and
II. from about 0.03% to about 25% of water-soluble polymeric dye transfer inhibitor selected from the group consisting of:

(A) polymers, which are not enzymes, with one or more monomeric units containing at least one =N-C(=O)- group having an average molecular weight of from about 500 to about 100,000;

(B) polymers with one or more monomeric units containing at least one N-oxide group having an average molecular weight of from about 500 to about 1,000,000;

(C) polymers containing both =N-C(=O)- and N-oxide groups of (A) and (B);

(D) mixtures thereof; and

wherein the composition is essentially free of aerosol propellant; bleach; sachets containing an active ingredient; anionic surfactant; large amounts of highly ethoxylated material, propylated Material, or mixtures thereof when the fabric softening agent is methyl-1-oleylamidoethyl-2-olcylimidazolium methosulfate, or analogous agent;

(c) drying said load of fabrics; and

(d) washing all or part of said load of fabrics, together with or without additional fabrics, said load releasing an effective amount of dye transfer inhibitor into a wash solution containing a detergent composition.

5,804,220

BLADDER CLAMPING DEVICE FOR TIRE VULCANIZING PRESS

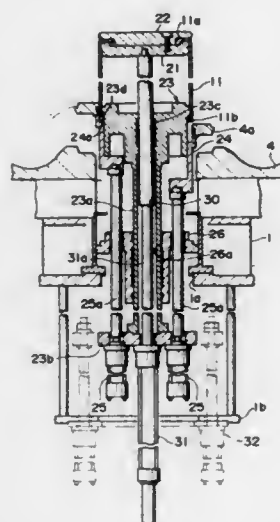
Kenji Kubo; Hiroyuki Takebayashi, and Katsumi Ichikawa, all of Takasago, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Dec. 8, 1994, Ser. No. 354,820

Int. Cl.⁶ B29C 35/02

U.S. Cl. 425—52

27 Claims



1. A bladder clamping device for a tire vulcanizing press, comprising:

a lower ring and a clamping ring located at a central portion of a lower mold of said tire vulcanizing press for cooperatively clamping a lower end portion of a bladder, and wherein in a clamping position said lower ring is disposed inside of said clamping ring; and

a hydraulic cylinder having a rod connected to said clamping ring for moving said clamping ring upwardly and downwardly relative to said lower ring, and wherein said hydraulic cylinder moves said clamping ring upward to said clamping position;

tion and moves said clamping ring downward from said clamping position to a non-clamping position.

5,804,221

AIR RING FOR COOLING BLOWN PLASTIC FILM

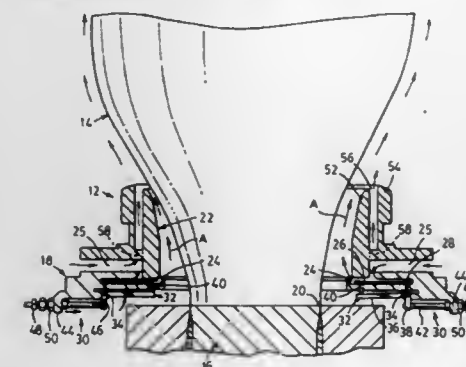
Mirek Planeta, Mississauga, and Nghia C. Dang, Toronto, both of Canada, assignors to Macro Engineering & Technology Inc., Mississauga, Canada

Filed Sep. 5, 1996, Ser. No. 708,763

Int. Cl.⁶ B29C 47/88

U.S. Cl. 425—72.1

3 Claims



1. An air ring for supplying cooling air to a hot extruded plastic film after the film has been extruded from an annular extrusion die at an elevated temperature, said air ring having:

an annular body which surrounds the tubular film after the film has left the extrusion die,

said body having a circumferentially extending air passage through which air can be supplied from an external source and which directs cooling air from the passage between the body and the film with a venturi-like effect,

a circumferentially extending series of individually operable actuators each operable to vary the venturi-like effect at its circumferential location and cause the film to become nearer to or further from the body at said location to cause the thickness of the film at said location to decrease or increase, and

an annular diaphragm located in said circumferentially extending air passage, said actuators each being operable to move an adjacent portion of the annular diaphragm to vary the area of an adjacent portion of the circumferentially extending air passage,

each actuator having a two arm lever pivotally mounted on the annular body, and an actuator member operable to move one arm of the lever and pivot said lever to cause the other arm to effect said movement of said adjacent portion of the annular diaphragm, and

each actuator member having a length which varies with temperature, the actuator also having an electrical heater for heating the actuator member to cause an increase in length thereof and consequent pivoting movement of the lever.

5,804,222

CO-EXTRUSION HEAD FOR COATING WIRE

Jearl D. Brown, P.O. Box 42, Dexter, Mo. 63841, and Jerry A. Bannister, 1312 McDougal Ave., Sikeston, Mo. 63801

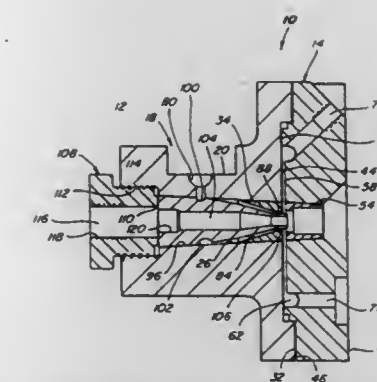
Filed Apr. 29, 1997, Ser. No. 848,682

Int. Cl.⁶ B29C 47/02; 47/06; 47/12

U.S. Cl. 425—113

15 Claims

1. A wire coating apparatus comprising:
a first housing member having first and second ends, a passageway extending from end to end therethrough, an inlet channel extending through the housing member into the passageway, means positioned within the passageway of the first housing member for applying a layer of extrudable material onto a



wire as the wire is drawn through the passageway from the first end to the second end thereof, the first housing member second end including an end surface which defines the opening of the passageway,

a second housing member having first and second ends, a passageway extending from end to end therethrough, the first end of the second housing member adapted for attachment to the second end of the first housing member such that the respective passageways thereof are substantially aligned, the second housing member first end including a first surface which defines the opening of the passageway, a groove which surrounds the first surface and is recessed relative thereto, a second surface which surrounds the groove, the first surface being recessed relative to the second surface,

wherein, when the second housing member is attached to the first housing member, the second surface of the second housing member makes sealing contact with the end surface of the first housing member and the first surface of the second housing member is positioned a predetermined distance from the end surface of the first housing member.

5,804,223

DEVICE FOR FABRICATING MULTIPLE PLASTIC OBJECTS FROM THERMOPLASTIC MATERIAL WITH CONSTANT COMPRESSOR POWER SETTING

Michael Gosdin, and Helmut Eckardt, both of Meinerzhagen, Germany, assignors to Battenfeld Holding GmbH, Meinerzhagen, Germany

Division of Ser. No. 435,986, May 5, 1995, Pat. No. 5,599,487.

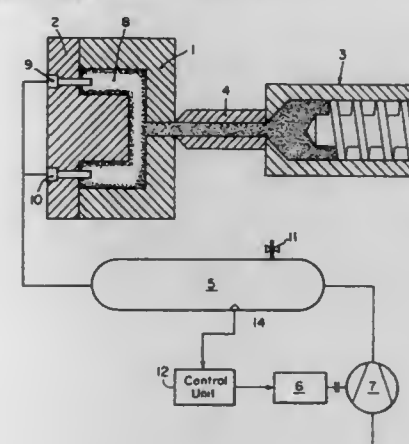
This application Jun. 11, 1996, Ser. No. 661,940

Claims priority, application Germany, Dec. 21, 1994, 44 45 622.0

Int. Cl.⁶ B29C 45/03

U.S. Cl. 425—130

6 Claims



1. A device for fabricating hollow plastic objects of thermoplastic material, comprising:
a molding tool for forming the plastic objects;

a plasticizing unit for injecting molten thermoplastic material into the molding tool;
a container for supplying a pressurized fluid into the molding tool to distribute the thermoplastic melt against the walls of the molding tool to form the hollow plastic objects;
a compressor for supplying pressurized fluid to the container;
a drive element which drives the compressor; and
a control unit for controlling the drive element of the compressor to operate at a constant power level at least over the production of plural ones of the plastic objects successively formed by the molding tool.

5,804,224

DRIVING APPARATUS FOR ELECTRICALLY-OPERATED INJECTION MOLDING MACHINE

Yoshiharu Inaba, Kawasaki; Yasushi Ishikawa, Yamanashi; Susumu Ito, Yamanashi, and Koichi Nishimura, Yamanashi, all of Japan, assignors to Fanuc Ltd, Yamanashi, Japan

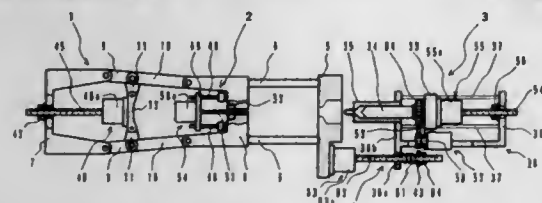
Filed Dec. 28, 1995, Ser. No. 580,250

Claims priority, application Japan, Dec. 28, 1994, 6-337701

Int. Cl.⁶ B29C 45/66

U.S. Cl. 425—150

9 Claims



1. A driving apparatus for axially driving a movable member relative to a stationary member in an electrically-operated injection molding machine, comprising:

- an electric motor having a rotor shaft and mounted on either said movable member or said stationary member;
- a ball screw formed integrally with said rotor shaft of said electric motor; and
- a ball nut threadedly engaged with said ball screw and non-rotatably fixed to said movable member when said electric motor is mounted on said stationary member or to said stationary member when said electric motor is mounted on said movable member;

wherein said electric motor has a first annular bearing fitted on said rotor shaft for bearing a force exerted on said rotor shaft in one direction of axial directions of said rotor shaft, a second angular bearing disposed next to said first angular bearing for bearing a force exerted on said rotor shaft in the other direction of axial directions of said rotor shaft, a radial bearing, and a rotor disposed between said first and second angular bearings and said radial bearing.

5,804,225

METHOD AND APPARATUS FOR STRETCHING BREAD DOUGH AND THE LIKE

Torahiko Hayashi, Utsunomiya, Japan, assignor to Rheon Automatic Machinery Co., Ltd., Japan

Filed May 2, 1996, Ser. No. 642,795

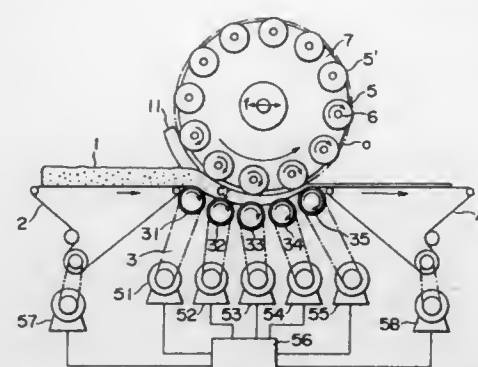
Claims priority, application Japan, May 2, 1995, 7-132730; Nov. 9, 1995, 7-317211

Int. Cl.⁶ B21C 1/08; 3/02

U.S. Cl. 425—363

23 Claims

- 1. A bread-dough stretching apparatus comprising:
- a rotating member including a plurality of planetary rollers freely rotatably mounted on parallel shafts, the planetary rollers being arranged to move along a circular path,
- a conveying device including a plurality of rollers located below and spaced apart from the rotating member, the plurality of rollers being arranged to form an arcuate path such that a curved space is formed between a portion of the circular path



of the planetary rollers and the arcuate path of the conveying device, the curved space having an upstream end and a downstream end, the curved space becoming gradually narrower from the upstream end to the downstream end, and a speed-setting device for individually controlling the rotating speed of ones of the plurality of rollers of the conveying device such that the rotating speeds of the plurality of rollers of the conveying device gradually increase from the upstream end to the downstream end.

5,804,226

BUSHING FOR KNOCK OUT PIN AND REMOVABLE KNOCK OUT PIN ASSEMBLY

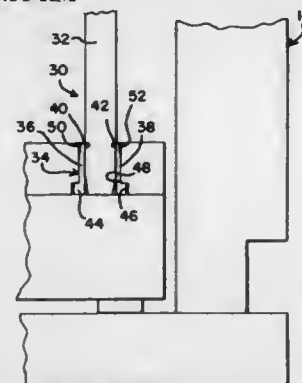
Borislav Boskovic, 2102 Bannockburn, Inverness, Ill. 60067

Filed Dec. 9, 1996, Ser. No. 760,658

Int. Cl.⁶ B29C 45/40

U.S. Cl. 425—436 RM

14 Claims



1. A bushing for retaining a knock out pin for a plastic mold, comprising

- a. a pin holding portion, said pin holding portion including flexible means for gripping a knock out pin to hold the knock out pin in place in said pin holding portion, and
- b. means for retaining the bushing in a plastic mold.

5,804,227

INSPECTION MOLD FOR A MULTI-CHAMBER CONTAINER PREFORM

Lawrence Robert Deardurff, Waterville, and Daniel J. Durham, Toledo, both of Ohio, assignors to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 310,557, Sep. 21, 1994, Pat. No. 5,573,143. This application Sep. 18, 1996, Ser. No. 715,679

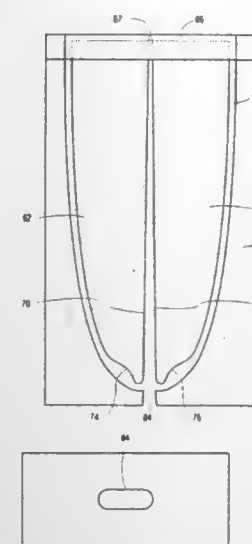
Int. Cl.⁶ B29C 49/06; 45/36

U.S. Cl. 425—525

6 Claims

1. An injection mold for a multi-chamber container preform comprising:

- a. a mold body having an upper portion and a bottom portion;
- b. a mold core within said mold body comprised of at least a base and a plurality of separate core projections extending



from said base and having a shape related to the shape of said multi-chamber container;

- c. a gate pad on said bottom portion aligned with a space between said plurality of separate projections; and
- d. a gate on said gate pad, said gate having an elongated aperture to control the flow of plastic into the mold and to thereby control deflection of said core projections during the flow of such plastic into the mold.

5,804,228

MINIMUM VESTIGE NOZZLE ASSEMBLY FOR PLASTICS INJECTION MOLDING

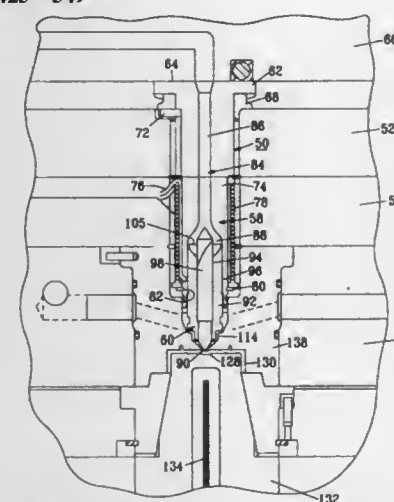
Michael Kofman, Granda Hills; Alan N. McGrevey, Chino, and Charles R. Kroeger, Upland, all of Calif., assignors to Caco Pacific Corporation, Covina, Calif.

Filed Aug. 21, 1996, Ser. No. 700,959

Int. Cl.⁶ B29C 45/20

U.S. Cl. 425—549

21 Claims



1. A nozzle assembly for injecting a plastic resin melt into a mold cavity through a gate, the nozzle assembly comprising:

- a) a nozzle housing defining a hot runner passage therethrough for flowing a plastic resin melt, the hot runner passage having a longitudinal axis;
- b) a nozzle tip section comprising an upper nozzle tip portion and a lower nozzle tip portion, the nozzle tip section defining an axial hot runner tip passage in flow communication with the hot runner passage for flowing the plastic resin melt, the nozzle tip section being freely slidably received within the hot runner passage along the longitudinal axis, such that the nozzle tip section being freely slidable along the longitudinal

axis relative to the nozzle housing during injection of the plastic resin melt into the mold cavity; and
c) limiting means disposed on the lower nozzle tip section for restricting sliding movement of the nozzle tip section, and for restricting thermal expansion of the lower nozzle tip portion, in a direction toward the gate.

5,804,229

MOLD FOR MOLDING DISCS

Ikuo Asai, Aichi, Japan, assignor to Kabushiki Kaisha Meiki Seisakusho, Aichi-ken, Japan

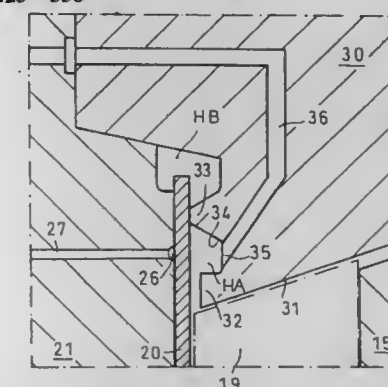
Filed Jun. 16, 1997, Ser. No. 876,487

Claims priority, application Japan, Oct. 29, 1996, 8-303972

Int. Cl.⁶ B29C 45/43

U.S. Cl. 425—556

5 Claims



1. A mold for molding discs including two moldhalves being relatively movable, one of the moldhalves comprising:

- a mirror block fixed to a base plate with intermediate plates;
- a stamper;
- an inner stamper retainer;
- an outer stamper retainer comprising means for retaining an outer peripheral portion of the stamper and mounted to fit concentrically with an outer peripheral surface of the mirror block;
- the outer stamper retainer comprising an inner peripheral retaining foot and an outer peripheral retaining foot contacting a stamper surface of the stamper;
- the outer stamper retainer comprising a circular groove, located between the inner peripheral retaining foot and the outer peripheral retaining foot, with an air outlet to blow compressed air into the groove for releasing molded discs from the stamper;
- the outer stamper retainer being a single integral part, the single part including the inner peripheral retaining foot, the outer retaining foot, and the circular groove;
- the outer stamper retainer comprising an inner peripheral surface comprising an outer peripheral wall of a disc cavity.

5,804,230

INJECTION MOLDING MACHINE

Tadashi Hasegawa, Nagoya; Yoshimitsu Tabata; Shigemi Kusuda, both of Tokai, and Shinichi Nakamura, Handa, all of Japan, assignors to Aronkasei Co., Ltd., Osaka, Japan

Division of Ser. No. 530,030, Sep. 19, 1995. This application

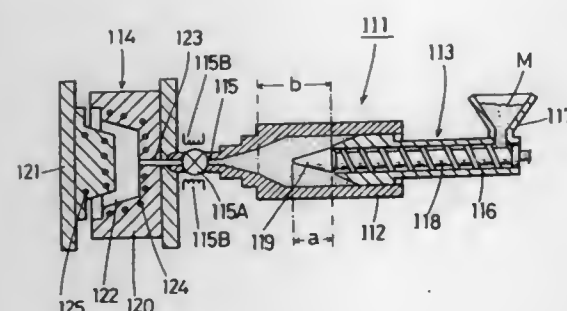
Jan. 15, 1997, Ser. No. 784,249

Int. Cl.⁶ B29C 45/54

U.S. Cl. 425—557

3 Claims

1. An injection molding machine for thermoplastic resin comprising an accumulator in which a plunger is slidably provided and an injection mold, the sprue of said injection mold connecting with the nozzle of said accumulator, wherein said plunger comprises a cylinder having an extended diameter part, the diameter of said extended diameter part being substantially the same as the inside diameter of said accumulator at the front end of said cylinder and



a screw rotatably arranged in said cylinder, and a tip connected to said screw and protruding from the front end of said cylinder, the maximum diameter of said tip exceeding the diameter of said screw, and the melted thermoplastic resin being extruded through a slit between said tip and said cylinder, and the ratio of the effective volume of said plunger to the effective volume of said accumulator being in the range of 1:4 to 1:10.

5,804,231

EXPANDABLE HOT RUNNER MANIFOLD

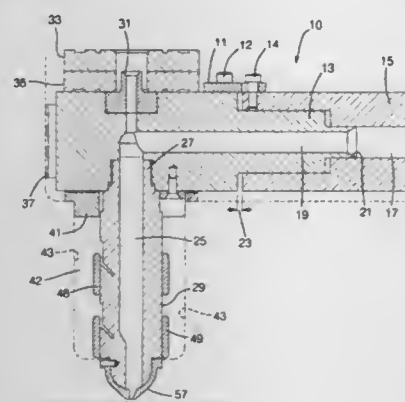
Philip Alan Prophet, and Michael Lee Mills, both of Alexandria, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 23, 1996, Ser. No. 772,636

Int. Cl.⁶ B29C 45/22

U.S. Cl. 425—570

6 Claims



1. A manifold runner for an injection molding apparatus providing pressurized and heated molding material to an injection molding die, the injection molding apparatus further including a nozzle drop and a manifold cavity, comprising:

- a first manifold runner block adapted for positive location within the manifold cavity and in a substantially fixed relationship thereto, the first manifold runner block having an inlet at a respective coupling end for accepting the pressurized and heated molding material therethrough and a respective outlet fixably coupled to the nozzle drop; and
 - a second manifold runner block having a respective outlet at a respective coupling end for delivering the pressurized and heated molding material therethrough, said first and second manifold runner blocks slidably engaged at respective coupling ends to communicate the pressurized and heated molding material from the outlet of the second manifold runner block to the inlet of the first manifold block,
- whereby expansion of the manifold runner blocks is taken up at the slidably engaged coupling ends.

5,804,232

PROCESS FOR PREPARING AN INSTANT RICE NECTAR

Jung-Man Kim, Pusan; Bong-Jae Lee, Yangsan-Kun; Joung-Yeoul Lee, Kimhae; Sang-Hwan Han, Pusan, and Kwang-Ho Lee, Taegu, all of Rep. of Korea, assignors to Vilac Company Ltd., Pusan, Rep. of Korea

Filed Sep. 29, 1995, Ser. No. 536,220

Int. Cl.⁶ A23L 2/38; 1/186; 1/105

U.S. Cl. 426—18

2 Claims

1. A process for preparing an instant rice nectar which comprises the steps of:

- (i) adding water to malt while stirring, filtrating to obtain malt extract, adding enzymes α -amylase and β -amylase to the malt extract and saccharifying for at least 1.5 hours, heating and chilling, filtering and adding sugar to the filtrate so that the total sugar content reaches Brix 32 to 68;
- (ii) steeping nonglutinous rice in water and boiling, adding 1 to 3 times of water by weight and enzymes α -amylase and β -amylase to the resulting nectar rice, and saccharifying for at least 1.5 hours and washing saccharified nectaring rice with water;
- (iii) diluting said malt extract with water to bring the sugar content to Brix 10 to 14, adding said saccharified nectaring rice to the resulting mixture, and filling up a container with rice nectar thus produced and sealing; and
- (iv) putting said container filled with rice nectar in a retort chamber and sterilizing.

5,804,233

ICE RESISTANT FROZEN DOUGH, AND METHOD OF MAKING

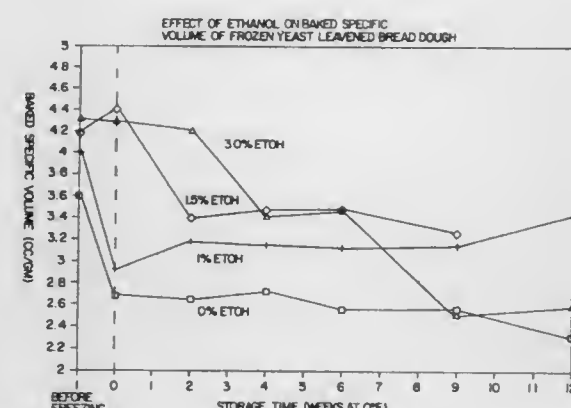
Dennis Lonergan, Medina; Michelle Larsen, Woodbury, and Rosebud Sierzant, Minneapolis, all of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 477,216, Jun. 7, 1995, Pat. No. 5,672,369. This application Jun. 3, 1996, Ser. No. 642,703

Int. Cl.⁶ A21D 2/18; 6/00; 10/02

U.S. Cl. 426—19

19 Claims



1. A method for making a bread dough that substantially retains rheological properties of an unfrozen dough at a temperature as low as 0° F. (18° C.) and that has a specific volume and flavor, when baked after frozen storage at freezing temperatures, that is substantially the same as bread baked from a dough not subjected to freezing temperatures, comprising:

- preparing a bread dough that includes a hydrophobic plasticizer effective for depressing an initial freezing point of the dough while retaining rheological properties of the dough and specific volume of an unfrozen baked dough and further including a solute having one or more of a colligative freezing point effect and a non-colligative freezing point effect; and
- storing the bread dough in an atmosphere enriched in a carbon dioxide concentration of at least about 50% by volume.

5,804,234

PLANT PROTEIN FOR NUTRITIONAL PRODUCTS AND METHOD OF MAKING SAME

John D. Sub, 510 Coriander Pl., Gahanna, Ohio 43230; Karin M. Ostrom, 7788 Quarry Cliff Ct., Reynoldsburg, Ohio 43068; Louis I. Ndife, 3781 Ashton Woods Pl., Columbus, Ohio 43230; Paul S. Anloague, 8424 Papillon Ave., Reynoldsburg, Ohio 43068; James N. Chmura, 7725 Silver Springs Ct., Canal Winchester, Ohio 43110; Andre Daab-Krzykowski, 34 W. Jeffrey Pl., Columbus, Ohio 43214; Paul W. Johns, 3115 Rightmire Blvd., Columbus, Ohio 43221; Diane M. Garcia, 766 Autumn Branch, Westerville, Ohio 43081; Terrence B. Mazer, 6897 Roundelay Rd. North, Reynoldsburg, Ohio 43068, and Fu-I Mel, 2572 Olentangy River Rd. Apt. A1, Columbus, Ohio 43202

Filed Sep. 13, 1996, Ser. No. 713,904

Int. Cl.⁶ A23K 1/02; A23L 1/30; A01N 65/00; 43/04

U.S. Cl. 426—69

17 Claims

1. A method of reducing the isoflavone, manganese or nucleotide content of a plant protein comprising:

- a) providing at least one anion exchange resin;
- b) providing a slurry of plant protein that contains isoflavones, manganese, or nucleotides;
- c) passing the slurry through a structure which contains the anion exchange resin, and the structure has at least one inlet and at least one outlet, and;
- d) the slurry enters the structure via the inlet and the slurry with reduced content of isoflavones, manganese, or nucleotides exits the structure via the outlet, and the inlet is located lower in the structure than the outlet.

5,804,235

EDIBLE TOY FIGURES CONSTRUCTED OF BREAKFAST CEREAL

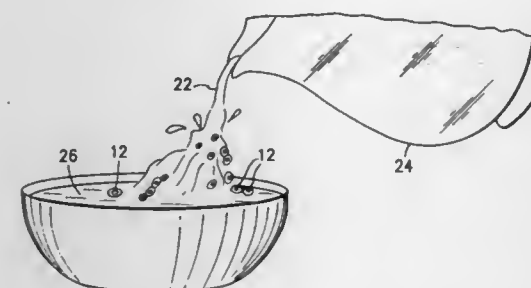
Randice-Lisa Altschul, 36 Cecilia Ave., Cliffside Park, N.J. 07010

Filed Dec. 26, 1996, Ser. No. 780,165

Int. Cl.⁶ A23L 1/164

U.S. Cl. 426—104

5 Claims



4. An individual portion of pre-formed, ready-to-eat breakfast cereal for consumption with an edible liquid, the individual portion comprising:

- a multiplicity of discrete, individual pre-formed, ready-to-eat pieces of breakfast cereal bound together to form a full-dimensional object which is dimensioned to be placed within a breakfast cereal bowl; and
- a binding medium binding the multiplicity of pieces of breakfast cereal together in the form of the full-dimensional object, the binding medium having a limited tenacity such that the integrity of the shape of the full-dimensional object is maintained during shipping and storage, but will allow rapid, essentially immediate separation of the pieces of breakfast cereal from each other when exposed to said edible liquid in said breakfast cereal bowl to convert said full-dimensional object into a mixture of pre-formed, ready-to-eat pieces of breakfast cereal in the liquid in the breakfast cereal bowl, for consumption.

5,804,236

OXYGEN SCAVENGING CONTAINER

Peter Frisk, 2300 Lincoln Park W., Chicago, Ill. 60614
Filed Sep. 26, 1996, Ser. No. 721,411

Int. Cl.⁶ C01B 3/00; A23B 81/134; B65D 85/00; C08C 19/00
U.S. Cl. 426—106

13 Claims

1. A bottle for containing a liquid food product, the bottle having an interior layer, the bottle capable of scavenging excess oxygen from an atmosphere formed within the sealed bottle, the interior layer of the bottle in direct contact with the liquid food product and the atmosphere of the sealed bottle, the bottle comprising:

- an upper portion of the interior layer of the bottle, the upper portion surrounding the atmosphere of the bottle, the upper portion of the interior layer consisting of polyethylene terephthalate integrated with an oxygen scavenging agent, the oxygen scavenging agent being present in an amount between 0.01% and 1.0% of the weight of the bottle, the upper portion of the interior layer in direct contact with the atmosphere of the bottle; and
 - a lower portion of the interior layer of the bottle, the lower portion contiguous with the upper portion, the lower portion surrounding the liquid food product, the lower portion consisting of polyethylene terephthalate;
- whereby the oxygen scavenging agent is only present in the upper portion of the bottle and the oxygen scavenger degrades oxygen present in the atmosphere of the bottle without substantially contacting the liquid food product.

5,804,237

METHOD OF AND PACKAGE FOR STERILIZED EDIBLE MATERIAL

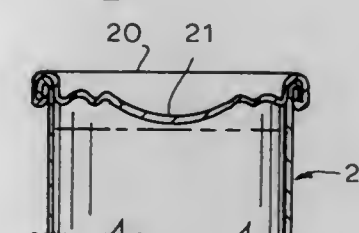
George B. Diamond, 62 Anthony Rd., Glen Gardner, N.J. 08826, and Ray G. Slocum, Washington, N.J., assignors to George B. Diamond, Glen Gardner, N.J.

Filed Oct. 8, 1996, Ser. No. 729,812

Int. Cl.⁶ B65B 31/02; 55/06; 55/08; 55/14

U.S. Cl. 426—131

21 Claims



1. A pressurized sealed container containing sterilized edible material, which comprises:

- a thin wall sealed container containing edible material sterilized in a sterilization process and an inert gas under pressure, the walls of the container being maintained rigid by the pressure of the inert gas but being easily deformable in the absence of such pressure, the container having a top end and a bottom end with at least one end having a concave slope relative to the inside of the container, the at least one end being of a material and having a thickness and shape such that said at least one end of said sealed container will retain a substantially concave slope before, during and after said sterilization process but will become convex only if there is any additional gas pressure generated due to bacterial action in the pressurized sealed container.

5,804,238

PARTIALLY DENATURED YOLK OBTAINED BY HEATING THE YOLK AND AN EMULSIFIER MADE FROM SAID YOLK

Mitsuharu Tanaka; Kenji Ikeda; Fumiko Irie; Kazunori Kikuchi, and Hiroshige Kohno, all of Tokyo, Japan, assignors to Asahi Denka Kogyo Kabushikaisya, Tokyo, Japan
Filed Dec. 23, 1996, Ser. No. 771,989

Claims priority, application Japan, Dec. 28, 1995, 7-343357; Dec. 28, 1995, 7-343358

Int. Cl.⁶ A23L 1/32; 1/24; A23D 7/005

U.S. Cl. 426—244

22 Claims

1. A food additive comprising a water soluble paste of partially heat denatured yolk having a viscosity of 1500 to 7500 centipoise prepared by heating yolk fluid at a temperature in the range of 65° C. to 70° C. for at least five minutes.

5,804,239

METHOD AND COMPOSITION FOR FOOD FLAVORING

Jack G. Wiersma, Jupiter, Fla., assignor to Nouveau Technologies, Inc., Tequesta, Fla.

Filed Jul. 26, 1996, Ser. No. 688,814

Int. Cl.⁶ A23L 1/22

U.S. Cl. 426—302

11 Claims

10. A method of food preparation comprising the steps of: admixing a capsicum oleoresin concentrate and a saponin concentrate to a carrier oil to form an emulsion; and coating food with said emulsion.

5,804,240

JUICE PACKAGING PROCESS AND APPARATUS

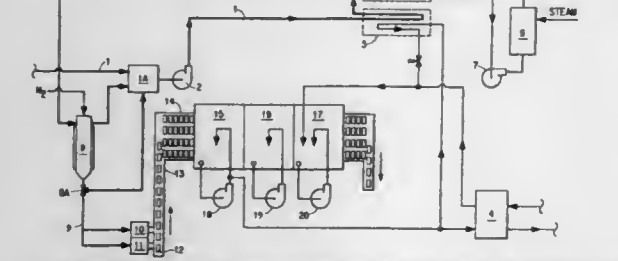
August Madlener, Santa Isabel, Puerto Rico, assignor to Alipak Corporation, Santa Isabel, Puerto Rico

Filed Dec. 29, 1995, Ser. No. 580,835

Int. Cl.⁶ A23L 3/00; B65B 55/14

U.S. Cl. 426—410

15 Claims



1. A process for the continuous processing and packaging of juice comprising the sequential steps of:

- heating the juice to a heated temperature of about from 185° to 205° F. in a closed conduit;
- maintaining the heated temperature of the juice while it is in the conduit for a residence time of about from 0.5 to 3 minutes;
- passing the heated juice into a distribution tank which has a height to diameter ratio of at least about 5 to 1 and maintaining the level of the heated juice in the distribution tank at a substantially constant level such that the height to diameter ratio and the substantially constant level of heated juice in the tank ensures a substantially constant flow of heated juice through the distribution tank thus allowing all juice processed through the tank to be maintained in the tank for substantially the same period;
- passing the heated juice from the distribution tank by at least one conduit and filling pouches comprising a gas impermeable polymeric film with the heated juice from the tank wherein the heated juice filling the pouch is at the heated temperature;
- sealing the top of each filled pouch;

(f) maintaining each sealed and filled pouch at ambient conditions for at least about 1 minute; and then

(g) contacting each sealed and filled pouch for at least about 2 minutes with fluid maintained at a temperature below about 100° F. to cool the heated juice in the sealed and filled pouch to a temperature of less than about 100° F. such that said steps produce a packaged juice that is shelf stable at room temperature in the sealed pouch for at least six month without preservatives.

5,804,241

LIQUID-ABSORBENT SHEET AND METHOD FOR STORING FOOD USING THE SAME

Toru Isohata, Kanagawa, Japan, assignor to Showa Denko K.K., Tokyo, Japan

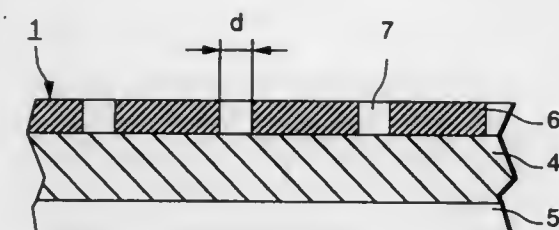
Division of Ser. No. 385,131, Feb. 7, 1995, abandoned. This application Mar. 1, 1996, Ser. No. 609,625

Claims priority, application Japan, Feb. 7, 1994, 6-13862

Int. Cl.⁶ B65B 55/00

U.S. Cl. 426—415

6 Claims



1. A method for storing foods, which comprises

- providing a liquid-absorbent sheet containing a liquid-absorbing material capable of absorbing drips of food, wherein a part of one outer surface of the liquid-absorbent sheet is composed of a liquid-permeable film, a part of the other outer surface thereof is composed of a liquid-semipermeable film, the liquid-semipermeable film is a liquid-impermeable film having formed therein pores, the diameter of each of the pores is in the range of from 0.05 mm to 0.5 mm, and the porosity of the pores is in the range of from 0.01% to 0.4%;
- contacting the food with the surface of the liquid-semipermeable film of the liquid-absorbent sheet, and
- vacuum packaging the food and the liquid-absorbent sheet together using a gas-impermeable film.

5,804,242

SUGARLESS BAKERY GOODS, E.G., CAKES

Glenn Wallin, Seattle, Wash., assignor to Bunge Foods Corporation, Seattle, Wash.

Continuation of Ser. No. 609,459, Mar. 1, 1996, Pat. No. 5,700,511, which is a continuation of Ser. No. 277,323, Jul. 19, 1994, Pat. No. 5,523,107. This application Nov. 5, 1997, Ser. No. 965,075

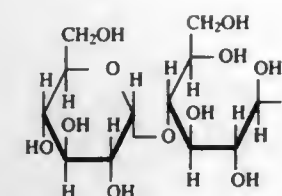
Int. Cl.⁶ A21D 10/00

U.S. Cl. 426—549

26 Claims

1. An essentially sugar-free cake or muffin batter formulation containing sufficient flour water and egg such that, upon heating to an appropriate baking temperature the batter formulation will increase in volume to form a baked cake or muffin comprising:

- an oligomeric polyol bulking and sweetening agent predominantly having the following structural formula (I):



in an amount of about 10% to about 30% by weight of the batter formulation;

- a leavening agent in an amount of about 0.1% to about 2% by weight of the formulation;
- a high potency, sugarless sweetening agent in an amount of about 0.1% to about 1% by weight of the formulation; and
- a flavoring agent in an amount of about 0.1% to about 5% by weight of the formulation.

5,804,243

PROCESS FOR MAKING LOW-FAT, CAKE DONUTS

Jimbay Loh, Peekskill; Shun Ku, Chappaqua; Joaquin C. Luga; Richard N. McArdle, both of Mahopac, and Helena S. Soedjak, North Tarrytown, all of N.Y., assignors to CPC International Inc., Englewood Cliffs, N.J.

Continuation of Ser. No. 362,729, Dec. 23, 1994, abandoned.

This application Oct. 1, 1996, Ser. No. 723,595

Int. Cl.⁶ A21D 10/04

U.S. Cl. 426—552

12 Claims

1. Method for producing a low-fat, chemically-leavened, cake donut comprising the steps of:

- preparing a thermally-reversible gel comprised of 80–95% water, 5–20% of insoluble, water binding fiber and 0.2–2% of thermally-reversible, hydrocolloid gelling agent;
- preparing a self-sustaining, low modulus donut dough having a moisture content of from 25–30% by weight, said dough comprised of from 20–30% of the gel of step (a), from 30–60% flour, from 10–30% sugars, and chemical leavening agents in an amount effective to leaven the dough throughout a baking operation, wherein the dough has a viscosity of 1,200–2,700 poise and a modulus of from 14,000 to 25,000 dyne/cm²;
- forming the dough into self-sustaining donut-shaped pieces;
- baking the dough pieces in a preheated oven in less than 10 minutes at a temperature of from 375° F. to 425° F. with the moisture content of the dough surface during the initial stages of baking being sufficient to retard crust formation.

5,804,244

SPICY HOT CORN AND METHOD OF MAKING

Donald W. Howell, and Vera Z. Howell, both of 14000 Greenview, Detroit, Mich. 48223

Filed Aug. 14, 1997, Ser. No. 911,095

Int. Cl.⁶ A23L 1/18

U.S. Cl. 426—618

4 Claims

1. A spicy hot, unpopped corn kernel composition consisting essentially of:

- unpopped corn kernels;
- a pureed red pepper in an amount of about forty percent by weight;
- vinegar in an amount of about fifty to fifty-five percent by weight;
- garlic powder in an amount of about one to five percent by weight; and
- chili powder in an amount of about one to five percent by weight.

5,804,245

METHOD FOR PRODUCING A FROZEN RAW FISH PREPARATION

Jean-Paul Desoomer, 8, de Ruscame, 62126 Pernes Les Boulogne, France; Pierre-Francois Beirnaert, 11, sentier du Denacre, 62126 Wimille, France, and Benoit Germe, ferme du Rieux, route de Paris, 62360 Hesdin L'Abbe, France

Filed Jan. 26, 1996, Ser. No. 592,805

Claims priority, application France, Feb. 1, 1995, 95 01343

Int. Cl.⁶ A23L 1/325

U.S. Cl. 426—643

6 Claims

1. Method for producing a raw deep-frozen fish preparation containing no gelling agent, no starch, no starch-containing substances, no polyphosphate or no substances other than salt or proteinic materials or other than ingredients capable of modifying the smoothness and the taste of the preparation, wherein said method uses pieces of frozen or deep-frozen fish flesh as starting material, said method comprising the following steps:

- partially defrosting the pieces of the fish flesh to reach a temperature of −10° C. to −2° C.
- finely mincing 10 to 25% of the thus partially defrosted flesh and optionally adding a small quantity of salt and/or proteinic substances, until a fine fish paste is obtained which is sticky to the touch,
- mincing coarsely the rest of the partially defrosted fish flesh until coarse pieces are obtained,
- incorporating the coarse pieces with the fine paste until a homogeneous mixture is obtained, and
- molding the mixture and deep-freezing the molded mixture.

5,804,246

PROCESS FOR THE PRODUCTION OF COOKED MINCED MEAT-LIKE PRODUCT

Adrian Peck, Milton Keynes, and Peter Fitch, Carlton, both of United Kingdom, assignors to Haldane Foods Ltd., Newport Pagnell, United Kingdom

PCT No. PCT/GB94/01293, § 371 Date Dec. 15, 1995, § 102(e) Date Dec. 15, 1995, PCT Pub. No. WO94/28738, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 15, 1994, Ser. No. 564,104

Claims priority, application United Kingdom, Jun. 16, 1993, 9312346

Int. Cl.⁶ A23J 3/14

U.S. Cl. 426—656

9 Claims

1. A process for the production of a minced product comprising the steps of:

- blending together one or more vegetable proteins, one of which is wheat gluten, and water to produce a mixture;
- impacting 5 to 22 watt hours per kg to the mixture during the blending to produce a sheet structure;
- extruding the sheeted mixture through an aperture having a diameter in the range of 2 mm to 100 mm to form an extrudate;
- setting said extrudate by heating to a temperature of at least 65° C.; and
- cutting said extrudate to size.

5,804,247

POSITIVE HYDRATION METHOD OF PREPARING CONFECTIONARY AND PRODUCT THEREFROM

Subraman R. Cherukuri, Towaco, N.J.; Robert K. Yang, Flushing, N.Y.; Cecil A. Bowles, Sioux City, Iowa; Jose F. Zamudio-Tena, Vienna, and Santi R. Bbowmik, Chesapeake, both of Va., assignors to Fuisz Technologies Ltd., Chantilly, Va.

Continuation of Ser. No. 455,936, May 31, 1995, Pat. No. 5,587,198. This application Dec. 20, 1996, Ser. No. 770,859

Int. Cl.⁶ A23G 3/00

U.S. Cl. 426—660

8 Claims

1. A method of making a confectionery mass comprising:

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forming a confectionery mass by combining a saccharide-based shearform matrix and a hydrated hydrobinding agent selected from the group consisting of food grade gums, gelatin and mixtures thereof, said hydrated hydrobinding agent present in an amount sufficient to hydrate said shearform matrix so as to provide internal cohesiveness and lubricity to said confectionery mass without causing syneresis and wherein said shearform matrix comprises at least one member selected from the group consisting of calcium and magnesium salts.

5,804,248

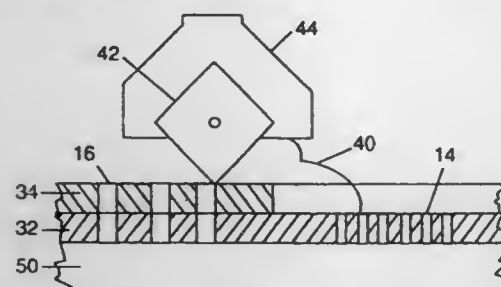
SOLDER PASTE DEPOSITION

Paul Hewett, Clarkston, United Kingdom, assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 740,808, Nov. 1, 1996, abandoned.
This application Oct. 20, 1997, Ser. No. 954,246
Claims priority, application United Kingdom, Nov. 25, 1995, 9524174

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—96

3 Claims



1. A method for applying solder paste to a printed circuit board comprising:
locating a multi-layer stencil adjacent to the printed circuit board, the stencil comprising a first layer of stencil material having defined therein a first plurality of apertures and a second layer of stencil material overlying a portion of the first stencil layer to form a region of increased stencil thickness, a second plurality of apertures being defined through the first and second layers in said region; and
applying solder paste to the surface of the stencil away from the printed circuit board and passing a squeegee across the surface to thereby force the solder paste through the first and second pluralities of apertures onto the printed circuit board to thereby define, on the printed circuit board, areas of differing solder paste thickness at the locations of the first and second pluralities of apertures.

5,804,249

MULTISTEP TUNGSTEN CVD PROCESS WITH AMORPHIZATION STEP

Valeriy Y. Sukharev, Cupertino, and David J. Heine, Pleasanton, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

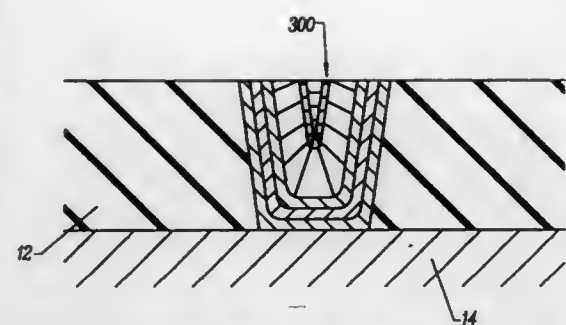
Filed Feb. 7, 1997, Ser. No. 796,945

Int. Cl.⁶ B05D 5/12; H01L 21/44

U.S. Cl. 427—99

18 Claims

1. A process of forming a tungsten contact plug that is substantially free of seam formation, said tungsten contact plug being formed on an integrated circuit (IC), comprising the steps of:
forming a dielectric layer on a surface of a substrate;
forming a via in said dielectric layer;
blanket depositing a first bulk layer of tungsten on said dielectric layer and partially filling said via;
blanket depositing an amorphous or a microcrystalline layer of tungsten over said first bulk layer of tungsten such that growth of tungsten grains inside said via is effectively inhibited; and



blanket depositing a second bulk layer of tungsten on said amorphous or microcrystalline layer.

5,804,250

METHOD FOR FABRICATING STABLE MAGNETORESISTIVE SENSORS

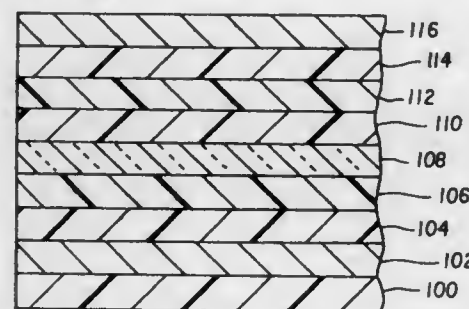
Danny D. Yang, San Diego, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 28, 1997, Ser. No. 901,188

Int. Cl.⁶ B05D 5/12

U.S. Cl. 427—130

5 Claims



1. A method of fabricating a stable, self-biased paired MR (magnetoresistive) sensor comprising the steps of:
depositing a first MR film with a diffusion barrier layer on either side on a substrate;
depositing an oxide passivation/spacer layer on top of the first MR structure;
depositing a second MR film with a diffusion barrier layer on either side on the spacer layer;
depositing an oxide passivation layer on top of the second MR structure;
wherein said MR films are deposited with induced uniaxial anisotropy; and
thermal annealing both MR films to stabilize their anisotropy field.

5,804,251

LOW TEMPERATURE ALUMINUM ALLOY PLUG TECHNOLOGY

Jick M. Yu, Beaverton, and Vinay B. Chikarmane, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 581,323, Dec. 29, 1995, abandoned.
This application Apr. 25, 1997, Ser. No. 845,578

Int. Cl.⁶ C23C 16/00

U.S. Cl. 427—250

20 Claims

1. A process for forming a plug comprising:
forming an opening in a substrate, said opening having vertical sidewalls;
depositing a wetting layer on the sidewalls and bottom of said openings; and
filling said opening, wherein said opening is first lined with said wetting layer and the remaining portion of said opening is

5,804,253

METHOD FOR ADHERING OR SEALING

Kazuo Hagiwara, Kobe, and Kouji Noda, Yokohama, both of Japan, assignors to Kanegafuchi Chemical Ind. Co., Ltd., Osaka, Japan

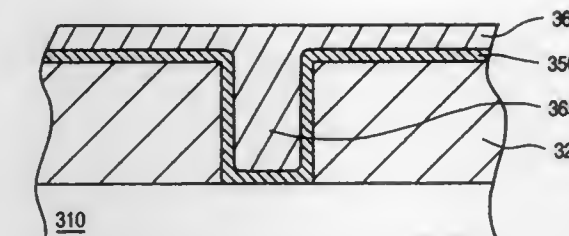
Filed Jul. 12, 1996, Ser. No. 679,670

Claims priority, application Japan, Jul. 17, 1995, 7-180140
Int. Cl.⁶ B05D 7/14

U.S. Cl. 427—386

5 Claims

1. A method for adhering or sealing an anodized aluminum substrate or a glass substrate surface-treated by metal or a metal compound, which comprises applying an adhesive or sealant of a curable composition thereto, followed by curing the curable composition, wherein the curable composition comprises:
(A) a saturated hydrocarbon polymer that has a hydroxyl group or a hydrolyzable group bonded to a silicon atom and for forming a siloxane bond and that has a ratio of weight average molecular weight (M_w) to number average molecular weight (M_n) of 1.6 or less; and
(B) a silane coupling agent selected from a group consisting of an epoxy group-containing silane coupling agent and an isocyanate group-containing silane coupling agent.



then completely filled with aluminum and, wherein said step of completely filling said opening with aluminum includes:
performing a first aluminum deposition step, wherein said first aluminum deposition step is performed at a first deposition rate and wherein the aluminum of the first aluminum deposition step flows into the bottom and along the sidewalls of said opening; and
performing a second aluminum deposition step, wherein said second aluminum deposition step is performed at a second deposition rate, wherein said first deposition rate is less than said second deposition rate and, wherein said second deposition step completes the filling of said opening, and wherein said first and second deposition steps are performed at approximately the same temperature.

5,804,254

METHOD FOR FLEXIBILIZING CURED UREA FORMALDEHYDE RESIN-BOUND GLASS FIBER NONWOVENS

Paul Nedwick, Lansdale, Pa., and Bobby Carol Osborne, Marietta, Ga., assignors to Rohm and Haas Company, Phila., Pa.

Filed Jun. 13, 1997, Ser. No. 874,712

Int. Cl.⁶ B05D 3/02

U.S. Cl. 427—389.8

2 Claims

WATER- AND OIL REPELLENT SUBSTRATE AND METHOD OF TREATMENT

Kazufumi Ogawa, and Mamoru Soga, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

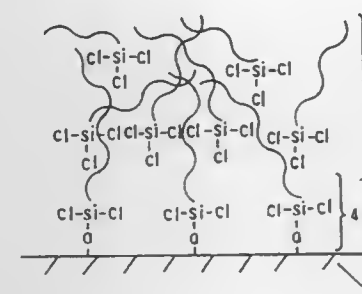
Division of Ser. No. 309,545, Sep. 20, 1994, Pat. No. 5,571,622, which is a continuation of Ser. No. 914,533, Jul. 17, 1992, abandoned. This application Apr. 1, 1996, Ser. No. 625,891

Claims priority, application Japan, Jul. 26, 1991, 3-87695;
Jul. 26, 1991, 3-187693

Int. Cl.⁶ B05D 3/02

U.S. Cl. 427—377

4 Claims



1. A treatment method for rendering a substrate water- and oil repellent comprising

(i) dipping and holding a substrate selected from the group consisting of metal, ceramics, glass, plastic, fiber, paper, fabrics, fur and cloth in a solution prepared by dissolving a material comprising a fluorocarbon and a chlorosilyl group in a non-aqueous solvent, wherein a surface of the substrate comprises at least one functional group selected from the group consisting of a hydroxyl group, an imino group, an amino group and a carboxyl group,
(ii) taking said substrate out of said solution and drying said substrate in a substantially moistureless atmosphere, and
(iii) removing said non-aqueous solvent from said substrate.

5,804,255

METHOD OF FORMING TRANSPARENT AND CONDUCTIVE ULTRATHIN FILMS

Masato Kiuchi, Nara, and Akiyoshi Chayahara, Ikeda, both of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Division of Ser. No. 284,189, Aug. 2, 1994, abandoned. This application Feb. 29, 1996, Ser. No. 608,673

Claims priority, application Japan, Aug. 2, 1993, 5-210929
Int. Cl.⁶ B05D 3/06; 5/06

U.S. Cl. 427—530

1 Claim

1. A method of producing a transparent and conductive ultrathin metal carbide or nitride layer deposited on a substrate selected from the group consisting of glass, ceramics and organic polymers, each having a light permeability of 50% to 100%, which comprises the steps of:

exciting a surface of said substrate by irradiating said surface with an excitation source under a vacuum, said excitation source being a carbon ion beam or a nitrogen ion beam;
vapor-depositing a transition metal on said surface of said substrate simultaneously with the excitation of said surface to thereby form a thin layer of said transition metal on said substrate;
converting said transition metal to a carbide or a nitride with the excitation during the vapor-deposition; and

terminating the excitation and the vapor-deposition when the thickness of the metal carbide or nitride layer is in the range of 1 nm to 50 nm, and the light permeability of the metal carbide or nitride layer is in the range of 30% to 90%, wherein the conductivity of the metal carbide or nitride layer is in the range of 1 k Ω/\square to 100 k Ω/\square .

5,804,256

METHOD AND DEVICE FOR COATING PRINTED-CIRCUIT BOARDS

Hans-Jorgen Schäfer, Ritterstrasse 36, D-41749, Viersen, Germany

PCT No. PCT/EP95/02309, § 371 Date Dec. 23, 1996, § 102(e) Date Dec. 23, 1996, PCT Pub. No. WO96/00492, PCT Pub. Date Jan. 4, 1996

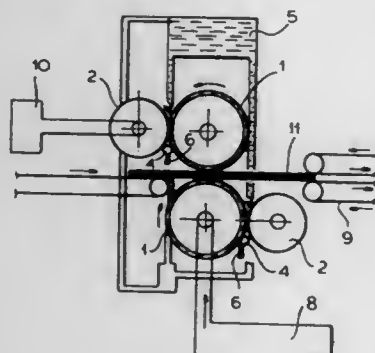
PCT Filed Jun. 14, 1995, Ser. No. 765,076

Claims priority, application Germany, Jun. 23, 1994, 4421966.0; Aug. 12, 1994, 4428713.5; Sep. 26, 1994, 4434218.7; Dec. 12, 1994, 4444086.3; Jan. 3, 1995, 19500021.8; Mar. 23, 1995, 19510227.4; May 8, 1995, 19516193.9

Int. Cl.⁶ B05D 3/06

U.S. Cl. 427—558

10 Claims



1. A process for coating opposite sides of a plurality of a printed-circuit boards, comprising the steps of:

- continuously passing a plurality of boards at room temperature through a nip formed between two spaced apart rubber jacketed applicator rolls;
- delivering a photopolymerizable coating agent having a solids content of 70 to 95% by weight and a viscosity of 10 to 60 Pa.s. at 25° C. to a respective gap formed between each of the applicator rolls and a respective metering roll defining a desired film thickness therebetween;
- cooling the surfaces of said applicator rolls 5° to 20° C. and maintaining surfaces of said metering rolls at temperature of 25° to 60° C. to maintain said coating agent in a viscosity range of 1 to 10 Pa.s. for coating onto the surfaces of the applicator rolls while keeping opposite edge regions of the applicator rolls free from the coating agent;
- transferring said coating agent to opposite sides of each of the boards passing through said nip from said application rolls with an application viscosity of 20 to 100 Pa.s. at a coating speed of 5 to 20 m/min to form film thicknesses of 10 to 200 μ m of the coating agent on the boards; and
- thereafter drying said film thicknesses at 80° to 120° C. for 60 to 120 seconds.

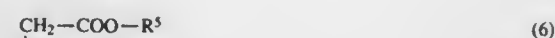
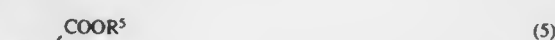
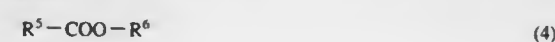
5,804,257
POLYSILANE COMPOSITIONS
Akira Hayashida, Higashimurayama; Shigeru Mori, and Eiichi Tabei, both of Kawasaki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
Division of Ser. No. 132,344, Oct. 6, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 466,278
Claims priority, application Japan, Oct. 9, 1992, 4-298101; Feb. 4, 1993, 5-40405; May 12, 1993, 5-134054
Int. Cl.⁶ C08K 5/101; B05D 3/06

U.S. Cl. 427—558

15 Claims

1. A method for preparing a dyed polysilane film comprising the steps of:

- applying a solution of a polysilane composition comprising a polysilane compound and a carboxylate ester to a surface of a substrate to form a polysilane film,
- exposing a selected portion of the polysilane film to ultraviolet radiation, and dyeing the exposed portion with a cationic dye, wherein the carboxylate ester has the following formula (4), (5) or (6)



wherein R^5 , R^6 and R^7 are monovalent hydrocarbon radicals having 1 to 20 carbon atoms; and R^2 is a divalent hydrocarbon radical having 1 to 20 carbon atoms.

5,804,258

PROCESS AND DEVICE FOR COATING A SUBSTRATE SURFACE WITH VAPORIZED INORGANIC MATERIAL

Wolfgang Lobwasser, Gailingen, Germany, and André Wisard, Adlikon, Switzerland, assignors to Alusuisse Technology & Management Ltd., Switzerland

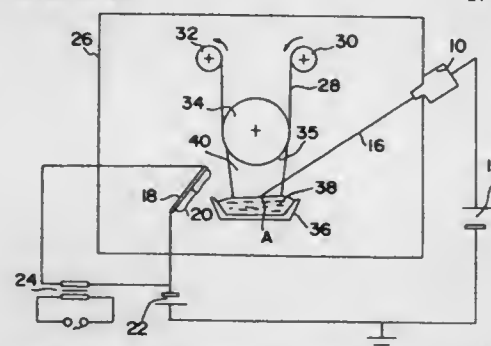
Filed Dec. 24, 1996, Ser. No. 773,761

Claims priority, application European Pat. Off., Jan. 10, 1996, 96810020

Int. Cl.⁶ B05D 3/06

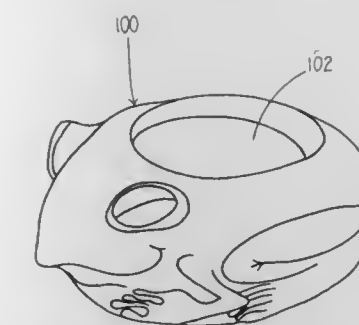
U.S. Cl. 427—562

17 Claims



1. Process for coating, which comprises: providing a substrate surface and an anode spaced therefrom in a vacuum chamber with gas therein; coating said substrate surface with a layer of inorganic material by vaporizing said inorganic material in said vacuum chamber evacuated to 10⁻³ mbar or less, including bombarding said inorganic material with an electron beam from an electron-beam gun to vaporize said inorganic material, and wherein said gun creates an electrostatic charge, and wherein there is a point of incidence (A) between the inorganic material and the electron beam, and depositing the vaporized inorganic material on the substrate surface as a coating; wherein gas discharge is created in

the gas and in the vaporized inorganic material between the point of incidence (A) of the electron beam on the inorganic material to be vaporized and said anode such that the electrostatic charge created by the electron-beam gun flows off via the anode; with said anode having an electrical conductivity and a surface, and wherein, in order to maintain the electrical conductivity at the surface of the anode and to prevent the anode from being coated, the anode is heated to a temperature exceeding that at which the vaporized inorganic material condenses; with the voltage applied to said electron-beam gun being at least 5 kV and wherein the substrate is a non-electrically conductive substrate and said coating is a non-electrically conductive material.



whereby said aperture is removably mated with the cantilevered tongue of the wall mounted soap dish with said depression oriented in such a fashion as to receive a bar of soap, said covering substantially enclosing the wall mounted soap dish, preventing the accumulation of soap scum thereon.

5,804,259

METHOD AND APPARATUS FOR DEPOSITING A MULTILAYERED LOW DIELECTRIC CONSTANT FILM

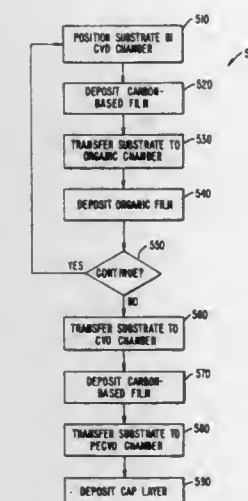
Stuardo Robles, Sunnyvale, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Nov. 7, 1996, Ser. No. 749,290

Int. Cl.⁶ H05H 1/24; B05D 5/12; H01L 21/02; C23C 16/00

U.S. Cl. 427—577

18 Claims



1. A method for forming an insulating film on a substrate, the method comprising steps of:

- forming a diamond like compound (DLC) film on said substrate;
- forming a polymer film on said DLC film; and
- forming a fluorinated DLC film on said polymer film, with said polymer film abutting both said DLC film and said fluorinated DLC film.

5,804,260

SPONGE COVERING FOR A WALL MOUNTED SOAP DISH

Robert Stafford, 1475 Cherokee Blvd., Eglin, S.C. 29045

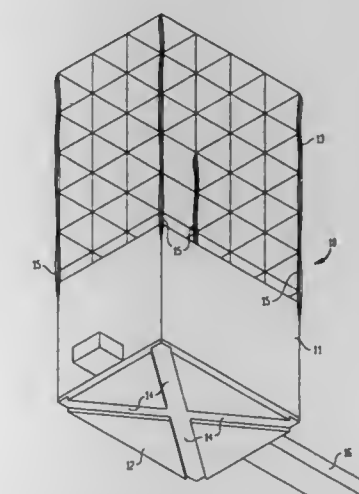
Filed Jun. 25, 1996, Ser. No. 670,014

Int. Cl.⁶ A63H 3/00

U.S. Cl. 428—15

17 Claims

1. A sponge covering for a wall mounted soap dish, the soap dish having a cantilevered tongue, said sponge covering comprising: a body, said body having a top side and a rear side, said rear side having an aperture penetrating into said body, and said top side having a depression centrally located thereon.



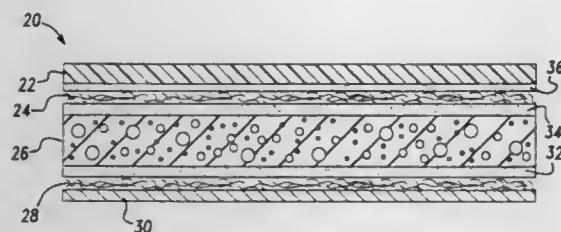
1. A base body for a floral bouquet, comprising: a bottom plate made of a degradable material and having a receptacle-distal underside exhibiting corners and formed with grooves extending in diagonal direction from the corners; a receptacle connected to the bottom plate and made of degradable foam material adapted for mounting flower stems; and a wire cage fully enveloping at least the receptacle and connectable to the bottom plate, said wire cage being formed by wires which are so bent at corners of the cage as to be disposable in the grooves of the bottom plate, with the grooves exhibiting a depth which is greater than a thickness of the wires.

5,804,262
VEHICLE TRIM PANEL WITH NATURAL FIBER
LAYERS

Donald R. Stevens, Marysville; Brian Eagen, Smith Creek, and Stuart G. Boyd, North Street, all of Mich., assignors to United Technologies Automotive Inc., Dearborn, Mich.
Filed Aug. 16, 1996, Ser. No. 699,108
Int. Cl.⁶ B32B 5/18

U.S. Cl. 428—31

12 Claims



1. A vehicle headliner comprising:

an outer decorative layer;
an inner foam core; and
a fibrous mat positioned between said decorative layer and said inner foam core, said fibrous mat being formed to include pieces of a naturally occurring fibrous material said fibrous mat including a binder to secure said fiber pieces.

5,804,263

COMBINED PLASMA AND GAMMA RADIATION
POLYMERIZATION METHOD FOR MODIFYING
SURFACES

Eugene P. Goldberg; Ali Yahiaoui, both of Gainesville, Fla., and James Burns, Holliston, Mass., assignors to University of Florida Research Foundation, Inc., Gainesville, Fla.
Division of Ser. No. 3,682, Jan. 13, 1993, Pat. No. 5,376,400, which is a continuation of Ser. No. 602,144, Oct. 24, 1990, abandoned. This application Dec. 23, 1994, Ser. No. 362,890
Int. Cl.⁶ B05D 3/00; A61M 5/00

U.S. Cl. 428—34.7

5 Claims

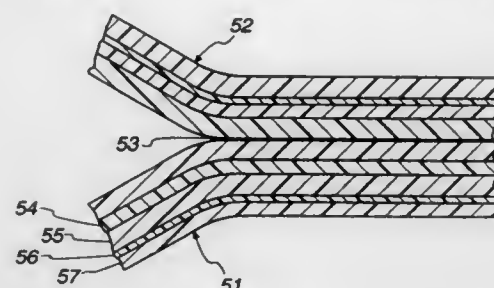
1. A material consisting of a hydrophobic material having a metallic, ceramic or glass surface, said surface having been modified by a gamma-irradiation or electron beam irradiation induced polymerization thereon of one or a mixture of ethylenically unsaturated monomers so as to form a hydrophilic polymeric coating on said surface, the improvement comprising the steps of:

- exposing said surface to a glow discharge plasma (GDP) having a power from about 1 W to about 500 W and for a time sufficient to induce grafting sites on said surface for the surface graft polymerization of steps b and c;
- exposing said surface to a solution of an ethylenically unsaturated monomer or mixture thereof capable, via said ethylenic unsaturation, of gamma-irradiation or electron beam induced polymerization; and
- irradiating said activated surface with gamma or electron beam radiation in the presence of said ethylenic unsaturated monomer or mixture thereof to thereby form a hydrophilic polymeric surface coating on said surface, said polymerization being initiated by said gamma or electron beam radiation wherein said polymerization is conducted under the following conditions:
 - monomer concentration in said solution in the range of from about 0.1% to about 50%, by weight;
 - total gamma or electron beam dose in the range of from about 0.001 Mrad to less than about 0.50 Mrad; and
 - gamma dose rate in the range of from about 10 rads/min. to about 2500 rads/min. or electron beam dose rate in the range of from about 10 rads/min. to about 10⁸ rads/min.

5,804,264
MEMBRANE PERMEABLE TO FRAGRANCES AND
OTHER PRODUCTS

William Edmund Bowen, Neenah Winnebago, Wis., assignor to American National Can Company, Chicago, Ill.
Filed Jun. 7, 1995, Ser. No. 475,699
Int. Cl.⁶ A61L 9/12; B32B 27/32; B65D 17/00
U.S. Cl. 428—35.2

6 Claims



1. A membrane permeable to atmospheric diffusion of aromatic compounds, the membrane comprising:

- a first permeable layer comprising low density polyethylene;
- a second permeable layer adhered directly to one side of said first layer, comprising an ultra low density polyethylene;
- a third permeable layer adhered to said second layer opposite said first layer, comprising a low density polyethylene; and
- a release layer adhered directly to said first layer opposite said second layer, comprising polypropylene; wherein the bond strength between the release layer and the first layer is less than the bond strength between the first and second layers, and wherein the release layer delaminates from the first permeable layer when a force is applied.

5,804,265

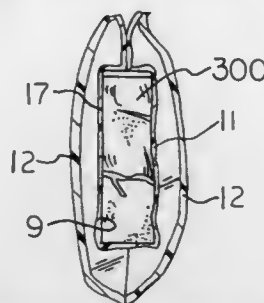
FUNCTIONAL FREEZER STORAGE BAG

Zain E. M. Saad; Douglas P. Gundlach; Virginia D. Karul; Roger D. Vrooman; Michael A. Babinec, all of Midland; Linda W. Allison, Sanford, and Claudia J. Gerardo, Midland, all of Mich., assignors to S. C. Johnson Home Storage Inc., Racine, Wis.

Continuation-in-part of Ser. No. 296,785, Aug. 26, 1994, abandoned. This application Feb. 14, 1996, Ser. No. 601,602
Int. Cl.⁶ B65B 65/00; B65D 33/00

U.S. Cl. 428—35.2

27 Claims



1. A freezer bag comprising a multibag having at least an inner liner bag and an outer support bag,

the inner liner bag having first and second sidewalls, each sidewall of the liner having opposing lateral edges and a top edge, the first and second sidewalls of the liner being attached together along the lateral edges to form edge seals, the liner also having a folded edge defining the bottom of the liner, the outer support bag having first and second sidewalls, each sidewall having opposing lateral edges and a top edge, the first and second sidewalls of the support being attached together along the lateral edges to form edge seals, the top edges defining the opening to the multibag, the support bag also having a folded edge defining the bottom of the multibag.

wherein the top edges of the liner bag are attached to an inner surface of each respective sidewall of the support bag, the liner bag is a moisture-imperious thermoplastic material and has a nominal sidewall thickness of from about 0.3 mil to about 1.75 mil, and the liner bag is unperforated, unperforated with at least one vent hole, or perforated with microholes of from about 50 microns to about 950 microns in diameter.



wherein Ar represents 2,6-naphthalene group or phenylene group, R represents ethylene group or 1,4-cyclohexylene group, and n is a number of 100 to 1000.

5,804,266

MICROWAVABLE THERMAL ENERGY STORAGE
MATERIAL

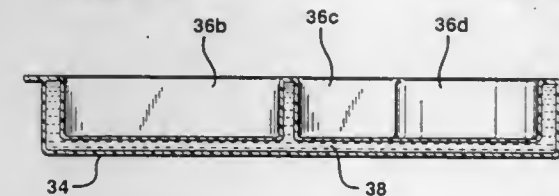
Ival O. Salyer, Dayton, Ohio, assignor to The University of Dayton, Dayton, Ohio

Filed Mar. 28, 1996, Ser. No. 623,401

Int. Cl.⁶ C09K 3/18; F28D 17/00

U.S. Cl. 428—35.2

24 Claims



1. A microwavable thermal energy storage material comprising, in combination:

- from about 85 to 99.5% by weight of a mixture of a phase change material and finely divided silica particles; and
- from about 0.5 to 15% by weight of an additive comprising carbon black which imparts microwave heating capability to said thermal energy storage material.

5,804,267

ESTER COPOLYMER RESIN, ALLOY THEREOF AND
PACKAGING MATERIAL USING THE SAME

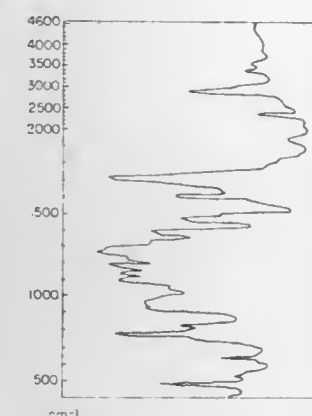
Yasuhiro Harada; Shinichiro Mori; Kayo Hasegawa; Junichi Kitagawa; Yoichiro Inoue; Eiichi Kai; Shinichi Sekine; Yuuzou Fukawa; Takashi Shirane, and Kazuhiro Hamanji, all of Tokyo, Japan, assignors to NKK Corporation, and Kyodo Printing Co., Ltd., both of Tokyo, Japan
Division of Ser. No. 519,608, Aug. 25, 1995. This application Oct. 6, 1997, Ser. No. 944,898

Claims priority, application Japan, Aug. 25, 1994, 6-201042; Feb. 14, 1995, 5-049209; Mar. 17, 1995, 5-059370; Jun. 22, 1995, 5-179575

Int. Cl.⁶ B29D 22/00; B32B 1/08; C08F 20/00

U.S. Cl. 428—35.7

5 Claims



1. A polymer alloy having a solubility parameter of 10.8 to 11.9 and consisting essentially of an ester copolymer resin and a polycarbonate resin, and the ester copolymer resin having a general formula [I]

5,804,268

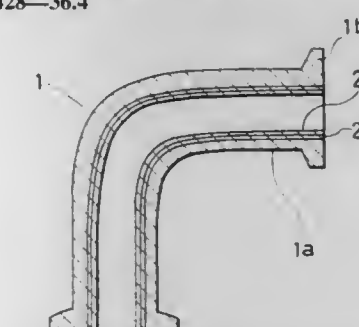
PLASTIC HOLLOW MEMBER

Tatsuhiko Mukawa, Higashi-Kurume, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan
Continuation-in-part of Ser. No. 456,832, Jun. 1, 1995, abandoned, which is a division of Ser. No. 412,340, Mar. 31, 1995, Pat. No. 5,693,284, which is a continuation-in-part of Ser. No. 53,706, Apr. 29, 1993, abandoned. This application Feb. 21, 1997, Ser. No. 804,518

Claims priority, application Japan, Jun. 10, 1992, 4-175062
Int. Cl.⁶ B32B 1/08

U.S. Cl. 428—36.4

4 Claims



1. A hollow plastic member for guiding a flow of fluid, comprising:

an inner hollow member integrally formed from an inner layer of non-reinforced resin and an intermediate layer made from glass fiber reinforced resin; and
an outer hollow member made from glass fiber reinforced nylon resin integrally formed with said inner hollow member by injection molding.

5,804,269

HOSE FOR USE IN THE TRANSPORT OF
REFRIGERANTS

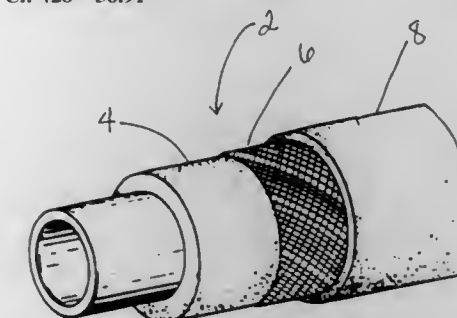
Osamu Ozawa, Hiratsuka, and Tetsu Kitami, Hadano, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed May 5, 1992, Ser. No. 878,499

Claims priority, application Japan, May 10, 1991, 3-105386
Int. Cl.⁶ B29D 22/00

U.S. Cl. 428—36.91

4 Claims



1. A hose for use in the transport of refrigerants and having high resistance to weather and moisture, said hose having at least a core tube, a reinforcing layer over said core tube and a cover tube over said reinforcing layer, at least said cover tube being formed from a vulcanizate of a rubber composition comprising a first copolymer rubber having an isobutylene unit and a p-halogenated methylstyrene unit, a second copolymer rubber having an isobutylene unit, a

p-halogenated methylstyrene unit and a p-methylstyrene unit or a mixture of said copolymer rubbers, and wherein the proportion of said p-halogenated methylstyrene unit in said first copolymer rubber and the proportion of the sum of p-halogenated methylstyrene unit and p-methylstyrene unit in said second copolymer unit is 1-20 percent by weight of the respective copolymer rubbers.

5,804,270

COLLAPSIBLE TUBE AND ITS HEAD

Syukiti Kawamura, Osaka; Sumio Itamura, Kurashiki, and Kazuyori Yoshimi, Osaka, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Continuation of Ser. No. 109,313, Aug. 19, 1993, abandoned.

This application Nov. 9, 1994, Ser. No. 336,475

Claims priority, application Japan, Aug. 26, 1992, 4-252290

Int. Cl.⁶ B29D 23/00

U.S. Cl. 428—36.92

5 Claims



1. A two-piece collapsible tube comprising (1) a head and (2) a cylindrical body,

said cylindrical body consisting essentially of a multilayered structure comprising a layer of a first polyolefin resin and a layer of a barrier material, wherein said first polyolefin resin layer substantially effects joinder of said body to said head; and

said head consisting essentially of a layer comprising a mixture of a second polyolefin (A), a saponified product of an ethylene-vinyl acetate copolymer (B) having a melting point of at least 135° C., and a saponified product of an ethylene-vinyl acetate copolymer (C) having a melting point of not more than 130° C.

5,804,271

SELF-ADHESIVE LABELS

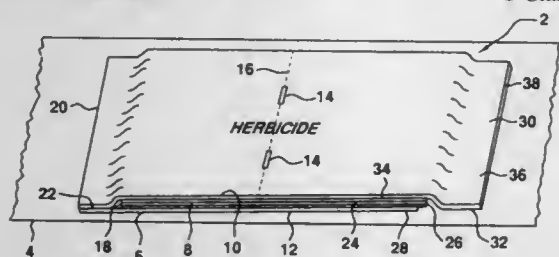
David Robert Barry, St. Louis, Mo., assignor to Inprint Systems, Inc., St. Charles, Mo.

Filed Aug. 8, 1996, Ser. No. 694,281

Int. Cl.⁶ G09F 3/02

U.S. Cl. 428—40.1

8 Claims



1. A self-adhesive label comprising a self-adhesive base having a rear self-adhesive surface, a multipage booklet in an unfolded configuration disposed over a front surface of the base, the booklet having a substantially central binding, a cover sheet disposed over

the booklet and a self-adhesive laminar material having a rear self-adhesive surface which is adhered over the cover sheet and to a portion of the front surface of the base, the booklet being temporarily attached to the cover sheet by the binding whereby when the laminar material and the cover sheet are pulled away from the base thereby to reveal the booklet, the booklet is detachable from the cover sheet.

5,804,272

BACKSPIN STICKER

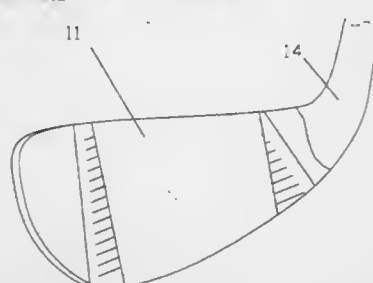
Gunter Schrader, 13 Broadmoor Rd., Rotunda West, Fla. 33947

Filed Mar. 14, 1997, Ser. No. 819,567

Int. Cl.⁶ A63B 53/04

U.S. Cl. 428—40.1

5 Claims



1. The combination of a backspin sticker and a golf club having an angled hitting surface, said combination comprising:

a face stock having an adhering region and a front surface, said face stock being shaped to conform to a hitting area on said hitting surface,

a coating of silicon carbide grain affixed to said front surface by a synthetic resin,

a coating of a clear, pressure sensitive adhesive applied to said adhering region, and

a release liner adhered to said adhesive for preserving the adhesive qualities for adhering to said angled hitting surface when desired to improve the performance of said hitting surface.

5,804,273

FLOOR COVERING WITH CARPET OVER CARPET AND HOOK AND LOOP FASTENERS

Robert H. Drake, Jr., East Alton, and Edward L. Herrin, Edwardsville, both of Ill., assignors to Burlington Industries, Inc., Greensboro, N.C.

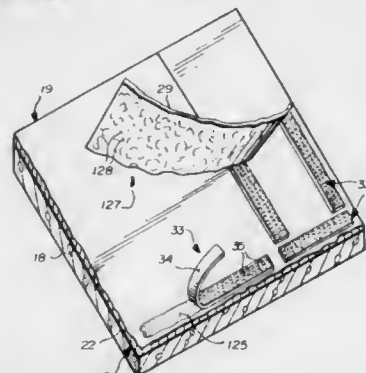
Division of Ser. No. 560,124, Nov. 17, 1995, Pat. No.

5,658,430. This application Jan. 10, 1997, Ser. No. 783,286

Int. Cl.⁶ B32B 3/02; 3/06

U.S. Cl. 428—86

20 Claims

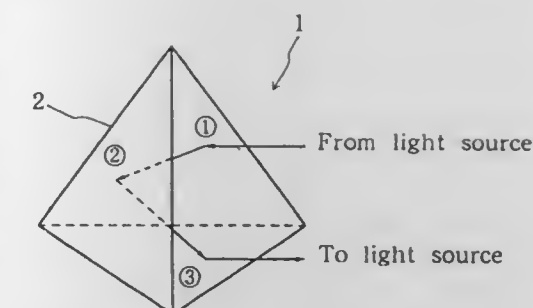


1. A floor covering for a hard surface floor, comprising: worn broadloom or tile wall to wall carpeting having a backing and a top pile surface;

said backing of said worn carpeting secured to said floor hard surface;

at least one strip of new wall to wall carpeting having a backing with a first component of a hook and loop fastener system, and a top pile surface;

at least one strip of material having a backing and a top surface with a second component of a hook and loop fastener system for engaging said first component of a hook and loop fastener system and holding it in secure contact therewith; and adhesive adhering said backing of said at least one strip of material directly to said top pile surface of said worn carpet.



wherein each of said light-reflecting micro-prisms constitutes a means for reflecting incident light three times at surfaces thereof such that reflected light is reflected back in a direction opposite to a direction of said incident light.

5,804,274

CLEANING CLOTH FOR CLEANING DIRTY SURFACES

Rudolf Nordin, Boraås, Sweden, assignor to Actuelle Tricot I Borås AB, Sweden

PCT No. PCT/SE95/01035, § 371 Date Mar. 24, 1997, § 102(e)

Date Mar. 24, 1997, PCT Pub. No. WO96/10946, PCT Pub.

Date Apr. 18, 1996

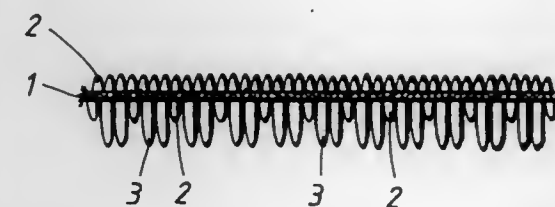
PCT Filed Sep. 14, 1995, Ser. No. 809,505

Claims priority, application Sweden, Oct. 7, 1994, 9403398

Int. Cl.⁶ B32B 3/02; A47K 7/02; A47L 13/10

U.S. Cl. 428—89

12 Claims



1. A cleaning cloth for cleaning a dirty surface, comprising:

(a) a base fabric having a first side for facing said dirty surface and a second side;

(b) a plurality of first loops of yarn having a fiber fineness of at least about 1 Dtex on said first side of said base fabric;

(c) a plurality of second loops of yarn comprising microfilament yarn with a fiber fineness of up to about 1 Dtex on said first side of said base fabric whereby said first side of said base fabric has improved dirt and liquid absorbency, said plurality of first loops of yarn having a length longer than said plurality of second loops of yarn; and

(d) microfilament yarn with a fiber fineness of up to about 1 Dtex on said second side of said base fabric, whereby said second side of said base fabric has improved liquid absorbency.

5,804,275

FIBER PRODUCT INCLUDING REFLECTIVE TREADS, AND REFLECTIVE IMPLEMENT PROVIDED BY USING SAID FIBER PRODUCT INCLUDING REFLECTIVE TREADS

Yoshihiko Tsunefuji, Tokyo, Japan, assignor to Tsunefuji & Co., Ltd., Tokyo, Japan

Division of Ser. No. 338,876, Nov. 14, 1994, abandoned. This application Jul. 27, 1995, Ser. No. 507,987

Claims priority, application Japan, Nov. 27, 1993, 5-321280

Int. Cl.⁶ B32B 5/12

U.S. Cl. 428—105

14 Claims

1. A reflective fiber product comprising:

reflective flat threads;

natural fiber or synthetic fiber threads interengaged with said reflective flat threads;

wherein each of said reflective flat threads comprises a plurality of consecutively disposed light-reflecting micro-prisms; and

5,804,276

COMPOSITE STRUCTURE ADAPTED FOR CONTROLLED STRUCTURAL DEFORMATION

Jack H. Jacobs, St. Louis, Mo.; Matthew M. Thomas, Madison, Ill.; Duane D. Grosskrueger, Highlands Ranch, Colo.; Bernie F. Carpenter, Littleton, Colo., and Alan R. Perry, Morrison, Colo., assignors to McDonnell Douglas Corporation, St. Louis, Mo., and Lockheed Martin, Bethesda, Md.

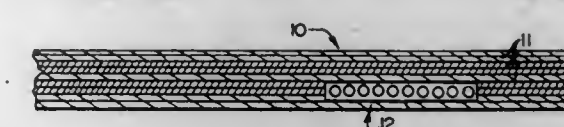
Division of Ser. No. 609,468, Mar. 1, 1996, Pat. No. 5,700,337.

This application Jul. 11, 1997, Ser. No. 890,779

Int. Cl.⁶ B32B 5/08; 15/02; 15/08

U.S. Cl. 428—110

10 Claims



1. A composite structure adapted for controlled structural deformation, the composite structure comprising:

a plurality of composite material layers; and a shape memory alloy component embedded within said composite material layers, said shape memory alloy component comprising:

a shape memory alloy tendon having a relaxed shape at temperatures below a transition temperature and a contracted shape at temperatures above the transition temperature; and

first and second face sheets adhered to opposite sides of said shape memory alloy tendon, said first and second face sheets being comprised of an insulating material to thereby electrically isolate said shape memory alloy tendon from said surrounding composite material layers;

wherein said shape memory alloy component is embedded within said composite material layers such that said shape memory alloy tendon is accessible for external actuation thereof, and wherein actuation of said shape memory alloy tendon by raising the temperature of said shape memory alloy tendon above the transition temperature creates a controlled structural deformation of both said shape memory alloy component and said surrounding composite material layers.

5,804,277

THREE-DIMENSIONAL FIBER WEAVE WITH CUBIC SYMMETRY AND NO ZERO VALUED SHEAR MODULI
Kenneth H. G. Ashbee, Yatton, Great Britain, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

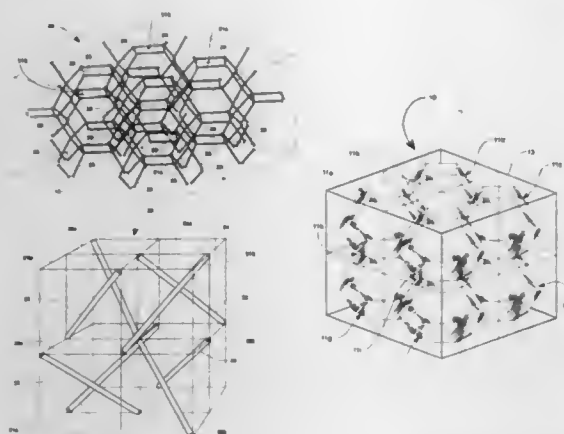
Filed Jul. 1, 1996, Ser. No. 673,891

Int. Cl.⁶ D06M 11/00; 11/36; 11/45; 15/19

U.S. Cl. 428—112

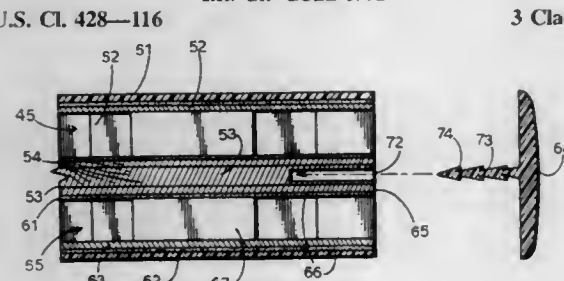
15 Claims

1. A fiber reinforced composite structure comprising:



- (a) a three-dimensional woven structure of a multiplicity of four sets of fibers interwoven in said structure wherein each fiber set is woven through said woven structure generally along one of the four directions defined generally parallel to a body diagonal of a cube; and
(b) a matrix material disposed within said woven structure.

5,804,278
LAMINATED PANEL CONSTRUCTION WITH HONEYCOMB GRID CORE
Richard S. Pike, Kansas City, Mo., assignor to Fixtures Manufacturing Corporation, Kansas City, Mo.
Filed Jan. 3, 1997, Ser. No. 775,975
Int. Cl.⁶ B32B 3/12
U.S. Cl. 428—116



1. A composite panel suitable for use in furniture manufacture, said panel having a length, a width and a depth, and comprising:
a) a first honeycomb layer of a length and width approximately equal to the length and width of said panel;
b) a structural plywood layer of a length and width approximately equal to the length and width of said panel;
c) an adhesive layer applied between a first side of said first honeycomb layer and a first side of said plywood layer;
d) a second honeycomb layer of a length and width approximately equal to the length and width of said panel;
e) a second adhesive layer applied between a first side of said second honeycomb layer and a second side of said plywood layer;
f) a veneer of decorative material attached to a second side of said first honeycomb layer, said veneer of decorative material having a length and width approximately equal to the length and width of said panel;
g) a veneer of protective material attached to a second side of said second honeycomb layer, said veneer of protective material having a length and width approximately equal to the length and width of said panel;
h) said plywood and honeycomb layers and said veneers having generally flush edges;
i) a slot formed in said plywood layer and open at the edge thereof;
j) a layer of decorative edging material with a T-shaped cross-sectional configuration including a protruding tang inserted into and captured within the plywood layer slot; and

- k) said first and second honeycomb layers having substantially equal thicknesses whereby said composite panel has a cross-sectional configuration which is substantially symmetrical with respect to said plywood layer thereof.

5,804,279
DETAILING TOWEL
Dean Pluth, 9243 Filbert Dr., St. Louis, Mo. 63137
Filed Jul. 25, 1997, Ser. No. 900,690
Int. Cl.⁶ B32B 3/04
U.S. Cl. 428—124

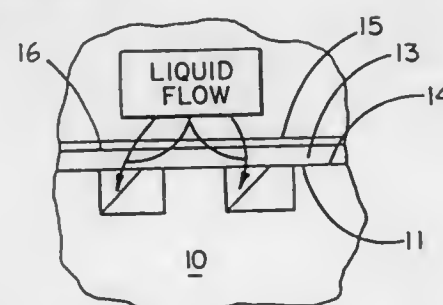
10 Claims



1. A towel having a top edge, a bottom edge, and side edges, at least one pocket extending between the side edges at the bottom edge of the towel; the pocket having an outer face and an inner face, the pocket outer face and inner face being connected to each other along a pocket top edge, the inner face being between the outer face and a face of the towel and separate from the towel; the pocket defining a first pocket area between the pocket outer face and the pocket inner face and a second pocket area between the pocket inner face and the face of the towel; the pocket inner face being shorter than the pocket outer face; the pocket first area being accessible through the pocket second area; the pocket second area being externally accessible.

5,804,280
COMPOSITE STRUCTURE HAVING A POROUS FILTER MEDIUM AND A METHOD FOR FORMING SAME
David B. Pall, Roslyn Estates; Brian T. Muellers, Glen Cove; Peter J. Degen, Huntington; Tony Alex, Merrick, and Michael Gildersleeve, Nesconset, all of N.Y., assignors to Pall Corporation, East Hills, N.Y.
PCT No. PCT/US94/10942, § 371 Date Aug. 30, 1996, § 102(e) Date Aug. 30, 1996, PCT Pub. No. WO96/09829, PCT Pub. Date Apr. 4, 1996
Continuation-in-part of Ser. No. 38,257, Mar. 24, 1993, Pat. No. 5,458,719. This PCT application Sep. 28, 1994, Ser. No. 649,593
Int. Cl.⁶ B32B 3/24; B01D 63/08; 63/16
U.S. Cl. 428—137

53 Claims



1. A composite filter element structure for providing a filtrate or permeate, the composite filter element structure comprising:
a porous filter medium through which filtrate/permeate passes;

- a substrate provided with at least one drainage pathway for passage of the filtrate/permeate; and
a support and drainage medium sandwiched between the porous filter medium and the substrate to conduct filtrate/permeate between the porous filter medium and the substrate; the porous filter medium, the support and drainage medium, and the substrate being bonded free of any adhesive, wherein portions of the substrate are resolidified within the support and drainage medium and the porous filter medium without unduly blinding the porous filter medium.

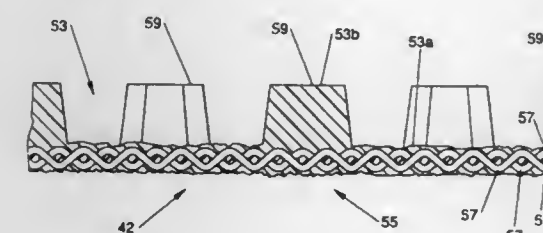
5,804,281
CELLULOSIC FIBROUS STRUCTURES HAVING AT LEAST THREE REGIONS DISTINGUISHED BY INTENSIVE PROPERTIES

Dean Van Phan, Cincinnati, and Paul Dennis Trokhan, Hamilton, both of Ohio, assignors to The Proctor & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 613,797, Mar. 1, 1996, Pat. No. 5,614,061, which is a continuation of Ser. No. 382,551, Feb. 2, 1995, abandoned, which is a division of Ser. No. 71,834, Jul. 28, 1993, Pat. No. 5,443,691, which is a division of Ser. No. 724,551, Jun. 28, 1991, Pat. No. 5,277,761. This application Sep. 23, 1996, Ser. No. 710,822
Int. Cl.⁶ B32B 3/10

U.S. Cl. 428—137

13 Claims



1. A macroscopically planar liquid pervious fiber retentive forming element used for forming a cellulosic fibrous structure, said forming element having two distinct topographical regions, one of said regions being defined by a plurality of protuberances which are discrete from one another and extend outwardly from the plane of said forming element, said discrete protuberances producing corresponding regions of a relatively lesser basis weight in said cellulosic fibrous structure than regions of said cellulosic fibrous structure not corresponding to said protuberances, the other of said regions of said forming element being defined by conduits between adjacent protuberances, wherein said protuberances comprise a resin.

5,804,282
MAGNETIC CORE
Yumie Watanabe, Tokyo-To; Yumiko Takahashi, Koshigaya; Takao Sawa; Yoshiyuki Yamaguchi, both of Yokohama; Susumu Matsushita, Yokosuka, and Masami Okamura, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

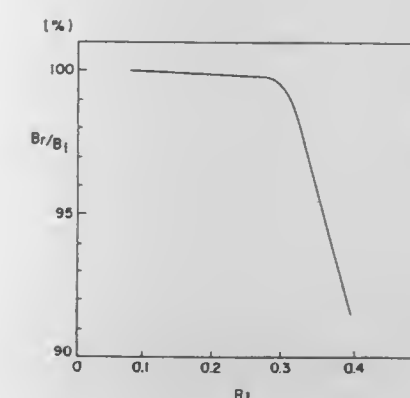
Continuation of Ser. No. 238,332, May 4, 1994, Pat. No. 5,622,768, which is a continuation of Ser. No. 793,347, Jan. 13, 1992, abandoned. This application Nov. 20, 1996, Ser. No. 752,898

Int. Cl.⁶ G11B 5/66; B37B 3/10

U.S. Cl. 428—141

10 Claims

1. An alloy ribbon comprising an alloy having at least 50.4 at % of Co or an alloy having at least 42 at % of Fe, wherein:
a first surface of said alloy ribbon has a surface roughness wherein the area occupied by concavities formed on the first surface is no more than 30% of the total area of said first surface,



- a second surface of said alloy ribbon has a surface roughness value in the longitudinal direction of said alloy ribbon that satisfies the following equation:

$$Rf \leq 0.3,$$

- wherein Rf is a parameter characterizing a roughness determined by the following equation:

$$Rf = R_z/T,$$

- wherein R_z represents the average roughness of ten points at a standard length of 2.5 mm, and T represents the average plate thickness determined by the weight of the alloy ribbon.

5,804,283
MAGNETIC RECORDING MEDIUM
Hiroo Inaba; Masaki Suzuki; Naoto Abe; Toshiyuki Kitahara; Satoshi Matsubaguchi, and Hiroaki Takano, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 499,398, Jul. 7, 1995, abandoned.
This application Nov. 5, 1997, Ser. No. 968,860
Claims priority, application Japan, Jul. 8, 1994, 6-157668; Jul. 8, 1994, 6-179704

Int. Cl.⁶ G11B 5/68

U.S. Cl. 428—141

12 Claims

1. A magnetic recording medium prepared by a process which comprises providing a nonmagnetic layer by coating a nonmagnetic support with a coating solution comprising a nonmagnetic powder, polyisocyanate and a binder, and then providing a magnetic layer by coating said nonmagnetic layer while said nonmagnetic layer is wet with a coating solution comprising Fe containing ferromagnetic metal powder and a binder comprising a polyurethane resin curable by said polyisocyanate, wherein the dry thickness of said magnetic layer is from 0.07 to 0.20 μm, the ratio of N/Fe in said magnetic layer is from 0.010 to 0.090 as determined by an X-ray photoelectric spectrophotometer, wherein polyisocyanate is optionally present in the coating solution of the magnetic layer and wherein the percent proportion by weight (Hw2) of said polyisocyanate contained in said coating solution of said nonmagnetic layer to said nonmagnetic powder contained in said coating solution, and the percent proportion by weight (Hw1) of polyisocyanate contained in said coating solution of said magnetic layer to said ferromagnetic metal powder contained in said coating solution have the following relationships:

$$\begin{aligned} (Hw2) &\geq 2\% \text{ by weight;} \\ (Hw1) &\geq 0\% \text{ by weight; and} \\ 2\% \text{ by weight} &\leq (Hw2) - (Hw1) \leq 20\% \text{ by weight.} \end{aligned}$$

5,804,284

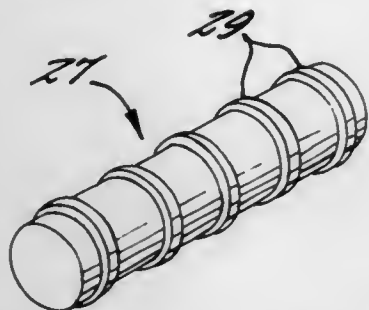
PAPERBOARD FOR MANUFACTURING SINGLE-LAYER PAPERBOARD TUBE-FORMING PLIES

George E. Lennon, Newport, Tenn.; Jerry S. Hall, Hartsville, S.C.; Kevin R. Merritt, Hartsville, S.C., and Henry L. King, Hartsville, S.C., assignors to Sonoco Products Company, Inc., Hartsville, S.C.

Division of Ser. No. 266,033, Jun. 27, 1994, Pat. No. 5,573,638. This application May 9, 1996, Ser. No. 647,035
Int. Cl.⁶ B32B 3/00; B65D 3/00

U.S. Cl. 428—156

13 Claims



1. An elongated paperboard sheet stock for manufacturing continuous tube-forming plies for paperboard tubes, said paperboard sheet comprising:

an elongate continuous paperboard sheet of substantially constant predetermined width including a plurality of thick longitudinal sections of a first predetermined thickness and a plurality of thin longitudinal sections of a thickness less than that of the first thickness, said thick and thin sections being arranged in alternating relation across the width of the paperboard sheet and extending along the length of the sheet substantially parallel to each other and to the edges of the sheet;

each of the thick sections having a substantially constant predetermined width of between about 3.0 and 5.0 inches and less than that of the paperboard sheet, and each of the thin sections having a substantially constant width of between about 0.125 and about 0.5 inches and substantially less than that of the thick sections, each of the thin sections comprising a compressed area extending substantially across the width thereof.

5,804,285

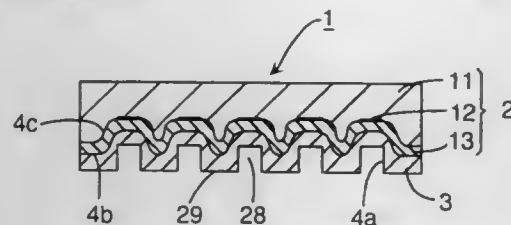
DECORATIVE SHEET AND METHOD FOR PRODUCING THE SAME

Toshitake Kobayashi, and Yoshiaki Netsu, both of Tokyo-To, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan
Filed Jun. 19, 1995, Ser. No. 491,671

Claims priority, application Japan, Jun. 21, 1994, 6-160718
Int. Cl.⁶ B32B 3/00; 3/100

U.S. Cl. 428—172

11 Claims



1. A decorative sheet, comprising:

a transparent thermoplastic resin film having a back surface provided with a printed pictorial pattern;

a lustrous layer having a back surface, said lustrous layer being formed on the back surface of the transparent thermoplastic resin film; and

a colored thermoplastic resin film having a back surface, said colored thermoplastic resin film being formed on the back surface of the lustrous layer.

wherein a first, a second and a third embossed pattern are formed in the back surface of the colored thermoplastic resin film, in an interface between the colored thermoplastic resin film and the lustrous layer, and in an interface between the lustrous layer and the transparent thermoplastic resin film, respectively, and

wherein respective outlines of cross sections of the second and the third embossed patterns formed respectively in the interface between the colored thermoplastic resin film and the lustrous layer and in the interface between the lustrous layer and the transparent thermoplastic resin film are composed of smooth curves expressed by periodic functions.

5,804,286

EXTENSIBLE COMPOSITE NONWOVEN FABRICS

Thomas E. Quantrille, Simpsonville; Harold E. Thomas, Greer; Barry D. Meece, Pelzer, all of S.C.; Scott L. Gessner, Encinitas, Calif.; J. Darrell Gillespie, Simpsonville, S.C.; Jared A. Austin; David D. Newkirk, both of Greer, S.C., and William Fowells, Washougal, Wash., assignors to Fiberweb North America, Inc., Simpsonville, S.C.

PCT No. PCT/US95/15257, § 371 Date Aug. 27, 1996, § 102(e)
Date Aug. 27, 1996, PCT Pub. No. WO96/16216, PCT Pub. Date May 30, 1996

PCT Filed Nov. 22, 1995, Ser. No. 676,360

Int. Cl.⁶ B32B 5/26; 7/10; 7/14

U.S. Cl. 428—198

61 Claims

1. A composite nonwoven fabric of at least two layers, said composite fabric comprising at least one layer containing multipolymer fibers bonded by a plurality of bonds to form a coherent extensible nonwoven web, said coherent extensible nonwoven web having a Taber surface abrasion value (rubber wheel) of greater than 10 cycles and an elongation at peak load in at least one of the machine direction or the cross-machine direction of at least 70 percent, and said composite fabric comprising a second extensible layer attached to said coherent extensible nonwoven web.

60. A fiber useful for forming a nonwoven fabric, said fiber comprising a blend of at least 50% isotactic polypropylene, 1 to 10% polyethylene, and 10 to 40% of a block or grafted polyolefin copolymer or terpolymer which is miscible or partially miscible with said polypropylene and said polyethylene.

5,804,287

ACRYLIC FILM-LAMINATED MOLDED ARTICLE AND ACRYLIC FILM

Hiroki Hatakeyama, Otake; Kazuhiko Nakagawa, Toyohashi, and Tomonori Terasawa, Kawasaki, all of Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan

PCT No. PCT/JP96/00836, § 371 Date Nov. 25, 1996, § 102(e)
Date Nov. 25, 1996, PCT Pub. No. WO96/30435, PCT Pub. Date Mar. 10, 1996

PCT Filed Mar. 28, 1996, Ser. No. 737,598

Claims priority, application Japan, Mar. 28, 1995, 7-069910; Mar. 28, 1995, 7-069912

Int. Cl.⁶ C08J 5/18; C08L 33/06

U.S. Cl. 428—220

16 Claims

1. An acrylic film with a thickness of 100 μ m to 300 μ m for acrylic-laminated injection molded articles, which comprises 0–10 parts by weight of a thermoplastic polymer (I), 5.5–25 parts by weight of a rubber-containing polymer (II) and 65–94.5 parts by weight of a thermoplastic polymer (III), which are described below, wherein the total of the components (I), (II) and (III) is 100 parts by weight, and the proportion of elastic copolymer in the rubber-containing polymer (II) is 5–18 wt % of the total of components (I), (II) and (III); wherein a thermoplastic polymer (I) obtained by polymerizing 50–100 wt % of methyl methacrylate and 0–50 wt % of at least one other vinyl monomer which is copolymerizable therewith, wherein the reduced viscosity of the polymer, when measured at 25° C. with 0.1 g of the polymer dissolved in 100 mL of chloroform, is 2.0 L/g to 2.0 L/g; a

5,804,289

MONOAXIALLY STRETCHED MOLDED ARTICLE MADE OF POLYTETRAFLUOROETHYLENE

Ingo Marini, Lenzing; Adalbert Wimmer, Vöcklabruck, and Josef Bachmair, Seewalchen, all of Austria, assignors to Lenzing Aktiengesellschaft, Lenzing, Austria

PCT No. PCT/AT94/00139, § 371 Date Jun. 7, 1995, § 102(e)
Date Jun. 7, 1995, PCT Pub. No. WO95/12698, PCT Pub. Date May 11, 1995

PCT Filed Sep. 28, 1994, Ser. No. 481,244

Claims priority, application Austria, Nov. 3, 1993, 2221/93

Int. Cl.⁶ D02G 3/00; B32B 27/00; B27J 5/00; B29C 49/08

U.S. Cl. 428—220

21 Claims

1. A monoaxially stretched molded article which comprises polytetrafluoroethylene (PTFE) and one or more fillers selected from the group consisting of talc, mica, a high temperature resistant polyamide, whiting and combinations thereof, wherein the molded article has been sintered and has a strength value in the stretching direction of at least 10 CN/tex.

5,804,288

ALUMINUM NITRIDE WIRING SUBSTRATE

Jun Monma, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

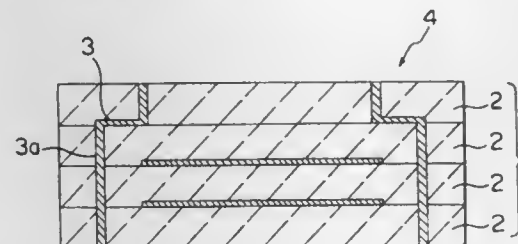
Filed Dec. 28, 1994, Ser. No. 366,320

Claims priority, application Japan, Dec. 29, 1993, 5-353497

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—209

13 Claims



1. An aluminum nitride wiring substrate, comprising an aluminum nitride substrate and a wiring metal layer provided in at least either of the surface and the interior of said aluminum nitride substrate, the wiring metal layer being fired simultaneously with said aluminum nitride substrate, and comprising tungsten as a main component and manganese of not more than 2% by weight.

5,804,289

ALUMINUM NITRIDE JUNCTION STRUCTURE

Tetsuo Wakamatsu, Tokuyama, Japan, assignor to Tokuyama Corporation, Tokyo, Japan

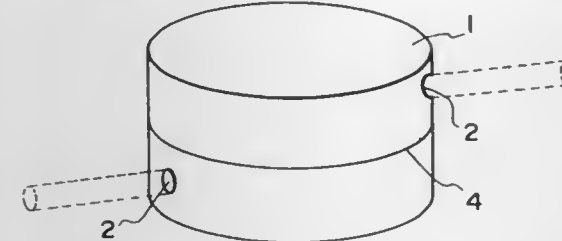
Filed Jul. 19, 1996, Ser. No. 684,095

Claims priority, application Japan, Jul. 19, 1995, 7-182517

Int. Cl.⁶ C04B 35/58

U.S. Cl. 428—212

13 Claims



1. An aluminum nitride junction structure in which the junction portion between and joining at least two base materials of a sintered product of aluminum nitride comprises the same sintered material as the sintered product of aluminum nitride base materials, and the junction portion exhibits a heat conductivity of not smaller than 95% of the heat conductivity of the base materials.

5,804,292

LAMINATED ARTICLES METHOD OF MAKING

Katsunori Ishitoya; Hiroyuki Kato; Yukio Ishihara; Kazunori Kuze; Yoshihiko Hiraiwa, and Makoto Horiba, all of Aichi-ken, Japan, assignors to Araco Kabushiki Kaisha, Japan

PCT No. PCT/JP95/01190, § 371 Date Jun. 17, 1996, § 102(e)
Date Jun. 17, 1996, PCT Pub. No. WO95/35208, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 15, 1995, Ser. No. 596,232

Claims priority, application Japan, Jun. 17, 1994, 6-136072; Jul. 13, 1994, 6-161594

Int. Cl.⁶ B32B 5/12; 5/06; B31F 1/22; B29B 1/165

U.S. Cl. 428—304.4

17 Claims

1. A method of manufacturing a laminated article, comprising the steps of:

placing a porous base member formed in a predetermined shape between a pair of preheated molds;

injecting an amount of molten thermoplastic resin onto a front surface of the porous base member between the preheated molds;

pressing the molds together so as to spread out the injected molten thermoplastic resin on the front surface of the porous base member under pressure and cause the molten thermoplastic resin to be impregnated into the porous base member at the front surface thereof; and

cooling the thermoplastic resin melt impregnated in the front surface of the porous base member to integrally form a skin layer on the porous base member.

5,804,293

COATING COMPOSITION FOR RECORDING PAPER
Louis J. Nehmsmann, Apollo; George E. Alderfer, Export, and
Charles T. Hill, New Brighton, all of Pa., assignors to PPG
Industries, Inc., Pittsburgh, Pa.

Filed Dec. 8, 1995, Ser. No. 569,619

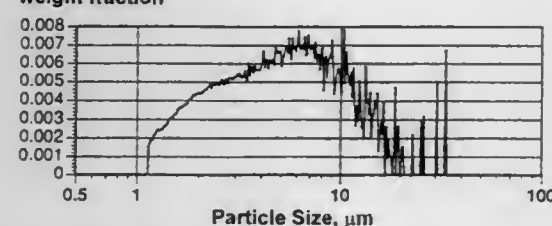
Int. Cl.⁶ B32B 5/16; 3/26

U.S. Cl. 428—307.3

6 Claims

San-Sil® 2000 Precipitated Silica

Particle Size Distribution,
weight fraction



1. Coated paper comprising a paper substrate having a coating on at least one side thereof wherein said coating comprises:

- (a) composite particulate amorphous precipitated silica having a calculated multimodal particle size distribution wherein the particle sizes at the modes are less than 10 micrometers; and
(b) water-soluble organic polymeric binder.

5,804,294

MICROPOROUS INSULATION FOR DATA RECORDERS
AND THE LIKE

William Michael Gregg, Bristol; Patrick Scott Heller, Goshen, both of Ind.; Spencer Ivan Meier, Parker, and Monroe W. Shumate, Littleton, both of Colo., assignors to The Morgan Crucible Company plc, Windsor, England

Filed Aug. 2, 1995, Ser. No. 510,348

Int. Cl.⁶ B32B 3/26

U.S. Cl. 428—315.5

26 Claims

1. A microporous insulation material comprising, in weight percent based upon the dry weight of the microporous insulation material:

- (a) 20–60 wt % inorganic particulate material;
(b) 10–60 wt % endothermic compound;
(c) 5–20 wt % opacifier;
(d) 3–15 wt % inorganic fiber;
(e) 0–6 wt % dry resin binder; and
50–89 wt % being said inorganic particulate material and said endothermic compounds, said inorganic particulate material being a different substance than said endothermic compound.

5,804,295

FIBROUS FILTRATION FACE MASK HAVING
CORRUGATED POLYMERIC MICROFIBER FILTER
LAYER

David L. Braun, Lake Elmo, and James E. Steffen, Woodbury, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

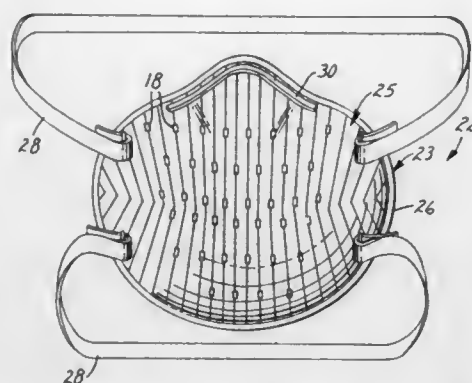
Division of Ser. No. 449,512, May 23, 1995, Pat. No. 5,656,368, which is a division of Ser. No. 93,398, Jul. 19, 1993, Pat. No. 5,753,343, which is a continuation-in-part of Ser. No. 925,384, Aug. 4, 1992, abandoned. This application Feb. 28, 1997, Ser. No. 807,261

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—323

19 Claims

1. A fibrous-filtration-face-mask that comprises:
a cup-shaped fluid-permeable mask body that fits over the nose and mouth of a person, the cup-shaped fluid-permeable mask body comprising a corrugated nonwoven web of polymeric microfiber as a filter layer, the corrugated nonwoven web of



polymeric microfiber having a plurality of corrugations that follow an approximately sinusoidal path when viewed from a side-elevation where adjacent side walls of the corrugations do not make substantial contact with each other, there being a means for retaining the corrugated shape of the nonwoven web of polymeric microfiber secured to valleys of the corrugations such that the shape-retaining means is not coextensive with the nonwoven web of polymeric microfiber.

5,804,296

CELLULOSE ESTER COMPOSITIONS AND SHAPED
ARTICLES

Masanori Itoh, Kashiwa; Akira Miyazawa, Ashiya; Teruo Aoe, and Osamu Ikemoto, both of Okayama, all of Japan, assignors to Daicel Chemical Industries, Ltd., and Tayca Corporation, both of Osaka, Japan

Filed Dec. 4, 1995, Ser. No. 567,023

Claims priority, application Japan, Dec. 5, 1994, 6-330022

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—326

34 Claims

1. A cellulose ester composition comprising a cellulose ester and an anatase titanium oxide, wherein said titanium oxide has: a specific surface area of not less than 50 m²/g.

5,804,297

THERMAL INSULATING COATING EMPLOYING
MICROENCAPSULATED PHASE CHANGE MATERIAL
AND METHOD

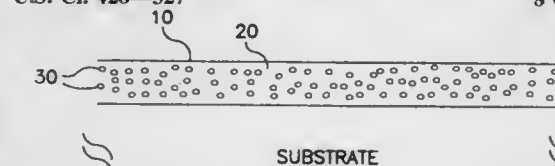
David P. Colvin, 123 Harmony Hill La., Cary, N.C. 27513; Yvonne G. Bryant, 316 Lord Berkley Rd., Raleigh, N.C. 27610; John C. Driscoll, 7800 Netherlands Dr., Cary, N.C. 27502, and James C. Mulligan, 912 Indian Trail, Raleigh, N.C. 27609

Filed Jul. 5, 1995, Ser. No. 498,168

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—327

8 Claims



1. An article having enhanced insulative properties from repeated thermal gradients and transients consisting essentially of:
a substrate selected from the group consisting of aircraft skin, electronic component packages, foams, roadway surfaces, concrete, asphalt, bridge structures, and building materials;
a coating covering at least a portion of the surface of said substrate and comprising:
a polymeric binder, and
a plurality of microcapsules dispersed throughout and submerged within said polymeric binder so as to be surrounded

thereby, said microcapsules containing a temperature stabilizing means selected from the group consisting of phase change materials and plastic crystals,
whereby the article exhibits enhanced insulation from thermal gradients and transients.

5,804,298

MICROCAPSULES WITH REDUCED SHELL WALL
PERMEABILITY

Jerry Moy, Mahtomedi, Mich., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 782,407, Oct. 25, 1991, abandoned.

This application Jan. 11, 1996, Ser. No. 583,757

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—327

10 Claims

1. Microcapsules having a 50% volumetric diameter ranging between about 3 to 12 micrometers, said microcapsules comprising an oleophilic fill material retained within a synthetic thermoset polymer shell, said shell further comprising colloidal inorganic particles, said particles having average diameter of less than about 0.03 micrometers and having a surface energy selected such that during manufacture of the microcapsule from a solution having an oil phase and an aqueous phase, the particle will migrate to the interface of the oil phase and the aqueous phase, wherein said capsule has reduced permeability such that it exhibits a percent weight loss of less than 0.25% after 250 minutes at 100° C.

5,804,299

PUSH BUTTON SWITCH COVERING MEMBER OF
SILICONE RUBBER WITH PROTECTIVE COATING AND
METHOD FOR THE PREPARATION THEREOF

Toshihiro Nakata, and Norio Suzuki, both of Nagano-ken, Japan, assignors to Shin-Etsu Polymer Co., Ltd., Tokyo, Japan

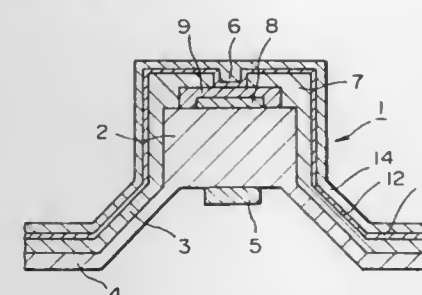
Division of Ser. No. 428,820, Apr. 25, 1995, abandoned. This application Mar. 29, 1996, Ser. No. 625,071

Claims priority, application Japan, Apr. 26, 1994, 6-88358

Int. Cl.⁶ B32B 25/20; 27/40

U.S. Cl. 428—334

6 Claims



1. A push button switch covering member having a protective overcoating layer on the outwardly facing surface of a push button switch covering member made from a silicone rubber in which the protective overcoating layer is formed from a cured organic resin-based coating composition crosslinked by forming urethane linkages between isocyanate groups of a polyisocyanate compound and hydroxy groups of a polyhydric organic compound, the surface of the covering member being activated by exposure to plasma prior to coating with the coating composition.

5,804,300

METHOD OF PRODUCING LAMINATED PACKAGING
MATERIAL

Hideharu Maro; Hideki Kodaira; Hiroshi Iwase, and Yuji Komiya, all of Tokyo, Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 107,801, Aug. 25, 1993, abandoned.

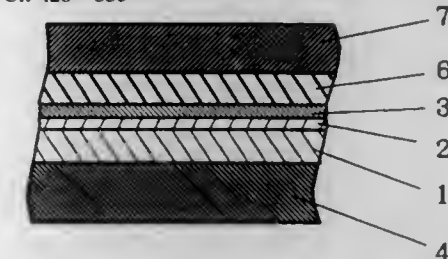
This application Jun. 6, 1995, Ser. No. 469,374

Claims priority, application Japan, Dec. 28, 1991, 3-358829; May 19, 1992, 4-151392

Int. Cl.⁶ B29D 9/00; B32B 9/00; B65D 65/40; 81/24

U.S. Cl. 428—335

5 Claims



4. A lengthwise laminated packaging material comprising:
a sealing medium layer;
a base film formed on the sealing medium layer;
a silicon oxide layer formed on the base film;
an outer substrate; and
a low-density polyethylene layer formed by extruding low-density polyethylene directly on the silicon oxide layer, between the outer substrate and the silicon oxide layer to thereby simultaneously form the low-density polyethylene layer and laminate the outer substrate to the silicon oxide layer.

5,804,301

RADIATION-CURABLE COATING COMPOSITIONS
Benedict S. Curatolo, Valley View, Ohio, assignor to Avery Dennison Corporation, Pasadena, Calif.

Filed Jan. 11, 1996, Ser. No. 584,252

Int. Cl.⁶ C09J 7/02

U.S. Cl. 428—352

47 Claims

1. A radiation-curable coating composition comprising:
(A) from about 70% to about 99% by weight of at least one polyfunctional acrylate monomer containing at least one internal flexible unit;
(B) from about 1% to about 30% by weight of at least one other reactive vinyl or unsaturated monomer provided the reactive monomer is not the same as the monomer of (A); and
(C) from about 0% to about 10% by weight of at least one photoinitiator, provided that the composition is free of methacrylic functionalized colloidal silica.

5,804,302

WEB TAKE-UP ROLL

Yoshihiko Tamura; Hitoshi Saito; Minoru Furuse; Mineo Yamauchi, and Takumi Horii, all of Tokyo-To, Japan, assignors to DAI Nippon Printing Co., Ltd., Japan

Continuation of Ser. No. 625,147, Apr. 1, 1996, Pat. No. 5,646,090. This application Feb. 10, 1997, Ser. No. 798,158

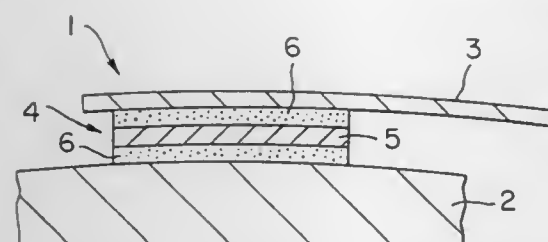
Claims priority, application Japan, Apr. 6, 1995, 7-106925; Apr. 21, 1995, 7-96335

Int. Cl.⁶ C09J 7/02

U.S. Cl. 428—354

3 Claims

1. A web take-up roll comprising:
a cylindrical body;
a web taken up around the cylindrical body, a terminal portion of said web being joined to said cylindrical body through a double-coated tacky tape comprising a paper substrate and adhesive layers formed on both sides of said paper substrate.



wherein said paper substrate is capable of ply separation by a force smaller than a force required to separate adhesive faces of said adhesive layers from either the terminal portion of said web or the cylindrical body.

5,804,303

TOW OF MELT-SPUN FILAMENTS

Jürgen Lorenz, Berlin, and Axel Vischer, Augsburg, both of Germany, assignors to Hoechst Trevira GmbH & Co. KG, Germany

Division of Ser. No. 657,804, May 31, 1996, Pat. No. 5,679,300. This application Mar. 27, 1997, Ser. No. 826,270
Claims priority, application Germany, May 31, 1995, 195 19 882.4

Int. Cl.⁶ D02G 3/00

U.S. Cl. 428—357

1 Claim

1. A tow of filaments having a crimp arc number, a T_{10} value, improved uniformity of crimp and a high initial modulus, characterized by a coefficient of variation of below 6.5% for the crimp arc number and a coefficient of variation of below 7.0% for the T_{10} value.

5,804,304

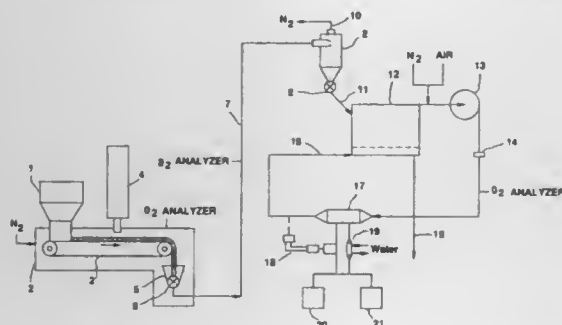
RADIATION VISBROKEN POLYPROPYLENE AND FIBERS MADE THEREFROM

Stephen D. Williams, Newark, and Hee Ju Yoo, Wilmington, both of Del., assignors to Montell North America Inc., Wilmington, Del.

Division of Ser. No. 626,412, Apr. 2, 1996. This application Aug. 8, 1997, Ser. No. 908,761
Int. Cl.⁶ D02G 3/00; C08F 6/00

U.S. Cl. 428—364

4 Claims



1. A propylene homopolymer having a stick-point of 30 cm or less during melt spinning, an oligomer content of less than 1500 ppm without postpolymerization treatment to remove oligomers, and a melt flow rate greater than 300 dg/min.

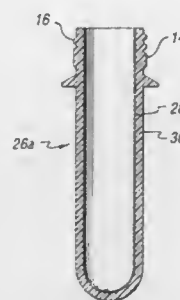
5,804,305
MULTI-LAYER PREFORM USED FOR PLASTIC BLOW MOLDING

William A. Slat, Brooklyn, Mich., and Richard C. Darr, Seville, Ohio, assignors to Plastipak Packaging, Inc., Plymouth, Mich.

Division of Ser. No. 120,038, Sep. 10, 1993, Pat. No. 5,443,766. This application May 10, 1995, Ser. No. 438,515
Int. Cl.⁶ B32B 1/08; 27/08; 27/36

U.S. Cl. 428—36.7

11 Claims



1. A multi-layer preform used for plastic blow molding, comprising:
an inner layer consisting essentially of homopolymeric polyethylene naphthalate for providing a gas barrier; and
an injection molded outer layer of polyethylene terephthalate which defines an outer surface of the preform and, upon blow molding of the preform into a container, gas being transmitted through the container to an extent limited by the gas barrier provided by the inner layer of polyethylene naphthalate.

5,804,306

CERAMIC MATRIX COMPOSITE/ORGANIC MATRIX COMPOSITE HYBRID FIRE SHIELD

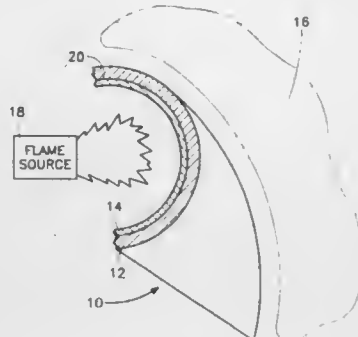
Eric Todd Sorenson, Long Beach, and David Eric Daws, Los Alamitos, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Nov. 27, 1996, Ser. No. 753,655

Int. Cl.⁶ B32B 5/06; 9/04; B27N 9/00; A01J 27/02

U.S. Cl. 428—297.4

24 Claims



1. A hybrid fire shield comprising:
a cured ceramic matrix composite layer co-bonded to a primary substrate derived by (a) producing at least one prepreg ply by combining one sheet of a ceramic cloth with a ceramic precursor capable of forming a ceramic matrix, (b) applying said at least one prepreg ply to a surface of said primary substrate to form a laminate, and (c) co-bonding said at least one prepreg ply to said surface of said primary substrate by curing said laminate for a time and at a temperature to suitably adhere said at least one prepreg ply to said primary substrate.

5,804,307

RUBBER THREAD

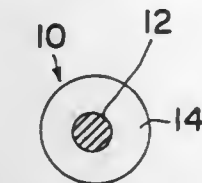
John F. Wilhelm, Riverside; J. Kevin O'Neill, Cumberland, both of R.I.; John Friar, II, Fall River, Mass.; Ralph Maglio, Bristol, R.I., and Edward Cabral, Fall River, Mass., assignors to North American Rubber Thread Co., Inc., Fall River, Mass.

Division of Ser. No. 540,180, Oct. 5, 1995, Pat. No. 5,679,196. This application Aug. 8, 1997, Ser. No. 907,692

Int. Cl.⁶ D02G 3/00

U.S. Cl. 428—373

38 Claims



1. A rubber thread comprising, in cross-section, a first rubber portion comprising a natural rubber and a second rubber portion comprising a synthetic rubber.

5,804,308

HEAT LAG MEDIA

Richard C. McAllister, Old Princeton Rd., Fitchburg, Mass. 01420

Filed Aug. 4, 1995, Ser. No. 511,598

Int. Cl.⁶ D02G 3/00

U.S. Cl. 428—375

21 Claims

1. A cellulosic substrate impregnated with a polymeric binder and from 0.5 to 5 wt. %, based upon the total weight of the pulp and binder, of a metal containing fatty acid compound of the formula HO-M-fatty acid where M represents a metal and fatty acid represents the fatty acid portion of the compound.

5,804,309

CHARGING ROLL

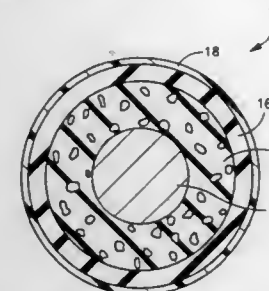
Tetsuya Itoh, Komaki; Takafumi Yamamoto, Nagaizumi-cho; Hiroki Sugiura, Komaki; Atsuhiko Kawano, Kasugai; Wataru Imamura, Komaki, and Saburo Hayashi, Kasugai, all of Japan, assignors to Tokai Rubber Industries, Ltd., Japan

Filed Mar. 18, 1997, Ser. No. 820,282

Claims priority, application Japan, Mar. 19, 1996, 8-062609
Int. Cl.⁶ D02G 3/00; B25F 5/02; F16C 13/00

U.S. Cl. 428—375

23 Claims



1. A charging roll which is held in contact with an outer circumferential surface of an image bearing medium for charging said surface of said image bearing medium by application of a DC voltage and an AC voltage which is superimposed on said DC voltage, said charging roll comprising:
a center shaft;
an electrically conductive base layer formed on an outer circumferential surface of said shaft;
an outer structure formed on an outer circumferential surface of said conductive base layer; and

said charging roll having Asker C hardness of less than 48 degrees as measured upon application of 1 kg load thereto and micro rubber hardness in a range of 65–85 degrees as measured upon application of 33.85 g load thereto.

5,804,310

PATTERNED FIBERS

Glen L. Rasmussen, The Boeing Company P. O. Box 3707, M/S 13-08, Seattle, Wash. 98124-2207

Filed Dec. 18, 1996, Ser. No. 768,487

Int. Cl.⁶ D06M 14/08

U.S. Cl. 428—376

13 Claims

1. A patterned, elongated fiber having alternating segments of metallized areas and untreated areas extending in sequence along the length of the fiber, the metallized areas having a predetermined, relatively high conductivity in relation to the untreated areas and a predetermined aspect ratio, the untreated areas being bare fiber or photoresist coated fiber.

5,804,311

LIQUID CURABLE RESIN COMPOSITION FOR OPTICAL FIBERS

Mitsuhiro Suma, Yokkaichi; Zen Komiya, Tsubuka; Yuji Takasugi, Kawasaki, and Takashi Ukachi, Ushiku, all of Japan, assignors to DSM N.V., Heerlen, Netherlands

Filed Aug. 22, 1996, Ser. No. 701,428

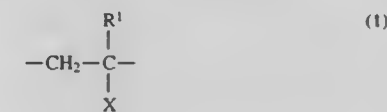
Claims priority, application Japan, Feb. 24, 1994, 6-026590

Int. Cl.⁶ G02B 6/02; C08F 265/08; 265/02

U.S. Cl. 428—378

3 Claims

1. A glass optical fiber coated with a cured coating derived from a liquid curable resin composition comprising:
a polymer (a) having a number average molecular weight of 5,000 or more and containing two repeating polymeric units represented by formulas (1) and (2),



wherein R^1 and R^2 individually represent a hydrogen atom or a methyl group, X represents a group $-COOR^3$ (wherein R^3 is a hydrogen atom or a hydrocarbon group having 1–30 carbon atoms), an aryl group, a cyano group, a halogen atom or alkyl group having 1–10 carbon atoms and Y represents a functional group containing a (meth)acryloyloxy group.

5,804,312

PROCESSABLE SHEET WITH EXCELLENT RIGIDITY AND PROCESS FOR PRODUCING THE SAME

Takeshi Noma, Minoo, and Hirotoshi Ishikawa, Ikoma, both of Japan, assignors to Chisso Corporation, Osaka-fu, Japan
Continuation of Ser. No. 513,611, Aug. 10, 1995, abandoned.

This application Jun. 6, 1997, Ser. No. 870,605

Claims priority, application Japan, Aug. 12, 1994, 6-211763
Int. Cl.⁶ B32B 27/34

U.S. Cl. 428—395

3 Claims

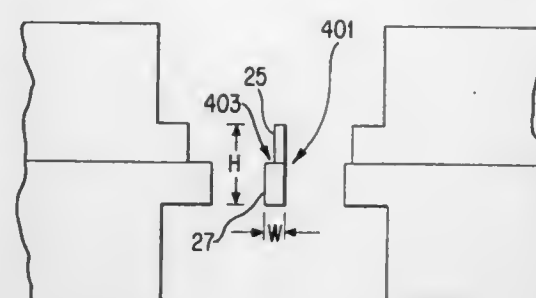
1. A processable sheet comprising a fibrous layer and a multi-layer film on either surface or both surfaces of the fibrous layer wherein:

the fibrous layer has a basis weight in the range of 300 g/m² to 500 g/m² and comprises highly entangled conjugate fibers

each of which has a structure of a core and a sheath therefor, the core being made of a high melting point-thermoplastic resin (B) selected from the group of polypropylene and polyester, and the sheath being made of a low melting point-thermoplastic resin (A) selected from the group of a low-melting point polypropylene, a low density polyethylene and a low-melting point polyester, having a melting point lower than that of resin (B).

the multi-layer film comprises an outer thermoplastic resin (C) selected from the group of a low-melting point polypropylene, a low density polyethylene and a low-melting point polyester, having a melting point lower than that of resin (B), which is highly compatible with the low melting point-thermoplastic resin, and

contact points of the conjugate fibers are melt-bonded, and the fibrous layer and the multi-layer film are melt-bonded to each other.



the microstructure having a height dimension; and
the microstructure having a shelf feature disposed along the height dimension.

5,804,313

POLYAMIDE AND ACRYLIC POLYMER COATED GLASS FIBER REINFORCEMENTS, REINFORCED POLYMERIC COMPOSITES AND A METHOD OF REINFORCING A POLYMERIC MATERIAL

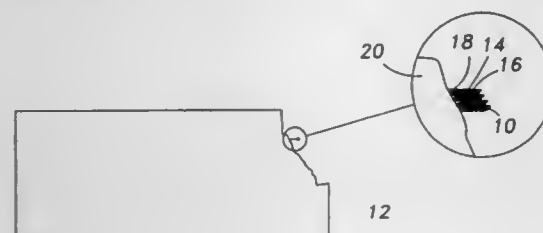
Philip L. Schell, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jul. 15, 1996, Ser. No. 679,778

Int. Cl.⁶ B32B 17/02

U.S. Cl. 428—391

17 Claims



1. A glass fiber strand adapted to reinforce a polymeric matrix material, the strand having thereon a sizing composition comprising:

- a polyamide which is the reaction product of (1) a polycarboxylic acid and (2) a polyoxyalkylene amine;
- an acrylic polymer which is essentially free of epoxy functionality;
- a coupling agent selected from the group consisting of organo silane coupling agents, transition metal coupling agents, amino-containing Werner coupling agents and mixtures thereof; and
- a fiber lubricant which is different from the polyamide of (a), the sizing composition being essentially free of a urethane-containing polymer.

5,804,314

SILICON MICROSTRUCTURES AND PROCESS FOR THEIR FABRICATION

Leslie A. Field, and Phillip W. Barth, both of Portola Valley, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 22, 1994, Ser. No. 216,206

Int. Cl.⁶ B32B 5/16

U.S. Cl. 428—402

7 Claims

1. A free standing microstructure being entirely bound by substantially planar surfaces, the surfaces meeting only at substantially right angles;

the microstructure including a substantially uniform silicon crystal lattice;

5,804,315

WELD-OBSCURING THERMOPLASTIC RESIN COMPOSITION AND A MOLDED ARTICLE

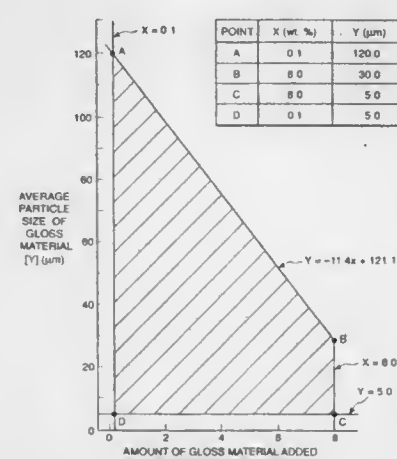
Masahiro Takimoto, Inabe-gun; Mayumi Maeda, Niwa-gun; Masato Kobayashi, Suita; Ikutaro Iizuka, Tokyo, and Mitsuhiro Isomichi, Takatsuki, all of Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-ken, Japan

Filed Mar. 1, 1996, Ser. No. 609,380

Int. Cl.⁶ B32B 9/00; C08K 3/08; C08J 3/02

U.S. Cl. 428—402

19 Claims



1. A weld-obscuring, thermoplastic resin composition which when suitably molded substantially obscures the appearance of weld lines, the resin composition comprising:

- a thermoplastic resin;
- about 0.01 to about 15.0 wt. % of a weld-obscuring agent having a refractive index greater than the refractive index of said thermoplastic resin in the visible light range; and
- about 0.1 to about 8 wt. % of glitter material having an average particle size in the range of about 5 to about 120 μm, wherein X is between (10.6-(Y/11.4 μm)) wt. % and about 0.1 wt. % when Y ≥ 30 μm, and when Y < 30 μm, X is between about 0.1 wt. % and about 8 wt. %, where X is the amount of glitter material added in wt. % and Y is the average particle size of the glitter material in μm.

5,804,316

BAKED PACKING FOR SEALING SHAFTS AND VALVE STEMS

Steven M. Suggs, Atlanta, Ga.; John Hawkins, Hanahan, S.C., and Reid M. Meyer, Atlanta, Ga., assignors to RM Engineered Products, Inc., N. Charleston, S.C.

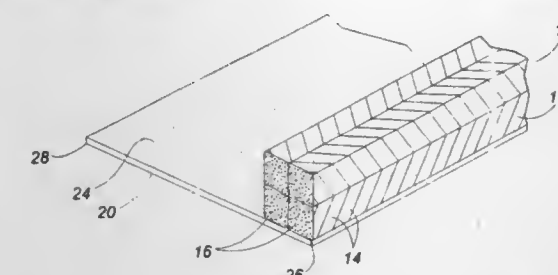
Continuation of Ser. No. 123,527, Sep. 17, 1993, abandoned.

This application Apr. 15, 1996, Ser. No. 632,764

Int. Cl.⁶ B32B 9/00

U.S. Cl. 428—408

8 Claims



- A packing material for sealing a rotary or reciprocating shaft in a stuffing box of a fluid flow device, comprising:
an assembled elongated jacketed packing, comprising:
a flexible core made of a plurality of braided fibers;
an intermediate layer of an adhesive; and
a skin of expanded intercalated graphite enveloped about the core; and
the assembled packing heat cured at a temperature of between about 350° F. and 450° F. for a period of between about one and three hours in order to reduce the flowability of the adhesive while maintaining tack sufficient to secure the skin to the flexible core.

5,804,317

PROCESS FOR REINFORCING GLASS OBJECTS
Herve Charrue, Rueil-Malmaison, France, assignor to Saint-Gobain Vitrage International, Courbevoie, France
PCT No. PCT/FR94/00516, § 371 Date Feb. 23, 1995, § 102(e)
Date Feb. 23, 1995, PCT Pub. No. WO94/26675, PCT Pub. Date Nov. 24, 1994

PCT Filed May 4, 1994, Ser. No. 362,447

Claims priority, application France, May 6, 1993, 93/05390

Int. Cl.⁶ B32B 17/00

U.S. Cl. 428—410

20 Claims

- A process for the reinforcement of a glass object, comprising:
acid etching of a previously compressed surface of said object over a depth equal to or greater than the compressed glass depth, and
final protection of the etched surface.

5,804,318

LUBRICIOUS HYDROGEL SURFACE MODIFICATION

Leonard Pinchuk, Miami, and Yasushi P. Kato, Pembroke Pines, both of Fla., assignors to Corvita Corporation, Miami, Fla.

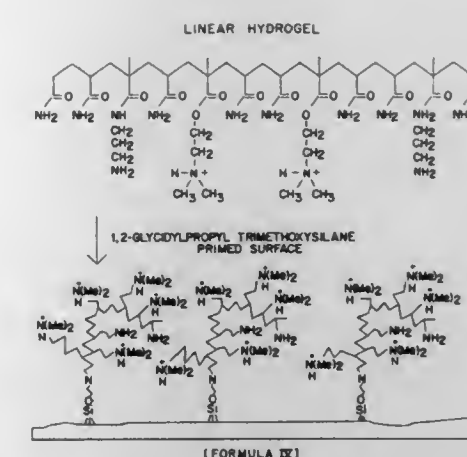
Filed Oct. 26, 1995, Ser. No. 548,827

Int. Cl.⁶ B32B 15/08; 27/08; 27/30; B05D 5/08

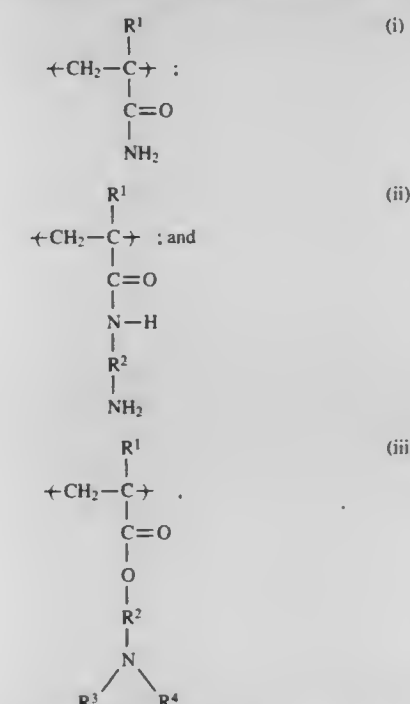
U.S. Cl. 428—421

21 Claims

- A shaped medical device containing at least one surface portion, said medical device comprising:
a shaped medical device containing a body having at least one surface portion;
a lubricious and adherent hydrophilic vinyl addition copolymer coating disposed on said surface portion, said copolymer coating including a hydrophilic vinyl addition copolymer containing pendant primary amine functionality and pendant tertiary amine functionality, said coating being covalently



bonded via its pendant primary amine group to epoxy functionalized coupling agents bonded to said surface portion; and said lubricious and adherent coating is a linear, hydrophilic, vinyl addition copolymer containing the following units:



wherein R¹ is an H or C₁–C₄ alkyl group, R² is a divalent aliphatic, cycloaliphatic, aromatic or alkylaromatic group, and R³ and R⁴ are each independently selected from H or C₁–C₄ alkyl groups, said copolymer having a number average molecular weight of less than about 30,000.

5,804,319

SEPARATION DEVICE FOR SHEET PRODUCTS AND ITS FABRICATION PROCESS

Michel M. Ladang, Herve, and Dhafer M. Testouri, Dison, both of Belgium, assignors to Saint-Gobain Vitrage, Courbevoie, France, and Norton S.A. Performances Plastics, Chaineux, Belgium

Filed Jun. 24, 1996, Ser. No. 670,785

Claims priority, application France, Jun. 22, 1995, 95 07465

Int. Cl.⁶ B65G 85/48; B65B 23/20

U.S. Cl. 428—441

12 Claims

- A separation piece to be inserted temporarily between two sheet products, wherein the separation piece is comprised of a thermofusible material having a capacity for absorption of shocks, wherein a first side of the separation piece has a controlled and

desirable adhesion with the sheet products to be separated, and wherein a second side of the separation piece is substantially non-adhesive.

wherein the thermofusible material is based on at least one polymer or co-polymer of the polyethylene type with polar chains and the thermofusible material includes, expressed in percentages by weight:

- 20 to 70% of a polymer of co-polymer of the polyethylene type with polar chains;
- 10 to 50% of a material having energy absorption properties;
- 10 to 50% of a wax;
- 10 to 40% of a mineral oil.

5,804,320 RECORDING MEDIUM

Hiroshi Tomioka, Matsudo; Kyo Miura, Yokohama; Hitoshi Yoshino, Zama, and Yuji Kondo, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 27, 1995, Ser. No. 549,204
Claims priority, application Japan, Oct. 31, 1994, 6-266592; Sep. 26, 1995, 7-247342; Oct. 20, 1995, 7-272861

Int. Cl.⁶ B41M 5/00

U.S. Cl. 428—478.2

27 Claims



1. A recording medium comprising an ink-receiving layer comprising a pigment and, as a binder, an alkali-process gelatin, wherein said alkali-process gelatin has no sol-gel reversibility in an environment of room temperature and has a weight average molecular weight within the range of from 50,000 to 150,000.

5,804,321 DIAMOND BRAZED TO A METAL

Thomas P. Thorpe, Alexandria, Va., and Keith A. Snail, Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 30, 1993, Ser. No. 99,640

Int. Cl.⁶ C30B 29/04

U.S. Cl. 428—623

16 Claims



1. A unitary article that is solid at a temperature of at least 1100° C. comprising

- (a) a diamond substrate for the growth of diamond thereon,
- (b) a metal heat sink made from a metal selected from the group consisting of molybdenum, tungsten, titanium, chromium and niobium, and
- (c) a material securing said diamond to said heat sink, said material comprising a first component contacting and bound to said diamond on one side, said first component being selected from the group consisting of metal carbides and mixtures thereof, and a second component contacting and bound to said first component on one side and to said heat sink on other side, said second component being selected from the group consisting of platinum family metals, alloys of said platinum family metals, nickel, alloys of nickel, and mixtures thereof.

5,804,322

ORGANIC ELECTROLUMINESCENCE DEVICE WITH MIXED HOLE TRANSPORTING MATERIALS

Song Q. Shi, Phoenix, and Cynthia A. Gorsuch, Glendale, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 17, 1995, Ser. No. 560,453

Int. Cl.⁶ H05B 33/00

U.S. Cl. 428—690

4 Claims

1. An organic electroluminescence device with a cathode, an electron transporting zone, an emitting zone, a hole transporting zone and an anode which are laminated in sequence, wherein said hole transporting zone includes at least one hole transporting layer comprising a mixture of a plurality of homogeneously mixed hole transporting materials each having a glass transition temperature above 75° C., the hole transporting materials forming a stable, homogeneous, uniform film, the mixture having less tendency to crystallize than any of the plurality of homogeneously mixed hole transporting materials individually, whereby device lifetime is improved.

5,804,323

PROCESS FOR GROWING A FILM EPITAXIALLY UPON AN OXIDE SURFACE AND STRUCTURES FORMED WITH THE PROCESS

Rodney Allen McKee, Kingston, and Frederick Joseph Walker, Oak Ridge, both of Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Division of Ser. No. 163,427, Dec. 8, 1993, Pat. No. 5,450,812, which is a continuation-in-part of Ser. No. 100,743, Jul. 30, 1993, abandoned. This application Aug. 21, 1995, Ser. No. 517,035

Int. Cl.⁶ B32B 13/00

U.S. Cl. 428—700

4 Claims



1. A structure for use in at least one of a semiconductor, wave guide, or magneto-optic application, the structure comprising:

- a body having a surface defined by a metal oxide consisting of and selected from the group consisting of a metal oxide constituent of a perovskite crystal and a metal oxide constituent of a spinel crystal wherein the metal element of the metal oxide of the surface of the body provides a small cation in the crystalline form of the corresponding perovskite or spinel when compared to the other metallic cation of the crystalline form of the corresponding perovskite or spinel; and
- a film epitaxially covering the metal oxide surface of the body wherein the film includes a single commensurate plane consisting of a metal oxide which directly contacts and is commensurate with the metal oxide surface of the body, and the metal oxide of the single commensurate plane is arranged cube-on-cube upon the surface of the body and consists of a metal oxide selected from the group consisting of a metal oxide constituent of a perovskite crystal and a metal oxide constituent of a spinel crystal wherein the metal element of the single commensurate plane provides a large cation in the crystalline form of the corresponding perovskite or spinel when compared to the other metallic cation of the crystalline form of the corresponding perovskite or spinel.

5,804,324

SETTING MEMBER FOR HEATING MATERIAL

Shigeki Niwa, Osaka; Hiroshi Okada, Nishio; Yasuharu Okiyama, Anjo, and Toshiyuki Suzuki, Hekinan, all of Japan, assignors to Toshiba Ceramics Co., Ltd., Tokyo, Japan

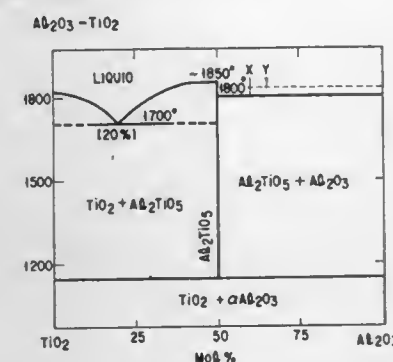
Filed Jan. 18, 1996, Ser. No. 588,512

Claims priority, application Japan, Jan. 18, 1995, 7-005931; Dec. 13, 1995, 7-324404

Int. Cl.⁶ B32B 17/00

U.S. Cl. 428—701

13 Claims



1. A setting member for a heating material comprising a base and a coating layer formed on a surface of said base partially or in its entirety, wherein said base comprises at least one main component selected from the group consisting of Al_2O_3 , MgO and ZrO_2 in an amount of 70 wt % or more and said coating layer comprises at least one main component selected from the group consisting of Al_2O_3 , MgO and ZrO_2 in an amount of 80 wt % or more, and 0.5 to 10.0 wt % of at least one additional component selected from the group consisting of Fe_2O_3 , TiO_2 , BaO , SrO , CaO and MgO , wherein if CaO or MgO are used to stabilize ZrO_2 , as a main component of the coating layer, then the CaO and MgO that can be additional components are used in addition to the CaO or MgO used to stabilize the ZrO_2 .

5,804,325

NON POISONING FUEL CELL AND METHOD

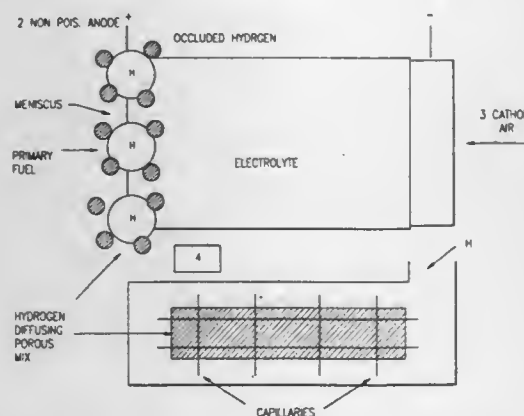
Omar Yezpe, Short Hills, N.J., assignor to Westfield Trading Corporation, New York, N.Y.

Filed Jan. 13, 1995, Ser. No. 371,984

Int. Cl.⁶ H01M 13/00

U.S. Cl. 429—13

9 Claims



1. A method of generating electricity in a fuel cell utilizing as a fuel, a carbon compound which undergoes electrooxidation in said fuel cell, said cell comprising:

- a cathode, an electrolyte, and an anode, said anode comprising a first face that is fluid permeable and a second face in contact with said electrolyte,
- said second face comprising a hydrogen transmissive membrane made of an electrocatalytic metallic element which stores and

diffuses hydrogen in atomic form, said membrane having an absorption side and an opposite insertion reaction side, comprising the steps of:

- a. feeding hydrogen from a source thereof to the absorption side of said hydrogen transmissive membrane where hydrogen is absorbed,
- b. passing hydrogen in atomic form, through the membrane to said opposite insertion reaction side thereof,
- c. providing said carbon compound to said insertion reaction side,
- d. allowing the direct electrooxidation reaction of said carbon compound on the insertion reaction side to give a electrooxidation reaction product,
- e. chemically reacting the said electrooxidation reaction product of the said carbon compound, with the hydrogen passed through the membrane to give a reduction product;
- f. further electrooxidizing said reduction reaction product of step (e) to provide carbon dioxide, as the principal product of the complete electrochemical oxidation of the said carbon compound; and
- g. drawing electricity generated in said fuel cell from the cathode and anode thereof.

5,804,326

INTEGRATED REACTANT AND COOLANT FLUID FLOW FIELD LAYER FOR AN ELECTROCHEMICAL FUEL CELL

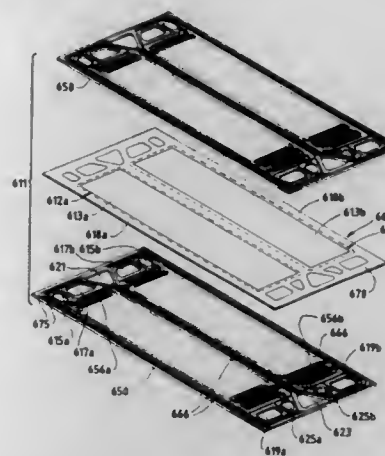
Clarence Y. Chow, Vancouver; Boguslaw Wozniczka, Coquitlam, and John Ka Ki Chan, Vancouver, all of Canada, assignors to Ballard Power Systems Inc., Burnaby, Canada

Filed Dec. 20, 1996, Ser. No. 770,321

Int. Cl.⁶ H01M 008/04

U.S. Cl. 429—26

29 Claims



1. An electrochemical fuel cell assembly comprising:

- a pair of separator layers;
- a membrane electrode assembly interposed between said separator layers, said membrane electrode assembly comprising a pair of electrodes and an ion exchange membrane interposed therebetween, said electrodes having electrocatalyst associated therewith defining an electrochemically active area;
- each of said separator layers comprising a reactant portion superposing said electrochemically active area and a remaining portion not superposing said electrochemically active area;
- each of said separator layers comprising a reactant stream inlet, a reactant stream outlet and at least one reactant stream passage in fluid communication with one of said electrodes for directing a fluid reactant stream from said reactant stream inlet to said reactant stream outlet, a predominant portion of said at least one reactant stream passage disposed in said reactant portion;
- at least one of said separator layers further comprising at least one coolant stream inlet, at least one coolant stream outlet and

at least one coolant stream passage for directing a coolant stream from said at least one coolant stream inlet to said at least one coolant stream outlet, wherein said at least one coolant stream passage is disposed only in said remaining portion and is fluidly isolated from said at least one reactant stream passage.

5,804,327

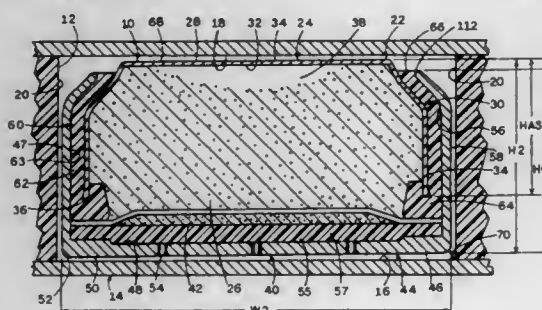
THIN WALLED ELECTROCHEMICAL CELL

John Edward Oltman, Mount Horeb, Wis., assignor to Rayovac Corporation, Madison, Wis.

Continuation-in-part of Ser. No. 435,185, May 5, 1995, Pat. No. 5,591,541. This application Oct. 7, 1996, Ser. No. 726,808 Int. Cl.⁶ H01M 4/00; 6/12; 2/02; 4/32

U.S. Cl. 429—27

18 Claims



1. A metal-air electrochemical button cell, comprising:

(a) an anode, including an anode can and anode material in said anode can, said anode can having a top wall, and a first circumferential side wall extending downwardly from said top wall to a first distal edge thereof, said first side wall having a first height generally corresponding to an overall second height of said anode can, said anode can having a first outer surface disposed outwardly on said top wall and outwardly on said first side wall, and thus outwardly on said electrochemical button cell, a second inner surface disposed inwardly on said top wall and inwardly on said first side wall, and thus inwardly on said electrochemical button cell, and an overall thickness between the first outer and the second inner surfaces of about 0.110 millimeter to about 0.145 millimeter, said anode can comprising a first layer comprising nickel, a second layer comprising copper, and a third layer comprising stainless steel between said first and second layers, said third layer comprising about 83 percent by volume to about 91 percent by volume of the overall thickness of at least one of said top wall and said first side wall of said anode can, the combination of said first and second layers comprising about 9 percent by volume to about 17 percent by volume of the overall thickness of the respective one of said top wall and said first side wall;

(b) a cathode, including a cathode can, said cathode can having a bottom wall and a second circumferential side wall extending upwardly from said bottom wall and terminating at a second distal edge thereof, said second side wall having a third height generally corresponding to an overall fourth height of said cathode can, said cathode can comprising a substrate, said substrate, as taken at a location away from the second distal edge, comprising fourth and fifth layers comprising nickel, and a sixth layer comprising cold rolled steel between said fourth and fifth layers, said cathode further comprising an air cathode assembly in said cathode can, said anode, including said anode can and said anode material, being received inside said cathode can such that the entirety of said second side wall is disposed radially outwardly of said first side wall;

(c) an aqueous alkaline electrolyte;

(d) a space between said first and second side walls, extending over a substantial portion of the first height; and

(e) seal material in the space between said first and second side walls,

the combination of the second inner surface of said anode can and said cathode assembly at least in part defining a cavity in said electrochemical button cell, the second height of said first anode can side wall being significantly greater than one half the fourth height of said second side wall of said cathode can, said second side wall of said cathode can being crimped inwardly against said seal material, and by way of said seal material against an upper portion of said first side wall of said anode can such that said seal material provides a physical closure of said electrochemical button cell against leakage of contents out of said electrochemical button cell, and provides electrical insulation against passage of electrical current across the space.

5,804,328

CURRENT COLLECTING DEVICE FOR A FUEL CELL STACK

Rolf Odegard, Trondheim; Roald Ravnanger, Hauglandshella, and Per Sundal, Solheimsviken, all of Norway, assignors to Den norske stats oljeselskap a.s., Stavanger, Norway

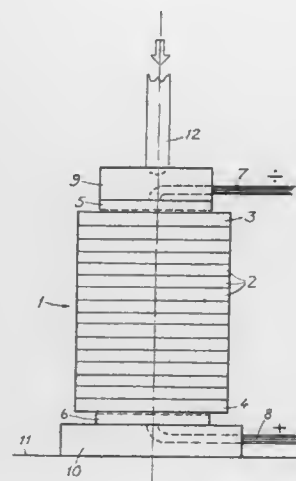
PCT No. PCT/NO95/00114, § 371 Date Mar. 24, 1997, § 102(e) Date Mar. 24, 1997, PCT Pub. No. WO96/00987, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 28, 1995, Ser. No. 750,973

Claims priority, application Norway, Jun. 30, 1994, 942479 Int. Cl.⁶ H01M 8/02

U.S. Cl. 429—32

12 Claims



1. A current collecting device for a fuel cell stack including a number of stack-forming fuel cell plates between opposite end plates, the current collecting device comprising: having a surface pressed against an associated end plate, said surface being provided with a number of grooves extending across a substantial part of the area of the plate and receiving respective electric wires from at least one bundle, the wires in the grooves being covered by a layer of noble metal projecting above the grooves and forming an electrical connection between the wires and the associated end plate.

5,804,329

ELECTROCONVERSION CELL

Steven Amendola, Ocean, N.J., assignor to National Patent Development Corporation, New York, N.Y.

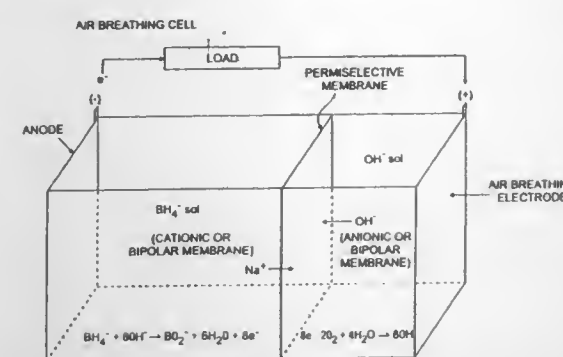
Filed Dec. 28, 1995, Ser. No. 579,781

Int. Cl.⁶ H01M 4/58

U.S. Cl. 429—34

69 Claims

1. An electrochemical storage medium comprising a carrier mixed with a borohydride compound, the borohydride compound



being oxidizable to an oxidized boron-containing compound concurrent with the generation of an electric current, the storage medium being in electrical contact with an electrode for carrying current generated during that oxidation.

5,804,330

PACKAGED ELECTRODE PLATE FOR SECONDARY BATTERY WITH NONAQUEOUS ELECTROLYTE

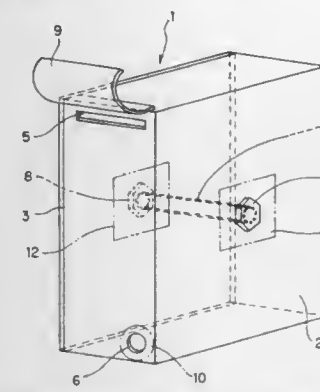
Yuichi Miyazaki; Shin Miyawaki; Yasushi Sato; Tadafumi Shindo, and Kazuo Umeda, all of Tokyo-to, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan

Filed Aug. 19, 1997, Ser. No. 914,325

Claims priority, application Japan, Aug. 28, 1996, 8-244046 Int. Cl.⁶ H01M 6/00

U.S. Cl. 429—48

5 Claims



1. A packaged electrode plate for a secondary battery with a nonaqueous electrolyte, which comprises:

an airtight container having a winding core and a tape pulling-out opening; and

at least one wound tape comprising an electrode plate for a secondary battery with a nonaqueous electrolyte, in which an active material layer is formed on a collector, said wound tape being stored in said airtight container and supported on said winding core thereof;

a forward end of said wound tape being pulled out from said tape pulling-out opening of said airtight container, and said tape pulling-out opening being hermetically closed by means of an airtight sealing means which holds said forward end of said wound tape pulled out from said tape pulling-out opening.

5,804,331

BATTERY DEVICE

Anthony Maglica, Anaheim, Calif., assignor to Mag Instrument, Inc., Ontario, Calif.

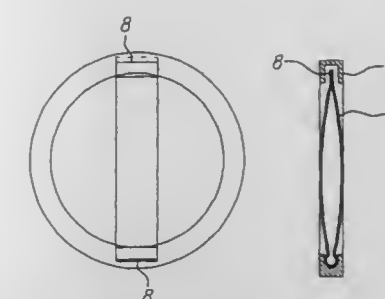
Filed Feb. 15, 1994, Ser. No. 196,860

Int. Cl.⁶ H01M 2/10

U.S. Cl. 429—99

8 Claims

1. A device for a battery, comprising



an electrically nonconductive spacer having a hole extending fully therethrough; a resilient conductor in the hole, held by said spacer and extending outwardly of the spacer in an axial direction of the hole.

5,804,332

BATTERY ACCOMMODATING CHAMBER STRUCTURE
Hitoshi Shimizu, and Shinichi Kakiuchi, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

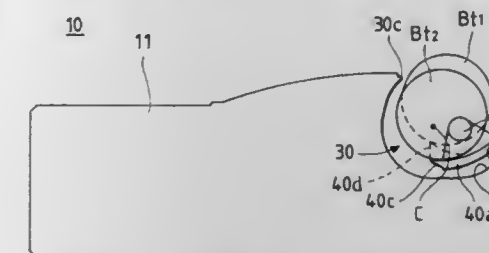
Filed Jan. 21, 1997, Ser. No. 786,651

Claims priority, application Japan, Jan. 19, 1996, 8-007664; Mar. 13, 1996, 8-056200

Int. Cl.⁶ H01M 2/10

U.S. Cl. 429—100

16 Claims



1. A battery accommodating chamber structure comprising:

a battery housing with a substantially semi-cylindrical shape along a longitudinal axis, and a battery inserting opening through which a cylindrical battery is insertable into said battery housing and retainable therein in a battery accommodating position; and

a battery lid mounted to said battery housing for rotation about a pivot axis extending parallel to said longitudinal axis for opening and closing said battery housing; wherein, upon rotating said battery lid about said pivot axis to open said battery housing, at least a part of said battery lid enters into said battery housing and forces an inserted cylindrical battery from said battery accommodating position.

5,804,333

COIN SHAPED LITHIUM BATTERY

Masatsugu Shioda, and Koichi Miyoda, both of Fukushima, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 591,954, Jan. 23, 1996, Pat. No. 5,629,107, which is a continuation of Ser. No. 361,662, Dec. 22, 1994, abandoned. This application Mar. 31, 1997, Ser. No. 829,329

Claims priority, application Japan, Dec. 29, 1993, 5-355375 Int. Cl.⁶ H01M 4/04; 10/38

U.S. Cl. 429—128

1 Claim

1. A coin-shaped lithium battery comprising:

a battery can containing therein an anode pellet comprising lithium or a lithium alloy and a cathode pellet comprising manganese dioxide, said anode pellet and said cathode pellet being arranged to face each other with a separator provided

5,804,341

PROTECTIVE OVERCOATS FOR SILVER HALIDE PHOTOGRAPHIC ELEMENTS

Anne E. Bohan, Pittsford; Vito A. DePalma; William K. Goebel, both of Rochester, and Dennis R. Kamp, Churchville, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 16, 1996, Ser. No. 698,838

Int. Cl.⁶ G03C 3/00

U.S. Cl. 430—12

14 Claims

1. A process for applying a protective overcoat to an imaged photographic element, the process comprising the steps of:
- a) providing an imaged photographic element comprising a silver halide derived image in a hydrophilic binder;
 - b) applying to a major surface of the element, in the presence of an electric field, charged, clear polymeric particles so as to cause the particles to adhere to the surface of the element; and
 - c) fusing the clear polymeric particles so as to cause them to form a continuous polymeric layer on the surface of element.

5,804,342

METHOD OF BAR-CODE PRINTING ON CERAMIC MEMBERS

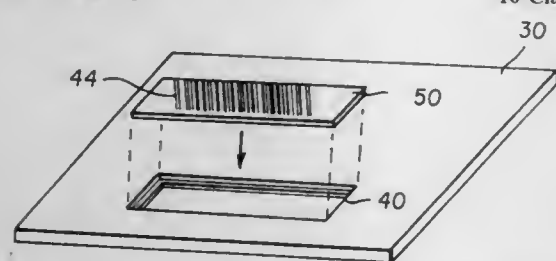
Gustavo R. Paz-Pujalt; Dilip K. Chatterjee, and Syamal K. Ghosh, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 29, 1997, Ser. No. 902,417

Int. Cl.⁶ G03C 5/56

U.S. Cl. 430—19

10 Claims



1. A method of making a printing member for providing an erasable bar-code, comprising the steps of:

- a) providing a polymeric substrate having an insert cavity;
- b) forming an insert member having a writing surface composed of a non-porous zirconia ceramic ZrO₂ that is alloyed with a secondary oxide selected from the group consisting of MgO, CaO, Y₂O₃, Se₂O₃, a rare earth oxide, and combinations thereof, the non-porous zirconia alloy ceramic having a density of from about 5.6 to about 6.2 g/cm³; and
- c) providing an erasable bar-code image on the printing member by imagewise exposing the printing surface to electromagnetic radiation that transforms the printing surface from a stoichiometric to a substoichiometric state, thereby creating a printing surface having both image areas and non-image areas.

5,804,343

ELECTROPHOTOGRAPHIC PHOTOCONDUCTOR

Minoru Umeda, and Tatsuya Niimi, both of Numazu, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 326,700, Oct. 20, 1994, Pat. No. 5,547,790.

This application Jan. 24, 1996, Ser. No. 590,900

Claims priority, application Japan, Oct. 20, 1993, 5-262409

Int. Cl.⁶ G03G 5/047

U.S. Cl. 430—59

14 Claims

1. An electrophotographic photoconductor comprising an electroconductive support and a photoconductive layer formed thereon, which comprises at least a charge generation layer comprising a charge generating material selected from the group consisting of azo pigments, perinone pigments and squaraines, and a polymeric

charge transporting material, and a charge transport layer comprising a polymeric charge transporting material,

wherein said polymeric charge transporting material in said charge generation layer is selected from the group consisting of polysilylene, a polymer having a hydrazone structure on the main chain and/or side chain thereof, and a polymer having a tertiary amine structure on the main chain and/or side chain thereof.

5,804,344

ELECTROPHOTOGRAPHIC PHOTORECEPTOR CONTAINING AN ARYLAMINE TYPE COMPOUND

Teruyuki Mitsumori, Yokohama, Japan, assignor to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Mar. 11, 1997, Ser. No. 814,359

Claims priority, application Japan, Mar. 11, 1996, 8-052964

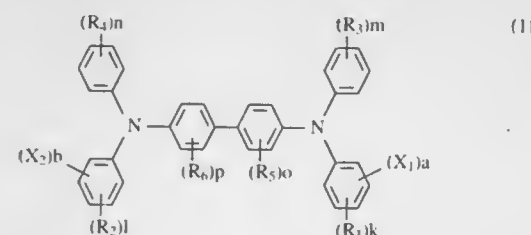
Int. Cl.⁶ G03G 5/047; 5/09

U.S. Cl. 430—59

11 Claims

1. An electrophotographic photoreceptor having a photosensitive layer containing an arylamine type compound on an electroconductive substrate,

the arylamine type compound having the formula (1),



the polyester resin having an acid value of not more than 10 mgKOH/g and a hydroxyl value of not more than 40 mgKOH/g; and
the functional group being present in a proportion of 2 to 5mol % in the resin.

5,804,348

**POLY[N-(ACYL)-4-VINYLBENZENESULFONAMIDES]
CHARGE-CONTROL AGENTS FOR
ELECTROSTATOGRAPHIC TONERS AND DEVELOPERS**
John C. Wilson, and Robert D. Fields, both of Rochester, N.Y.,
assignors to Eastman Kodak Company, Rochester, N.Y.

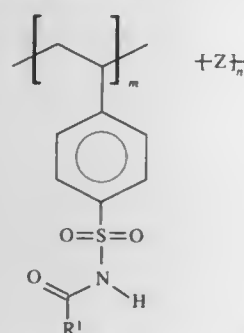
Filed Apr. 9, 1997, Ser. No. 842,932

Int. Cl.⁶ G03G 9/097

U.S. Cl. 430—110

7 Claims

1. An electrostatographic toner comprising a poly[n-(acyl)-4-vinylbenzenesulfonamide] charge-control agent having recurring units according to the structure:



; wherein

R¹ represents hydrogen, linear, branched or cyclic C₁–C₁₇ alkyl or C₆–C₁₀ aryl.

+Z+

represents any copolymerized comonomer selected from the group consisting of acrylamides, acrylic acid, acrylonitrile, alkyl acrylates, alkyl methacrylates, alkyl vinyl ethers, styrenes, maleic anhydride, methacrylamides, methacrylic acid, methacrylonitrile, silyl methacrylates, vinyl esters, vinyl amides and vinyl halides.

m and n are each weight percent and the total of m and n is 100 weight percent.

5,804,349

**ACRYLONITRILE-MODIFIED TONER COMPOSITIONS
AND PROCESSES**

Beng S. Ong, Mississauga, Canada; Grazyna E. Kmiecik-Lawrynowicz, Fairport, N.Y.; Raj D. Patel, Oakville, Canada; Walter Mychajlowski, Georgetown, Canada; David J. Sanders, Oakville, Canada, and T. Hwee Ng, Mississauga, Canada, assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 720,736, Oct. 2, 1996, Pat. No. 5,683,848.

This application Aug. 7, 1997, Ser. No. 907,368

Int. Cl.⁶ G03G 9/087; 9/097

U.S. Cl. 430—110

18 Claims

2. A toner consisting essentially of pigment, and an emulsion of a styrene-acrylate-acrylonitrile-acrylic acid resin obtained from the polymerization of from about 55 to about 80 weight percent of styrene, from about 5 to about 25 weight percent of acrylate, from about 1 to about 20 weight percent of acrylonitrile, and from about 0.5 to about 5 weight percent of acrylic acid, and wherein said resin possesses a weight average molecular weight (M_w) of from

about 18,000 to about 35,000 and a number average molecular weight (M_n) of from about 5,000 to about 10,000, relative to styrene standards.

12. A toner in accordance with claim 2 further containing wax, surface additives, and optional charge additives.

5,804,350

**NEGATIVELY CHARGEABLE TONER FOR
DEVELOPING ELECTROSTATIC LATENT IMAGE**

Yoshitaka Sekiguchi; Tetsuo Sano; Kenichi Kido, all of Amagasaki, and Hiroyuki Fukuda, Kobe, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Oct. 9, 1997, Ser. No. 947,907

Claims priority, application Japan, Mar. 4, 1997, 9-049126

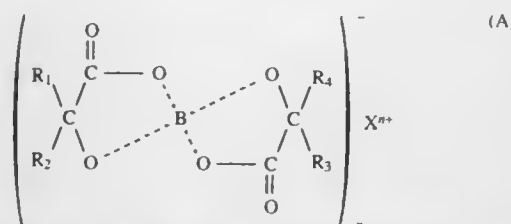
Int. Cl.⁶ G03G 9/097

U.S. Cl. 430—110

27 Claims

1. A negatively chargeable toner for developing electrostatic latent images comprising:

- a binder resin;
- a carbon black, and
- a boron compound represented by a structural formula (A).



wherein R₁ and R₃ respectively represent substituted or non-substituted aryl group, R₂ and R₄ respectively represent hydrogen atom, alkyl group, substituted or non-substituted aryl group, X represents a cation, and n represents an integer of either 1 or 2;

wherein a melt viscosity curve of said negatively chargeable toner has an inflection point of a viscosity slope, an inflection point temperature (T₂) existing within a temperature range of T₁+20° C. to T₁+40° C. relative to a flow start temperature (T₁), a first absolute value (Δη₁) existing within a range of 4.0×10⁻² to 6.0×10⁻², said first absolute value (Δη₁) being a mean viscosity slope within a temperature range below the inflection point temperature (T₂), a second absolute value (Δη₂) existing less than 2.0×10⁻², said second absolute value (Δη₂) being a mean viscosity slope within a temperature range higher than said inflection point temperature (T₂), and a temperature difference between said inflection point temperature (T₂) and a flow stop temperature (T₃) being 5° C. or more.

5,804,351

**TONER FOR ELECTROSTATIC-IMAGE DEVELOPMENT,
DEVELOPER FOR ELECTROSTATIC IMAGE, AND
IMAGE FORMING PROCESS USING THE SAME**

Hiroshi Takano; Masanori Ichimura; Masaki Hashimoto; Hideyuki Akagi; Kazuya Furuta; Koji Fukushima; Masahiro Takagi; Kensaku Togao; Satoru Ishigaki; Michio Take, and Yuka Ishihara, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1996, Ser. No. 730,932

Claims priority, application Japan, Nov. 2, 1995, 7-285830

Int. Cl.⁶ G03G 9/08

U.S. Cl. 430—111

6 Claims

1. A toner for electrostatic-image development which comprises toner particles comprising a colorant and a binder resin, said toner particles having a volume-average particle diameter of from 3 to 9 μm and a particle size distribution satisfying the following expressions (1) and (2):

$$D16(v)/D50(v) \leq 1.475 - 0.036 \times D50(v) \quad (1)$$

$$D50(p)/D84(p) \leq 1.45 \quad (2)$$

wherein D16(v) and D50(v) represent, in terms of absolute value, a cumulative 16% diameter (μm) and a cumulative 50% diameter (μm), respectively, of a cumulative volume particle diameter distribution of said toner particles depicted from the larger diameter side, and D50(p) and D84(p) represent, in terms of absolute value, a cumulative 50% diameter (μm) and a cumulative 84% diameter (μm), respectively, of a cumulative population particle diameter distribution of said toner particles depicted from the larger diameter side.

5,804,352

**DYE SOLUTION CONTAINING HINDERED SOLVENT
FUNCTIONALITY**

Michael Paul Cunningham, Rochester, and Thomas Michael Smith, Spencerport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 418,052, Apr. 6, 1995, abandoned. This application Oct. 14, 1997, Ser. No. 949,698

Int. Cl.⁶ G03C 1/73

U.S. Cl. 430—270.15

5 Claims

1. A method of coating an optical recording layer, comprising the steps of:

providing a transparent substrate comprising a continuous spiral groove;

providing a dye solution comprising a laser recordable dye and a solvent for the dye that has (a) a solvent functional group selected from esters, ketones and ethers; and (b) the solvent functional group has as hindering groups (i) at least one t-butyl group on one side thereof or (ii) two groups on opposite sides thereof selected from the group consisting of isomethyl, t-butyl and isopropyl; provided that both groups cannot be isopropyl and (c) the hindering groups are adjacent to the solvent functional group; spin coating the dye solution on the substrate and evaporating said solvent.

5,804,353

**LASERS ENGRAVABLE MULTILAYER FLEXOGRAPHIC
PRINTING ELEMENT**

Stephen Cushner, Lincroft; Roxy Ni Fan, East Brunswick, both of N.J.; Ernst Leberzammer, Glen Mills, Pa.; John Anthony Quinn, Morganville; Paul Thomas Shea, Freehold, both of N.J., and Carol Marie Van Zoeren, Wilmington, Del., assignors to E. I. duPont de Nemours and Company, Wilmington, Del.

Filed May 11, 1992, Ser. No. 881,444

Int. Cl.⁶ G03F 7/00

U.S. Cl. 430—306

20 Claims

1. A laser engravable, multilayer flexographic printing element which comprises:

- (a) a flexible support;
- (b) at least one laser engravable, reinforced elastomeric intermediate layer; and
- (c) a laser engravable, reinforced elastomeric top layer situated on top of layer (b) wherein the composition of layer (c) is different from the composition of layer (b) and wherein layers (b) and (c) have been singly reinforced mechanically or thermochemically, or multiply reinforced mechanically and photochemically, mechanically and thermochemically, photochemically and thermochemically, or mechanically, photochemically and thermochemically, provided that thermochemical reinforcement is accomplished using a crosslinker other than sulfur, a sulfur containing moiety or peroxide and further wherein the reinforcement of layers (b) and (c) can be the same or different.

5,804,354

**COMPOSITION FOR FORMING CONDUCTIVITY
IMPARTING AGENT AND PATTERN FORMING
METHOD**

Keiji Watanabe; Yasuhiro Yoneda; Takashi Maruyama; Keiko Yano, all of Kawasaki; Tomio Nakamura, Yokohama; Shigeru Shimizu, Yokohama; Takashi Saitoh, Yokohama; Takahisa Namiki, Kawasaki; Ei Yano, Kawasaki; Miwa Igarashi, Kawasaki, and Yoko Kuramitsu, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, and Nitto Chemical Industry Co., Ltd., Tokyo, both of Japan

Continuation of Ser. No. 279,210, Jul. 22, 1994, abandoned, which is a continuation-in-part of Ser. No. 77,650, Jun. 17, 1993, Pat. No. 5,560,870. This application Jun. 16, 1997, Ser. No. 876,794

Claims priority, application Japan, Jun. 17, 1992, 4-157953; Dec. 22, 1993, 5-324237

Int. Cl.⁶ G03C 5/00

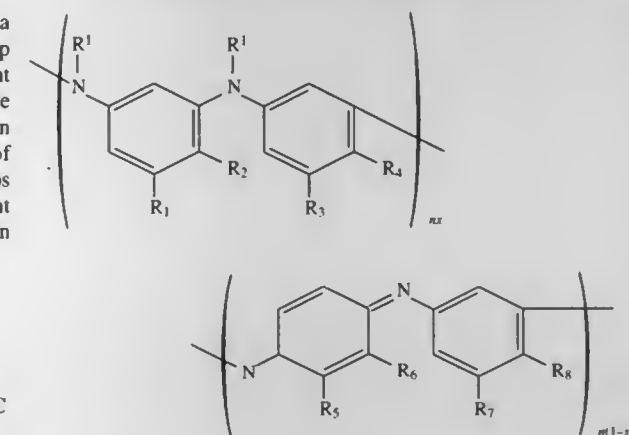
U.S. Cl. 430—325

3 Claims

1. A pattern formation method comprising the steps of:
applying a chemical amplification resist;
baking the applied resist at a temperature not lower than 110° C.;

applying a composition on said resist, said composition comprising:

- (a) 0.1 to 20 parts by weight of a sulfonated polyaniline, the number of sulfonic acid groups in the sulfonated polyaniline being 20 to 80% of the number of aromatic rings in the sulfonated polyaniline, the sulfonated polyaniline being a compound represented by the following formula:



where R₁ through R₈ each independently represent one of a hydrogen atom, a sulfonic acid group, an alkyl group having 1–4 carbon atoms and an alkoxy group having 1–4 carbon atoms; R' represents one of a hydrogen atom, an alkyl group having 1–4 carbon atoms, a benzenesulfonic acid group and a benzenecarboxylic acid group; and x represents a number such that 0 < x < 1;

- (b) 100 parts by weight of a solvent;
- (c) 0.01 to 10 parts by weight of an amine and/or quaternary ammonium salt; and
- (d) 0.001 to 100 parts by weight of at least one kind of a sulfonic acid group-containing component, the sulfonic acid group-containing component being selected from the following (A) and (B);
(A) compounds having a sulfonic acid group selected from the group consisting of benzenesulfonic acid, alkoxysubstituted benzene-sulfonic acid, alkylbenzenesulfonic acid, alkylsulfonic acid, alpha-olefinalkylsulfonic acid, alkylphenathenesulfonic acid, alkylsulfonic acid, salts of benzenesulfonic acid, salts of alkoxysubstituted benzene-sulfonic acid, salts of alkylbenzenesulfonic acid, salts of alkylsulfonic acid, salts of alpha-olefinalkylsulfonic acid, salts of alkylphenathenesulfonic acid, salts of alkylsulfonic acid; and
(B) polymers having a sulfonic acid group selected from the group consisting of polymers formed from at least

one kind of sulfonic acid group containing monomer and copolymers formed from at least a sulfonic acid group containing monomer and a monomer not containing a sulfonic acid group, the sulfonic acid group containing monomers being selected from the group consisting of vinylbenzenesulfonic acids, sulfonated olefins, N-sulfoalkylacrylamides, N-sulfo-alkylmethacrylamides, sulfonic acid group containing acrylates, sulfonic acid group containing methacrylates, salts of vinylbenzenesulfonic acids, salts of sulfonated olefins, salts of N-sulfoalkylacrylamides, salts of N-sulfo-alkylmethacrylamides, salts of sulfonic acid group containing acrylates and salts of sulfonic acid group containing methacrylates;

further baking said resist and said composition at a temperature not lower than 110° C.;

selectively irradiating said resist and said composition with charged radiation; and

developing said resist and said composition with an aqueous alkali solution or an alcohol.

5,804,355

PRODUCING A CONTONE IMAGE BY SEQUENTIALLY EXPOSING A THERMO-SENSITIVE IMAGING MATERIAL BY MEANS OF A SET OF RADIATION BEAMS

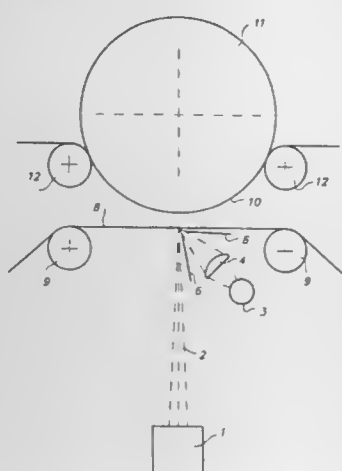
Jacobus Herman Bosschaerts; Robert Theodoor Overmeer, both of Mortsel; Leo Oelbrandt, Kruijbeke; Hans Louis Strijckers, Oudergem, and Eddie Roza Daems, Herentals, all of Belgium, assignors to Agfa-Gevaert N.V., Mortsel, Belgium
Filed Mar. 6, 1997, Ser. No. 812,450

Claims priority, application European Pat. Off., Mar. 14, 1996, 96200689

Int. Cl.⁶ G03C 1/498; 5/04; 5/26

U.S. Cl. 430—346

10 Claims



1. A method for thermal producing or recording a contone image, comprising the steps of imagewise and scanwise exposing a thermographic recording material with a set (s) of radiation beams (b), characterised in that at any given moment (t) during said exposure at least two radiation beams of said set (s) of radiation beams impinge on different dots (m) of a scanline (l) on said thermographic recording material, so that by completion of the exposure step each effective dot (meaning a dot corresponding to a density different to zero) of said scanline has been impinged by all effective radiation beams (which are radiation beams corresponding to an effective change in density on said thermographic recording material) of said set.

5,804,356 RAPID PROCESSING OF SILVER BROMIODIDE COLOR NEGATIVE FILMS AND DIGITAL IMAGE CORRECTION TO PROVIDE DISPLAY IMAGES HAVING DESIRED AIM COLOR AND TONE SCALE REPRODUCTION

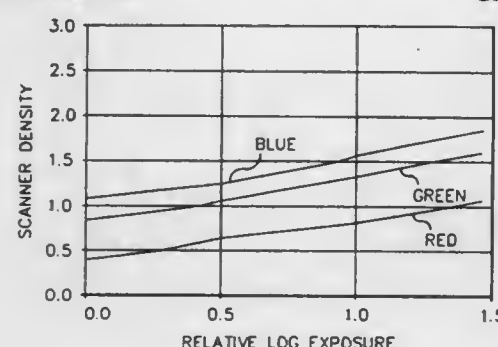
David Leroy Cole, and Anne Elizabeth Bohan, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 15, 1996, Ser. No. 729,937

Int. Cl.⁶ G03C 7/407

U.S. Cl. 430—359

20 Claims



1. A method for providing a color display image comprising:
 - A) developing an imagewise exposed color silver bromiodide negative working film having at least two color records, with a color developer solution having a pH of from about 9 to about 12, and comprising:
 - a color developing agent at from about 0.01 to about 0.1 mol/l, and
 - bromide ion at from 0 to about 0.2 mol/l, said developing being carried out for up to about 90 seconds at a temperature at or above about 40° C.,
 - B) scanning said developed film to form density representative signals for said at least two color records, and
 - C) digitally manipulating said density representative signals formed in step B to correct either or both interimage interactions and gamma mismatches among said at least two color records to produce a digital record providing a display image having desired aim color and tone scale reproduction.

5,804,357

FINE POLYMER PARTICLES HAVING HETEROGENEOUS PHASE STRUCTURE, SILVER PHOTOGRAPHIC LIGHT SENSITIVE MATERIAL CONTAINING THE FINE POLYMER PARTICLES AND IMAGE-FORMING METHOD

Junichi Yamanouchi; Hidetoshi Watanabe; Kunio Ishigaki; Seiichi Yamamoto, and Kouta Fukui, all of Minami-ashigara, Japan, assignors to Fujifilm Photo Film Co., Ltd., Kanagawa-ken, Japan

Continuation of Ser. No. 569,500, Dec. 8, 1995, abandoned.

This application Oct. 27, 1997, Ser. No. 960,123

Claims priority, application Japan, Dec. 9, 1994, 6-306389; Jan. 12, 1995, 7-003296; Feb. 13, 1995, 7-024320

Int. Cl.⁶ G03C 7/407

U.S. Cl. 430—438

13 Claims

1. A method for forming images on a silver halide monochromatic photographic light-sensitive material which comprises exposing, to light, a silver halide photographic light-sensitive material comprising, on the same surface of a substrate, at least one light-sensitive silver halide emulsion layer and at least one protective layer, and then developing the exposed light-sensitive material with a developer, wherein the silver halide emulsion layer and/or at least one of other hydrophilic colloidal layers comprise a latex polymer having active methylene groups and a core/shell heterogeneous phase structure; the developer comprises dihydroxybenzene and an auxiliary developing agent showing superadditivity; the pH increase observed when sodium hydroxide is added to



the developer in an amount of 0.1 mole per liter of the developer is not more than 0.25; the initial pH value of the developer ranges from 9.5 to 11.0; and the amount of the developer supplemented is not more than 225 ml/m².

5,804,358

DEVELOPING COMPOSITION FOR SILVER HALIDE PHOTOGRAPHIC LIGHT SENSITIVE MATERIAL

Hideki Komatsu, and Shoji Nishio, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Nov. 25, 1996, Ser. No. 755,980

Claims priority, application Japan, Nov. 29, 1995, 7-310644

Int. Cl.⁶ G03C 5/305

U.S. Cl. 430—465

12 Claims

1. A solid developing composition for a silver halide black-and-white photographic light sensitive material comprising a developing agent represented by formula (A), and said developing composition further comprising a compound represented by formula (1) in an amount of 0.5 to 50% by weight of the developing agent:



wherein R₁ and R₂ independently are an alkyl group, an amino group, an alkoxy group or an alkylthio group, in which R₁ and R₂ may combine with each other to form a ring; k is 0 or 1, provided that when k is 1, X is —CO— or —CS—; and M₁ and M₂ independently are a hydrogen atom or an alkali metal atom; Formula (1)



wherein n is an integer of 4 to 15; m is 0 or 1; and M is an alkali metal atom.

5,804,359

PHOTOGRAPHIC SILVER HALIDE MATERIALS

Michael John Simons, Ruislip, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 17, 1996, Ser. No. 649,388

Claims priority, application United Kingdom, Jun. 17, 1995, 9512364

Int. Cl.⁶ G03C 1/46

U.S. Cl. 430—506

9 Claims

1. A photographic element capable of forming a photographic image having its optical density provided by silver on development comprised of
a support and, coated on the support,
a plurality of radiation sensitive silver halide emulsion layers that are responsive to the same region of the spectrum, but differ in sensitivity,
non-wandering silver halide reducing agent contained in at least first and second of the emulsion layers,
the first emulsion layer being coated nearer to the support than the second emulsion layer,

the second emulsion layer being of a higher sensitivity than the first emulsion layer,
a molar ratio of reducing agent to silver halide in the second emulsion layer being limited to from 1 to 25 percent of that stoichiometrically required to reduce to silver all of the silver halide in the second emulsion layer, and
by an amount sufficient to increase signal to noise a higher molar ratio of reducing agent to silver halide being contained in the first emulsion layer than in the second emulsion layer.

5,804,360

IMAGING ELEMENT AND AQUEOUS COATING COMPOSITIONS CONTAINING POLYURETHANE/VINYL POLYMER DISPERSIONS

Brian A. Schell, Honeoye Falls; Charles C. Anderson, Penfield; Kenneth L. Tingler, Rochester, and Yongcai Wang, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 12, 1997, Ser. No. 854,572

Int. Cl.⁶ G03C 1/795; 1/89; 1/93

U.S. Cl. 430—535

8 Claims

1. An imaging element comprising a support, an image-forming layer and at least one layer having been formed by coating and subsequent drying of a coating composition comprising an aqueous medium having therein a polyurethane/vinyl polymer dispersion formed by free radical polymerization of a vinyl monomer in the presence of an aqueous polyurethane dispersion.

5,804,361

SILVER HALIDE PHOTOGRAPHIC EMULSION

Tetsuya Suzuki, Hino, Japan, assignor to Konica Corporation, Japan

Filed Jul. 2, 1996, Ser. No. 677,440

Claims priority, application Japan, Jul. 4, 1995, 7-168842

Int. Cl.⁶ G03C 1/035; 1/015

U.S. Cl. 430—567

9 Claims

1. A silver halide photographic emulsion comprising silver halide grains, wherein at least 50% of the total grain projected area is accounted for by tabular grains (I) having a chloride content of 50 mol % or more and two parallel (100) major faces, said tabular grains (I) being formed by growing seed grains, said seed grains comprising tabular grains having a bromide content of 50 mol % or more, two parallel (100) major faces and an aspect ratio of 2.0 or more, and a ratio of a mean thickness of said tabular grains (I) to that of said seed grains not exceeding 3.0.

5,804,362

SILVER HALIDE PHOTOGRAPHIC MATERIAL

Koichi Kuno, and Yuji Mihara, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 474,973, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 5,168, Jan. 15, 1993, abandoned, which is a continuation of Ser. No. 812,854, Dec. 23, 1991, abandoned, which is a continuation of Ser. No. 504,202, Apr. 4, 1990, abandoned. This application Mar. 21, 1997, Ser. No. 822,956

Claims priority, application Japan, Apr. 6, 1989, 1-87369

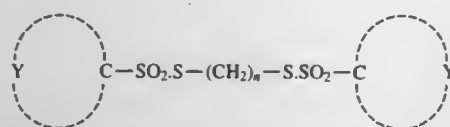
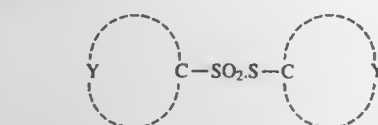
Int. Cl.⁶ G03C 1/035

U.S. Cl. 430—567

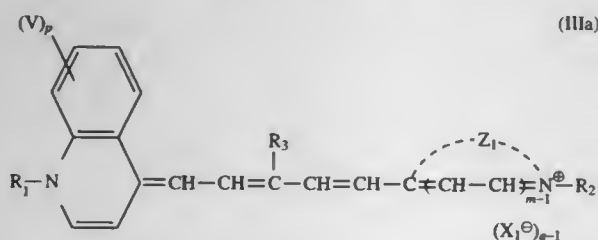
7 Claims

1. A silver halide photographic material comprising a support having thereon at least one silver halide photographic emulsion layer of a silver halide emulsion, wherein said emulsion layer comprises monodisperse cubic silver halide grains which contain at least one metal atom of group VIII in the Periodic Table, and said silver halide emulsion is spectrally sensitized so as to have a sensitization maximum at a wavelength of 750 nm or more and further contains at least one of compounds represented by formulae

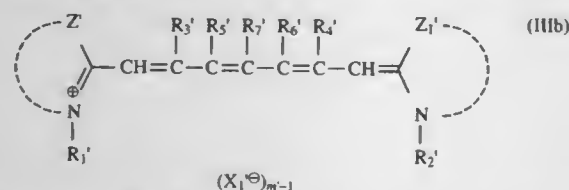
(1-a), (1-b) and (1-c), in an amount of from 1×10^{-4} to 2×10^{-2} g per mol of Ag:



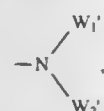
wherein Z represents an alkyl group containing 1 to 18 carbon atoms, an aryl group containing 6 to 18 carbon atoms, or a heterocyclic group; Y represents atoms necessary to complete an aromatic ring containing 6 to 18 carbon atoms, or a heterocyclic ring; M represents a metal atom or an organic cation; and n represents an integer of from 2 to 10, wherein said silver halide emulsion is spectrally sensitized by at least one of the infrared sensitizing dyes represented by (IIIa) and (IIIb):



wherein in formula (IIIa), R_1 and R_2 may be the same or different, each being an alkyl group; R_3 represents a hydrogen atom, lower alkyl group having 1-4 carbon atoms, a lower alkoxy group having 1-4 carbon atoms, a phenyl group, a benzyl group, or a phenethyl group; V represents a hydrogen atom, a lower alkyl group having 1-4 carbon atoms, an alkoxy group, a halogen atom, or a substituted lower alkyl group having 1-4 carbon atoms; Z_1 represents nonmetal atoms necessary to complete a 5- or 6-membered nitrogen-containing heterocyclic ring; X_1 represents an acid anion; and m, p and q represent 1 or 2, provided that q is 1 when the dye forms an inner salt;



wherein in formula (IIIb), R_1 and R_2 may be the same or different, and each represents an alkyl group; R_3 and R_4 each represents a hydrogen atom, a lower alkyl group having 1-4 carbon atoms, a lower alkoxy group having 1-4 carbon atoms, a phenyl group, a benzyl group or a phenethyl group; R_5 and R_6 each represents a hydrogen atom, or they may be linked with each other to form a divalent alkylene group; R_7 represents a hydrogen atom, a lower alkyl group having 1-4 carbon atoms, a lower alkoxy group having 1-4 carbon atoms, a phenyl group, a benzyl group or



wherein W_1 and W_2 each may represent an alkyl group or an aryl group, or they may be linked with each other to complete a 5- or

6-membered nitrogen-containing heterocyclic ring, or R_3 and R_7 or R_4 and R_7 may be linked to form a divalent alkylene group; Z_1 and Z_1 represents nonmetal atoms necessary to complete a 5- or 6-membered nitrogen-containing heterocyclic ring; X_1 represents an acid anion and m' represents 1 or 2, provided that m' is 1 when the dye forms an inner salt.

5,804,363

HIGH BROMIDE (111) TABULAR GRAIN EMULSIONS CONTAINING A CATIONIC PEPTIZER HAVING DIALYLAMMONIUM DERIVED REPEATING UNITS

Joe E. Maskasky, and Victor P. Scaccia, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 28, 1997, Ser. No. 858,162

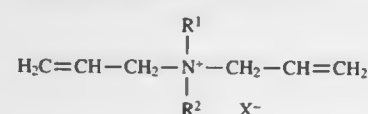
Int. Cl.⁶ G03C 1/04; 1/053; 1/035

U.S. Cl. 430—567

10 Claims

1. A radiation-sensitive emulsion comprised of silver halide grains including tabular grains
 - (a) having {111} major faces,
 - (b) containing greater than 50 mole percent bromide, based on silver,
 - (c) accounting for greater than 70 percent of total grain projected area, and
 - (d) exhibiting a mean thickness of less than 0.2 μm , and
- a dispersing medium including a peptizer adsorbed to the silver halide grains,

wherein the peptizer is a polymeric hydrophilic colloid containing repeating units derived from a diallylammonium monomer accounting for at least 10 percent by weight of the total weight of the hydrophilic colloid, said diallylammonium monomer satisfying the formula:



where

R^1 and R^2 are chosen from alkyl and phenyl and X^- is a charge balancing anion.

5,804,364

METHOD FOR PRODUCING FINE SILVER HALIDE EMULSION

Hiroshi Takehara, Minami-Ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 17, 1996, Ser. No. 649,274

Claims priority, application Japan, May 17, 1995, 7-141370

Int. Cl.⁶ G03C 1/005

U.S. Cl. 430—569

17 Claims

1. A method for producing a silver halide emulsion containing silver halide grains having a mean grain size of 0.15 μm or less, wherein at least a part or the whole of a silver halide grain formation process is performed in the presence of an imidazole compound and at least one radical scavenger is added in said grain formation process.

5,804,365

THERMALLY PROCESSABLE IMAGING ELEMENT HAVING A CROSSLINKED HYDROPHOBIC BINDER

Charles L. Bauer, Webster, N.Y.; Ralph B. Nielsen, Sunnyvale, Calif.; Ronald Di Felice, Blacksburg, Va., and Gordon D. Young, Farmington, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

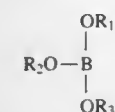
Filed Mar. 7, 1997, Ser. No. 813,139

Int. Cl.⁶ G03C 1/30; 1/498

U.S. Cl. 430—617

9 Claims

1. A thermally processable imaging element comprising a support bearing an imaging layer that comprises a hydrophobic binder and a boron compound of the formula:



wherein R_1 , R_2 and R_3 are the same or different and are selected from substituted or unsubstituted alkyl groups, and substituted or unsubstituted aryl groups.

5,804,366

METHOD AND APPARATUS FOR SODDING MICROVESSEL CELLS ONTO A SYNTHETIC VASCULAR GRAFT

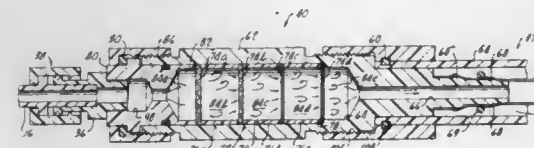
Can B. Hu, Irvine; Minh T. Ma, Santa Ana; Than Nguyen, Huntington Beach; Richard Rhee, Diamond Bar, and Keith Myers, Lake Forest, all of Calif., assignors to Baxter International Inc., Deerfield, Ill.

Filed Feb. 9, 1995, Ser. No. 386,048

Int. Cl.⁶ C12M 3/08; C12N 5/08

U.S. Cl. 435—1.1

32 Claims



1. A sodding tube assembly for use in receiving a quantity of certain isolated cells from tissues and for sodding the cells onto an inner luminal surface of a tubular synthetic graft having a porous wall, said sodding tube assembly comprising:

an elongate tubular member having a pair of opposite ends; an inlet fitting and filter pack assembly sealingly cooperating with said tubular member at one of said pair of opposite ends, said inlet fitting and filter pack assembly defining an inlet flow path for receiving the cells and communicating the cells into the lumen of the graft, and a plurality of filter members cooperatively defining a number of turbulent-flow chambers successively along said inlet flow path; and an outlet fitting and check valve assembly sealingly cooperating with said tubular member at the other of said pair of opposite ends and cooperating with said tubular member and said inlet fitting and filter pack assembly to define a sodding chamber within which said graft is disposed to receive the cells from said inlet fitting and filter pack assembly into the lumen of the graft and to flow a liquid outwardly through said porous wall of the graft to said sodding chamber, said outlet fitting and check valve assembly defining an outlet flow path leading from said sodding chamber to an outlet from said sodding tube assembly, and including a check valve device disposed in said outlet flow path for preventing reflux of liquid along said flow path from said outlet toward said sodding chamber.

32. A method of sodding cells onto the inner luminal surface of an elongate tubular vascular graft having a porous wall, said method comprising the steps of:

providing an elongate tubular shape-retaining body defining a flow path extending there along and an elongate sodding chamber therewithin; disposing the graft within and along said sodding chamber; plugging a distal end of the graft; providing a pellet of aggregated cells; flushing said pellet of aggregated cells into said elongate tubular body with a flow of liquid; subjecting said cell aggregations to a series of successively finer filtrations to prevent aggregations of cells above a determined size from reaching said graft and sodding chamber; introducing the liquid and individual cells along with aggregations of cells below said determined size into the lumen of the tubular vascular graft; flowing said fluid through the porous wall of the graft while sodding the individual cells and aggregations below said determined size onto the inner luminal surface of the graft; and preventing reflux of liquid along said flow path from an outlet toward said sodding chamber.

5,804,367

METHOD FOR QUANTIFYING LBP IN BODY FLUIDS

Mark Leslie White, Sonoma; Stephen Fitzhugh Carroll, Walnut Creek, and Jeremy Kam-kuen Ma, San Ramon, all of Calif., assignors to Xoma Corporation, Berkeley, Calif.

Continuation-in-part of Ser. No. 186,811, Jan. 24, 1994, Pat. No. 5,484,705. This application Jan. 24, 1995, Ser. No. 377,391

Int. Cl.⁶ G01N 33/566; 33/569; C12Q 1/00

U.S. Cl. 435—4

11 Claims

1. A method for determining exposure of a human subject to endotoxin in the absence of an acute phase response comprising the steps of determining the concentration of lipopolysaccharide binding protein in a sample of body fluid from the subject and correlating the concentration of lipopolysaccharide binding protein with a standard indicative of exposure to endotoxin.

6. A method for determining the prognosis of a human subject suffering from a disease state resulting from exposure to endotoxin comprising the steps of determining the concentration of lipopolysaccharide binding protein in a sample of body fluid from the subject and correlating the concentration of lipopolysaccharide binding protein with a standard indicative of exposure to endotoxin, wherein an increased or increasing level of lipopolysaccharide binding protein is indicative of adverse prognosis.

5,804,368

METHOD FOR SCREENING FOR PROSTATE CANCER BY MEASURING APOLIPOPROTEIN D LEVELS IN BODY FLUID

Wayne Tilley, Bedford, Australia, assignor to Signet Laboratories, Dedham, Mass.

Filed Sep. 13, 1996, Ser. No. 713,790

Int. Cl.⁶ C12Q 1/00; 1/26; G01N 33/53; 33/92

U.S. Cl. 435—4

4 Claims

1. A method for screening for possibility of prostate cancer in a subject, comprising:
 - a) determining a level of apolipoprotein D in a body fluid sample of said subject; and
 - b) comparing said level of apolipoprotein D obtained in step (a) with a normal level of apolipoprotein D; wherein an elevated level of said apolipoprotein D compared with said normal level of said apolipoprotein D in said body fluid sample is indicative of possible prostate cancer in said subject.

5,804,369

Patent Not Issued For This Number

5,804,370

EARLY DIAGNOSIS OF SEPSIS UTILIZING ANTIGEN-ANTIBODY INTERACTIONS AMPLIFIED BY WHOLE BLOOD CHEMILUMINESCENCE

Alex D. Romaschin, Etobicoke, and Paul M. Walker, Toronto, both of Canada, assignors to Critchem Medical Products Limited, Toronto, Canada

Continuation-in-part of Ser. No. 516,204, Aug. 17, 1995, abandoned, which is a continuation of Ser. No. 257,627, Jun. 8, 1994, abandoned. This application Nov. 2, 1995, Ser. No. 552,145

Claims priority, application WIPO, Jun. 8, 1994, PCT/CA94/00325

Int. Cl.⁶ C12Q 1/70

U.S. Cl. 435—5

38 Claims

1. A method for determining the presence or extent of an infection in a human or animal patient by determining the amount of a preselected antigen indicative of said infection in a sample of said patient's blood, said sample comprising plasma and white blood cells, said method sequentially comprising:

- providing first and second aliquots of equal volume of said sample;
- reacting the first aliquot of said sample with an amount of test antibody sufficient to form an antigen/antibody complex with said antigen, wherein said test antibody specifically binds to said antigen, to provide a test sample;
- reacting the second aliquot of said sample with an equal amount of a control antibody wherein said control antibody (a) does not specifically bind said antigen and (b) is of the same class and species of origin as the test antibody, to provide a control sample;
- incubating the test and control samples for a time sufficient for the antigen/antibody complex to react with the white blood cells and the complement proteins in the plasma to produce oxidants;
- contacting a chemiluminescent compound which reacts with said oxidants to generate luminescent light with either the test and control samples of steps ii) and iii) or with the test and control samples of step iv);
- measuring light emission over a predetermined time period; and
- correlating differences in light emission between the test and control samples to the presence or amount of said antigen in said sample and thereby to the presence or extent of the infection in the patient.

17. A diagnostic kit for use in determining the extent of an infection in a human or animal patient by detecting the amount of a preselected antigen indicative of said infection in a sample of blood from said patient, said sample comprising plasma and white blood cells, said kit comprising:

- a first container of test antibody which specifically binds to said antigen,
- a second container of chemiluminescent compound which reacts with oxidants produced by said white blood cells to generate luminescent light, and
- a third container of control antibody which does not specifically bind said antigen and which is of the same class and species of origin as the test antibody.

5,804,371

HAPTEN-LABELLED PEPTIDES

Eva Höss, Starnberg; Christoph Seidel, Weilheim; Ursula-Henrike Wienhues, Krailling; Elke Faatz, Pähl, and Urban Schmitt, Oberhausen, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

PCT No. PCT/EP95/02921, § 371 Date Jun. 13, 1996, § 102(e) Date Jun. 13, 1996, PCT Pub. No. WO96/03423, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 24, 1995, Ser. No. 615,279

Claims priority, application Germany, Jul. 25, 1994, 44 26 276.0; Aug. 31, 1994, 44 30 973.2

Int. Cl.⁶ C12Q 1/70; G01N 33/576; 33/569

U.S. Cl. 435—5

31 Claims

1. A process for producing a hapten-labelled peptide, comprising:

- synthesizing a peptide with a predetermined amino acid sequence on a solid phase from a plurality of amino acid derivatives containing a plurality of primary amino groups, wherein at least one first primary amino group is blocked by a first amino protecting group and at least one second primary amino group is blocked by a second amino protecting group which cannot be cleaved off under conditions under which the first protecting group can be cleaved off, wherein the second amino protecting group is phenylacetyl;
- cleaving off the first amino protecting group to produce at least one free primary amino group;
- before or after step (b), releasing the peptide from the solid phase;
- coupling a hapten-active ester derivative with the at least one free primary amino group, wherein the hapten is selected from the group consisting of sterols, bile acids, sexual hormones, corticoids, cardenolides, cardenolide-glycosides, hufadienolides, steroid-sapogenines and steroid alkaloids; and
- cleaving off the second amino protecting group.

5,804,372

METHOD OF DISTINGUISHING AN IBRV-VACCINATED BOVINE FROM A BOVINE INFECTED WITH A WILD TYPE VIRUS

Mark D. Cochran, Carlsbad, and Richard D. Macdonald, San Diego, both of Calif., assignors to Syntro Corporation, Lenexa, Kans.

Continuation of Ser. No. 247,475, May 23, 1994, Pat. No. 5,593,873, which is a continuation of Ser. No. 732,584, Jul. 18, 1991, abandoned, which is a continuation-in-part of Ser. No. 696,262, Apr. 30, 1991, abandoned, which is a continuation of Ser. No. 933,107, Nov. 20, 1986, abandoned, and a continuation-in-part of Ser. No. 649,380, Jan. 31, 1991, abandoned, which is a continuation of Ser. No. 78,519, Jul. 27, 1987, abandoned, and a continuation-in-part of Ser. No. 225,032, Jul. 27, 1988, Pat. No. 5,223,424, Ser. No. 823,102, Jan. 27, 1986, Pat. No. 5,068,192, and Ser. No. 192,866, May 11, 1988, Pat. No. 5,047,237. This application Jul. 1, 1996, Ser. No. 674,169

Int. Cl.⁶ C12Q 1/70; G01N 33/53; A61K 39/265

U.S. Cl. 435—5

5 Claims

1. A method of distinguishing a bovine vaccinated with a vaccine for infectious bovine rhinotracheitis disease in which the vaccine comprises a) an effective immunizing amount of a live recombinant infectious bovine rhinotracheitis virus comprising an infectious bovine rhinotracheitis viral genome from which DNA encoding the US2 gene and the glycoprotein G gene have been deleted and b) a suitable carrier, from an animal infected with a wild-type infectious bovine rhinotracheitis virus, the method comprising detecting the presence or absence of infectious bovine rhinotracheitis glycoprotein G in a body fluid of the bovine.

5,804,373

MOLECULAR AUTOMATA UTILIZING SINGLE- OR DOUBLE-STRAND OLIGONUCLEOTIDES

Allan Lee Schweitzer, and Warren D. Smith, both of Plainsboro, N.J., assignors to NEC Research Institute, Inc., Princeton, N.J.

Filed Mar. 31, 1995, Ser. No. 414,398

Int. Cl.⁶ C12Q 1/68

U.S. Cl. 435—6

33 Claims

4. A method of performing a transition with a Turing machine of DNA comprising the steps of:

- disposing a DNA Turing machine in a container;
- cutting the DNA at a first predetermined location;
- melting the DNA to convert the DNA to a single stranded form;
- adding a first transition matrix of DNA strings to the container;
- filling in the missing pieces of the DNA;
- melting the DNA to reform single stranded circular form DNA;
- adding a second transition matrix of DNA strings to the container;
- cutting the DNA at a second predetermined location, and reforming the DNA to double stranded form.

5,804,374

NUCLEAR FACTORS ASSOCIATES WITH TRANSCRIPTIONAL REGULATION

David Baltimore, New York, N.Y.; Ranjan Sen, Cambridge; Phillip A. Sharp, Newton, both of Mass.; Harinder Singh, Chicago, Ill.; Louis Staudt, Silver Springs, Md.; Jonathan H. LeBowitz, Zionsville, Ind.; Albert S. Baldwin, Jr., Chapel Hill, N.C.; Roger G. Clerc, Binningen, Switzerland; Lynn M. Corcoran, Port Melbourne, Australia; Patrick A. Baeuerle, Eichenau, Germany; Michael J. Lenardo, Potomac, Md.; Chen-Ming Fan, San Francisco, and Thomas P. Maniatis, Belmont, both of Mass., assignors to Massachusetts Inst. Technology; Whitehead Inst., and Pres. and Fellow of Harvard College, all of Cambridge, Mass.

Continuation of Ser. No. 791,898, Nov. 13, 1991, abandoned, which is a continuation-in-part of Ser. No. 946,365, Dec. 24, 1986, abandoned, and Ser. No. 318,901, Mar. 3, 1989, abandoned, and Ser. No. 162,680, Mar. 1, 1988, abandoned, and Ser. No. 341,436, Apr. 21, 1989, abandoned, and Ser. No. 817,441, Jan. 9, 1986, abandoned, and Ser. No. 155,207, Feb. 12, 1988, abandoned, and Ser. No. 280,173, Dec. 5, 1980, abandoned. This application Apr. 6, 1995, Ser. No. 418,266

Int. Cl.⁶ C12Q 1/68; C12N 15/11

U.S. Cl. 435—6

5 Claims

1. A method of identifying an agonist or an antagonist of gene transcription involving a transcriptional regulatory factor selected from the group consisting of:

- IgNF-A;
 - E factors;
 - IgNF-B; and
 - NF-κB comprising the steps of:
 - a) providing a host cell containing a reporter gene, the transcription of which is dependent upon the activity of said transcriptional regulatory factor;
 - b) contacting the host cell with an agent to be tested; and
 - c) determining the effect of the presence or absence of the agent on transcription of the reporter gene,
- wherein a difference in the extent of transcription of the reporter gene indicates that the agent is an agonist or an antagonist of gene transcription involving the regulatory factor.

5,804,375

REACTION MIXTURES FOR DETECTION OF TARGET NUCLEIC ACIDS

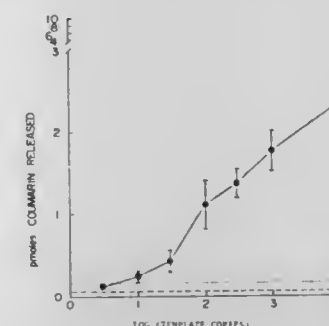
David H. Gelfand, Oakland, Calif.; Pamela M. Holland, Seattle, Wash.; Randall K. Saiki, Richmond, Calif., and Robert M. Watson, Berkeley, Calif., assignors to Roche Molecular Systems, Inc., Branchburg, N.J.

Continuation of Ser. No. 961,884, Jan. 5, 1993, Pat. No. 5,487,972, which is a continuation-in-part of Ser. No. 563,758, Aug. 6, 1990, Pat. No. 5,210,015. This application Apr. 25, 1995, Ser. No. 428,941

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

24 Claims



1. A reaction mixture for use in a process for the amplification and detection of a target nucleic acid sequence in a sample which reaction mixture, prior to amplification, comprises a pair of oligonucleotide primers and a labeled oligonucleotide, which pair of primers and labeled oligonucleotide are characterized in that:

said pair of oligonucleotide primers comprises a first primer complementary to said target nucleic acid and which primes the synthesis of a first extension product that is complementary to said target nucleic acid, and a second primer complementary to said first extension product and which primes the synthesis of a second extension product; and said labeled oligonucleotide hybridizes to a region of said target nucleic acid or the complement of said target nucleic acid, wherein said region is between one member of said primer pair and the complement of the other member of said primer pair.

5,804,376

PANCREAS-DERIVED SERPIN

Scott Michael Braxton, San Mateo; Craig G. Wilde, Sunnyvale, and Dinh Diep, San Francisco, all of Calif., assignors to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed May 2, 1995, Ser. No. 434,881

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/02; 21/04

U.S. Cl. 435—6

8 Claims

1. A purified polynucleotide consisting of a polynucleotide sequence encoding the polypeptide consisting of the sequence of SEQ ID NO.2, or its complement.

5,804,377

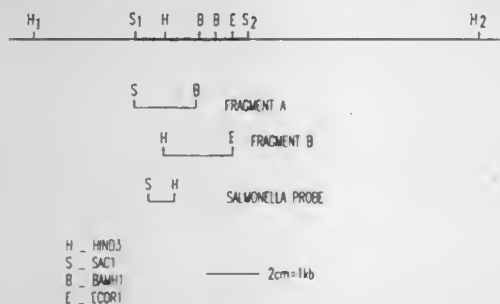
Patent Not Issued For This Number

5,804,378

NUCLEIC ACID SEQUENCES DERIVED FROM THE GENOME OF *SALMONELLA TYPHI*, AND THEIR USES, IN PARTICULAR FOR THE IN VITRO DIAGNOSIS OF THE PRESENCE OF BACTERIA OF THE *SALMONELLA* GENUS IN FOODSTUFFS

Michel Yvan Popoff, Plaisir, and Michel Dion, Paris, both of France, assignors to Institut Pasteur, and Institut National de la Sante et de la Recherche Medicale (INSERM), both of Paris Cedex, France
Continuation of Ser. No. 961,702, Mar. 10, 1993, Pat. No. 5,618,666. This application Jun. 7, 1995, Ser. No. 476,678
Claims priority, application France, Jul. 11, 1990, 90 08852
Int. Cl.⁶ C12Q 1/68; C07H 21/04
U.S. Cl. 435—6

15 Claims



1. An isolated nucleic acid of at least 200 nucleotides in length which hybridizes to the sequence of the 7.9 kb fragment delimited by the two HindIII sites designated as H1 and H2 on the restriction map of the sequence shown in FIG. 1 wherein said sequence contains the sequence of SEQ ID NO:1 under the following conditions:

65° C. for 18 hours in 6xSSC in Denhardt medium, wherein said nucleic acid specifically detects pathogenic salmonella which adhere to and penetrate into epithelial cells of intestinal mucosa.

14. A method of in vitro detection of bacteria of the *Salmonella* genus in a biological sample by detection of *Salmonella* nucleic acid sequences, said method comprising the steps of:

- where appropriate, placing said sample in culture;
- wherein appropriate, amplifying the copy number of the *Salmonella* nucleic acid sequences using a set of primers of about 10 to 30 nucleotides derived from a nucleic acid according to claim 1;
- contacting said sample with a nucleic acid according to claim 1, in stringent conditions of hybridization; and
- detecting the hybridization complexes formed between said nucleic acid according to claim 1 and said *Salmonella* nucleic acid sequences.

5,804,379

DIAGNOSTIC METHODS AND KIT FOR DETERMINING KELL BLOOD GROUP GENOTYPE

Soohee Lee, Cliffside Park, N.J., and Colvin M. Redman, Franklin Square, N.Y., assignors to New York Blood Center, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 337,268, Nov. 10, 1994, Pat. No. 5,589,336. This application Jun. 7, 1995, Ser. No. 484,570
Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/02; C07K 5/00
U.S. Cl. 435—6

75 Claims

1. A diagnostic method for determining Kell genotype of a subject, comprising:

- obtaining a nucleic acid sample from a subject;
- generating a nucleic acid fragment from said sample, the detection of which permits the differentiation of alleles of a Kell polymorphism;
- detecting said nucleic acid fragment; and
- determining the genotype of said subject with respect to said Kell polymorphism based on said detecting.

5,804,380

TELOMERASE ACTIVITY ASSAYS

Calvin Bruce Harley, Palo Alto; Nam Woo Kim, San Jose, and Scott Lawrence Weinrich, Redwood City, all of Calif., assignors to Geron Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 482,132, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 315,214, Sep. 28, 1994, Pat. No. 5,629,154, which is a continuation-in-part of Ser. No. 255,774, Jun. 7, 1994, which is a continuation-in-part of Ser. No. 151,477, Nov. 12, 1993, and Ser. No. 153,051, Nov. 12, 1993, Pat. No. 5,645,986. This application Apr. 15, 1996, Ser. No. 632,662

Int. Cl.⁶ C12Q 1/68; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

23 Claims

1. A method of screening for a telomerase modulator, said method comprising the steps of:

- incubating active telomerase in a reaction mixture comprising a telomerase substrate lacking a telomeric repeat sequence, a potential telomerase modulator and a buffer in which telomerase can catalyze extension of said telomerase substrate by addition of telomeric repeat sequences;
- replicating said extended telomerase substrate; and
- correlating the presence of a telomerase modulator with a change in level of telomerase activity in said reaction mixture, as determined from measuring the amount of said extended telomerase substrate, relative to when said potential telomerase modulator is absent from said reaction mixture.

5,804,381

ISOLATED NUCLEIC ACID MOLECULE ENCODING AN ESOPHAGEAL CANCER ASSOCIATED ANTIGEN, THE ANTIGEN ITSELF, AND USES THEREOF

Yao-tseng Chen; Matthew Scanlan; Ali Gure, and Lloyd J. Old, all of New York, N.Y., assignors to Cornell Research Foundation, Ithaca; Ludwig Institute for Cancer Research, and Memorial Sloan-Kettering Cancer Center, both of New York, all of N.Y.

Filed Oct. 3, 1996, Ser. No. 725,182

Int. Cl.⁶ C12Q 1/68; C07H 21/04; C12N 15/63

U.S. Cl. 435—6

8 Claims

1. Isolated nucleic acid molecule which encodes an esophageal cancer associated antigen, said isolated nucleic acid molecule having a nucleotide sequence, the complementary sequence of which hybridizes, under stringent conditions, to the nucleic acid molecule consisting of the nucleotide sequence set forth in nucleotides 54—600 of SEQ ID NO: 1.

5,804,382

METHODS FOR IDENTIFYING DIFFERENTIALLY EXPRESSED GENES AND DIFFERENCES BETWEEN GENOMIC NUCLEIC ACID SEQUENCES

Arthur J. Sytkowski, Arlington, and Meiheng Yang, Boston, both of Mass., assignors to Beth Israel Deaconess Medical Center, Inc., Boston, Mass.

Filed May 10, 1996, Ser. No. 644,326

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

34 Claims

1. A method for identifying a differentially expressed gene, comprising:

- providing a tester DNA molecule with an amplification tag at the 5' and 3' ends of the molecule and a driver DNA or RNA molecule lacking said amplification tag;
- hybridizing said tester and said driver molecules to form a reaction mixture, wherein said reaction mixture comprises a tester—tester homoduplex, a tester—driver heteroduplex, a driver—driver homoduplex, a single stranded driver DNA molecule and a single stranded tester DNA molecule;
- treating said reaction mixture to reduce the number of single stranded molecules in said mixture;

5,804,384

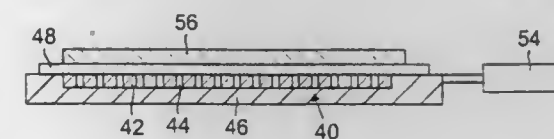
DEVICES AND METHODS FOR DETECTING MULTIPLE ANALYTES IN SAMPLES

Uwe Richard Müller, Plano, and David J. Lane, Wheaton, both of Ill., assignors to Vysis, Inc., Downers Grove, Ill.

Filed Dec. 6, 1996, Ser. No. 761,131

Int. Cl.⁶ C12Q 1/68; C12M 1/00; G01N 33/566; C12N 15/00
U.S. Cl. 435—6

30 Claims



5,804,383

METHOD AND ASSAY FOR DETECTION OF THE EXPRESSION OF ALLELE-SPECIFIC MUTATIONS BY ALLELE-SPECIFIC IN SITU REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION

Dieter C. Gruenert, Mill Valley, and Austin F. Dohrman, San Francisco, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 487,799, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 409,544, Mar. 24, 1995, abandoned, which is a continuation of Ser. No. 933,471, Aug. 21, 1992, abandoned. This application Oct. 8, 1996, Ser. No. 727,003

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

9 Claims

1. An assay for qualitative and quantitative detection of expression of a mutated or nonmutated human cystic fibrosis gene in a tissue or cells of a human subject to be tested, the assay comprising the steps:

- obtaining:
 - a sample of the tissue or cells of a human subject to be tested for cystic fibrosis or from a human subject previously subjected to gene therapy for cystic fibrosis; and
 - a sample of nonmutated control tissue cells or wild-type DNA corresponding to the same type of nonmutated tissue to serve as a control;

- fixing, digesting and reverse transcribing the samples obtained in step (a) to obtain cDNA;

- amplifying the cDNA obtained in step (b) using polymerase chain reaction in the presence of allele-specific primers or allele-nonspecific primers selected from the group of primers identified as SEQ ID NOS: 1—15 and SEQ ID NOS: 32—46, under conditions and in a solution comprising all necessary nucleotides to obtain the cDNA in sufficient quantity for assay, wherein at least one nucleotide in the solution or in the primers is labeled with a non-interfering radioactive, immunocytochemical, fluorescent or other labeled marker detectable by spectroscopic, autoradiographic, immunocytochemical or enzymatic detection means;

- detecting the presence and quantity of cystic fibrosis gene expression in the samples obtained in step (a) by detecting the presence and quantity of the labeled marker of step (c) in the amplified cDNA; and

- comparing qualitatively and quantitatively the results obtained in step (d)

wherein the absence of the labeled marker in the cDNA amplified with mutated allele-specific primers, or wherein the presence of the labeled marker in the cDNA amplified with wild-type allele-specific primers, indicates the detection of a nonmutated cystic fibrosis gene; and

wherein the presence of the labeled marker in the cDNA amplified with mutated allele-specific primers, or wherein the absence of the labeled marker in the cDNA amplified with wild-type allele-specific primers, indicates the detection of a mutated cystic fibrosis gene.

5,804,385

Patent Not Issued For This Number

5,804,386

SETS OF LABELED ENERGY TRANSFER FLUORESCENT PRIMERS AND THEIR USE IN MULTI COMPONENT ANALYSIS

Jingyue Ju, Redwood City, Calif., assignor to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Jan. 15, 1997, Ser. No. 784,162

Int. Cl.⁶ C12Q 1/68; C12P 19/34

U.S. Cl. 435—6

20 Claims

1. A set of at least 2 different fluorescent labels, said set comprising:

- a first energy transfer fluorescent label comprising at least one donor fluorophore and at least one acceptor fluorophore in energy transfer relationship separated by a distance x; and
- a second energy transfer fluorescent label comprising said at least one donor fluorophore and said at least one acceptor fluorophore in energy transfer relationship separated by a distance y;

wherein: (a) said donor fluorophores of said first and second labels are the same; (b) said acceptor fluorophores of said first and second labels are the same; and (c) x and y are sufficiently different so that said first and second fluorescent labels provide distinguishable fluorescent signals wherein all of the labels of said set are acceptor fluorophores are selected from the group consisting of TAM, JOE, FAM, ROX, BODIPY, fluorescein and cyanine dyes.

5,804,387

FACS-OPTIMIZED MUTANTS OF THE GREEN FLUORESCENT PROTEIN (GFP)

Brendan P. Cormack, Santa Cruz; Raphael H. Valdivia, Palo Alto, and Stanley Falkow, Palo Alto, Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Jan. 31, 1997, Ser. No. 791,332

Int. Cl.⁶ C12Q 1/68; C07H 21/02; C12N 1/20; 5/00

U.S. Cl. 435—6

50 Claims

1. A nucleic acid comprising a sequence encoding a mutant *Aequorea victoria* green fluorescent protein brighter than a wild-type *Aequorea victoria* green fluorescent protein upon 488 nm excitation, wherein a set of mutation positions of said mutant protein comprises position 72.

5,804,388

CHROMOSOME 9 AND PROGRESSIVE ROD-CONE DEGENERATION DISEASE GENETIC MARKERS AND ASSAYS

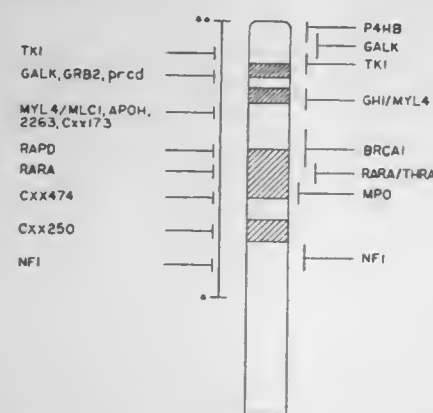
Gustavo Aguirre, Ithaca, N.Y.; Gregory Acland, Kennett Square, Pa., and Kunal Ray, Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Jul. 10, 1997, Ser. No. 891,463

Int. Cl.⁶ C12Q 1/70; C12P 19/34; C07H 21/04

U.S. Cl. 435—6

39 Claims



1. A method for detecting the presence in a canine subject of at least one genetic marker that is genetically linked and co-segregating with a progressive rod-cone degeneration disease trait, wherein the at least one genetic marker consists of a polymorphism that is located in a prcd-informative region on canine chromosome 9, said method comprising analyzing chromosome 9 of the canine subject for the presence of the polymorphism in the prcd-informative region, wherein the presence of the polymorphism is indicative of a genetic marker associated with progressive rod-cone degeneration disease.

5,804,389

METHOD FOR DETECTING ABNORMAL EPITHELIAL CELL SHEDDING

Masahiro Tada, Yamaguchi, Japan, assignor to Phanos Technologies, Inc., Beverly Hills, Calif.

Filed Dec. 29, 1995, Ser. No. 580,720

Int. Cl.⁶ G01N 33/53; 33/574; C07D 235/02; 403/00

U.S. Cl. 435—7.1

13 Claims

1. A method for assessing the shedding rate of mature surface epithelial cells on a mucosal surface of the gastrointestinal tract of a warm-blooded animal, comprising applying to mature surface epithelial cells at a target site a labeling composition comprising a dye, and determining the rate at which the dye is lost from the target site.

5,804,390

USE OF NUCLEAR MAGNETIC RESONANCE TO IDENTIFY LIGANDS TO TARGET BIOMOLECULES

Stephen W. Fesik, Gurnee, and Philip J. Hajduk, Palatine, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 555,691, Nov. 14, 1995, Pat. No.

5,698,401. This application Feb. 24, 1997, Ser. No. 804,777

Int. Cl.⁶ G01N 33/53

U.S. Cl. 435—7.1

4 Claims

1. A process of screening compounds to identify compounds that are ligands that bind to a specific target molecule comprising the steps of:

- generating a first two-dimensional ¹⁵N/¹H NMR correlation spectrum of a ¹⁵N-labeled target molecule;
- exposing the labeled target molecule to one or a mixture of chemical compounds;
- generating a second two-dimensional ¹⁵N/¹H NMR correlation spectrum of the labeled target molecule that has been exposed to one or a mixture of compounds in step (b); and
- comparing said first and second two-dimensional ¹⁵N/¹H NMR correlation spectra to determine differences between said first and said second spectra, the differences identifying the presence of one or more compounds that are ligands which have bound to the target molecule.

5,804,391

ELIMINATION OF RHEUMATOID FACTOR INTERFERENCE USING ANTI-FD ANTIBODIES

Volker Klemt, Weilheim; Dittmar Schlieper, Iffeldorf; Urban Schmitt, Oberhausen, and Michael Wiedmann, Penzberg, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

PCT No. PCT/EP95/04308, § 371 Date Apr. 11, 1997, § 102(c) Date Apr. 11, 1997, PCT Pub. No. WO96/14338, PCT Pub. Date May 17, 1996

PCT Filed Nov. 2, 1995, Ser. No. 817,089

Claims priority, application Germany, Nov. 4, 1994, 44 39 452.7

Int. Cl.⁶ G01N 33/536; 33/543

U.S. Cl. 435—7.1

15 Claims

1. A method for reducing interference in an immunochemical determination of an analyte in a sample liquid wherein said sample liquid contains rheumatoid factors, comprising

adding an interference reducing reagent to said sample, wherein said interference reducing reagent consists essentially of at least two different antibodies and/or antibody fragments which are specific for the Fd fragment of the heavy chain of immunoglobulins from at least one of the classes selected from the group consisting of IgG, IgM, IgA, IgD and IgE, wherein said antibodies partially or completely mask the ability of said immunoglobulins to bind antigens, and carrying out said immunochemical determination.

5,804,392

DIAGNOSTIC ASSAYS USING SOLUBLE ENDOTHELIAL CELL PROTEIN C/ACTIVATED PROTEIN C RECEPTOR

Charles T. Esmon, Oklahoma City; Deborah J. Stearns-Kurosawa, and Shinichiro Kurosawa, both of Edmond, all of Okla., assignors to Oklahoma Medical Research Foundation, Oklahoma City, Okla.

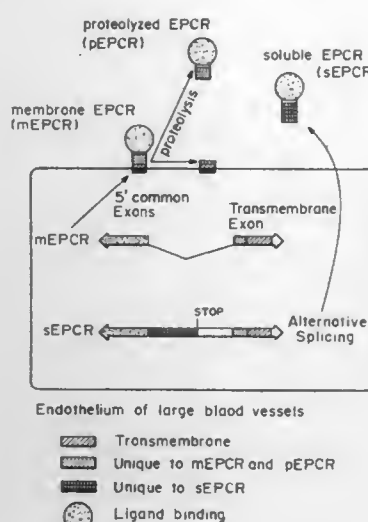
Filed Jun. 27, 1997, Ser. No. 884,203

Int. Cl.⁶ G01N 33/53; 33/564; C07K 16/28

U.S. Cl. 435—7.1

11 Claims

1. An assay for soluble endothelial protein C receptor comprising



obtaining a sample from a patient to be tested, and measuring the amount of soluble endothelial protein C receptor.

5,804,393

ANTIBODIES DIRECTED TO THE BINDING PROTEINS OF BACILLUS THURINGIENSIS AND THEIR USE

Martin Geiser, Ettingen; Pascale Oddou Stock, Basel, both of Switzerland, and Herbert Hartman, Isernhagen, Germany, assignors to Thermo Trilog Corporation, Columbia, Md. Continuation of Ser. No. 754,334, Nov. 22, 1996, abandoned, which is a continuation of Ser. No. 317,000, Oct. 3, 1994, abandoned, which is a continuation of Ser. No. 918,543, Jul. 21, 1992, abandoned. This application Sep. 2, 1997, Ser. No. 922,254

Claims priority, application Switzerland, Jul. 25, 1991, 2231/91; Aug. 25, 1991, 2517/91

Int. Cl.⁶ G01N 33/53

U.S. Cl. 435—7.2

16 Claims

1. An antibody which reacts specifically with a *Bacillus thuringiensis* δ -endotoxin binding protein present in brush border membrane vesicles from the midgut of insects.

5,804,394

REAGENT FOR MEASURING CREATINE KINASE ACTIVITY AND MEASURING METHOD THEREOF

Tadao Suzuki; Tomoko Kamei, both of Kyoto; Mihoko Era, Soraku-gun, and Hiroyuki Tsubota, Chiba, all of Japan, assignors to Unitika Ltd., and Iatron Laboratories, Inc., both of Japan

Continuation-in-part of Ser. No. 13,989, Feb. 5, 1993, abandoned, which is a continuation of Ser. No. 870,099, Apr. 16, 1992, abandoned, which is a continuation of Ser. No. 334,864, Apr. 6, 1989, abandoned. This application Oct. 20, 1993, Ser. No. 138,076

Claims priority, application Japan, Apr. 6, 1988, 63-86163

Int. Cl.⁶ G01N 33/573; A61K 39/395

U.S. Cl. 435—7.4

5 Claims

1. Anti CK-M_r monoclonal antibody which can inhibit CK-M_r subunit activity, but not inhibit CK-M_s subunit activity, said antibody obtained from hybridoma cell line BP-2280.

5,804,395

FLUORESCENCE POLARIZATION ASSAYS OF ENZYMES AND SUBSTRATES THEREFORE

Sylvia Zottu Schade, Riverside, and Michael Ernest Jolley, Round Lake, both of Ill., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 1, 1995, Ser. No. 566,390

Int. Cl.⁶ G01N 33/573; 33/53; C12Q 1/00

U.S. Cl. 435—7.4

12 Claims

1. A method for determining enzymatic activity in a sample comprising intermixing with said sample a labeled substrate comprising a substrate for said enzyme conjugated with a derivative of 4,4-difluoro-5,7-dimethyl-4-bora-3a,4a-diaza-s-indacene and determining the change in the amount of fluorescence polarization at pH values at the ends of the pH spectrum from most acid pH between pH2 and pH5, to most basic pH between pH 8 and pH 11 and the determination followed in real-time at that pH as a measure of the amount of enzyme in the sample.

5,804,396

ASSAY FOR AGENTS ACTIVE IN PROLIFERATIVE DISORDERS

Gregory D. Plowman, San Carlos, Calif., assignor to Sugen, Inc., Redwood City, Calif.

Filed Oct. 12, 1994, Ser. No. 322,868

Int. Cl.⁶ G01N 33/574; 33/53; 33/567; 33/48

U.S. Cl. 435—7.23

18 Claims

1. A method of identifying an agent that inhibits signal transduction and may be potentially useful in treatment of cancer, comprising:

- contacting an agent with a sample comprising a heterodimer having kinase activity, said heterodimer comprising two different components selected from the group consisting of HER2, HER3, and HER4, to render a HER2/HER3 heterodimer, a HER2/HER4 heterodimer, or a HER3/HER4 heterodimer; and
- determining whether said agent inhibits said kinase activity, wherein inhibition of kinase activity is indicative of an agent that inhibits signal transduction.

5,804,397

Patent Not Issued For This Number

5,804,398

Patent Not Issued For This Number

5,804,399

ONCOPROTEIN PROTEIN KINASE

Michael Karin; Masahiko Hibi, both of San Diego, and Anning Lin, La Jolla, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation of Ser. No. 444,393, May 19, 1995, Pat. No.

5,605,808, which is a division of Ser. No. 276,860, Jul. 18,

1994, Pat. No. 5,593,884, which is a continuation-in-part of

Ser. No. 220,602, Mar. 25, 1994, which is a continuation-in-

part of Ser. No. 094,533, Jul. 19, 1993, Pat. No. 5,534,426.

This application Feb. 13, 1997, Ser. No. 799,913

Int. Cl.⁶ C12Q 1/48

U.S. Cl. 435—15

4 Claims

1. A method for identifying a composition which affects a kinase characterized as having a molecular weight of 55 kD as determined

by reducing SDS-PAGE; having serine and threonine kinase activity; and phosphorylating the c-Jun N-terminal activation domain, comprising:

- incubating components comprising the composition and the kinase or polynucleotide encoding the kinase, wherein the incubating is carried out under conditions sufficient to allow the components to interact; and
- measuring the effect of the composition on the kinase or polynucleotide encoding the kinase.

5,804,400

ELECTROCHEMILUMINESCENT ASSAY

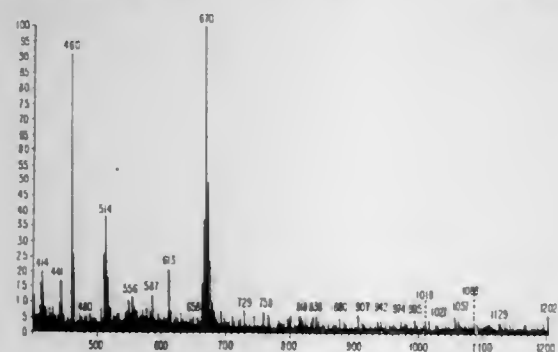
Mark Martin, North Bethesda, and Liwen Dong, Rockville, both of Md., assignors to Igen International, Inc., Gaithersburg, Md.

Filed Feb. 5, 1996, Ser. No. 596,830

Int. Cl.⁶ C12Q 1/34; 1/37; G01N 33/53; C12N 1/44

U.S. Cl. 435—18

48 Claims



- A kit for measuring an enzyme analyte comprising a
 - a metal binding ligand derivative selected from the group consisting of (i) a metal binding ligand labelled substrate and (ii) a metal binding ligand substrate and
 - an electrochemical detectant selected from the group consisting of (i) Ru-containing compounds and (ii) Os-containing compounds
 such that the metal binding ligand derivative and the enzyme are capable, when contacted with one another, of reacting to form a metal binding ligand that interacts with the electrochemical detectant to form a mixed ligand complex having an altered electrochemiluminescent signal.

5,804,401

DEVICE FOR DETECTING OXYGEN WITH OXIDASE

Alicia E. Gardiol, Montevideo, Uruguay; Ruben J. Hernandez, and Bruce R. Harte, both of East Lansing, Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.

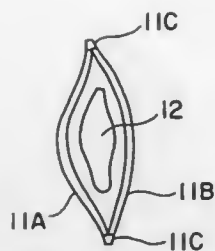
Continuation of Ser. No. 662,537, Jun. 13, 1996, Pat. No. 5,654,164, which is a continuation of Ser. No. 370,403, Jan. 9, 1995, abandoned. This application Jan. 15, 1997, Ser. No. 784,088

Int. Cl.⁶ C12Q 1/26; C12M 1/40

U.S. Cl. 435—25

17 Claims

- A device for detecting the presence of oxygen gas in a confined space and which provides a calorimetrically detectable indication of the presence of the oxygen gas which comprises:
 - a confined space free of oxygen gas, wherein the confined space is provided with a means which allows introduction of the oxygen gas from outside of the confined space;
 - a reduced oxidase in an aqueous solution in the confined space in an amount which reacts with oxygen introduced into the confined space from outside of the confined space through



the means for introduction to provide a colorimetrically detectable indication of the presence of the oxygen at a predetermined concentration due to a change of light absorbance of an oxidized oxidase, which oxidase is directly measured for the light absorbance, which light absorbance is different from the reduced oxidase in the aqueous solution; and

(c) means for correlating the light absorbance of the oxidized enzyme to the presence of oxygen in the confined space.

5,804,402

REAGENT

Joseph De Giorgio, and Wayne Jensen, both of Clayton, Australia, assignors to Trace Scientific Ltd., Clayton, Australia

Filed Feb. 26, 1996, Ser. No. 607,234

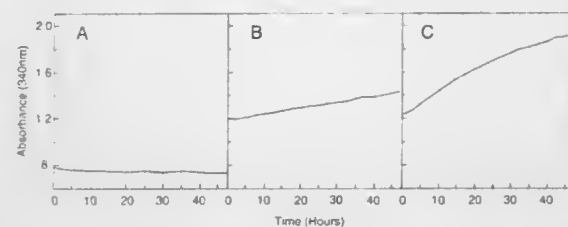
Claims priority, application Australia, Mar. 28, 1995, PN 2006

Int. Cl.⁶ C12Q 1/54; 1/52; 1/32; G01N 33/53

U.S. Cl. 435—14

36 Claims

NADH Regeneration Studies for Urea Reagent



- A reagent for the determination of an analyte concentration in a patient wherein the degree of oxidation of a coenzyme is measured, characterized in that said reagent is stabilized against oxidation by a coenzyme reduction system comprising an enzyme and a substrate pair selected so as to enable continuous regeneration of said coenzyme throughout storage of said reagent, said enzyme having incomplete specificity for said substrate such that there is no loss in functionality of the reagent in the determination of analyte concentration throughout at least 6–8 months of storage of said reagent at 2°–8° C.

5,804,403

STABLE AQUEOUS REAGENT CONTAINING NAD

Allen R. Dorn, Carmel; Catherine J. Hurt, Indianapolis, and Edward O. Ganser, Fishers, all of Ind., assignors to Boehringer Mannheim Corporation, Indianapolis, Ind.

Filed Jan. 31, 1997, Ser. No. 791,920

Int. Cl.⁶ C12Q 1/32; 1/00; G01N 33/48

U.S. Cl. 435—26

8 Claims

- An aqueous reagent composition for measuring ethanol in a biological sample comprising alcohol dehydrogenase, pyrazole, NAD, sodium hydroxymethylglycinate and an aliphatic, zwitterionic buffer having a secondary or tertiary amine group.

5,804,404

STABLE SUBSTRATE-CHROMOGEN SOLUTIONS FOR ENZYME ACTIVITY DETECTION

Alfonso Heras, Goleta, and Marc Key, Ojai, both of Calif., assignors to Dako Corporation, Carpinteria, Calif.

Filed Jan. 22, 1996, Ser. No. 589,215

Int. Cl.⁶ C12Q 1/28

U.S. Cl. 435—28

29 Claims

- A composition for the detection and measurement of peroxidatic activity comprising:
 - a chromogenic electron donor,
 - a hydroperoxide,
 - an aqueous buffer, and
 - a reducing carbohydrate stabilizing agent.

5,804,405

BILIRUBIN DETECTION

Charles E. Ahlfors, San Francisco, Calif., assignor to Research Corporation Technologies, Inc., Tucson, Ariz.

Filed Nov. 27, 1996, Ser. No. 757,930

Int. Cl.⁶ C12Q 1/28; 1/26; 1/00; G01N 33/53

U.S. Cl. 435—28

20 Claims

- A method for determining the concentration of unbound, unconjugated bilirubin in a sample containing two or more bilirubin species comprising conjugated bilirubin, unconjugated bilirubin, albumin-bound bilirubin and unbound bilirubin, comprising the steps of taking a measurement of the concentration of one or more of said species in said sample by a kinetic assay and taking the measurement of the concentration of one or more of said species by a colorimetric assay and combining said measurements to determine said concentration of unbound unconjugated bilirubin.

5,804,406

DETERMINING SENSITIVITY OF PARAFFINOPHILIC MICROORGANISMS TO ANTIMICROBIALS

Mitchell S. Felder, Hermitage, and Robert A. Ollar, Milford, both of Pa., assignors to Infotech, Inc., Sharon, Pa.

Continuation of Ser. No. 555,736, Nov. 9, 1995, abandoned.

This application Sep. 25, 1997, Ser. No. 937,917

Int. Cl.⁶ C12Q 1/02

U.S. Cl. 435—32

8 Claims

- A method for determining the sensitivity of at least one paraffinophilic microorganism from a specimen obtained from a patient to different antimicrobial agents and predetermined quantities thereof, said method comprising:
 - providing at least one receptacle containing an aqueous solution; adjusting said solution to mimic said in vivo clinical conditions of said patient;
 - inoculating said solution with said specimen;
 - placing into said receptacle (i) a paraffin coated slide and (ii) a predetermined quantity of an antimicrobial agent to be tested; and
 - determining whether said predetermined quantity of said antimicrobial agent is effective in inhibiting growth of said paraffinophilic microorganism on said slide by observing said paraffinophilic microorganism growth or lack thereof on said slide.

5,804,407

METHOD OF EXPRESSING GENES IN MAMMALIAN CELLS

Taiki Tamaoki, and Hidekazu Nakabayashi, both of Calgary, Canada, assignors to University Technologies International, Inc., Calgary, Canada

Filed Nov. 4, 1993, Ser. No. 148,058

Int. Cl.⁶ C12P 21/05

U.S. Cl. 435—69.1

4 Claims

- A method of expressing a heterologous gene in a mammalian liver cell in vitro comprising inserting a DNA construct into a mammalian liver cell, said construct comprising three or more human AFP enhancer regions and a human AFP promoter functionally linked to the heterologous gene in the absence of a AFP silencer region, and expressing the heterologous gene in the mammalian liver cells in vitro.

5,804,408

EXPRESSION OF HUMAN SOD IN BLUE GREEN ALGAE

Hideaki Hagiwara, Takarazuka, and Yasunobu Takeshima, Kasai, both of Japan, assignors to Yoshihide Hagiwara, Takarazuka, Japan

Continuation of Ser. No. 941,139, Nov. 13, 1992, abandoned.

This application Jan. 3, 1995, Ser. No. 368,236

Claims priority, application Japan, Mar. 13, 1991, 3-073905

Int. Cl.⁶ C12P 21/00; C12N 15/70; 15/63; C07H 21/02

U.S. Cl. 435—69.1

21 Claims

- A method for expressing a physiologically active polypeptide having enzymatic activity, therapeutic activity or both, in cells of a blue-green alga comprising the steps of (1) stably transforming the cells of said blue-green alga with a vector DNA which is a vector plasmid selected from the group consisting of plasmid pBAS18, plasmid pBAX18, and plasmid pBAX20, said vector DNA containing a structural gene encoding the physiologically active polypeptide, operably linked to at least one promoter region comprising the transcription initiation region of the RuBisCO gene of *Anacystis nidulans* located upstream of the structural gene, and the transcription termination region of the RuBisCO gene located downstream of the structural gene and (2) culturing said transformed cells under conditions that induce the expression of the structural gene encoding the physiologically active polypeptide.

5,804,409

PRODUCTION OF ACTIVE PSEUDOMONAS GLUMAE LIPASE IN HOMOLOGOUS OR HETEROLOGOUS HOSTS

Jannetje Wilhelmina Bos, Capelle a/d IJssel; Leon Gerardus Frenken, Rotterdam; Cornelis Theodorus Verrips, Maassluis, and Christiaan Visser, Capell a/d IJssel, all of Netherlands, assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Continuation of Ser. No. 34,650, Mar. 22, 1993, Pat. No. 5,641,671, and Ser. No. 727,235, Jul. 3, 1991, abandoned. This application May 24, 1995, Ser. No. 449,015

Claims priority, application European Pat. Off., Jul. 6, 1990, 90307440; Oct. 17, 1990, 90202772

Int. Cl.⁶ C12N 1/21; 15/31; C12P 21/02; C07K 14/195

U.S. Cl. 435—69.1

10 Claims

- A transformed microorganism which produces lipase, said microorganism being transformed with at least one lipase gene

encoding said lipase and at least one gene encoding a lipase-specific stabilization/translocation protein, either one or both of said lipase encoding gene or said lipase-specific stabilization/translocation protein encoding gene originating from a lipase-producing Gram negative bacterium which is a member of the genus *Pseudomonas*.

5,804,410

NUCLEIC ACID SEQUENCE ENCODING TRYPSIN-LIKE ENZYME AND PROCESS FOR PRODUCING THE ENZYME

Kazuyoshi Yamaoka; Hiroko Ogawa; Yoshinori Sugimoto; Kenichi Masuda; Tetsuya Suga; Kenichiro Takagi, all of Hino, and Susumu Yasuoka, Tokushima, all of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Jul. 28, 1995, Ser. No. 508,448

Claims priority, application Japan, Jul. 29, 1994, 6-178607

Int. Cl.⁶ C12P 21/06; C07H 17/00; C12N 9/00

U.S. Cl. 435—69.1

9 Claims

1. A nucleic acid sequence encoding a trypsin-like enzyme having the following amino acid sequence:

Ile	Leu	Gly	Gly	Thr	Glu	Ala	Glu	Glu	Gly	Ser	Trp	Pro
1				5					10			
Trp	Gln	Val	Ser	Leu	Arg	Leu	Asn	Asn	Ala	His	His	Cys
	15				20					25		
Gly	Gly	Ser	Leu	Ile	Asn	Asn	Met	Trp	Ile	Leu	Thr	Ala
			30					35				
Ala	His	Cys	Phe	Arg	Ser	Asn	Ser	Asn	Pro	Arg	Asp	Trp
	40				45					50		
Ile	Ala	Thr	Ser	Gly	Ile	Ser	Thr	Thr	Phe	Pro	Lys	Leu
												65
Arg	Met	Arg	Val	Arg	Asn	Ile	Leu	His	Asn	Asn	Tyr	Lys
				70				75				
Ser	Ala	Thr	His	Glu	Asn	Asp	Ile	Ala	Leu	Val	Arg	Leu
					85					90		
Glu	Asn	Ser	Val	Thr	Phe	Thr	Lys	Asp	Ile	His	Ser	Val
							100					105
Cys	Leu	Pro	Ala	Ala	Thr	Gln	Asn	Ile	Pro	Gly	Ser	
									115			
Thr	Ala	Tyr	Val	Thr	Gly	Trp	Gly	Ala	Gln	Glu	Tyr	Ala
						125						130
Gly	His	Thr	Val	Pro	Glu	Leu	Arg	Gln	Gly	Gln	Val	Arg
								140				
Ile	Ile	Ser	Asn	Asp	Val	Cys	Asn	Ala	Pro	His	Ser	Tyr
					150					155		
Asn	Gly	Ala	Ile	Leu	Ser	Gly	Met	Leu	Cys	Ala	Gly	Val
								165				170
Pro	Gln	Gly	Gly	Val	Asp	Ala	Cys	Gln	Gly	Asp	Ser	Gly
										180		
Gly	Pro	Leu	Val	Gln	Glu	Asp	Ser	Arg	Arg	Leu	Trp	Phe
								190				195
Ile	Val	Gly	Ile	Val	Ser	Trp	Gly	Asp	Gln	Cys	Gly	Leu
									205			
Pro	Asp	Lys	Pro	Gly	Val	Tyr	Thr	Arg	Val	Thr	Ala	Tyr
												220
Leu	Asp	Trp	Ile	Arg	Gln	Gln	Thr	Gly	Ile	(SEQ ID NO. 19)		
												225
												230

5,804,411
POLYPEPTIDE OF PROTEIN P140 AND DNAS ENCODING IT
Hisao Tajima; Koichiro Kitagawa, and Hiroyuki Ohno, all of Osaka, Japan, assignors to Ono Pharmaceutical Co., Ltd., Osaka, Japan
Division of Ser. No. 348,143, Nov. 23, 1994, Pat. No. 5,506,205. This application Dec. 13, 1995, Ser. No. 571,785
Claims priority, application Japan, Nov. 24, 1993, 5-315806
Int. Cl.⁶ C12P 21/02; C12N 1/21; 15/63; C07H 21/04
U.S. Cl. 435—69.1 6 Claims
1. An isolated DNA molecule encoding a polypeptide of protein p140 having the amino acid sequence shown in SEQ ID No. 1.

5,804,412
NUCLEIC ACIDS ENCODING SORTING NEXINS AND METHODS OF USING SME
Gordon N. Gill; Richard C. Kurten, both of La Jolla, and Deborah L. Cadena, Encinitas, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.
Filed Apr. 1, 1996, Ser. No. 625,322
Int. Cl.⁶ C12P 21/56; C12N 15/00; C07H 17/00; C07K 14/00
U.S. Cl. 435—69.1 17 Claims
1. A substantially purified nucleic acid molecule encoding a sorting nexin (SNX), said SNX having the ability to bind an intracellular domain of an activated cell surface receptor expressed on a cell and direct translocation of the receptor to a lysosome in the cell.

5,804,413
HERPES SIMPLEX VIRUS STRAINS FOR GENE TRANSFER
Neal A. DeLuca, Cheswick, Pa., assignor to University of Pittsburgh of the Commonwealth System of Higher Education, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 479,024, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 342,795, Nov. 21, 1994, Pat. No. 5,658,724, which is a continuation of Ser. No. 922,839, Jul. 31, 1992, abandoned. This application May 22, 1996, Ser. No. 651,419
Int. Cl.⁶ C12N 5/06; 7/04; 15/09; 15/86
U.S. Cl. 435—69.1 47 Claims
32. A method of expressing an exogenous gene within an isolated mammalian cell which comprises infecting said cell with an HSV vector comprising a genome (a) defective for the HSV ICP4, ICP27, and ICP0 genes, and (b) comprising said exogenous gene, whereby said gene is expressed within said cell.

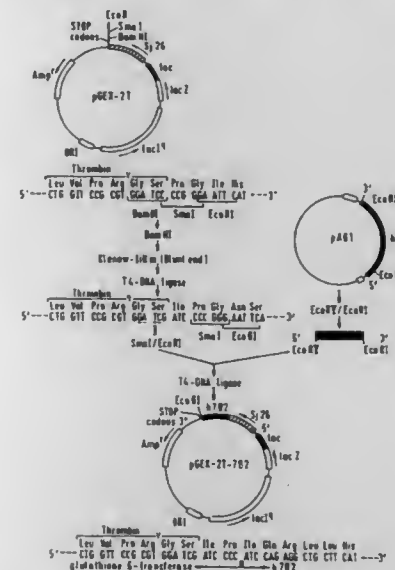
5,804,414
METHOD OF AMPLIFYING GENES USING ARTIFICIAL TRANSPOSONS IN CORYNEFORM BACTERIA
Mika Moriya; Hiroshi Matsui; Kenzo Yokozeki; Seiko Hirano; Atsushi Hayakawa; Masako Izui, and Masakazu Sugimoto, all of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
Filed Jul. 1, 1996, Ser. No. 674,168
Claims priority, application Japan, Jun. 30, 1995, 7-166541
Int. Cl.⁶ C12N 1/21; C12P 13/04; 21/00; 21/04
U.S. Cl. 435—69.1 12 Claims
1. A method of producing a transformed coryneform bacterium containing multiple copies of a desired gene comprising the steps of:
(1) constructing an artificial transposon containing:
(a) the desired gene;
(b) a drug resistance gene; and

(c) an insertion sequence comprising a pair of inverted repeats, wherein the desired gene and the drug resistance gene are located between the pair of inverted repeats; and
(2) contacting a starting coryneform bacterium with the artificial transposon, thereby:
(a) causing the artificial transposon to be transposed into the genetic material of the starting coryneform bacterium,
(b) causing multiple copies of the desired gene and the drug resistance gene to be inserted into the genetic material of the starting coryneform bacterium; and
(c) producing the transformed coryneform bacterium.

5,804,415
PROSTAGLANDIN E RECEPTORS, THEIR DNA AND PRODUCTION
Atsushi Ichikawa, Besshohomachi, and Shuh Narumiya, Kyoto, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Division of Ser. No. 390,162, Feb. 17, 1995, Pat. No. 5,576,192, which is a continuation of Ser. No. 24,179, Feb. 23, 1993, abandoned. This application Jul. 22, 1996, Ser. No. 685,945
Claims priority, application Japan, Feb. 24, 1992, 4-036580; Mar. 23, 1992, 4-064889
Int. Cl.⁶ C12N 15/12; C07K 14/705
U.S. Cl. 435—69.1 6 Claims
1. An isolated DNA encoding a prostaglandin E receptor comprising amino acids 1 to 361 of SEQ ID NO:4.

5,804,416
MUTANTS OF BONE MORPHOGENETIC PROTEINS
Neil M. Wolfman, Dover, and John McCoy, Reading, both of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.
Division of Ser. No. 360,914, Dec. 21, 1994, Pat. No. 5,756,308, which is a continuation-in-part of Ser. No. 163,877, Dec. 7, 1993, Pat. No. 5,399,677. This application Oct. 31, 1996, Ser. No. 741,589
Int. Cl.⁶ C07K 14/00; 14/51; C12N 15/11
U.S. Cl. 435—69.1 2 Claims
1. A method of obtaining non-naturally occurring mutant forms of bone morphogenetic proteins (BMP) which refold to form biologically active dimeric protein, said method comprising the steps of:
a) comparing the amino acid sequence of a BMP which does refold to form biologically active dimeric protein (BMP+) with the amino acid sequence of a BMP which does not refold to form biologically active dimeric protein (BMP-);
b) determining the differences at correlative amino acid positions in the comparison of step (a);
c) altering the amino acid sequence of BMP- so that one amino acid which is different from that of the correlative amino acid of BMP+ is replaced by the correlative amino acid of BMP+ to form a non-naturally occurring mutant form of said BMP-protein;
d) testing said non-naturally occurring mutant form of BMP-protein for its ability to form biologically active dimeric protein; and
e) selecting non-naturally occurring mutant forms of BMP-protein which form biologically active dimeric protein.

5,804,417
RECOMBINANT PRODUCTION OF PROTEINS USING 7B2 PROTEIN
Gerardus Julianus Maria Martens, Nijmegen, Netherlands; Bhabatosh Chaudhuri, Münchenstein, Switzerland, and Christine Stephan, Kingersheim, France, assignors to Novartis Corporation, Summit, N.J.
Division of Ser. No. 244,492, Sep. 2, 1994, Pat. No. 5,708,140. This application Sep. 9, 1996, Ser. No. 709,915
Claims priority, application Netherlands, Nov. 29, 1991, 9102009
Int. Cl.⁶ C07K 1/00; C12P 21/06; C07H 21/04
U.S. Cl. 435—69.1 19 Claims



1. A method for the correct folding, deaggregation or prevention of aggregation of a monomeric protein in vivo comprising:
(a) constructing a host cell transformed with (i) a first DNA encoding a polypeptide having the amino acid sequence of a bioactive protein or a precursor thereof, wherein said polypeptide or precursor can aggregate within the cell to result in a multimeric, non-bioactive protein or precursor thereof and (ii) a second DNA which enable the cell to co-express human 7B2 with the said polypeptide or precursor,
(b) growing said host cell for sufficient time under conditions wherein said first DNA and said second DNA express said bioactive protein and said 7B2, respectively; and
(c) obtaining monomeric protein that is a bioactive protein.

5,804,418
METHODS FOR PREPARING NUCLEOTIDE INTEGRASES
Alan Marc Lambowitz; Georg Mobr; Roland Saldanha, and Manabu Matsuura, all of Columbus, Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ohio
Filed Nov. 19, 1996, Ser. No. 752,238
Int. Cl.⁶ C12P 21/02; 19/34; C12N 9/12; 15/54
U.S. Cl. 435—69.1 19 Claims
1. A method for preparing a nucleotide integrase which cleaves a double-stranded DNA substrate, said method comprising the following steps:
(a) providing a DNA molecule comprising a group II intron DNA sequence, wherein the group II intron DNA sequence encodes a group II intron RNA and comprises an open reading frame sequence which encodes a group II intron-encoded protein;
(b) introducing the DNA molecule into a host cell;
(c) expressing the group II intron DNA sequence in the host cell, to provide an excised group II intron RNA and a group II

PCT Filed Oct. 26, 1994, Ser. No. 633,760
Claims priority, application United Kingdom, Nov. 1, 1993,
9322508; Dec. 29, 1993, 9326519
Int. Cl.⁶ C12N 9/80;15/00; C12P 21/06; C07H 21/04
U.S. Cl. 435—228 **8 Claims**
1. A mutant CC acylase wherein at least one amino acid at the
Ala⁴⁹, Met¹⁶⁴, Ser¹⁶⁶, Met¹⁷⁴, Gln³⁵⁸, Met⁴⁶⁵, Met⁵⁰⁶, or Met⁷⁵⁰
position of the amino acid sequence of the native CC acylase is
replaced by a different amino acid.

5,804,430

BOVINE OVARY CELL LINE (FROV) FOR VIRUS REPLICATION

Dieter Bernhardt, Cölbe, Germany, assignor to Behringwerke Aktiengesellschaft, Marburg, Germany
Filed Mar. 10, 1994, Ser. No. 208,272
Claims priority, application Germany, Mar. 13, 1993, 43 08 092.8

Int. Cl.⁶ C12N 7/00; 7/01; 7/08; 5/00

U.S. Cl. 435—235.1

4 Claims

1. A FROV permanent cell line consisting essentially of fetal bovine ovary cells which support the replication of bovine adenoviruses (BAV) types 1, 3, 4, 5, 6, 7, and 8, parainfluenzavirus (PI) type 3, bovine respiratory syncytial virus (BRSV), bovine herpesviruses types 1 and 4, equine herpesviruses type 1, mucosal disease virus strain Ug59 or bovine parvovirus strain Haden, the cell line having the properties of the cell line deposited under the number DSM ACC2051.

5,804,431

METHOD, COMPOSITIONS AND APPARATUS FOR CELL TRANSFECTION

Bernhard O. Palsen, Ann Arbor, Mich., assignor to The Regents of The University of Michigan, Ann Arbor, Mich.
Continuation of Ser. No. 479,726, Jun. 7, 1995, Pat. No. 5,654,185, which is a continuation of Ser. No. 353,531, Dec. 9, 1994. This application Mar. 13, 1997, Ser. No. 816,718

Int. Cl.⁶ C12N 7/00

U.S. Cl. 435—235.1

28 Claims

1. An apparatus for making cell growth supports that can transfect target cells comprising particles in a liquid, a cell growth support, and a means for moving the liquid to the cell growth support so as to deposit the particles on the cell growth support.

5,804,432

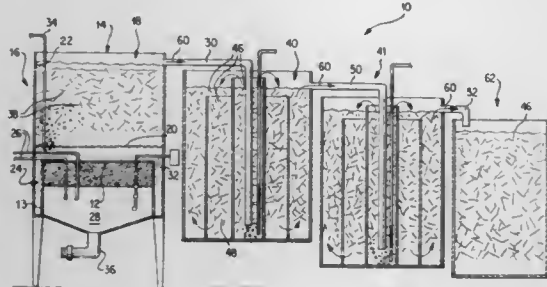
METHOD AND APPARATUS FOR TREATING CONTAMINATED WATER

Doug Knapp, 52235 Dorchester Ct., Granger, Ind. 46530
Continuation of Ser. No. 900,437, Jun. 18, 1992, abandoned.
This application Nov. 14, 1994, Ser. No. 340,484

Int. Cl.⁶ C12N 5/00

U.S. Cl. 435—243

15 Claims



1. A method for providing a food source to bacteria growing in a bioreactor, the method comprising the steps of: introducing the food source in the form of a free contaminant into a portion of a separation chamber arranged upstream of the bioreactor; dissolving an amount of said free contaminant into water which fills a remaining portion of the separation chamber to form a contaminated water stream; and flowing said contaminated water stream through the bioreactor to provide a consistent concentration of food source for the bacteria.

5,804,433

RHODOCOCUS FLAVIN REDUCTASE COMPLEMENTING DSZA AND DSZC ACTIVITY

Kevin A. Gray, John D. Childs, and Charles H. Squires, all of The Woodlands, Tex., assignors to Energy BioSystems Corporation, The Woodlands, Tex.

Filed Oct. 23, 1996, Ser. No. 735,963

Int. Cl.⁶ C12N 1/20; C07H 21/04

U.S. Cl. 435—252.3

15 Claims

1. An isolated nucleotide sequence encoding the enzyme of SEQ. ID NO. 2, or an enzymatically active mutant thereof.

5,804,434

PROCESS FOR REMOVING SOLVENT FROM SOIL AND DEBRIS

Alan Brian Cash, 7321 N. Hammond Ave., Oklahoma City, Okla. 73132

Continuation of Ser. No. 323,859, Oct. 17, 1994, abandoned.
This application Oct. 21, 1996, Ser. No. 734,729

Int. Cl.⁶ D06M 16/00

U.S. Cl. 435—262.5

8 Claims

1. A method for removing a fluid solvent from a soil mixture comprising the steps of:

placing the soil mixture with fluid solvent into a substantially sealed extraction vessel;
placing a vacuum on at least a portion of the extraction vessel to extract at least a portion of the fluid solvent therefrom; and
releasing a bioflush into the extraction vessel to degrade at least a portion of any of the fluid solvent remaining in the soil mixture.

5,804,435

METHOD FOR OBTAINING ORGANIC SOLVENT-RESISTANT MICROORGANISMS AND ORGANIC SOLVENT-RESISTANT MICROORGANISMS OBTAINABLE BY THE METHOD

Ryuichiro Kurane, Tsukuba, and Takuichi Tsubata, Iruma-gun, both of Japan, assignors to Tonen Corporation, and The Agency of Industrial Science and Technology, both of Tokyo, Japan

Continuation of Ser. No. 382,236, Feb. 1, 1995, abandoned.

This application Oct. 29, 1996, Ser. No. 741,335

Claims priority, application Japan, Feb. 2, 1994, 6-011252;
Oct. 4, 1994, 6-264544

Int. Cl.⁶ C02F 3/00; A01N 63/00; C10G 32/00; C12N 1/00

U.S. Cl. 435—282

6 Claims

1. A method for obtaining an organic solvent-resistant microorganism, which comprises:

treating a parent microorganism belonging to the genus and species *Pseudomonas putida* with UV irradiation or mutagen; culturing the treated microorganism in the presence of at least about 0.1% (v/v) to about 10% (v/v) of a toxic organic solvent;
selecting a microorganism having, relative to the parent microorganism, 1) a decrease in high molecular lipopolysaccharides and, 2) at least one change in fatty acids selected from the group consisting of (i) increase in fatty acids with odd carbon numbers through oxidation of lower straight-chained fatty alcohols, (ii) increase in branched fatty acids, (iii) increase in trans unsaturated fatty acids, (iv) decrease in cis unsaturated fatty acids, and (v) increase in the ratio of free fatty acids to total fatty acids; and
recovering the selected microorganism.

5,804,436

APPARATUS AND METHOD FOR REAL-TIME MEASUREMENT OF CELLULAR RESPONSE

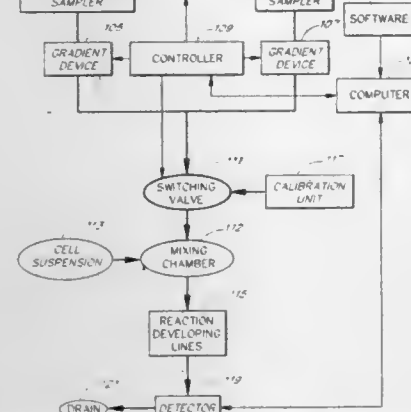
Ilya Okun, and Alex Okun, both of San Diego, Calif., assignors to Axiom Biotechnologies, Inc., San Diego, Calif.

Filed Aug. 2, 1996, Ser. No. 691,356

Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—286.1

50 Claims



45. An apparatus for measuring the effect of a test compound on living cells, comprising:

a test compound source;
a first gradient device, coupled to the test compound source, for automatically adjusting the concentration level of a test compound transferred to said mixing chamber from said test compound source;
a cell suspension source;
a mixing chamber, coupled to the first gradient device and the cell suspension source, which receives the test compound and a suspension of living cells from the cell suspension source and mixes the test compound with the suspension of living cells; and
a detector, coupled to the mixing chamber, for measuring a cellular response of the suspended cells to the test compound.

5,804,437

LOCKING STRUCTURE FOR SECURING A FLUID TRANSFER TUBE

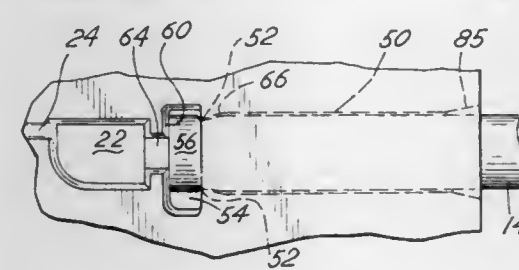
Garry R. Tegeler, Hazelwood, and Kent Smith, St. Charles, Mo., assignors to bioMérieux Vitek, Inc., Hazelwood, Mo.

Filed Aug. 19, 1997, Ser. No. 914,506

Int. Cl.⁶ C12M 3/00

U.S. Cl. 435—287.1

16 Claims



12. A test sample-card having front and rear surfaces and at least one sample well, said sample well loaded with a fluid sample from a source of said fluid sample via a transfer tube, comprising:
a fluid intake port sized to received a first end of said transfer tube;
a tubular channel connected to said fluid intake port and having a restriction formed therein, said restriction comprising a region of reduced diameter relative to the diameter of said first end of said transfer tube;

an inspection station positioned inwardly in said test sample card from said restriction, said inspection station comprising a chamber sized to receive said first end of said transfer tube after said transfer tube has been inserted past said restriction, wherein said chamber is open to at least one of said front and rear surfaces of said test sample card body or optically clear to thereby allow visual observation of said first end of said transfer tube in said chamber.

5,804,438

Patent Not Issued For This Number

5,804,439

PLASMID ENCODING HYBRID RNA VIRUS

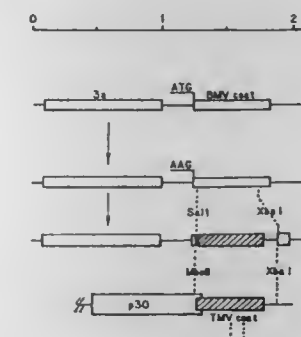
Paul G. Ahlquist; Roy C. French, both of Madison, and Robert F. Sacher, McFarland, all of Wis., assignors to Mycogen Plant Science, Inc., San Diego, Calif.

Division of Ser. No. 473,617, Jun. 7, 1995, Pat. No. 5,627,060, which is a division of Ser. No. 445,990, May 22, 1995, Pat. No. 5,602,242, which is a continuation of Ser. No. 158,082, Nov. 23, 1993, abandoned, which is a continuation of Ser. No. 978,313, Nov. 17, 1992, abandoned, which is a continuation of Ser. No. 518,242, May 4, 1990, abandoned, which is a continuation of Ser. No. 12,253, Feb. 9, 1987, abandoned. This application Dec. 27, 1996, Ser. No. 773,821

Int. Cl.⁶ C12N 7/01; 15/33; 15/79; 15/83

U.S. Cl. 435—320.1

11 Claims



1. A plasmid containing cDNA complementary to the RNA sequence of a hybrid RNA molecule capable of infection of and replication in a host cell, said hybrid RNA molecule comprising a first RNA sequence derived from a first virus and a second RNA sequence from a second virus having a morphologically-different type of coat protein, said second RNA sequence comprising an origin of assembly and encoding a coat protein heterologous to said first virus, wherein the coat protein gene of said first virus is deleted from or inactivated in said first RNA sequence and said second RNA sequence is substituted therefor to produce a hybrid molecule capable of expressing the coat protein gene of said second virus.

5,804,440

HUMAN NEUTRALIZING MONOCLONAL ANTIBODIES TO HUMAN IMMUNODEFICIENCY VIRUS

Dennis R. Burton, La Jolla; Carlos F. Barbas, San Diego, and Richard A. Lerner, La Jolla, all of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Division of Ser. No. 276,852, Jul. 18, 1994, Pat. No. 5,652,138, which is a continuation-in-part of Ser. No. 178,302, Jan. 6, 1994, abandoned, which is a continuation-in-part of Ser. No. 954,148, Sep. 30, 1992, abandoned. This application Jul. 24, 1997, Ser. No. 899,575

Int. Cl.⁶ C12N 5/10; 5/24; C07H 21/04; C07K 16/10

U.S. Cl. 435—339.1

8 Claims

1. A polynucleotide encoding a heavy chain immunoglobulin variable region amino acid residue sequence portion of a human monoclonal antibody capable of immunoreacting with human immunodeficiency virus (HIV) glycoprotein gp120 and neutralizing HIV, wherein the amino acid sequence is SEQ ID NO:66.

3. A polynucleotide encoding a light chain immunoglobulin variable region amino acid residue sequence portion of a human monoclonal antibody capable of immunoreacting with human immunodeficiency virus (HIV) glycoprotein gp120 and neutralizing HIV, wherein the amino acid sequence is SEQ ID NO:97.

5. A DNA expression vector comprising the polynucleotide of claim 1 or claim 3.

8. A host cell comprising the DNA expression vector of claim 5.

5,804,441

HUMAN HEPATOMA-DERIVED CELL LINE FLC-4 AND METHOD FOR PRODUCING USEFUL POLYMERS BY CULTURING THE CELL LINE

Seishi Nagamori; Satoshi Hasumura; Masaaki Kawada; Tomokazu Matsuura, all of Tokyo; Satoru Mizutani, and Hitoshi Yoshida, both of Kanagawa, all of Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 9, 1995, Ser. No. 554,914

Int. Cl.⁶ C12N 5/08; C12P 21/04

U.S. Cl. 435—370

5 Claims

1. Human hepatoma-derived cell line FLC-4, FERM BP-5165.

5,804,442

PROCESS FOR PREPARING MACROPHAGES, KITS, AND COMPOSITION FOR THE USE OF THIS PROCESS
Jean-Loup Romet-Lemonne, Paris, and Mohamed Chokri, Deuil-la-Barre, both of France, assignors to I.D.M. Immuno-Designed Molecules, Paris, France

Filed May 28, 1996, Ser. No. 654,383

Claims priority, application France, Jan. 24, 1995, 95 00785

Int. Cl.⁶ C12N 5/00

U.S. Cl. 435—374

20 Claims

1. A process for preparing a composition comprising at least one of macrophages, activated macrophages, cells derived from monocytes, precursors of the cells derived from monocytes presenting specific surface antigens which are capable of inducing a specific immune response, said MD-APC's being optionally MD-APCs, and activated MD-APCs, said composition being prepared from a composition derived from blood of human origin, comprising the steps of:

diluting said composition derived from blood with an appropriate physiologic solution,

washing said diluted composition by simple centrifugation, after recovery of the pellet, in a appropriate physiologic washing solution in a transfer bag, by exerting pressure on said transfer bag, the washing solution thus being eliminated to a recipient container, to recover a washed composition deprived of possible anticoagulants and various residues and impoverished in platelets,

optionally, repeating the washing step.

culturing cells contained in the washed composition by placing it in an appropriate culture medium in a bag for about 6 to about 10 days, said culturing optionally taking place in the presence of antigens, optionally, activating at least one of macrophages and MD-APCs obtained in the culture medium, by adding an activator in said culture medium, said activator being placed in contact with contents of the culture medium for about 16 to about 24 hours,

optionally, performing a second centrifugation of the culture medium and washing a pellet issued from the second centrifugation, wherein said process further comprises at least one of the following steps:

prior to the culturing and optional activation step, eliminating at least part of constituents other than the monocytes or their precursors, able to be present in the starting composition by contacting the washed composition with antibodies directed against at least part of the constituents, and recovering a solution containing at least one of monocytes and their precursors, at least part of the constituents remaining fixed to the antibodies,

following the culturing and optional activation step, eliminating at least part of constituents other than the macrophages or MD-APCs by placing the composition derived from blood obtained after the culture step in contact with antibodies directed against at least part of the constituents other than the macrophages or the MD-APCs, and recovering a solution containing the macrophages or MD-APCs, at least part of the constituents other than the macrophages remaining fixed to the antibodies,

following the culturing and optional activation step, purifying by separating the macrophages of MD-APC from the other constituents of the composition obtained after the culturing and optional activation step by physical means.

5,804,443

HUMAN MONOCYTIC LEUKEMIA CELL LINE

Carl Bernofsky, 6478 General Diaz St., New Orleans, La. 70124

Filed Feb. 28, 1997, Ser. No. 808,201

Int. Cl.⁶ C12N 5/00

U.S. Cl. 435—372.1

3 Claims

1. Cells from the immortal human leukemia cell line MC-1010 (ATCC No. CRL-12253).

5,804,444

HYPOTHERMIC STORAGE TECHNOLOGY FOR BIOLOGICAL MATERIAL

Olga Kukal, and Thomas F. Allen, both of Wolfville, Canada, assignors to Tolix Holdings Limited, Dartmouth, Canada

Filed Oct. 10, 1996, Ser. No. 731,210

Int. Cl.⁶ C12Q 1/02; 1/00; A23B 4/00; A23L 1/00

U.S. Cl. 435—374

19 Claims

1. A method for determining an optimum bio-storage temperature of a biological material, comprising the steps of: selecting a biological material from the group consisting of food and non-food materials; and determining a melting point depression of the biological material, wherein the optimum bio-storage temperature is greater than the melting point depression and equal to or less than 0° C.

5,804,445

HIGH AFFINITY MUTANTS OF NUCLEAR FACTOR-INTERLEUKIN 6 AND METHODS OF USE THEREFOR
Allan R. Brasier, Galveston, Tex., assignor to Board of Regents, The University of Texas System, Austin, Tex.

Filed Jan. 11, 1996, Ser. No. 585,197

Int. Cl.⁶ C07K 14/435; C12N 1/20; 15/85

U.S. Cl. 435—375

21 Claims

19. A method for inhibiting NF-IL6 function in a cell in culture comprising the steps of:

- (i) providing a polypeptide comprising an NF-IL6 tryptic core domain, wherein the N-terminus of said core domain has a net charge that is less negative than wild-type NF-IL6 tryptic core domain, and wherein the binding affinity of said polypeptide is higher than NF-IL6 for its target sequence; and
- (ii) contacting said cell with said polypeptide.

5,804,446

BLOOD-BORNE MESENCHYMAL CELLS

Anthony Cerami, Shelter Island, and Richard J. Bucala, New York, both of N.Y., assignors to The Picower Institute for Medical Research, Manhasset, N.Y.

Continuation-in-part of Ser. No. 23,290, Feb. 26, 1993, Pat. No. 5,654,186. This application Jun. 7, 1995, Ser. No. 488,111

Int. Cl.⁶ C12N 5/00; 5/02

U.S. Cl. 435—385

7 Claims

1. A method for isolating from peripheral blood mammalian blood-borne cells that display surface phenotypic markers of fibroblasts and phenotypic markers of hematopoietic stem cells, in which the phenotypic markers of hematopoietic stem cells are CD45 and CD34, comprising subjecting a mixed population of blood cells to affinity separation using antibodies directed to collagen I or collagen III, and CD34.

5,804,447

USE OF COMPOUNDS WHICH ABSORB AND/OR FLUORESCENCE IN THE IR REGION AS MARKERS FOR LIQUIDS

Bernhard Albert, Maxdorf; Juergen Kipper, Karlsruhe; Christos Vamvakaris, Kallstadt; Karin Heidrun Beck, Ludwigshafen, and Gerhard Wagenblast, Weisenheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

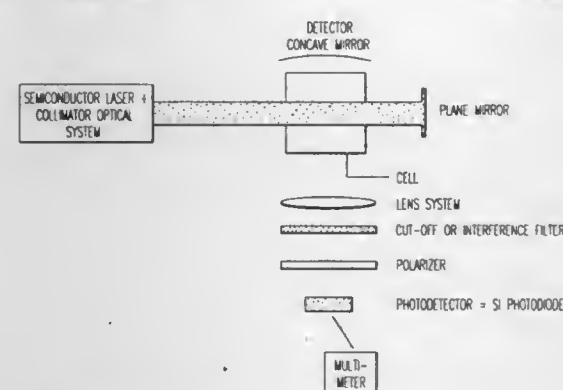
Continuation of Ser. No. 562,789, Nov. 27, 1995, abandoned, which is a continuation of Ser. No. 367,315, Jan. 20, 1995, abandoned. This application Apr. 23, 1997, Ser. No. 844,861

Claims priority, application Germany, Jul. 23, 1992, 42 24 301.7; Dec. 23, 1992, 42 43 776.8; Dec. 23, 1992, 42 43 774.1

Int. Cl.⁶ G01N 33/22

U.S. Cl. 436—56

10 Claims



1. A method of identifying a liquid comprising the sequential steps of:

- i) detecting a marker compound in a liquid; and

ii) identifying said liquid based on the identity of said marker compound,

wherein said marker compound is selected from the group consisting of a metal-free phthalocyanine, a metal-containing phthalocyanine, a metal-free naphthalocyanine, a metal-containing naphthalocyanine, a nickel dithiolen complex, an aminium compound of an aromatic amine, a methine dye, an azulenescaric acid dye and a mixture thereof,

wherein said marker compound has an absorption maximum in the range of from 600 to 1,200 nm and/or a fluorescence maximum in the range of from 620 to 1,200 nm.

5,804,448

METHOD OF STAINING CELLULAR MATERIAL AND ANALYZING THE SAME

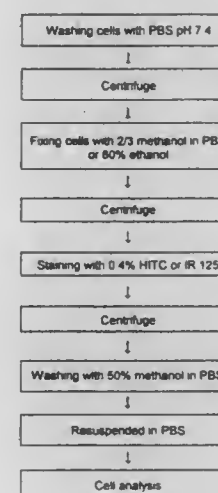
Fu-sheng Wang, Claremont, and Berend Houwen, Redlands, both of Calif., assignors to Toa Medical Electronics Co., Ltd., Hyogo, Japan

Filed Oct. 29, 1996, Ser. No. 739,431

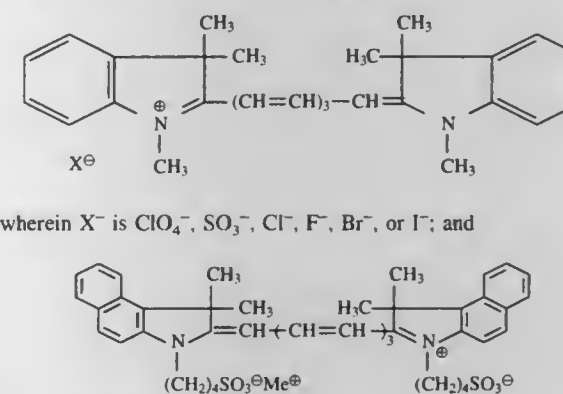
Int. Cl.⁶ G01N 33/48

U.S. Cl. 436—63

8 Claims

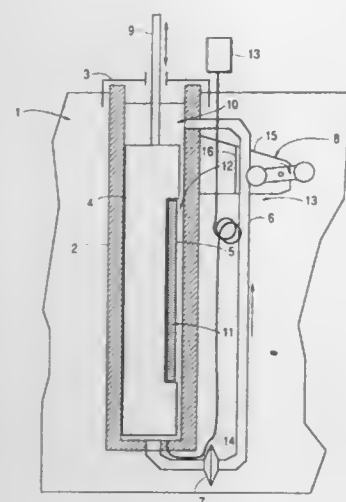


6. A method of analyzing cellular material comprising staining a sample containing cellular material with a stain solution containing a cyanine dye excitable by infrared rays to contrast cellular nuclear material from cellular cytoplasmic material, and introducing the stained cellular material to a flow imaging cytometer provided with an infrared ray source to obtain cell population information and cell image information wherein the cyanine dye is selected from the group consisting of dyes having the formula:

wherein X⁻ is ClO₄⁻, SO₃⁻, Cl⁻, F⁻, Br⁻, or I⁻; andwherein Me⁺ is Na⁺ or K⁺.

UMI

placing the wafer (5) to be plated in a filler block (4) having a volume essentially equal to the volume of the process vessel



(2) for reducing a required filling volume of the process vessel (2), and
moving said filler block (4) in the process vessel (2) for improving the mixing of said solution of metal salts.

5,804,457

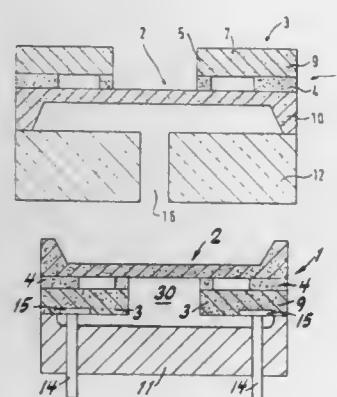
METHOD FOR MANUFACTURING A FORCE SENSOR
Gerhard Benz, Brucknerstr. 8, 71032 Boeblingen; Franz Laermer, Witikoweg 9, 70437 Stuttgart; Andrea Schilp, Seelenbachweg 15, 73525 Schwaebisch; Erich Zabler, Brunhildstr. 11, 76297 Stutensee; Jürgen Schirmer, Adolf-Rausch-Str. 6, 69124 Heidelberg, and Werner Uhler, Augsteinerstr. 11, 76646 Bruchsal, all of Germany

Division of Ser. No. 303,099, Sep. 8, 1994, Pat. No. 5,553,506.
This application Jun. 5, 1996, Ser. No. 659,694
Claims priority, application Germany, Sep. 29, 1993, 43 33 099.1

Int. Cl.⁶ H01L 21/77

U.S. Cl. 437—228 SEN

10 Claims



1. A method for manufacturing a force sensor comprising the steps of:
disposing a dielectric layer between a first silicon layer and a second silicon layer to form a plate;
forming a resonator from the first layer, the resonator including two mounting blocks and a vibratory element;
forming a bending element from the second layer, the second layer being positioned below the first layer; and
undercut-etching the dielectric layer beneath the vibratory element.

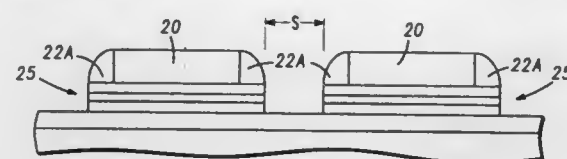
5,804,458
METHOD OF FABRICATING SPACED APART SUBMICRON MAGNETIC MEMORY CELLS
Saied N. Tehrani, Tempe; Mark Durlam, Chandler, and Herbert Goronkin, Tempe, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 16, 1996, Ser. No. 766,076

Int. Cl.⁶ H01L 21/70

U.S. Cl. 438—3

27 Claims



1. A method of fabricating a plurality of spaced apart submicron memory cells comprising the steps of:
providing a supporting substrate formation with a planar surface;
depositing a magnetoresistive system on the surface of the substrate formation;
depositing a first layer of material and patterning the first layer of material to form sidewalls;
depositing a second layer of material on the first layer of material at least on the sidewalls, the first layer of material and the second layer of material being selectively etchable from each other;
etching the second layer of material to define spacers on the sidewalls of the first layer of material;
etching the magnetoresistive system, using the spacers as a mask, to define a plurality of spaced apart submicron magnetic memory cells;
removing the sidewall spacers; and
depositing electrical contacts on the plurality of spaced apart submicron magnetic memory cells.

5,804,459

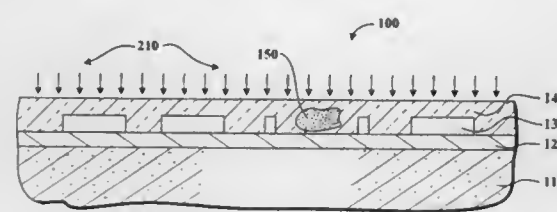
METHOD FOR CHARGE ENHANCED DEFECT BREAKDOWN TO IMPROVE YIELD AND RELIABILITY
Ronald Jay Bolam, East Fairfield, and Albert John Gregoritsch, Jr., South Burlington, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 15, 1996, Ser. No. 751,151

Int. Cl.⁶ H01L 21/66

U.S. Cl. 438—12

15 Claims



1. A method of improving integrated circuit reliability, the method comprising the steps of:
providing a layered wafer, the wafer comprising:
a substrate having a plurality of diffused regions;
at least one overlying conductive layer;
at least one overlying non-conductive layer, wherein the at least one non-conductive layer contains at least one embedded electrically-isolated conductive particle,
and wherein the substrate, the plurality of diffused regions, and the at least one conductive layer are all electrically grounded; and
exposing the wafer to an electron beam of a pre-determined energy level for a pre-determined period of time, thereby increasing the electrical potential of the at least one embedded electrically-isolated conductive particle.

5,804,460
LINEWIDTH METROLOGY OF INTEGRATED CIRCUIT STRUCTURES

Jeffrey Bruce Bindell, Orlando, Fla.; Dennis Earl Schroppe, Coplay, Pa.; Fred Anthony Stevie, Orlando, Fla.; Richard J. Dare, Whitehall, Pa., and Larry E. Plew, St. Cloud, Fla., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

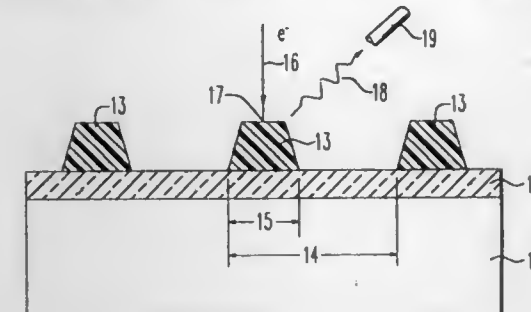
Continuation of Ser. No. 366,357, Dec. 29, 1994, abandoned.

This application Sep. 15, 1997, Ser. No. 931,066

Int. Cl.⁶ G01D 18/00; G06K 9/28

U.S. Cl. 438—16

10 Claims



1. A method of integrated circuit manufacturing comprising:
forming a raised topographical feature upon a first substrate;
removing a portion of said raised feature, thereby exposing a cross-section of said raised feature, said substrate remaining substantially undamaged, said cross-section having a critical dimension;
measuring said critical dimension of said cross-section using a first type of measuring instrument;
measuring said critical dimension of said cross-section using a second type of measuring instrument, said second type of measuring instrument for performing a non-destructive type of measurement;
correlating the measurements performed by said first type of measuring instrument and said second type of measuring instrument to determine a measurement correlation function;
obtaining a plurality of substrates, each containing a raised feature essentially identical in formation and topography to said first substrate raised feature;
using said second type of measuring instrument, measuring raised topographical features on said plurality of substrates without removing any portion thereof; and
using the measurement correlation function and the measurement from said second type of measuring instrument, converting said second type of instrument measurement into a measurement associated with the first type of measuring instrument.

5,804,461

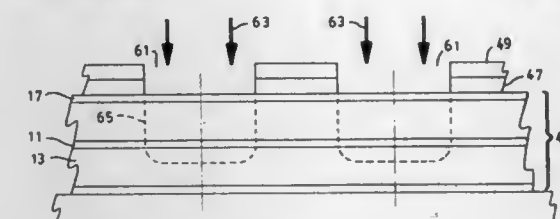
LASER DIODE WITH AN ION-IMPLANT REGION
Dana M. Beyea, Londonderry, N.H.; Todd Martin Dixon, Littleton, and Edward M. Clausen, Jr., Franklin, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 361,295, Dec. 22, 1994, abandoned. This application Nov. 22, 1995, Ser. No. 561,054

Int. Cl.⁶ H01L 31/00

U.S. Cl. 438—45

8 Claims



1. A method for fabricating a semiconductor laser device, comprising the steps of:

forming, by means of epitaxial deposition in a transverse direction, a lower cladding layer, an active layer, and an upper cladding layer, said layers structured and arranged such that said active layer functions as a waveguide and operates as a gain cavity to emit radiation when subjected to an applied electric field; and
implanting ions into at least one region of at least one of said layers to produce at least one modified region disposed between said gain cavity and a lateral side of said laser device, said step of implanting ions accomplished by directing a transverse flux of ions into said at least one region, said flux of ions being of sufficient intensity so as to achieve implantation of said ions within said at least one region such that characteristic properties of said at least one region are changed from corresponding characteristic properties of said at least one of said layers, said characteristic property comprising one or more of an electrical property, a chemical property, a mechanical property, or an optical property, said step of implanting ions being performed subsequent to all other fabrication steps which require a temperature greater than 450° C., said at least one modified region serving to reduce the growth, into said gain cavity, of dark-line defects emanating from constituent lattice defects which may be present in said laser device, whereby the probability of failure attributable to dark-line defects is correspondingly decreased for said laser device.

5,804,462

METHOD FOR FORMING A MULTIPLE-SENSOR SEMICONDUCTOR CHIP

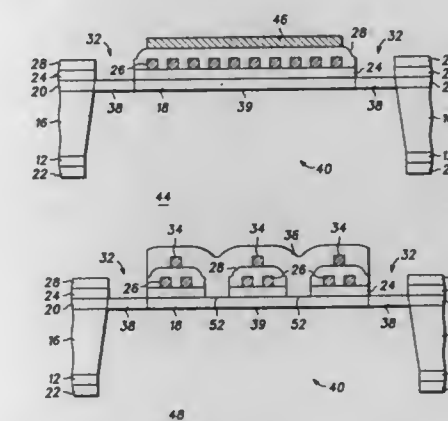
Chung-Chiun Liu, Cleveland Heights; Xiaodong Wang, Cleveland, both of Ohio, and Henry G. Hughes, Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 30, 1995, Ser. No. 565,285

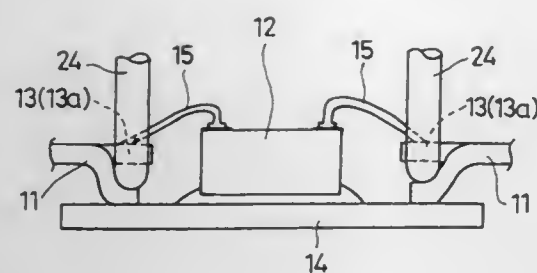
Int. Cl.⁶ H01L 29/84

U.S. Cl. 438—53

41 Claims



1. A method for forming a sensor, comprising the steps of:
doping a top surface of a semiconductor substrate to provide a diffusion region for a resistive heater;
forming a first dielectric layer on said diffusion region;
forming a first metal layer on said first dielectric layer;
forming a second dielectric layer on said first metal layer;
forming a second metal layer on said second dielectric layer; and
forming a sensing cavity underneath and adjacent to said diffusion region.



- c) a wire-bonding process in which a wire is bonded between each of said plurality of leads and said semiconductor element; and
- d) a separating process, performed after completion of said wire-bonding process, in which said plurality of support bars are deformed so as to separate said flat-plate member and said plurality of leads and electrically separate said flat-plate member from said plurality of leads.

5,804,470

METHOD OF MAKING A SELECTIVE EPITAXIAL GROWTH CIRCUIT LOAD ELEMENT

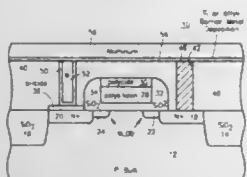
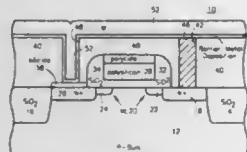
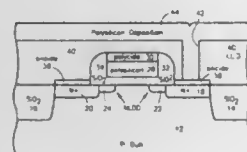
Donald L. Wollesen, Saratoga, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 23, 1996, Ser. No. 735,463

Int. Cl.⁶ H01L 21/20; 21/44

U.S. Cl. 438—141

9 Claims



1. A method of manufacturing a selective epitaxial growth circuit load element in an integrated semiconductor device, the method comprising:

forming a dielectric layer over the semiconductor device;

forming an opening in the dielectric layer over a region of the semiconductor device;

forming a layer of a silicon material over the dielectric layer wherein the opening in the dielectric layer is filled with the silicon material forming a plug;

annealing the semiconductor device forming solid phase epitaxial silicon in the plug;

doping the plug with a dopant of a first type; and

doping the plug with a dopant of a second type, wherein a reverse biased junction diode is formed in the plug.

5,804,471
METHOD OF FABRICATING THIN FILM TRANSISTOR
Shunpei Yamazaki, Tokyo; Akira Takenouchi, and Yasuhiko Takemura, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

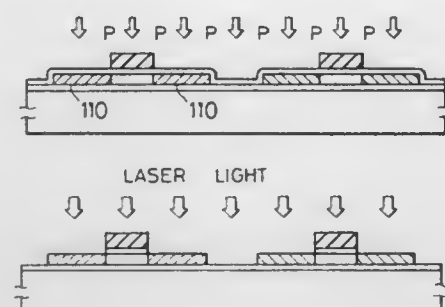
Division of Ser. No. 160,909, Dec. 3, 1993, abandoned. This application Jun. 3, 1996, Ser. No. 657,109

Claims priority, application Japan, Dec. 4, 1992, 4-350546; Nov. 5, 1993, 5-301172

Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—154

13 Claims



1. A method of manufacturing a thin film transistor comprising the steps of:

forming a semiconductor layer over a substrate;

introducing ions of an impurity to selected portions of said semiconductor layer; and

performing a rapid thermal annealing on said semiconductor layer after introduction of said ions.

5,804,472

METHOD OF MAKING SPACER-TYPE THIN-FILM POLYSILICON TRANSISTOR FOR LOW-POWER MEMORY DEVICES

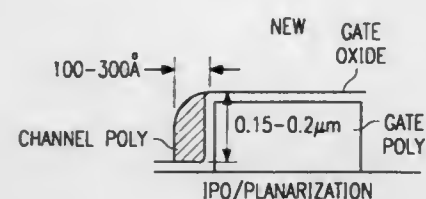
Artur P. Balasinski, Dallas, and Kuei-Wu Huang, Irving, both of Tex., assignors to STMicroelectronics, Inc., Carrolton, Tex.

Division of Ser. No. 521,709, Aug. 31, 1995, Pat. No. 5,640,023. This application May 9, 1996, Ser. No. 644,078

Int. Cl.⁶ H01L 21/84

U.S. Cl. 438—158

49 Claims



1. A method for minimizing the cross-sectional area of a channel of a thin-film transistor (TFT) in order to minimize bitline to supply leakage of the TFT, comprising the steps of:

forming a TFT polysilicon gate layer over a substrate;

patterning and etching the TFT polysilicon gate layer to form a TFT polysilicon gate;

depositing a gate oxide layer over the TFT polysilicon gate and the substrate;

depositing a TFT channel layer over the gate oxide layer;

patterning the TFT channel layer; and

anisotropically etching the TFT channel layer to form a TFT channel adjacent to a side of the TFT poly gate.

5,804,473
THIN FILM SEMICONDUCTOR DEVICE HAVING A POLYCRYSTAL ACTIVE REGION AND A FABRICATION PROCESS THEREOF

Yutaka Takizawa, Kanagawa, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

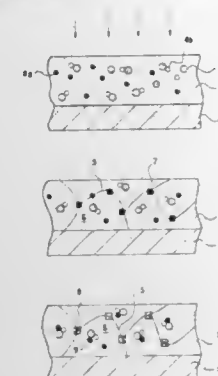
Filed Sep. 24, 1996, Ser. No. 717,811

Claims priority, application Japan, Sep. 26, 1995, 7-247984; Jul. 17, 1996, 8-187884

Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—166

20 Claims



10. A method for fabricating a thin film semiconductor device, comprising the steps of:

(A) depositing a semiconductor film of a semiconductor material on a substrate in the form of an amorphous semiconductor film;

(B) introducing at least one metallic element that forms a compound with said semiconductor material, into said amorphous semiconductor film;

(C) dispersing, after said step (B), said metallic element in said amorphous semiconductor film;

(D) introducing at least one nonmetallic element selected from group VIa elements, group VIIa elements and nitrogen into said amorphous semiconductor film;

(E) dispersing, after said step (D), said nonmetallic element in said amorphous semiconductor film;

(F) crystallizing, after said step (C), said amorphous semiconductor film at a first temperature to convert said amorphous semiconductor film to a crystalline semiconductor film on said substrate; and

(G) annealing, after said steps (D) and (F), said crystalline semiconductor film at a second temperature lower than said first temperature, said second temperature being set such that said metallic element and said nonmetallic element form a precipitate in said crystalline semiconductor film.

5,804,474

METHOD FOR FORMING A V-SHAPED GATE ELECTRODE IN A SEMICONDUCTOR DEVICE, AND THE STRUCTURE OF THE ELECTRODE

Hidehiko Sakaki, Moriyama; Yasushi Yokoi, Shiga-ken, and Koji Monden, Omihachiman, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Apr. 4, 1997, Ser. No. 820,507

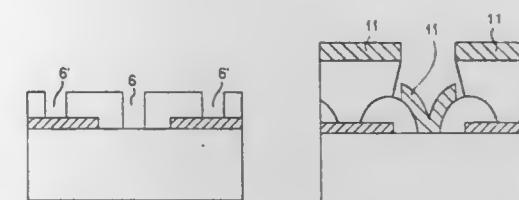
Claims priority, application Japan, Apr. 10, 1996, 8-088010

Int. Cl.⁶ H01L 21/338; 21/3205; 21/4763; G03C 5/00

U.S. Cl. 438—167

9 Claims

1. A method for forming a V-shaped gate electrode on a semiconductor substrate, comprising the steps of:
- forming a first resist covering said semiconductor substrate and a source and a drain formed thereon;
- forming a first gate opening in said first resist between said source and said drain on said semiconductor substrate;



forming dummy openings in proximity to both sides of said first gate opening; and

depositing metal on said semiconductor substrate, while utilizing said first gate opening and said dummy openings to guide said depositing of metal, to form said V-shaped gate electrode.

5,804,475

METHOD OF FORMING AN INTERBAND LATERAL RESONANT TUNNELING TRANSISTOR

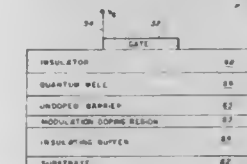
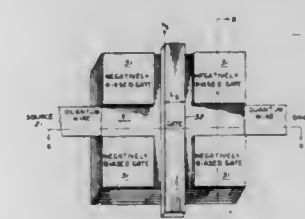
Jerry R. Meyer, Catonsville; Craig A. Hoffman, Columbia, and Filbert J. Bartoli, Jr., Upper Marlboro, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 338,842, Nov. 14, 1994, Pat. No. 5,654,558, and Ser. No. 379,833, Jan. 27, 1995, Pat. No. 5,665,618. This application Jun. 19, 1996, Ser. No. 665,931

Int. Cl.⁶ H01L 21/20; 21/28

U.S. Cl. 438—172

7 Claims



1. A method for making a tunneling transistor consisting of the following steps:

depositing a material forming an insulating buffer layer of material on a substrate to ease a mismatch between said substrate and succeeding layers of material;

depositing a layer of material forming a doping region on the insulating buffer layer;

depositing a layer of material forming an undoped barrier on the doping region;

depositing a material forming a single quantum well layer containing both electron states and the hole states on the undoped barrier;

depositing an insulating layer of material on said single quantum well layer of material; and

depositing a single electrode of a width small enough to induce quantized energy subband levels with energy separators greater than the thermal energy kBT, where T is BOOK, due to lateral confinement induced by the electrode, said electrode disposed on said insulating layer forming a gate controlling a flow of electrons so as to cause interband lateral resonant tunneling in said single quantum well layer of material under said electrode when a voltage is applied to said electrode.

removing portions of the polysilicon layer not covered by said plurality of dielectric regions, thereby forming a plurality of second trenches in the polysilicon layer;
removing said plurality of dielectric regions;
forming and patterning a second photoresist layer on the polysilicon layer, said second photoresist layer defining a storage node over a portion of said polysilicon layer, said second photoresist layer covering the first trench; and
removing portions of the polysilicon layer uncovered by said second photoresist layer to form a storage node, said storage node serving as a bottom electrode of the capacitor of the dynamic random access memory cell.

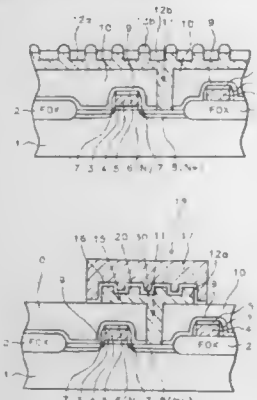
layer, resulting in a saw-toothed topography, comprised of raised and lower features in said doped second polysilicon layer;
patterning of said doped second polysilicon layer, to create said polysilicon storage node electrode, with said saw-toothed topography;
forming said dielectric layer on said polysilicon storage node electrode;
depositing a third polysilicon layer on said dielectric layer; and
patterning of said third polysilicon layer to form said plate electrode, of said STC structure.

5,804,481
INCREASED CAPACITOR SURFACE AREA VIA USE OF AN OXIDE FORMATION AND REMOVAL PROCEDURE
Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Mar. 10, 1997, Ser. No. 814,138
Int. Cl.⁶ H01L 21/8242

U.S. Cl. 438—255

21 Claims



1. A method of fabricating a DRAM device, on a semiconductor substrate, comprised of an underlying transistor; with a gate insulator, a gate electrode structure, formed from a first insulator layer, and from a first polysilicon layer, insulator sidewall spacers, formed from a second insulator layer, and source and drain regions, and an overlying STC structure; with a polysilicon storage node electrode, a dielectric layer, and an overlying polysilicon plate electrode, exhibiting a saw-toothed topography, comprising the steps of:

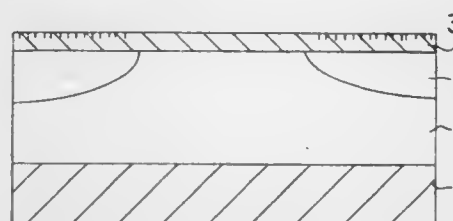
depositing a third insulator layer, on said underlying transistor of said DRAM device;
depositing a doped dielectric layer on said third insulator layer; planarizing said doped dielectric layer;
opening a contact hole, in said doped dielectric layer, and in said third insulator layer, to expose top surface of said source and drain regions, of said underlying transistor;
depositing a doped, second polysilicon layer on top surface of said doped dielectric layer, and on top surface of said source and drain regions, exposed in said contact hole;
depositing intrinsic HSG polysilicon spots on said doped second polysilicon layer;
oxidizing said intrinsic HSG polysilicon spots to form a first silicon oxide region, on the top surface of said doped second polysilicon layer;
oxidizing a top portion of said doped second polysilicon layer, exposed between said intrinsic HSG polysilicon spots, to form a second silicon oxide region, thicker than said first silicon oxide region, overlying lower portions of said doped second polysilicon layer;
removing said first silicon oxide region, exposing top surface of raised portions of said doped second polysilicon layer, and removing said second silicon oxide region, exposing top surface of said lower portions of said doped second polysilicon

5,804,482
METHOD FOR PRODUCING A SEMICONDUCTOR DEVICE HAVING A SEMICONDUCTOR LAYER OF SiC
Andrei Konstantinov, Linköping, and Erik Janzén, Borensberg, both of Sweden, assignors to ABB Research Ltd., Zurich, Switzerland

Filed May 8, 1995, Ser. No. 436,486
Claims priority, application Sweden, Apr. 10, 1995, 9501311
Int. Cl.⁶ H01L 21/336; 21/76

U.S. Cl. 438—268

16 Claims



1. A method for producing a semiconductor device having a semiconductor layer of a SiC, said method comprising the steps of:
a) supplying dopants to the surface of the SiC layer during heating thereof for diffusion of said dopants into the SiC layer, and
b) prior to step a) highly doping at least a portion of the surface layer in the peripheral regions of the SiC layer with dopants of the same conductivity type as that of the dopants for said diffusion for obtaining enhanced diffusion of dopants at the periphery of the SiC layer under said surface layer portion, and
wherein the heat treatment and thereby the diffusion in step a) is carried out under such conditions that the dopants may penetrate through a junction thereby creating the space charge region of said device for creating a guard ring arranged to smooth out the electric field in the peripheral region during a blocking state of the power device.

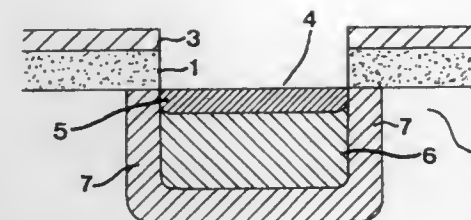
5,804,483
METHOD FOR PRODUCING A CHANNEL REGION LAYER IN A SiC-LAYER FOR A VOLTAGE CONTROLLED SEMICONDUCTOR DEVICE
Christopher Harris, Sollentuna, Sweden, assignor to ABB Research Ltd., Zurich, Switzerland

Filed Aug. 6, 1996, Ser. No. 689,267
Int. Cl.⁶ H01L 21/336; 21/332

U.S. Cl. 438—268

14 Claims

1. A method for producing a doped p-type channel region layer having on laterally opposite sides thereof doped n-type regions in a SiC-layer for producing a voltage controlled semiconductor device, comprising the steps of:
1) applying a masking layer on top of a lightly n-doped SiC-layer,
2) etching an aperture in said masking layer extending to the SiC-layer,



3) implanting n-type dopants into an area of said SiC-layer defined by said aperture to obtain a high doping concentration of n-type in a near-surface layer of the SiC-layer under said area,
4) implanting p-type dopants into an area of the SiC-layer defined by said aperture,
5) heating said SiC-layer at such a temperature that p type dopants implanted in step 4) diffuse into the surrounding regions of the lightly n-doped SiC-layer to such a degree that a channel region layer in which p-type dopants dominate is created laterally to said highly doped n-type surface-near layer and between said layer and lightly n-doped regions of the SiC-layer,

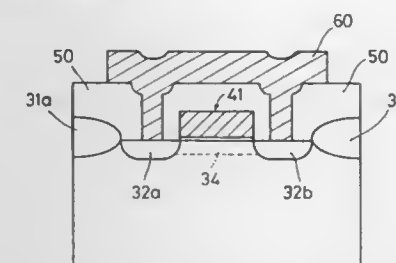
wherein said p-type dopants have a higher diffusion rate in SiC than said n-type dopants and are implanted to such a degree that the doping type in the lightly n-doped regions closest to said highly doped n-type near-surface layer may be shifted to p-type through diffusion of said p-type dopants, and wherein the steps 3) and 4) are carried out in one of a) the order mentioned and b) first step 4) and then step 3), such that, in either case the n-type doping of the near-surface layer is maintained.

5,804,484
METHOD OF FABRICATING MULTI-STAGE READ-ONLY MEMORY SEMICONDUCTOR STRUCTURAL CONFIGURATION
Jemmy Wen, Hsinchu, Taiwan, assignor to United Microelectronics Corp., Taiwan

Filed Dec. 17, 1996, Ser. No. 768,888
Claims priority, application Taiwan, Oct. 2, 1996, 85112050
Int. Cl.⁶ H01L 21/8246

U.S. Cl. 438—278

6 Claims



1. A process for fabricating multi-stage memory cell unit of semiconductor read-only memory device, said multi-stage memory cell unit holding data bits that can be accessed into any one of a plurality of voltage or current levels, said process comprising the steps of

(a) forming a metal-oxide semiconductor transistor in the semiconductor substrate of said memory device, said transistor comprising a pair of source/drain regions and a gate structure;
(b) forming an insulating layer covering said transistor;
(c) forming a contact opening in each of said pair of source/drain regions;
(d) forming a resistor connecting across said source/drain regions of said transistor, said resistor having each of the ends thereof extending into corresponding one of said contact openings;

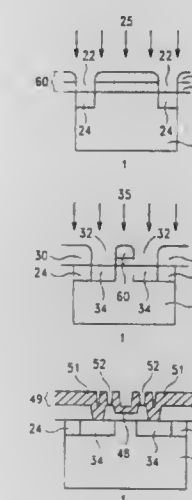
(e) programming said memory cell unit at a first stage by optionally cutting or not cutting said resistor across said source/drain regions into electrically disconnected halves; and
(f) programming said memory cell unit at a second stage by optionally implanting impurity ions into the channel region underneath said transistor gate structure with or without the presence of a masking layer covering said channel region;
wherein combinations of different resistance values in said source/drain resistor and different transistor channel region threshold voltages obtained in said first and second programming stages comprise the multi-stage memory cell transistor threshold voltages for said READ-ONLY MEMORY device.

5,804,485
HIGH DENSITY METAL GATE MOS FABRICATION PROCESS
Wei-Chen Llang, 10F-3, No. 25, Lane 23, Guang-Tung Rd., Hsin-Chu City, Taiwan

Filed Feb. 25, 1997, Ser. No. 805,568
Int. Cl.⁶ H01L 21/336

U.S. Cl. 438—299

6 Claims



1. A high density metal gate metal-oxide semiconductor fabrication process including the steps of:
i) forming a first type trap zone within a specific region on a second type semiconductor wafer;
ii) forming a shielding layer by thermally growing a thin oxide pad from said second type wafer and followed by a nitride layer deposition;
iii) a window is lithographically defined and then etched in said shielding layer, and then driving first type ions implant in said first type trap zone by means of an ion implanting or diffusing method to form first type doping regions;
iv) growing an oxide layer from said first trap zone, then a window is opening in particular location of said shielding layer by lithography and then removing said shielding layer from said location within said window by etching, and then driving N-type ions implant in said first type trap zone by implantation or diffusion to form two second type doping zones beyond said first type doping zones for serving as the source and drain;
v) growing an oxide layer, and then removing said residual nitride layer and said oxide pad to be left;
vi) removing said oxide pad, then growing a new insulating oxide layer;
vii) forming a contact window;
viii) forming a gate and metal layer conductors by metallization; and
ix) processing a protective layer.

5,804,486

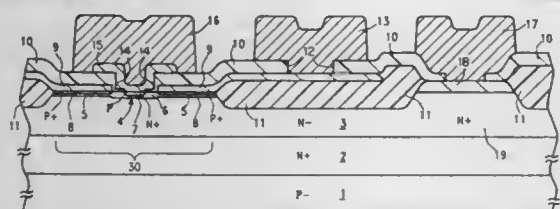
PROCESS FOR MANUFACTURING A HIGH-FREQUENCY BIPOLAR TRANSISTOR STRUCTURE
Raffaele Zambrano, La Punta, and Giuseppe Fallico, Acicastello, both of Italy, assignors to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy
Division of Ser. No. 549,267, Oct. 27, 1995. This application Mar. 5, 1997, Ser. No. 811,616

Claims priority, application European Pat. Off., Oct. 28, 1994, 94830512

Int. Cl.⁶ H01L 21/331

U.S. Cl. 438—309

5 Claims



1. Process for the manufacturing of a high-frequency bipolar transistor integrated structure, comprising the steps of:

- a) selectively forming a thick field oxide region on a silicon layer of a first conductivity type;
- b) forming a silicide layer at least over the silicon layer;
- c) depositing over the entire structure a first polysilicon layer;
- d) selectively doping a first polysilicon layer with a dopant of a second conductivity type;
- e) forming over the first polysilicon layer an oxide layer;
- f) selectively removing the oxide layer, the first polysilicon layer and the silicide layer to open an emitter window over the silicon layer;
- g) forming an intrinsic base region of the second conductivity type in the silicon layer under said emitter window;
- h) forming insulating sidewall spacers at the edges of emitter window;
- i) depositing a second polysilicon layer over the silicon layer at the emitter window;
- j) doping the second polysilicon layer with a dopant of a first conductivity type;
- m) performing a thermal process to make the dopants in the first polysilicon layer a second polysilicon layer diffuse into the silicon layer and the intrinsic base region, respectively, to simultaneously form an extrinsic base region of the second conductivity type and an emitter region of the first conductivity type, the extrinsic base region being shallower than the intrinsic base region.

5,804,487

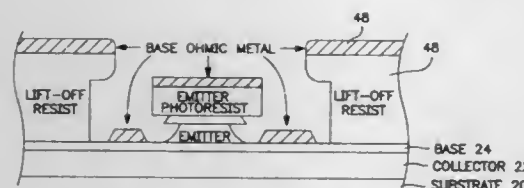
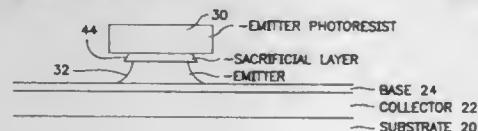
METHOD OF FABRICATING HIGH BETA HBT DEVICES
Michael D. Lammert, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jul. 10, 1996, Ser. No. 676,697

Int. Cl.⁶ H01L 21/331

U.S. Cl. 438—319

15 Claims



1. A method for aligning a metal and an emitter mesa, on an integrated circuit formed with a substrate and a plurality of verti-

cally stacked epitaxial layers thereupon, defining a top epitaxial layer, the emitter mesa being disposed on top of the epitaxial layers, the method comprising the steps of:

- (a) depositing a layer of material on said top epitaxial layer;
- (b) depositing a first photoresist on said top epitaxial layer and said emitter mesa;
- (c) patterning and developing said first photoresist to define an emitter mesa on said top epitaxial layer;
- (d) etching said material to produce an undercut;
- (e) etching said top epitaxial layer to form said object;
- (f) depositing a second photoresist on said top epitaxial layer and said emitter mesa;
- (g) patterning and developing said second photoresist on said integrated circuit to define a re-entrant slope relative to said emitter mesa;
- (h) depositing a metal on said integrated circuit to form an ohmic contact; and
- (i) lifting off said metal, as well as said first photoresist and said second photoresist leaving a metal region around said emitter mesa that is uniformly spaced relative to said emitter mesa.

5,804,488

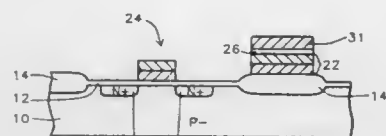
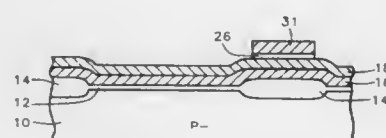
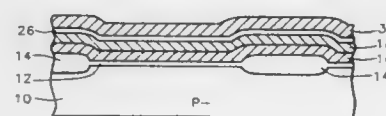
METHOD OF FORMING A TUNGSTEN SILICIDE CAPACITOR HAVING A HIGH BREAKDOWN VOLTAGE
Chun-Yi Shih, Hsinchu; Shun-Liang Hsu, and Jyh-Kang Ting, both of Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Aug. 24, 1995, Ser. No. 518,702

Int. Cl.⁶ H01L 21/20; 21/8242

U.S. Cl. 438—396

18 Claims



1. A method for forming a capacitor with high breakdown voltage, on a silicon substrate, comprising the steps of:

- forming a first layer of doped polysilicon over said silicon substrate;
- forming a silicide layer over said first layer of doped polysilicon;
- forming an oxide layer over said silicide layer, then annealing said silicide layer, immediately after said forming an oxide layer, whereby said high breakdown voltage results;
- forming a second layer of doped polysilicon over said oxide layer;
- patterning said second layer of polysilicon to form a top plate of said capacitor;
- removing said oxide layer except under said top plate of said capacitor, where it acts as a capacitor dielectric; and
- patterning said first layer of doped polysilicon and said silicide layer to form a polycide bottom plate of said capacitor.

5,804,489

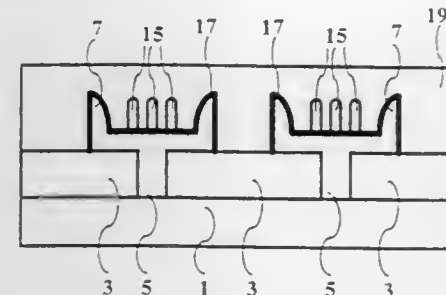
METHOD OF MANUFACTURING A CROWN SHAPE CAPACITOR IN SEMICONDUCTOR MEMORY USING A SINGLE STEP ETCHING

Fu-Liang Yang, Tainan; Erik S. Jeng, Taipei; Yu-Chun Ho, Pan-Chiao; Bin Liu, Taipei, and Chao-Ming Koh, Shung-Hsi, all of Taiwan, assignors to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan
Filed Jul. 12, 1996, Ser. No. 679,196

Int. Cl.⁶ H01L 21/8242

U.S. Cl. 438—396

8 Claims



1. A method for manufacturing an integrated circuit capacitor, the method comprising the steps of:

- forming a first polysilicon layer on a semiconductor substrate;
- forming a photoresist mask pattern on said first polysilicon layer;
- performing a dry etching step to etch said photoresist mask pattern and said first polysilicon layer, said dry etching step including a main etching portion and an over etching portion, wherein said main etching portion includes etching said photoresist mask pattern and said first polysilicon layer that is not covered by said photoresist mask pattern, thereby generating polymers on the sidewalls of said first polysilicon layer, further such that byproducts are randomly generated on a top surface of said first polysilicon layer during said main etching portion when said photoresist mask pattern is removed to the boundary of said first polysilicon layer, wherein said overetching portion includes etching back said first polysilicon layer and forming inner sidewall byproducts on the inner sidewalls of said first polysilicon layer, said byproducts and said inner sidewall byproducts used as a mask;
- removing said polymers, said byproducts and said inner sidewall byproducts; forming a dielectric film on the surface of said first polysilicon layer; and forming a second polysilicon layer over said dielectric film.

5,804,490

METHOD OF FILLING SHALLOW TRENCHES
Bernhard Fiegl, Wappingers Falls, N.Y.; Walter Glashauser, Deisenhofen, Germany; Max G. Levy, Wappingers Falls, and Victor R. Nastasi, Hopewell Junction, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., and Siemens Aktiengesellschaft, Munich, Germany
Filed Apr. 14, 1997, Ser. No. 824,703

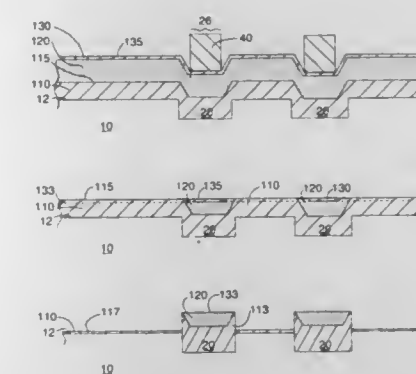
Int. Cl.⁶ H01L 21/76

U.S. Cl. 438—424

6 Claims

1. A method of filling and planarizing a trench in a substrate to a reference surface, said trench having a trench depth and a trench width, comprising the steps of:

- depositing a first fill layer having a thickness of said trench depth plus a fill margin over said trench and said reference surface, whereby a portion of said first fill layer in said trench has a fill top surface higher than said reference surface by said fill margin in a lowest portion of said first fill layer above said trench, said lowest portion being separated from said reference surface by a shoulder portion of said first fill layer;



depositing a temporary fill layer having a thickness of said trench depth minus a polish margin above said trench and said reference surface;

depositing a polish stop layer having a thickness of said polish margin above said trench and said reference surface, whereby a polish top surface of said polish stop layer above said trench and said fill top surface of said first fill layer above said reference surface are substantially coplanar;

forming a polish mask on said polish stop layer directly above said lowest portion;

removing said polish stop layer outside said polish mask;

polishing said temporary fill layer, stopping on said polish top surface of said polish stop layer and said fill top surface of said first fill layer, thereby creating an upper planar surface coplanar with said fill top surface of said first fill layer;

removing said polish stop layer with an etching chemistry that etches both said polish stop layer and said temporary fill layer, thereby leaving a cover portion of said temporary fill layer above said trench and preserving an intermediate planar surface;

destroying said intermediate planar surface by etching a portion of said first fill layer outside said cover portion of said temporary fill layer to a removal depth less than said trench depth, using a chemistry that preferentially etches said first fill layer, said removal depth being such that a second fill top surface of said first fill layer above said reference surface is substantially coplanar with said fill top surface of said first fill layer in said trench;

removing said temporary fill layer with an etching chemistry that etches said temporary fill layer but not said first fill layer; and

polishing said first fill layer, stopping on said reference surface.

5,804,491

COMBINED FIELD/TRENCH ISOLATION REGION FABRICATION METHODS

Dong-ho Ahn, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 8, 1996, Ser. No. 744,436

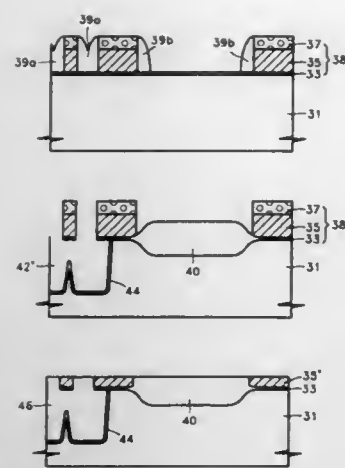
Int. Cl.⁶ H01L 21/76

U.S. Cl. 438—425

21 Claims

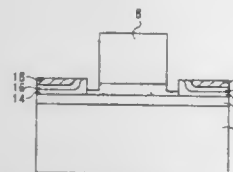
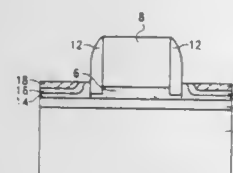
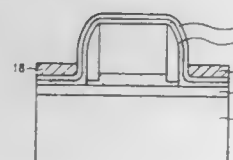
1. A method of fabricating isolation regions on a substrate, the method comprising the steps of:

- forming a pattern region on the substrate, exposing spaced apart first and second areas of the substrate;
- covering the second area while leaving exposed at least a portion of the first area;
- thermally oxidizing the exposed portion of the first area to thereby form a first insulation region on the exposed portion of the first area;



exposing the second area; and
forming a trench isolation region at the second area.

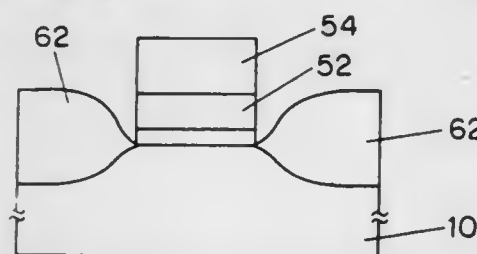
5,804,492
METHOD OF FABRICATING AN ISOLATION REGION FOR SEMICONDUCTOR DEVICE
Yun-Hung Shen, Taipei, Taiwan, assignor to Taiwan Semiconductor Manufacturing Co., Ltd., Hsinchu, Taiwan
Filed Jun. 11, 1997, Ser. No. 873,051
Int. Cl.⁶ H01L 21/76
U.S. Cl. 438—439 14 Claims



1. A method for forming an isolation region between semiconductor devices on a semiconductor wafer, the method comprising:
forming a first pad layer on the wafer as a first block layer;
forming a first silicon nitride layer on said first pad layer;
patterning said first silicon nitride layer to expose first portions of the said pad layer;
removing said first portions of said first pad layer using said first silicon nitride layer as a mask;
forming sidewall spacers on the sidewalls of said first silicon nitride layer;
removing second portions of said first pad layer that are exposed by said first silicon nitride layer and said sidewall spacers;
forming a second pad layer on said first silicon nitride layer, the sidewall spacers, and said exposed first pad layer for acting as a second block layer;
forming a sacrificial oxide layer on said second pad oxide layer;
etching the sacrificial oxide layer to expose third portions of said second pad layer;

removing fourth portions of said second pad layer to expose fifth portions of said sidewall spacers using said sacrificial oxide layer as a mask;
removing said sidewall spacers using said sacrificial oxide layer as a mask to form grooves between said first silicon nitride layer and said second pad layer, the grooves exposing the sixth portions of said first pad layer;
forming isolation regions in said grooves and in the wafer;
removing said first silicon nitride layer; and
removing said first pad layer and said second pad layer.

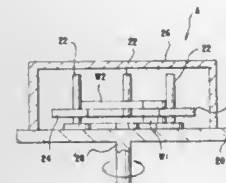
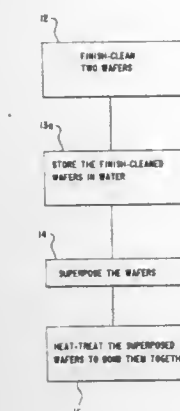
5,804,493
METHOD FOR PREVENTING SUBSTRATE DAMAGE DURING SEMICONDUCTOR FABRICATION
Minn-Horng Juang, Ping-Tung; Cheng-Tsung Ni, and Chih-Hsien Wang, both of Hsinchu, all of Taiwan, assignors to Mosel Vitelic, Inc., Hsin-Chu, Taiwan
Filed Oct. 11, 1995, Ser. No. 540,773
Int. Cl.⁶ H01L 27/105
U.S. Cl. 438—440 17 Claims



1. A method for preventing substrate pitting during semiconductor fabrication, comprising:
(i) forming a pad oxide layer over a substrate;
(ii) forming a polysilicon buffer layer on said pad oxide layer;
(iii) performing an ion-implantation with fluorine into said polysilicon buffer layer, for minimizing polysilicon grains of said polysilicon buffer layer, enabling said polysilicon buffer layer to absorb stress;
(iv) forming a silicon nitride layer on said polysilicon buffer layer;
(v) patterning a photoresist to define an active region in said substrate; and
(vi) forming a local oxide region on the region uncovered by said photoresist.

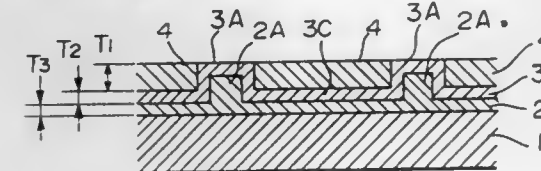
5,804,494
METHOD OF FABRICATING BONDED WAFER
Kiyoshi Mitani; Masatake Katayama, both of Takasaki, and Kazushi Nakazawa, Nagano, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 291,290, Aug. 16, 1994, abandoned.
This application Aug. 9, 1996, Ser. No. 694,861
Claims priority, application Japan, Aug. 20, 1993, 5-206598
Int. Cl.⁶ H01L 21/30
U.S. Cl. 438—455 20 Claims

4. A method of fabricating a bonded wafer, comprising the steps of:
(a) finish-cleaning first and second wafers;
(b) submerging the finish-cleaned first and second wafers in water so as to isolate the finish-cleaned first and second wafers from clean-room air, thereby preventing boron in the clean-room air from depositing on the wafers;
(c) drying the stored first and second wafers in a clean atmosphere which is held out of direct contact with clean-room air, said clean atmosphere consisting essentially of ultrapure N₂ gas;
(d) immediately after the drying, superposing the first and second wafers in said clean atmosphere; and



(e) heat-treating the superposed first and second wafers to bond them together at an interface between said first and second wafers, thereby obtaining a bonded wafer in which said interface has a boron concentration which is lower than if said superposing were conducted in said clean-room air.

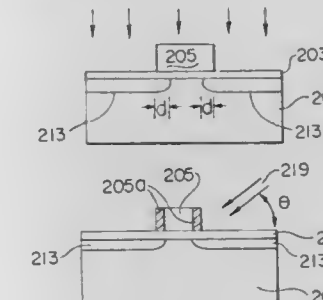
5,804,495
METHOD OF MAKING SOI STRUCTURE
Yuichi Saito, and Kenichi Kawai, both of Tokyo, Japan, assignors to Mitsubishi Materials Corporation, and Mitsubishi Materials Silicon Corporation, both of Tokyo, Japan
Division of Ser. No. 111,434, Aug. 25, 1993, abandoned, which is a continuation of Ser. No. 688,321, Apr. 22, 1991, abandoned. This application Jan. 5, 1995, Ser. No. 369,251
Claims priority, application Japan, Apr. 24, 1990, 2-108300
Int. Cl.⁶ H01L 21/76
U.S. Cl. 438—459 5 Claims



1. A method of manufacturing a silicon wafer structure, comprising:
providing a first silicon wafer having a first polished surface;
etching said first polished surface of a first silicon wafer to a depth T1 so as to form a latticed groove network and a circumferential recessed region in said first silicon wafer, said circumferential recessed region encompassing an entirety of an edge of said first silicon wafer so as to surround said latticed groove network, said latticed groove network and said circumferential recessed region being etched to said depth T1, wherein a total area of said latticed groove network and said circumferential recessed region occupies between 5%—40% of a total surface area of said silicon wafer;
forming an insulating layer, made of one of silicon nitride and silicon dioxide, on said etched first surface of said first silicon wafer so that an entirety of said insulating layer has a substantially uniform height T2 from an upper surface thereof to a lower surface adjacent said etched first surface of said first silicon wafer, to provide a chip separating structure having a lattice network portion and a circumferential portion surrounding said lattice network portion;

forming a polycrystalline silicon layer on said insulating layer so that said polycrystalline silicon layer fills in grooves defined in said lattice network portion and fills in said circumferential portion and polishing said polycrystalline silicon layer to provide a flat mirror surface for said first silicon wafer, wherein a distance T3 between said flat mirror surface and said upper surface of said insulating layer is greater than 1.0 μ m;
bonding a second silicon wafer to said flat mirror surface of said first silicon wafer;
grinding a surface of said first silicon wafer opposite said etched first surface to within 1 μ m of a surface of said circumferential portion and said lattice network portion of said chip separating structure;
mechano-chemically polishing a surface of said first silicon wafer opposite said etched first surface using a polishing machine until said polishing machine is brought into contact with said circumferential portion and said lattice network portion of said chip separating structure so that a plurality of single crystal layer sections are formed in cavities defined in said insulation layer of said chip separating structure, wherein said circumferential portion cooperates with said lattice network to provide said single crystal layer sections with a mirror finish having said thickness T1 by stopping said mechano-chemically polishing step at a top of said insulating layers, said single crystal layer sections being isolated from one another by said lattice network, wherein a uniform thickness of said single crystal layer sections is identified by recognizing interference colors of said single crystal layer sections, and wherein a polishing disk used in said polishing step is made of one of polished alumina and quartz with a surface finish roughness of 1.0 micron and has a series of intersecting surface grooves defined therein at a 5 mm spacing, each groove having a width of 1.5 mm and a depth of 1.0 mm; and
chamfering circumferential edges of said silicon wafer.

5,804,496
SEMICONDUCTOR DEVICE HAVING REDUCED OVERLAP CAPACITANCE AND METHOD OF MANUFACTURE THEREOF
Michael Duane, Austin, Tex., assignor to Advanced Micro Devices, Austin, Tex.
Filed Jan. 8, 1997, Ser. No. 780,615
Int. Cl.⁶ H01L 21/265; 21/3205; 21/4763
U.S. Cl. 438—520 28 Claims



1. A process of forming a semiconductor device, comprising:
forming a gate electrode on a substrate of the semiconductor device;
selectively doping edge portions of the gate electrode with a higher concentration of a than an inner region of the gate electrode first dopant; and
doping the gate electrode with a second dopant different than the first dopant, wherein the higher concentration of the first dopant in the edge portions reduces the conductivity of the gate electrode at the edge portions relative to the inner region.

5,804,497

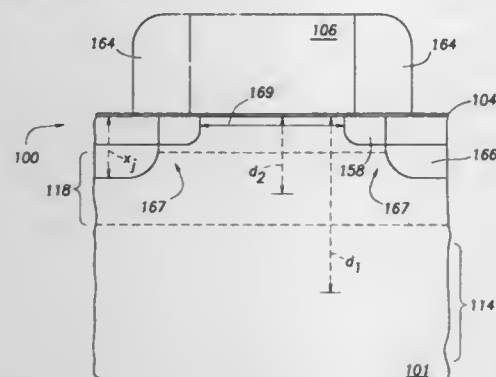
SELECTIVELY DOPED CHANNEL REGION FOR INCREASED I_{DSAT} AND METHOD FOR MAKING SAME
Mark I. Gardner, Cedar Creek; H. Jim Fulford, Jr., and Fred N. Hause, both of Austin, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Aug. 7, 1996, Ser. No. 695,101

Int. Cl.⁶ H01L 21/70

U.S. Cl. 438—529

7 Claims



1. A method of doping a channel region of an MOS transistor, comprising:

providing a silicon substrate, wherein said silicon substrate comprises at least one n-channel region laterally displaced from at least one p-channel region;

doping said n-channel region, wherein said doping consists essentially of:

implanting a first boron bearing impurity exclusively into said n-channel region at an implant energy in the range of approximately 140 to 300 keV and an implant dose in the range of approximately 2E12 to 8E12 atoms/cm²; and

implanting a second boron bearing impurity exclusively into said n-channel region at an implant energy in the range of approximately 50 to 160 keV and an implant dose in the range of approximately 2E12 to 8E12 atoms/cm² wherein a threshold voltage associated with said n-channel region is approximately 250 mV;

doping said p-channel region, wherein said doping consists essentially of:

implanting a first phosphorous impurity into said p-channel region at an implant energy in the range of approximately 360 keV to 500 keV and an implant dose in the range of approximately 2E12 to 8E12 atoms/cm²; and

implanting a second phosphorous impurity into said p-channel region at an implant energy in the range of approximately 150 keV to 280 keV and an implant dose in the range of approximately 2E12 to 8E12 atoms/cm²;

forming a gate dielectric layer on an upper surface of said silicon substrate;

forming a gate conductive layer on an upper surface of said gate dielectric layer; and

patterning said gate conductive layer to remove portions of said gate conductive layer above source/drain regions of said silicon substrate.

5,804,498

METHOD OF MAKING AN UNDERLAYER TO REDUCE PATTERN SENSITIVITY OF OZONE-TEOS

Syun-Ming Jang, Hsinchu; Lu-Min Liu, Hsinchu Hsien, and Lung Chen, Hsinchu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Continuation of Ser. No. 494,630, Jun. 23, 1995, abandoned.

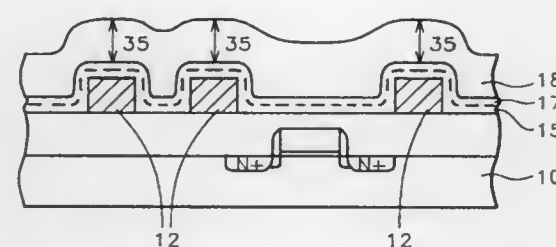
This application Aug. 6, 1997, Ser. No. 907,265

Int. Cl.⁶ H01L 21/4763

U.S. Cl. 438—624

18 Claims

1. A method of manufacturing an integrated circuit comprising:



providing semiconductor device structures in and on a semiconductor substrate;

depositing a conducting layer overlying the surfaces of said semiconductor device structures and patterning said conducting layer to form conducting lines wherein said conducting lines are dense in some portions of said semiconductor substrate and sparse in other portions of said semiconductor substrate wherein gaps are formed between said conducting lines;

depositing a pattern sensitivity reducing layer comprising one of the group consisting of plasma enhanced silicon nitride and plasma enhanced SiH₄ over the surfaces of said conducting layer;

depositing a first oxide layer over said pattern sensitivity reducing layer wherein said gaps between said conducting lines remain;

depositing a second oxide layer over said first oxide layer wherein said gaps are filled by said second oxide layer and wherein the thickness of said second oxide layer is uniform over both said portions of dense conducting lines and portions of sparse conducting lines; and

completing the fabrication of said integrated circuit.

5,804,499

PREVENTION OF ABNORMAL WSi₃ OXIDATION BY IN-SITU AMORPHOUS SILICON DEPOSITION

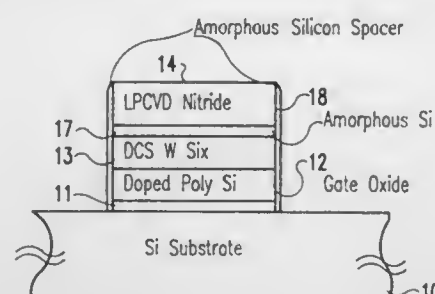
Christine Dehm, Wappingers Falls, N.Y.; Reinhard J. Stengl, Stadlbergen, and Hans-Joerg Timme, Ottobrunn, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed May 3, 1996, Ser. No. 642,294

Int. Cl.⁶ H01L 21/285

U.S. Cl. 438—592

5 Claims



1. A process which prevents abnormal WSi₃ oxidation and provides Si by homogenous WSi₃ formation in the manufacturing of integrated circuit devices comprising the steps of:

forming in a vacuum DCS WSi₃/doped polysilicon interconnect structures for the integrated circuit devices;

without breaking said vacuum, depositing an amorphous silicon layer on the interconnect structures; and

forming a native oxide on said deposited amorphous silicon layer.

5,804,500

FABRICATION PROCESS FOR RAISED TUNGSTEN PLUG ANTIFUSE

Frank W. Hawley, Campbell; John L. McCollum, Saratoga; Ying Go, Palo Alto, and Abdelshafy Eltoukhy, San Jose, all of Calif., assignors to Actel Corporation, Sunnyvale, Calif.

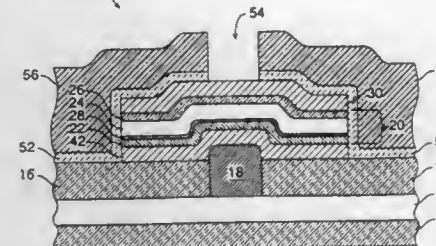
Continuation of Ser. No. 460,417, Jun. 2, 1995, abandoned.

This application Jun. 4, 1996, Ser. No. 657,971

Int. Cl.⁶ H01L 21/44

U.S. Cl. 435—600

12 Claims



1. A method for forming an antifuse on an insulating layer including the steps of:

forming a lower conductive electrode having an upper surface and disposed over the insulating layer;

forming an interlayer dielectric layer over said upper surface of said lower conductive electrode, said interlayer dielectric layer having an upper surface;

forming an aperture within said interlayer dielectric layer communicating with said lower conductive electrode formed therein;

forming a conductive plug in said aperture, said conductive plug having an upper surface raised above said upper surface of said interlayer dielectric layer, an outer edge of said upper surface of said conductive plug being rounded;

forming an antifuse layer having a lower surface and an upper surface, said lower surface disposed over and in contact with all of said upper surface of said conductive plug and at least a portion of said upper surface of said interlayer dielectric layer; and

forming an upper electrode over said upper surface of said antifuse layer.

5,804,501

METHOD FOR FORMING A WIRING METAL LAYER IN A SEMICONDUCTOR DEVICE

Jun Ki Kim, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Continuation of Ser. No. 561,772, Nov. 22, 1995, abandoned.

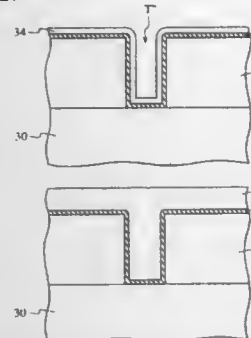
This application Aug. 12, 1997, Ser. No. 910,037

Claims priority, application Rep. of Korea, Nov. 23, 1994, 1994 30901

Int. Cl.⁶ H01L 21/28

U.S. Cl. 438—627

15 Claims



1. A method for forming a wiring metal layer in a semiconductor device, comprising the steps of:

depositing an insulating layer upon a semiconductor substrate on which elements of the semiconductor device have been

formed, and forming a contact hole in the insulating layer by a photo etching process;

forming a barrier metal layer upon the insulating layer and within the contact hole;

performing a chemical vapor deposition process to form a first wiring metal layer on the barrier metal layer; and

depositing a second wiring metal layer with a sputtering method upon the first wiring metal layer, wherein the second wiring metal layer and the first wiring metal layer comprise the same material and contain aluminum.

5,804,502

TUNGSTEN PLUGS FOR INTEGRATED CIRCUITS AND METHODS FOR MAKING SAME

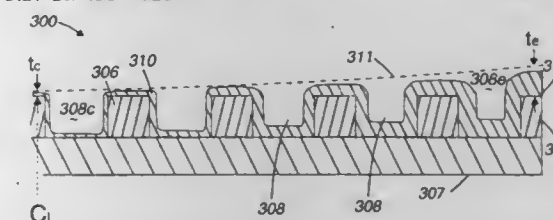
Calvin T. Gabriel, Cupertino; Dipankar Pramanik, Saratoga, and Xi-Wei Lin, Fremont, all of Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jan. 16, 1997, Ser. No. 786,366

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—628

14 Claims



1. A method for producing a glue layer for an integrated circuit comprising:

providing a substrate having a surface, a center, an edge, and a direction normal to said surface; and

sputter depositing a glue layer over said surface of said substrate such that an edge thickness of said glue layer measured in said direction normal to said surface at said edge of said substrate is at least 105% of a center thickness of said glue layer measured in said direction normal to said surface at said center of said substrate.

5,804,503

METHOD AND STRUCTURE FOR REDUCING MICROELECTRONIC SHORT CIRCUITS USING SPIN-ON GLASS AS PART OF THE INTERLAYER DIELECTRIC

Robert Kenneth Leidy, Burlington; Jeffrey Scott Miller, Colchester, and Jon A. Patrick, Jeffersonville, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

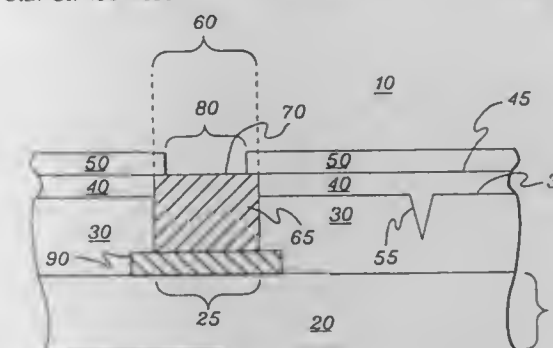
Division of Ser. No. 426,303, Apr. 21, 1995, Pat. No. 5,710,460.

This application Jul. 24, 1996, Ser. No. 685,650

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—633

9 Claims



1. A method of manufacturing a semiconductor device comprising the steps of:

- (a) providing a semiconductor substrate having thereon a planarized first insulator layer, and on said first insulator layer a polymeric film having a top surface;
- (b) forming a first via extending vertically from said top surface of said polymeric film through said polymeric film and said first insulator layer to expose a portion of said semiconductor substrate;
- (c) depositing and planarizing a conductive metal in said first via to form a metal interconnection stud having an end planar with said top surface of said polymeric film;
- (d) depositing a second insulator material over said polymeric film and said metal interconnection stud end to form a second insulator layer; and
- (e) removing a portion of said second insulator layer directly overlying said metal interconnection stud end to form a second via extending through said second insulator layer to said stud end.

5,804,504

METHOD FOR FORMING WIRING OF SEMICONDUCTOR DEVICE

Yang Kyu Choi, Kyongki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Ichon, Rep. of Korea

Continuation of Ser. No. 541,101, Oct. 11, 1995, abandoned.

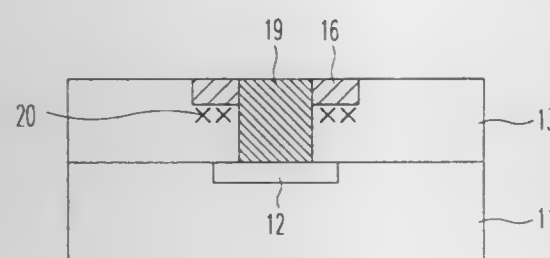
This application Apr. 15, 1997, Ser. No. 834,295

Claims priority, application Rep. of Korea, Oct. 12, 1994, 1994 26085

Int. Cl.⁶ H01L 21/4763

U.S. Cl. 438—637

10 Claims



1. A method for forming a metal wiring of a semiconductor device, comprising the steps of:
- forming a first conductive layer on a semiconductor substrate;
- forming an insulating film having a first thickness over the resulting structure obtained after the formation of the first conductive layer, and then forming a metal wiring mask on the insulating film;
- partially etching a groove having a depth less than said first thickness into the insulating film by use of the metal wiring mask, and then implanting silicon ions in a bottom portion of the groove, thereby forming a silicon-implanted region;
- removing the metal wiring mask, and then selectively growing tungsten in the groove, thereby forming a first selectively-grown tungsten layer;
- forming a contact mask on the resulting structure obtained after the formation of the first tungsten layer, and then etching a contact hole through a portion of the first tungsten layer and a portion of the insulating film by use of the contact mask, thereby forming a contact hole exposing the first conductive layer; and
- removing the contact mask, and then selectively growing tungsten in the contact hole, thereby forming a second selectively grown tungsten layer filling the contact hole, whereby the first tungsten layer as an upper conductive layer is electrically connected to the first conductive layer.

5,804,505

METHOD OF PRODUCING SEMICONDUCTOR DEVICE HAVING BURIED CONTACT STRUCTURE

Yoshiaki Yamada, and Kiyonori Kajiyama, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 139,749, Oct. 22, 1993, abandoned.

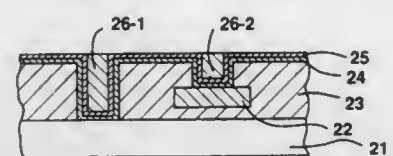
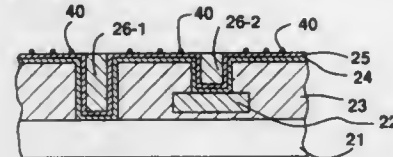
This application Jul. 12, 1996, Ser. No. 679,489

Claims priority, application Japan, Oct. 27, 1992, 4-288031

Int. Cl.⁶ H01L 21/44

U.S. Cl. 438—643

7 Claims



1. A method of producing a semiconductor device comprising the steps of: forming a hole in an interlayer insulating film covering a semiconductor substrate, said interlayer insulating film thereby having a first surface defining said hole and a second surface extending in parallel to said semiconductor substrate, forming a metal layer including a titanium nitride layer on said first and second surfaces of said interlayer insulating film, depositing tungsten on said titanium nitride layer of said metal layer to form a blanket tungsten layer, said blanket tungsten layer thereby having a portion filling said hole, etching back said blanket tungsten layer until said titanium nitride layer covering said second surface of said interlayer insulating film is exposed, said portion of said blanket tungsten layer being thereby left to form a tungsten plug filling said hole, cleaning said titanium nitride layer by heating said titanium nitride layer before fluorine reacts with titanium in said titanium nitride layer to thereby remove said fluorine from said titanium nitride layer and to provide a cleaned titanium nitride layer, and after heating said titanium nitride layer to clean said titanium nitride layer, forming an aluminum layer on said cleaned titanium nitride layer.

5,804,506

ACCELERATION OF ETCH SELECTIVITY FOR SELF-ALIGNED CONTACT

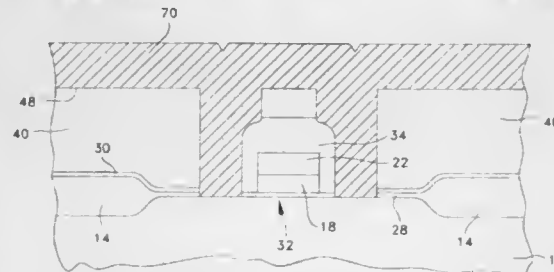
Gordon A. Haller; Randhir P. S. Thakur, and Kirk Prall, all of Boise, Id., assignors to Micron Technology, Inc.

Filed Aug. 17, 1995, Ser. No. 516,461

Int. Cl.⁶ H01L 21/461

U.S. Cl. 438—649

20 Claims



1. A method of fabricating integrated circuits on a semiconductor substrate, comprising the steps of:
- (a) forming a conductor having a nitride encapsulating layer;
- (b) depositing a glass nonconducting layer doped with germanium over said conductor;
- (c) performing a self-aligned contact etch using said conductor; and
- (d) performing a selective etch wherein said selective etch preferentially removes material forming said germanium

doped glass nonconducting layer faster than it removes said nitride encapsulating layer of said conductor.

5,804,507

RADIALLY OSCILLATING CAROUSEL PROCESSING SYSTEM FOR CHEMICAL MECHANICAL POLISHING

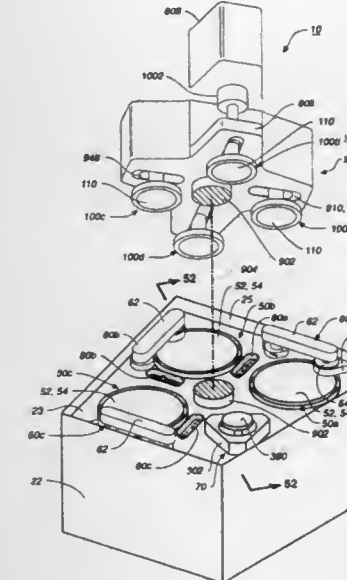
Ilya Perlov; Eugene Gantvarg, both of Santa Clara; Harry Q. Lee, Mountain View; Sasson Somekh, Los Altos Hills, and Robert D. Tolles, Santa Clara, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Oct. 27, 1995, Ser. No. 549,001

Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—692

84 Claims



1. A method of supplying a polishing liquid to a polishing surface on a top of a platen assembly, comprising:
- rotating said platen assembly, wherein rigidly attached to platen assembly are a wall and a bottom defining a reservoir on an upper side of said bottom;
- filling said reservoir with said polishing liquid from a stationary liquid port attached to a body rotatably supporting said platen assembly; and
- pumping said polishing liquid from said reservoir through a passage formed in said rotating platen assembly to said top of said platen assembly.

5,804,508

METHOD OF MAKING A LOW DIELECTRIC CONSTANT MATERIAL FOR ELECTRONICS

Bruce E. Gnade, Dallas; Chih-Chen Cho, Richardson, both of Tex., and Douglas M. Smith, Albuquerque, N. Mex., assignors to Texas Instruments Incorporated

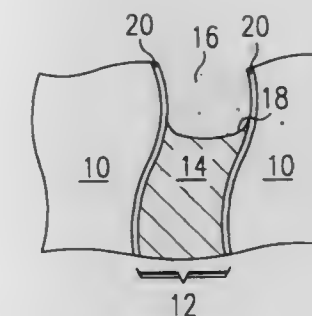
Continuation of Ser. No. 473,701, Jun. 7, 1995, which is a continuation of Ser. No. 247,195, May 20, 1994, Pat. No. 5,470,802. This application Oct. 23, 1996, Ser. No. 735,758

Int. Cl.⁶ H01L 21/31

U.S. Cl. 438—778

16 Claims

1. A method of depositing a controlled-porosity dielectric layer on a semiconductor device, said method comprising:
- providing a substrate and a gel-forming solution comprising a first solvent;
- while limiting evaporation of said first solvent, performing the steps of
- coating said substrate with a film of said gel-forming solution,



- gelling said film to form a wet gel film on said substrate, said wet gel film containing fluid-filled pores arranged in an open-pored structure; and
- aging said wet gel film at a temperature greater than room temperature to obtain an average pore diameter of between 2 nm and 25 nm for said wet gel film; and
- evaporating pore fluid from said wet gel at approximately atmospheric pressure, thereby forming a substantially undensified porous dielectric layer and average pore diameter of between 2 nm and 25 nm.

5,804,509

VARYING TEOS FLOW RATE WHILE FORMING INTERMETALLIC INSULATING LAYERS IN SEMICONDUCTOR DEVICES

Gyung-Su Cho, Kyongki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Ich'on, Rep. of Korea

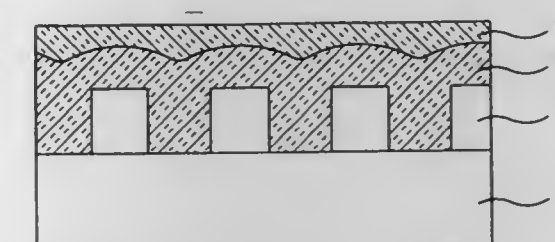
Filed Mar. 4, 1996, Ser. No. 610,715

Claims priority, application Rep. of Korea, Mar. 4, 1995, 1995/4445

Int. Cl.⁶ H01L 00/00

U.S. Cl. 438—790

8 Claims



1. A method of forming an intermetallic insulating layer in a semiconductor device comprising the steps of:
- forming metal interconnects on a semiconductor substrate;
- forming a first insulating layer to a first thickness capable of filling spaces between the metal interconnects by reacting tetraethylorthosilicate (TEOS) gas of a first flow rate with O₃ gas of a selected density in a chemical vapor deposition furnace; and
- forming in the furnace a second insulating layer of a second thickness on the first insulating layer by changing only the flow rate of TEOS to a second flow rate compared with the first flow rate for forming the first insulating layer.

5,804,510

FABRIC ADHESIVE TAPE

Manfred Spies, Biedenkopf; Heiko Leydecker, Neustadt/Holstein, and Klaus K  lper, Pinneberg, all of Germany, assignors to Beiersdorf Aktiengesellschaft, Hamburg, Germany

Continuation of Ser. No. 443,523, May 18, 1995, abandoned.

This application Nov. 21, 1996, Ser. No. 753,166

Claims priority, application Germany, Jun. 1, 1994, 44 19 169.3

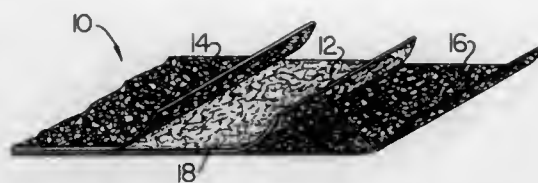
Int. Cl.⁶ C09J 7/02

U.S. Cl. 442—141

11 Claims

1. A halogen-free, flame retardant fabric-based self-adhesive tape comprising:

- a permeable fabric base comprising a halogen- and antimony-free flameproofing agent; and
 - a polar self-adhesive composition thereon comprising a halogen- and antimony-free flameproof agent, said self-adhesive composition comprising acrylate or modified rubber and exhibiting low solubility in non-polar liquids,
- said permeable fabric base being treated with said flameproofing agent apart from the flameproofing agent contained in said self-adhesive composition.



nonwoven webs to form a composite nonwoven fabric, said meltblown web comprising a plurality of thermoplastic microfibrils having an average fiber diameter of less than 1.5 microns and comprising polypropylene having a melt flow rate of at least about or greater than 1,000.

5,804,513

ABRASIVE COMPOSITION AND USE OF THE SAME

Yoshiaki Sakatani; Kazumasa Ueda, and Yoshiaki Takeuchi, all of Niihama, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

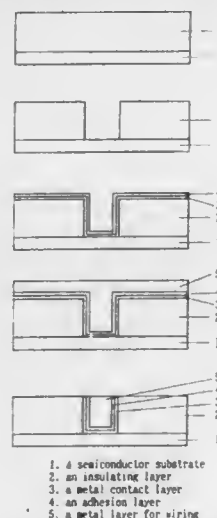
Filed Aug. 29, 1997, Ser. No. 919,813

Claims priority, application Japan, Aug. 29, 1996, 8-228186

Int. Cl.⁶ C09G 1/02

U.S. Cl. 438—693

14 Claims



1. An abrasive composition comprising an oxidizing agent and abrasive particles which have a mean particle size of 2 μ m or less, wherein the abrasive particles comprise (i) at least one oxide selected from aluminum oxide and silicon oxide and (ii) cerium oxide in an amount of 5% to 40% by weight in terms of cerium based on the oxide (i).

5,804,514

METHOD OF PLANARIZING A FILM OF A SEMICONDUCTOR DEVICE

Byung In Kwon, Ichon-shi, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jun. 19, 1996, Ser. No. 665,895

Claims priority, application Rep. of Korea, Jun. 20, 1995, 1995-16400

Int. Cl.⁶ B44C 1/22

U.S. Cl. 438—697

4 Claims

1. A method of planarizing a film of a semiconductor, comprising the steps of:

- coating a photoresist on a film having a topology;
- exposing said photoresist except a lower portion of said photoresist;
- removing the exposed portion of said photoresist so that said photoresist coated on the valley portion of said film is maintained, thereby opening a peak portion of said film;

5,804,512

NONWOVEN LAMINATE FABRICS AND PROCESSES OF MAKING SAME

Deborah K. Lickfield, Easley; James M. Watt, Piedmont, both of S.C.; Stanley Littman, Roswell, Ga., and Robert F. Hyslop, Simpsonville, S.C., assignors to BBA Nonwovens Simpsonville, Inc., Simpsonville, S.C.

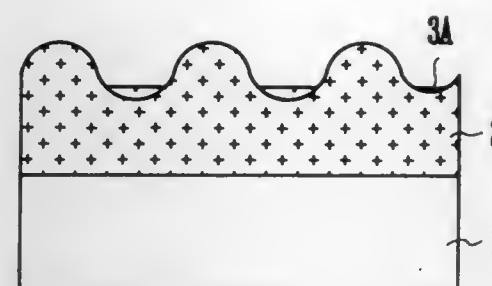
Filed Jun. 7, 1995, Ser. No. 482,739

Int. Cl.⁶ B32B 5/06

U.S. Cl. 442—346

36 Claims

1. A nonwoven laminate fabric, comprising: first and second nonwoven webs; and a nonwoven web of meltblown microfibers having a basis weight between about one and twenty grams per square meter sandwiched between and bonded to said first and second



removing said peak portion of said film using said photoresist coated on the valley portion of said film as a mask; and removing said photoresist coated on the valley portion of said film.

5,804,515

METHOD FOR FORMING CONTACT HOLES OF SEMICONDUCTOR DEVICE

Sang Kyun Park, Ichon-shi, Rep. of Korea, assignor to Hyundai Electronics Industries, Co., Ltd., Ichon-shi, Rep. of Korea

Filed Jun. 28, 1996, Ser. No. 673,365

Claims priority, application Rep. of Korea, Jun. 30, 1995, 1995-18888

Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—700

6 Claims

1. A method of forming contact holes in a semiconductor device, comprising:

- forming a conductive layer pattern on a semiconductor substrate; sequentially depositing a thin insulating film and then a BPSG film over the resulting structure;
- cooling the resulting structure in the atmosphere;
- thermally treating the cooled BPSG film at a temperature ranging from 80° C. to 350° C. to remove moisture absorbed from the atmosphere and phosphorus present at the surface of the BPSG film;
- coating a photoresist film over the BPSG film with the same equipment used in the thermally treating step;
- removing portions of the photoresist film to form a photoresist film pattern;
- wet-etching, to a desired depth, a portion of the BPSG film that is not covered by the photoresist film pattern; and
- dry-etching remaining portions of the BPSG film and insulating film to form the contact holes.

5,804,516

WET PROCESSING TANK EQUIPPED WITH RAPID DRAIN AND RINSE SYSTEM

Y. M. Hsu, Hsin-Chu, and C. J. Pang, Hu-KoShan, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Co. Ltd., Hsin-Chu, Taiwan

Filed Jun. 14, 1996, Ser. No. 663,633

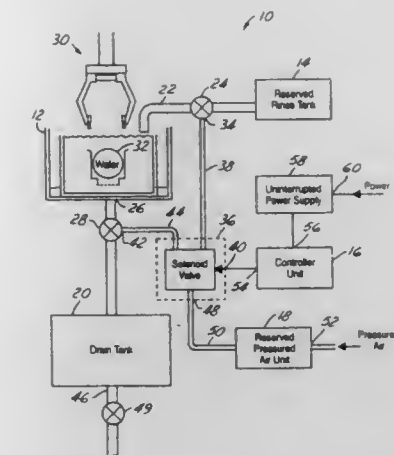
Int. Cl.⁶ H01L 21/00

U.S. Cl. 438—745

20 Claims

17. A method for providing a drain and rinse system for use in wet bench processing of wafers comprising the steps of:

- (a) exposing wafers to processing fluids stored in a processing tank;
- (b) storing rinse fluid in a reserved rinse fluid tank;



- (c) draining said processing tank of said processing fluids by opening a first shut-off valve; and
- (d) rinsing said wafers in said processing tank by emptying said reserved rinse fluid tank into said processing tank.

5,804,517

FLEXIBLE NONWOVEN FABRIC AND LAMINATE THEREOF

Hiroshi Ishii; Kunihiko Takesue, and Kunie Hiroshige, all of Kuga-gun, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Sep. 24, 1997, Ser. No. 936,434

Claims priority, application Japan, Sep. 30, 1996, 8-257958; Jul. 14, 1997, 9-188770

Int. Cl.⁶ D02G 3/00

U.S. Cl. 442—361

10 Claims

1. A flexible nonwoven fabric comprising conjugate long fibers of sheath-core type comprising a core of a resin having a high melting point and a polyethylene sheath, wherein said fiber has a weight ratio of said resin of the high melting point to said polyethylene of from 5/95 to 20/80 and a fineness of up to 3.0 denier, and said nonwoven fabric has a sum of bending resistance in machine and transverse directions as measured by Clark method (method C in JIS L1096) of up to 80 mm.

5,804,518

ABSORBENT ARTICLES

Yoshihiro Sakai, Utsunomiya; Katsushi Maeda, Haga-gun; Yoshiaki Kumamoto, Kawachi-gun, and Shingo Odajima, Haga-gun, all of Japan, assignors to Kao Corporation, Tokyo, Japan

PCT No. PCT/JP95/00510, § 371 Date Nov. 6, 1995, § 102(e) Date Nov. 6, 1995, PCT Pub. No. WO95/26208, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 20, 1995, Ser. No. 545,693

Claims priority, application Japan, Mar. 25, 1994, 6-056326

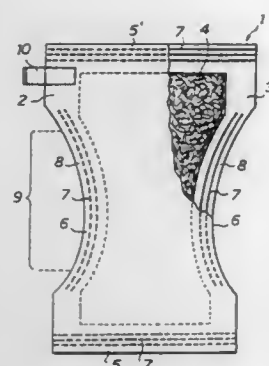
Int. Cl.⁶ A61F 13/15; B32B 3/26

U.S. Cl. 442—370

4 Claims

1. An absorbent article comprising a liquid permeable topsheet, a liquid impermeable back sheet and an absorbent member interposed between said topsheet and said back sheet, said absorbent article being characterized in that:

- said back sheet being a single continuous porous sheet obtainable by preparing, by melt blending, a solution comprising 30 to 90 parts by weight of a crystalline polyolefin and 10 to 70 parts by weight of a compound with which said crystalline polyolefin is miscible and in which said crystalline polyolefin will dissolve at or above the melting point of said crystalline polyolefin but which will phase separate below the melting



point of said crystalline polyolefin, molding said melt blended solution into a sheet, and stretching said sheet in at least one direction;
said crystalline polyolefin being a polypropylene having a weight average molecular weight (Mw) to number average molecular weight (Mn) ratio (Mw/Mn) of more than 6.0.

5,804,519

HOT MELT ADHESIVE COMPOSITIONS

Martin Riswick, Marlow, United Kingdom, and Gary F. Raykovitz, Flemington, N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Continuation of Ser. No. 457,898, Jun. 1, 1995, abandoned, which is a division of Ser. No. 330,159, Oct. 27, 1994, abandoned. This application Nov. 5, 1997, Ser. No. 968,869

Int. Cl.⁶ A61F 13/15; 13/20

U.S. Cl. 442—392

9 Claims

1. A process for bonding tissue or nonwoven substrate to similar or dissimilar substrates in the construction of a disposable absorbent product comprising the steps of applying to at least one substrate a molten hot melt adhesive composition and bonding said substrates together, said hot melt adhesive containing 0.1 to 10 parts by weight of a fluorochemical surfactant per 100 parts of the adhesive.

5,804,520

CRYSTALLIZED GLASS FOR SUBSTRATE OF INFORMATION-RECORDING DISK

Kenji Morinaga, Nakagawa-machi; Yuji Akimoto, Fukuoka; Fumiyuki Shimizu, Chikushino; Mineto Iwasaki, Tosu, and Naoto Shindo, Ohnojo, all of Japan, assignors to Sec Inc., Tokyo, Japan

Filed Sep. 30, 1997, Ser. No. 941,472

Claims priority, application Japan, Oct. 4, 1996, 8-281592; Aug. 13, 1997, 9-230479

Int. Cl.⁶ C03C 10/04; 10/14

U.S. Cl. 501—4

2 Claims

1. A crystallized glass for a substrate of an information-recording disk, which has been obtained by melting a raw material for glass consisting essentially of, in weight percentages in terms of oxide, 55 to 85% of SiO₂, 5 to 20% of Li₂O, 0 to 10% of K₂O+Na₂O, 0 to 10% of MgO, 0 to 20% of CaO, 0 to 10% of SrO, 0 to 10% of BaO, 0 to 10% of ZnO, 0 to 10% of Al₂O₃, 0 to 15% of B₂O₃, 0 to 6% of P₂O₅, 0 to 3% of TiO₂, 0 to 3% of ZrO₂, 0 to 3% of SnO₂ and 0 to 1% of As₂O₃+Sb₂O₃, 0.1 to 10% by weight of fluorine (F) and 0.1 to 20% by weight of chlorine (Cl), molding the molten material, vitrifying the molded material and subjecting the vitrified material to crystallizing treatment, and which contains at least 0.05% by weight of chlorine after the crystallizing treatment.

5,804,521

PROCESS FOR PRODUCTION OF A SILICON NITRIDE CERAMIC

Akira Takahashi; Masaaki Masuda, both of Nagoya, and Kei-ichiro Watanabe, Kasugai, all of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Division of Ser. No. 589,171, Jan. 22, 1996, Pat. No. 5,691,261, which is a continuation of Ser. No. 437,216, May 8, 1995, abandoned, which is a continuation of Ser. No. 179,685, Jan. 11, 1994, abandoned. This application Aug. 1, 1997, Ser. No. 905,025

Claims priority, application Japan, Jan. 22, 1993, 5-9481
Int. Cl.⁶ C04B 35/587

U.S. Cl. 501—97.1

6 Claims

1. A process for producing a silicon nitride ceramic, comprising the steps of:
mixing a rare earth compound with α -Si₃N₄ powder and β -Si₃N₄ powder to obtain a raw material powder so as to satisfy the formula: $0.05 \leq \beta/\alpha + \beta \leq 0.50$ (α refers to the weight of α -Si₃N₄ powder, β refers to the weight of β -Si₃N₄ powder);
forming said raw material powder to give a compact; and
firing said compact at a temperature ranging from 1800° to 2000° C. under a nitrogen atmosphere having an atmospheric pressure of at least 1 atm to form a silicon nitride ceramic comprising silicon nitride and a rare earth compound, wherein the ratio of (1) the transverse rupture strength, at room temperature, of a fired surface used as a tensile surface to (2) the transverse rupture strength, at room temperature, of a worked surface used a tensile surface subjected to working so as to have a surface roughness of $R_{MAX} 0.8 \mu\text{m}$ or less is 0.83 or more and wherein pores on the fired surface each have a size of $50 \mu\text{m} \times 50 \mu\text{m}$ or smaller.

5,804,522

HARDENED ALUMINA MATERIAL

Kenjiro Uegami, 8-17, Nishijuku 3-chome, Mino-shi Osaka, Japan

Filed Sep. 8, 1995, Ser. No. 524,645

Claims priority, application Japan, Sep. 10, 1994, 6-242123
Int. Cl.⁶ C04B 35/10

U.S. Cl. 501—127

5 Claims

1. A hardened alumina material containing aluminum oxide as a main component, wherein the material is at least partially hardened to have a micro-Vickers hardness of no less than 2600 kgf/mm² (under a test load of $300 \times 9.807 \text{ mN}$) by solid solution of an oxide additive in aluminum oxide, the oxide additive being selected from the group consisting of TiO₂ and Y₂O₃, a hardened part of the alumina material containing no more than 3% of the oxide additive, the alumina material containing no sol- and gel-forming agent.

5,804,523

SINTERED PRODUCT OF SILICON NITRIDE

Takehiro Oda; Koichi Tanaka; Tomohiro Iwaida; Sentaro Yamamoto; Shoji Kohsaka; Masahiro Sato; Hideki Uchimura, and Kenichi Tajima, all of Kokubu, Japan, assignors to Kyocera Corporation, Kyoto, Japan

Continuation of Ser. No. 455,168, May 31, 1995, abandoned.
This application May 9, 1997, Ser. No. 853,410

Claims priority, application Japan, May 31, 1994, 6-118409; Dec. 27, 1994, 6-324731

Int. Cl.⁶ C04B 35/587

U.S. Cl. 501—97.2

5 Claims

1. A sintered product of silicon nitride, comprising:
not less than 70 mol % of a β -silicon nitride, an impurity oxygen and an element of Group 3a of the periodic table including Lu in an amount not less than 0.5 mol % expressed as an oxide thereof, wherein
the Group 3a element (RE) and the impurity oxygen are present in a total amount of from 2 to 30 mol % when the content of

the Group 3a element is expressed as an amount of an oxide RE₂O₃ of the Group 3a element and the impurity oxygen is expressed as an amount of SiO₂ of impurity oxygen,
the molar ratio SiO₂/RE₂O₃ of the amount of the Group 3a element expressed as the oxide RE₂O₃ thereof to the amount of impurity oxygen expressed as SiO₂ is from 1.6 to 10, and
the sintered product comprises an intergranular phase, the intergranular phase comprising a crystal phase consisting essentially of the Group 3a element, silicon and oxygen.

5,804,524

PROCESS FOR A ISOTACTIC/SYNDIOTACTIC POLYMER BLEND IN A SINGLE REACTOR

Baireddy Raghava Reddy, Baytown, and Edwar Shoukri Shamshoum, Houston, both of Tex., assignors to Fina Technology, Inc., Dallas, Tex.

Filed Apr. 28, 1993, Ser. No. 54,916

Int. Cl.⁶ C08F 04/64

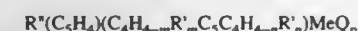
U.S. Cl. 502—113

10 Claims

1. A catalyst system for the polymerization of olefins to produce polymer blends in a single reactor comprising a combination of at least one solid syndiospecific metallocene catalyst and at least one conventional supported Ziegler-Natta catalyst for producing isotactic polyolefin,

wherein the solid metallocene catalyst consists of:

a) a neutral metallocene compound of the general formula



wherein (C₅H₄) is a cyclopentadienyl ring and (C₄H_{4-m}R'_mC₅H_{4-m}R'_n) is a substituted cyclopentadienyl ring wherein (C₅H₄) and (C₄H_{4-m}R'_mC₅H_{4-m}R'_n) have bilateral or pseudo-bilateral symmetry; R' is a hydrocarbyl radical having from 1–20 carbon atoms, a halogen, an alkoxy, an alkoxy alkyl or an alkylamino radical, each R' may be the same or different; R* is a structural bridge between the (C₅H₄) and (C₄H_{4-m}R'_mC₅H_{4-m}R'_n) rings to impart stereoregidity; Q is a hydrocarbon radical or is a halogen; Me is a Group IVB, VB, or VIB metal as positioned in the Periodic Table of Elements; 0 ≤ m ≤ 4; 0 ≤ n ≤ 4; and p is the valence of Me minus 2, and

b) an aluminoxane,

wherein the conventional supported Ziegler-Natta catalyst comprises:

a) a transition metal compound of the general formula MR_x, where M is a Group VB, VB or VIB metal, R* is a halogen or a hydrocarboxyl and x is the valence of the metal and
b) an aluminum alkyl of the general formula AlR₃, where R# is an alkyl of from 1–8 carbon atoms and R# may be the same or different
c) an electron donor organosilicon compound.

5,804,525

METHOD FOR MAKING POLYCARBONATES

Eugene P. Boden, Scotia, N.Y.; Larry I. Flowers, Evansville; Roy R. Odle, Mt. Vernon, both of Ind.; Peter D. Phelps, Schenectady, N.Y.; David L. Ramsey, Mt. Vernon, and Paul D. Sybert, Evansville, both of Ind., assignors to General Electric Company, Pittsfield, Mass.

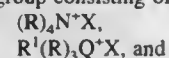
Division of Ser. No. 241,324, May 10, 1994, Pat. No. 5,519,105. This application Feb. 8, 1996, Ser. No. 597,417

Int. Cl.⁶ B01J 31/00

U.S. Cl. 502—162

7 Claims

1. A catalyst composition to catalyze the interfacial condensation reaction to produce polycarbonates, polyesters, copolymers, or mixtures thereof, said catalyst composition comprising a mixture of two or more catalysts wherein a first catalyst is selected from the group consisting of:



5,804,526

ADSORBENT FOR NITROGEN OXIDES AND EXHAUST EMISSION CONTROL CATALYST

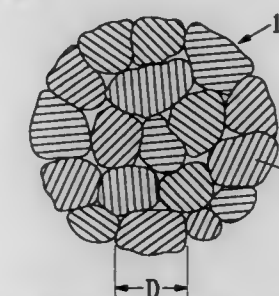
Naohiro Satoh; Kazuhide Terada; Takeshi Narishige, and Yoshikazu Fujisawa, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 453,707, May 30, 1995, abandoned.

This application Dec. 11, 1996, Ser. No. 762,026
Claims priority, application Japan, Sep. 29, 1993, 5-243348; Sep. 19, 1994, 6-223702

Int. Cl.⁶ B01F 23/10; 29/068; 29/44

U.S. Cl. 502—304

8 Claims



1. An exhaust emission control catalyst for purifying nitrogen oxides (NOx) in an exhaust gas through contact therebetween, said exhaust gas including the nitrogen oxides, hydrocarbon (HC) and excess oxygen, said exhaust emission control catalyst comprising a mixture of CeO₂ crystallite particles and zeolite particles of dealuminized ZSM-5 zeolite, wherein a content C of said CeO₂ crystallite particles is in a range of 10% by weight ≤ C ≤ 80% by weight, wherein said CeO₂ crystallite particles are comprised of polycrystalline aggregates having an average crystalline grain size D of D < 500 Å, and wherein said CeO₂ crystallite particles are present on and adjacent surfaces of said zeolite particles.

5,804,527

PLANAR STRUCTURAL PART AS FILLER-OR CARRIER BODY FOR CATALYSTS, CONDENSER BODIES, FILTERS AND THE LIKE

Helmut Rieder, Südtirolerplatz 10, 8020 Graz, and Franz Stuhlbacher, Harterstrasse 26, 8053 Graz, both of Austria

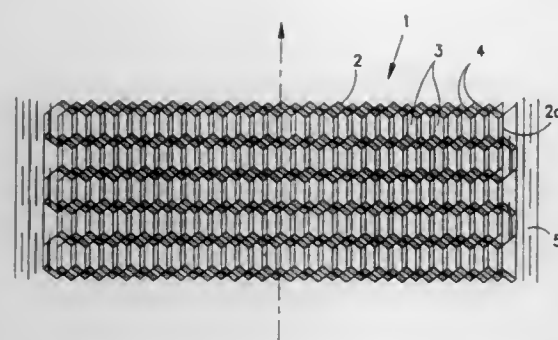
Filed Sep. 5, 1995, Ser. No. 523,628

Claims priority, application Austria, Sep. 5, 1994, 1692/94
Int. Cl.⁶ B01J 35/02

U.S. Cl. 502—439

3 Claims

1. A structural element for use as a carrier body for catalytic processes, said structural element comprising:
a sheet of foil material having a length dimension and a width dimension,
transverse rows of polygonally shaped apertures in the sheet interconnected by webs of the foil material which are twisted relative to a plane containing the apertures to provide the sheet with a depth dimension,
the apertures being staggered row to row and the sheet being formed by providing a roll of foil material, continuously withdrawing the material from the roll, forming transverse rows of staggered lengthwise cuts in the material and stretch-

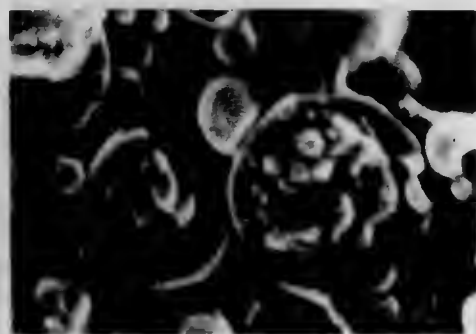


ing the material laterally to transform the cuts into said hexagonal apertures and material between the cuts into said webs, the stretching of the material laterally providing a lengthwise contraction of the materials, the apertures comprise hexagonal apertures having apices oriented in the length direction of the sheet and portions of the webs extending parallel to the length dimension of said sheet of foil material, the sheet of foil material being layered with another same sheet to form a multilayer structure with the apertures in the respective sheets being misaligned, and lengthwise borders absent said apertures of each of said sheets of foil material being bent depthwise of the sheets to provide a same amount of said lengthwise contraction as the material of each of said sheets having said apertures.

5,804,528
THERMOSENSITIVE RECORDING MATERIAL WITH A HIGH FOG RESISTANCE
Yasuyuki Aoki; Tomotsugu Takahashi; Akira Maeta, all of Tokyo; Rie Harunaga, Shiki; Haruo Omura, Inzai, and Satoshi Fukui, Tokyo, all of Japan, assignors to Oji Paper Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1996, Ser. No. 752,628
Claims priority, application Japan, Nov. 20, 1995, 7-323536; Mar. 27, 1996, 8-095873; Apr. 25, 1996, 8-105715

Int. Cl.⁶ B41M 5/34; 5/36
U.S. Cl. 503—204 21 Claims

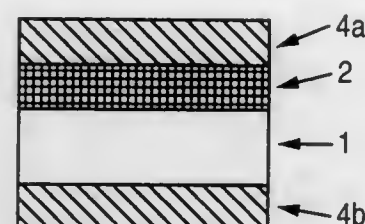


1. A thermosensitive recording material comprising:
a support, and
a thermosensitive colored image-forming layer formed on a surface of the support and comprising at least one substantially colorless dye precursor, a color-developing agent reactive with the dye precursor upon heating to thereby develop a color, and a binder, the dye precursor in the thermosensitive colored image-forming layer being present in a plurality of fine solid composite particles which have been prepared by dissolving a solute comprising the dye precursor in a solvent comprising a polymerization component comprising a polyvalent isocyanate compound; emulsifying the resultant solution in an aqueous medium; and subjecting the resultant aqueous emulsion to a polymerization reaction of the polymerization component; and in which the dye precursor is dissolved in a solid thermo-

plastic resinous matrix consisting of a resultant polyurea or polyurethane polyurea resin.

5,804,529
HEAT-SENSITIVE RECORDING MATERIAL AND PROCESS FOR THE PRODUCTION THEREOF
Yasuko Komatsu, Tokyo, Japan, assignor to Mitsubishi Paper Mills Ltd., Japan
Filed May 9, 1997, Ser. No. 853,465
Claims priority, application Japan, May 10, 1996, 8-116603; Apr. 2, 1997, 9-083921

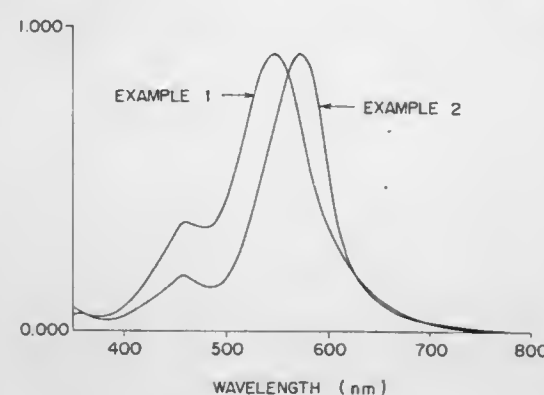
Int. Cl.⁶ B41M 5/40
U.S. Cl. 503—226 9 Claims



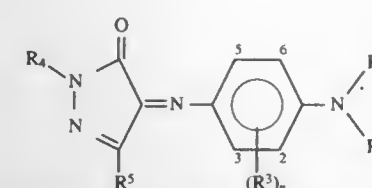
1. A heat-sensitive recording material in which a heat-sensitive recording layer which thermally forms a color is directly or indirectly formed on a substrate, the heat-sensitive recording layer being present between two oxygen-barrier layers each of which has a basis weight of 2 to 20 g/m², the oxygen-barrier layers being formed of a polymer substance having an oxygen permeability constant of 0.5×10⁻¹⁰ cm³·cm/cm²·sec·cmHg or less.

5,804,530
THERMAL TRANSFER SHEET
Hiroshi Eguchi, and Kazuya Yoshida, both of Tokyo-To, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan
Filed Jul. 18, 1996, Ser. No. 677,550

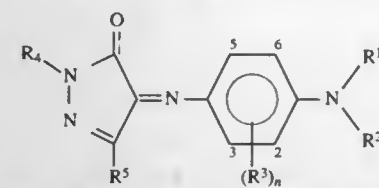
Claims priority, application Japan, Jul. 21, 1995, 7-206828
Int. Cl.⁶ B41M 5/035; 5/38
U.S. Cl. 503—227 3 Claims



1. A thermal transfer sheet comprising:
a substrate sheet; and
a dye layer provided on one surface of the substrate sheet, the dye layer being formed of a dye and a binder, the dye contained in the dye layer being at least one member selected from dyes represented by the following general formulae (I) and (II):



wherein R¹ and R² each independently represent a substituted or unsubstituted alkyl, cycloalkyl, aralkyl, or aryl group; R³ represents a hydrogen atom, a halogen, a cyano group, a hydroxyl group, a substituted or unsubstituted alkyl, alkoxy, cycloalkyl, aralkyl, aryl, acyl, acylamino, or alkylsulfonylamino group; R⁴ represents a substituted or unsubstituted cycloalkyl, or aralkyl group; R⁵ represents a substituted or unsubstituted aminocarbonyl, or aryloxycarbonyl group; and n is an integer of 1 or 2; and



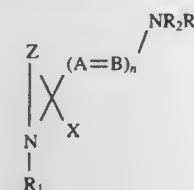
wherein R¹, R², R³, and n are as defined above in connection with the formula (I), R⁴ represents a substituted or unsubstituted cycloalkyl, or aralkyl group, and R⁵ represents a cyano group.

5,804,531
THERMAL DYE TRANSFER SYSTEM WITH POLYESTER IONOMER RECEIVER
Steven Evans; Teh-Ming Kung; Kristine B. Lawrence, and Richard C. VanHancum, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1997, Ser. No. 995,728
Int. Cl.⁶ B41M 5/035; 5/38
U.S. Cl. 503—227 8 Claims

5. A process of forming a dye transfer image comprising imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising a dye dispersed in a polymeric binder, said dye being:

- an electrically neutral, deprotonated, delocalized cationic dye precursor;
- a pendant basic dye of the formula D-(L-E)_m, wherein D represents the residue of a dye, L represents a linking group, E represents a moiety with basic properties and m is an integer of 1-3; or
- a cationic dye precursor having the following structure:



wherein:

R₁, R₂ and R₃ each independently represents a substituted or unsubstituted alkyl group of from 1 to about 10 carbon atoms, a substituted or unsubstituted aryl group of from about 6 to about 10 carbon atoms, a substituted or unsubstituted heteraryl group of from about 5 to about 10 atoms or a substituted or unsubstituted allyl group;

A and B each independently represents N or CR and may be part of an aromatic or heteroaromatic ring system;

X represents —OR, —N(R)₂, —NRCOR, —NRSO₂R, —SR, —SO₂R, —S(O)R, —O₂CR, —NRCO(R)₂, —OCON(R)₂, —SO₂N(R)₂ or —NRCOOR; wherein each R independently represents H or R_i;

Z represents the atoms necessary to complete a 5- or 6-membered heterocyclic ring which may optionally be fused with other carbo- or heterocyclic rings;

n represents an integer of from 1-5;

X and R_i may be combined to form a 5-7 membered ring; and R₂ and R₃ may be combined together or independently combined with A or B to form a 5-7 membered ring;

and imagewise transferring said dye to a dye-receiving element to form said dye transfer image, said dye-receiving element comprising a support having thereon a polymeric dye image-receiving layer comprising a polyester ionomer comprising a polyester backbone containing units of a sulfonic acid or sulfonimide and a basic nitrogen-containing compound which has a pKa of its conjugate acid in the range from about 6 to about 10.

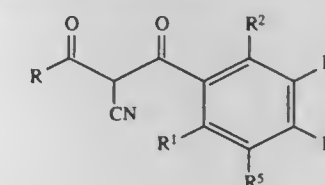
5,804,532
HERBICIDAL 2-CYANO-1,3-DIONES
Paul Alfred Cain, Cary, N.C.; Susan Mary Cramp, Ongar, England; Claude Lambert, Ongar, England; Derek Ian Wallis, Ongar, England; Thomas David Yarwood, Ongar, England; Gillian Mary Little, Ongar, England; John Morris, Ongar, England; Tibor Musil, Ongar, England; Simon Neil Pettit, Ongar, England, and Philip Henry Gaunt Smith, Ongar, England, assignors to Rhone-Poulenc Agriculture Limited, Essex, England

Continuation-in-part of Ser. No. 304,482, Sep. 12, 1994, abandoned, which is a continuation of Ser. No. 94,881, Jul. 22, 1993, abandoned, and a continuation-in-part of Ser. No. 309,646, Sep. 21, 1994, abandoned, which is a continuation of Ser. No. 92,058, Jul. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 825,258, Jan. 24, 1992, abandoned, which is a continuation-in-part of Ser. No. 825,274, Jan. 24, 1992, abandoned. This application Jun. 2, 1995, Ser. No. 458,300

Claims priority, application United Kingdom, Jan. 25, 1991, 9101659; Jan. 25, 1991, 9101660; May 18, 1993, 9310203; May 18, 1993, 9310222

Int. Cl.⁶ C07C 303/00; 255/00
U.S. Cl. 504—309 95 Claims

1. A compound of the formula



wherein:

R is:
straight- or branched-chain alkyl having up to six carbon atoms, optionally substituted by one or more halogen; or cycloalkyl having from three to six carbon atoms, optionally bearing one or more R⁷ substituents;

R¹ is hydrogen; each of R², R³, R⁴ and R⁵, which can be the same or different, is:

hydrogen;
straight- or branched-chain alkyl, alkenyl or alkynyl having up to six carbon atoms, optionally substituted by one or more halogen;
straight- or branched-chain alkyl having up to six carbon atoms, substituted by an —OR⁶ group;
halogen;
phenyl, optionally substituted by from one to three R²¹ groups, which can be the same or different; or

—COR⁷, nitro, cyano, —CO₂R⁶, —S(O)_nR⁹,
—O(CH₂)_mOR⁶, —N(R¹²)SO₂R⁸, —CONR¹⁰R¹⁵ or
—OR⁶¹;
provided that at least one of R², R³, R⁴ and R⁵ is
—N(R¹²)SO₂R⁸;

R⁶ is:

straight- or branched-chain alkyl, alkenyl or alkynyl having
up to six carbon atoms, optionally substituted by one or
more halogen; or
cycloalkyl having from three to six carbon atoms;

R⁶¹ is:

straight- or branched-chain alkyl, alkenyl or alkynyl having
up to six carbon atoms, optionally substituted by one or
more halogen;
cycloalkyl having from three to six carbon atoms; or
phenyl, optionally substituted by from one to five R²¹ groups,
which can be the same or different;

R⁷ is:

straight- or branched-chain alkyl having up to six carbon
atoms, optionally substituted by one or more halogen; or
cycloalkyl having from three to six carbon atoms;

R⁸ is:

straight- or branched-chain alkyl, alkenyl or alkynyl having
up to six carbon atoms, optionally substituted by one or
more halogen;
cycloalkyl having from three to six carbon atoms;
phenyl, optionally substituted by from one to five R²¹ groups,
which can be the same or different; or
—NR¹⁰R¹¹;

R⁹ is:

straight- or branched-chain alkyl, alkenyl or alkynyl having
up to six carbon atoms, optionally substituted by one or
more halogen;
cycloalkyl having from three to six carbon atoms; or
phenyl, optionally substituted by from one to five R²¹ groups,
which can be the same or different;

R¹⁰ is:

hydrogen; or
straight- or branched-chain alkyl having up to six carbon
atoms, optionally substituted by one or more halogen;

R¹¹ is:

straight- or branched-chain alkyl having up to six carbon
atoms, optionally substituted by one or more halogen;
provided that when R¹⁰ and R¹¹ are part of a group
—NR¹⁰R¹¹ they can, together with the nitrogen to which
they are attached, form a five or six membered ring option-
ally having one additional hetero ring atom which is oxy-
gen or nitrogen, said ring being optionally substituted by
one or more alkyl, each having up to three carbon atoms;

R¹² is:

hydrogen;
straight- or branched-chain alkyl, alkenyl or alkynyl having
up to six carbon atoms, optionally substituted by one or
more halogen;
cycloalkyl having from three to six carbon atoms;
phenyl, optionally substituted by from one to five R²¹ groups,
which can be the same or different; or
—OR¹⁷;

R¹⁵ is:

R⁷ or —OR¹⁷;
provided that when R¹⁰ and R¹⁵ are part of a group
—CONR¹⁰R¹⁵ they can, together with the nitrogen to
which they are attached, form a 5 or 6 membered ring
optionally having one additional hetero ring atom which is
oxygen or nitrogen, said ring being optionally substituted
by one or more alkyl, each having up to 3 carbon atoms;

R¹⁷ is:

straight- or branched-chain alkyl having up to six carbon
atoms;

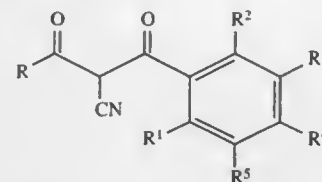
R²¹ is:

halogen;
straight- or branched-chain alkyl having up to three carbon
atoms, optionally substituted by one or more halogen; or
nitro, cyano, —S(O)_nR⁷ or —OR⁷;
m is one, two or three; and

n is zero, one or two;

or an agriculturally acceptable salt, metal complex or enolic
tautomeric form thereof.

13. A compound of formula:



wherein:

R represents:

straight- or branched-chain alkyl having from 1 to 6 carbon
atoms, optionally substituted by one or more halogen which
may be the same or different; or
cycloalkyl having from 3 to 6 carbon atoms, optionally bear-
ing one or more substituents which may be the same or
different selected from the group consisting of R⁵¹ and
halogen, wherein R⁵¹ is as defined below;

R¹ represents hydrogen;

R² represents —S(O)_nCH₃ or —S(O)_nCH₂CH₃;

R³ and R⁵, which may be the same or different, each represents:
halogen or hydrogen, or
straight- or branched-chain alkyl having from 1 to 6 carbon
atoms, bearing a substituent —OR⁵¹, wherein R⁵¹ is as
defined below;

or a member selected from the group consisting of R⁵¹, cyano,
—OR⁵¹, —O(CH₂)_mOR⁵¹ and —CO₂R⁵¹, wherein R⁵¹ and
m are as defined below;

provided that at least one of R³ and R⁵ is hydrogen;

R⁴ represents:

halogen or hydrogen, or
straight- or branched-chain alkyl having from 1 to 6 carbon
atoms bearing a substituent —OR⁵¹, wherein R⁵¹ is as
defined below; or
a member selected from the group consisting of R⁵¹, cyano,
—SR⁴¹, —OR⁵¹, —O(CH₂)_mOR⁵¹ and —CO₂R⁵¹, wherein
R⁵¹, R⁴¹ and m are as defined below;

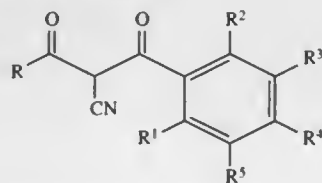
R⁴¹ and R⁵¹, which may be the same or different, each repre-
sents:

straight- or branched-chain alkyl having from 1 to 6 carbon
atoms; R⁵¹ is optionally substituted by one or more halogen
which may be the same or different;
m is an integer from 1 to 3; and
n is zero, 1 or 2;

with the proviso that when n is zero, R⁴ does not represent
—SR⁴¹;

an enolic tautomeric form thereof,
or an agriculturally acceptable salt of said enolic tautomeric
form.

33. A compound of formula:



wherein:

R represents cyclopropyl or methylcyclopropyl;

R¹ represents hydrogen;

R² represents:

halogen, or
straight- or branched-chain alkyl having from 1 to 6 carbon
atoms, bearing a substituent —OR⁵¹; wherein R⁵¹ is as
defined below;
or a member selected from the group consisting of R⁵¹, cyano,
—SR⁵¹, —OR⁵¹, —O(CH₂)_mOR⁵¹, and —CO₂R⁵¹,
wherein R⁵¹ and m are as defined below;

R³ and R⁵, which may be the same or different, each represents:
halogen or hydrogen, or

straight- or branched-chain alkyl having from 1 to 6 carbon
atoms, bearing a substituent —OR⁵¹, wherein R⁵¹ is as
defined below;

or a member selected from the group consisting of R⁵¹, cyano,
—OR⁵¹, —O(CH₂)_mOR⁵¹ and —CO₂R⁵¹, wherein R⁵¹ and
m are as defined below;

provided that at least one of R³ and R⁵ is hydrogen;

R⁴ represents —S(O)_nR⁴¹, wherein R⁴¹ and n are as defined
below;

R⁴¹ and R⁵¹, which may be the same or different, each repre-
sents:

straight- or branched-chain alkyl having from 1 to 6 carbon
atoms, R⁵¹ is optionally substituted by one or more halogen
which may be the same or different;

n is zero, 1 or 2; m is an integer from 1 to 3;

an enolic tautomeric form thereof,
or an agriculturally acceptable salt of said enolic tautomeric
form.

5,804,533

Patent Not Issued For This Number

5,804,534

HIGH PERFORMANCE DUAL MODE MICROWAVE
FILTER WITH CAVITY AND CONDUCTING OR
SUPERCONDUCTING LOADING ELEMENT

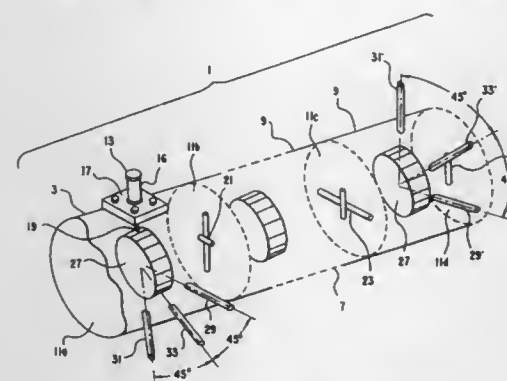
Kawthar Abdelhamid Zaki, Potomac, Md., assignor to Univer-
sity of Maryland, College Park, Md.

Filed Apr. 19, 1996, Ser. No. 633,705

Int. Cl. 6 H01P 1/201; H01B 12/02

U.S. Cl. 505—210

16 Claims



1. A miniaturized microwave filter comprising in combination:

(a) a first composite microwave resonator comprising (i) a cavity
resonator and (ii) disposed within said cavity resonator, a
loading element of a conducting material;

(b) first tuning means for tuning said composite microwave
resonator to resonance at a first frequency along a first axis;

(c) second tuning means for tuning said composite microwave
resonator to resonance at a second frequency along a second
axis orthogonal to said first axis;

(d) mode coupling means for causing mutual coupling and
excitation between resonant electromagnetic fields on said
first and second axes;

(e) input means for coupling microwave energy into said cavity
resonator; and

(f) output means for coupling a portion of one of said resonant
electromagnetic fields on said first and second axes out of said
cavity resonator.

11. The filter of claim 1, wherein the loading element comprises
metal.

14. The filter of claim 11, wherein the metal is a superconduct-
ing metal.

5,804,535

WELL DRILLING AND SERVICING FLUIDS AND
METHODS OF INCREASING THE LOW SHEAR RATE
VISCOSITY THEREOF

James W Dobson, Houston; James P Cashlon, Missouri City,
and Brandon B Bellew, Houston, all of Tex., assignors to
Texas United Chemical Company, LLC., Houston, Tex.

Filed Jun. 9, 1997, Ser. No. 871,389

Int. Cl. 6 C09K 7/02

U.S. Cl. 507—111

16 Claims

1. In a well drilling and servicing fluid comprising a biopolymer
viscosifier, a modified starch fluid loss control additive, and an
aqueous brine having dissolved therein a formate salt selected from
the group consisting of potassium formate, cesium formate, and
mixtures thereof, the improvement wherein the modified starch
comprises a pre-gelatinized crosslinked amylopectin starch which
has been crosslinked to the extent that the viscosity of a basic
aqueous amylopectin starch suspension undergoing crosslinking is
within about 25% to about 60% of the maximum viscosity which
can be obtained.

5,804,536

SOLID LUBRICANT FOR BEARINGS COMPRISING A
MIXTURE CONTAINING A LUBRICATING GREASE AND
POLYETHYLENE POWDER

Mitsunari Asao, Suzuka, and Hidenobu Mikami, Kuwana,
both of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Mar. 27, 1997, Ser. No. 826,332

Claims priority, application Japan, Apr. 1, 1996, 8-079021;

Apr. 22, 1996, 8-100093

Int. Cl. 6 C10M 123/04

U.S. Cl. 508—100

6 Claims

1. A solid lubricant for rolling bearings comprising a mixture of
72-98% by weight of a lubricating grease, and 20-1% by weight of
powder of polyethylene having an average molecular weight of
150000 or more, and an oil-soluble rust preventive in the form of a
sulfonate or a fatty polyhydric alcohol partial ester, said mixture
being heated to a temperature higher than the gel point of said
polyethylene and lower than the dropping point of said lubricating
grease.

5,804,537

CRANKCASE LUBRICANT COMPOSITIONS AND
METHOD OF IMPROVING ENGINE DEPOSIT
PERFORMANCE

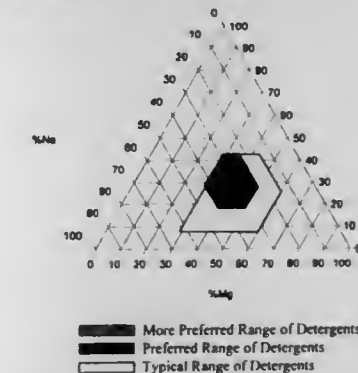
Alexander Bowman Boffa, Glen Gardner, and Thomas Richard
Bidwell, Hightstown, both of N.J., assignors to Exxon
Chemical Patents, Inc., Linden, N.J.

Filed Nov. 21, 1997, Ser. No. 976,024

Int. Cl. 6 C10N 159/20

U.S. Cl. 508—398

38 Claims



1. A lubricating oil composition, which comprises: (a) an oil of
lubricating viscosity as the major component and (b) a tri-metal
detergent mixture as a minor component, said tri-metal detergent

mixture comprising at least one calcium overbased metal detergent, at least one magnesium overbased metal detergent and at least one sodium overbased metal detergent, said tri-metal detergent mixture being present in the oil composition in an amount such that the total TBN contributed to the oil composition by said tri-metal detergent mixture is from about 2 to about 12, said calcium overbased detergent contributing from about 8 to about 42% of the total TBN contributed by said tri-metal detergent mixture, said magnesium overbased detergent contributing from about 29 to about 60% of the total TBN contributed by said tri-metal detergent mixture, and said sodium overbased detergent contributing from about 15 to about 64% of the total TBN contributed by said tri-metal detergent mixture.

5,804,538

PERFUME DELIVERY SYSTEMS IN LIQUID PERSONAL CLEANSING COMPOSITIONS

Karl Shiqing Wei; Louis Fay Wong, both of Mason; Mark Richard Sine, Morrow; Timothy Woodrow Coffindaffer, Loveland, and Toan Trinh, Maineville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 20, 1996, Ser. No. 667,137
Int. Cl.⁶ C11D 3/50; 9/44; A61K 7/045

U.S. Cl. 510—101

22 Claims

1. A liquid personal cleansing composition which provides enhanced perfume deposition on the skin and which provides increased on-skin fragrance longevity, which composition comprises:

- from about 0.5% to about 5% of a cationic material;
 - from about 1% to about 80% of a surfactant selected from the group consisting of anionic surfactant, amphoteric surfactant which have been altered to have a negative charge, and mixtures thereof;
 - from about 0.01% to about 5% of a volatile perfume comprising at least about 50% by weight of the volatile perfume, of highly volatile perfume ingredients having a boiling point of 250° C. or lower; and
 - water; and
- wherein the ratio of cationic material:group (b) surfactant ranges from about 1:15 to about 1:5; and wherein the viscosity of the liquid personal cleansing composition ranges from about 100 to about 100,000 centipoise.

5,804,539

PERSONAL CLEANSING SYSTEM COMPRISING A POLYMERIC DIAMOND-MESH BATH SPONGE AND A LIQUID CLEANSER WITH MOISTURIZER

Gail Gordon, Cincinnati; Cheryl Oram Schoenberg, West Chester, and Lisa Catherine Winder, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 455,757, May 31, 1995, Pat. No. 5,650,384, which is a continuation of Ser. No. 327,911, Oct. 25, 1994, abandoned, which is a continuation of Ser. No. 226,451, Apr. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 80,668, Jun. 18, 1993, abandoned. This application Mar. 5, 1997, Ser. No. 810,895

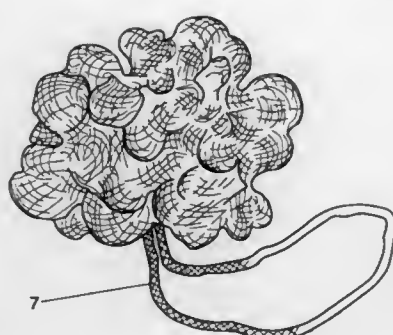
Int. Cl.⁶ C11D 17/04; 3/16

U.S. Cl. 510—130

39 Claims

1. A personal bath or shower body cleansing and lathering product comprising:

- a personal cleansing implement comprising a hydrophobic polymeric netted mesh; and
- a cleansing and moisturizing liquid emulsion having at least two phases, wherein said liquid emulsion comprises:
 - a moisturizing phase comprising from about 0.5% to about 33.5% by weight of a skin conditioner ingredient; and
 - an aqueous cleansing phase comprising i) from about 0.5% to about 30% by weight of a lathering surfactant or mixture of surfactants having an equilibrium surface ten-



sion ranging from about 15 to about 50 dynes/cm as measured at the critical micelle concentration at 25° C.; and ii) water.

5,804,540

PERSONAL WASH LIQUID COMPOSITION COMPRISING LOW VISCOSITY OILS PRE-THICKENED BY NON-ANTIFOAMING HYDROPHOBIC POLYMERS

Liang Sheng Tsaur, Norwood; Mengtao He, Wayne, both of N.J.; Michael Massaro, Coogers, and Michael Paul Aronson, West Nyack, both of N.Y., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jan. 8, 1997, Ser. No. 779,546

Int. Cl.⁶ C11D 3/18; 3/20; 3/22; 3/48

U.S. Cl. 510—135

33 Claims

1. A liquid skin cleansing composition comprising

- about 10% to 50% by wt. of a surfactant selected from the group consisting of anionic surfactants, cationic surfactants, amphoteric surfactants, nonionic surfactants and mixtures thereof; and
- 0.5% to 30% by wt. total composition a pre-thickened oil composition with a viscosity greater than 2000 centipoise (cp), wherein said specific pre-thickened oil composition (b) comprises (i) a hydrophobic emollient agent having a viscosity less than 1000 cp and (ii) a polymeric thickener compound; wherein the cleansing composition containing said polymer/oil thickening composition (b) provides a foam height of at least seven cm or greater after two minutes of foam aging, as tested by the Ross-Miles method,

wherein said thickener is selected such that:

- the hydrophobicity of the polymeric thickener is such that it has a solubility less than 1% by wt. when measured in water at 25° C.;
- oil miscibility or/and dispersibility of the thickener is such that, upon mixing with the said low viscosity oil b(i), the polymer/oil thickening composition which forms is a homogeneously thickened oil having a viscosity greater than 2000 cp, and which does not have layer separation;
- the content of crystalline materials in the thickener is less than 20% by wt., and the content of materials, selected from the group consisting of non-crystalline gels, non-crystalline amorphous solids and microcrystalline waxes, in the thickener is greater than 80% by wt.

5,804,541

FLOOR TREATING COMPOSITION COMPRISING A GLYCINE N,N-DIACETIC ACID

Josef Jans, Munchwilen, Switzerland, assignor to Diversey Lever, Inc., Plymouth, Mich.

Filed Jun. 19, 1997, Ser. No. 878,743

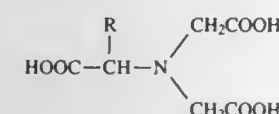
Claims priority, application European Pat. Off., Jun. 19, 1996, 96201699

Int. Cl.⁶ C11D 1/10; 9/00; 3/43; 1/66

U.S. Cl. 510—214

11 Claims

1. A floor stripper composition having a pH-value above 9.0, and comprising a soap a solvent selected from the group consisting of glycol ethers and diglycol ethers, water and a glycine-N,N-diacetic acid compound of the formula (I):



wherein R is a C₁-C₂₀ alkyl group wherein the glycine-N,N-diacetic acid is present in the form of a divalent metal complex thereof, whereby the divalent metal is not zinc or C₂-C₂₀ alkenyl group.

5,804,542

AUTOMATIC DISHWASHING COMPOSITIONS COMPRISING COBALT CATALYSTS

William Michael Scheper, Lawrenceburg, Ind.; Alan Scott Goldstein, Blue Ash, and Edward Eugene Getty, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 382,742, Feb. 2, 1995. This application Feb. 10, 1997, Ser. No. 799,594

Int. Cl.⁶ C11D 1/66; 3/26; 3/39; 3/395

U.S. Cl. 510—221

14 Claims

1. An automatic dishwashing composition comprising:

- an amount sufficient to provide from about 0.1 ppm to about 50 ppm in aqueous solution of a cobalt catalyst having the formula:



wherein cobalt is in the +3 oxidation state, n is an integer from 3 to 5; X is one or more labile coordinating moieties; m is an integer from 1 to 3; m+n=6; and T is one or more appropriately selected counteranions present in a number y, where y is an integer from 0 to 3, to obtain a balanced salt;

- from about 0.1% to about 30% by weight of the composition of a source of hydrogen peroxide;
- from about 0.1% to about 10% by weight of the composition of a low foaming nonionic surfactant having a cloud point of a 1% solution in water of below about 32° C.; and
- from about 30% to about 99.9% of automatic dishwashing adjunct materials;

wherein a 1% aqueous solution of said automatic dishwashing composition has a pH of less than 11.

5,804,543

DETERGENT COMPOSITIONS WITH OPTIMIZED SURFACTANT SYSTEMS TO PROVIDE DYE TRANSFER INHIBITION BENEFITS

William C. Wertz, Lawrenceburg, Ind., and Rajan K. Panandiker, West Chester, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 320,350, Oct. 11, 1994, abandoned.

This application Jul. 19, 1996, Ser. No. 684,515

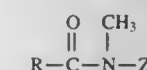
Int. Cl.⁶ C11D 1/29; 1/83; 3/30; 3/395

U.S. Cl. 510—303

18 Claims

1. A laundry detergent composition that provides both especially effective soil and stain removal from, and especially effective inhibition of dye transfer between, fabrics being laundered in aqueous washing solutions formed from such a composition, which composition comprises:

- from about 5% to 60% by weight of an anionic surfactant component
 - which comprises alkylpolyethoxylate sulfates wherein the alkyl group contains from about 10 to 22 carbon atoms, wherein the polyethoxylate chain contains from about 1 to 15 ethylene oxide moieties and wherein unethoxylated alkyl sulfates comprise no more than about 25% by weight of said anionic surfactant component; and
 - which is substantially free of non-bleach activating sulfonated anionic surfactants;
- from about 1% to 20% by weight of a nonionic surfactant component which comprises nonionic materials selected from
 - polyhydroxy fatty acid amides of the formula



wherein R is a C₉₋₁₇ alkyl or alkenyl and Z is glycidyl derived from a reduced sugar or alkoxyated derivatives thereof;

- alcohol ethoxylates of the formula R¹(OC₂H₄)_nOH wherein R¹ is a C₈-C₁₆ alkyl group or a C₈-C₁₂ alkylphenol group and n is from about 3 to 80; and
 - combinations of said fatty acid amides and alcohol ethoxylates;
- from about 0.1% to about 80% of detergent builder component; and
 - from about 0.01% to 10% by weight of a polymeric dye transfer inhibiting agent selected from polyamine N-oxide polymer.

5,804,544

GRANULAR DETERGENT COMPOSITION COMPRISING A SURFACTANT AND ANTIFOAMING COMPONENT

Suzanne Powell, Newcastle upon Tyne, and Christiaan Arthur Thoen, Tyne & Wear, both of Great Britain, assignors to Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US94/07660, § 371 Date Jul. 5, 1996, § 102(e) Date Jul. 5, 1996, PCT Pub. No. WO95/02665, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 7, 1994, Ser. No. 583,092

Claims priority, application European Pat. Off., Jul. 12, 1993, 93870132

Int. Cl.⁶ C11D 1/12; 3/08; 3/20

U.S. Cl. 510—347

1 Claim

1. A granular laundry detergent composition comprising:

- from about 3% to about 30% by weight, of a detergent surfactant said detergent surfactant contains from 40% to 95% by weight, a mixture of a C₁₂-C₂₀ alkyl sulfate surfactant and a C₁₁-C₁₈ alkyl ethoxysulfate having an average of from 1 to 7 ethoxy groups per mole wherein the ratio of alkyl sulfate to alkyl ethoxysulfate surfactant is from about 2:1 to about 19:1;
- from about 0.05% to about 20% by weight, of a spray-on suds suppressing component comprising:
 - from about 5% to about 50% by weight, of a silicone antifoam component comprising:

- i) from about 50% to about 99% by weight, a polydimethyl siloxane;
- ii) from about 1% to about 50% by weight, of silica;
- b) from about 0.5% to about 10% by weight, of a silicone glycol rake copolymer dispersant having polyoxyalkylene content of from about 72% to about 78% and an ethylene oxide to propylene oxide ratio of from about 1:0.9 to about 1:1.1;
- c) from about 5% to about 80% by weight, of a C₁₆-C₁₈ ethoxylalcohol carrier having a degree of ethoxylation of from about 5 to about 50;
- wherein said spray-on component is incorporated into said granular detergent composition by spraying said spray-on component on to one or more of the granular detergent components which comprise said granular detergent composition;
- C) from about 0.05% to about 20% by weight, of a particulate component comprising:
- a) from about 8% to about 15% by weight, of a mixture of polydimethyl siloxane and silica;
- b) from about 60% to about 80% by weight, of a starch carrier;
- c) from about 5% to about 20% by weight, of a C₁₆-C₁₈ ethoxylalcohol agglomerate binder having a degree of ethoxylation of from about 5 to about 50;
- d) from 1% to about 10% by weight of a C₁₂-C₂₂ hydrogenated fatty acid; and
- D) the balance carriers and adjunct ingredients, said adjunct ingredients selected from the group consisting of builders, bleaches, bleach activators, brighteners, enzymes, soil release agents, softening agents, and mixtures thereof.

5,804,545

STABLE ALKALINE CHLORINE COMPOSITIONS

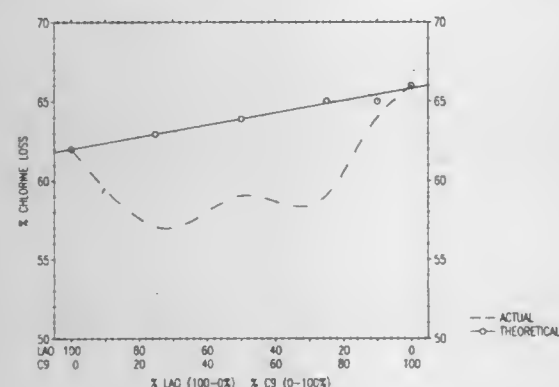
Thomas C. Hemling, Lake Winnebago, and Cynthia L. Palmer, Kansas City, both of Mo., assignors to West Argo, Inc., Kansas City, Mo.

Continuation of Ser. No. 334,695, Nov. 4, 1994, abandoned, which is a continuation of Ser. No. 159,051, Nov. 29, 1993, abandoned, which is a continuation-in-part of Ser. No. 157,922, Nov. 24, 1993, abandoned. This application Mar. 15, 1996, Ser. No. 616,771

Int. Cl.⁶ C11D 3/395

U.S. Cl. 510—373

9 Claims



1. A stable, aqueous chlorine concentrate composition consisting essentially of the following ingredients dispersed in water: from about 0.5–8% by weight of alkaline metal hypochlorite; from about 3–12% by weight of alkali metal hydroxide; and from about 3.5–6% by weight of a binary surfactant system consisting essentially of respective amounts of chlorine-stable trialkylamine oxide and saturated C₅-C₁₂ fatty acid soap with an amine oxide:fatty acid soap weight ratio of from about 90:10 to 25:75, said composition having a pH above 12.5.

5,804,546
CLEANING COMPOSITION
Christopher John Hall, Chester, England, assignor to Cussons (International) Limited, Stockport, England
Filed May 23, 1996, Ser. No. 652,370
Claims priority, application Germany, May 27, 1995, 9510856.9

Int. Cl.⁶ C11D 17/00; 17/08; 7/50; B65D 85/84

U.S. Cl. 510—406

27 Claims

1. An aqueous cleaning composition comprising a surfactant, characterized in that the composition also comprises a first component and a second component whereby when the first and second components are combined together a gas is generated which acts on the surfactant to create a lather.

5,804,547

DRYER-ACTIVATED LAUNDRY ADDITIVE COMPOSITIONS WITH COLOR CARE AGENTS

Robert Allen Godfroid, West Chester; Ronghui Wu, Loveland; Janet Sue Littig, Fairfield; Alessandro Corona, III, Maineville; Mark Robert Sivik, Fairfield; Fred Anthony Hartman, Cincinnati; Sandra Louise Honsa, Middletown, and Daniel Dale Ditullio, Jr., Fairfield, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 18, 1997, Ser. No. 993,676

Int. Cl.⁶ C11D 3/30; 1/835

U.S. Cl. 510—499

9 Claims

1. A dryer-activated laundry additive product comprising: a substrate in the form of a sheet; and a color care composition disposed on said sheet, said composition comprising:
- a) from about 0.1% to about 50% of by weight, of the composition N,N,N',N'-tetrakis-(2-hydroxypropyl)ethylenediamine;
- b) from about 10% to about 50% by weight, of said composition of a fabric softening component.

5,804,548

DRY CLEANING PROCESS AND KIT

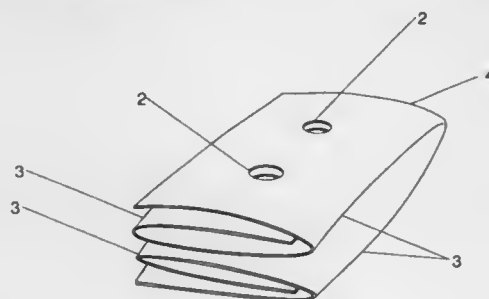
Maxwell Gregory Davis, Forest Park, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 545,441, Oct. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 413,332, Mar. 30, 1995, abandoned. This application May 20, 1997, Ser. No. 859,551

Int. Cl.⁶ C11D 3/37; 3/43; 7/50; D06L 1/04

U.S. Cl. 510—439

2 Claims



2. A dry cleaning composition in kit form, comprising the following components:
- (a) multiple, folded fabric cleaning articles comprising flexible nonwoven fiber sheet substrates carrying a cleaning composition removable to fabrics by contact therewith, said cleaning composition comprising 0.05% to 0.20% by weight of a polyacrylate emulsifier; 1,2-octanediol; and at least 60% by weight of water, said sheet substrates having fold lines and perforations sufficient in size and number to substantially

diminish or prevent the tendency of said sheet substrates when in-use in an open configuration to close by refolding said fold lines and said perforations are distributed uniformly in said sheet substrates.

(b) a reusable container suitable for use in a hot air clothes dryer; and

(c) an outer package containing said components (a) and (b).

5,804,549

COMPOSITIONS WITH ACTIVITY AGAINST HELICOBACTER

Peter Blackburn, New York; Beth P. Goldstein, Tarrytown, and Debra J. Cook, New York, all of N.Y., assignors to AMBI Inc., Tarrytown, N.Y.

Filed Dec. 20, 1996, Ser. No. 770,521

Int. Cl.⁶ A61K 38/00; 31/22

U.S. Cl. 514—2

11 Claims

1. A composition consisting essentially of an effective amount of GML, an effective amount of nisin in the absence of chelator and a pharmaceutically acceptable carrier.

5,804,550

PEPTIDE ANTAGONISTS AT GLUTAMATE AND NMDA RECEPTORS

J. P. Bourguignon, Liège, Belgium, assignor to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden

Filed Nov. 9, 1995, Ser. No. 549,798

Claims priority, application Sweden, May 14, 1993, 9301667

Int. Cl.⁶ A61K 38/00; 38/28; 38/27; 38/04

U.S. Cl. 514—3

11 Claims

1. Method for inhibiting the effect of glutamate on glutamate-receptor-controlled cells by administration of an effective of glutamic acid-terminating peptide antagonists at glutamate receptors.

5,804,551

PRETRAUMATIC USE OF HEMOGLOBIN

Kenneth E. Burbop, Mundelein, Ill., assignor to Baxter International Inc., Deerfield, Ill.

Filed Nov. 12, 1996, Ser. No. 747,191

Int. Cl.⁶ A61K 37/02; 35/14

U.S. Cl. 514—6

22 Claims

1. A method for treating a patient before surgery or an invasive medical procedure, comprising scheduling a patient for surgery or an invasive medical procedure, and administering a hemoglobin preparation to the patient before the surgery or the procedure, the surgery or procedure being scheduled after taking into account that the surgery or procedure should be performed more than about 12 hours after initiating the administration, wherein the hemoglobin preparation contains from about 10 milligrams stroma-free hemoglobin per kilogram body weight to about 1,000 milligrams stroma-free hemoglobin per kilogram body weight and the stroma-free hemoglobin is selected from the group consisting of crosslinked hemoglobin, conjugated hemoglobin, encapsulated hemoglobin and polymerized hemoglobin.

5,804,552

LIPID CONJUGATES OF THERAPEUTIC PEPTIDES AND PROTEASE INHIBITORS

Channa Basava, San Diego, and Karl Y. Hostetler, Del Mar, both of Calif., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Division of Ser. No. 734,434, Jul. 23, 1991, Pat. No. 5,554,728.

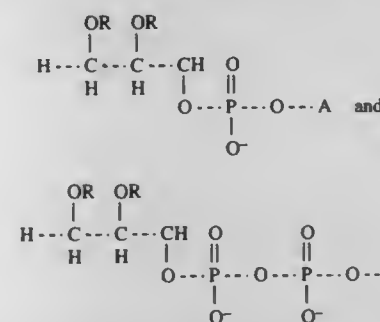
This application Jun. 2, 1995, Ser. No. 458,401

Int. Cl.⁶ A61K 38/02

U.S. Cl. 514—7

5 Claims

1. An amino acid-phospholipid linker compound selected from the group consisting of compounds having one of the following formulas:



wherein A is an amino acid selected from the group consisting of tyrosine and hydroxyproline, and said amino acid's hydroxyl group forms a phosphoester linkage with the phospholipid, and wherein R is an acyl group.

2. A conjugate of a therapeutic peptide and the linker compound of claim 1 wherein the therapeutic peptide is conjugated to the amino group of the linker compound directly or through a spacer.

5,804,553

PROPHENINS - ANTIBIOTIC PEPTIDES

Vladimir N. Kokryakov, Los Angeles; Sylvia S. L. Harwig, Woodland Hills, and Robert I. Lehrer, Santa Monica, all of Calif., assignors to University of California, Los Angeles, Calif.

Filed Apr. 5, 1994, Ser. No. 222,798

Int. Cl.⁶ A61K 38/17; 38/08; C07K 14/47

U.S. Cl. 514—72

6 Claims

1. A peptide in purified and isolated form wherein said peptide comprises the amino acid sequence of Sequence ID NO: 1.

5,804,554

CALCIUM CHANNEL BLOCKING POLYPEPTIDES FROM FILISTATA HIBERNALIS

Deane M. Nason, II, Norwich; Steven D. Heck, Groton; Robert T. Ronau, Gales Ferry; Nicholas A. Saccomano, Ledyard, and Robert A. Volkman, Mystic, all of Conn., assignors to Pfizer Inc., New York, N.Y.

PCT No. PCT/US93/03921, § 371 Date May 3, 1995, § 102(e) Date May 3, 1995, PCT Pub. No. WO93/23428, PCT Pub. Date Nov. 25, 1993

PCT Filed Apr. 30, 1993, Ser. No. 379,538

Int. Cl.⁶ A61K 38/00; C07K 5/00; 7/00

U.S. Cl. 514—12

2 Claims

1. A purified polypeptide having the amino acid sequence, SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6 or SEQ ID NO:7, or a pharmaceutically acceptable salt thereof.

5,804,555

ANTIOXIDANT

Mamoru Tomita; Seichi Shimamura, both of Kanagawa; Kouzo Kawase, Saitama; Yasuo Fukuwatari, Kanagawa; Mitsunori Takase, Saitama; Wayne Robert Bellamy, Kanagawa; Koji Yamauchi, Kanagawa; Hiroyuki Wakabayashi, Kanagawa, and Yukiko Tokida, Kanagawa, all of Japan, assignors to Morinaga Milk Industry Co., Ltd., Tokyo, Japan

PCT No. PCT/JP93/01090, § 371 Date Apr. 11, 1995, § 102(e) Date Apr. 11, 1995, PCT Pub. No. WO94/03555, PCT Pub. Date Feb. 17, 1994

PCT Filed Aug. 4, 1993, Ser. No. 381,984

Claims priority, application Japan, Aug. 7, 1992, 4-211335

Int. Cl.⁶ A61K 38/01; C07K 14/79

U.S. Cl. 514—12

1 Claim

1. An antioxidant which contains an oxidation preventive agent selected from the group consisting of vitamin E (tocopherol), vitamin C (ascorbic acid), vitamin A, β-carotene, superoxide dismutase, coenzyme Q, and any mixture thereof, and an antioxidant substance selected from the group consisting of a hydrolysate of lactoferrins having a degree of decomposition of from 6 to 20, and SEQ ID NO:26, and any mixture thereof as effective components.

5,804,556

Patent Not Issued For This Number

5,804,557

EXCIPIENT STABILIZATION OF POLYPEPTIDES
TREATED WITH ORGANIC SOLVENTS

Jeffrey L. Cleland, San Carlos, and Andrew J. S. Jones, San Mateo, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 256,187, Apr. 8, 1994, Pat. No. 5,589,167, which is a continuation-in-part of Ser. No. 21,421, Feb. 23, 1993, abandoned. This application Sep. 24, 1996, Ser. No. 719,196

Int. Cl.⁶ A61K 38/00; 38/21; C07K 5/00; 7/00

U.S. Cl. 514—12

8 Claims

1. A method of increasing solubility of a polypeptide in an aqueous formulation comprising a polyol excipient, said method comprising:

admixing the polypeptide with the polyol excipient, wherein the polyol excipient is trehalose, wherein said increasing is at least 2-fold relative to solubility of the polypeptide in the formulation lacking excipient.

5,804,558

PROTEGRINS

Robert I. Lehrer, Santa Monica; Sylvia S. L. Harwig, Woodland Hills, both of Calif., and Vladimir N. Kokryakov, St. Petersburg, Russian Federation, assignors to University of California, Los Angeles, Calif.

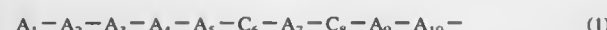
Continuation-in-part of Ser. No. 451,832, May 26, 1995, abandoned, which is a continuation-in-part of Ser. No. 243,879, May 17, 1994, Pat. No. 5,708,145, which is a continuation-in-part of Ser. No. 182,483, Jan. 13, 1994, Pat. No. 5,693,486, which is a continuation-in-part of Ser. No. 95,769, Jul. 26, 1993, Pat. No. 5,464,823, which is a continuation-in-part of Ser. No. 93,926, Jul. 20, 1993, abandoned. This application Jul. 7, 1995, Ser. No. 499,523

Int. Cl.⁶ A61K 38/04; A01N 25/00; C12N 15/12; 15/13

U.S. Cl. 514—13

63 Claims

1. A purified and isolated or recombinantly produced compound having the formula:



(1)



or a pharmaceutically acceptable salt or an N-terminal acylated or C-terminal amidated or esterified form thereof, which is either in a linear form or in a cystine-bridged form, wherein:

each of A_1 and A_6 is independently a basic amino acid;
each of A_2 and A_3 is independently a small amino acid;
each of A_5 , A_7 , A_{12} , A_{14} and A_{16} is independently a hydrophobic amino acid;
 A_4 is a basic or a small amino acid;
 A_{10} is a basic or a small amino acid or is proline;
 A_{11} is a basic or a hydrophobic amino acid;
 A_{17} is not present or, if present, is a small amino acid;
 A_{18} is not present or, if present, is a basic amino acid; and
each of C_6 , C_8 , C_{13} and C_{15} is independently selected from the group consisting of cysteine, a hydrophobic amino acid, a large polar amino acid and a small amino acid.

5,804,559

PRODRUG DERIVATIVES OF ENZYME INHIBITORS
HAVING HYDROXYL GROUPS, A PROCESS FOR
PREPARING THEM, AND THEIR USE

Karl-Heinz Budt, Kelkheim; Bernd Stowasser, Rüsselsheim; Anuschirwan Peyman, Kelkheim; Jochen Knolle, Krefeld; Irvin Winkler, Liederbach, and Hans Gerd Berscheid, Kronberg, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

PCT No. PCT/EP94/00561, § 371 Date Sep. 12, 1995, § 102(e) Date Sep. 12, 1995, PCT Pub. No. WO94/21604, PCT Pub. Date Sep. 29, 1994

PCT Filed Feb. 25, 1994, Ser. No. 525,525

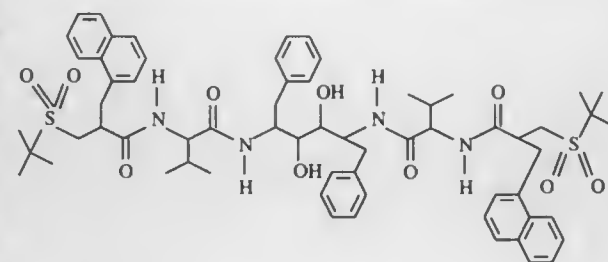
Claims priority, application Germany, Mar. 13, 1993, 43 08 096.0

Int. Cl.⁶ A61K 38/00; C07K 5/00

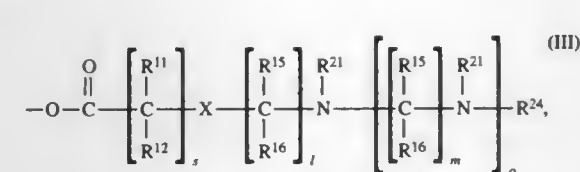
U.S. Cl. 514—17

6 Claims

1. An ester compound comprising the mono or bis-dehydroxylated radical of a compound of the formula:



wherein the radical is substituted, at the point or points of dehydroxylation, with a radical of the formula R^3 , wherein R^3 is a radical of the formula III, IV, or V:



$R_1, R_2, R_3, R_4, R_5, R_6, X, Q$ and n are selected from among (i), (ii) or (iii) as follows:

(i) R_1, R_3 and R_6 , are each independently selected from the group consisting of a side chain of a naturally occurring α-amino acid, H, alkyl, alkenyl, alkynyl, aryl, aralkyl, aralkenyl, aralkynyl, heteroaryl, heteroaralkyl, heteroaralkenyl, Y-substituted aryl, aralkyl, aralkenyl, aralkynyl, and Z-substituted heteroaryl, heteroaralkyl, heteroaralkenyl, in which Y is selected from the group consisting of halogen, lower alkyl, alkoxy, OH, haloalkyl, nitrile, S-alkyl, phenyl, and —NRR, R is H, alkyl, lower alkyl, OH or halo-lower alkyl, Z is lower alkyl or halo lower alkyl;

R_2, R_4 and R_5 are each independently selected from H and lower alkyl;

Q is selected from the group consisting of —C(O)—, —O—C(O)—, —S(O)— and —HN—C(O)—;

n is zero or one;

R_A is —(T)_m—(D)_m— R_1 in which T is O or NH, and D is C_{1-4} alkyl or C_{2-4} alkene; and m is zero or one;

X is selected from the group consisting of —(CH₂)_n—C(O)H, —(CH₂)_n—C(O)alkoxy, —(CH₂)_n—C(O)(CH₂)_n—CHN₂, —(CH₂)_n—C≡N, —(CH₂)_n—C(O)(CH₂)_n—C(O)NR_D, —(CH₂)_n—CH(OH)(CH₂)_n—C(O)U, —(CH₂)_n—CH(OH)(CH₂)_n—C(O)W, —(CH₂)_n—C(O)CH₂W, in which: R_D is selected from H, andalkyl, phenyl, benzyl, and phenethyl; U is —OR_D or —NR_D, and W is —OR_D, —SR_D, —NR_D, or a heterocyclic moiety, and r is 0–5; or

(ii) R_3, R_4, R_5, Q, X and n are as defined in any of (i) or (iii);

R_6 is H; and

R_1 and R_2 are each independently selected as follows:

(a) from lower alkyl, lower alkyl linked to a heteroatom, or a heteroatom, with the proviso when more than one heteroatom is present, there is at least one carbon atom between each heteroatom, and
(b) R_1 and R_2 are unsubstituted or substituted with Y, and
(c) together with the atoms to which they are attached form a 4–6 membered heterocyclic moiety; or

(iii) $R_1, R_2, R_3, R_4, R_5, X, Q$ and n are as defined in any of (i) or (ii);

R_3 and R_4 are each independently selected as follows:

(a) from lower alkyl, lower alkyl linked to a heteroatom, or a heteroatom, with the proviso when more than one heteroatom is present, there is at least one carbon atom between each heteroatom, and
(b) is unsubstituted or substituted with Y, and
(c) together with the atoms to which they are attached form a 4–6 membered heterocyclic moiety; and the resulting compound modulates the processing of amyloid precursor protein (APP).

5,804,560

PEPTIDE AND PEPTIDE ANALOG PROTEASE
INHIBITORS

Ian Alexander McDonald; Elisabeth Albrecht, and Benito Munoz, all of San Diego, Calif., assignors to SIBIA Neurosciences, Inc., La Jolla, Calif.

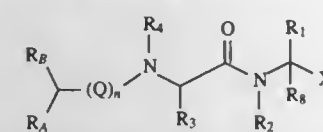
Filed Jan. 6, 1995, Ser. No. 369,422

Int. Cl.⁶ A61K 38/05

U.S. Cl. 514—19

21 Claims

1. A compound of the formula (II):



or a hydrate, isostere, stereoisomer or mixture thereof, or a pharmaceutically acceptable salt thereof, with the proviso that: (1) at least one R_1 and R_3 is not a side chain of a naturally-occurring amino acid; (2) when X is an aldehyde, R_1 cannot be the side chain of norleucine or norvaline; and (3) at least one of R_1 and R_3 is C_{2-10} -alkenyl or C_{2-6} -alkynyl; wherein:

5,804,561

COMPOSITIONS AND METHODS UTILIZING
NITROXIDES IN COMBINATION WITH
BIOCOMPATIBLE MACROMOLECULES

Jen-Chang Hsia, 35 Starcrest, Irvine, Calif. 92715

Continuation-in-part of Ser. No. 417,132, Mar. 31, 1995, which is a continuation-in-part of Ser. No. 291,590, Aug. 15, 1994, Pat. No. 5,591,710, which is a continuation-in-part of Ser. No. 107,543, Aug. 16, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 480,690

Int. Cl.⁶ A61K 31/04

U.S. Cl. 514—21

9 Claims

1. A method to alleviate ischemic reperfusion injury comprising: administering a therapeutic dose of a membrane permeable first nitroxide, and administering a polynitroxide albumin having a molar ratio of nitroxide to albumin of between approximately 17 and 95.

5,804,562

SPIROSTANYL GLYCOSIDAL CRYSTALS

Douglas John Allen; Richard A. Buzon, both of New London; Michael P. Deninno, Gales Ferry; Harry Austin Watson, Jr., Groton, and Jonathan B. Zung, East Lyme, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 298,106, Aug. 30, 1994, abandoned.

This application May 1, 1997, Ser. No. 809,160

Int. Cl.⁶ A61K 31/705; C07J 21/00

U.S. Cl. 514—26

11 Claims

1. A crystalline spirostanyl glycoside consisting of Form A or Form B of:

(3 β ,5 α ,25R)-3-((β -D-4",6"-bis-(2-fluorophenylcarbamoyl) cellobiosyl)oxy)-spirostan-12-one wherein Form A and Form B have the following X-ray diffraction d-spacings:

Form A d-spacing of 20 largest peaks	or	Form B d-spacing of 12 largest peaks
21.10		19.96
17.46		17.11
13.58		15.14
10.49		9.97
6.98		7.57
6.78		6.62
6.60		6.09
6.34		5.36
5.77		5.15
5.52		4.90
5.35		4.57
5.12		3.77
4.82		
4.53		
4.37		
4.12		
3.82		
3.55		
3.44		
3.37		

5,804,563

SYNTHETIC RECEPTORS, LIBRARIES AND USES THEREOF

W. Clark Still, Clinton, N.Y., and Ge Li, Plainsboro, N.J., assignors to The Trustees of Columbia University in The City of New York, New York, N.Y.

Continuation of Ser. No. 181,628, Jan. 13, 1994, abandoned.

This application Apr. 8, 1996, Ser. No. 628,972

Int. Cl.⁶ A01N 45/00

U.S. Cl. 514—26

14 Claims

1. A synthetic receptor which comprises a polyfunctional organic template covalently linked to two or more oligomer which may independently be straight chained or branched oligoamide, oligoester, oligoureia, oligourethane, oligoamine, oligoether, oligosulfonamide, oligophosphonamide, oligophosphonate, oligophosphate, oligonucleotide, oligosaccharide, peptide oligomer, or a mixture of monomers thereof; wherein each oligomer independently contains 2 to 10 monomers; and wherein the polyfunctional organic template is a polycarbocyclic.

5,804,564

ANTITUMOR INDOLOPYRROLOCARBAZOLE DERIVATIVES

Katsuhisa Kojiri; Hisao Kondo; Hiroharu Arakawa; Mitsuru Ohkubo, and Hiroyuki Suda, all of Tsukuba, Japan, assignors to Banyu Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00868, § 371 Date Nov. 8, 1996, § 102(e)

Date Nov. 8, 1996, PCT Pub. No. WO95/30682, PCT Pub.

Date Nov. 16, 1995

Continuation-in-part of Ser. No. 255,980, Jun. 8, 1994, Pat.

No. 5,591,842. This PCT application May 2, 1995, Ser. No.

737,382

Claims priority, application Japan, May 9, 1994, 6-119483;

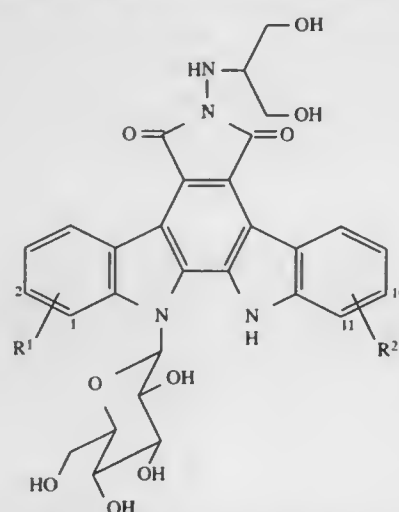
Jun. 3, 1994, 6-145648

Int. Cl.⁶ A61K 31/70; C07H 17/02

U.S. Cl. 514—27

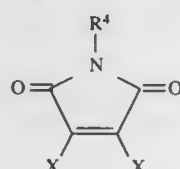
8 Claims

1. A process for the preparation of a compound of formula [I]



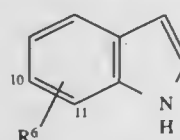
wherein R¹ and R² each represent an OH group, R¹ is located at the 1- or 2-position, R² is located at the 10- or 11-position, R³ is located at the 11-position when R¹ is located at the 1-position, and R³ is located at the 10-position when R¹ is located at the 2-position which comprises

reacting a compound of formula [I]

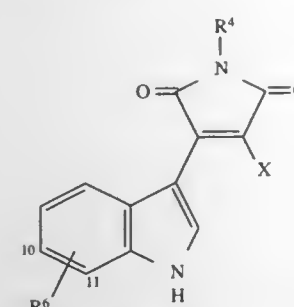


wherein R⁴ represents a hydrogen atom, a lower alkyl group, a benzyloxymethyl group or an aralkyl group, and X represents a leaving group;

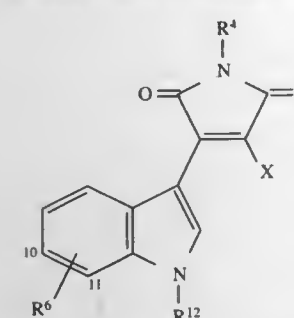
with a compound of formula [X]



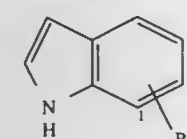
wherein R⁶ represents a protected OH group located at the 10- or 11-position, in the presence of an organometallic compound to form a compound of formula [XI]



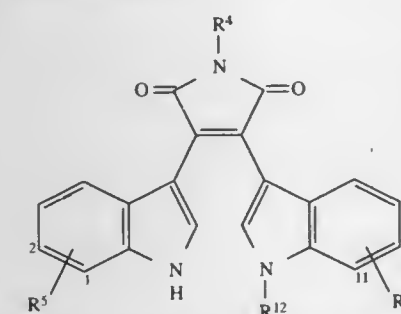
wherein R⁴, R⁶ and X are defined above; protecting the hydrogen atom of the amino group of the indole skeleton to form a compound of formula [XII]



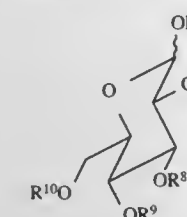
wherein R⁴, R⁶ and X are defined above, and R¹² represents a protecting group for the amino group of the indole skeleton; reacting the compound of formula [XII] with a compound of formula [XIII]



wherein R⁵ represents a protected OH group at the 1- or 2-position, in the presence of an organometallic compound, to form a compound of formula [XIV]



wherein R⁴, R⁵, R⁶, and R¹² are defined above and R⁵ and R⁶ are located at the 1- and 11-positions, respectively or are located at the 2- and 10-positions, respectively; reacting the compound of formula [XIV] with a compound of formula [XV]



wherein R⁷, R⁸, R⁹, and R¹⁰, may be the same or different and each represents a protecting group for a hydroxyl group, by the Mitsunobu reaction, to form a compound of formula [XVI]

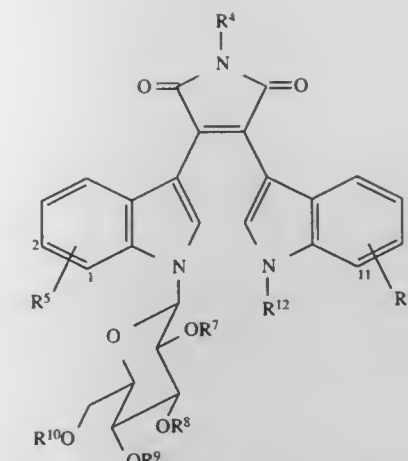
[XI]

[XII]

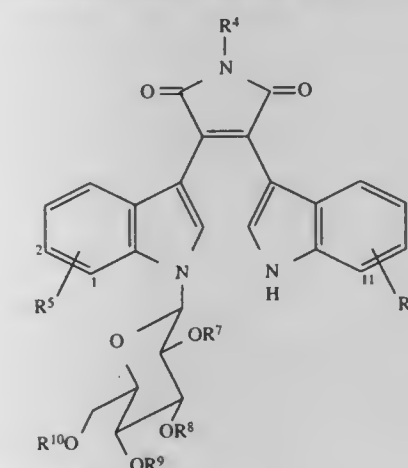
[XIII]

[XIV]

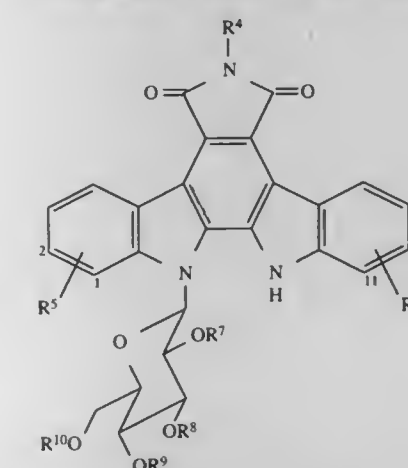
[XV]



wherein R⁴ to R¹⁰ and R¹² are defined above; removing the protecting group for the amino group of the indole skeleton to form a compound of formula [XVII]



wherein R⁴ to R¹⁰ are defined above; cyclizing the compound of formula [XVII] with the aid of an oxidizing agent to form a compound of formula [XVIII]

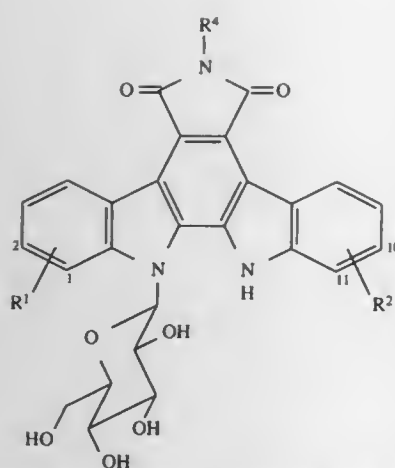


wherein R⁴ to R¹⁰ are defined above; removing the protecting groups for OH groups to form a compound of formula [XIX]

[XVI]

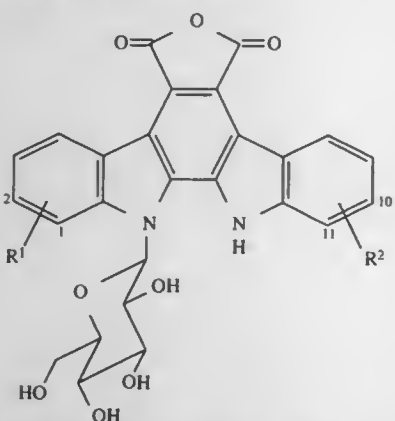
[XVII]

[XVIII]



wherein R^1 and R^2 each represent an OH group, and R^1 and R^2 are located at the 1- and 11-positions, respectively, or R^1 and R^2 are located at the 2- and 10-positions, respectively, and R^4 is defined above;

reacting the compound of formula [XIX] with a base to form a compound of formula [XX]



wherein R^1 and R^2 are defined above; and reacting the compound of formula [XX] with $H_2NNHCH(CH_2OH)_2$ to form a compound of formula [I].

5,804,565

ERYTHROMYCIN A DERIVATIVES

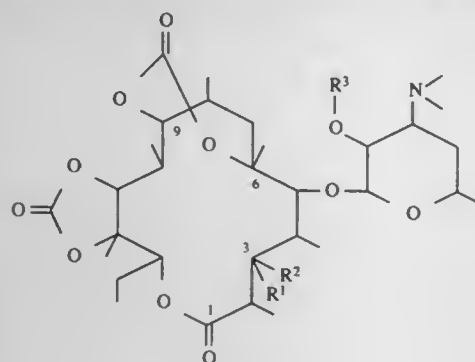
Toshifumi Asaka, Konosu; Tetsuya Tanikawa, Fuchū; Takaaki Ishii, Urawa, and Masato Kashimura, Omiya, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan
Filed Sep. 17, 1997, Ser. No. 931,949

Claims priority, application Japan, Sep. 24, 1996, 8-251050
Int. Cl.⁶ C07H 17/08; A01N 9/00

U.S. Cl. 514—29

4 Claims

I. An erythromycin A derivative represented by the formula (I):



[XIX]

wherein R^1 is a group represented by the formula: $-OCOCH_2Y$, wherein Y is a pyridyl group, a quinolyl group, a p-nitrophenyl group or a group represented by the formula: $-NR^4R^5$ wherein R^4 and R^5 may be the same or different, and are each a hydrogen atom, a methyl group, a pyridylmethyl group, a quinolylmethyl group or a benzyloxycarbonyl group; or a cladinoloxo group; R^2 is a hydrogen atom; or R^1 and R^2 together form an oxo group; R^3 is a hydrogen atom, an acetyl group, an ethylsuccinyl group or a nicotinoyl group; or a pharmaceutically acceptable salt thereof.

5,804,566

METHODS AND DEVICES FOR IMMUNIZING A HOST THROUGH ADMINISTRATION OF NAKED POLYNUCLEOTIDES WITH ENCODE ALLERGENIC PEPTIDES

Dennis A. Carson, Del Mar; Eyal Raz, San Diego, both of Calif., and Meredith L. Howell, Corvallis, Oreg., assignors to The Regents of the University of California, Alameda, Calif.

Continuation-in-part of Ser. No. 112,440, Aug. 26, 1993, abandoned. This application Nov. 1, 1994, Ser. No. 333,068

Int. Cl.⁶ A61K 48/00; C12N 15/12; 15/52

U.S. Cl. 514—44

10 Claims

I. A method for immunizing a host against an allergenic antigen comprising:

administering a naked polynucleotide to the skin or mucosa of the host, wherein the skin and mucosa have a high concentration of resident antigen presenting cells relative to other host tissues,

wherein the naked polynucleotide operatively encodes for the allergenic antigen or allergenic antigen epitope; and,

wherein the allergenic antigen is expressed in the antigen presenting cells without substantial secretion therefrom and preferentially activates Th1 lymphocytes while reducing antigen-stimulated IgE production in the host as compared to immunization of the host with a non-recombinant form of the allergenic antigen.

5,804,567

METHOD OF INCREASING THE EFFECTIVENESS OF ANTI-METABOLITES

Shu Jun Cheng; De Chang Wang; Yong Su Zhen, all of Beijing, China; Hoyoku Nishino, Hirakata, and Yukihiko Hara, Fujieda, all of Japan, assignors to Cancer Institute (Hospital), Chinese Academy of Medical Sciences; Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences, both of Beijing, China, and Mitsui Norin Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 770,553, Dec. 23, 1996, abandoned. This application Aug. 27, 1997, Ser. No. 919,716

Claims priority, application Japan, Jul. 18, 1996, 8-206361

Int. Cl.⁶ A01N 43/04; 43/16; A61K 31/715; 31/35

U.S. Cl. 514—49

22 Claims

I. In a method for treating cancer in a patient which comprises administering an effective anti-cancer amount of an anti-metabolite to a patient, the improvement which comprises administering an effective amount of a tea polyphenol compound with the anti-metabolite, the anti-metabolite being selected from the group consisting of 1- β -arabinofuranosylcytosine and 4-amino-4-deoxy-10-methylfolic acid, and the tea polyphenol compound being selected from the group consisting of a tea catechin, a theaflavin and a combination of a tea catechin and a theaflavin.

5,804,570

PHARMACEUTICAL FORMULATION

Joseph Rubinfeld, Danville, Calif., assignor to Supergen, Inc., San Ramon, Calif.

Continuation of Ser. No. 297,249, Aug. 26, 1994, Pat. No. 5,602,112, which is a continuation-in-part of Ser. No. 116,724, Sep. 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 900,664, Jun. 19, 1992, abandoned. This application Feb. 3, 1997, Ser. No. 790,223

Int. Cl.⁶ A61K 31/715; 31/70; 31/045; 47/00

U.S. Cl. 514—58

17 Claims

I. A method for reducing ulceration or irritation in a host arising through parenteral treatment of the host with a cytotoxic compound that has the potential for causing irritation or ulceration when extravasated, comprising administering to the host a preparation comprising at least one cytotoxic compound that has the potential for causing irritation or ulceration when extravasated and an anti-ulceration effective or anti-irritation effective amount of a substituted cyclodextrin compound.

5,804,569

EXOCYCLIC-PHOSPHOETHANOLAMINES

Andrew C. Peterson, and Haridasan K. Nair, both of Madison, Wis., assignors to Clarion Pharmaceuticals Inc., Madison, Wis.

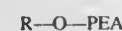
Filed Mar. 14, 1997, Ser. No. 818,378

Int. Cl.⁶ A61K 31/685

U.S. Cl. 514—77

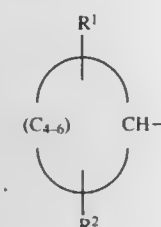
35 Claims

I. A method of treating inflammation, arrhythmia or local pain in a mammal comprising administering to such mammal an effective anti-inflammatory, anti-arrhythmic or local anesthetic amount, respectively, of a compound having the Formula I:

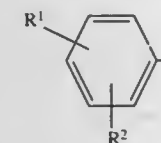


wherein:

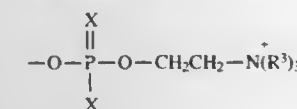
R is an unsubstituted or a substituted C_{5-7} cycloalkyl of the formula:



or an unsubstituted or a substituted phenyl of the formula:



in which each R^1 and R^2 independently represents an unsubstituted or a substituted straight or branched C_{1-4} alkyl or C_{2-4} alkenyl, said substitution being one or more of C_{1-4} alkoxy, halo or cyano; and $O-PEA$ represents a phosphoethanolamine moiety of the formula:



in which each R^3 is independently hydrogen or methyl and each X is independently oxygen or sulfur; pharmaceutically-acceptable salts thereof, and isomers thereof.

5,804,570

METHOD OF LESSEN THE RISK OF NON-VERTEBRAL BONE FRACTURES

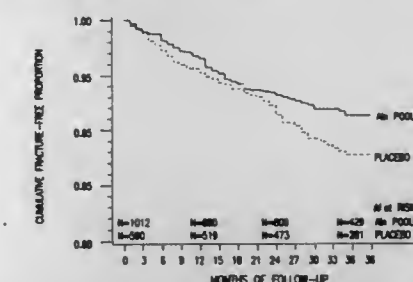
Arthur C. Santora, II, Watchung; David B. Karpf, North Brunswick; William J. Polvino, Bridgewater; Deborah Ruth Shapiro, Edison; Desmond E. Thompson, Martinsville, and Ashley John Yates, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 419,631, Apr. 10, 1995, abandoned, which is a continuation-in-part of Ser. No. 390,462, Feb. 17, 1995, abandoned. This application Jun. 3, 1997, Ser. No. 867,987

Int. Cl.⁶ A61K 31/66

U.S. Cl. 514—108

16 Claims



I. A method of reducing the risk of non-vertebral fractures in an osteoporotic female comprising administering an effective amount of alendronate or a pharmaceutically acceptable salt thereof.

5,804,571

METHOD FOR PROTECTION FROM AZT SIDE EFFECTS AND TOXICITY

Philip S. Schein, Bryn Mawr, Pa., assignor to U.S. Bioscience, Blue Bell, Pa.

Continuation of Ser. No. 308,220, Sep. 19, 1994, abandoned, which is a continuation of Ser. No. 162,792, Dec. 7, 1993, abandoned, which is a continuation of Ser. No. 936,334, Aug. 28, 1992, abandoned, which is a continuation of Ser. No. 356,298, May 24, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 486,625

Int. Cl.⁶ A61K 31/70; 31/66

U.S. Cl. 514—114

8 Claims

I. A method for treating a patient undergoing treatment for the human immunodeficiency virus, comprising administration to the patient of azidothymidine and an amount of a $S-\alpha(\omega$ -aminoalkylamino)-alkyl dihydrogen phosphorothioate, or a pharmaceutically acceptable salt or hydrate thereof, effective to protect the patient from at least one undesired side effect of the azidothymidine selected from the group consisting of nausea, myalgia, insomnia, headache, anemia, and neutropenia.

5,804,572

COMPOSITIONS FOR REGULATING SKIN WRINKLES AND/OR SKIN ATROPHY

Roy Lonnie Blank, Spring Valley, N.Y.; Darrell Gene Doughty, Orange, and Carlos Gabriel Linares, Stamford, both of Conn., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 767,050, Dec. 16, 1996, abandoned, which is a continuation of Ser. No. 342,673, Nov. 21, 1994, Pat. No. 5,605,894, which is a continuation of Ser. No. 47,602, Apr. 14, 1993, abandoned, which is a continuation of Ser. No. 796,749, Nov. 25, 1991, abandoned. This application Aug. 29, 1997, Ser. No. 920,641

Int. Cl.⁶ A61K 31/60; 7/42; 7/44; 7/00

U.S. Cl. 514—159

11 Claims

I. A composition for regulating wrinkles or atrophy in mammalian skin comprising:

(a) a safe and effective amount of salicylic acid;

- (b) a anti-inflammatory agent; and
(c) a pharmaceutically-acceptable carrier.

5,804,573

STABILIZED PHARMACEUTICAL COMPOSITION CONTAINING DERIVATIVE OF VITAMINS D₂ AND D₃
David Isaac Silver, Givataim, Israel, assignor to Teva Pharmaceutical Industries Ltd., Jerusalem, Israel
Continuation of Ser. No. 120,210, Sep. 13, 1993, Pat. No. 5,565,442. This application May 31, 1996, Ser. No. 657,676
Claims priority, application Israel, Sep. 18, 1992, 103224
Int. Cl.⁶ A61K 31/59

U.S. Cl. 514—167

11 Claims

1. A solid pharmaceutical composition consisting of the following ingredients (a), (b), (c) and (d), namely:
- (a) at least one active component selected from pharmaceutically active derivatives of vitamin D₂ and vitamin D₃;
- (b) at least one pharmaceutically acceptable antioxidant selected from butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA), vitamin E, propyl gallate, β -carotene and ascorbic acid;
- (c) at least one pharmaceutically acceptable polyoxyalkyl stabilizer;
- (d) at least one solid pharmaceutical excipient or carrier selected from lactose, sorbitol and calcium phosphate, in an amount sufficient to impart the characteristics of a solid to the composition;
- provided that ingredients (b) and (c) are present in amounts which together are effective to stabilize ingredient (a).

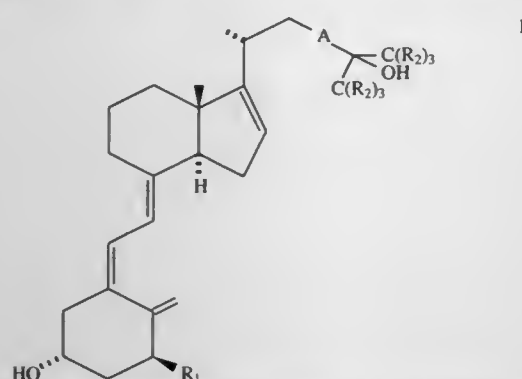
5,804,574

VITAMIN D₃ ANALOGS USEFUL FOR REVERSING THE PHOTODAMAGE IN SUN-EXPOSED SKIN
Graeme Findlay Bryce, and Milan Radoje Uskokovic, both of Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Division of Ser. No. 766,537, Dec. 11, 1996, Pat. No. 5,747,479.
This application Sep. 17, 1997, Ser. No. 932,020
Int. Cl.⁶ A61K 31/59

U.S. Cl. 514—167

2 Claims

1. A method of treating the conditions associated with photodamaged skin comprising topically administering a composition containing (a) at least 0.0001% by weight of a compound of formula I



wherein R₁ is hydrogen, hydroxy or fluorine, R₂ is hydrogen or halogen and A is —C=C—, —C≡C— or —CH₂—CH₂—, provided that when A is —CH₂—CH₂—, R₂ is hydrogen, and (b) an inert dermatologically acceptable carrier and (c) a cosmetically active ingredient to an area of the skin in need of said treatment, said composition of formula I being applied to said area in an amount effective to reverse the effects of photodamage in said area.

5,804,575
METHODS OF MANUFACTURING BETULINIC ACID
John M. Pezzuto, River Forest, and Darriek S. H. L. Kim, Chicago, both of Ill., assignors to The Board of Trustees of the University of Illinois, Urbana, Ill.
Filed Mar. 27, 1997, Ser. No. 826,217
Int. Cl.⁶ A61K 31/56

U.S. Cl. 514—169

19 Claims

1. A method of manufacturing betulinic acid comprising the steps of:
- (a) subjecting betulun to an oxidation reaction to provide a reaction product wherein a primary alcohol functionality of betulun is converted to a carboxylic acid functionality and a secondary alcohol functionality of betulun is converted to a keto functionality;
- (b) subjecting the reaction product of step (a) to a reduction reaction to convert the keto functionality to a secondary alcohol functionality and thereby form a reaction mixture containing an α -isomer of betulinic acid and a β -isomer of betulinic acid;
- (c) separating the β -isomer of betulinic acid from the reaction mixture of step (b) to provide the β -isomer of betulinic acid; and
- (d) purifying the β -isomer of betulinic acid.

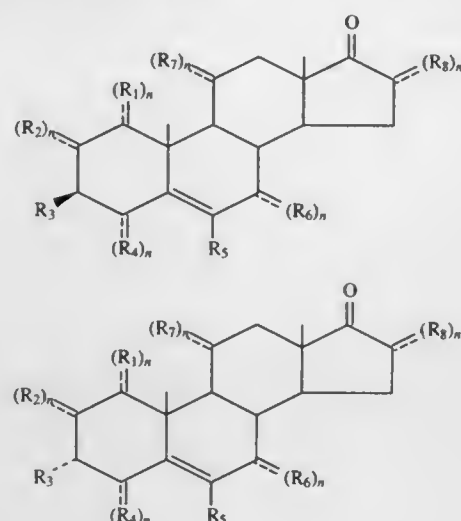
5,804,576
DERIVATIVES OF 5-ANDROSTEN-17-ONES AND 5-ANDROSTAN-17-ONES

Arthur G. Schwartz, Philadelphia; John R. Williams, Merion, both of Pa.; Magid Abou-Gharbia, Wilmington, Del.; Ann R. Swern, Elkins Park, and Marvin Louis Lewbart, Media, both of Pa., assignors to Research Corporation Technologies, Inc., Tucson, Ariz.
Continuation of Ser. No. 49,752, Apr. 19, 1993, abandoned, which is a continuation of Ser. No. 826,349, Jan. 27, 1992, abandoned, which is a continuation of Ser. No. 615,758, Nov. 19, 1990, abandoned, which is a continuation of Ser. No. 940,677, Dec. 11, 1986, abandoned, which is a continuation-in-part of Ser. No. 762,584, Aug. 2, 1985, abandoned, which is a continuation-in-part of Ser. No. 519,550, Aug. 2, 1983, abandoned. This application Jun. 6, 1995, Ser. No. 468,459
Claims priority, application European Pat. Off., Jan. 8, 1986, 86110648.2
Int. Cl.⁶ A61K 31/56; C07J 1/00; 11/00

U.S. Cl. 514—177

117 Claims

1. A compound of the formula:



wherein

R₁, R₂, R₄, R₅, R₆ and R₇ are each independently hydrogen or lower alkyl;
R₃ is lower alkyl;

R₈ is halogen, lower alkyl, hydroxy or hydrogen when it is in the α -position;
R₈ is lower alkyl halogen or hydrogen when it is in the β -position and
n is 1 or 2.

5,804,577

CEPHALOSPORIN DERIVATIVES
Paul Hebeisen, Basel, Switzerland; Ingrid Heinze-Krauss, Schliengen; Hans Richter, Grenzach-Wyhlen, both of Germany; Valeri Runtz, Rixheim, France; Henri Stalder, Basel; Urs Weiss, Pratteln, both of Switzerland, and George Petros Yiannikouros, Westfield, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

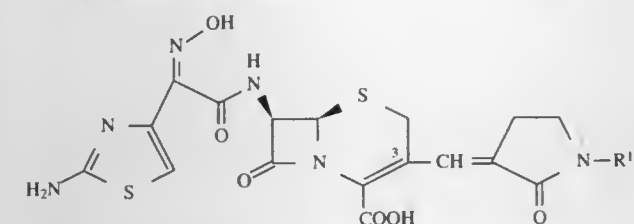
Filed Aug. 27, 1996, Ser. No. 708,161

Claims priority, application European Pat. Off., Sep. 12, 1995, 95114303; Sep. 19, 1995, 95114304
Int. Cl.⁶ A61K 31/545; C07D 501/34

U.S. Cl. 514—202

10 Claims

1. A compound of formula I



wherein

R¹ is a group selected from 2-, 3- and 4-hydroxyphenyl, 3-nitrophenyl, and 3-fluoro-4-hydroxyphenyl;
as well as readily hydrolyzable esters thereof, pharmaceutically acceptable salts of said compounds and hydrates of the compounds of formula I and of their esters and salts.

5,804,578

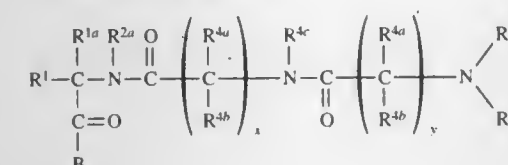
PIPERIDINES, PYRROLIDINES AND HEXAHYDRO-1H-AZEPINES PROMOTE RELEASE OF GROWTH HORMONE

Prasun K. Chakravarty, Edison; Meng H. Chen, Westfield; Ravi Nargund, East Brunswick; Arthur A. Patchett; James R. Tata, both of Westfield; Mu Tsu Wu, Clark, and Lihu Yang, Edison, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Mar. 31, 1997, Ser. No. 828,606
Int. Cl.⁶ A01N 43/54; C07D 413/00; 215/00; 453/02

U.S. Cl. 514—227.8

20 Claims

1. A compound of the formula:



wherein:

R¹ is selected from the group consisting of:

C₁–C₁₀ alkyl, -aryl-, aryl (C₁–C₆ alkyl)-, heteroaryl-, heteroaryl(C₁–C₆ alkyl)-, (C₃–C₇ cycloalkyl)-(C₁–C₆ alkyl)-, (C₁–C₅ alkyl)-K-(C₁–C₅ alkyl)-, aryl-(C₆–C₈ alkyl)-K-(C₁–C₅ alkyl)-, heteroaryl-(C₆–C₈ alkyl)-K-(C₁–C₅ alkyl)-, and (C₃–C₇ cycloalkyl)-(C₆–C₈ alkyl)-K-(C₁–C₅ alkyl)-.

wherein K is —O—, —S(O)_m—, —N(R²)C(O)—, —C(O)N(R²)—, —OC(O)—, —C(O)O—, —CR²=CR²— or —C≡C—,

wherein R² and the alkyl groups may be further substituted with 1 to 9 halo, —S(O)_mR^{2a}, 1 to 3 of —OR^{2a}, or —C(O)OR^{2a}, and wherein aryl is phenyl or naphthyl, and heteroaryl is selected from indolyl, thiophenyl, benzofuran-yl, benzothiophenyl, aza-indolyl, pyridinyl, quinolinyl, and benzimidazolyl, wherein aryl and heteroaryl are unsubstituted or substituted with phenyl, phenoxy, halophenyl, 1 to 3 of —C₁–C₆ alkyl, 1 to 3 of halo, 1 to 2 of —OR², methylenedioxy, —S(O)_mR², 1 to 2 of —CF₃, —OCF₃, nitro, —N(R²)(R²), —N(R²)C(O)(R²), —C(O)OR², —C(O)N(R²)(R²), —SO₂N(R²)(R²), —N(R²)SO₂-aryl, or —N(R²)SO₂R²;

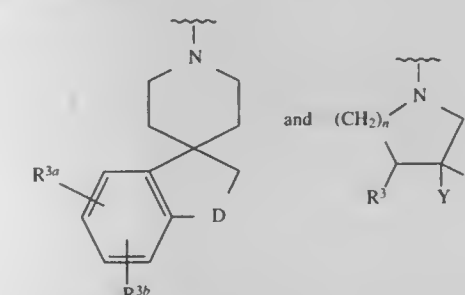
R^{1a} is hydrogen or C₁–C₄ alkyl;

R² is selected from the group consisting of:

hydrogen, —C₁–C₆ alkyl, —C₃–C₇ cycloalkyl, and —CH₂-phenyl, wherein the alkyl or the cycloalkyl is unsubstituted or substituted with hydroxyl, C₁–C₃ alkoxy, thioalkyl, C(O)OR^{2a}, and where, if two —C₁–C₆ alkyl groups are present on one atom, they may be joined to form a C₃–C₈ cyclic ring being selected from the group consisting of pyrrolidine, piperidine, piperazine, morpholine, thiomorpholine, optionally substituted by hydroxyl;

R^{2a} is hydrogen or C₁–C₆ alkyl;

B is selected from:



R³ is selected from: hydrogen, —(CH₂)_nphenyl, —(CH₂)_nthienyl, —(CH₂)_nbenzimidazolyl, —(CH₂)_nquinolinyl, —(CH₂)_nnaphthyl, —(CH₂)_nindolyl, —C₁–C₁₀ alkyl, —C₃–C₇ cycloalkyl, where the phenyl, naphthyl, indolyl, thienyl, benzimidazolyl, quinolinyl, and C₃–C₇ cycloalkyl rings may be substituted by 1 to 3 substituents selected from the group consisting of: C₁–C₆ alkyl, halogen, —OR², —NHSO₂CF₃, —(CH₂)_nOR⁶, —(CH₂)_nN(R²)(R⁶), —(CH₂)_n(R⁶), —(CH₂)_nC(O)OR², —(CH₂)_nC(O)OR⁶, —(CH₂)_nOC(O)R², —(CH₂)_nOC(O)R⁶, —(CH₂)_nC(O)R², —(CH₂)_nC(O)R⁶, —(CH₂)_nC(O)N(R²)(R⁶), —(CH₂)_nC(O)N(R²)(R⁶), —(CH₂)_nN(R²)C(O)R⁶, —(CH₂)_nN(R⁶)C(O)R⁶, —(CH₂)_nN(R²)C(O)OR², —(CH₂)_nN(R²)C(O)OR⁶, —(CH₂)_nN(R⁶)C(O)OR², —(CH₂)_nN(R⁶)C(O)OR⁶, —(CH₂)_nN(R²)C(O)N(R²)(R⁶), —(CH₂)_nN(R²)C(O)N(R²)(R⁶), —(CH₂)_nN(R⁶)SO₂R², —(CH₂)_nN(R⁶)SO₂R⁶, —(CH₂)_nOC(O)N(R²)(R⁶), —(CH₂)_nOC(O)N(R²)(R⁶), —(CH₂)_nSO₂N(R²)(R⁶), —(CH₂)_nSO₂N(R²)(R⁶), —(CH₂)_nN(R²)SO₂N(R²)(R⁶), —(CH₂)_nN(R⁶)SO₂N(R²)(R⁶), —(CH₂)_nS(O)_mR⁶, and —(CH₂)_nS(O)_mR²;

R^{3a} and R^{3b} are independently selected from: hydrogen, phenyl, phenoxy, halophenyl, —C₁–C₆ alkyl, halogen, —OR²,

methylenedioxy, $-\text{S}(\text{O})_m\text{R}^2$, $-\text{CF}_3$, $-\text{OCF}_3$, nitro, $-\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{N}(\text{R}^2)\text{C}(\text{O})(\text{R}^2)$, $-\text{C}(\text{O})\text{OR}^2$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{N}(\text{R}^2)\text{SO}_2\text{-aryl}$, and $-\text{N}(\text{R}^2)\text{SO}_2\text{R}^2$;

R^4 and R^5 are independently selected from hydrogen, $\text{C}_1\text{-C}_6$ alkyl, and substituted $\text{C}_1\text{-C}_6$ alkyl where the substituents are selected from halo, hydroxy, phenyl, and $\text{C}_1\text{-C}_6$ alkoxy carbonyl;

or R^2 and R^4 may be taken together to form $-(\text{CH}_2)_d\text{-L}_a(\text{CH}_2)_e-$ where L_a is $-\text{C}(\text{R}^2)_2-$, $-\text{O}-$, $-\text{S}(\text{O})_m-$ or $-\text{N}(\text{R}^2)-$, d and e are independently 1 to 3 and R^2 is as defined above;

R^{4a} and R^{4b} are independently selected from: hydrogen, $\text{C}_1\text{-C}_6$ alkyl, trifluoromethyl, phenyl, or substituted $\text{C}_1\text{-C}_6$ alkyl where the substituents are selected from: imidazolyl, naphthyl, phenyl, indolyl, p -hydroxyphenyl, $-\text{OR}^2$, $-\text{S}(\text{O})_m\text{R}^2$, $-\text{C}(\text{O})\text{OR}^2$, $\text{C}_3\text{-C}_7$ cycloalkyl, $-\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$; or R^{4a} and R^{4b} may independently be joined to one or both of R^4 or R^{4c} to form an alkylene bridge between the terminal nitrogen and the alkyl portion of the R^{4a} or R^{4b} and the R^4 or R^{4c} group, wherein the bridges contain 1 to 8 carbon atoms; or R^{4a} and R^{4b} may be joined to one another to form $\text{C}_3\text{-C}_7$ cycloalkyl;

R^{4c} is selected from hydrogen, $\text{C}_1\text{-C}_6$ alkyl, and substituted $\text{C}_1\text{-C}_6$ alkyl where the substituents are selected from 1 to 5 halo, 1 to 3 hydroxy, phenyl, naphthyl, imidazolyl, indolyl, and $\text{C}_1\text{-C}_6$ alkoxy carbonyl;

R^6 is selected from: hydrogen, $\text{C}_1\text{-C}_6$ alkyl, and $(\text{CH}_2)_q\text{aryl}$, wherein the $(\text{CH}_2)_q$ and alkyl groups may be optionally substituted by $-\text{O}(\text{R}^2)$, $-\text{S}(\text{O})_m\text{R}^2$, $-\text{C}(\text{O})\text{OR}^2$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$, or $-\text{N}(\text{R}^2)\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, wherein the aryl group is selected from: phenyl, pyridyl, 1H-tetrazolyl, triazolyl, oxadiazolyl, pyrazolyl, thiadiazolyl, and benzimidazol-2-yl, which is optionally substituted with $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_3\text{-C}_6$ cycloalkyl, amino, or hydroxyl;

X is selected from the group consisting of: hydrogen, $-\text{C}\equiv\text{N}$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{C}(\text{O})\text{R}^2$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{SO}_2(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{SO}_2\text{R}^2$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{OR}^2$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{O}(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{OR}^2$, $-(\text{CH}_2)_q\text{OC}(\text{O})\text{R}^2$, $-(\text{CH}_2)_q\text{OC}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{OC}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-(\text{CH}_2)_q\text{C}(\text{O})\text{R}^2$, $-(\text{CH}_2)_q\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{C}(\text{O})\text{OR}^2$, $-(\text{CH}_2)_q\text{N}(\text{R}^2)\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$, $-(\text{CH}_2)_q\text{S}(\text{O})_m\text{R}^2$, and $-(\text{CH}_2)_q\text{S}(\text{O})_m(\text{CH}_2)_q\text{aryl}$, where R^2 , $(\text{CH}_2)_q$ and $(\text{CH}_2)_q$ group may be optionally substituted with $\text{C}_1\text{-C}_4$ alkyl, hydroxyl, $\text{C}_1\text{-C}_4$ lower alkoxy, carboxyl, $\text{N}(\text{R}^2)(\text{R}^3)$, CONH_2 , $\text{S}(\text{O})_m\text{CH}_3$, carboxylate $\text{C}_1\text{-C}_4$ alkyl esters, or 1H-tetrazol-5-yl, and aryl is phenyl, naphthyl, pyridyl, thiazolyl, or 1H-tetrazol-5-yl groups which may be optionally substituted with halogen, $-\text{OR}^2$, $-\text{CON}(\text{R}^2)(\text{R}^3)$, $-\text{C}(\text{O})\text{OR}^2$, $\text{C}_1\text{-C}_4$ alkyl, $-\text{S}(\text{O})_m\text{R}^2$, or 1H-tetrazol-5-yl;

Y is selected from the group consisting of:

hydrogen, $\text{C}_1\text{-C}_{10}$ alkyl, $-(\text{CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q(\text{C}_3\text{-C}_7\text{ cycloalkyl})$, $-(\text{CH}_2)_q\text{-K-(C}_1\text{-C}_6\text{ alkyl)}$, $-(\text{CH}_2)_q\text{-K-(CH}_2)_q\text{aryl}$, $-(\text{CH}_2)_q\text{-K-(CH}_2)_q(\text{C}_3\text{-C}_7\text{ cycloalkyl containing O, NR}_2\text{S)}$ and $-(\text{CH}_2)_q\text{-K-(CH}_2)_q(\text{C}_3\text{-C}_7\text{ cycloalkyl})$, where K is O , $\text{S}(\text{O})_m$, $\text{C}(\text{O})\text{NR}^2$, $\text{CH}=\text{CH}$, $\text{C}\equiv\text{C}$, $\text{N}(\text{R}^2)\text{C}(\text{O})$, $\text{C}(\text{O})\text{NR}^2$, $\text{C}(\text{O})\text{O}$, or $\text{OC}(\text{O})$, and where the alkyl, R^2 , $(\text{CH}_2)_q$ and $(\text{CH}_2)_q$ groups are optionally substituted by $\text{C}_1\text{-C}_4$ alkyl, hydroxyl, $\text{C}_1\text{-C}_4$ lower alkoxy, carboxyl, $-\text{CONH}_2$ or a carboxylate $\text{C}_1\text{-C}_4$ alkyl ester, and aryl is phenyl, naphthyl, pyridyl, 1H-tetrazol-5-yl, thiazolyl, imidazolyl, indolyl, oxadiazolyl, pyrimidinyl, thiadiazolyl, pyrazolyl, oxazolyl, isoxazolyl, thiophenyl, quinolinyl, pyrazinyl, or isothiazolyl which is optionally substituted with halogen, $-\text{OR}^2$, $-\text{C}(\text{O})\text{OR}^2$, $\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, nitro, cyano, benzyl, $\text{C}_1\text{-C}_4$ alkyl, $-\text{S}(\text{O})_m\text{R}^2$, or 1H-tetrazol-5-yl;

D is selected from: $-\text{N}(\text{R}^7)-$, $-\text{S}(\text{O})_m-$, $-\text{C}(\text{O})-$ and $-\text{C}(\text{H})(\text{R}^7)-$, wherein R^7 is selected from: $-\text{R}^2$, $-\text{OR}^2$, $-(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{R}^2$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{SO}_2\text{R}^2$, $-\text{SO}_2(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{OR}^2$, 1H-tetrazol-5-yl, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$ and the $(\text{CH}_2)_q$ may be optionally substituted by $\text{C}_1\text{-C}_4$ alkyl, and the R^2 and aryl may be optionally further substituted with a substituent selected from: $-\text{OR}^{2a}$, $-\text{O}(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{OR}^{2a}$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$, halogen, $-\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $\text{C}_1\text{-C}_4$ alkyl, 1,2,4-triazolyl, 1H-tetrazol-5-yl, $-\text{C}(\text{O})\text{NHSO}_2\text{R}^{2a}$, $-\text{S}(\text{O})_m\text{R}^{2a}$, $-\text{C}(\text{O})\text{NHSO}_2(\text{CH}_2)_q\text{aryl}$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$, $-\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{R}^{2a}$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{OC}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{OC}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$;

D is selected from: $-\text{N}(\text{R}^7)-$, $-\text{S}(\text{O})_m-$, $-\text{C}(\text{O})-$ and $-\text{C}(\text{H})(\text{R}^7)-$,

wherein R^7 is selected from: $-\text{R}^2$, $-\text{OR}^2$, $-(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{R}^2$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{SO}_2\text{R}^2$, $-\text{SO}_2(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{C}(\text{O})\text{N}(\text{R}^2)(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{OR}^2$, 1H-tetrazol-5-yl, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$, $-\text{SO}_2\text{N}(\text{R}^2)(\text{R}^3)$ and the $(\text{CH}_2)_q$ may be optionally substituted by $\text{C}_1\text{-C}_4$ alkyl, and the R^2 and aryl may be optionally further substituted with a substituent selected from: $-\text{OR}^{2a}$, $-\text{O}(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{OR}^{2a}$, $-\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$, halogen, $-\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $\text{C}_1\text{-C}_4$ alkyl, 1,2,4-triazolyl, 1H-tetrazol-5-yl, $-\text{C}(\text{O})\text{NHSO}_2\text{R}^{2a}$, $-\text{S}(\text{O})_m\text{R}^{2a}$, $-\text{C}(\text{O})\text{NHSO}_2(\text{CH}_2)_q\text{aryl}$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$, $-\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $\text{N}(\text{R}^{2a})\text{C}(\text{O})\text{R}^{2a}$, $-\text{N}(\text{R}^{2a})\text{C}(\text{O})(\text{CH}_2)_q\text{aryl}$, $-\text{OC}(\text{O})\text{N}(\text{R}^{2a})(\text{R}^{2a})$, $-\text{OC}(\text{O})\text{N}(\text{R}^{2a})(\text{CH}_2)_q\text{aryl}$;

I is 0, 1 or 2;

m is 0, 1, or 2;

n is 2;

q is 0, 1, 2, 3, or 4;

r is 0, 1, 2, or 3;

t is 0, 1, 2, or 3;

v is 0, 1, or 2;

x is 1; y is 1;

and pharmaceutically acceptable salts and individual diastereomers thereof.

5,804,579

INSECTICIDAL OXADIAZINE COMPOUNDS

Mark Achiel Dekeyser, Waterloo, Canada, and Paul Thomas McDonald, Middlebury, Conn., assignors to Uniroyal Chemical Company, Inc., Middlebury, Conn., and Uniroyal Chemical Co./CIE, Elmira, Canada

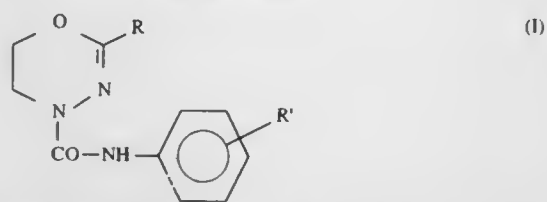
Continuation-in-part of Ser. No. 791,217, Jan. 20, 1997, abandoned. This application Oct. 14, 1997, Ser. No. 950,609

Int. Cl. ⁶ H01N 43/88; C07D 273/04

U.S. Cl. 514—229.2

19 Claims

1. A compound having the formula:



wherein R is a $\text{C}_4\text{-C}_5$ heterocyclic group comprising one nitrogen, sulfur, or oxygen atom, wherein the heterocyclic group can be unsubstituted or substituted with 1 to 3 halogen atoms or a $\text{C}_1\text{-C}_4$ haloalkyl group; and R' is hydrogen, halogen, $\text{C}_1\text{-C}_4$ haloalkyl or $\text{C}_1\text{-C}_4$ haloalkoxy.

5,804,580

BENZOXAZINE DERIVATIVES, METHODS FOR OBTAINING SAME, AND THEIR USE AS DRUGS

Maurice-Bernard Fleury, Neuilly Sur Seine; Jean-Marc Maurette, La Garenne Colombes, and Martine Largeron, Neuilly Sur Seine, all of France, assignors to Laboratories Pharmascience, Courbevoie Cedex, France

PCT No. PCT/FR94/01557, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/18114, PCT Pub. Date Jul. 6, 1995

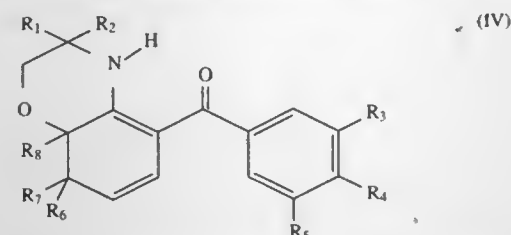
PCT Filed Dec. 29, 1994, Ser. No. 666,552

Claims priority, application France, Dec. 29, 1993, 93 15836 Int. Cl. ⁶ A61K 31/535; C07D 265/36

U.S. Cl. 514—230.5

23 Claims

1. A compound having the following formula (IV):



in which:

R_1 and R_2 , independently of each other, represent an alkyl group with 1 to 3 carbon atoms, or a group formula $-\text{CH}_2-\text{OR}_d$, R_d representing a hydrogen atom or a methyl group.

R_3 and R_5 , independently of each other, represent a hydrogen atom, or an $-\text{OH}$ group, or an $-\text{OCH}_3$ group.

R_4 represents a hydrogen atom, or an OR_e group, R_6 representing a hydrogen atom or a methyl group, or R_4 represents a group of formula OR_e , R_e representing a group of formula $-\text{CH}_2-\text{CO}-\text{C}_6\text{H}_4\text{R}'$ in which R' represents a hydrogen atom, $-\text{CN}$ or $-\text{OCH}_3$.

either R_6 represents an OR_d group, R_d representing a hydrogen atom or a methyl group, when R_7 and R_8 combine to form a double bond,

or R_8 represents an $-\text{OR}_e$ group in which R_e represents a hydrogen atom or a methyl group, when R_6 and R_7 combine to form, with the carbon atom in position 8 of the ring, a $\text{C}=\text{O}$ group.

5,804,581

INHIBITION OF MATRIX METALLOPROTEASES BY SUBSTITUTED PHENALKYL COMPOUNDS

Donald J. Wolanin, Orange, Conn., assignor to Bayer Corporation, Pittsburgh, Pa.

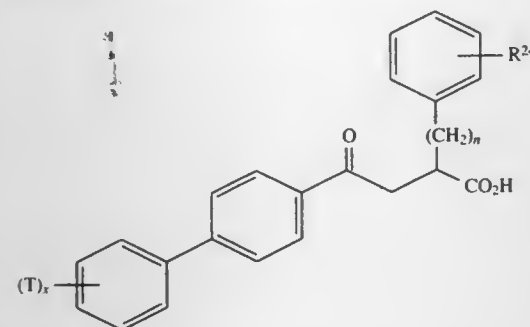
Filed May 15, 1997, Ser. No. 856,696

Int. Cl. ⁶ A61K 31/195; 31/535; C07D 295/13; 295/192

U.S. Cl. 514—237.5

7 Claims

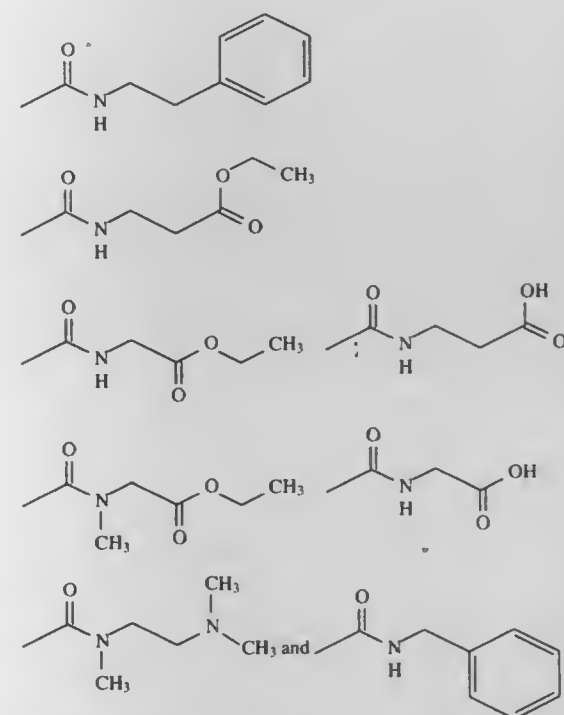
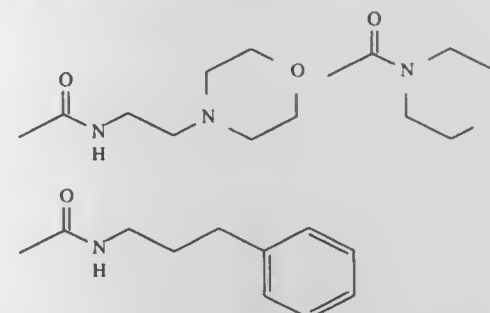
1. A matrix metalloprotease-inhibiting compound having the general formula:



wherein

T represents halogen, benzyloxy, or alkoxy of 1-5 carbon atoms, x is 1 or 2;

n is an integer of 1-5, and R^{24} is selected from the group consisting of



and pharmaceutically acceptable salts thereof.

5,804,582

METHOD FOR THE TREATMENT OF DISEASES DUE TO DEFECTS THE IMMUNE SYSTEM

Carl-Magnus Alexander Andersson, Lund; Håkan Sten Axel Magnus Bergstrand, Bjärred; Edib Jakupovic, Nykvarn; Bo-Göran Josefsson; Magnus Lelf Lindvall, both of Lund; Bengt Olof Särnstrand, Bjärred, and Eric Nils Gunnar Teneberg, Södertälje, all of Sweden, assignors to Astra Aktiebolag, Södertälje, Sweden

Continuation of Ser. No. 335,941, Nov. 8, 1994, Pat. No.

5,693,858, which is a continuation of Ser. No. 981,373, Nov.

25, 1992, Pat. No. 5,385,904. This application Jun. 7, 1995,

Ser. No. 477,387

Claims priority, application Sweden, Nov. 29, 1991, 9103572

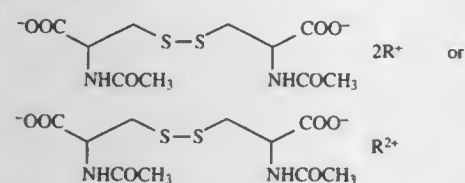
Int. Cl. ⁶ A61K 31/495

U.S. Cl. 514—255

3 Claims

1. A method for the treatment of diseases which are due to defects in the immune system in mammals, which comprises

administering to a mammal in need of such treatment an effective amount of a salt of an organic base and N,N'-diacetylcystine having the formula



or a hydrate or a solvate thereof wherein the organic base, R³⁰ or R²⁺, is selected from the group consisting of lysinium, ethylenediaminium, N,N'-dibenzylethylenediaminium, N-benzy-2-phenylethylaminium and 1-adamantanaminium and wherein the disease is selected from the group consisting of chronic bronchitis, rheumatoid arthritis, hepatitis, asthma, rhinitis, atherosclerosis, HIV infection and AIDS.

5,804,583

PYRIMIDINONE DERIVATIVES FUSED TO NITROGEN HETEROCYCLES HAVING A II ANTAGONISTIC ACTIVITY

Aldo Salimbeni; Davide Poma; Anna Renzetti, and Carlo Scolastico, all of Lomagna, Italy, assignors to Istituto Luso Farmaco D'Italia, Milan, Italy

Continuation of Ser. No. 464,849, Aug. 14, 1995, abandoned.

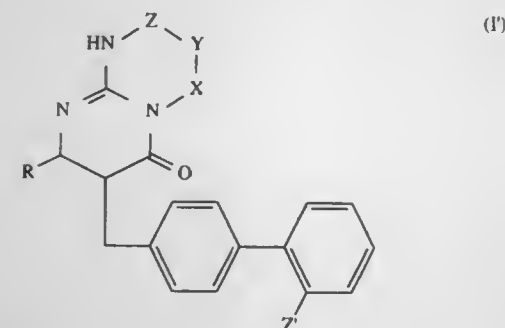
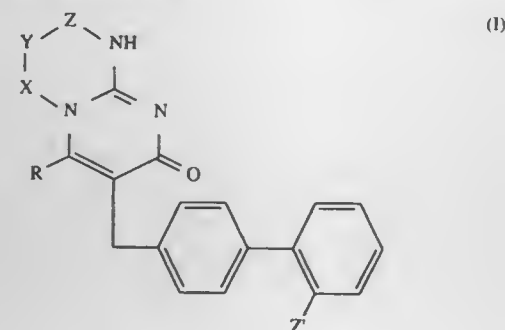
This application Dec. 18, 1996, Ser. No. 768,791

Claims priority, application Italy, Jan. 22, 1993, MI93A0100
Int. Cl.⁶ A61K 31/505; 31/53; C07D 251/00; 487/00

U.S. Cl. 514—258

4 Claims

1. A compound of the general formulae (I) or (I') including tautomers and enantiomers



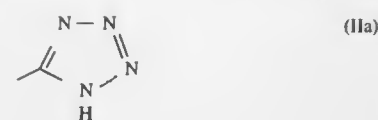
in which:

Z' is a tetrazole group of the general formulae (IIa) or (IIb)

in which

n is 0 or 1

R₃ and R₄ are independently hydrogen or methyl; and the pharmaceutically acceptable acid and base salts thereof.



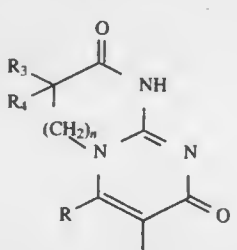
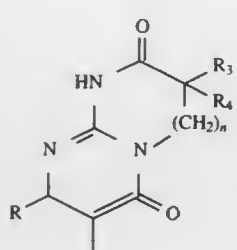
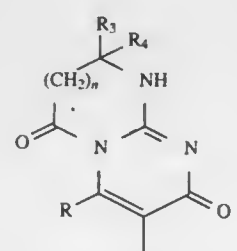
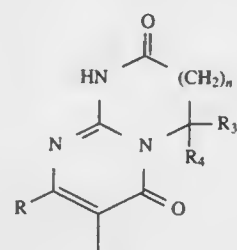
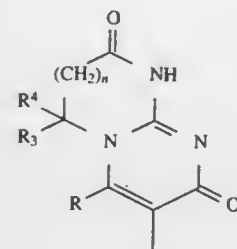
(IIa)



(IIb)

R is a straight C₁-C₄ alkyl or cyclopropyl;

X, Y, Z form, together with the pyrimidinone ring to which they are linked, a heterocyclic moiety selected from the group consisting of



5,804,584

THERAPEUTIC COMPOUNDS CONTAINING A MONOCYCLIC FIVE- TO SIX- MEMBERED RING STRUCTURE HAVING ONE TO TWO NITROGEN ATOMS

Gail E. Underiner, Brier; David Porubek, Seattle; J. Peter Klein, Vashon Island, and Paul Woodson, Edmonds, all of Wash., assignors to Cell Therapeutics, Inc., Seattle, Wash.

Division of Ser. No. 153,256, Nov. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 976,353, Nov. 16, 1992, Pat. No. 5,473,070. This application Jun. 6, 1995, Ser. No. 468,659

Int. Cl.⁶ C07D 239/54; A61K 31/52

U.S. Cl. 514—269

9 Claims

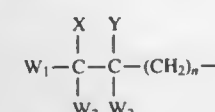
1. A compound, including resolved enantiomers, diastereomers, hydrates, salts, solvates and mixtures thereof, comprising the formula:

(Rj)-(core moiety),

wherein j is an integer from one to three,

the core moiety comprises a member selected from the group consisting of substituted or unsubstituted uracil, thymine and pyrimidinyl,

R is selected from the group consisting of hydrogen, hydroxyl, amino, substituted or unsubstituted benzyl, C₁₋₆alkyl, C₁₋₆alkyl ether, C₁₋₆alkenyl and C₁₋₆alkenyl ether, wherein at least one R has the formula I:



wherein n is an integer from seven to twenty, at least one of X or Y is —OH, another of X or Y, which is not —OH, being selected from the group consisting of hydrogen; CH₃—, CH₃—CH₂—, CH₃—(CH₂)₂—, (CH₃)₂—CH₂— and ethers thereof; and each W₁, W₂, and W₃ is independently selected from the group consisting of hydrogen; CH₃—, CH₃—CH₂—, CH₃—(CH₂)₂—, (CH₃)₂—CH₂— and ethers thereof; said X, Y, W₁, W₂, or W₃ alkyl groups being unsubstituted or substituted by hydroxyl, halo or dimethylamino.

5,804,585

THIENO-PYRIDINE SULFONAMIDES DERIVATIVES THEREOF AND RELATED COMPOUNDS THAT MODULATE THE ACTIVITY OF ENDOTHELIN

Erik Joel Verner, San Diego, Calif., assignor to Texas Biotechnology Corporation, Houston, Tex.

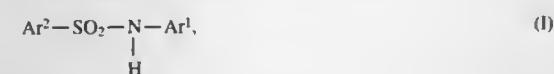
Filed Apr. 15, 1996, Ser. No. 632,586

Int. Cl.⁶ A61K 31/435; C07D 495/04

U.S. Cl. 514—301

28 Claims

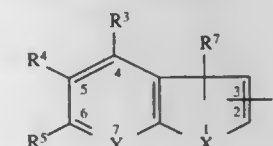
1. A sulfonamide compound of formula (I)



wherein:

Ar¹, which contains from 1 to 30 carbon atoms, is selected from the group consisting of optionally substituted alkyl groups,

aryl groups and heteroaryl groups: wherein the aryl and heteroaryl groups include single rings, fused bicyclic or tricyclic rings; and the alkyl groups are straight or branched chains or straight or branched chains that include cyclic portions; and Ar² is a group of formula:



Y is N or O⁺; X is S, O, or NR¹¹ in which R¹¹, which is hydrogen or contains up to about 30 carbon atoms, is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl, cycloalkynyl, C(O)R¹⁵ and S(O)_nR¹⁵ in which n is 0-2; and R¹⁵, which is selected independently from R¹¹, is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl and cycloalkynyl;

R³, R⁴ and R⁵ are selected from (i), (ii), (iii) or (iv):

(i) R³, R⁴ and R⁵ are each selected independently from among H, NHOH, NH₂, NO₂, N₃, halide, pseudohalide, alkyl, alkenyl, alkynyl, aryl, alkylaryl, aryloxy, aryl, heteroaryl, alkoxy, alkylamino, alkylthio, alkoxyalkyl, alkylsulfenyl, alkylsulfonyl, aryloxy, arylamino, arylthio, arylsulfenyl, arylsulfonyl, haloalkyl, haloaryl, alkoxyalkenyl, alkylcarbonyl, arylcarbonyl, formyl, amido, where the alkyl, alkenyl, alkynyl portions are straight or branched chains of from about 1 up to about 10 carbons, and the aryl portions contain from 3 up to about 10 carbons; or, alternatively,

(ii) two of R³, R⁴ and R⁵ form 1,3-butadienyl, 4-dimethylamino-1,3-butadiene, 1-chloro-1,3-butadiene, 1-aza-1,3-butadienyl or 2-aza-1,3-butadienyl groups or form alkenedioxo; and the other of R³, R⁴ and R⁵ is as defined in (i)

(iii) two of R³, R⁴ and R⁵ are independently selected from alkyl, alkoxy, halide aminoalkyl, dialkylaminoalkyl, in which the alkyl and alkoxy groups contain from 1 to 10, preferably 1 to 6 carbons, and are straight or branched chains and the other is H; or

(iv) any two of R³, R⁴ and R⁵, which are each selected as in (i), form fused carbocyclic or heterocyclic rings and the other is selected as in (i); and

R⁷ is hydrogen or contains up to about 50 carbon atoms, generally up to about 30, more generally 20 or fewer, and is selected hydrogen, halide, pseudohalide, alkyl, alkoxy, alkenyl, alkynyl, aryl, aryloxy, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl, cycloalkynyl, OH, CN, C(O)R¹⁸, CO₂R¹⁸, SH, S(O)_n, (CH₂)_n, (CH₂)_nR¹⁸, S(O)_nR¹⁸ in which n is 0-2, and r is 0 to 6, HNOH, NR¹⁸R¹⁹, NO₂, N₃, OR¹⁸, R¹⁹NCOR¹⁸ and CONR¹⁹R¹⁸, in which R¹⁹ is selected from hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, alkoxy, aryloxy, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl, cycloalkynyl, C(O)R²⁰, S(O)_nR²⁰ in which n is 0-2; and R¹⁸ and R²⁰ are independently selected from hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, heterocycle, alkoxy, aryloxy, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl or cycloalkynyl; and any of the groups set forth for R⁷ is unsubstituted or substituted with any substituents set forth for Z, which is hydrogen, halide, pseudohalide, alkyl, alkoxy, alkenyl, alkynyl, aryl, aryloxy, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl, cycloalkynyl, OH, CN, C(O)R²¹, CO₂R²¹, SH, S(O)_nR²¹ in which n is 0-2, NHOH, NR²²R²¹, NO₂, N₃.

OR²¹, R²²NCOR²¹ and CONR²²R²¹; R²² is selected from hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, heterocycle, aralkyl, alkoxy, aralkoxy, cycloalkyl, cycloalkenyl, cycloalkynyl, C(O)R²³ and S(O)_nR²³ in which n is 0-2; and R²¹ and R²³ are independently selected from hydrogen, alkyl, alkenyl, alkynyl, aryl, alkylaryl, heterocycle, aralkyl, aralkoxy, cycloalkyl, cycloalkenyl or cycloalkynyl.

5,804,586

THERAPEUTIC AGENTS

Bruce Jeremy Sargent; David Norman Johnston, and Andrew Philip Austin Crew, all of Nottingham, Great Britain, assignors to Knoll Aktiengesellschaft, Ludwigshafen, Germany Division of Ser. No. 564,156, Dec. 21, 1995. This application Mar. 27, 1997, Ser. No. 826,012

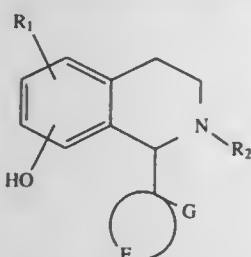
Claims priority, application United Kingdom, Jun. 22, 1993, 93 12 807.2; Jun. 22, 1993, 93 12 808.0

Int. Cl.⁶ A61K 31/47; C07D 217/04

U.S. Cl. 514—307

19 Claims

1. Tetrahydroisoquinoline compounds of formula I



and pharmaceutically acceptable salts thereof in the form of individual enantiomers, racemates, or other mixtures of enantiomers, in which:

R₁ represents one or more substituents selected from H, halo, hydroxy, alkyl of 1 to 3 carbon atoms (optionally substituted by hydroxy), alkoxy of 1 to 3 carbon atoms, alkylthio of 1 to 3 carbon atoms, alkylsulphonyl of 1 to 3 carbon atoms, alkylsulphonyl of 1 to 3 carbon atoms, nitro, cyano, polyhaloalkyl of 1 to 3 carbon atoms, polyhaloalkoxy of 1 to 3 carbon atoms, phenyl (optionally substituted by one or more substituents selected from halo, alkyl of 1 to 3 carbon atoms or alkoxy of 1 to 3 carbon atoms), or R₁ is carbamoyl optionally substituted by one or two alkyl groups each independently of 1 to 3 carbon atoms;

R₂ represents a saturated or unsaturated aliphatic group containing 1 to 3 carbon atoms optionally substituted by hydroxy or alkoxy containing 1 to 3 carbon atoms;

E represents an alkylene chain containing 2 to 5 carbon atoms optionally substituted by one or more alkyl groups containing 1 to 3 carbon atoms;

and G represents (a) a saturated or unsaturated alicyclic group containing 3 to 8 carbon atoms optionally substituted by one or more substituents selected from alkyl of 1 to 3 carbon atoms, hydroxy, alkoxy of 1 to 3 carbon atoms, polyhaloalkyl of 1 to 3 carbon atoms, oxo, alkylthio of 1 to 3 carbon atoms, alkylsulphonyl of 1 to 3 carbon atoms or alkylsulphonyl of 1 to 3 carbon atoms, said alicyclic group being optionally fused to one or more further rings to form a polycyclic group or (b) a saturated or unsaturated aliphatic chain containing 1 to 12 carbon atoms optionally substituted by one or more substituents selected from alkyl of 1 to 3 carbon atoms, hydroxy, alkoxy of 1 to 3 carbon atoms, polyhaloalkyl of 1 to 3 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, oxo, alkylthio of 1 to 3 carbon atoms, alkylsulphonyl of 1 to 3 carbon atoms or alkylsulphonyl of 1 to 3 carbon atoms; and O-acylated derivatives thereof.

5,804,587

6-(2-IMIDAZOLINYLAMINO) QUINOLINES USEFUL AS ALPHA-2 ADRENOCEPTOR AGONISTS

Thomas Lee Cupps, Oxford; Peter J. Maurer, Cincinnati; Jeffrey J. Ares, Hamilton; Raymond T. Henry, Pleasant Plain; Russell James Sheldon, Fairfield; Glen E. Mieling, West Chester, and Sophie E. Bogdan, Mainville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

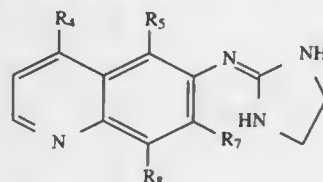
Continuation-in-part of Ser. No. 496,704, Jun. 29, 1995, Pat. No. 5,739,148. This application Nov. 25, 1996, Ser. No. 755,936

Int. Cl.⁶ C07D 403/12; A61H 31/47

U.S. Cl. 514—314

36 Claims

1. A compound having the following structure:



wherein:

- (a) R₄ is selected from the group consisting of hydrogen; unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms; cycloalkyl; cycloalkenyl; methyl monosubstituted with hydroxy, thiol or amino; unsubstituted alkylthio or alkoxy having from 1 to about 3 carbon atoms; amino; unsubstituted amide; amido, unsubstituted or substituted with alkanyl or alkenyl having from 1 to about 3 carbon atoms; halo; unsubstituted sulfoxide; unsubstituted sulfonyl; and cyano;
- (b) R₅ is unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms;
- (c) R₆ is selected from hydrogen; unsubstituted C₁-C₃ alkanyl or alkenyl; hydroxy, thiol or amino; halo; and cyano;
- (d) R₇ is selected from the group consisting of hydrogen; unsubstituted alkanyl or alkenyl having from 1 to about 3 carbon atoms; unsubstituted alkylthio or alkoxy having from 1 to about 3 carbon atoms; hydroxy; thiol; and halo.

5,804,588

QUINOLINE CARBOXYNIDES AND THEIR THERAPEUTIC USE

Hazel Joan Dyke; John Gary Montana; Christopher Lowe; Hannah Jayne Kendall, and Verity Margaret Sabin, all of Cambridge, United Kingdom, assignors to Chiroscience Limited, United Kingdom

Filed May 20, 1997, Ser. No. 859,508

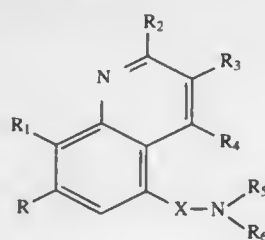
Claims priority, application United Kingdom, May 20, 1996, 9610506; Nov. 7, 1996, 9623234; Dec. 24, 1996, 9626883; Apr. 22, 1997, 9708072

Int. Cl.⁶ C07D 215/00; A61K 31/47

U.S. Cl. 514—314

28 Claims

1. A compound of the formula (i)



wherein

X is CO or CS;

R is selected from the group consisting of H, halogen, and alkyl;

R₁ is selected from the group consisting of OH, alkoxy optionally substituted with one or more halogens, and thioalkyl;

R₂, R₃, and R₄ are the same or different and are each selected from the group consisting of H, R₇, OR₁₁, COR₇, C(=NOR₇)R₇, alkyl-C(=NOR₇)R₇, halogen, CF₃, alkyl-C(=NOH)R₇, C(=NOH)R₇CN, CO₂H, CO₂ R₁₁, CONH₂, CONHR₇, CON(R₇)₂, NR₂R₁₀, and CONR₁₂R₁₃ where NR₁₂R₁₃ is a heterocyclic ring optionally substituted with one or more R₁₅;

R₅ is selected from the group consisting of H, arylalkyl, heteroarylalkyl, heterocycloalkyl, S(O)_nR₁₁, and alkyl optionally substituted with one or more substituents selected from the group consisting of hydroxy, alkoxy, CO₂R₈, SO₂NR₁₂R₁₃, CONR₁₂R₁₃, CN, carbonyl oxygen, NR₂R₁₀, COR₁₁, and S(O)_nR₁₁;

R₆ is selected from the group consisting of aryl, heteroaryl, heterocyclo, heteroarylalkyl, and heterocycloalkyl;

in R₅ and/or R₆ the aryl/heteroaryl/heterocyclo portion is optionally substituted with one or more substituents alkyl-R₁₄ or R₁₄;

R₇ represents R₁₁ optionally substituted at any position with one or more R₁₆;

R₈ is selected from the group consisting of H, alkyl, cycloalkyl, arylalkyl, heteroarylalkyl, and heterocycloalkyl;

R₉ is selected from the group consisting of H, aryl, heteroaryl, heterocyclo, alkyl, cycloalkyl, arylalkyl, heteroarylalkyl, heterocycloalkyl, alkylcarbonyl, alkoxy carbonyl, arylsulphonyl, heteroarylsulphonyl, heterocyclosulphonyl, arylcarbonyl, heteroarylcarbonyl, heterocyclocarbonyl, and alkylsulphonyl;

R₁₀ is selected from the group consisting of H, aryl, heteroaryl, heterocyclo, alkyl, cycloalkyl, arylalkyl, heteroarylalkyl, and heterocycloalkyl;

R₁₁ is selected from the group consisting of alkyl, cycloalkyl, aryl, heteroaryl, heterocyclo, arylalkyl, heteroarylalkyl, and heterocycloalkyl;

R₁₂ and R₁₃ are the same or different and are each selected from the group consisting of H and R₁₁, or NR₁₂R₁₃ represents a heterocyclic ring as defined above;

R₁₄ is selected from the group consisting of alkyl (optionally substituted by one or more halogens), cycloalkyl, aryl, heteroaryl, heterocyclo, hydroxy, alkoxy, thioalkyl, aryloxy, heteroaryloxy, heterocycloxy, arylalkyloxy, heteroarylalkyloxy, heterocycloalkyloxy, CO₂R₈, CONR₁₂R₁₃, SO₂NR₁₂R₁₃, halogen, —CN, —NR₂R₁₀, COR₁₁, S(O)_nR₁₁, and carbonyl oxygen;

R₁₅ is selected from the group consisting of alkyl, arylalkyl, and heteroarylalkyl;

R₁₆ is selected from the group consisting of alkyl, OH, OR₁₁, NR₂R₁₀, CN, CO₂H, CO₂R₁₁, CONR₁₂R₁₃, and COR₁₁;

m is an integer of up to 2; and n=0-2;

or a pharmaceutically acceptable salt thereof.

5,804,589

USE OF N-CYCLOHEXYL BENZAMIDES FOR TREATING BOWEL DISORDERS

Thierry Bouyssou, Plaisir; Hélène Christinaki, Meudon, and Alain Renaud, Rueil Malmaison, all of France, assignors to Laboratoires Jacques Logeais, Issy-les-Moulineaux Cedex, France

PCT No. PCT/FR96/00976, § 371 Date Nov. 7, 1997, § 102(e) Date Nov. 7, 1997, PCT Pub. No. WO97/00680, PCT Pub. Date Jan. 9, 1997

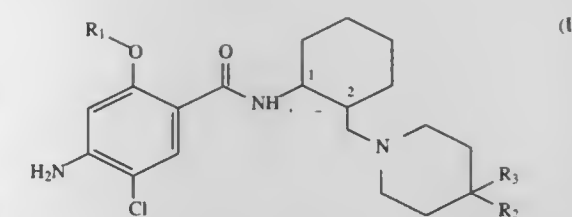
PCT Filed Jun. 21, 1996, Ser. No. 945,853

Claims priority, application France, Jun. 23, 1995, 95 07606 Int. Cl.⁶ A61K 31/445

U.S. Cl. 514—331

6 Claims

1. A method for the treatment of pain of visceral origin which comprises administering to a patient in need thereof a therapeutically effective amount of a compound selected from the compounds of formula:



in which

R₁ is a linear, branched or cyclized C₁-C₅ alkyl radical and R₂ represents a hydrogen atom, a linear or branched C₁-C₅ alkyl radical, a hydroxyl radical, a C₁-C₅ alkoxy radical or a C₁-C₂ hydroxyalkyl radical, and R₃ represents a hydrogen atom or R₂ and R₃ both represent a C₁-C₅ alkyl radical, these compounds being 2R in configuration, as well as of the racemates comprising these compounds, and their pharmaceutically acceptable salts.

5,804,590

TREATMENT AND PROPHYLAXIS OF OSTEOPOROSIS Toshihiko Fujiwara, Ebina; Masaaki Miyamoto, Fujisawa, and Hiroyoshi Horikoshi, Funabashi, all of Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Filed Dec. 23, 1996, Ser. No. 770,554

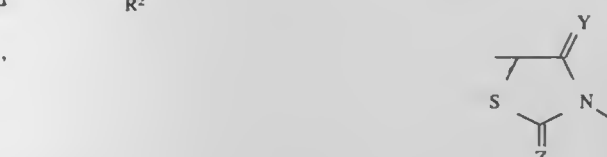
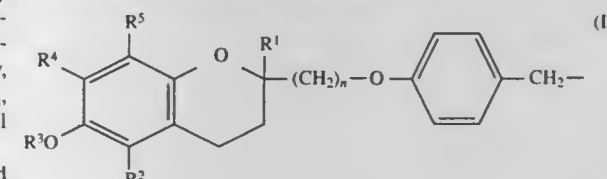
Claims priority, application Japan, Dec. 26, 1995, 7-338440

Int. Cl.⁶ A61K 31/425

U.S. Cl. 514—369

41 Claims

1. A method of treating or preventing osteoporosis in a subject in need thereof, comprising administering to said subject an amount of a thiazolidine compound sufficient to treat or prevent osteoporosis, said thiazolidine compound being selected from the group consisting of compounds of formula (I):



wherein:

R¹ and R² are the same as or different from each other and each represents a hydrogen atom or an alkyl group having from 1 to 5 carbon atoms;

R³ represents a hydrogen atom, an aliphatic acyl group having from 1 to 6 carbon atoms, a cycloalkanecarbonyl group having from 5 to 7 carbon atoms in the cycloalkane part, a benzoyl group, a naphthoyl group, a benzoyl or naphthoyl group which is substituted by at least one substituent selected from the group consisting of substituents α, defined below, a heterocyclic acyl group in which the heterocyclic part has from 4 to 7 ring atoms of which from 1 to 3 are hetero-atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms, a phenylacetyl group, a phenylpropionyl group, a phenylacetyl or phenylpropionyl group which is substituted by at least one halogen substituent, a cinnamoyl group, an alkoxy carbonyl group having from 1 to 6 carbon atoms in the alkoxy part or a benzyloxycarbonyl group;

R⁴ and R⁵ are the same as or different from each other and each represents a hydrogen atom, an alkyl group having from 1 to 5 carbon atoms or an alkoxy group having from 1 to 5 carbon

Patent Not Issued For This Number

5,804,601

AROMATIC HYDROXAMIC ACID COMPOUNDS, THEIR PRODUCTION AND USE

Kaneyoshi Kato, Kawanishi, Shokyo Miki, Ibaraki; Ken-ichi Naruo, Sanda, and Hideki Takahashi, Ikeda, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan
Filed Apr. 9, 1996, Ser. No. 629,623

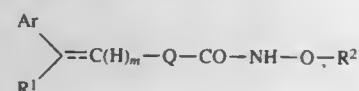
Claims priority, application Japan, Apr. 10, 1995, 7-084342; Aug. 24, 1995, 7-215932

Int. Cl.⁶ C07C 259/06; A61K 31/165

U.S. Cl. 514—563

16 Claims

1. A compound of the formula:

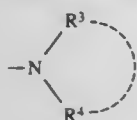


wherein

Ar represents i) a C₆₋₁₄aryl, ii) a 5- to 11-membered heteroaromatic group containing, besides carbon atoms, 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, or iii) a quinone group, wherein Ar may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, hydroxyl, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, C₆₋₁₀arylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy, optionally halogenated C₁₋₆alkylsulfonylamino and optionally substituted C₆₋₁₀arylsulfonylamino;

Q represents a divalent C₂₋₈aliphatic hydrocarbon group;

R¹ represents i) hydrogen, ii) a cyano group, iii) a C₁₋₆alkyl, C₂₋₆alkenyl, C₃₋₆alkynyl, C₃₋₆cycloalkyl or C₆₋₁₄aryl group, each of which may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group, iv) a group of the formula:

wherein R³ and R⁴ are independently

a) hydrogen,

b) an acyl group represented by the formula: —CO—R, —SO₂—R, —SO—R, —CONH—R, —CO—O—R, —CS—NH—R or —CS—O—R wherein R is i) hydrogen, ii) a C₁₋₆alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₆cycloalkyl or C₆₋₁₄aryl group, each of which may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group or (3) 5- to 10-membered heterocyclic group containing, besides carbon atoms, 1 to 3 hetero atoms selected from the group consisting of nitro-

gen, oxygen and sulfur, which heterocyclic group may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group, or

c) a C₁₋₆alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₆cycloalkyl or C₆₋₁₄aryl group, each of which may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group, or

R³ and R⁴, taken together with the adjacent nitrogen atom, form a 5- to 7-membered nitrogen-containing ring having, besides carbon atoms and one nitrogen atom, 1 to 3 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, or

v) an acyl group represented by the formula: —CO—R, —SO₂—R, —SO—R, —CONH—R, —CO—O—R, —CS—NH—R or —CS—O—R wherein R is (1) hydrogen, (2) a C₁₋₆alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₆cycloalkyl or C₆₋₁₄aryl group, each of which may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group or (3) 5- to 10-membered heterocyclic group containing, besides carbon atoms, 1 to 3 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, which heterocyclic group may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group;

R² represents an acyl group represented by the formula: —CO—R, —SO₂—R, —SO—R, —CONH—R, —CO—O—R, —CS—NH—R or —CS—O—R wherein R is i) hydrogen, ii) a C₁₋₆alkyl, C₂₋₆alkenyl, C₂₋₆alkynyl, C₃₋₆cycloalkyl or C₆₋₁₄aryl group, each of which may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally halogenated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group or iii) a 5- to 10-membered heterocyclic group containing, besides carbon atoms, 1 to 3 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur, which heterocyclic group may be substituted by 1 to 5 substituents selected from the group consisting of a halogen, C₁₋₃alkylenedioxy, nitro, cyano, optionally halogenated C₁₋₆alkyl, optionally haloge-

nated C₃₋₆cycloalkyl, optionally halogenated C₁₋₆alkoxy, optionally halogenated C₁₋₆alkylthio, amino, mono-C₁₋₆alkylamino, di-C₁₋₆alkylamino, hydroxyl, C₁₋₆alkylcarbonyl, carboxyl, C₁₋₆alkoxycarbonyl, C₁₋₆alkylcarbonyloxy, carbamoyl, mono-C₁₋₆alkylcarbamoyl, di-C₁₋₆alkylcarbamoyl, sulfo, C₁₋₆alkylsulfonyl, C₆₋₁₀aryl, C₆₋₁₀aryloxy and 5- or 6-membered heterocyclic group;

height.....represents a single bond or a double bond; and m represents 1 or 2, or a salt thereof.

5,804,602

METHODS OF CANCER TREATMENT USING NAALADASE INHIBITORS

Barbara S. Slusher, Kingsville, and Paul F. Jackson, Bel Air, both of Md., assignors to Guilford Pharmaceuticals Inc., Baltimore, Md.

Filed Jun. 17, 1996, Ser. No. 665,775

Int. Cl.⁶ A61K 31/66; C07F 9/28

U.S. Cl. 514—574

9 Claims

1. A method of treating prostate tumor cell growth which comprises: administering to an animal suffering from a cancer an effective amount of a NAALADase inhibitor.

5,804,603

SYNTHESIZED β-ADRENERGIC BLOCKERS DERIVATIVES OF GUAIACOL

Ing-Jun Chen, Kaohsiung, Taiwan, assignor to National Science Council, Taipei, Taiwan

Continuation-in-part of Ser. No. 157,473, Nov. 26, 1993, abandoned. This application Nov. 13, 1995, Ser. No. 559,208

Int. Cl.⁶ A61K 31/165; C07C 233/05

U.S. Cl. 514—630

3 Claims

1. A compound which is a member selected from the group consisting of

N-[4-(2,3-epoxypropoxy)-3-methoxybenzyl]-nonamide, NVAE).

N-[4-(2-hydroxy-3-(isopropylamino)propoxy)-3-methoxybenzyl]-nonamide, NVAEN)

N-[4-(2-hydroxy-3-(n-propylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(methylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(ethylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(allylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(cyclopropylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(n-butylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(iso-butylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(sec-butylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(tert-butylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(n-pentylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(3-aminopentylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(n-hexylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(cyclohexylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(n-heptylamino)propoxy)-3-methoxybenzyl]-nonamide

N-[4-(2-hydroxy-3-(benzylamino)propoxy)-3-methoxybenzyl]-nonamide

N-(4-(0-dimethylaminoethyl)-3-methoxybenzyl)-nonamide

5,804,604

TAT-DERIVED TRANSPORT POLYPEPTIDES AND FUSION PROTEINS

Alan Frankel, Tiburon, Calif.; Carl Pabo, Newton, Mass.; James G. Barsom, Lexington, Mass.; Stephen E. Fawell, Winchester, Mass., and R. Blake Pepinsky, Arlington, Mass., assignors to Biogen, Inc., Cambridge, Mass.

Continuation of Ser. No. 235,403, Apr. 28, 1994, which is a continuation-in-part of Ser. No. 158,015, Nov. 24, 1993, abandoned, which is a continuation of Ser. No. 636,662, Jan. 2, 1991, abandoned, which is a continuation-in-part of Ser. No. 454,450, Dec. 21, 1989, abandoned. This application May 25, 1995, Ser. No. 450,236

Int. Cl.⁶ C07K 7/06; 7/08; 14/155; 19/00

U.S. Cl. 530—324

14 Claims

1. An agent for delivery of a cargo moiety consisting of a cargo moiety in combination with a transport moiety, wherein the transport moiety has the following characteristics:

- (i) the presence of amino acids 49-57 of HIV tat protein;
- (ii) the absence of amino acids 22-36 of HIV tat protein; and
- (iii) the absence of amino acids 73-86 of HIV tat protein.

5,804,605

ABSORBENT MATERIAL

Gianfranco Palumbo, Bad Homburg, Germany, assignor to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US95/14678, § 371 Date May 12, 1997, § 102(e)

Date May 12, 1997, PCT Pub. No. WO96/15180, PCT Pub.

Date May 23, 1996

PCT Filed Nov. 13, 1995, Ser. No. 836,123

Claims priority, application Italy, Nov. 10, 1994, T094A0889

Int. Cl.⁶ C08J 5/20

U.S. Cl. 521—28

13 Claims

1. A superabsorbent material which comprises a combination of:

- i) an anionic superabsorbent polymer in which from 20 to 100% of the functional groups of the polymer are in free acid form; and
 - ii) an anion exchange resin in which from 20 to 100% of the functional groups of the resin are in basic form;
- wherein the superabsorbent material has improved absorbent performance in the presence of polyelectrolyte, relative to the anionic superabsorbent polymer alone.

5,804,606

CHELATING RESINS

Joanna Surowiec; Jaques Franc, both of Chauny, and Jeannot Lucien Hawecker, Lauterbourg, all of France, assignors to Rohm & Haas Company, Phila., Pa.

Filed Apr. 21, 1997, Ser. No. 844,740

Int. Cl.⁶ B01J 39/18; C02F 1/42; 1/58; 1/62

U.S. Cl. 521—32

16 Claims

1. A macroporous, chelating ion exchange resin, which comprises a copolymer comprising 86 to 94 percent by weight of units of monovinyl aromatic monomer, 4 to 8 percent by weight of units of divinyl aromatic monomer and 2 to 6 percent by weight of units of oxygen-containing crosslinker, and wherein the copolymer is functionalized with aminoalkylphosphonic or iminodiacetic acid groups, wherein the copolymer is prepared by polymerization of a monomer mixture in the presence of 40 to 48 percent by weight of phase extender, the percent of phase extender being based on total weight of phase extender and monomer mixture used in the polymerization.

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5,804,607

PROCESS FOR MAKING A FOAMED ELASTOMERIC POLYMER

Jeffrey Curtis Hedrick, Park Ridge, N.J.; James Lupton Hedrick, Pleasanton, Calif.; Jons Gunnar Hilborn, Sulpice, Switzerland; Yun-Hsin Liao, Tempe, Ariz.; Robert Dennis Miller, San Jose, Calif., and Da-Yuan Shih, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 620,059, Mar. 21, 1996, Pat. No. 5,726,211. This application Oct. 16, 1997, Ser. No. 951,824
Int. Cl.⁶ C08J 9/26

U.S. Cl. 521—64

8 Claims

I. A process for forming a foamed polyimide comprising the steps of:

- (a) forming an emulsion of liquid droplets dispersed in a continuous liquid phase of polyimide precursor;
- (b) polymerizing the polyimide precursor to form a polyimide having dispersed pores filled with the liquid; and
- (c) heating the polyimide under pressure with a gas to a temperature above about 15° C. below the critical temperature of the liquid and a pressure above about 1 atmosphere below the critical pressure of the liquid to exchange the liquid in the pores with the gas.

5,804,608

HEAT-FOAMABLE FILLING REINFORCEMENT AND REINFORCED CLOSED-SECTION STRUCTURAL-MEMBER MAKING USE OF THE SAME

Kazuyuki Nakazato, and Hideki Fukudome, both of Tokyo, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP96/00073, § 371 Date Sep. 20, 1996, § 102(e) Date Sep. 20, 1996, PCT Pub. No. WO96/22324, PCT Pub. Date Jul. 25, 1996

PCT Filed Jan. 18, 1996, Ser. No. 716,432

Claims priority, application Japan, Jan. 21, 1995, 7-026330
Int. Cl.⁶ C08L 63/00

U.S. Cl. 521—135

4 Claims

I. A heat-foamable filling reinforcement that comprises:
an epoxy resin material,
a synthetic rubber material,
a thermoplastic resin material
a foaming agent, and
a filler; and

wherein:

- (i) before foaming, the heat-foamable filling reinforcement is in the form of a sheet,
- (ii) said foaming agent is added in an amount sufficient to provide the heat-foamable filling reinforcement with an expansion ratio of from 200 to 500% after heating and curing, said epoxy resin material amounts to 30–45 wt. %, said synthetic rubber material amounts to 5–15 wt. %, said thermoplastic resin material amounts to 5–15 wt. %, and said filler amounts to 40–50 wt. %, and with the total of the weight percentages of the individual components including said filler being in a range not exceeding 100 wt. %, as components of the heat-foamable filling reinforcement,
- (iii) the epoxy resin material is comprised of an epoxy resin and at least one synthetic rubber having good compatibility with the epoxy resin and polymerized beforehand with the epoxy resin, which synthetic rubber is selected from the group consisting of acrylonitrile-butadiene rubber, epoxy natural rubber, epichlorohydrin rubber, and modified acrylonitrile-butadiene rubber, and
- (iv) the synthetic rubber material is selected from the group consisting of acrylonitrile-butadiene rubber, epoxy natural rubber, epichlorohydrin rubber, and modified acrylonitrile-butadiene rubber, and is blended without a plasticizer.

5,804,609

LIQUID CRYSTAL COMPOSITE LAYER OF THE DISPERSION TYPE, METHOD FOR THE PRODUCTION THEREOF AND LIQUID CRYSTAL MATERIALS USED THEREIN

Noriaki Ohnishi, Osaka; Toshiyuki Hirai, Ichinomotocho; Nobuaki Yamada, Osaka; Shiuchi Kozaki, Ukyo, all of Japan; David Coates, Merley; Emma Jane Brown, Southborne, both of Great Britain; Bernhardt Rieger, Münster-Altheim, Germany, and Yukio Tanaka, Tsumada nishi, Japan, assignors to Merck Patent Gesellschaft Mit Beschränkter Haftung, Darmstadt, Germany, and Sharp Corporation, Osaka, Japan

Division of Ser. No. 075,116, Jun. 10, 1993, Pat. No. 5,523,127. This application Mar. 27, 1996, Ser. No. 622,308

Claims priority, application Japan, Jun. 10, 1992, 4-150475; Jun. 10, 1992, 4-150475; Jun. 10, 1992, 4-150476

Int. Cl.⁶ C08F 2/50; C09K 19/00

U.S. Cl. 522—74

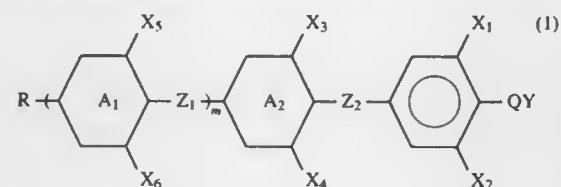
4 Claims

I. A method for producing a liquid crystal composite layer of a polymer dispersion, which comprises uniformly mixing:

- (a) a liquid crystal material comprising compounds selected from the group consisting of compounds represented by formulae (1) and (2), wherein the total amount of compound of formula (1) and formula (2) is from 50–100 percent by weight based on the total weight of the liquid crystalline material, and

with

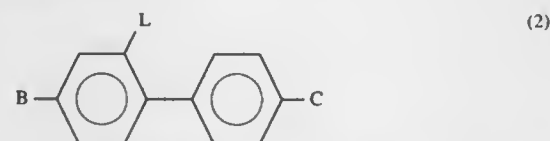
- (b) a radical photopolymerizable resin material having an average solubility parameter (SP) value of 8–11 and an average molecular weight (Mn) of 100–1000, selected from the group consisting of monofunctional monomers, polyfunctional monomers and oligomers thereof and the content of monofunctional monomers is within the range of 60–98% by weight of the total radical photopolymerizable resin material, followed by phase separation of the liquid crystal material by photopolymerization of the photopolymerizable resin material, wherein formula (1) is:



wherein

- A₁ and A₂ each represent independently a benzene ring, cyclohexane ring, pyrimidine ring or trans-1,3-dioxane ring;
X₁, X₂, X₃, X₄, X₅ and X₆ each independently represent H, F or Cl;
Z₁ and Z₂ each independently represent a single bond, —CH₂—, —CH₂CH₂—, —CH=CH—, —C≡C—, —COO— or —OCO—;
Q represents a single bond, —CH₂—, —CH₂CH₂—, —CF₂—, —OCF₂—, —C₂F₄—, —CCl₂— or —C₂Cl₄—;
Y represents H, F or Cl;
R represents C_nH_{2n+1}—O—, C_nH_{2n+1}—, or C_nH_{2n+1}CH=CH—, in which n is an integer of 2–10;
m represents 0, 1 or 2;

and formula (2) is:



in which B and C represent respectively C_nH_{2n+1}—, C_nH_{2n+1}O—, C_nH_{2n+1}CH=CH— or C_nH_{2n+1}—C₆H₁₀— (in which n is an integer of 2–10), and L is H or F.

5,804,610

METHODS OF MAKING PACKAGED VISCOELASTIC COMPOSITIONS

Craig E. Hamer, Woodbury; John D. Moon, Hastings, and Thomas A. Kotnour, Faribault, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 596,897, Mar. 13, 1996, which is a continuation-in-part of Ser. No. 303,602, Sep. 9, 1994, abandoned. This application Aug. 28, 1997, Ser. No. 919,756
Int. Cl.⁶ B65B 5/00; C09J 4/02; B32B 27/16; 27/30

U.S. Cl. 522—182

27 Claims

I. A method of forming a hot melt adhesive composition comprising the steps of:

- (a) combining (i) a pre-adhesive composition which upon exposure to transmissive energy polymerizes to form a hot melt adhesive composition and (ii) a packaging material to form a packaged pre-adhesive composition; wherein said pre-adhesive composition has a viscosity less than about 50,000 centipoise at 25° C.; and
- (b) exposing said packaged pre-adhesive composition to transmissive energy to polymerize said pre-adhesive composition to form a packaged hot melt adhesive composition; wherein said packaging material is meltable and mixable with said hot melt adhesive so as to provide a coatable hot-melt adhesive composition when said packaged hot melt adhesive composition is melted.

5,804,611

COMPOSITION USED FOR HYDROPHILIZATION AND METHOD FOR HYDROPHILIZATION USING SAID COMPOSITION

Noboru Takoh; Masahiro Kondo, and Hiroshi Inoue, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Japan
Filed Sep. 18, 1996, Ser. No. 710,650

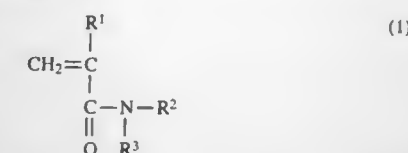
Claims priority, application Japan, Sep. 22, 1995, 7-268031
Int. Cl.⁶ C09D 171/02; 133/14; 133/24

U.S. Cl. 523—122

19 Claims

I. A composition used for hydrophilization, which comprises:
(A) a polyethylene glycol having a number-average molecular weight of 500 to 500,000, and

- (B) hydrophilic crosslinked polymer fine particles made of a copolymer consisting essentially of:
2–50% by weight of (a) a hydrophilic monomer having, in the molecule, at least one polymerizable double bond and a polyoxyalkylene or polyvinylpyrrolidone chain,
20–97% by weight of (b) at least one (meth)acrylamide type monomer selected from the compounds represented by the following formula (1):



(wherein R¹ is a hydrogen atom or a methyl group; and R² and R³, which may be the same or different, are each a hydrogen atom or an alkyl group of 1–5 carbon atoms with a proviso that the sum of the carbon atoms of R² and R³ is 5 or less),

- 1–30% by weight of (c) at least one crosslinkable unsaturated monomer selected from the group consisting of N,N'-methylenebis(acrylamide), N,N'-methylenebis(methacrylamide) and unsaturated compounds having an N-methylol group or an N-alkoxymethyl group of 1–7 carbon atoms in the alkoxy moiety,
- 2–50% by weight of (d) a carboxyl group-containing polymerizable unsaturated monomer, and
- 0–50% by weight of (e) a monomer having one polymerizable unsaturated group in the molecule, other than the monomers (a), (b), (c) and (d).

5,804,612

TRANSPARENT ANTI-FOG COATING

Jian Cheng Song; Sen Yang, both of Warwick, R.I., and Kang Sun, North Attleboro, Mass., assignors to Arkwright, Incorporated, Fiskeville, R.I.

Filed May 1, 1996, Ser. No. 641,550

Int. Cl.⁶ C08K 3/18

U.S. Cl. 523—169

18 Claims

- I. An anti-fog coating comprising:
a hydroxyl group containing polymer selected from the group consisting of poly(vinyl alcohol), poly(vinyl acetate), cellulose ethers and mixtures thereof;
an aluminum containing crosslinker; and
a surface active agent selected from the group consisting of nonoxynol, silicone glycol, poly(oxy-1,2-ethanediyl)-alpha(nonphenyl)omega-hydroxy, ethoxylated acetylenic diol, glyceryl monooleate, polyether modified dimethylpolysiloxane and mixtures thereof.

5,804,613

INTERCALATES AND EXFOLIATES FORMED WITH MONOMERIC CARBONYL-FUNCTIONAL ORGANIC COMPOUNDS, INCLUDING CARBOXYLIC AND POLYCARBOXYLIC ACIDS; ALDEHYDES; AND KETONES; COMPOSITE MATERIALS CONTAINING SAME AND METHODS OF MODIFYING RHEOLOGY THEREWITH

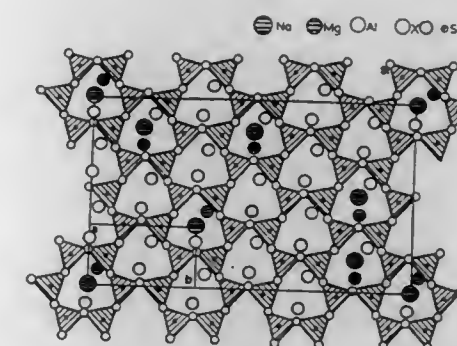
Gary W. Beall, McHenry; Semeon Tsipursky, Lincolnwood; Anatoli Sorokin, Buffalo Grove, and Anatoli Goldman, Palatine, all of Ill., assignors to Amcol International Corporation, Arlington Heights, Ill.

Filed Dec. 22, 1995, Ser. No. 577,557

Int. Cl.⁶ C08K 9/00; 9/06; C08J 3/20; C08L 33/02

U.S. Cl. 523—200

43 Claims



- I. An intercalate, capable of being exfoliated, formed by contacting a layered material, having adjacent platelets of said layered material, having a moisture content of at least about 4% by weight, with water and an intercalant monomer to form an intercalating composition comprising said layered material, water and said intercalant monomer, said intercalant monomer having a functionality selected from the group consisting of a carbonyl; a carboxylic acid or salt thereof; and mixtures thereof, said intercalate having a weight ratio of intercalant monomer to layered material of at least about 1:20, to achieve sorption and complexing of the intercalant monomer between adjacent spaced layers of the layered material, without an onium ion or silane coupling agent, to expand the spacing between a predominance of the adjacent platelets of said layered material to at least about 5 Å, when measured after sorption of the intercalant monomer and drying to a maximum of 5% by weight water.

5,804,614

PROCESS FOR THE PRODUCTION OF ETHYLENE-PROPYLENE ELASTOMERIC COPOLYMERS

Tiziano Tanaglia, Bologna, Italy, assignor to Enichem Elastomeri S.r.l., Milan, Italy

Filed Sep. 16, 1996, Ser. No. 714,398

Int. Cl.⁶ C08K 9/02

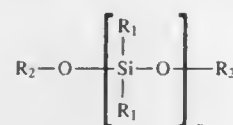
U.S. Cl. 523—204

9 Claims

1. A process for the preparation of free-flowing particles of copolymers of ethylene with propylene and optionally another diene in a suspension of liquid monomer, in the presence of a catalyst selected from the group consisting of (a) Titanium salt supported on Magnesium salt and (b) compound of Vanadium soluble in hydrocarbon solvents either supported on an inert material or prepolymerized, and a co-catalyst consisting essentially of an organoaluminum compound, and optionally, a chlorinated activator, comprising:

- 1) adding a solid material insoluble in the reaction environment and having an average diameter of between 0.001 and 200 microns to the reaction mixture after the polymerization is complete;
- 2) contacting the suspension of polymer and solid material for a sufficient time to obtain free-flowing polymeric particles;
- 3) recovering the free-flowing polymeric particles of step (2).

a polysiloxane having the formula



where each R₁ is selected from the group consisting of the hydroxy group and alkyl, aryl and alkoxy groups having up to six carbon atoms, each R₂ is selected from the group consisting of hydrogen and alkyl and aryl groups having up to six carbon atoms and, wherein n is selected so that the molecular weight for the polysiloxane is in the range of from about 400 to 10,000;

a non-aromatic epoxy resin having more than one 1,2-epoxide groups per molecule with an epoxide equivalent weight in the range of from 100 to about 5,000; and

a sufficient amount of an aminosilane hardener component having two amine hydrogens to react with the epoxide groups in the epoxy resin to form epoxy chain polymers, and to react with the polysiloxane to form polysiloxane polymers, wherein the epoxy chain polymers and polysiloxane polymers copolymerize to form a cured cross-linked epoxy-polysiloxane polymer composition.

5,804,615

AQUEOUS EPOXY RESIN COATING WITH ELECTRICALLY CONDUCTIVE PIGMENTS

Peter Schreiber, Hattingen; Reinhard Windmann, Wuppertal; Dieter Hüber, Kerpen, and Stefanie Goecke, Ennepetal, all of Germany, assignors to Herberts Gesellschaft Mit Beschränkter Haftung, Wuppertal, Germany

Filed Dec. 16, 1996, Ser. No. 764,899

Claims priority, application Germany, Dec. 22, 1995, 195 48 215.8

Int. Cl.⁶ C08K 3/20; C08L 63/02; 63/00; 63/04

U.S. Cl. 523—414

10 Claims

1. An aqueous coating composition suitable for coating plastic substrates comprising:

- 7.5 to 25 wt. % of one or more epoxy resins
- 1.5 to 10 wt. % of one or more water-miscible polyamines
- 0 to 10 wt. % of one or more non-chlorinated polyolefins
- 1 to 35 wt. % of an electrically conductive pigment
- 5 to 25 wt. % of one or more organic solvents and
- 35 to 60 wt. % of water

wherein the sum of the above-stated constituents amounts to 100 wt. %.

5,804,616

EPOXY-POLYSILOXANE POLYMER COMPOSITION

Norman R. Mowrer, La Habra; Raymond E. Foscante, Yorba Linda, and J. Luis Rojas, Anaheim Hills, all of Calif., assignors to Ameron International Corporation, Pasadena, Calif.

Continuation-in-part of Ser. No. 342,414, Nov. 18, 1994, Pat.

No. 5,618,860, which is a continuation-in-part of Ser. No.

64,398, May 19, 1993, abandoned. This application Jan. 27,

1997, Ser. No. 790,730

Int. Cl.⁶ C08K 3/20

U.S. Cl. 523—421

18 Claims

1. A cross-linked epoxy-polysiloxane polymer composition prepared by combining:

water; with

5,804,617

POLY(CYCLOHEXYLENEDIMETHYLENE TEREPHTHALATE) COPOLYESTER MOLDING COMPOSITIONS

Douglas Claire Hoffman; Thomas Joseph Pecorini; James Palmer Dickerson, all of Kingsport, and Joseph Alexander DeLoach, Jonesborough, all of Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

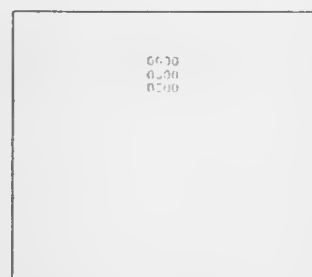
Continuation of Ser. No. 531,495, Sep. 21, 1995, Pat. No.

5,633,340. This application Feb. 20, 1997, Ser. No. 803,584

Int. Cl.⁶ C08L 1/10

U.S. Cl. 524—37

39 Claims



1. A molded object prepared from a composition consisting essentially of a copolyester having an inherent viscosity of 0.4 to 1.1 dL/g.

wherein the acid component comprises repeat units from 90 to 40 mole % terephthalic acid and from 10 to 60 mole % of one or more additional dibasic acids selected from the group consisting of isophthalic acid, cyclohexanedicarboxylic acid, naphthalenedicarboxylic acid, diphenyldicarboxylic acid, and stilbenedicarboxylic acid;

wherein the glycol component comprises repeat units from 1,4-cyclohexanedimethanol.

5,804,618

ADHESIVE FOR BONDING DECORATIVE MELAMINE TREATED PAPER TO PARTICLE BOARD

Robson Mafoti, Temple, and Tien-Chieh Chao, Round Rock, both of Tex., assignors to Premark RWP Holdings, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 688,932, Jul. 31, 1996. This application Oct. 31, 1996, Ser. No. 739,399

Int. Cl.⁶ C08L 3/02

U.S. Cl. 524—53

25 Claims

1. A polyvinyl acetate based adhesive for bonding melamine formaldehyde resin treated paper to particle board, comprising: polyvinyl acetate emulsion, tackified polyvinyl alcohol, starch, tackifier and water soluble or dispersible coupling agent, wherein the tackified polyvinyl alcohol comprises an admixture of polyvinyl alcohol, boric acid and phosphoric acid and wherein the water soluble or dispersible coupling agent is a member selected from the group consisting of titanate coupling agents, zirconium coupling agents, gamma-glycidypropyltrimethoxy-silane, gamma-aminopropyltriethoxy-silane, amino modified organosilane ester and mixtures thereof.

5,804,619

ELASTOMER FUNCTIONALIZED BY GRAFTED CARBOXYL OR ESTER GROUPS AND ITS APPLICATION TO THE PRODUCTION OF FUNCTIONALIZED ELASTOMER/BITUMEN COMPOSITIONS WHICH CAN BE USED FOR THE PREPARATION OF COATINGS

Pascal Nicol, Pau; Jean-Pascal Planche, Saint Just Chaleysin; Laurent Germanaud, Heyrieux; Hervé Nabet, Pau, and Patrick Turello, Francheville, all of France, assignors to Elf Exploitation Production, Courbevoie, France

PCT No. PCT/FR96/01613, § 371 Date Aug. 22, 1997, § 102(e)

Date Aug. 22, 1997, PCT Pub. No. WO97/14726, PCT Pub.

Date Apr. 24, 1997

PCT Filed Oct. 16, 1996, Ser. No. 849,905

Claims priority, application France, Oct. 19, 1995, 95 12275

Int. Cl.⁶ C08L 95/00; C08F 273/00

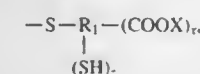
U.S. Cl. 524—68

29 Claims

1. Functionalized elastomer of the containing a substrate elastomer, having a weight-average molecular weight (\bar{M}_w)₀ of between 10,000 and 600,000 daltons and a polydispersity index of less than 5, onto which are grafted, in an amount representing 0.1 to 10% by weight of the substrate, sequences carrying carboxyl or ester functional groups, wherein its weight-average molecular mass \bar{M}_w is such that the ratio

$$\frac{[\bar{M}_w - (\bar{M}_w)_0]}{(\bar{M}_w)_0}$$

is less than 20% and in that the sequences grafted onto the substrate correspond to the formula



in which R₁ denotes an (x+z+1)-valent C₁ to C₁₂ hydrocarbon radical, X represents H or a monovalent C₁ to C₁₂ hydrocarbon radical R, z is equal to zero or 1 and x is an integer having a value ranging from 1 to 3 with x+z≤3.

5,804,620

EMBRITTLMENT-RESISTANT POLYOLEFIN COMPOSITION AND FLEXIBLE ARTICLES THEREFROM

Stephen E. Amos, Minneapolis, Minn., assignor to Montell North America Inc., Wilmington, Del.

Filed Jun. 18, 1996, Ser. No. 665,784

Int. Cl.⁶ C08L 83/08

U.S. Cl. 524—99

9 Claims

1. An embrittlement-resistant propylene polymer composition, consisting essentially of:

- (a) a visbroken propylene polymer comprising a crystalline, random copolymer of propylene and either ethylene or C₄-C₁₀-olefins.
- (b) an amount of polymethyl propyl 3-oxy-[4-(2,2,6,6-tetramethyl)piperidinyl] siloxane which is effective to improve the gamma radiation resistance of the composition, and
- (c) a sorbitol-based compound.

5,804,621

POLYMERIC COMPOSITION

Kenji Kimura, Osaka, and Motobiko Samizo, Kyoto, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 22, 1996, Ser. No. 755,047

Claims priority, application Japan, Nov. 27, 1995, 7-307281

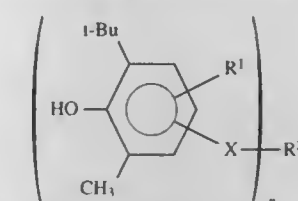
Int. Cl.⁶ C08K 5/34

U.S. Cl. 524—99

10 Claims

1. A polymeric composition which comprises:

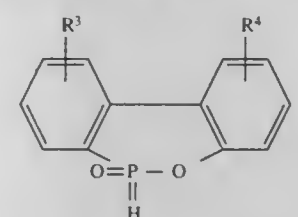
- (A) a polymeric compound,
- (B) a phenol antioxidant represented by the general formula (I):



wherein, R¹ is a hydrogen atom or lower alkyl group; n is 2 or 3; R² is a divalent alcohol residue when n is 2, and is a isocyanuric acid residue when n is 3; X is a lower alkylencarboxyloxy group when n is 2, and is a lower alkylene group when n is 3;

(C) a hindered amine photostabilizer having a molecule weight of not less than 400; and

(D) a dihydroxaphosphaphenanthrene compound represented by the general formula (II)



wherein R³ and R⁴, which are same or different, are a hydrogen atom, halogen atom or lower alkyl group.

5,804,622

MONOMERIC N-PIPERIDINYLMELAMINES AS STABILIZERS FOR CHLORINE-CONTAINING POLYMERS

Horst Zinke, Reichelsheim/Odw.; Wolfgang Wehner, Ober-Ramstadt; Karl Josef Kuhn, Lautertal, all of Germany; Valerio Berzatta, Bologna, Italy, and Gerhard Rytz, Bern, Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Mar. 17, 1997, Ser. No. 819,224

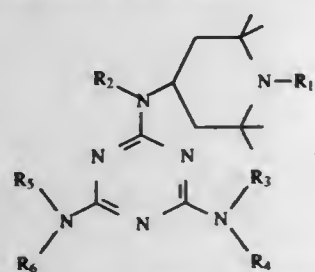
Claims priority, application Switzerland, Mar. 22, 1996, 1996 0752/96

Int. Cl. C08K 5/3492

U.S. Cl. 524—100

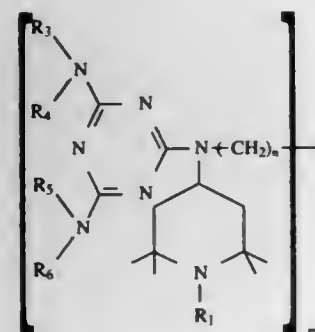
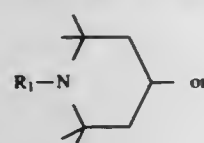
12 Claims

1. A stabilizer combination comprising organozinc compounds and compounds of the formula I



R₁ is H, C₁₋₈alkyl-, C₃₋₈alkenyl-, C₅₋₈cycloalkyl- or C₇₋₉phenylalkyl-;

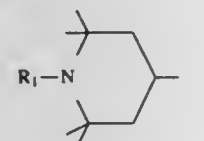
R₂ is H, C₁₋₈alkyl-, C₃₋₈alkenyl-, C₅₋₈cycloalkyl-, HO—C₂H₄—, HO—C₃H₆—, (C₁₋₄alkyl)₂N—(CH₂)_k—



R₃, R₄, R₅, and R₆ independently of one another are H, C₁₋₈alkyl-, C₅₋₈cycloalkyl-,

C₁₋₉phenylalkyl-, C₃₋₈alkenyl-, HO—C₂H₄—, HO—C₃H₆—, (C₁₋₄alkyl)₂N—(CH₂)_k—, phenyl or phenyl

substituted by HO—, H₂N—, C₁₋₄alkyl- or -alkoxy-, or R₃, R₄, R₅, and R₆ are



and R₃ and R₄ and/or R₅ and R₆ can alternatively be attached to one another via methylene groups, which are adjacent or separated by O, S, or C₁₋₄alkyl-N atoms; and

n is 2 to 12;

k is 2 to 6; and

m is 0 or 1.

5,804,623

PROCESS FOR THE STABILIZATION OF AND STABILIZER MIXTURES FOR RECYCLED PLASTICS

Kurt Hoffmann, Lautertal; Heinz Herbst, Lautertal-Reichenbach; Rudolf Pfendner, Rimbach/Odenwald; Hans-Jürgen Sander, Lorsch, all of Germany, and Franciszek Sitek, Therwil, Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 403,914, Mar. 21, 1995, Pat. No. 5,643,985. This application Nov. 25, 1996, Ser. No. 756,226

Claims priority, application Switzerland, Sep. 25, 1992, 3012/92

Int. Cl. C08K 5/34; 5/49; 5/51; 5/09

U.S. Cl. 524—101

21 Claims

1. A process for the stabilization of recycled plastics, consisting essentially of thermoplastics with up to 5% of non-thermoplastics, which comprises

adding from 0.01 to 10% by weight of a mixture (which per 100 parts) is

(A) as component a) 5–50 parts of 2,2'-ethylidene-bis-(4,6-di-tert-butylphenol); as component b) 5–50 parts of tris-(2,4-di-tert-butylphenyl) phosphite, and as component c) 5–50 parts calcium stearate;

(B) as component a) 5–50 parts of 2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-mesitylene, as component b) 5–50 parts of tris-(2,4-di-tert-butylphenyl)-phosphite, and as component c) 5–50 parts of calcium stearate;

(C) as component a) 5–50 parts of 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl) isocyanurate, as component b) 5–50 parts of tris-(2,4-di-tert-butylphenyl) phosphite, and as component c) 5–50 parts of calcium stearate;

(D) as component a) 5–50 parts of pentaerythritol ester of 3,5-di-tert-butyl-4-hydroxy-hydrocinnamic acid, as component b) 5–50 parts of 2,2',2''-nitrotriethyl-tris(3,3',5,5'-tetra-tert-butyl-1,1'-biphenyl-2,2'-diyl) phosphite, and as component c) 5–50 parts calcium stearate; or

(E) as component a) 5–50 parts of pentaerythritol ester of 3,5-di-tert-butyl-4-hydroxy-hydrocinnamic acid, as component b) 5–50 parts of tetrakis(2,4-di-tert-butylphenyl)-4,4'-biphenylene diphosphonite, and as component c) 5–50 parts of calcium stearate.

5,804,624

WATER-BASED SILICONE RESIN COMPOSITIONS

Jianming Wang, 155-21 Cherry Ave., Flushing, N.Y. 11355

Filed Apr. 30, 1997, Ser. No. 846,808

Int. Cl. C08K 5/52

U.S. Cl. 524—140

14 Claims

1. A water-based silicone resin composition comprising:

a. a silicone resin;

b. a dispersion-stabilizing amount of a hydrophobically modified polycarboxylic acid copolymer; and

c. water.

5,804,625

FLUORO-CHEMICAL AND HYDROCARBON SURFACTANT BLENDS AS HYDROPHILIC ADDITIVES TO THERMOPLASTIC POLYMERS

John A. Temperante, St. Paul; Thomas P. Klun, Lakeland, and Alton J. Gasper, Minneapolis, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 21, 1996, Ser. No. 646,791

Int. Cl. C08K 5/54; 5/20; 5/36; 5/48

U.S. Cl. 524—188

35 Claims

1. A durably hydrophilic, thermoplastic fiber comprising thermoplastic polymer and a mixture of: (a) one or more fluoroalkyl group-containing nonionic surfactants having one or more polyoxyalkylene groups in their structure, and (b) one or more non-

ionic, nonfluorinated, polyoxyethylene group-containing surfactants that contain between 20 and 80 weight percent polyoxyethylene, wherein said mixture is present in the fiber at a concentration sufficient to impart durable hydrophilicity to the thermoplastic fiber.

5,804,626

POLYESTERS OF 2,6-NAPHTHALENEDICARBOXYLIC ACID HAVING IMPROVED HYDROLYTIC STABILITY

Martin Emerson Rogers, 309 Brookwood Ct., Blountville, Tenn. 37617, and Sarah Jayne Webb, 268 Boone Station Rd., Gray, Tenn. 37615

Continuation of Ser. No. 459,560, Jun. 2, 1995, abandoned.

This application May 30, 1997, Ser. No. 866,468

Int. Cl. C08K 5/29

U.S. Cl. 524—195

28 Claims

1. A polyester composition, comprising:

(A) 95 to 99.9% by weight of a polyester comprising from about 85 to 100 mole % of 2,6-naphthalenedicarboxylic acid and 85 to 100 mole % of at least one aliphatic glycol having from 2 to 16 carbon atoms, based on the total mole percentage for the glycol portion and for the acid portion of said polyester each equaling 100 mole %; and

(B) 0.1 to 5.0% by weight of one or more polymeric carbodiimides, with the proviso that the polymeric carbodiimides are not used in combination with monocarbodiimides, biscarbodiimides or mixtures thereof.

5,804,627

SHELF STABLE FAST-CURE AQUEOUS COATING

Frank Landy, Jenkintown; Andrew Mercurio, Gwynedd Valley, and Roy Flynn, Warrington, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation of Ser. No. 471,953, Jun. 6, 1995, abandoned, which is a division of Ser. No. 340,461, Nov. 14, 1994, Pat. No. 5,527,853, which is a continuation of Ser. No. 32,735,

Mar. 15, 1993, abandoned, which is a continuation of Ser. No. 879,542, May 4, 1992, abandoned, which is a continuation of Ser. No. 383,944, Jul. 21, 1989, abandoned. This application

Jan. 28, 1997, Ser. No. 789,231

Int. Cl. B05D 3/03

U.S. Cl. 524—314

29 Claims

1. A method of producing a coating on an exterior surface comprising:

applying on said surface an aqueous composition comprising:

(a) an anionically stabilized emulsion polymer having a T_g greater than about 0° C.;

(b) a polyfunctional amine having from about 20% to about 100% of the monomer units by weight containing an amine group; and

(c) an amount of volatile base sufficient to raise the pH of the composition to a point where essentially all of the polyfunctional amine is in a non-ionic state; and

evaporating said volatile base from said composition to produce said coating.

5,804,628

ELASTOMER FILM, PROCESS FOR ITS PREPARATION AND ITS APPLICATIONS

René Guy Busnel, Bievres; André Cheymol, Dange Saint Romain, and Gérard Riess, Mulhouse, all of France, assignors to Hutchinson, Paris, France

PCT No. PCT/FR94/01515, § 371 Date Nov. 6, 1995, § 102(e) Date Nov. 6, 1995, PCT Pub. No. WO95/17453, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 22, 1994, Ser. No. 505,313

Claims priority, application France, Dec. 23, 1993, 93 15561 Int. Cl. C08K 5/19; C08L 83/04; A01N 25/04

U.S. Cl. 524—377

27 Claims

1. Elastomer film comprising an active chemical substance in liquid form, said film comprising:

a dispersion of droplets consisting of a solution or dispersion of an active chemical substance in a polyol; and

a stabilizing copolymer of said dispersion of droplets selected from the group consisting of

diblock of polyA-block-polyB copolymers, triblock copolymers selected from the group consisting of

polyB-block-polyA-block-polyB (BAB), polyA-block-polyB-block-polyA (ABA), polyA-block-polyB-block-polyC (ABC), and polyA-block-polyC-block-polyB (ACB)

copolymers, and

graft copolymers selected from the group consisting of polyA-graft-polyB, polyB-graft-polyA, polyA-graft-(polyB and polyC), polyC-graft-(polyA and polyB) copolymers,

wherein said polyA blocks are immiscible with said droplets and are selected from the group consisting of polydienes, polyolefins, polyethers and silicones, wherein said polyB

blocks are miscible with said droplets and are selected from the group consisting of polyoxyethylene, polyvinylpyrrolidone, polyacrylic acids, poly(vinyl alcohol) and quaternized poly(vinylpyridine), and wherein said polyC blocks

are either miscible or immiscible with said droplets.

5,804,629

MOLDING MATERIALS BASED ON POLYARYLENE ETHERS

Martin Weber, Neustadt, and Norbert Guentherberg, Speyer, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jun. 13, 1994, Ser. No. 258,777

Claims priority, application Germany, Jun. 24, 1993, 43 21 002.3; Mar. 7, 1994, 44 07 485.9

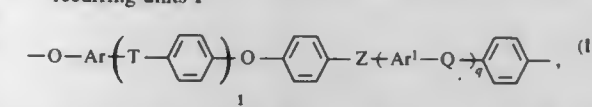
Int. Cl. C08L 71/00; 81/00

U.S. Cl. 524—424

13 Claims

1. A molding material comprising

A) from 1 to 99% by weight of polyarylene ethers containing recurring units I

where t and q are each an integer 0, 1, 2 or 3, T, O and Z are each a chemical bond or a group selected from —O—, —S—, —SO₂—, —C(=O)—, —N=N—, —R^aC=CR^b— OR —CR^aR^b—, with the proviso that the polymer backbone contains at least one of the groups —SO₂— or CO and Z cannot be —O— when t and q are each 0, R^a and R^b are each hydrogen or C₁–C₁₀alkyl, R^c and R^d are each hydrogen, C₁–C₁₀alkyl, C₁–C₁₀alkoxy or C₆–C₁₈aryl, where the abovementioned R^a, R^b, R^c and R^d groups may each be substituted by fluorine or chlorine, and Ar and Ar' are each C₆–C₁₈aryl which may have substituents selected from C₁–C₁₀alkyl, C₆–C₁₈aryl, C₁–C₁₀alkoxy or halogen.

B) from 1 to 99% by weight of copolymers containing units which are derived from

b₁) from 20 to 90 mol % of the aromatic vinyl compounds,b₂) from 1 to 50 mol % of the cyclic α,β-unsaturated dicarboxylic anhydrides,

- b₃) from 9 to 50 mol % of the cyclic α,β -unsaturated dicarboximides and
 b₄) from 0 to 30 mol % of further compounds capable of undergoing free radical polymerization and
 C) from 0 to 60% by weight of fibrous or particulate fillers selected from the group consisting of carbon, glass, quartz, Aramid, alkali metal carbonates, alkaline earth metal carbonates, alkali metal silicates and alkaline earth metal silicates, D) from 0 to 40% by weight of polyester elastomers and
 E) from 0 to 40% by weight of flameproofing agents, pigments and stabilizers.

5,804,630

EPIHALOHYDRIN ELECTRICAL STRESS CONTROLLING MATERIAL

Thomas J. D. Heyer, Austin, and Robert A. Wandmacher, Cedar Park, both of Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Continuation-in-part of Ser. No. 534,390, Sep. 6, 1995, abandoned. This application Aug. 8, 1996, Ser. No. 694,344
 Int. Cl.⁶ C08J 3/18

U.S. Cl. 524—436

8 Claims

1. A non-tacky electrical stress control material comprising a mixture of
 a) about 100 parts by weight of a resin component consisting of a blend of
 1) from about 20% by weight to about 80% by weight of an epihalohydrin polymer, and
 2) correspondingly, from about 80% by weight to about 20% by weight of an insulating silicone polymer having a tan δ of less than one, such silicone being a gum silicone having a durometer of from about 5 to about 30
 b) from about 10 to about 200 parts by weight per hundred parts by weight resin component of barium titanate, and
 c) from 0 to 30 parts by weight of a plasticizer, said material having a permittivity greater than about 15, and a tan δ of less than 4 when tested under electrical stress of from at least about 3 kV to about 20 kV/cm.

5,804,631

CURABLE ORGANOSILOXANE COMPOSITIONS AND SEMICONDUCTOR DEVICES

Katsutoshi Mine; Osamu Mitani; Kazumi Nakayoshi, and Rikako Tazawa, all of Chiba Prefecture, Japan, assignors to Dow Corning Toray Silicone Co., Ltd., Tokyo, Japan
 Filed Jul. 30, 1996, Ser. No. 688,456

Claims priority, application Japan, Aug. 4, 1995, 7-219859; Aug. 4, 1995, 7-219860

Int. Cl.⁶ C08K 3/08

U.S. Cl. 524—440

35 Claims

1. A curable organopolysiloxane composition consisting essentially of:
 (A) 100 weight parts of a mixture of
 (a) 5 to 95 weight % of an alkoxy-substituted organopolysiloxane having a viscosity at 25° C. of 20 to 200,000 mPa.s and containing an average of at least two silicon-bonded alkoxy groups per molecule, and wherein the alkoxy-substituted organopolysiloxane is free of silicon-bonded alkenyl groups; and
 (b) 95 to 5 weight % of an alkenyl-substituted organopolysiloxane having a viscosity at 25° C. of 20 to 200,000 mPa.s and containing an average of at least two silicon-bonded alkenyl groups per molecule, and wherein the alkenyl-substituted organopolysiloxane is free of silicon-bonded alkoxy groups; and
 (B) a polyorganosiloxane having a viscosity at 25° C. of 2 to 20,000 mPa.s and containing an average of at least two silicon-bonded hydrogen atoms per molecule, in a quantity that affords a value of 0.5 to 20 for the molar ratio of

- silicon-bonded hydrogen atoms in component (B) to silicon-bonded alkenyl groups in component (b);
 (C) 0.01 to 10 parts by weight of a condensation reaction catalyst selected from the group consisting of organotitanium, organozirconium, and organoaluminum condensation reaction catalysts; and
 (D) platinum catalyst in a catalytic quantity.

5,804,632

PRODUCTION OF POLYMER EMULSIONS

David Mark Haddleton, Kenilworth; John Christopher Padgett, Frodsham, both of United Kingdom, and Gerardus Cornelis Overbeek, Waalwijk, Netherlands, assignors to Zeneca Limited, London, England, and Zeneca Resins BV, Waalwijk, Netherlands

PCT No. PCT/GB94/01692, § 371 Date Jan. 29, 1996, § 102(e) Date Jan. 29, 1996, PCT Pub. No. WO95/04767, PCT Pub. Date Feb. 16, 1995

PCT Filed Aug. 2, 1994, Ser. No. 591,442

Claims priority, application United Kingdom, Aug. 5, 1993, 9316221

Int. Cl.⁶ C08F 2/16

U.S. Cl. 524—458

48 Claims

1. Process for the production of an aqueous polymer emulsion which process comprises:
 a) preparing a low molecular weight polymer containing acid-functional groups using a free-radical polymerisation process which employs a free radical initiator and, for the purpose of controlling molecular weight, a transition metal chelate complex, wherein said low molecular weight polymer has a number average molecular weight within the range of from 500 to 50,000;
 b) conducting an aqueous polymerisation process to form an aqueous emulsion of a hydrophobic polymer from at least one olefinically unsaturated monomer, wherein the low molecular weight polymer of step a) is introduced to the aqueous medium of said emulsion polymerisation process before the start of and/or during said emulsion polymerisation process and becomes dissolved or dispersed in said aqueous medium, said transition metal chelate in step a) being a cobalt chelate complex and said low molecular weight polymer in step a) prepared by an aqueous emulsion or suspension polymerisation process.

5,804,633

PERMANENT AQUEOUS MARKER INKS

Rachel M. Loftin, Halifax, and Kimberly Borelli Sanborn, South Weymouth, both of Mass., assignors to The Gillette Company, Boston, Mass.

Division of Ser. No. 190,287, Feb. 2, 1994, Pat. No. 5,470,904, which is a division of Ser. No. 968,001, Oct. 28, 1992, Pat. No. 5,512,623, which is a continuation-in-part of Ser. No. 917,455, Jul. 21, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 460,920

Int. Cl.⁶ C08K 5/02; C09D 11/00; 13/00

U.S. Cl. 524—462

29 Claims

1. An aqueous permanent marker ink comprising an alkylphenol ethoxylate surfactant and a fluorocarbon surfactant, a pigment, and a film-forming polymer; wherein the ink forms a permanent marking on a glass substrate when the ink is applied to the glass substrate and allowed to dry thereon at room temperature.

5,804,634

LIQUID CRYSTALLINE RESIN COMPOUND AND MOLDINGS THEREOF

Hideyuki Umetsu; Kiyokazu Nakamura; Toshihide Inoue; Miki Sakai, and Toshio Kurematsu, all of Aichi, Japan, assignors to Toray Industries, Inc., Japan

Filed Dec. 10, 1996, Ser. No. 763,071

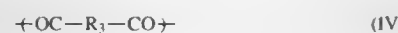
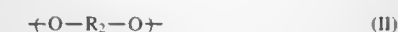
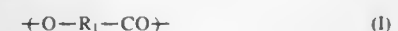
Claims priority, application Japan, Dec. 15, 1995, 7-327370; Mar. 11, 1996, 8-052938

Int. Cl.⁶ C08K 5/03; 3/34; 20/00

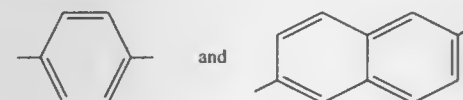
U.S. Cl. 524—466

22 Claims

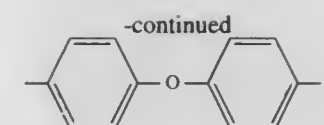
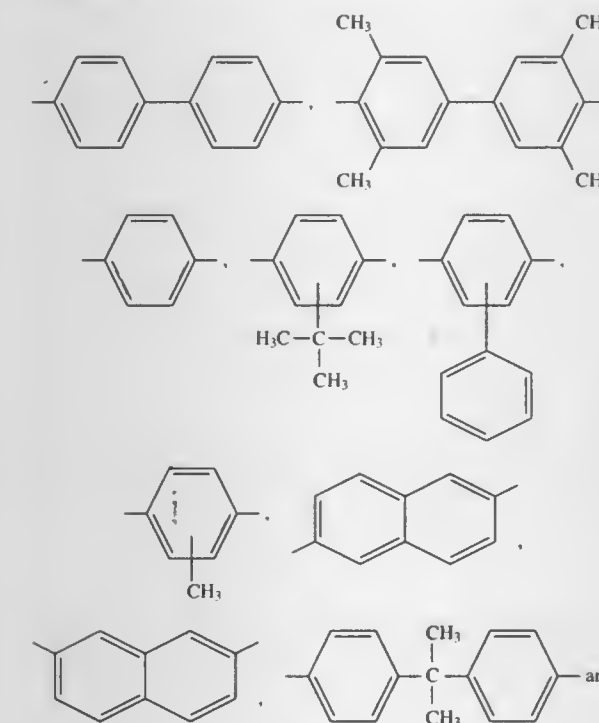
1. A liquid crystalline resin compound which comprises about 100 pbw of liquid crystalline resin and about 5–200 pbw of inorganic filler, said liquid crystalline resin being composed of both of about (a) 99.5–50 wt % of partially aromatic liquid crystalline polyester resin having an aliphatic chain and (b) about 0.5–50 wt % of wholly aromatic liquid crystalline polyester resin, based on the weight of said liquid crystalline resin, and said inorganic filler having an average aspect ratio in the range of about 3 to 25, wherein said partially aromatic liquid crystalline polyester resin (a) is a copolymer composed of all of the following structural units (I), (II), (III), and (IV)



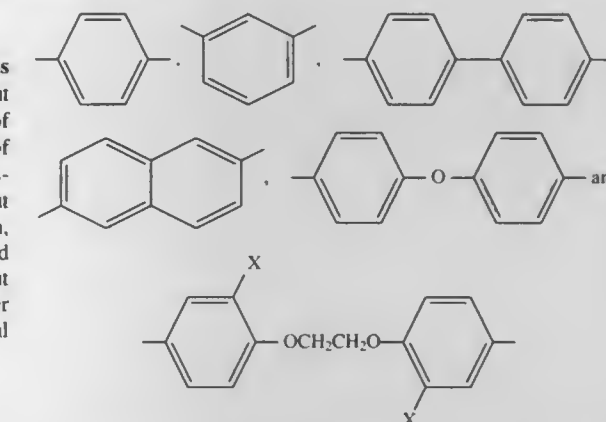
where R₁ denotes one or more than one group selected from the group consisting of



R₂ denotes one or more than one group selected from the group consisting of



R₃ denotes one or more than one group selected from the group consisting of



and X denotes hydrogen or chlorine, and the total amount of the structural units (II) and (III) is substantially equimolar with the amount of the structural unit (IV).

5,804,635

POLYMERIC COMPOSITION FOR WATERPROOFING WALLS

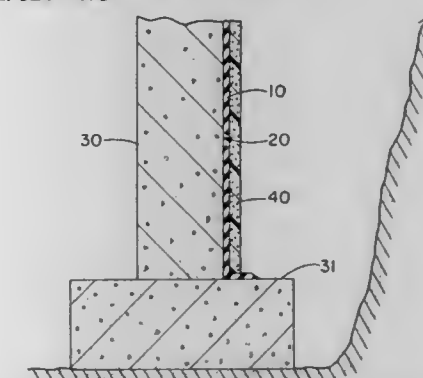
Michael G. Roberts, Akron, Ohio, assignor to R.P.C. Inc., Alpharetta, Ga.

Continuation-in-part of Ser. No. 641,354, Apr. 30, 1996. This application Feb. 4, 1997, Ser. No. 794,931

Int. Cl.⁶ C08K 5/01

U.S. Cl. 524—476

12 Claims



1. A composition of matter for waterproofing a surface of a wall comprising:

- a hydrocarbon resin selected from the group consisting of hydrocarbon resins formed by polymerizing aliphatic olefins and diolefins having four to six carbon atoms;
 an elastomeric copolymer having units selected from the group consisting of styrene, isoprene, butadiene, and mixtures thereof; and
 a solvent system, said solvent system comprising from about 80 to about 95 percent by weight of an aliphatic component and from about 5 to about 20 percent by weight of an aromatic component, said aliphatic component including at least about 1 percent by weight of n-heptane, wherein the composition of matter has a viscosity at 35° F. in the range from about 30,000 cps to about 80,000 cps, a viscosity at 70° F. in the range from about 5,000 cps to about 20,000 cps, and a viscosity at 130° F. in the range from about 500 cps to about 1,500 cps.

5,804,636

PROCESS FOR PRODUCING A VULCANIZABLE RUBBER COMPOSITION WITH SILICA-BASED REINFORCING FILLER

Marco Nahmias, Milan, Italy; Robert Schrafft, and Christa Joseph, both of Bad-König, Germany, assignors to Pirelli Coordinamento Pneumatici S.p.A., Milan, Italy

Filed Feb. 26, 1996, Ser. No. 607,077

Claims priority, application Italy, Feb. 24, 1995, MI95A0359
Int. Cl.⁶ C08K 3/00

U.S. Cl. 524—492

16 Claims

1. Process for producing a vulcanizable rubber composition with a silica-based reinforcing filler, comprising the steps of:

thoroughly mixing, at a temperature of from 165° to 180° C. and in substantial absence of silica coupling agents, a cross-linkable unsaturated chain polymer base, at least a silica-based reinforcing filler and optionally one or more non cross-linking ingredients;

adding to the rubber composition thus obtained at least a silane-based silica coupling agent and optionally a second portion of said silica-based reinforcing filler;

submitting to intimate mixing the resulting rubber composition at a temperature of from 110° to 160° C.;

adding to and homogeneously dispersing throughout said rubber composition a suitable vulcanizing agent at a temperature lower than the vulcanization temperature.

5,804,637

Patent Not Issued For This Number

5,804,638

BLACK POLYAMIDE RESIN COMPOSITION

Akihiko Hayashi, and Masataka Nishikawa, both of Osaka, Japan, assignors to Orient Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 18, 1997, Ser. No. 820,318

Claims priority, application Japan, Mar. 21, 1996, 8-093376
Int. Cl.⁶ C08K 3/04

U.S. Cl. 524—495

22 Claims

1. Black polyamide resin composition comprising a polyamide resin and coloring agents, wherein nigrosine, aniline black and carbon black are contained as coloring agents, said nigrosine comprising a black azine condensed mixture and said aniline black comprising an oxidized condensed mixture of black aniline derivatives.

5,804,639

PIGMENT PREPARATIONS HAVING A HIGH SOLIDS CONTENT

Gert Schöpwinkel, Neunkirchen-Seelscheid; Kai Bütje, Duisburg; Günter Wiegand, Krefeld; Richard Bähke, Duisburg; Torsten Groth, Odenthal, and Winfried Joentgen, Köln, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Oct. 22, 1996, Ser. No. 735,089

Claims priority, application Germany, Oct. 31, 1995, 19540557.9

Int. Cl.⁶ C08J 3/04; C08K 3/22

U.S. Cl. 524—497

13 Claims

1. Aqueous pigment preparation comprising at least one pigment and at least one dispersing agent, characterized in that the dispersing agent is a polymer having recurring succinyl units and the solids content of the pigment preparation is at least 40% by weight.

5,804,640

AQUEOUS COATING COMPOSITION

Alger E. Laura, New Boston; Ronald J. Easton, Clio; Kurt C. Frisch, Grosse Ile, and Han X. Xiao, Farmington Hills, all of Mich., assignors to A-Line Products Corporation, Detroit, Mich.

Continuation of Ser. No. 220,729, Mar. 31, 1994, Pat. No. 5,427,856, which is a continuation of Ser. No. 20,654, Feb. 22, 1993, Pat. No. 5,300,363, which is a continuation of Ser. No. 599,664, Oct. 18, 1990, Pat. No. 5,227,198, which is a continuation-in-part of Ser. No. 340,845, Apr. 20, 1989, abandoned. This application Feb. 7, 1995, Ser. No. 384,783
Int. Cl.⁶ C08J 3/00; C08K 5/17; 3/20; C08L 75/00

U.S. Cl. 524—507

18 Claims



1. An aqueous coating composition, comprising:

- (a) up to about 40 parts by weight of the total composition of a polyol having a molecular weight of at least about 62 to about 500;
- (b) about 0.5 parts by weight of the total composition to about 40 parts by weight of the total composition of a resin selected from the group consisting of epichlorohydrin resins, epoxy resins, and polyepichlorohydrins, said resin having a softening point of about 150° F. to about 350° F.;
- (c) about 0.05 to about 15 parts by weight of the total composition of a surfactant;
- (d) an amine selected from primary, secondary, and tertiary aliphatic amines having an amine functionality of 1 to 3, and mixtures thereof;
- (e) a mixture comprising an acrylic polymer and a polyurethane; and
- (f) the balance water,
- wherein said composition is substantially free of aromatic organic solvents.

5,804,641

FOAMABLE COMPOSITION FOR CREATING A BARRIER TO PREVENT ATTACK OF HUMIDITY, FUNGI AND INSECTS

Toru Iwakawa, Tokyo, Japan, assignor to Nippon Eisei Center Co., Ltd., Tokyo, Japan

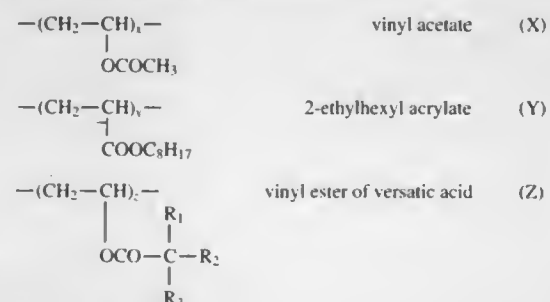
Continuation of Ser. No. 420,824, Apr. 12, 1995, Pat. No. 5,549,869. This application Aug. 5, 1996, Ser. No. 692,262
Int. Cl.⁶ C08L 75/04

U.S. Cl. 524—507

19 Claims

1. A foamable composition for creating a barrier to protect from moisture and/or biological attacks which comprises:

(a) a liquid containing a synthetic resin emulsion, said synthetic resin emulsion being a copolymer of:



wherein $R_1+R_2+R_3=C_n$; and
(b) a foaming agent.

5,804,642

Patent Not Issued For This Number

5,804,643

Patent Not Issued For This Number

5,804,644

HYDROGENERATED RUBBER COMPOSITION

Yasunobu Nakafutami, Kawasaki; Akira Saito, Fujisawa, and Tsuyoshi Sugiyama, Kawasaki, all of Japan, assignors to Asahi Kasei Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP95/01482, § 371 Date Jan. 15, 1997, § 102(e)
Date Jan. 15, 1997, PCT Pub. No. WO96/05250, PCT Pub. Date Feb. 22, 1996

PCT Filed Jul. 26, 1995, Ser. No. 765,800

Claims priority, application Japan, Aug. 8, 1994, 6-204182

Int. Cl.⁶ C08K 3/36; C08L 9/00

U.S. Cl. 524—572

25 Claims

1. A rubber composition comprising
- (A) 100 parts by weight of a raw material rubber which contains not less than 30% by weight of at least one partially hydrogenated rubber of a conjugated diene rubber having a class transition temperature in the range of -100° to 0° C., wherein 5 to 70% of the unsaturated double bonds of the conjugated diene portion thereof have been hydrogenated;
- (B) 10 to 150 parts by weight of a silica;
- (C) 0.1 to 20 parts by weight of an organo-silane coupling agent; and
- (D) 0.1 to 10 parts by weight of a vulcanizing agent.

5,804,645

RUBBER COMPOSITIONS OF TIRE THREAD

Toshiro Matsuo, Kakogawa, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Division of Ser. No. 156,710, Nov. 24, 1993, abandoned. This application Sep. 24, 1997, Ser. No. 936,433

Claims priority, application Japan, Nov. 26, 1992, 4-317193
Int. Cl.⁶ C08L 9/00

U.S. Cl. 524—575

16 Claims

1. A tire tread, which contains a rubber composition comprising: an emulsion-polymerized styrene-butadiene rubber with a bonded styrene content of not less than 40% by weight, which is contained in an amount of 10 to 100% by weight in a rubber component, and

sodium propionate which is blended in an amount of 0.5 to 5.0 parts by weight per 100 parts by weight of the rubber component.

5,804,646

POWDER PAINT BINDER COMPOSITION

Franciscus M. Witte, Utrecht; Richard A. Bayards, and Marten Houweling, both of Zwolle, all of Netherlands, assignors to DSM N.V., Heerlen, Netherlands

Continuation of Ser. No. 531,770, Sep. 21, 1995, abandoned. This application Sep. 12, 1997, Ser. No. 928,405

Claims priority, application Belgium, Sep. 21, 1994, 09400850

Int. Cl.⁶ C08J 3/00; C08K 3/20; C08L 75/00; B05D 1/04

U.S. Cl. 524—590

17 Claims

1. A powder coating binder composition comprising (a) a hydroxyl functional polymer, (b) a crosslinker, wherein said crosslinker includes (i) a blocked 1,6-hexamethylene diisocyanate,

and (ii) a blocked trimer of 1,6-hexamethylene diisocyanate wherein 1,2,4-triazole is the blocking agent.

5,804,647

AQUEOUS POLYURETHANE-UREAS, A PROCESS FOR THEIR PRODUCTION AND THEIR USE IN COATING COMPOSITIONS

Klaus Nachtkamp, Düsseldorf; Oswald Wilmes, Köln; Eberhard Arning, Kaarst, and Rolf Roschu, Willich, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Feb. 21, 1997, Ser. No. 804,462

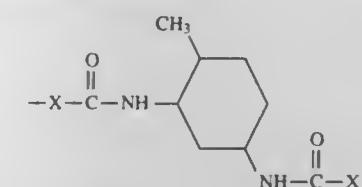
Claims priority, application Germany, Mar. 1, 1996, 196 07 853.9; Mar. 26, 1996, 196 11 850.6

Int. Cl.⁶ C08J 3/00; C08K 3/20; C08L 75/00

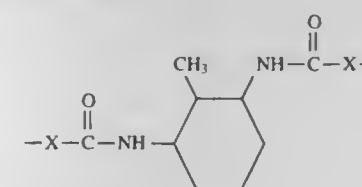
U.S. Cl. 524—591

4 Claims

1. An aqueous polyurethane-urea dispersion which is film forming at temperatures of $\leq 20^\circ$ C. in the absence of film forming additives, dries at room temperature to yield films having a hardness according to DIN 53 157 (König pendulum hardness) of ≥ 100 seconds, in which the polyurethane-urea has a urethane group content (calculated as $-\text{NH}-\text{CO}-\text{O}-$, molecular weight 59) of 7 to 20 wt. %, and a urea group content (calculated as $-\text{NH}-\text{CO}-\text{N}-$, molecular weight 57) of 5 to 18 wt. %, and contains 15 to 70 wt. %, based on resin solids, of structural units corresponding to formula (I)



and/or of the formula (II)



wherein

x represents O or NA,
A represents H or $(\text{CH}_2)_n$ —B,
B represents H or X and
n is 2 or 3.

5,804,648

TOLUENE DIISOCYANATE RESIDUE-BASED COMPOSITIONS AND THE USE OF SUCH COMPOSITIONS AS FILLERS FOR HYDROXYL COMPOUNDS

William E. Slack, Moundsville, W. Va., assignor to Bayer Corporation, Pittsburgh, Pa.

Filed Dec. 27, 1996, Ser. No. 777,315

Int. Cl.⁶ C08K 5/205; C07C 269/02; 271/28; C08G 18/48; 18/40; 18/42

U.S. Cl. 524—728

26 Claims

1. A process for the production of a urethane group containing TDI residue based composition which is solid at ambient temperature, comprising reacting

wherein the rubber backbone A.2) has average particle diameters (d_{50} values of from 0.20 to 0.35 μm and the graft rubber A) has been produced by radical emulsion graft polymerisation with the

use of an initiator system comprising organic hydroperoxide and an organic reducing agent.

5,804,657

ADHESIVES AND SEALANTS BASED ON TELECHELIC POLYMERS AND HETEROTELECHELIC BLOCK POLYMERS WITH DUAL CURE SYSTEMS

David John St. Clair, Houston, and James Robert Erickson, Katy, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 519,885, Aug. 28, 1995, Pat. No. 5,576,308, which is a continuation-in-part of Ser. No. 320,808, Oct. 11, 1994, abandoned. This application Aug. 16, 1996, Ser. No. 654,462

Int. Cl.⁶ C08L 9/00; 33/14; 53/00; 53/02

U.S. Cl. 525—99

3 Claims

1. A pressure sensitive structural adhesive or sealant composition comprising:

- (a) a polymer system comprising from 95 to 15 percent by weight of a hydroxy functional telechelic polymer and from 5 to 85 percent by weight of a heterotelechelic polydiene block polymer having at least one hydroxyl group and another functional group selected from the group consisting of C=C unsaturation and epoxidized olefin, and
- (b) a dual curing system wherein one element of the curing system cures the telechelic polymer at ambient conditions such that a pressure sensitive adhesive or sealant is formed and the other element cures the heterotelechelic polymer upon sulfur or melamine cure and baking at a temperature of at least 100° C. To form a structural adhesive or sealant composition.

5,804,658

PROCESS FOR PRODUCING COMPOSITE ARTICLE MADE OF POLYESTERS AND ELASTOMERS

Friedrich Georg Schmidt, and Horst Heuer, both of Haltern, Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Oct. 11, 1996, Ser. No. 728,993

Claims priority, application Germany, Oct. 20, 1995, 195 39 127.6

Int. Cl.⁶ C08L 67/00

U.S. Cl. 525—168

21 Claims

1. A composite article comprising at least one hard component and at least one soft component, wherein the hard component comprises a thermoplastic polyester containing non-aromatic C=C double bonds, and the soft component comprises a vulcanizate, wherein the vulcanizate is produced by vulcanization of a rubber composition comprising the following components:

- (i) 100 parts by weight of a rubber containing carboxyl or anhydride groups;
- (ii) from 0 to 300 parts by weight of one or more fillers;
- (iii) from 1 to 10 parts by weight of one or more peroxidic vulcanizers;
- (iv) from 0 to 150 parts by weight of one or more plasticizers, and
- (v) more than 4 parts by weight of one or more difunctional or polyfunctional vulcanization activate of the formula



wherein

R¹ is a divalent or higher-valent radical or a single bond, R² to R⁴ are, independently of one another, hydrogen, alkyl, cycloalkyl or aryl, each having at most 20 carbon atoms; Z is alkyl, cycloalkyl, or aryl, each having at most 20 carbon atoms, S, NH or O and n is a number greater than or equal to 2.

5,804,659

PROCESSING OF POLYPHTHALAMIDE MONOFILAMENT

John R. Reither, Summerville, S.C., assignor to Asten, Inc., Charleston, S.C.

Filed Dec. 18, 1996, Ser. No. 768,645

Int. Cl.⁶ C08F 8/30

U.S. Cl. 525—178

23 Claims

1. A monofilament of a polymer blend comprising of up to about 2 weight percent fluoropolymer and; a complimentary amount of polyphthalamide to total 100 weight percent.

5,804,660

IMPACT MODIFIED THINWALL POLYMER COMPOSITIONS

Alan R. Whetten; Stephanie C. Cirihai; Stephen M. Hoenig, all of Lake Jackson, and Ronald P. Markovich, Houston, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 417,626, Apr. 6, 1995. This application Jun. 6, 1995, Ser. No. 470,394

Int. Cl.⁶ C08L 23/08; 23/14; 23/18

U.S. Cl. 525—240

17 Claims

1. A polymer composition suitable for use in thinwall thermofforming and molding comprising

- A) from about 75 to about 99 percent, based on the total weight of the composition, of at least one polyolefin selected from the group consisting of polypropylene, high density polyethylene, medium density polyethylene, and linear low density polyethylene, wherein the ethylene polymers of the group are characterized as having
 - i. a processing index of less than or equal to 0.6, as measured using a gas extrusion rheometer at 190° C. and nitrogen pressures between 5250 to 500 psig equipped with a 0.0296 inch diameter, 20:1 L/D die having an entrance angle of 180°.
 - ii. an I₁₀/I₂ of at least 7.0, and
 - iii. a density in the range of from about 0.92 g/cc to about 0.96 g/cc, and
- B) from about 1 to about 25 percent, based on the total weight of the composition, of at least one homogeneous linear ethylene/α-olefin polymer characterized as having
 - i. a short chain branching distribution index (SCBDI) greater than 50 percent,
 - ii. a single melting point as determined using differential scanning calorimetry (DSC),
 - iii. a density in the range of from about 0.85 g/cc to about 0.91 g/cc, and
 - iv. no measurable high density fraction as measured by temperature rising elution fractionation.

5,804,661

EPDM FLASHING COMPOSITIONS

James A. Davis; Joseph J. Kalwara, both of Indianapolis, and Brian S. Alexander, Sheridan, all of Ind., assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Feb. 21, 1996, Ser. No. 604,593

Int. Cl.⁶ C08L 23/16

U.S. Cl. 525—240

23 Claims

1. A flashing composition consisting essentially of: 100 parts by weight of an elastomeric polymer consisting essentially of

from about 85 to 100 parts by weight of at least one ethylene-propylene-diene terpolymer having up to 2 percent by weight crystallinity;

from 0 to about 15 parts by weight of an ethylene-propylene-diene terpolymer having at least 2 percent by weight crystallinity;

from about 40 to 120 parts by weight of a filler selected from the group consisting of reinforcing and non-reinforcing fillers and mixtures thereof, per 100 parts of said polymer;

from about 40 to 105 parts by weight of a processing material selected from the group consisting of paraffinic oils, naphthenic oils and waxes and mixtures thereof, per 100 parts of said polymer; and

from about 0.5 to 6 parts by weight of a cure package, per 100 parts of the polymer, said cure package comprising from about 0.1 to 1.25 parts by weight sulfur and from 0.4 to 5 parts by weight vulcanizing accelerators and being devoid of hexasulfides and thioureas.

5,804,662

AGGLOMERATED, FINELY DIVIDED, CROSSLINKED VINYLIMIDAZOLE COPOLYMERS, PREPARATION THEREOF, AND USE THEREOF

Christian Schade, Ludwigshafen, and Kari-Heinrich Schneider, Kleinkarlbach, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany
PCT No. PCT/EP96/00575, § 371 Date Aug. 19, 1997, § 102(e) Date Aug. 19, 1997, PCT Pub. No. WO96/26229, PCT Pub. Date Aug. 29, 1996

PCT Filed Feb. 10, 1996, Ser. No. 894,364

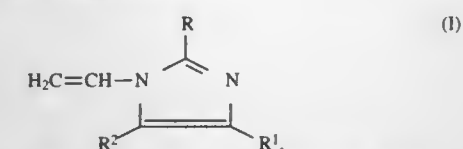
Claims priority, application Germany, Feb. 20, 1995, 195 05 750.3

Int. Cl.⁶ C08F 2/24; 2/32; C11D 3/37

U.S. Cl. 525—262

8 Claims

1. Agglomerated, finely divided, crosslinked vinylimidazole copolymers obtained by free-radically initiated polymerization of N-vinylimidazoles of the formula



where R, R¹ and R² are identical or different and each is H, C₁-C₄-alkyl or phenyl, with at least one crosslinker,

optionally other water-soluble monoethylenically unsaturated monomers, and

optionally water-insoluble monoethylenically unsaturated monomers

in the aqueous phase of a water-in-oil emulsion in the presence of at least one emulsifier to stabilize the water-in-oil monomer emulsion, azeotropic distillative removal of the water from the water-in-oil polymer suspension, and isolation of the finely divided polymers comprising agglomerates of primary particles having an average particle diameter of up to 35 μm, the agglomerates having an average particle diameter within the range from 1 to 250 μm, wherefor the emulsifier used is selected from block copolymers of the type AB or ABA or comb copolymers constructed from A and B, where A is a hydrophobic polymer block having a molecular weight of >500 g/mol and B is a hydrophilic polymer block having a molecular weight of >500 g/mol.

5,804,663

RADIATION SENSITIVE VINYL AROMATIC BLOCK COPOLYMERS AND COMPOSITIONS CONTAINING THEM

Luc Ives Jaak De Craene, Amsterdam, Netherlands; Martine Jeanne Dupont, Louvain-La-Neuve, Belgium; Noel Raymond Maurice De Keyser, Louvain-La-Neuve, Belgium; Karin Marie-Louise Renee Morren, Louvain-La-Neuve, Belgium, and Jeroen Van Westrenen, Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 13, 1996, Ser. No. 614,564

Claims priority, application European Pat. Off., Mar. 16, 1995, 95301764.7

Int. Cl.⁶ C08L 53/02; C08F 297/04

U.S. Cl. 525—314

12 Claims

1. Radiation sensitive block copolymers to be used in hot melt adhesive composition, said copolymers having the general formula (AB)_p(B¹)_qX, wherein A is poly(vinylaromatic) block and B and B¹ are poly(butadiene) blocks, wherein X is the residue of a hexavalent coupling agent, wherein p and q have the number average values from 1.8 to 2.2 and from 3.8 and 4.2 respectively, whereas the sum of p and q values being 6, and the block copolymer has an average bound vinyl aromatic content in the range of from 10 to 50 wt %, a total apparent molecular weight in the range of from 100,000 to 500,000, and a vinyl content in the poly(butadiene) blocks in the range of from 35 to 70 wt %.

5,804,664

STAR POLYMERS HAVING MULTIPLE ARMS EMANATING FROM A CALIXARENE CORE, INITIATORS THEREFOR, AND METHOD FOR THE SYNTHESIS THEREOF

Joseph P. Kennedy, 910 St. Andrew St., Akron, Ohio 44303; Istvan J. Majoros, 4175 Americana Dr., C-6, Stow, Ohio 44224, and Sunny Jacob, 685 Sherman St., #5, Akron, Ohio 44311

Filed May 23, 1997, Ser. No. 862,581

Int. Cl.⁶ C08L 53/02

U.S. Cl. 525—314

15 Claims

1. A composition of matter comprising:
a core component selected from the group consisting of a p-methoxy cumyl group and a calix[n]arene where n=4 to 16; and
N number of arms containing at least one segment of polyisobutylene connected to said core component, where N=1 when said core component is said p-methoxy cumyl group and N=n, when said core component is said calix[n]arene.

5,804,665

PROPYLENE BLOCK COPOLYMER AND PROCESS FOR PRODUCING THE SAME

Kazuyuki Watanabe, and Hisayoshi Yanagihara, both of Oita, Japan, assignors to Showa Denko K.K., Tokyo, Japan
Division of Ser. No. 558,872, Nov. 16, 1995, Pat. No. 5,703,172. This application Jan. 15, 1997, Ser. No. 782,676

Claims priority, application Japan, Nov. 21, 1994, 6-311241; Nov. 21, 1994, 6-311242

Int. Cl.⁶ C08F 297/08; 10/00

U.S. Cl. 525—323

6 Claims

1. A propylene block copolymer comprising a matrix phase and a dispersed phase dispersed in said matrix phase, said matrix phase comprising (a) polypropylene; said dispersed phase having an average particle diameter of from 0.1 to 5 μm; and
said dispersed phase comprising (b) propylene-α-olefin copolymer rubber having therein at least one particle comprising (a') polypropylene and at least one particle comprising (c) crystalline polyethylene.

5,804,666

Patent Not Issued For This Number

5,804,667

DISPERSANT ADDITIVES AND PROCESS

William B. Diana, Belle Mead; Joseph V. Cusumano, Watchung; Keith R. Gorda, Little York, all of N.J.; Jacob Emert, Brooklyn, N.Y.; William B. Eckstrom, Fanwood, N.J.; David C. Dankworth, Whitehouse Station, N.J.; Jon E. Stanat, Westfield, N.J., and James P. Stokes, Warren, N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 579,317, Dec. 27, 1995, abandoned, which is a continuation-in-part of Ser. No. 261,557, Jun. 17, 1994.

This application Nov. 12, 1997, Ser. No. 968,230

Int. Cl.⁶ C08F 8/00

U.S. Cl. 525—327.9

10 Claims

1. A process for improving a polymer prior to carbonylating the polymer in a Koch reaction, which comprises fractionating the polymer to remove a light hydrocarbon fraction.

5,804,668

POLYMER COMPOUNDS AND THE USE THEREOF FOR VULCANISING RUBBERS CONTAINING HALOGEN

Rüdiger Schubart, and Rüdiger Musch, both of Bergisch Gladbach, Germany, assignors to Bayer AG, Leverkusen, Germany

Filed May 1, 1997, Ser. No. 847,118

Claims priority, application Germany, May 9, 1996, 196 18 571.8

Int. Cl.⁶ C08F 8/30

U.S. Cl. 525—331.1

2 Claims

1. A polymer compound consisting of
- a) cyclic and/or acyclic amidines,
 - b) zinc salts of mercapto compounds of benzothiazole, benzimidazole, benzopyrimidine and/or benzotriazine and
 - c) ethylene/propylene rubbers (EPM), ethylene/propylene/diene rubbers (EPDM), ethylene/vinyl acetate rubbers (EVM), butadiene rubbers (BR), styrene/butadiene rubbers (SBR), natural rubbers (NR), butadiene/acrylonitrile rubbers (NBR) and/or butyl rubbers (IIR),

wherein components a) and b) are present in the polymer compound in a molar ratio of 0.25:1 to 2:1 and the proportion of component c) is 90 to 10 wt. %, relative to the total weight of components a) to c).

5,804,669

PREPARATION OF POLYMERS COMPRISING PEROXYCARBOXYL GROUPS

Jürgen Tropsch, Römerberg, and Jörg Breitenbach, Mannheim, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Mar. 10, 1997, Ser. No. 813,979

Claims priority, application Germany, Mar. 19, 1996, 196 10 817.9

Int. Cl.⁶ C08F 8/00; 8/14; 8/32

U.S. Cl. 525—387 -

21 Claims

1. A process for preparing a polymer comprising peroxycarboxyl groups, said process comprising adding hydrogen peroxide to a suspension of a polymer comprising monoolefinically unsaturated dicarboxylic anhydride basic building blocks in an inert diluent.

5,804,670

ADHESION PROMOTER

Georg Stoeppelmann, Bonaduz, Switzerland, assignor to Ems-Inventa AG, Zurich, Switzerland

Filed Oct. 2, 1996, Ser. No. 720,666

Claims priority, application Germany, Oct. 4, 1995, 195 37 003.1

Int. Cl.⁶ C08L 77/00

U.S. Cl. 525—420

7 Claims

1. A polyamide adhesion promoter composition comprising: a polyamide having a ratio of amino end groups to carboxyl end groups of from about 2.5:1 to about 3:1, and from about 0.25 to about 2 weight percent, based on the weight of the adhesion promoter composition, of at least one added diamine selected from the group consisting of aliphatic C₄ to C₂₀ diamines, said adhesion promoter composition being effective, by a coextrusion processing, to bond a fluoropolymer to a polyamide.

5,804,671

RADIATION CURABLE RHEOLOGY MODIFIERS

Miguel A. Dones, Hatfield, and Theresa M. Miller, St. Peters, both of Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Filed Apr. 8, 1996, Ser. No. 631,291

Int. Cl.⁶ C08F 283/04; C08G 69/48; C08L 77/00; 63/10

U.S. Cl. 525—423

26 Claims

1. A composition that is useful in the preparation of radiation curable coatings comprising the reaction product of an epoxy component comprised of a diepoxide and an acid component comprised of an alpha, beta ethylenically unsaturated carboxylic acid or reactive derivative thereof, reacted in the presence of a polyamide based on a polymerized fatty acid.

5,804,672

THERMALLY CROSSLINKABLE HEAT-SEALING ADHESIVE

Gerd Bolte, Monheim; Günter Henke, Neuss, and Ulrike Brünghaus, Erkrath, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/01598, § 371 Date Feb. 29, 1996, § 102(e) Date Feb. 29, 1996, PCT Pub. No. WO94/28046, PCT Pub. Date Dec. 8, 1994

PCT Filed May 17, 1994, Ser. No. 553,569

Claims priority, application Germany, May 26, 1993, 43 17 470.1

Int. Cl.⁶ C08F 20/00; 283/04

U.S. Cl. 525—438

10 Claims

1. A composition useful as a thermally crosslinkable heat-sealing adhesive comprising a mixture of the following components:

Component A):

a mixture of:

1) an adduct of:

a) an epoxy resin selected from the group consisting of bisphenol A epoxy compounds, aliphatic epoxy compounds, and heterocyclic epoxy compounds, and

b) a member selected from the group consisting of a novolak and a condensation product of bisphenol-A and an aldehyde, with

2) a member selected from the group consisting of an acrylate polymer, a reaction product of bisphenol-A and a diol, and a polyol, and

Component B):

a member selected from the group consisting of polyisocyanates, a hydroxyl-terminated polyurethane prepolymer, and a hydroxyl-terminated polyester.

5,804,673

BLEND OF BRANCHED AND LINEAR CARBONATE POLYMER RESINS

Claude T. E. Van Nuffel, Ostakker, Belgium; Hoang T. Pham, Lake Jackson, Tex.; Sarada Namhata, Terneuzen, Netherlands, and Jürgen Eiffler, Stade, Germany, assignors to The Dow Chemical Company, Midland, Mich.

Filed Jan. 9, 1997, Ser. No. 780,278

Int. Cl.⁶ C08L 69/00

U.S. Cl. 525—469

9 Claims

1. A branched carbonate polymer blend composition comprising from about 60 to about 95 parts by weight of a first branched carbonate polymer component having a weight average molecular weight of from about 32,000 to about 45,000 and from about 5 to about 40 parts by weight of a second, linear carbonate polymer component having a weight average molecular weight of from about 15,000 to about 27,000, the blend having a weight average molecular weight between about 29,000 and about 39,000 and a Melt Flow Rate (MFR) as measured according to ASTM D-1238 (conditions of 300° C. and 1.2 kilograms mass) between about 2 and about 8 grams per 10 minutes (gr/10 min).

5,804,674

MOLD RELEASE AGENT, CURED FILM OBTAINED FROM SAID MOLD RELEASE AGENT, AND MOLDING METHOD USING SAID MOLD RELEASE AGENT

Masayuki Yamana; Yasushi Nakamae; Hirotohi Sakashita, and Masato Kashiwagi, all of Osaka, Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

PCT No. PCT/JP95/02146, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO96/12600, PCT Pub. Date May 2, 1996

PCT Filed Oct. 19, 1995, Ser. No. 809,449

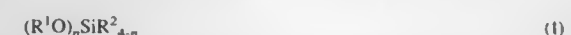
Claims priority, application Japan, Oct. 21, 1994, 6-256547

Int. Cl.⁶ C08F 8/00

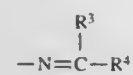
U.S. Cl. 525—477

8 Claims

1. A mold release agent comprising a composition comprising: (A) a silane compound represented by the general formula:



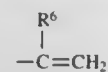
wherein R¹ is a hydrocarbon group or a halogenated hydrocarbon group, or



(each of R³ and R⁴ is a hydrocarbon group having 1 to 4 carbon atoms).

—COR⁵

(R⁵ is a hydrocarbon group having 1 to 4 carbon atoms) or



(R⁶ is a hydrocarbon group having 1 to 4 carbon atoms);

R² is a hydrocarbon group or halogenated hydrocarbon group having 1 to 4 carbon atoms; and

n is 3 or 4;

(B) a silicon and/or fluorine-containing compound having at least two hydroxyl group or alkoxyl groups in one molecule; and

(C) a polymer of a perfluoroalkyl group-containing (meth)acrylate ester.

5,804,675

ETHYLENE-ALKYL ACRYLATE COPOLYMERS AND DERIVATIVES HAVING IMPROVED MELT-POINT TEMPERATURES

Jerry G. Latiolais, Groves; J. Paul Gathright, Orange; Nicholas R. Galante, Orange; M. Stephen Galland, Orange; J. Dioures Gallet, Orange; Lewis R. Compton, Orange; George L. Baker, Bridge City, all of Tex., and James H. Wang, Appleton, Wis., assignors to Chevron Chemical Company, San Ramon, Calif.

Division of Ser. No. 233,180, Apr. 26, 1994, Pat. No. 5,571,878, which is a continuation-in-part of Ser. No. 764,861, Sep. 24, 1991, abandoned. This application Aug. 19, 1996, Ser. No. 699,307

Int. Cl.⁶ C08F 10/02; 20/18

U.S. Cl. 526—45

30 Claims

18. A composition comprising a copolymer of ethylene and alkyl acrylate, the copolymer having a melt-point temperature at least about 6 deg F. greater than a reference copolymer,

wherein the copolymer is prepared by the method comprising:

A) feeding overall to a multi-zone reactor a total amount by weight, A, of alkyl acrylate and a total amount by weight, E, of ethylene, wherein A is about 5 weight percent to about 50 weight percent of the total copolymer;

B) reacting in a first reaction zone of the reactor a portion by weight, A₁, of the alkyl acrylate and a portion by weight, E₁, of the ethylene, such that A₁/E₁ is at least about 10% greater than A/E; and

C) reacting any remaining portions of ethylene and alkyl acrylate in a subsequent reaction zone or zones;

wherein the reference copolymer has the same amount and type of alkyl acrylate and ethylene, and wherein the reference copolymer is made by dividing the ethylene monomer and alkyl acrylate monomer equally among each reactor zone in a multi-zone reactor.

5,804,676

PROCESS FOR PREPARING POLYMER

Shinichi Hieda; Masahiro Kurokawa; Yasushi Higuchi, and Shojiro Kawahara, all of Hiratsuka, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Aug. 28, 1996, Ser. No. 704,270

Claims priority, application Japan, Jun. 18, 1996, 8-157084

Int. Cl.⁶ C08F 2/08; 20/14

U.S. Cl. 526—65

20 Claims

1. A process for preparing a polymer which comprises the steps of:

(a) carrying out a continuous polymerization reaction of a monomer which comprises methyl methacrylate alone or a monomer mixture thereof, the monomer mixture comprising 75% by weight or more of methyl methacrylate and 25% by weight or less of an alkyl acrylate, in a homogeneous solution state in the presence of 0.1 to 160 mmol/l of a radical polymerization initiator having a half-value period of 0.6 to 60 minutes at a polymerization temperature and 0.1 to 370 mmol/l of a chain transfer agent based on a mixture of 71 to 95 parts by weight of the methyl methacrylate alone or the monomer mixture thereof and 29 to 5 parts by weight of methanol as a solvent, in a polymerization reactor comprising one or two serially connected polymerization tanks so that the monomer has a conversion of 55 to 93 mol % at the polymerization temperature of 100° to 180° C.,

(b) directly feeding, at a temperature of 130° to 270° C., a polymerizable containing volatiles drawn from the polymerization reactor, to a feed opening in an extruder having a barrel, a screw and a plurality of vents, the barrel being at a temperature of 170° to 270° C., and

(c) extruding the polymerizable through the extruder, while substantially all of the volatiles are separated and recovered through a first vent of the extruder and remaining volatiles being removed through at least one other vent disposed downstream from the first vent, the at least one other vent being set

to a vent pressure of 1 to 400 mmHg, thereby preparing the polymer in which the remaining volatiles have a content of 1% by weight or less, a weight-average molecular weight measured by gel permeation chromatography is 80,000 to 200,000, and a thermal decomposition ratio is 3.0% by weight or less.

5,804,677

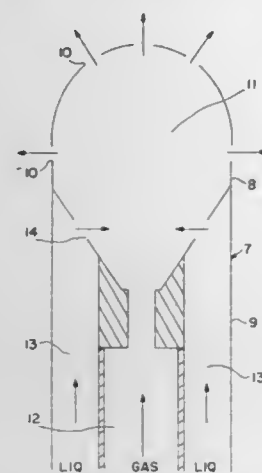
POLYMERIZATION PROCESS

Jean-Claude Chinh; Michel C. H. Filippelli, both of Martigues, France; David Newton, Guildford, and Michael Bernard Power, London, both of England, assignors to BP Chemicals Limited, London, United Kingdom

Division of Ser. No. 256,052, Jun. 24, 1994, Pat. No. 5,541,270. This application Jul. 9, 1996, Ser. No. 678,457
Claims priority, application United Kingdom, May 20, 1993, 9310387; May 20, 1993, 9310388; May 20, 1993, 9310390
Int. Cl.⁶ C08F 2/34

U.S. Cl. 526—68

48 Claims



1. A continuous gas fluidised bed process for the polymerisation of olefin monomer selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of a, b or c with one or more other alpha-olefins in a fluidised bed reactor by continuously recycling a gaseous stream comprising at least some of the ethylene and/or propylene through a fluidised bed in said reactor in the presence of a polymerisation catalyst under reactive conditions, at least part of the said gaseous stream withdrawn from said reactor being cooled to a temperature at which liquid condenses out, separating at least part of the condensed liquid from the gaseous stream and introducing at least part of the separated liquid directly into the fluidised bed at or above the point at which the gaseous stream passing through the fluidised bed has substantially reached the temperature of the gaseous stream being withdrawn from the reactor.

5,804,678

PROCESS FOR GAS PHASE POLYMERIZATION OF OLEFIN

Yoshinori Morita; Hiroshi Nishikawa; Yutaka Haneda; Satoru Ohtani, and Kenji Doi, all of Waki-cho, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Jul. 12, 1994, Ser. No. 273,987
Claims priority, application Japan, Jul. 13, 1993, 5-173010
Int. Cl.⁶ C08F 2/34

U.S. Cl. 526—80

29 Claims

1. A process for homopolymerizing an olefin or copolymerizing olefins with each other or copolymerizing at least one olefin with a polyene in the gas phase, which comprises

continuously feeding an olefin monomer feedstream comprising at least one olefin with or without a polyene into a fluidized bed reactor in which a solid Group IVB metallocene catalyst comprising a Group IVB transition metal compound containing a ligand having a cyclopentadienyl skeleton, an organoaluminum oxy compound and, optionally, an organoaluminum compound, is present, and

simultaneously adding at least one compound selected from the group consisting of water, alcohols, and ketones in an amount of 0.1 to 3 mol of the at least one compound relative to the total, in gram atoms, of aluminum contained in the organoaluminum oxy compound and the organoaluminum compound, so as to homopolymerize or copolymerize the olefin monomer feedstream,

thereby obtaining an olefin homopolymer or copolymer having a drop second count index X defined by the following numerical formula, of 95 or less,

$$X = \frac{t}{t_0} \times 100$$

wherein t_0 represents a flow time measured in the dry flow test according to ASTM D-1775 of the olefin homopolymer or copolymer obtained when none of the water, alcohols and ketones is incorporated in the reactor, and

t represents a flow time measured in the dry flow according to ASTM D-1775 of the olefin homopolymer or copolymer obtained when at least one of said compound selected from the group consisting of water, alcohols and ketones is incorporated in the reactor.

5,804,679

PROCESS FOR PREPARING POLYOLEFINS

Akira Sano; Takeichi Shiraishi, both of Kawasaki; Kunihiro Suzuki, Yokohama; Mitsuo Okamoto, Yokohama; Katumi Usui, Yokohama; Hiroyuki Shimizu, and Kazuo Matsuura, both of Tokyo, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

Continuation of Ser. No. 252,544, Jun. 1, 1994, abandoned, which is a continuation of Ser. No. 967,933, Oct. 28, 1992, abandoned, which is a continuation of Ser. No. 610,960, Nov. 8, 1990, abandoned. This application Jun. 25, 1997, Ser. No. 881,936

Claims priority, application Japan, Nov. 13, 1989, 1-293799; Dec. 15, 1989, 1-323867

Int. Cl.⁶ C08F 4/656

U.S. Cl. 526—124.6

15 Claims

1. A process for preparing a polyolefin by polymerizing or copolymerizing an olefin or olefins in the presence of a catalyst comprising a solid catalyst component and an organometallic compound, said solid catalyst component being prepared by the reaction of the following components (I) and (II):

(I) a reaction product obtained by reacting the following components (1) (2) and (3) with one another in the presence of a compound represented by the general formula ROH wherein R is a hydrocarbon radical having 6 to 20 carbon atoms and a branched structure;

(1) a silicon oxide and/or an aluminum oxide;

(2) a reaction product obtained by the reaction of a magnesium halide and compound represented by the general formula $\text{Me}(\text{OR})_z\text{X}_{2-z}$ wherein Me represents an element of Groups I to IV in the Periodic Table, z represents the valence of the element Me, n is $0 \leq n < z$, X is a halogen atom, and R is a hydrocarbon radical having 1 to 20 carbon atoms; and

(3) a titanium compound represented by the general formula $\text{Ti}(\text{OR})_n\text{X}_{4-n}$ wherein R is a hydrocarbon radical having 1 to 20 carbon atoms, X is a halogen atom, and n is $0 \leq n \leq 4$; and

(II) an organoaluminum compound represented by the general formula $\text{AlR}_n\text{X}_{3-n}$ wherein R is a hydrocarbon radical having 1 to 24 carbon atoms, X is a halogen atom, and n is $0 < n \leq 3$.

5,804,680

RESIN SYSTEM OF PHOSPHORUS-CONTAINING ACRYLATE, UNSATURATED COMPOUND AND PHOTOINITIATOR

Winfried Plundrich, Germering, and Ernst Wipfelder, München, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE95/01202, § 371 Date Mar. 5, 1997, § 102(e)
Date Mar. 5, 1997, PCT Pub. No. WO96/07678, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 5, 1995, Ser. No. 793,689

Claims priority, application Germany, Sep. 6, 1994, 44 31 751.4

Int. Cl.⁶ C08F 220/28

U.S. Cl. 526—274

9 Claims

1. A composition comprising a reaction product of an epoxide-containing phosphorous compound with a hydroxyalkyl (meth)acrylate; another unsaturated compound which can undergo free radical copolymerization with acrylates; and a free radical photoinitiator system.

5,804,681

SILANATED POLYAMIDES

Patrice Breant, Serquigny, France, assignor to Elf Atochem S. A., Puteaux, France

Filed Jun. 7, 1995, Ser. No. 486,787

Int. Cl.⁶ C08G 69/08; 73/10

U.S. Cl. 528—310

9 Claims

1. A thermoplastic elastomer comprising a polyamide having at least one polymeric chain, wherein said polymeric chain has grafted thereto at least one moiety derived by reacting said polyamide with an unsaturated alkoxy silane in the presence of a polymerization initiator.

5,804,682

AQUEOUS DISPERSIONS OF POLYAMIDES

Stephen A. Fischer, Yardley; David I. Devore, Langhorne; Kartar S. Arora, Chalfont, all of Pa.; Reimar Heucher, Westmont, Ill.; Michael S. Wiggins, Lansdale; Chase J. Boudreaux, North Wales, both of Pa., and Dwight D. Heinrich, Bolingbrook, Ill., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 665,180, Jun. 14, 1996, abandoned. This application Oct. 25, 1996, Ser. No. 738,364

Int. Cl.⁶ C08G 73/10; 69/10; C08L 77/08

U.S. Cl. 528—310

68 Claims

1. A process of preparing a dispersion of a polyamide in water, said process comprising:

dissolving a polyamide having an acid value of greater than about 2 in an organic solvent to form a solution of said polyamide in said solvent, said polyamide and said solvent being at a temperature below the softening point of said polyamide during said dissolving, said solution further comprising a surfactant, wherein at least a portion of the acid value of said polyamide is neutralized,

adding sufficient water to said solution with mixing to form an oil-in-water dispersion, the temperature of said solution and said water being below the softening point of said polyamide during said adding, and removing at least a major amount of said organic solvent from said oil-in-water dispersion.

5,804,683

DEPROTECTION OF RNA WITH ALKYLAMINE

Nassim Usman, Boulder; Francine E. Wincott, Longmont, and Danuta Tracz, Boulder, all of Colo., assignors to Ribozyme Pharmaceuticals, Inc., Boulder, Colo.

Division of Ser. No. 345,516, Nov. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 245,736, May 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 167,586, Dec. 14, 1993, abandoned, which is a continuation of Ser. No. 884,436, May 14, 1992, abandoned. This application May 5, 1995, Ser. No. 435,113

Int. Cl.⁶ C07H 1/00; 21/04

U.S. Cl. 536—25.31

1 Claim

1. A method for the deprotection of RNA comprising reacting an alkylamine or ammonium hydroxide/alkylamine mixture with the RNA at 60–70 degrees Centigrade for 5 to 15 minutes in order to remove any exocyclic protecting groups, wherein said alkylamine is selected from the group consisting of ethylamine, propylamine, and butylamine.

5,804,684

METHOD FOR ISOLATING NUCLEIC ACIDS

Xing Su, Belmont, Mass., assignor to The Theobald Smith Research Institute, Inc., Boston, Mass.

Filed Aug. 24, 1995, Ser. No. 519,039

Int. Cl.⁶ C07H 21/00

U.S. Cl. 536—25.4

20 Claims

1. A method of isolating nucleic acid in a substantially purified form, said method comprising the steps of:

a) contacting a biological sample containing nucleic acid with a matrix under conditions which permit said nucleic acid in said sample, to bind to said matrix, said matrix consisting essentially of agarose particles in liquid suspension so as to bind said nucleic acid to said matrix, wherein said conditions also permit said nucleic acid in said sample to precipitate; and b) eluting said nucleic acid from said matrix.

5,804,685

DEAZAPURINE DERIVATIVES: A NEW CLASS OF CRF1 SPECIFIC LIGANDS

Jun Yuan, Clinton, and Alan Hutchison, Madison, both of Conn., assignors to Neurogen Corporation, Branford, Conn.

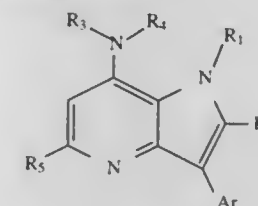
Filed Jun. 7, 1995, Ser. No. 476,689

Int. Cl.⁶ C07D 487/04

U.S. Cl. 544—335

16 Claims

1. A compound of the formula:



or the pharmaceutically acceptable salts thereof wherein Ar is phenyl mono-, di-, or trisubstituted with halogen, hydroxy, lower alkyl, or lower alkoxy, with the proviso that at least one of the ortho positions of the Ar substituent is substituted;

R_1 is lower alkyl;
 R_2 is hydrogen, halogen, lower alkyl, lower alkoxy, or thioalkoxy; or
 R_3 and R_4 are the same or different and represent hydrogen or lower alkyl;
cycloalkyl having 3-8 carbon atoms or cycloalkyl lower alkyl where the cycloalkyl portion has 3-8 carbon atoms;
2-hydroxyethyl or 3-hydroxypropyl optionally mono or disubstituted with lower alkyl with the proviso that not both R_3 and R_4 are hydrogen; or
 R_3 and R_4 taken together represent $-(CH_2)_n-A-(CH_2)_m-$ where n is 2, or 3,
 A is methylene, 1,2 phenylene, oxygen, sulfur or NR_6 , wherein R_6 is lower alkyl; and
 m is 1, 2 or 3;
 R_5 is hydrogen, halogen, lower alkyl, lower alkoxy, or thioalkoxy.

5,804,686

FUSED PYRROLECARBOXAMIDES; A NEW CLASS OF GABA BRAIN RECEPTOR LIGANDS

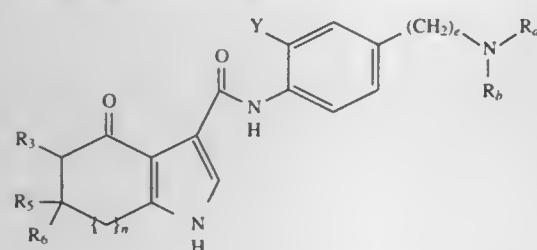
Pamela Albaugh, Clinton; Gang Liu, Branford; Kenneth Shaw, Weston, and Alan Hutchison, Madison, all of Conn., assignors to Neurogen Corporation, Branford, Conn.

Filed Jan. 19, 1996, Ser. No. 588,711

Int. Cl.⁶ C07D 209/14

U.S. Cl. 548—516

1. A compound of the formula:



or the pharmaceutically acceptable salts thereof wherein:
 n is 1 or 2;

R_3 , R_5 , and R_6 independently represent hydrogen, or alkyl;
 R_a represents hydrogen, alkyl, or C_{3-7} cycloalkyl;
 R_b represents hydrogen, alkyl, or acyl;
 Y represents hydrogen or halogen; and
 e is an integer of 1-3.

5,804,687

PROCESS FOR THE MANUFACTURE OF HALO ESTERS OF CARBOXYLIC OR DICARBOXYLIC ACIDS

Gilles Drivon, Saint-Martin en Haut; Jean-Philippe Gillet, Brignais, and Sophie Suc, Chaponost, all of France, assignors to Elf Atochem S.A., Puteaux, France

Continuation of Ser. No. 208,114, Mar. 9, 1994, abandoned.

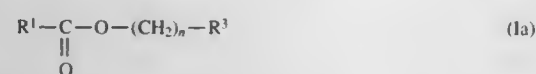
This application Jan. 22, 1996, Ser. No. 589,582

Claims priority, application France, Mar. 9, 1993, 93 02698; Jul. 30, 1993, 93 09435

Int. Cl.⁶ C07C 69/52

U.S. Cl. 560—223

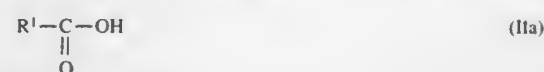
1. A process for the manufacture of a compound of the formula (Ia):



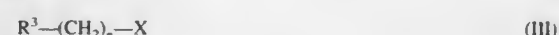
wherein:

R^1 represents an optionally substituted ethylenically unsaturated acyclic or cyclic hydrocarbon radical;
 R^3 represents a C_1 - C_{10} perhaloalkyl radical;

n is 1, 2, 3 or 4
said process comprising reacting, in a polar aprotic solvent, a salt of a carboxylic acid of formula (IIa):



where the radical R^1 is as defined above, with a compound of formula (III):



in which:

 R^3 and n are as defined above; and X represents a halogen,

said reacting being conducted at 200°-250° C. and at a pressure of 0.1-2 bars, and continuously removing the resultant compound (Ia) from the reactor.

5,804,688

COMPOUNDS AND COMPOSITIONS FOR DELIVERING ACTIVE AGENTS

Andrea Leone-Bay, Ridgefield, Conn.; Eric Wang, Yonkers, N.Y.; Donald J. Sarubbi, Bronxville, N.Y., and Harry Leopold, Elmsford, N.Y., assignors to Emisphere Technologies, Inc., Hawthorne, N.Y.

Filed Feb. 7, 1997, Ser. No. 796,339

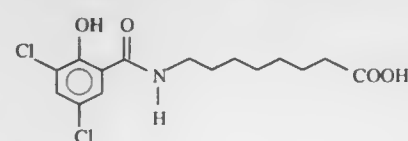
Int. Cl.⁶ C07C 229/00

U.S. Cl. 562—444

1. A composition comprising:

(A) at least one active agent; and

(B) a compound having the following formula



or a salt thereof.

5,804,689

PROCESS FOR RECOVERING ACETYLENE FROM HYDROCARBONS BY THERMAL CRACKING

Nicole Schödel, München; Eberhard Lassmann, Pullach, and Holger Hackner, München, all of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Germany

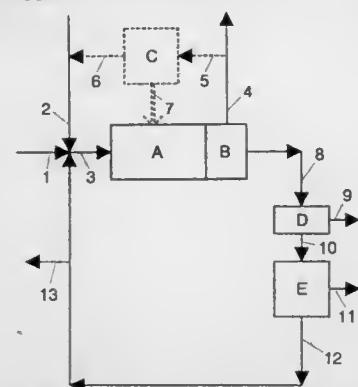
Filed Jan. 30, 1996, Ser. No. 593,624

Claims priority, application Germany, Jan. 30, 1995, 195 02 857.0

Int. Cl.⁶ C07C 11/24

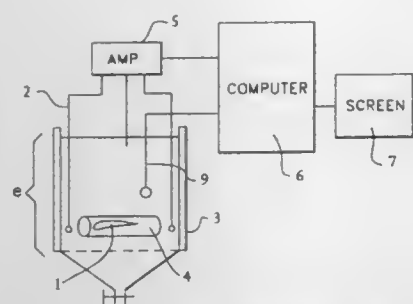
U.S. Cl. 585—539

18 Claims



UMI

1. A method for real-time biological monitoring of physico-chemical parameters of an aqueous medium using electrical signals emitted by one or more aquatic test animals that, under constant



operating conditions, emit electrical signals having frequency variations of an order of about 0.1%.

5,804,706

SYSTEM AND METHOD FOR MEASURING THE MAR RESISTANCE OF MATERIALS

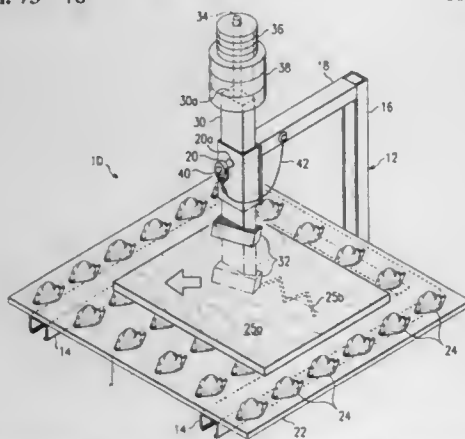
Ralph H. Williston, Lamar, Mo., assignor to O'Sullivan Industries, Inc., Lamar, Mo.

Filed Feb. 3, 1997, Ser. No. 794,325

Int. Cl.⁶ G01N 3/00

U.S. Cl. 73—78

18 Claims



9. A method for measuring the mar resistance of a test specimen, the method comprising the steps of:
slidably mounting a bar for vertical movement in a frame, wherein the bar defines upper and lower ends;
securing a contact block to the lower end of the bar at a predetermined angle relative to the bar;
positioning a material test specimen, relative to the contact block, with a test surface below the contact block;
testing the specimen, comprising the steps of:

lowering the bar until the contact block comes into contact with and rests on the test surface of the test specimen;
moving the test specimen, relative to the contact block, while the contact block rests on the test surface of the test specimen;
raising the bar so the contact block does not contact the test surface of the test specimen; and
determining whether a mar is visible on the test surface of the test specimen;

in response to a determination that a mar is not visible, increasing the quantity of the mass of material on the upper end of the bar, and repeating the step of testing until a mar is created; and

in response to a determination that a mar is visible, recording the maximum force applied through the contact block to the surface of the specimen that resulted in a determination that a mar was visible on the surface of the specimen.

5,804,707 DYNAMIC HARDNESS TESTING USING MEASUREMENT OF THE SCARTON DYNAMIC HARDNESS (SDH)

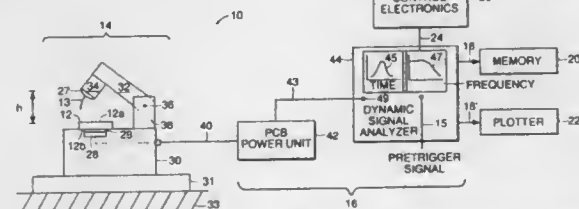
Henry A. Scarton; Yau-Shing Lee, and Peter A. Giacobbe, all of Troy, N.Y., assignors to Rensselaer Polytechnic Institute, Troy, N.Y.

Continuation-in-part of Ser. No. 957,833, Oct. 5, 1992, Pat. No. 5,423,241. This application Feb. 14, 1995, Ser. No. 388,493

Int. Cl.⁶ G01N 3/30

U.S. Cl. 73—82

24 Claims



1. A method for determining the degree of dynamic hardness of a material, said method comprising:
impulsively exciting a surface of the material by impacting the surface against a second, relatively hard surface, said second surface being in contact with a force-measuring device,
measuring a signal from the force-measuring device to determine a frequency-dependent spectrum of the force exerted by the excited surface on the second surface during a time period wherein the surfaces are in direct contact,
determining a roll-off frequency of the frequency-dependent spectrum, and
analyzing the roll-off frequency to determine the degree of dynamic hardness of the material.

5,804,708

ATOMIC FORCE MICROSCOPE AND METHOD OF ANALYZING FRICTIONS IN ATOMIC FORCE MICROSCOPE

Kazushi Yamanaka, Tsukuba, and Eisuke Tomita, Chiba, both of Japan, assignors to Agency Industrial Science and Seiko Instruments Inc., Japan

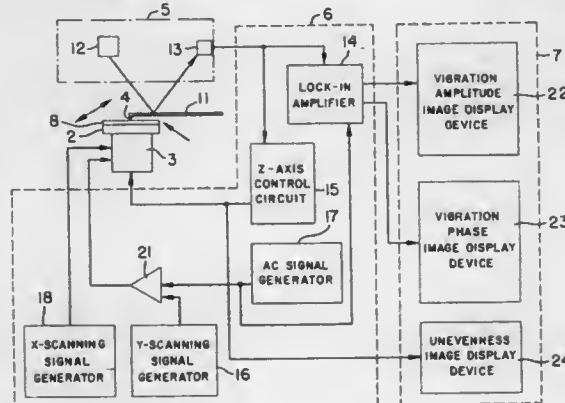
Filed Sep. 15, 1995, Ser. No. 528,956

Claims priority, application Japan, Nov. 15, 1994, 6-305564

Int. Cl.⁶ G01B 5/28

U.S. Cl. 73—105

12 Claims



1. An atomic force microscope comprising:
a sample stage;
a vibrating device for imparting transverse vibrations to the sample stage;
a probe for contacting a sample mounted on the sample stage;
a vertical load-adjusting device for adjusting a vertical load between the sample and the probe;

first measuring means for simultaneously measuring the phase and amplitude of the torsional vibration of the probe resulting from the transverse vibration imparted to the sample stage; and

second measuring means for measuring a dependence of the phase and amplitude measured by the first measuring means on a vertical load adjusted between the probe and the sample by the vertical load-adjusting device.

5,804,709

CANTILEVER DEFLECTION SENSOR AND USE THEREOF

Jean-Philippe M. Bourgoin, Montigny le Bx, France; Matthew B. Johnson, Norman, Okla., and Bruno Michel, Gattikon, Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

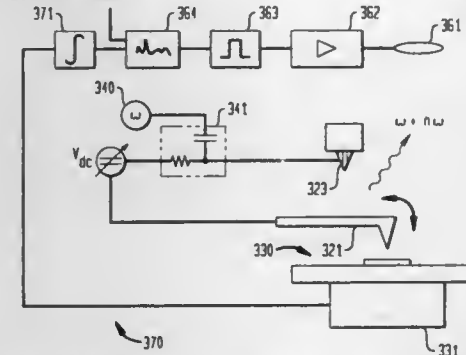
PCT No. PCT/EP95/00431, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO96/24819, PCT Pub. Date Aug. 15, 1996

PCT Filed Feb. 7, 1995, Ser. No. 718,339

Int. Cl.⁶ G01B 7/34

U.S. Cl. 73—105

20 Claims



1. An apparatus for measuring a force exerted upon or a deflection of a flexible cantilever used in atomic force microscopy, comprising means for providing a single high fundamental frequency signal w between the flexible cantilever and a second surface, antenna means for receiving radiation produced during atomic force microscopy of a sample using said cantilever, amplifying means for detecting from the radiation received by the antenna a higher harmonic nw of the fundamental frequency and generating a signal therefrom for use to measure a characteristic of the sample, and means to apply in operation a DC voltage to said cantilever.

5,804,710

ATOMIC FORCE MICROSCOPE SYSTEM WITH MULTI-DIRECTIONAL VOICE COIL ACTUATOR FOR CONTROLLING THE STYLUS

Harry Jonathon Mamin, Palo Alto; Daniel Rugar, Los Altos, and Bruce David Terris, Sunnyvale, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

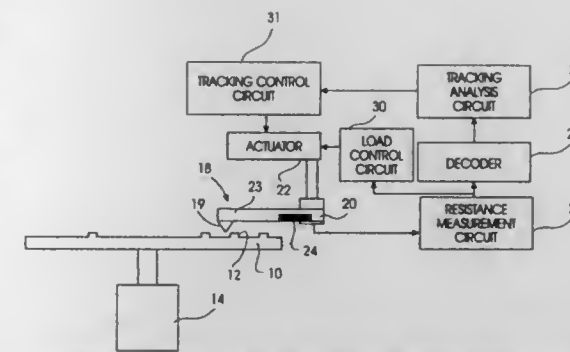
Filed Jun. 5, 1997, Ser. No. 869,642

Int. Cl.⁶ G01B 5/28

U.S. Cl. 73—105

15 Claims

1. An atomic force microscope system comprising:
a sample to be scanned, the sample having surface features;
a flexible cantilever having on its free end a stylus for sensing the surface features of the sample by deflecting back and forth when the sample is moved relative to the stylus;
a bidirectional actuator to which the cantilever is attached for moving the stylus in a plane generally parallel to the surface of the sample and for moving the stylus perpendicularly relative to the surface of the sample, the actuator comprising a frame,
a plurality of permanent magnets mounted on the frame,



a support arm attached to and supporting the cantilever on the cantilever end opposite its free end,

a flexure holding the support arm on the frame in a plane generally parallel to the surface of the sample, the flexure permitting movement of the support arm in a plane parallel to the surface of the sample and perpendicularly relative to the surface of the sample,

a first set of electrical coils mounted on the support arm and located within the magnetic field of the permanent magnets, and

a second set of electrical coils mounted on the support arm and located within the magnetic field of the permanent magnets, each of the coils in the second set having a central axis perpendicular to the central axis of each of the coils in the first set;

a detector for detecting deflections of the cantilever caused by the features on the surface of the sample, and for generating an output signal representative of the deflections of the cantilever;

a load control circuit responsive to the output signal from the deflection detector and coupled to the first set of electrical coils on the actuator for generating a current signal to the first set of electrical coils to cause the actuator support arm to move perpendicularly relative to the surface of the sample; and

circuitry coupled to the second set of electrical coils on the actuator for generating a current signal to the second set of electrical coils to cause the actuator support arm to move in a plane generally parallel to the surface of the sample so as to position the stylus to a desired position on the surface of the sample.

5,804,711

PATTERN RECOGNITION METHOD AND SYSTEM FOR DETERMINING A MISFIRE CONDITION IN A RECIPROCATING ENGINE

Donald J. Remboski, 7447 Oakman Blvd., Dearborn, Mich. 48126; Steven L. Plee, 2226 Pine Hollow, Brighton, Mich. 48116; Marvin L. Lynch, 19555 Roslyn Rd., Detroit, Mich. 48221, and Michael A. McClish, 647 Thayer Blvd., Northville, Mich. 48167

Continuation of Ser. No. 116,650, Sep. 7, 1993, abandoned.

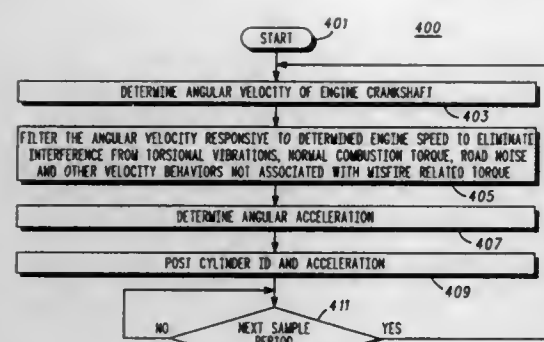
This application Aug. 6, 1996, Ser. No. 689,038

Int. Cl.⁶ G01M 15/00

U.S. Cl. 73—117.2

38 Claims

1. A method for determining misfire in a reciprocating engine, said method comprising the steps of:
measuring engine crankshaft angular velocity and providing an angular velocity signal responsive thereto;
filtering to provide a filtered acceleration signal dependent on the engine crankshaft angular velocity signal and independent of normal combustion information;
extracting a data point from the filtered acceleration signal during a first revolution of the engine's crankshaft;



extracting another data point from the filtered acceleration signal during another revolution of the engine's crankshaft following the first revolution of the engine's crankshaft; and comparing the filtered acceleration signal to a threshold dependent on engine temperature, and providing a misfire indication when an amplitude of an average of the data point and the another data point exceeds the threshold.

5,804,712

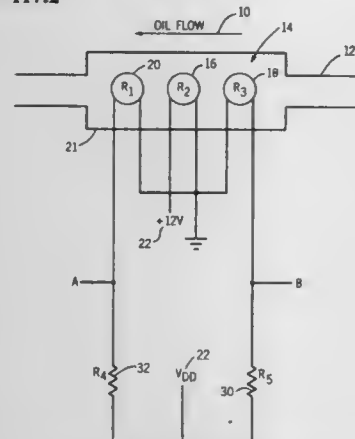
OIL FLOW SENSOR

Richard E. Staerzl, Fond du Lac, Wis., assignor to Brunswick Corporation, Lake Forest, Ill.

Filed Sep. 27, 1996, Ser. No. 722,611

Int. Cl.⁶ G01M 15/00

U.S. Cl. 73—117.2



1. An oil flow sensor for an internal combustion engine having an oil line, the oil flow sensor comprising:

- a heating element positioned within the oil line;
- a first heat sensor positioned in the oil line downstream from the heating element for generating a first temperature signal;
- an offset circuit for generating an offset signal that is combined with the first temperature signal;
- a second heat sensor positioned in the oil line upstream from the heating element for generating a second temperature signal;
- a comparator having a first input that is coupled to the first heat sensor and the offset circuit and a second input that is coupled to the second heat sensor, the comparator outputting a flow indicator signal based at least in part on the first temperature signal and the second temperature signal; and
- a switching device that receives the flow indicator signal from the output of the comparator and operates a signaling device in accordance with the flow indicator signal from the output of the comparator.

5,804,713

APPARATUS FOR SENSOR INSTALLATIONS IN WELLS

Erhard Lothar Kluth, Alresford, United Kingdom, assignor to Sensor Dynamics Ltd., United Kingdom

PCT No. PCT/GB95/02233, § 371 Date Mar. 19, 1997, § 102(e)

Date Mar. 19, 1997, PCT Pub. No. WO96/09461, PCT Pub.

Date Mar. 28, 1996

PCT Filed Sep. 20, 1995, Ser. No. 809,947

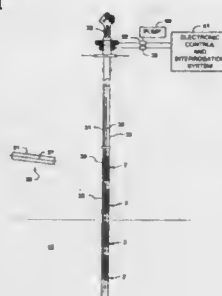
Claims priority, application United Kingdom, Sep. 21, 1994,

9419006

Int. Cl.⁶ E21B 47/01; G01D 5/26; G08C 23/06

U.S. Cl. 73—152.01

10 Claims



9 Claims

1. Apparatus for the installation of sensors in channels, which apparatus comprises first channel means containing at least one sensor location means, the first channel means and the sensor location means being such that at least one sensor is able to be pumped through the first channel means to the sensor location means, the sensor location means being provided with at least one turn such that the physical disposition of the sensor after it has been pumped to the sensor location means is not linear, and the turn being such that it comprises a loop of hydraulic conduit.

5,804,714

FLOW METER

Pekka Rouhiainen, Helsinki, Finland, assignor to Posiva Oy, Helsinki, Finland

PCT No. PCT/FI96/00028, § 371 Date Sep. 4, 1997, § 102(e)

Date Sep. 4, 1997, PCT Pub. No. WO97/25517, PCT Pub.

Date Jul. 17, 1997

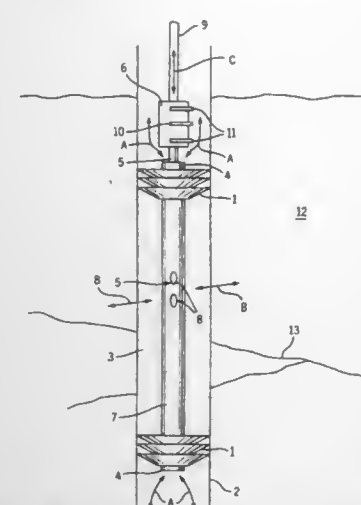
PCT Filed Jan. 12, 1996, Ser. No. 913,011

Int. Cl.⁶ E21B 49/00

U.S. Cl. 73—152.29

10 Claims

1. Flowmeter for locating zones containing currents in a bore hole made in a rock, wherein the flowmeter comprises flexible and elastic parting elements (1) for separating a measurement section (3) in the hole from the rest of the hole in a substantially pressure-tight manner, an open flow duct (4) forming a free flow link between the hole portions on opposite sides of the flowmeter past the measurement section, a measuring duct (5) leading from the section under measurement to a point outside it, together with measuring equipment (6), for measuring the magnitude and direction of flow between the measurement section and the hole portion outside it.



and wherein the parting elements (1) comprise plate-shaped rubber or plastic discs.

5,804,715

HYDRODYNAMIC DAMPENING SYSTEM FOR THE PRECISE MEASUREMENT OF DYNAMIC SEDIMENT PORE WATER PRESSURE

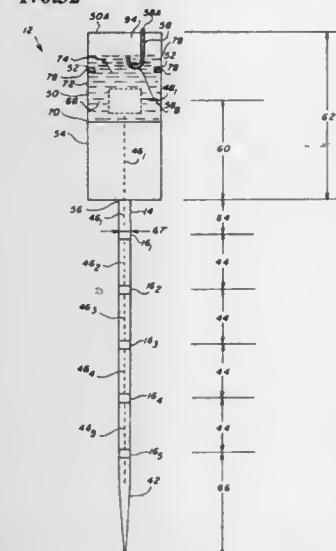
Richard H. Bennett, Carriere, Miss., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 24, 1996, Ser. No. 773,290

Int. Cl.⁶ G01L 13/00

U.S. Cl. 73—170.32

10 Claims



1. A piezometer for measuring pore water pressure in marine sediments comprising:

- (a) a tubular shaft having one end that is tapered, said tubular shaft housing a plurality of first porous stones that are spaced apart from each other by a first distance and connected to one end of a tube;
- (b) a first chamber connected to the other end of said tubular shaft and having entrance portions;
- (c) a plurality of differential pressure transducers housed in said first chamber, one for each of said first porous stones and each having positive and negative pressure inputs and providing an output signal proportional to the difference between the positive and negative pressure inputs, each of said plurality of differential transducers having its positive input connected to the other end of said tube of its respective first porous stone;

5,804,716

APPARATUS AND METHOD FOR TESTING STANDPIPE FLOW

Mickey Richard McGuire, 25215 SE. 192nd, Maple Valley, Wash. 98038; Lon Howard Matthews, 45103 S.E. Edgewick Rd., North Bend, Wash. 98045, and Keith Allen Hillstrom, 11021 Cramer Rd. KPN, Gig Harbor, Wash. 98329

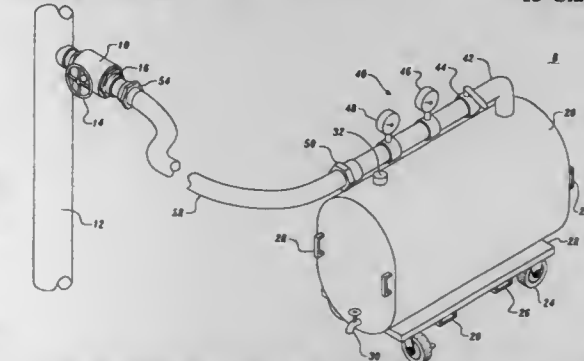
Continuation of Ser. No. 447,273, May 22, 1995, abandoned.

This application Mar. 28, 1997, Ser. No. 825,418

Int. Cl.⁶ G01F 15/02

U.S. Cl. 73—198

13 Claims



1. An apparatus for testing the flow rate of water available at a fire control system of a multi-story building, comprising:

- a portable tank of a size sufficient to receive the water flow from the fire control system for a sufficient length of time to test the steady state water rate discharged from the fire control system, the portable tank comprising support means for manually rolling the tank from location to location within the multi-store building without having to lift the tank, the support means having a plurality of wheels secured thereto, the tank together with the support means being of size to be manually rolled from location to location through corridors or passageways within the multi-story building;
- a flow line to direct water from the fire control system being tested to the portable tank; and
- a pipe assembly comprising a flow meter and pressure gauge, the pipe assembly connectable in fluid flow communication with the flow line and the portable tank to measure the flow rate and pressure of the water discharged from the fire control system being tested, the pipe assembly being mounted on the tank.

5,804,717

MASS FLOW TRANSDUCER HAVING EXTENDED FLOW RATE MEASUREMENT RANGE

Paul D. Lucas, Melrose, Mass., assignor to MKS Instruments, Inc., Andover, Mass.

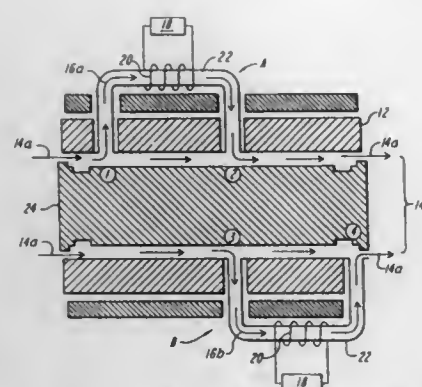
Filed Apr. 5, 1996, Ser. No. 628,196

Int. Cl.⁶ G01F 5/00

U.S. Cl. 73—202

17 Claims

1. A mass flow transducer for measuring the rate of flow of a fluid in a primary fluid flow path, said transducer comprising: housing means including means for defining the primary fluid flow path; means, coupled to said housing, for defining at least two secondary flow paths each for a corresponding and different measur-



able range of rates of flow of fluid in said primary fluid flow path, each of said secondary flow paths being disposed in parallel and in fluid communication with said primary fluid flow path so that fluid flow in said primary flow path within the measurable range of flow rates associated with one of said secondary flow paths causes fluid flow in that secondary flow path at a rate in relation to and as a function of the flow rate in said primary flow path; and

means, coupled to each of said secondary flow paths, for measuring throughout the corresponding range of flow rates the rate of flow of fluid in said primary flow path as a function of the fluid flowing in each secondary flow path; wherein said means for defining at least two secondary flow paths includes means for defining the measurable range of rates of flow of fluid in each of the secondary flow paths so that each secondary flow path corresponds to a different measurable range of rates of flow of fluid in said primary fluid flow path, so as to provide an enhanced range of rates that can be measured by said transducer.

5,804,718

AIRFLOW METER HAVING AN INVERTED U-SHAPE BYPASS PASSAGE

Ryo Nagasaka, Nagoya; Yasushi Kohno, Kariya; Masaaki Konishi; Minoru Kondo, both of Chiryu, and Katsumi Nakashima, Okazaki, all of Japan, assignors to Denso Corporation, Kariya, Japan

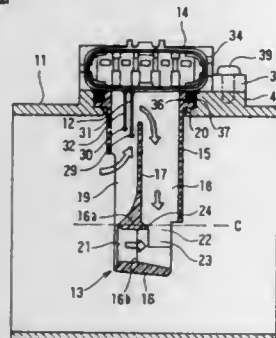
Filed Apr. 22, 1997, Ser. No. 844,779

Claims priority, application Japan, Apr. 24, 1996, 8-101776; Apr. 25, 1996, 8-103028

Int. Cl.⁶ G01F 5/00

U.S. Cl. 73—202

16 Claims



1. An air flow meter, comprising:

an air duct having a mounting hole provided on a peripheral wall thereof;

a flow amount measuring body mounted in said air duct through said mounting hole;

a bypass passage, provided in said flow amount measuring body, for causing part of air flowing through said air duct to flow in from an inflow port provided on a side of said flow amount measuring body and to pass through said flow amount measuring body to an outflow port thereof;

a sensor section, installed within said bypass passage, for measuring airflow amount;

a venturi tube section, supported by said flow amount measuring body and provided almost in parallel with a direction of airflow within said air duct, for passing part of air flowing through said air duct;

said outflow port being provided near a part of the peripheral wall of said venturi tube section where velocity of air becomes fast; and

said venturi tube section being provided such that its length in airflow direction is equal to or smaller than a width of said flow amount measuring body in the direction of airflow within said air duct.

5,804,719

LAMINATED PLATE GLASS EQUIPPED WITH A SENSOR

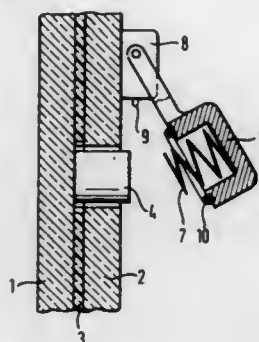
Claude Didelot; Denis Mathivat, both of Thourotte; Martial de Paoli, Cuts, and Anne Lamicq, Margny les Compiègne, all of France, assignors to Saint-Gobain Vitrage, Courbevoie, France

Filed Jul. 26, 1996, Ser. No. 686,698

Int. Cl.⁶ G01N 9/24; G05B 5/00

U.S. Cl. 73—335.01

17 Claims



1. Laminated plate glass window for a transport vehicle comprising:

a rigid sheet of glass forming an external layer of the laminated plate glass window;

at least one layer of plastic material contacting said rigid sheet of glass;

a sensor installed on the laminated plate glass window to sense the presence of objects or foreign bodies on an outside of the laminated plate glass window, a side of the sensor carrying out the function of detection being held in close contact with an internal side of the rigid sheet of glass, wherein the sensor is positioned in a space formed within the laminated plate glass window interiorly of the rigid sheet of glass; and

a detachable cover or lid covering the space and exerting a force on the sensor so as to hold the sensor in close contact with the internal side of the rigid sheet of glass.

5,804,720

FLOW SENSOR APPARATUS INCLUDING A THIN FILM SENSOR

Kaminishi Morimasa, Shiroishi, and Kimura Mitsuteru, Miyagi-gun, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 708,851

Claims priority, application Japan, Sep. 7, 1995, 7-229734

Int. Cl.⁶ G01F 1/68

U.S. Cl. 73—204.26

16 Claims

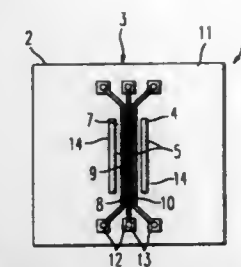
1. A flow sensor apparatus for measuring a physical property of a fluid flowing through a fluid path, comprising:

a substrate installed in the fluid path;

a hollow formed in a surface of the substrate;

a thin film sensor portion suspended over the hollow; and

a guard portion formed on the substrate near the hollow;



wherein the width of said sensor portion is formed so as not to be destroyed by pieces of dust having about the same width as said sensor portion when the pieces of dust collide with said sensor portion.

5,804,721

CAPACITOR FOR WATER LEAK DETECTION IN ROOFING STRUCTURES

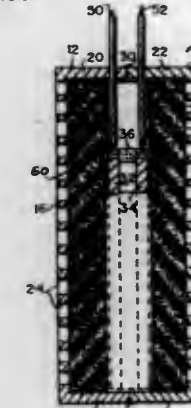
Norbert E. Yankielun, 54 Nottingham Cir., Lebanon, N.H. 03766, and Stephen N. Flanders, 317 Hopson Rd., Norwich, Vt. 05055-9442

Filed Feb. 14, 1997, Ser. No. 800,498

Int. Cl.⁶ G01N 37/00

U.S. Cl. 73—335.04

11 Claims



1. A moisture sensitive capacitor comprising, a pair of electrically conductive members having a space therebetween, a flexible waterproof means disposed adjacent said members and preventing moisture from contacting said members, water-deformable means disposed adjacent said waterproof means, said water-deformable means expanding in the presence of moisture to move said waterproof means and at least one of said members to reduce said space between said members, and a relatively rigid means disposed adjacent said water-deformable means for limiting movement of said water-deformable means and permitting water to flow into and out of said water-deformable means.

5,804,722

GRAVITY GRADIOMETER

Frank Joachim Van Kann, and Michael Joslin Buckingham, both of Claremont, Wash., assignors to RTZ Mining & Exploration Ltd., London, England, and University of Western Australia, Western Australia, Australia

Continuation of Ser. No. 367,757, Jan. 3, 1995, Pat. No. 5,668,315, which is a continuation of Ser. No. 115,677, Sep. 2, 1993, abandoned, which is a continuation of Ser. No. 688,528, Aug. 20, 1991, abandoned. This application May 12, 1996, Ser. No. 649,548

Claims priority, application Australia, Dec. 20, 1988, PJ2034/88

Int. Cl.⁶ G01M 1/12

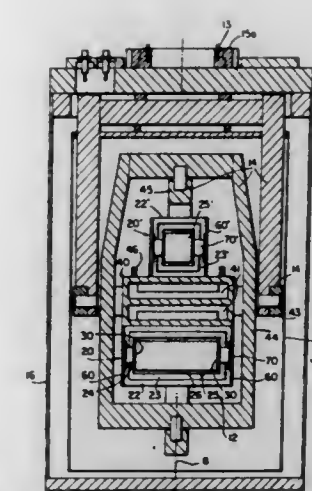
U.S. Cl. 73—382 G

42 Claims

1. A gravity gradiometer comprising:

a housing;

a body located within the housing;



5,804,723

VEHICLE WHEEL BALANCER WITH RETRACTABLE COVER

Paul Coetsier, Pomponne, and Olivier Sauzay, Coudray, both of France, assignors to Muller BEM, Chartres Cedex, France

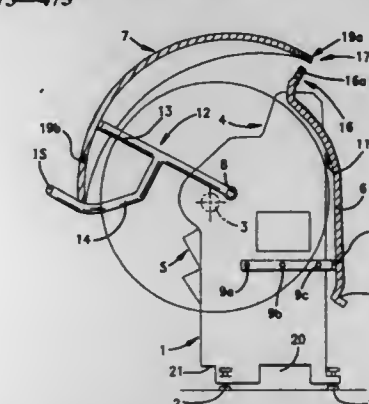
Filed Sep. 25, 1996, Ser. No. 721,318

Claims priority, application France, Oct. 4, 1995, 95 11655

Int. Cl.⁶ G01M 1/02

U.S. Cl. 73—475

10 Claims



1. In a vehicle wheel balancer, comprising a support frame, a rotatable drive head adapted removably to receive a wheel to be balanced, and a protective member enclosing the mounted wheel so as to prevent undesirable projection of particles outwardly and to protect an operator during rotation of the wheel; the improvement wherein the protective member is in two parts comprising a first cover fixed relative to the support frame, and a second cover swingably retractable about a second axis of rotation, said second axis of rotation being substantially parallel to or coaxial with said first axis so as to reduce the mass that must be displaced and to permit manual opening and closing of the protective member without assistance means and without a counterweight and to reduce the floor space of the balancer.

measurement difference output means for generating said output signal related to the sensed quantity based upon a difference between first and second pulse time delay measurements for pulses recirculating through said at least one ultrasonic delay sensor, wherein said measurements difference output means comprises up-down counter means for counting pulses during the first measurement in one direction and for counting pulses during the second measurements in an opposite direction so that remaining counter contents represent a difference in delay between the first and second measurements.

5,804,730

ULTRASONIC TESTING METHOD

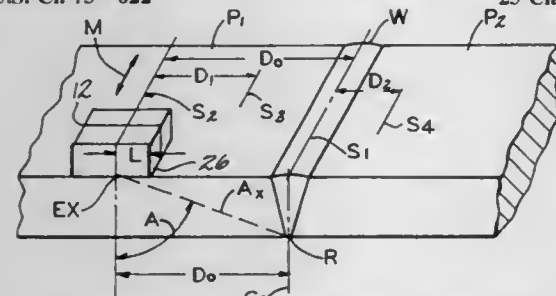
Richard A. Pfannenstiel, 2 James Ct., Old Saybrook, Conn. 06475, and Steven L. Sikorski, 101 Bushy Hill Rd., Deep River, Conn. 06417

Filed Oct. 10, 1995, Ser. No. 541,444

Int. Cl.⁶ G01N 29/06; 29/10; 29/24

U.S. Cl. 73—622

25 Claims



1. A method of ultrasonically inspecting a selected portion of a metal object having an accessible surface and an opposite surface for flaws using a transducer including an ultrasonic transmitter and receiver where the transducer is moved longitudinally toward and away from said selected portion and laterally essentially parallel to the selected portion, to detect and size flaws in said selected portion and an instrument for recording returned ultrasonic pulse signals received by said receiver where the ultrasonic signals are transmitted in the longitudinal mode within an envelope having a central axis which forms a selected angle with a line perpendicular to a surface of said piece, comprising the steps of

- determining a reference position on said object in the selected portion on the opposite surface thereof;
- determining a first scanning position on said accessible surface of said object for transmitting an envelope of pulses with the axis thereof directed toward said reference position whereby the points where the envelope of transmitted pulses will intersect said opposite surface on either side of said reference position and define a first longitudinal distance between said points;
- positioning said transducer at said first scanning position and moving said transducer on said accessible surface of said object laterally while transmitting ultrasonic signals into said object with the axis of said envelope directed at said reference position;
- noting on said instrument as indicative of a flaw the first reflected pulse of a reflection of said transmitted signals and noting the location thereof;
- positioning said transducer on said accessible surface so as to detect a first indicated flaw and moving said transducer laterally to size the length of said a first indicated flaw;
- moving said transducer longitudinally on said accessible surface to size the through wall extent of said a first indicated flaw;
- repeating steps e) and f) for each indicated flaw; and
- recording the position, length and through wall extent of each detected flaw.

5,804,731

ULTRASONIC DEVICE FOR MEASURING THE INTERNAL DEFECTS OF A RAIL

Jean-Pierre Jaeggi, Geneva, Switzerland, assignor to Speno International SA, Geneva, Switzerland

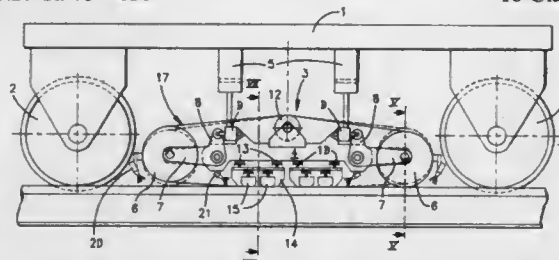
Filed Apr. 23, 1997, Ser. No. 839,179

Claims priority, application Switzerland, Nov. 25, 1996, 2898/96

Int. Cl.⁶ G01N 29/12; 29/26

U.S. Cl. 73—636

16 Claims



1. A device for continuously detecting in situ internal defects in a railway rail, the device comprising: a measuring carriage having an end roller at each end thereof and a tensioning roller therebetween; an endless web rotatably carried by said end rollers and tensioned by said tensioning roller, said web having a smooth interior surface and being pervious to ultrasonics; and a measuring shoe carried by said measuring carriage and having at least one ultrasonic sensor whose measuring surface is pressed against said smooth interior surface of said endless web opposite the rail when the device is positioned on the rail.

5,804,732

VIBRATOR-DRIVEN TABLE APPARATUS

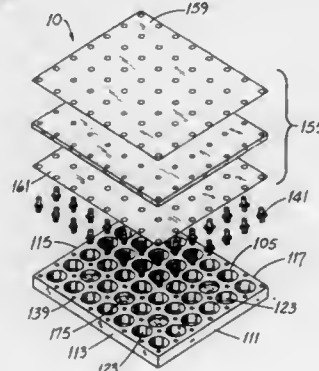
Joseph D. Wetzel, Hudsonville, and Mark W. Briggs, Holland, both of Mich., assignors to Venturedyne, Ltd., Milwaukee, Wis.

Continuation-in-part of Ser. No. 576,122, Dec. 21, 1995, abandoned. This application Jan. 16, 1997, Ser. No. 784,938

Int. Cl.⁶ B06B 3/00

U.S. Cl. 73—663

10 Claims



1. In a vibrator table apparatus including a primary table member driven by at least two vibrators and wherein: each vibrator extends along a vibrator long axis; the axes are spaced from and angular to one another; the primary table member has a plurality of holes formed therein; and the member includes an upper surface and a lower surface; the improvement wherein:

the holes are stress-reduction holes and extend between the surfaces, thereby configuring the primary table member to resist cracking; and the primary table member includes a plurality of vibrator attachment holes, each of which is spaced from the stress-reduction holes.

5,804,733

ELLIPTICAL VIBRATORY APPARATUS

Yutaka Kurita, Hikone; Yasushi Muragishi, and Hitoshi Yasuda, both of Ise, all of Japan, assignors to Shinko Electric Co., Ltd., Tokyo, Japan

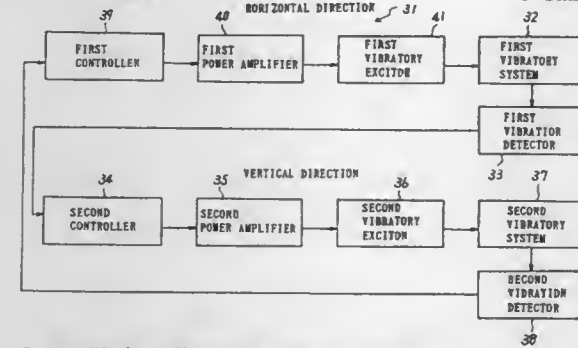
Filed Mar. 26, 1996, Ser. No. 620,676

Claims priority, application Japan, Mar. 31, 1995, 7-100467; Mar. 31, 1995, 7-100468

Int. Cl.⁶ G01M 7/00

U.S. Cl. 73—664

3 Claims



1. An elliptical vibratory apparatus comprising:

- a first controller which includes an input terminal, at least a first phase shifter, a first high-gain amplifier and a first saturating element;
- a first power amplifier for amplifying an output of said first controller;
- a first vibratory exciter receiving an output of said first power amplifier for generating a first vibrational force in a first direction;
- a first vibrational system of an elliptical vibratory machine receiving said first vibrational force;
- first vibrational displacement detecting means for detecting a vibrational displacement of a movable part of said elliptical vibratory machine in said first direction;
- a second controller which includes at least a second phase shifter, a second high-gain amplifier and a second saturating element;
- a second power amplifier for amplifying an output of said second controller;
- a second vibratory exciter receiving an output of said second power amplifier for generating a second vibrational force in a second direction;
- a second vibrational system of said elliptical vibratory machine receiving said second vibrational force;
- a second vibrational displacement detecting means for detecting another vibrational displacement of said movable part of said elliptical vibratory machine in said second direction, an output terminal for said second vibrational displacement detecting means;
- a closed loop being formed by said first controller, said first power amplifier, said first vibratory exciter, said first vibrational system, said first vibrational displacement detecting means, said second controller, said second power amplifier, said second vibratory exciter, said second vibrational system and said second vibrational displacement detecting means, the output of said second vibrational displacement detecting means being negatively fed-back to said first controller in said closed loop; wherein shift angles of said first and second phase shifters are so predetermined that there is a phase difference of 180 degrees between the output terminal of said second vibrational displacement detecting means and the input terminal of said first controller when said output termi-

5,804,734

Patent Not Issued For This Number

5,804,735

DIFFERENTIAL PRESSURE TRANSDUCER UNIT WITH AN OVERLOAD PROTECTION SYSTEM

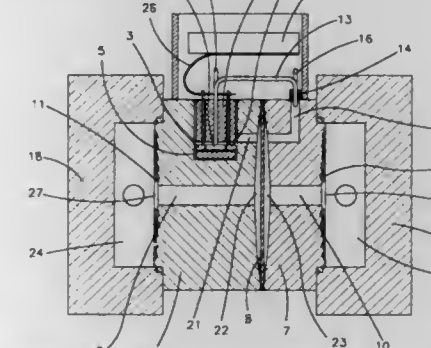
Jürgen Biskup, Minden, Germany, assignor to Hartmann & Braun GmbH & Co. KG, Frankfurt, Germany

Filed Feb. 7, 1997, Ser. No. 796,931

Int. Cl.⁶ G01L 7/00

U.S. Cl. 73—706

5 Claims



1. A transducer unit for measuring differential pressure in a process medium, comprising:

- measuring element having one or more sensors for providing measured values of said process medium, said measuring element acted on by a measuring agent which is spatially separated from said process medium;
- an overload protection system for said measuring element; and
- means for processing said measured values connected to said measuring element by pressure-tight electrical bushings; said one or more sensors constructed together on a single, multi-pole electrical bushing and forming an integral unit.

5,804,736

DIFFERENTIAL CAPACITIVE TRANSDUCER

Philip R. Klauder, Ambler; James O. Moore, Worcester, and Christopher J. O'Brien, New Britain, all of Pa., assignors to Moore Products Co., Spring House, Pa.

Continuation of Ser. No. 661,851, Jun. 11, 1996. This application Jan. 27, 1997, Ser. No. 790,253

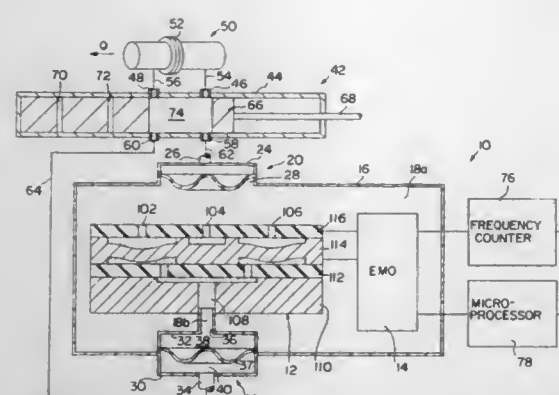
Int. Cl.⁶ G01L 9/12

U.S. Cl. 73—724

17 Claims

1. A pressure transducer comprising:

- a capacitive sensor having first and second variable capacitors for providing a variable capacitance as a function of a differential fluid pressure and a reference capacitor for providing a fixed capacitance independent of the differential fluid pressure, the first and second capacitors each having one fixed plate and one movable plate responsive to differential fluid pressure across the movable plate, the reference capacitor having two fixed plates, the first variable, second variable, and



reference capacitors all being located in proximity to one another and in communication with the differential fluid pressure; and
a switching network connected to the capacitors for selectively connecting at least one of the capacitors to an electronic circuit via the switching network for generating a frequency-based signal whose frequency is a function of the capacitance of the at least one capacitor connected to the electronic circuit through the switching network.

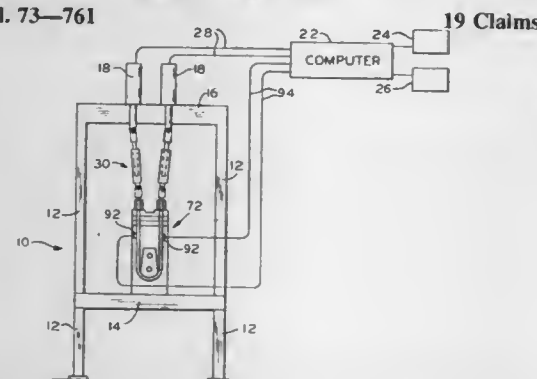
5,804,737

U-BOLT TESTING APPARATUS

Carl Edward Johnson, III, Columbia City, and Nick Carl Knappenberger, Fort Wayne, both of Ind., assignors to McCoy Bolt Works, Inc., Fort Wayne, Ind.

Filed Aug. 29, 1997, Ser. No. 921,118
Int. Cl.⁶ G01N 3/22

U.S. Cl. 73-761



1. An apparatus for testing U-bolts having a U-shaped body, a pair of legs having threaded ends and a nut on each of said threaded ends, said apparatus comprising:
a pair of motors, each motor having an output rotatable driven shaft;
a pair of spindles, each one of said spindles extending between one of said rotatably driven motor shafts and one of a pair of nuts threadingly received on a threaded end of a U-bolt;
wherein at least one of said spindles includes a pair of universal joints whereby a nut may threadingly be advanced on a U-bolt threaded end which is not collinear with said rotatably driven motor shaft; and
wherein said pair of motors are selectively simultaneously driven for selectively simultaneously rotatably driving said spindles, and wherein said U-bolt nuts are selectively simultaneously threadingly advanced on said U-bolt threaded ends.

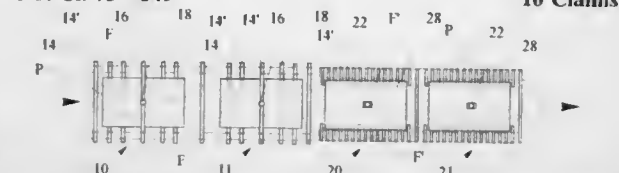
5,804,738
METHOD AND APPARATUS FOR ON-LINE TESTING OF
THE STIFFNESS OR STRENGTH OF PANELS AND
ESPECIALLY OF WOOD PANELS

Lars Bach, and Jung-June Cheng, both of Edmonton, Canada, assignors to Alberta Research Council, Edmonton, Canada
Filed Nov. 12, 1996, Ser. No. 747,680

Int. Cl.⁶ G01N 3/20

U.S. Cl. 73-849

16 Claims



1. A method for testing the width-wise stiffness or strength of panels, comprising moving a panel lengthwise through a width-wise tester having spaced rotary means which are situated to contact side portions only of one face of the panel while central rotary means contacts a laterally central region of the other face of the panel and deflects the panel to cause bending across the panel width, measuring the force corresponding to the width-wise bending; and using the force measurements along with deflection data relating to the bending to obtain a measure of the width-wise stiffness or strength of the panel.

5,804,739

METHOD AND CIRCUIT ARRANGEMENT FOR THE
MEASUREMENT OF FLOW SPEED BY MEANS OF
ACOUSTICAL TRANSIT TIME DIFFERENCES

Völkner Herrmann, and Horst Koepf, both of Dresden, Germany, assignors to Erwin Sick GmbH Optik-Elektronik, Waldkirch/Breisgau, Germany

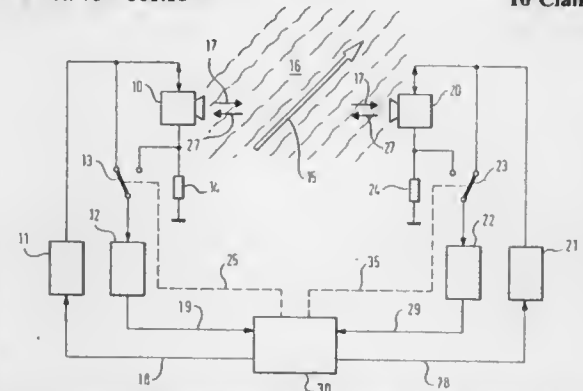
Filed Jun. 10, 1996, Ser. No. 662,721

Claims priority, application Germany, Jun. 22, 1995, 195 22 697.6

Int. Cl.⁶ G01F 1/20

U.S. Cl. 73-861.18

16 Claims



1. A method of determining a time point of the start of a high frequency oscillation packet, triggered as a result of corresponding external excitation, the method comprising:
specifying a zero point in time; and
determining relative times at at least two points of an envelope curve of the oscillation packet, the relative times being related to the zero point in time, one of the at least two points of the envelope curve being an envelope curve point characteristic of the envelope curve and one of the at least two points having an amplitude equal to a predetermined fraction of the amplitude of the envelope curve point.

5,804,740

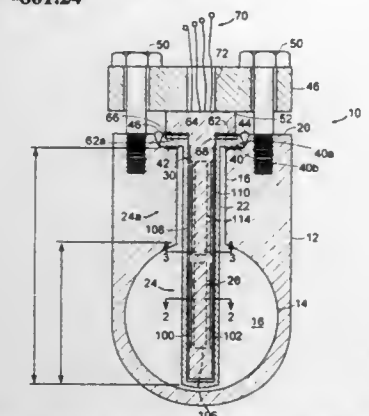
CAPACITIVE VORTEX MASS FLOW SENSOR
Richard W. Kalinoski, Little Compton, R.I., and Warren E. Cook, Plymouth, Mass., assignors to The Foxboro Company, Foxboro, Mass.

Filed Jan. 17, 1997, Ser. No. 785,748

Int. Cl.⁶ G01F 1/32

U.S. Cl. 73-861.24

11 Claims



10. A vortex mass flowmeter for providing the mass flow of a fluid, comprising:
a body for placement in a flow path of the fluid, said body including a sleeve exposed to the flow defining an interior chamber and a rod positioned within said chamber, at least a portion of the sleeve being movable in an axial direction of the flow, said sleeve having a first ratio of stiffness to mass and said rod having second ratio of stiffness to mass, said second ratio being equal to said first ratio,
first and second capacitive sensors mounted between said rod and said sleeve to sense lateral deflection of said sleeve relative to said rod thereby providing a first frequency signal related to shedding,
third and fourth capacitive sensors mounted between said rod and said sleeve to sense axial deflection of said sleeve relative to said rod thereby providing a second frequency signal related to drag, said first frequency signal being dependent on the flow velocity, said second frequency signal being dependent on the flow velocity and the fluid density,
a frequency discriminator coupled to said capacitive sensors which only recognizes said second frequency signal having a frequency component that is twice said first frequency signal,
fifth and sixth capacitive sensors mounted between said rod and said sleeve at a different location along said rod from the location of said first and second capacitive sensors to sense lateral deflection of said sleeve relative to said rod thereby providing a third frequency signal related to shedding, and
a first conductance circuit to which a first output of said first and second capacitive sensors is connected and a second conductance circuit to which a second output of said fifth and sixth capacitive sensors is connected, an output of one of said first and second conductance circuits being adjustable, such that when an output of said first conductance circuit and an output of said second conductance circuit are added the sum is equal to zero,
seventh and eighth capacitive sensors mounted between said rod and said sleeve at a different location along said rod from the location of said third and fourth capacitive sensors to sense axial deflection of said sleeve relative to said rod thereby providing a fourth frequency signal related to drag, and
a third conductance circuit to which a third output of said third and fourth capacitive sensors is connected and a fourth conductance circuit to which a fourth output of said seventh and eighth capacitive sensors is connected, an output of one of said third and fourth conductance circuits being adjustable, such that when an output of said third conductance circuit and an output of said fourth conductance circuit are added the sum is equal to zero.

5,804,741

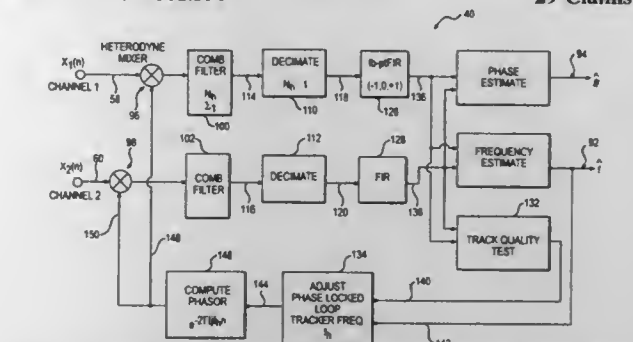
DIGITAL PHASE LOCKED LOOP SIGNAL PROCESSING
FOR CORIOLIS MASS FLOW METER
Belvin S. Freeman, Asheville, N.C., assignor to Schlumberger Industries, Inc., Norcross, Ga., and Continuum Technology Corp., Fletcher, N.C.

Filed Nov. 8, 1996, Ser. No. 748,477

Int. Cl.⁶ G01F 1/84

U.S. Cl. 73-861.356

29 Claims



1. An improved Coriolis-type system for measuring a fluid flow rate, comprising:
a first fluid flow conduit having respective inlet and outlet portions which are substantially coaxial with a first oscillation axis thereof;
a second fluid flow conduit having respective inlet and outlet portions which are substantially coaxial with a second oscillation axis thereof and parallel to said first oscillation axis, with said second conduit being formed so as to be physically similar to said first conduit, and further with said first and second conduits being mounted so as to be parallel to each other between their respective end portions when not in use;
driver means, responsive to a driver signal input, for oscillating said first and second conduits relative to each other about their respective oscillation axes for generating a corresponding relative oscillatory motion thereof, and for thereby causing oscillating Coriolis accelerations to act on respective fluid flows through said conduits;
respective first and second sensor means associated with said conduits for generating analog sinusoidal outputs at two respective predetermined locations in correspondence with said relative motion between said first and second conduits at said two predetermined locations;
means for digitizing said analog sinusoidal outputs and for generating corresponding first and second digitized outputs; and
means for processing said digitized outputs to estimate a fundamental frequency thereof, to estimate a phase shift between said digitized outputs, and to establish from said frequency and phase shift estimates an optimized driver signal input for said driver means, and for determining from said phase shift a corresponding mass flow rate of fluid flowing through said first and second conduits.

5,804,742

MASS FLOW METER

Kristian Rademacher-Dubbick, Duisburg, Germany, assignor to Krohne AG, Basel, Switzerland
Continuation of Ser. No. 497,198, Jun. 30, 1995, abandoned.

This application Mar. 4, 1997, Ser. No. 810,466

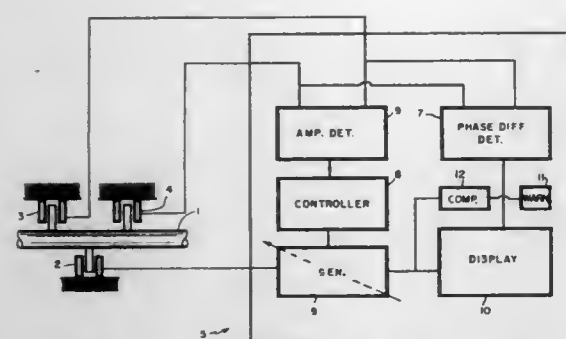
Claims priority, application Germany, Jul. 4, 1994, 44 23 168.7

Int. Cl.⁶ G01F 1/84

U.S. Cl. 73-861.357

18 Claims

1. A method of measuring the mass flow of a flowing medium in a Coriolis line comprising the steps of:
installing the Coriolis line in a pipeline system having certain initial environmental conditions;
exciting the Coriolis line with a measured excitation power;



adjusting the excitation power so that the Coriolis line vibrates with a predetermined vibration amplitude;
displaying the excitation power during operation of the flow meter, and
using the displayed excitation power value as a measure for the installation quality of the mass flow meter to minimize the coupling of vibrations between the Coriolis line and the pipeline system in which it is installed.

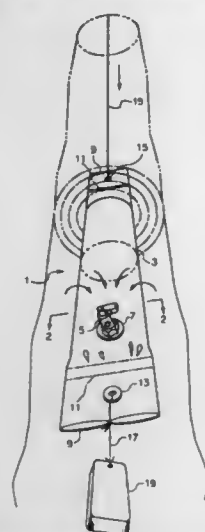
5,804,743 DOWNHOLE PASSIVE WATER SAMPLER AND METHOD OF SAMPLING

Don A. Vroblesky, Columbia, and William Thomas Hyde, Jr., Easley, both of S.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 20, 1996, Ser. No. 700,047
Int. Cl.⁶ E21B 49/08

U.S. Cl. 73—863.23

20 Claims



1. A passive water sampler for monitoring the concentration of contaminants in groundwater comprising:
a semipermeable membrane, said semipermeable membrane being permeable to said contaminants and impermeable to water;
said semipermeable membrane defining an inner chamber therein; and
said inner chamber being at least partially filled with water, said partially filled semipermeable membrane being placed in contact with said groundwater thereby allowing said contaminants to diffuse through said semipermeable membrane and into said inner chamber, the concentrations of said contaminants in said groundwater and in said water coming into equilibrium.

5,804,744 APPARATUS FOR OBTAINING, STORING AND TRANSPORTING LIQUID SAMPLES AND METHODS FOR MAKING AND USING SAME

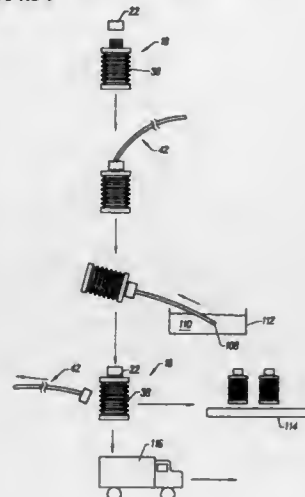
Samantha S. H. Tan, Fremont, and Dianne M. Dougherty, Menlo Park, both of Calif., assignors to Chemtrace, Hayward, Calif.

Filed Sep. 30, 1996, Ser. No. 723,861

Int. Cl.⁶ G01N 1/00

U.S. Cl. 73—864.34

20 Claims



15. A method for sampling, storing, and transporting chemical samples comprising:

providing a sealed bottle including a bottle portion and a cap portion, said bottle portion defining an internal volume, said bottle portion having a flexible sidewall portion which permits the reduction of said internal volume in response to a pressure applied thereto, said bottle portion having a neck, said bottle portion being made from a material selected from the group consisting essentially of hydrocarbon polymers and fluorocarbon polymers, said material generating less than 1 ppb of leachable metal contaminants and 1 ppm of leachable anionic and organic contaminants, said flexible side, all portion having a minimum thickness, said cap portion being made from a material selected from the group consisting essentially hydrocarbon polymers and fluorocarbon polymers, said material generating less than 1 ppb of leachable metal contaminants and 1 ppm of leachable anionic and organic contaminants;
unsealing said sealed bottle;
attaching a sampling head including a tube to said neck of said bottle portion;
exerting a force on said flexible sidewall portion to reduce said internal volume of said bottle portion;
inserting a free end of said tube into a liquid chemical to be sampled, said tube being coupled at its other end to said bottle portion, said tube being made from a material selected from the group consisting essentially of hydrocarbon polymers and fluorocarbon polymers, said tube generating less than 1 ppb of leachable metal contaminants and 1 ppm of leachable anionic and organic contaminants;
removing said force on said flexible sidewall portion to allow said internal volume of said bottle portion to increase, thereby drawing said liquid chemical through said tube to provide a chemical sample within said bottle portion; and
resealing said bottle for the storage and transport of said chemical sample without transferring said chemical sample to another container.

5,804,745 APPARATUS FOR ADJUSTING SOUND VOLUME OF GRAND PIANO

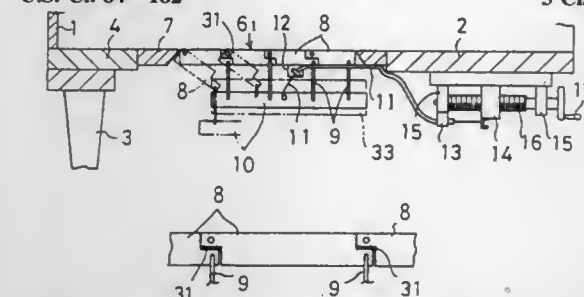
Hirofata Higasa, Shizuoka-ken, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Hamamatsu, Japan

PCT No. PCT/JP95/01436, § 371 Date Feb. 8, 1996, § 102(e) Date Feb. 8, 1996, PCT Pub. No. WO96/03739, PCT Pub. Date Feb. 8, 1996

PCT Filed Jul. 19, 1995, Ser. No. 592,295
Claims priority, application Japan, Jul. 26, 1994, 6-174203
Int. Cl.⁶ G10C 3/02

U.S. Cl. 84—182

3 Claims



1. An apparatus for adjusting a sound volume of a grand piano having a case with a lower opening, the apparatus comprising:
a sound-insulating board, having an opening and closing portion, for covering the lower opening of the case; and
an operating member which is operably coupled to the sound-insulating member,
wherein the operating member is comprised of a wire which is connected to an opening and closing member of the opening and closing portion, a travelling block which is connected to the wire and which is movable in a direction of extending the wire, and a rotatable threaded bar with which the travelling block is engaged in a threaded manner and to one end of which is attached a handle.

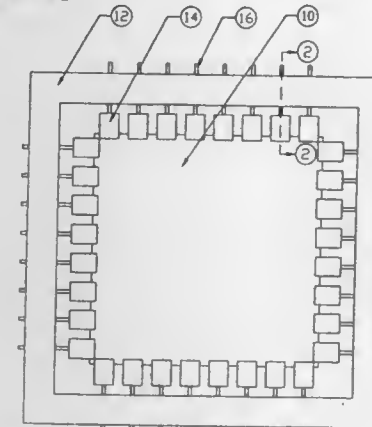
5,804,746 PRETENSIONED SOUNDBOARD FOR STRINGED MUSICAL INSTRUMENTS

Keith D. Kersenbrock, 111 S. Third, Lindsborg, Kans. 67456, and Walter J. Pickett, 1315 23rd Rd., Kanopolis, Kans. 67454

Filed Apr. 15, 1997, Ser. No. 839,588
Int. Cl.⁶ G10D 3/00; 3/02

U.S. Cl. 84—291

5 Claims



1. A stringed musical instrument comprising:
a) a body on which strings are suspended and tensioned, and
b) a pretensioned soundboard to amplify string vibrations, and
c) a means for affixing said pretensioned soundboard to said body, and
d) in combination, said pretensioned soundboard and a means for permanently retaining tension in said pretensioned soundboard.

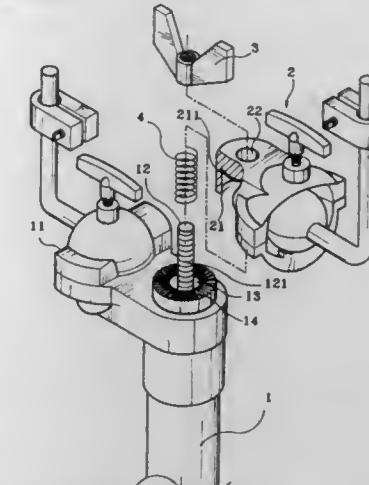
5,804,747 MUSICAL INSTRUMENT HOLDER

Chang-Hui Chen, 3 Fl., No. 175, Sec. 2, An-Ho Rd., Taipei, Taiwan

Filed Nov. 26, 1997, Ser. No. 979,553
Int. Cl.⁶ G10D 13/02; G10G 5/00

U.S. Cl. 84—327

3 Claims



1. An instrument holder comprising:
a vertical shaft having a top horizontal mount, said top horizontal mount comprising a threaded upright rod raised from a top side thereof, an annular block raised around said threaded upright rod, and an annular groove defined within said annular block around said threaded upright rod;
spring means mounted in said annular groove around said threaded upright rod;
a swivel holder horizontally turned about said threaded upright rod and supported on said spring means, said swivel holder comprising a bottom chamber adapted to receive said annular block, and a through hole disposed in communication with said bottom chamber and adapted to receive said threaded upright rod; and
a wing nut threaded onto said threaded upright rod above said swivel holder and fastened tight to fix said swivel holder to said annular block at the desired angle.

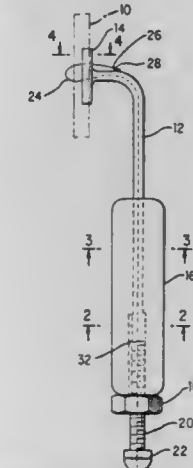
5,804,748 SOUND POST INSTALLER

William L. Clayton, Sr., 2505 W. Dewey Rd., Owosso, Mich. 48867

Filed Mar. 17, 1997, Ser. No. 819,481
Int. Cl.⁶ G10G 7/00

U.S. Cl. 84—458

9 Claims



3. A device for installing a sound post in a musical instrument comprising:

5,804,755

ELECTRONIC MUSICAL INSTRUMENT HAVING CHANNEL CONTROLLER PREFERENTIALLY ASSIGNING SOUND GENERATING CHANNELS TO RESONANT SOUND SIGNALS WITH LARGE MAGNITUDE

Rei Furukawa, Shizuoka, Japan, assignor to Yamaha Corporation, Japan

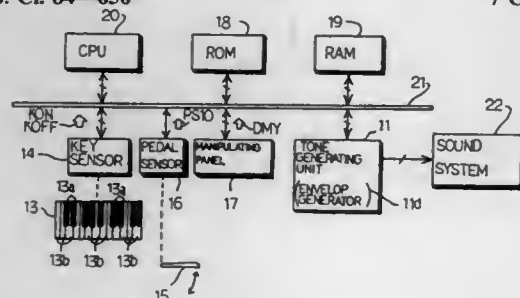
Filed Sep. 18, 1997, Ser. No. 932,469

Claims priority, application Japan, Sep. 20, 1996, 8-250306

Int. Cl. G10H 1/02; 1/22

U.S. Cl. 84-656

7 Claims



1. An electronic musical instrument capable of concurrently producing more than one electronic sound, comprising:

- a plurality of tone specifying means manipulated by a player for specifying a note of a fundamental sound to be produced, said player being able to manipulate more than one tone specifying means so as to specify more than one fundamental sound to be concurrently produced;
- at least one musical effect applying means manipulated by said player for imparting a music effect to said fundamental sound or said more than one fundamental sound; and
- a tone generating means for producing said fundamental sound or said more than one fundamental sound without a manipulation of said at least one musical effect applying means, and imparting said music effect to said fundamental sound or said more than one fundamental sound under the manipulation of said at least one music effect modifying means, said tone generating means including
- a plurality of sound generating channels selectively assigned to a fundamental sound signal representative of said fundamental sound or fundamental sound signals representative of said more than one fundamental sound, said plurality of sound generating channels being further assigned to a sound modifying signal associated with said fundamental sound signal for imparting said musical effect to said fundamental sound or sound modifying signals respectively associated with said more than one fundamental sound signal for imparting said music effect to said more than one fundamental sound;
- a signal generating means responsive to said plurality of tone specifying means and said at least one musical effect applying means for producing said fundamental sound signal, said fundamental sound signals, the combination of said fundamental sound signal and said sound modifying signal or the combination of said fundamental sound signals and said sound modifying signals, and
- a channel controlling means checking said sound generating channels to see whether or not the sound generating channels assigned to said sound modifying signals exceed a predetermined number equal to or less than the maximum number of sound generating channels assignable to said fundamental sound signals, said channel controlling means restricting the total number of sound generating channels assigned to said sound modifying signals equal to or less than said predetermined number.

5,804,756

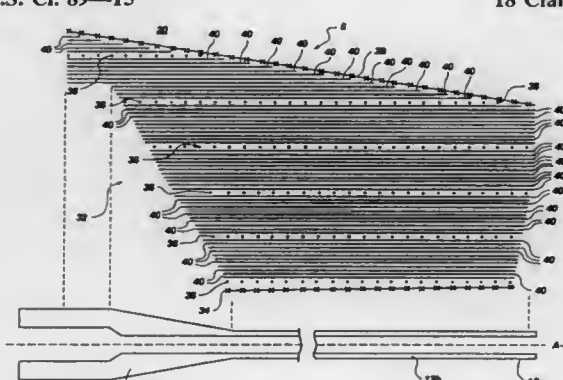
COMPOSITE/METALLIC GUN BARREL HAVING MATCHED COEFFICIENTS OF THERMAL EXPANSION
Roland J. Christensen, Fayette, Utah, assignor to RJC Development, L.C., Fayette, Utah

Filed Dec. 18, 1995, Ser. No. 573,697

Int. Cl. F41A 21/02; 21/20

U.S. Cl. 89-15

18 Claims



13. A composite/metallic gun barrel comprising:

- a metallic liner having a long axis;
- a first group of nonrandom graphite fibers disposed about the metallic liner in a first orientation generally perpendicular to the long axis of the metallic liner; and
- a second group of nonrandom graphite fibers disposed about the metallic liner and the first layer, each of the fibers in the second group being disposed in a second orientation generally parallel with the long axis of the metallic liner, the amount of fiber being disposed in the second orientation being greater than the amount of fiber disposed in the first orientation.

5,804,757

FLEXIBLE, LIGHTWEIGHT, COMPOUND BODY ARMOR

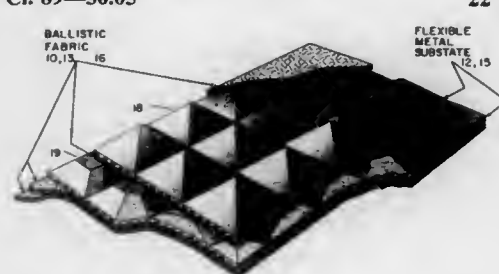
Robert C. Wynne, Grand Island, N.Y., assignor to Real World Consulting, Inc., Grand Island, N.Y.

Filed Mar. 29, 1996, Ser. No. 625,182

Int. Cl. F41H 1/02

U.S. Cl. 89-36.05

22 Claims



1. Body armor for protection of individuals against impacting projectiles, said body armor comprising:

- (a) a first protective layer of flexible material to the front surface of which are affixed in a first matrix configuration the bases of individual hard generally pyramidal elements for turning the direction of the impacting projectiles; (b) second protective layer formed of flexible material, to the front surface of which are affixed in a second matrix configuration the bases of individual hard generally truncated pyramidal elements for turning the direction of the impacting projectiles which may have penetrated said first matrix configuration, said generally

5,804,759

HUNTING BULLET HAVING A TELESCOPING FLECHETTE AND COMPRISING A SUB-PROJECTILE CONNECTED TO A LAUNCHER

Jean-Claude Sauvestre, 64 rue de la Vallée F-18230, Saint-Doulchard, France

PCT No. PCT/FR95/01418, § 371 Date Jun. 25, 1996, § 102(e) Date Jun. 25, 1996, PCT Pub. No. WO96/13697, PCT Pub. Date May 9, 1996

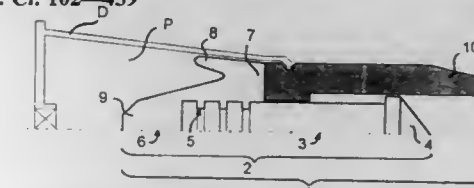
PCT Filed Oct. 26, 1995, Ser. No. 663,305

Claims priority, application France, Oct. 26, 1994, 94 12835

Int. Cl. F42B 5/00; 12/02

U.S. Cl. 102-439

14 Claims



- I. Ammunition for weapons of varying calibre, comprising: a sub-projectile including a conical head and a stabilizer; a launcher connected to the sub-projectile and having the same calibre as the weapon, the sub-projectile, the stabilizer and the launcher being enclosed in a cartridge which comprises a primer socket and a Propellant charge, wherein at least a portion of the launcher is non-detachably connected to and slides along the sub-projectile in a direction parallel to a longitudinal axis of the sub-projectile, and said portion of the launcher extends beyond the conical head of the sub-projectile in a direction of and at least during a trajectory of the ammunition.

5,804,760

METHOD FOR MAKING AND STORING CRYOGENIC MONOPROPELLANT

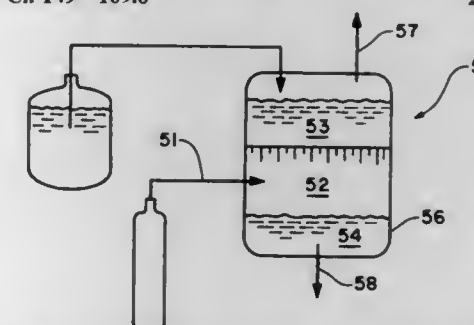
Thomas M. Flynn, Louisville, Colo., assignor to Cryoco, Inc., Louisville, Colo.

Filed Jun. 23, 1997, Ser. No. 880,269

Int. Cl. C06B 21/00; 45/00

U.S. Cl. 149-109.6

27 Claims



1. A method of manufacturing a cryogenic monopropellant comprising:

- providing a fuel as a single phase, subcooled liquid, at a first temperature;
- providing an oxidant as a single phase, subcooled liquid, at a second temperature substantially equal to or below the first temperature; and
- mixing the fuel and the oxidant while inhibiting formation of a vapor phase in the fuel, in the oxidant, or in a mixture of the fuel and oxidant to form a single phase, liquid cryogenic monopropellant.

truncated pyramidal elements in said second matrix are disposed such that their apexes are situated beneath the juncture points on said flexible material of the first said matrix configuration where the edges of at least three of said bases of said generally pyramidal elements of said first matrix configuration meet; and (c) at least one protective layer consisting of penetration-resistant fabric.

5,804,758

PYROTECHNIC HOT-GAS GENERATOR FOR SIDE PROTECTION BAG

Benoit Marsaud, Neaufles Saint Martin; Christian Perotto, Ballancourt, and Daniel Duvacouier, Bordeaux, all of France, assignors to SNC Livbag, Vert Le Petit, France

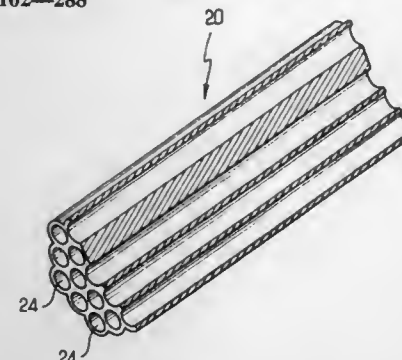
Filed Jul. 22, 1996, Ser. No. 685,029

Claims priority, application France, Aug. 4, 1995, 95 09497

Int. Cl. C06D 5/06; B60R 21/28

U.S. Cl. 102-288

9 Claims



1. Pyrotechnic hot-gas generator (1) comprising a hollow cylindrical body (2) which has a side wall (3) ending in two substantially planar faces (4, 5) and in which the length (L) of the generatrices is greater than its external diameter (D), the said body containing especially an igniter (8) and a gas-generating solid pyrotechnic charge (20), characterized in that:

- i) the said side wall (3) is solid over the whole length of each of its generatrices and each of the planar faces (4, 5) has an opening (6, 7),
- ii) the said igniter (8) is fixed in one of the said openings (6),
- iii) a nozzle (16, 19), itself closed by a closure cap (18), is fixed in the other opening (7),
- iv) the said pyrotechnic charge is in the form of a block perforated with a plurality of channels (24) which are parallel to the axis (25) of the said block, which itself is placed between the igniter (8) and the nozzle (16, 19) so that the said channels (24) are parallel to the axis (26) of the generator body,
- v) in the same transverse plane, the centres of the peripheral channels of the block (20) are not all equidistant from the centre (25) of the said block but are distributed alternately, in this plane, on two separate concentric circles (28, 29), and
- vi) the pyrotechnic charge comprises a material selected from the group consisting of a pyrotechnic composition based on nitrocellulose and nitroglycerine, and a plastic-bonded pyrotechnic composition essentially including a silicone resin as binder and a mixture of ammonium perchlorate and sodium nitrate as energetic charge.

5,804,761

WATER COOLED DC BUS STRUCTURE

Kevin J. Donegan, Merrimack, N.H.; Dennis E. Hartzell, Wertzog, and Gary P. Millas, Avon, both of Conn., assignors to Chrysler Corporation, Auburn Hills, Mich.

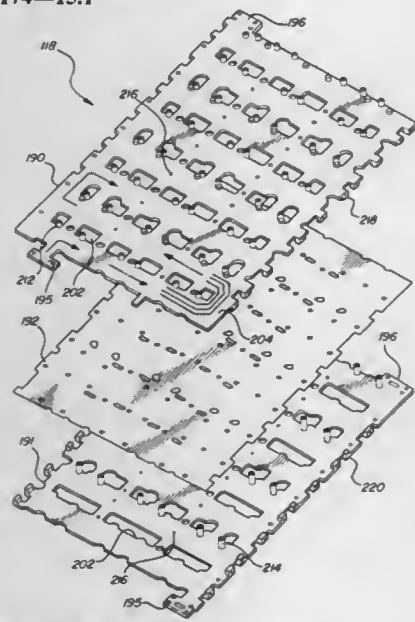
Continuation of Ser. No. 641,921, May 2, 1996, abandoned.

This application Aug. 8, 1996, Ser. No. 695,091

Int. Cl.⁶ H02B 1/21

U.S. Cl. 174—15.1

11 Claims



1. An electrical bus assembly comprising:
a first conducting plate establishing a positive signal, wherein said first conducting plate includes apertures formed therein, and a plurality of first contact posts extending therefrom on a first contact surface thereof;
a second conducting plate establishing a negative signal; and
an insulation layer sandwiched between said first and second conducting plates and fixedly secured therewith;
at least one of said conducting plates including fluid passages extending within said one plate allowing fluid to circulate therein.

5,804,762

EMI SHIELDING GASKET HAVING SHEAR SURFACE ATTACHMENTS

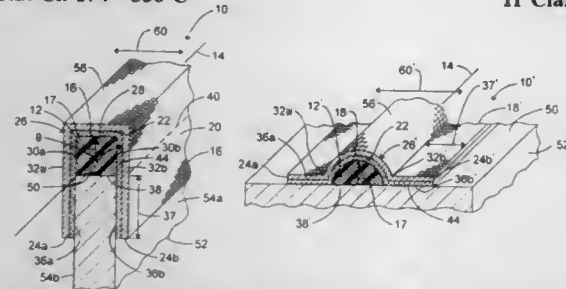
Peter M. Jones, Londonderry, and Joseph C. Houle, Salem, both of N.H., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Sep. 27, 1996, Ser. No. 720,104

Int. Cl.⁶ H05K 9/00

U.S. Cl. 174—356 C

11 Claims



1. An electromagnetic interference (EMI) shielding gasket mountable on a substrate having at least one surface, said gasket being compressible intermediate the substrate surface and a mating surface and comprising:
a resilient, elongate core member extending lengthwise along a central longitudinal axis and having an outer circumferential surface defining a cross-sectional profile;

an electrically-conductive outer member having an inner and an outer surface and extending from a first distal end to a sheathing portion, said sheathing portion of said outer member covering a portion of the circumferential surface of said core member and extending from a first proximal end to a second proximal end, said first distal end of said outer member and said first proximal end of said sheathing portion thereof defining a first inner shear surface therebetween for attachment to the substrate, the uncovered portion of the circumferential surface of said core member defining an interface surface for disposing on the surface of said substrate; and an adhesive layer disposed on the inner surface of said outer member, said adhesive layer bonding said sheathing portion of said outer member to the circumferential surface of said core member and covering at least a portion of said first inner shear surface for the attachment of said first inner shear surface to the substrate.

5,804,763

WALL PANEL ASSEMBLY WITH ELECTRICAL OUTLET

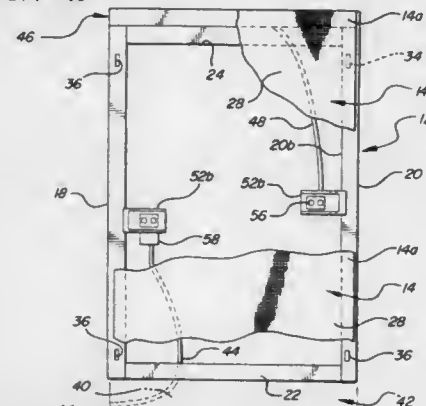
Paul Allen Smeenge, Ada, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed Jan. 13, 1997, Ser. No. 782,366

Int. Cl.⁶ H02G 3/10

U.S. Cl. 174—48

4 Claims



1. A wall panel assembly comprising:
an open frame structure defined by four frame members arranged in a rectangular configuration including two vertical side frame members;
a front panel insert removably secured to a front face of the frame structure and defining a cutout;
a rear panel insert removably secured to a rear face of the frame structure;
a bracket secured at one end thereof to one frame member of said frame members;
an electrical outlet connected to another end of the bracket and positioned in the cutout;
the front panel insert having a laminar construction including a relatively rigid board and a layer of relatively loose insulation material at a rear face of the board;
the cutout in the front panel insert extending through the board and through the loose insulation material;
the other end of the bracket being positioned against the rear face of the board in the cutout in the loose insulation material and defining an opening;
the panel assembly further including an adaptor plate extending through the bracket opening, positioned in the cutout in the board, and including an opening;
the laminar panel construction further including a fabric covering a front face of the board; and
the fabric having a cutout generally corresponding in size and configuration to the adaptor plate opening.

5,804,764

TWO-PIECE SIDING BOX

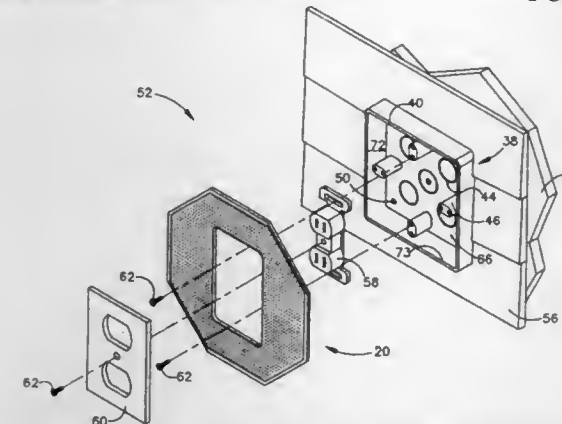
Thomas J. Gretz, Clarks Summit, Pa., assignor to Arlington Industries, Inc., Scranton, Pa.

Filed Mar. 24, 1995, Ser. No. 410,096

Int. Cl.⁶ H01H 9/02

U.S. Cl. 174—53

1 Claim



1. A two-piece siding box and cover assembly comprising:
a box having a rear wall including a front surface;
an integral continuous peripheral wall having an inner surface and an outer surface extending perpendicular to said rear wall from said front surface;
an integral flange extending outwardly of said peripheral wall of said box in the same plane as said rear wall;
breakaway grooves in said rear wall for removing said flange from said box at a position located immediately outside said peripheral wall;
a cover for said box including a back surface and an outer periphery; and
an integral continuous wall extending perpendicular to said back surface of said cover, said continuous wall of said cover dimensioned such that it may be received within said peripheral wall of said box whereby an outer surface of said continuous wall of said cover is contiguous to said inner surface of said peripheral wall of said box.

5,804,765

CABLE MANAGEMENT ENCLOSURE

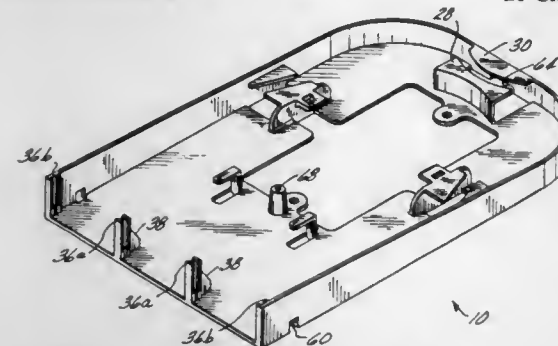
John A. Siemon, Woodbury; Michael J. Gesmondi, Thomaston; Robert C. Carlson, Jr., Torrington, all of Conn., and Conrad L. Ott, Port Jefferson Station, N.Y., assignors to The Siemon Company, Watertown, Conn.

Filed May 23, 1996, Ser. No. 652,852

Int. Cl.⁶ H01R 23/02

U.S. Cl. 174—65 R

20 Claims



5. A cable management enclosure comprising:
a cable tie down for providing a location at which to restrain a cable entering said cable management enclosure;
an angled cable retainer for limiting movement of the cable within said cable management enclosure;
a curved cable retainer for limiting movement of the cable within said cable management enclosure;

a plurality of posts each having a channel formed therein to define a plurality of channels; and
an adapter plate having a rib formed on each end thereof, each said rib engaging a respective one of said channels to slidably mount said adapter plate to said posts;
wherein said adapter plate is reversible.

5,804,766

Patent Not Issued For This Number

5,804,767

ELECTRICAL INTERCONNECTORS

Phillip Roland Winfield; David Ions, both of Swindon, England; James Patrick Reed, Redwood City, Calif.; Christian Kiermaier, Ottobrunn, Germany, and Brian Clark, Brisbane, Calif., assignors to Raychem Limited, Swindon, United Kingdom

PCT No. PCT/GB95/01624, § 371 Date Apr. 21, 1997, § 102(e) Date Apr. 21, 1997, PCT Pub. No. WO96/02080, PCT Pub. Date Jan. 25, 1996

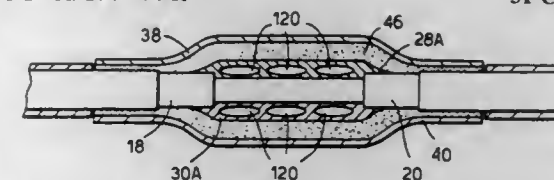
PCT Filed Jul. 10, 1995, Ser. No. 765,990

Claims priority, application United Kingdom, Jul. 11, 1994, 9414038

Int. Cl.⁶ H02G 15/08

U.S. Cl. 174—74 R

31 Claims



1. An enclosure arranged to enclose a connection between two electrically conductive components, the enclosure comprising a housing and an electrically conductive polymeric member disposed therein, the conductive polymeric member being arranged, in operation, to make electrical contact with an sealingly enclose the connection, wherein a space between the conductive polymeric member and the housing is, in operation, substantially filled with a compressible sealant material, and wherein the conductive polymeric member is resilient, substantially to prevent, in operation, the formation of voids within the housing outside the conductive polymeric member and further wherein the conductive polymeric member has at least one void or gaseous entrapment completely contained within the conductive polymeric member, the at least one void or gaseous entrapment being subject to the pressure of the sealant material via the resilient conductive polymeric member.

5,804,768

FLAT SURFACE-MOUNTED MULTI-PURPOSE WIRE

Robert Jay Sexton, 20506 Comfort Ct., Ashburn, Va. 22011

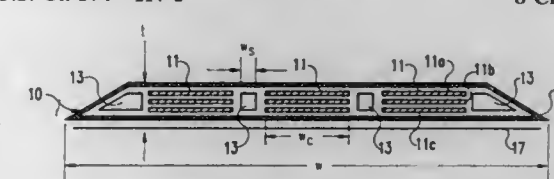
Continuation of Ser. No. 465,466, Jun. 5, 1995, abandoned.

This application Jan. 3, 1997, Ser. No. 775,941

Int. Cl.⁶ H01B 7/08

U.S. Cl. 174—117 F

8 Claims



1. A surface mounted, flexible, loud speaker wire, comprising:
a plurality of flat elongated conductors spaced about 0.2–0.3 inches apart in a generally parallel relationship, wherein each

of said flat conductors comprises three copper layers, each of said copper layers being about 0.002 inches thick and about 0.6-0.8 inches wide;
an adhesive material separating said plurality of flat conductors;
and
an insulation layer surrounding said plurality of flat conductors and said adhesive material, said adhesive material bonding to the insulation layer,
wherein a cross-sectional height of said flat conductors and insulation layer is about 0.008 inches, such that the loud speaker wire will blend in with a surface when painted or after wallpaper is applied, and wherein said loud speaker wire is equivalent to 10 gauge stranded wire.

5,804,769

TELEPHONE LINE PROTECTION DEVICE

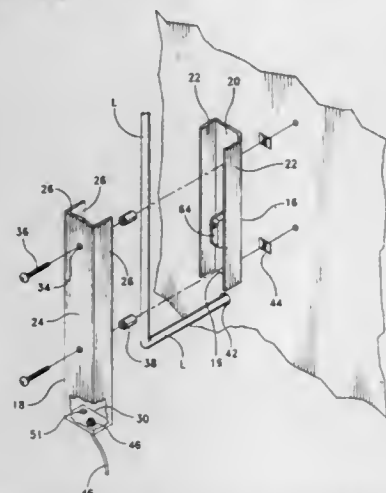
Carmen G. Morena, 48 Columbus Ave., Providence, R.I. 02908

Filed Aug. 29, 1996, Ser. No. 705,492

Int. Cl.⁶ H01B 7/24

U.S. Cl. 174-136

1 Claim



1. A tamper resistant guard device for wires adapted to extend across the outer wall surface of a building from a first point along a path of finite distance prior to extending through the outer wall surface into interior portions of the building via an opening provided in such outer wall at a second point on such outer wall removed from said first point comprising, a two-part sleeve structure including a first elongated base member having a lower wall adapted for placement directly against the building outer wall surface and beneath said wire along at least a significant portion of said finite distance to a point adjacent to but slightly short of said building outer wall opening at said second point, an elongated second member adapted to overlie said base member, said second member having an upper wall and downwardly extending side walls and with the second member said upper wall adapted for face-to-face positioning over said base lower wall and above said wire so as to form an enclosure for said wire between said members along said portion of said finite distance, said second member extending beyond both the first member at said second point and said building outer wall opening and fastening means passing through both said first and second member lower and upper walls respectively and into said building outer wall so as to both connect said members together and fasten said device to said building, wherein both said first and second members being of U-shaped cross section with said first member having a pair of side walls upstanding from said bottom wall, the lateral width of said second member being slightly greater than that of said first member such that the second member is positioned in telescoped relationship above said first member with the respective side walls

of each member contacting each other, said second member including a bottom wall connecting said upper and side walls at the end thereof proximal to said building wall opening, the opposite end of both said second member and said first member being normally open for receipt of said wire, said normally open end of said members being plugged with a waterproof material to prevent rain water from entering said wire enclosure, said bottom wall of said second member further including a drain opening.

5,804,770

COVER EQUIPPED ELECTRICAL CONNECTION DEVICE AND A COVER FOR AN ELECTRICAL CONNECTION DEVICE

Tsutomu Tanaka, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd.

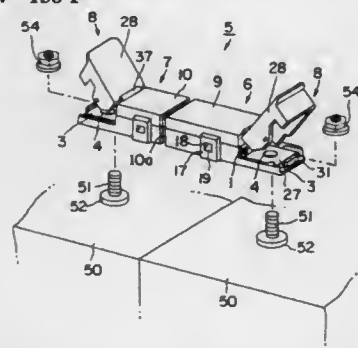
Filed Aug. 23, 1996, Ser. No. 702,828

Claims priority, application Japan, Sep. 19, 1995, 7-266259; Oct. 11, 1995, 7-290457

Int. Cl.⁶ H01B 17/00

U.S. Cl. 174-138 F

5 Claims



1. A cover equipped electrical connection device comprising:
an electrical connection terminal (1; 1a) having connection members (3) at opposite ends of a woven deformable conductor (2) and being connectable to two spaced electrical posts (51); and
a cover (5) for covering the electrical connection terminal (1; 1a), the cover (5) comprising a substantially tubular insertion portion (9, 10) into which the conductor (2) of the electrical connection terminal (1; 1a) is insertable, the insertion portion (9, 10) comprising a first insertion portion (9) and a second insertion portion (10), said second insertion portion (10) being slidably received within the first insertion portion (9), each of said first and second insertion portions (9, 10) comprising at least one fixed portion (12, 22) and at least one movable portion (13, 23) movably connected to the fixed portion (12, 22) so that said first and second insertion portions (9, 10) are openable so that the electrical connection terminal (1; 1a) can be inserted laterally, and said cover (5) further comprising receptacles (8) provided at opposite ends of the substantially tubular insertion portions (9, 10) for accommodating the connection members (3), each said receptacle (8) comprising a bottom portion (27) with a window (30) dimensioned for receiving one of said electrical posts (51) and a lid (128) movable relative to said bottom portion (27) from an open position where said connection members (3) and said electrical posts (51) are accessible to a closed position where said connection members (3) and said electrical posts (51) are substantially surrounded and enclosed and wherein slidable movement of said first and second insertion portions (9, 10) enables selective shortening of the cover (5) such that the distance between the receptacles (8) is adjustable.

5,804,771

ORGANIC SUBSTRATE (PCB) SLIP PLANE "STRESS DEFLECTOR" FOR FLIP CHIP DEVICES

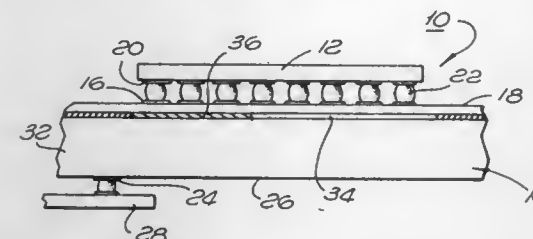
John F. McMahon, Phoenix, and Ravi Mahajan, Tempe, both of Ariz., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 26, 1996, Ser. No. 721,268

Int. Cl.⁶ H05K 1/03

U.S. Cl. 174-255

9 Claims



1. A substrate for an integrated circuit package assembly, comprising:
a substrate which has a plurality of bond pads, said substrate including a first layer that is attached to a second layer such that there is an area adjacent to said bond pads where said first layer is unattached to said second layer, and
a shim that is located in said unattached area.

5,804,772

APPARATUS AND METHOD FOR DISPENSING BATCHES OF ARTICLES

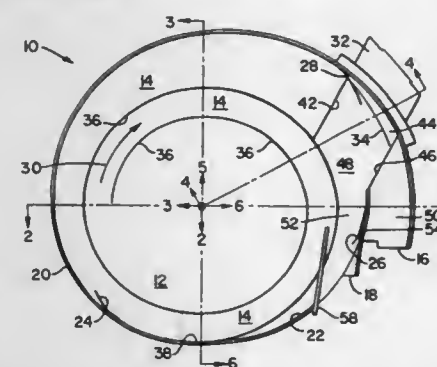
Donald R. Wooldridge, Dunkirk, and John L. Ditman, Buckeystown, both of Md., assignors to Batching Systems, Inc., Owings, Md.

Filed Oct. 4, 1996, Ser. No. 726,218

Int. Cl.⁶ G01G 13/02; B65G 27/02

U.S. Cl. 177-116

18 Claims



1. Apparatus for receiving a plurality of individual articles and for feeding and dispensing the articles in predetermined batches, said apparatus comprising:
a. a feeder bowl for receiving a plurality of articles to be arranged in predetermined batches, the bowl including a spiral track along which articles within the bowl are caused to move by vibrating the bowl, the bowl including a first discharge port and a second discharge port, wherein the track includes a narrow ledge upstream of the first discharge port to pass articles individually in single file order and the track upstream of the second discharge port has a width to pass articles to the second discharge port in a stream containing a plurality of articles;
b. an intermediate receiver positioned to receive articles discharged from the first and second discharge ports, the intermediate receiver including a first discharge chute for receiving articles discharged from the first discharge port and a second discharge chute for receiving articles discharged from the second discharge port, wherein each of the first and second discharge chutes includes a respective chute outlet

door operable to control the flow of articles from the respective discharge chutes; and
c. a weighing device positioned to receive articles discharged from the first and second discharge chutes of the intermediate receiver, the weighing device including a container and a weighing means associated with the container for sensing the weight of the container and its contents.

5,804,773

SIMPLIFIED TOUCH SCREEN WITH IMPROVED POSITION ACCURACY

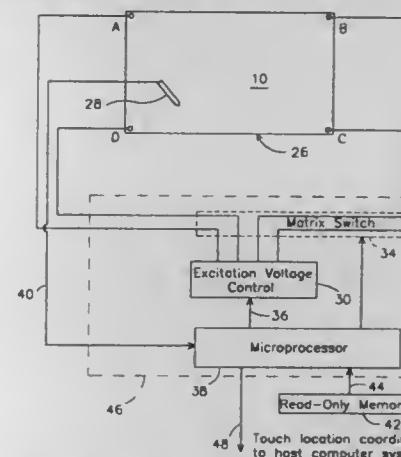
Geoffrey D. Wilson, and Jeffrey L. Sharp, both of Knox County, Tenn., assignors to Elo TouchSystems, Inc., Oak Ridge, Tenn.

Filed Feb. 16, 1995, Ser. No. 389,911

Int. Cl.⁶ G08C 21/00; G09G 3/02

U.S. Cl. 178-19

17 Claims



1. A touch screen system to generate signals representing the x- and y-coordinates of a position contacted thereon, said touch screen system comprising:
a resistive surface defined by a first pair of oppositely disposed edges and a second pair of oppositely disposed edges arranged orthogonally with said first pair of edges;
a set of electrodes electrically in contact with said resistive surface, each electrode of said set of electrodes positioned proximate intersections of said first and second pairs of oppositely disposed edges; and
means connected to said set of electrodes for repetitively generating, in separate time intervals,
a) a transverse voltage gradient between a pair of oppositely-disposed edges of said resistive surface, and
b) at least one diagonal voltage gradient between a pair of diagonally-disposed corners of said resistive surface;
whereby equipotential lines created by said transverse and diagonal voltage gradients throughout said resistive surface intersect in a nearly perpendicular orientation throughout a major portion of said resistive surface.

5,804,774

PORTED REFLEX HORN

Robert B. Ford, Cromwell, and Thomas J. Bekasi, Meriden, both of Conn., assignors to Whelen Engineering Company, Inc., Chester, Conn.

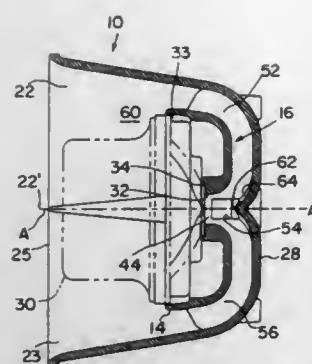
Filed Nov. 20, 1996, Ser. No. 752,874

Int. Cl.⁶ H05K 5/00

U.S. Cl. 181-152

14 Claims

1. A ported reflex horn for use with a compression driver of the type having a throat, said horn comprising:
a unitary outer housing, said housing including plural generally planar side walls which cooperate to define a central axis, adjacent pairs of said side walls defining corners of said



housing, said housing having an open discharge end and an oppositely disposed closed second end;
driver reception means for supporting a compression driver within said outer housing with the throat of the driver oriented generally coaxial with said central axis and facing said second end of said outer housing, said driver reception means being integral with said housing and defining an aperture coaxial with said central axis and in registration with the driver throat;
guide means for directing sound waves which exit the throat of the compression driver and pass through said aperture to said discharge end of said housing, said guide means being integral with said reception means and said outer housing and cooperating therewith to define a plurality of smooth walled discrete ports which extend downstream in the direction of sound wave travel from said aperture, said ports having a generally rectangular cross-section and following non-linear paths of substantially identical length and cross-section, the cross-section of said ports increasing in the downstream direction to discharge ends thereof, said port discharge ends being located within said outer housing; and
divider means extending from said housing second end toward said aperture, said divider means being coaxial with and symmetric about said central axis, said divider means cooperating with said guide means and said reception means to define the entrance ends of said ports, said port entrance ends being juxtapositioned to said aperture and in communication therewith via a common chamber whereby sound waves emanating from a driver received in said reception means and entering said common chamber are immediately divided into plural constituent sound waves which are recombined downstream of the discharge ends of said ports and upstream of the discharge end of said housing.

5,804,775

LIGHT WEIGHT SHELL ACOUSTIC ENCLOSURE

Roger J. Pinnington, Southampton, United Kingdom, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, Hants, United Kingdom
PCT No. PCT/GB95/01210, § 371 Date Nov. 26, 1996, § 102(e)
Date Nov. 26, 1996, PCT Pub. No. WO95/33135, PCT Pub. Date Dec. 7, 1995
PCT Filed May 24, 1995, Ser. No. 750,106

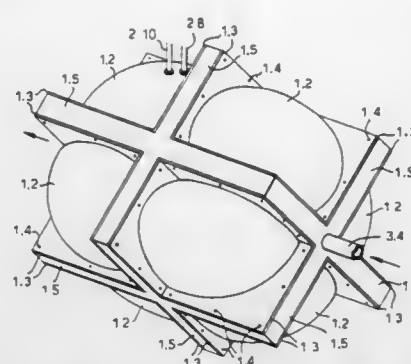
Claims priority, application United Kingdom, May 26, 1994, 9410609

Int. Cl. G10K 11/04

U.S. Cl. 181—200

10 Claims

1. A light weight acoustic enclosure for the reduction of noise transmission through the air from noise sources having monopole, quadrupole and higher order poles at frequencies lower than an approximate ring frequency of the enclosure; wherein the enclosure comprises a plurality of spherical shell elements connected together to form a hollow enclosure, said hollow enclosure encases said noise source, further including structural vibration isolation means between said noise source and said enclosure; wherein each spherical shell element comprises a stiff material such that stretch-



5,804,776
VIBRATORY ENERGY DISSIPATION
F. Peter Bizlewicz, 1209 Pines Lake Dr. West, Wayne, N.J. 07470
Filed May 22, 1997, Ser. No. 861,794
Int. Cl. F16F 15/00; F16M 3/00
U.S. Cl. 181—207 15 Claims

1. A coupling device for interposition between a component of a sound reproduction system and a supporting structure for the transmission and dissipation of vibratory energy generated within the component while isolating the component from vibratory energy emanating from the support structure, the coupling device comprising:

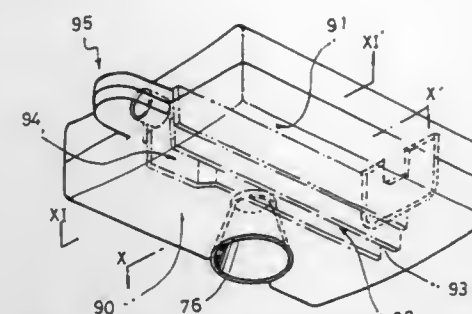
- a block having a perimeter, an upper surface and a lower surface;
- a basal portion located along the lower surface of the block;
- a matrix at the basal portion, the matrix providing a contact area along the basal portion, the contact area being less than the area of the lower surface;
- a depression in the upper surface; and
- a rolling member in the depression for placement between the component and the block to transmit vibratory energy from the component to the block for dissipation at the lower surface of the block, while isolating the component from vibratory energy emanating from the support structure.

5,804,777

SUCTION NOISE MUFFLER FOR HERMETIC COMPRESSOR

Tae Min Kim, and Sang Min Lee, both of Kyungsangnam-Do, Rep. of Korea, assignors to LG Electronics Inc., Rep. of Korea
Filed Oct. 30, 1996, Ser. No. 739,171
Claims priority, application Rep. of Korea, Nov. 2, 1995, 1995/39367; Dec. 26, 1995, 1995/56432
Int. Cl. F02M 35/00; F01N 1/08
U.S. Cl. 181—229 2 Claims

- 1. A suction noise muffler for a hermetic compressor, comprising:
 - an upper casing having an outer wall and a plurality of inner walls arranged within the outer wall, wherein said upper casing comprises:



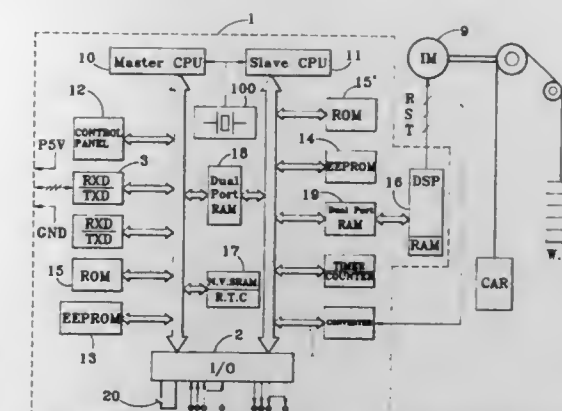
- a first protrusion protruding from an outer portion of the outer wall;
 - a first inner wall vertically arranged in the upper casing, with an upper end thereof being integrally connected to the first protrusion, and with a lower end thereof being extended by a predetermined length;
 - a second inner wall extending parallel to the first inner wall and having a curved portion at a predetermined portion thereof, with a predetermined separation being formed between the first and second inner walls; and
 - a third inner wall formed between one side of the outer wall and an outer side of the first inner wall and having a first inlet/outlet hole formed in a predetermined portion of the third inner wall, through which a refrigerant gas flows; and
 - a lower casing in which the upper casing is intersectingly inserted, for thus forming a refrigerant gas flowing path and a plurality of noise reducing sections when the upper casing and lower casing have been assembled,
- wherein said lower casing comprises:
- a second protrusion protruding from an outer portion of the outer wall;
 - a fourth inner wall vertically arranged in the lower casing, with an upper end thereof being integrally connected to the second protrusion, and with a lower end thereof being extended by a predetermined length;
 - a fifth inner wall extending parallel to the second inner wall and having a curved portion at a predetermined portion thereof, with a predetermined separation being formed between the fourth and fifth inner walls; and
 - a pair of spaced-apart sixth inner walls formed between one side of the outer wall and an outer side of the fourth wall and having a second inlet/outlet hole formed in a predetermined portion of the sixth inner wall, through which the refrigerant gas flows, whereby the upper casing is substantially and tightly insertable into the lower casing by inserting the first and second walls of the upper casing and the third wall between the fourth and fifth walls and between the spaced-apart sixth walls, respectively, forming a pipe shaped refrigerant gas flow path.

5,804,778

ELEVATOR CONTROL DATA INTERCOMMUNICATION PROGRAMMER

Ching-Mau Chen, Taipei Hsien; Tzu-Yuan Lin, I Lan; Chin-Chang Wu, Changhua Hsien; Liao-Chia Chang, Keellung; Hsin-San Chang, Taipei Hsien, and Wen-Wei Chuang, Taipei, all of Taiwan, assignors to Yungtay Engineering Co., Ltd., Taipei, Taiwan
Filed Dec. 27, 1996, Ser. No. 774,928
Int. Cl. B66B 1/28; G05B 15/00
U.S. Cl. 187—248 2 Claims

- 1. An elevator control data intercommunication programmer comprising a main board installed in an elevator, said main board comprising:
 - a master CPU and a slave CPU for controlling the operation of the elevator;
 - a master EEPROM (electrically erasable programmable read only memory) for providing operation data to said master CPU;

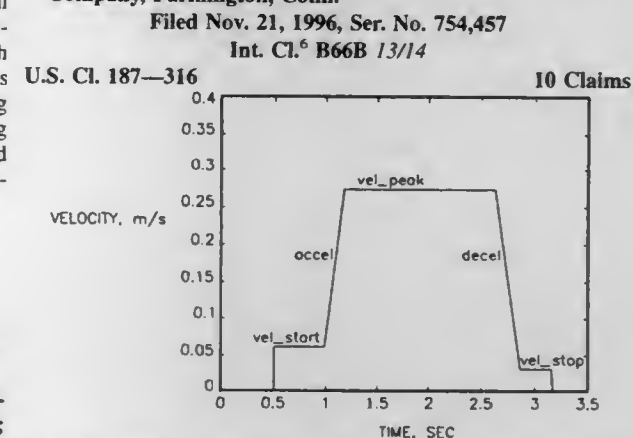


- a slave EEPROM (electrically erasable programmable read only memory) for providing operation data to said slave CPU;
- read only memory means for storage of an elevator control program;
- a DSP for controlling vector operation of an induction motor of the elevator; said DSP being able to access data from said slave EEPROM through a dual port RAM (random access memory) for operation;
- an oscillating signal source for providing an oscillating signal to said master CPU, said slave CPU and said DSP;
- a control panel for default value and mode setting;
- a dual port RAM (random access memory) for data communication between said master CPU and said slave CPU;
- a data communication port for data communication with an external microprocessor unit; and a N.V.SRAM (nonvolatile timekeeping random access memory) for storage of data read from said data communication port or data to be transmitted.

5,804,779

METHOD FOR GENERATING AND SCALING VELOCITY PROFILES FOR ELEVATOR CAR DOORS

Richard N. Fargo, Plainville, Conn., assignor to Otis Elevator Company, Farmington, Conn.
Filed Nov. 21, 1996, Ser. No. 754,457
Int. Cl. B66B 13/14 10 Claims



- 9. An elevator car door system for opening and closing an elevator car door, said elevator car door system comprising:
 - a door controller having software for scaling a position versus time profile to accommodate deviant door operations, wherein:
 - a distance scaling factor is determined according to the following:

$$K_{dist} = \frac{(X_{final} - X_{initial})}{X_{total\ profile}}$$

wherein X_{final} is the final targeted position of the doors, $X_{initial}$ is the position of the doors at the time the command

to move the doors is received, and $X_{total\ profile}$ is the total distance of the stored position versus time profile for the particular operation;
a time scaling factor is determined according to the following:

$$K_{time} = \frac{t_{total}}{t_{desired}}$$

wherein $t_{desired}$ is the desired time within which the door operation must be completed, and t_{total} is the total time of the stored position versus time profile for the particular operation; and

a position reference point to serve as an input to a closed loop feedback control system is determined according to the following:

$$X_{ref} = X_{initial} + X(t_n) \times K_{dis},$$

and

$$t_n = t_{n-1} + \Delta t \times K_{time},$$

wherein the X_{ref} is position reference and serves as an input into the position control system of what the desired position of the doors is, $X_{initial}$ is the position of the doors at the time the command to move the doors is received, $X(t_n)$ is a position of the doors on the stored position versus time profile at a specific time, t_n , K_{dis} is the distance scaling factor, t_n is the time for which the reference position, $X(t_n)$, is taken from the position versus time profile, t_{n-1} is the time for a previous iteration, Δt is the real time difference between the t_n and t_{n-1} , and K_{time} is the time scaling factor.

5,804,780

VIRTUAL TOUCH SCREEN SWITCH

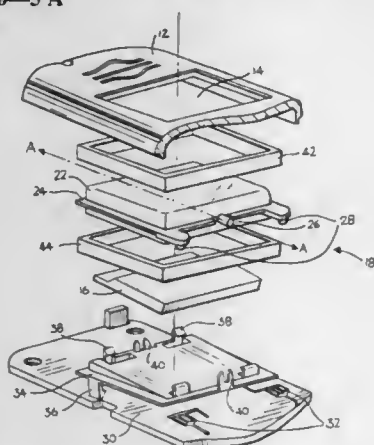
Istvan Bartha, Cary, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Dec. 31, 1996, Ser. No. 777,626

Int. Cl.⁶ H01H 13/70

U.S. Cl. 200—5 A

21 Claims

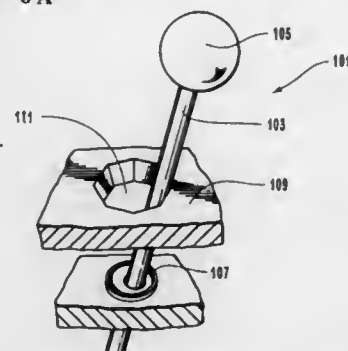


1. A virtual touch screen switch comprising:
a display assembly comprising a display apparatus;
a push window disposed over said display assembly, said push window being substantially transparent, wherein said push window is pivotable relative to said display assembly; and
at least one actuator coupled with said push window.

5,804,781
FEED-BACK CONTROL PLATE FOR JOYSTICK
Kenji Okabe, Tokyo, Japan, assignor to Perfect 360 Controls, Inc., Midvale, Utah
Filed Nov. 7, 1996, Ser. No. 745,898
Int. Cl.⁶ H01H 25/04

U.S. Cl. 200—6 A

18 Claims



1. Joy-stick control system comprising an eight-way joystick and a control structure, the joystick being fully functional as an eight-way joy-stick without the control structure and comprising:
control shaft having a handle end adapted for grasping and deflection of the control shaft by a user,
pivot defining a fixed point about which the control shaft is deflected at the handle end by the user,
the control shaft having a central neutral position and eight control sector positions spaced radially around the neutral position,
indicator that produces a distinctive electrical signal when the control shaft is in each of the control sector positions,
the control structure releasably attached to the joystick,
the control structure defining a deflection limit of the control shaft in an octagon shaped deflection pattern with eight corners, each of the corners corresponding to one of the eight control sector positions such that when the control shaft is deflected into any one of the eight corners the control shaft is positioned in the corresponding control sector position,
the control structure providing a smooth structure for unimpeded movement of the control shaft along the deflection limit between the corners with each of the corners providing tactile feedback to the user indicating that the control shaft is in the control sector position corresponding to the corner.

5,804,782

ELECTRICAL SWITCH HAVING A ROTARY MECHANISM FOR USE IN AN AUTOMOTIVE VEHICLE

LaVerne R. Newman, Southfield; James B. Wright, Warren, and LeRoy A. Poleschuk, White Lake, all of Mich., assignors to United Technologies Automotive, Inc., Dearborn, Mich.

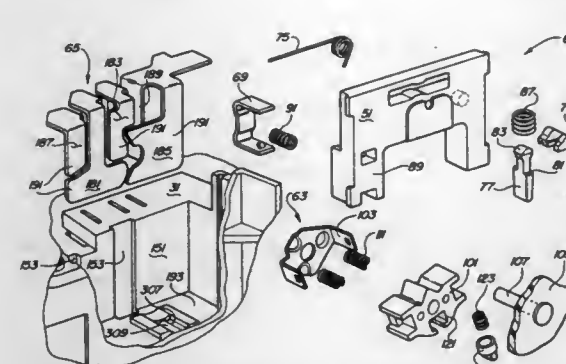
Filed Jun. 6, 1995, Ser. No. 473,570

Int. Cl.⁶ H01N 9/00

U.S. Cl. 200—61.27

23 Claims

1. An electrical switch for use in an automotive vehicle, said electrical switch comprising:
a rotary carrier supporting a conductive rotary contactor;
a main carrier movable in a linear direction;
a finger projecting from said main carrier;
said rotary carrier rotating in a first direction when said main carrier linearly moves toward said rotary carrier for engaging said finger with said rotary carrier a first time;
said rotary carrier remaining in a first rotated position when said main carrier linearly moves away from said rotary carrier a first time;
said rotary carrier rotating in a second direction when said main carrier linearly moves toward said rotary carrier for engaging said finger with said rotary carrier a second time;



said rotary carrier remaining in a second rotated position when said main carrier linearly moves away from said rotary carrier a second time;
a switch housing having a detent structure defined by at least two detent formations; and
a projection extending from said rotary carrier for movably engaging within one of said detent formations thereby maintaining said rotary carrier in said rotated positions.

5,804,783

AIR DAMPED CRASH SENSOR AND CONSTRUCTION METHOD THEREOF

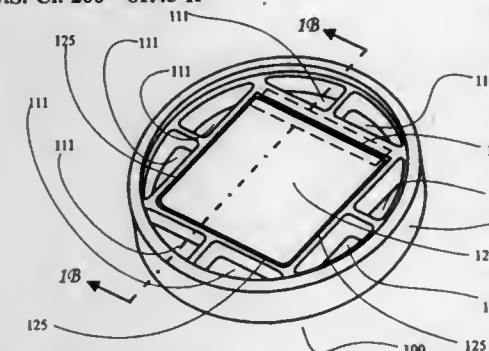
David S. Breed, Boonton Township, N.J., assignor to Automotive Technologies International, Inc., Boonton Township, Morris County, N.J.

Filed Jun. 7, 1995, Ser. No. 476,881

Int. Cl.⁶ H01H 35/14

U.S. Cl. 200—61.45 R

20 Claims



1. In a vehicle having a deployable passive restraint device, a sensor for detecting that said vehicle is experiencing a crash requiring deployment of said passive restraint device comprising:
(a) a housing having an inboard end, an outboard end and a main cavity within, said main cavity being defined by side walls;
(b) an inboard cover for closing said inboard end of said housing;
(c) an outboard cover for closing said outboard end of said housing;
(d) a mass disposed within said main cavity and rotatable relative to said housing from a first at rest position where said mass is adjacent to said inboard cover of said housing to a second triggering position, closer to said outboard end of said housing, in response to accelerations of said housing, a space being defined between said inboard cover and said mass on a first side of said mass, said mass in cooperation with said main cavity side walls forming a clearance there between, said clearance creating a restriction to flow of a fluid between the space on the first side of said mass closer to said inboard cover and a space on a second side of said mass closer to said outboard cover;
(e) a hinge insert molded into said mass and said housing permitting said mass to rotate within said main cavity;
(f) means defining at least one fluid storage cavity within said housing in fluid communication with said space between said inboard cover and said mass on said first side of said mass,

said at least one fluid storage cavity being arranged at a location other than between said mass and said inboard cover;
(g) an integral connector;
(h) a first contact means attached to said housing and coupled to said integral connector, extending within said main cavity and engaging and applying a force to said mass holding said mass at said first at rest position prior to a crash, said first contact means movable with said mass from said first at rest position to said second triggering position;
(i) means to prevent said first contact means from disengaging with said mass during an acceleration of 250 G's for 0.002 seconds; and
(j) a second contact means attached to said housing, extending within said main cavity and positioned to be engaged by said first contact means when said mass moves to said second triggering position to deploy the passive restraint device, said second contact means being coupled to said integral connector;
wherein, as said mass rotates relative to said housing in response to accelerations of said housing, a pressure difference is created between the space on the first side of said mass and the space on the second side of said mass which is gradually reduced by the flow of fluid through said clearance into the space between said mass and said inboard cover and from said at least one fluid storage cavity into the space between said mass and said inboard cover without passing through said clearance to thereby retard the motion of said mass.

5,804,784

LEVER SWITCH APPARATUS

Norio Uchiyama, and Yoshio Hattori, both of Tokyo, Japan, assignors to Sony Corporation, Japan

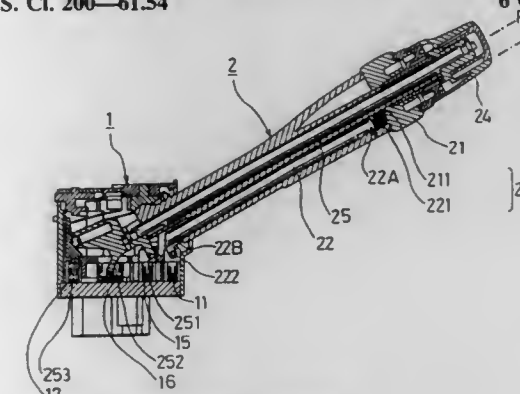
Filed Jun. 28, 1996, Ser. No. 672,914

Claims priority, application Japan, Jul. 5, 1995, 7-192426

Int. Cl.⁶ H01H 9/00; 3/16; 3/40

U.S. Cl. 200—61.54

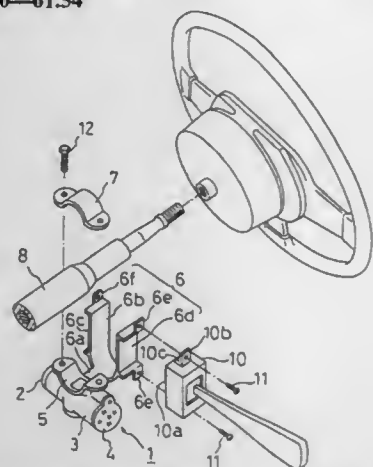
6 Claims



1. A lever switch apparatus comprising:
a switch body (1);
a lever (2) having a base end connected to the switch body (1);
a plurality of knobs (21, 24) rotatably mounted on said lever (2);
a plurality of shafts (22, 25) disposed axially within said lever (2) for movement relative to said lever (2);
a first one (22) of the shafts having a first end (22A) coupled to a first one (21) of said knobs via a transmission means (23, 23A) and a second end (22B) coupled to a first movable contact (11, 11A, 11B) provided in the switch body (1, 1A, 1B); and
a second one (25) of the shafts having a first end coupled to a second one (24) of said knobs and a second end coupled to a second movable contact (15) provided in the switch body.

5,804,785
MOUNTING CONSTRUCTION FOR SWITCHES FOR USE IN A VEHICLE
Norio Uchiyama, Tokyo, Japan, assignor to Niles Parts Co., Ltd., Japan

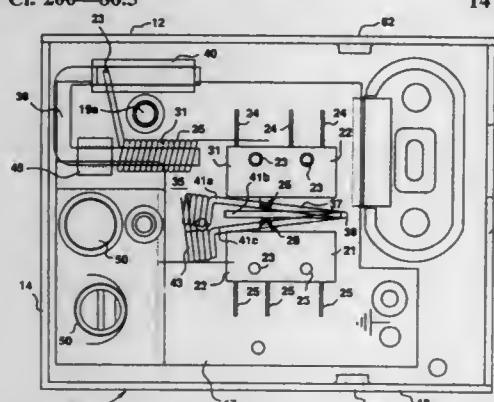
Filed Oct. 31, 1996, Ser. No. 742,835
Claims priority, application Japan, Nov. 1, 1995, 7-308125
Int. Cl.⁶ H01H 9/00
U.S. Cl. 200—61.54



1. A mounting construction for switches used in a vehicle, wherein an ignition key assembly adapted to be fixed to a steering column has a housing, an arm extending from said housing, and a pair of switch units secured to the arm, said arm having a pair of supports between which a steering column can extend, and the switch units being directly mounted to the supports for positioning on respective sides of a steering column.

5,804,786
SWITCH OPERATING MECHANISM
Ronald J. Braaten, 85 Braaten Hill Rd., Woodstock, Conn. 06281

Filed Sep. 25, 1996, Ser. No. 719,671
Int. Cl.⁶ H01H 3/14
U.S. Cl. 200—86.5

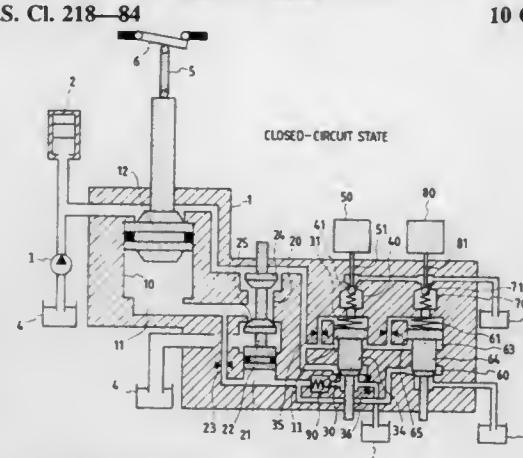


1. A switch actuator for electrical switches, valves and the like comprising
a spring member having an apex and first and second legs extending from said apex, each leg having a terminal end,
a frame supporting said spring and having at least one switch secured thereto, said switch having an operator therefor
said first leg of said spring having a terminal end engaging said frame,
said second leg of said spring having a portion thereof extending at an angle toward a position adjacent to the operator for said one switch,
the extending portion of said second leg having an end secured to the frame whereby movement of the apex of said spring

causes said portion of said second leg to move relative to said switch operator to effect operation thereof.

5,804,787
GAS CIRCUIT BREAKER AND LIQUID PRESSURE-DRIVING SYSTEM TO BE USED THEREFOR
Goro Daimon; Yasuhide Takeda, both of Hitachi; Tadahiko Nogami, Mito; Hideo Kawamoto, Hitachi; Hiroshi Maeda, Hitachi; Kouichi Sadou, Hitachi, and Hiroyoshi Sadamura, Jyuou-machi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 13, 1996, Ser. No. 746,571
Claims priority, application Japan, Nov. 20, 1995, 7-300935
Int. Cl.⁶ H01H 35/38
U.S. Cl. 218—84



1. A gas circuit breaker comprising
a breaker part,
a mechanical means for the operation of break and charge of the breaker part,
a liquid-pressure cylinder including a liquid-pressure piston in connection with the mechanical means,
a control valve system including a primary valve to switch liquid pressure of the liquid-pressure cylinder between a low pressure and a high pressure to effect a driving operation of the liquid-pressure piston,
an operation valve to switch the pressure of a primary pilot chamber of the primary valve between a low pressure and a high pressure to drive the primary valve,
a pilot valve controlling the operation valve,
a liquid-pressure source comprising a liquid-pressure pump and an accumulator for pooling an operation liquid under pressure for supply, and
a pilot valve driving system for switching passage of the control valve system based on a circuit opening or closing command from the control valve system,
wherein the pilot valve driving system is equipped with a closed-circuit pilot valve driving mechanism to be actuated based on the circuit closing command from the control valve system, a closed-circuit pilot valve to be opened and closed by means of the closed-circuit pilot valve driving mechanism, a closed-circuit operation first pilot chamber to be switched between a low pressure and a high pressure through the actuation of the closed-circuit pilot valve, and a closed-circuit operation valve to be driven by pressure switching of the closed-circuit operation first pilot chamber, and is also equipped with an open-circuit pilot valve driving mechanism to be actuated based on the circuit opening command from the control system, an open-circuit pilot valve to be opened and closed by means of the open-circuit pilot valve driving mechanism, an open-circuit operation first pilot chamber to be switched between a low pressure and a high pressure through actuation of the open circuit pilot valve, and an open-circuit operation valve to be driven by pressure switching of the open-circuit first pilot chamber, wherein the closed-circuit operation first pilot chamber is connected through a first

5,804,791

HEATING ELEMENT HAVING A SANDWICH STRUCTURE AND ELECTRONIC HOME APPLIANCE OF THE TYPE OF STEAM PRESSING IRON CONTAINING SUCH AN ELEMENT

Dominique Gelus, Eyzin-Pinet, France, assignor to SEB S.A., Sologne, France

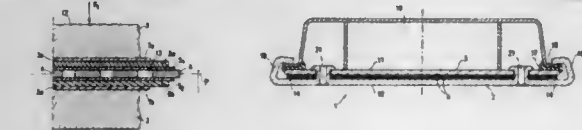
Filed Jan. 25, 1993, Ser. No. 8,101

Claims priority, application France, Jan. 24, 1992, 92 00970

Int. Cl.⁶ H05B 3/18; D06F 75/24

U.S. Cl. 219—245

17 Claims



1. In a heating structure for use in an appliance, the heating structure being a sandwich structure comprising: two rigid elements constituting external elements of the sandwich structure, with at least one of the rigid elements being a heating plate; a heating unit comprising an electrical resistance component disposed between the rigid elements for producing heat which is diffused through the rigid elements, said electrical resistance component having upper and lower parts and

said heating unit further comprises a primary layer of thermoplastic resin material into which said electrical resistance component is embedded so that said primary layer covers said upper and lower parts of said electrical resistance component, said electrical insulation material is composed of first and second layers of electrical insulation material which enclose said electrical resistance component and said primary layer of thermoplastic resin material, and said primary layer of thermoplastic resin material adheres to said layers of electrical insulation material;

said bonding means comprises a second layer of thermoplastic resin material disposed between, and adhering to, said heating plate and said first layer of electrical insulation material, wherein said primary layer and said second layer are each of a material selected to cause said heating structure to be permanently bonded at temperatures exceeding 180° C.; and said electrical insulation material has a composition different from that of said thermoplastic resin material.

5,804,792

GAS TUNGSTEN ARC WELDING FLUX

Troy D. Paskell, Hilliard, Ohio, assignor to Edison Welding Institute, Inc., Columbus, Ohio

Filed Apr. 9, 1996, Ser. No. 629,733

Int. Cl.⁶ B23K 9/167

U.S. Cl. 219—137 WM

11 Claims

TiO/Cr₂O₃/SiO₂

7. A method of joining two stainless steel components comprising the steps of
applying a thin layer of liquid flux over the joint, said liquid flux containing an oxide of titanium, Cr₂O₃, and SiO₂ in a liquid carrier,
and welding the components together using a gas tungsten arc welding torch

whereby said flux layer eliminates the variation in cross-sectional shape that results from heat-to-heat changes in the base metal chemistries of the stainless steel components being welded.

5,804,793

APPARATUS FOR HEATING RAILS DURING THE LAYING DOWN THEREOF

Bruno Faroldi, Via Berenini 119, I-43036 Fidenza, Italy

PCT No. PCT/EP95/03227, § 371 Date Apr. 18, 1996, § 102(e)

Date Apr. 18, 1996, PCT Pub. No. WO96/06981, PCT Pub.

Date Mar. 7, 1996

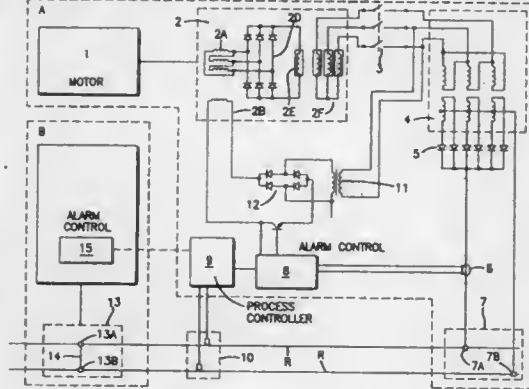
PCT Filed Aug. 14, 1995, Ser. No. 632,447

Claims priority, application Italy, Aug. 26, 1994, TO94A0679

Int. Cl.⁶ H05B 1/00; E01B 7/08

U.S. Cl. 219—201

8 Claims



1. Apparatus for simultaneously heating two rails (R) forming a track section, during the laying down thereof, which comprises: a railway car (A); a generator group (1-5) generating a direct current, mounted on said railway car (A); a pair of first contact vises (7) carried by said railway car (A), connected to an output of said generator group (1-5) and suitable for being tightened one on a first end of one of said two rails (R) and the other on a first end of the other of said two rails (R) forming the railway track section to be heated; a trolley (B); a pair of second contact vises (13) mounted on said trolley (13), connected to one another and suitable for being tightened one on a second end of one said two rails (R) and the other on a second end of the other of said two rails (R) forming the railway track section to be heated, opposite said first end; and means (8-12) for controlling the electric power delivered by said generator group (1-5) in order to produce in said railway track section to be heated a heating up to a prefixed temperature by passing electric power through said one rail in one direction and simultaneously through said other rail in an opposite direction.

5,804,794

IMAGE FIXING APPARATUS AND IMAGE FIXING ROLLER

Minoru Matsuo, Sagami, Japan; Toshio Kobayashi, Atsugi, and Yuichi Jibiki, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 17, 1996, Ser. No. 633,312

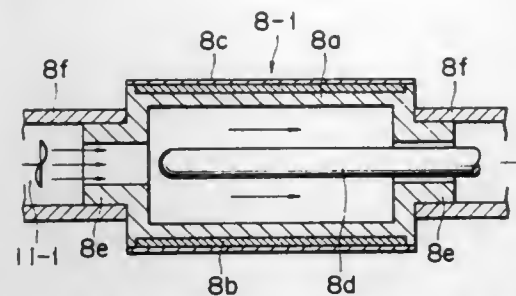
Claims priority, application Japan, Apr. 18, 1995, 7-116286; Apr. 18, 1995, 7-116288; May 18, 1995, 7-144130; Jun. 23, 1995, 7-157282; Oct. 30, 1995, 7-281315

Int. Cl.⁶ G03G 15/20

U.S. Cl. 219—216

46 Claims

1. An image fixing apparatus comprising:



an image fixing roller for thermally fixing images on an image receiving material at a predetermined image fixing temperature, said image fixing roller comprising (a) a core roller member; and (b) an exothermic phase transition layer provided on said core roller member, comprising an exothermic phase transition material capable of performing reversible phase transition from an amorphous state to a crystalline state and vice versa, and crystallizing at a crystallization temperature which is lower than said predetermined image fixing temperature, with liberation of crystallization heat therefrom, and said exothermic phase transition material having a melting point higher than said predetermined image fixing temperature, thereby additionally increasing the temperature elevation rate before the temperature of the outer peripheral surface of said image fixing roller reaches said predetermined image fixing temperature;

heating means for heating said image fixing roller so as to have the outer peripheral surface thereof reach and maintain said predetermined image fixing temperature;

first phase transition means for performing phase transition of said exothermic phase transition material from said amorphous state to said crystalline state by heating said exothermic phase transition layer for liberation of said crystallization heat therefrom;

second phase transition means for performing phase transition of said exothermic phase transition material from said crystalline state to said amorphous state via a melted state by cooling said exothermic phase transition layer for successive use of said crystallization heat thereafter by use of said first phase transition means; and

a pressure application roller which is rotated in contact with the peripheral surface of said image fixing roller, with the application of a predetermined pressure to said image fixing roller.

5,804,795

SOLDERING TIP HEAT ACCUMULATOR

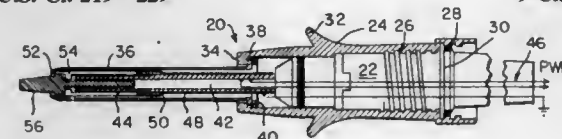
William S. Fortune, 29866 Cuthbert Rd., Malibu, Calif. 90265

Filed May 28, 1996, Ser. No. 654,053

Int. Cl.⁶ H05B 1/00

U.S. Cl. 219—229

9 Claims



1. A soldering tip heat accumulator comprising:

a substantially hollow cylindrical metallic body having a rear heater engagement portion and a forward soldering tip engagement portion, said portions being defined by and axially separated by a reduced diameter accumulating portion having a forward planar shoulder intended for disposition contiguously to a heater,

said rear heater engagement portion being terminated at its rear end by an inwardly conically tapered edge,

said forward tip engagement portion having an inwardly directed locking retaining shoulder disposed axially between its forward end and said forward planar shoulder for engaging positively the outer surface of a working soldering tip,

said hollow cylindrical body being formed with a first set of longitudinal slots extending through its said forward end to a point rearward of said accumulating portion and a second set of longitudinal slots extending through its said rear end to a point contiguous to said accumulating portion.

5,804,796

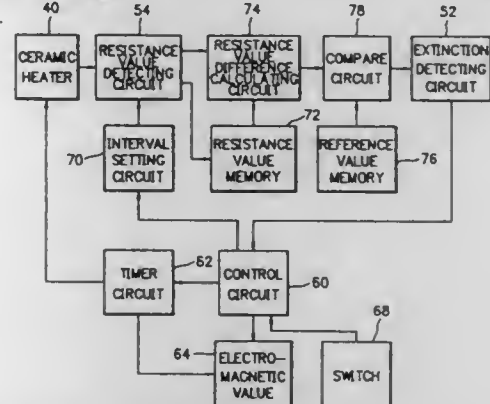
IGNITION SYSTEM WITH RESISTANCE VALUE DIFFERENCE FIRE EXTINCTION DETECTION CIRCUIT
Ichiro Kanesaka, 7-3-1-1014, Hikarigaoka, Nerima-ku, Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,241

Int. Cl.⁶ F23Q 7/12; F23N 5/00

U.S. Cl. 219—263

2 Claims



1. An ignition system comprising:
a heating resistive element used for an ignition;
an interval setting means for setting a predetermined time interval;
a resistance value detecting means for sensing a resistance value of the heating resistive element disposed in a fire at a predetermined time interval set by the interval setting means;
a memory means for storing a resistance value of the heating resistive element sensed by the resistance value detecting means;
a resistance value calculating means for calculating a difference between the resistance value of the heating resistive element sensed by the resistance value detecting means and a resistance value sensed before an elapse of the predetermined period of time stored in the memory means;
a comparing means for comparing the resistance value difference of the heating resistive element sensed at the predetermined time interval with a predetermined threshold value; and
an extinction detecting means for sensing a fire extinction according to a result obtained from the comparing means.

5,804,797

PTC PLANAR HEATER AND METHOD FOR ADJUSTING THE RESISTANCE OF THE SAME

Takashi Kalmoto, Osamu Nakano, Masanori Saito, and Koichi Inenaga, all of Fukuoka, Japan, assignors to Nippon Tungsten Co., Ltd., Fukuoka, Japan

PCT No. PCT/JP95/00095, § 371 Date Sep. 18, 1995, § 102(e)

Date Sep. 18, 1995, PCT Pub. No. WO95/20819, PCT Pub.

Date Aug. 3, 1995

PCT Filed Jan. 27, 1995, Ser. No. 522,366

Claims priority, application Japan, Jan. 31, 1994, 6-009932;

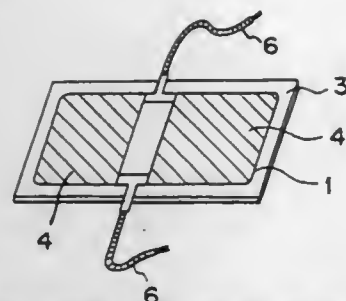
Jul. 7, 1994, 6-156156; Nov. 16, 1994, 6-282145

Int. Cl.⁶ H05B 1/02

U.S. Cl. 219—505

12 Claims

1. A PTC planar heater comprising:
an electrically insulating substrate;
a plurality of PTC ceramic sheets, each having a pair of electrodes formed thereon, said plurality of PTC ceramic sheets being bonded to said electrically insulating substrate; and



said pairs of electrodes being connected in parallel such that electrodes of said pairs of electrodes having a same polarity are connected.

5,804,798

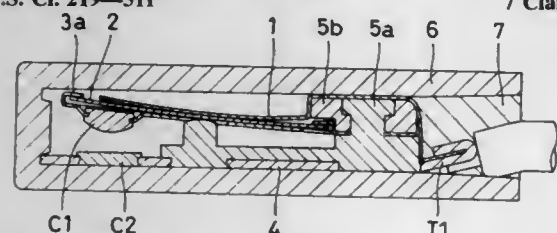
THERMAL PROTECTOR WITH BIMETAL PLATE
Hideaki Takeda, Misato, Japan, assignor to Uchiya Thermostat Co., Ltd., Mitsato, Japan

Filed Jan. 29, 1997, Ser. No. 790,889

Claims priority, application Japan, Jan. 29, 1996, 8-012693

Int. Cl.⁶ H05B 1/02

U.S. Cl. 219-511



1. A thermal protector comprising:

- a fixed plate having a fixed contact point at one end;
- a movable plate having a movable contact point at a position corresponding to the fixed contact point;
- a bimetal plate which bends when a temperature exceeds a specified level and deforms said movable plate so as to move said movable contact point to disconnect away from said fixed contact point;
- first and second terminals for connecting said fixed and movable plates with an external circuit; and
- a heating element connected to said first and second terminals, wherein said heating element is flexible and substantially flat and is arranged so as to follow the bending of the bimetal plate and to always physically contact a single surface of the bimetal plate.

5,804,799

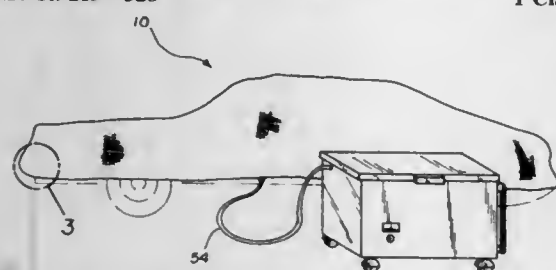
SNOW AND ICE MELTING SYSTEM
Pamela E. Stewart, 1095 N. Commerce Ter., Lecanto, Fla. 34461

Filed Nov. 21, 1996, Ser. No. 753,205

Int. Cl.⁶ H05B 3/34

U.S. Cl. 219-528

1 Claim



1. A snow and ice melting system for eliminating a need to brush and scrape snow and ice from vehicles and preventing dangerous snow and ice build-up on roofs comprising, in combination:

a foldable heating cover comprised of an exterior layer and an interior layer, the exterior layer being fabricated of nylon, the interior layer being fabricated of plastic, the nylon exterior layer protects the vehicle, the heating cover dimensioned for covering an automobile, the heating cover including a plurality of interconnected heating coils disposed within the interior layer, the plastic interior layer protects the heating element disposed therein, the heating coils having a plug receptacle extending outwardly of the heating cover;

a storage cart having a generally rectangular configuration, the cart having an open top, a closed bottom and opposed front, rear and side walls together forming an interior storage compartment, the open top having a lid hingedly secured thereto, the closed bottom having wheels disposed on corners thereof, the side wall having a pivoting U-shaped handle secured thereto, the storage compartment having a dividing wall disposed therein dividing the storage compartment into a large compartment and a small compartment, the large compartment dimensioned for receiving the heating cover in a folded configuration;

a pair of cooperating cords disposed within the small compartment of the storage cart, the pair of cooperating cords being in electrical communication with each other, the pair of cooperating cords including a first cord and a second cord, the first cord having a free end coupled with the plug receptacle of the heating cover, the second cord having a free end coupleable with an electrical outlet; and

a control assembly disposed within the front wall of the storage cart, the control assembly in communication with the pair of cooperating cords for adjustment of temperature of the heating cover.

5,804,800

TURN TABLE DRIVING APPARATUS OF MICROWAVE OVEN

Eung-Sup Lee, and Suk-Jin Han, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

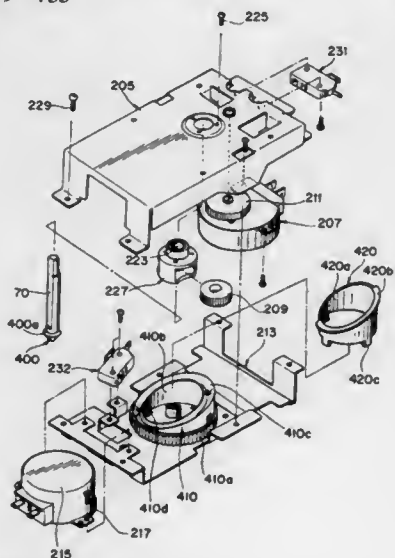
Continuation-in-part of Ser. No. 704,903, Aug. 30, 1996, abandoned. This application Feb. 3, 1997, Ser. No. 794,343

Claims priority, application Rep. of Korea, Aug. 31, 1995, 1995-23596; Oct. 5, 1995, 95-27841; Mar. 28, 1996, 95-8920; Apr. 19, 1996, 1996-12030

Int. Cl.⁶ H05B 6/78

U.S. Cl. 219-753

14 Claims



1. A microwave oven comprising:

- a cooking chamber;
- a microwave generator for supplying microwave to the cooking chamber;

5,804,802

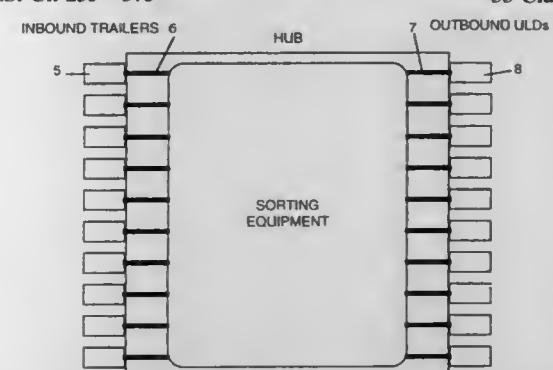
TWO-WAY DATA COMMUNICATION MANAGER
Jennifer M. Card, Watertown, and Kenneth M. Liberatore, Bethel, both of Conn., assignors to United Parcel Service of America, Inc., Atlanta, Ga.

Filed Feb. 14, 1996, Ser. No. 601,366

Int. Cl.⁶ G06F 15/20

U.S. Cl. 235-375

33 Claims



1. A distributed system for providing a load/no-load signal for items that have been sorted and conveyed to a plurality of positions in a sorting facility, comprising:

- a data communication manager associated with each of said positions;
 - an input device associated with each of said positions and operative to provide identification data from said items to said corresponding data communication manager; and
 - an output device associated with each of said positions and operative to receive a load/no-load signal from said corresponding data communication manager;
- wherein each of said data communication managers is operative to:
- store disposition data received from a host computer;
 - receive from said corresponding input device identification data identifying an item that has been sorted and conveyed to the position associated with said corresponding input device;
 - determine, based on said identification data and said stored disposition data, whether said item should be loaded into a unit load device for receiving items conveyed to said associated position; and
 - provide a load/no-load signal to said corresponding output device, said a load/no-load signal indicating whether said item should be loaded into said unit load device.

5,804,803

MECHANISM FOR RETRIEVING INFORMATION USING DATA ENCODED ON AN OBJECT

Brian John Cragun, and Wayne Jay Rothschild, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

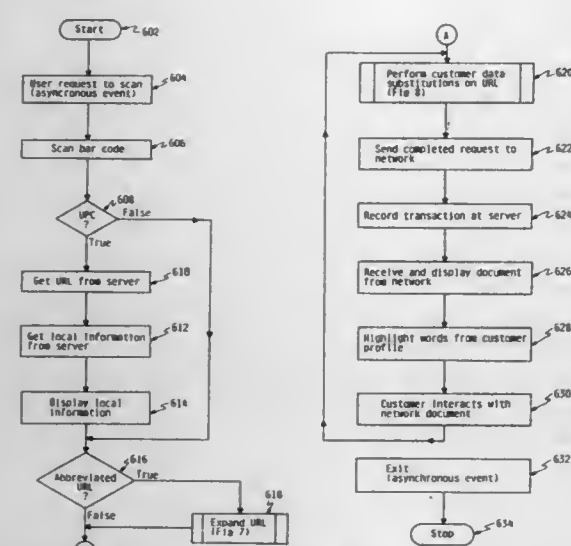
Filed Apr. 2, 1996, Ser. No. 627,744

Int. Cl.⁶ G06K 7/10; G06F 17/00; 7/00

U.S. Cl. 235-375

21 Claims

1. A method for adhesive bonding comprising the steps of:
- preparing an assembly of at least two articles, wherein at least one of said articles is electrically conductive, and wherein said articles have at least one common surface forming an interface to be bonded;
 - applying a polymeric adhesive to said interface between said common surfaces;
 - placing said assembly in a microwave heating apparatus including a microwave furnace including a multimode cavity; and
 - irradiating said assembly with microwaves of varying frequencies, said varying frequencies selected to avoid damage to said assembly from localized heating and arcing of said electrically conductive article, said varying frequencies defining a bandwidth of at least five percent of a center frequency, whereby a plurality of independent microwave modes are established within said multimode cavity, said plurality of modes being sufficient to allow microwave power to penetrate said interface, thereby heating said adhesive bond to effect curing.



transmitting said URL to said first server; and receiving said document from said first server wherein said document is different from said object.

5,804,804

DEVICE FOR SUPPLYING AND RECEIVING MEDIUM BETWEEN A PLURALITY OF APPARATUSES, CASH TRANSACTION SYSTEM WITH THE DEVICE, AND METHOD OF SUPPLYING AND RECEIVING THE MEDIUM

Kunio Fukatsu; Nobuhiko Matsukawa, both of Yokohama, and Shigeo Aoyagi, Hino, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, and Hirose Electronic System Co., Ltd., Tokyo, both of Japan

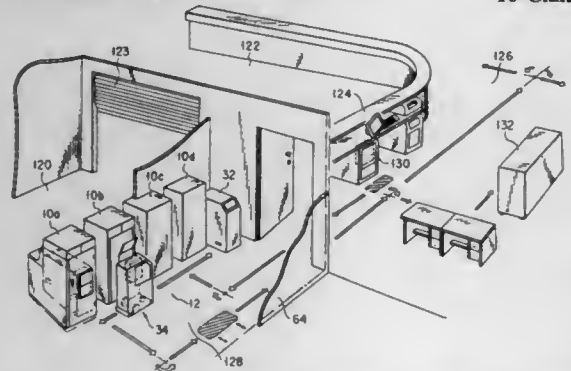
Filed Apr. 17, 1996, Ser. No. 633,447

Claims priority, application Japan, Apr. 19, 1995, 7-093851; Jul. 31, 1995, 7-194694

Int. Cl.⁶ G06F 17/60

U.S. Cl. 235—379

10 Claims



1. A device for supplying and receiving a medium to be handled to and from a plurality of apparatuses arranged on an installation surface and each having an insertion opening for the medium, the device comprising:

(A) means for transmitting, over a wireless channel, an instruction signal for designating any apparatus to and from which the medium is supplied and received; and

(B) a movable carrier for supplying and receiving the medium to and from the designated apparatus in accordance with the instruction signal, the movable carrier including:

(a) a carrier body for running on the installation surface along any path, without assistance of guides on the path, the carrier body having a pair of independently rotatable drive wheels, and driving means for rotating the drive wheels in the same direction to run the movable carrier in a linear

way and for rotating the drive wheels in directions opposite to each other to rotate the movable carrier at a given position,

(b) measuring means having a pair of distance measuring sensors arranged with a distance therebetween in a running direction of the carrier body and in a plane substantially perpendicular to the installation surface, for measuring distances between a measuring target surface and the respective distance measuring sections,

(c) a medium holding section provided on the carrier body, for holding the medium therein,

(d) supplying/receiving means provided on the carrier body, for transferring the medium between the medium holding section and the designated apparatus through the insertion opening, and

(e) control means for operating the driving means to run the movable carrier to a position facing the designated apparatus, for calculating the position and inclination of the movable carrier relative to the designated apparatus based on the distances measured by the measuring means, for detecting an amount of displacement of the movable carrier relative to a predetermined stop position in accordance with the calculated position and inclination, for correcting the displacement by linearly running and rotating the movable carrier by the driving means on the basis of the amount of displacement so as to position the movable carrier at the predetermined stop position, and for operating the supplying/receiving means, in accordance with the instruction signal,

wherein the movable carrier has

detecting means for detecting a position of the medium holding section relative to the insertion opening of the designated apparatus, and

position adjusting means provided on the carrier body, for adjusting the position of the medium holding section relative to the insertion opening of the designated apparatus, and

wherein the control means includes means for operating the position adjusting means in accordance with the result of detection by the detecting means.

5,804,805

HAND-HELD OPTICAL INDICIA READER HAVING A CONTROLLED OSCILLATING SYSTEM FOR OPTIMAL INDICIA READING

Steven E. Koenck; Phillip Miller, both of Cedar Rapids, Iowa, and George E. Hanson, Andover, Kans., assignors to Norand Technology Corporation, Wilmington, Del.

Continuation of Ser. No. 309,334, Sep. 19, 1994, Pat. No. 5,576,529, which is a continuation-in-part of Ser. No. 215,112, Mar. 17, 1994, Pat. No. 5,640,001, which is a continuation-in-part of Ser. No. 947,036, Sep. 16, 1992, Pat. No. 5,308,966, which is a continuation of Ser. No. 875,791, Apr. 27, 1992, abandoned, which is a continuation-in-part of Ser. No. 422,052, Oct. 16, 1989, abandoned, which is a division of Ser. No. 894,689, Oct. 8, 1986, Pat. No. 4,877,949. This application Nov. 19, 1996, Ser. No. 751,381

Int. Cl.⁶ G06K 7/10

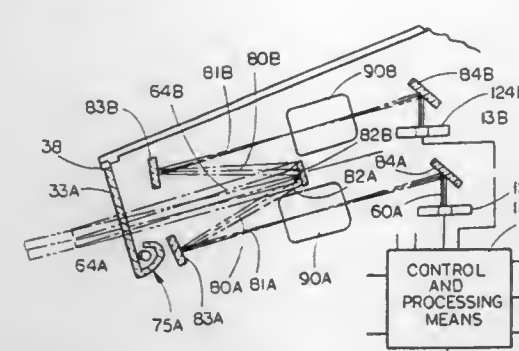
U.S. Cl. 235—462

3 Claims

1. An optical indicia reader for reading information encoded in optical indicia, said optical indicia reader comprising:

(a) a light source positioned within the indicia reader to illuminate an imaging area located externally of the reader;

(b) an oscillatory system positioned to scan a light beam generated by said light source over optical indicia to be read; and



(c) a controller capable of controlling said oscillatory system; wherein said controller is capable of directing said oscillatory system to become fixed in position so that the light beam is in a substantially fixed relationship to an aiming axis of the optical indicia reader.

5,804,806

DEVICE AND METHOD FOR PROCESSING CODED INFORMATION FOR BARCODE AND CHIP CARD

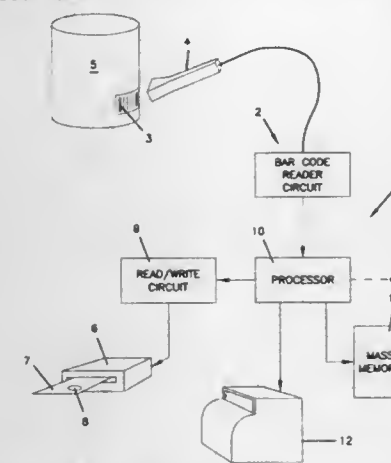
Aneace Haddad, Les Arcs sur Argens, and Bernard Chevalier, Marseilles, both of France, assignors to Marketlink, Aix-en-Provence, France

Filed Apr. 1, 1996, Ser. No. 625,340

Claims priority, application France, Apr. 7, 1995, 95 04162 Int. Cl.⁶ G06K 15/00; G06F 17/60

U.S. Cl. 235—383

9 Claims



1. Device for processing coded information, when purchasing an item from a retail outlet, comprising:

means for reading coded data from a chip card;
means for reading a barcode reproduced on the item;
means of storage of coded information relating to one or more items;

means for comparing the information read by the barcode reader means and information stored in said means of storage and relating to a series of prespecified items;

means for processing the results of these comparisons; and means configured so as to print an invoice automatically and which are controlled by the said means for processing the said results, wherein it includes means for writing a discount voucher or electronic image of the printed invoice to a memory of the chip card, information arising on the one hand from the results of these comparisons and on the other hand from date of purchase and

wherein the means for reading data from and writing information to the chip card are provided in respect of at least two different types of chip card and include means of identification of specific particulars and of acceptance or rejection of said chip cards on the basis of said specific particulars.

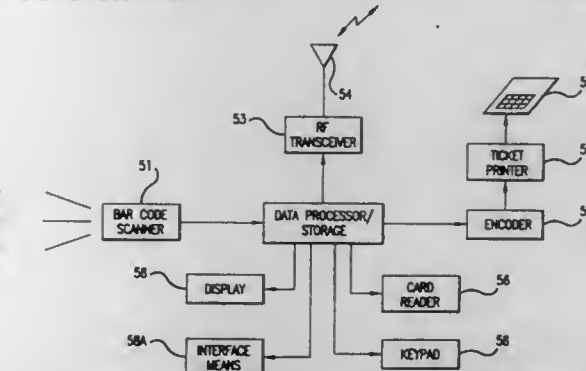
5,804,807 SCAN-AHEAD SYSTEM FOR PROCESSING MERCHANDISE AT A CHECKOUT REGISTER

Judith Murrah, St. James, and Michael Lanzaro, Lake Grove, both of N.Y., assignors to Symbol Technologies, Inc., Holtsville, N.Y.

Filed Sep. 12, 1996, Ser. No. 712,699 Int. Cl.⁶ G06K 15/00

U.S. Cl. 235—383

22 Claims



1. A method for processing a plurality of merchandise bearing a bar coded identifier from a customer at a checkout register utilizing a portable terminal having an integrated bar code reader, said method comprising the steps:

- initiating a pre-payment itemization transaction with the portable terminal;
- creating a customer data file upon the initiation of the pre-payment itemization transaction;
- decoding the bar coded identifier on one of the plurality of merchandise bearing a bar coded identifier with the portable terminal;
- updating the customer data file to include the one of the plurality of merchandise decoded in step c);
- placing a merchandise article associated with the decoded identifier into a securable storage container;
- repeating step c), d) and e) for each of the plurality of merchandise bearing a bar coded identifier;
- closing the storage container to prevent further additions or removals of the scanned merchandise from the storage container;
- associating a transaction identifier with the customer data file;
- entering the transaction identifier on a data entry device of the checkout register;
- making accessible the customer data file corresponding to the transaction identifier to the checkout register; and
- receiving payment at the checkout register.

5,804,808

Patent Not Issued For This Number

5,804,809

OPTICAL SYSTEM FOR SCANNING AND READING BAR CODES WHICH IS ADAPTED TO BE CONFIGURED IN A HAND HELD UNIT

Jay M. Eastman, Pittsford; Anna M. Quinn, Rochester; Scott R. Grodevant, Hilton, and John A. Boles, Fishers, all of N.Y., assignors to PSC Inc., Webster, N.Y.

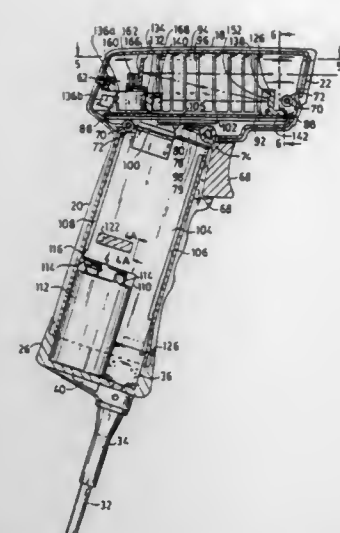
Continuation of Ser. No. 268,876, Jun. 30, 1994, Pat. No. 5,440,111, which is a continuation of Ser. No. 960,021, Oct. 13, 1992, abandoned, which is a continuation of Ser. No. 652,158, Feb. 7, 1991, Pat. No. 5,200,597. This application Aug. 7, 1995, Ser. No. 512,208

Int. Cl.⁶ G06K 7/10

U.S. Cl. 235—472

10 Claims

1. A bar code scanner comprising:
a motor;
a source providing an optical beam;



an optical element driven by said motor for scanning the beam across the code;
a switch;
a resistor operably connected to said switch to sense an amount of pressure applied to said switch; and
a controller continuously varying a scan length of the beam in proportion to the amount of pressure applied to said switch, said controller producing first and second control signals for driving said motor, said first control signals being operative to provide a marker beam, and said second control signals being operative to provide a scanning beam of a desired scan length by continuously increasing the scan length of said beam in proportion to an increase in the amount of pressure applied to said switch so as to be sufficiently large to scan across said code,
wherein the first control signals are produced by the controller in response to a first predetermined amount of pressure applied to said switch and said second control signals are produced by the controller in response to a second predetermined amount of pressure applied to said switch, said second predetermined amount being larger than said first predetermined amount.

5,804,810

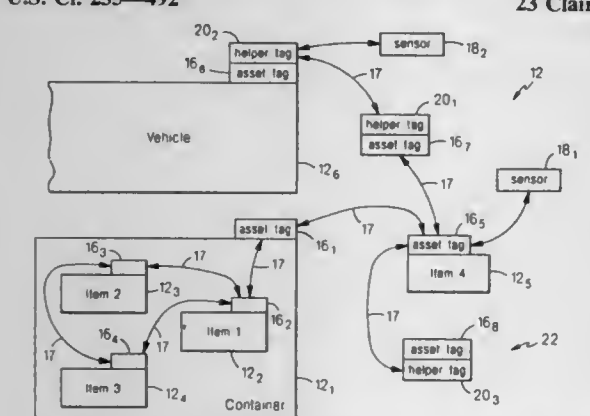
COMMUNICATING WITH ELECTRONIC TAGS

Louis A. Woolley, Clinton, and James H. Weimar, Minoa, both of N.Y., assignors to Par Government Systems Corporation, New Hartford, N.Y.

Filed Jun. 26, 1996, Ser. No. 672,342
Int. Cl.⁶ G06K 19/06; 15/00; G06F 17/00

U.S. Cl. 235-492

23 Claims



1. A system for monitoring and affecting actions on behalf of a group of objects, comprising:
a first electronic tag attached to an object in the group, comprising:

circuitry for communicating with another electronic tag, the circuitry communicating at least information that pertains to an object in the group and identifies the first electronic tag and the other electronic tag, and
a memory connected to the circuitry and capable of storing the information,
a second electronic tag attached to an object in the group, comprising:
circuitry for communicating the information with the first electronic tag,
a memory connected to the circuitry in the second electronic tag and capable of storing the information, and
a computer having circuitry in communication with the circuitry in the first electronic tag.

5,804,811

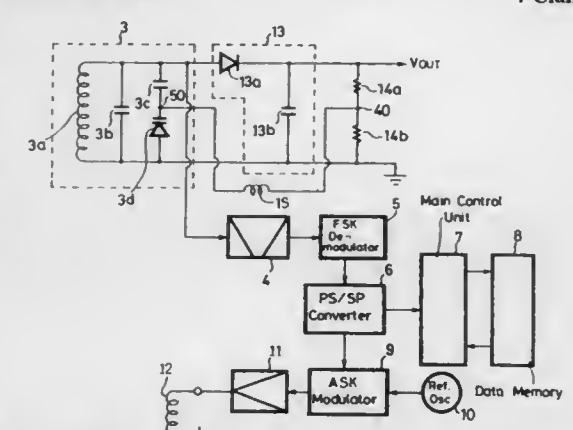
NON-CONTACTING RF-ID CARD FOR WIDE VOLTAGE RANGE INPUT

Shoshichi Saitoh; Masahiro Fujimoto; Katsuhisa Orihara, and Susumu Yanagibori, all of Tochigi, Japan, assignors to Sony Chemicals Corporation, Tochigi, Japan

Division of Ser. No. 491,077, Jun. 16, 1995, Pat. No. 5,652,423. This application Mar. 21, 1997, Ser. No. 822,311
Claims priority, application Japan, Jun. 21, 1994, 6-138847
Int. Cl.⁶ G06K 7/10

U.S. Cl. 235-492

4 Claims



1. An improved non-contacting information card including a resonance circuit for receiving a carrier signal modulated on the basis of information supplied from a card reader/writer, information processing means for obtaining information from said carrier signal, and rectifier means for rectifying said carrier signal to provide a voltage, said non-contacting information card being operated by said voltage obtained at an output side of said rectifier means, the improvement comprising:

a first fixed capacitor;
a variable capacitive element in series with said first fixed capacitor connected in said resonance circuit;
a high frequency blocking coil, and
voltage feedback means connected to said output side of said rectifier means and to a connection between said first fixed capacitor and said variable capacitive element via said high frequency blocking coil, wherein a resonance frequency of said resonance circuit is controlled by varying a capacity value of said variable capacitive element in response to said voltage at the output side of said rectifier means, and said variable capacitive element is formed of a vari-cap diode reversely biased by a connection to said voltage at the output side of said rectifier means, thereby preventing destruction of said non-contacting information card by excess voltage by making said voltage at the output side of said rectifier means substantially constant.

5,804,812

MULTIPLE NODE LAMBERT GUIDANCE SYSTEM

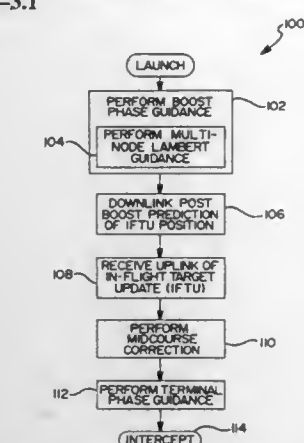
Dallas C. Wicke, Garden Grove, Calif., assignor to McDonnell Douglas Corporation, Huntington Beach, Calif.

Filed Oct. 29, 1996, Ser. No. 738,622

Int. Cl.⁶ F41G 7/00; 7/36

U.S. Cl. 244-3.1

10 Claims



5. A multi-node Lambert Guidance System for a missile, comprising:
navigation means for generating missile coordinate data;
a memory programmed with a plurality of prelaunch Lambert solutions for a plurality of nodes along a missile prelaunch solution flight path;
a processor for determining a solution for a weighted linear combination of said Lambert solutions for correction of missile flight path errors based on data input from said navigation means; and
steering means for correcting said missile flight path errors in response to flight path error correction commands output from said processor.

5,804,813

DIFFERENTIAL CONFOCAL MICROSCOPY

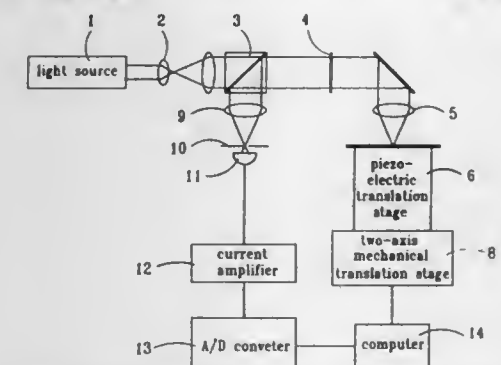
Jyh Pyng Wang, and Chau-Hwang Lee, both of Taipei, Taiwan, assignors to National Science Council of Republic of China, Taipei, Taiwan

Filed Jun. 6, 1996, Ser. No. 659,647

Int. Cl.⁶ G02B 21/00; 21/06; 21/26

U.S. Cl. 250-201.3

25 Claims



1. A differential confocal microscopy system, comprising:
a light source;
beam expander means for expanding a diameter of a beam emitted by the light source;
focusing means including a high numerical aperture focusing device for focusing the expanded beam on a sample;
scanning means for varying a position of the focused light beam on the sample in a plane transverse relative to a direction of propagation of the light beam incident on said surface in order to cause said light beam to scan the sample;

optical signal generating means for generating an optical signal proportional to an intensity of light reflected from the sample surface;
pin hole means for filtering from the optical signal light outside a focal depth and thereby produce confocal imaging;
detector means for detecting said optical signal and providing said signal to a computer to generate a three-dimensional confocal image based on the intensity of light reflected from the sample surface, which is proportional to a distance of the focusing device from the surface, and on coordinates of the light beam in said two dimensional plane;
means for calibrating said system, said calibration means including means for varying a height of the sample relative to the focusing device and generating a plot of height versus intensity; and
means for positioning the sample so that said height is within a linear portion of said plot such that the signal variation is directly proportional to the height variation of the sample surface.

5,804,814

OPTICAL PICK-UP HEAD AND INTEGRATED TYPE OPTICAL UNIT FOR USE IN OPTICAL PICK-UP HEAD

Toru Musha; Akihiko Yoshizawa; Hiroyuki Imabayashi, and Hiroshi Miyajima, all of c/o Intellectual Property & Legal Department, Olympus Optical Co., Ltd., 2-3, Kuboyama-cho, Hachioji-shi, Tokyo, Japan

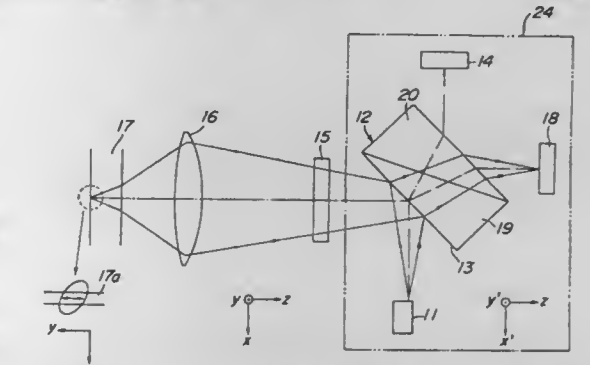
Filed May 22, 1995, Ser. No. 447,208

Claims priority, application Japan, May 20, 1994, 6-107065; Jul. 14, 1994, 6-162291; Jul. 22, 1994, 6-171107; Sep. 26, 1994, 6-229597

Int. Cl.⁶ G01J 1/20

U.S. Cl. 250-201.5

5 Claims



1. An optical pick-up head for reading and/or recording information from and/or on a magneto-optical record medium comprising:
a semiconductor laser emitting a linearly polarized light flux;
an objective lens projecting said light flux onto a magneto-optical record medium as a fine spot;
a multi-image plane parallel plate arranged between said semiconductor laser and the objective lens in a converged return light flux reflected by said record medium, reflecting the linearly polarized light flux emitted by said semiconductor laser toward said objective lens and transmitting and refracting said return light flux to introduce astigmatism in the return light flux and to perform a polarizing beam splitting, said multi-image plane parallel plate including a first triangular prism and a second triangular prism which are made of birefringent material and are joined together; and
a signal detecting photodetector receiving a plurality of light fluxes emanating from said multi-image plane parallel plate, detecting an information signal from outputs corresponding to mutually orthogonally polarized light components and detecting a focusing error signal from outputs corresponding to ordinary and extraordinary light components; wherein said multi-image plane parallel plate is arranged such that directions of major and minor axes of said astigmatism are inclined

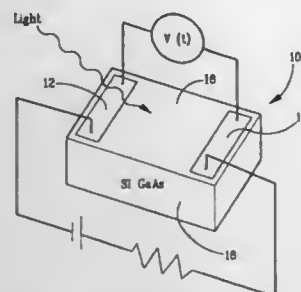
by 45 degrees with respect to a track direction in which an information track on the magneto-optical record medium extends, an optic axis of said first triangular prism is set such that said return light flux is divided into the ordinary light and extraordinary light having substantially identical intensities, a polarizing film is provided on a surface of the first triangular prism upon which said linearly polarized light flux and return light beam are made incident, and an optic axis of said second triangular prism is set to be inclined by a predetermined angle with respect to the optic axis of the first triangular prism.

5,804,815
GAAS PHOTOCONDUCTIVE SEMICONDUCTOR SWITCH

Guillermo M. Loubriel, Sandia Park; Albert G. Baca, and Fred J. Zutavern, both of Albuquerque, all of N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.
Filed Jul. 5, 1996, Ser. No. 675,975
Int. Cl.⁶ H01J 40/14

U.S. Cl. 250—214.1

14 Claims



1. A photoconductive semiconductor switch comprising:
an intrinsic GaAs substrate;
a p-type ohmic electrode located on the upper surface of the substrate;
an n-type ohmic electrode located on the upper surface of the substrate and spaced apart from the p-type electrode to form a gap therebetween on the upper surface of the substrate; and
a passivation layer atop the substrate in the gap.

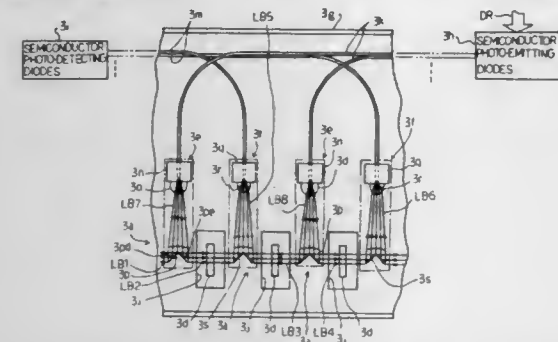
5,804,816
POSITION TRANSDUCER HAVING OPTICAL BEAM GENERATOR FOR COVERING WIDE DETECTABLE RANGE

Jun Yamamoto, and Tsutomu Sasaki, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Shizuoka-ken, Japan

Filed Nov. 25, 1996, Ser. No. 755,603
Claims priority, application Japan, Nov. 30, 1995, 7-313185
Int. Cl.⁶ G06M 7/00; G01D 5/34

U.S. Cl. 250—221

23 Claims



1. A position transducer for determining a current position of a moving object on a trajectory extending in a first direction, comprising:

a light beam source provided on one side of said trajectory for radiating a light beam having a first cross section across said trajectory;
a light beam receiver provided on the other side of said trajectory, and allowing said light beam to be incident thereonto so that said moving object varies the amount of light incident onto said optical beam receiver, thereby detecting a motion of said moving object; and
a cross section modifier provided between said light beam source and said light beam receiver for modifying said light beam to have a second cross section elongated in said first direction, and physically separated from said moving object.

5,804,817
SENSOR DEVICE FOR DETECTING THE DEGREE OF WETTING AND/OR CONTAMINATION OF WINDOWS, ESPECIALLY WINDSHIELDS OF MOTOR VEHICLES

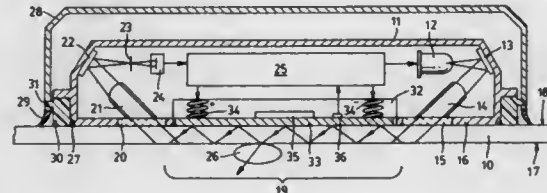
Hartmut Seiler, Baden-Baden; Rainer Pientka, Achern, and Horst Fedter, Bülhertal, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
PCT No. PCT/DE93/01245, § 371 Date Jul. 13, 1995, § 102(e) Date Jul. 13, 1995, PCT Pub. No. WO94/15819, PCT Pub. Date Jul. 21, 1994

PCT Filed Dec. 28, 1993, Ser. No. 491,931
Claims priority, application Germany, Jan. 13, 1993, 43 00 655.8; Dec. 20, 1993, 43 43 474.6

Int. Cl.⁶ G01N 21/17

U.S. Cl. 250—227.25

15 Claims



1. Sensor device for detecting the degree of wetting and/or contamination of windows, having: a radiation source emitting a radiation into the window from the inside of the window, a radiation measuring device detecting the radiation reflected by total reflection in the window between an outer surface and an inner surface of the window along a measurement path, and a heating device; and, wherein the heating device is disposed on the contact surface between the sensor device and the window or in the window adjacent the measurement path to directly and deliberately heat the measurement path.

5,804,818
COATED INTERNALLY REFLECTING OPTICAL ELEMENT

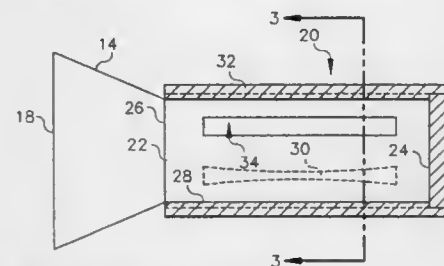
Martin Charles Kaplan, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 30, 1996, Ser. No. 593,997

Int. Cl.⁶ H01J 3/14

U.S. Cl. 250—227.28

30 Claims



1. An optical element comprising:

a light carrying medium through which light can propagate by total internal reflection, the light carrying medium having at least one surface;
a layer positioned adjacent the surface and being of a porous first material of sufficient porosity and with pores which are vacant or contain a second material having an index of refraction lower than that of the light carrying medium, such that the layer reduces total internal reflection in the light carrying medium less than would be reduced using a non-porous layer of the same dimensions of only the first material.

5,804,819
METHOD FOR QUANTITATIVE VERIFICATION OF SCANNING GEOMETRY IN DIGITAL RADIOGRAPHIC READ OUT SYSTEM

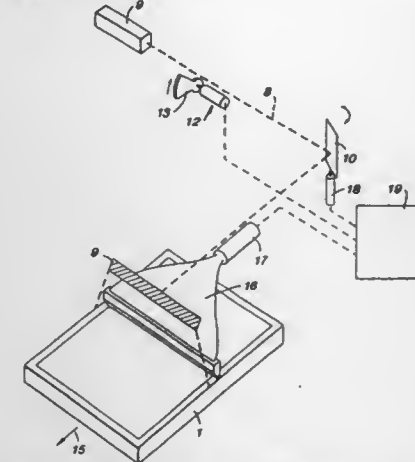
Pieter Vuylsteke, Mortsel, and Walter Jacobs, Blaasveld, both of Belgium, assignors to AGFA-Gevaert, Mortsel, Belgium
Filed Oct. 24, 1995, Ser. No. 547,401

Claims priority, application European Pat. Off., Oct. 27, 1994, 94203122

Int. Cl.⁶ G01N 23/04

U.S. Cl. 250—252.1

5 Claims



1. A method of verifying the performance of a system for line-wise scanning a photostimulable phosphor screen, comprising the steps of:

- positioning a phantom consisting of a substrate that is transparent to x-rays and an embedded ruler that consists of a number of equidistant parallel strips that are opaque to x-rays, on top of said screen so that the ruler is parallel with the direction of line-wise scanning,
- exposing a combination of screen and phantom to x-rays,
- scanning at least a part of the exposed screen comprising an image of said ruler by means of stimulating irradiation, detecting light emitted upon stimulation and converting the detected light into corresponding electric signal values representing a digital image,
- determining the position of each strip of said ruler with the position in the scanning direction of the center of each ruler strip being computed by:
thresholding signal values pertaining to pixels of a scanned line within an x-ray image of said ruler, by means of a threshold value m_T that is the average of minimum and maximum of signal values pertaining to pixels within said line;
considering all segments along said line of consecutive signal values m_i at positions i that are smaller than said threshold values m_T ;
denoting a_i as the first pixel and b_i as the last pixel in said segments;
computing the position c_i of the center of a segment according to

$$c_i = \frac{\sum_{j=a_i}^{b_i} i(m_T - m_i)}{\sum_{j=a_i}^{b_i} (m_T - m_i)}$$

- (v) determining at least one of the following parameters:
average pixel sampling distance as a ratio of a predetermined average distance between ruler strips and an average distance in the digital image of adjacent ruler strips computed by means of the determined position of each strip,
geometric distortion value at a strip being the difference between a computed position of a ruler strip in the digital image and a predetermined position of a strip,
total scanned width being the total number of image pixels in a scanning line multiplied by said average pixel sampling distance.

5,804,820
METHOD FOR DETERMINING DENSITY OF AN EARTH FORMATION

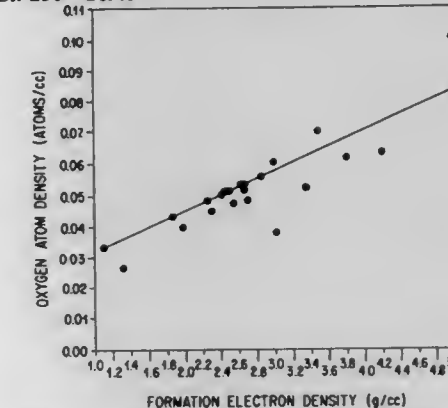
Michael L. Evans, and Jacques M. Holenka, both of Missouri City, Tex., assignors to Schlumberger Technology Corporation, Sugar Land, Tex., and Japan National Oil Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 599,712, Feb. 12, 1996, Pat. No. 5,608,215, which is a continuation-in-part of Ser. No. 307,894, Sep. 19, 1994, Pat. No. 5,539,225. This application Mar. 4, 1997, Ser. No. 811,309

Int. Cl.⁶ G01V 5/10

U.S. Cl. 250—269.6

22 Claims



1. A method of determining the density of an underground earth formation surrounding a borehole comprising:

- irradiating the formation from a neutron source within the borehole;
- detecting neutrons and gamma rays resulting from the irradiation; and
- analyzing the detected neutrons and the detected gamma rays to determine the density of the formation surrounding said borehole.

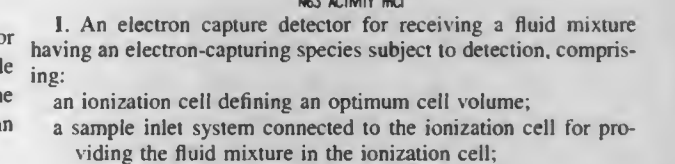
5,804,821
PLASMA ION SOURCE MASS ANALYZER
Yoshitomo Nakagawa, Chiba, Japan, assignor to Seiko Instruments Inc., Chiba, Japan

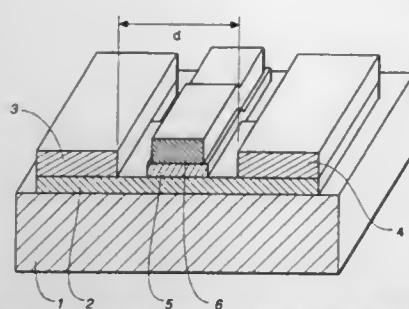
Filed May 15, 1997, Ser. No. 856,605
Claims priority, application Japan, May 15, 1996, 8-120627
Int. Cl.⁶ H01J 49/04

U.S. Cl. 250—288

2 Claims

1. A plasma ion source mass analyzer comprising:
a plasma ion source for ionizing a sample in a plasma;
a vacuum vessel;





and second critical temperatures of the first and second superconductive electrodes, respectively, the junction comprising a third material having a composition which is different than the first and second material of the first and second superconductive electrodes, respectively; said method comprising the steps of:

- operating the superconductive device at a temperature that is no more than the third critical temperature of the junction; and
- applying a control voltage to the control electrode and controlling the current flowing through the first and second superconductive electrodes.

5,804,836

SMART POLYMER IMAGE PROCESSOR

Alan J. Heeger, Santa Barbara; David Heeger, Palo Alto, and John D. Langan, Santa Barbara, all of Calif., assignors to Uniax Corporation, Santa Barbara, Calif.

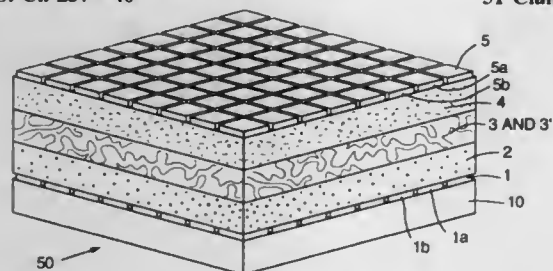
Continuation of Ser. No. 417,198, Apr. 5, 1995, abandoned.

This application Aug. 6, 1997, Ser. No. 907,339

Int. Cl.⁶ H01L 35/24

U.S. Cl. 257—40

51 Claims



1. A triode array comprising at least one first electrode and a plurality of second electrodes, said plurality of second electrodes being spatially arrayed and electrically isolated from one another, said at least one first electrode and said plurality of second electrodes spaced apart from one another by a layer of solid semiconductor and a common polymer grid, said common polymer grid comprising a body of electrically conducting organic polymer, said body having an open and porous network morphology with void spaces therebetween and interposed between the at least one first electrode and the plurality of second electrodes.

5,804,837

POLYSILICON THIN-FILM TRANSISTOR AND METHOD FOR FABRICATING THE SAME

Min-Koo Han; Byung-Hyuk Min, both of Seoul, and Cheol-Min Park, Kyungki-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

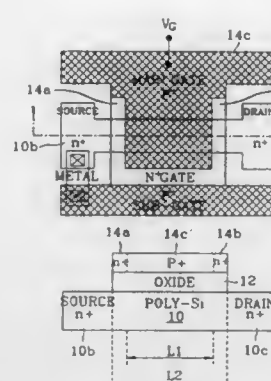
Continuation-in-part of Ser. No. 266,420, Jun. 27, 1994. This application Jul. 26, 1996, Ser. No. 687,630

Int. Cl.⁶ H01L 29/76; 31/036; 31/112

U.S. Cl. 257—66

31 Claims

1. A thin-film transistor comprising:
a channel region having an offset region in first and second portions of said channel region only during turn-off;
a gate insulating layer formed on said channel region;
a source region self-aligned with said channel region and formed adjacent said first portion of said channel region;



a drain region self-aligned with said channel region and formed adjacent said second portion of said channel region; and
a gate region formed on said gate insulating layer having a main gate, a subgate that is in ohmic contact with said source region, and a junction gate so that a rectifying junction is formed between said main gate and said subgate.

5,804,838

THIN FILM TRANSISTORS

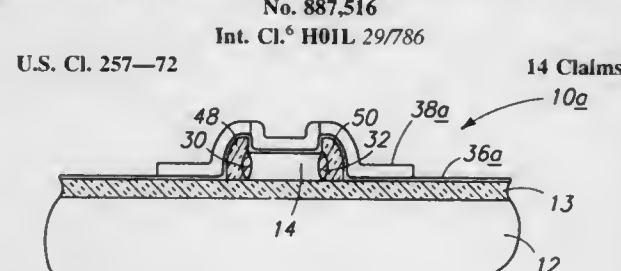
Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 710,786, Sep. 20, 1996, Pat. No. 5,670,794, which is a division of Ser. No. 452,134, May 26, 1995, Pat. No. 5,600,153. This application Jul. 3, 1997, Ser. No. 887,516

Int. Cl.⁶ H01L 29/786

U.S. Cl. 257—72

14 Claims



1. A thin film transistor comprising:
a substrate having an outer surface;
a gate line disposed atop the outer surface and having a gating surface and a sidewall, the sidewall being disposed adjacent the substrate outer surface, the gate line comprising different conductive materials only one of which is a metal silicide;
at least a portion of the sidewall nearest the substrate outer surface comprising the metal silicide; and
a thin film layer comprising a channel region operably adjacent the gating surface.

5,804,839

III-V NITRIDE COMPOUND SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME

Daisuke Hanaoka, Nara-ken, and Katsuki Furukawa, Osaka, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 23, 1996, Ser. No. 772,231

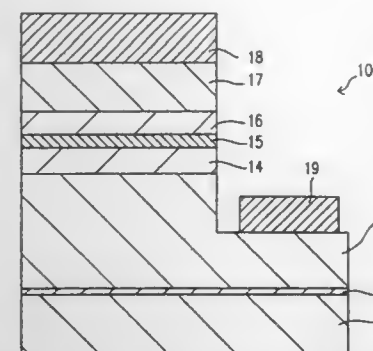
Claims priority, application Japan, Dec. 28, 1995, 7-344219

Int. Cl.⁶ H01L 33/00

U.S. Cl. 257—123

4 Claims

1. A III-V nitride compound semiconductor device comprising:
at least one III-V nitride compound semiconductor layer; and



an electrode layer made of non-single crystalline GaN in contact with the III-V nitride compound semiconductor-layer.

5,804,840

SEMICONDUCTOR DEVICE STRUCTURE INCLUDING INALAS OR INALGAAS CURRENT BLOCKING LAYERS

Seiji Ochi, and Manabu Kato, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

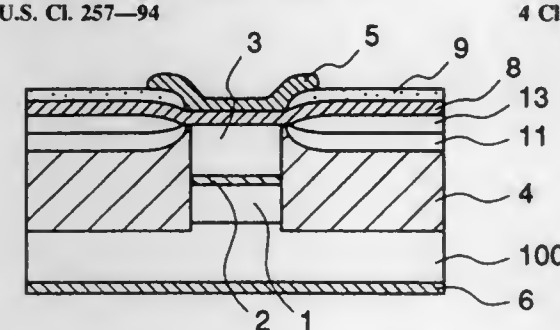
Filed Apr. 19, 1996, Ser. No. 634,948

Claims priority, application Japan, Jun. 27, 1995, 7-160900

Int. Cl.⁶ H01L 33/00

U.S. Cl. 257—94

4 Claims



1. A semiconductor device fabricated by the process comprising:
forming a stripe-shaped insulating film on a surface of a semiconductor layer;
using the insulating film as a mask, anisotropically dry etching the semiconductor layer to form a stripe-shaped ridge comprising a portion of the semiconductor layer under the insulating film;
using the insulating film as a mask, selectively growing by MOCVD a high-resistance layer selected from InAlAs and InAlGaAs and contacting both sides of the ridge, the high-resistance layer having a shallow donor concentration N_{SD} , a shallow acceptor concentration N_{SA} , and a deep donor concentration N_{DD} in relationships of $N_{SA} > N_{SD}$ and $N_{SA} - N_{SD} < N_{DD}$, and, subsequently, growing a coating layer over all of the high-resistance layer, the coating layer comprising a semiconductor different in composition from the high-resistance layer and that less readily combines with oxygen than the high-resistance layer;
removing the insulating film;
growing a contact layer, comprising a semiconductor that makes an ohmic contact with a surface electrode that is later produced on the ridge and on the coating layer; and
producing a surface electrode on the contact layer and a rear electrode on the semiconductor substrate.

5,804,841

OPTICAL TRIGGER THYRISTOR AND FABRICATION METHOD

Katsumi Satoh, and Kenji Ohta, both of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

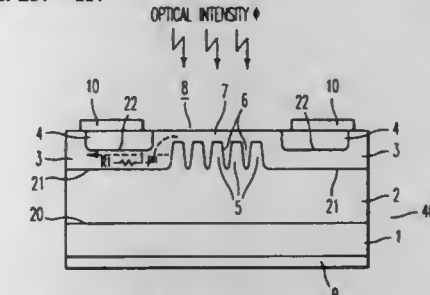
Filed May 16, 1996, Ser. No. 648,819

Claims priority, application Japan, May 17, 1995, 7-118423

Int. Cl.⁶ H01L 29/74; 31/111

U.S. Cl. 257—117

16 Claims



1. An optical trigger thyristor, comprising:
a first conductivity type semiconductor substrate having a first and a second main surface side;
a second conductivity type first semiconductor layer disposed on a part of a front surface on the first main surface side of said semiconductor substrate;
a first conductivity type second semiconductor layer disposed in an island shape on a front surface of said first semiconductor layer;
a second conductivity type third semiconductor layer disposed in an island shape on a part of the front surface on the first main surface side of said semiconductor substrate, and constructing a part of a light receiving portion;
a second conductivity type fourth semiconductor layer adapted for connecting said third semiconductor layer and said first semiconductor layer, said fourth semiconductor layer constructing a part of the light receiving portion, and the depth of which is shallower than the depth of said third semiconductor layer disposed on a part of the front surface on the first main surface side of said semiconductor substrate;
a second conductivity type fifth semiconductor layer disposed on a front surface of the second main surface side of said semiconductor substrate;
a first main electrode adapted for connecting said first semiconductor layer and said second semiconductor layer, and disposed on the first main surface side of said semiconductor substrate;
a second main electrode connected to said fifth semiconductor layer and disposed on the front surface of said fifth semiconductor layer; and
wherein at least one of said third and fourth semiconductor layers is composed of a plurality of independent partial regions.

5,804,842

OPTICALLY WRITING ERASABLE CONDUCTIVE PATTERNS AT A BANDGAP-ENGINEERED HETEROJUNCTION

Tineke Thio, Princeton, N.J., assignor to NEC Research Institute, Inc., Princeton, N.J.

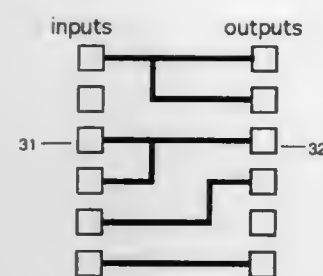
Filed Jun. 20, 1995, Ser. No. 493,181

Int. Cl.⁶ H01L 21/20

U.S. Cl. 257—184

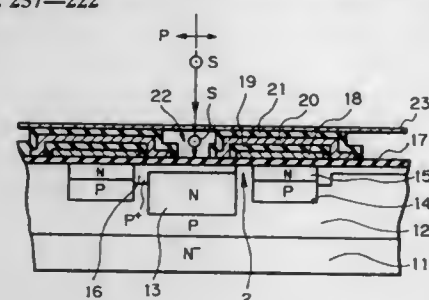
22 Claims

1. A semiconductive device that includes a semiconductive element comprising a first region of a first undoped semiconductive material, and a second region of a second semiconductive material forming a heterojunction with the first region, the second region including donor atoms capable of forming DX centers, the work functions in the two regions being such as to produce at the heterojunction a band offset of at least substantially 1 eV and thus



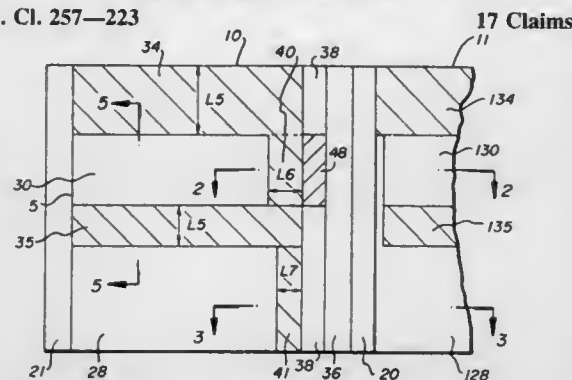
a large barrier to recombination for any free electrons created by photoexcitation of the DX centers.

5,804,843
SOLID STATE PICKUP DEVICE FOR SUPPRESSING SMEAR SIGNALS
Masayuki Furumiya, and Yasuaki Hokari, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Sep. 30, 1996, Ser. No. 723,131
Claims priority, application Japan, Sep. 29, 1995, 7-277172
Int. Cl.⁶ H01L 27/148; 29/768; H04N 9/64
U.S. Cl. 257—222



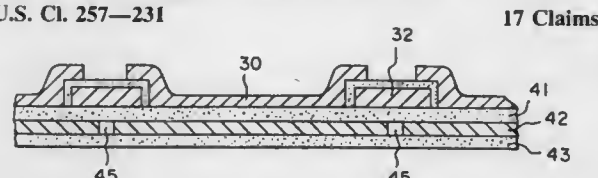
6. A solid state image pickup device comprising:
first and second semiconductor substrates;
first and second photo/electro conversion elements formed within said first and second semiconductor substrates, respectively;
first and second photoshield layers formed on said first and second semiconductor substrates, respectively, each of said photoshield layers having first and second slit-type apertures, respectively, for limiting light incident to said first and second photo/electro conversion elements;
a polarization beam splitter for splitting non-polarized light into a first polarized light component having an electric field polarization face polarized in a longitudinal direction of said first slit-type aperture and a second polarized light component having an electric field polarization face polarized in a direction perpendicular to a longitudinal direction of said second slit-type aperture; and
a half wavelength for changing an electric field polarization face of said second polarized light component by 90 degrees to generate a third polarized light component;
said first polarized light component being incident via said first slit-type aperture of said first photo/electro conversion element,
said second polarized light component being incident via said second slit-type aperture of said second photo/electro conversion element.

5,804,844
SOLID-STATE IMAGER WITH CONTAINER LOD IMPLANT
Constantine N. Anagnostopoulos, Mendon, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 405,167, Mar. 16, 1995, abandoned.
This application Jan. 8, 1997, Ser. No. 780,429
Int. Cl.⁶ H01L 27/148; 29/768
U.S. Cl. 257—223



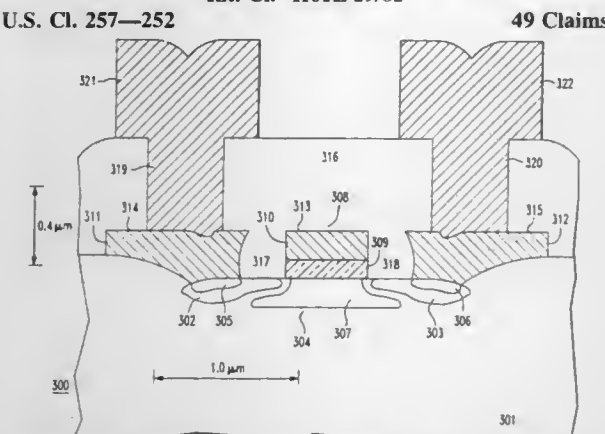
12. A solid state image sensing product having a plurality of photodetectors formed upon a semiconductor substrate, formed such that each photodetector has at least two storage areas defined by the steps of:
covering the surface of the substrate with a resist material;
opening the resist material adjacent the photodetectors;
doping the substrate through the opening with a dopant of one type of conductivity to form a Lateral Overflow Drain (LOD); and
doping the substrate through the same opening with a dopant of an opposite conductivity for reducing the depletion region of the LOD and forming a container essentially underneath the LOD.

5,804,845
IMAGE SENSOR HAVING ITO ELECTRODES WITH AN ONO LAYER
Constantine N. Anagnostopoulos, Mendon; Stephen Lawrence Kosman, and Yawcheng Lo, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 8, 1996, Ser. No. 727,107
Int. Cl.⁶ H01L 27/148; 29/768
U.S. Cl. 257—231



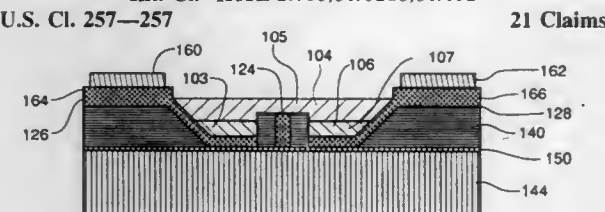
1. A pixel design for image sensors comprising:
a semiconductor material of a first conductivity type having a surface;
a plurality of storage areas formed within the pixel on the surface;
a plurality of gate electrodes formed within the pixel such that there is one gate electrode for each storage area, with at least one gate electrode formed essentially from indium tin oxide (ITO) and at least one gate electrode formed from polysilicon;
an ONO stack comprising: an oxide layer, a nitride layer, and an oxide layer formed on the surface between the gate electrodes and the storage areas such that there is a discontinuity within the nitride layer of the ONO stack in an area covered by the polysilicon electrode.

5,804,846
PROCESS FOR FORMING A SELF-ALIGNED RAISED SOURCE/RAIN MOS DEVICE AND DEVICE THEREFROM
Robert T. Fuller, Melbourne Beach, Fla., assignor to Harris Corporation, Melbourne, Fla.
Filed May 28, 1996, Ser. No. 654,393
Int. Cl.⁶ H01L 29/82
U.S. Cl. 257—252



36. A self-aligned raised source/drain MOS device comprising:
a semiconductor substrate having a surface with source and drain diffusion regions and a gate region disposed between the source and drain diffusion regions;
said gate region comprising a gate insulating layer in contact with the surface of the substrate and a layer of gate conductive material on the insulating layer;
a planarized metal layer forming raised source drain and gate electrodes, the source and drain electrodes each having a lower surface in ohmic contact with the source and the drain regions, respectively; the source, drain and gate electrodes having an upper surface substantially coplanar with one another, the gate electrode being in ohmic contact with the gate conductive material, a pair of insulating sidewall spacers disposed on opposite sides of the gate conductive material and gate electrode for electrically isolating the gate electrode and the gate conductive material from the source and drain electrodes and the source and drain regions.

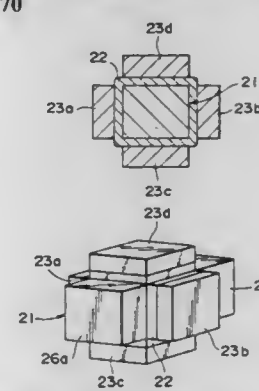
5,804,847
BACKSIDE ILLUMINATED FET OPTICAL RECEIVER WITH GALLIUM ARSENIDE SPECIES
Gerald D. Robinson, Santa Barbara, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Division of Ser. No. 274,931, Jul. 14, 1994, Pat. No. 5,663,075.
This application Dec. 22, 1995, Ser. No. 577,995
Int. Cl.⁶ H01L 29/80; 31/0288; 31/112
U.S. Cl. 257—257



21. A substrate-replaced, secondary substrate-supported, upside down light sensitive field effect transistor having an unobstructed wide angle orthogonal path planar radiant energy input aperture, said transistor comprising:
a planar secondary substrate member;
first and second electrically segregated metallic conductor members disposed over said planar secondary substrate member;
an ohmic contact first layer of doped semiconductor material overlaying said first and second electrically segregated metallic conductor members and electrically connected at opposite

first layer ends with respective of said first and second metallic conductor members in transistor source and drain ohmic junctions;
a charged carrier-communicating second layer, a transistor channel layer, of semiconductor material overlaying said ohmic contact first semiconductor layer;
said semiconductor layers being disposed in single crystal crystalline structure with respect to each other and with respect to crystalline structure of a removed primary substrate member on which said channel layer and said ohmic contact layer were respectively initially formed;
a well recess region extending upward from said planar secondary substrate member through said ohmic contact semiconductor layer and partly through said charged carrier-communicating semiconductor channel layer to a transistor active region sub layer portion of said channel layer, said well recess region being laterally located between said transistor source and drain ohmic junctions in said semiconductor layers;
a transistor metallic gate member disposed in said well recess region and extending upward therein from said planar secondary substrate member to a lower surface of said channel layer transistor active region sub layer, said transistor metallic gate member connecting also to a gate connector pad member located on a rearward surface portion of said planar secondary substrate member; and
a layer of electrically insulating filler material disposed on said planar secondary substrate member and surrounding said semiconductor material layers, a portion of said first and second metallic conductor members extending upward through a thickness dimension portion of said electrically insulating filler material to electrical contact pads received on an upper surface portion of said electrical insulating filler material;
said active region sub layer portion of said transistor channel layer having an open upper surface comprising said unobstructed planar wide angle orthogonal path radiant energy input aperture of said field effect transistor.

5,804,848
FIELD EFFECT TRANSISTOR HAVING MULTIPLE GATE ELECTRODES SURROUNDING THE CHANNEL REGION
Mikio Mukai, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Continuation of Ser. No. 588,402, Jan. 18, 1996, abandoned.
This application Oct. 31, 1997, Ser. No. 960,543
Claims priority, application Japan, Jan. 20, 1995, 7-026270
Int. Cl.⁶ H01L 29/80; 31/112
U.S. Cl. 257—270



1. A field effect transistor, comprising:
a first impurity region formed in a semiconductor substrate,
a channel region comprising a semiconductor layer formed on said first impurity region;
a second impurity region formed on said channel regions,
said first impurity region and said second impurity region forming a source region and a drain region, and

gate electrodes formed by way of an insulation film or directly on the semiconductor substrate and to at least three surfaces of said channel region lateral of said substrate, wherein said gate electrodes are opposed respectively to the surfaces of said channel region and separated from each other.

5,804,849
COMPOUND SEMICONDUCTOR DEVICE AND METHOD
OF MANUFACTURE

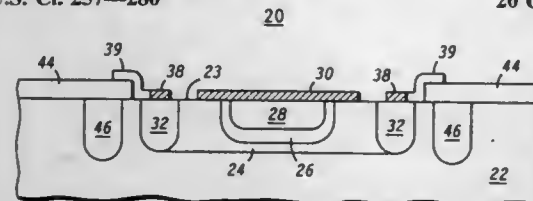
Peter Wenckers, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 13, 1996, Ser. No. 645,378

Int. Cl.⁶ H01L 29/80; 31/112

U.S. Cl. 257—280

20 Claims



1. A compound semiconductor device, comprising:
a compound semiconductor substrate having a major surface;
a well region of a first conductivity type material disposed in the compound semiconductor substrate;
a first doped region of a second conductivity type material disposed in the well region;
a second doped region of the second conductivity type material disposed in the well region, the second doped region spaced apart from the first doped region;
a third doped region of the second conductivity type material disposed between the first doped region and the second doped region, the third doped region serving as a channel region;
a fourth doped region of a first conductivity type material disposed in the compound semiconductor substrate, the fourth doped region spaced apart from the well region;
a Schottky contact to the third doped region;
a first ohmic contact to the first doped region;
a second ohmic contact to the second doped region; and
a third ohmic contact to the fourth doped region.

5,804,850
FERROELECTRIC BASED CAPACITOR CELL FOR USE
IN MEMORY SYSTEMS

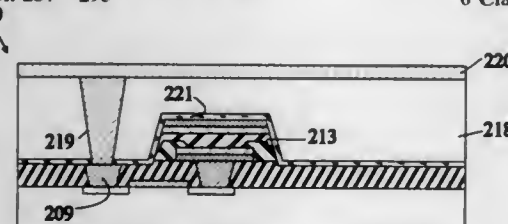
Joseph T. Evans, Jr., and Richard Womack, both of Albuquerque, N. Mex., assignors to Radiant Technologies, Inc., Albuquerque, N. Mex.

Division of Ser. No. 406,376, Mar. 17, 1995. This application
Apr. 16, 1996, Ser. No. 633,853

Int. Cl.⁶ H01L 31/119

U.S. Cl. 257—295

6 Claims



1. A word memory comprising:
a first memory cell comprising a first isolation transistor having a source, gate, and drain and a first ferroelectric capacitor, said ferroelectric capacitor having a bottom electrode, a top electrode and a ferroelectric dielectric layer between said top and bottom electrodes, said dielectric layer comprising a material having a remnant polarization that is switched

between two states during the operation of said memory cell, said bottom electrode overlying said drain of said first isolation transistor, said first isolation transistor isolating said first ferroelectric capacitor when said first isolation transistor is a non-conducting state; and

a second memory cell comprising a second isolation transistor having a source, gate, and drain and a second ferroelectric capacitor, said ferroelectric capacitor having a bottom electrode, a top electrode and a ferroelectric dielectric between said top and bottom electrodes, said dielectric layer comprising a material having a remnant polarization that is switched between two states during the operation of said memory cell, said bottom electrode overlying said drain of said second isolation transistor, said second isolation transistor isolating said second ferroelectric capacitor when said second isolation transistor is a non-conducting state,

wherein said ferroelectric dielectric layer in said first and second memory cells are part of a continuous layer of ferroelectric dielectric material.

5,804,851
SEMICONDUCTOR MEMORY DEVICE AND
MANUFACTURING METHOD THEREOF

Mitsuhiro Noguchi, Kawasaki, and Masami Aoki, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 528,137, Sep. 14, 1995, abandoned.

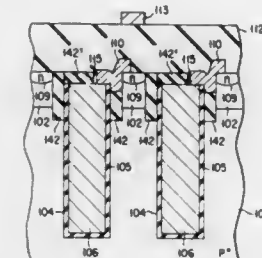
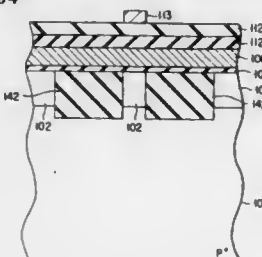
This application Mar. 19, 1997, Ser. No. 820,626

Claims priority, application Japan, Sep. 17, 1994, 6-248463

Int. Cl.⁶ H01L 27/108; 29/76; 29/94

U.S. Cl. 257—304

28 Claims



1. A semiconductor memory device comprising:
a semiconductor substrate having a plurality of trenches selectively formed on a main surface thereof;
a plurality of trench capacitors formed in said plurality of trenches, each of said trench capacitors formed of said semiconductor substrate, a capacitor insulating film formed on a surface of each of said trenches, and a storage node electrode buried in each of said trenches interposing said capacitor insulating film;
a plurality of transistors, formed on said semiconductor substrate, for forming a plurality of memory cells in relation to said plurality of trench capacitors, each of said plurality of transistors having a gate electrode formed on said semiconductor substrate interposing a gate insulating film therebetween and source and drain regions formed in said semiconductor substrate on both sides of said gate electrode, respectively;

a plurality of element isolation insulating films formed on side surfaces of upper portions of said plurality of trenches to surround the circumference of said trenches, respectively, adjacent ones of said plurality of element isolation insulating films being in direct contact with each other at a portion of outward peripheries thereof and below said main surface of said semiconductor substrate to form a chain of said element isolation films connected in line, such that at least one of said transistors is electrically insulated from another one of said transistors by said chain; and,

a plurality of conductive members, each connecting one of said source and drain regions of said plurality of transistors to said storage node electrode of a corresponding one of said plurality of capacitors,

wherein said plurality of element isolation insulating films are formed along side surfaces of said plurality of trenches, respectively, and a depth of each of said element isolation insulating films in a direction along said side surfaces is greater than a thickness of each of said element isolation insulating films in a direction perpendicular to said side surfaces.

5,804,852
STACKED CAPACITOR DRAM STRUCTURE
FEATURING A MULTIPLE CROWN SHAPED
POLYSILICON LOWER ELECTRODE

Fu-Liang Yang, Tainan, and Erik S. Jeng, Taipei, both of Taiwan, assignors to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

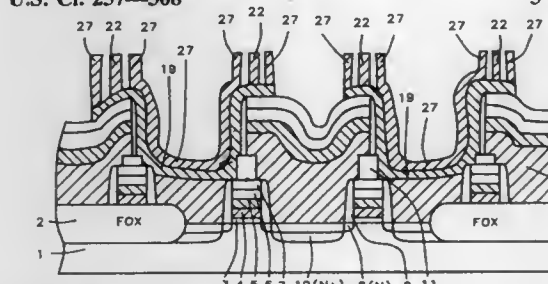
Division of Ser. No. 709,898, Sep. 9, 1996, Pat. No. 5,677,227.

This application Jun. 16, 1997, Ser. No. 876,914

Int. Cl.⁶ H01L 27/108

U.S. Cl. 257—308

3 Claims



1. A stacked capacitor structure, dynamic random access memory, (DRAM), device, with multiple crown shaped, polysilicon, lower electrodes, on a semiconductor structure, comprising:
a first field oxide region in said semiconductor substrate;
a second field oxide region in said semiconductor substrate;
a first silicon nitride capped, polycide gate structure, on said first field oxide region;
a fourth silicon nitride capped, polycide gate structure, on said second field oxide region;
a first boro-phosphosilicate glass, (BPSG), pillar, on said first silicon nitride capped, polycide gate structure, and a fourth BPSG pillar on said fourth silicon nitride capped, polycide gate structure, with said first BPSG pillar, and with said fourth BPSG pillar, narrower in width than the underlying, silicon nitride capped, polycide gate structures, and between about 1000 to 7000 Angstroms in height;
a second silicon nitride capped, polycide gate structure, and a third silicon nitride capped, polycide gate structure, on said semiconductor substrate, between said first field oxide region, and said second field oxide region;
a second BPSG pillar, on said second silicon nitride capped, polycide gate structure, and a third BPSG pillar, on said third silicon nitride capped, polycide gate structure, with said second BPSG pillar, and with said third BPSG pillar narrower in width than the underlying silicon nitride capped, polycide

gate structures, and between about 3000 to 10000 Angstroms in height;

silicon nitride, insulator spacers on sidewalls of silicon nitride capped, polycide gate structures;

a first source/drain region in an area of said semiconductor substrate, between said first field oxide region and said second silicon nitride capped, polycide gate structure;

a second source/drain region in an area of said semiconductor substrate, between said second silicon nitride capped, polycide gate structure and said third silicon nitride capped, polycide gate structure;

a third source/drain region in an area of said semiconductor substrate, between said third silicon nitride capped, polycide gate structure and said second field oxide region;

a first polysilicon fill, between said first silicon nitride capped, polycide gate structure and said second silicon nitride capped, polycide gate structure, contacting said first source/drain region, with said first polysilicon fill recessed to a level in which the top surface of said first polysilicon fill is equal to, or below, the top surface of said second silicon nitride capped, polycide gate structure, and of said first silicon nitride capped, polycide gate structure;

a second polysilicon fill, between said second silicon nitride capped, polycide gate structure and said third silicon nitride capped, polycide gate structure, contacting said second source/drain region, with the top surface of said second polysilicon fill at a height above the top surface of said second BPSG pillar, and of said third BPSG pillar;

a third polysilicon fill, between said third silicon nitride capped, polycide gate structure and said fourth silicon nitride capped, polycide gate structure, contacting said third source/drain region, with said third polysilicon fill recessed to a level in which the top surface of said third polysilicon fill is equal to, or below, the top surface of said third silicon nitride capped, polycide gate structure, and of said fourth silicon nitride capped, polycide gate structures;

a bit line contact structure between said second BPSG pillar and said third BPSG pillar, contacting said second polysilicon fill; silicon oxide insulator spacers on sides of said bit line contact structure;

an insulator shape directly overlying said bit line contact structure;

a first, multiple crown, polysilicon lower electrode, overlying said insulator shape, on said bit line contact structure, and overlying said first BPSG pillar, and said second BPSG pillar, and overlying and contacting, said first polysilicon fill, comprised of a horizontal polysilicon shape, on said first polysilicon fill, and with vertical polysilicon shapes connected to said horizontal polysilicon shape, extending upwards from said horizontal polysilicon shape;

a second, multiple crown, polysilicon lower electrode, overlying said insulator shape, and overlying said third BPSG pillar, and said fourth BPSG pillar, and overlying and contacting, said third polysilicon fill, comprised of a horizontal polysilicon shape, on said third polysilicon fill, and with vertical polysilicon shapes connected to said horizontal polysilicon shape, extending upwards from said horizontal polysilicon shape;

a capacitor dielectric layer on said first, multiple crown, polysilicon lower electrode, and on said second, multiple crown, polysilicon lower electrode; and

an upper polysilicon electrode, on the capacitor dielectric layer that overlays said first, multiple crown, polysilicon lower electrode, and an upper polysilicon electrode, on the capacitor dielectric layer that overlays said second, multiple crown, polysilicon lower electrode.

5,804,853

STACKED ELECTRICAL DEVICE HAVING REGIONS OF ELECTRICAL ISOLATION AND ELECTRICAL CONNECTIONS ON A GIVEN STACK LEVEL

John Edward Cronin, Milton; John Kenneth Debrosse, Burlington, both of Vt., and Hing Wong, Norwalk, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

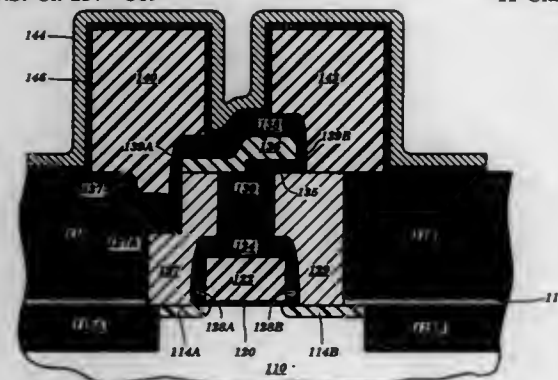
Division of Ser. No. 540,387, Oct. 6, 1995, Pat. No. 5,602,051.

This application Jul. 26, 1996, Ser. No. 686,881

Int. Cl.⁶ H01L 27/108

U.S. Cl. 257—309

11 Claims



1. A semiconductor structure, comprising:

- (a) a first lower conductor disposed in an insulating region, having an upper surface and a lower surface;
 - (b) a second lower conductor disposed in the insulating region, electrically isolated from the first lower conductor, and having an upper surface and a lower surface;
 - (c) a first upper conductor disposed over at least a portion of the first lower conductor; and electrically isolated therefrom;
 - (d) a second upper conductor disposed over at least a portion of the second lower conductor; and electrically connected thereto;
- wherein the first lower conductor is isolated from the first upper conductor by a recess in the upper surface of the first lower conductor, said recess being self-aligned to the first upper conductor, and being at least partially filled with an insulator.

5,804,854

MEMORY CELL ARRAY

Sung Mun Jung, and Jong Ho Kim, both of Seoul, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea

Filed Aug. 29, 1997, Ser. No. 919,401

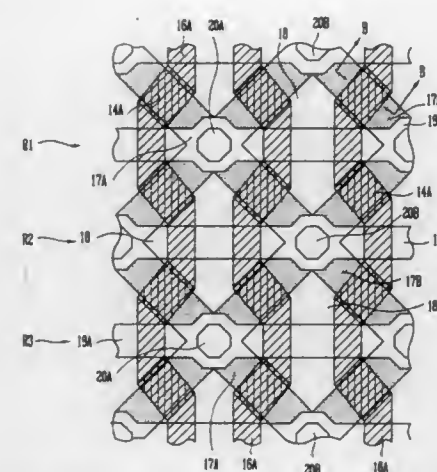
Claims priority, application Rep. of Korea, Aug. 30, 1996, 1996-36630

Int. Cl.⁶ H01L 29/72

U.S. Cl. 257—321

6 Claims

1. A memory cell array comprising:
- a plurality of field oxide layers formed at isolation regions of a silicon substrate and arranged in the form of a plurality of rows, said each field oxide layer of a row corresponded to the space between said field oxide layers of adjacent rows;
 - a plurality of floating gates formed on said silicon substrate between adjacent field oxide layers, said each floating gate insulated from said silicon substrate by a tunnel oxide layer;
 - a plurality of control gates formed on said floating gate and said field oxide layers which are located at both sides of said floating gate, said each control gate insulated from said each floating gate by a dielectric layer;
 - a plurality of first junction regions formed on said silicon substrate surrounded by adjacent four field oxide layers and four floating gates, said each first junction region having a first contact portion;
 - a plurality of second junction regions formed on said silicon substrate surrounded by adjacent four field oxide layers and



four floating gates, said each second junction regions having a second contact portion, whereby four memory cells hold said first junction region or said second junction region in common;

first bit lines connected to said first junction regions through contact holes formed at said first contact portions, respectively, said each first bit line extended to cross said control gate;

second bit lines connected to said second junction regions through contact holes formed at said second contact portions, respectively, said each first bit line extended to cross said control gate.

5,804,855

THIN FILM TRANSISTORS

Monte Manning, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

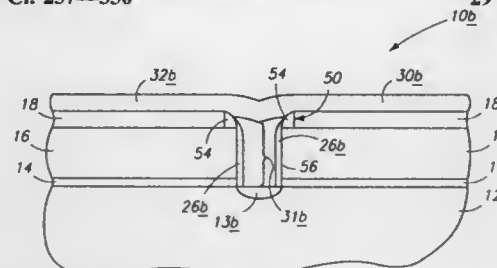
Division of Ser. No. 506,084, Jul. 24, 1995, Pat. No. 5,700,727.

This application Jul. 15, 1996, Ser. No. 679,955

Int. Cl.⁶ H01L 29/76; 29/94

U.S. Cl. 257—330

29 Claims



1. A thin film transistor comprising:

- a thin film transistor layer having a source region, a channel region and a drain region; and
- a gate in lateral proximity to the thin film channel region, the gate comprising an annulus which laterally encircles the laterally proximate thin film channel region.

5,804,856

DEPLETED SIDEWALL-POLY LDD TRANSISTOR

Dong-Hyuk Ju, Cupertino, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Nov. 27, 1996, Ser. No. 753,616

Int. Cl.⁶ H01L 29/76; 29/94; 31/062

U.S. Cl. 257—344

7 Claims

1. A metal oxide semiconductor transistor formed in a semiconductor substrate having a first conductivity, said metal oxide semiconductor transistor comprising:

5,804,857

BODY CONTACTED SOI MOSFET

Ching-Hsiang Hsu, Chia, and Mong-Song Llang, Hsin-Chu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing, Ltd., Hsin-Chu, Taiwan

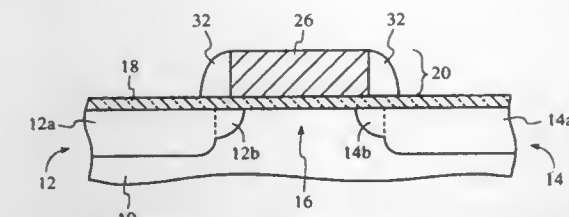
Division of Ser. No. 488,683, Jun. 8, 1995, Pat. No. 5,591,650.

This application Sep. 27, 1996, Ser. No. 721,667

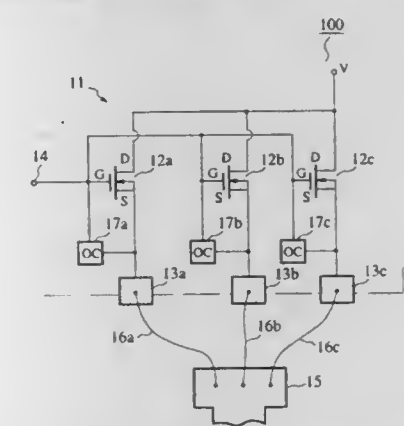
Int. Cl.⁶ H01L 27/01; 29/76

U.S. Cl. 257—347

6 Claims



- (a) a heavily doped source region, a lightly doped source region, a heavily doped drain region, and a lightly doped drain region, each having a second conductivity opposite said first conductivity;
- (b) a channel region in said semiconductor substrate having said first conductivity and separating said heavily doped source region and said heavily doped drain region, said lightly doped source region located adjacent said heavily doped source region and extending to said channel region, said lightly doped drain region located adjacent said heavily doped drain region and extending to said channel region;
- (c) a gate oxide covering at least said channel region, said lightly doped source region, and said lightly doped drain region; and
- (d) a gate electrode formed on said gate oxide comprising (i) a main gate region formed over said channel region comprising doped polysilicon and having two sidewalls and (ii) a depleted sidewall polysilicon spacer comprising depleted polysilicon formed adjacent each of said two sidewalls and overlapping said lightly doped source region and said lightly doped drain region, wherein said depleted polysilicon is undoped, and the combination of said depleted sidewall polysilicon spacers and said main gate region fully overlap said lightly doped source region and said lightly doped drain region.



1. A silicon-on-insulator body node contacted device comprising:
- a semiconductor substrate having an insulator layer thereover;
 - a silicon layer overlying said insulator layer comprising isolation areas between active areas wherein adjacent active areas have opposite polarities;
 - a polysilicon gate electrode having a gate oxide thereunder and having silicon oxide sidewalls and dielectric spacers on said sidewalls overlying each of said active areas wherein a portion of each of said active areas directly underlying said gate electrode and extending downward to said insulator layer comprises said body node of said silicon-on-insulator body node contacted device;
 - source and drain regions lying within said silicon layer on either side of said body node in each of said active areas;
 - a body node contact region replacing a cross-sectional portion of said source region but not said drain region in each of said active areas wherein said body node contact region contacts said body node and wherein said body node contact region has a polarity opposite to the polarity of said source region; and
 - lightly doped regions lying within said silicon layer underlying said dielectric spacers wherein said lightly doped regions do not extend all the way downward to said insulator layer.

5,804,857

SEMICONDUCTOR DEVICE WITH ELEMENT WINDOW DEFINED BY CLOSED LOOP CONDUCTOR

Nobuaki Tsuji, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

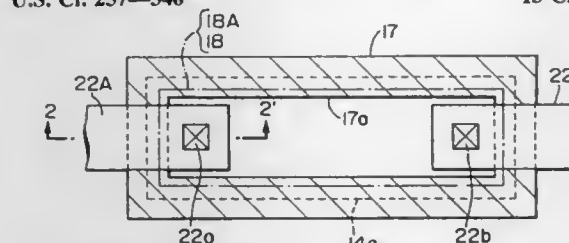
Filed Aug. 20, 1996, Ser. No. 699,995

Claims priority, application Japan, Aug. 21, 1995, 7-234723

Int. Cl.⁶ H01L 29/76; 29/94

U.S. Cl. 257—346

13 Claims



1. A semiconductor device comprising:

- a semiconductor substrate;
- a first insulation film which is formed on a surface of the semiconductor substrate, wherein the first insulation film has an element hole surrounded by the first insulation film;
- a lamination layer, having a closed-loop shape, which consists of a second insulation film, having a relatively small thickness as compared to the first insulation film, and a conductor layer, wherein the conductor layer is formed on the second insulation film and is formed to cover an overall periphery of an edge portion of the element hole; and
- an impurity-doped region which is formed in a self-aligned relationship with the lamination layer, wherein a P-N junction is formed between the impurity-doped region and a semiconductor region which is placed within the element hole, wherein by arranging an inner edge of the lamination layer inside of the overall periphery of the edge portion of the element hole, the P-N junction is terminated inside of the overall periphery of the edge portion of the element hole.

5,804,859

POWER SEMICONDUCTOR DEVICE HAVING OVER-CURRENT PROTECTION

Hitoshi Takahashi, and Yosuke Takagi, both of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 21, 1996, Ser. No. 668,233

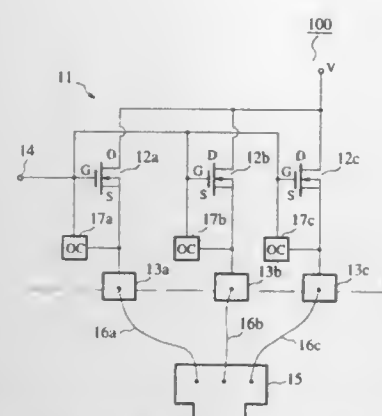
Claims priority, application Japan, Jun. 23, 1995, 7-157260

Int. Cl.⁶ H01L 23/62

U.S. Cl. 257—355

16 Claims

1. A semiconductor device having an input terminal and an output terminal, comprising:
- at least one high power semiconductor element of the semiconductor device for supplying output current as an output section; and
 - a plurality of over-current limiting circuits for limiting an amount of current flowing through a plurality of output conducting wires by which the output terminal is connected to one common external terminal, said over-current limiting circuits being provided for their respective output conducting wires in a one-to-one correspondence in order to prevent the



current passing through each of said output conducting wires from exceeding an allowable level for said each of said output conducting wires, so as to determine that said each of said output conducting wires is broken when a current passing therethrough exceeds the allowable level.

5,804,860

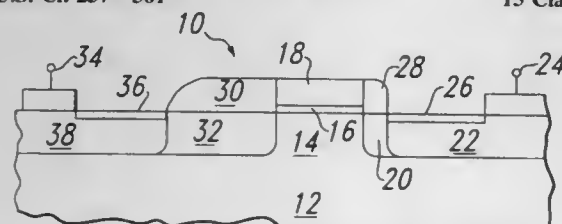
INTEGRATED LATERAL STRUCTURE FOR ESD PROTECTION IN CMOS/BICMOS TECHNOLOGIES
E. Ajith Amerasekera, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 31, 1996, Ser. No. 740,596

Int. Cl.⁶ H01L 23/62

U.S. Cl. 257—361

15 Claims



1. An electrostatic discharge protection device which includes a field-effect transistor, said field-effect transistor comprising:
- a substrate of a first conductivity type and having a surface and a backside;
 - a gate structure insulatively disposed on said substrate;
 - a blocking region disposed on said substrate and adjacent to said gate structure;
 - a lightly-doped region of a second conductivity type opposite said first conductivity type and disposed within said substrate and beneath said blocking region;
 - a channel region disposed within said substrate, under said gate structure, and adjacent said lightly-doped region;
 - a first doped region of said second conductivity type and disposed within said substrate and adjacent to said lightly doped region, said first doped region spaced away from said channel region by said lightly-doped region;
 - a second doped region of said second conductivity type and disposed within said substrate, said second doped region spaced away from said first doped region by said channel region; and

wherein a first bipolar transistor is integrated into said electrostatic discharge device and is formed by said substrate, said lightly-doped region and said second doped region and a second bipolar transistor is integrated into said electrostatic discharge device and is formed by said substrate, said first doped region and said second doped region, said first bipolar transistor becoming conductive at a lower voltage during an ESD event than said second bipolar transistor but said second bipolar transistor able to carry more current than said first bipolar transistor during said ESD event.

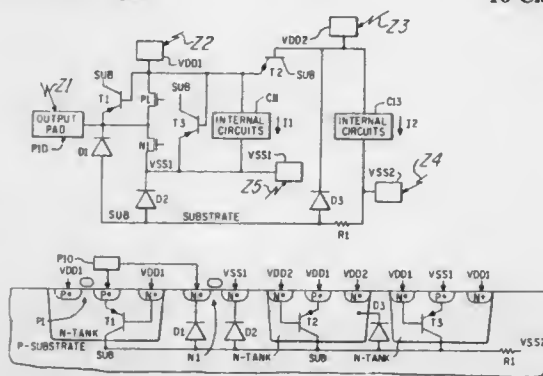
5,804,861
ELECTROSTATIC DISCHARGE PROTECTION IN INTEGRATED CIRCUITS, SYSTEMS AND METHODS
Jerald G. Leach, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 178,722, Jan. 10, 1994, Pat. No. 5,629,545, which is a division of Ser. No. 948,074, Sep. 21, 1992, Pat. No. 5,290,724, which is a continuation of Ser. No. 677,028, Mar. 28, 1991, abandoned. This application Oct. 21, 1996, Ser. No. 734,708

Int. Cl.⁶ H01L 23/62

U.S. Cl. 257—362

16 Claims



1. An integrated circuit comprising:
- a semiconductive substrate having an impurity concentration of a first type;
 - a first set of supply pins connected for a first supply voltage level and a second set of supply pins connected to said semiconductive substrate for a second supply voltage level;
 - said integrated circuit having internal circuits connected to said first and said second set of supply pins;
 - an electrostatic discharge protection circuit connected between at least two of said supply pins in said first set of supply pins, wherein said electrostatic discharge protection circuit includes a bipolar transistor, said semiconductive substrate acting as a collector for said bipolar transistor, said bipolar transistor having a base connected to a first of said supply pins in said first set of supply pins and an emitter connected to a second of said supply pins in said first set of supply pins.

5,804,862

SEMICONDUCTOR DEVICE HAVING CONTACT HOLE OPEN TO IMPURITY REGION COPLANAR WITH BURIED ISOLATING REGION

Akira Matsumoto, Tokyo, Japan, assignor to NEC Corporation, Japan

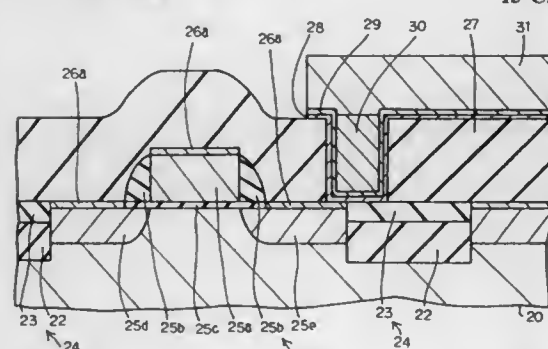
Filed Feb. 20, 1996, Ser. No. 604,129

Claims priority, application Japan, Feb. 21, 1995, 7-032226

Int. Cl.⁶ H01L 29/76; 29/94; 30/062; 31/113

U.S. Cl. 257—396

13 Claims



1. The semiconductor integrated circuit device fabricated on a semiconductor substrate, comprising:
- a buried isolating structure embedded into a surface portion of said semiconductor substrate, and having an upper layer

formed of a first insulating substance and a lower layer of silicon oxide provided beneath said upper layer, said buried isolating structure defining at least one active area in said semiconductor substrate;

- at least one circuit component including a conductive region formed in said at least one active area and contiguous to said upper layer of said buried isolating structure;
- an inter-level insulating layer formed of a second insulating substance extending on said semiconductor substrate, and having a contact hole formed therein and a lower layer of silicon oxide held in contact with said conductive region and said upper layer of said buried isolating structure, said contact hole exposing a part of said conductive region and a part of said upper layer of said buried isolating structure;
- a contact structure formed in said contact hole, and in contact with said part of said conductive region and said part of said upper layer of said buried isolating structure; and
- a wiring strip extending on said inter-level insulating layer, and electrically connected through said contact structure to said conductive region.

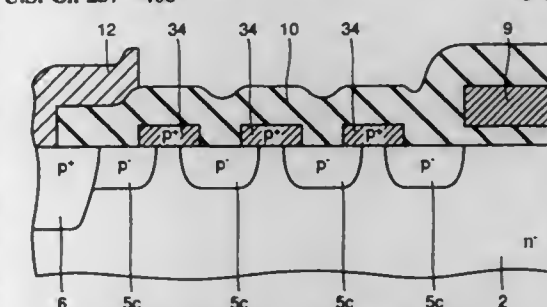
5,804,864
HIGH WITHSTAND VOLTAGE SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF
Hajime Akiyama, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 607,033

Claims priority, application Japan, Aug. 22, 1995, 7-213523
Int. Cl.⁶ H01L 29/76

U.S. Cl. 257—408

9 Claims



1. A high withstand voltage semiconductor device comprising:
- a substrate having a main surface;
 - a semiconductor layer of a first conductivity type formed on the main surface of said substrate;
 - first and second impurity diffusion regions of a second conductivity type formed spaced apart from each other at a surface of said semiconductor layer;
 - a control electrode formed on a surface of said semiconductor layer positioned between said first and second impurity diffusion regions with an insulating layer interposed;
 - a first main electrode electrically connected to said first impurity diffusion region; and
 - a second main electrode electrically connected to said second impurity diffusion region; wherein:
 - said second impurity diffusion region including a low concentration region containing impurity of the second conductivity type having a relatively low concentration and a plurality of high concentration regions connected to said low concentration region and containing impurity of the second conductivity type having a relatively high concentration;
 - said low concentration region includes first and second low concentration impurity diffusion regions of the second conductivity type formed at a surface of said semiconductor layer spaced apart from each other; and
 - said high concentration regions are formed to extend from a surface of said first low concentration impurity diffusion region to a surface of said second low concentration impurity diffusion region and substantially consists of a conductive layer containing impurity of the second conductivity type having a high concentration.

5,804,865

PACKAGE FOR OPTICAL SEMICONDUCTOR ELEMENT AND METHOD FOR MANUFACTURING THE SAME

Masato Sakata, Utsunomiya; Yukio Kazama; Kazuto Ono, both of Nikko, and Hideaki Murata, Sagami, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed May 22, 1997, Ser. No. 861,863

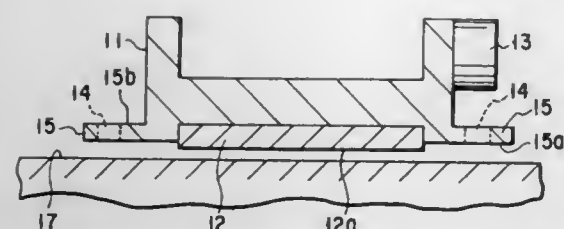
Claims priority, application Japan, May 28, 1996, 8-133352; Feb. 25, 1997, 9-040619

Int. Cl.⁶ H01L 31/0203

U.S. Cl. 257—433

12 Claims

1. A package for optical semiconductor device comprising a metallic frame having a side wall provided with an optical fiber-securing portion for securing an optical fiber to be introduced through the side wall, and a metallic bottom plate attached to an open bottom of said metallic frame for mounting the optical semiconductor device thereon, said package being featured in that said metallic frame is provided at a lower portion of said side wall with securing members for securing said package to an external



member, each securing member outwardly extending in a direction parallel with said metallic bottom plate.

5,804,866

METHOD AND DEVICE FOR DYNAMICALLY SELF-BIASING REGIONS OF INTEGRATED CIRCUITS
Natale Alello, Catania, and Vito Graziano, Palermo, both of Italy, assignors to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy

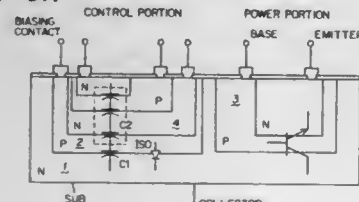
Filed Mar. 21, 1996, Ser. No. 619,421

Claims priority, application European Pat. Off., Mar. 22, 1995, 95830109

Int. Cl.⁶ H01L 27/082; 27/102; 29/70

U.S. Cl. 257—577

18 Claims



16. A bias adjusting switch comprising:

- a detecting means for detecting voltage fluctuation in a semiconductor region, when said semiconductor region is connected to a reference voltage, and
- a disconnecting means to disconnect said semiconductor region from said reference voltage when a voltage fluctuation in said semiconductor region is detected by said detecting means.

5,804,867

THERMALLY BALANCED RADIO FREQUENCY POWER TRANSISTOR

Larry Leighton, Santa Cruz, Calif.; Ted Jobansson, Djursholm, and Bertil Skoglund, Sollentuna, both of Sweden, assignors to Ericsson Inc., Morgan Hill, Calif.

Filed Oct. 2, 1996, Ser. No. 720,574

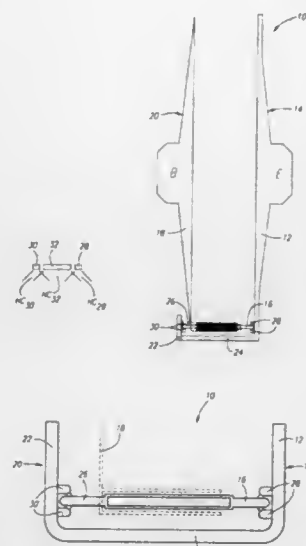
Int. Cl.⁶ H01L 27/102

U.S. Cl. 257—580

5 Claims

1. An RF power transistor comprising:

- a silicon die;
- a first emitter electrode formed on a first side of the die and comprising a first plurality of emitter fingers;
- a base electrode formed on a second side of the die;
- a second emitter electrode formed on the second side of the die and comprising a second plurality of emitter fingers, the second emitter electrode electrically connected to the first emitter electrode, wherein a respective emitter finger of the first plurality of emitter fingers and a respective emitter finger of the second plurality of emitter fingers collectively form a common active emitter region;



- a first plurality of ballast resistors formed on the first side of the die, and electrically connected to the first emitter electrode; and
- a second plurality of ballast resistors formed on the second side of the die, and electrically connected to the second emitter electrode.

5,804,868

SEMICONDUCTOR DEVICE HAVING PLANAR JUNCTION

Hideo Kobayashi; Mutsuhiro Mori; Yasumichi Yasuda, and Yasunori Nakano, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 120,526, Sep. 14, 1993, abandoned.

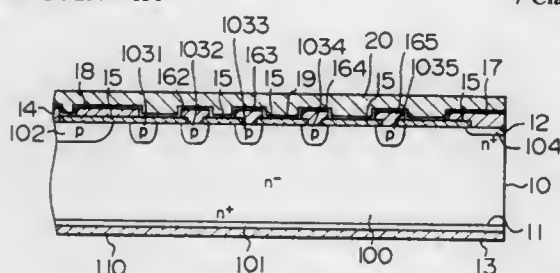
This application Feb. 13, 1996, Ser. No. 600,459

Claims priority, application Japan, Sep. 17, 1992, 4-247547

Int. Cl.⁶ H01L 23/58

U.S. Cl. 257—630

7 Claims



- 1. A semiconductor device which comprises a semiconductor substrate, to one principal surface of which a first semiconductor region of a first conductivity type is exposed, a second semiconductor region of a second conductivity type, opposite that of said first conductivity type, being provided at said principal surface and extending therefrom into said first semiconductor region and forming a planar junction comprised of a pn junction with said first semiconductor region, and a plurality of third annular semiconductor regions of said second conductivity type being provided at said principal surface each of which is extended from said principal surface into said first semiconductor region and all of which surround said second semiconductor region and are spaced apart with respectively different distances from said second semiconductor region,

wherein a minimum distance between said planar junction and the nearest third annular semiconductor region to said second semiconductor region is smaller than a minimum distance between any adjacently disposed pair of said third annular semiconductor regions, and

wherein a conductive layer is provided so as to cover, through an insulating layer, a part of said first semiconductor region, the

part of said first semiconductor region being covered includes the whole surface of said first semiconductor region located between the second semiconductor region and the third annular semiconductor region nearest thereto, said conductive layer does not cover, either partly or completely, the whole surface of said first semiconductor region located between any adjacently disposed pair of said third annular semiconductor regions.

5,804,869

CLAMP DISPOSED AT EDGE OF A DIELECTRIC STRUCTURE IN A SEMICONDUCTOR DEVICE AND METHOD OF FORMING SAME

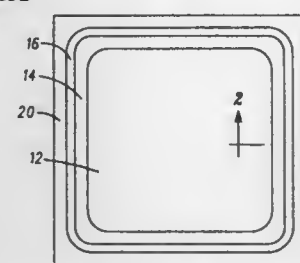
Peyman Hadizad, Scottsdale; Ali Salih, Tempe; John Robert Bender, and John David Moran, both of Mesa, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 31, 1997, Ser. No. 829,073

Int. Cl.⁶ H01L 23/58

U.S. Cl. 257—632

24 Claims



- 1. A semiconductor structure having a clamp for substantially preventing separation of a dielectric structure from a compound semiconductor material, comprising:

- said compound semiconductor material;
- said dielectric structure disposed overlying said compound semiconductor material wherein said dielectric structure has an edge; and
- said clamp disposed on said dielectric structure at said edge wherein said clamp is disposed in contact with both a portion of said dielectric structure and a portion of said compound semiconductor material proximate to said edge, and wherein said clamp is formed from a material selected from the group consisting of a polyimide, an oxide, a nitride, and polysilicon.

5,804,870

HERMETICALLY SEALED INTEGRATED CIRCUIT LEAD-ON PACKAGE CONFIGURATION

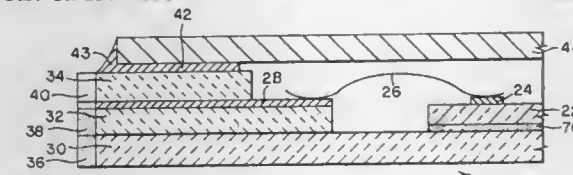
Carmen D. Burns, Austin, Tex., assignor to Staktek Corporation, Austin, Tex.

Continuation-in-part of Ser. No. 905,587, Jun. 26, 1992, abandoned. This application Jan. 30, 1995, Ser. No. 380,541

Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—666

11 Claims



- 1. A hermetically sealed ceramic integrated circuit package having good thermal conductivity for efficiently transferring heat from an integrated circuit die contained therein, comprising:

- an integrated circuit die having a face with integrated circuit connection pads thereon;
- a ceramic housing, comprising a base, electrical connection portion and a seal ring, said integrated circuit die being mounted within said ceramic housing, said electrical connection portion having a plurality of conductive vias formed therein;

an internal lead frame attached to and disposed over a substantial portion of said face of said integrated circuit die, selected elements of said internal lead frame being connected to selected ones of said integrated circuit die connection pads, and to selected ones of said conductive vias, each of said vias extending from said connection portion through said ceramic housing base and terminating at an electrical contact disposed on said exterior surface of said housing base;

a cover attached to said ceramic housing seal ring, said cover and housing being hermetically sealed together; and

an external lead frame having a plurality of lead connection tips, said external lead frame being attached to an exterior surface of said ceramic housing base, said plurality of lead connection tips of said external lead frame being aligned with and electrically connected to selected ones of said electrical contacts disposed on said exterior surface of said ceramic housing base.

5,804,871

LEAD ON CHIP SEMICONDUCTOR DEVICE HAVING BUS BARS AND CROSSING LEADS

Takayuki Maeda, Kukizaki-machi, Japan, assignor to Texas Instruments Incorporated, Dallas, Tex.

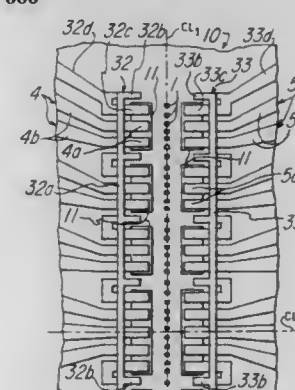
Continuation of Ser. No. 703,437, Aug. 27, 1996, abandoned, which is a division of Ser. No. 324,330, Oct. 17, 1994, Pat. No. 5,550,401. This application Apr. 7, 1997, Ser. No. 838,471

Claims priority, application Japan, Feb. 7, 1992, 4-057066

Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—666

5 Claims



- 1. A semiconductor device comprising:
- a semiconductor substrate having a surface on which an electronic circuit is provided;
- a plurality of bonding pads disposed on the surface of said semiconductor substrate at a substantially central location thereon and arranged in a straight line column;
- first and second bus bars on the surface of said semiconductor substrate and respectively disposed on opposite sides of said column of bonding pads;

first and second pluralities of elongated leads on the surface of said semiconductor substrate and respectively disposed on opposite sides of said column of bonding pads;

each of said bus bars including:

- a base wiring portion extending in a straight line in spaced parallel relation to said column of bonding pads,
- a plurality of branch portions integral with and extending inwardly from said base wiring portion toward said column of bonding pads, said plurality of branch portions being in substantially perpendicular relation thereto to said base wiring portion, and
- a plurality of bonding terminal portions integral with and corresponding to said plurality of branch portions, each of said bonding terminal portions having a wire bonding terminal extending inwardly from said base wiring portion toward said column of bonding pads and in offset relation to the branch portion corresponding thereto;

the leads of each of said first and second pluralities of elongated leads extending across the base wiring portion of the bus bar corresponding thereto and including inner lead portions arranged in spaced coextensive relation to said wire bonding terminals of the bonding terminal portions of said first and second bus bars;

said wire bonding terminals of the bonding terminal portions of said first and second bus bars and said inner lead portions of said first and second pluralities of elongated leads being arranged along said column of bonding pads on opposite sides thereof;

a first group of individual connector wires connected to respective ones of said bonding pads at one end and to respective wire bonding terminals of the bonding terminal portions of said first and second bus bars at the other end thereof; and
a second group of individual connector wires connected to respective others of said bonding pads at one end and to respective inner lead portions of said first and second pluralities of elongated leads at the other end thereof.

5,804,872

FILM CARRIER TAPE AND LAMINATED MULTI-CHIP SEMICONDUCTOR DEVICE INCORPORATING THE SAME AND METHOD THEREOF

Ichiro Miyano; Koji Serizawa, both of Fujisawa; Hiroyuki Tanaka; Tadao Shinoda, both of Yokohama, and Suguru Sakaguchi, Chigasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

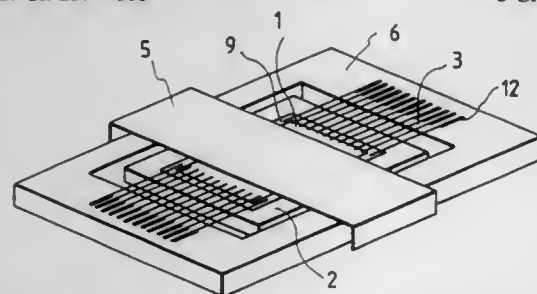
Continuation of Ser. No. 727,050, Jul. 9, 1991, Pat. No. 5,631,497, and a continuation of Ser. No. 464,577, Jun. 5, 1995. This application Feb. 5, 1997, Ser. No. 795,791

Claims priority, application Japan, Jul. 11, 1990, 2-181416

Int. Cl.⁶ H01L 23/495; 23/02

U.S. Cl. 257—668

6 Claims



1. A semiconductor device including:

a film carrier tape having a metallic layer, the metallic layer being an etched layer forming leads and a heat sink; and
a semiconductor chip having a first surface on which both the leads and the heat sink of the film carrier tape are disposed, the semiconductor chips being electrically connected to the leads of the film carrier tape on the first surface of the semiconductor chip.

5,804,873

HEATSINK FOR SURFACE MOUNT DEVICE FOR CIRCUIT BOARD MOUNTING

Brian R. Pelly, Palos Verdes Estates, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.

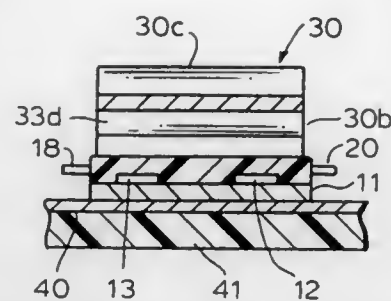
Filed Jan. 30, 1997, Ser. No. 790,842

Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—675

14 Claims

1. A surface mount semiconductor package comprising:
a bottom plate to which at least one semiconductor device is operatively coupled, the bottom plate including first and second border strips being substantially co-planar with the bottom plate;
a molded insulating housing which operatively engages the bottom plate and encapsulates the semiconductor device, the



first and second border strips extending beyond respective edges of the housing; and

a U-shaped heatsink including:

a top member having an outside surface and an inside surface; and

first and second side members being spaced apart from one another and, at one end, extending from the top member and, at another end, being coupled to the first and second border strips respectively.

5,804,874

STACKED CHIP PACKAGE DEVICE EMPLOYING A PLURALITY OF LEAD ON CHIP TYPE SEMICONDUCTOR CHIPS

Min Cheol An, and Do Soo Jeong, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

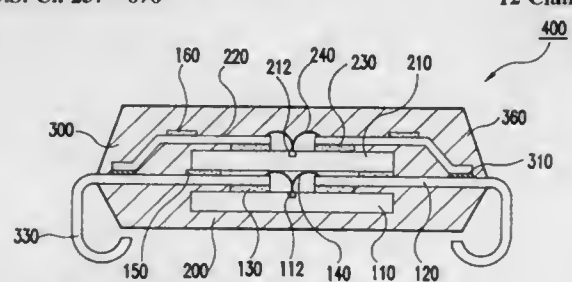
Filed Mar. 4, 1997, Ser. No. 811,150

Claims priority, application Rep. of Korea, Mar. 8, 1996, 1996 6069

Int. Cl.⁶ H01L 23/495

U.S. Cl. 257—676

12 Claims



1. A stacked chip package comprising:

an upper part comprising

an upper semiconductor chip having a plurality of electrode bonding pads disposed on a central region of an active surface of the semiconductor chip, the active surface of the upper semiconductor chip facing an upper lead frame and facing away from a lower lead frame;

said upper lead frame having leads extending over the active surface of the upper semiconductor chip and which are electrically interconnected to the electrode bonding pads of the semiconductor chip;

a lower part comprising

a lower semiconductor chip having a plurality of electrode bonding pads disposed on a central region of an active surface of the semiconductor chip, the active surface of the lower semiconductor chip facing both said lower lead frame and upper lead frames;

said lower lead frame having inner leads extending over the active surface of the lower semiconductor chip which are electrically interconnected to the electrode bonding pads of the lower semiconductor chip, and outer leads for electrical interconnecting the stacked chip package to an external circuit device,

wherein the leads of the upper lead frame are formed to directly contact top surfaces of the inner leads of the lower lead frame, so that the upper and the lower parts can be electrically interconnected; and

an insulating adhesive film interposed between and simultaneously contacting the bottom surface of the upper semiconductor chip along entire lengths of two parallel edges of the chip, and the top surfaces of the inner leads of the lower lead frame.

5,804,875

COMPUTER SYSTEM WITH HEAT SINK HAVING AN INTEGRATED GROUNDING TAB

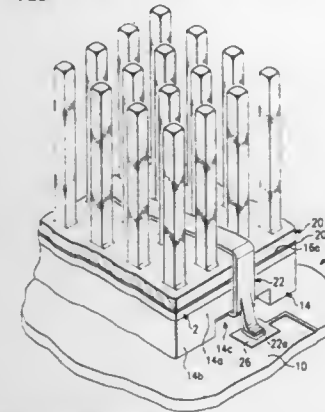
Ralph Remsburg, and Erica Scholder, both of Austin, Tex., assignors to Dell Computer Corporation, Round Rock, Tex.

Filed Dec. 10, 1996, Ser. No. 763,238

Int. Cl.⁶ H05K 7/20; H01L 23/34

U.S. Cl. 257—718

18 Claims



1. A computer system comprising:

a motherboard with a pad;

a socket connected to the motherboard;

a processor connected to the socket;

a heat sink thermally connected to the processor;

a flexible conductive clip for retaining the processor between the heat sink and the socket, the clip including a heat sink contact portion and a pair of legs each engaged with the socket, one of the legs having a tab extending therefrom, the tab being engaged with the pad on the motherboard; and

a memory connected to the processor by an interconnecting bus.

5,804,876

ELECTRONIC CIRCUIT BONDING INTERCONNECT COMPONENT AND FLIP CHIP INTERCONNECT BOND

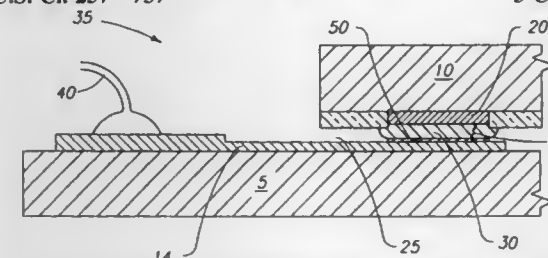
Rickie C. Lake, Eagle, and Mark E. Tuttle, Boise, both of Id., assignors to Micron Communications Inc., Boise, Id.

Continuation of Ser. No. 553,762, Oct. 23, 1995, Pat. No. 5,663,598, which is a division of Ser. No. 166,747, Dec. 13, 1993, Pat. No. 5,480,834. This application May 9, 1997, Ser. No. 853,852

Int. Cl.⁶ H01L 23/48

U.S. Cl. 257—737

5 Claims



1. An electronic circuit bonding interconnect component comprising:

a semiconductor die comprising integrated circuitry fabricated therewithin;

a conductive bonding area on the surface of the die and in electrical connection with the die integrated circuitry, the

conductive bonding area comprising an outermost metal surface fabricated of an ambient oxidizable metal; and
an electrically conductive epoxy bump bonded to the conductive bonding area, the conductive epoxy bump being at least partially cured and comprising an oxide reducing agent capable of reducing oxides of the oxidizable metal, the component being void of any appreciable ambient oxidizable metal intermediate the bonded conductive epoxy bump and conductive bonding area outermost metal surface, the conductive bonding area comprising at least two discrete metal layers, both metal layers constituting an ambient oxidizable metal.

5,804,877

LOW-RESISTANCE CONTACT ON A COMPOUND SEMICONDUCTOR

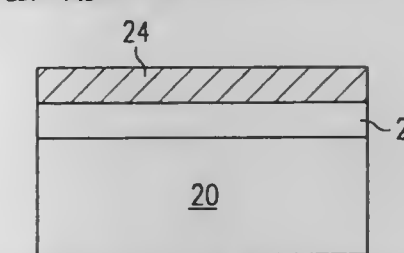
Clyde R. Fuller; Joseph B. Delaney, both of Plano, and Thomas E. Nagle, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 482,061, Jun. 7, 1995, abandoned, which is a division of Ser. No. 14,920, Feb. 8, 1993. This application Jun. 20, 1996, Ser. No. 667,318

Int. Cl.⁶ H01L 29/46; 23/485; 23/532

U.S. Cl. 257—745

13 Claims



1. An ohmic contact to a GaAs surface comprising:

a layer of InGaAs over said GaAs surface; and

a layer of TiW ohmically contacting said layer of InGaAs.

5,804,878

ELECTRONIC CIRCUIT

Minoru Miyazaki; Akane Murakami; Baochun Cui, and Mutsuo Yamamoto, all of Kanagawa, Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 162,357, Dec. 7, 1993, abandoned.

This application Apr. 24, 1996, Ser. No. 636,917

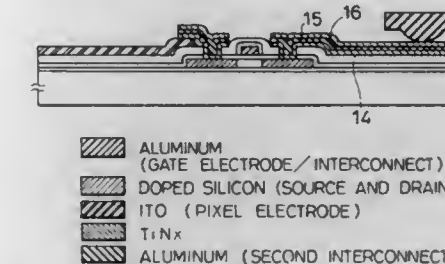
Claims priority, application Japan, Dec. 9, 1992, 4-351916;

Jan. 18, 1993, 5-023289

Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—764

21 Claims



1. An electronic circuit comprising:

a semiconductor film having a thickness less than 1500 Å and comprising silicon;

a source and drain provided in said semiconductor film;

a channel provided in said semiconductor film between said source and drain;

a gate electrode provided adjacent to said channel with a gate insulating film therebetween;

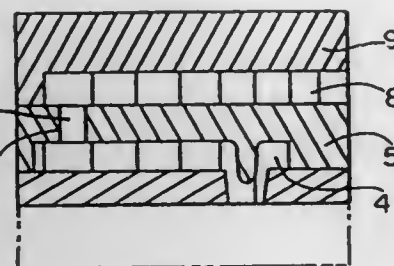
an oxide of a material of said gate electrode provided on at least a side of said gate electrode;
a first layer comprising titanium and nitrogen; and
a second layer comprising aluminum and provided with said first layer preventing said semiconductor film and said second layer from being in contact with each other,
wherein said semiconductor film is in contact with said first layer at a region thereof which is provided in at least one of said source and drain and which contains therein an element selected from the group consisting of phosphorous, arsenic and boron at a concentration of 1×10^{19} to $1 \times 10^{21}/\text{cm}^3$,
wherein said channel extends beyond side edges of said gate electrode in a direction along said source and drain, and
wherein said gate insulating film extends on a part of said channel extending beyond said side edges of said gate electrode to sandwich said channel between said gate insulating film and an insulating surface underlying said channel.

5,804,879

ALUMINUM SCANDIUM ALLOY INTERCONNECTION
Shinichi Ogawa; Hiroshi Nishimura, both of Neyagawa, and Tatsuya Yamada, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Continuation of Ser. No. 281,508, Jul. 27, 1994, abandoned, which is a continuation of Ser. No. 951,090, Sep. 25, 1992, abandoned. This application May 24, 1996, Ser. No. 653,116
Claims priority, application Japan, Sep. 30, 1991, 3-280408; Dec. 6, 1991, 3-322681; Dec. 6, 1991, 3-322682; Dec. 6, 1991, 3-322685

Int. Cl.⁶ H01L 23/48; 23/52; 25/40
U.S. Cl. 257—765

32 Claims



1. A fine, miniaturized, aluminum interconnection made from a thin film deposited over an insulating surface, the interconnection comprising a crystalline aluminum film containing scandium as an impurity and connecting a plurality of semiconductor devices that are integrated on a substrate, wherein the crystalline aluminum film includes a crystal grain which is sufficiently large to provide increased migration resistance to said interconnection.

5,804,880

SOLDER ISOLATING LEAD FRAME

Ranjan J. Mathew, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Nov. 4, 1996, Ser. No. 740,835

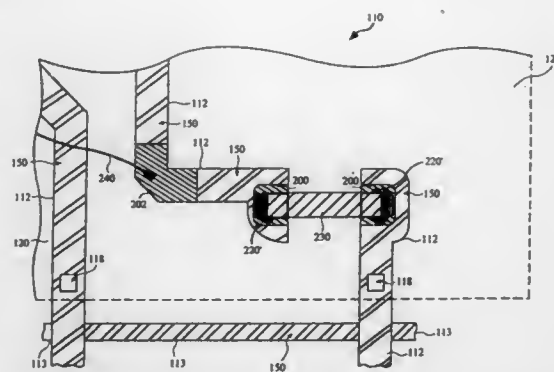
Int. Cl.⁶ H01L 23/48; 23/52; 29/40; 23/495

U.S. Cl. 257—779

14 Claims

1. A lead frame suitable for electrical connection to a die and for supporting a non-die discrete component, the lead frame comprising:

- a multiplicity of leads;
- a non-wettable material that covers at least part of a selected one of the leads of the lead frame, the non-wettable material being arranged to repel a solder material; and



a plurality of conductive attach pads covering selected portions of the lead frames, wherein at least a first one of the plurality of conductive attach pads is located on the selected lead and serves as a solderable region suitable for attaching the non-die discrete component to the selected lead, and a second one of the plurality of conductive attach pads is located on the selected lead and serves as a wire bondable region;

whereby the non-wettable material serves as a barrier to prevent the solder material used to attach the discrete component to the solderable region of the lead frame from spreading to the wire bondable region.

5,804,881

METHOD AND ASSEMBLY FOR PROVIDING IMPROVED UNDERCHIP ENCAPSULATION

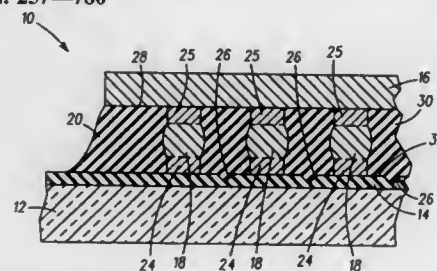
Steven Lewis Wille, and Daniel Roman Gamota, both of Palatine, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 27, 1995, Ser. No. 562,861

Int. Cl.⁶ H01L 23/48; 23/52; 29/40

U.S. Cl. 257—780

7 Claims



1. A microelectronic assembly comprising:

a printed circuit board comprising a substrate having a die attach region and a plurality of first bond pads disposed at the die attach region in a pattern such that the first bond pads are spaced apart, the die attach region including a channel extending across the die attach region in the substrate and spaced apart from the first bond pads;

an integrated circuit die mounted onto said printed circuit board and comprising a major face facing the substrate and spaced apart therefrom by a gap, said integrated circuit die further comprising a plurality of second bond pads disposed on the major face such that each second bond pad registers with a first bond pad;

a plurality of solder bump interconnections, each solder bump interconnection connecting a first bond pad to a second bond pad; and

an encapsulant disposed within the gap and surrounding said solder bump interconnections.

5,804,882

SEMICONDUCTOR DEVICE HAVING A SEMICONDUCTOR CHIP ELECTRICALLY CONNECTED TO A WIRING SUBSTRATE

Isao Tsukagoshi, Shimodate; Hiroshi Matsuoka, Oyama; Yukihisa Hirose, Mooka; Yoshikatsu Mikami, Shimodate, and Hisashi Dokochi, Mito, all of Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

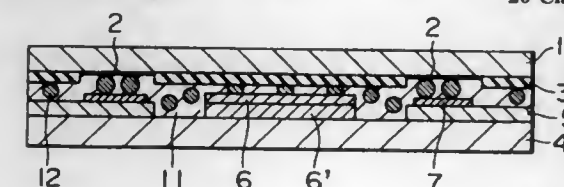
Filed May 21, 1996, Ser. No. 651,954

Claims priority, application Japan, May 22, 1995, 7-122026

Int. Cl.⁶ H01L 13/12; 23/48

U.S. Cl. 257—783

20 Claims



1. A semiconductor device comprising a semiconductor chip electrically connected to a wiring substrate, said chip having a thickness of 0.3 mm or less and a plurality of electrodes on a peripheral portion, the wiring substrate having a plurality of electrodes corresponding to the electrodes of the semiconductor chip, and an adhesive layer present between the semiconductor chip and the wiring substrate, said electrodes of at least one of the semiconductor chip and the wiring substrate being projected from an insulating plane to a predetermined height, a plurality of spacer elements having almost the same height as the predetermined height of the electrodes projecting from the insulating plane and having at least one shape selected from circles and polygons when seen from a plan view being present in an area surrounded by the electrodes on the peripheral portion of the semiconductor chip after connection.

5,804,884

SURFACE ELECTRICAL FIELD DELIMITING STRUCTURE FOR AN INTEGRATED CIRCUIT

Claudio Diazzi, Milan; Bruno Murari, Monza; Ubaldo Mastro-matteo, Cornaredo, and Claudio Contiero, Buccinasco, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

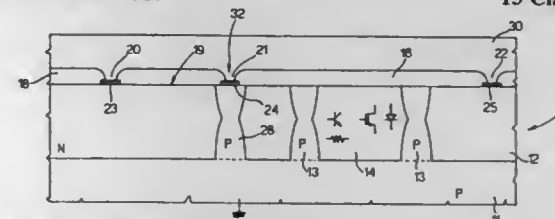
Filed Jun. 20, 1995, Ser. No. 492,597

Claims priority, application European Pat. Off., Jun. 20, 1994, 94830300

Int. Cl.⁶ H01L 23/58; 23/28; 23/29

U.S. Cl. 257—787

13 Claims



10. An integrated device comprising:
a substrate of semiconductor material having electrically active areas therein;
a plurality of layers above said substrate including electrically conductive layers;
a passivation layer overlying the plurality of layers;
a plastic layer overlying said passivation layer; and
an electrically conductive path extending from the protective layer to a lowest-voltage bias region in the substrate of semiconductor material.

5,804,885

AUTOMOTIVE RACING SIMULATION APPARATUS

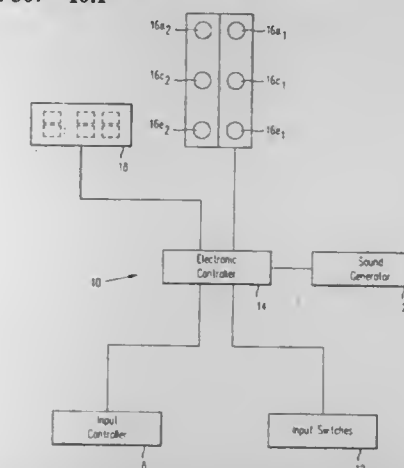
Dennis Reid, 107 Rodeo Ct., Lafayette, Calif. 94523

Filed Jul. 8, 1994, Ser. No. 272,227

Int. Cl.⁶ H01H 43/04

U.S. Cl. 307—10.1

14 Claims



1. A vehicle racing simulation apparatus comprising:
a visual indicator means having a plurality of discrete, separately activatable display means for visually indicating the commencement of a vehicle race;
electronic means for separately activating each of said display means, in sequence; and
sound generating means, activatable by said electronic means, for generating sound representative of the vehicle race, prior to its start, said sound generating means activated prior to the activation of said plurality of display means.

5,804,883

BONDING PAD IN SEMICONDUCTOR DEVICE

Hong-beom Kim, Yongin, and Seong-min Lee, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

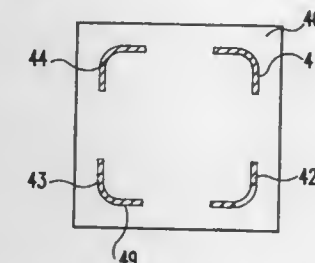
Filed Jul. 12, 1996, Ser. No. 679,450

Claims priority, application Rep. of Korea, Jul. 13, 1995, 95-20642

Int. Cl.⁶ H01L 23/29; 23/31; 27/02

U.S. Cl. 257—786

7 Claims



1. A semiconductor bonding pad in a semiconductor device covered by an elongated passivation layer, wherein said bonding pad has a slit formed along a periphery of the bonding pad to reduce stresses caused by wire bonding, said slit having arcuate portions at corners of the bonding pad.

5,804,886

ELECTRONIC SWITCH WITH INSERT MOLDING AND METHOD OF MANUFACTURING SAME

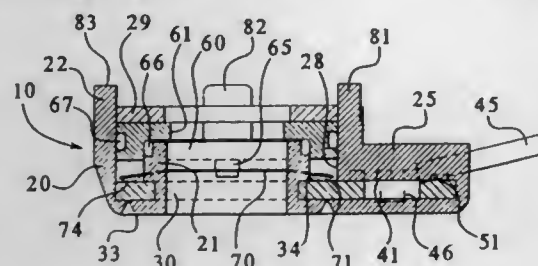
David J. Danielson, Hamilton; Charles R. Griffin, Carthage, both of Ill., and Rajkumar Ramamurthy, Keokuk, Iowa, assignors to Methode Electronics, Inc., Chicago, Ill.

Filed Nov. 12, 1996, Ser. No. 745,426

Int. Cl.⁶ H01H 11/00

U.S. Cl. 307—10.1

15 Claims

**1. An electronic switch comprising:**

- a printed circuit board having a conductive area thereon and connected to a conductor wire attached to the printed circuit board;
- a housing insert molded around the printed circuit board having an open chamber exposing the conductive area of the printed circuit board; and
- a contact member mounted in the housing in order to open and close a circuit.

5,804,887

SAFETY DEVICE FOR A VEHICLE WITH A REMOVABLE SEAT, ESPECIALLY A PASSENGER SEAT

Bernhard Holzappel, Remshalden; Michael Meyer, Sindelfingen, and Frank Zerrweck, Stuttgart, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

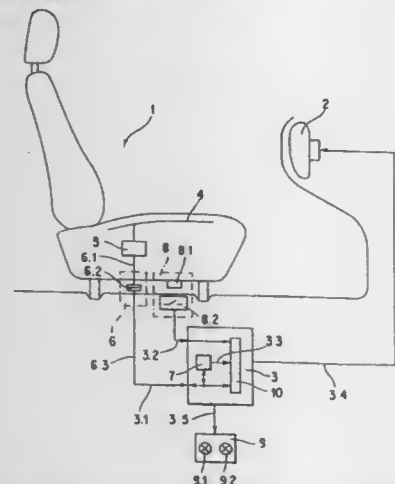
Filed Mar. 21, 1997, Ser. No. 824,014

Claims priority, application Germany, Apr. 17, 1996, 196 15 321.2

Int. Cl.⁶ B60R 21/32

U.S. Cl. 307—10.1

23 Claims

**1. Safety device for a vehicle with a removable seat, comprising:**

- an occupant restraint device associated with said seat, said occupant restraint device comprising at least one airbag and being triggerable in the event of a serious accident by a triggerable signal from a triggering control device so that the restraint device assumes a restraint position that protects the occupant;
- a seat occupation device located in the seat that detects a variable seat occupation status and delivers a corresponding seat occupation status signal through a signal interface to the

triggering control device located in the vehicle, which takes the seat occupation status into account in issuing the triggering signal;

a seat installation detection device that detects proper installation of the seat and delivers a corresponding seat installation status signal;

an interface interrogation unit that checks the transmission capability of at least a signal interface and delivers a corresponding interface status signal;

wherein the triggering control device is configured to take into account the status signals for seat occupation, interface, and seat installation in such fashion that the scope of the triggering of the restraint device is adapted to the conditions characterized by the status signals.

5,804,888

ANTI-THEFT SYSTEM FOR A MOTOR VEHICLE

Robert Murr, Barbing; Bernhard Foerstl, Kelheim; Thomas Roehri, Barbing, and Herbert Zimmer, Regensburg, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

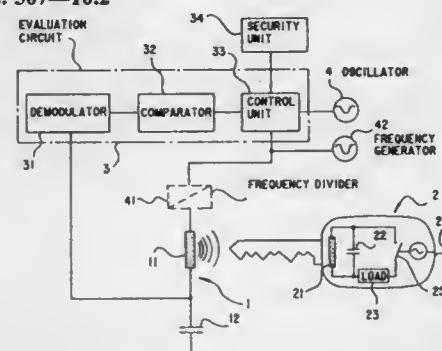
Filed Aug. 28, 1995, Ser. No. 520,239

Claims priority, application Germany, Aug. 26, 1994, 44 30 360.2

Int. Cl.⁶ B60R 25/04

U.S. Cl. 307—10.2

13 Claims

**1. An anti-theft system for a motor vehicle, comprising:**

- a portable transponder carrying an item of code information;
 - a stationary antenna having a resonant circuit with components and a resonant frequency being determined by said components;
 - an oscillator oscillating at an oscillator frequency and having an output variable being used as an exciter variable with an exciter frequency for compelling an oscillation of said resonant circuit, the oscillation being amplitude-modulated as a function of the code information of said transponder;
 - an evaluation unit receiving the oscillation of said resonant circuit, said evaluation unit detecting the modulated oscillation and demodulating the code information out of the oscillation;
 - a comparator comparing the code information with command code information and supplying an enable signal if a match occurs; and
 - a security unit receiving the enable signal;
- the exciter frequency or the resonant frequency of said resonant circuit being varied if initially no code information is recognized by said evaluation unit.

5,804,890

UN-INTERRUPTIBLE POWER SUPPLY APPARATUS FOR DIFFUSION FURNACE

Chu Lin Hu; Chin-Chuan Chung, both of Hsinchu Hsian; Albert Sang, and Kuo-Tunt Wei, both of Hsinchu, all of Taiwan, assignors to United Microelectronics Corp., Hsinchu, Taiwan

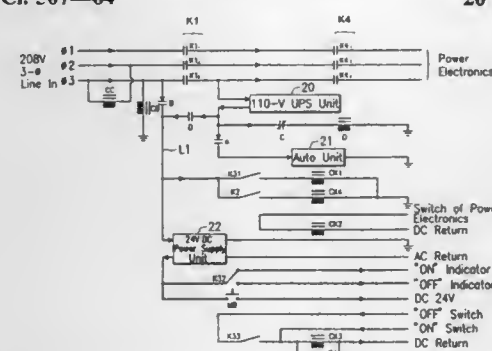
Filed Oct. 7, 1996, Ser. No. 729,765

Claims priority, application Taiwan, Jul. 29, 1996, 85211603

Int. Cl.⁶ H02J 3/04

U.S. Cl. 307—64

20 Claims



1. A un-interruptible power supply apparatus for a diffusion furnace, the diffusion furnace including a power electronics subsystem coupled to a three-phase utility power source through first and second series-connected normally-open main power switches; an automatic controller; and a direct-current power supply; wherein the automatic controller controls operation of the power electronics subsystem; the apparatus comprising:

- an un-interruptible power supply having a power input for connection to a node between the first and second series-connected normally-open main power switches, and a power output;
- a first normally-open circuit breaker having a first circuit breaker switch to open and close electrical connection between the power output of said un-interruptible power supply and a power input of said automatic controller, the first circuit breaker switch having a first terminal connected to the power output of said un-interruptible power supply and a second terminal for connection to the power input of the automatic controller;
- a second normally-open circuit breaker having a second circuit breaker switch to open and close electrical connection between a first phase power line of the three-phase utility power source and a power input of the direct-current power supply, the second circuit breaker switch having a first terminal for connection to an unswitched portion of the first phase power line and a second terminal for connection to the power input of the direct-current power supply;
- a third normally-closed circuit breaker having a third circuit breaker switch to open and close electrical connection between the power output of said un-interruptible power supply and a system ground, the third circuit breaker switch having a first terminal connected to the power output of said un-interruptible power supply and a second terminal for connection to the system ground; and
- a fourth normally-open circuit breaker having a fourth circuit breaker switch to open and close electrical connection between the power output of said un-interruptible power supply and the power input of said direct-current power supply, the fourth circuit breaker switch having a first terminal connected to the power output of said un-interruptible power supply and a second terminal for connection to the power input of said direct-current power supply.

5,804,891

DIRECT CURRENT VOLTAGE POWER BACKUP SYSTEM

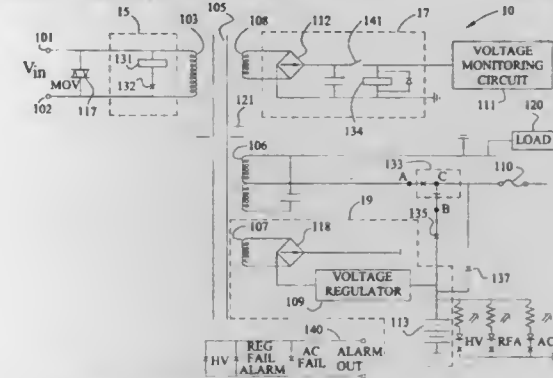
Robert J. Kakalec, Madison, N.J., and John S. Pendergrass, Grand Prairie, Tex., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 805,093, Feb. 24, 1997, which is a continuation of Ser. No. 499,513, Jul. 7, 1995, abandoned. This application Mar. 11, 1997, Ser. No. 815,285

Int. Cl.⁶ H02J 7/00

U.S. Cl. 307—64

6 Claims

**1. A power system, comprising:**

- an input for accepting AC voltage;
- a power transformer having a primary winding connected to the input, a secondary winding side, having at least one winding and providing an AC voltage;
- an output terminal for outputting a voltage;
- a backup terminal connected to a DC voltage source, the DC voltage source supplying a DC voltage substantially equivalent to the AC voltage directly to a load; and
- switching circuitry for selectively connecting the output terminal to one of the secondary winding side and the backup terminal.

5,804,891

BATTERY SAVING SWITCHING MECHANISM

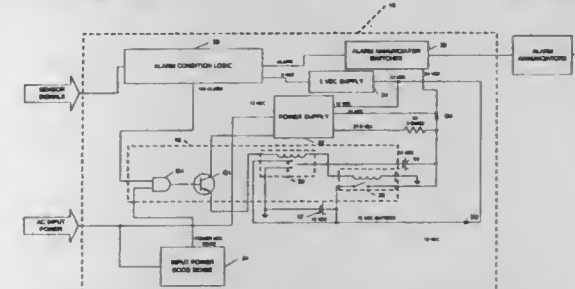
Douglas H. Marman, Ridgefield, Wash.; Kenneth David Fisch, and Brian B. Walch, both of Hickory, N.C., assignors to Sentrol, Inc., Tualatin, Oreg.

Filed Mar. 31, 1997, Ser. No. 825,511

Int. Cl.⁶ H02J 9/06

U.S. Cl. 307—66

11 Claims



1. A fire alarm system that is normally powered by AC line power, or when the AC line power fails, by a battery backup apparatus, the fire alarm system including a control panel that draws a lower amount of current at a lower voltage and alarm annunciators that draw a higher amount of current at a higher voltage, an improved battery backup apparatus comprising:

- first and second backup batteries, which when connected in a parallel configuration have a first ampere-hour capacity capable of providing the lower voltage at the lower amount of current for powering the control panel for at least a first predetermined time period, and when connected in a series configuration have a second ampere-hour capacity capable of providing the higher voltage at the higher amount of current for powering the alarm annunciators for at least a second

predetermined time period that is shorter than the first predetermined time period, the second ampere-hour capacity being insufficient for powering the control panel for at least the first predetermined time period;

an AC line power sensing circuit for issuing a power not good signal in response to an absence of AC line power;

an alarm condition logic circuit for detecting whether an alarm condition exists and issuing a no alarm signal when no alarm condition exists;

a logic circuit issuing a first switching state signal in response to receiving the power not good signal and the no alarm condition signal and otherwise issuing a second switching state signal; and

a switching mechanism receiving the first switching state signal and switching the first and second backup batteries into the parallel configuration for powering the control panel.

5,804,892

TRANSMISSION DEVICE

Ulrich Schwan, Trillenbühlstrasse 29, D-88682 Salem-Beuren, and Andreas Nagel, Halver, both of Germany, assignors to Ulrich Schwan, Salem-Beuren, Germany

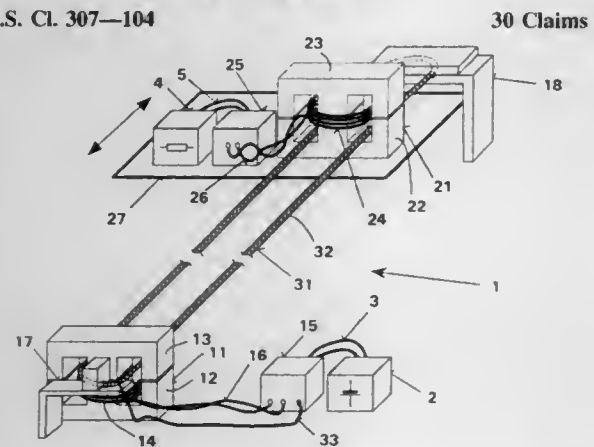
PCT No. PCT/EP95/01377, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO95/28723, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 12, 1995, Ser. No. 578,566

Claims priority, application Germany, Apr. 17, 1994, 44 12 957.2

Int. Cl.⁶ H02M 1/00

U.S. Cl. 307—104



1. A device for contact-free transmission of electrical energy from at least one power supply to at least one consumer; said device comprising:

- a first transformer having connected thereto a first current converting device;
- a second transformer having connected thereto a second current converting device;
- a first endless, closed-loop electrical conductor coupling electrically in a contact-free manner said first and second transformers; and
- wherein at least one of said transformers supplies electrical energy to said electrical conductor and wherein at least one of said transformers receives electrical energy from said electrical conductor.

5,804,893

SEMICONDUCTOR DEVICE WITH APPROPRIATE POWER CONSUMPTION

Shinya Fujioka, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

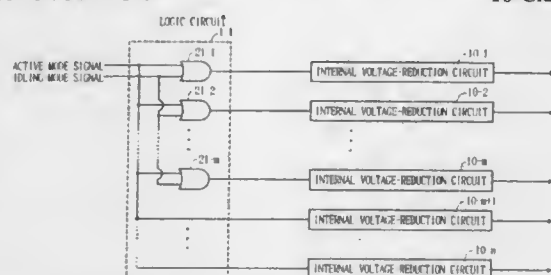
Filed Mar. 14, 1997, Ser. No. 818,714

Claims priority, application Japan, Oct. 17, 1996, 8-274745

Int. Cl.⁶ H03K 3/027

U.S. Cl. 307—125

10 Claims



1. A semiconductor device with internal circuits which operates in a selected mode selected from a plurality of operation modes, a number of said operation modes being more than two, said semiconductor device comprising:

- a plurality of internal voltage-reduction circuits for supplying an internal voltage to the internal circuits of said semiconductor device via at least one shared voltage-supply line shared by at least some of said plurality of internal voltage-reduction circuits; and
- a control circuit for driving a predetermined number of said internal voltage-reduction circuits based on a signal indicating said selected mode, said control circuit changing said predetermined number for each of said operation modes.

5,804,894

LOW VOLTAGE BATTERY PACK MONITORING CIRCUIT WITH ADJUSTABLE SET POINTS

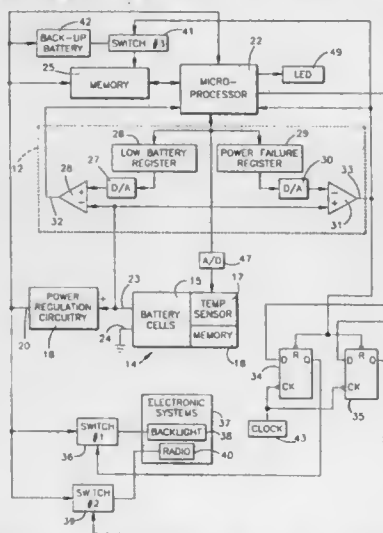
Randal A. Leeson, Stow, and Richard Shoobridge, Akron, both of Ohio, assignors to Telxon Corporation, Akron, Ohio

Filed Aug. 16, 1996, Ser. No. 699,093

Int. Cl.⁶ H01H 35/00; H02J 7/00

U.S. Cl. 307—130

20 Claims



3. A battery pack monitoring circuit for a portable electronic device having a battery pack, electronic circuitry including a microprocessor and a plurality of electronic systems, the monitoring circuit comprising:

- a) a first comparison circuit for comparing a low battery pack set point voltage value to an output voltage across the battery pack and generating a signal resulting in actuation of a low

battery indicator upon the battery pack output voltage falling below the low battery set point voltage value;

- b) a second comparison circuit including a power failure comparator having an output with two output states, the comparator electrically coupled to the battery pack for comparing a power failure set point voltage value to the output voltage across the battery pack, the comparator output changing from a first output state to a second output state upon the battery pack output voltage falling below the power failure set point voltage value, at least one of the electronic systems of the device coupled to the output of the comparator and being turned off upon the comparator output changing to the second output state; and

- c) the second comparison circuit including a D flip-flop and a switch coupled between the output of the power failure comparator and the at least one of the electronic systems of the device, an output of the D flip-flop changing state when the power failure comparator changes from the first output state to second output state causing the switch to change state and turn off the at least one of the electronic systems.

5,804,895

MINIATURE MOTOR AND METHOD FOR FIXING MINIATURE MOTOR TO PRINTED CIRCUIT BOARD

Toshiaki Tsuzaki, and Eiichi Ibata, both of Yonago, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

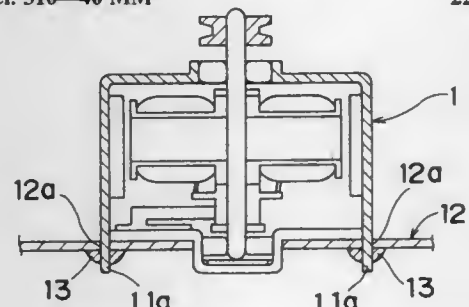
Filed Sep. 1, 1994, Ser. No. 299,076

Claims priority, application Japan, Sep. 2, 1993, 5-047842 U

Int. Cl.⁶ H02K 11/00

U.S. Cl. 310—40 MM

22 Claims



- 1. A miniature motor comprising:
- a stator frame which has been solder treated on its surface and which has a closed end and a generally cylindrical shape;
- a stator fixedly supported by said stator frame;
- a rotor surrounded and rotatable supported by said stator frame in opposition to said stator; and

wherein said stator frame includes a main frame portion and at least one projected portion extending directly from an outer periphery of said main frame portion for being inserted through at least one hole of a printed circuit board in a first direction from a second surface to a first surface thereof, said printed circuit board being provided outside the motor and extending beyond outer dimensions of said stator frame in at least two opposite directions perpendicular to said first direction, the projected portion having a notch for holding the printed circuit board therein, wherein the printed circuit board and the projected portion extending through the at least one hole of the printed circuit board are soldered to each other with solder and the printed circuit board is held in the notch of the projected portion.

5,804,896

HIGH SPEED SPINDLE MOTOR AND APPARATUS EQUIPPED WITH HIGH SPEED SPINDLE MOTOR

Isamu Takehara, Chiba; Masashi Ogawa, and Hirotada Shimaguchi, both of Narashino, all of Japan, assignors to Seiko Seiki Kabushiki Kaisha, Japan

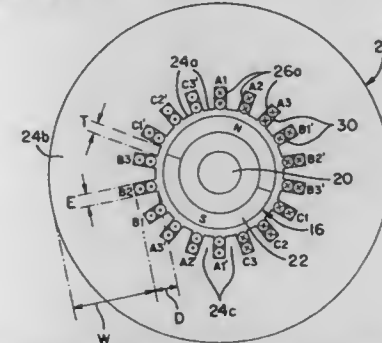
Filed Dec. 19, 1995, Ser. No. 575,144

Claims priority, application Japan, Dec. 21, 1994, 6-335815

Int. Cl.⁶ H02K 7/00; H01M 0/00

U.S. Cl. 310—67 R

19 Claims



- 1. A spindle motor for high speed rotation, comprising: a permanent magnet rotor having an outer diameter and an outer circumference; a stator core disposed around and spaced from the outer circumference of the rotor and having a return yoke portion and a plurality of slots formed thereon, each of the slots having a width in a radial direction of the stator core smaller than a width of the return yoke portion; and a coil having two turns or less and being comprised of a conductor disposed in the slots in close proximity to the outer circumference of the rotor and having a diameter equal to or greater than 1/2 of the outer diameter of the rotor.

5,804,897

PERMANENT MAGNET VEHICLE BRAKING APPARATUS

Tohru Kuwahara, Kanagawa, Japan, assignor to Isuzu Motors Ltd., Tokyo, Japan

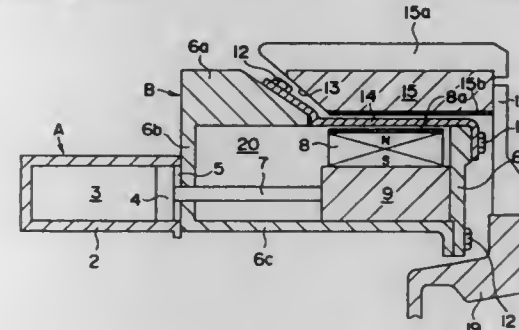
Filed Nov. 26, 1996, Ser. No. 757,012

Claims priority, application Japan, Nov. 30, 1995, 7-336180

Int. Cl.⁶ H02K 49/02

U.S. Cl. 310—77

15 Claims



- 1. Vehicle braking apparatus comprising:
- a brake drum connected to a rotational shaft;
- an annular member formed of a ferromagnetic material;
- a guide frame for supporting said annular member in a position within and spaced from an inner surface of said brake drum;
- a cylindrical body formed entirely from a nonmagnetic material and defining an uninterrupted wall between said inner surface of said brake drum and said annular member;
- a plurality of annularly arranged permanent magnets circumferentially spaced apart in positions of uniform pitch, the polarities of said permanent magnets facing said inner surface of said brake drum alternating circumferentially;

a thin layer of heat insulating material disposed on an outer surface of each of said permanent magnets; and
an actuator 4 means for producing axial movement of said annularly arranged permanent magnets into active positions within said brake drum and between said inner surface of said brake drum and said annular member, and inactive positions out of said brake drum.

5,804,898

ELECTRIC MOTOR UTILIZING MAGNETIC ENERGY OF PERMANENT MAGNET

Teruo Kawai, Tokyo, Japan, assignor to Nihon Riken Co., Ltd., Tokyo, Japan

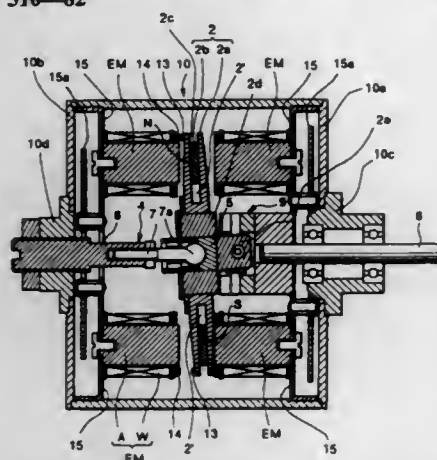
Continuation of Ser. No. 526,920, Sep. 12, 1995, abandoned.

This application Jun. 24, 1997, Ser. No. 881,270

Int. Cl.⁶ H02K 7/06; 37/00

U.S. Cl. 310—82

8 Claims



1. An electric motor utilizing magnetic energy of a permanent magnet, said electric motor comprising:

a rotor including a substantially disc-shaped member formed of magnetic material and a substantially flat ring-shaped annular permanent magnet disposed integrally in a circumferential direction therein, said annular permanent magnet having a first axial end of a first polarity and a second axial end of a second polarity opposite to said first polarity;

two groups of electromagnets, each said group including a plurality of electromagnets disposed annularly and opposed to a respective said axial end of said permanent magnet of said rotor and arranged at a respective axial side of said rotor;

a first gear member disposed annularly along said rotor adjacent an outer periphery thereof;

a second gear member formed annularly along one of said groups of electromagnets and engaged with said first gear member and having a different number of teeth than said first gear member;

a casing containing said rotor and said groups of electromagnets therein;

means for pivotally supporting a first end of a central portion of said rotor relative to said casing so that said rotor is capable of wobbling movement between said groups of electromagnets that oppose each other, said pivotally supporting means comprising a shaft portion projecting from an inner surface of said casing, a globe-shaped portion formed at a tip of said shaft portion, and a recessed portion formed in said central portion of said rotor, said recessed portion being in engagement with said globe-shaped portion;

a universal coupling connected to a second end of said central portion of said rotor and to convert wobbling movement of said rotor into rotation;

an output shaft connected to said universal coupling and to output said converted rotation thereof; and

means for energizing said electromagnets in a predetermined sequence and timing, wherein:

a flux of said permanent magnet flows substantially in the entire said disc-shaped member when none of said electromagnets is energized, and when any one of said electromagnets of either of said groups is energized, the flux flow from said permanent magnet to the energized electromagnet is converged to flow through a restricted small area in said disc-shaped member of said rotor directly between said permanent magnet and said energized electromagnet so as to produce an attractive magnetic force therebetween, said attractive magnetic force substantially not having any interaction in the area of said disc-shaped member of said rotor other than said restricted small area.

5,804,899

MINIATURE MAGNETIC BEARING WITH AT LEAST ONE ACTIVE AXIS

Patrice Jamain, Maule; Christophe Bernus; Jean-Yves Frere, both of Paris; André Boura, Chatelleraut, and Rémi Delaplace, Mennecy, all of France, assignors to Aerospatiale Societe Nationale Industrielle, Paris, and Sextant Avionique, Velizy Villacoublay, both of France

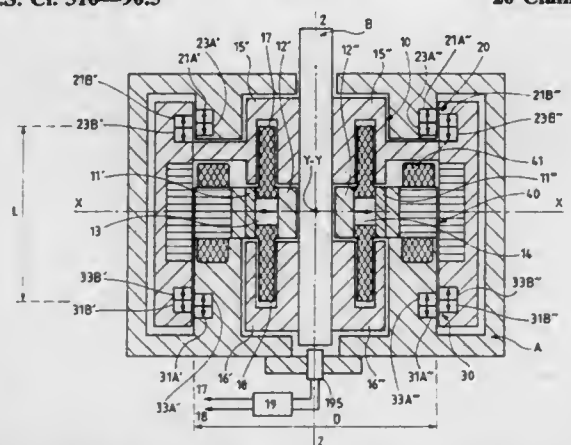
Filed Apr. 2, 1996, Ser. No. 626,448

Claims priority, application France, Apr. 7, 1995, 95 04163

Int. Cl.⁶ H02K 7/09

U.S. Cl. 310—90.5

20 Claims



1. Device for magnetically centering, about a reference axis, a second body mobile relative to a first body, said device including: a magnetic bearing active along said reference axis, and two magnetic centering devices offset axially along said reference axis and transversely disposed outside said magnetic bearing.

5,804,900

MAGNETIC BEARING SPINDLE DEVICE

Manabu Taniguchi, Yamatotakada, and Hirochika Ueyama, Hirakata, both of Japan, assignors to Koyo Seiko Co., Ltd., Osaka, Japan

PCT No. PCT/JP95/01425, § 371 Date Jan. 17, 1997, § 102(e) Date Jan. 17, 1997, PCT Pub. No. WO96/02353, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 18, 1995, Ser. No. 776,067

Claims priority, application Japan, Jul. 20, 1994, 6-167629

Int. Cl.⁶ H02K 7/09; B23Q 11/10

U.S. Cl. 310—90.5

14 Claims

1. A magnetic bearing spindle device, comprising:

a) a housing;

b) a spindle, disposed within the housing, and having an inner peripheral surface surrounding a cooling fluid channel that extends axially through the spindle;

c) a tubular cooling fluid supply member, fixed to a rear end of the housing, inserted in the spindle's cooling fluid channel to an insertion depth, and having an outer peripheral surface

5,804,902

MULTI-PHASE ELECTRIC MACHINE WITH JOINED CONDUCTOR LANES

Wolfgang Hill, Ortenbergstrasse 3, D-76135 Karlsruhe, Germany

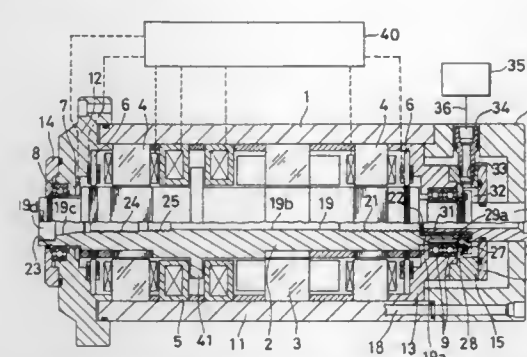
Filed Oct. 3, 1996, Ser. No. 720,781

Claims priority, application Germany, Apr. 6, 1994, 44 11 749.3

Int. Cl.⁶ H02K 1/00

U.S. Cl. 310—179

4 Claims

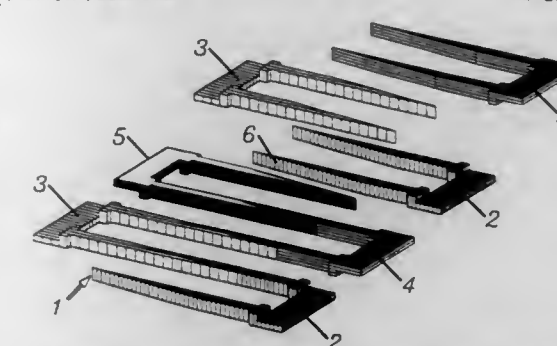


defining a radial clearance, with respect to the spindle's inner peripheral surface, that defines the cooling fluid channel;

d) magnetic bearings that contactlessly support the spindle relative to the housing while the spindle is rotating; and

e) mechanical touchdown bearings that support the spindle while the spindle is initiated into rotation and when the spindle is stopped from rotating;

wherein (1) the radial clearance defining the cooling fluid channel is greater than (2) a radial spacing between the touchdown bearings and the spindle when the spindle is contactlessly supported.



1. A multi-phase electric machine consisting of a multi-phase winding, said multi-phase winding possessing conductor lanes, said conductor lanes consisting of sections and said conductor lanes having cross sections, a part of said winding lying during operation of said electric machine within the magnetic field of said electric machine, said conductor lanes of said machine being joined from prefabricated conductor parts in those said sections of said conductor lanes that are located within said magnetic field of said machine and said cross sections of said conductor lanes remaining approximately constant, wherein said prefabricated conductor parts consist of at least two said sections which are located within the magnetic field during operation of said machine and which are separated by at least one said section which is located outside said magnetic field during operation of said machine.

5,804,901

ENERGY CONVERSION DEVICE USING PERMANENT MAGNETS

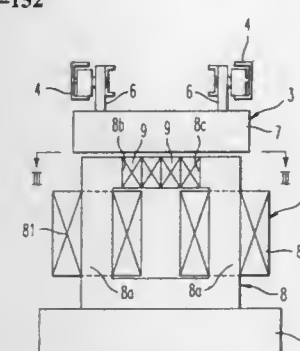
Sanshiro Ogino, 2-20-1, Futaba, Shinagawa-ku, Tokyo, and Keiichi Asaoka, 8-8, Izumi-cho, Atsugi-shi, Kanagawa, both of Japan

Filed Oct. 29, 1996, Ser. No. 741,217

Int. Cl.⁶ H02K 21/00; 41/00; 16/00; 21/12

U.S. Cl. 310—152

10 Claims



1. An energy conversion device comprising:

a magnetic field generating device including a bracket-shaped made of magnetic material having a bottom portion and two columnar sections, each of said two columnar sections extending up from said bottom portion and each of said columnar sections having an upper portion extending from the top of the respective columnar section, and a plurality of permanent magnets disposed between the upper portions to form a top portion of said yoke and also to provide a closed magnetic circuit wherein said permanent magnets are arranged in a row; and

a plurality of blocks having a length parallel to the row formed by said permanent magnets, said blocks forming a supporting structure in an equally spaced arrangement opposite the top portion of the yoke such that a direct current applied to said magnetic field generating device attracts or repels said blocks to cause movement of said blocks in a direction parallel to said row formed by said permanent magnets.

5,804,903

MOTOR SHAFT DISCHARGE DEVICE

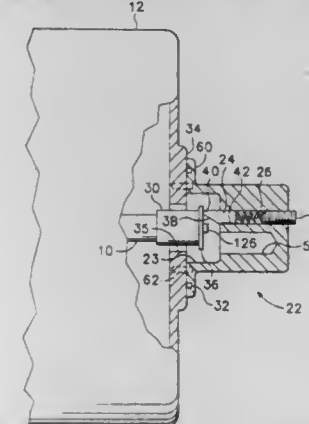
Rodney R. Fisher, 3175 NW Crocker La., Albany, Ore. 97321, and Hugh E. Boyanton, 146 Kevin Way, Salem, Ore. 97306

Continuation-in-part of Ser. No. 141,350, Oct. 22, 1993. This application Jun. 23, 1995, Ser. No. 493,931

Int. Cl.⁶ H02K 13/10; H01R 39/46

U.S. Cl. 310—248

11 Claims



1. Apparatus for electrically discharging a rotating shaft of a machine, said machine having a frame supporting bearings journaling said shaft, said apparatus comprising:

contact means for providing a durable, contamination free, electrical contacting surface, said contact means comprising a member distinct from said shaft but removably joined to said shaft for rotation with said shaft and in electrically conductive relation therewith, said member where it provides said surface

being formed of a highly conductive corrosion resistant material as compared with said shaft;

a conductive brush for resiliently and continuously contacting said surface of said contact means during rotation thereof to complete continuous low resistance frictional contact with said surface; and

a housing for slidably receiving said conductive brush in juxtaposition with said contact means so the brush can engage said contact means, said housing including means forming a circuit path for coupling said brush to the frame of said machine so as to complete a continuous, low impedance discharge circuit for said shaft across said bearings;

said apparatus defining a cavity for extending the immediate region of contact between said contact means and said brush for receiving and holding residue produced by said brush as said shaft rotates;

wherein said housing is secured to said machine and is substantially closed except for passage of said shaft carrying said contact means;

wherein said contact means is supported from the end of said shaft and is cup shaped, being open ended in the direction axially away from said machine, said brush extending from said housing into the open end of the cup-shaped contact means for contacting the inner end of the contact means closest to said machine; and

further including an elastomeric ring in surrounding relation to said brush and compressed from said housing toward the open edge of the cup-shaped contact means, said cup-shaped contact means cooperating to provide said cavity.

5,804,904

BRUSHLESS DC MOTOR AND A METHOD OF GENERATION POWER THEREWITH

No-yeol Park, Sawon; Seong-man Jang, Anyang; Gun-hee Jang, 308-801 Mugunghwa Kyungnam Apt., Shinchon-dong, Dongan-gu, Anyang, Kyungki-do, and Jin-yook Yoon, Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., and Gun-hee Jang, both of Kyungki-do, Rep. of Korea

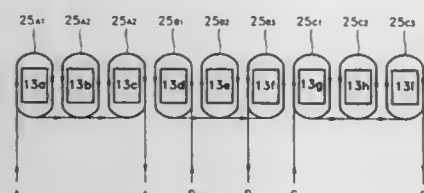
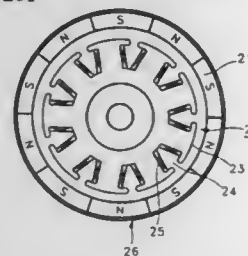
Filed Jan. 16, 1997, Ser. No. 784,869

Claims priority, application Rep. of Korea, Jan. 18, 1996, 1996 1021

Int. Cl.⁶ H02K 1/22

U.S. Cl. 310—261

15 Claims



1. A brushless DC motor which generates power from the torque generated between a flux field and a rotating magnetic field, comprising:

means for generating the flux field; and

means for forming the rotating magnetic field with respect to the flux field,

wherein said means for generating the flux field includes an annular field magnet having ten magnetic poles with surfaces alternately arranged in a ring-shaped form along a circumferential orientation and magnetically bonded to each other in a radial orientation, each having an opposing polarity with respect to adjacent magnetic poles, and

wherein said means for forming the rotating magnetic field includes an armature core having nine salient-poles at regular intervals from the circumference opposing the surfaces of the magnetic poles of the annular field magnet, and having nine slots each formed between adjacent salient-poles, and having a plurality of armature windings wound around each of the salient-poles with at least one winding, wherein said plurality of armature windings are divided into three groups of windings wound around three consecutive of said nine salient-poles of said armature core.

5,804,905

ELECTRIC DISK ARMATURE MACHINE

Karl-Heinz Knoerzer, Im Kleegäßle 7a, DE-79235 Vogtsburh/Achkarren Bundesrepublik, Germany

Continuation of Ser. No. 220,898, Mar. 31, 1994, abandoned.

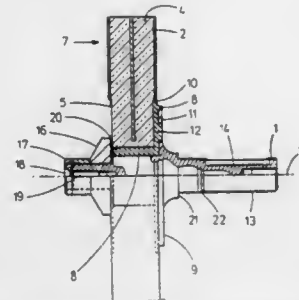
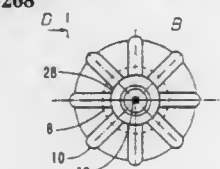
This application May 2, 1997, Ser. No. 850,589

Claims priority, application Germany, Apr. 3, 1993, 93 05 152 U; Apr. 3, 1993, 93 95 153 U

Int. Cl.⁶ H02F 1/22

U.S. Cl. 310—268

33 Claims



1. An electric disk armature machine, comprising:

a drive shaft;

a rotor, wherein said rotor is a self-supporting construction of a plurality of plate-like metallic coil elements which are distributed along a circumference and which are interconnected radially outside and radially inside so as to be conductive;

at least one driver disk, wherein said at least one driver disk is arranged vertically to a shaft axis for at least one of a positive and a frictional connection with said rotor; and

a commutator, wherein said commutator is formed by an annular portion of one end side of said rotor;

wherein said drive shaft transmits power from and to said rotor of said electric disk armature machine, and wherein an insulating layer is arranged between said rotor and said drive shaft, and further wherein the plate-like coil element portions of said commutator have conically-shaped surfaces so that the edges of an insulating gap between every two adjacent coil element portions extend parallel to one another at least in an entire region of contact with brushes.

5,804,906

SOUND GENERATING DEVICE

Shigeru Tsutsumi, Yonezawa, Japan, assignor to Shinsei Corporation, Yamagata, Japan

PCT No. PCT/JP95/00940, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO95/32602, PCT Pub. Date Nov. 30, 1995

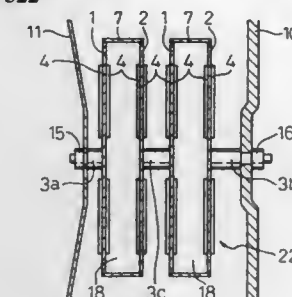
PCT Filed May 17, 1995, Ser. No. 581,628

Claims priority, application Japan, May 20, 1994, 6-106921; Jul. 1, 1994, 6-150931

Int. Cl.⁶ H04R 17/00; H01L 41/08

U.S. Cl. 310—322

38 Claims



1. A sound generating device comprising:

an acoustic vibration plate;

a driving device having a plurality of piezoelectric vibration plates, the central portion of at least one of the piezoelectric vibration plates being connected to said acoustic vibration plate for driving said acoustic vibration plate, wherein said piezoelectric vibration plates are arranged spaced from each other in an axial direction, wherein one of the peripheral and central portions of adjacent piezoelectric vibration plates are connected to each other, adjacent piezoelectric vibration plates being made to flex in opposite directions from each other, the piezoelectric vibration plate positioned at one end of said plurality of piezoelectric vibration plates being connected to an acoustic vibration plate; and

an elastic plate member attached to the peripheral portion of said piezoelectric vibration plate and radially extending outward from the periphery of the piezoelectric vibration plate, said elastic plate member being attached to the peripheral portion of said piezoelectric vibration plate positioned at the other end of said plurality of piezoelectric vibration plates.

5,804,907

HIGH STRAIN ACTUATOR USING FERROELECTRIC SINGLE CRYSTAL

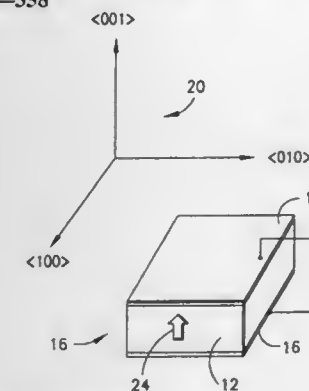
Seung-Eek Park, State College, and Thomas R. Shrout, Port Matilda, both of Pa., assignors to The Penn State Research Foundation, University Park, Pa.

Filed Jan. 28, 1997, Ser. No. 789,579

Int. Cl.⁶ H01L 41/04

U.S. Cl. 310—358

6 Claims



1. An actuator comprising:

5,804,908

ENHANCEMENT IN BONDING STRENGTH IN FIELD EMISSION ELECTRON SOURCE

Akihiro Yano, Tokyo, Japan, assignor to NEC Corporation, Japan

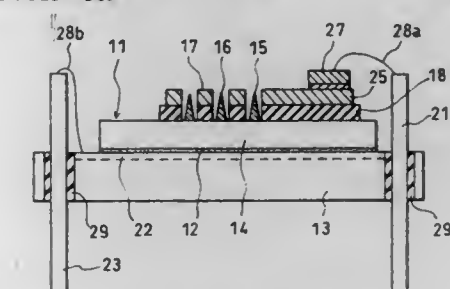
Filed Feb. 21, 1997, Ser. No. 804,400

Claims priority, application Japan, Feb. 28, 1996, 8-041038

Int. Cl.⁶ H01J 1/02

U.S. Cl. 313—309

10 Claims



1. A field emission electron source comprising:

(a) a substrate at least a surface of which is electrically conductive;

(b) at least one conically shaped, electrically conductive emitter, said emitter being formed on said substrate;

(c) an electrically insulating layer formed on said substrate for electrically insulating said substrate from a gate electrode;

(d) said gate electrode formed on said electrically insulating layer, said gate electrode and said electrically insulating layer being formed with an opening in which said emitter is disposed;

(e) a bonding pad formed on said electrically insulating layer and in electrical communication with said gate electrode;

(f) a first metal layer formed on said bonding pad; and

(g) a second metal layer formed on said first metal layer, said second metal layer having a higher melting point than that of said first metal layer.

5,804,909

EDGE EMISSION FIELD EMISSION DEVICE

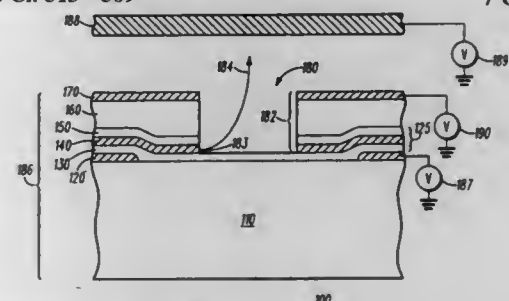
Thomas Nilsson, Phoenix; John Song, Tempe, and Emmett Howard, Chandler, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Apr. 4, 1997, Ser. No. 832,841

Int. Cl.⁶ H01J 19/24

U.S. Cl. 313—309

7 Claims



1. An edge emission FED comprising:

a supporting substrate having a major surface;

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an emissive structure disposed on the major surface of the supporting substrate and defining an emissive edge; a dielectric layer disposed on the emissive structure; a gate extraction electrode disposed on the dielectric layer; the emissive edge, the dielectric layer, and the ballast layer defining an emission well, wherein the gate extraction electrode is proximate to the emission well; an anode plate opposing the gate extraction electrode, wherein the emissive structure includes a ballast layer disposed on the supporting substrate and defines a bottom surface of the emission well.

5,804,910

FIELD EMISSION DISPLAYS WITH LOW FUNCTION EMITTERS AND METHOD OF MAKING LOW WORK FUNCTION EMITTERS

Kevin Tjaden, and James J. Alwan, both of Boise, Id., assignors to Micron Display Technology, Inc., Boise, Id.

Filed Jan. 18, 1996, Ser. No. 599,443

Int. Cl.⁶ H01J 1/30

U.S. Cl. 313—310

36 Claims

1. A field emission device comprising: an anode having phosphor deposited thereon; a cathode in opposing relation to the phosphor, separated by an evacuated space, the cathode comprising: a substrate; a film disposed over the substrate; and an emitter disposed over the film and having a base and a top, the emitter including silicon and carbon, a distribution of carbon in the emitter being substantially uniform in a horizontal direction and substantially non-uniform in a vertical direction, a ratio of carbon to silicon in the emitter top being greater than a ratio of carbon to silicon in the emitter base.

5,804,911

ELECTRODELESS LOW-PRESSURE DISCHARGE LAMP

Nicasius G. T. Van Gennip; Petrus J. M. Fransen, both of Eindhoven, Netherlands; Winand H. A. M. Friederichs, Bath, N.Y., and Petrus H. Antonis, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

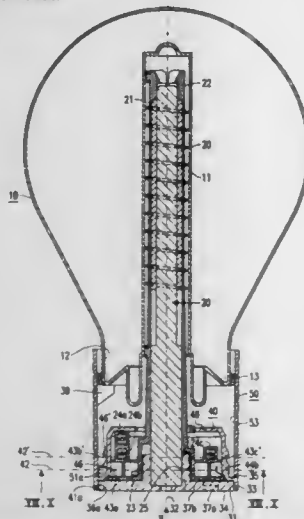
Filed Apr. 16, 1997, Ser. No. 834,427

Claims priority, application European Pat. Off., Apr. 19, 1996, 96201062

Int. Cl.⁶ H01J 1/50

U.S. Cl. 313—318.01

9 Claims



1. An electrodeless low-pressure discharge lamp provided with a lamp vessel (10) which has an ionizable filling, which is closed in a gastight manner, which has an end portion (12) with a cavity (11)

in which an electric coil (20) is accommodated, and in which in addition a heat conductor (30) is accommodated which extends to outside the cavity and has a flange (31) there with an axis (32), a circumference (33), a surface (34) which faces away from the lamp vessel and a surface (35) which faces the lamp vessel, a mounting member (40) which is fastened to the flange (31) being connected to the lamp vessel, characterized in that the mounting member (40) is provided with at least one hook (41a) which points radially inwards and which cooperates with a recess (36a) in the surface (34) of the flange which faces away from the lamp vessel, which recess issues into an axial groove (37a) at the circumference (33) of the flange (31), which groove extends up to the surface (35) which faces the lamp vessel.

5,804,912

MAGNETIC SHIELDING CRT

Dong Min Park, Kyeongsangnam-do, Rep. of Korea, assignor to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

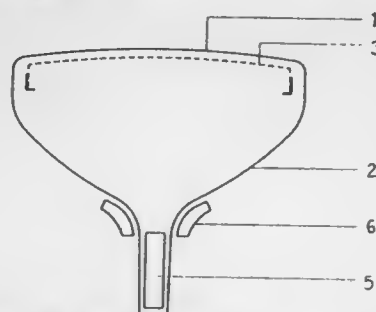
Filed Oct. 15, 1996, Ser. No. 730,219

Claims priority, application Rep. of Korea, Nov. 8, 1995, 95-40326

Int. Cl.⁶ H01J 29/06; C22C 38/06

U.S. Cl. 313—402

6 Claims



1. A cathode ray tube comprising: a phosphor screen panel for showing an image; an electron gun for emitting, focusing and controlling electron beams; a deflection coil for controlling a traveling direction of electron beams; and a glass bulb for sustaining the electron gun, deflection coil, and phosphor screen and maintaining constant inner conditions, wherein the glass bulb comprises an iron based amorphous alloy layer disposed on surfaces selected from the group consisting of the inner surface, the outer surface, and combinations thereof and wherein the iron based amorphous alloy is selected from the group consisting of $Fe_{78}Si_{13}B_{13}$, $Fe_{81}B_{13.5}Si_{7.5}C_2$, $Fe_{86}B_7C_7$, and alloys thereof.

5,804,913

CATHODE RAY TUBE WITH FLEXIBLE MOUNT FOR DEFLECTION UNIT

Antonius P. M. Grubben; Edward P. V. Maesen, and Johannes H. F. C. Sieben, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 1, 1996, Ser. No. 625,958

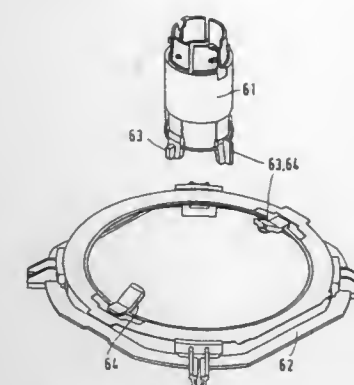
Claims priority, application European Pat. Off., Apr. 5, 1995, 95200861

Int. Cl.⁶ H01J 29/76

U.S. Cl. 313—440

5 Claims

5. A cathode ray tube comprising an evacuated envelope, a display screen in said evacuated envelope, at least one electron beam in said evacuated envelope,



a deflection unit for deflecting said at least one electron beam across the display screen, the deflection unit comprising a pair of saddle shaped deflection coils situated outside the envelope, and connecting pieces to which said coils are fixedly mounted, both coils being mounted to at least one common one of said pieces, said pieces being flexibly arranged with respect to each other.

5,804,914

FLUORESCENT LAMP HAVING ADDITIONAL AND INTERIOR FLUORESCENT SURFACES TO INCREASE LUMINOSITY

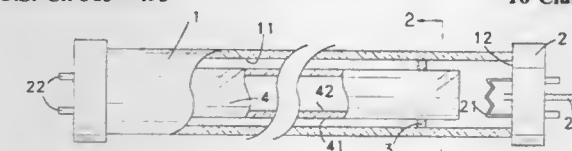
Lyuji Ozawa; Kuang-Lung Tsai; Chun-hui Tsai, all of Hsinchu, and Chle-Ching Lin, Taichung, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Nov. 27, 1996, Ser. No. 757,572

Int. Cl.⁶ H01J 1/62; 63/04

U.S. Cl. 313—493

16 Claims



1. A fluorescent lamp with multiple fluorescent surfaces, comprising:

a hollow outer tube having an opening defined at each end and an inner wall surface coated with a layer of fluorescent material, said each end being sealed by a cap, an inner side of said cap being provided with a filament connected to a couple of electric power connecting pins at an outer side of said cap, said outer tube having an interior in a vacuum and low pressure state, said interior being filled with mercury vapor; and

a hollow inner tube having openings defined at each end and being secured by a supporting means within said outer tube, at least an inner wall surface of said inner tube being coated with a layer of fluorescent material,

wherein ultra-violet rays generated in said outer tube excite the layers of fluorescent material coated on said inner and outer tubes, thereby increasing the luminosity of the fluorescent lamp.

5,804,915

Patent Not Issued For This Number

5,804,916

FLAT PICTURE TUBE

Keum Sik Lee, Seoul, Rep. of Korea, assignor to Youare Electronics Co., Seoul, Rep. of Korea

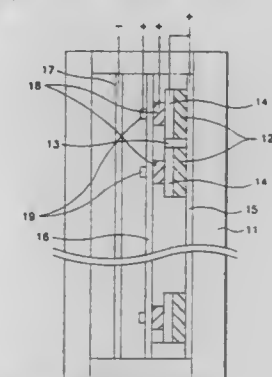
Filed Apr. 25, 1995, Ser. No. 428,646

Claims priority, application Rep. of Korea, Apr. 28, 1994, 9163/1994

Int. Cl.⁶ H01J 29/70

U.S. Cl. 313—497

2 Claims



1. A flat picture tube, comprising: a glass vessel; a heater installed inside said glass vessel for emitting heat electrons; a plurality of fluorescent units arranged in a fluorescent unit matrix having rows and columns; a plurality of anodes extending in a first direction, each of said anodes being individually actuatable and corresponding to a single row of said fluorescent unit matrix; and a plurality of control elements extending in a second direction non-parallel to said first direction, each of said control elements being separately actuatable and corresponding to a single column of said fluorescent unit matrix such that each control element overlaps each anode at a position proximal to a fluorescent unit, wherein a selected fluorescent unit is individually energized by actuating the anode corresponding to the row of said selected fluorescent unit and by actuating the control element corresponding to the column of said selected fluorescent unit such that electrons emitted from said heater are directly drawn by an overlapping of the actuated anode and the actuated control element to energize said selected fluorescent unit; wherein an insulator is disposed between adjacent fluorescent units along each of said anodes.

5,804,917

ORGANIC ELECTROLUMINESCENT DISPLAY DEVICE AND METHOD FOR MANUFACTURING SAME

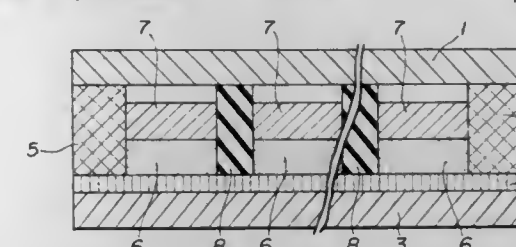
Hisamitsu Takahashi; Yoshihisa Tsuruoka; Toshio Miyauchi, and Shigeru Hieda, all of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Mobara, Japan

Filed Jan. 30, 1996, Ser. No. 593,972

Int. Cl.⁶ H05B 33/02

U.S. Cl. 313—504

7 Claims



1. An organic electroluminescent display device comprising: a light-permeable substrate;

a plurality of transparent electrodes arranged in a stripe-like manner on said light-permeable substrate and formed of a light-permeable conductive film;
a plurality of ribs made of an insulating material and arranged in a stripe-like manner on said transparent electrodes so as to extend in a direction perpendicular to said transparent electrodes;
organic layers each formed of an organic electroluminescent medium and arranged between each adjacent two of said ribs; and
upper electrodes each made of a conductive film deposited all over each of said organic layers and formed into a thickness which does not exceed a thickness of each of said ribs.

5,804,918

ELECTROLUMINESCENT DEVICE HAVING A LIGHT REFLECTING FILM ONLY AT ALOCATIONS CORRESPONDING TO LIGHT EMITTING REGIONS

Mika Yazawa, Obu; Tomohiro Yonekawa, Anjo; Yutaka Hattori, Okazaki; Nobuei Ito, Chiryu, and Tadashi Hattori, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd., Japan

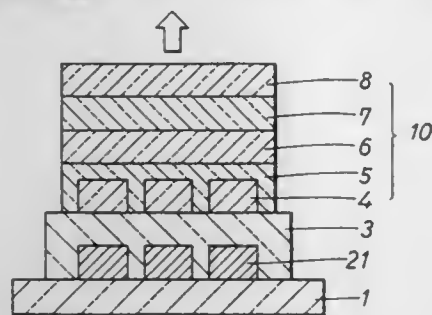
Filed Dec. 7, 1995, Ser. No. 568,617

Claims priority, application Japan, Dec. 8, 1994, 6-331702; Sep. 6, 1995, 7-255634

Int. Cl.⁶ H01J 1/62; 63/04; 17/49

U.S. Cl. 313—506

12 Claims



I. An electroluminescent device comprising:
an insulating substrate;

an electroluminescent element structure which has a pair of electrodes comprising a transparent first electrode disposed on an insulating substrate side and a transparent second electrode disposed on a light outgoing side, and a stack of layers comprising a transparent first insulating layer, a luminescent layer and a second transparent insulating layer all of which are interposed between said pair of electrodes, wherein said transparent first electrode has a pattern comprising a plurality of regions each isolated and insulated from each other and regions of said stack of layers interposed between said transparent first electrode and said transparent second electrode serve as light emitting regions;

a light reflecting film disposed on said insulating substrate, said light reflecting film being patterned so that said light reflecting film is placed only at a location corresponding to said light emitting regions; and

a transparent insulating substance interposed between said transparent first electrode and said light reflecting film,

wherein light which is emitted from said light emitting regions and travels toward said insulating substrate is reflected in a direction of said light outgoing side by said light reflecting film placed only at said location corresponding to said light emitting regions.

5,804,919

RESONANT MICROCAVITY DISPLAY

Stuart M. Jacobsen, Powder Springs, Ga.; Steven M. Jaffe, Palo Alto, Calif.; Hergen Eilers, Blacksburg, Va.; Michieal L. Jones, Athens, Ga., and Irving Jaffe, London, England, assignors to University of Georgia Research Foundation, Inc., Athens, Ga.

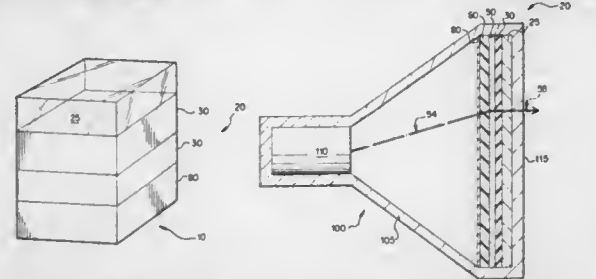
PCT No. PCT/US94/08306, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO95/03621, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 20, 1994, Ser. No. 581,622

Int. Cl.⁶ H01J 29/18; 29/29; G02B 5/18

U.S. Cl. 313—506

8 Claims



I. A luminescent display comprising a resonant microcavity with an active region, the active region having a phosphor disposed therein for emitting light:

wherein said microcavity comprises means for modifying a process selected from the group consisting of spontaneous emission processes of the phosphor and energy transfer processes of the phosphor;

wherein said microcavity comprises:

(a) a substrate; and

(b) a structure disposed upon said substrate comprising the active region and a plurality of reflective regions;

wherein the plurality of reflective regions comprise:

(c) a front reflective region disposed upon said substrate, and

(d) a back reflective region;

wherein the active region is disposed between the front and the back reflective regions; and

wherein the front reflective region, the active region, and the back reflective region comprise thin films.

5,804,920

PLASMA ADDRESSED LIQUID CRYSTAL DISPLAY WITH ETCHED GLASS SPACERS

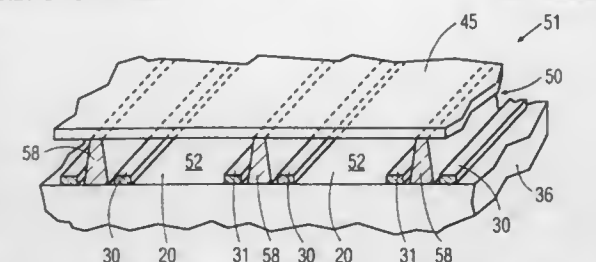
Babar A. Khan, Ossining, N.Y.; Henri R. J. R. Van Helleputte; Adrianus L. J. Burgmans, both of Eindhoven, Netherlands; Karel Elbert Kuijk, Dommelen, Netherlands; Petrus F. G. Bongaerts, Waalre, Netherlands, and Jacob Bruinink, Eindhoven, Netherlands, assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed Jan. 19, 1996, Ser. No. 588,799

Int. Cl.⁶ H01J 17/49

U.S. Cl. 313—582

16 Claims



I. A channel plate for a flat display comprising a dielectric substrate having a substantially planar upper surface, an integral dielectric sheet directly contacting the upper surface of the substrate, and a thin dielectric sheet-like member on the top of the integral dielectric sheet, the integral dielectric sheet being substantially equal in thickness to the required channel depth and having

elongated through-holes defining flanking wall portions, the flanking wall portions directly in contact with the upper surface of the substrate, whereby the upper surface of the substrate, the flanking wall portions and the thin dielectric sheet-like member together define elongated channels, and electrode surfaces in each of the channels.

5,804,921

SOLITON QUENCHING NLTL IMPULSE CIRCUIT WITH A PULSE FORMING NETWORK AT THE OUTPUT

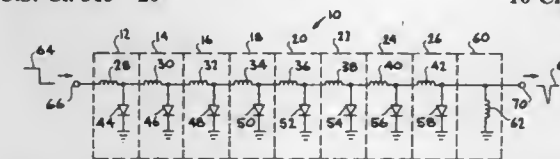
Thomas E. McEwan, and Gregory E. Dillum, both of Livermore, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 194,029, Feb. 9, 1994, abandoned. This application Mar. 12, 1996, Ser. No. 614,408

Int. Cl.⁶ H03K 3/36

U.S. Cl. 315—20

10 Claims



I. A nonlinear transmission line (NLTL) impulse generator, comprising:

a NLTL having an input and an output, and consisting of a plurality of inductors and reverse biased varactor diodes; and a pulse forming network (PFN) connected in shunt between said output of said NLTL and ground, wherein said PFN is electrically connected in parallel with the last varactor diode of said plurality of reverse biased varactor diodes wherein said PFN is located within 1/2 of a pulse length in electrical length of said NLTL output, wherein said PFN rapidly reduces a NLTL output voltage to differentiate said NLTL output voltage.

5,804,922

LAMP WITH CONTROLLABLE SPECTRAL OUTPUT

James T. Dolan, Frederick; Michael G. Ury, Bethesda, and Charles H. Wood, Rockville, all of Md., assignors to Fusion Lighting, Inc., Rockville, Md.

Division of Ser. No. 149,818, Nov. 10, 1993, which is a continuation of Ser. No. 60,553, May 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 867,551, Apr. 13, 1992, abandoned, Ser. No. 875,769, Apr. 29, 1992, abandoned, and Ser. No. 882,409, May 13, 1992, abandoned, said Ser. No. 867,551 Ser. No. 875,769, and Ser. No. 882,409, each is a continuation-in-part of Ser. No. 779,718, Oct. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 604,487, Oct. 25, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 488,278

Int. Cl.⁶ H01J 61/12; 65/04; 61/52

U.S. Cl. 315—32

2 Claims

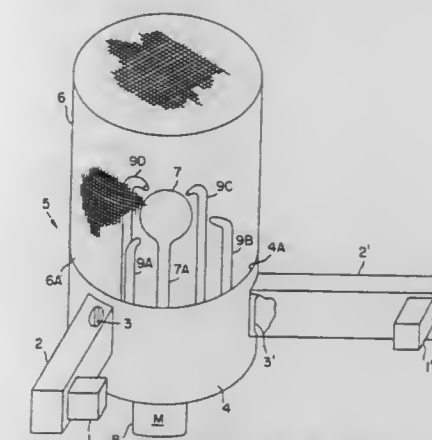
1. A discharge lamp comprising

a power source,

a fill excitation means,

a discharge bulb containing a fill not including mercury, but based on a material selected from the group including a sulfur containing substance, a selenium containing substance, or a combination of said substances, for emitting principally visible light, and

a variable cooling means for varying the cooling provided to said bulb so as to condense a controlled portion of said fill material so as to control the wavelength range of the spectral energy emitted by the bulb.



2. The lamp of claim 1 wherein said fill contains a combination of a sulfur containing substance and a selenium containing substance.

5,804,923

PLASMA PROCESSING APPARATUS HAVING A PROTECTED MICROWAVE TRANSMISSION WINDOW

Kouichi Iio, Amagasaki; Kyouchi Komachi, Kobe; Katsuo Katayama, Amagasaki, and Takeshi Akimoto, Tokyo, all of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan

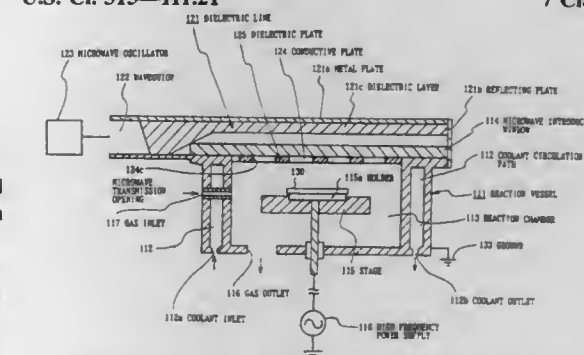
Filed Jun. 14, 1996, Ser. No. 663,645

Claims priority, application Japan, Jun. 15, 1995, 7-148474

Int. Cl.⁶ C23C 16/00

U.S. Cl. 315—111.21

7 Claims



VOL

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5,804,924

DISCHARGE LAMP WITH TWO VOLTAGE LEVELS
Masahito Ohnishi; Tadao Uetsuki; Takashi Kanda, all of Osaka, and Masahiro Naruo, Kodoma, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

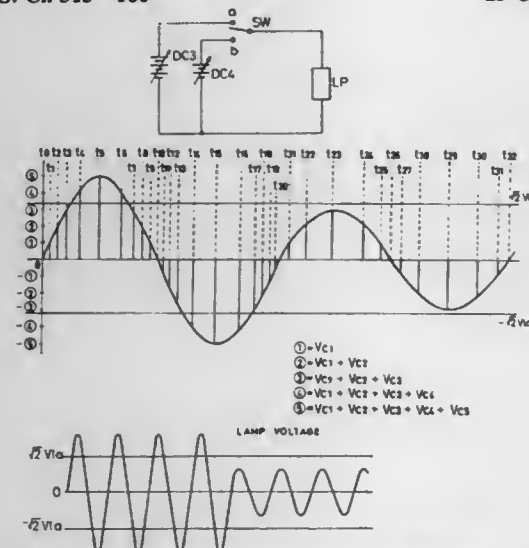
Filed Jul. 19, 1996, Ser. No. 683,957

Claims priority, application Japan, Jul. 26, 1995, 7-190895

Int. Cl.⁶ H05B 37/00

U.S. Cl. 315-160

23 Claims



1. A stable discharge lamp lighting device comprising:
a discharge lamp, and
a power source means for outputting AC voltage components containing a higher voltage value and a lower voltage value than a steady-state voltage of the discharge lamp for a stable lighting thereof, the AC voltage components of the higher voltage value and of the lower voltage value being respectively variable in instantaneous value along a continuum in each cycle comprising both higher and lower voltage value components.

5,804,925

MODULATOR FOR GENERATING HIGH POWER ELECTRIC PULSES

Heinrich Salbert, Saarwellingen, and Klaus-Peter Jüngst, Stutensee, both of Germany, assignors to Forschungszentrum Karlsruhe GmbH, Karlsruhe, Germany

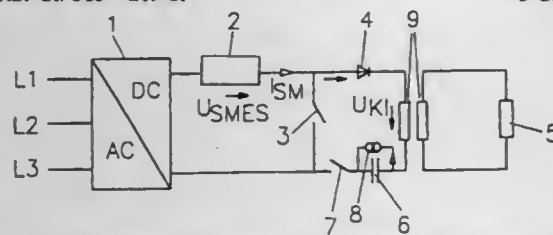
Filed Apr. 7, 1997, Ser. No. 835,375

Claims priority, application Germany, Nov. 9, 1994, 44 40 013.6

Int. Cl.⁶ H05B 37/00

U.S. Cl. 315-209 R

1 Claim



1. A modulator for generating a high-power electric pulse on a load, comprising: a voltage source; an energy accumulator circuit connected to said voltage source including an inductive energy accumulator and a power switch arranged in series with said inductive energy accumulator; and a load circuit bridging said power switch comprising a current diode arranged in series with an electrical load, a capacitive energy accumulator, a second switch controlled so as to be always in a state complementary to that of said power switch, and a current source arranged in parallel circuit relationship with said capacitive energy accumulator and adapted

to charge said capacitive energy accumulator with a predetermined polarity up to an adjustable voltage whereby initial conditions for an electrical pulse to be generated are determined.

5,804,926

LIGHTING CIRCUIT THAT INCLUDES A COMPARISON OF A "FLATTENED" SINEWAVE TO A FULL WAVE RECTIFIED SINEWAVE FOR CONTROL

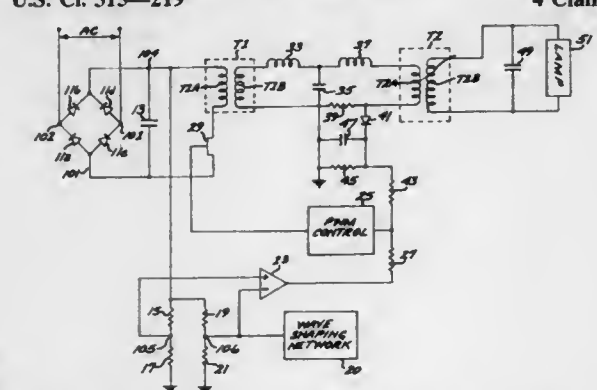
Joe E. Deavenport, San Diego, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Apr. 8, 1996, Ser. No. 629,325

Int. Cl.⁶ H05B 37/02

U.S. Cl. 315-219

4 Claims



1. A gas discharge lamp electronic ballast circuit, comprising:
a gas discharge lamp;
rectifier responsive to AC power for providing a full wave rectified sine wave voltage across output terminals of said rectifier means;
a transformer having a primary winding and a secondary winding;
switching means for repetitively connecting said rectifying means full wave rectified sine wave voltage to said primary winding;
driving means responsive to said secondary winding for driving said lamp with a sinusoidal voltage having a predetermined frequency;
current sensing means for sensing an average of peaks of current flowing in said driving means;
reference means responsive to said rectifier means for providing a reference full wave rectified sine wave voltage;
waveshaping means responsive to said rectifier means for providing a flattened full wave rectified sine wave voltage that is in phase with said reference full wave rectified sine wave voltage, wherein a difference between said reference full wave rectified sine wave voltage and said flattened full wave rectified sine wave voltage increases with the amplitude of said reference full wave rectified sine wave voltage;
difference means responsive to said reference full wave rectified sine wave voltage and said flattened full wave rectified sine wave voltage for providing a difference means output that is indicative of the difference between said reference full wave rectified sine wave voltage and said flattened full wave rectified sine wave voltage; and
pulse width modulation control means responsive to said difference means and said current sensing means for pulse width modulating said switching means at said predetermined frequency so that said rectifier means provides a current having a flattened full wave rectified sine wave waveform.

5,804,927

LIGHT EMITTING APPARATUS FOR A BICYCLE
Masao Shoji, Osaka, Japan, assignor to Cat Eye Co., Ltd., Osaka, Japan

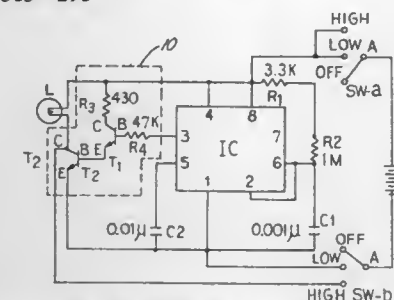
Filed Oct. 3, 1995, Ser. No. 538,587

Claims priority, application Japan, Oct. 5, 1994, 6-241341

Int. Cl.⁶ G05F 1/00

U.S. Cl. 315-291

8 Claims



1. A light emitting apparatus for a bicycle, comprising:
pulse generating means for generating a pulse having a predetermined period and a predetermined duty cycle;
light emitting means for emitting light when a voltage is applied; and
voltage applying means responsive to said generated pulse for applying a voltage to said light emitting means;
supplying means for supplying a voltage to said voltage applying means; and
switching means for switching whether the voltage supplied from said supplying means is supplied through said voltage applying means to said light emitting means, or directly supplied to said light emitting means; wherein said predetermined period allows a person to visually recognize light emitted by said light emitting means as light emitted continuously.

5,804,928

PICTURE DISTORTION CORRECTION APPARATUS
Morio Endo, Takatsuki, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

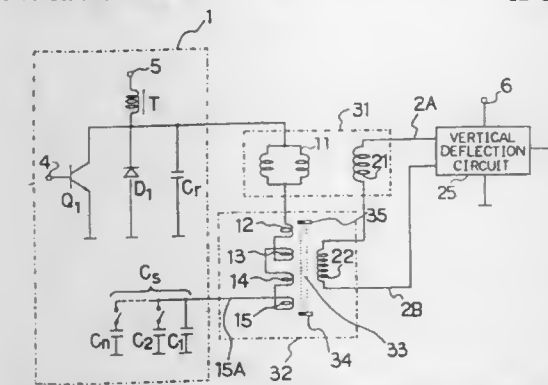
Filed Nov. 20, 1996, Ser. No. 754,770

Claims priority, application Japan, Nov. 21, 1995, 7-303099

Int. Cl.⁶ H01J 29/70; 29/76

U.S. Cl. 315-400

12 Claims



1. A picture distortion correction apparatus for correcting inner pincushion distortion in a vertical direction on a picture face, the picture face having upper and lower parts in the vertical direction, a central part, and two opposing end parts in the horizontal direction, the apparatus comprising:
a saturable reactor having a first, a second, a third and a fourth reactor coil, each of the coils being wound on a core, and connected in series with each other and in series with a horizontal deflection coil to pass a horizontal deflection current;
a fifth coil wound on said core, and connected in series with a vertical deflection coil to pass a vertical deflection current,

at least one permanent magnet attached to said core to generate a magnetic bias field applied to said first and second reactor coils in a first direction, and to said third and fourth reactor coils in a second direction opposite to said first direction, wherein a sum of respective inductances of said first, second, third and fourth reactor coils in the upper and lower parts of the picture face, increases in a central part of the horizontal scanning and decreases toward both end parts of the horizontal scanning, wherein the sum of respective inductances of said first, second, third and fourth reactor coils in the central part of vertical direction of the picture face decreases in the central part of the horizontal scanning and increases toward both the end parts of the horizontal scanning, and wherein the sum of respective inductance of said first, second, third and fourth reactor coils generally increases in both end parts of vertical scanning, and generally decreases in the central part of the vertical scanning.

5,804,929

PICTURE DISPLAY DEVICE PROVIDED WITH A CATHODE RAY TUBE

Alain Decreamer, Garches, France, assignor to U.S. Philips Corporation, New York, N.Y.

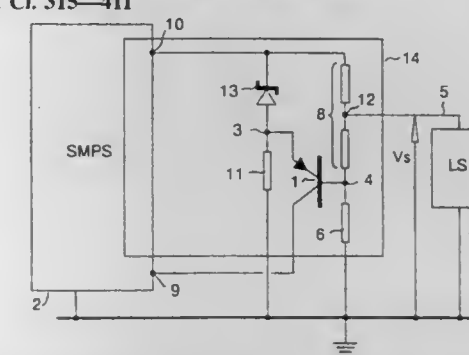
Filed Dec. 9, 1996, Ser. No. 762,623

Claims priority, application France, Dec. 20, 1995, 95 15176

Int. Cl.⁶ H01J 29/70

U.S. Cl. 315-411

2 Claims

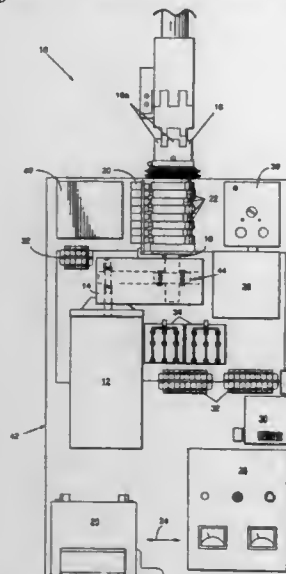


1. A picture display device provided with a cathode ray tube having a screen and comprising:
a line output stage for generating a current for the horizontal deflection of the cathode beam and an extra-high tension (EHT) voltage for the screen of the cathode ray tube;
a power supply module for providing power to the line output stage, said power supply module having a terminal for supplying a controllable voltage having a value which is controlled by a control value; and
an arrangement for generating said control value, said arrangement comprising a comparator having a first input connected to a reference voltage source and a second input for receiving a fraction of said controllable voltage, said fraction of said controllable voltage being formed by a resistive divider having a first branch connected between said terminal of the power supply module carrying said controllable voltage and the second input of the comparator, and a second branch connected between the second input of the comparator and a reference voltage, characterized in that the line output stage is connected to a terminal of said resistive divider such that the power supply current for the line output stage flows through a part of said resistive divider.

5,804,930 MOTOR OPERATOR FOR A POWER LINE PHASE SWITCH

Andrew S. Panto, Matthews, N.C., assignor to Southern Electrical Equipment Company, Charlotte, N.C.
Filed Aug. 22, 1996, Ser. No. 684,981
Int. Cl.⁶ H01H 3/00; H02K 7/14
U.S. Cl. 318—3

18 Claims



1. A motor operator for a power line phase switch, comprising: a main enclosure; a power source unit disposed within said enclosure; a motor coupled with said power source unit, said motor being disposed within said enclosure; a gear box housing a reducing gear train coupled to said motor, said gear box being disposed within said enclosure, wherein said gear train includes an output shaft that is adapted to engage a contact blade of the phase switch; and a plurality of auxiliary and limit switches communicating with said gear train, said auxiliary and limit switches being disposed within said enclosure.

5,804,931 WALL PARTITION SYSTEM AND A DEVICE AND METHOD FOR THE OPERATION OF A WALL PARTITION SYSTEM

Arnold Schack, Ennepetal, Germany, assignor to Dorma GmbH + Co. KG, Ennepetal, Germany
Filed Mar. 13, 1996, Ser. No. 614,858
Claims priority, application Germany, Jul. 14, 1994, 44 24 660.9

Int. Cl.⁶ H02K 7/14

U.S. Cl. 318—4

15 Claims



1. A movable wall system, said wall system comprising: at least one suspended panel; at least one truck; guide rail means disposed above a floor; said at least one truck being movable within said guide rail means; said at least one panel comprising connecting structure connecting said at least one panel to its corresponding at least one truck; drive apparatus to move said at least one panel;

said drive apparatus comprising apparatus for selectively coupling said at least one panel with said drive apparatus to move said at least one panel;
said apparatus for selectively coupling comprising: a movable coupling device; apparatus to activate said coupling device to permit the operative engagement of said coupling device with said at least one panel;
apparatus to transport, after said engagement, said at least one panel from a first position to a second position along said guide rail means; and
apparatus to deactivate said coupling device to permit disengagement of said coupling device from said at least one panel.

5,804,932 DRIVE SYSTEM

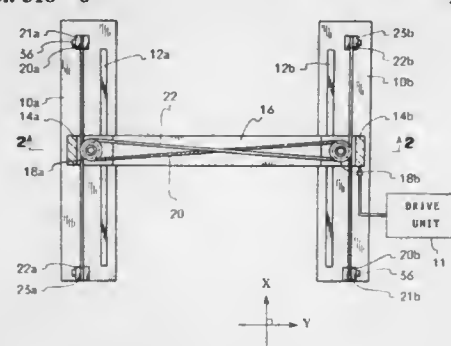
Ken Yanagisawa, c/o Kabushiki Kaisha Mechanic Sekkei Jimusho 5175-1, Ooaza Toyoshina, Toyoshina-machi, Minamiazumi-gun, Nagano-ken, Japan

Filed Jul. 24, 1996, Ser. No. 685,865

Claims priority, application Japan, Jul. 27, 1995, 7-191882
Int. Cl.⁶ B25J 15/04; B65H 59/20

U.S. Cl. 318—6

20 Claims



1. A drive system, comprising: a pair of guides being provided on a base, said guides being arranged in a first direction; a pair of travellers being capable of moving in the first direction alongside said guides; a first rotary guide being provided to one of said travellers; a second rotary guide being provided to the other traveller; a first tension member being tensionally engaged with said first rotary guide and said second rotary guide, one end section of said first tension member being extended from said first rotary guide and fixed to said base, the other end section thereof being extended from said second rotary guide in the opposite direction to the one end section and fixed to said base; a second tension member being tensionally engaged with said first rotary guide and said second rotary guide, one end section of said second tension member being extended from said first rotary guide in the opposite direction to the one end section of said first tension member and fixed to said base, the other end section thereof being extended from said second rotary guide in the opposite direction to the one end section thereof and fixed to said base; and a drive unit for moving said travellers in the first direction.

5,804,933 METHOD FOR OPERATING AN ADJUSTING APPARATUS AND MEANS FOR ADJUSTING A POSITIONAL DEVICE

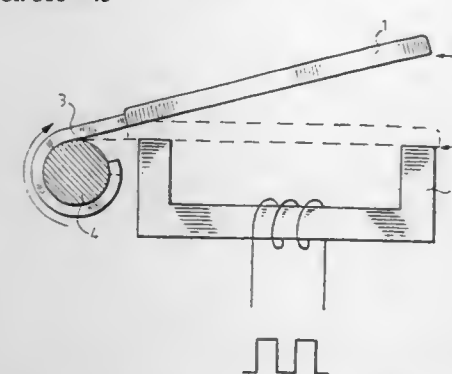
Wilgot Åhs, Koppom, Sweden, assignor to SEM AB, Åmål, Sweden
PCT No. PCT/SE95/00613, § 371 Date Nov. 26, 1996, § 102(e)
Date Nov. 26, 1996, PCT Pub. No. WO95/34118, PCT Pub. Date Dec. 14, 1995

PCT Filed May 30, 1995, Ser. No. 750,323

Claims priority, application Sweden, Jun. 3, 1994, 9401923
Int. Cl.⁶ H02K 33/00

U.S. Cl. 318—45

8 Claims



1. A method of operating a positioning apparatus for an adjustable device connected to bearings arranged individually, or connected to each other in series or in parallel, comprising: connecting each bearing to a pivotable armature, said pivotable armature interacting magnetically with an electromagnet; generating current pulses in the electromagnet with a computer program; mechanically actuating the bearings by selectively magnetizing the electromagnet with the current pulses to vary the size of the air gap between the pivotable armature and the electromagnet, thereby alternating the pivotable armature between open positions where the electromagnet is not energized and a closed position when the electromagnet is energized, wherein the current pulses control the directions of operation and positions of the positioning apparatus as well the torque and speed of the bearings.

5,804,934 POWER OUTPUT APPARATUS AND METHOD OF CONTROLLING THE SAME

Eiji Yamada, Owariasahi; Takao Miyatani, Toyota; Yasutomo Kawabata, Aichi-ken; Ryouji Mizutani, Aichi-ken, and Yoshiaki Taga, Aichi-ken, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed May 10, 1996, Ser. No. 644,261

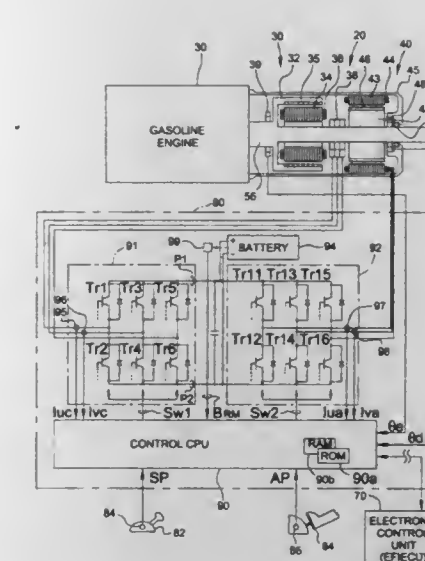
Claims priority, application Japan, May 19, 1995, 7-145575;
Aug. 9, 1995, 7-225869

Int. Cl.⁶ H02P 5/46

U.S. Cl. 318—77

26 Claims

1. A power output apparatus for outputting power to a drive shaft, said power output apparatus comprising: an engine having an output shaft; a first motor comprising a first rotor connected with said output shaft of said engine and a second rotor connected with said drive shaft, said second rotor being coaxial to and rotatable relative to said first rotor, said first and second rotors being electromagnetically coupled with each other, whereby power is transmitted between said output shaft of said engine and said drive shaft via the electromagnetic coupling of said first and second rotors; first motor-driving means for exchanging polyphase electric currents with said first motor to vary the electromagnetic coupling of said first rotor with said second rotor;



- a second motor comprising a stator and a third rotor connected with said drive shaft, said stator being electromagnetically coupled with said third rotor;
second motor-driving means for exchanging electric currents with said second motor to vary the electromagnetic coupling of said stator with said third rotor; and
control means for controlling said first motor-driving means to enable said first motor to regenerate electric power, and controlling said second motor-driving means to supply the regenerated electric power to said second motor to drive said second motor.

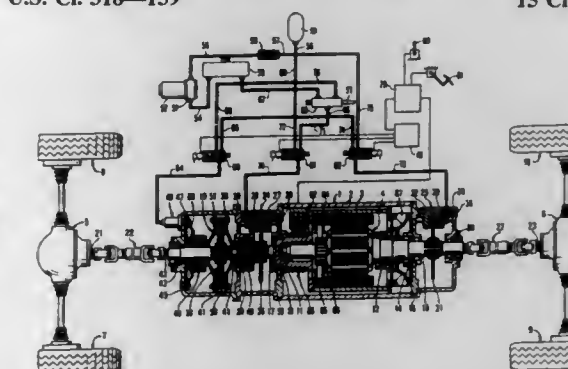
5,804,935 DRIVE SYSTEM FOR ELECTRIC VEHICLES

Vladimir Radev, 142 Marina Bay Ct., Highlands, N.J. 07732
Filed Feb. 6, 1997, Ser. No. 795,668

Int. Cl.⁶ H02K 23/60; B60L 11/18

U.S. Cl. 318—139

15 Claims



1. A drive system for electric vehicles, said drive system comprising: a dual-rotor traction motor having an outer rotor and an inner rotor, said two rotors being arranged to rotate in opposite directions under the action of the same electromagnetic forces; a first drive axle and a second drive axle, one of said two drive axles being also a steering axle; means for transmitting torque and rotation between said outer rotor and said first drive axle, and
means for transmitting torque and rotation between said inner rotor and said second drive axle, whereby providing a four-wheel-drive mode.

5,804,936

MOTOR CONTROLLED SURGICAL SYSTEM

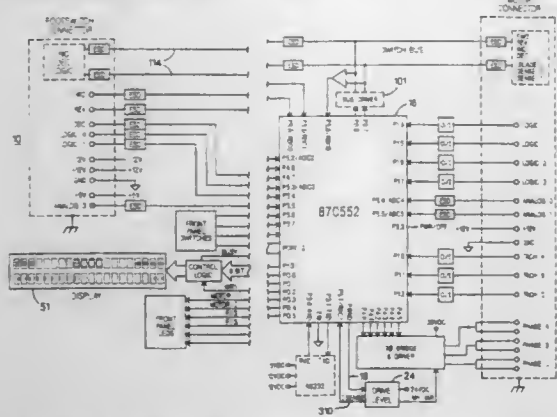
Michael A. Brodsky, Hillsboro, and Kenneth W. Krause, Sandown, both of N.H., assignors to Smith & Nephew, Inc., Andover, Mass.

Filed Apr. 10, 1996, Ser. No. 630,358

Int. Cl.⁶ H02K 23/00

U.S. Cl. 318—254

5 Claims



1. A surgical system adapted to operate with at least one surgical device, said surgical system having a handpiece containing a motor and adapted to receive and drive said surgical device, said surgical device being driven through a continuum of positions by said handpiece, said system comprising

- a controller,
- a motor drive circuitry driving said surgical device, said controller controlling said drive circuitry,
- a switch bus,
- addressable switches in said handpiece connected to said switch bus and responsive to electrical address signals from the controller over said switch bus for indicating a switch presence and a switch condition, and
- said controller being responsive to electrical signals from said switches over the switch bus for controlling operation of said motor drive.

5,804,937

VEHICLE DOOR OPERATING APPARATUS

Kouji Sasajima, Kiyohide Nagase, and Takashi Kuribayashi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

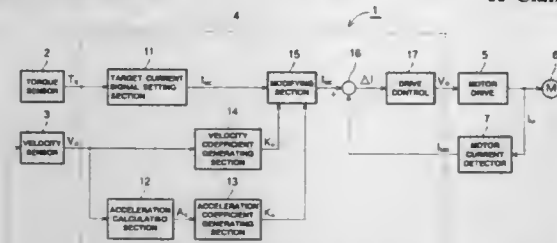
Filed May 15, 1997, Ser. No. 856,574

Claims priority, application Japan, Jun. 7, 1996, 8-146322

Int. Cl.⁶ B60J 5/04

U.S. Cl. 318—259

11 Claims



1. A vehicle door operating apparatus comprising a torque sensor for detecting torque applied to a knob of a vehicle door to generate a torque signal, an electric motor for imparting a power assist to an opening/closing movement of the vehicle door, and a controller unit for controlling the electric motor on the basis of at least the torque signal generated by the torque sensor,

said vehicle door operating apparatus further comprising a velocity sensor for detecting a moving velocity of the vehicle door to generate a velocity signal,

said controller unit including:

- a target current signal setting section for generating a target current signal corresponding to the torque signal;
- an acceleration calculating section for performing an arithmetic operation to differentiate the velocity signal generated by said velocity sensor so as to generate an acceleration signal;
- an acceleration coefficient generating section for generating an acceleration coefficient corresponding to the acceleration signal generated by said acceleration calculating section;
- a velocity coefficient generating section for generating a velocity coefficient corresponding to the velocity signal;
- a modifying section for modifying the target current signal on the basis of the acceleration coefficient and velocity coefficient so as to generate a modified current signal; and
- a drive control section for generating a control signal on the basis of the modified current signal generated by said modifying section.

5,804,938

GATE OPERATOR WITH EXTENSIBLE ACTUATING ARM

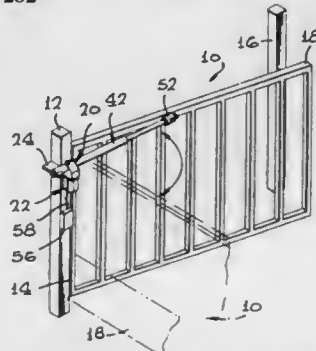
Moscow K. Richmond, Inglewood; Thomas R. Richmond, Santa Ana, and Patrick S. Kachie, Simi Valley, all of Calif., assignors to Doorking, Inc., Inglewood, Calif.

Filed Apr. 1, 1996, Ser. No. 625,135

Int. Cl.⁶ H02P 3/00

U.S. Cl. 318—282

26 Claims



1. A gate operator for moving a gate between opened and closed fixed end positions and where one said end positions may have limited access space beyond that end position precluding location of a ground mounted operator in that limited access space, said gate operator comprising:

- a) drive means providing a source of driving power;
- b) an actuating arm powered by said drive means and having a rotatable shaft and an extensible arm portion which is extensible and retractable in response to rotatable movement of the rotatable shaft to move said gate between the fixed end positions and which causes movement to one end position in response to extensible movement and to the other end position in response to retracting movement;
- c) means connecting said rotatable shaft to said extensible arm portion which converts the rotating motion of the rotatable shaft to a linear extensible and retractable movement of said extensible arm portion and which is also aligned with said rotatable shaft;
- d) sensor means operatively associated with said rotatable shaft to generate counts of rotation in response to rotatable movement of the rotatable shaft; and
- e) control means operatively connected to said drive means and sensor means and receiving the counts of rotation and measuring the distance of movement between one end position and the other end position and storing a distance count representative of that distance of movement, said control means causing said drive means to move the gate between the said one end position to said other end position only for the stored distance count on each subsequent occasion when the gate is moved from that one end position to the other end position.

5,804,939

BRUSHLESS D.C. MOTOR DRIVING AND CONTROLLING METHOD AND APPARATUS THEREFOR AND ELECTRICAL EQUIPMENT

Hiroyuki Yamai; Kazunobu Ooyama, and Taizou Kimura, all of c/o Daikin Industries, Ltd., Shiga-seisakusho, 1000-2, Aza Ootani, Okamoto-cho, Kusatsu-shi, Shiga 525, Japan

PCT No. PCT/JP95/00639, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/27328, PCT Pub. Date Oct. 12, 1995

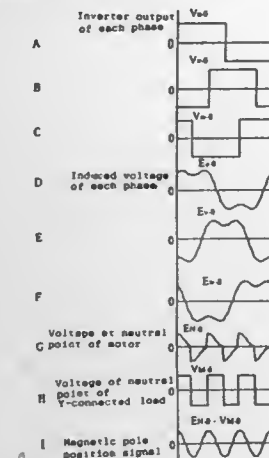
PCT Filed Mar. 30, 1995, Ser. No. 553,518

Claims priority, application Japan, Mar. 31, 1994, 6-062503

Int. Cl.⁶ H02P 6/06

U.S. Cl. 318—439

17 Claims



1. A brushless D.C. motor driving and controlling method for driving a brushless D.C. motor using voltage-fed inverters, said method comprising the steps:

- setting a conducting interval of said voltage-fed inverters to a predetermined interval which is more than 120° and equal or less than 180° by electrical angle; and
- supplying output voltage from said voltage-fed inverters to said motor.

5,804,940

DEVICE DESIGNED TO COMPENSATE FOR NON-LINEARITY OF MACHINE SHAFTS

Friedrich Erkens, Fürth; Stefan Maetschke, Altdorf, and Bernd Quaschner, Moehrendorf, all of Germany, assignors to Siemens Aktiengesellschaft, München, Germany

PCT No. PCT/DE95/00146, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO95/27930, PCT Pub. Date Oct. 19, 1995

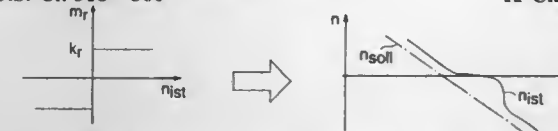
PCT Filed Feb. 3, 1995, Ser. No. 718,528

Claims priority, application Germany, Apr. 8, 1994, 44 11 989.5

Int. Cl.⁶ G05B 11/01

U.S. Cl. 318—560

11 Claims



1. A method for the numerical control of machines with at least one axis comprising the steps of:

- compensating for non-linearities due to disturbances with a frictional precontrol that corrects a rotation speed reference value of each axis, the correction of the rotation speed reference values including the substeps of:
- injecting a correction pulse into the corresponding rotation speed reference value of each axis when the corresponding axis passes from one quadrant to another with the corresponding change of signs at this axis, the correction pulse being injected during the passage through zero of the rotation speed reference value, wherein:

when the rotation speed reference value passes through zero from negative values to positive values, the correction pulse is added and when the rotation speed reference value passes through zero from positive values to negative values, the correction pulse is subtracted,

the correction pulse has an acceleration-dependent amplitude, and

the amplitude and duration of the correction pulse are determined in advance as characteristic curves or characteristic curve fields for different acceleration values for the particular machine used, with the amplitude values being selected so that they increase starting from a zero acceleration, run at a high level in the domain of medium accelerations and assume smaller values with further increasing acceleration,

wherein the frictional precontrol is incorporated in an axis control as an additional precontrol branch.

5,804,941

DUAL MODE POSITION CONTROL SYSTEM WITH SPEED PROFILING

William F. Ray, Nottingham, England, assignor to Switched Reluctance Drives Limited, Harrogate, United Kingdom

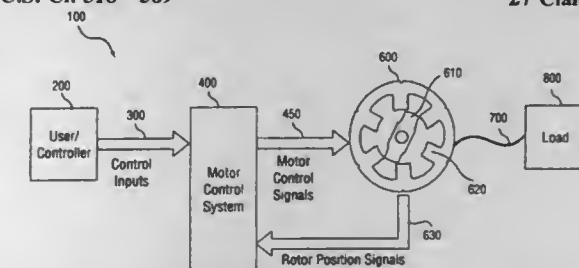
Filed Jan. 24, 1997, Ser. No. 788,936

Claims priority, application United Kingdom, Jan. 29, 1996, 9601753

Int. Cl.⁶ G05B 19/18

U.S. Cl. 318—569

27 Claims



1. A positioner comprising:

- an electrical actuator for positioning a load at a target position;
- a controller operably connected with the actuator;
- means for deriving a position signal indicative of load position, which means are operably connected with the controller, the controller being responsive to the position signal to drive the actuator in a speed control mode when the load is relatively remote from the target position and in a stepping control mode when the load is relatively closer to the target position; and
- means for deriving a speed signal indicative of the speed of the actuator, the controller being arranged to decelerate the actuator when the position signal and the speed signal fall on a predetermined position/speed deceleration curve programmed into the controller, the curve defining a braking profile of the actuator under the control of the controller for a given load.

5,804,942

POSITION DETERMINING APPARATUS AND CONTROL METHOD OF ROBOT

Joon-Young Jeong, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 684,791

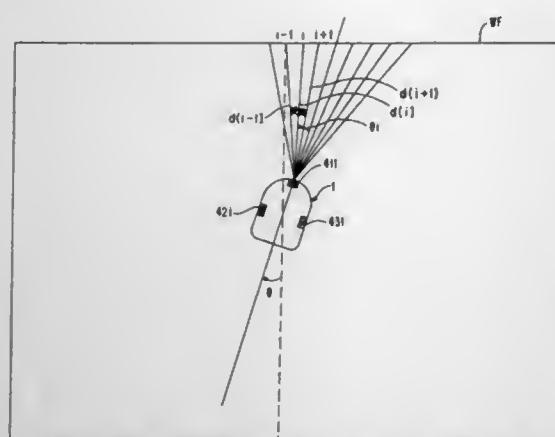
Claims priority, application Rep. of Korea, Aug. 8, 1995, 1995-24442

Int. Cl.⁶ B64C 13/18

U.S. Cl. 318—580

4 Claims

1. A method of controlling a self-propelled, steerable robot having a control mechanism, comprising the steps of:



- A) calculating an angle formed by the robot with a wall of a room to determine an extent by which the robot must be turned to become oriented parallel to two opposite walls of the room;
- B) turning the robot by that extent to orient the robot parallel to the two opposite walls of the room;
- C) determining two respective distances from the robot to the two opposite walls;
- D) turning the robot in the direction of the larger of the two distances;
- E) repeating steps C and D until the robot reaches a center point of the room;
- F) advancing the robot from the center point parallel to two opposite walls of the room until reaching a predetermined point in the room where the respective distances from the robot to those two opposite walls change;
- G) determining a present position of the robot in the room on the basis of the changed distances; and then
- H) advancing the robot along a predetermined path of travel from such present position.

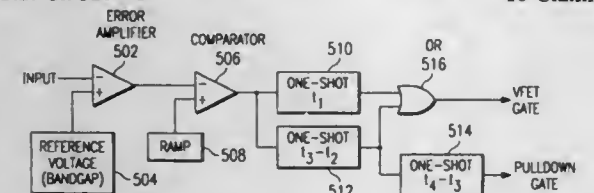
5,804,943

RESONANT BILATERAL CHARGING AND DISCHARGING CIRCUIT

Robert L. Kollman, Plano, and James G. Sills, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 12, 1995, Ser. No. 439,933
Int. Cl.⁶ H03K 19/094; 17/00; G05F 1/04

U.S. Cl. 320-1 10 Claims



1. A charging and discharging circuit for a capacitive load, comprising:
- (a) an inductance coupled to an output node;
- (b) a bilateral switch coupling said inductance to a supply voltage; and
- (c) a controller switching said bilateral switch, wherein said controller provides turn on and turn off pulses for said bilateral switch with pulse duration for both turn on and turn off pulses equal to about $\pi\sqrt{LC}$ with L said inductance and C the capacitance at said output node.
7. A method of charging and discharging a capacitive load, comprising the steps of:
- (a) connecting a discharged capacitive load to a voltage supply through an inductance to charge said capacitive load;

- (b) disconnecting said capacitive load from said voltage supply after a time interval of about $\pi\sqrt{LC}$ with L said inductance and C the capacitance at said load;
- (c) connecting said charged capacitive load to a voltage supply through said inductance; and
- (d) disconnecting said capacitive load from said voltage supply after a time interval of about $\pi\sqrt{LC}$.

5,804,944

BATTERY PROTECTION SYSTEM AND PROCESS FOR CHARGING A BATTERY

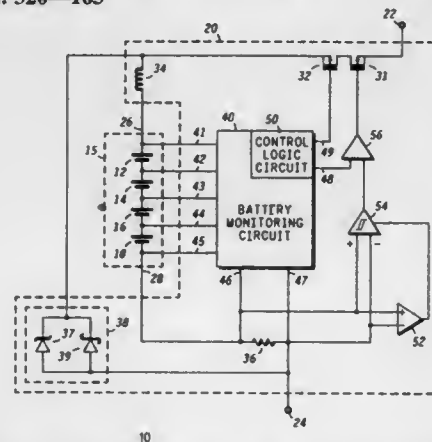
Jade Alberkrack, Tempe, and Troy L. Stockstad, Phoenix, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 7, 1997, Ser. No. 833,437

Int. Cl.⁶ H02J 7/04; G01N 27/27

U.S. Cl. 320-163

15 Claims



1. A battery protection system having a first terminal, a second terminal, a first battery electrode, and a second battery electrode, comprising:

- a first switch having a control electrode, a first current conducting electrode coupled to the first terminal of the battery protection system, and a second current conducting electrode;
- an inductor having a first electrode coupled to the second current conducting electrode of the first switch and a second electrode coupled to the first battery electrode of the battery protection system;
- a resistor having a first electrode coupled to the second battery electrode of the battery protection system and a second electrode coupled to the second terminal of the battery protection system;
- a rectifier having a first electrode coupled to the second electrode of the resistor and a second electrode coupled to the first electrode of the inductor;
- a first comparator having a first input coupled to the first electrode of the resistor, a second input coupled to the second electrode of the resistor, and an output coupled to the control electrode of the first switch; and
- a battery monitoring circuit having a plurality of inputs and a first output, a first input of the plurality of inputs being coupled to the second electrode of the inductor, a second input of the plurality of inputs being coupled to the first electrode of the resistor, and the first output being coupled to the control electrode of the first switch.

5,804,945

DC POWER SUPPLY SYSTEM WITH AUTOMATIC RECHARGING FOR STORAGE BATTERY

Osamu Sato; Takahiro Akiyama, both of Yokohama, and Tokunori Honma, Iwaki, all of Japan, assignors to Furukawa Denchi Kabushiki Kaisha, Kanagawa-ken, Japan

Continuation of Ser. No. 743,840, Nov. 5, 1996, abandoned.

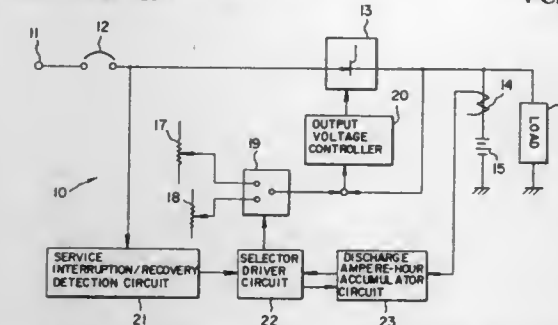
This application Nov. 10, 1997, Ser. No. 967,788

Claims priority, application Japan, Nov. 7, 1995, 7-313546

Int. Cl.⁶ H02J 7/00

U.S. Cl. 320-134

4 Claims



1. A DC power supply system for automatically and continuously supplying DC power to an utilization device, said system comprising:

- a full-charge voltage charger means;
- a float charging voltage charger means;
- a selector means for switching over selectively to at least one of said full-charge voltage charger means and said float charging voltage charger means;
- a storage battery connected to said selector means; and
- a discharge magnitude accumulator means interposed in a junction between said storage battery and the utilization device, so that recharging at least one of a float charging voltage by said charge voltage charger means and a full-charge voltage by said full-charge voltage charger means is selectively performed based on an amount of ampere hour of discharge current flowing out of said storage battery.

5,804,946

DUAL TOWER FUEL TANK FOR A MOTOR GENERATOR SET

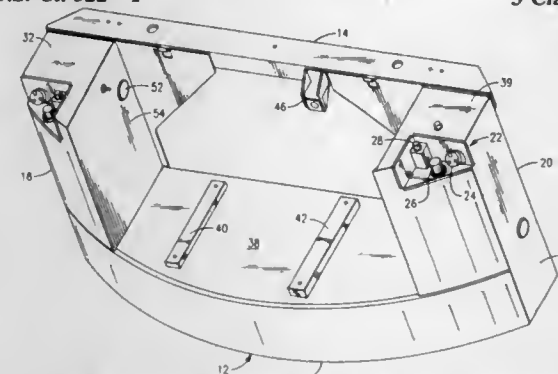
Tommy L. Gaubatz, Liverpool, and Paul J. Spaulding, Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 19, 1996, Ser. No. 752,239

Int. Cl.⁶ F02B 63/00

U.S. Cl. 322-1

3 Claims



1. A self contained generator set of the type adapted to be mounted on a transport container, which has a refrigeration unit mounted on one end thereof, for providing electrical power for the refrigeration unit, the outer perimeter of the end of the transport container, and the refrigeration unit mounted thereon cooperating to define a predetermined envelope in which the generator set may be mounted, said predetermined envelope being defined at its

upper end by the top of the container, laterally by the sides of the container, and at its lower end by the location of the condenser discharge and operating controls of the refrigeration unit, said generator set comprising:

- a fuel tank having,
- a lower section, said lower section having a bottom which is substantially co-extensive with the lower end of said envelope, said lower section further including a substantially horizontal structural support surface;
- a first substantially vertical section extending upwardly from said lower section within said envelope and co-extensive with one of the lateral sides thereof, said first section having an upper end substantially co-extensive with the upper end of said envelope; and
- a second substantially vertical section extending upwardly from said lower section within said envelope and co-extensive with the other of the lateral sides thereof, said second section having an upper end substantially co-extensive with the upper end of said envelope, said second section being horizontally spaced from said first section.

5,804,947

GENERATOR CONTROLLER USED IN HYBRID ELECTRIC VEHICLE

Yoshihide Nii, Fuji, and Nobuyuki Taki, Toyota, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

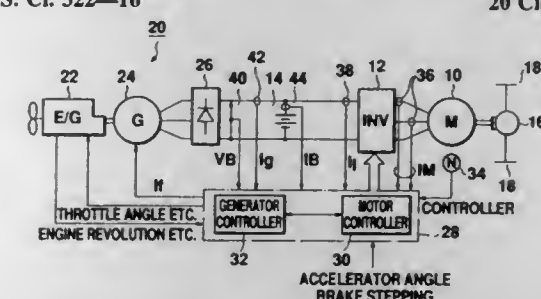
Filed Oct. 19, 1995, Ser. No. 545,291

Claims priority, application Japan, Dec. 22, 1994, 6-320332

Int. Cl.⁶ H02P 11/06

U.S. Cl. 322-16

20 Claims



1. A generator controller used in a hybrid electric vehicle comprising a motor for propelling the hybrid electric vehicle, a battery capable of being charged and discharged, and a generator for producing a generated power having a value according to a command, a discharged power from the battery and the generated power of the generator being used as a driving power of the motor and a surplus of the generated power, relative to the driving power, being used as a charging power of the battery, the generator controller comprising:

- means for detecting a charging current and a discharged current;
- means for detecting a change in a state of charge of the battery on the basis of the charging current and the discharged current;
- means for determining a target generated power based on a change in the state of charge; and
- means for controlling the generated power according to the target generated power.

1. An AC power converter, comprising:

- a converter input for receiving a first input AC power signal;
- a variable inductance input transformer with selectively configurable primary windings connected to the converter input, and output windings;
- a variable speed drive having an input connected to the output windings of the input transformer and an output;
- an output transformer connected to the output of the variable speed drive;
- an AC power output terminal connected to the output transformer for providing a first AC output power signal;
- an input AC power sensor connected to the first input AC power signal; and
- a control unit connected to the input AC power sensor and to the primary windings of the input transformer to selectively configure the primary windings of the input transformer in response to an AC power signal on the converter input;

said AC power converter further including a harmonic filter connected to the AC power output terminal, wherein the output transformer includes input windings connected to the output of the variable speed drive and output windings connected to the AC power output terminal;

wherein the input transformer is a variable tap transformer with a plurality of taps in the primary windings and the control unit includes:

- a plurality of switches, each switch connected to provide a closed circuit or an open circuit between two respective taps of said plurality of taps; and
- processor means for causing the plurality of switches to configure the primary windings in a delta or a wye circuit.

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SEPTEMBER 8, 1998

5,804,954

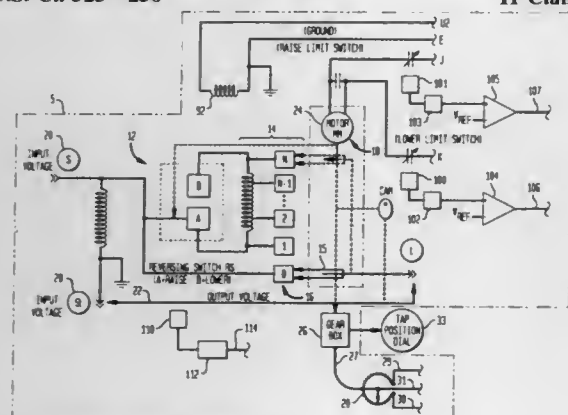
ANALOG BASED TAP POSITION DETECTOR
Carl J. Laplace, Jr., Raleigh, N.C., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Jun. 26, 1995, Ser. No. 494,480

Int. Cl.⁶ G05F 1/147

U.S. Cl. 323—256

11 Claims



1. A transformer comprising:

- a liquid tight housing;
- a plurality of windings contained within said housing and comprising a plurality of taps, each winding being connected to a respective tap, said plurality of windings having a first winding and a last winding;
- a movable tap contained in said housing which can be positioned to change the winding ratio of the transformer; and
- a variable impedance transducer contained in said housing and being mechanically coupled to the movable tap for producing a position signal relative to a reference signal such that said position signal is representative of the position of said movable tap with respect to the position of the first winding and the last winding.

5,804,955

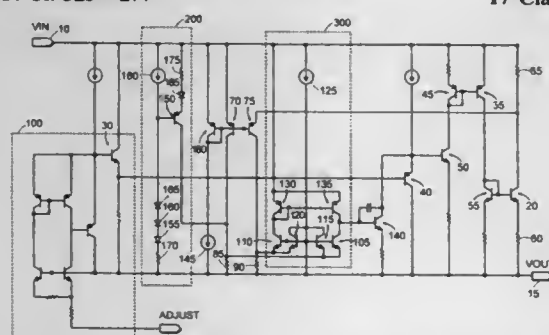
LOW VOLTAGE CURRENT LIMIT CIRCUIT WITH TEMPERATURE INSENSITIVE FOLDBACK NETWORK
Claudio Tuozzolo, Cranston, and George E. Schuellein, Narragansett, both of R.I., assignors to Cherry Semiconductor Corporation, East Greenwich, R.I.

Filed Oct. 30, 1996, Ser. No. 741,625

Int. Cl.⁶ G05F 1/56

U.S. Cl. 323—277

17 Claims



1. A current limit circuit, with an output voltage terminal, for limiting a pass current flowing through a sense resistance device coupled to a collector of a pass transistor, the current limit circuit comprising:

- a first current means for providing a first current responsive to the pass current when the first current means is coupled to the sense resistance device;
- a second current means, coupled to the first current means, for providing a second current;
- a first resistor means, having an input coupled to the first current means, for receiving the first current and for generating a first

voltage differential responsive to the total current flowing into the input of the first resistor means;

- a second resistor means, having an input coupled to the second current means, for receiving the second current and generating a second voltage differential responsive to the total current flowing into the input of the second resistor means; and
- a comparator circuit with first and second inputs coupled to the first and second resistor means, respectively, and responsive to the first and second voltage differentials, and having an output for preventing the pass current from exceeding a current limit threshold.

5,804,956

CURRENT LIMITATION PROGRAMMABLE CIRCUIT FOR SMART POWER ACTUATORS

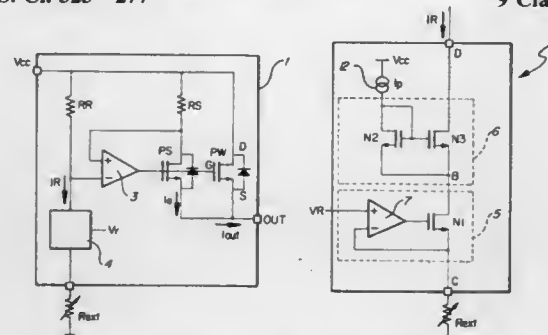
Francesco Pulvirenti, Acireale, Italy, assignor to Co.Ri.M.Me.-Consorzio per la Ricerca sulla Microelettronica nel Messo-giorno, Catania, Italy

Filed Feb. 27, 1997, Ser. No. 805,213

Int. Cl.⁶ G05F 1/573

U.S. Cl. 323—277

9 Claims



1. A circuit for limitation of the maximum current delivered by a power transistor having at least one control terminal and two principal conduction terminals which identify a principal conduction path, comprising:

- a network for detection of the current delivered by the power transistor coupled with the principal conduction path of the power transistor to generate a first electrical signal proportional to said current;
- a reference network, for generating a second reference electrical signal, inserted between a first and a second power supply pole and comprising the series of at least one resistor and a reference current generator which generates a reference current self-limited and proportional to a third electrical reference signal, and
- a comparison network for comparing said first and second electrical signals and driving, by means of an output signal dependent upon said first and second signals, the control terminal of the power transistor,

wherein said generator of a reference current comprises the series of a current generator circuit which generates a current proportional to said third electrical reference signal and a current mirror circuit designed to limit the maximum current delivered by the current generator circuit.

5,804,957

CONSTANT CURRENT SUPPLY SYSTEM FOR A VARIABLE RESISTANCE LOAD

Michael Cohn, Lexington, Mass., assignor to Analog Devices, Inc., Norwood, Mass.

Filed Aug. 13, 1997, Ser. No. 910,285

Int. Cl.⁶ G05F 1/56; A61N 1/18

U.S. Cl. 323—282

14 Claims

1. A constant current supply system for a variable resistance load, comprising:

SEPTEMBER 8, 1998

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5,804,959

SHUNT CORE TRANSFORMER WITH A SECOND SECONDARY COIL COMPRISED OF A FERROUS MATERIAL

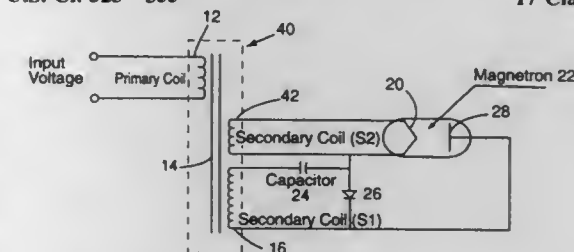
Itaru Nakagawa; David Karl Fahlgren; Kazuhiro Uetsuki, and Kazutoyo Nishio, all of Chula Vista, Calif., assignors to Tabuchi Electric Company of America, Cordova, Tenn.

Filed Feb. 18, 1997, Ser. No. 802,798

Int. Cl.⁶ H01F 17/00

U.S. Cl. 323—355

17 Claims



1. A transformer comprising:

- a transformer core for conduction of magnetic flux generated by the transformer;
- a primary coil for generating a magnetic flux field in said transformer core;
- a first secondary coil, in response to magnetic flux in said transformer core, for generating a first voltage output, said first secondary coil in conjunction with an external capacitor comprising a resonant circuit; and
- a second secondary coil, in response to magnetic flux in said transformer core, for generating a second voltage output, said second secondary coil comprised of a ferrous material for shunting at least a portion of said magnetic flux past said first secondary coil.

5,804,958

SELF-REFERENCED CONTROL CIRCUIT

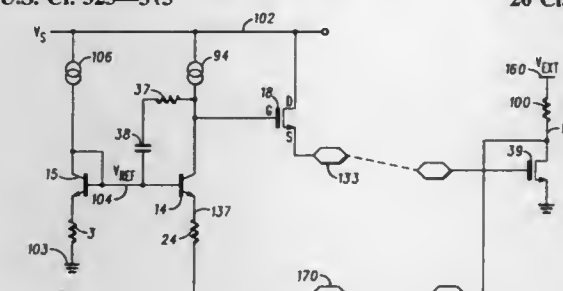
Mung Lam Tsui, Hong Kong, and Kin Keung Lau, Kowloon, both of Hong Kong, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 13, 1997, Ser. No. 875,000

Int. Cl.⁶ G05F 3/16

U.S. Cl. 323—313

20 Claims



1. An integrated circuit self-reference and temperature independent control circuit for controlling the voltage from a supply voltage terminal in an integrated circuit chip, the control circuit comprising:

- an integrated circuit reference voltage source for providing an internal fixed high-side amplifier bias at a temperature dependence of a predetermined polarity;
- an integrated temperature control circuit compensator having a temperature dependence of the same predetermined polarity and a receiving port for receiving the internal fixed high-side amplifier bias; and
- an output terminal having an output terminal voltage in a Kirchhoff voltage loop on the chip for subtracting the voltage and temperature dependence of the same polarity across the integrated temperature control circuit from the integrated circuit reference voltage source to provide a temperature compensated and regulated voltage at the output terminal as the output terminal voltage.

5,804,960

CIRCUITS FOR TESTING THE FUNCTION CIRCUIT MODULES IN AN INTEGRATED CIRCUIT

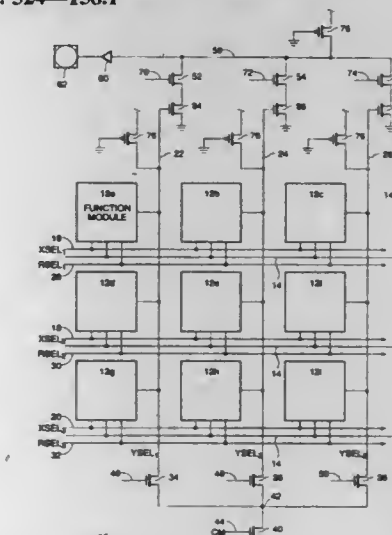
Khaled El Ayat, Cupertino; King W. Chan, Los Altos, and Theodore M. Speers, San Leandro, all of Calif., assignors to Actel Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 303,045, Sep. 8, 1995, Pat. No. 5,614,818, which is a continuation of Ser. No. 919,619, Jul. 24, 1992, abandoned, which is a continuation of Ser. No. 646,268, Jan. 28, 1991, abandoned. This application Sep. 27, 1996, Ser. No. 722,355

Int. Cl.⁶ G01R 31/28

U.S. Cl. 324—158.1

7 Claims



6. An integrated circuit including:

an array of identical logic function circuits which may be mask programmed to perform any one of a plurality of combinational and sequential logic functions, each of said logic function circuits having inputs and at least one output, said integrated circuit configured to mask programmably connect said logic function circuits to each other in a random fashion; isolation means within each one of said logic function circuits for isolating its output from its inputs; test data input node in each of said logic function circuits; latching means disposed in each of said logic function circuits and coupled to said test data input node, for latching a selected logic state from said test data input node at the output of each of said logic function circuits; and observe means for reading the output of any one of said logic function circuits directly to an input/output pin of said integrated circuit; whereby each of said logic function circuits may be individually and directly controlled and observed.

5,804,961

MAGNETOSTRICTIVE WAVEGUIDE POSITION MEASUREMENT APPARATUS USING PIEZOELECTRIC SENSOR

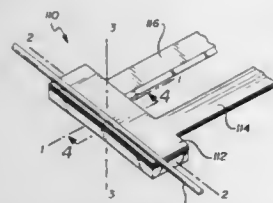
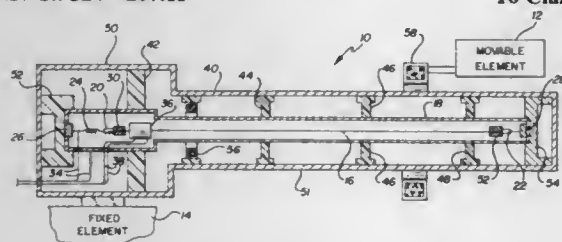
Giancarlo Castillo, Ferndale, Mich.; Jody Page, Raleigh; James Webb, Garner, both of N.C.; John D. Begin, Sterling Heights, and Richard D. Koski, Troy, both of Mich., assignors to Patriot Sensors & Control, Corp., Clawson, Mich.

Filed Oct. 28, 1996, Ser. No. 740,330

Int. Cl.⁶ G01B 7/14

U.S. Cl. 324—207.13

16 Claims



1. A position measurement apparatus including a magnetostriuctive waveguide extending through a measurement field and anchored at opposite ends, means for electrically exciting the waveguide to transmit an electrical excitation signal along the waveguide, a magnet displaceable along the waveguide and inducing a torsional strain signal in the waveguide in response to the excitation signal, and signal means for producing a signal representative of the position of the magnet along the waveguide, the apparatus comprising:

- a piezoelectric film element having an active area with a first axis oriented along a direction of stretch of the piezoelectric element and a second axis transverse to the first axis;
- the active area of the piezoelectric film element disposed in contact with the waveguide, with the waveguide aligned along the second axis of the piezoelectric film element; and
- the torsional strain signal transmitted along the waveguide and coupled to the piezoelectric film element to produce a stress wave in the piezoelectric film element in the direction of the first axis of the piezoelectric film element.

5,804,962 METHOD OF ADJUSTING THE POSITION OF REST OF AN ARMATURE IN AN ELECTROMAGNETIC ACTUATOR

Lutz Kather, Würselen; Ekkehard Schrey, and Günter Schmitz, both of Aachen, all of Germany, assignors to FEV Motorentechnik GmbH & Co. KG, Aachen, Germany

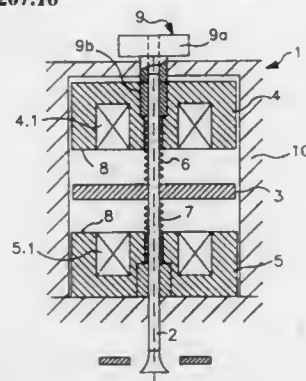
Filed Aug. 8, 1996, Ser. No. 694,247

Claims priority, application Germany, Aug. 8, 1995, 195 29 154.9

Int. Cl.⁶ H01F 7/121; F01L 9/04; F16K 31/02; G01B 7/00

U.S. Cl. 324—207.16

4 Claims



1. A method of ascertaining the position of rest of a movable armature of an electromagnetic actuator for an engine cylinder valve, assumed between two de-energized electromagnets in response to forces of oppositely acting return springs, and adjusting the position of rest relative to first and second electromagnets, comprising the following steps:

- (a) measuring the inductivities of said first and second electromagnets;
- (b) comparing the measured inductivity values to obtain a comparison value;
- (c) ascertaining the position of the armature in the position of rest between said first and second electromagnets from the comparison value; and
- (d) adjusting at least one of (1) a bias of at least one of said return springs and (2) a position of at least one of said first and second electromagnets relative to said armature until the comparison value equals a desired inductivity value predetermined for said position of rest.

5,804,963

INDUCTIVE DISPLACEMENT SENSOR WITH A CURSOR AND A MOVABLE COUPLING SCALE

Hans Ulrich Meyer, 42, Rue de Lausanne, 1110 Morges, Switzerland

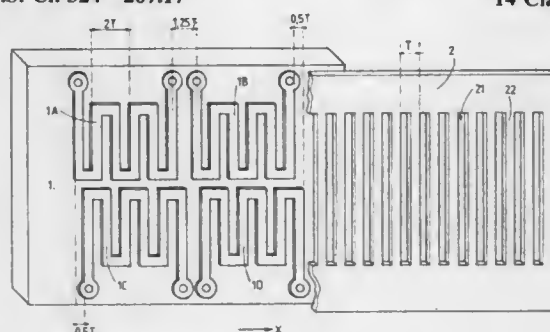
Filed Jan. 21, 1997, Ser. No. 785,766

Claims priority, application Switzerland, Jan. 24, 1996, 179/96

Int. Cl.⁶ G01B 7/00; G01D 5/20; G08C 19/06

U.S. Cl. 324—207.17

14 Claims



1. An inductive displacement sensor comprising: two elements movable relative to each other along a path (x), provided with windings arranged along said path and whose

mutual inductances vary as a periodic function of the relative displacement of said two elements, and electronic means for determining a value of said displacement from measuring said windings' mutual inductances, said windings being arranged on a first of said two elements, the second of said two elements comprising spatially periodic electromagnetic characteristics of spatial period T along said path susceptible to modify said windings' mutual inductances, wherein the first element comprises at least N ≥ 2 of said windings arranged with a mutual spatial shift each relative to the other(s) in a measuring plane on said first element and connected to separate connections of said electronic means, which are adapted to generate temporarily an electric current in at least a first of said windings becoming temporarily an emitting inductor during first predetermined time intervals and to measure the signals induced in at least one of the remaining of said windings becoming temporarily a receiving winding and influenced by a position of the second element's spatially periodic electromagnetic characteristics, and to further generate temporarily according to a given time sequence an electronic current in at least a second of said windings becoming temporarily an emitting inductor during second predetermined time intervals and to measure the signals induced in at least one of the remaining of said windings becoming temporarily a receiving winding.

5,804,964

WIRE ROPE DAMAGE INDEX MONITORING DEVICE

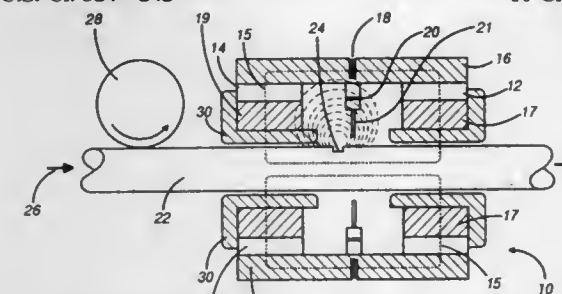
Michel Hamelin, St-Lazare, and Frank Kitzinger, Montreal, both of Canada, assignors to Noranda Inc., Toronto, Canada

Filed Nov. 29, 1996, Ser. No. 757,668

Int. Cl.⁶ G01N 27/82; 27/83; G01R 33/12

U.S. Cl. 324—242

10 Claims



1. A magnetic testing device for obtaining a damage index of an elongated magnetically permeable object in real time, the device comprising:

- i) a permanent magnet assembly having poles adapted to be spaced apart in the longitudinal direction of an elongated object for inducing a longitudinal magnetic flux in a section of the object between the poles of the magnet assembly, the magnet assembly being strong enough to magnetically saturate the section of the object;
- ii) a tubular pole piece adapted to surround the object adjacent each pole of the permanent magnet assembly for directing the magnetic flux radially into the object at one pole and out of the object at the other pole;
- iii) Hall effect devices placed in the path of the magnetic flux for sensing the reduction of the flux passing through the elongated object due to any reduction of cross-sectional area of the elongated object between the pole pieces caused by loss of metallic area in the elongated object;
- iv) a leakage flux sensor installed between the pole pieces for detecting external and internal defects in the objects; and
- v) a real time signal processing unit for
 - a) length referencing (i) local fault (LF) signals generated by the leakage flux sensor and (ii) loss of metallic area (LMA) signals generated by the Hall effect devices, by digitally sampling the LF signals and the LMA signals along the object length at preset distance intervals;
 - b) summing of the standard deviations of LF signals;

- c) summing of the root-mean-square of the LF signals;
 - d) integrating the absolute values of the LF signal;
 - e) multiplying the LMA signal by a nonlinear coefficient dependent on the object construction and the LMA; and
 - f) determining a damage index using values obtained in steps b, c, d and e,
- whereby a numerical damage index based on wire rope damage mechanics is obtained.

5,804,965

METHOD AND APPARATUS FOR STEADY-STATE MAGNETIC MEASUREMENT OF POLOIDAL MAGNETIC FIELD NEAR A TOKAMAK PLASMA

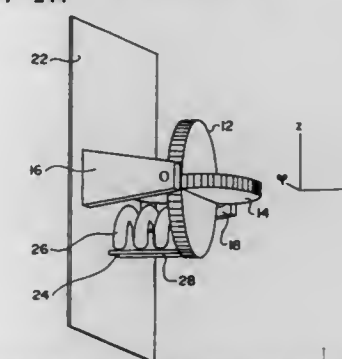
Robert D. Woolley, Hillsborough, N.J., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 24, 1996, Ser. No. 718,830

Int. Cl.⁶ G01R 33/02

U.S. Cl. 324—244

11 Claims



2. An apparatus to measure magnetic field with constant accuracy for unlimited time durations near a tokamak plasma, the tokamak being configured with respect to a cylindrical coordinate system having z, phi (toroidal) and r axes, comprising:

- a) a pair of air core inductive magnetic field pickup coils at a measurement location near the plasma, with the coil symmetry axes oriented orthogonally to each other and to the toroidal direction, and having associated remotely located integrator circuits,
- b) a single rigid-body rotor assembly including an axle and the pair of air core inductive magnetic pickup coils wound on a common winding form so that they are concentrically arranged with their symmetry axes orthogonal to each other and to the axle, and with the axle oriented on the tokamak to point in the toroidal direction,
- c) two pivot support brackets for mounting the rotor assembly on a baseplate via its axle, the brackets preventing all motions of the rotor assembly except for rotation about its axle,
- d) a thin stiff spring located between the baseplate and the rotor assembly to oppose rotation of the rotor assembly about its axle,
- e) means to avoid buckling of the thin stiff spring,
- f) a resistive strain gauge mounted on the thin stiff spring,
- g) a remotely located electronic circuit continuously monitoring changes in the resistance of the resistive strain gauge,
- h) two remotely located electronic circuits connected to the pair of air core inductive magnetic pickup coils, the circuits simultaneously monitoring the coils' voltages and actively injecting preprogrammed current waveforms from a high impedance controllable current source,
- i) remotely located electronic signal processing equipment which synthesizes the preprogrammed current waveforms injected into the pair of air core inductive magnetic pickup coils, tracks changes in the coils' electrical resistances, and calculates the coil voltage perturbations resulting from injecting the known current waveforms into the coil circuits' known self-inductance and resistance, and synthesizes magnetic field measurement output signals from the combination

of coil voltage measurements and strain gauge resistance variation measurements.

5,804,966

VOLUME SPECTROSCOPY HAVING IMAGE ARTIFACT REDUCTION

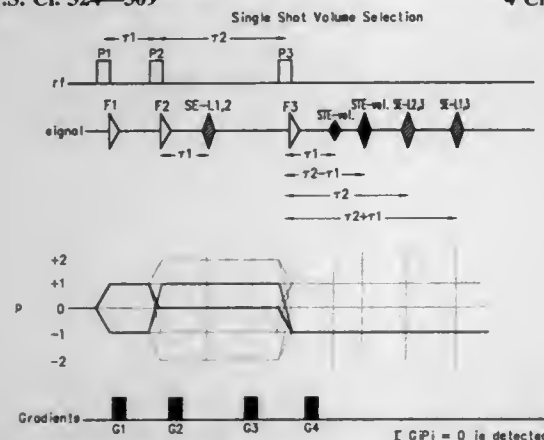
Ralph E. Hurd, Milpitas, Calif., assignor to General Electric Company, Milwaukee, Wis.

Filed Sep. 10, 1996, Ser. No. 711,496

Int. Cl.⁶ G01R 33/20

U.S. Cl. 324—309

4 Claims



1. A method of volume magnetic resonance spectroscopy with reduced artifacts comprising the steps of:

- placing an object to be imaged in a static magnetic field;
- applying a sequence of three RF pulses through said object in the presence of three slice select gradients along each of three principal axes, each RF pulse exciting a plane along an axis which collectively stimulate an echo from a volume of interest;
- phase encoding the slices resulting from the first slice select gradient and the third slice select gradient at a resolution greater than or equal to voxel size to resolve and eliminate any out of volume artifacts; and
- detecting a localized spectrum signal from a volume intersected by each of the excited columns and further resolving any artifacts outside of the selected volume by phase encoding along the first and third slice select gradient axes.

5,804,967

APPARATUS AND METHOD FOR GENERATING SHORT PULSES FOR NMR AND NQR PROCESSING

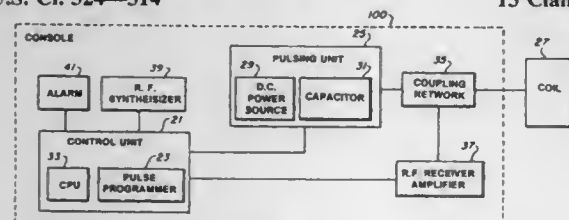
Joel B. Miller, Cheverly, and Allen N. Garroway, Fort Washington, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 15, 1996, Ser. No. 749,483

Int. Cl.⁶ G01V 3/00

U.S. Cl. 324—314

13 Claims



1. An apparatus, comprising:

- a pulsing unit to generate a radio frequency pulse for nuclear magnetic or nuclear quadrupole resonance, and
- a transmitter to irradiate a specimen with the pulse, wherein the pulse has a signal reaching a full amplitude within a quarter

cycle, the signal having a recovery delay of less than Q/π cycles, the Q being a quality factor of the transmitter.

5,804,968

GRADIENT COILS WITH REDUCED EDDY CURRENTS

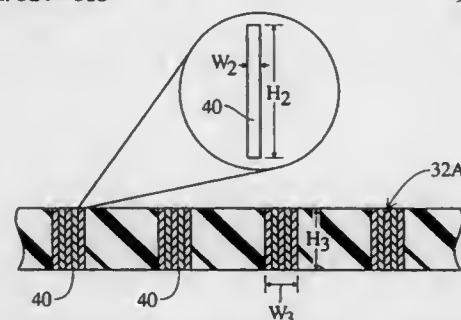
Mark A. Richard, S. Euclid; Nicholas J. Mastandrea, Jr., Euclid, and David A. Lampman, Eastlake, all of Ohio, assignors to Picker International, Inc., Highland Heights, Ohio

Filed Jan. 29, 1997, Ser. No. 790,936

Int. Cl.⁶ G01V 3/00

U.S. Cl. 324—318

9 Claims



1. A magnetic resonance imaging apparatus including a main field magnet for generating a temporally constant magnetic field through an examination region, a radio frequency transmitter for exciting and manipulating magnetic resonance in selected dipoles in the examination region, a receiver for demodulating magnetic resonance signals received from the examination region, a processor for reconstructing the demodulated resonance signals into an image representation, and a plurality of fingerprint gradient magnetic field coils for inducing gradient magnetic fields across the temporally constant magnetic field, each of the fingerprint gradient coils including:

- a former having a cylindrical surface;
- a plurality of laminations laminated together to form a resulting spiral winding, each of said plurality of laminations having a first crosssectional dimension extending in a direction radially outward from and perpendicular to the cylindrical surface, which first crosssectional dimension is at least twice a second crosssectional dimension in a direction perpendicular to the first crosssectional dimension and parallel to the cylindrical surface, such that the laminations are mounted on end on the cylindrical surface.

5,804,969

MRI RF COIL

Jianyu Lian, Cambridge, Mass., and Peter B. Roemer, North Andover, Mass., assignors to Advanced Mammography Systems, Inc., Wilmington, Mass.

Continuation of Ser. No. 506,969, Jul. 28, 1995, abandoned.

This application Apr. 24, 1997, Ser. No. 847,431

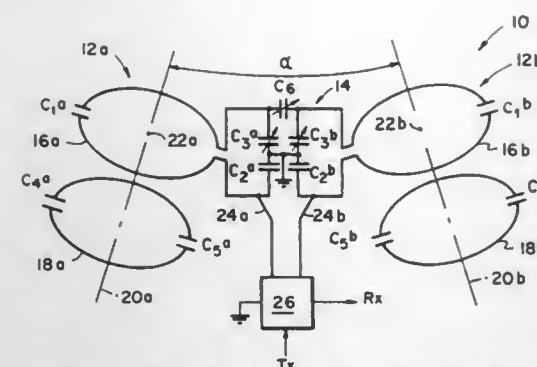
Int. Cl.⁶ G01R 33/32

U.S. Cl. 324—318

35 Claims

1. An MRI RF coil assembly comprising:

- a mounting structure;
- a first MRI RF coil disposed along a first longitudinal axis, said first RF coil including:
 - a first resonant ring carried by said mounting structure and disposed along said first axis;
 - a second resonant ring removably attached to said mounting structure and spaced apart from said first resonant ring along said first axis, said second ring being inductively coupled to and otherwise electrically isolated from said first resonant ring
- a second MRI RF coil disposed along a second axis, said second RF coil including:



- a third resonant ring carried by said mounting structure and disposed along said second axis;
- a fourth resonant ring removably attached to said mounting structure and disposed along said second axis, said fourth ring being inductively coupled to and otherwise electrically isolated from said third resonant ring;
- a decoupling capacitor electrically connected between said first resonant ring of said first RF coil and said third resonant ring of said second RF coil;
- said second resonant ring of said first RF coil being electrically isolated from said fourth resonant ring of said second RF coil.

5,804,970

METHOD AND APPARATUS FOR DETECTION AND ACQUISITION OF AUTOMOTIVE FUEL INJECTOR VOLTAGE SIGNAL PULSE WIDTH

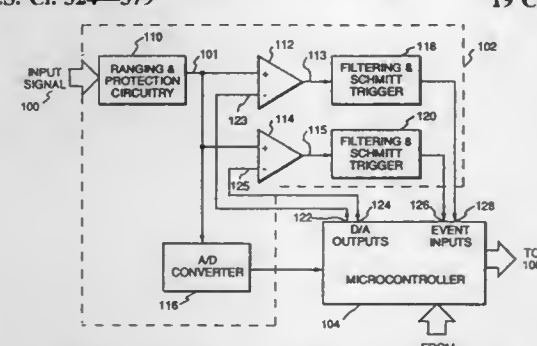
Charles N. Villa, San Jose, and Claes Georg Andersson, Fremont, both of Calif., assignors to Snap-On Technologies, Inc., Lincolnshire, Ill.

Filed Feb. 12, 1996, Ser. No. 589,035

Int. Cl.⁶ G01R 17/02; 19/257; F02P 17/12

U.S. Cl. 324—379

19 Claims



1. A system for detecting, calculating, and displaying the event time of pulse events of variable duration appearing in an input signal, each of the pulse events having two or more pulses, comprising:

- signal ranging means for receiving said input signal and generating therefrom an adjusted input signal having voltage levels within a predetermined voltage range;
- analog-to-digital converter means for sampling said adjusted input signal to generate digital values representative thereof;
- first comparator means for comparing said adjusted input signal and a first threshold voltage magnitude to generate a first event signal each time a first pulse appearing on said adjusted input signal has a voltage magnitude exceeding said first threshold voltage magnitude, the first event signal having a leading edge and a trailing edge defining a pulse width corresponding to the pulse width of said first pulse;
- second comparator means for comparing said adjusted input signal and a second threshold voltage magnitude to generate a second event signal each time a second pulse appearing on said adjusted input signal has a voltage magnitude exceeding said second threshold voltage magnitude, the second event

signal having a leading edge and a trailing edge defining a pulse width corresponding to the pulse width of said second pulse;

- graphical display means; and
- microcontroller means for receiving said digital values and for determining said first threshold voltage magnitude as a function of a first magnitude of said digital values, and said second threshold voltage magnitude as a function of a second magnitude of said digital values, for receiving the first event signal and the second event signal, and for monitoring the occurrence of each of the first event signal and the second event signal, said microcontroller means calculating the event time of the pulse event as a function of the occurrence of the first event signal and the second event signal, and passing said event time to said graphical display means for display.

5,804,971

MODULAR CARD BASED METER

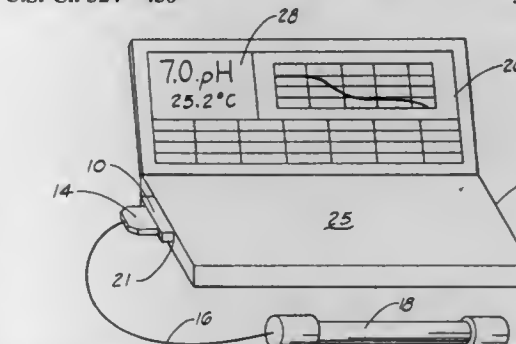
Colin J. Cumming, Stillwater, and Philip M. Maltby, Tulsa, both of Okla., assignors to Nomadics, Inc., Stillwater, Okla.

Filed Mar. 1, 1996, Ser. No. 609,176

Int. Cl.⁶ G01N 27/416

U.S. Cl. 324—438

39 Claims



9. A measurement system, comprising:
 - a sensor providing an output signal indicative of a measurement value;
 - a card module connected to said sensor;
 - a host computer receiving said card module in a PCMCIA standard plug interface; and
 - software executing within said host computer to process and display said measurement value.

5,804,972

PARTIAL-DISCHARGE MEASURING DEVICE

Nicholas de Kock, Winterthur, and Ingo Herbst, Greifensee, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Jan. 17, 1996, Ser. No. 587,531

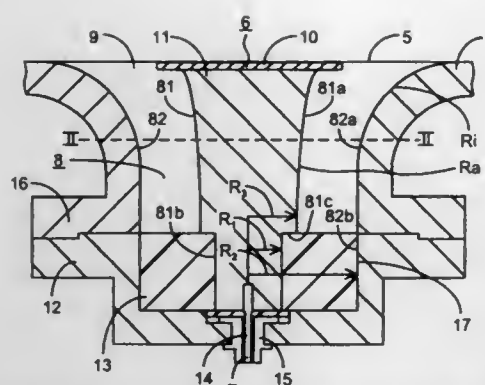
Claims priority, application Germany, Mar. 1, 1995, 198 07 032.1

Int. Cl.⁶ G01R 31/12; G01N 27/60

U.S. Cl. 324—536

13 Claims

1. A device for detecting partial discharges in a gas-insulated, high-voltage system, comprising:
 - a plate-shaped electrode inserted in an electrically insulated manner into a funnel-shaped opening of a metal enclosure, the opening defined by a flanged attachment of the metal enclosure;
 - a flange arranged outside the metal enclosure, the flange being supported by the flanged attachment;
 - an annular gap antenna arranged within an inner surface of the funnel-shaped opening;
 - a coaxial measuring cable connected to a measuring device, the cable having a shield surrounding a shielded conductor; and
 - a tapering adaptor conductor having a coaxially-arranged inner conductor and outer conductor, wherein the inner conductor is



formed by a supporting body which supports the plate-shaped electrode and is connected to the shielded conductor, and the outer conductor is connected to the shield and includes a first portion formed by the inner surface of the flanged attachment; wherein the first portion of the outer conductor and a first portion of the inner conductor, formed by an outer surface of the supporting body, are curved such that the first portions have diameters which vary non-linearly.

5,804,973

CONTROL DEVICE IN AN ELECTRIC VEHICLE

Sadao Shinohara, and Tetsuro Shimohira, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 673,179, Jun. 26, 1996, abandoned.

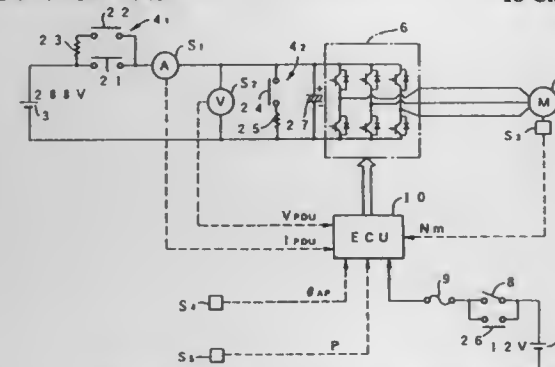
This application Oct. 10, 1996, Ser. No. 728,196

Claims priority, application Japan, Jun. 27, 1995, 7-16049495

Int. Cl.⁶ G01R 31/02

U.S. Cl. 324-548

18 Claims



I. A control device in an electric vehicle, the control device including a battery, an inverter for converting a DC current output by the battery into an AC current, a traveling motor driven by the AC current output by the inverter, a capacitor connected in parallel to the inverter, and a control means for switching an operation of said inverter in response to a signal indicative of an operation of the electric vehicle, said control device further comprising:

- a charging means for charging said capacitor;
- a voltage detecting means for detecting a voltage of said capacitor; and
- a deterioration determining means for determining deterioration of said capacitor based on a variation in voltage of said capacitor detected by said voltage detecting means a) during operation of said charging means and b) prior to traveling of said electric vehicle.

5,804,974
MATERIALS CHARACTERIZATION CELL FOR
POLARIZATION SPECTRUM AND STREAMING
ELECTRIFICATION MEASUREMENTS

Michael A. Brubaker, and George K. Frimpong, both of Raleigh, N.C., assignors to Abb Power T&D Company Inc., Raleigh, N.C.

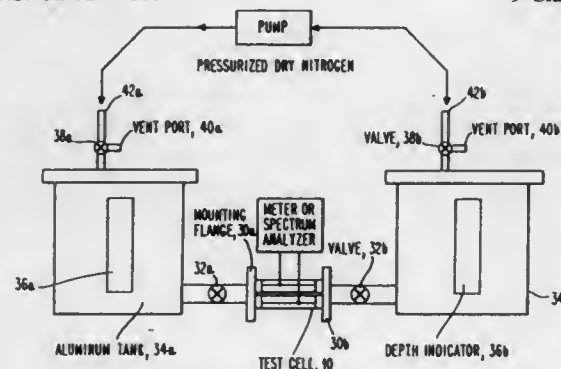
Division of Ser. No. 484,571, Jun. 7, 1995. This application

May 21, 1997, Ser. No. 859,749

Int. Cl.⁶ G01N 27/403; G01R 31/16

U.S. Cl. 324-553

9 Claims



I. A materials characterization system, comprising:

- (a) a materials characterization cell;
- (b) a polarization spectrum analyzer coupled to said materials characterization cell; and
- (c) means for providing a controlled flow of oil through said materials characterization cell.

5,804,975

DETECTING BREAKDOWN IN DIELECTRIC LAYERS

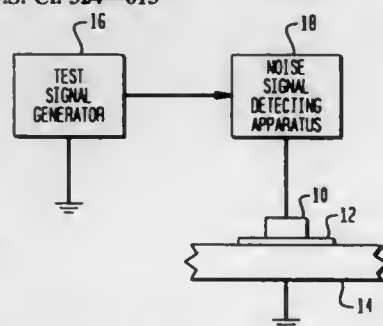
Glenn Baldwin Alers, Chatham; Kathleen Susan Krusch, Scotch Plains, both of N.J., and Bonnie Elaine Weir, Bronxville, N.Y., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 18, 1996, Ser. No. 718,113

Int. Cl.⁶ G01R 31/26

U.S. Cl. 324-613

19 Claims



I. Apparatus for detecting the occurrence of electrical breakdown in a fixed-thickness dielectric layer, said apparatus comprising means for applying a test signal to said fixed-thickness layer, and means for detecting when the amplitude of noise signals in said layer during the application thereto of said test signal exceeds a prespecified value, thereby to indicate the occurrence of electrical breakdown in said fixed-thickness dielectric layer.

5,804,976
DEVICE FOR DETERMINING THE RATIO OF
SUBSTANCES

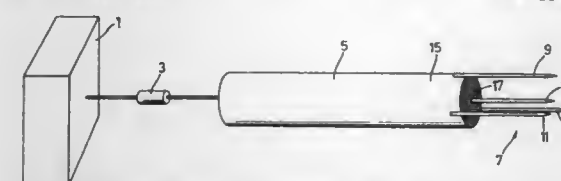
Graham James Gaskin, Aberdeen, United Kingdom, assignor to Macaulay Land Use Research Institute of Craigiebuckler, Aberdeen, United Kingdom

Filed Sep. 6, 1996, Ser. No. 706,675

Int. Cl.⁶ G01N 22/04; G01R 27/06

U.S. Cl. 324-645

20 Claims



I. A measurement device to indicate the ratio of two or more substances forming a body of material and having different dielectric constants, the device comprising an oscillator, a transmission means connected at one end to the oscillator, and a probe unit for contacting the material, where the probe is connected to the other end of the transmission means, the transmission means transmitting an oscillating signal produced by the oscillator to the probe, and measurement means for measuring the difference in voltage between two spaced apart points on the transmission means, the voltage difference being indicative of the ratio of the two or more substances.

5,804,977

TRANSMISSION LINE PULSER DISCHARGE CIRCUIT

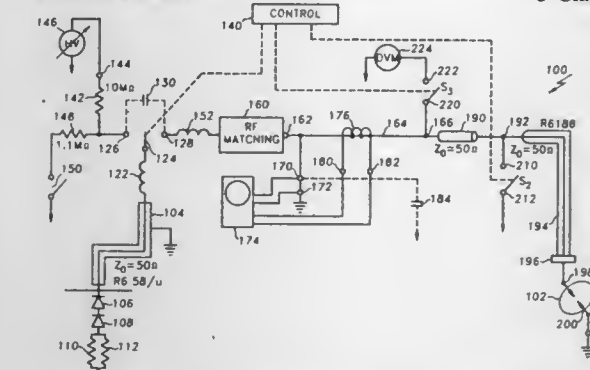
Rosario J. Consiglio, 1144 N. 2nd St., San Jose, Calif. 95112

Filed Apr. 23, 1997, Ser. No. 838,969

Int. Cl.⁶ G01R 27/26

U.S. Cl. 324-678

5 Claims



I. A pulse discharge circuit for pulse testing an integrated-circuit device under test (DUT), comprising:

- a first switch S1 having a common terminal with series inductance and a first contact terminal and a second contact terminal having series lead inductance;
- wherein the common terminal of the first switch S1 is connected to one end of a first conductor of a first transmission line and wherein a second end of the first conductor of the first transmission line is coupled to a stable, high-current termination resistance;
- wherein the first contact terminal of the first switch S1 is connected to a high voltage source;
- wherein the second contact terminal of the first switch S1 is connected to an input terminal of an RF matching network;
- wherein the first switch S1 has a first charging position for connecting the common terminal to the first contact terminal to provide a conductive path for charging the first transmission line to a charged state from the high voltage source;
- wherein said first switch S1 has a second discharging position for generating a test pulse and for connecting the common terminal to the second contact terminal and to the input terminal of the RF matching network, such that the test pulse propagates through the RF matching network and such that

the impedance at the input terminal of the RF matching network is matched to the impedance of the first transmission line and the series inductances of the common terminal and the second contact terminal;

the RF matching network has an output terminal to which is connected one terminal of a second switch S2, wherein the second switch S2 has a second terminal which is connected to means for testing leakage;

wherein the output terminal of the RF matching network is connected to one terminal of a third switch S3, wherein a second terminal of said third switch S3 is connected to a ground reference potential;

the output terminal of the RF matching network is also connected to one end of a first conductor of a second transmission line;

wherein a second end of the first conductor of the second transmission line is connected to an integrated-circuit DUT; means for measuring reflected voltage and reflected current from said integrated-circuit DUT at the output terminal of said RF matching network.

5,804,978

CIRCUIT FOR FEEDING A WHEATSTONE BRIDGE
WITH A RECTANGULAR WAVEFORM VOLTAGE

Joachim Scheerer, Am Fort Weisenau 38, and Hartmut Grutzediek, An Der Klosterheck 16, both of D-55130 Mainz, Germany

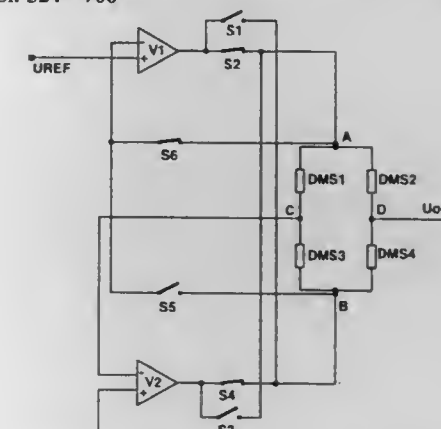
Filed Mar. 22, 1996, Ser. No. 624,840

Claims priority, application Germany, Mar. 22, 1995, 195 09 815.3

Int. Cl.⁶ G01R 27/08

U.S. Cl. 324-706

17 Claims



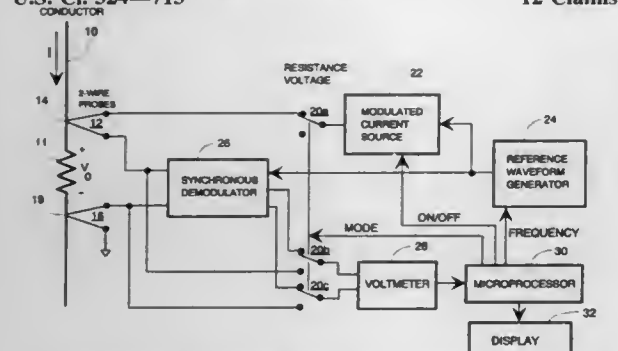
I. Circuit for feeding a Wheatstone bridge (DMS 1 . . . DMS 4) with a rectangular waveform alternating voltage which is derived from a single DC reference voltage, characterized by the features that the circuit contains a first operational amplifier (V 1) whose sensitive input is connected to the DC reference voltage and whose negative input is connected via a first set of switches (S 5 and S 6) alternately to the one (A) or to another (B) feed point of the bridge, and that the circuit contains a second operational amplifier (V 2) whose positive input is connected to ground potential and whose negative input is connected to a voltage which is derived from the voltages of the two feed points (A and B) via resistive voltage division, and that the outputs of the two operational amplifiers (V 1 and V 2) are connected via a second set of switches (S 1 . . . S 4) alternately to the one (A) or to another (B) feed point of the bridge.

5,804,979
CIRCUIT FOR MEASURING IN-CIRCUIT RESISTANCE AND CURRENT

John M. Lund, Marysville, and Steven Dennis Swift, Seattle, both of Wash., assignors to Fluke Corporation, Everett, Wash.

Filed May 13, 1997, Ser. No. 855,276
Int. Cl.⁶ G01R 27/08

U.S. Cl. 324—713 12 Claims



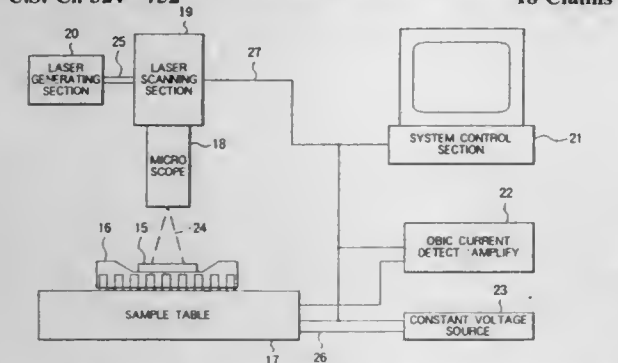
1. A method for measuring current in a conductor comprising:
- (a) selecting a segment of said conductor, said current producing a voltage drop across said segment;
 - (b) coupling a modulated current source across said segment, said modulation current source producing a test current responsive to a modulation waveform having a selected frequency to produce a test voltage drop across said segment;
 - (c) coupling a synchronous demodulator across said segment to separate said test voltage drop from said voltage drop by synchronously demodulating said test voltage drop according to said modulation waveform;
 - (d) measuring said test voltage drop with a voltmeter;
 - (e) turning off said modulated current source;
 - (f) measuring said voltage drop across said segment with said voltmeter; and
 - (g) determining said current according to said test voltage drop, said voltage drop, and said test current.

5,804,980
METHOD AND SYSTEM FOR TESTING AN INTERCONNECTION IN A SEMICONDUCTOR INTEGRATED CIRCUIT

Kiyoshi Nikawa, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Aug. 29, 1995, Ser. No. 520,501
Claims priority, application Japan, Aug. 31, 1994, 6-230672; Oct. 3, 1994, 6-238802; Feb. 15, 1995, 7-025758

Int. Cl.⁶ G01R 31/02; H01H 31/04
U.S. Cl. 324—752 18 Claims



1. A method for measuring current in an interconnection made of a conductive material in a semiconductor integrated circuit including the steps of providing a constant supply voltage to the semiconductor integrated circuit through a power supply line, irradiating a radiation beam to scan points of a matrix constituting a subject region including at least a portion of the interconnection,

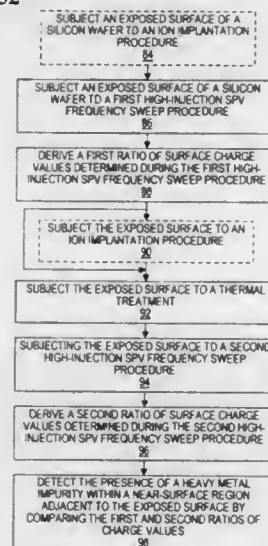
monitoring a current change in the power supply line for each of the points on the portion of the interconnection while the each of the points is irradiated by the radiation beam, displaying the current change for at least a part of the points on a display panel, and measuring current in the interconnection based on the current change.

5,804,981
METHOD OF DETECTING HEAVY METAL IMPURITIES INTRODUCED INTO A SILICON WAFER DURING ION IMPLANTATION

John K. Lowell, Round Rock; Norman L. Armour, and Julia Sherry, both of Austin, all of Tex., assignors to Advanced Micro Devices, Inc.

Filed May 7, 1996, Ser. No. 643,981
Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—752 34 Claims

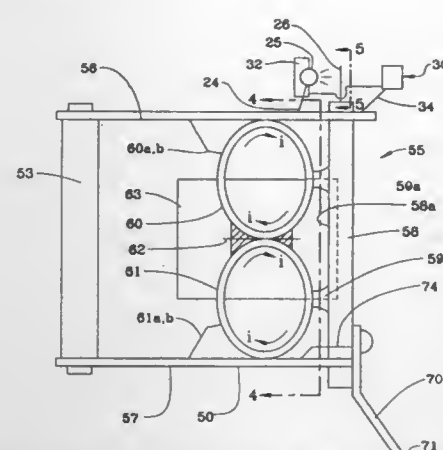


1. A method of detecting the presence of a heavy metal impurity within a silicon wafer, comprising the steps of:
- subjecting an exposed surface of the silicon wafer to an ion implantation procedure;
 - subjecting the exposed surface to a first high-injection SPV frequency sweep procedure;
 - deriving a first ratio of surface charge values determined during the first high-injection SPV frequency sweep procedure;
 - subjecting the exposed surface to a thermal treatment;
 - subjecting the exposed surface to a second high-injection SPV frequency sweep procedure;
 - deriving a second ratio of surface charge values determined during the second high-injection SPV frequency sweep procedure; and
 - detecting the presence of a heavy metal impurity within the silicon wafer by comparing the first and second ratios of surface charge values.

5,804,982
MINIATURE PROBE POSITIONING ACTUATOR
Jiann-Chang Lo; Michael Servedio, and James Michael Hammond, all of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 26, 1995, Ser. No. 451,634
Int. Cl.⁶ G01R 1/06

- U.S. Cl. 324—758 12 Claims
1. An actuator for accurately and selectively positioning a probe into electrical contact with an electrical circuit associated with a device and for testing the same, said actuator comprising in combination:
- a frame including a separator means;



at least one pair of spaced apart, laterally extending, flexible beams attached to said separator means;

an armature attached to the extended terminal ends of said beams;

a probe attached to the armature for contacting selected points in the electrical circuit associated with said device being tested;

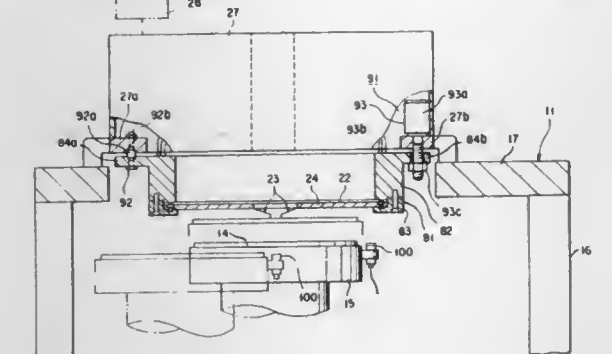
a pair of coils arranged so that their axes are spaced apart but in parallel relation to one another, said coils being insulated from one another, at least one of said coils being connected to one of a beam and armature,

means, carried by said frame, creating a magnetic field across at least part of said coils, whereby upon energization of said coils, deflection of said beams and said armature occurs, effecting movement of said probe.

5,804,983
PROBE APPARATUS WITH TILT CORRECTION MECHANISMS
Hisashi Nakajima, and Haruhiko Yoshioka, both of Yamanashi-ken, Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Yamanashi Limited, Nirasaki, both of Japan

Division of Ser. No. 361,537, Dec. 22, 1994, Pat. No. 5,642,056. This application Mar. 27, 1997, Ser. No. 824,970
Claims priority, application Japan, Dec. 22, 1993, 5-322953; Jul. 28, 1994, 6-176603

Int. Cl.⁶ G01R 31/02 6 Claims



1. A probe apparatus comprising:
- a table on which an object to be tested is mounted, said object having a circuit connected to a plurality of pads;
 - a probe card assembly having a card body and groups of probes held by a card holder;
 - lifter means for lifting the table to cause tips of probes to be contacted with pads of the object;
 - a test head for sending at least one test signal to the circuit of the object through probes and pads, which are contacted with one another, to test the electric property of the circuit;

test head adjustment mechanisms for supporting the test head and adjusting the tilt of the probe card assembly with the test head, said test head adjustment mechanisms including a pair of level adjustment screw mechanisms and a ball hinge mechanism, and wherein said level adjustment screw mechanisms provide up and down adjustments to adjust the tilt about the ball hinge mechanism;

probe measuring means for measuring the parallel of a probe tip profile of probe groups to a top surface of the table;

object measuring means arranged opposite to the table to measure the parallel of a pad top profile of the object on the table relative to the probe tip profile of probe groups; and

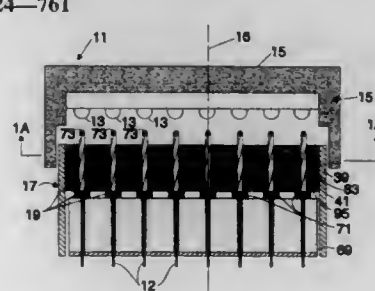
control means for controlling the test head adjustment mechanisms to adjust a tilt of the test head, responsive to detection signals applied from the probes and object measuring means, so that the probe tip profile can be kept parallel to said pad top profile.

5,804,984
ELECTRONIC COMPONENT TEST APPARATUS WITH ROTATIONAL PROBE

David James Alcoe, Vestal, and David Vincent Caletka, Apalachin, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 2, 1996, Ser. No. 691,732
Int. Cl.⁶ G01R 31/02

U.S. Cl. 324—761 32 Claims



1. A test apparatus for making electrical contact with at least one electrically conductive member of an electronic component, said test apparatus comprising:
- a holder for holding said electronic component in a predetermined alignment relative to a first axis;
 - a housing adapted for being positioned relative to said holder;
 - at least one probe member positioned substantially within said housing and adapted for being positioned along said first axis for electrically engaging said conductive member when said conductive member and said at least one probe member are brought together, said at least one probe member moving in a rotational manner with respect to said first axis during said electrically engaging with said conductive member;
 - first and second spaced apart means for precisely orienting said at least one probe member substantially within said housing substantially along said first axis relative to said at least one conductive member during said engagement with said conductive member, said at least one probe member slidably engaging at least one of said first and second spaced apart means, said moving in a rotational manner of said at least one probe member caused by said slidably engaging by said probe member; and
 - biasing means for biasing said at least one probe member in a direction toward said conductive member and substantially along said first axis.

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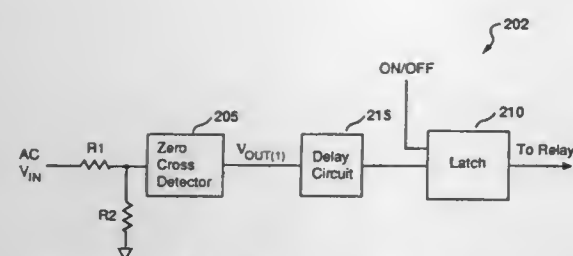
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ii) a delay circuit for delaying the coupled at an input to said zero cross detector and at an output to said flip-flop, for producing a pulse for clocking said flip-flop to change state after each zero-crossing.

5,804,992

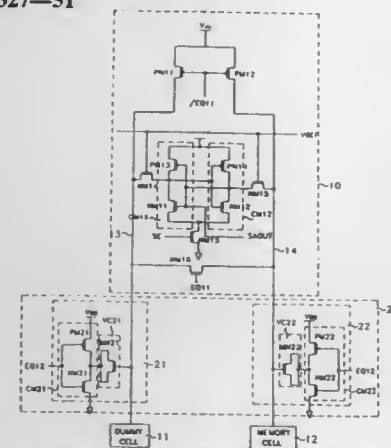
SENSE AMPLIFIER OF SEMICONDUCTOR MEMORY DEVICE

Sung-Han Lee, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyongki-do, Rep. of Korea
Filed Dec. 27, 1996, Ser. No. 774,844

Claims priority, application Rep. of Korea, Dec. 30, 1995, 95-69514

Int. Cl. G11C 7/06

U.S. Cl. 327-51



1. A sense amplifier of a semiconductor memory device, comprising:

- a sense amplifying unit for precharging voltage of a dummy line connected to a dummy cell and of a bit line connected to a memory cell by a first equalizing signal and for sensing and amplifying data from the memory cell in accordance with a voltage difference between said dummy line and said bit line upon receiving a sense amplifier enable signal; and
- a voltage variable unit for adjusting the voltages of said dummy line and said bit line by a second equalizing signal to increase the voltage difference between said bit line and said dummy line.

5,804,993

DETECTING CIRCUIT

Masayoshi Suzuki, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jul. 3, 1996, Ser. No. 675,601

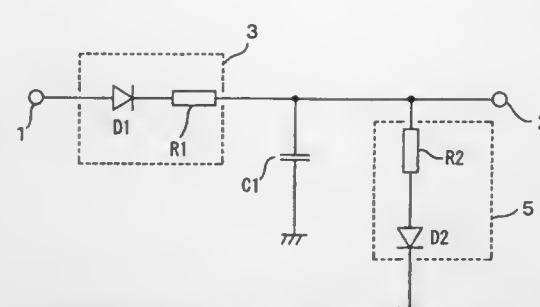
Claims priority, application Japan, Dec. 4, 1995, 7-315173
Int. Cl. G01R 19/00; G06G 7/25

U.S. Cl. 327-58

11 Claims

1. A detecting circuit for outputting a DC signal depending on the power of an inputted signal, comprising:

- a rectifier block connected between an input terminal of the detecting circuit and an output terminal of the detecting circuit and comprising a rectifying element and a resistive element;



a capacitor having an end connected to a junction between said rectifier block and said output terminal and an opposite end connected to a common potential; and
a load block connected parallel to said capacitor and having the same impedance as said rectifier block.

5,804,994

COMPARATOR CIRCUIT WITH HYSTERESIS

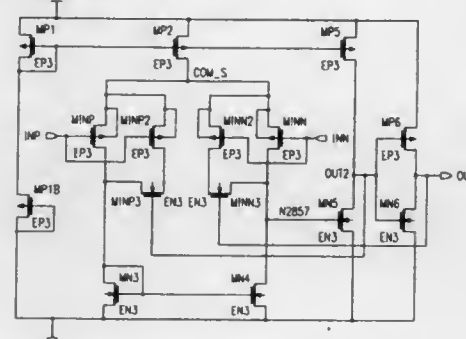
C. Allen Marlow, Ann Arbor, and Eric J. Danstrom, Farmington Hills, both of Mich., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Continuation of Ser. No. 545,037, Oct. 19, 1995, Pat. No. 5,656,957. This application May 14, 1997, Ser. No. 856,219

Int. Cl. H03K 5/22; 3/037

U.S. Cl. 327-67

5 Claims



4. A method for generating hysteresis in a comparator comprising the steps of:

- enabling a current path which is in parallel to a transistor of a differential pair when an output of the comparator is at a high voltage, wherein the transistor receives a differential input signal.

5,804,995

MONITORING CIRCUIT FOR A SUPPLY VOLTAGE

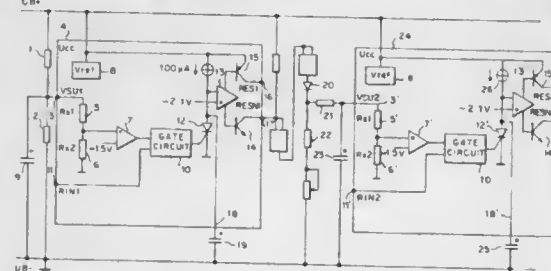
Manfred Knuth, and Rainer Horstkotte, both of Seligenstadt, Germany, assignors to Schneider Automation GmbH, Seligenstadt, Germany

Filed Apr. 24, 1997, Ser. No. 847,588

Int. Cl. H03K 5/153; 3/02

U.S. Cl. 327-74

8 Claims



1. A monitoring circuit for at least one supply voltage, having comparators that generate a first report signal if the supply voltage

is below a predetermined threshold value and a second report signal after a fixed warning time elapses, wherein

the supply voltage is delivered in a first circuit unit (4) to a first comparator (7) for comparison with a reference voltage that defines a lower, first limit value; that in the first circuit unit (4) the first comparator (7) is followed by a switch element, with which a capacitor (19), connected parallel to the switch element and connected to an input of a second comparator (13) and chargeable from an operating voltage source, can be short-circuited by the switch element in order to lower the input voltage of the second comparator (13), disposed in the first circuit unit (4), to below a second reference voltage that defines a limit value for resetting the first report signal; that the noninverting output of the second comparator (13) is followed by the base of a bipolar output transistor (14), whose emitter is connected to the negative pole of the voltage source that supplies operating voltage to the control unit (4), the positive pole of the voltage source being connected via a resistor (31) to the collector of the output transistor (14), at which, or at least at an amplifier following the output transistor (14), the first report signal appears; that the collector of the output transistor (14) is followed via a diode (20) by a second capacitor (23) that can be charged by a second resistor (21) and discharged by a third resistor (22) and that is connected in a second circuit unit (24), identical to the first circuit unit (4), to the first comparator (7) of the second circuit unit; and that the second report signal is generated at the collector of the output transistor (14) of the second circuit unit (24) or at least at an amplifier following this output transistor.

5,804,996

LOW-POWER NON-RESETABLE TEST MODE CIRCUIT

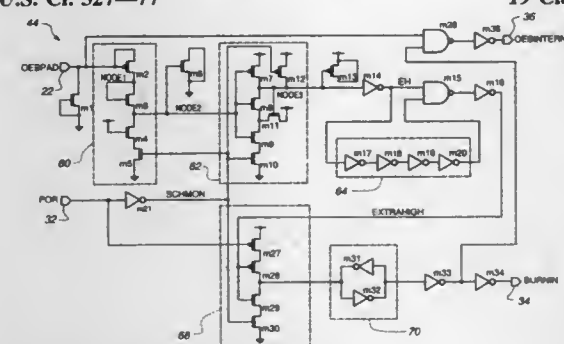
Donald J. Verhaeghe; William F. Kraus, both of Colorado Springs, Colo., and Yoshihiko Yasu, Koganei, Japan, assignors to Ramtron International Corporation, Colorado Springs, Colo., and Hitachi, Ltd., Tokyo, Japan

Filed Feb. 13, 1997, Ser. No. 799,999

Int. Cl. G01R 31/28

U.S. Cl. 327-77

19 Claims



1. A test mode circuit comprising:

- a high voltage detector having an input for receiving a high voltage signal and an output;
- a Schmitt trigger having an input coupled to the output of the high voltage detector and an output;
- a latch having an input coupled to the output of the Schmitt trigger and an output for providing a test mode signal in a test operational mode; and
- means for disabling the high voltage detector and Schmitt trigger such that substantially all active current flow associated with the high voltage detector and Schmitt trigger is eliminated in a normal operation mode.

5,804,997

CURRENT-TO-VOLTAGE CONVERTING DEVICE AND LIGHT RECEIVER

Kazunori Nishizono; Tetsuji Funaki, and Atsushi Hayakawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

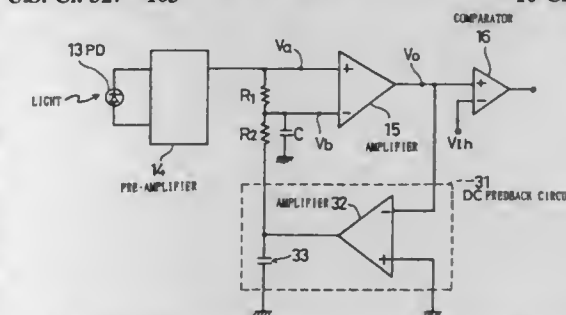
Filed Mar. 22, 1996, Ser. No. 621,091

Claims priority, application Japan, Sep. 19, 1995, 7-240262; Oct. 2, 1995, 7-255234

Int. Cl. H02M 11/00

U.S. Cl. 327-103

10 Claims



1. A device converting a current pulse signal into a voltage pulse signal, comprising:

- a converting unit converting said current pulse signal into a first voltage signal;
- a voltage reducing unit and a delay unit respectively introducing a voltage reduction and a timing delay to said first voltage signal and thereby generating a second voltage signal having a reduced voltage and a delayed timing;
- a comparison unit generating said voltage pulse signal, as an output thereof, by comparing said first voltage signal with said second voltage signal, said comparison unit including: differential amplifier which amplifies a difference between said first voltage signal and said second voltage signal to generate an amplified difference signal, and
- a comparator which compares said amplified difference signal with a threshold voltage to generate said voltage pulse signal; and
- a feedback loop which cancels a direct current component at inputs of said differential amplifier by feeding back said amplified difference signal to said inputs of said differential amplifier.

5,804,998

VOLTAGE UPWARDLY COMPLIANT CMOS OFF-CHIP DRIVER

Joseph James Cahill; Robert Russell Williams, and Daniel Guy Young, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1996, Ser. No. 772,879

Int. Cl. G11C 8/00

U.S. Cl. 327-108

20 Claims

1. A driver circuit for interfacing an electronic component having a higher supply voltage with an electronic component having a lower supply voltage, comprising:

- a source terminal for receiving a source voltage;
- an output terminal connected to an off-chip electronic component;
- a pull up circuit disposed between the source terminal and output terminal, the pull up circuit providing a field effect controlled current path between the source terminal and the output terminal, the pull up circuit including:
- a first transistor coupled to the source terminal; and
- a second transistor disposed between the first transistor and the output terminal, the second transistor providing over-voltage stress relief to the first transistor; and

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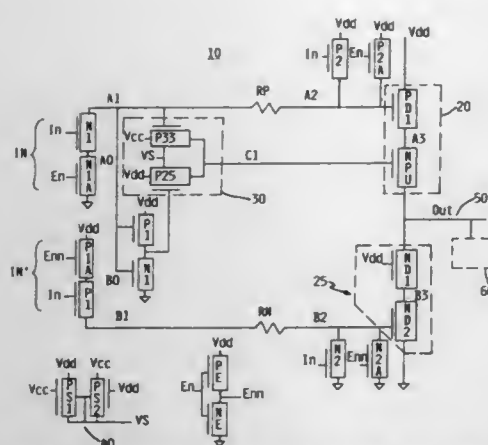
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a biasing circuit coupled to the pull up circuit, the biasing circuit including a pair of parallel pass transistors providing a voltage bias to the gate of the second transistor of the pull up circuit.

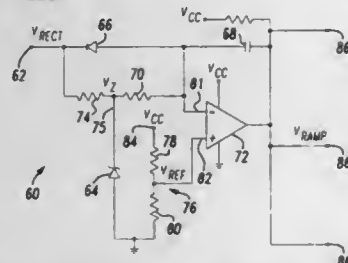
5,804,999

APPLIANCE AC POWER CONTROL APPARATUS
David P. DeBoer, Cedarburg, and August A. Divjak, Wauke-
sha, both of Wis., assignors to Johnson Controls, Inc., Mil-
waukee, Wis.

Filed Aug. 9, 1995, Ser. No. 512,814
Int. Cl.⁶ H03K 19/082

U.S. Cl. 327-110

23 Claims



1. Apparatus for controlling an electrical appliance coupled with an output terminus of the apparatus and being configured to operate in response to an alternating input signal, the apparatus comprising:

- a reference signal generator for receiving said input signal and generating a reference signal in response to said input signal; and
- a controller for controlling connection of said input signal to said output terminus in response to said reference signal and to a user-defined set-point signal, said controller being coupled with said reference signal generator and with a set-point terminal for receiving said set-point signal, said controller interrupting connection of said input signal with said output terminus in response to a predetermined relationship between said reference signal and said set-point signal, said controller including:
 - a counter for generating a clock signal, said counter being coupled with said reference signal and generator and receiving said reference signal, said counter generating said clock signal in response to said reference signal;
 - a digital-to-analog converter for converting digital signals to analog signals, said digital-to-analog converter being coupled with said counter to receive said clock signal, said digital-to-analog converter generating an asymmetrically periodized reference signal in response to said clock signal; and
 - a comparator for comparing said asymmetrically periodized reference signal and a user-defined set-point signal, said comparator being coupled with said digital-to-analog converter and with a set-point terminal, said comparator receiving said asymmetrically periodized reference signal, said set-point terminal receiving said set-point signal and

generating a control signal for interrupting said connection when said asymmetrically periodized reference signal and said set-point signal are in a predetermined relationship.

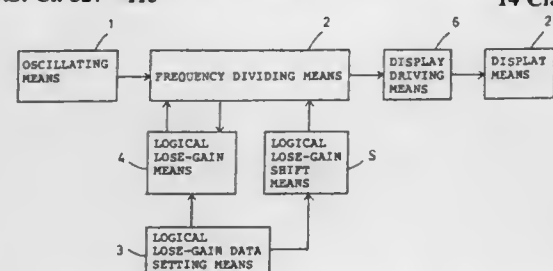
5,805,000

LOGICAL LOSE-GAIN CIRCUIT AND ELECTRONIC DEVICE HAVING LOGICAL LOOSE-GAIN CIRCUIT
Kazuo Kato, Chiba, Japan, assignor to Seiko Instruments Inc., Japan

Filed Oct. 18, 1996, Ser. No. 733,968
Claims priority, application Japan, Oct. 30, 1995, 7-282159
Int. Cl.⁶ H03K 21/00

U.S. Cl. 327-115

14 Claims



1. A logical regulating circuit comprising: oscillating means for outputting a reference clock; frequency dividing means for sequentially frequency-dividing the reference clock and producing a divided output signal; logical regulating data setting means for setting predetermined logical regulating data used for selectively altering a frequency dividing ratio of the frequency dividing means to adjust the frequency of the divided output signal to a predetermined value; logical regulating means for adjusting the frequency dividing means at predetermined periods in accordance with the logical regulating data set in the logical regulating data setting means in a forward or reverse direction to control the frequency of the divided output signal to compensate for a deviation in oscillation frequency of the oscillating means from a desired frequency; and means for shifting a range of regulation of the logical regulating means by controlling the logical regulating means to adjust the frequency dividing means such that the frequency of the divided output signal corresponds to the predetermined value.

5,805,001

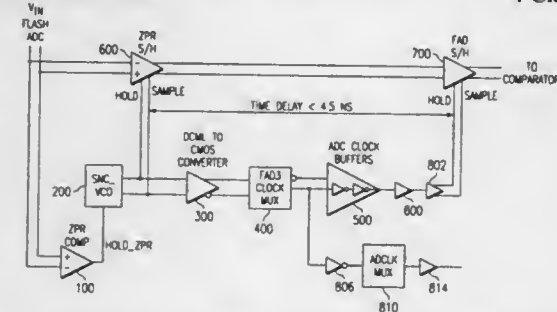
ZERO PHASE CIRCUIT FOR SAMPLED DATA PHASE LOCKED LOOP

Benjamin Joseph Sheahan, and Richard Charles Pierson, both of Dallas, Tex., assignors to Texas Instruments Instruments Incorporated, Dallas, Tex.

Filed Jun. 13, 1996, Ser. No. 665,145
Int. Cl.⁶ H03L 7/00

U.S. Cl. 327-142

4 Claims



1. A circuit for providing a restart signal to indicate a zero crossing of a continuous varying signal, comprising:
a zero phase circuit to receive said continuous varying signal and to output a zero phase signal based on a zero crossing of said continuous varying signal;

5,805,003

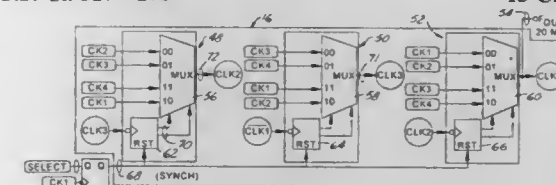
CLOCK FREQUENCY SYNTHESIS USING DELAY-LOCKED LOOP

Chuan-Ding Arthur Hsu, San Jose, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.

Continuation of Ser. No. 551,992, Nov. 2, 1995, abandoned.
This application Aug. 29, 1997, Ser. No. 921,420
Int. Cl.⁶ H03K 5/13:5/159

U.S. Cl. 327-270

13 Claims



1. A circuit for generating an output signal having a second frequency from an input signal having a first frequency comprising:

- means for generating a plurality of replica signals in response to said input signal, each of said plurality of replica signals having said first frequency and (i) a delay time with respect to said input signal and (ii) a period;
- means for generating said output signal having said second frequency in response to said replica signals, wherein said first and second frequencies are different, said means for generating said output signal including a plurality of multiplexers each generating a respective output signal selected from said plurality of replica signals in response to a selecting signal which is a feedback signal of an output from another of said multiplexers, wherein each of said output signals comprises (a) said period of said selected replica signal plus (b) said time delay followed by (ii) a another one of said replica signals, whereby said output signal comprises one of said outputs from said multiplexers and has said second frequency.

5,805,004

INTEGRATED CIRCUIT ARRANGEMENT FOR MINIMIZING THE TEMPERATURE-DEPENDANT OFFSET VOLTAGE OF AN AMPLIFIER

Leo Tanten; Bernd Mueller, both of Reutlingen, and Martin Barth, Gaertringen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

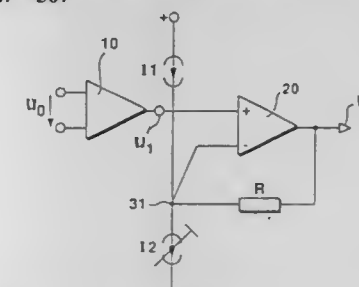
Filed Mar. 7, 1996, Ser. No. 612,051

Claims priority, application Germany, Mar. 7, 1995, 195 08 027.0

Int. Cl.⁶ H03L 5/00; H01L 35/00

U.S. Cl. 327-307

7 Claims



1. An integrated circuit, comprising:
an amplifier circuit; and
a voltage subtractor circuit coupled to a predetermined current path of the amplifier circuit, the voltage subtractor circuit compensating for a temperature dependent voltage offset of the amplifier circuit,
wherein the voltage subtractor circuit includes an operational amplifier having a feedback path, the feedback path including a voltage sensor and being connected to an inverting input of the operational amplifier, and

a voltage control circuit coupled to said zero phase circuit to output complementary control signals based on an output of said zero phase circuit;

- a first sample and hold circuit to sample and hold said continuous varying signal in accordance with said complementary control signals output from said voltage control circuit;
- a converter circuit to convert said complementary control signals to a CMOS signal;
- a CMOS circuit responsive to said converter circuit CMOS signal to output a control signal;
- a second sample and hold circuit to sample and hold after a first delay an output of said first sample and hold circuit in accordance with said control signal output from said CMOS circuit.

5,805,002

SLOW TRANSITION TIME PHASE FREQUENCY DETECTOR AND METHOD

John Eric Ruetz, San Bruno, Calif., assignor to IC Works, Inc., San Jose, Calif.

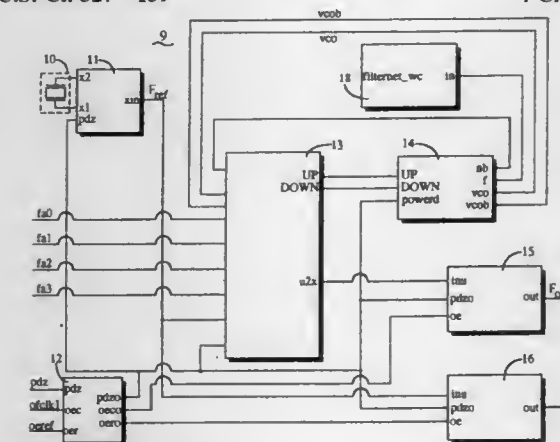
Continuation of Ser. No. 377,153, Jan. 24, 1995, abandoned.

This application Aug. 22, 1996, Ser. No. 697,316

Int. Cl.⁶ H03L 7/06

U.S. Cl. 327-159

4 Claims



1. A phase frequency detection circuit comprising:
first, second, third and fourth latches, said first latch receiving a first input frequency signal at a first input thereof and said fourth latch receiving a second frequency signal at a first input thereof, an output of said first latch being connected to a first input of said second latch and an output of said second latch being connected to a second input of said first latch, an output of said third latch being connected to a second input of said fourth latch and the output of said fourth latch being connected to a first input of said third latch;
first and second logic gates, wherein the outputs of said first and second latches are connected to said first logic gate at respective first and second inputs thereof and the outputs of said third and fourth latches are connected to said second logic gate at respective first and second inputs thereof, said first and second logic gates producing output signals for adjusting the output frequency of a voltage controlled oscillator; and
delay circuitry connected to the outputs of said first and second logic gates and coupled to third inputs of the first and second logic gates to generate a disable signal to prevent production of adjustment signals after a predetermined control period.

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wherein the voltage sensor includes a first power current source connected in series at a junction to a second power current source and to a resistor, the resistor being connected to the junction between the first and second power current sources and in the feedback path.

5,805,005
VOLTAGE LEVEL CONVERTER WITH INDEPENDENTLY ADJUSTABLE RISE AND FALL DELAYS

Jasleen M. Raisinghani, Sunnyvale, and Craig N. Lambert, San Jose, both of Calif., assignors to Exar Corporation, Fremont, Calif.

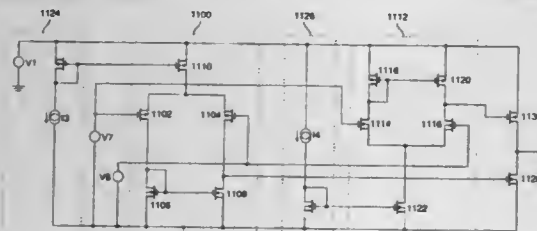
Continuation of Ser. No. 579,316, Dec. 27, 1995, abandoned.

This application Aug. 22, 1997, Ser. No. 918,703

Int. Cl.⁶ H03K 19/094

U.S. Cl. 327—333

9 Claims



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5,805,011

SELF-CALIBRATION SYSTEM FOR LOGARITHMIC AMPLIFIERS

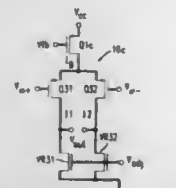
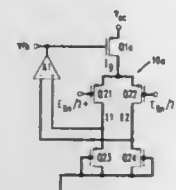
Vittorio Comino, Monmouth, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jan. 3, 1997, Ser. No. 775,989

Int. Cl.⁶ G06G 7/12; H03G 11/08

U.S. Cl. 327—563

9 Claims



1. A monolithic self-compensating differential amplifier comprising:

- a gain cell including a first bias input control input, a first differential pair of amplifier devices having respective voltage output connections and variable load resistances;
- a differential bias-replicator cell having a second bias-input control input, and a second differential pair of amplifier devices and having a bias-correction output connected to said first and second bias-input control inputs, said second pair of differential amplifiers being controlled by a differential bias reference voltage selected so as to remain in a linear portion of a characteristic function of said second differential pair of amplifiers during amplifier operation, and first sensing means for producing a signal on said bias-correction output representing a change in a difference between bias currents in respective amplifiers of said second differential pair, the bias-correction signal being adapted to cancel said change; and
- a current mirror cell, current mirror cell having a third bias input control input connected to said bias-correction output, a variable calibration resistance connected to conduct a bias current, a voltage adjustment output, and second sensing means for producing an adjustment signal on said voltage adjustment output representing a difference between an adjustment reference voltage and a voltage sensed across said variable calibration resistance, said voltage adjustment output being connected to said variable calibration resistance and to said variable load resistances, said adjustment signal being adapted to eliminate said sensed difference.

5,805,012

SYSTEMS AND METHODS FOR COMPENSATING A BUFFER FOR POWER SUPPLY FLUCTUATION

Byung-Gil Jeon, and Chul-Sung Park, both of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 24, 1996, Ser. No. 653,438

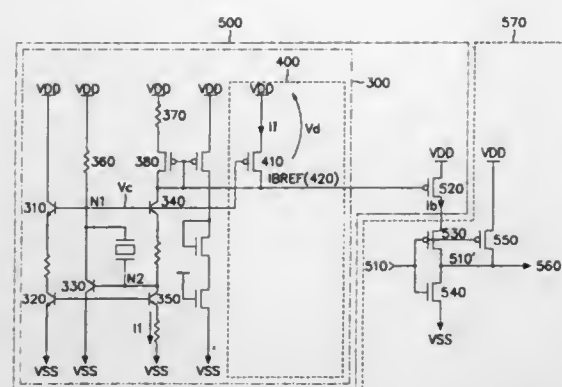
Claims priority, application Rep. of Korea, May 25, 1995, 13263/1995

Int. Cl.⁶ H03K 17/14

U.S. Cl. 327—378

7 Claims

1. A buffer for producing an output signal from an input signal and biased by a bias current from a power supply having a power supply voltage, the buffer comprising:



a speed-gap varying signal buffer which is responsive to the power supply and the input signal and which produces an output signal in response to said input signal, the signal buffer producing a propagation delay between a transition of said input signal and a transition of said output signal in response to said transition of said input signal, said propagation delay varying as a first function of the power supply voltage and as a second function of the bias current, said second function being inverse of said first function; and

an inverse bias current regulator, responsive to the power supply, for regulating the bias current such that the bias current varies directly with respect to the power supply voltage when the power supply voltage is below a power supply voltage threshold level and varies inversely with respect to the power supply voltage when the power supply voltage is above the power supply voltage threshold level to thereby compensate for variation in the power supply voltage and maintain said propagation delay within a predetermined range.

5,805,013

NON-VOLATILE MEMORY DEVICE HAVING A FLOATING GATE WITH ENHANCED CHARGE RETENTION

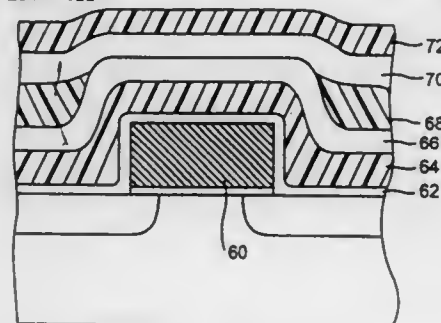
Said N. Ghneim, and H. Jim Fulford, Jr., both of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Division of Ser. No. 393,138, Feb. 21, 1995. This application Mar. 12, 1997, Ser. No. 815,835

Int. Cl.⁶ H01L 21/3205; 23/58

U.S. Cl. 257—411

9 Claims



1. A non-volatile memory cell, comprising:

- a semiconductor substrate containing impurity implant regions and a tunnel oxide placed upon said substrate;
- a polysilicon strip placed upon said tunnel oxide, wherein said polysilicon strip is adapted to receive electrons injected during a program cycle of said memory cell from one of said impurity implant regions; and
- a dielectric comprising hydrogen formed above said polysilicon strip from a chamber comprising hydrogen, wherein said dielectric is formed within said chamber at a temperature less than 380° C. to minimize formation and movement of free atomic hydrogen from said dielectric to said polysilicon strip at a time in which said polysilicon strip receives said electrons.

5,805,014

SYSTEM HAVING ACTIVE PULL-DOWN CIRCUIT AND METHOD

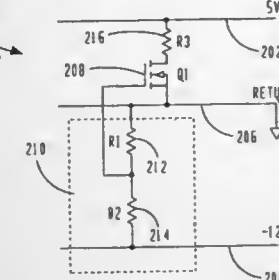
Kyle J. Price, The Woodland, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Mar. 1, 1996, Ser. No. 609,341

Int. Cl.⁶ H03K 17/22

U.S. Cl. 327—427

18 Claims



1. An electronic system comprising:
a power supply having a power line and a return line; and
a circuit connected to said power supply, said circuit providing a high impedance between said power line and said return line when said power supply is on and providing a low impedance between said power line and said return line when said power supply is off.

5,805,015

CURRENT GENERATOR STAGE USED WITH INTEGRATED ANALOG CIRCUITS

Melchiorre Bruccoleri, Genoa; Gaetano Cosentino, Catania; Marco Demicheli, Binago, and Giuseppe Patti, Favara, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, and Consorzio Per La Ricerca Sulla Microelettronica Nel Mezzogiorno, Catania, both of Italy

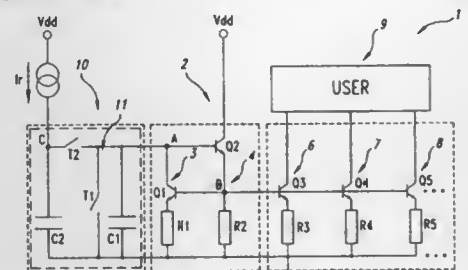
Filed Apr. 8, 1996, Ser. No. 629,320

Claims priority, application European Pat. Off., May 31, 1995, 95830226

Int. Cl.⁶ G05F 3/16

U.S. Cl. 327—538

16 Claims



1. A current generator stage for integrated analog circuits, comprising:

- a current source connected between a supply voltage and a ground terminal, the current source having an input terminal and an output terminal, and operable in a first mode to develop a first output current on the output terminal in response to a first predetermined voltage on the input terminal, and operable in a second mode to develop a second output current on the output terminal in response to a second predetermined voltage on the input terminal;
- a current mirror connected to the output terminal of the current source, operable to generate a first driving current having a first predetermined value in response to the first output current, and operable to generate a second driving current in response to the second output current; and
- a bias circuit having an output terminal connected to the input terminal of the current source, the bias circuit operable to perform switching of the current source from the first mode to the second mode, wherein the bias circuit includes an energy storage circuit operable, in a first circuit configuration, to

supply on the input terminal of the current source the first predetermined voltage when the current source is in the first mode, and wherein the energy storage circuit is operable in a second circuit configuration is a combination of a first and second reactance to supply to the current source the second predetermined voltage when the current source is in the second mode.

5,805,016

VARIABLE CAPACITOR BASED ON FREQUENCY OF OPERATION

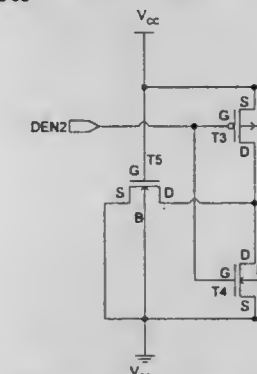
Chongjun Jiang, Dallas, Tex., assignor to Advanced Micro Devices, Sunnyvale, Calif.

Filed Mar. 7, 1997, Ser. No. 812,632

Int. Cl.⁶ G05F 3/16

U.S. Cl. 327—565

14 Claims



1. A variable capacitor circuit comprising:

- a first transistor capable of operating in the saturated and unsaturated regions of operation; and
- a means for switching said first transistor between the saturated and unsaturated regions of operation, thereby providing a plurality of capacitances.

5,805,017

BASEBAND DEMODULATION OF M-ARY FREQUENCY SHIFT KEYED SIGNALS AND A RECEIVER THEREFOR

Charles J.H. Razzell, Cambridge, England, assignor to U.S. Philips Corporation, New York, N.Y.

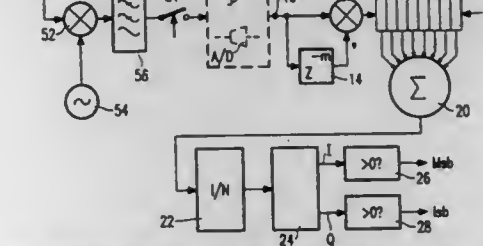
Filed Nov. 13, 1996, Ser. No. 769,905

Claims priority, application United Kingdom, Nov. 17, 1995, 9523578

Int. Cl.⁶ H03D 3/00; H04L 27/14

U.S. Cl. 329—300

12 Claims



1. A method of receiving and demodulating M-ary FSK (Frequency Shift Keyed) symbols, where M equals 2 or 4, comprising providing quadrature related, frequency down-converted signals at substantially zero intermediate frequency, over-sampling the signals, multiplying each sample by a time delayed sample, the amount of time delay being such that the products of multiplication comprise log likelihood ratios for the bits which compose the M-ary FSK symbols, and combining a plurality of said log likelihood ratios in an integrating filter to obtain a maximum likelihood estimate of the bits comprising the symbols as transmitted.

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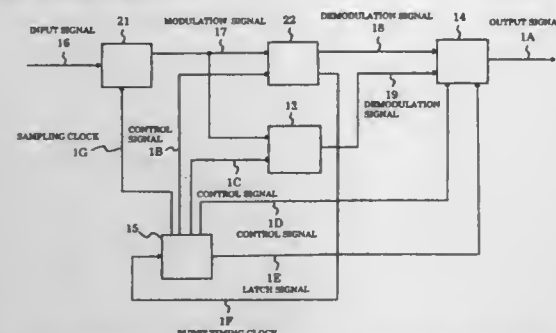
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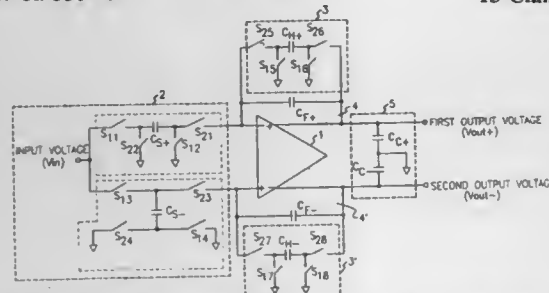
UMI

5,805,018
HIGH-SPEED DEMODULATING METHOD OF BURST DATA AND APPARATUS FOR SAME
Yousuke Harima, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan
Filed May 14, 1997, Ser. No. 856,208
Claims priority, application Japan, May 31, 1996, 8-160977
Int. Cl.⁶ H03D 3/00; H04L 27/22
U.S. Cl. 329—304 4 Claims



1. A high-speed demodulating method of burst data, wherein: a digitally modulated input signal is taken into an input unit and sampled therein by a sampling clock from a controller, whereby a modulation signal is supplied therefrom; the modulation signal is taken into a first demodulator or a second demodulator by a first control signal or a second control signal from the controller, respectively, and a first demodulation signal or a second demodulation signal is produced in the first or the second demodulator, respectively; and an output signal is taken out of the first demodulation signal or the second demodulation signal by a third control signal from the controller.

5,805,019
VOLTAGE GAIN AMPLIFIER FOR CONVERTING A SINGLE INPUT TO A DIFFERENTIAL OUTPUT
Yun Tae Shin, Kyongkido, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyongkido, Rep. of Korea
Filed Sep. 24, 1996, Ser. No. 718,716
Int. Cl.⁶ H03F 3/45
U.S. Cl. 330—9 13 Claims

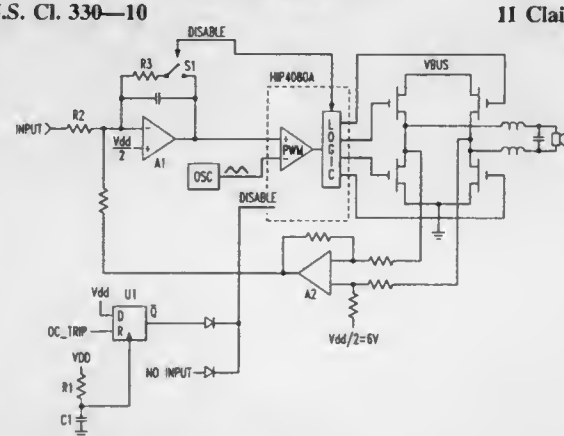


1. A voltage gain amplifier for converting a single input to a differential output, comprising:
a fully-differential output operational amplifying means, which has an inversion input terminal, a non-inversion input terminal, an inversion output terminal and a non-inversion output terminal, for amplifying two inputted signals and then outputting the two amplified signals to the inversion output terminal and the non-inversion output terminal, respectively, a phase of the one output signal being opposite to a phase of the other output signal;
a first single input charging/discharging means connected to said inversion input terminal of said fully-differential output operational amplifying means, for charging/discharging an input voltage as a first signal;
a second single input charging/discharging means for providing a second signal whose phase is inverted compared with a

phase of the first signal provided by said first single input charging/discharging means, connected to said non-inversion input terminal of said fully-differential output operational amplifying means;

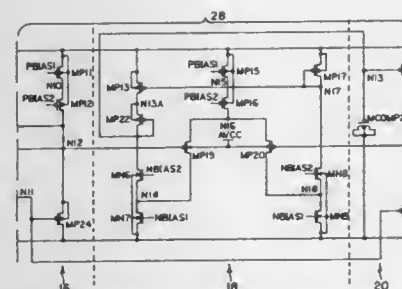
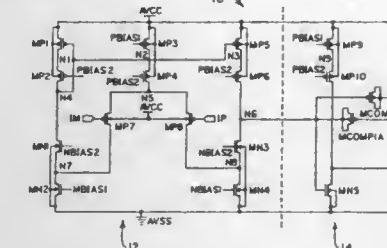
- a first input voltage transferring means, of which one end is connected to said inversion input terminal of said fully-differential output operational amplifying means and the other end is connected to said inversion output terminal, for transferring the first signal by a switching operation;
a second input voltage transferring means, of which one end is connected to said non-inversion input terminal of said fully-differential output operational amplifying means and the other end is connected to said non-inversion output terminal, for transferring the second signal by a switching operation; and
a frequency compensating means for outputting the amplified first and second signals of said fully-differential output operational amplifying means which can be stably operated within a given bandwidth.

5,805,020
SILENT START CLASS D AMPLIFIER
George Edward Danz, Cary; Larry A. King, and John K. Fogg, both of Durham, all of N.C., assignors to Harris Corporation, Melbourne, Fla.
Filed Jun. 27, 1996, Ser. No. 671,453
Int. Cl.⁶ H03F 3/38
U.S. Cl. 330—10 11 Claims



1. A silent start circuit comprising
(a) a Class D amplifier having an input for receiving a signal with an audit frequency, means for sampling the audio input signal at a frequency substantially greater than the highest audit frequency in the audio input signal, and means for comparing the sampled audit signal to a reference voltage signal to provide an output series of width modulated pulses, each pulse having the amplitude of the reference voltage signal and a width proportional to the amplitude of the sampled audit signal, the series of pulses having a frequency substantially greater than said audio frequency;
(b) a bridge driver circuit having an input for receiving the output series of pulses of the Class D amplifier and translating the voltage level of the pulses from the reference voltage to a driver voltage level, and means for generating a power mosfet gate driver signal comprising a series of output driver pulses having pulse widths proportional to the sampled audio signal and pulse amplitudes at the driver voltage level;
(c) an amplifier having a first input connected to the audio input signal and through a feedback path to the output of the bridge driver circuit and an output coupled to the input of the Class D amplifier, said amplifier selectively switchable between a first mode of operation for integrating the audio input and a second mode of operation for summing the audio input and the Class D amplifier output.

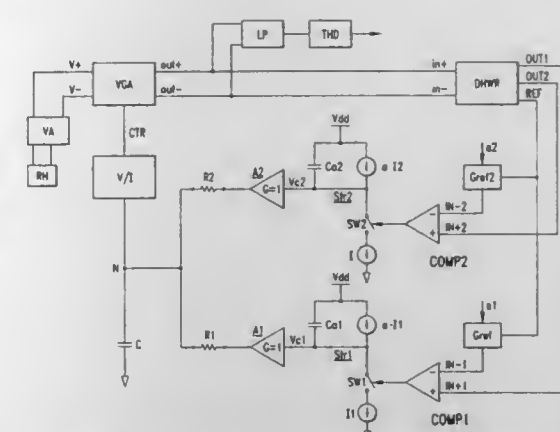
5,805,021
HIGH SWING LOW POWER GENERAL PURPOSE OPERATIONAL AMPLIFIER
Geoffrey E. Brehmer, Lexington, Tex., assignor to Advanced Micro Devices, Sunnyvale, Calif.
Filed Feb. 13, 1996, Ser. No. 600,843
Int. Cl.⁶ H03F 3/45; 3/16
U.S. Cl. 330—253 21 Claims



1. An operational amplifier circuit, comprising:
(a) a folded-cascode gain stage, having an output and differential inputs;
(b) a second gain stage having an output and having an input connected to said output of said folded-cascode gain stage;
(c) a slave source follower stage having an output and having an input connected to said output of said second gain stage;
(d) a voltage limited folded-cascode gain stage having an output and having an input connected to said output of said slave source follower stage; and
(e) a source follower output stage having an output and having an input connected to said output of said voltage limited folded-cascode gain stage.

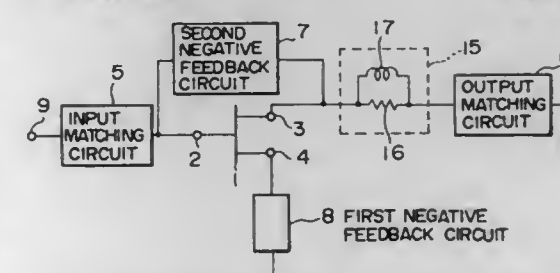
5,805,022
CIRCUIT FOR AUTOMATICALLY REGULATING THE GAIN OF A DIFFERENTIAL AMPLIFIER
Melchiorre Brucoleri, Genoa; David Demicheli, Pavia; Marco Demicheli, Binago, and Giuseppe Patti, Favara, all of Italy, assignors to SGS-Thomson Microelectronics, S.r.l., Agrate Brianza, Italy
Filed Sep. 13, 1996, Ser. No. 713,715
Claims priority, application European Pat. Off., Sep. 14, 1995, 95830377
Int. Cl.⁶ H03G 3/30
U.S. Cl. 330—254 20 Claims

16. A method for regulating a gain of a differential amplifier comprising the steps of:
sensing a level of a pair of differential output signals of said differential amplifier to generate first and second sensed signals;
generating first and second reference voltages;
comparing the first and second sensed signals, respectively, to the first and second reference voltages;
generating first and second comparison signals based on the comparison;



providing a control signal to a control input of said differential amplifier based on the first and second comparison signals.

5,805,023
HIGH FREQUENCY AMPLIFIER, RECEIVER, AND TRANSMITTER SYSTEM
Nobutoshi Fukuden, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed Oct. 31, 1995, Ser. No. 550,564
Claims priority, application Japan, Nov. 1, 1994, 6-268977
Int. Cl.⁶ H03F 3/191; 1/34
U.S. Cl. 330—302 46 Claims



1. An amplifier which is equipped with an input terminal and an output terminal and has a transistor as an amplifying element, the amplifier comprising:
a first negative feedback circuit provided between a common terminal of said transistor and a around; and
a parallel circuit, provided to suppress oscillation which includes an inductive element and a resistive element parallel to each other, said parallel circuit being connected in series between the input terminal of said amplifier and an input terminal of said transistor, or between the output terminal of said amplifier and an output terminal of said transistor, and
a second negative feedback circuit provided between the input terminal of said transistor and the output terminal of said transistor.

5,805,024
PHASE LOCK LOOP SYSTEM INCLUDING A PRIMARY PHASE LOCK LOOP APPARATUS AND A HIGH ORDER PHASE LOCK LOOP APPARATUS
Terumi Takashi, Chigasaki; Naoki Satoh; Akihiko Hirano, both of Odawara; Eisaku Saiki, Yokohama; Masakazu Hosino, Gunma-ken, and Ryushi Shimokawa, Takasaki, all of Japan, assignors to Hitachi, Ltd., and Hitachi Microcomputer System Ltd., both of Tokyo, Japan
Filed Sep. 29, 1995, Ser. No. 536,264
Claims priority, application Japan, Oct. 4, 1994, 6-239853
Int. Cl.⁶ G11B 5/00; 27/10; H03L 7/087; 7/10
U.S. Cl. 331—17 16 Claims

16. A phase lock loop system comprising:

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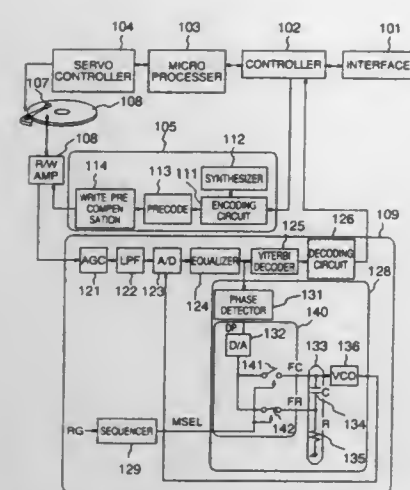
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a phase error detecting circuit detecting a phase error of an input signal from a sampling clock signal;
a converting circuit converting the phase error detected by said phase error detecting circuit into a first control signal amount;
a first filter in which frequency characteristics have no pole;
a second filter in which frequency characteristics have one or more poles;
a clock generator generating said sampling clock signal corresponding to an output of one of said filters;
a selecting circuit selecting said first or second filter;
wherein a primary phase lock loop circuit is constructed by said phase error detecting circuit, said converting circuit, said first filter having no pole that is selected by said selecting circuit, and said clock generator, and wherein the primary phase lock loop circuit is selected during a phase locking operation; and
wherein a high order phase lock loop circuit is constructed by said phase error detecting circuit, said converting circuit, said second filter having one or more poles that is selected by said selecting circuit, and said clock generator, and wherein the high order phase lock loop circuit is selected during a phase following operation.

5,805,025
RADIAL ELECTRON-BEAM-BREAKUP TRANSIT-TIME OSCILLATOR

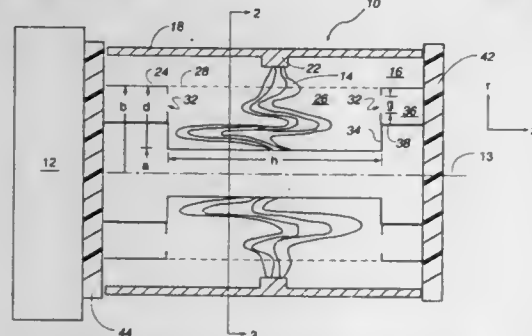
Thomas J. T. Kwan, Los Alamos, and Michael A. Mostrom, Albuquerque, both of N. Mex., assignors to The Regents of the University of California, Los Alamos, N. Mex.

Filed Jul. 30, 1997, Ser. No. 903,106

Int. Cl.⁶ H03B 9/01;13/00

U.S. Cl. 331-79

12 Claims



1. A high power microwave generator comprising:
a coaxial vacuum transmission line having an outer conductor and an inner conductor;
said inner conductor having end plates and inner cylindrical surface defining an annular cavity with axial length and radial depth dimensions effective to support a cavity electromagnetic field in a TEM_{00m} mode; and

a radial field emission cathode formed on said outer conductor for generating an electron beam directed toward said annular cavity electrode.

5,805,026
MICROSTRIPLINE RESONATOR USEABLE IN A VOLTAGE CONTROLLED OSCILLATOR AND METHOD FOR MAKING SAME

Yuji Kuroda, and Yoshiaki Tanbo, both of Komatsu, Japan, assignors to Murata Manufacturing Co., Ltd., Nagakakyō, Japan

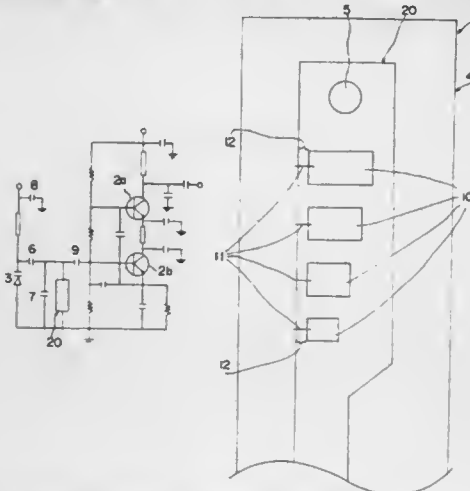
Filed Aug. 22, 1995, Ser. No. 517,679

Claims priority, application Japan, Aug. 25, 1994, 6-200930

Int. Cl.⁶ H03B 5/18

U.S. Cl. 331-96

23 Claims



7. A voltage-controlled oscillator comprising:
at least one switch;
at least one diode; and
a microstripline resonator electrically connected with said at least one transistor and said at least one diode, said at least one transistor, said at least one diode and said microstripline resonator being formed on at least one side of an insulating substrate base; and
a grounding pattern formed on at least a second side of said insulating substrate base, said second side being opposite said first side, said microstripline resonator further comprising:
an electrode portion formed as a strip having an outer perimeter provided on said insulating substrate base;
a hollowed-out portion provided within said perimeter of said electrode portion; and
a width-narrowed portion of said electrode portion for adjusting a resonant frequency of the microstripline resonator by changing a width of the resonator, said width-narrowed portion being provided between a side edge of said electrode portion and said hollowed-out portion;
wherein at least one cut is provided in said width-narrowed portion to adjust said resonant frequency.

5,805,027
LOW CURRENT CRYSTAL OSCILLATOR WITH FAST START-UP TIME

Rong Yin, Coppell, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

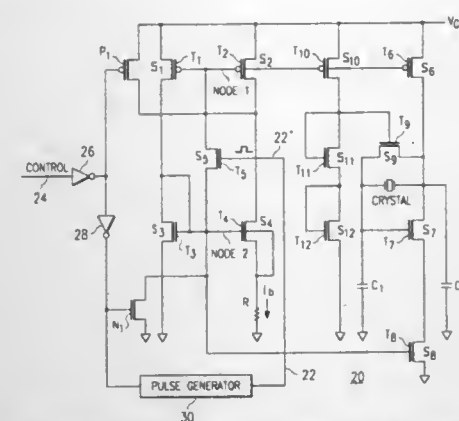
Continuation-in-part of Ser. No. 315,565, Sep. 30, 1994, abandoned. This application May 3, 1996, Ser. No. 642,271

Int. Cl.⁶ H03B 5/06;5/36

U.S. Cl. 331-116 FE

18 Claims

18. A method for obtaining fast start-up time and stable oscillation frequency over a wide operating range of a crystal oscillator circuit, comprising the steps of:



sizing a plurality of transistors of the crystal oscillator circuit such that the crystal oscillator circuit provides stable oscillation frequency over a wide range of a first supply voltage;
forcing a control signal from a first logic state to a second logic state to define a stop mode in which a crystal of the crystal oscillator circuit stops;
forcing the control signal from the second logic state to the first logic state to define a start-up mode in which a pulse input signal is generated; and
applying the pulse input signal to a gate of a first transistor of the crystal oscillator circuit in order to initiate a fast start-up of the crystal oscillator circuit.

5,805,028
TEMPERATURE-COMPENSATING PIEZO-OSCILLATOR
Akira Kato, Osaka, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto, Japan

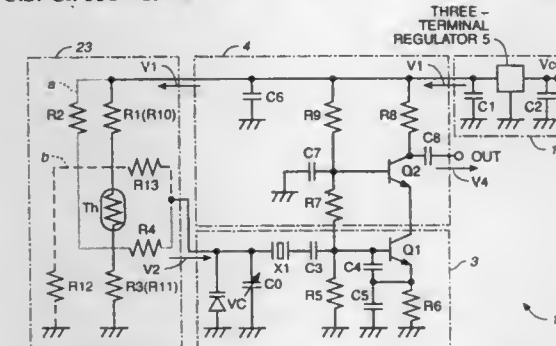
Filed Jan. 29, 1997, Ser. No. 789,424

Claims priority, application Japan, Feb. 19, 1996, 8-030903

Int. Cl.⁶ H03B 5/30

U.S. Cl. 331-116 R

3 Claims



1. A temperature-compensating piezo-oscillator including a piezo-oscillator with temperature coefficient of frequency which is approximately either a positive or negative constant, said temperature-compensating piezo-oscillator comprising:
a stabilized source circuit for stabilizing an inputted voltage to output a stabilized voltage;
a temperature-compensating circuit for receiving said stabilized voltage and thereby outputting a temperature-compensated voltage corresponding to an ambient temperature;
a voltage control oscillator circuit for receiving said temperature-compensated voltage, causing the resonance frequency of said piezo-oscillator to change according to said received temperature-compensated voltage, and thereby outputting a high-frequency signal; and
a buffer-amplifier circuit for receiving and amplifying said high-frequency signal and thereby outputting a high-frequency output voltage;
said temperature-compensating circuit including a first circuit and a second circuit both on a single circuit board, said first circuit corresponding to a first situation wherein said temperature coefficient of said piezo-oscillator is negative and said

second circuit corresponding to a second situation wherein said temperature coefficient of said piezo-oscillator is positive, said temperature-compensating circuit comprising an NTC thermistor, which is a thermistor having a negative temperature coefficient, a first resistor which is connected in series with one end of said NTC thermistor to together form a series connection, a second resistor connected in parallel with said series connection, a third resistor with one end grounded, a fourth resistor connected to said voltage control oscillator circuit, a fifth resistor with one end connected to a junction between said first resistor and said NTC thermistor and the other end connected to said voltage control oscillator circuit, and a sixth resistor with one end connected between said first resistor and said NTC thermistor, the other end of said sixth resistor being grounded.

5,805,029
DIGITALLY ADJUSTABLE CRYSTAL OSCILLATOR WITH A MONOLITHIC INTEGRATED OSCILLATOR CIRCUIT

Ulrich Theus, Gundelfingen, and Norbert Greitschus, Freiburg, both of Germany, assignors to ITT Manufacturing Enterprises, Inc., Wilmington, Del.

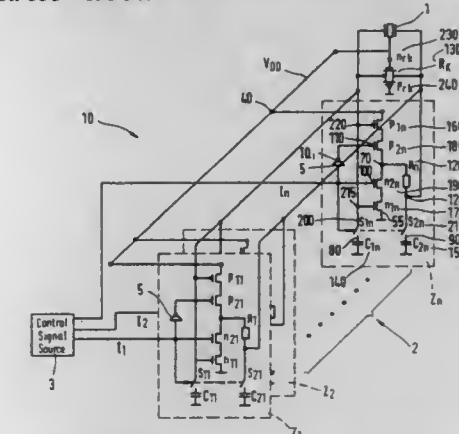
Filed May 22, 1997, Ser. No. 861,605

Claims priority, application Germany, May 25, 1996, 196 21 228.6

Int. Cl.⁶ H03B 5/36; H03L 7/099

U.S. Cl. 331-116 FE

8 Claims



1. A digitally adjustable crystal oscillator comprising:
a quartz crystal; and
a monolithic integrated oscillator circuit comprising:

a series combination of a first frequency-adjusting capacitor and a second frequency-adjusting capacitor parallel coupled to said quartz crystal, at least one of said frequency-adjusting capacitors being digitally switchable, and
an inverter circuit connected in parallel with said quartz crystal and comprising:
a feedback resistor R_K;
a plurality of parallel-connected inverter stages, each said inverter stage including a pair of serially coupled amplifier transistors (p₁, n₁) of opposite conductivity, each said amplifier transistor serially coupled to a switching transistor (p₂, n₂) of the same conductivity, wherein the output of each said switching transistor is serially coupled to a load resistor;
wherein said first frequency adjusting capacitor comprises a plurality of parallel-connected first capacitance stages, each having a first capacitor C₁ and a first switching element S₁, serially coupled to said pair of amplifier transistors, wherein said second frequency adjusting capacitor comprises a plurality of parallel-connected second capacitance stages, each having a second capacitor C₂ and a second switching element S₂, serially coupled to said load resistor.

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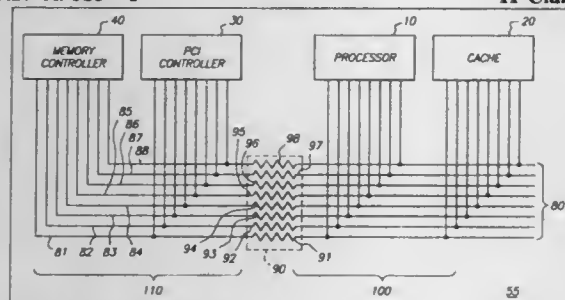
SEPTEMBER 8, 1998

wherein at least one of said respective inverter stages and said first and second capacitance stages are switchable into and out of said circuit simultaneously in response to a control signal (I₁).

5,805,030
ENHANCED SIGNAL INTEGRITY BUS HAVING TRANSMISSION LINE SEGMENTS CONNECTED BY RESISTIVE ELEMENTS
Michael Dhuey, Cupertino, and David C. Buuck, Santa Clara, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Aug. 4, 1995, Ser. No. 511,349
Int. Cl.⁶ H01P 3/00

U.S. Cl. 333-1 11 Claims

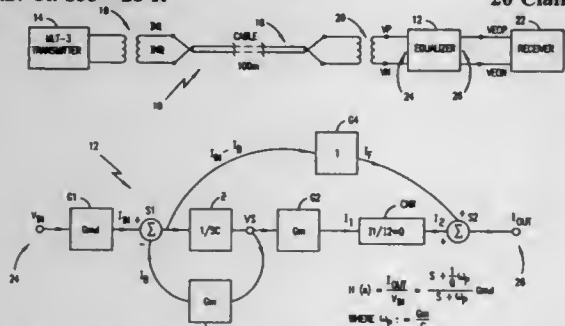


1. Apparatus comprising:
a bus including a plurality of transmission lines, each of said transmission lines including, respectively:
a first segment having a low resistance;
a second segment having a low resistance;
a resistive element electrically connecting a first end of said first segment and a first end of said second segment and having a resistance value approximately equal to an impedance value of said transmission line,
wherein first segments of said transmission lines together define a first portion of said bus and second segments of said transmission lines together define a second portion of said bus;
a first device electrically connected to said first portion of said bus; and
a second device electrically connected to said second portion of said bus.

5,805,031
TRANSISTOR RATIO CONTROLLED CMOS TRANSMISSION LINE EQUALIZER
Yi Cheng, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Sep. 3, 1996, Ser. No. 706,885
Int. Cl.⁶ H03H 7/03

U.S. Cl. 333-28 R 20 Claims



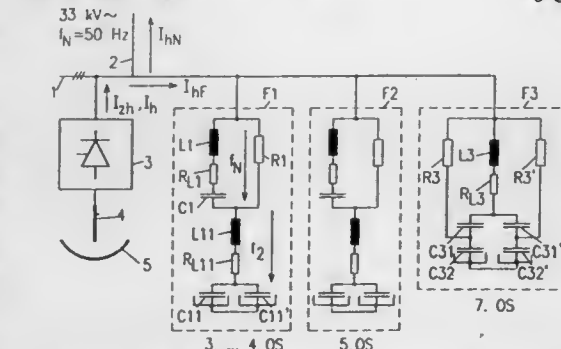
1. A CMOS transmission line equalizer for receiving distorted signals transmitted through a transmission line and for compensating for the signal distortion, said equalizer comprising:

input means (24) for receiving the distorted signals transmitted through the transmission line, said transmission line having a transfer function with a dominant pole;
transfer function means (H(S)) for generating a single pole and a single zero;
said transfer function means including current mirroring ratio means (CMR) for controlling ratio between said single pole and said single zero, said current mirroring ratio means being formed of a plurality of transistors and being controlled by transistor size ratio;
said single zero cancelling the dominant pole in the transfer function of said transmission line so as to compensate for the signal distortion caused by said transmission line; and
output means (26) for generating restored signals which have been restored by said equalizer.

5,805,032
ELECTRICAL FILTER FOR ATTENUATING OSCILLATIONS IN AC MAINS
Werner Herbst, Niederweningen, Switzerland, and Thomas Kirsten, Lauchringen, Germany, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Dec. 9, 1996, Ser. No. 762,412
Claims priority, application Germany, Dec. 22, 1995, 195 47 969.6

Int. Cl.⁶ H03H 7/06 6 Claims



1. An electrical filter for attenuating electrical oscillations comprising:
a) at least one 1st parallel circuit of at least one 1st non-reactive attenuation resistor;
b) in parallel with a 1st series circuit which has at least one first filter inductor in series with
c) at least one 1st filter capacitor, wherein
e) the resistance of the 1st attenuation resistor is dimensioned in such a way that a current gain due to the filter at its lowest frequency pole point (f₁) caused by it lies in the range not greater than 6-fold, and
f) the frequency (f₁) of the lowest frequency pole point is not an integral multiple of a mains frequency (f_N) of an AC mains which is operatively connected to the filter.

5,805,033
DIELECTRIC RESONATOR LOADED CAVITY FILTER COUPLING MECHANISMS
Xiao-Peng Llang, and Jennifer C. Nugent, both of Reno, Nev., assignors to Allen Telecom Inc., Solon, Ohio

Filed Feb. 26, 1996, Ser. No. 606,648
Int. Cl.⁶ H01P 1/20

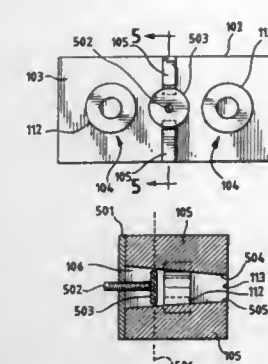
U.S. Cl. 333-202 16 Claims

1. A dielectric resonator loaded cavity filter comprising:
a housing having an exterior, an interior, and a top portion;
said housing interior including at least two adjacent cavities having respective dielectric resonators mounted to bottom portions thereof;

SEPTEMBER 8, 1998

ELECTRICAL

1933

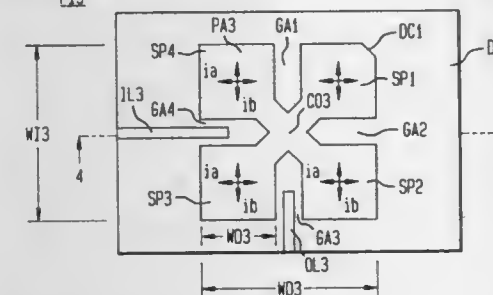


- said adjacent cavities separated by a respective transverse partition having a corresponding coupling window therein, the respective coupling window having first and second spaced opposing sidewalls which diverge linearly from said cavity bottom portions toward said housing top portion;
a respective coupling disk movably interposed between said corresponding first and second opposing sidewalls, said respective coupling disk substantially parallel to said cavity bottom portions; and
wherein said respective coupling disk is affixed to a corresponding adjusting screw extending through said housing top portion such that said respective coupling disk is positioned at a variable distance from said cavity bottom portions.

5,805,034
MICROSTRIP PATCH FILTERS
James G. Evans, Colts Neck; Martin Victor Schneider, and Robert W. Wilson, both of Holmdel, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 17, 1995, Ser. No. 406,289
Int. Cl.⁶ H01P 1/20

U.S. Cl. 333-204 18 Claims

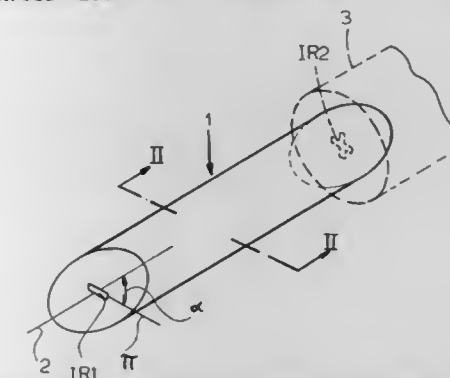


1. A microstrip patch filter, comprising:
a dielectric member having two faces;
a ground plane bonded to one of said faces;
a conductive arrangement on the other of said faces;
said conductive arrangement including:
a patch member;
an input lead electromagnetically coupled to said patch member;
an output lead electromagnetically coupled to said patch member;
said patch member having a first reactance-enhancing conductive constriction forming a gap along a first direction of the patch members
said patch member having a second reactance-enhancing conductive constriction forming a gap along a second direction intersecting said first direction.

5,805,035
MULTI-MODE CAVITY FOR WAVEGUIDE FILTERS, INCLUDING AN ELLIPTICAL WAVEGUIDE SEGMENT
Luciano Accatino, Rosta, and Giorgio Bertin, Turin, both of Italy, assignors to Csele-Centro Studi E Laboratori Telecomunicazioni S.p.A., Turin, Italy

Filed Dec. 26, 1996, Ser. No. 777,164
Claims priority, application Italy, Jan. 30, 1996, TO96A0056
Int. Cl.⁶ H01P 1/208

U.S. Cl. 333-208 6 Claims

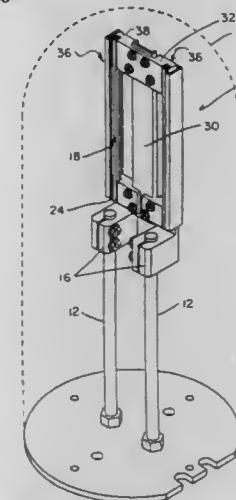


1. A resonant cavity free from tuning screws for waveguide filters, the cavity comprising at least one waveguide segment and one iris to couple modes into the cavity, said iris forming with a main axis of the cavity a reference plane, said waveguide segment having an elliptical cross section and being arranged so that an axis of said elliptical cross section is inclined by a given angle with respect to said reference plane to allow for at least two transverse resonant modes, orthogonal to each other, to resonate.

5,805,036
MAGNETICALLY ACTIVATED SWITCH USING A HIGH TEMPERATURE SUPERCONDUCTOR COMPONENT
James D. Hodge, Lincolnwood; Qiang Huang, Glen Ellyn, and David S. Applegate, Wheeling, all of Ill., assignors to Illinois Superconductor, Mt. Prospect, Ill.

Filed May 15, 1995, Ser. No. 440,829
Int. Cl.⁶ H01F 1/00

U.S. Cl. 335-216 21 Claims



1. A magnetically activated switch for use in a electrical circuit, comprising:
a high temperature superconducting component for acting as a connected switch element through which current flows in an electrical circuit, said superconducting component being coupled at both ends by a substantially rigid beam, and said beam having a coefficient of thermal expansion near that of said superconducting component;
a thermal shield structure disposed adjacent said superconducting component for decreasing thermal shock to said supercon-

179-291 O.G.-98-26:QL3

ducting component from temperature changes occurring near said superconducting component; and
 a magnetic field generating structure disposed adjacent said superconducting component, and said magnetic field generating structure for generating a field sufficient to cause the superconducting component to transition to a resistive state upon activation of said magnetic field generating structure, said superconducting component returning to a superconducting state when said magnetic field generating structure is deactivated.

5,805,037

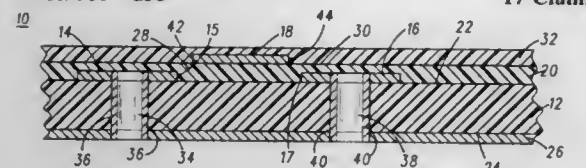
DISTRIBUTED TRANSMISSION LINE STRUCTURE
 Roger J. Forse, Wauconda, and William L. Olson, Lake Villa, both of Ill., assignors to Motorola Corporation, Schaumburg, Ill.

Filed Dec. 23, 1996, Ser. No. 780,020

Int. Cl.⁶ H01P 3/08

U.S. Cl. 333—238

17 Claims



1. A distributed transmission line structure comprising:
 a substrate formed of a generally nonconductive material and including a first surface and a second surface;
 a ground plane affixed to the substrate at the second surface;
 a first metallic strip overlying the first surface of the substrate and electrically connected to the ground plane, said first metallic strip comprising a first inner edge;
 a second metallic strip overlying the first surface of the substrate and electrically connected to the ground plane, said second metallic strip comprising a second inner edge that is spaced apart from the first inner edge by a gap such that boundaries of the gap extend essentially perpendicular to the substrate from the first inner edge and the second inner edge, the first metallic strip and the second metallic strip defining a common plane; and
 a third metallic strip overlying the substrate such that the third metallic strip is within the boundaries of the gap, the third metallic strip being spaced apart from the common plane.

5,805,038

SHOCK ABSORBER FOR CIRCUIT BREAKER
 Kathryn M. Palmer, Sewickley; Stephen A. Mrenna, Beaver, and Kevin A. Simms, Eighty-four, all of Pa., assignors to Eaton Corporation, Cleveland, Ohio

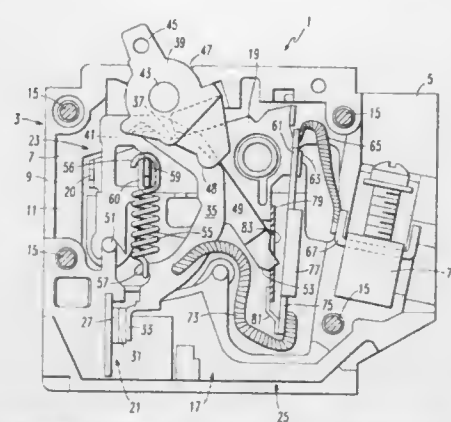
Filed Apr. 29, 1997, Ser. No. 841,731

Int. Cl.⁶ H01H 75/10

U.S. Cl. 335—42

19 Claims

1. A circuit breaker comprising:
 an electrically insulating housing;
 separable electrical contacts disposed within said housing and movable between a closed position and an open position;
 operating means for closing, opening and tripping open said separable contacts, said operating means having an operating member for moving said operating means between an on position wherein said separable contacts are closed, an off position wherein said separable contacts are open, and a reset position which is beyond said off position, said operating means also having a trip position wherein said separable contacts are tripped open;
 trip means cooperating with said operating means for sensing an electrical condition of said separable contacts and tripping said operating means to said trip position, in order to trip open



said separable contacts in response to a predetermined electrical condition of said separable contacts; and
 shock absorption means for absorbing shock created when the operating member is moved from said on position to said off position, to prevent tripping of said operating means in response to the shock.

5,805,039

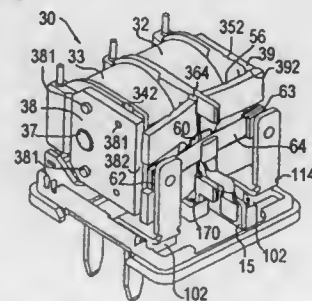
POLARIZED ELECTROMAGNETIC RELAY
 Daniel Robert Smith, Fort Branch, Ind., assignor to Siemens Electromechanical Components, Inc., Princeton, Ind.

Filed Aug. 7, 1995, Ser. No. 512,009

Int. Cl.⁶ H01H 51/22

U.S. Cl. 335—78

21 Claims



1. A polarized electromagnetic relay, comprising:
 an insulating base defining a bottom plane;
 an electromagnet block on the base including a bobbin having a pair of end flanges and a center flange, a pair of coils each being wound about said bobbin between either one of said end flanges and said center flange, a common axis of said bobbin and coils extending parallel to said bottom plane, a core extending axially through said bobbin and coils, and a pair of pole pieces extending perpendicularly from either coil end, each adjacent to a respective end flange;
 an elongate armature balanced with its central portion so as to be movable about a central rotation axis for angular movement between two contact operating positions, either end portion of the armature on either side of the rotation axis defining an air gap with one of said pole pieces;
 a permanent magnet coupled magnetically between said core and said armature so as to induce the same magnetic poles in both said pole pieces and to provide an opposite pole in closely adjacent relationship to said central portion of the armature;
 at least one movable contact spring fixedly connected to the armature at a portion intermediate the ends thereof and being formed with contact arms in the vicinity of either armature end portion, said contact arms carrying movable contacts to be moved according to the armature movement in and out of contact with corresponding fixed contacts mounted on said base; and
 a conductor connecting said contact arms with a movable contact terminal mounted on said base, wherein

the armature is provided with a pair of recesses extending from either lateral side in opposite directions along the rotation axis and
 a pair of retaining tabs are formed on said central flange of the bobbin extending on either side of the armature, either one of the said tabs fitting in a corresponding one of said recesses of the armature and projecting beyond the armature thickness so as to limit movement of the armature in two directions as well as rotation about the rotation axis.

5,805,040

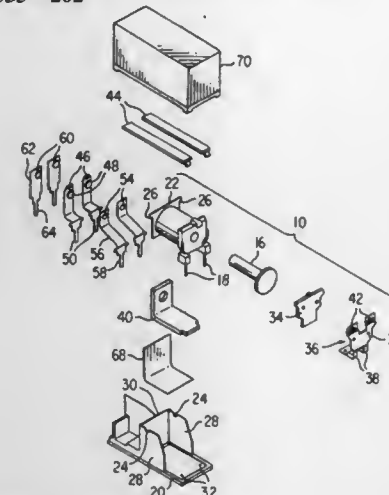
RELAY BASE AND METHOD OF ASSEMBLY
 John Joseph Corcoran, Oakland City, Ind., assignor to Siemens Electromechanical Components, Inc., Princeton, Ind.

Filed Sep. 27, 1996, Ser. No. 722,821

Int. Cl.⁶ H01H 9/02;13/04

U.S. Cl. 335—202

11 Claims



1. A relay, comprising:
 a motor assembly, comprising a bobbin, a coil winding wound over said bobbin, a pole piece in a bore extending through said bobbin, a mounting member in predetermined fixed relation to said bobbin, and an armature, adapted to be urged toward said pole piece when an activating current is passed through said coil, said mounting member of said motor assembly including a pair of protruding members on opposite sides of said bobbin,
 at least one contact movable between normal and actuated positions responsive to motion of said armature,
 at least one fixed contact for being contacted by said movable contact in either said normal or said actuated position thereof,
 a molded plastic base for receiving said motor assembly and said at least one movable contact and said at least one fixed contact having a fixed spatial distance therebetween in predetermined physical relation to one another when assembled and adjustable to either the actuated or normal position therebetween during operation, said base including a generally planar bottom portion and a pair of spaced substantially parallel vertical walls molded integrally therewith, said motor assembly being received between said walls, said base further including integrally-molded means for matingly receiving said mounting member of said motor assembly, so that said motor assembly is disposed in predetermined relation to said base, said means for matingly receiving including receptacles molded into said base for receiving said protruding members, said receptacles being formed in upper edges of said walls for receiving said protruding members,
 means for securing said mounting member of said motor assembly to said base means for matingly receiving molded integrally with said base, said means for securing including means for bonding said protruding members into said receptacles and,
 a back wall extending between said spaced parallel walls and molded integrally therewith, said back wall and said spaced parallel walls extending to about a same height.

5,805,041

ELECTRONIC TRIP UNIT CONVERSION KIT FOR HIGH AMPERE-RATED CIRCUIT BREAKERS

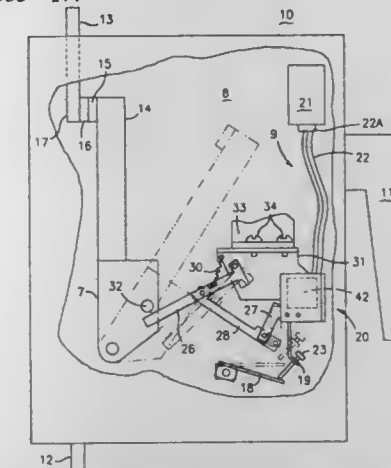
Roger N. Castonguay, Terryville, and Jeffrey D. Lord, Unionville, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed Jun. 18, 1996, Ser. No. 664,608

Int. Cl.⁶ H01H 9/00

U.S. Cl. 335—177

28 Claims



15. A circuit breaker adapted for responding to an overcurrent electronic trip signal comprising:
 an enclosure;
 a pair of contacts within said enclosure for interrupting circuit current on command;
 a line strap on one end of said enclosure for connecting said contacts with an electrical source;
 a line strap on an opposite end of said enclosure for connecting said contacts with electrical equipment;
 an operating handle extending from said enclosure for manual control of said contacts;
 electronic means for providing a trip initiating signal;
 a support bracket;
 a reset lever pivotally arranged on said support bracket and adapted for interacting with a circuit breaker cross bar;
 a trip actuator unit attached to said support bracket, said trip actuator unit including a flux shifter unit and a flux shifter plunger, said plunger adapted for articulating a circuit breaker operating mechanism to separate circuit breaker contacts upon command;
 a flux shifter reset bracket on said flux shifter unit for returning said flux shifter plunger to a home position upon re-closure of circuit breaker contacts;
 a reset arm pivotally arranged on said trip actuator unit and connecting with said flux shifter bracket
 a connector link attached to said reset arm at one end and arranged for interacting with said circuit breaker cross bar at an opposite end, whereby said cross bar motivates said connector link and said reset arm upon separation of said circuit breaker contacts.

5,805,042

RADIO FREQUENCY LOW HUM-MODULATION AC BYPASS COIL

Jack B. Chastain, Chamblee, and Sou-Pen Su, Lawrenceville, both of Ga., assignors to Scientific-Atlanta, Inc., Norcross, Ga.

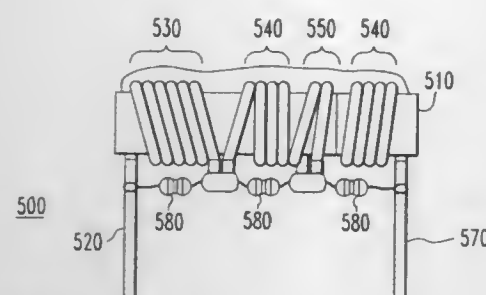
Filed Mar. 31, 1997, Ser. No. 828,585

Int. Cl.⁶ H01F 27/28;38/20;21/02;7/38

U.S. Cl. 336—170

11 Claims

1. A radio frequency choke for use in a communication system, comprising:
 a core of nickel-zinc ferrite material as provided by MMG/NEOSID, Ltd., part number 31P0250012; and
 a wire coil wound around said core, said wire coil including:



- a first lead;
a first clockwise winding of N1 turns around said core, said first lead being connected to an input side of the first winding; a second counterclockwise winding of N2 turns around said core; and a third counterclockwise winding of N3 turns around said core;
a second lead connected to an output side of said third winding; and
a first resonance damping resistor connected between the first lead and an output of the first winding; a second resonance damping resistor connected between an input and an output of the second winding; and a third resonance damping resistor connected between an input of the third winding and the second lead.

5,805,043

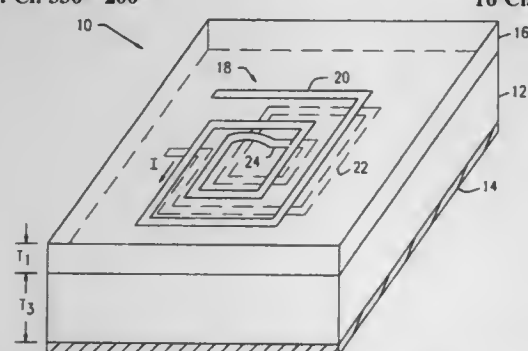
HIGH Q COMPACT INDUCTORS FOR MONOLITHIC INTEGRATED CIRCUIT APPLICATIONS

Inder J. Bahl, Roanoke, Va., assignor to ITT Industries, Inc., White Plains, N.Y.

Filed Oct. 2, 1996, Ser. No. 720,672

Int. Cl.⁶ H01F 5/00; 27/28

U.S. Cl. 336—200



1. A monolithic inductor device which including a substrate having a dielectric constant of 12.9, wherein the improvement therewith comprising:
a layer of dielectric material comprising a cured, dehydrated polyamide film having a dielectric constant of 3.0 and a thickness of 10 μ m disposed over said substrate;
a first inductor pattern disposed directly onto said substrate, wherein said first inductor pattern is disposed between said substrate and said dielectric material;
a second inductor pattern disposed on said dielectric layer, means for coupling said first inductor pattern with said second inductor pattern so as to form a single inductive element extending through said dielectric material having said dielectric constant less than the dielectric constant of said substrate to reduce dissipation losses and improve the frequency response of the device.

5,805,044 FIELD FREE CHAMBER IN PERMANENT MAGNET SOLENOIDS

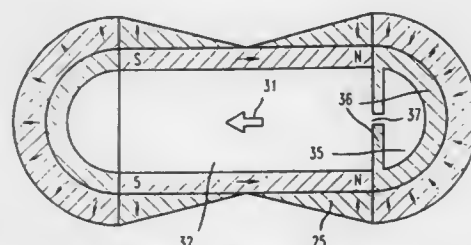
Herbert A. Leupold, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 15, 1994, Ser. No. 198,074

Int. Cl.⁶ H01F 7/02; H01J 23/02

U.S. Cl. 335—306

5 Claims



1. A low-leakage magnetic structure, comprising:
a permanent magnet flux source having at least two ends and an internal chamber, said internal chamber containing a uniform magnetic field pointing in a predetermined direction; and
a passive ferromagnet adjacent to a predetermined end of said flux source, said passive ferromagnet forming a field-free chamber having a predetermined size and shape defined by said passive ferromagnet, said field free chamber communicating with said internal chamber of said flux source such that an electron beam can pass from said field-free chamber into said internal chamber without experiencing a field reversal.

5,805,045

POWER SUPPLY CONDUCTOR FROM A CONDUCTIVE FOIL OF A FOIL WINDING OF A POWER TRANSFORMER

Peter Henninger, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE95/01230, § 371 Date Mar. 20, 1997, § 102(e) Date Mar. 20, 1997, PCT Pub. No. WO96/09631, PCT Pub. Date Mar. 28, 1996

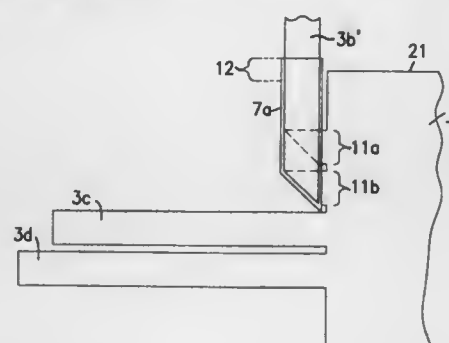
PCT Filed Sep. 8, 1995, Ser. No. 809,332

Claims priority, application Germany, Sep. 21, 1994, 44 33 700.0

Int. Cl.⁶ H01F 27/29; 27/28; 5/00

U.S. Cl. 336—192

13 Claims



1. A laminated power supply conductor of a power transformer, the supply conductor comprising:
a strip-shaped conductive foil having an end including a plurality of flag-shaped end pieces, the end pieces being folded to form a conductor stack, the conductive foil further having an edge;
wherein one of the folded end pieces of the conductor stack is insulated by an insulator from another one of the folded end pieces at least in a predetermined area of the one of the folded

end pieces, the predetermined area being proximate to the edge of the conductive foil.

5,805,046

CURRENT RESPONSIVE LATCHING APPARATUS FOR DISCONNECTING AND ISOLATING AN ELECTRICAL DEVICE

Stephen Paul Hassler, Muskego, Wis.; Stephen Paul Johnson, Olean, N.Y., and John Lapp, Franklin, Wis., assignors to Cooper Industries, Inc., Houston, Tex.

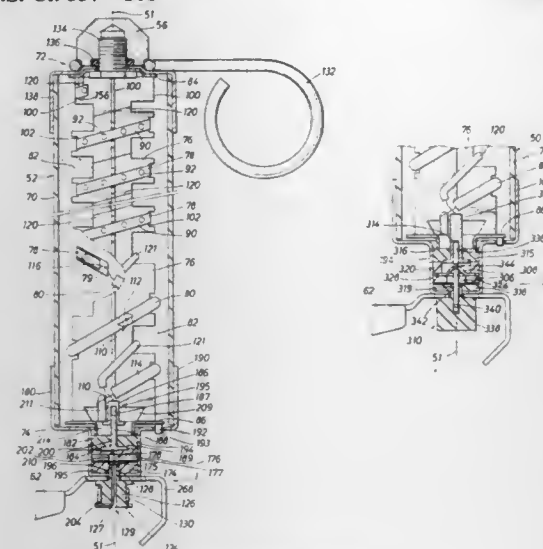
Division of Ser. No. 174,946, Dec. 27, 1993, Pat. No.

5,440,287, which is a continuation-in-part of Ser. No. 946,961, Sep. 17, 1992, Pat. No. 5,274,349, and a continuation-in-part of Ser. No. 67,512, May 24, 1993, Pat. No. 5,559,488, and a continuation-in-part of Ser. No. 65,439, May 24, 1993, Pat. No. 5,355,111. This application Apr. 7, 1995, Ser. No. 418,955

Int. Cl.⁶ H01H 71/10

U.S. Cl. 337—168

21 Claims



1. An electrical component comprising:
a body;
a current path through said body;
a support member disposed adjacent to said body;
a conducting pin member extending from said body and releasably attached to said supporting member, said pin member forming a portion of said current path;
means for causing said pin member to release said support member when a current of a predetermined magnitude is conducted through said body.

5,805,047

FUSED CAR BATTERY TERMINAL AND FUSE-LINK THEREFOR

François Jodon De Villeroche, Paris; Alain Bednarek, Neuilly en Vexin; Jean-Pierre Picaut, Eaubonne; Patrick Mansutti, Pont Sainte Maxence, and Stéphane Kugener, Paris, all of France, assignors to The Whitaker Corporation, Wilmington, Del.

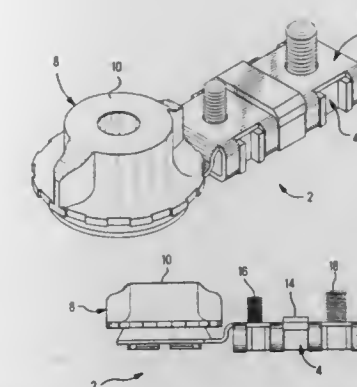
Filed Aug. 31, 1995, Ser. No. 521,678

Int. Cl.⁶ H01H 85/04

U.S. Cl. 337—290

23 Claims

1. An automobile battery connector comprising a battery post mounting member for connection to a battery post, and a power supply connection member for connection to power supply conductors of an automobile, the connector characterized in that the



5,805,048

PLATE FUSE AND METHOD OF PRODUCING THE SAME

Yasushi Saitoh, Nagoya, and Jun Yasukuni, Yokkaichi, both of Japan, assignors to Sumitomo Wiring Systems, Ltd.; Harness System Technologies Research Ltd., and Sumitomo Electric Industries, Ltd., all of Japan

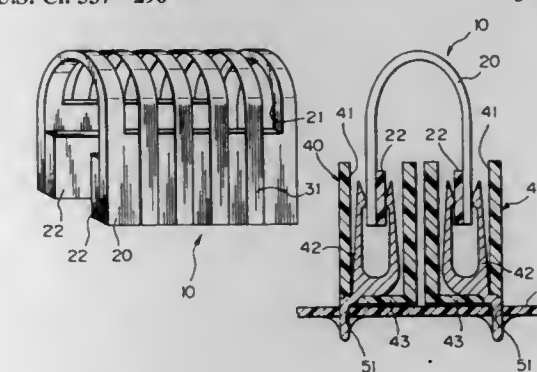
Filed Aug. 8, 1996, Ser. No. 694,106

Claims priority, application Japan, Sep. 1, 1995, 7-248652; Oct. 5, 1995, 7-286548

Int. Cl.⁶ H01H 85/04; 85/143

U.S. Cl. 337—290

5 Claims



1. A plate fuse comprising:
an insulation plate made of a flexible insulation film and provided with a window having a given shape;
a conductive circuit laid on a surface of said insulation plate and including a fusible path with a given current capacity and an electric pole formed on each of opposite ends of said fusible path; said electric poles adapted to be connected to an external circuit;
said fusible path spanning said window in air; said insulation plate being bent at a portion provided with said window and reinforced only at portions to be connected to said external circuit.

5,805,049

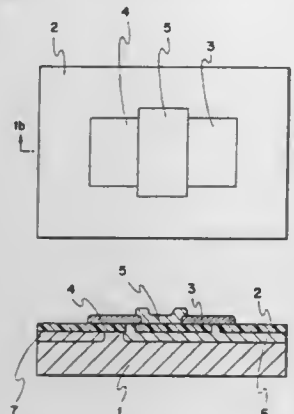
TEMPERATURE-MEASURING-RESISTOR,
MANUFACTURING METHOD THEREFOR, RAY
DETECTING ELEMENT USING THE SAME
Akira Yamada; Takehiko Sato; Toshihisa Honda; Toshio Ume-
mura, and Fusaoki Uchikawa, all of Tokyo, Japan, assignors
to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 3, 1996, Ser. No. 657,191

Claims priority, application Japan, Jun. 14, 1995, 7-147559;
Apr. 5, 1996, 8-083823Int. Cl.⁶ H01C 3/04

U.S. Cl. 338—25

22 Claims



1. A temperature-measuring-resistor comprising vanadium oxide as a matrix material, wherein the matrix material comprises at least one member selected from the group consisting of a metal, a metal oxide, and a metal nitride, wherein said metal comprises at least one metal selected from the group consisting of platinum, iridium, rhodium and gold, wherein said metal oxide comprises at least one metal oxide selected from the group consisting of a ruthenium oxide, a platinum oxide, an iridium oxide, a rhodium oxide, a rhenium oxide, an osmium oxide, a tungsten oxide, a molybdenum oxide, a tin oxide, and a titanium oxide, and wherein said member has an electric conductivity higher than that of said vanadium oxide.

5,805,050

Patent Not Issued For This Number

5,805,051

INTERACTIVE MEDICATION REMINDER/DISPENSER
DEVICE

James M. Herrmann; Gerald S. Indorf, both of Amherst, N.H.,
and Sunway R. Wang, Andover, Mass., assignors to Intel-
liMed, Inc., Amherst, N.H.

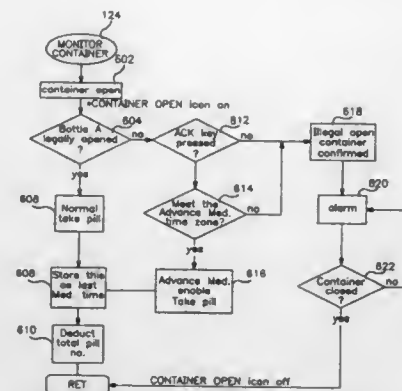
Filed Oct. 7, 1996, Ser. No. 725,830

Int. Cl.⁶ G08B 1/00

U.S. Cl. 340—309.4

22 Claims

1. An interactive, automated medication reminder/dispenser device, said device comprising:
a housing;
means for containing and dispensing therefrom at least one predetermined type of medication, said containing and dispensing means capable of being either mounted within said housing or located external of said housing;
means for establishing a dosage of said at least one predetermined type of medication;
means for establishing at least one preselected time for taking said at least one predetermined type of medication;
means for providing an alarm when said at least one predetermined type of medication is being taken at other than said at least one preselected time, said alarm acting as a warning to a



user of the reminder/dispenser device that said medication should not be taken at other than said at least one preselected time, said means for providing said alarm not interacting with the reminder/dispenser device to prevent the user from taking said medication;

means for establishing an advanced medication taking time zone;

means for activating a signal to establish taking of said medication during said advanced medication taking time zone, said signal to establish taking of said medication canceling said alarm;

means for providing a signal indicative of said at least one preselected time to take said at least one medication and further indicative of said dosage of said at least one predetermined type of medication to take at said at least one preselected time;

means for providing an indication of said at least one predetermined type of medication which has been taken, said indication means being activated by the application of a signal thereto, said activation signal being responsive to either the opening of said containing and dispensing means or an independent action;

means for providing information with respect to the amount of said at least one medication remaining after each taking thereof;

said information providing means including means for comparing a series of bits of information in order to provide extremely accurate information with respect to amounts of said at least one predetermined type of medication remaining, wherein said bits of information include information derived from

said containing and dispensing means,

said means for establishing an advanced medication taking time zone, and

means for activating a signal to establish taking of said medication during said advanced medication taking time zone;

means for preselectively varying input to said means for establishing said at least one preselected time for taking said dosage of said at least one predetermined type of medication, and;

said indication means also providing a signal of said varied time and said varied dosage, wherein said varied time can vary from once a day to numerous times a day for each of said at least one predetermined type of medication and said varied dosage can vary for each said varied time and for each of said at least one predetermined type of medication.

5,805,052

CABLE SYSTEM FOR SIGNAL TRANSMISSION
Heinrich Hansemann, Bremen; Herbert Laupichler, Weyhe;
Jan-Hermann Müller, Hude; Joachim-Christian Politt, Bremen;
Günter Schmitz, Oldenburg, and Holger Schröter, Achim, all of Germany, assignors to Gestra GmbH, Bremen, Germany

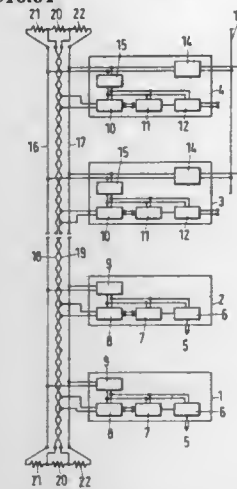
Filed Oct. 28, 1996, Ser. No. 738,678

Claims priority, application Germany, Oct. 27, 1995, 195 40 093.3

Int. Cl.⁶ H04M 11/04

U.S. Cl. 340—310.01

5 Claims



1. A signal transmission cable system for transmitting signals between at least one signal transmitter and a least one signal receiver comprising:

a line system having two ends and four electrical conductors (16-19), two of said conductors (18, 19) forming a field bus line for signal transmission, and the other two of said conductors (16, 17) forming an energy line for providing an electrical energy supply to each of the at least one signal transmitters and receivers;

a field bus controller disposed in each of the signal receivers and transmitters, for connecting each of the signal receivers and transmitters to said field bus line, said field bus line having a characteristic impedance Z_0 ;

first resistor means (20) coupled to each of said two ends of the line system and being connected between the two conductors (18, 19) of said field bus line;

second resistor means (21) coupled to each of said two ends of the line system and being connected between one conductor (18) of said field bus line and one conductor (16) of said energy line;

third resistor means (22) each being coupled to each of said two ends of the line system and being connected between the other conductor (19) of said field bus line and the other conductor (17) of said energy line; and

wherein the total resistance of said first, second and third resistor means (20-22) is equal to Z_0 .

5,805,053

APPLIANCE ADAPTED FOR POWER LINE
COMMUNICATIONS

Chandrakant Bhailalbhai Patel, Hopewell; Jack Rudolph Harford, Flemington, both of N.J., and Glenn Seggern, Springfield, Pa., assignors to Elcom Technologies, Inc., King of Prussia, Pa.

Filed Oct. 21, 1996, Ser. No. 734,361

Int. Cl.⁶ H04M 11/04

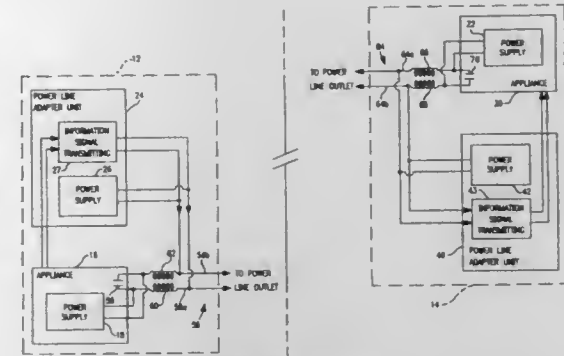
U.S. Cl. 340—310.01

10 Claims

1. An electrical appliance adapted for conducting information signals to or from the appliance from or to a power line, the electrical appliance comprising at least one of:

(A) means for conducting information signals to a power line including:

(1) a source for supplying information signals and having a power supply.



(2) a power line adapter unit having:

(a) a power supply, and
(b) information signal transmitting means for conducting information signals from said source to a power line,
(3) a power line connector for connecting:
(a) said power supply of said source,
(b) said power supply of said power line adapter unit for conducting information signals from said source to a power line, and
(c) said information signal transmitting means to a power line, and

(4) means for preventing information signals from said information signal transmitting means from being conducted to said source along said power line connector; and

(B) means for conducting information signals from a power line including:

(1) a utilization unit for using information signals and having a power supply,

(2) a power line adapter unit having:

(a) a power supply, and
(b) information signal receiving means for conducting information signals from a power line to said utilization unit,
(3) a power line connector for connecting:
(a) said power supply of said utilization unit,
(b) said power supply of said power line adapter for conducting information signals from a power line to said utilization unit, and
(c) said information signal receiving means to a power line, and

(4) means for preventing information signals from a power line from being conducted directly from a power line to said utilization unit.

5,805,054

AUTOMOBILE THEFT PREVENTION AND
PROTECTION DEVICE

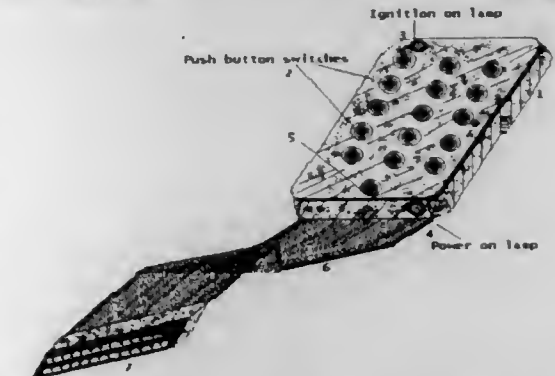
Merrill Baxter, Mariners Harbor Station 2980 Richmond Ter.,
Staten Island, N.Y. 10303

Filed May 17, 1993, Ser. No. 63,019

Int. Cl.⁶ B60R 25/10

U.S. Cl. 340—426

14 Claims



6. An automobile theft prevention and protection device having circuit means disposed to control the shutting down of the running

engine of an automobile, said engine having an electrical system for providing power thereto, said circuit means comprising:

- indicating circuit means including a visible alarm and an audible alarm;
- sequence select and latch means;
- a bistable power output switching means including first and second sets of fixed electrical contacts, and a set of movable electrical contacts disposed to communicate alternately with said first and second set of fixed electrical contacts, said second set of fixed electrical contacts being coupled with the electrical system of the engine;
- switch control circuit means coupled with the bistable power output switching means for controlling the switching of the switching means;
- a continuous alert means including circuitry which is coupled so as to condition a sequence select and latch means for providing a selective response to the visible and audible alarms so as to provide an indication as to the status of whether the engine of the automobile is at rest, whether the engine is running, and further whether the automobile is in motion;
- a reinstating means including a codified voltage impulse device which is coupled to the continuous alert means so as to reset the status of the response indication of the engine;
- a triggering means including a door switch of the automobile, said triggering means controlling actuation of the switch control circuit means;
- first and second DC power supply means, wherein said first DC power supply means is a low current twelve volt DC battery, and said second DC power supply means is a standard twelve volt DC battery, both power supply means being included in the bistable power output switching means and electrically connected to said bistable power output switching means so as to deliver electrical power to said switching means in one of a singular or collective manner;
- said switching means being coupled with the electrical system of said engine and having first and second operating states for powering the electrical system of the engine, said states being determined in response to an input signal from said triggering means and as well said states being controlled by said codified voltage impulse device such that in a first state, electrical voltage, which is derived from said low current twelve volt, is switched from said engine electrical system to the shut down indicating means and causing the engine to shut down, and in a second state, electric voltage, which is derived simultaneously from the low current DC battery and the standard twelve volt DC battery is switched from the shut down indicating means to the engine electrical system thereby causing an active condition in the engine which provides power to the engine and enables the automobile engine to run;
- said triggering means when actuated causes said visible alarm to be activated so as to indicate shut down and thereby switching off of the engine electrical system by said bistable power output switching means and simultaneously activating the audible alarm and maintaining the alarm until reinstated by the reinstating means.

5,805,055

ANTITHEFT SYSTEM INTEGRATED WITH FUNCTIONS OF SECURITY, INFORMATION AND NAVIGATION, BASED ON ELECTRONIC CARTOGRAPHY, VOCAL SYNTHESIS AND RADIO TELECOMMUNICATION

Michele Colizza, Zoagli, Italy, assignor to Elementare Watson S.r.l., Campi Bisenzio, Italy

PCT No. PCT/IT94/00058, § 371 Date Feb. 13, 1995, § 102(e) Date Feb. 13, 1995, PCT Pub. No. WO94/26567, PCT Pub. Date Nov. 24, 1994

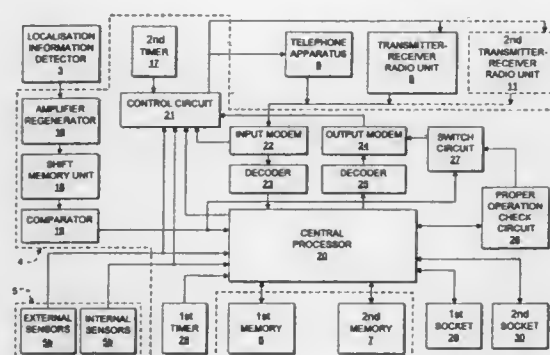
PCT Filed May 10, 1994, Ser. No. 362,541

Claims priority, application Italy, May 11, 1993, B093A0208 Int. Cl.⁶ B60R 25/10

U.S. Cl. 340—426

56 Claims

1. An antitheft system integrated with functions of security, information and navigation based on electronic cartography, vocal synthesis and radio telecommunication, with said system (1) partially placed in a box-shaped casing (12) and fastened to a motor vehicle (2) characterized in that it comprises the following:



- a localization information detector (3) provided with at least a first antenna (3a) and including a device adapted to receive information from a satellite system (31) and to process the information concerning physical terrestrial magnitudes related to a global position of said localization information detector (3), said information related to longitude, latitude, temperature, pressure, date, time, speed and route;
- a telephone apparatus (8) provided with at least a second antenna (8a);
- a plurality of sensor equipped devices (5), subdivided in a first group (5a) of sensors external to said box-shaped casing (12), and in a second group of sensors internal to said box-shaped casing (12), with said sensor equipped devices (5) destined to detect determined conditions;
- a series of mass memory units (6, 7) in which a data base for electronic cartography and a data base of synthesized voiced words are stored;
- an electronic unit (4), connected functionally to said localization information detector, telephone apparatus, plurality of sensor equipped devices and series of mass memory units, for controlling the localization information detector, telephone apparatus, plurality of sensor equipped devices and series of mass memory units as well as signals respectively received and sent by them, said electronic unit capable of retrieving information from said mass memory units (6, 7) and forming a word message which is sent via said telephone apparatus;
- an independent feeding section (13) for feeding the electronic unit (4) and said localization information detector, telephone apparatus, plurality of sensor equipped devices and series of mass memory units.

5,805,056

VEHICLE SECURITY SYSTEM

Rand W. Mueller, Orchard Lake; Robert J. Pizzuti, Rochester Hills; Graham Fishman, W. Bloomfield; Jay N. Cullimore, Oakland; Thomas Lemense, Livonia; Hilton W. Girard, Roseville; Mark Cohrs, Mt. Clemens; Joseph Santavicca, Clinton Township; Todd Scott, Royal Oak; Peter J. Stouffer, Clarkston; David Rupert, Waterford, and John Gillespie, Round Rock, all of Mich., assignors to Code-Alarm, Inc., Madison Heights, Mich.

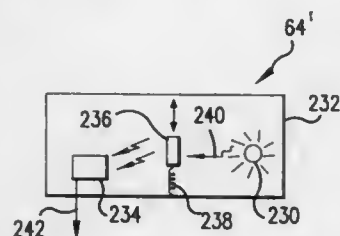
Continuation of Ser. No. 68,826, May 28, 1993, abandoned.

This application Apr. 3, 1996, Ser. No. 624,146

Int. Cl.⁶ B60R 25/10

U.S. Cl. 340—426

2 Claims



1. A shock sensor adapted for use in detecting a shock made to a stationary vehicle, said shock sensor comprising:

- a housing which includes a top surface, a bottom surface and side surfaces;
 - a light source deployed within said housing and adapted to generate light parallel to two of said surfaces;
 - a light detector deployed within said housing and adapted to receive said generated light; and
 - an elastic member deployed within said housing and including a first and a second end; wherein said first end of said elastic member is attached to said bottom surface of said housing, and said second end of said elastic member is attached to a member;
- said member is a moveable member which is deployed between said light source and said light detector for blocking said generated light to said light detector, and said member is capable of moving vertically when said shock is made to said stationary vehicle for allowing at least a portion of said generated light to be received by said light detector.

5,805,057

REMOTE VEHICLE DISABLING AND DISTRESS INDICATOR SYSTEM

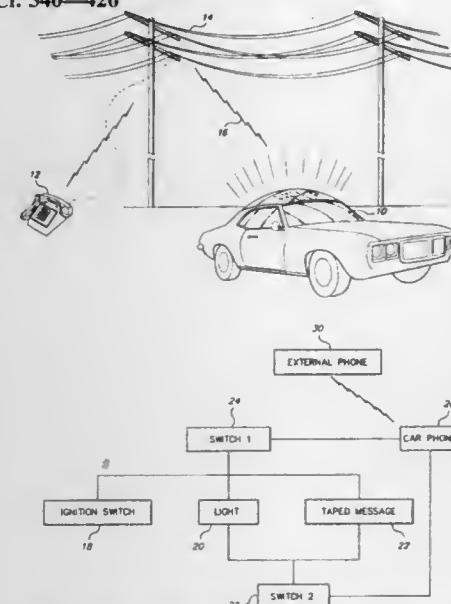
Firoyz B. Eslaminovin, 711 W. Broadway, Centralia, Ill. 62801

Filed Nov. 5, 1997, Ser. No. 965,005

Int. Cl.⁶ B60R 25/10

U.S. Cl. 340—426

7 Claims



1. A remote vehicle disabling and distress indicator system for a motor vehicle comprising:
 - a modular telephone for receiving an external telephone call to activate said disabling and distress indicator system;
 - electronic control means mounted within the vehicle for disabling the vehicle upon being activated; wherein said electronic control means include a first switch to disable the vehicle, illuminate said distress sign, and activate said tape machine to playback and transmit said prerecorded distress tape message internally and externally of the vehicle, and a second switch to illuminate said distress sign, and activate said tape machine to playback and transmit said prerecorded distress tape message internally and externally of the vehicle;
 - a distress sign mounted on the vehicle, and capable of being illuminated;
 - a tape machine mounted within the vehicle for playing back a prerecorded distress tape message; and
 - one or more speakers mounted in the vehicle for transmitting audio sounds of said prerecorded distress tape message internally and externally of the vehicle;
- wherein said electronic control means electronically disables the vehicle, illuminates said distress sign, activates said tape machine to playback said prerecorded distress tape message,

5,805,058

CONTROL CIRCUIT FOR VEHICULAR MOUNTED PASSENGER PROTECTING DEVICES

Yasuo Saito, Kumagaya; Takayuki Kishi, Omiya, and Miyuki Demachi, Kawagoe, all of Japan, assignors to Kansei Corporation, Omiya, Japan

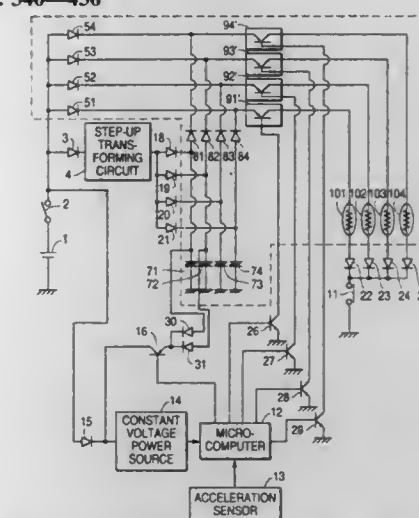
Filed Apr. 4, 1996, Ser. No. 628,795

Claims priority, application Japan, Apr. 7, 1995, 7-082864; Mar. 25, 1996, 8-068539

Int. Cl.⁶ B60R 21/00

U.S. Cl. 340—436

5 Claims



1. A passenger protecting device of a motor vehicle having an ignition switch, comprising:
 - an acceleration sensor which issues an acceleration signal representative of a degree of a vehicle collision;
 - a signal processing circuit which processes said acceleration signal to determine whether the vehicle collision is critical or not, said signal processing circuit issuing an ignition trigger signal when judging that the vehicle collision is critical;
 - a DC power source for charging a plurality of back-up capacitors;
 - a plurality of squibs each having first and second terminals, the first terminals of said squibs being connected to a common terminal and the second terminals of said squibs being connected to said back-up capacitors through respective connection lines;
 - a first switch circuit having one terminal connected to said common terminal and the other terminal grounded;
 - a plurality of second switch circuits, each being disposed in each of said respective connections lines, each second switch circuit being turned ON when receiving said ignition trigger signal from said signal processing circuit, each of said second switch circuits including,
 - a transistor having base, emitter, and collector terminals, said collector terminal being connected to a corresponding one of said squibs;
 - a first resistor having one terminal connected to said emitter terminal and the other terminal connected to a corresponding one of said back-up capacitors; and
 - a Zener diode having one terminal connected to said base terminal and the other terminal connected to the corresponding one of said back-up capacitors; and
 - a second resistor having one terminal connected to said base terminal and the other terminal connected to said signal processing circuit;
 - a constant voltage power source connected to said ignition switch;

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a switching transistor having base, emitter and collector terminals, said collector terminal of said switching transistor being connected to said constant voltage power source, and said base terminal of said switching transistor being connected to said signal processing circuit;

a first diode having an anode connected to one of said back-up capacitors and a cathode connected to said emitter terminal of said switching transistor; and

a second diode having an anode connected to another of said back-up capacitors and a cathode connected to said emitter terminal of said switching transistor,

wherein said signal processing circuit monitors an output of said constant voltage power source to determine when said ignition switch is turned OFF, and

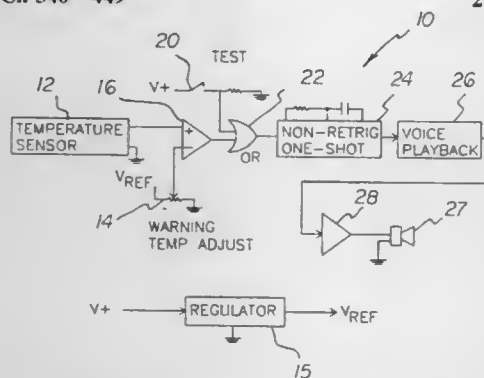
wherein said signal processing circuit outputs a signal to said base terminal of said switching transistor when said ignition switch is determined to be OFF so as to turn said switching transistor ON.

5,805,059

VEHICLE OVERHEAT VOICE INDICATOR
Roger Tea, 14401 Huntridge Dr., Victorville, Calif. 92394
Filed Jun. 26, 1997, Ser. No. 883,565
Int. Cl.⁶ B60Q 5/00

U.S. Cl. 340-449

2 Claims



1. A voice playback temperature sensor comprising, in combination:

- a temperature sensor situated within an engine of a vehicle and adapted to transmit at an output thereof a voltage with a level directly proportional to a temperature within the engine of the vehicle;
- a potentiometer having a first terminal connected to a constant voltage source, a second terminal connected to ground, and a third terminal, the potentiometer adapted supply a user selected, adjustable voltage at the third terminal thereof;
- an operational amplifier having a positive terminal input connected to the output of the temperature sensor and a negative terminal input connected to the third terminal of the potentiometer, the operational amplifier adapted to provide an activation signal at an output thereof upon the voltage at the positive terminal and the voltage at the negative terminal thereof differing by a predetermined amount;
- a test switch coupled between the constant voltage source and a resistor which is in turn connected to ground, the switch adapted to transmit an activation signal upon the closing thereof;
- an OR gate having a first input connected to the output of the operational amplifier and a second input connected between the test switch and the resistor for transmitting the activation signal from an output thereof upon the receipt of the activation signal at least one of the inputs thereof;
- a non-retriggerable one-shot multivibrator having an input connected to the output of the OR gate for transmitting the activation signal at the output thereof for transmitting the activation signal for a predetermined fixed length of time upon at least the instantaneous receipt thereof from the OR gate; and

a voice play back mechanism connected between a speaker and the multivibrator, the play back mechanism adapted to recite a verbal warning via the speaker only during the receipt of the activation signal.

5,805,060

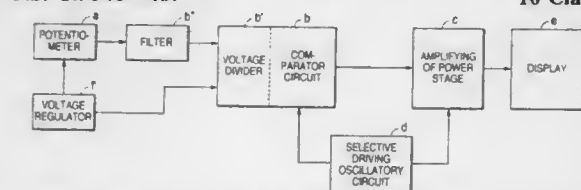
ELECTRONIC DEVICE TO INDICATE THE ACCELERATION AND DECELERATION FOR VEHICLES
Alberto Nicanor Schroeder, San Martin 686, 7th. fl. of. 72, Buenos Aires, Argentina

Filed Sep. 20, 1996, Ser. No. 717,459
Claims priority, application Argentina, Oct. 20, 1995, 333,908

Int. Cl.⁶ B60Q 1/50

U.S. Cl. 340-467

10 Claims



1. An electronic device to indicate the acceleration and deceleration of a vehicle, the device being connected to an accelerator of the vehicle, comprising:

- a potentiometer connected to the accelerator, the potentiometer having an output with the magnitude of the output being determined by a position of the accelerator;
- a comparator circuit having a plurality of operational amplifiers, each of the operational amplifiers having a first input connected to the potentiometer, each of the operational amplifiers also having a second input and an output;
- a voltage divider having a plurality of points with successively decreasing voltages, the plurality of points being connected respectively to the second inputs of the operational amplifiers;
- a plurality of power amplifiers having inputs connected respectively to the outputs of the operational amplifiers, the power amplifiers also having outputs; and
- a plurality of luminous elements connected respectively to the outputs of the power amplifiers such that the luminous elements are successively activated and deactivated with changing position of the accelerator, the luminous elements being positioned on the vehicle to be visible by drivers of other vehicles.

5,805,061

ELECTRONIC FLASHER UNIT FOR VEHICLE LIGHTING SYSTEM AND METHOD OF MONITORING THE OPERATION THEREOF

Andreas Fritz, Brackenheim; Hans-Josef Evens, Wadersloh, both of Germany, and Robin D. Ray, Ann Arbor, Mich., assignors to Hella KG Hueck & Co., Lippstadt, and Temic Telefunken microelectronic GmbH, Heilbronn, both of Germany

Filed Apr. 8, 1997, Ser. No. 826,842

Int. Cl.⁶ B60Q 1/521

U.S. Cl. 340-471

24 Claims

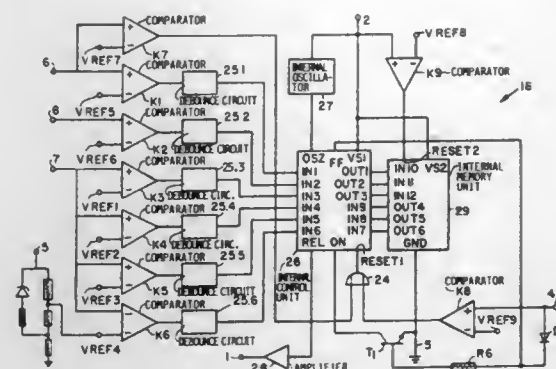
1. A method for monitoring the operation of an electrical load driving circuit including a measuring shunt resistor and a plurality of electrical load elements connected in parallel to one another and in series with said shunt resistor, said method comprising the following steps:

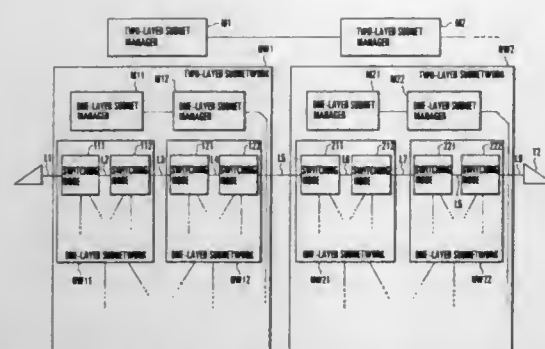
- (a) establishing a load failure control threshold by assigning thereto a first reference voltage;
- (b) establishing a short-circuit control threshold by assigning thereto a second reference voltage that is higher than said first reference voltage;
- (c) flowing a load current through said shunt resistor and through said parallel-connected load elements during succes-

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release request or a burst information transmission start/end request upon a call connection from said originating station accommodated in a predetermined switching node, comprising the steps of:

causing said network to have a hierarchical structure, said hierarchical structure having at least one mth-layer, where m is a positive integer of not less than 2, said mth-layer further including a plurality of (m-1)-layer subnetworks wherein each of first-layer subnetworks includes a plurality of switching nodes interconnected through a predetermined link;

providing a first-layer subnetwork manager for each of said first-layer subnetworks to update and hold a plurality of routes, in a predetermined order, connecting the switching nodes and first-layer subnetworks between predetermined switching nodes in a home subnetwork and predetermined first-layer subnetworks connected to have the same hierarchical level, and providing an mth-layer subnet manager for said mth-layer subnetwork to update and hold a plurality of routes, in a predetermined order, connecting predetermined mth-layer subnetworks connected to have the same hierarchical level;

causing said mth-layer subnet manager to refer to contents of a home subnetwork in response to a band reservation request to determine an optimal route from said plurality of routes connecting requested mth-layer subnetworks, send a band reservation request for a link located on this optimal route, and send a band reservation request for a route in the mth-layer subnetwork to an arbitrary (m-1) th-layer subnet manager in each (m-1) th-layer subnetwork located on the optimal route;

causing said first-layer subnet manager to refer to contents of a home subnetwork in response to a band reservation request from a subnet manager of high hierarchical level to determine an optimal route from said plurality of routes connecting predetermined first-layer subnetworks as a route in the requested subnetwork of high hierarchical level, send a band reservation request for a link located on the optimal route, and send a band reservation request for a route, and send a band reservation request for a route in each first-layer subnetwork to the first-layer subnet manager of each first-layer subnetwork located on the optimal route;

causing the first-layer subnet manager located on the optimal route to refer to contents of a home one-layer subnetwork in response to a band reservation request from an arbitrary first-layer subnet manager to determine an optimal route from said plurality of routes between predetermined switching nodes as a route in the requested first-layer subnetwork; and sending a band reservation request from said predetermined node accommodating said originating station to said predetermined mth-layer subnet manager in response to a band reservation request based on the VC connection request or the burst information transmission start request or the burst information transmission start request upon the call connection from said originating station to sequentially and parallelly send band reservation requests from said mth-layer subnet manager to links of low hierarchical level, thereby reserving bands for switching nodes at two sides of each link located on the connection route.

5,805,073 APPARATUS FOR CONNECTING ELECTRIC APPLIANCES

Naoki Nagano; Harumi Kawamura, both of Tokyo, and Hisato Shima, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 728,985, Jul. 12, 1991, abandoned.

This application Feb. 25, 1993, Ser. No. 23,171

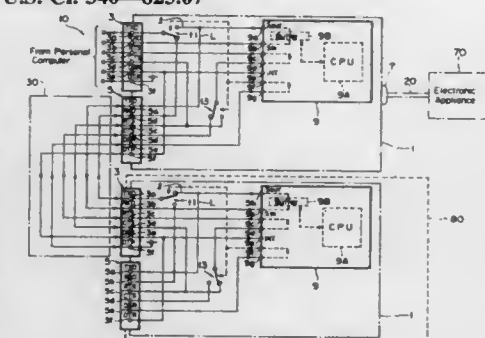
Claims priority, application Japan, Jul. 19, 1990, 2-191151;

Jul. 23, 1990, 2-194192; Jul. 27, 1990, 2-200094

Int. Cl.⁶ G05B 23/02

U.S. Cl. 340—825.07

5 Claims



1. A connection apparatus for providing a signal to an electronic appliance and adapted for use in a system including a preceding apparatus connected in series with the connection apparatus, and a succeeding connection apparatus connected in series with the connection apparatus, wherein the connection apparatus is connected so as to transmit and receive information signals between the preceding apparatus and the succeeding connection apparatus, wherein the preceding apparatus is a member of a set consisting of a control apparatus for collectively controlling transmission and reception of the information signals and a preceding connection apparatus, the connection apparatus comprising:

a first terminal means for receiving the information signals from the preceding apparatus, and for transmitting the information signals to the preceding apparatus;

a second terminal means for receiving the information signals and a predetermined control signal from the succeeding connection apparatus, and for transmitting the information signals to the succeeding connection apparatus, wherein the predetermined control signal indicates that the succeeding connection apparatus is connected to the second terminal means;

a switching unit connected to the first terminal means;

a processing means for providing said signal;

a first line connected between the switching unit and the second terminal means;

a second line connected between the processing means and the switching unit, wherein the switching unit selectively connects the first terminal means with one of the first line and the second line; and

a third terminal means connecting the processing means with the electronic appliance.

5,805,074 ELECTRONIC INTERLOCK FOR STORAGE ASSEMBLIES

Edward L. Warren, Spring Lake; David E. Miller, West Olive, and James Arter, North Muskegon, all of Mich., assignors to Meridian Incorporated, Spring Lake, Mich.

Division of Ser. No. 599,676, Oct. 17, 1990, Pat. No. 5,225,825, which is a continuation-in-part of Ser. No. 505,037, Apr. 5, 1990, abandoned. This application Jul. 2, 1992, Ser. No. 909,102

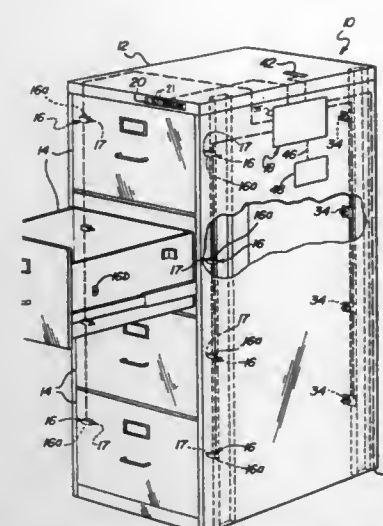
The portion of the term of this patent subsequent to Jul. 16, 2010, has been disclaimed.

Int. Cl.⁶ E05B 65/44

U.S. Cl. 340—825.31

12 Claims

1. A storage assembly (100) comprising:
housing means (12,112) defining an enclosure;



a plurality of storage units (14,114) to be supported by said housing means (12,112) for moving between a closed position and an open position;

a plurality of independent locking means (16,116) associated with said plurality of storage units (14,114) each having a locked condition for locking said associated storage unit (14,114) in said closed position in response to a lock signal and an unlocked condition for unlocking and allowing said associated storage unit (14,114) to move to said open position in response to an unlock signal,

electrical control means (18,110) connected to said locking means (16,116) for locking and unlocking said locking means (16,116);

said control means (18,110) including input means (20,120) for receiving an input code and a selection number representative of a particular storage unit (14,114), data memory means (22, 162) for independently storing an access code and at least one unit assignment number associated with the access code, and processor means (24, 148) for receiving and comparing said access code with said input code and comparing said unit assignment number with said selection number to produce said unlock signal to only one of said locking means (16,116) associated with said particular storage unit (14,114) corresponding to said selection number when said comparisons have a predetermined relationship and only when all of said storage units (14,114) are in said closed position thereby preventing production of said unlock signal when at least one of said storage units is in said open position.

5,805,075 ELECTRONIC CONTROL SYSTEM FOR A MODULAR STORAGE AND SUPPORT ASSEMBLY

Bradley J. Carlson, Wilkes-Barre; David A. Reppert, Brodheadville, and Craig F. Orlove, Mountaintop, all of Pa., assignors to Metro Industries, Inc., Reno, Nev.

Continuation of Ser. No. 426,658, Apr. 21, 1995, abandoned.

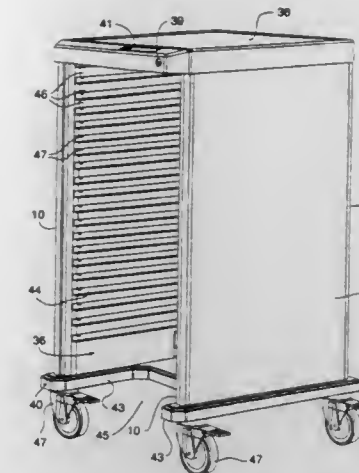
This application Aug. 28, 1997, Ser. No. 919,457

Int. Cl.⁶ E05B 47/00

U.S. Cl. 340—825.31

30 Claims

1. A control system for use with an enclosed structure including (a) a wall panel having a corrugated interior surface, (b) a locking bar disposed within the wall panel, (c) a locking finger secured to the locking bar and housed in the corrugated interior surface, the corrugated interior surface having an opening therein, (d) actuating means for actuating the locking bar between a locked position and an unlocked position, wherein in the locked position the locking bar positions the locking finger to extend out of the opening in the corrugated interior surface, and (e) a drawer having a channel arranged to couple with the locking finger extending out of the opening in the corrugated interior surface when the actuating



means has actuated the locking bar into the locked position to prevent movement of the drawer, said control system comprising:
input means for inputting information;

control means for controlling the actuating means to lock and unlock the drawer of the enclosed structure in accordance with the information input by said input means, said control means unlocking the drawer of the enclosed structure in response to input by said input means of valid information, and preventing the unlocking of the drawer of the enclosed structure for a predetermined amount of time in response to input by said input means of invalid information for a predetermined successive number of times.

5,805,076
MOBILE COMMUNICATIONS SYSTEM
Shogo Ito, Yokohama, and Yasushi Yamao, Yokosuka, both of Japan, assignors to NTT Mobile Communications Network Inc., Tokyo, Japan

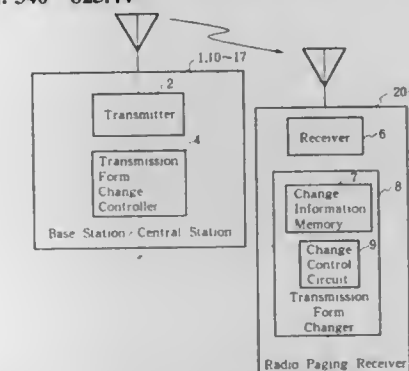
PCT No. PCT/JP94/01754, § 371 Date Mar. 19, 1996, § 102(e) Date Mar. 19, 1996, PCT Pub. No. WO95/11575, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 19, 1994, Ser. No. 481,433

Claims priority, application Japan, Oct. 20, 1993, 5/26201
Int. Cl.⁶ H04B 7/00; H04Q 1/00; 7/00

U.S. Cl. 340—825.44

11 Claims



1. A selective radio paging system comprising:
a base station including a means for transmitting a paging signal sequence containing control signals and one or more address signals; and
a radio paging receiver including a means for receiving the paging signal sequence, detecting whether its own address signal is contained therein, and exciting a paging output; wherein the base station comprises:
a means for transmitting while switching among a plurality of transmission parameters or transmission modes; and

a means for, accompanying the switching, transmitting control signals containing transmission form information which provides notification of the transmission parameters or transmission modes;

the radio paging receiver includes a means for switching to and selecting transmission parameters or transmission modes that are suited to the transmission parameters or transmission modes that are communicated by means of the transmission form information;

the base station includes a means for transmitting announcement signals which give advance notice of a change of the transmission parameters or transmission modes in advance of said change; and

the advance notice contains information relating to a scheduled change time or to a time interval until the scheduled change time.

5,805,077

TWO-WAY PAGING SYSTEM HAVING REVERSE CHANNEL MESSAGE FREQUENCY AUTHENTICATION

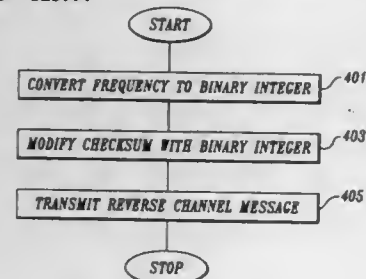
Glenn S. Fawcett, Vancouver, Canada, assignor to Glenayre Electronics, Inc., Charlotte, N.C.

Filed Sep. 30, 1996, Ser. No. 722,375

Int. Cl.⁶ G08B 5/22; H04Q 7/00

U.S. Cl. 340—825.44

6 Claims



1. A two-way paging system comprising:

(a) at least one two-way pager operative to formulate a reverse channel message for transmission on a reverse channel frequency, said reverse channel message including at least a message portion and a checksum portion, said checksum portion dependent upon said message portion and said reverse channel frequency in a predetermined manner;

(b) a plurality of paging receivers for receiving said reverse channel message transmitted by said pager, said paging receivers calculating an authentication checksum based upon said message portion and said reverse channel frequency in said predetermined manner, said paging receivers rejecting said reverse channel message unless said authentication checksum matches said checksum portion in said reverse channel message.

5,805,078

MOBILE COMMUNICATIONS NETWORK AND MOBILE COMMUNICATION METHOD

Kazuo Sugiyama, Kashiwa; Shoichi Hirata, Higashiyamato, and Yasushi Nakamura, Huchu, all of Japan, assignors to NTT Mobile Communications Network, Inc., Japan

Filed Jun. 12, 1996, Ser. No. 662,025

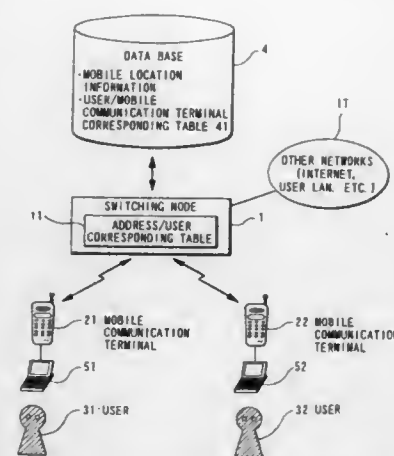
Claims priority, application Japan, Jun. 12, 1995, 7-145020

Int. Cl.⁶ H04Q 7/00

U.S. Cl. 340—825.52

5 Claims

1. A mobile communications network for performing a communication using a mobile communication terminal number assigned to each mobile communication terminal and a user ID assigned to a user of the mobile communication terminal, comprising:



(a) address/user corresponding means for bringing an address, which the user uses for performing a communication through the communications network and the user ID into a corresponding relation;

(b) user/mobile communication terminal corresponding means for bringing the user ID and the mobile communication terminal number into a corresponding relation;

(c) first communication means for storing a mobile location area of each mobile communication terminal;

(d) means for obtaining a user ID corresponding to a specified address when a terminating request specifying an address is made using said address/user corresponding means;

(e) retrieval means for retrieving a mobile communication terminal number corresponding to the user ID using said user/mobile communication terminal corresponding means;

(f) read means for reading a mobile location area of a mobile communication terminal specified by the retrieved mobile communication terminal number from said first storage means; and

(g) termination means for terminating in the specified mobile communication terminal using the retrieved mobile communication terminal number and the mobile location area thus read.

5,805,079

MOTOR VEHICLE PERFORMANCE MONITOR AND METHOD

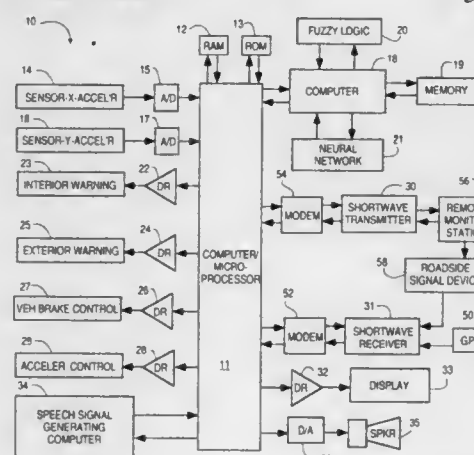
Jerome H. Lemelson, Suite 286, Unit 802, 930 Tahoe Blvd., Incline Village, Nev. 89451-9436

Continuation of Ser. No. 198,621, Feb. 18, 1994, Pat. No. 5,570,087. This application Jun. 17, 1996, Ser. No. 664,827

Int. Cl.⁶ G08C 19/06

U.S. Cl. 340—870.05

30 Claims



1. A system for monitoring the performance and movements of a motor vehicle, comprising:

a sensing module for sensing instantaneous acceleration or deceleration of the vehicle in at least two directions, and for generating coded signals in accordance therewith;

a computer for computing performance variables of the vehicle from the coded signals generated by the sensing module and storing coded representations of said performance variables in select memory locations;

a short wave transmitter interfaced to said computer for transmitting and receiving interpretative signals to and from a remote monitor station;

a receiver interfaced to said computer for receiving said interpretative signals from a satellite global positioning systems; said computer is programmed to (1) calculate the global position of the vehicle from the satellite signals, (2) store a coded representation of said global position in a select memory location, wherein said computer is programmed (3) control the transmission to a remote monitor station of said interpretative signals corresponding to said coded representations of said stored performance variables, (4) analyze said coded representations produced over a period of time, and (5) compute an evaluation code corresponding to an assessment of vehicle driving performance, and store said evaluation code in a select memory location; and

one or more roadside signaling devices which may be activated to instruct an operator of the vehicle to stop the vehicle when said computer makes an assessment that said vehicle is being operated in a poor driving condition.

5,805,080

BEARING WITH AN ELECTRIC-ACOUSTIC TRANSDUCER FOR TRANSMITTING INFORMATION REGARDING VARIOUS PARAMETERS WITHIN THE BEARING

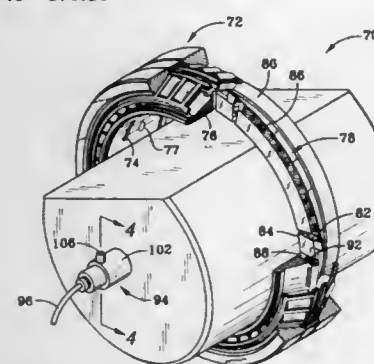
Richard L. Lemoine, Collinsville; Richard W. Browner, Waterbury; John K. Pearson, Avon, and Mark I. Jurras, III, Canton Center, all of Conn., assignors to The Torrington Company, Torrington, Conn.

Continuation-in-part of Ser. No. 518,086, Aug. 22, 1995, Pat. No. 5,602,539. This application Aug. 30, 1996, Ser. No. 705,391

Int. Cl.⁶ G08C 21/00

U.S. Cl. 340—870.16

11 Claims



1. A system for monitoring the condition of a bearing having a stationary race and a rotatable race, the system comprising: sensor means mounted on one of the stationary and rotatable races for sensing at least one parameter indicating the condition of the bearing;

electronic means mounted on said one race for converting a signal generated by the sensor means to a modulated signal; transmitting transducer means carried by said one race for converting the modulated signal from the electronic means into an acoustic signal transmitted to a solid object; and receiving transducer means carried by the solid object and spaced from the transmitting transducer means for receiving the acoustic signal from the solid object and converting it to an electric signal.

5,805,081

PORTABLE TRAFFIC SIGNALS

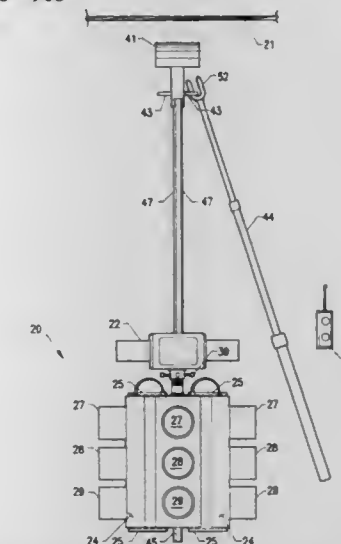
Karel John Fikacek, 22924 Detour, St. Clair Shores, Mich. 48082

Filed Dec. 23, 1996, Ser. No. 771,900

Int. Cl.⁶ G08G 1/095

U.S. Cl. 340—908

12 Claims



1. A portable traffic signal for traffic control at intersections, school crossings, traffic accidents, road repairs, and road construction comprising: a control module, said control module having a housing, a power supply mounted in said housing, a means on a top portion of said module for attaching said module to an overhead cable, and a power operated means attached to said module for raising and lowering said traffic signal from a ground level non-operative position to an elevated operative position on said overhead cable; and at least one detachable light panel attached to said control module, said light panel having a housing and a vertical array of lights mounted in said housing.

5,805,082

ELECTRONIC VEHICLE TOLL COLLECTION SYSTEM AND METHOD

John J. Hassett, Marblehead, Mass., assignor to AT/COMM Incorporated, Wakefield, Mass.

Continuation of Ser. No. 300,424, Sep. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 901,277, Jun. 19, 1992, Pat. No. 5,406,275, and Ser. No. 945,534, Sep. 16, 1992, Pat. No. 5,347,274, which is a continuation-in-part of Ser. No. 901,278, Jun. 19, 1992, Pat. No. 5,289,183, which is a continuation-in-part of Ser. No. 525,103, May 17, 1990, Pat. No. 5,144,553, and Ser. No. 525,108, May 18, 1990, abandoned, said Ser. No. 901,277 is a continuation-in-part of Ser. No. 525,103. This application Oct. 24, 1996, Ser. No. 736,270

Int. Cl.⁶ G08G 1/01

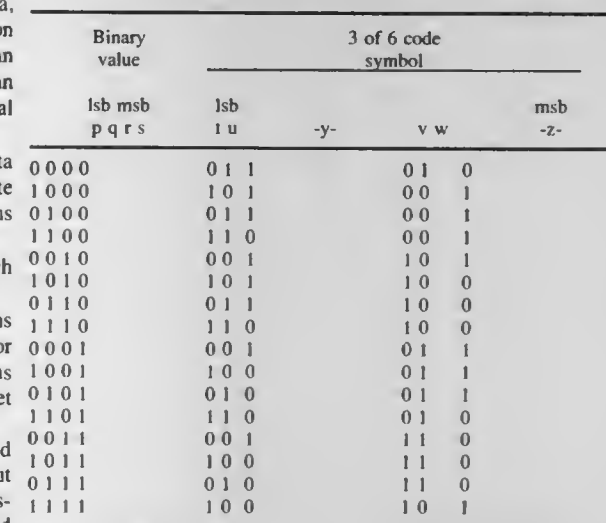
U.S. Cl. 340—928

15 Claims

1. A method for automatically collecting tolls from a vehicle moving along a roadway having a plurality of entrances and exits, wherein the toll to be charged to a vehicle varies with an entrance point of the vehicle to the roadway, an exit point of the vehicle to the roadway, and a vehicle class, the method comprising the steps of

providing at least an exit toll facility through which the vehicle can pass for toll collection; providing an entrance toll-facility-identification site corresponding to said entrance point of said vehicle to said roadway, providing in a vehicle a vehicle transponder having storage for storing toll-money-available information representative of a monetary quantity available for debiting in a toll transaction at an upcoming toll facility.

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said encoder circuit having first and second output paths for carrying respective six-bit data symbols, the y and z bits of the six-bit symbols in the first and second output paths together carrying information describing a single parity bit; and
an output circuit coupled to said encoder circuit for transmitting said six-bit data symbols on a second physical link in a second physical domain.

5,805,088

HIGH SPEED ASYNCHRONOUS SERIAL TO PARALLEL DATA CONVERTER

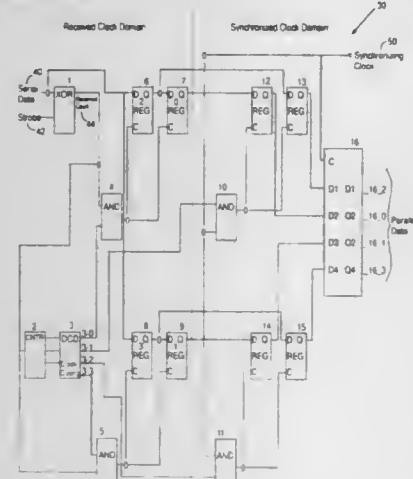
Adrian Stephen Butter, Binghamton; Leonard Ronald Chieco, Hopewell Junction, both of N.Y.; James Paul Kuruts, Forest City, Pa., and Michael Anthony Sorna, Hopewell Jct, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 1, 1996, Ser. No. 740,811

Int. Cl.⁶ H03M 9/00

U.S. Cl. 341—100

20 Claims



1. A serial to parallel data converter comprising:
first, second, third and fourth registers, a data input of said second register being coupled to a data output of said first register, a data input of said fourth register being coupled to a data output of said third register, a data input of said first register and a data input of said third register being coupled to receive serial data;
first means for clocking said first and second registers simultaneously;
second means for clocking said third and fourth registers simultaneously, the first and second clocking means alternating with each other;
fifth, sixth, seventh and eighth registers having respective data inputs coupled to respective data outputs of said first, second, third and fourth registers;
third means for clocking said fifth and sixth registers simultaneously to latch bits 0 and 2, respectively, of a series of four bits; and
fourth means for clocking said seventh and eighth registers simultaneously to latch bits 1 and 3, respectively, of said series of four bits.

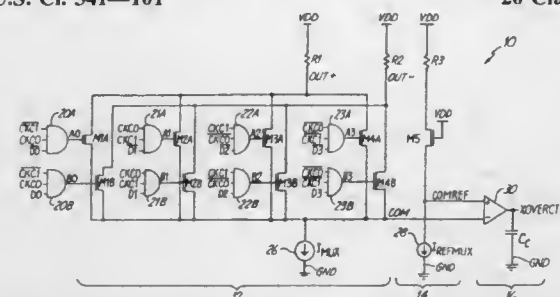
5,805,089
TIME-DIVISION DATA MULTIPLEXER WITH FEEDBACK FOR CLOCK CROSS-OVER ADJUSTMENT
Alan S. Fiedler, Minneapolis, Minn., and Shoba Krishnan, Fremont, Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 21, 1996, Ser. No. 734,691

Int. Cl.⁶ H03M 9/00

U.S. Cl. 341—101

20 Claims



1. A time-division multiplexer with an adjustable clock cross-over voltage, comprising:
a multi-phase clock generator comprising a plurality of select clock outputs with different phases;
a plurality of data inputs;
first and second data outputs;
a first set of gating transistors which is coupled between the first data output and a common node, with each transistor in the first set being gated by a corresponding data input and at least one corresponding select clock output;
a second set of gating transistors which is coupled between the second data output and the common node, with each transistor in the second set being gated by a corresponding data input and at least one corresponding select clock output;
a first current source coupled to the common node;
a reference voltage generator; and
an amplifier comprising a first input coupled to the common node, a second input coupled to the reference voltage generator and a cross-over control output coupled to the plurality of select clock outputs for adjusting cross-over of the select clock outputs.

5,805,090

DISPLACEMENT AMOUNT DETECTION METHOD AND APPARATUS

Makoto Sato, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

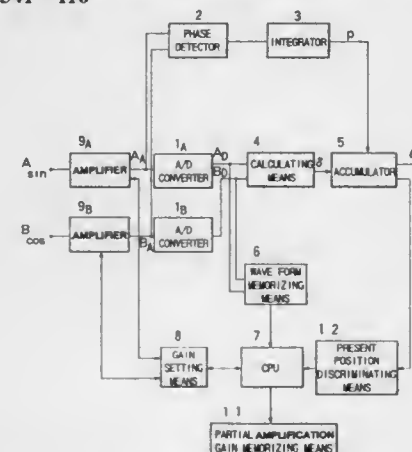
Filed Aug. 10, 1995, Ser. No. 513,620

Claims priority, application Japan, Aug. 24, 1994, 6-222444

Int. Cl.⁶ H03M 1/48

U.S. Cl. 341—116

6 Claims



1. A displacement amount detecting apparatus for detecting an amount of displacement of an object by use of two input signals

having a predetermined phase difference therebetween which are outputted in conformity with the displacement of the object, comprising:

- amplification means which can arbitrarily set amplification gains of the input signals;
- gain memorizing means for dividing the two input signals obtained upon displacement of the object over a predetermined displacement range of the object into a plurality of displacement periods, and memorizing partial amplification gains of said amplification means in units of displacement periods on the basis of signals in the respective displacement periods; and
- control means for selecting the gains memorized in said gain memorizing means and setting the selected gains in said amplification means when said amplification means amplifies the two input signals.

5,805,091

REFERENCE VOLTAGE CIRCUIT

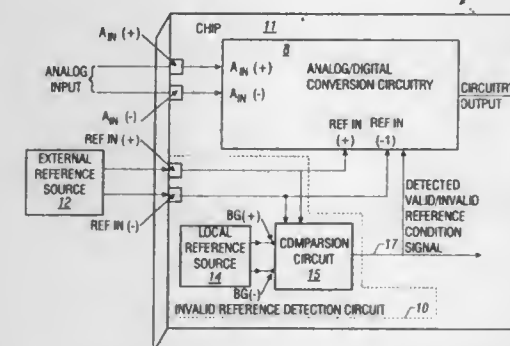
Adrian Sherry, Dublin, and Damien McCartney, Limerick, both of Ireland, assignors to Analog Devices, Inc., Norwood, Mass.

Filed Feb. 12, 1996, Ser. No. 600,314

Int. Cl.⁶ H03M 1/10

U.S. Cl. 341—120

12 Claims



1. An analog to digital conversion system, comprising:
(a) analog to digital conversion circuitry formed on a semiconductor chip for producing digital words in response to an analog signal;
(b) an invalid reference detection circuit, comprising:
reference input terminals formed on the chip, such terminals being adapted for coupling to a reference source external to the chip, such reference terminals being coupled to the conversion circuitry to provide a reference for such conversion circuitry;
a local reference source formed on the chip;
a comparison circuit, formed on the chip, responsive to the local reference source and a condition at the reference input terminals, to detect an invalid condition at at least one of the reference input terminals and to produce an output signal indicative of the detected invalid condition; and
wherein the conversion circuitry includes circuitry for causing one of the produced digital words to be a predetermined value when the comparison circuit output signal indicates detection of an invalid condition at the least one of the reference input terminals.

5,805,092

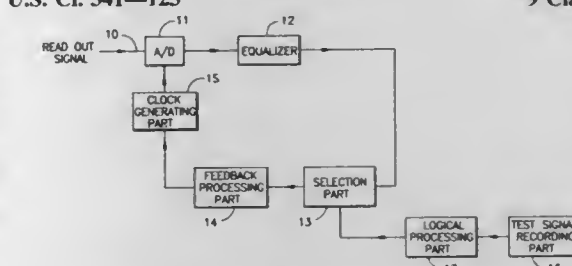
APPARATUS FOR MEASURING A MEMORY DEVICE
Yoshiyuki Yanagimoto, Hyogo, Japan, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 25, 1997, Ser. No. 806,897

Claims priority, application Japan, Feb. 27, 1996, 8-040130
Int. Cl.⁶ H03M 1/00

U.S. Cl. 341—123

9 Claims



1. A synchronous sampling apparatus, comprising:
conversion means for sampling signals read out from a memory medium;
a sampling signal generator for controlling said conversion means;
memory means for storing signals written into the memory medium;
means for logically processing the signals recorded on the memory means;
selection means for selecting samples with phase information from a sample train obtained by a sampling action of said conversion means; and
wherein the selection means is controlled by output signals from said means for logically processing; and
wherein the samples with phase information are fed back from said selection means to control the sampling signal generator, and sampling is thereby achieved that is synchronized with the signals read out from the memory medium.

5,805,093

OVERSAMPLED HIGH-ORDER MODULATOR

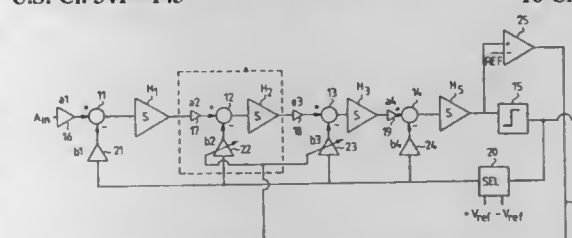
Juha Heikkilä, Oulu, and Lauri Lipasti, Helsinki, both of Finland, assignors to Atmel Corporation, San Jose, Calif.
PCT No. PCT/FI95/00312, § 371 Date Jan. 14, 1997, § 102(e)
Date Jan. 14, 1997, PCT Pub. No. WO95/34955, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 1, 1995, Ser. No. 750,246

Claims priority, application Finland, Jun. 7, 1994, 942679
Int. Cl.⁶ H03M 3/00

U.S. Cl. 341—143

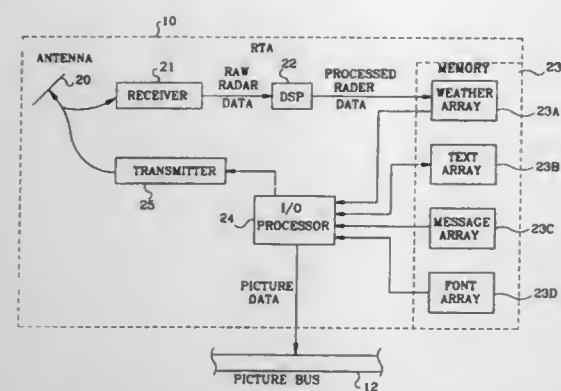
16 Claims



1. An oversampled high-order modulator, especially a sigma-delta modulator, comprising:
cascaded integrators in a number corresponding to the order of the modulator, a quantizer, and a negative feedback from the quantized output of the modulator to the input of at least one integrator;
a means for detecting the unstable mode of the modulator; and
means for restoring the modulator to stable operation, wherein the means for restoring the modulator to stable operation comprises means for temporarily changing a value of said negative feedback to a direction which will restore the stable operation.

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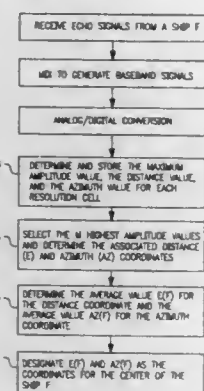
1. A airborne weather radar system comprising:
 - a) a data storage unit having,
 - 1) a weather array containing data representative of weather phenomena detected by a radar receiver,
 - 2) a message array containing alphanumeric data representative of alphanumeric characters to be displayed on an attached radar display device, and,
 - 3) a font array containing bit map data representative of bit maps of said alphanumeric characters; and,
 - b) an I/O processor in communication with said data storage unit, said I/O processor combining data in said message array and data in said font array to yield text data and combining



said text data with the data in said weather array to yield radar picture data which is communicated to a display device using a polar coordinate system.

5,805,101
PROCESS FOR DETERMINING THE POSITION OF A RADAR TARGET
Edeltraud Bodenmueller, Beimerstetten, and Siegfried Vogel, Senden, both of Germany, assignors to Daimler-Benz Aerospace AG, Munich, Germany
PCT No. PCT/EP95/03092, § 371 Date Jan. 17, 1997, § 102(e) Date Jan. 17, 1997, PCT Pub. No. WO96/06366, PCT Pub. Date Feb. 29, 1996
PCT Filed Aug. 3, 1995, Ser. No. 776,048
Claims priority, application Germany, Aug. 18, 1994, 44 29 200.7

U.S. Cl. 342-41 Int. Cl. G01S 13/66 7 Claims

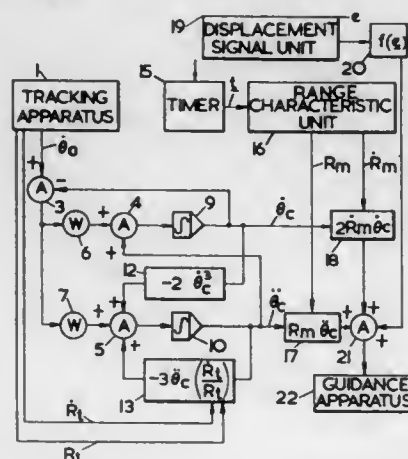


1. A process for determining the position of a radar target extending over several resolution cells, comprising the steps of:
 - (a) mixing echo signals reflected from resolution cells in the baseband so that an amplitude-modulated signal of the radar target is generated;
 - (b) in the baseband, determining amplitude values for at least all associated resolution cells that are associated with the radar target; and
 - (c) determining the position of the radar target, step (c) including:
 - (c-1) in a predeterminable region of each associated resolution cell from which at least one echo signal is received, determining amplitude values which correspond to the echo signal;
 - (c-2) from the amplitude values of each associated resolution cell, determining a maximum amplitude value for the respective associated resolution cell;
 - (c-3) selecting the M largest amplitude values from the maximum amplitude values of all associated resolution cells, with M being a predeterminable, integer, positive number;
 - (c-4) determining distance and azimuth coordinates of the M associated resolution cells having the M largest amplitude values, and

- (c-5) finding mean distance and azimuth values from the distance and azimuth coordinates, the mean values providing coordinates of a reference point which indicates the position of the radar target.

5,805,102
APPARATUS FOR DIRECTING A MOBILE CRAFT TO A RENDEZVOUS WITH ANOTHER MOBILE CRAFT
Eric Heap, Camberley, and Peter John Herbert, Farnham, both of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland
Filed Oct. 31, 1975, Ser. No. 628,190
Int. Cl. G01S 13/72 3 Claims

U.S. Cl. 342-62 3 Claims

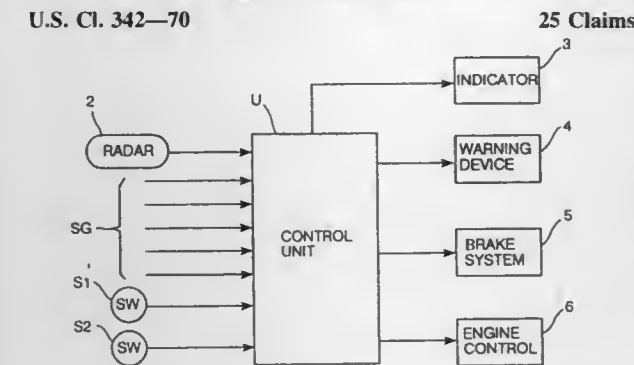


1. Apparatus for directing a first mobile craft to a rendezvous with a second mobile craft which is being guided along a circular arcuate path, comprising: tracking means for establishing a line-of-sight between the control point and the second mobile craft and tracking the said line-of-sight to follow the said second mobile craft and deriving a signal θ_a representing the rate of rotation θ of the said line-of-sight about the control point; monitoring means for deriving a displacement signal representing the displacement e of the first mobile craft from the said line-of-sight, a first range signal representing the range R_m from the control point to the first mobile craft, and a first range rate signal representing the rate of change \dot{R}_m of the range R_m ; ranging means for deriving a second range signal representing the range R_r from the control point to the second mobile craft, and a second range rate signal representing the rate of change \dot{R}_r of the range R_r ; computing means responsive to the signal representing θ_a for deriving representation of quantities θ_a , $[\dot{\theta}]^2 g \dot{v}_c$, $\ddot{\theta}$ tending to become consistent with the equation

$$\ddot{\theta} = -2\theta \cdot 3[\dot{\theta}]^2 g \dot{v}_c (R_r/R_r)$$

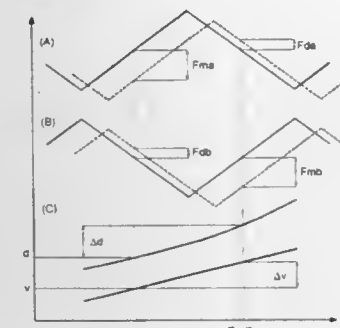
so that $\theta_a = \int [\dot{\theta}]^2 g \dot{v}_c dt$, $[\dot{\theta}]^2 g \dot{v}_c = \ddot{\theta} dt$ and the difference $\theta_a - \theta$ is minimised, the symbol $\int dt$ indicating integration with respect to time; control means for deriving from the aforesaid representation a control signal representing a quantity $f(e) + R_m [\dot{\theta}]^2 g \dot{v}_c + 2\dot{R}_m \dot{\theta}$ wherein $f(e)$ is a predetermined function of e ; and, guidance means for causing the said first mobile craft to develop an acceleration transverse to the said line-of-sight of a magnitude dependent on the said control signal.

5,805,103
METHOD OF AND SYSTEM FOR MONITORING PRECEDING VEHICLES
Ayumu Doi, Hiroki Uemura, Yasunori Yamamoto, Tomohiko Adachi, and Tohru Yoshioka, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan
Filed Sep. 24, 1996, Ser. No. 718,908
Claims priority, application Japan, Sep. 27, 1995, 7-249569
Int. Cl. G01S 13/93 25 Claims



1. A preceding vehicle monitoring system for monitoring driving conditions of a preceding vehicle directly in front of a vehicle, said preceding vehicle monitoring system comprising: distance monitoring means for monitoring an inter-vehicle distance to a preceding vehicle at regular intervals; and driving condition determining means for calculating a change in inter-vehicle distance between every adjacent intervals based on said inter-vehicle distances, detecting predetermined times of consecutive decreases in said change in inter-vehicle distance, detecting a total of said predetermined times of consecutive decreases and determining that said preceding vehicle is in deceleration when said total of said predetermined times of consecutive decreases is greater than a specified threshold decrease in distance.

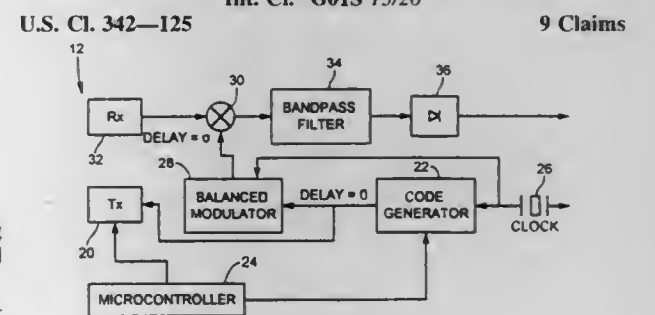
5,805,104
PROCESS FOR MEASURING THE RELATIVE DISTANCE AND SPEED OF AN OBJECT IN RELATION TO A PERIODICALLY FREQUENCY-MODULATED CONTINUOUS WAVE RADAR
Martin Kunert, Geisling, Germany, assignor to Siemens Automotive, S.A., Toulouse, France
Filed May 6, 1996, Ser. No. 643,636
Claims priority, application France, May 5, 1995, 95 05505
Int. Cl. G01S 13/06; 13/58 5 Claims



1. A process for measuring the relative distance and speed of an object in relation to a periodically frequency-modulated continuous wave radar, which comprises: extracting distance and speed by combining beat frequencies derived from a mixture of emitted and reflected signals being respectively obtained during ascending and descending alternations of a modulation; and

calculating distance and speed of an object at each half-period from beat frequencies of two immediately preceding alternations.

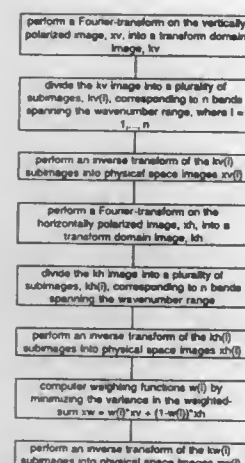
5,805,105
RADIO RANGE FINDER
Michael Coveley, 45 Ironshield Crescent, Thornhill, Ontario, Canada, L3T 3K7
PCT No. PCT/CA95/00325, § 371 Date Feb. 5, 1997, § 102(e) Date Feb. 5, 1997, PCT Pub. No. WO95/33215, PCT Pub. Date Dec. 7, 1995
PCT Filed May 31, 1995, Ser. No. 750,542
Claims priority, application Canada, Jun. 1, 1994, 9410959.2
Int. Cl. G01S 13/26 9 Claims



1. A radio range finder comprising: a code generator for generating a code; a transmitter in communication with said code generator and transmitting a signal modulated using said code, said transmitted signal to be received by a remote transponder; a receiver for receiving a return signal modulated by said code from said remote transponder, said return signal being transponded in response to said transmitted signal; a modulator in communication with said code generator for generating an internal modulated carrier signal generally identical to said transmitted signal; and a processor receiving said modulated return signal and said internal modulated carrier signal, said processor correlating said signals to determine the delay therebetween and generating an output signal proportional to the distance between said remote transponder and said radio range finder.

5,805,106
DUAL POLARIZATION WAVE CLUTTER REDUCTION
Eric Baum, Rancho Palos Verdes, Calif., assignor to TRW Inc., Redondo Beach, Calif.
Filed Jan. 3, 1997, Ser. No. 794,173
Int. Cl. G01S 7/28; 13/50; 13/534 15 Claims

1. A method of reducing clutter in passive radiometric images of the ocean surface, the method comprising the steps of: a. generating a vertically polarized image of a selected patch of the ocean surface, the vertically polarized image comprising a first set of radiance data; b. generating a horizontally polarized image of the selected patch of the ocean surface, the horizontally polarized image comprising a second set of radiance data; c. determining a clutter reduction weighting factor from the first and the second sets of radiance data; i. performing a Fourier-transform on the vertically polarized image, x_v , into a transform domain image, k_v ; ii. dividing the k_v image into a plurality of subimages, $k_v(i)$, corresponding to n bands spanning the wavenumber range, where $i=1 \dots n$; iii. performing an inverse transform of the $k_v(i)$ subimages into physical space images $x_v(i)$; iv. performing a Fourier-transform on the horizontally polarized image, x_h , into a transform domain image, k_h ;



- v. dividing the kh image into a plurality of subimages, kh(i), corresponding to the n bands spanning the wavenumber range;
- vi. performing an inverse transform of the kh (i) subimages; into physical images xh(i); and
- vii. computing weighting factors w(i) by minimizing the variance in the weighted-sums xw: where

$$xw(i) = w(i) * xv + w(i) * xh(i); \text{ and}$$

- (d) combination in the first set of radiance data with the second set of radiance data utilizing the weighting factor to generate combined image written reduced wave clutter.

5,805,107

COST-EFFECTIVE METHOD FOR DETERMINING A PULSE RESPONSE OF A HIGH-RESOLUTION, BAND-LIMITED RADAR CHANNEL

Arno Schroth, Puchheim; Tobias Felhauer, Neu-Ulm, and Walter Baier, Kaiserslautern, all of Germany, assignors to Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V., Köln, Germany

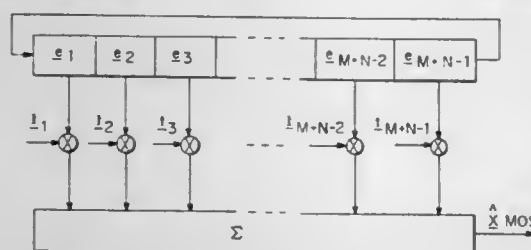
Filed Apr. 18, 1997, Ser. No. 837,602

Claims priority, application Germany, Apr. 18, 1996, 196 15 353.0

Int. Cl.⁶ G01S 7/292

U.S. Cl. 342—189

19 Claims



1. A method for determining a complex impulse response of a high-resolution, band-limited radar channel in a radar station transmitting a binary phase-coded expanded transmitted pulse $a(t)$, the method including
- receiving a complex vector signal e ;
- expanding the transmitted pulse $a(t)$ with respect to bandwidth using a binary complex vector spread code c of length N and a chip duration T_c , from the received signal e ;
- superimposing a complex vector additive interference signal n ;
- performing in a time range covering M range gates of interest according to the spread code c ; and
- modifying the linear optimum estimation by determining a linear optimum unbiased estimation pulse response \hat{x}_{MOS} of the band-limited radar channel according to

$\hat{x}_{MOS} = \hat{A}_E^{-1} \hat{e}$

where the step of determining further comprises forming a complex matrix \hat{A}_E by widening of the rectangular matrix represented by the complex scalar components c_i of the spread code c to form a quadratic matrix that circulates to the right,

forming an inverse estimation matrix \hat{A}_E^{-1} of the matrix \hat{A}_E , and multiplying the inverse estimation matrix by the sampled received signal \hat{e} and to modify the linear, optimum estimation in the channel estimator.

5,805,108

APPARATUS AND METHOD FOR PROCESSING MULTIPLE FREQUENCIES IN SATELLITE NAVIGATION SYSTEMS

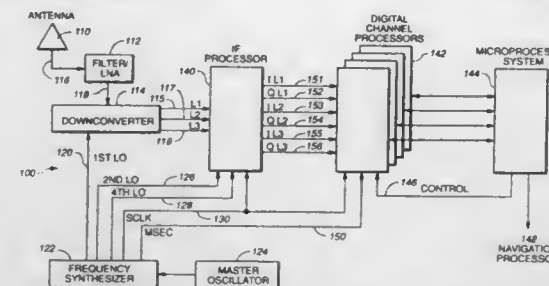
Gary R. Lennen, Cupertino, Calif., assignor to Trimble Navigation Limited, Sunnyvale, Calif.

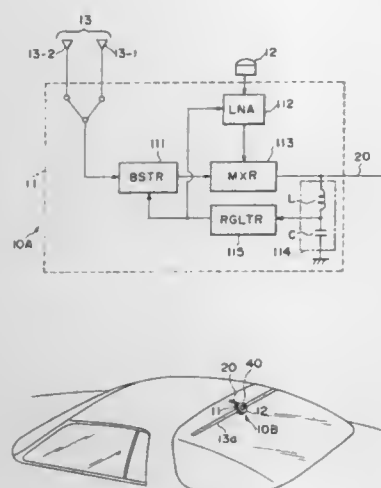
Filed Sep. 16, 1996, Ser. No. 714,188

Int. Cl.⁶ G01S 5/02

U.S. Cl. 342—357

13 Claims





- a first antenna provided on said antenna body for receiving signals from satellites;
- at least one second antenna provided on said antenna body separately from said first antenna for receiving signals transmitted over the earth, the signals having a different frequency band from that of the signals to be received by said first antenna;
- a low noise amplifier provided in the antenna body for amplifying the received signals by said first antenna;
- a booster provided in the antenna body for amplifying the received signals by said second antenna;
- a mixer provided in said antenna body for combining the signals supplied from said first antenna through said low noise amplifier and the signals supplied from second antenna through said booster to output the combined signals as a single output;
- a voltage regulator provided in said antenna body for supplying a predetermined voltage to said low noise amplifier and said booster, respectively, for driving them;
- means for separating the combined signals into the signals received by said first antenna and the signals received by said second antenna, respectively, and then feeding the signals into respective signal receiving units, said separating means being provided separately from said antenna body;
- a single cable which connects said combining means and said separating means to supply the combined signals to said separating means; and
- a noise filter connected to said single cable for acquiring a supply voltage from which a noise is removed and then supplying such noise-free supply voltage to said voltage regulator.

5,805,114 EXPANDED QUADRUPLE-DELTA ANTENNA STRUCTURE

James Stanley Podger, 55 Gradwell Drive, Scarborough, Ontario M1M 2N1, Canada

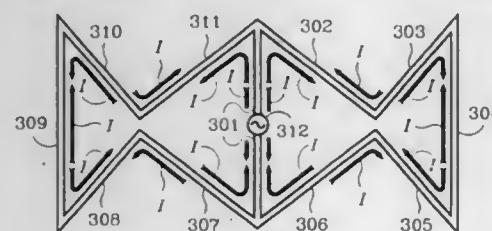
Filed Apr. 2, 1997, Ser. No. 825,922

Claims priority, application Canada, Jun. 18, 1996, 2179331

Int. Cl.⁶ H01Q 11/12

U.S. Cl. 343-742

50 Claims



1. An antenna structure, comprising:

- (a) three approximately parallel conductors, disposed approximately in a plane, separated from each other by approximately equal distances, and aligned so that their centers are approximately on a line that is approximately perpendicular to said approximately parallel conductors;
- (b) two first diagonal conductors, of approximately equal length, connected to the two ends of the proximal approximately parallel conductor, and extended diagonally in said plane toward the first distal approximately parallel conductor, until said first diagonal conductors almost meet each other between said approximately parallel conductors, almost at the line of the centers of said approximately parallel conductors, thereby producing an approximately triangular conductor, comprising said proximal approximately parallel conductor and said first diagonal conductors, which has a perimeter of approximately two wavelengths at the operating frequency;
- (c) two second diagonal conductors, of approximately the same length as said first diagonal conductors, also connected to the two ends of said proximal approximately parallel conductor, and extended diagonally in said plane toward the second distal approximately parallel conductor, until said second diagonal conductors almost meet each other between said approximately parallel conductors, almost at the line of the centers of said approximately parallel conductors, thereby producing a second approximately triangular conductor, comprising said proximal approximately parallel conductor and said second diagonal conductors, which has a perimeter of approximately two wavelengths at the operating frequency;
- (d) two third diagonal conductors, of approximately equal length, but not necessarily the same length as said first or second diagonal conductors, connected from said first diagonal conductors, at the ends where they almost meet, to the two ends of said first distal approximately parallel conductor, without said third diagonal conductors crossing each other, thereby producing a third approximately triangular conductor, comprising said first distal approximately parallel conductor and said third diagonal conductors, which has a perimeter of approximately one and three-quarters wavelengths at the operating frequency;
- (e) two fourth diagonal conductors, of approximately the same length as said third diagonal conductors, connected from said second diagonal conductors, at the ends where they almost meet, to the ends of said second distal approximately parallel conductor, without said fourth diagonal conductors crossing each other, thereby producing a fourth approximately triangular conductor, comprising said second distal approximately parallel conductor and said fourth diagonal conductors, which has a perimeter of approximately one and three-quarters wavelengths at the operating frequency; and
- (f) means for connecting the associated electronic equipment to said antenna structure effectively at the center of said proximal approximately parallel conductor.

5,805,115

ROTARY MICROWAVE ANTENNA SYSTEM

Andrew Pellerin, Salem, N.H.; David Faulkner, Middleton, Mass.; Brian McLaughlin, Windham, N.H., and Ernie Lattanzi, Sarasota, Fla., assignors to Kevlin Corporation, Wilmington, Mass.

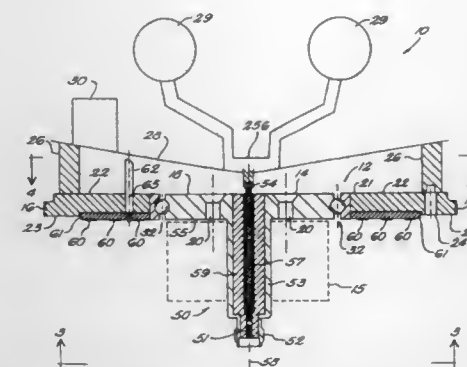
Filed Aug. 1, 1995, Ser. No. 509,799

Int. Cl.⁶ H01Q 3/02; H01P 1/06

U.S. Cl. 343-763

16 Claims

1. A rotary microwave antenna system for transmitting and receiving microwave signals, comprising:
- a stator for attachment to a platform, including a rotating joint coaxial microwave coupler for electrically coupling a microwave signal between a microwave transmission line and a microwave antenna element of a microwave antenna, the microwave antenna also having antenna electronics mounted thereto, the microwave antenna element being rotatable about an axis relative to the stator,



- a rotor for attachment to the microwave antenna, including a slip ring circuit for coupling power and low frequency electrical signals to the antenna electronics, the slip ring including an annular disk positioned around the stator and having a plurality of concentric electrical conducting channels electrically connected to the antenna electronics, the rotor being rotatably coupled to the stator so that the rotor rotates relative to the stator and concentric with the axis of rotation of the microwave antenna element, and
- a plurality of electrical conducting brushes mounted stationary relative to the platform and adjacent to the concentric electrical conducting channels of the slip ring, each brush in movable electrical contact with the concentric electrical conducting channel adjacent thereto, wherein the electrical conducting brushes are electrically connected to power and low frequency electrical signal sources for supplying said power and said low frequency electrical signals to the antenna electronics through the electrical conducting brushes and their adjacent concentric electrical conducting channel.

5,805,116

TWO-FEED FULL DUPLEX TRANSMITTER/RECEIVER FOR ULTRA SMALL-APERTURE SATELLITE COMMUNICATIONS TERMINAL

Steven A. Morley, Escondido, Calif., assignor to Qualcomm Incorporated, San Diego, Calif.

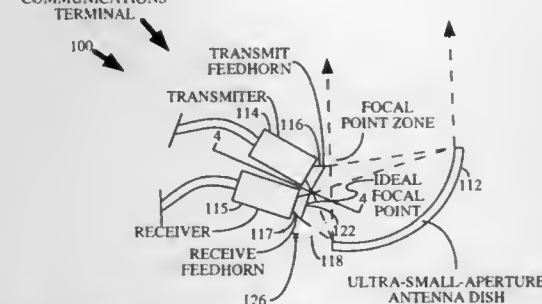
Continuation of Ser. No. 640,299, Apr. 30, 1996, abandoned.

This application Jun. 20, 1997, Ser. No. 880,000

Int. Cl.⁶ H01Q 19/14; 19/12

U.S. Cl. 343-779

40 Claims



1. In a satellite communications terminal having an antenna dish and at least one full-duplex transmitter/receiver device, an improvement comprising:
- providing the at least one of the full-duplex transmitter/receiver device with a means for receiving signals and a separate means for transmitting signals, with said means for receiving signals including a receive feedhorn for receiving signals only and with said means for transmitting including a transmit feedhorn for transmitting signals only, with the receive and transmit feedhorns mounted in relation to the antenna dish with the receive and transmit feedhorns being spatially offset from one another.

5,805,117

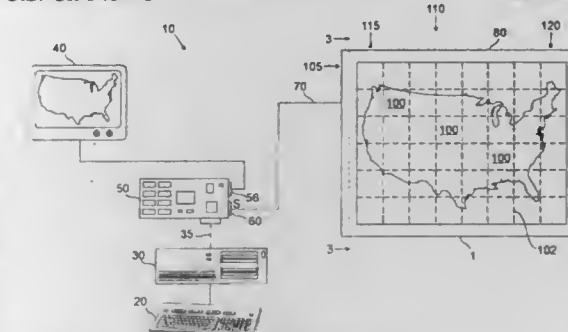
LARGE AREA TILED MODULAR DISPLAY SYSTEM
Niel Mazurek, Huntingdon Valley; Theodore J. Zammit, Ambler, and Thomas C. Maloney, Pittsburgh, all of Pa., assignors to Samsung Electronics Co., Ltd., Seoul, Rep. of Korea

Filed May 12, 1994, Ser. No. 241,599

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345-1

60 Claims



10. A tiled display system comprising:
- an array of display modules;
- a base plate having a first major surface;
- a plurality of module alignment devices, each one of the module alignment devices attaching a respective display module to the first major surface of the base plate; and
- a global cover glass assembly disposed above the display modules, wherein each one of the display modules comprises:
- a light box having a first open side and paired holes on opposite side walls, wherein global light sources can extend into and through the light box through the paired holes;
- a substantially transparent light box cover positioned adjacent the front open side of the light box; and
- a thin seal display panel being positioned proximate a side of the light box cover opposite the light box light box, the thin seal display panel containing an array of picture elements and electrical edge contacts, wherein the thin seal display panel comprises:
- first and second substrates having major surface areas of the substantially the same size;
- a liquid crystal material disposed between major surfaces of the first and second substrates; and
- the thin seal attaching the first and second substrate together and containing the liquid crystal material, the thin seal having a uniform interior edge and an outer edge, the outer edge being substantially in alignment with edges of the first and second substrates, the thin seal being formed by a precision reduction of the substrate edges and seal until the seal is the desired width of the thin seal, wherein the array of picture elements are disposed in a display area formed by sealed area, and the electrical edge contacts, which are electrically connected to the picture elements, are disposed on the edges of the substrates.

5,805,118

DISPLAY PROTOCOL SPECIFICATION WITH SESSION CONFIGURATION AND MULTIPLE MONITORS

Prateek Mishra, Port Jefferson; Donald P. Harrington, Setauket; Arie E. Kaufman, Plainview; Philip M. Lewis, Stony Brook; Stephen D. Shapiro, E. Setauket, and Esther D. Shilcrat, Port Jefferson, all of N.Y., assignors to Research Foundation of the State of New York, Stony Brook, N.Y.

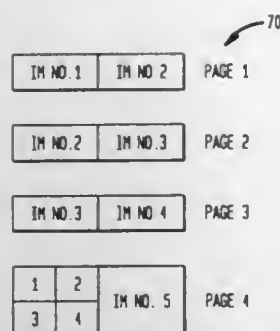
Filed Dec. 22, 1995, Ser. No. 578,882

Int. Cl.⁶ G06F 3/00

U.S. Cl. 345-1

6 Claims

1. A display protocol specification method, comprising the steps of:
- a. selecting a predefined user;
- b. selecting a session type predefined for the selected user;



- c. selecting an image layout predefined for the selected predefined user and session type;
- d. selecting image sets to be placed in the selected image layout;
- e. selecting a work area from available work areas for the selected image set;
- f. selecting one of an in-sync mode and a solo mode for the selected work area;
- g. selecting a workspace type for the selected work area;
- h. selecting an image set mode for the selected work area; and
- i. saving each selection in a file.

5,805,119

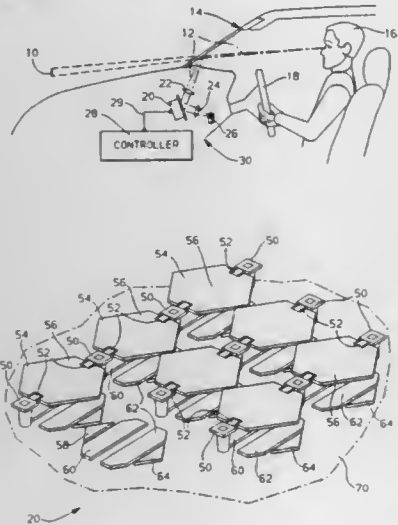
VEHICLE PROJECTED DISPLAY USING DEFORMABLE MIRROR DEVICE

James Christian Erskine, Birmingham, and Dale Lee Partin, Ray, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 13, 1992, Ser. No. 960,148
Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—7

3 Claims

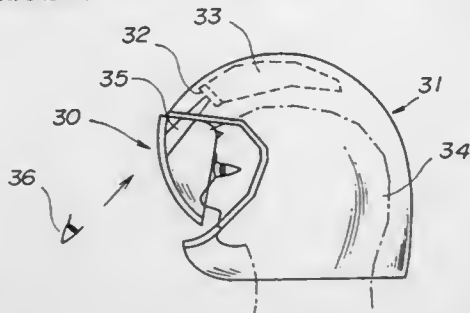


1. A vehicle instrumentation apparatus comprising a deformable mirror device having a matrix of mirrors, each mirror in the matrix individually controllable between at least two states to provide information to a vehicle operator wherein a windshield projects an image of a display created by the deformable mirror device, wherein the image is projected as a double image due to reflection of the image off of both an inside reflecting surface and an outside reflecting surface of the windshield, the apparatus also comprising, means for modulating first mirrors of the array around a periphery of second mirrors of the array generating the display, thereby surrounding the periphery of the second mirrors on the deformable mirror device with the first mirrors that are activated a smaller fraction of the time than the second mirrors are activated, thereby softening the edges of the display and the projected image to reduce perception of the double image by the vehicle operator.

5,805,120
HEAD-UP DISPLAY APPARATUS
Satoshi Yamada, Yokohama, and Eiichi Takuma, Kawasaki, both of Japan, assignors to Sega Enterprises, Ltd., Tokyo, Japan
Continuation of Ser. No. 68,994, May 27, 1993, abandoned.
This application Dec. 23, 1994, Ser. No. 363,971
Claims priority, application Japan, May 29, 1992, 4-163824; Sep. 30, 1992, 4-286649; Sep. 30, 1992, 4-286650
Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—7

12 Claims



1. A head-up display apparatus comprising:
a display device for displaying an image including various items of information; and
a combiner provided in front of a viewer in the viewer's visual field, for allowing an outside image lying in said visual field to be passed through said combiner and for reflecting an image displayed in said display device so that the outside image transmitted through the combiner and the displayed image reflected thereby are integrated to form a virtual image in the same visual field of the viewer.
said combiner having a concave surface facing the viewer and being provided in the immediate proximity of the viewer, with said concave surface being shaped and located at a distance from said device so that said viewer may observe said virtual image at a defined distance from the viewer in which the viewer can recognize the various items of information as a result of said concave surface reflecting the light beam emitted by said display device as if said virtual image is present on the side of said combiner opposite to the side where said viewer is located and at a location far away from said combiner and with
said display device being provided in such a position that the image of said display including said various items of information can be directly observable from the outside through said combiner.

5,805,121

LIQUID CRYSTAL DISPLAY AND TURN-OFF METHOD THEREFOR

John M. Burgan, N. Palm Beach; Jonathon D. Carr, and Carlos A. Sanchez, both of Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 1, 1996, Ser. No. 674,041
Int. Cl.⁶ G09G 3/18

U.S. Cl. 345—51

7 Claims



1. In a liquid crystal display having pixels arranged in rows and columns and coupled to corresponding row and column electrodes, wherein pixels in an active row are selectively turned on by a combination of voltages applied to the row and column electrodes,

and wherein active rows are sequentially enabled once in a time period of one-half cycle, a method of turning on selected pixels in an active row and turning off a selected row of pixels, comprising: applying, to row and column electrodes of the selected pixels, voltages that combine to turn on the selected pixels; and applying, to the row electrode for the selected row, a voltage having a first constant magnitude during a first half-cycle and a second, constant magnitude during a succeeding second half-cycle, the first and second magnitudes being selected such that, when combined with voltages applied to the column electrodes, each pixel in the selected row receives a combined voltage having an average value of substantially zero over a cycle, the combined voltage also having a magnitude that is insufficient to turn on a pixel.

5,805,122

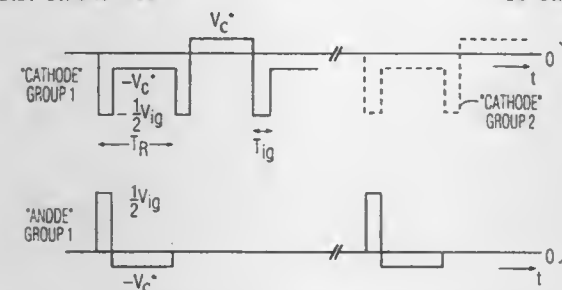
VOLTAGE DRIVING WAVEFORMS FOR PLASMA ADDRESSED LIQUID CRYSTAL DISPLAYS

Petrus Franciscus Gerardus Bongaerts, Waalre; Jacob Bruinink, DC Eindhoven; Adrianus Leonardus Josephus Burgmans, KA Eindhoven; Henri Roger Jules Richard Van Helleputte, BW Eindhoven, all of Netherlands; Babar Ali Khan, Ossining, N.Y., and Karel Elbert Kuijk, MRDommel, Netherlands, assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed Dec. 16, 1994, Ser. No. 359,248
Int. Cl.⁶ G09G 3/36

U.S. Cl. 345—60

16 Claims



1. A method of operating a plasma-addressed display device comprising a layer of electro-optic material, data electrodes coupled to the electro-optic layer and adapted to receive data voltages for activating portions of the electro-optic layer, and a plurality of elongated plasma channels extending generally transverse to the data electrodes for selectively switching on said electro-optic portions, said plasma channels each comprising spaced cathode and anode electrodes and an ionizable gas filling, the cathode and anode electrodes being interconnected in first and second groups such that each of one group include no more than one of the other group.

the method being characterized in that at least during a remaining row time before another channel is ignited, and while the data voltage is being applied to a data electrode, a reference voltage is applied to the electrodes of a group containing an electrode in a selected channel that has been ignited to form a plasma, the reference voltage substantially equal to $\pm V_c^*$, where $V_c^* = \frac{1}{2}(V_{th}^* + V_{sat}^*)$, V_{th}^* is the voltage at which a property of the electro-optical material begins to change and V_{sat}^* is the voltage at which no further significant changes in the property takes place.

5,805,123

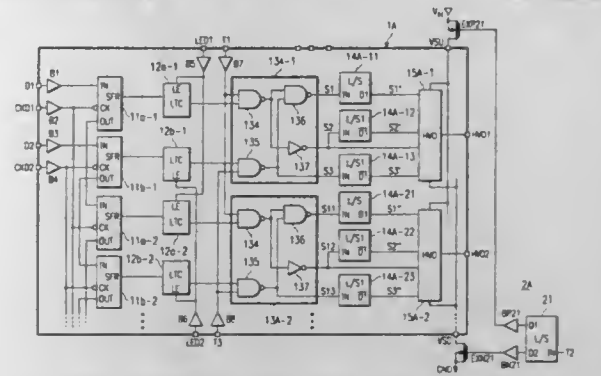
DISPLAY PANEL DRIVING CIRCUIT HAVING AN INTEGRATED CIRCUIT PORTION AND A HIGH POWER PORTION ATTACHED TO THE INTEGRATED CIRCUIT
Toshimi Satoh, Kawasaki; Tohru Hongoh, Yamato, and Toshiyuki Ouchi, Yokohama, all of Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 18, 1996, Ser. No. 617,158

Claims priority, application Japan, Mar. 16, 1995, 7-057696
Int. Cl.⁶ G02F 1/93

U.S. Cl. 345—60

6 Claims



1. A driving circuit for a display panel having a plurality of scan lines comprising:
inputs for a first (V_h) and second (GND) reference potentials, first ($S1$) and second ($S2$) clock signals and first and second pulse signals;
first and second terminals;
a first external transistor ($EXP21$) that couples the second terminal to the first reference potential according to a third pulse signal;
a second external transistor ($EXN21$) that couples the first terminal to the second reference potential by operating in a complementary manner with respect to the first transistor; each scan line driver comprising:
an output terminal (CL);
a first shift register that successively shifts the first pulse signal according to the first clock signal;
a second shift register that successively shifts the second pulse signal according to the second clock signal;
a first transistor ($XPUL$) that couples the output terminal to the first reference potential based on the output of each register;
a second transistor (XSD) that couples the output terminal to the first terminal by operating in a complementary manner with respect to each first transistor; and
a third transistor (XSC) that couples the output terminal to the second reference based on the output of the second shift register.

5,805,124

SYMMETRIC ROW DRIVE FOR AN ELECTROLUMINESCENT DISPLAY

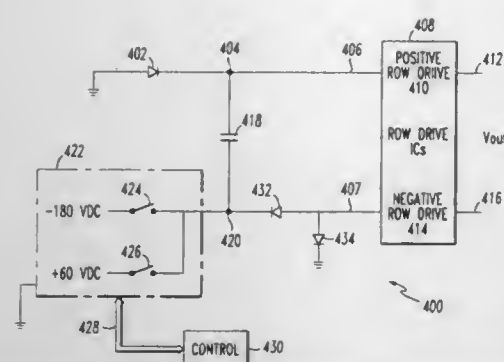
Mohan L. Kapoor, Orange; Thomas J. Rebesch, North Haven; Peter O. Shanaghan, Stratford, and Daniel J. Toffolo, Wilton, all of Conn., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Apr. 4, 1996, Ser. No. 626,898
Int. Cl.⁶ G09G 3/30

U.S. Cl. 345—76

18 Claims

1. A driver circuit for an electroluminescent display panel comprising:
a row driver including positive row drive elements and negative row drive elements;
a first power lead with a first predetermined voltage V_{neg} connected in series through a first switch connection to a first node, said first node connected to a first current limiter to said negative row drive elements;



a second current limiter operably connected between a first fixed potential to a second node, said second node connected to said positive row drive elements;
a third current limiter connected between said negative row drive element and said second fixed potential;
a second power lead with a second predetermined voltage V_{pos} connected in parallel to said first node through a second switch connection; and
a power storage device connected between said first and second nodes;
wherein the voltage across said positive and negative row drive elements is selectable, via predetermined operation of said first and second switch connections, between a) V_{neg} and b) the difference between V_{pos} and V_{neg} .

5,805,125

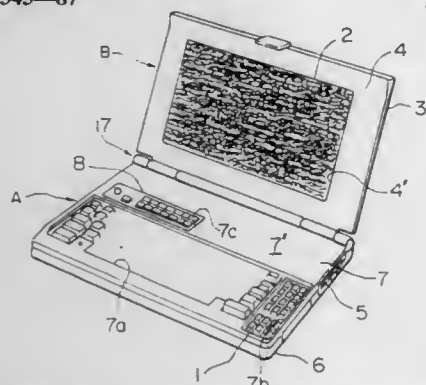
PORTABLE INFORMATION PROCESSING APPARATUS AND LIQUID CRYSTAL DISPLAY DEVICE

Yuzi Suganuma; Shigeru Matsuoka; Kelji Kamio; Yoshihiro Kashiwa, all of Hatachi; Seizi Nogami, Mito; Kouichi Saito, Kitaibaraki; Isao Yamazaki, Hitachi; Hidechika Kigoshi, Kitaibaraki; Naofumi Aoyama; Toru Watanabe, both of Mobara, and Yoshihiro Nozaki, Chiba-ken, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 914,548, Jul. 16, 1992, Pat. No. 5,483,253. This application Jun. 7, 1995, Ser. No. 472,742
Claims priority, application Japan, Jul. 17, 1991, 3-176528; Aug. 29, 1991, 3-218252

Int. Cl.⁶ G09G 3/36

U.S. Cl. 345—87

21 Claims



1. A portable information processing apparatus comprising:
a main body supporting keyboard means, a control circuit board for controlling the whole apparatus and drive means for driving an external storage means; and
display support means pivotally connected to said main body and supporting liquid crystal display means;
said main body including a lower part having a bottom wall and an upper part having a top wall, said drive means being interposed between said bottom wall and said top wall, the portion of said top wall covering said drive means having a first height;
said control circuit board being disposed between said bottom wall and said keyboard means, a stack of said bottom wall,

said control circuit board and said keyboard having a height substantially the same as said first height.

5,805,126

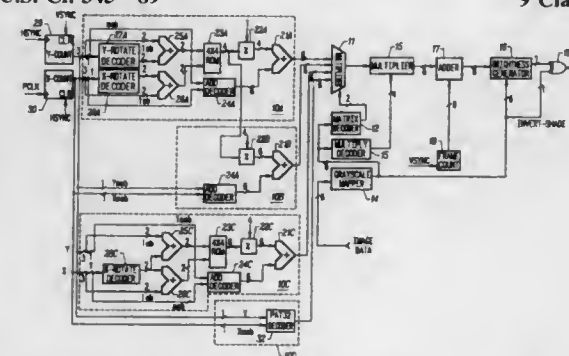
DISPLAY SYSTEM WITH HIGHLY LINEAR, FLICKER-FREE GRAY SCALES USING HIGH FRAMECOUNTS
Chester F. Bassetti, Pleasanton, Calif., assignor to NeoMagic Corporation, Santa Clara, Calif.

Continuation of Ser. No. 238,832, May 5, 1994, abandoned.
This application May 8, 1996, Ser. No. 643,275

Int. Cl.⁶ G09G 3/36

U.S. Cl. 345—89

9 Claims



1. In an improved method for creating gray scale levels for pixels in a display, said method defining a first matrix of adjacent pixels in rows and columns in said display and associating a phase value with each of said pixels for a selected gray scale level for said, pixels, said phase values timing ON/OFF signals at said pixel in a frame time period for said display, the improvement comprising

generating said first matrix from a second matrix of associated phase values including forming quadrants of said first matrix from a second matrix having dimensions smaller than said first matrix, each quadrant of said first matrix being formed by said second matrix by the steps of:

defining said second matrix with preselected phase values, said phase values associated with pixels of said second matrix such that a minimal number of ordered phase values is associated with pixels in all rows and columns of said second matrix;

multiplying said phase values of said second matrix by a first predetermined value, said first predetermined value selected in response to said quadrant of said first matrix;

adding to said phase values of said second matrix a second predetermined value, said second predetermined value selected in response to said quadrant of said first matrix;

rotating rows of said phase values of said second matrix by a third predetermined value, said third predetermined value selected in response to said quadrant of said first matrix; and
rotating columns of said phase values of said third matrix by a fourth predetermined value, said fourth predetermined value selected in response to said quadrant of said first matrix,

associating phase values with said pixels in said second matrix such that a minimal number of ordered phase values is associated with pixels in all rows and columns of said second matrix, flicker substantially reduced and gray scale levels substantially linearized for said display; and

examining said display with a human eye to determine acceptability of said selected gray scale on said display.

5,805,127

MICROCONTROLLER INTERFACING WITH AN LCD
Martin Sonnek, St. Veit/Glan, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

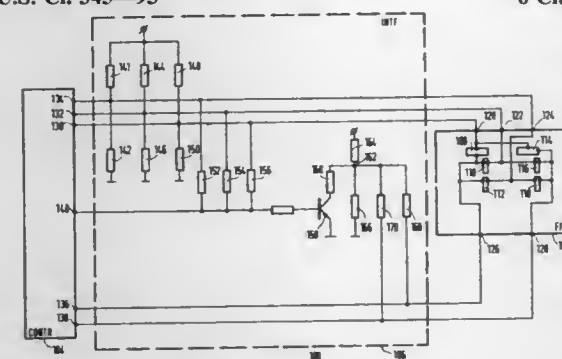
Filed Nov. 6, 1995, Ser. No. 554,121

Claims priority, application European Pat. Off., Nov. 28, 1994, 94203446

Int. Cl.⁶ G09G 3/00

U.S. Cl. 345—95

6 Claims



1. An apparatus, comprising:

a flat panel display having input means for receiving a control voltage for control of an optical state of the flat panel display; control means, coupled to the input means, for providing the control voltage, comprising

a controller having output means for selectively assuming a logic high state, a logic low state or a high-impedance state, and at least one further output means, and

an interface between the input means and the output means, the interface comprising voltage divider means for generating the control voltage, and adaption means coupled between the further output means and the voltage divider means for selectively adapting a voltage division operation of the voltage divider means.

5,805,128

LIQUID CRYSTAL DISPLAY DEVICE

Dong-Gyu Kim, Suwon-Si, and Sang-Soo Kim, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

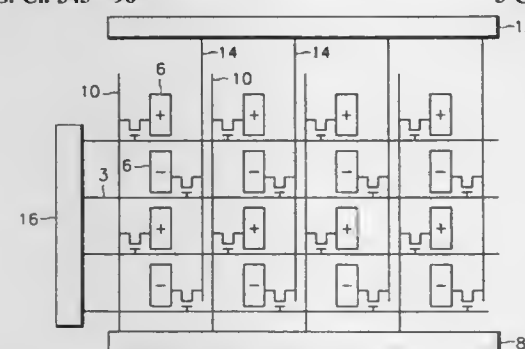
Filed Aug. 23, 1996, Ser. No. 702,158

Claims priority, application Rep. of Korea, Aug. 23, 1995, 1995-26166

Int. Cl.⁶ G09G 3/30

U.S. Cl. 345—96

3 Claims



1. A liquid crystal display comprising:

a plurality of gate lines which are connected to a gate driver and which include odd gate lines and even gate lines;
a plurality of first data lines which are connected to a first source driver and which are separated from each other;

a plurality of second data lines which are connected to a second source driver and which are arranged parallel to the first data lines;

a plurality of thin film transistors, each connected to one of the gate lines and one of the first and the second data lines; and
a plurality of pixel electrodes, each connected to one of the thin film transistors and formed in an area defined by the gate lines and the first or the second data lines;

wherein one of the first data lines is adjacent to a first side of the pixel electrode and one of second data lines is adjacent to a second side of the pixel electrode opposite the first side, and wherein the odd gate lines are connected only to the thin film transistors connected to the first data lines and the even gate lines are connected only to the thin film transistors connected to the second data lines.

5,805,129

INHIBITING TRANSITION OF A SURFACE STABILIZATION STATE IN A FERROELECTRIC LIQUID CRYSTAL ELEMENT USING ALTERNATING VOLTAGES

Yutaka Toaba, Kawaguchi; Shujiro Okada, Hiratsuka; Osamu Taniguchi, Chigasaki, and Hironobu Mizuno, Hiratsuka, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

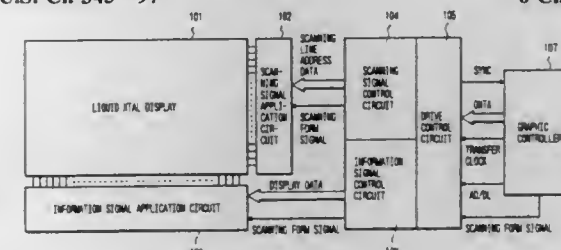
Division of Ser. No. 280,583, Jul. 26, 1994, Pat. No. 5,500,749, which is a continuation of Ser. No. 816,577, Jan. 3, 1992, abandoned. This application Dec. 6, 1995, Ser. No. 568,298

Claims priority, application Japan, Jan. 8, 1991, 3-011529

Int. Cl.⁶ G02F 1/133

U.S. Cl. 345—97

6 Claims



1. A method of driving a liquid crystal element comprising a chiral smectic liquid crystal held between electrode substrates, the liquid crystal exhibiting ferroelectricity and being arranged to create a plurality of surface stabilization states according to an electric field applied through the electrode substrates, said driving method comprising the steps of:

(a) setting the value of an alternating voltage such that the value of an electric field generated by the alternating voltage within a liquid crystal portion between the electrode substances is within a range wherein no transition occurs;

(b) also setting the value of the alternating voltage to be no greater than an upper value which, when applied to the liquid crystal portion, generates a shear stress in the liquid crystal based on the drive force that is equal to the static frictional force between the surfaces of the electrode substrates and the molecules of the liquid crystal at the interface between the liquid crystal and the electrode substrates, so as to prevent the liquid crystal molecules from flowing at the substrate interface; and

(c) applying said alternating voltage between the electrode substrates to the corresponding liquid crystal portion during a period for inhibiting transition of a surface stabilization state.

UMI

1. A method for producing image data representing a picture, comprising the steps of:

- obtaining first sprite producing instructions representative of two-dimensional image data, in which each of said first sprite producing instructions includes a sprite data portion and a sprite tag portion representative of an address location;

obtaining polygonal producing instructions representative of three-dimensional image data, in which each of said polygonal producing instructions includes a polygonal data portion and a polygonal tag portion representative of an address location which is similar to a respective sprite tag portion; producing second sprite producing instructions based on the polygonal producing instructions; obtaining Z-data corresponding to depths of respective surfaces and performing a Z-sorting operation by utilizing said Z-data for assigning image data producing priorities so as to determine a data production order for the first and second sprite producing instructions; producing image data by executing the first and second sprite producing instructions in said data production order corresponding to the assigned image data producing priorities, the image data including a plurality of pixels each having a corresponding image location; and storing the plurality of pixels of the produced image data in a memory such that first pixels produced after second pixels having corresponding image locations overwrite the second pixels.

5,805,136
INTERMINGLING SUBPIXELS IN DISCRETE LEVEL
DISPLAYS

Kia Silverbrook, Leichhardt, Australia, and William Clark Naylor, Jr., Santa Clara, Calif., assignors to Canon Kabushiki Kaisha, Tokyo, Japan

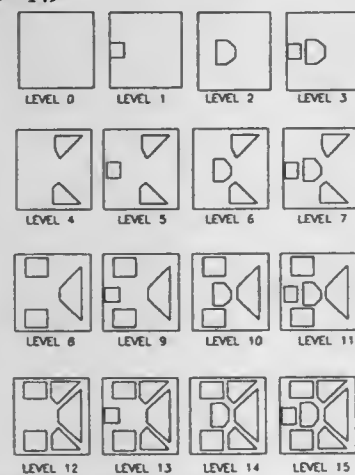
Continuation of Ser. No. 402,493, Mar. 13, 1995, abandoned.
This application Jun. 20, 1997, Ser. No. 879,894

Claims priority, application Australia, Mar. 11, 1994,
PM4404

Int. Cl.⁶ G09G 5/10

U.S. Cl. 345—149

24 Claims

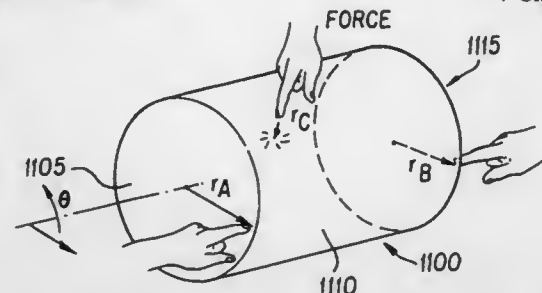


1. A pixel layout arrangement for a discrete level display, said arrangement comprising a multiplicity of pixels, each said pixel comprising a plurality of independently illuminable areas each adapted to display a respective one of a multiplicity of discrete illumination levels, each said illuminable area being a member of a group of like intensity, said intensity being substantially proportional to the size of each said illuminable areas, each said pixel having at least three of said groups wherein at least one of the more intense ones of said groups has a plurality of said illuminable areas, and the illuminable areas of said one group are irregularly spaced apart and are substantially non-concentrically interspersed amongst the illuminable areas of at least one other of the more intense ones of said groups.

5,805,137
TOUCH SENSITIVE INPUT CONTROL DEVICE
Taizo Yasutake, Sunnyvale, Calif., assignor to ITU Research,
Inc., Cupertino, Calif.
Division of Ser. No. 798,572, Nov. 26, 1991, Pat. No.
5,335,557. This application May 5, 1994, Ser. No. 238,428
Int. Cl. G09G 5/08

U.S. Cl. 345—156

7 Claims



1. A cylindrical controller for providing control signals in a cylindrical coordinate system having Z coordinates, angle coordinates, and radial coordinates, the controller being shaped substantially as a cylinder having a circumference positioned between two ends, the controller comprising a plurality of force sensitive sensors, wherein a first sensor is mounted about at least a portion of the circumference of the cylinder and a second sensor is mounted on one of the ends of the cylinder, the sensors providing radial information in response to the radial position of a first force applied to the end of the cylinder, providing Z information in response to the Z position of a second force applied to the circumference of the cylinder, and for providing angle information in response to the angular position of the second force about the circumference of the cylinder.

5,805,138
GROSS MOTION INPUT CONTROLLER FOR A
COMPUTER SYSTEM

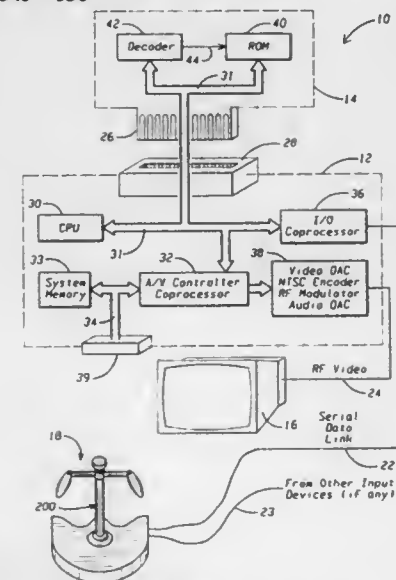
Nicholas Brawne, Columbus, Ohio; James Lee Combs, Cary, N.C.; Elizabeth B. N. Sanders, Columbus, Ohio, and James Alan Strothmann, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 475,216

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—156

20 Claims



1. An input device comprising:
 - (a) a rigid support member having sufficient size to accommodate use by a human being for sitting;

- (b) a riser member having a vertical height and an inner space, said vertical height approximating an individual's sitting height;
- (c) a connection device for connecting said riser member to said rigid support member;
- (d) a transducer device in physical communication with said riser member for sensing said riser member motion and for conveying said riser motion to a computer in the form of representative electrical signals; wherein said transducer device comprises at least one position sensor located in said inner space of said riser member; and
- (e) a resilient device in physical communication with said inner space of said riser member and for maintaining said riser member in a predetermined position relative to said rigid support member when said riser member is not subject to external forces.

5,805,139
COMPUTER SYSTEM WITH STANDARD BUILT-IN
POINTING DEVICE, WHICH IS CONNECTABLE TO
OPTIONAL EXTERNAL POINTING DEVICE

Keiichi Uehara, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

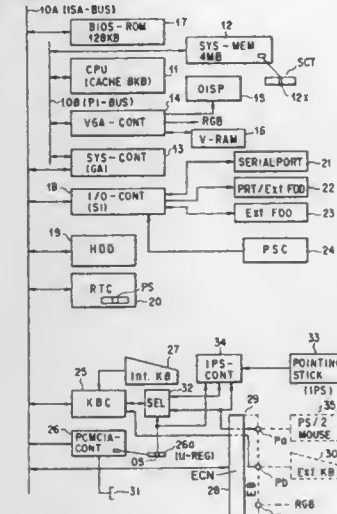
Continuation of Ser. No. 282,551, Jul. 29, 1994, abandoned.

This application Nov. 27, 1996, Ser. No. 756,601

Claims priority, application Japan, Jan. 31, 1994, 6-009779
Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—156

8 Claims



1. A computer to which an external pointing device can be selectively connected, comprising:

- an internal pointing device;
- means for detecting whether the external pointing device is electrically connected to the computer, wherein the external pointing device is a computer mouse;
- means for storing one of a first mode data indicating both the internal pointing device and the external pointing device are enabled and a second mode data indicating that the internal pointing device is disabled and the external pointing device is enabled when the external pointing device is detected or that the internal pointing device is enabled when the external pointing device is not detected;

a pointing device controller, electrically coupled to the internal pointing device, including a first port which is electrically coupled to the external pointing device when the external pointing device is connected to the computer and a second port; the controller being enabled when the first mode data is set in the storing means, or when the second mode data is set in the storing means and the detecting means detects the external pointing device is not connected to the computer;

the first port inputting data from the external pointing device, the second port outputting data from the external pointing device or the internal pointing device when the controller is enabled;

5,805,140
HIGH BANDWIDTH FORCE FEEDBACK INTERFACE
USING VOICE COILS AND FLEXURES

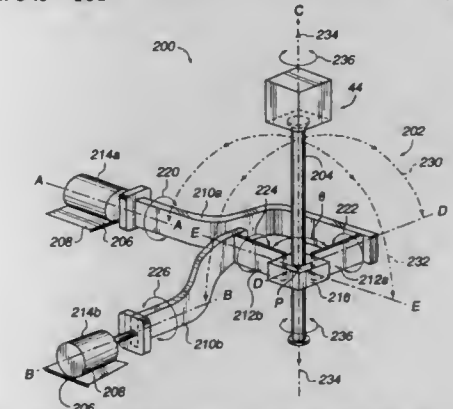
Louis B. Rosenberg, Pleasanton, and Bruce M. Schena, Menlo Park, both of Calif., assignors to Immersion Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 461,170, Jun. 5, 1995, Pat. No. 5,576,727, which is a continuation of Ser. No. 92,974, Jul. 16, 1993, and a continuation-in-part of Ser. No. 374,288, Jan. 18, 1995. This application Nov. 17, 1995, Ser. No. 560,091
Int. Cl.⁶ G09G 5/08; G06F 3/033

U.S. Cl. 345—161

U.S. Cl. 345—161 79 Claims

79 Claims



1. An interface apparatus, for interfacing motion of a user manipulable object with an electrical system, said interface apparatus comprising:

- a user object being physically contacted by a user;
- a gimbal mechanism coupled to said user object and providing at least two degrees of freedom to said user object, said gimbal mechanism including a plurality of members, wherein a selected number of said plurality of members are formed as a unitary member in which flex is provided between said selected number of members;
- an actuator coupled to said gimbal mechanism for applying a force along a degree of freedom to said user object through said unitary member, wherein said actuator applies said force in response to electrical signals produced by said electrical system; and
- a sensor for detecting a position of said user object along said degree of freedom and outputting sensor signals to said electrical system;

whereby said actuator and said sensor provide an electromechanical interface between said user object and said electrical system.

ing a vibration on a vibration transfer plate, according to said vibration transfer plate and a delay time detected at a plurality of points by vibration sensors from the vibration input onto said vibration transfer plate by said vibration input pen, said coordinate input apparatus comprising:

standard-signal outputting means for outputting a standard signal according to a signal output from said vibration sensors; reference-signal generating means for converting said standard signal to a reference signal by attenuating said standard signal at a specified attenuation rate and adding a specified offset; time-difference generating means for generating a relative time difference between said standard signal and said reference signal;

gate-signal outputting means for outputting a gate signal by detecting a portion where said standard signal having a time difference caused by said time-difference generating means exceeds said reference signal;

first measuring means for measuring a group-delay time according to a delay speed of said vibration by detecting a specified point of the detected signal during a period of said gate signal and by using said specified point as a reference; and providing means for providing the position coordinates of the vibration input pen according to said group-delay time measured by said first measuring means.

5,805,148

MULTISTANDARD VIDEO AND GRAPHICS, HIGH DEFINITION DISPLAY SYSTEM AND METHOD

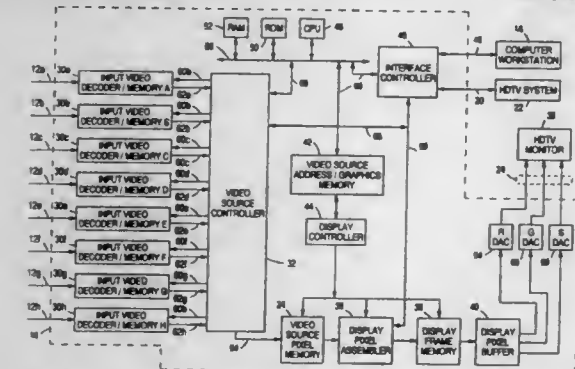
Kumar B. Swamy, Milpitas; Patrice J. Capitani, Los Altos; Michael T. Mackay, Vallejo, and Vinson R. Perry, San Carlos, all of Calif., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics, Inc., Park Ridge, N.J.

Continuation of Ser. No. 818,744, Jan. 7, 1992, abandoned, which is a continuation of Ser. No. 513,808, Apr. 24, 1990, abandoned. This application Dec. 6, 1995, Ser. No. 567,854

Int. Cl.⁶ G09G 5/36

U.S. Cl. 345—189

14 Claims



1. An improved video and graphics signal storage and display system of the type including video signal receiving and storage circuits, wherein the improvement comprises:

video signal decoder and digitizer means, included within the receiving and storage circuits, for receiving and decoding a plurality of video signals into their corresponding RGB signal components and for digitizing and storing the RGB signals;

a source of graphics data signals;

graphics data storage means connected to the graphics data signal source for storing the graphics data signals;

display signal selector and arranger means for selectively retrieving a plurality of stored signals from among the stored RGB signals and the stored graphics data signals, and for arranging and re-storing the selectively retrieved RGB and graphics data signals in a selected display-mapped pattern, and further for further retrieving and re-storing the re-stored RGB and graphics data signals in the selected display-mapped pattern for unconditional, independent, simultaneous retrieval and display of all of the RGB and graphics data signals in the selected display-mapped pattern.

5,805,149

DISPLAY CONTROL DEVICE AND DISPLAY APPARATUS WITH DISPLAY CONTROL DEVICE

Osamu Yuki, Atsugi, and Hiroshi Inoue, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 967,391, Oct. 28, 1992, abandoned.

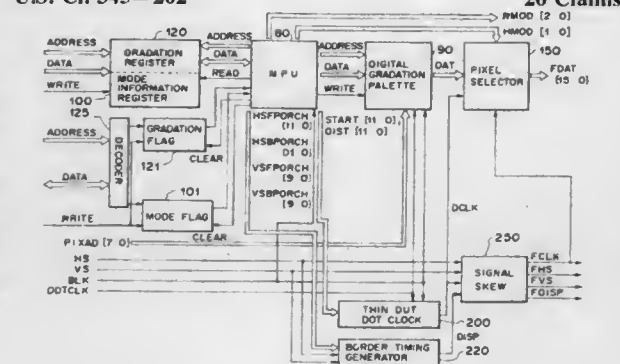
This application Nov. 4, 1994, Ser. No. 337,456

Claims priority, application Japan, Oct. 28, 1991, 3-307151

Int. Cl.⁶ G09G 5/00

U.S. Cl. 345—202

26 Claims



1. A device for processing first image data, corresponding to a first number of pixels on a display, to display second image data corresponding to a predetermined second number of pixels on said display, said device comprising:

thinning out means for receiving a series of plural clock pulses synchronized with the first image data, and for outputting a series of thinned out clock pulses formed by thinning out the series of received clock pulses at a compression ratio, thereby compressing the first image data, wherein said compression ratio is not $1/2^n$, n being a natural number; and

extension means for extending the compressed first image data in an extension ratio, wherein said extension ratio is 2^n , so that one pixel of the compressed first image data is extended to correspond to 2^n of the pixels of the display.

5,805,150

SYNCHRONOUS SIGNAL SEPARATION CIRCUIT

Hironari Nishino, Fujisawa; Hirokazu Nishimura, Sagami-nara, and Masayuki Sohma, Yamato, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 22, 1995, Ser. No. 532,125

Claims priority, application Japan, Sep. 22, 1994, 6-227838

Int. Cl.⁶ G04G 5/00

U.S. Cl. 345—213

7 Claims

1. A synchronous signal separation circuit for separating and fetching a synchronous signal from a video signal to which the synchronous signal has been added, comprising:

an amplifier for amplifying a voltage of the video signal to output an amplified signal having an amplified voltage which is within a predetermined dynamic range; and

a synchronous signal fetch means which, by comparing the amplified voltage with a threshold voltage adjusted based on

5,805,152

VIDEO PRESENTATION SYSTEM

Toyooki Furusawa, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

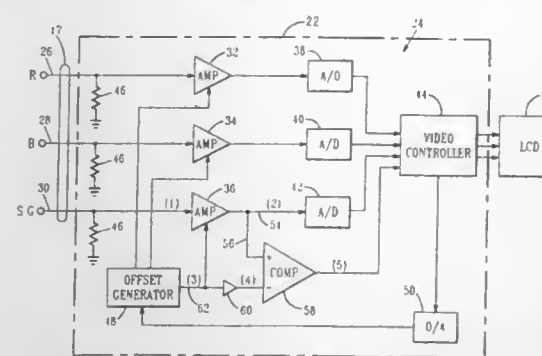
Filed Sep. 8, 1995, Ser. No. 525,170

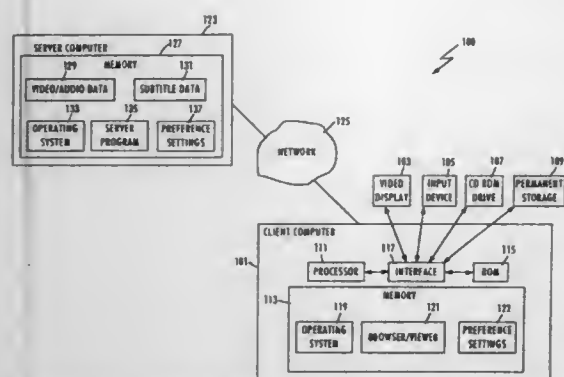
Claims priority, application Japan, Dec. 20, 1994, 6-316113

Int. Cl.⁶ G06T 1/00

U.S. Cl. 345—302

12 Claims





in response to receiving the request, retrieving the requested video data and retrieving subtitle data associated with the video data;
sending the retrieved video data at reduced resolution and the retrieved subtitle data from the server computer to the client computer as two separate streams of data;
receiving the two streams of data at the client computer;
displaying the received video data in a first area;
retrieving information stored on the client computer on a preferred font size in which to render the subtitle data to at least partially compensated for the reduced resolution; and
displaying the subtitle data in the preferred font size in a second area, whereby the subtitle data in said second area is resized separately from the video data displayed in the first area.

5,805,154

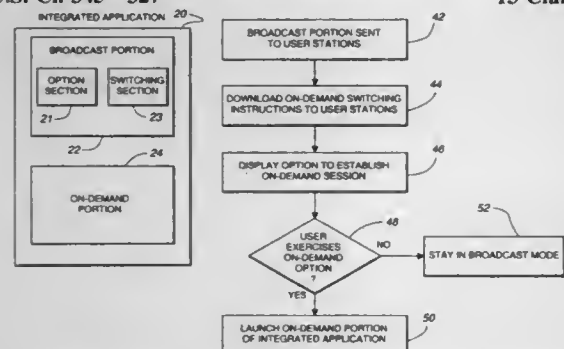
INTEGRATED BROADCAST APPLICATION WITH BROADCAST PORTION HAVING OPTION DISPLAY FOR ACCESS TO ON DEMAND PORTION

Ralph W. Brown, Boulder, Colo., assignor to Time Warner Entertainment Co. L.P., Stamford, Conn.

Filed Dec. 14, 1995, Ser. No. 572,143

Int. Cl.⁶ H04N 7/14; H04H 1/02

U.S. Cl. 345—327



1. A method for providing an interactive integrated application, having a broadcast portion and an on-demand portion, to a user station via a communication network, the method comprising the following steps:

broadcasting the broadcast portion of the application to a plurality of user stations from an application source via a first channel on the communication network, the broadcast portion having an interactive option embedded in the broadcast portion, said option for display with the broadcast portion at a user station to provide the user station an option to request the on-demand portion of the application;

displaying at the user station the interactive option along with the broadcast portion;

establishing via a second channel an interactive communication session between the on-demand portion of the integrated application and a user station in response to the user station exercising the interactive option in the broadcast portion; and transmitting information between the application source and the user station interactively within the communication session.

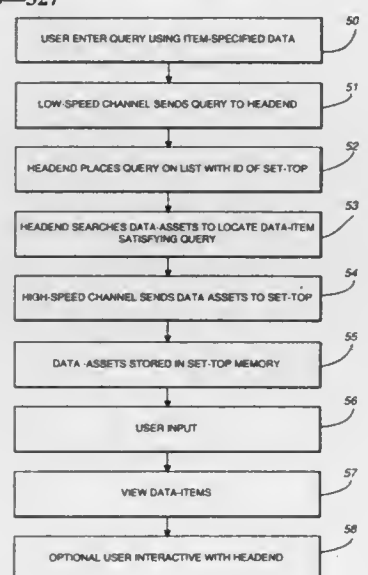
**5,805,155
VIRTUAL ASSETS IN AN INTERACTIVE TELEVISION CABLE SYSTEM**

Nizar Allibhoy, Northridge; Joseph George Buehl, Van Nuys, and Joe Edmonds, Los Angeles, all of Calif., assignors to Time Warner Entertainment Co. L.P. Time Warner Cable, Stamford, Conn.

Filed Apr. 15, 1997, Ser. No. 834,241

Int. Cl.⁶ H04N 7/14

U.S. Cl. 345—327



31 Claims

1. In an interactive TV cable network having a headend that is connected to a plurality of set-top terminals by way of a forward-channel that enables headend-to-set-top communication, each of said set-top terminals including a TV set that is connected thereto, each of said set-top terminals being connected to said headend by way of a reverse-channel that enables set-top-to-headend communication, and said headend including memory-storage that contains a plurality of data-assets, each data-asset of which includes a plurality of individual data-items, an arrangement enabling set-top terminals to query said headend for a data-item, comprising:

query establishing apparatus at each of said set-top terminals enabling a given set-top terminal to formulate an attribute-descriptor of a data-item;

transmitting apparatus at each of said set-top terminals for transmitting said attribute-descriptor from said given set-top terminal to said headend by way of said reverse-channel;

searching apparatus at said headend for searching said memory-stored data-assets, and forming a list memory-store of query-related data-assets that contain one or more data-items that satisfy said attribute-descriptor transmitted by said given set-top terminal;

transmitting apparatus at said headend for transmitting said query-related data-assets to all of said set-top terminals and addressed to said given set-top terminal;

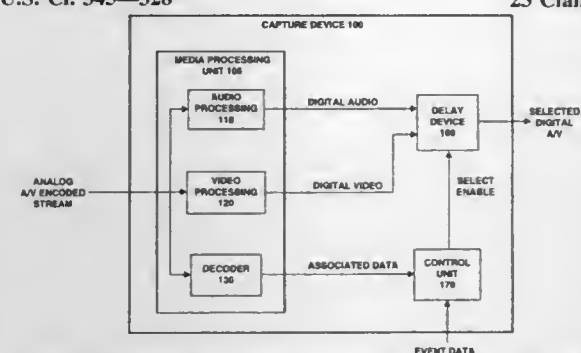
receiving apparatus at each of said set-top terminals enabling said given set-top terminal to memory-store said query-related data-assets; and

updating apparatus at said headend for updating said list memory store as said memory-stored data-assets at said headend are periodically changed in relation to said query attribute-descriptor.

**5,805,156
AUTOMATED MEDIA CAPTURING SYSTEM**
Michael S. Richmond, and James M. Butler, both of Beaverton, Oreg., assignors to Intel Corporation, Santa Clara, Calif.
Continuation of Ser. No. 308,754, Sep. 19, 1994, abandoned.
This application Feb. 10, 1997, Ser. No. 797,859Int. Cl.⁶ G06F 15/00

U.S. Cl. 345—328

23 Claims



1. An apparatus for selecting portions of a stream of media signals, the stream of media signals having content data encoded with associated data, the apparatus comprising:

a media processing unit for receiving the stream of media signals and decoding the media signals to recover the encoded associated data as the stream of media signals is received;
a delay device for receiving and reusably storing up to a predetermined length of the stream of media signals received at any one point in time, and outputting the stored predetermined length of the stream of media signals whenever an output enable is received; and

a control device, responsive to the media processing unit and an external source, for receiving event data and the associated data, and generating the output enable whenever a predetermined relationship between the associated data and the event data is detected.

5,805,157

MOBILE CLIENT COMPUTER WITH HEXAGONAL KEYBOARD

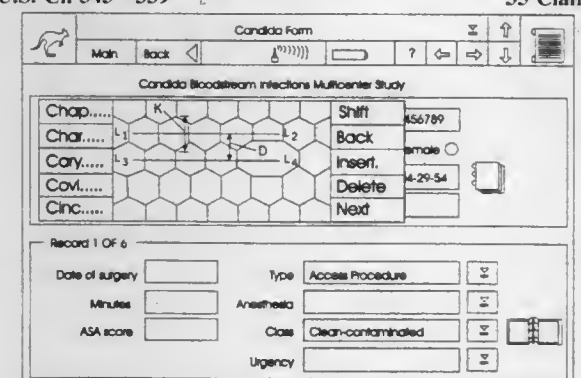
Randal Lee Bertram, Raleigh; David Frederick Champion, Durham, and Lisa Salcedo Eichorn, Wake Forest, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 12, 1996, Ser. No. 700,608

Int. Cl.⁶ G06F 3/00

U.S. Cl. 345—339

35 Claims



1. A mobile client computer comprising:

a housing sized to be held in and manipulated by the hand of a user;

a processor mounted within said housing for processing digital data;

memory mounted within said housing for storing digital data and coupled to said processor;

a display mounted in said housing coupled to said processor and said memory for displaying information derived from digital data processed by said processor;
an input digitizer mounted in said housing and overlaying said display, said input digitizer being coupled to said processor for enabling input of digital data by a user; and
a control program stored in said memory accessible by said processor for directing the processing of digital data by said processor;
said control program and said processor cooperating, when said control program is executing on said processor, in displaying a keyboard formed by a plurality of adjoining hexagonally shaped cells, each cell defining a selectable input.

5,805,158

COPYING PREDICTED INPUT BETWEEN COMPUTER SYSTEMS

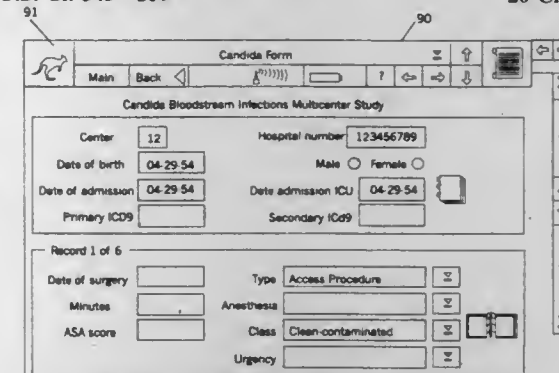
Randal Lee Bertram, Raleigh; Peter James Brittenham, Apex, and David Frederick Champion, Durham, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 22, 1996, Ser. No. 706,990

Int. Cl.⁶ G06F 3/00

U.S. Cl. 345—339

20 Claims



1. An information handling system comprising:

A) a mobile client computer system having,

a housing sized to be held and manipulated by the hand of a user;

a client processor mounted within said housing for processing digital data;

client memory mounted within said housing for storing digital data and coupled to said client processor;

a display mounted in said housing and coupled to said client processor and said client memory for displaying information derived from digital data processed by said client processor;

an input digitizer mounted in said housing and overlaying said display, said digitizer being coupled to said client processor for input of digital data by a user; and

a control program stored in said client memory and accessible by said client processor for directing the processing of digital data by said client processor;

said control program and said client processor cooperating, when said control program is executing on said client processor, in

a) displaying a form defining data fields; and

b) exercising a predictive widget that predicts a data entry for a data field based on factors including frequency and recency of predetermined and prior data entries to supply a data entry for a defined data field;

B) a data repository system having,

a repository processor;

repository memory operatively connected with said repository processor; and

a data distributing program stored in said repository memory accessible to said repository processor.

said data distributing program and said repository processor cooperating, upon execution of said data distributing program

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1. A portable user interface comprising:
 - a user display having a display area that is too small to simultaneously display all of the individual properties of a data record in a way that is easily understandable by a user;
 - a plurality of displayed field labels on the user display;

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a pop-up list box associated with a particular one of the displayed field labels, the pop-up list box being selectively overlaid on the displayed field labels in response to a user's selection;

the pop-up list box containing a plurality of available field labels that can be alternatively selected by the user as the displayed field label, wherein the field labels correspond respectively to different stored properties;

a data entry field corresponding to said particular one of the displayed field labels, the data entry field being displayed on the user display simultaneously with the plurality of displayed field labels, the data entry field being selectable by a user to enter a value for the stored property corresponding to the displayed field label;

the pop-up list box further containing an indication of any existing values for the stored properties corresponding to the available field labels, said indication clarifying to the user that the available field labels correspond respectively to different stored properties.

5,805,165

METHOD OF SELECTING A DISPLAYED CONTROL ITEM

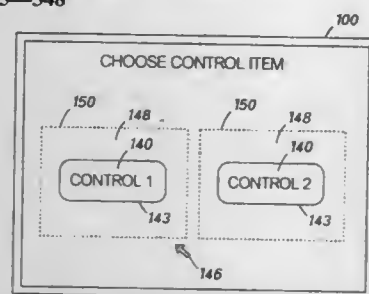
Edwin Thorne, III, Seattle, and Patrick Michael Volk, Kirkland, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Aug. 31, 1995, Ser. No. 521,963

Int. Cl.⁶ G06F 15/00

U.S. Cl. 345—348

22 Claims



1. In a computer controlled system, a method of indicating that a control item on a display screen may be selected by a selection mechanism used in conjunction with a pointing device, comprising the steps of:

displaying a control item within a first boundary visible on said display screen;

defining an activating area outside of said first boundary; responsive to activation of said pointing device, providing a position signal corresponding to the instantaneous position of a cursor on said display screen; and

in response to the position signal being within said activating area, providing an indication of at least said control item that said control item is available for selection by said selection mechanism by assigning focus to said control item.

5,805,166

SEGMENTED STATUS AREA FOR DYNAMICALLY REPORTING STATUS IN A DATA PROCESSING SYSTEM

George E. Hall, Jr., Hillsborough, and Mark Edward Molander, Cary, both of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Aug. 23, 1996, Ser. No. 701,921

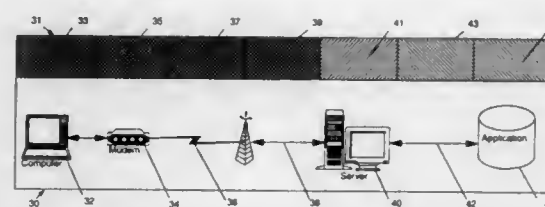
Int. Cl.⁶ G06F 3/14; 17/00

U.S. Cl. 345—349

59 Claims

1. A method of providing dynamic status to a user, the method comprising:

displaying a plurality of icons arranged in a pattern corresponding to the relationship between the items the icons represent;



displaying a segmented status line adjacent the plurality of icons comprising a plurality of linearly arranged status segments wherein each segment of the status line corresponds to at least one of said plurality of icons such that the appearance of a segment of the segmented status line reflects the status of the item associated with the icon corresponding to the segment of the status line and wherein the status segment corresponding to an icon is aligned with its corresponding icon such that the sequence of the segments of the status line corresponds to the relationship between the items represented by said icons;

revising the appearance of a segment of the segmented status line as the status of the item corresponding to the segment of the status line changes;

acquiring user input indicating whether the plurality of icons are to be displayed;

removing the plurality of icons from the display when said acquiring step acquires user input indicating that the plurality of icons are not to be displayed.

5,805,167

POPUP MENUS WITH DIRECTIONAL GESTURES

Izak van Cruyningen, 254B College Ave., Palo Alto, Calif. 94306-1511

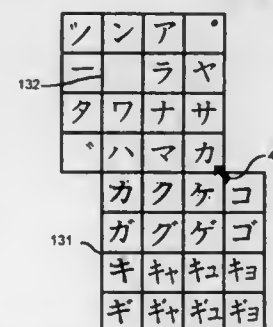
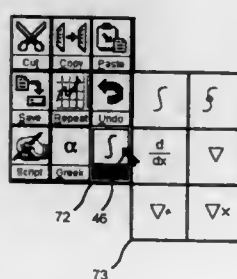
Continuation of Ser. No. 310,838, Sep. 22, 1994, abandoned.

This application Oct. 30, 1996, Ser. No. 739,611

Int. Cl.⁶ G06F 3/00

U.S. Cl. 345—353

11 Claims



11. An operator interface apparatus for selecting from a plurality of commands in a computer having a processor, a memory, a display, an input device for controlling the position of a cursor on said display, a trigger operable between an engaged position and a disengaged position, and a default menu containing application commands common to many different applications, said default menu having a plurality of menu items arranged in a rectangular array having a plurality of rows and columns, each of said menu items being associated with a different command, comprising:

trigger event detecting means for detecting a trigger event, said trigger event including a last event comprising an engagement of said trigger;

command searching means responsive to said trigger event detecting means for automatically searching the currently active application for command identifiers associated with command names in said default menu;

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1979

displaying means for displaying said default menu when updated with command identifiers determined by said command searching means;

tracking means for tracking said cursor when said cursor is moved across said menu items;

defining means for defining a menu item at the position of said cursor as a current menu item;

highlighting means for highlighting said current menu item;

trigger disengagement detecting means for detecting a first disengagement of said trigger since said engagement; and

activating means responsive to said trigger disengagement detecting means for activating the command associated with said current menu item.

5,805,168

APPARATUS AND METHOD FOR CONVERTING LINE SEGMENT DATA TO THREE-DIMENSIONAL DATA

Hiroshi Minakata, Tokyo, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

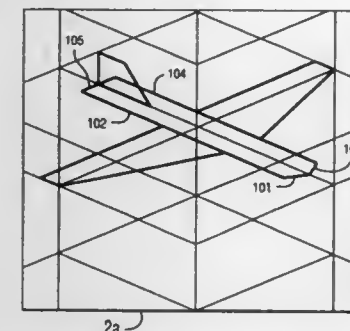
Division of Ser. No. 476,291, Jun. 7, 1995, Pat. No. 5,649,080, which is a continuation of Ser. No. 67,772, May 26, 1993, abandoned. This application Jan. 22, 1997, Ser. No. 787,555

Claims priority, application Japan, Jun. 5, 1992, 4-169997

Int. Cl.⁶ G06T 11/80

U.S. Cl. 345—427

2 Claims



1. A computer program product having a computer readable medium having computer program logic recorded thereon for generating three dimensional data from two dimensional line segments input on a display device displaying two dimensional line segments projected from three dimensional line segment data on a display plane, said computer program product comprising:

computer program product means having computer readable means for receiving two dimensional line segment input, said two dimensional data relative to said display plane;

computer program product means having computer readable means for testing said input line segment for proximity to one or more of said projected line segments, said means for testing including computer program product means having computer readable means for testing for common end points and computer program product means having computer readable means for testing said line segments for a parallel relationships;

computer program product means having computer readable means for converting said input line segment into three dimensional data and storing said three dimensional data if said input line segment is proximate one or more of said projected line segments; and

computer program product means having computer readable means for storing said input line segment as two dimensional data if said input line segment is not proximate one or more of said projected line segments.

5,805,169

IMAGE PROCESSING METHOD AND APPARATUS FOR DECIDING WHETHER TO OVERWRITE A COLOR BASED ON A COMPARISON OF STORED COLOR PRIORITIES

Takashi Harada, Yokohama; Katsuhiko Sakaguchi, Kawasaki; Shigeki Mori, Koshigaya; Kazuhiro Matsubayashi, Yokohama, and Tsunekazu Arai, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 23, 1996, Ser. No. 590,436

Claims priority, application Japan, Jan. 24, 1995, 7-008987

Int. Cl.⁶ G06T 11/00

U.S. Cl. 345—431

34 Claims

COLOR (INPUT)	PRIORITY	COLOR (INPUT)	PRIORITY	COLOR (DISPLAY)	COLOR (OUTPUT)	COLOR (DISPLAY)	COLOR (OUTPUT)
RED	4	RED	4				
BLUE	3	BLUE	3				
GREEN	2	GREEN	2				
YELLOW	1	YELLOW	1				
BLACK	0	BLACK	0	GREEN	OLIVE-GREEN	RED	BROWN
WHITE	0	WHITE	0				

1. An image processing apparatus comprising:

storing means for storing an image;

indicating means for indicating a position in said storing means;

reading means for reading a color of the image stored in said storing means at the position indicated by said indicating means;

setting means for setting a color to perform data drawing; memory means for storing, for each of a plurality of colors, a priority set for the color;

comparing means for comparing the priority stored in said memory means that is set for the color read out by said reading means with the priority stored in said memory means that is set for the color set by said setting means; and

deciding means for, in response to a comparison made by said comparing means, deciding whether or not the color set by said setting means is to be overwritten at the position indicated by said indicating means.

5,805,170

SYSTEMS AND METHODS FOR WRAPPING A CLOSED POLYGON AROUND AN OBJECT

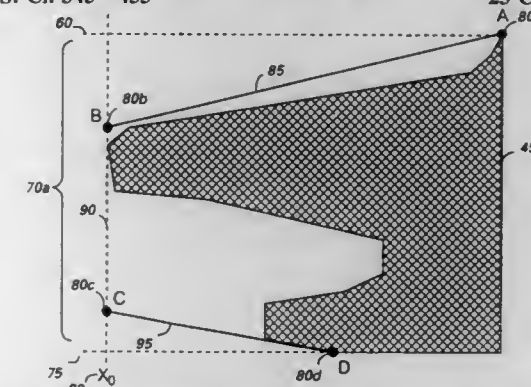
Warren Lee Burch, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed May 7, 1996, Ser. No. 646,129

Int. Cl.⁶ G06F 15/62

U.S. Cl. 345—433

23 Claims



1. An improved method for wrapping a closed polygon around an object, the object represented in a computer memory as a plurality of set points in a two-dimensional coordinate system, comprising the computer-implemented steps of:

dividing said object into a plurality of horizontal threshold bands, each of said plurality of horizontal threshold bands having two horizontal boundaries;

sequentially positioning four polygon points within one of said plurality of threshold bands,

a first one and a last one of said four polygon points being respectively positioned on each of said horizontal boundaries horizontally proximate to one of the plurality of set points but not intersecting said object and

a pair of middle polygon points of said four polygon points being respectively positioned at intersections of a horizontal line containing said first polygon point, a horizontal line containing said last polygon point, and a vertical line extending between said horizontal boundaries that is proximate to but not intersecting a set point representing the outer most edge of said object within said one of said plurality of threshold bands, a line segment between any two consecutive polygon points of said four polygon points not intersecting said object;

repeating said positioning step for each of said plurality of threshold bands along all sides of said object to form a list of polygon points; and sequentially connecting said polygon points defined by said list to form said closed polygon, said closed polygon being substantially adjacent to said object without intersecting said object.

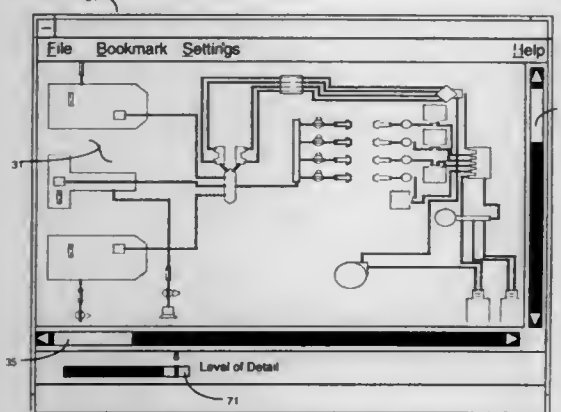
5,805,171
TECHNICAL SCHEMATIC DISPLAY SYSTEM
UTILIZING PREASSIGNED COMPONENT DETAIL
LEVELS

Daniel C. St. Clair, Wentzville; John J. Aleshunas, St. Charles; J. Todd Kneib, St. Charles, and Gerald L. Hagedorn, St. Charles, all of Mo., assignors to Van Houten Technologies, Inc., St. Peters, Mo.

Filed Jul. 19, 1996, Ser. No. 684,694
Int. Cl.⁶ G06T 3/00

U.S. Cl. 345—433

13 Claims



1. A schematic display system comprising:
a memory having stored therein a data structure corresponding to an abstract schematic to be displayed;
a processing unit operatively connected to the memory for retrieving data from the memory data structure;
a visual display device under control of the processing unit for displaying at least selected portions of the schematic;
manually operable inputs operatively connected to the processing unit for initiating manual requests to the processing unit for selecting at least one portion of the schematic for display and for changing the level of detail at which at least a selected portion of the schematic is displayed on the display device, said processing unit being responsive to said manual requests to retrieve the selected portions and to change the schematic level of detail correspondingly;

said data structure stored in said memory including at least:
a plurality of data representations of schematic objects, at least some of said schematic objects being composed of a plurality of component data objects, each component data object of a schematic object having an assigned level of detail, which assigned level of detail may differ for different component data objects of a given schematic object; and
data representations of relationships between said schematic objects;
said processing unit responsive to the selection of portions of the schematic to display only those component data objects asso-

ciated with said selected portions, and to the selected level of detail at which the schematic is to be displayed to display only those component data objects whose assigned level of detail corresponds to the selected level of detail of display.

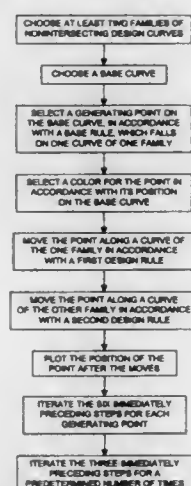
5,805,172
METHOD OF GENERATING ABSTRACT DESIGNS
Ray Brown, 4650 N. Washington Blvd. #606, Arlington, Va. 22201

Continuation of Ser. No. 555,893, Nov. 13, 1995. This application Apr. 21, 1997, Ser. No. 845,280

Int. Cl.⁶ G06F 15/00

U.S. Cl. 345—442

13 Claims



1. A machine implemented method of generating an abstract design on a desired area, primarily comprising the steps of:
(a) choosing a number $n > 1$ distinct families of nonintersecting design curves, of which each family covers the area;
(b) choosing a base curve;
(c) selecting a design generating point in the base curve in accordance with a base rule;
(d) successively moving the point partially along a curve of each of said n families and plotting its position as a result of such movement, this plotted position being a point of the design;
(e) from the plotted point, repeating step (d) for $m \geq 2$ number of repetitions;
(f) repeating steps (c), (d), and (e) for p number of repetitions, wherein $p \geq 2$.

5,805,173
SYSTEM AND METHOD FOR CAPTURING AND TRANSFERRING SELECTED PORTIONS OF A VIDEO STREAM IN A COMPUTER SYSTEM

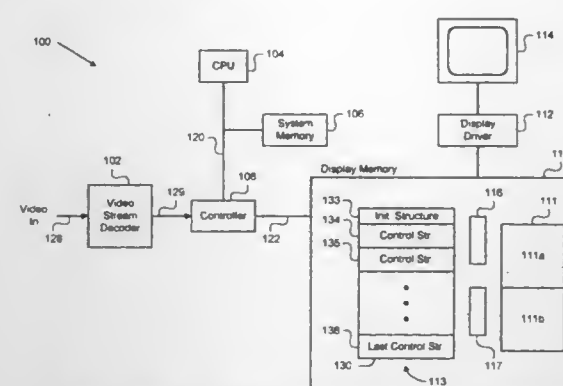
Stephen G. Glennon; Daniel P. Mulligan, and Paul B. Wood, all of Austin, Tex., assignors to Brooktree Corporation, San Diego, Calif.

Filed Oct. 2, 1995, Ser. No. 537,491
Int. Cl.⁶ G06T 1/00

U.S. Cl. 345—501

36 Claims

1. A system for processing an analog video signal in accordance with instructions from an application software, comprising:
a video decoder for converting the analog video signal to digital data;
a display memory for storing data for display;
a control structure list located in the display memory;
the control structure list containing a plurality of control structures, the contents of which being supplied by said application software; and



a controller for processing said digital data in accordance with said control structures.

5,805,174
DISPLAY LIST ARCHITECTURE HAVING TWO DIMENSIONAL ARRAY OF ZONES

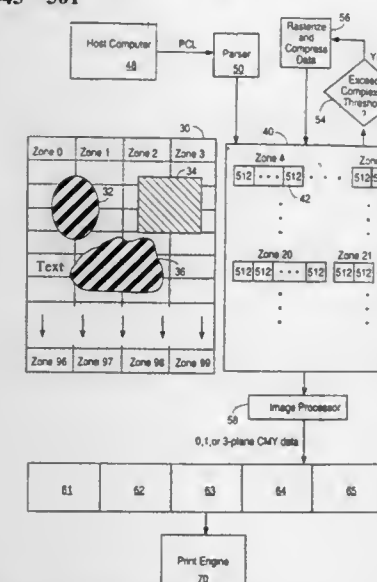
Padmanabhan Ramchandran, San Diego, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 518,634, Aug. 23, 1995, abandoned. This application Oct. 17, 1997, Ser. No. 953,223

Int. Cl.⁶ G06F 15/00

U.S. Cl. 345—501

29 Claims



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5,805,181

STORAGE CASE FOR STORING AN INK JET PRINTING UNIT, THE INK JET PRINTING UNIT INCLUDING AN INK JET RECORDING HEAD AND CARTRIDGE

Yuji Tanaka; Takeo Seino; Kazuhiko Hara; Masahiro Isono, and Seiji Mochizuki, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

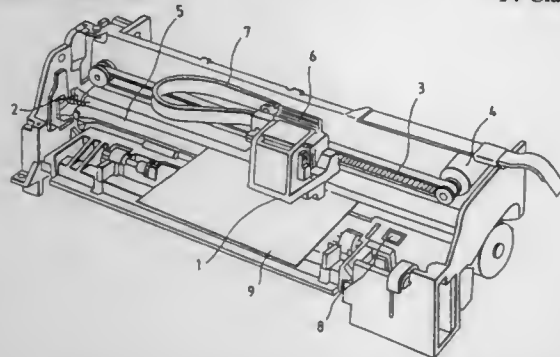
Filed Mar. 8, 1996, Ser. No. 614,159

Claims priority, application Japan, Mar. 13, 1995, 7-080819

Int. Cl.⁶ B41J 2/165; 29/13

U.S. Cl. 347—29

14 Claims



1. A case for storing an ink jet print unit, the ink jet print unit holds integrally a recording head having nozzle openings for jetting ink droplets and an ink tank for supplying an ink to the recording head,

the case comprising a case main body with a cap disposed therein and a cover member with a resilient member for urging said print unit into said case, the cap has an upper peripheral edge which comes in resilient contact with the recording head so as to form a space with respect to the nozzle openings at a position confronting the recording head when the print unit is accommodated in the case main body, the cap is in communication with the atmosphere through a fluid resisting passage for suppressing an evaporation of the ink from the recording head and for preventing an elevation and a depression of menisci formed in respective nozzle openings of the recording head, the cover member being arranged on the case main body so as to be operable and closable and the resilient member resiliently urges the print unit toward the cap.

5,805,182

METHOD AND APPARATUS FOR CLEANING NOZZLES IN AN INK JET PRINTER

Jae-Han Lee, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Feb. 28, 1996, Ser. No. 608,246

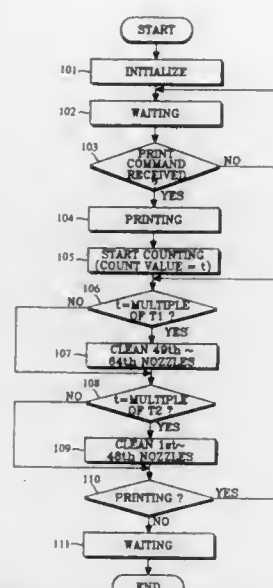
Claims priority, application Rep. of Korea, Mar. 4, 1995, 4458/1995

Int. Cl.⁶ B41J 2/165

U.S. Cl. 347—35

21 Claims

1. A method for cleaning nozzles in an ink jet printer, comprising the steps of:
ejecting ink from a first plurality of said nozzles in said ink jet printer every first period; and



ejecting ink from a second plurality of said nozzles in said ink jet printer every second period, said first period being different from said second period.

5,805,183

INK JET PRINTER WITH VARIABLE ADVANCE INTERLACING

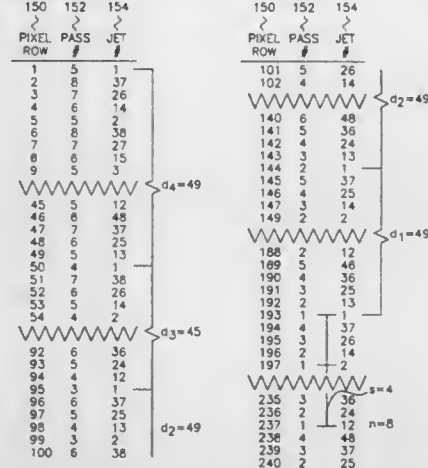
Steven L. Lidke, Chaska; Jeff D. Pagel, Iver Grove Heights, and Paul R. Erickson, Prior Lake, all of Minn., assignors to LaserMaster Corporation, Eden Prairie, Minn.

Filed Nov. 10, 1994, Ser. No. 337,074

Int. Cl.⁶ B41J 2/145; 29/38

U.S. Cl. 347—41

3 Claims



2. A method of printing pixels on a printing medium with a reciprocating non-impact print head, the method comprising the steps of:

printing the first pixel row on a printing medium with each of a plurality of uniformly-spaced ink jets of a common color such that each said first pixel row is printed with a uniform spacing from an adjacent, other first pixel row;
advancing the printing medium a first distance (d_1) relative to the print head;
printing a second pixel row with each of the plurality of uniformly-spaced ink jets, each said second pixel row being parallel to and offset from each said first pixel row;
advancing the printing medium a second distance (d_2) relative to the print head;
printing a third pixel row with each of the plurality of ink jets, each said third pixel row being parallel to and offset from each said first pixel row and each said second pixel row;

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advancing the printing medium a third distance (d_3) relative to the print head;
printing a second pixel row with each of the plurality of ink jets, each said fourth pixel row being parallel to and offset from each said first pixel row and each said second pixel row and each said third pixel row; and
advancing the printing medium a fourth distance (d_4) relative to the print head;
wherein the first distance is greater than one pixel ($d_1 > 1$), the second distance is greater than one pixel ($d_2 > 1$), the first distance is not equal to the second distance ($d_1 \neq d_2$), and wherein the printing medium advances are in a direction perpendicular to each said first pixel row, second pixel row, third pixel row, and fourth pixel row; and wherein the sum of the first distance, the second distance, the third distance, and the fourth distance is equal to the total number of said plurality of uniformly-spaced ink jets of a color times the uniform spacing of the first pixel row from said adjacent other first pixel row ($d_1 + d_2 + d_3 + d_4 = n \times s$).

5,805,184

OUTPUT CONTROL APPARATUS AND METHOD THEREFOR

Norikazu Horiike, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

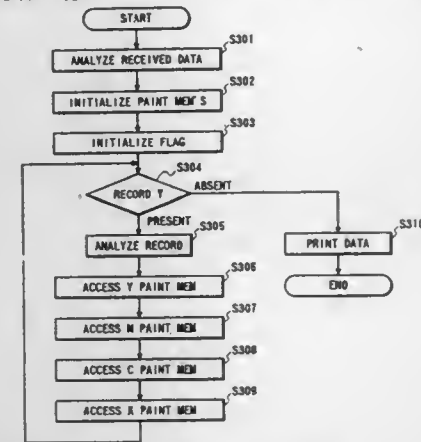
Filed Mar. 26, 1996, Ser. No. 621,883

Claims priority, application Japan, Mar. 31, 1995, 7-076809

Int. Cl.⁶ B41J 2/21; 2/145; B41B 15/00

U.S. Cl. 347—43

18 Claims



1. An output control apparatus comprising:
drawing means for drawing an image on a memory based on data received from an external apparatus;
clearing means for executing a memory clear process on the memory;
discriminating means for discriminating whether an image has been drawn on the memory by said drawing means; and
control means for controlling said clearing means not to execute the memory clear process prior to drawing of a new image by said drawing means if said discriminating means discriminates that no image has been drawn on the memory, and controlling said clearing means to execute the memory clear process prior to drawing of a new image by said drawing means if said discriminating means discriminates that an image has been drawn on the memory.

5,805,185

BACK ELECTRODE CONTROL DEVICE AND METHOD FOR AN IMAGE FORMING APPARATUS WHICH VARIES AN ELECTRIC POTENTIAL APPLIED TO THE BACK ELECTRODE BASED ON THE NUMBER OF DRIVEN APERTURE ELECTRODES

Takeshi Kondo, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

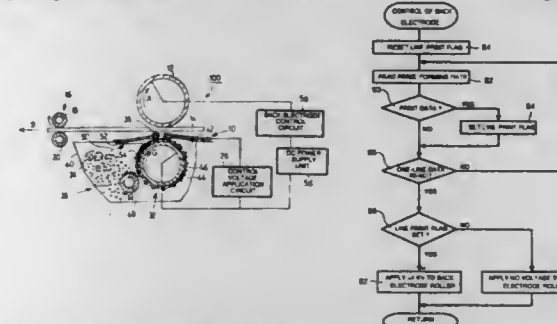
Filed Nov. 29, 1994, Ser. No. 350,049

Claims priority, application Japan, Dec. 24, 1993, 5-327000

Int. Cl.⁶ B41J 2/06

U.S. Cl. 347—55

21 Claims



1. An image forming apparatus, comprising:
toner flow control means for controlling a flow of toner to an image recording medium, including a plurality of apertures, each aperture having an aperture electrode;
toner supply means for supplying toner to said toner flow control means;
a back electrode located on an opposite side of said toner supply means from said toner flow control means;
electrode driving means for individually controlling an electric potential of each of said aperture electrodes of said toner flow control means to transfer said toner selectively from said toner supply means through at least one aperture toward said back electrode; and
back electrode control means for varying a potential difference between said back electrode and said toner supply means in accordance with a number of the aperture electrodes driven by said electrode driving means.

5,805,186

INK JET HEAD

Naoto Yoshida; Hiroshi Shibata, both of Fukuoka; Mitsuhide Matsuda, Fukuoka-ken, and Takuma Takasu, Fukuoka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 518,172, Aug. 23, 1995, abandoned.

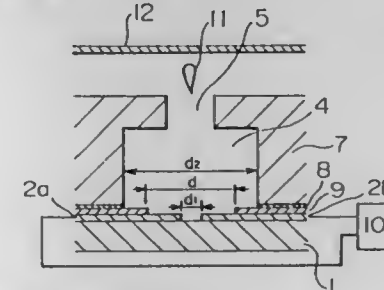
This application Sep. 16, 1997, Ser. No. 931,260

Claims priority, application Japan, Sep. 7, 1994, 6-213686

Int. Cl.⁶ B41J 2/05

U.S. Cl. 347—61

9 Claims



1. An ink jet head comprising:
a pressure chamber adapted to be filled with electrically-conductive ink and having a width (d_2);
a nozzle communicating with said pressure chamber;
a pair of electrodes exposed inside said pressure chamber and spaced apart from each other by a distance, for energizing said conductive ink so as to boil said conductive ink in order to

eject said conductive ink from said nozzle by pressure produced by boiling, thereby effecting printing, said pressure chamber being defined between said nozzle and said pair of electrodes; and
an insulation film disposed between said pressure chamber and said pair of electrodes and partially covering said pair of electrodes, said insulation film having an opening formed therethrough and having a width (d) smaller than that of said pressure chamber.

5,805,187
INK JETTING APPARATUS AND CARTRIDGE FOR USE THEREWITH

Toyonori Sasaki, Anjo, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

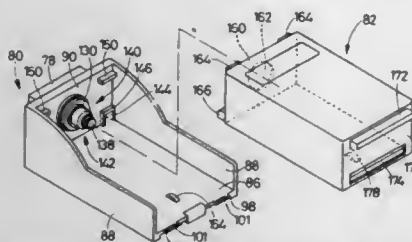
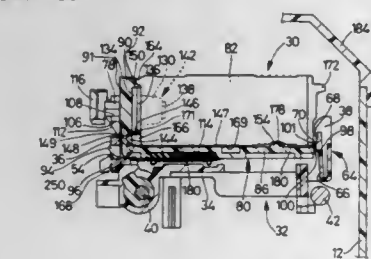
Filed Dec. 18, 1995, Ser. No. 574,319

Claims priority, application Japan, Dec. 27, 1994, 6-325285

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—86

34 Claims



19. A cartridge for use with an ink-jetting apparatus, the cartridge including at least an ink container containing an ink therein, and being detachably attached to a cartridge holder which is moved by a moving device along a surface of a recording medium, the cartridge holder having a first cartridge-side surface extending substantially parallel to a direction of movement of the cartridge holder by the moving device, the cartridge holder having, in the first cartridge-side surface thereof, one of a first engageable projection and a first engageable hole, wherein the improvement comprises:

the cartridge having a first holder-side surface which is opposed to the first cartridge-side surface of the cartridge holder, the cartridge including, in said first holder-side surface thereof, the other of said first engageable projection and said first engageable hole.

5,805,188
CHAMBERED LIQUID CONTAINER WITH ABSORBING MATERIAL AND RECORDING HEAD AND APPARATUS USING SAME

Kazubiro Nakajima, and Yasuo Kotaki, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 12, 1992, Ser. No. 974,706

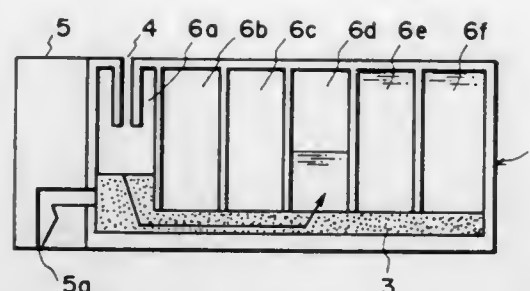
Claims priority, application Japan, Nov. 12, 1991, 3-323906

Int. Cl.⁶ B41J 2/175

U.S. Cl. 347—87

19 Claims

1. A liquid container for containing liquid, said container comprising:



a first chamber for containing the liquid, said first chamber having a liquid supply port for supplying the liquid from said container and an air vent communicating with ambient air;
a second chamber;
a communication port for fluid communication between said first chamber and said second chamber only through said communication port; and
an integral liquid absorbing material having a first portion existing in said first chamber and a second portion existing in said second chamber and a third portion which is between said first portion and said second portion and which exists in said communication port, wherein said liquid absorbing material is compressed more in the third portion than in portions adjacent said communication port of the first portion and the second portion.

5,805,189
DEVICE FOR FLUID SUPPLY OF A MICRO-METERING DEVICE

Jörg Edelhof, Berlin, Germany, assignor to Eastman Kodak Company, Rochester, N.Y.

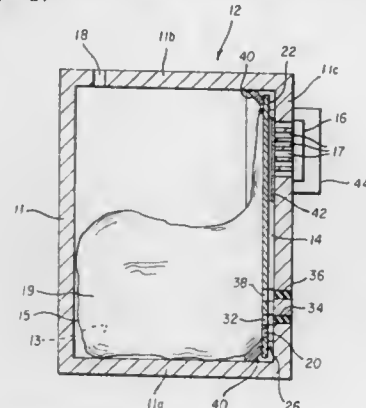
Filed Dec. 6, 1995, Ser. No. 568,052

Claims priority, application Germany, Dec. 6, 1994, 44 43 290.9

Int. Cl.⁶ B41J 2/175; B65D 88/54

U.S. Cl. 347—87

11 Claims



1. A micro-metering device comprising:
a metering module;
a housing which is subdivided into a fluid supply container and a fluid compartment, wherein said fluid compartment is connected via at least one opening to the metering module;
a bag filled with fluid in said fluid supply container, the bag being connected to said fluid compartment;
a housing wall supporting said metering module; and
a partition wall between said fluid supply container and said fluid compartment, the distance between said partition wall and the housing wall is such that said fluid is conveyable to said metering module by means of capillary forces.

5,805,190
METHOD AND APPARATUS FOR JET PRINTING WITH INK AND A PRINT PROPERTY IMPROVING LIQUID
Ken Tsuchii, Sagami, and Makoto Shioya, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

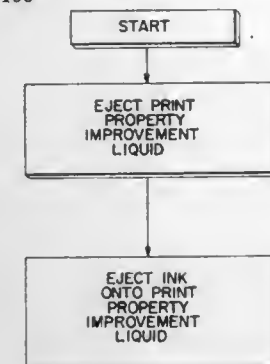
Filed Feb. 12, 1996, Ser. No. 600,166

Claims priority, application Japan, Feb. 13, 1995, 7-023866; Feb. 8, 1996, 8-022707

Int. Cl.⁶ G01D 11/00; B41J 2/01; 2/17

U.S. Cl. 347—100

19 Claims



1. An ink jet printing method for forming an image, said method comprising the steps of:

ejecting a printing property improving liquid, which improves printing property of ejected ink, onto a printing medium in advance of ejection of the ink onto the printing medium; and ejecting the ink to the printing property improving liquid applied on the printing medium,

wherein the ink is impact on a region of the printing medium to be covered with the ink under a condition satisfying any one of the following conditions (1) to (5):

- (1) $Re \cdot We < 25000$ and $0 < ts < d$
- (2) $25000 \leq Re \cdot We < 29000$ and $0 < ts < d/2$
- (3) $29000 \leq Re \cdot We < 40000$ and $0 < ts \leq 4 \mu m$
- (4) $4000 \leq Re \cdot We < 55000$ and $0 < ts \leq 3 \mu m$
- (5) $55000 \leq Re \cdot We < 60000$ and $0 < ts \leq 2 \mu m$,

wherein

$$Re = d \cdot v / \nu$$

$$We = \rho \cdot d \cdot v^2 / \sigma$$

ts : a thickness of a liquid layer of the printing property improving liquid covering the region of the printing medium to be covered with the ink after impacting the ink thereon at the moment of the ink impact on the printing medium

d : a diameter of an ejected ink droplet

v : ink ejection speed

ν : kinetic viscosity of ink

σ : surface tension of ink

ρ : density of ink.

5,805,191
INTERMEDIATE TRANSFER SURFACE APPLICATION SYSTEM

Brent R. Jones, Tualatin; Brently L. Cooper, Sherwood; Randy C. Karambelas, Milwaukie; Larry E. Hindman, Woodburn; Gerard H. Rousseau, Portland; Clark W. Crawford, Wilsonville, and James D. Rise, Lake Oswego, all of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

Continuation-in-part of Ser. No. 981,646, Nov. 25, 1992, Pat. No. 5,389,958. This application Jul. 23, 1993, Ser. No. 97,332

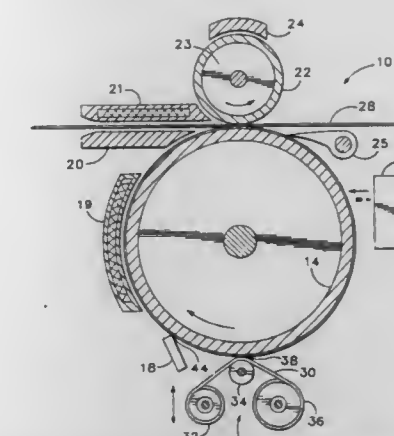
Int. Cl.⁶ B41J 2/01; 2/17; 2/165

U.S. Cl. 347—103

25 Claims

1. An apparatus for applying an intermediate liquid transfer surface onto a support surface in an ink jet printer, the printer having a print head mounted thereon for applying phase change ink image-wise to the intermediate liquid transfer surface, the apparatus comprising:

an applicator assembly connected to the printer adjacent the support surface mounted in a removable cassette tray for



distributing a liquid layer onto the support surface to produce the intermediate transfer surface, the applicator assembly further having a liquid impregnated contact medium with a contact surface for concurrently removing foreign matter from and delivering the liquid onto the support surface;

means for metering the liquid layer uniformly on the support surface, the applicator assembly and metering means being a single unit in the removable cassette tray located adjacent and below the intermediate liquid transfer surface and the support surface; and

an open-topped waste ink receptacle in the removable cassette tray separate from the applicator assembly and metering means for collecting waste ink from the support surface, the waste ink receptacle being separated from the applicator assembly and positioned directly below the print head to collect solid waste ink therefrom.

5,805,192
IMAGE FORMING APPARATUS HAVING AUTOMATIC IMAGE DENSITY ADJUSTMENT FUNCTION AGAINST DOT SIZE VARIATION

Eiichi Sasaki, Sagami, and Kouichi Irie, Tokyo, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

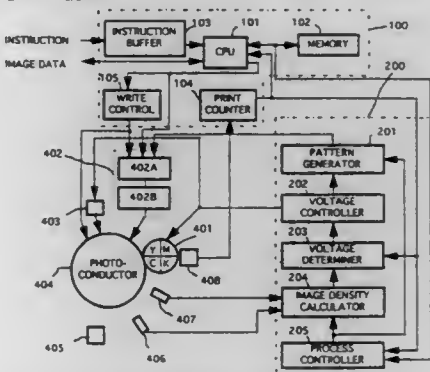
Filed Sep. 18, 1996, Ser. No. 715,613

Claims priority, application Japan, Sep. 18, 1995, 7-263604; Sep. 2, 1996, 8-231978

Int. Cl.⁶ B41J 2/385; G03G 13/04

U.S. Cl. 347—131

28 Claims



1. An image forming apparatus, comprising:

a recording medium;

laser beam generating means for generating a laser beam during an optical writing operation and for writing a dot image on the recording medium;

instruction-buffering means for buffering an instruction sent by an operator for changing a condition of said optical writing operation and changing an appearance of the dot image on the recording medium;

writing control means for controlling a plurality of conditions of said optical writing operation including at least one of a size

of said dot image formed by said laser beam, a light strength of said laser beam, a mode of image resolution, and a scanning speed of said laser beam, in accordance with said instruction;

process control means for determining a development potential and associated bias potentials both to be used in a process for forming said dot image in accordance with said instruction and a plurality of said conditions of said optical writing operation, and for storing data of said development potential and said associated bias potentials as data of current development and associated bias potentials, said determining of said development potential and associated bias potentials including generating a reference dot image, transferring said reference dot image to said laser beam generating means which develops said reference dot image with toner, measuring an image density of said developed reference dot image, and correcting said determined development potential and said associated bias potentials on the basis of said measured image density of said developed reference dot image; and

system control means for determining a time when a plurality of said conditions of said optical writing operation are to be changed, upon detecting said instruction input from the instruction buffering means, for instructing said writing control means to change a plurality of said conditions of said optical writing operation, and also for instructing said process control means to determine said development potential and said associated bias potentials.

5,805,193

DIE-PUNCH CUTTING APPARATUS FOR A CONTINUOUS WEB THERMAL PRINTING DEVICE

Paul S. Follett, and Edward A. Nardone, both of Wakefield, R.I., assignors to Atlantek, Inc., Wakefield, R.I.

Continuation-in-part of Ser. No. 224,166, Apr. 7, 1994, Pat. No. 5,565,902. This application May 13, 1996, Ser. No. 645,055

Int. Cl.⁶ B41J 2/315; 2/32; B31F 1/07; B23D 25/02
U.S. Cl. 347—171

8 Claims



1. A printing device for one-up instant issue printing of a single image on a continuous web of print media comprising:

a continuous web of print media;

print means for printing an image from a mid-point on said print media to a terminal end point of said print media;

drive means for driving said continuous web of print media in upstream and downstream directions through said print means; and

cutting means for severing said print media at said mid-point, said cutting means comprising a die body having a longitudinal I-shaped cutting opening, said I-shaped cutting opening having a longitudinal centerline and first and second spaced longitudinal cutting edges symmetrically disposed on opposing sides of said longitudinal centerline, said first and second longitudinal cutting edges including terminal end portions which are outwardly rounded in configuration, said cutting means further comprising a punch body having a longitudinal I-shaped cutting blade which is slidably received in interfitting engagement within the I-shaped cutting opening of the die body, said I-shaped cutting blade having a longitudinal centerline and first and second spaced longitudinal cutting edges symmetrically disposed on opposing sides of said longitudinal centerline, said longitudinal cutting edges including terminal end portions which are outwardly rounded in configuration, said first and second cutting edges of said punch body being slidably engagable with said first and second cutting edges of said die body for severing a printed section of

print media from a continuous web, wherein said first cutting edges of said die body and said punch body cooperate to cut rounded corners at the trailing edge of a previously printed section of media, and said second cutting edges of the die body and said punch body cooperate to cut rounded corners at the leading edge of a section of print media to be subsequently printed.

5,805,194

THERMAL PRINTER HAVING A MULTICOLORED PRINTING FUNCTION

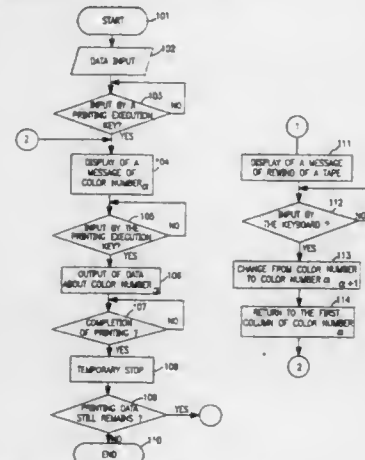
Nobuyuki Nobe, Tokyo, Japan, assignor to Max Co., Ltd., Tokyo, Japan

Filed Jun. 30, 1996, Ser. No. 655,645

Claims priority, application Japan, May 31, 1995, 7-134387
Int. Cl.⁶ B41J 2/525

U.S. Cl. 347—172

3 Claims



1. A thermal printer comprising:
character inputting means for inputting characters to be printed in each printing space of a sheet;
printing means for printing said characters in said each printing space while feeding said sheet;
color inputting means for inputting colors of said characters;
memory means for storing data about said colors input by said color inputting means together with data about said characters input by said character inputting means;
readout means for reading out the character data stored in said memory means by classifying said characters by color in accordance with predetermined chromatic priority;
control means for causing said printing means to print the readout characters whenever said characters are classified by color and read out by said readout means; and
rewind control means for controlling rewind of said sheet so that said printing means is positioned at a place from which printing is resumed after completion of printing of the characters read out by said readout means and when characters which rank in the predetermined chromatic priority next to the characters which have been printed are read out and printed.

5,805,195

DIODE-LESS THERMAL PRINT HEAD AND METHOD OF CONTROLLING SAME

Miles A. Smither, Friendswood, and Naven C. Ho, Missouri City, both of Tex., assignors to Oyo Instruments, Inc., Houston, Tex.

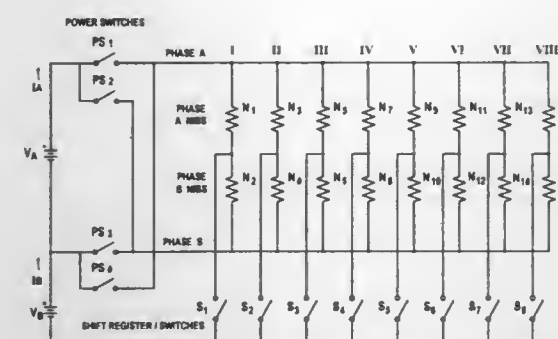
Filed Mar. 26, 1996, Ser. No. 621,910

Int. Cl.⁶ B41J 3/20; 2/335

U.S. Cl. 347—211

18 Claims

11. A thermal print head, comprising:
a plurality of groups of resistive-printing elements, wherein each said element has a first node and a second node, wherein said



first nodes in each said group are connected together, and wherein each said second node is connected to one said second node in each of the other said groups;

a plurality of first-column switches, wherein each said first-column switch is connected to said first nodes in one of said groups for connection of said first nodes of select groups to a first voltage source;

a plurality of second-column switches, wherein each said second-column-select switch is connected to said first nodes in one of said groups for connection of said first nodes of select groups to a second voltage source;

a plurality of row switches, wherein each said row switch is connected to one of said second nodes in each group, for connection of select said second nodes to electrical ground.

5,805,196

APPARATUS FOR RECORDING A COLOR IMAGE ON A COLOR PHOTOGRAPHIC MATERIAL BASED ON THREE COLOR COMPONENT IMAGE SIGNALS SEPARATED FROM THE COLOR IMAGE

Kenzo Nakanishi; Hiroaki Arakawa; Minoru Yasuda, and Toyooki Sugaya, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

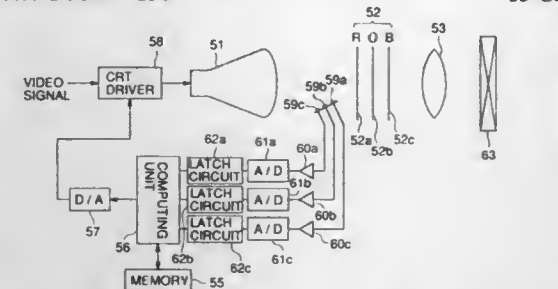
Filed Sep. 1, 1995, Ser. No. 522,741

Claims priority, application Japan, Sep. 9, 1994, 6-215694; Oct. 31, 1994, 6-267500; Nov. 18, 1994, 6-284876; Jan. 24, 1995, 7-008998

Int. Cl.⁶ B41J 2/47

U.S. Cl. 347—230

13 Claims



1. An apparatus for recording a color image on a color photographic material based on three color component image signals separated from the color image, comprising:

a black-and-white cathode ray tube for separately and sequentially receiving the three color component image signals and for sequentially emitting a black-and-white image for each of the three color component image signals from a screen;

three color filters, selectively inserted in an optical path between the cathode ray tube and the color photographic material, for converting the black-and-white image into a corresponding monochromatic image for each of the three color component image signals so that the color photographic material is sequentially exposed with three monochromatic images through the optical path in order to record the color image on the color photographic material;

a memory for storing color a reference luminance of each color component corresponding to said three color component image signals;

a detector for detecting a luminance of the light through the respective said color filter for each color component; and
luminance control means for comparing the detected luminance with the reference luminance for each color component to obtain a comparison result, and controlling a luminance level of each of the three color component image signals based on the comparison result of each color component so as to control emission of light from the cathode ray tube for each color component based on the reference luminance of each color component.

5,805,197

DRIVER IC WITH AUTOMATIC TOKEN DIRECTION SELF-SENSING CIRCUITRY

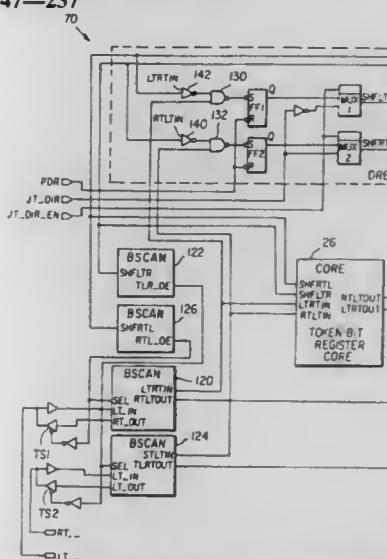
Paul John Fleming, Lima; Michael William Mattern, Hamlin, and Carl Michael Petruzelli, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 28, 1995, Ser. No. 580,403

Int. Cl.⁶ B41J 2/47; 2/435; 4/435

U.S. Cl. 347—237

22 Claims



1. A driver IC chip for use in a non-impact printhead having a plurality of recording elements, the driver IC chip comprising:

a plurality of current-carrying channels for carrying current to respective recording elements on the printhead;

a plurality of data register means with a respective data register means being associated with each of the channels for storing a multibit image data signal relating to control of current in a respective one of the channels;

data bus means for carrying multibit image data;

token bit register means, including a token bit register having a plurality of stages, for shifting a token bit signal from stage to stage of the token bit register, each stage being associated with a respective data register means; and

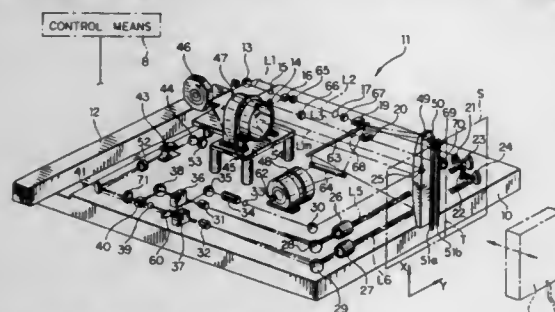
an input-output means on said driver IC chip for inputting a token bit signal to the token bit register means when the token bit signal is moved in one direction through said token bit register; and for outputting the token bit signal when the token bit signal is moved in a second direction through the token bit register which is opposite the first direction; and
automatic token direction self-sensing means responsive to input of the token bit signal at said input-output means for controlling a direction of shifting of the token bit signal from stage to stage of the token bit register without use of an independently provided token direction determining signal.

5,805,198

LASER DRAWING APPARATUS AND METHOD FOR ADJUSTING THE SAME

Jun Nonaka, Shuichi Shimizu, and Satoru Kobayashi, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 22, 1994, Ser. No. 279,745

Claims priority, application Japan, Jul. 22, 1993, 5-181610
Int. Cl.⁶ B41J 2/47; G01D 15/14; G02B 26/00; 27/00
U.S. Cl. 347—244 12 Claims

1. A laser drawing apparatus comprising: a light source for emitting a drawing beam; a beam deflecting means for deflecting said drawing beam into at least a first drawing beam and a second drawing beam; a first beam separating means for generating a first group of a plurality of aligned drawing beams from said first drawing beam; a second beam separating means for generating a second set of a plurality of aligned drawing beams from said second drawing beam; a first adjusting means for adjusting positions of said first beam separating means and said second beam separating means by rotating said first beam separating means about an axis parallel with a beam running direction and by rotating said second beam separating means about an axis parallel with a beam running direction so that a plane defined by said first set of a plurality of aligned drawing beams and a plane defined by said second set of a plurality of aligned drawing beams become parallel;
2. a second adjusting means for adjusting a position of said first set of a plurality of aligned drawing beams from said first beam separating means, said second adjusting means being provided on a light path of said first set of a plurality of aligned drawing beams so that when said second adjusting means is operated said first set of a plurality of aligned drawing beams is shifted in a main scanning direction;
3. a third adjusting means for adjusting a position of said first set of a plurality of aligned drawing beams so that when said third adjusting means is operated said first set of a plurality of aligned drawing beams is shifted in a sub-scanning direction;
4. a fourth adjusting means for adjusting a position of said first set of a plurality of aligned drawing beams so that when said third adjusting means is operated said first set of a plurality of aligned drawing beams is shifted in a sub-scanning direction, and said fourth adjusting means being arranged to alternately align each of said first set of a plurality of aligned drawing beams and each of said second set of a plurality of aligned drawing beams in said main scanning direction.

5,805,199

MULTI-BEAM WRITE OPTICAL SYSTEM

Magane Aoki, Yokosuka, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

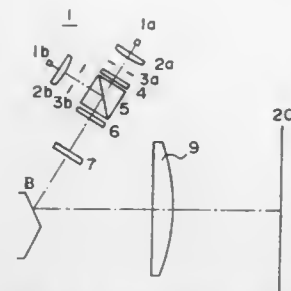
Filed Mar. 27, 1997, Ser. No. 835,024

Claims priority, application Japan, Apr. 3, 1996, 8-108502
Int. Cl.⁶ B41J 2/47 22 Claims

U.S. Cl. 347—256

1. A multi-beam optical system for causing a plurality of light beams offset from each other in a sub-scanning direction to simultaneously scan a scanned surface in a main scanning direction, comprising:

light beam generating means for generating a plurality of light beams using a plurality of light-emitting parts which are offset



- from each other in the sub-scanning direction and which are individually controllable;
- coupling optical means for transmitting said plurality of light beams generated by said light beam generating means;
- aperture means for defining said plurality of light beams, respectively;
- beam combiner means for combining said plurality of light beams;
- first image forming means for forming images of said plurality of light beams passing through said coupling optical means;
- deflector means for deflecting said plurality of light beams output from said first image forming means, the images of said plurality of light beams being formed in a vicinity of said deflector means; and
- second image forming means for forming images of said plurality of light beams deflected by said deflector means, wherein an exit pupil is in a conjugated arrangement with said second image forming means in a sub-scanning direction, and said exit pupil is defined by pre-first-image-forming-means optics.

5,805,200

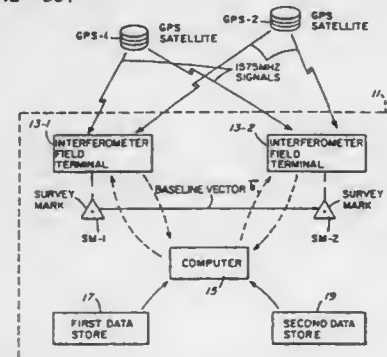
SYSTEM FOR DETERMINING POSITION FROM PSEUDORANDOMLY MODULATED RADIO SIGNALS
Charles C. Counselman, III, Belmont, Mass., assignor to Western Atlas International, Inc., Houston, Tex.

Continuation of Ser. No. 797,185, Feb. 10, 1997, which is a continuation of Ser. No. 542,565, Oct. 13, 1995, Pat. No. 5,619,212, which is a continuation of Ser. No. 289,965, Aug. 12, 1994, abandoned, which is a continuation of Ser. No. 31,649, Mar. 15, 1995, Pat. No. 5,384,574, Continuation of Ser. No. 643,771, Jan. 22, 1991, Pat. No. 5,194,871, which is a continuation of Ser. No. 382,291, Jul. 20, 1989, Pat. No. 5,014,066, which is a continuation of Ser. No. 895,148, Aug. 11, 1986, Pat. No. 4,870,422, which is a continuation of Ser. No. 353,331, Mar. 1, 1982, Pat. No. 4,667,203. This application Aug. 11, 1997, Ser. No. 907,963

Int. Cl.⁶ G01S 5/02

U.S. Cl. 342—357

12 Claims



1. A method for determining position from pseudorandom code modulated, suppressed carrier signals received from satellites, comprising:
- forming a digital composite of said signals received from a plurality of satellites at a first point;

processing said composite to measure the carrier phase of the signal from each of said plurality of satellites, to derive computer data; and combining said data, in order to determine position, with data derived from measurements of signals received from the same plurality of satellites at an other point.

5,805,201

DEVICE FOR AUTOMATICALLY CONTROLLING A TELEVISION

Hidetoshi Fujiwara, Musashino, Japan, assignor to Utec Inc., Tokyo, Japan

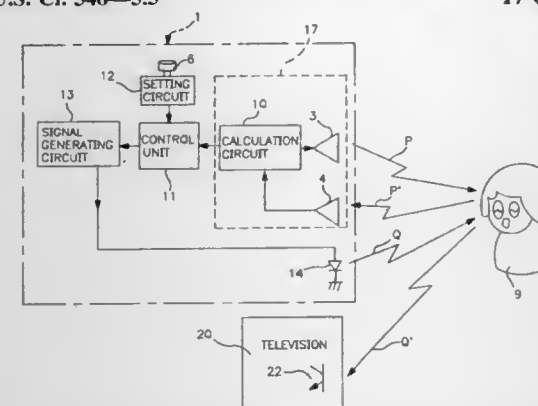
Filed Apr. 29, 1996, Ser. No. 638,777

Claims priority, application Japan, Apr. 27, 1995, 7-005419 U; May 19, 1995, 7-006197 U; May 19, 1995, 7-155065; Sep. 19, 1995, 7-263621; Oct. 12, 1995, 7-289190; Apr. 12, 1996, 8-114396

Int. Cl.⁶ H04N 7/16; 5/65; G08B 23/00

U.S. Cl. 348—5.5

17 Claims



1. A device for automatically controlling a television, said television including a light receiving element that receives infrared rays of light and being capable of being operated by remote control, said device comprising:

distance measuring means for measuring a distance between a screen of said television and a viewer viewing said television; and infrared-ray emitting means for emitting a screen changing signal of infrared rays of light by which a state of said screen is changed when the distance measured by said distance measuring means is shorter than a predetermined distance.

5,805,202

AUTOMATIC VIDEO CABLE COMPENSATION SYSTEM
Christopher M. Mullins; Thomas J. Ray, both of Yonkers, N.Y., and John P. McDonough, Harrington Park, N.J., assignors to Sensormatic Electronics Corporation, Deerfield Beach, Fla.

Filed Oct. 20, 1995, Ser. No. 545,951

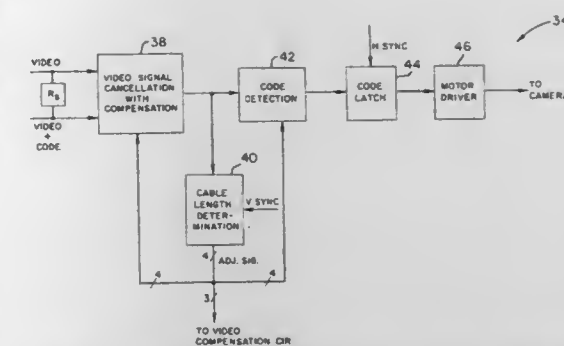
Int. Cl.⁶ H04N 7/14

U.S. Cl. 348—6

36 Claims

1. In a video surveillance system comprising a remotely controllable video camera for generating a video signal, control means for generating camera control signals, a cable for transmitting to said video camera the camera control signals generated by said control means, and control signal receive means operatively associated with said video camera and connected to said cable for receiving said control signals transmitted via said cable, the improvement comprising:

an adjustable circuit element in said control signal receive means; detection means connected to said cable for detecting a characteristic of said cable and for generating an adjustment signal indicative of said detected characteristic of said cable; and



means for applying said adjustment signal to said adjustable circuit element in said control signal receive means, so as to adjust said control signal receive means in accordance with said detected characteristic of said cable.

5,805,203

TIME DIVISION, MULTIPLEXED, SHARED BANDWIDTH COMMUNICATION SYSTEM

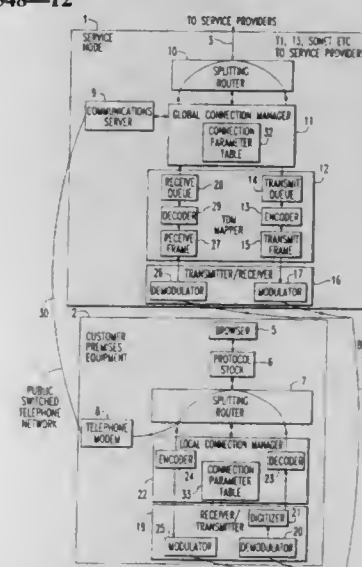
James A. Horton, Emmaus, Pa., assignor to JSM Co., Inc., Butler, Pa.

Filed May 21, 1996, Ser. No. 651,701

Int. Cl.⁶ H04N 7/173

U.S. Cl. 348—12

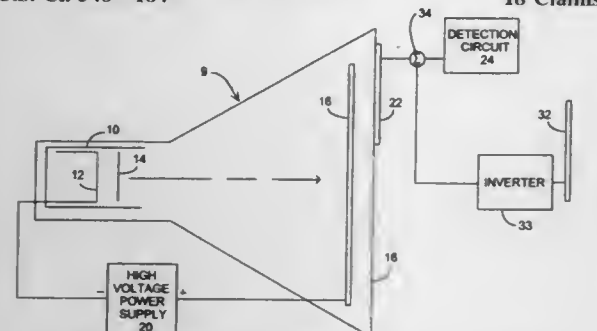
17 Claims



1. A method performed by a source of data for establishing a communication session between the source and one of a plurality of users, said method comprising the steps of: creating a series of transmission frames each divided into a sequence of transmission frame periods; transmitting a connection request signal during one of said transmission frame periods; receiving from a user a connection request message in response to said connection request signal; allocating a first frame transmission period to the user for connection information and a second frame transmission period to the user for data; transmitting during a predetermined frame transmission period information unique to the user and the position of said first frame transmission period within said sequence; transmitting during said first frame transmission period the position of said second frame transmission period within said sequence; and transmitting data during said second frame transmission period.

5,805,211
ELECTROSTATIC PROBE DEVICE FOR SIGNAL
DETECTION OF CATHODE RAY TUBE DISPLAYS
Ted E. Hartson, 10012 N. 77th St., Scottsdale, Ariz. 85258
Filed Sep. 15, 1995, Ser. No. 529,254
Int. Cl.⁶ H04N 17/02

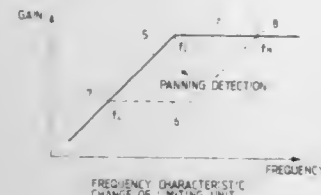
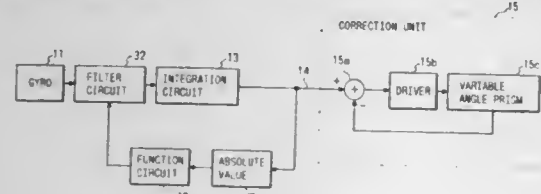
U.S. Cl. 348—184



1. An apparatus for detecting signals displayed on a cathode ray tube, said apparatus comprising:
a probe closely spaced from an anode of the cathode ray tube; and
a detection circuit coupled to the probe, wherein the detection circuit produces an output signal that corresponds substantially only to a displayed image on the anode of the cathode ray tube.

5,805,212
VIBRATION CORRECTING APPARATUS
CONTROLLING THE GAIN OF THE CONTROL
CIRCUIT
Akihiro Fujiwara, Yokohama, Japan, assignor to Canon
Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 16, 1995, Ser. No. 558,527
Claims priority, application Japan, Nov. 17, 1994, 6-309560;
Mar. 15, 1995, 7-082103; Jun. 30, 1995, 7-186517
Int. Cl.⁶ H04N 5/232

U.S. Cl. 348—208

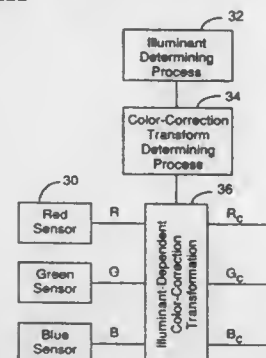


1. A vibration correcting device comprising:
(a) movement detection means for detecting movement;
(b) correction means for correcting the movement;
(c) control means for controlling the drive of the correction means according to the movement detection information detected by the movement detection means; and
(d) characteristics control means for varying frequency characteristics of the control means according to the function state of the correction means;
wherein the characteristics control means is adapted to vary the frequency characteristics of the control means in such a manner that when the correction means reaches a predetermined state, a gain of a predetermined frequency range of the control means is reduced to a predetermined level and a gain

of a frequency lower than the predetermined frequency range is not substantially reduced.

5,805,213
METHOD AND APPARATUS FOR COLOR-CORRECTING
MULTI-CHANNEL SIGNALS OF A DIGITAL CAMERA
Kevin E. Spaulding, Spencerport; Richard M. Vogel, Pittsford,
and Jeffrey R. Szczepanski, Rochester, all of N.Y., assignors
to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 8, 1995, Ser. No. 569,645
Int. Cl.⁶ H04N 9/64

U.S. Cl. 348—222

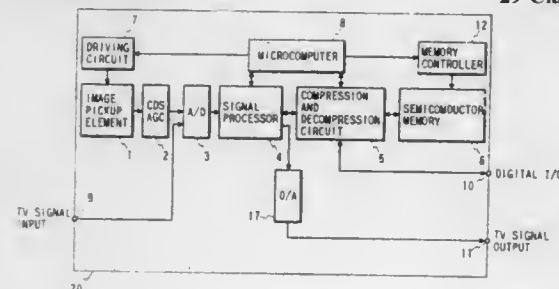


1. A method for color-correcting multi-channel color image signals from a digital camera having multi-channel image sensors to account for variations in scene illuminant comprising the steps of:

- a) determining the scene illuminant; and
b) determining an optimum illuminant-dependent color-correction transformation based on the determined scene illuminant which transformation minimizes color errors between an original scene and a reproduced image when applied to the multi-channel color signals to produce multi-channel color output signals, each of such multi-channel color output signals being dependent upon more than one of the multi-channel color image signals.

5,805,214
ULTRA SMALL VIDEO CAMERA AND A VIDEO
CAMERA SYSTEM IN USE THEREOF
Akihito Nishizawa, Yokosuka; Takuya Imaide, Fujisawa;
Toshiro Kinugasa, Hiratsuka; Takuya Iguchi, Yokohama,
and Kazuhiro Koshio, Chigasaki, all of Japan, assignors to
Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 512,625, Aug. 8, 1995, Pat. No.
5,646,684. This application Apr. 1, 1997, Ser. No. 831,304
Claims priority, application Japan, Aug. 22, 1994, 6-196447;
Aug. 22, 1994, 6-196805

U.S. Cl. 348—231

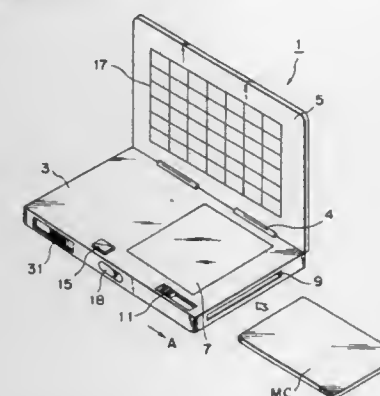


1. A video camera forming an image by photoelectric conversion from an optical image focused thereon, comprising:

- a compression circuit which generates compressed image data by processing image data of the image with a predetermined data compression processing;
a randomly accessible storage device which stores the compressed image data; and
a communication circuit which converts the compressed image data into a digital signal having a predetermined communication format and outputs the digital signal to an outside of a video camera body, the compressed image data being selectively inputted from the compression circuit and the storage device.

5,805,215
INFORMATION PROCESSING METHOD AND
APPARATUS FOR STORING ADDITIONAL DATA ABOUT
AN IMAGE
Yoshiyuki Mizoguchi, Kawasaki, Japan, assignor to Canon
Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 18, 1995, Ser. No. 423,097
Claims priority, application Japan, Apr. 21, 1994, 6-082979;
Oct. 7, 1994, 6-270343

Int. Cl.⁶ H04N 5/225
U.S. Cl. 348—232

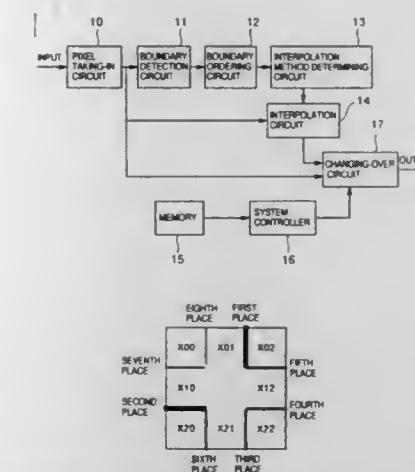


1. An information processing apparatus comprising:
(A) image inputting means for inputting image data;
(B) event inputting means for inputting event data;
(C) detecting means for detecting whether first data associated with the image data is identical to second data associated with the event data;
(D) storage means for storing the event data and the image data so as to be associated together directly, when said detecting means detects that the first data is identical to the second data; and
(E) searching means for searching for image data on the basis of the event data stored by said storage means.

5,805,216
DEFECTIVE PIXEL CORRECTION CIRCUIT
Kenji Tabei, and Masato Nishizawa, both of Yokohama, Japan,
assignors to Matsushita Electric Industrial Co., Ltd., Osaka,
Japan
Filed May 31, 1995, Ser. No. 455,153
Claims priority, application Japan, Jun. 6, 1994, 6-123886

Int. Cl.⁶ H04N 9/64
U.S. Cl. 348—246

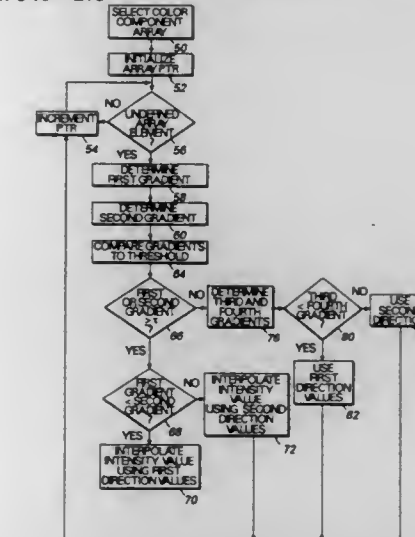
1. A defective pixel correction circuit comprising:
a pixel taking-in circuit for taking in signals produced from peripheral pixels of a defective pixel in an imaging device;
a boundary detection circuit for detecting magnitudes of boundaries between adjacent pixels of the taken-in peripheral pixels;
a boundary ordering circuit using outputs of said boundary detection circuit for ordering the boundaries;



- an interpolation method determining circuit for determining an interpolation method on the basis of outputs of said boundary ordering circuit, and
an interpolation circuit for producing an interpolation signal by said determined interpolation method,
wherein said boundary detection circuit calculates the magnitudes of the boundaries between the adjacent pixels from eight peripheral pixels in said pixel taking-in circuit and said boundary ordering circuit effects a determination on the basis of the magnitudes of the boundaries between the pixels, and wherein said boundary ordering circuit includes a rule for judging that the magnitude of the boundary in the vertical direction is larger than that in the horizontal direction when the magnitudes of the boundaries in the vertical and horizontal directions are equal to each other.

5,805,217
METHOD AND SYSTEM FOR INTERPOLATING
MISSING PICTURE ELEMENTS IN A SINGLE COLOR
COMPONENT ARRAY OBTAINED FROM A SINGLE
COLOR SENSOR
Ning Lu, Norcross, and Zhiwu Lu, Atlanta, both of Ga., assignors to Iterated Systems, Inc., Atlanta, Ga.
Filed Jun. 14, 1996, Ser. No. 663,615
Int. Cl.⁶ H04N 3/14; 9/07

U.S. Cl. 348—273



1. A method for interpolating intensity values for array elements of a first color component for which intensity values for a second color component were sensed comprising the steps of:
using intensity values for a first color component to determine a first and second gradient for an array element sensing a second color component;

comparing said first and second gradients to a predetermined threshold;
selecting an interpolation direction in correspondence to said comparison between said first and said second gradients to said predetermined threshold; and
interpolating a first color component intensity value for using said array element using said first color component intensity values for one of said gradients and using second color component intensity values which correspond to said selected interpolation direction.

5,805,218

METHOD FOR ADJUSTING A POSITION OF A SOLID-STATE IMAGE DETECTOR IN A GIVEN IMAGE-FORMING OPTICAL SYSTEM

Kouji Obura, Yokohama; Keiji Shintani, Tokyo; Yoko Koseki, Yokosuka; Hiroto Toba, Yokohama; Toshiro Obi, Yokohama, and Kazuyuki Kobayashi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

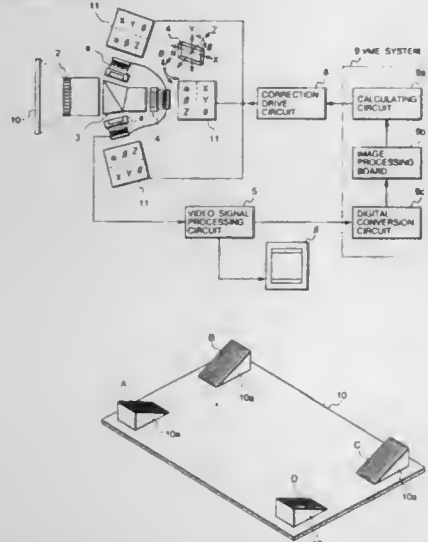
Filed Mar. 13, 1996, Ser. No. 614,496

Claims priority, application Japan, Jun. 20, 1995, 7-152871; Oct. 16, 1995, 7-266689

Int. Cl.⁶ H04N 5/232

U.S. Cl. 348—353

11 Claims



1. A method for adjusting the position of a solid-state image detector in a given image-forming optical system, comprising steps of:

- providing a three-dimensional resolution chart comprising a block provided on an upper surface thereof, said block having an adjusting pattern depicted on a slant surface thereof;
- forming an image of said adjusting pattern of said three-dimensional resolution chart on a solid-state image detector through a master lens;
- calculating a contrast integration value based on the image of said adjusting pattern at each of a plurality of designated areas on said slant surface of said block provided on said resolution chart, and finding out a specific position where said contrast integration value becomes maximum, thereby identifying said specific position as focus point of said master lens;
- calculating an optimum position of said solid-state image detector in the given image-forming optical system, based on said focus point; and
- positioning said solid-state image detector to said optimum position by using a positioning mechanism.

**5,805,219
APPARATUS CAPABLE OF SAFELY RECORDING AN INFORMATION WHEN REMOVING A RECORDING MEDIUM**

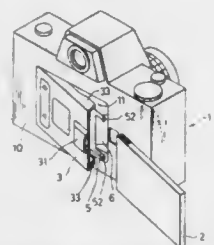
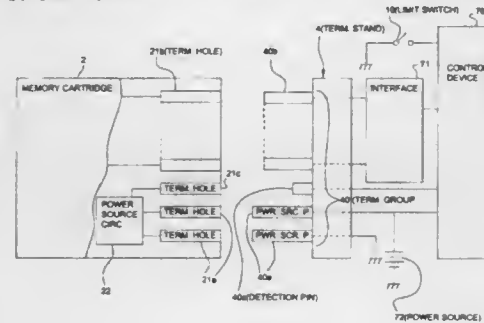
Satoshi Ejima, Tokyo, and Koichiro Kawamura, Ichihara, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Aug. 17, 1995, Ser. No. 516,484

Claims priority, application Japan, Feb. 14, 1995, 7-025589 Int. Cl.⁶ H04N 5/225

U.S. Cl. 348—375

37 Claims



1. An apparatus capable of using a detachable recording medium, comprising:

- an electrical contact point that is electrically connected with said recording medium for a predetermined length in an insertion and ejection direction of said recording medium;
- an eject mechanism enabling said recording medium to be ejected from said apparatus;
- a first detection device that detects at a first time an ejecting movement by said eject mechanism, said first time being earlier than a break time when said electrical contact point is electrically disconnected from said recording medium; and
- a second detection device that detects at a second time said ejecting movement by said eject mechanism, said second time being later than said break time, said second time being later than said first time.

5,805,220

SYSTEM FOR TRANSMITTING A PLURALITY OF VIDEO PROGRAMS SIMULTANEOUSLY THROUGH A TRANSMISSION CHANNEL

Gerrit J. Keesman, and Petrus J. Van Otterloo, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

PCT No. PCT/IB96/00138, § 371 Date Oct. 22, 1996, § 102(e) Date Oct. 22, 1996, PCT Pub. No. WO96/26608, PCT Pub. Date Aug. 29, 1996

PCT Filed Feb. 22, 1996, Ser. No. 732,311

Claims priority, application European Pat. Off., Feb. 22, 1995, 95400374

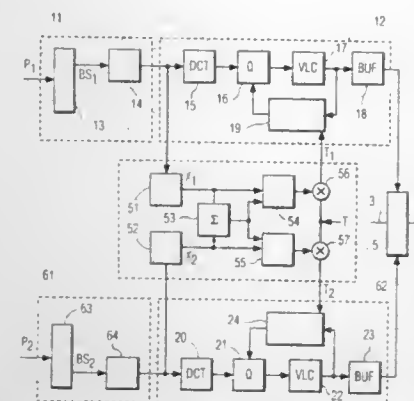
Int. Cl.⁶ H04N 7/08

U.S. Cl. 348—385

3 Claims

1. A system for transmitting a plurality of video programs simultaneously through a transmission channel having a predetermined total bitrate, comprising:

- (a) in cascade a decoding assembly and an encoding assembly, said decoding assembly consisting of an identical plurality of decoding means provided in parallel for decoding n coded input signals corresponding to said programs and each com-



prising in cascade a demultiplexing circuit and a decoder, and said encoding assembly consisting of an identical plurality of encoding means being in cascade with said decoding means and each comprising in series a quantizer having a controllable step size and a variable length encoder;

(b) means for combining the output bitstreams of said encoding means to an output channel bitstream;

(c) control means for controlling respective step sizes of said plurality of encoding means in dependence upon the respective output bitrates of said encoding means; characterized in that:

said control means are also provided for controlling the output bitrates of said encoding means in dependence upon complexity values associated to the coded input signals of each decoding means with respect to the joint complexity of the plurality of said coded signals.

5,805,221

VIDEO SIGNAL CODING SYSTEM EMPLOYING SEGMENTATION TECHNIQUE

Min-Sup Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

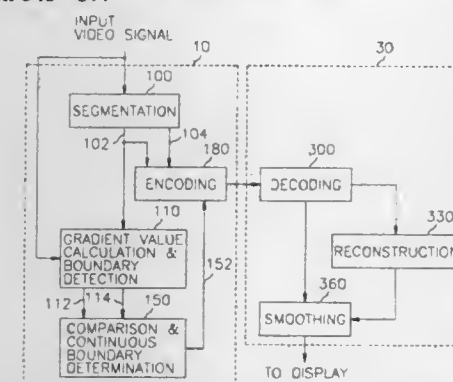
Filed Oct. 30, 1995, Ser. No. 550,331

Claims priority, application Rep. of Korea, Oct. 31, 1994, 94-28261

Int. Cl.⁶ H04N 7/26

U.S. Cl. 348—397

9 Claims



1. An image processing system having an encoder for providing an encoded video signal based on an input video signal and a decoder for providing a decoded video signal based on the encoded video signal, wherein the encoder comprises:

- means for segmenting the input video signal into a plurality of regions to generate contour information and texture information, wherein the contour information represents the shape and location of said each of the regions and the respective texture information represents a mean pixel value of all the pixels contained in said each of the regions;
- means for detecting boundaries between the regions based on the contour information for said each of the regions and

5,805,222

VIDEO CODING APPARATUS

Akira Nakagawa; Kimihiko Kazui; Eishi Morimatsu, all of Kawasaki, and Takahiro Shimizu, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

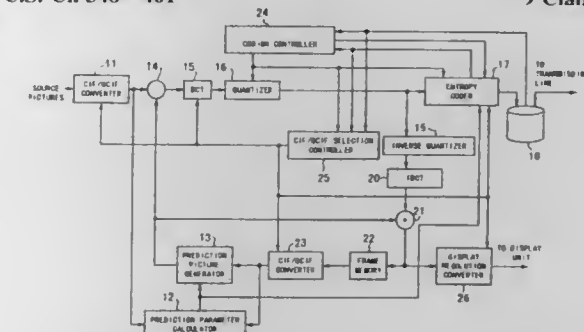
Filed Nov. 4, 1996, Ser. No. 743,171

Claims priority, application Japan, Mar. 29, 1996, 8-075605

Int. Cl.⁶ H04N 7/50

U.S. Cl. 348—401

9 Claims



1. A video coding apparatus for performing predictive coding of digital video input signals, comprising:

- resolution selection control means for selecting picture resolution to be used in coding of a source picture of a current frame based on coding information in a previous frame, said coding information including quantizer step size, amount of coded data, and buffer occupancy;
- resolution conversion means for converting resolution of the source picture to the picture resolution selected by said resolution selection control means; and
- coding means for coding the source picture whose resolution is converted by said resolution conversion means.

5,805,223

**IMAGE ENCODING APPARATUS HAVING AN
INTRAPICTURE ENCODING MODE AND
INTERPICTURE ENCODING MODE**

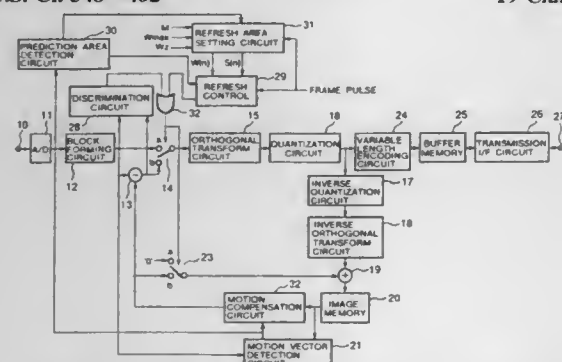
Akihiro Shikakura, and Masato Kato, both of c/o Canon Kabushiki Kaisha 30-2, 3-chome, Shimomaru-ku, Ohta-ku, Tokyo, Japan

Continuation of Ser. No. 778,540, Jan. 3, 1997, abandoned, which is a continuation of Ser. No. 444,769, May 19, 1995, abandoned. This application Jul. 15, 1997, Ser. No. 893,001 Claims priority, application Japan, May 25, 1994, 6-110831; Jul. 22, 1994, 6-170798

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—402

19 Claims



1. An image encoding apparatus in which one picture is divided into a refresh area and another area and input image data is encoded by using an intrapicture encoding mode or a motion compensation interpicture encoding mode according to the divided area, comprising:

- refresh area setting means for setting, in a picture plane, a refresh area to which an intrapicture encoding is forcibly performed, in such a manner that the refresh area set in different picture planes overlap with each other by at least an area corresponding to a motion compensation range, the refresh area set by said refresh area setting means being shifted between the different picture planes and at least one of a width and a shift amount of the refresh area of each of the different picture planes being set so as not to coincide with each other; and
- refresh control means for forcibly setting an encoding mode of the input image data to the intrapicture encoding mode in the refresh area set by said refresh area setting means.

5,805,224

**METHOD AND DEVICE FOR TRANSCODING VIDEO
SIGNALS**

Gerrit J. Keesman, and Petrus J. Van Otterloo, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 14, 1996, Ser. No. 601,406

Claims priority, application European Pat. Off., Feb. 15, 1995, 95400325

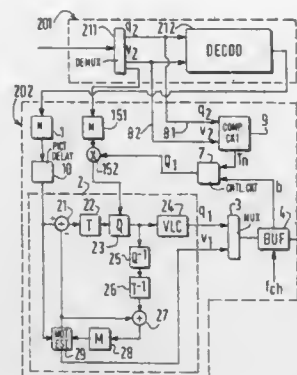
Int. Cl.⁶ H04N 7/12; H04N 7/10

U.S. Cl. 348—405

6 Claims

1. A method of transcoding coded video signals corresponding to a sequence of images subdivided into a plurality N of subpictures, comprising the steps of:

- decoding said coded signals which are associated with each image of the sequence;
 - quantizing with an applied stepsize the decoded signals thus obtained;
 - encoding the quantized signals;
 - modifying said stepsize according to the output bitrate of the coded signals thus obtained;
- wherein the modifying step comprises the sub-steps of:
- computing a local target value T_n for the number of bits for encoding each of the N subpictures of each image;



modifying the stepsize in view of said output bitrate and said computed local target value; and

wherein the computing sub-step comprises the further sub-steps of:

- counting the local number of bits generated for each of said subpictures and the total number of bits for an entire picture; and,
- determining said local target value T_n in accordance with the formula $T_n = S \times R_{out} / R_{in}$, where S is the total number of bits spent to compress each incoming picture and R_{in} and R_{out} are the total number of bits before a decoding operation and after an encoding operation, respectively.

5,805,225

**METHOD AND APPARATUS FOR VARIABLE
RESOLUTION VIDEO PICTURE CODING/DECODING**

Katsumi Tahara; Yoichi Yagasaki, and Jun Yonemitsu, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 213,147, Mar. 15, 1994, abandoned.

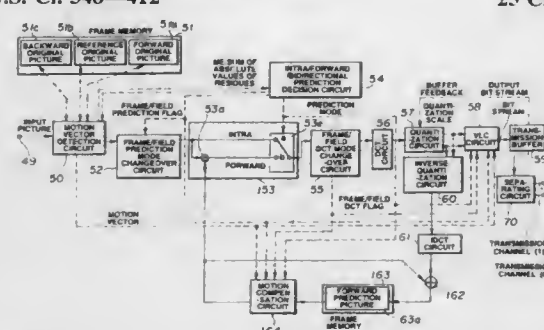
This application Sep. 3, 1996, Ser. No. 706,957

Claims priority, application Japan, Mar. 15, 1993, 5-053945

Int. Cl.⁶ H04N 7/24

U.S. Cl. 348—412

25 Claims



1. A method for transmitting groups of picture signals, comprising the steps of:

- encoding a portion of said groups of picture signals by forward predictive encoding with reference to a preceding picture signal in said portion to generate a first bitstream;
- encoding the picture signals in said groups of picture signals which are not included in said portion by one of forward and backward predictive encoding with reference to the picture signals in said portion to generate a second bitstream; and
- transmitting said first bitstream and said second bitstream in parallel.

5,805,226

**METHOD AND APPARATUS FOR ENCODING A VIDEO
SIGNAL BY USING A BLOCK TRUNCATION CODING
METHOD**

Hae-Mook Jung, Seoul, Rep. of Korea, assignor to Daewoo Electronics, O., Ltd., Seoul, Rep. of Korea

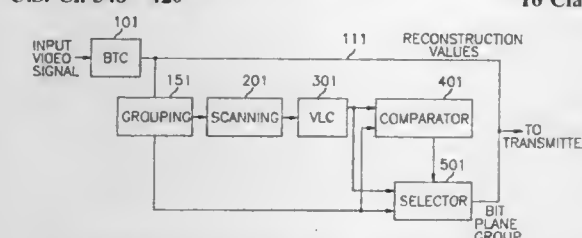
Filed Mar. 19, 1996, Ser. No. 617,589

Claims priority, application Rep. of Korea, Mar. 20, 1995, 1995 5830

Int. Cl.⁶ H04N 7/18

U.S. Cl. 348—420

16 Claims



1. An apparatus for encoding a video signal to provide a coded video signal, wherein the video signal includes a plurality of frames, each of the frames is divided into a multiplicity of non-overlapping blocks and each of the blocks contains KxK pixels, K being a positive integer, said apparatus comprising:

- means, for each block, for determining a sample mean and a sample variance of the KxK pixels included in said block;
- means for dividing the pixels included in said each block into a bright group and a dark group based on intensity values of the pixels and determining two reconstruction values, in response to the sample mean and the sample variance, each of the reconstruction values denoting a representative intensity value of the pixels included in the bright or the dark group;
- means, for said each block, for deciding a bit plane which contains KxK binary pixels, each of the binary pixels denoting either the bright or the dark group where a corresponding pixel in said each block belongs to;
- means, for said each block, for scanning the KxK binary pixels included in the bit plane in a zigzag order and-for providing run-length and level values;
- means, for said each block, for encoding the run-length and the level values by using a predetermined variable length coding table, thereby providing a coded bit plane;
- means, for said each block, for determining a selection signal denoting either the bit plane or the coded bit plane which is represented with a fewer number of bits;
- selection means, for said each block, for choosing either the bit plane or the coded bit plane in response to the selection signal; and
- means, for said each block, for combining the two reconstruction values, and either of the bit plane and the coded bit plane selected at the selection means, to thereby provide the coded video signal.

5,805,227

**HALF-PIXEL MOTION COMPENSATION CONTROLLER
ACCEPTING MPEG2**

Song Gi-Hwan, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Japan

Filed Sep. 21, 1995, Ser. No. 531,678

Claims priority, application Rep. of Korea, Sep. 23, 1994, 1994 24014

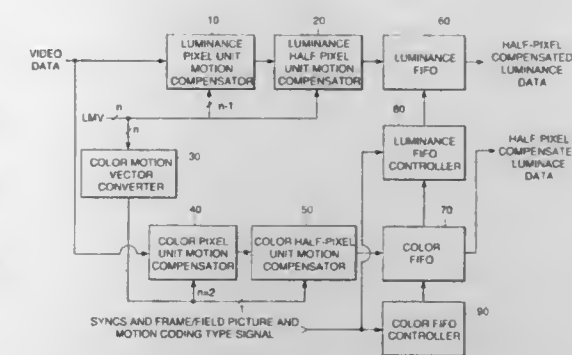
Int. Cl.⁶ H04N 7/26

U.S. Cl. 348—416

23 Claims

1. A half-pixel motion compensation controller accepting MPEG2 data from a MPEG2 system, comprising:

- a luminance pixel unit motion compensator for compensating for pixel unit motion of a luminance signal according to an input luminance motion vector to produce a unit-compensated luminance signal;
- a luminance half-pixel unit motion compensator for compensating for half-pixel unit motion of said unit-compensated luminance signal according to luminance half-pixel information included in said luminance motion vector to produce a half-unit-compensated luminance signal; and
- a color motion vector converter for obtaining a motion vector for a color signal from said luminance motion vector;



nance signal according to luminance half-pixel information included in said luminance motion vector to produce a half-unit-compensated luminance signal, said luminance half-pixel unit motion compensator comprising:

- a luminance half-pixel processing direction and delay controller for producing a luminance half-pixel processing direction control signal for controlling a luminance half-pixel processing direction and output delay control signals for controlling a delay between receipt of a unit-compensated luminance signal and a half-unit-compensated luminance signal; and
- four phase luminance half-pixel unit motion compensators for producing luminance half-pixel motion compensation data from respective chases of a unit-compensated luminance signal according to the luminance half-pixel processing direction control signal and output delay control signals from said luminance half-pixel processing direction and delay controller;
- a color motion vector converter for obtaining a motion vector for a color signal from said luminance motion vector;
- a color pixel unit motion compensator for compensating for pixel unit motion of the color signal according to the color motion vector obtained by said color motion vector converter to produce a unit-compensated color-signal;
- a color half-pixel unit motion compensator for compensating for half-pixel unit motion of said unit-compensated color signal according to color half-pixel information from the color motion vector to produce a half-unit-compensated color signal;
- a luminance FIFO for buffering the half-unit-compensated luminance signal produced by said luminance half-pixel unit motion compensator;
- a color FIFO for buffering the half-unit-compensated color signal produced by said color half-pixel unit motion compensator;
- a luminance FIFO controller for controlling input and output of said luminance FIFO according to sync signals and a frame/field picture and motion coding type selection signal output from the MPEG2 system; and
- a color FIFO controller for controlling input and output of said color FIFO according to sync signals and a frame/field picture and motion coding type selection signal output from the MPEG2 system.

5,805,228

VIDEO ENCODER/DECODER SYSTEM

John J. Proctor, Nevada City, Calif.; Craig H. Richardson, Marietta, Ga.; Chris J. M. Hodges, Atlanta, Ga.; Kwan K. Truong, Norcross, Ga., and David L. Smith, Atlanta, Ga., assignors to U.S. Robotics Access Corp., Skokie, Ill.

Filed Aug. 9, 1996, Ser. No. 689,444

Int. Cl.⁶ H04N 7/12; H04N 7/30; H04N 7/32

U.S. Cl. 348—422

78 Claims

1. An apparatus for encoding an image signal, comprising: an acquisition module disposed to receive said image signal; a first processor coupled to said acquisition module; and



two encoder processors coupled in parallel to said first processor, wherein said two encoder processors produce an encoded image signal under control of said first processor.

5,805,229

APPARATUS FOR SIMULTANEOUSLY GENERATING INTERPOLATED VIDEO SIGNALS FOR EVEN AND ODD LINES

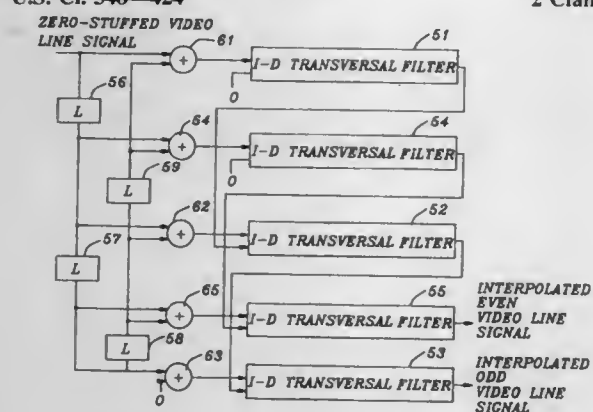
Gang-Woog Song, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea
Continuation-in-part of Ser. No. 297,991, Aug. 30, 1994, abandoned. This application Dec. 28, 1995, Ser. No. 579,684

Claims priority, application Rep. of Korea, Aug. 31, 1993, 93-17202

Int. Cl.⁶ H04N 7/12

U.S. Cl. 348-424

2 Claims



1. An apparatus for converting a subsampled video signal into an original video signal, wherein the original video signal has N video line signals and the subsampled video signal includes (N+1)/2 video line signals alternately decimated, N being a positive odd integer larger than 1, which comprises:

means for generating the (N+1)/2 video line signals;

first interpolation means for generating an interpolated even video line signal;

second interpolation means for generating an interpolated odd video line signal; and

means for simultaneously coupling the (N+1)/2 video line signals to the first and the second interpolation means to thereby allow the first and the second interpolation means to simultaneously generate the interpolated even and odd video line signals.

5,805,230 METHOD FOR AUTOMATIC PROGRAMMING OF A TUNER AND DEVICE FOR IMPLEMENTATION OF THE METHOD

Alain Staron, Paris, France, assignor to Thomson Multimedia, Courbevoie, France

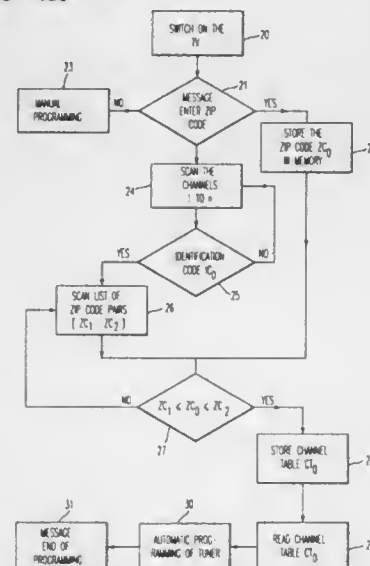
PCT No. PCT/FR95/00238, § 371 Date Jun. 14, 1996, § 102(e) Date Jun. 14, 1996, PCT Pub. No. WO95/24098, PCT Pub. Date Sep. 8, 1995

PCT Filed Mar. 1, 1995, Ser. No. 583,006

Claims priority, application France, Mar. 1, 1994, 94 02332 Int. Cl.⁶ H04N 7/10

U.S. Cl. 348-460

9 Claims



1. A method for automatic programming of a television tuner and/or video recorder using a digital or analog composite video frequency signal, comprising:

receiving digital signals carried by part of a multiplexed digital data stream of the video frequency signal or by at least part of a signal not used for video information, the digital signals representing an identification code and at least one table of channels, the identification code and the table of channels corresponding to an emitter and identifiable by one or more postal codes;

recognizing the identification code of the digital signals by comparison with a code stored in a memory;

reading data carried by the digital signals;

identifying at least one of the table of channels corresponding to a location of an emitter serving a geographic location of the television tuner and/or video recorder based on a postal code, input by a user, corresponding to the geographic location; and automatically programming the television tuner and/or video recorder based on the identified table of channels.

5,805,231

PHASE SYNCHRONIZING METHOD AND CIRCUIT

Yasuhide Mogi, Kanagawa, and Etsuro Yamauchi, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP96/01072, § 371 Date Dec. 19, 1996, § 102(e) Date Dec. 19, 1996, PCT Pub. No. WO96/33557, PCT Pub. Date Oct. 24, 1996

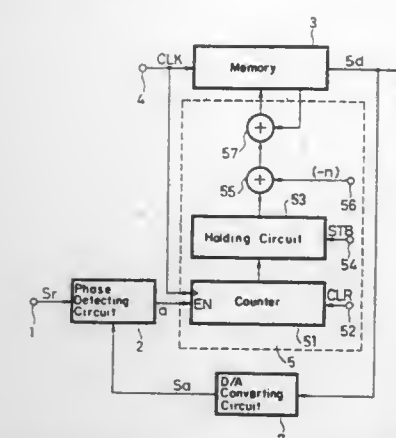
PCT Filed Apr. 19, 1996, Ser. No. 750,903

Claims priority, application Japan, Apr. 21, 1995, 7-097263 Int. Cl.⁶ H04N 5/06

U.S. Cl. 348-523

3 Claims

1. A phase synchronizing circuit, comprising:
input means to which an arbitrary frequency signal is inputted;
memory means in which a desired signal waveform is stored;



address signal generating means for generating an address signal used to read out said desired signal waveform from said memory means; and

phase-comparing means for comparing a phase of said desired signal waveform and a phase of said arbitrary frequency signal inputted to said input means, wherein a signal of said desired signal waveform whose phase is synchronized with that of said arbitrary frequency signal inputted to said input means is read out from said memory means by controlling said address signal generated by said address signal generating means based on a phase error signal obtained from said phase comparing means, said address signal generating means generating said address signal by computing a reference address signal and an error address signal formed from said phase error signal, wherein said phase error signal is a pulse width modulated signal and said address signal generating means includes a counter circuit for counting a clock signal by said pulse width modulated signal, a holding circuit for holding a count value of said counter circuit and a computing circuit for computing said reference address signal and said count value held in said holding circuit.

5,805,232

VERTICAL SYNC SIGNAL SEPARATOR CIRCUIT AND MULTI-SYNC MONITOR USING THE SAME

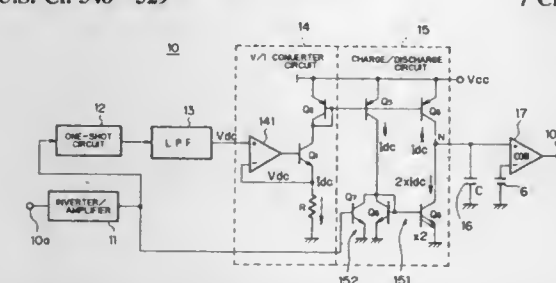
Koshi Ninomiya, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Nov. 19, 1996, Ser. No. 753,017

Claims priority, application Japan, Nov. 24, 1995, 7-329543 Int. Cl.⁶ H04N 5/08

U.S. Cl. 348-529

7 Claims



1. A vertical sync signal separator circuit responsive to one of a plurality of composite sync signals each containing a horizontal sync signal having a different frequency and a vertical sync signal set correspondingly to the horizontal sync signal for separating the vertical sync signal from the composite sync signal, comprising:
a capacitor;
a charge/discharge circuit for generating a charging current having a value increasing with increase of the frequency of

the horizontal sync signal to charge said capacitor in a time period of the horizontal sync signal and a time period of the vertical sync signal and discharging said capacitor in other time periods than the time periods to reduce a difference of the horizontal sync signal frequency;

a comparator for comparing the voltage of said capacitor with a predetermined reference voltage to detect the vertical sync signal; and

a one-shot circuit for generating a pulse having a predetermined pulse width correspondingly to the vertical sync signal and the horizontal sync signal of the composite sync signal and an integrator circuit for integrating an output of said one-shot circuit to produce a certain DC voltage signal and wherein said charge/discharge circuit charges said capacitor with a current having a value corresponding to a voltage value of the certain DC voltage signal during the time periods of the vertical sync signal and the horizontal sync signal of the composite sync signal and discharges said capacitor during other time periods than the time periods.

5,805,233

METHOD AND APPARATUS FOR AUTOMATIC PIXEL CLOCK PHASE AND FREQUENCY CORRECTION IN ANALOG TO DIGITAL VIDEO SIGNAL CONVERSION

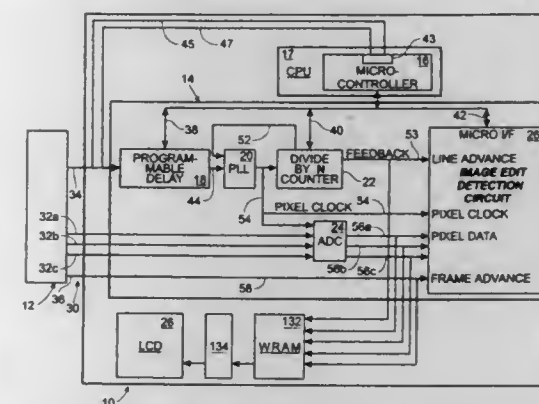
Michael G. West, Portland, Oreg., assignor to In Focus Systems, Inc., Wilsonville, Oreg.

Filed Mar. 13, 1996, Ser. No. 614,511

Int. Cl.⁶ H04N 5/12

U.S. Cl. 348-537

20 Claims



1. A method for recovering a correct phase and frequency clock for an analog video signal that is converted for display on a digital display object having pixels arranged in lines and columns, the analog video signal including an analog video data signal that is operable for raster scanning in lines across a CRT screen to form consecutive frames of video information, the raster scanning controlled by timing signals that control a line scan rate and a frame refresh rate, to produce consecutive frames of video information, comprising the steps of:

converting an analog video signal to a digital video signal;

estimating an expected width of an image producible by the analog video signal;

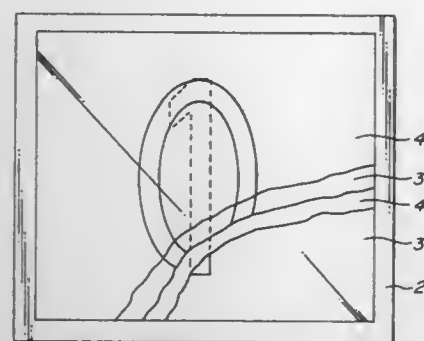
determining an actual width of an image producible by the digital video signal;

iteratively adjusting the digital video signal until the actual width equals the expected width.

UMI

II. Structure for filtering a component of a composite video signal, comprising:

a control sequence stored in the control unit that, per system clock, supplies parallel data flow control signals, a first address for addressing the block memory, a second address for addressing the respective search domain in the search domain memory;



such a manner as to permit visual observation of the stacked nature of the displays.

5,805,246

METHODS OF MANUFACTURING LIQUID CRYSTAL DISPLAY DEVICES WITH REDUCED SUSCEPTIBILITY TO ELECTROSTATIC DISCHARGE FAULTS

Jung-Hee Lee, Kyunggi-do, and Kweon-Sam Hong, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Rep. of Korea

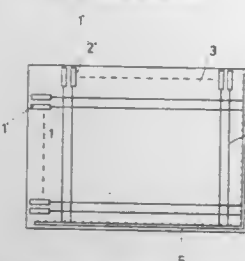
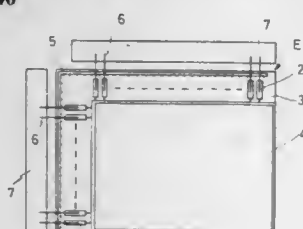
Filed May 13, 1997, Ser. No. 855,301

Claims priority, application Rep. of Korea, Aug. 7, 1996, 1996-32853

Int. Cl.⁶ G02F 1/133; 1/134; 1/13

U.S. Cl. 349—40

6 Claims



1. A liquid crystal display device, comprising:
 - a substrate having an array of thin-film transistors therein;
 - a plurality of data and gate lines electrically coupled to said array of thin-film transistors, said plurality of data and gate lines having first and second opposing ends adjacent respective first and second opposing edges of said thin-film transistor substrate;
 - input pads electrically connected to the first ends of said plurality of data and gate lines; and
 - an electrostatic shorting bar electrically connecting the second ends of said plurality of data and gate lines together.
3. A method of manufacturing a liquid crystal display device, comprising the steps of:

forming a first substrate which has first and second opposing edges, a display region, a plurality of control lines electrically coupled to the display region and an electrostatic shorting bar electrically connecting the plurality of control lines together; electrically connecting a second substrate comprising a display driver circuit to the plurality of control lines, at a portion of the first substrate extending adjacent the first edge; and then electrically disconnecting the electrostatic shorting bar from the plurality of control lines by cutting the electrostatic shorting

bar from the first substrate using a cutting tool selected from the group consisting of cutting saws and lasers.

5,805,247

LIQUID CRYSTAL DISPLAY APPARATUS IN WHICH PLURAL COMMON ELECTRODES ARE PARALLEL TO THE PIXEL ELECTRODES ON THE SAME SUBSTRATE AND A BLACK MATRIX ON THE OPPOSING SUBSTRATE

Masahito Oh-e, Mobara; Sukekazu Aratani, Hitachi; Shigeru Matsuyama; Hiroaki Asuma, both of Mobara, and Kiyoshige Kinugawa, Chiba, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

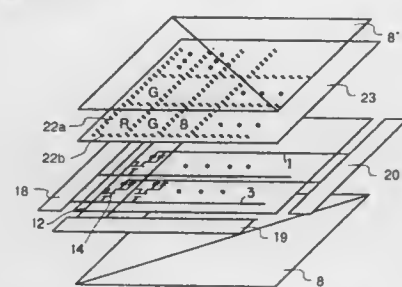
Filed Oct. 10, 1996, Ser. No. 731,162

Claims priority, application Japan, Oct. 26, 1995, 7-278644

Int. Cl.⁶ G02F 1/136; 1/133

U.S. Cl. 349—42

15 Claims



1. An active matrix type liquid crystal display apparatus, comprising:
 - a pair of opposed substrates; and
 - a liquid crystal layer interposed between said pair of substrates;
 - one of said substrates comprising:
 - (a) plural scanning electrodes;
 - (b) plural image signal electrodes crossing said scanning electrodes in a matrix shape;
 - (c) plural pixel electrodes formed on said scanning electrodes via active elements; and
 - (d) plural common electrodes formed in parallel to said pixel electrodes, which are formed between said one substrate and said liquid crystal layer so as to generate an electric field between said pixel electrode and said common electrode in parallel to said one substrate;
- wherein a shielding layer parallel to said image signal electrodes and said scanning electrodes is provided on the other substrate opposing said one substrate comprising said image signal electrodes, and a specific resistivity of at least a part of said shielding layer formed in parallel to said image signal electrodes is less than $10^8 \Omega\text{-cm}$.

5,805,248

ACTIVE MATRIX LIQUID CRYSTAL DISPLAY

Mitiaki Sakamoto, and Hiroshi Shiba, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Aug. 29, 1997, Ser. No. 920,904

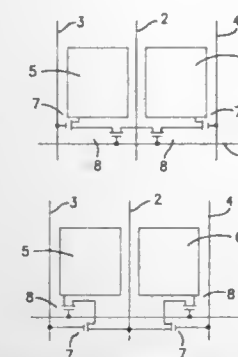
Claims priority, application Japan, Aug. 30, 1996, 8-230594

Int. Cl.⁶ G02F 1/134; 1/136

U.S. Cl. 349—48

12 Claims

1. A circuitry of a liquid crystal display, comprising:
 - a plurality of signal lines extending in a first direction;
 - a plurality of scanning lines extending in a second direction vertical to said first direction;
 - first and second enable lines separated from each other, each of said first and second enable lines comprising a plurality of first parts extending in said first direction and between said signal lines and a second part extending in said second direction to which said first parts are connected;



- a plurality of pairs of first and second pixel electrodes being positioned in adjacent two pixels and also positioned at opposite sides of each of said signal lines;
- a series connection of first and second transistors between each of said first and second pixel electrodes and said signal line, said first transistor having a gate connected to each of said first and second enable lines whilst said second transistor having a gate connected to said scanning line.

5,805,249

LIQUID CRYSTAL DISPLAY DEVICE HAVING VIDEO SIGNAL DRIVING CIRCUIT MOUNTED ON ONE SIDE

Kaoru Hasegawa, Ichinomiya-machi; Yoshio Toriyama, Nagara-machi; Naoto Kobayashi, Mobara; Katsuhiko Yaritha, Mobara; Hironori Kondo, Mobara; Masahiko Suzuki, Mobara, and Yoshihiro Imajo, Mobara, all of Japan, assignors to Hitachi, Ltd., and Hitachi Device Engineering Co., Ltd., both of Tokyo, Japan

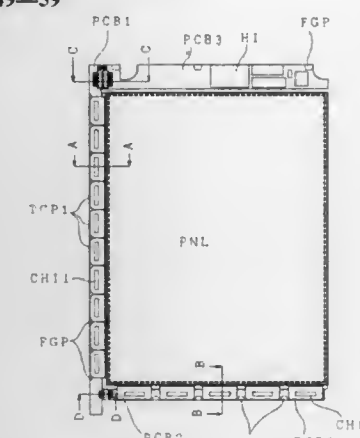
Continuation of Ser. No. 419,000, Apr. 7, 1995, Pat. No. 5,640,216. This application Jan. 8, 1997, Ser. No. 780,237

Claims priority, application Japan, Apr. 13, 1994, 6-75019; Apr. 13, 1994, 6-75038; Apr. 13, 1994, 6-75063; Apr. 13, 1994, 6-75072; Apr. 13, 1994, 6-76056

Int. Cl.⁶ G02F 1/133; 1/135; 1/134

U.S. Cl. 349—59

18 Claims



1. A liquid crystal display device comprising:
 - a liquid crystal display panel;
 - in which first and second insulating substrates are superposed at a predetermined gap, and in which a plurality of scanning signal lines and video signal lines are arrayed on one of said first and second substrates;
 - a video signal line driving circuit substrate is arranged on only one of the sides of said display panel and no circuit substrate is arranged at the side of said display panel opposite the only one of the sides having said video signal line driving circuit substrate arranged thereat; and
 - wherein the liquid crystal display panel includes two sides extending perpendicular to the only one of the sides having the video signal line driving circuit substrate arranged thereat, one of the two perpendicular sides having a scanning signal

line driving circuit substrate arranged thereat and the other of the two perpendicular sides having a circuit substrate including a power source circuit arranged thereat.

5,805,250

LIQUID CRYSTAL DISPLAY DEVICE WITH CONTACT HOLES EXTENDING THROUGH INTERLAYER INSULATING FILM BETWEEN SWITCHING ELEMENTS AND PIXEL ELECTRODES

Akitsu Hatano, Nara; Takashi Shibata, Tenri; Yukihiko Sumida, Nara; Takayuki Shimada, Yamatokoriyama, and Yasunobu Tagusa, Ikoma, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

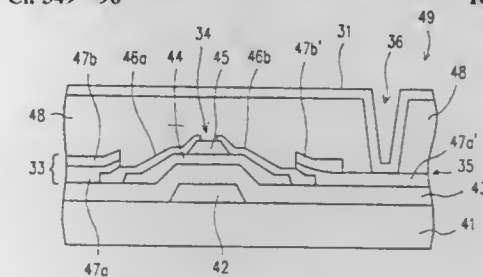
Filed Oct. 29, 1996, Ser. No. 739,755

Claims priority, application Japan, Oct. 31, 1995, 7-284159

Int. Cl.⁶ G02F 1/133; 1/133; G02B 27/22; 27/26

U.S. Cl. 349—96

10 Claims



1. A transmission type liquid crystal display device including a plurality of pixels for displaying an image, comprising:
 - a first substrate and a second substrate opposed to each other;
 - a liquid crystal layer interposed between the first and the second substrates;
 - a plurality of electrodes for driving the pixels in accordance with data signals, the electrodes including a plurality of pixel electrodes formed on the first substrate and at least one counter electrode formed on the second substrate;
 - switching elements, connected to the plurality of pixel electrodes through contact holes, for supplying the data signals, the switching elements being disposed on the first substrate;
 - scanning lines, formed on the first substrate, for transmitting signals which activate the switching elements;
 - signal lines, formed on the first substrate to cross the scanning lines, for transmitting the data signals to the switching elements;
 - an interlayer insulating film formed on the first substrate between the switching elements and the pixel electrodes, wherein the contact holes extend through the interlayer insulating film, and the interlayer insulating film having at least a polarizing property; and
 - a further layer having a polarizing property formed on the second substrate,
- wherein at least one of the interlayer insulating film and the further layer is formed inside of the first substrate and the second substrate when the first substrate and the second substrate are attached to each other.

5,805,251

NOISE-SHIELD SHEET AND LIQUID CRYSTAL DISPLAY DEVICE USING THE SAME

Takaaki Ozawa, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Mar. 26, 1996, Ser. No. 622,601

Claims priority, application Japan, Mar. 31, 1995, 7-100553

Int. Cl.⁶ G02F 1/133; H05K 9/00

U.S. Cl. 349—110

4 Claims

1. A noise-shield sheet, comprising:
 - an insulating base layer opposite to the surface of a circuit board mounting electric components;

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VOL

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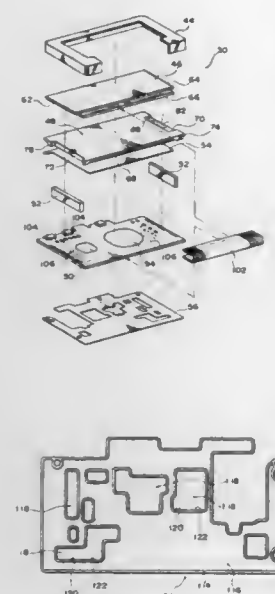
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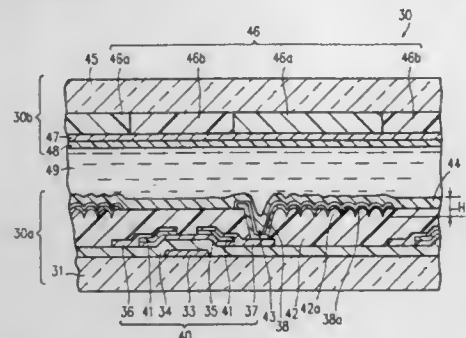
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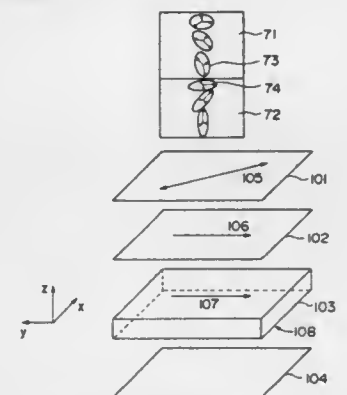
a shield layer of electrically conductive material formed on said insulating layer; and holes formed through said insulating and shield layers for allowing said electric components to pass, each of said holes being larger on the side of said shield layer than the ones on the side of said insulating layer.

5,805,252
REFLECTION TYPE LIQUID CRYSTAL DISPLAY AND METHOD OF PRODUCING THE SAME
Yasunori Shimada, Kashiwara, and Seichi Mitsui, Kashiwa, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Sep. 28, 1995, Ser. No. 535,952
Claims priority, application Japan, Oct. 3, 1994, 6-239216
Int. Cl.⁶ G02F 1/1335
U.S. Cl. 349—113
8 Claims



I. A reflection type liquid crystal display comprising:
a first substrate including a rough portion formed on a surface thereof and a reflection electrode formed on the rough portion;
a second substrate including a counter electrode formed thereon; and
a liquid crystal layer interposed between the first and second substrates, driven by the reflection electrode and the counter electrode to perform a display;
wherein the reflection electrode comprises aluminum or an aluminum alloy, and the reflection electrode includes a surface oxidation layer,
and wherein the first substrate includes a vertical alignment film comprising an insulating material formed on the surface oxidation layer of the reflection electrode.

5,805,253
LIQUID CRYSTAL DISPLAY WITH COMPENSATORS HAVING MINIMUM RETARDATIONS IN THE INCLINED DIRECTION
Hiroyuki Mori, and Yoji Ito, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Filed Nov. 18, 1996, Ser. No. 749,894
Claims priority, application Japan, Nov. 17, 1995, 7-299430; Feb. 5, 1996, 8-018530
Int. Cl.⁶ G02F 1/1335; 1/1337
U.S. Cl. 349—118
12 Claims



7. A liquid crystal display comprising a liquid crystal cell which comprises a pair of substrates each of which is provided with a transparent electrode having an orientation layer thereon and a layer of nematic liquid crystal sealed therebetween, the orientation layer of one of the substrates being a layer capable of giving homeotropic structure to the nematic liquid crystal, a polarizing sheet arranged on one side of the cell, the other side of the cell being provided with a reflective plate, and an optical compensatory sheet provided between the liquid crystal cell and the polarizing sheet, the layer of nematic liquid crystal showing hybrid alignment, the nematic liquid crystal varying its angle of director to the plane of the substrate under variation of voltage applied to the liquid crystal cell;

wherein the optical compensatory sheet shows the minimum of absolute values of retardation values in a direction inclined from the normal of the sheet, and wherein the optical compensatory sheet further satisfies the condition:

$$0.2 \times Re_2 \leq Re_1 \leq 2.0 \times Re_2$$

wherein Re_1 represents an absolute value of a retardation value of the optical compensatory sheet, and Re_2 represents an absolute value of a retardation value of the layer of nematic liquid crystal of the liquid crystal cell;

the retardation value of optical compensatory sheet being defined by the formula:

$$\{(n_2 + n_3)/2 - n_1\} \times d$$

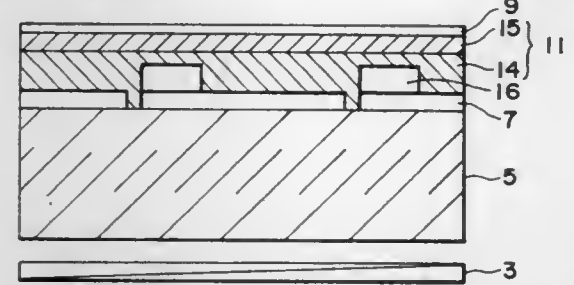
in which n_1 , n_2 and n_3 are refractive indices in the three axis directions of the optical compensatory sheet, n_1 , n_2 and n_3 satisfy the condition of $n_1 \leq n_2 \leq n_3$, and d is the thickness in terms of nm of the optical compensatory sheet;

the retardation value of the layer of nematic liquid crystal being defined by the formula:

$$\{n_3 - (n_1 + n_2)/2\} \times d$$

in which n_1 , n_2 and n_3 are refractive indices in the three axis directions of the layer of nematic liquid crystal, n_1 , n_2 and n_3 satisfy the condition of $n_1 \leq n_2 \leq n_3$, and d is the thickness in terms of nm of the layer of nematic liquid crystal.

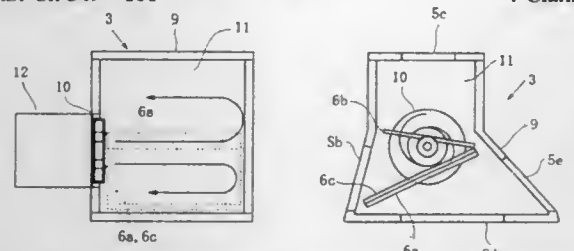
5,805,254
LIQUID CRYSTAL DEVICE AND PROCESS FOR PRODUCTION THEREOF HAVING PLURAL INSULATING LAYERS
Naoya Nishida, Hadano, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 11, 1996, Ser. No. 728,916
Claims priority, application Japan, Oct. 12, 1995, 7-264334
Int. Cl.⁶ G02F 1/1337; 1/1333; 1/13
U.S. Cl. 349—138
14 Claims



1. A liquid crystal device, comprising: a pair of substrates each having thereon an electrode pattern, and a liquid crystal disposed between the substrates; wherein at least one of the substrates is provided with an insulating film comprising a first insulating layer formed by wet-coating and baking, and a second insulating layer formed by vacuum deposition closer to the liquid crystal than the first insulating layer, said first insulating layer being moisture-absorptive but being in a substantially moisture-free state by covering with the second insulating layer which is less moisture-absorptive than the first insulating layer.

8. A liquid crystal device, comprising: a pair of substrates each having thereon an electrode pattern, and a liquid crystal disposed between the substrates; wherein at least one of the substrates is provided with an insulating film comprising a non-patterned first insulating layer comprising SiO_2 and TiO_2 , and a non-patterned second insulating layer comprising Ta_2O_5 disposed closer to the liquid crystal than the first insulating layer.

5,805,255
LIQUID-FILLED OPTICAL DEVICE
Hiroyuki Mori, and Takashi Terai, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Filed Feb. 6, 1996, Ser. No. 597,192
Claims priority, application Japan, Feb. 6, 1995, 7-041358
Int. Cl.⁶ G02F 1/1335
U.S. Cl. 349—161
4 Claims



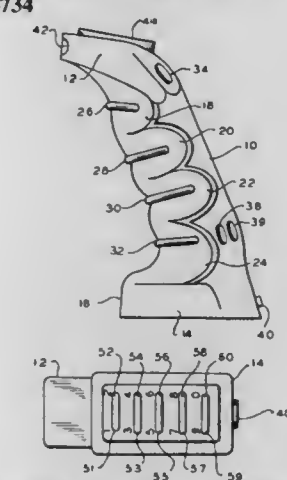
1. An optical device having a light source and a liquid-filled optical device, the liquid-filled optical device having an optical casing filled with liquid, and an optical element provided in the casing, said optical device comprising:

the optical element being one of a beam splitter and dichroic mirrors;

light from the light source transmitting through the liquid so that a component of the light passes through the optical element, and

an agitation device provided for agitating the liquid in the optical casing so as to effect convection and agitation of the liquid; wherein the agitation device comprises a propeller disposed in the liquid in the optical casing, and a rotating device for rotating the propeller.

5,805,256
REMOTE CONTROL WITH A THUMB SWITCH FOR CONTROLLING EQUIPMENT THAT HANDLES VIDEO OR AUDIO SIGNALS
William Miller, 30 Troy Rd., Whippany, N.J. 07981
Filed Feb. 27, 1995, Ser. No. 394,883
Int. Cl.⁶ H04N 5/44
U.S. Cl. 348—734
24 Claims



1. A remote control for issuing commands to equipment that handles a video or audio signal, comprising:

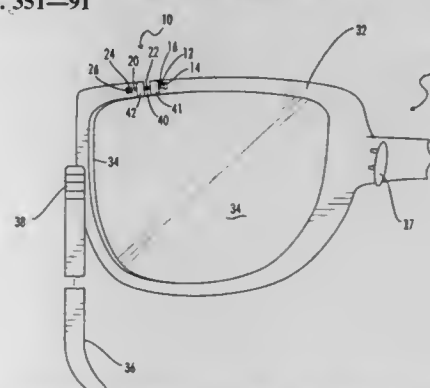
a bar having a central longitudinal axis intersecting two opposite ends of said bar, said bar having a head at one of said opposite ends and being sized to be held by wrapping fingers about said bar and around said central longitudinal axis, said bar having opposite said head, a base having a keypad;

a thumb switch mounted and oriented at the head of said bar to be substantially exposed to thumb fingering directed along said central longitudinal axis;

a signaling means mounted on said bar for radiating a control signal to said equipment for controlling said equipment wirelessly; and

processing means coupled to said thumb switch and said signaling means for commanding an operational change in said equipment through said signaling means in response to a predetermined reciprocation of said thumb switch, said operational change in said equipment being unambiguously consummated without further manipulation of said remote control and independent of angular displacement of said central longitudinal axis.

5,805,257
SECURING PIN ASSEMBLY FOR USE WITH THE FRAMES OF EYE GLASSES
Kristi L. Hagler, 459 Lafayette Rd., Clarksville, Tenn. 37042
Filed Sep. 6, 1996, Ser. No. 708,917
Int. Cl.⁶ G02C 1/08
U.S. Cl. 351—91
8 Claims



1. A securing pin assembly for use in the frame of eyeglasses, said assembly comprising:

a pin having a plurality of ratchet teeth formed thereon and terminating at a tip;
securing means for preventing the pin from being dislodged from the frame of the eyeglasses; and
wherein the securing means further comprises a securing ring having a channel bored therethrough, and wherein the channel is configured to cooperatively engage the ratchet teeth of the pin to prevent movement of the securing ring towards the tip of the pin.

5,805,258

ONE-PIECE INDUSTRIAL SAFETY GLASSES HAVING FOREHEAD CUSHIONING PORTION

Klaus Wiedner, Fürth, Germany, assignor to Uvex Arbeitsschutz GMBH, Fürth, Germany

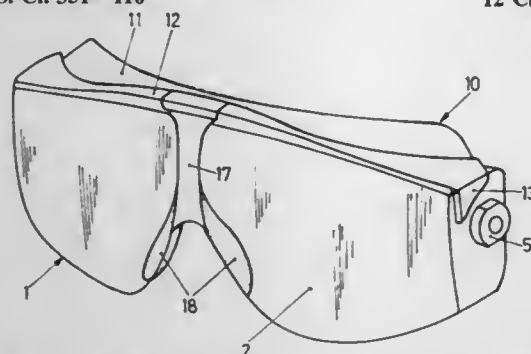
Filed Apr. 2, 1997, Ser. No. 832,059

Claims priority, application Germany, Jul. 4, 1996, 296 11 652 U

Int. Cl.⁶ G02C 1/02

U.S. Cl. 351—110

12 Claims



1. Industrial safety glasses comprising a one-piece plastic sight piece and a top portion of comparatively soft plastic on the forehead side, the sight piece having a rearwardly facing upper edge, and the top portion having a forwardly facing groove overlapping said rearwardly facing upper edge of the sight piece, the top portion being injection-molded onto the sight piece so as to form a unitary construction.

5,805,259

RIMLESS EYEGLASSES HAVING ADJUSTABLE LEGS

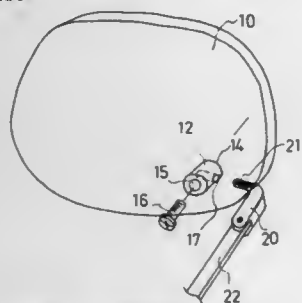
David Yinkai Chao, No. 43-4, Yi Hsin Tsuen, Shui San Hsiang, Chia Yi Hsien, Taiwan

Filed May 14, 1997, Ser. No. 856,339

Int. Cl.⁶ G02C 1/02; 1/04; 5/00

U.S. Cl. 351—110

3 Claims



1. A pair of eyeglasses comprising:
a pair of lenses each including an inner portion and each including an outer portion,
a bridge member secured between said inner portions of said lenses,
two blocks each including an end surface for engaging with said outer portions of said lenses and for adhering to said lenses,

two segments for securing to said blocks respectively and for supporting legs and for allowing said segments to be secured to said lenses without drilling holes in said lenses, and means for adjusting said segments relative to said blocks respectively.

5,805,260

COMBINED MULTIFOCAL TORIC LENS DESIGNS

Jeffrey H. Roffman; Timothy A. Clutterbuck, both of Jacksonville, and Yulin X. Lewis, Ponte Vedra Beach, all of Fla., assignors to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

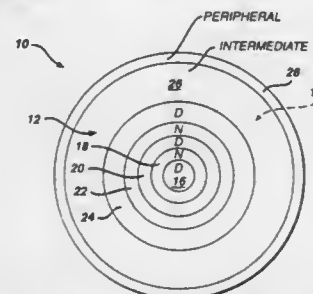
Continuation of Ser. No. 433,843, May 4, 1995, abandoned.

This application Sep. 12, 1996, Ser. No. 712,954

Int. Cl.⁶ G02C 7/04; 7/02; A61F 2/16

U.S. Cl. 351—161

14 Claims



1. A multifocus, annular ring lens for astigmatic presbyopes comprising:
a. a front surface and an opposite back surface, wherein one of the front and back surfaces defines a toric surface having multifocus annular toric rings for astigmatic optical correction and for presbyopic optical correction; and
b. the other one of the front and back surfaces comprises a spherical or aspherical surface, whereby said lens provides visual acuity for astigmatic presbyopes.

5,805,261

BIASED EYEGASS FRAMES

Malcolm Neal Houston, Foothill Ranch, Calif.; James H. Janard, Eastsound, Wash.; Carlos D. Reyes, Gardnerville, Nev., and Ryan Saylor, Trabuco Canyon, Calif., assignors to Oakley, Inc., Foothill Ranch, Calif.

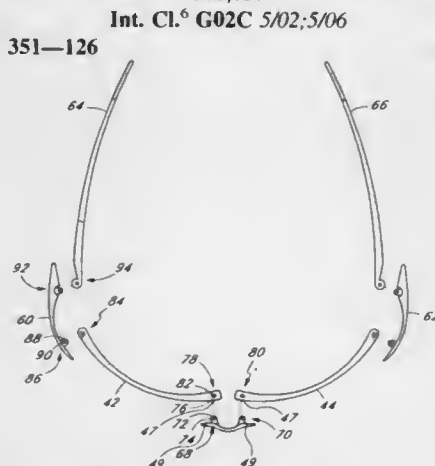
Continuation-in-part of Ser. No. 681,777, Jul. 29, 1996, which is a continuation-in-part of Ser. No. 416,211, Apr. 4, 1995,

Pat. No. 5,541,674. This application Jan. 8, 1997, Ser. No. 780,637

Int. Cl.⁶ G02C 5/02; 5/06

U.S. Cl. 351—126

21 Claims



1. An oriented, biased eyeglass frame, comprising:

a bifurcated left orbital and a bifurcated right orbital for supporting a left lens and a right lens, respectively, each of said left and right orbitals comprising a lateral component and a medial component;

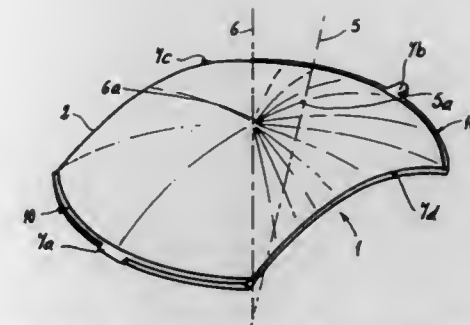
a bridge connected to the right and left orbitals;

a left earstem connected to the left orbital and a right earstem connected to the right orbital;

at least one biased left connector between the lateral component and the medial component of the left orbital; and

at least one biased right connector between the lateral component and the medial component of the right orbital;

wherein the right and left connectors permit limited movement of the lateral component of the right orbital with respect to the lateral component of the left orbital upon application of an external force; and the left and right connectors return the left and right orbitals to a predetermined orientation upon removal of the external force.



means, which are integrated with or affixed to a contour of the blank.

5,805,262

PROCESS FOR GRAFT POLYMERIZATION ON SURFACES OF PREFORMED SUBSTATES TO MODIFY SURFACE PROPERTIES

Robert A. Janssen, Alpharetta; Ellen M. Ajello, Decatur; Richard D. Auten, Cumming; Glenn S. Nomura, Atlanta, and Thomas E. Shank, Duluth, all of Ga., assignors to CIBA Vision Corporation, Duluth, Ga.

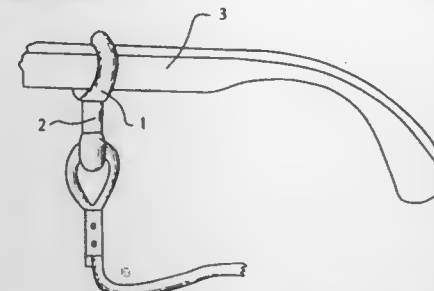
Continuation-in-part of Ser. No. 168,726, Dec. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 42,753, Apr. 6, 1993, abandoned, which is a continuation of Ser. No. 895,964, Jun. 9, 1992, abandoned. This application Jan. 26, 1994, Ser. No. 187,776

Int. Cl.⁶ G02C 7/02; 7/04; C08F 283/00

U.S. Cl. 351—160 R

26 Claims

1. A process for modifying the surface characteristics of a preformed ophthalmic lens to impart altered properties thereto by graft polymerization on said lens which comprises:
placing the lens in a plasma to form free radicals on the lens contacting the lens having free radicals with oxygen to form hydroperoxy groups on the surface of the lens; and
graft polymerizing an ethylenically unsaturated oligomer or polymer onto the surface of the lens in the presence of a cross-linking agent.



1. A fastener, adapted to attach a cord or a chain to a sidepiece of a pair of eyeglasses, comprising a cylindrical tightening ring and an elastic loop having a cross section with a flat side and a curved side, wherein the inner diameter of the tightening ring is smaller than the length of the flat side of the cross section of the elastic loop, such that:

when the elastic loop is passed through the tightening ring, the flat sides of two cross sections of the elastic loop face each other and the curved sides of the two cross sections face the inner surface of the tightening ring to secure the tightening ring to the elastic loop; and

when the fastener is attached to the sidepiece, the flat side of the cross section of the elastic loop faces the sidepiece to secure the elastic loop to the sidepiece.

5,805,263

LENS BLANKS, PROCESS OF MANUFACTURE THEREFOR AND EYEWEAR INCORPORATING LENSES MADE THEREFROM

Bernard Reymondet, and Etienne Billard, both of Saint Claude, France, assignors to Christian Dalloz S.A., Saint-Claude, France

Filed Oct. 15, 1996, Ser. No. 730,765

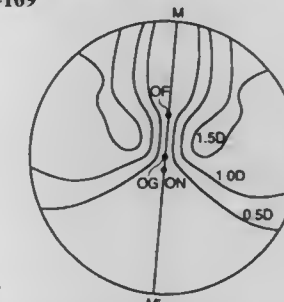
Claims priority, application France, Oct. 20, 1995, 95 12605

Int. Cl.⁶ G02G 7/02

U.S. Cl. 351—159

34 Claims

1. An optically non-correcting lens blank for the manufacture of an optically non-correcting lens, having a high curvature, corresponding to an average radius of curvature at most equal to about 90 mm, wherein the blank further comprises stacking correction



1. A progressive lens including, along a principal meridional line dividing a refracting surface of the lens into a nasal side area and a temporal side area, a far viewing portion having a surface refracting power corresponding to a distant view, a near viewing portion having a surface refracting power corresponding to a close-range view, and an intermediate viewing portion continuously connecting the refracting powers of the near and far portions together between said far viewing portion and said near viewing portion, a distance along said principal meridional line between a far viewing center

of said far viewing portion and a near viewing center of said near viewing portion being within 18 mm, a width of a clear vision area in said near viewing portion being greater than or equal to a width of a clear vision area in said far viewing portion.

5,805,266

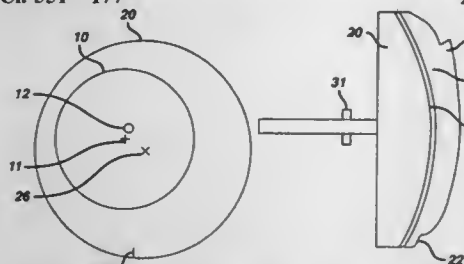
METHOD OF MACHINING CONTACT LENSES

Amitava Gupta, Bethesda, Md., and Ronald D. Blum, Roanoke, Va., assignors to Innotech, Inc., Roanoke, Va. Continuation-in-part of Ser. No. 225,386, Apr. 8, 1994, Pat. No. 5,517,259, which is a continuation-in-part of Ser. No. 216,381, Mar. 23, 1994, Pat. No. 5,598,234, which is a continuation-in-part of Ser. No. 980,053, Nov. 23, 1992, Pat. No. 5,406,341. This application May 20, 1994, Ser. No. 247,199

Int. Cl.⁶ G02C 7/02; 7/04

U.S. Cl. 351—177

20 Claims



1. A method for providing a contact lens for a patient comprising:

- locating an optical feature on a patient's eye;
- selecting an optical preform;
- determining a resting position of said optical preform when said optical preform is stabilized on the patient's eye to locate a reference position on the surface of the optical preform coincident with the optical feature on the patient's eye; and
- machining an optical modification on said optical preform at a location based on the reference position on the optical preform.

5,805,267

INTERACTIVE LIGHT FIELD FOR PROGRAMMED NON-VISUAL STIMULATION AND MONITORING

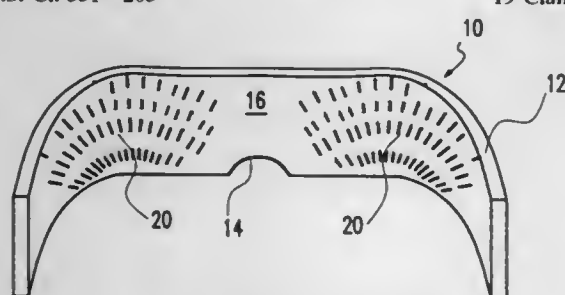
Neil Goldman, 6034 Burnside Landing Dr., Burke, Va. 22015

Filed Jun. 13, 1996, Ser. No. 662,539

Int. Cl.⁶ A61B 3/10; 3/00

U.S. Cl. 351—203

19 Claims



1. An interactive light field device, comprising:

- a transparent lens;
- a matrix of light carrying devices associated with said transparent lens, said matrix of light carrying devices being essentially transparent to a human eye;
- a light sensor connected to said matrix of light carrying devices for sensing light reflected from said human eye;
- a light source for generating light to be delivered to said human eye by said light carrying devices;
- means for coupling said light carrying devices to said light sensor and said light source; and

means for projecting light from at least a portion of said light carrying devices in said matrix of said light carrying devices into said human eye at an acute angle less than 90° with respect to a pupil of said human eye.

5,805,268

OPTOMETRIC APPARATUS

Yoshinobu Hosoi, and Hirohisa Terabe, both of Aichi, Japan, assignors to Nidek Co., Ltd., Aichi, Japan

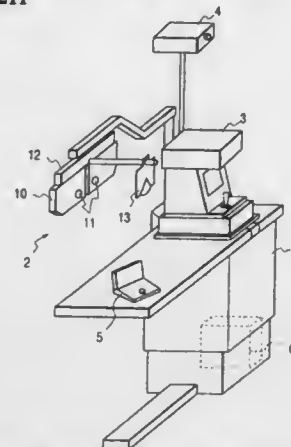
Filed Jul. 2, 1997, Ser. No. 887,301

Claims priority, application Japan, Jul. 2, 1996, 8-192843

Int. Cl.⁶ A61B 3/10; 3/00

U.S. Cl. 351—211

8 Claims



1. An optometric apparatus for subjectively examining the refractive power of an eye to be examined, comprising:

- input means for inputting optometric information necessary for a subjective examination;
- judging means for judging the presence or absence of a possibility of intervention by accommodation in the eye to be examined on the basis of the information inputted by said input means; and
- warning means for prompting caution to an examiner on the basis of a result of judgement by said judging means.

5,805,269

HIGH MAGNIFICATION INDIRECT OPHTHALMOSCOPY LENS DEVICE

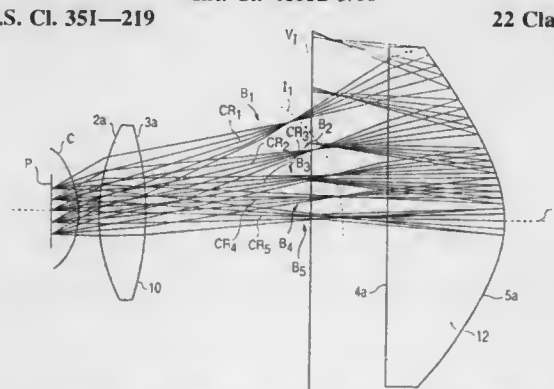
Donald A. Volk, Mentor, Ohio, assignor to Volk Optical, Inc., Mentor, Ohio

Filed Aug. 27, 1996, Ser. No. 703,871

Int. Cl.⁶ A61B 3/00

U.S. Cl. 351—219

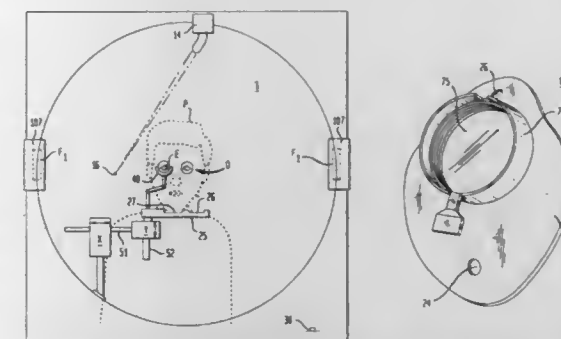
22 Claims



1. An indirect ophthalmoscopy lens device for use with a slit-lamp or other biomicroscope in an examination, laser treatment or surgical treatment of a patient's eye, comprising:

- an image forming lens system for collecting and focussing light exiting a patient's eye to form a real image of the fundus of the patient's eye at a location outside the eye; and

an anterior lens having a convex anterior surface and being disposed anterior to the image forming lens system so that the real image formed by the image forming lens system is located posterior of the convex anterior surface, the convex anterior surface of the anterior lens refracting chief rays of respective light ray bundles of the light exiting the patient's eye generally toward a collecting lens of the slit-lamp or other biomicroscope, whereby an image viewed through the slit-lamp or other biomicroscope comprises a virtual image that has a positive magnification relative to the real image formed by the image forming lens system and relative to the fundus of the patient's eye.



wherein the filter substantially prevents transmission of light in the first color spectral range and substantially transmits light in the second color spectral range.

5,805,270

DEVICE AND METHOD FOR TESTING FIELD OF VISION

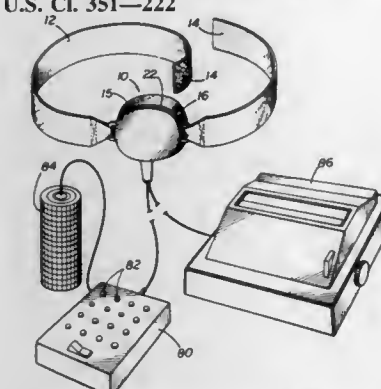
Forrest A. Marshall, 615 Academy Ave., Dublin, Ga. 31021

Filed May 16, 1996, Ser. No. 648,581

Int. Cl.⁶ A61B 3/02; 3/00

U.S. Cl. 351—222

16 Claims



1. An apparatus for use in assessing the field of vision of a subject eye, the apparatus comprising:

- a) an eyepiece for occluding the subject eye, the eyepiece having an inner surface;
- b) a fixation light affixed to the inner surface in a position corresponding to about the center of the field of vision of the subject eye; and
- c) a plurality of selectively illuminable light sources affixed to the inner surface and positioned so as to extend to at least the limits of peripheral vision of a normal eye.

5,805,271

REFRACTIVELY CORRECTED, WAVELENGTH SELECTIVE, TRANSPARENT OCCLUDER FOR A NON-TESTED EYE FOR VISUAL FIELD TESTING

Alan R. Kirschbaum, Oakland, and Christopher L. Petersen, Danville, both of Calif., assignors to Carl Zeiss, Inc., Thornwood, N.Y.

Filed Oct. 24, 1996, Ser. No. 736,398

Int. Cl.⁶ A61B 3/02

U.S. Cl. 351—224

9 Claims

1. A transparent visual field test occluder for a non-tested eye used in a visual field testing apparatus having a stimulus that produces light in a first color spectral range and a background illumination that produces light in a second color spectral range, the transparent visual field test occluder comprising:

- a base;
- a fastener configured to fasten the base over a subject's eye;
- a mounting affixed to the base configured to hold a filter and a refractive lens; and
- a filter held in the mounting;

5,805,272

IMAGE READING APPARATUS FOR BOOK-LIKE DOCUMENT OR THE LIKE

Tatsuji Nozawa, Toyokawa; Haisheng Liang, Takatsuki; Hiroshi Ootsuka; Alan Darby, both of Toyokawa; Hideo Muramatsu, Shinsiro, and Shinya Matsuda, Kyoto, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

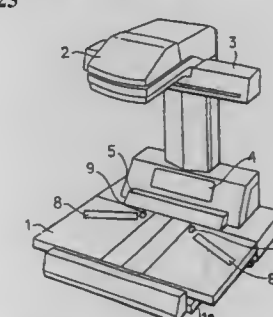
Filed Nov. 22, 1996, Ser. No. 754,828

Claims priority, application Japan, Nov. 24, 1995, 7-329666; Oct. 31, 1996, 8-307401

Int. Cl.⁶ H04N 1/00

U.S. Cl. 355—25

18 Claims



1. An image reading apparatus which reads a document surface placed face-up on a document table, and controls an image density based on document ground brightness data obtained by reading the document, and said image reading apparatus, comprising:

- an image pickup device for picking up the document;
- a main-scanning means for reading out the document by scanning of the image pickup device, and outputting the image data;
- a pre-scanning means for reading out the document by scanning of the image pickup device before the main-scanning operation, and obtaining a data of document ground brightness;
- a memory means for memorizing the ground brightness data obtained by the pre-scanning means;
- a document change detection means for detecting whether a document is changed or not;
- a density control means for controlling a density of the image obtained by the main-scanning means based on the ground brightness data memorized in the memory means; and
- a control means for controlling the pre-scanning means and a memory means so that a pre-scanning is not executed and the data memorized in the memory means is not renewed when a document change is not detected by the document change detection means, and so that a pre-scanning is executed and the data memorized in the memory means is renewed when a document change is detected by the document change detection means.

5,805,273

PROJECTION EXPOSURE APPARATUS AND MICRODEVICE MANUFACTURING METHOD

Yasuyuki Unno, Tochigi-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

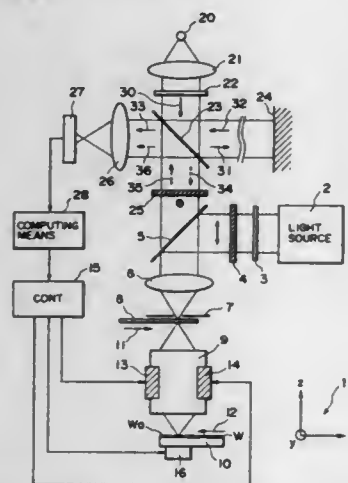
Filed Apr. 20, 1995, Ser. No. 425,614

Claims priority, application Japan, Apr. 22, 1994, 6-107869; Mar. 23, 1995, 7-090302

Int. Cl. H01L 21/30

U.S. Cl. 355—30

24 Claims



1. A scanning projection exposure apparatus, comprising: illumination means for illuminating a first object with exposure light having a slit-like section shape; a projection optical system for projecting a pattern of the first object onto a second object; scanning means for relatively scanning the first and second objects in a scanning direction relative to the exposure light and said projection optical system; and correcting means for substantially correcting a difference, caused in relation to said projection optical system during the scanning exposure between an optical characteristic in a sectional plane including the scanning direction and an optical characteristic in a sectional plane including a direction perpendicular to the scanning direction.

5,805,274

PHOTOGRAPHIC PRINTER UTILIZING A PHOTOACTIVATED LIQUID-CRYSTAL LIGHT VALVE IN ORDER TO ENHANCE IMAGE PROCESSING

Hirofumi Saita, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

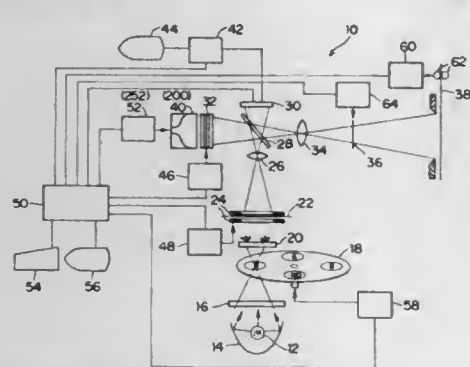
Filed Feb. 28, 1996, Ser. No. 613,767

Claims priority, application Japan, Mar. 3, 1995, 7-044610

Int. Cl. G03B 27/80; 27/52; 27/70

U.S. Cl. 355—38

20 Claims



1. A photographic printer comprising:

- an illuminating member having color adjusting filters and adapted to illuminate a transparent original image by light transmitted through each of said color adjusting filters; a reflecting member having a light modulating layer capable of changing a reflectance distribution, said reflecting member being adapted to reflect light transmitted through the transparent original image; a controlling member controlling the reflectance of said reflecting member for each minute region; and a printing member causing the light reflected by said reflecting member to form an image on a photosensitive surface of a photosensitive material so as to effect printing.

5,805,275

SCANNING OPTICAL RANGEFINDER

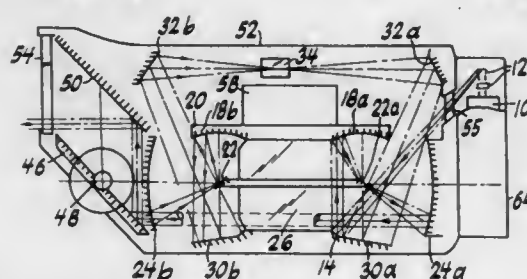
William H. Taylor, South Deerfield, Mass., assignor to Kollmorgen Corporation, Northampton, N.Y.

Continuation-in-part of Ser. No. 380,152, Jan. 30, 1995, abandoned, which is a continuation of Ser. No. 38,767, Apr. 8, 1993, abandoned. This application Sep. 29, 1995, Ser. No. 536,630

Int. Cl. G01C 3/00; 5/00; B60T 7/16

U.S. Cl. 356—3.16

76 Claims



1. A scanning rangefinder, comprising: a radiation source; a scanning element; means for directing radiation from said radiation source towards said scanning element; means for directing radiation reflected from said scanning element towards a target; means for directing radiation from said target towards said scanning element along a plurality of channels; a detector adapted to receive radiation reflected from said scanning element along each of said channels; and means for error correction for parallax data from said detector; wherein radiation is directed along a channel laterally displaced from a channel receiving radiation.

5,805,276

LENS INSPECTION SYSTEM

Thomas G. Davis; Joseph Wilder, both of Princeton, N.J., and David Dreyfuss, Kettering, Ohio, assignors to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

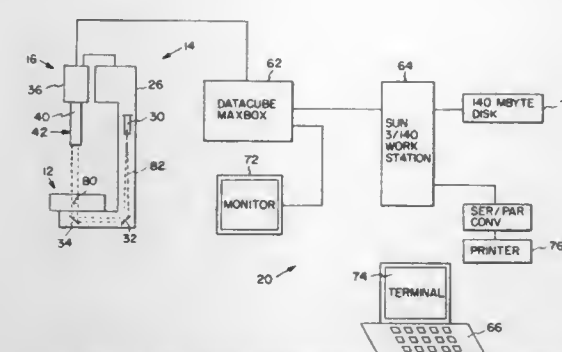
Continuation of Ser. No. 622,022, Mar. 27, 1996, abandoned, which is a continuation of Ser. No. 506,595, Jul. 25, 1995, abandoned, which is a continuation of Ser. No. 374,407, Jan. 17, 1995, abandoned, which is a continuation of Ser. No. 994,564, Dec. 21, 1992, abandoned. This application Nov. 27, 1996, Ser. No. 757,334

Int. Cl. G01B 9/00

U.S. Cl. 356—124

18 Claims

1. An automatic lens inspection system, said automatic system comprising: a transport subsystem to continuously move a plurality of ophthalmic lenses along a predetermined path to move each of the plurality of lenses, one at a time, into a lens inspection position, the transport subsystem including a lens carrier to



- hold each of the lenses substantially level in a fluid solution as the lens moves along said path and into said lens inspection position;

- an illumination subsystem to generate a series of light pulses and to direct a respective one light pulse through each ophthalmic lens when the lens in the fluid solution is in the lens inspection position;

- an imaging subsystem, said imaging subsystem having a pixel array to generate a set of signals representing selected portions of the light pulses transmitted through the ophthalmic lenses;

- an opaque stop positioned between the pixel array and the lens inspection position;

- an imaging lens positioned between the opaque stop and the lens inspection position to focus onto the stop a first portion of the light transmitted through the lens inspection position, and to focus on the pixel array a second portion of the light transmitted through the lens inspection position; and

- an image processing subsystem to receive said signals from the imaging subsystem and to process said signals according to a predetermined program to identify at least one condition of each said lenses.

5,805,277

PORTABLE LASER POWER MEASURING APPARATUS

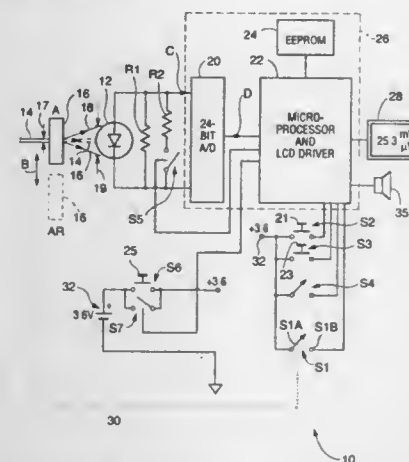
Christopher J. Kruger, Auburn; Gerald H. Williams, Applegate; Robert R. Naquin, Loomis, and Charles W. Dennett, Woodland, all of Calif., assignors to Coherent, Inc., Santa Clara, Calif.

Filed Aug. 6, 1997, Ser. No. 908,472

Int. Cl. G01J 1/46

U.S. Cl. 356—213

11 Claims



1. Apparatus for measuring power in a laser-beam, comprising: a photon detector; transmissive diffusing means for diffusely expanding the laser-beam; said transmissive diffusing means alternatively locatable in first and second positions with respect to said photon detector;

- said first position being selected such that, when said transmissive diffusing means is in said first position, the laser-beam is received by said transmissive diffusing means, is diffusely-expanded by said transmissive diffusing means, and said diffusely-expanded laser-beam is incident on said photon detector;

- said second position being selected such that when said transmissive diffusing means is in said second position, the laser-beam is incident directly on said photon detector;

- electronic means for receiving alternatively one of first and second signals, said first and second signals produced by said photon detector when respectively one of said diffusely-expanded laser-beam and the laser-beam is incident thereon, said electronic means programmed to interpret said received signal as a measure of power in the laser-beam, in a manner depending on whether said transmissive diffusing means is in said first or said second position; and

- switch means coupled to said transmissive diffusing means and in communication with said electronic means for indicating thereto whether said transmissive diffusing means is in said first or said second position.

5,805,278

PARTICLE DETECTION METHOD AND APPARATUS

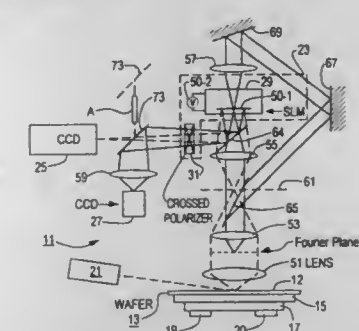
Joseph J. Danko, Franklin, Mass., assignor to Inspec, Inc., Billerica, Mass.

Continuation-in-part of Ser. No. 386,289, Feb. 9, 1995. This application Jun. 18, 1996, Ser. No. 668,494

Int. Cl. G01N 21/00

U.S. Cl. 356—237

22 Claims



1. Apparatus for detecting particles on a surface of a semiconductor wafer, said surface having repetitive patterns, the apparatus comprising:

- a. means for illuminating an area on said surface with a beam of polarized light;
- b. optical means for collecting light scattered from said area, said optical means forming a Fourier diffraction pattern of light scattered from said area illuminated;
- c. a Fourier mask for blocking light in said Fourier diffraction pattern where the intensity is above a predetermined level indicative of background information and leaving in areas where the intensity is below said predetermined level indicative of particle information, the Fourier mask including a spatial light modulator which is optically addressable and a polarization discriminator, and
- d. a detector for detecting light collected by said optical means and not blocked by said Fourier mask.

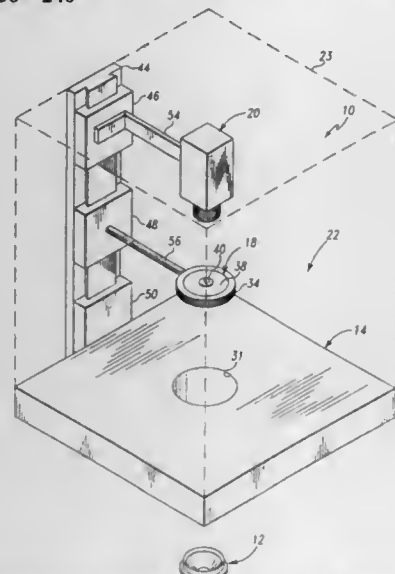
5,805,279
METHOD AND APPARATUS FOR ILLUMINATING AND IMAGING A CAN END COATED WITH SEALING MATERIAL

Thomas H. Palombo, Akron, and Gareth O. Ridout, Ravenna, both of Ohio, assignors to Alltrista Corporation, Muncie, Ind.

Filed Jan. 11, 1996, Ser. No. 584,615
Int. Cl.⁶ G01N 21/00

U.S. Cl. 356—240

16 Claims



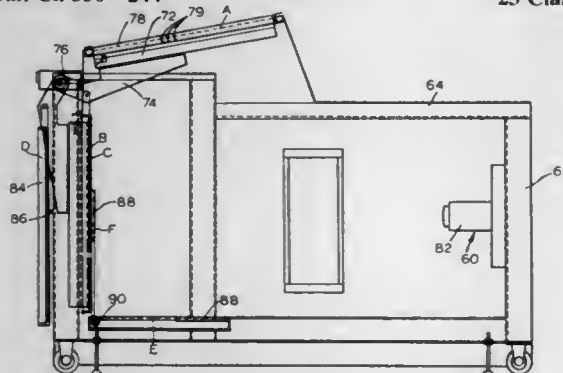
1. A method for illuminating and imaging a can end having at least a portion thereof covered with a sealing material, the method comprising the steps of:
conveying the can end to an inspection station;
illuminating the can end with polarized light at the inspection station;
providing a polarizing filter and a camera at the inspection station;
positioning the polarizing filter between the camera and the can end so that light from the sealing material passes through the polarizing filter before reaching the camera; and
orienting the polarizing filter to minimize the intensity of the polarized light received by the camera.

5,805,280
CONTROL SYSTEM FOR A PRINTING PRESS
Richard D. Lasken, Naperville; Xin Xin Wang, Woodridge, and Robert Nemeth, Darien, all of Ill., assignors to Goss Graphic Systems, Inc., Westmont, Ill.

Filed Sep. 28, 1995, Ser. No. 536,234
Int. Cl.⁶ G01N 21/01

U.S. Cl. 356—244

23 Claims



detector arrays, respectively, includes specific first and second essentially single wavelength beams of light, said specific first and second essentially single wavelength beams of light being simultaneously intercepted by specific detector elements in said first and second photo detector arrays respectively, even where light beams of said specific first and second essentially single wavelengths are spatially situated to close to one another in a single produced order for separate photo detector array detector elements in a single photo detector array which intercepts said single order, to, simultaneously, access beams of light of both said specific first and second essentially single wavelengths, separately.

5,805,286

PROCESS FOR DETERMINATION OF THE POSITION OF A VEHICLE IN A PLANE OF TRAVEL

Herbert Voegler, Herdecke, Germany, assignor to Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Munich, Germany

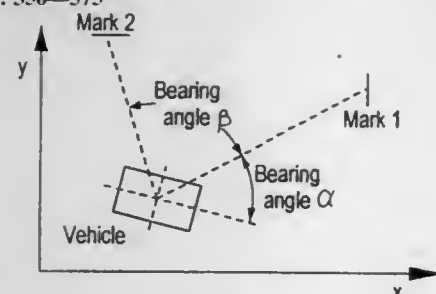
Filed Nov. 6, 1996, Ser. No. 744,924

Claims priority, application Germany, Nov. 7, 1995, 195 41 379.2

Int. Cl.⁶ G01B 11/14

U.S. Cl. 356—375

3 Claims



1. A process for determining the position of a vehicle in a plane of travel comprising the steps of: reflecting a laser beam transmitted by a sensor with a reflecting element mounted on the vehicle, parallel to the plane of travel and scanning approximately 360°; processing reflections from at least two fixed reference points by a receiver and a computer, the reference points being formed by a limited number of distinguishable marks and the marks identified in such a way that their width is computed from the viewpoint of the sensor from the actual mark measurement, the distance between marks and sensor, and the angle between the laser beam and the surface normals of the mark; computing the variance of the vehicle position from a known variance of the bearing angle and the position of the measured mark relative to the sensor; and correcting the estimated position of the vehicle by utilizing said computed variance.

5,805,287

METHOD AND SYSTEM FOR GEOMETRY MEASUREMENTS

Alf Pettersen, Gjetum, and Øyvind Røtvold, Hvalstad, both of Norway, assignors to Metronor AS, Nesbru, Norway

Continuation of Ser. No. 373,253, Jan. 23, 1995, abandoned. This application Dec. 17, 1996, Ser. No. 769,800

Claims priority, application Norway, May 24, 1993, 931873

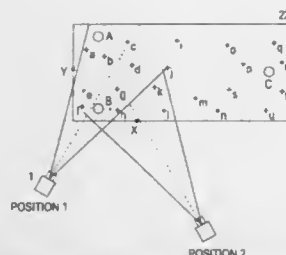
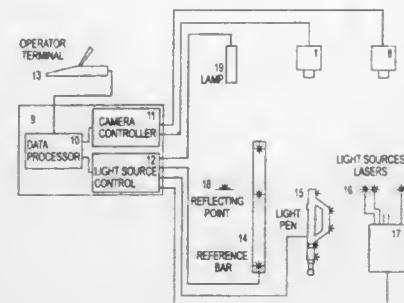
Int. Cl.⁶ G01B 11/14

U.S. Cl. 356—375

49 Claims

1. A method of determining the position and/or orientation of a number of objects relative to each other, the method comprising the steps of:

- providing at least two cameras;
- establishing a network of help reference points;
- determining the spatial positions of some points in the network relative to each other using at least one of the cameras positioned in multiple arbitrary locations, said at



least one camera determining projections of the positions of said some network points;

- positioning some of the cameras;
- determining the positions and orientations of the some of the cameras using the spatial positions of network points determined in step (C); and
- determining the position of some of the objects relative to each other, based on the determined positions and orientations of some of the cameras, whereby the position of at least one of the objects is determined by:
 - holding a probing tool in contact with at least one point on the object, and
 - obtaining measurement data from the probing tool using at least two of the cameras whose positions were determined in step (D).

5,805,288

APPARATUS FOR DETECTING THE PRESENCE AND LOCATION OF AT LEAST ONE OBJECT IN A FIELD

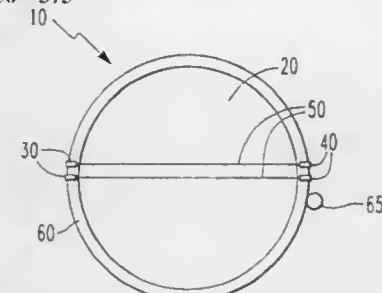
George R. Simmons, Haddon Heights, N.J., and Edmond J. Dougherty, Stafford, Pa., assignors to Laserscore, Inc., Willow Grove, Pa.

Continuation-in-part of Ser. No. 611,009, Mar. 5, 1996, abandoned. This application Feb. 13, 1997, Ser. No. 800,301

Int. Cl.⁶ G01B 11/03

U.S. Cl. 356—375

41 Claims



1. An apparatus for detecting the presence of at least one object in a field, the apparatus comprising:

- at least two through-beam detection devices, each device comprising at least one transmitter and at least one opposing detector that are fixed relative to each other and that create a detection beam that overlaps the field, at least two of the devices being horizontally offset from each other so as to create horizontally offset detection beams; and
- means for moving said devices around the field to detect at least one object in the field.

5,805,289

PORTABLE MEASUREMENT SYSTEM USING IMAGE AND POINT MEASUREMENT DEVICES

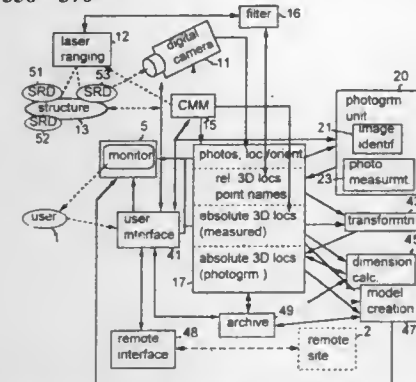
Nelson Raymond Corby, Jr., Scotia; Christopher Allen Nafis, Vischer Ferry, and Boris Yamrom, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 7, 1997, Ser. No. 888,795

Int. Cl.⁶ G01B 11/24

U.S. Cl. 356—376

8 Claims



1. A design device for accurately measuring dimensions of a structure with high accuracy comprising:

- at least one spatial reference device (SRD) attached to the structure, machined to highly accurate, known dimensions, having a plurality of reference nests each which receive a target, the nests also being visible on 2D digital images;
- a digital camera for acquiring a plurality of high resolution 2D digital images each from an associated position and orientation, 'pose', with a field of view smaller than the entire structure, and encompassing at least one SRD;
- a coordinate measurement machine (CMM) having a base fixed with respect to the structure, for measuring an absolute 'pose', of the digital camera for each acquired 2D image, and an absolute measured location of each of the targets, with reference to the CMM base;
- a photogrammetry unit functionally coupled to the digital camera and the CMM, for receiving the 2D digital images and their associated poses, for determining relative 3D locations of selected structures based upon the 2D images and poses;
- an transformation device functionally coupled to the CMM and the photogrammetry device for receiving the absolute 3D measured locations and the relative 3D photogrammetry locations, and for converting the relative 3D locations into absolute 3D photogrammetry locations;
- a monitor for modifying the 2D digital images to be correctly viewed from a user-provided viewpoint, for displaying the modified 2D images with the absolute 3D photogrammetry, and 3D measured locations superimposed upon them in correct registration to a user as viewed from the given viewpoint;
- a user interface coupled to the monitor, which receives user-selected input to the transformation device.

5,805,290

METHOD OF OPTICAL METROLOGY OF UNRESOLVED PATTERN ARRAYS

Christopher Perry Ausschnitt, Brookfield, and Timothy Allan Brunner, Ridgefield, both of Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 2, 1996, Ser. No. 643,138

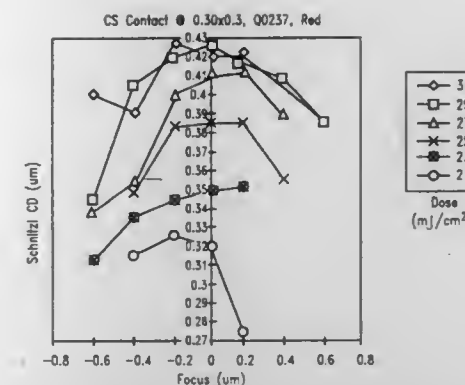
Int. Cl.⁶ G01B 11/00

U.S. Cl. 356—401

20 Claims

1. A method of determining bias or overlay error in a substrate formed by a lithographic process comprising the steps of:

- providing an array of elements on a substrate, the array comprising a plurality of spaced, substantially parallel elements having a length and a width, the sum of the width of an element and the spacing of adjacent elements defining a pitch of said elements, edges of said elements being aligned along a



line forming opposite array edges, the distance between array edges comprising the array width;

- providing an optical metrology tool having a light source and an aperture for measuring the length of the array elements, said optical metrology tool being adjustable for one or more of i) wavelength of said light source, ii) numerical aperture value or iii) coherence;
- selecting the pitch of said elements, the wavelength of said light source and the numerical aperture such that the pitch of said elements is less than or approximately equal to the ratio of the wavelength of the light source to the numerical aperture value of the optical metrology tool in the direction of the array edges; and
- resolving the edges of said array with said optical metrology tool and measuring the width of said array to determine bias or overlay error in said substrate.

5,805,291

TRAVERSING THICKNESS MEASUREMENT APPARATUS AND RELATED METHOD

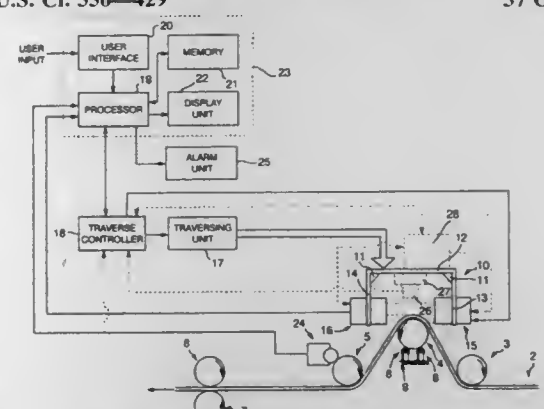
Timothy Wayne Calvin, Dunwoody; Edward Conrad Schneider, Marietta, and Scott M. Caillier, Atlanta, all of Ga., assignors to Systronics, Inc., Norcross, Ga.

Filed Aug. 14, 1996, Ser. No. 689,822

Int. Cl.⁶ G01N 21/84

U.S. Cl. 356—429

37 Claims



1. An apparatus for measuring thickness of a sheet material advancing through the apparatus, the apparatus comprising:

- a break member supported in the apparatus and having a central axis extending along a first direction transverse to a second direction in which the sheet material advances through the apparatus, the advancing sheet material folding by contact with the break member;
- a carriage supported in the apparatus in proximity to the break member and capable of moving along the first direction;
- a light source mounted to the carriage in proximity to a first side of the break member, and generating light;
- a light sensor mounted to the carriage in proximity to a second side of the break member, the light sensor receiving light from the light source that is not blocked by the sheet material at a

position at which the sheet material folds in contact with the break member, the light sensor generating a signal indicative of the thickness of the sheet material, based on the received light;

the light source and light sensor included in a laser scan micrometer; and

a processor coupled to receive the signal indicative of the thickness of the sheet material from the light sensor, the processor capable of generating a signal indicative of the thickness of the sheet material at any location across the sheet material independently of the angular position of the break member, based on the signal from the light sensor;

a traversing unit coupled to the carriage and supported in the apparatus, the traversing unit moving the carriage along the first direction;

a traverse controller coupled to the traversing unit and generating a control signal to cause the carriage to move along the first direction;

the traverse controller generating a trigger signal after each time that the traverse controller causes the traversing unit to move the carriage over a predetermined distance interval along the first direction, the processor coupled to receive the trigger signal from the traverse controller, and the processor receiving the signal from the light sensor, in response to the trigger signal; and

a display unit coupled to the processor, the display unit generating a display based on the display signal from the processor, the traverse controller generating the control signal as an amount of current supplied to a motor of the traversing unit, that is necessary to cause the traversing unit to move the carriage along the first direction, the traverse controller generating a trigger signal after each time the traverse controller outputs the amount of current.

5,805,292

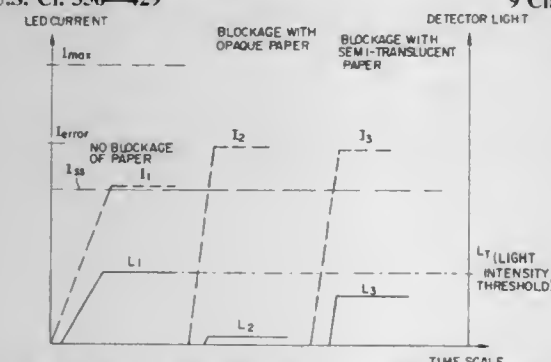
CONTROL SYSTEM FOR AUTOMATIC INTENSITY ADJUSTMENT OF LIGHT EMITTERS OF A SHEET SENSOR DEVICE

John C. Fournier, John Marcelletti, both of Rochester; Edward P. Furlani, Lancaster, and John A. Winterberger, Spencerport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 30, 1996, Ser. No. 724,517

Int. Cl.⁶ G01N 21/88

U.S. Cl. 356—429



1. In an optical sheet sensor device including at least one light emitter and at least one light detector associated therewith for sensing the presence of a sheet in a sheet travel path, a method for controlling said sheet sensor device in order to automatically adjust the intensity of said light from said light emitter to accommodate for changes in operating parameters over time, said control method comprising the steps of:

storing a light emitter current level corresponding to a known previous valid operating condition where, when a sheet is absent from the sheet travel path, light is detected at a light detector beyond a threshold level;

determining a current level at a preset amount off-set from said stored light emitter current level;

applying current to a light emitter, said current as applied changing in level so as to attempt to bring light level at said light detector to the threshold level for the light detector when no sheet is detected;

comparing an instantaneous current level applied to such light emitter with said determined current level, and providing an error signal when said instantaneous light emitter current level reaches said determined current level; and

if said determined current level is not reached by said instantaneous light emitter current level, operating said light emitter at said instantaneous light emitter current level, and if said determined level is reached, providing said error signal.

5,805,293

HADAMARD TRANSFORM CODING/DECODING METHOD AND APPARATUS FOR IMAGE SIGNALS

Takashi Mochizuki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

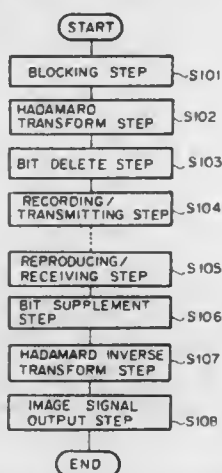
Filed Jan. 30, 1996, Ser. No. 593,527

Claims priority, application Japan, Jan. 30, 1995, 7-033135

Int. Cl.⁶ H04N 1/41

U.S. Cl. 358—262.1

11 Claims



1. A one-dimensional Hadamard transform coding/decoding method for image signals comprising:

a blocking step of blocking an input image signal every 8 picture elements;

an Hadamard transform step for performing an eighth-order Hadamard transform on picture element values which are blocked in said blocking step to obtain transform coefficients;

a bit delete step for extracting, from predetermined positions in each block, 1 bit, 4 bits and 7 bits from the least significant bits, the second least significant bits and the third least significant bits respectively for the transform coefficients obtained in said Hadamard transform step to output the extracted bits as supplement information, and outputting the transform coefficients from which the least significant bits, the second least significant bits and the third least significant bits are deleted;

a record/transmit step for recording or transmitting the supplement information and the transform coefficients from which the first, second and third least significant bits are deleted in said bit delete step;

a reproduction/reception step for reproducing or receiving the recorded or transmitted transform coefficients and the supplement information;

a bit supplement step for supplementing: according to the supplement information reproduced or received in said reproduction/reception step, the least significant bits of all the transform coefficients on the basis of information of 1 bit per

block which represents the least significant bits of the transform coefficients; the second least significant bits of all the transform coefficients on the basis of information of 4 bits per block which represents the second significant bits of the transform coefficients; and the third least significant bits of all the transform coefficients on the basis of information of 7 bits per block which represents the third significant bits of the transform coefficients;

an Hadamard inverse-transform step for performing an eighth-order Hadamard inverse-transform on the transform coefficients whose first, second and third least significant bits are supplemented in said bit supplement step, thereby obtaining picture element values; and

an image signal output step for arranging the picture element values obtained in said Hadamard inverse-transform step into eight picture elements and outputting the arranged eight picture elements as an image signal.

5,805,294

DOCUMENT SIZE DETECTION BY A PRESCAN HAVING AN ACCELERATION REGION

Sadao Furuoya, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

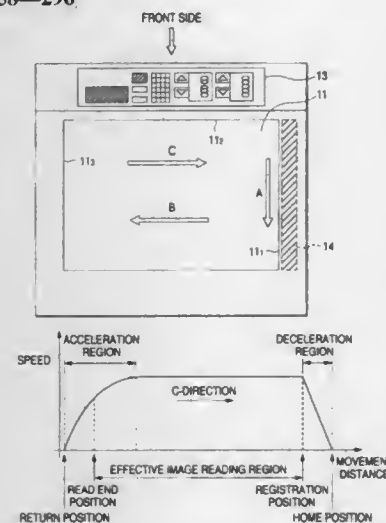
Filed Aug. 19, 1996, Ser. No. 699,247

Claims priority, application Japan, Aug. 21, 1995, 7-212128

Int. Cl.⁶ G03G 15/00

U.S. Cl. 358—296

15 Claims



1. A document size detecting apparatus, comprising:

reading means for reading a document and producing corresponding image data;

first counting means for counting a number of lines that are scanned during a period from a start of reading by the reading means until a time point when an edge of the document is read;

storing means for storing, in advance, a corresponding relationship between a plurality of values and the number of lines; readout means for reading out, from the storing means, a selected value corresponding to the number of lines counted by the first counting means; and

determining means for determining a position of the edge of the document in the auxiliary scanning direction based on the selected value, and thereby detecting a length of the document in the auxiliary scanning direction.

5,805,295

IMAGE PROCESSING APPARATUS AND METHOD FOR APPLYING SPECIAL IMAGE EFFECTS TO OUTPUT IMAGES

Fumio Mikami, Chigasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 630,564, Apr. 10, 1996, abandoned, which is a continuation of Ser. No. 45,685, Apr. 14, 1993, abandoned. This application Oct. 1, 1997, Ser. No. 942,155

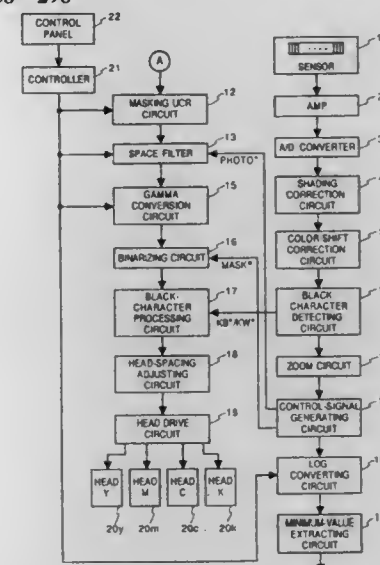
Claims priority, application Japan, Apr. 17, 1992, 4-097811;

Apr. 2, 1993, 5-076704

Int. Cl.⁶ H04N 1/40; 1/46; G03F 3/08

U.S. Cl. 358—298

50 Claims



1. An image processing apparatus comprising: input means for inputting first image data of a plurality of color components, each of said color components having a plurality of levels and the first image data having J colors; first converting means for converting the first image data into second image data having L colors (L<J), such that a number of levels for each color component is reduced; second converting means for converting the first image data into third image data having N colors (N<L), such that a number of levels for each color component is reduced; and selecting means for manually selecting one of said first and second converting means.

5,805,296

OPTICAL SCANNING APPARATUS INCLUDING AN IMAGE READING SECTION AND AN IMAGE PRINTING SECTION THAT SHARE A COMMON OPTICAL SYSTEM AND A METHOD OF PRINTING AND READING AN IMAGE USING THE COMMON OPTICAL SYSTEM

Yutaka Hattori, Kuwana, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jun. 18, 1996, Ser. No. 666,626

Claims priority, application Japan, Aug. 11, 1995, 7-205625

Int. Cl.⁶ H04N 1/04; G03G 15/00

U.S. Cl. 358—300

27 Claims

1. An optical scanning apparatus having an image reading section and an image printing section that share a common optical system, comprising:

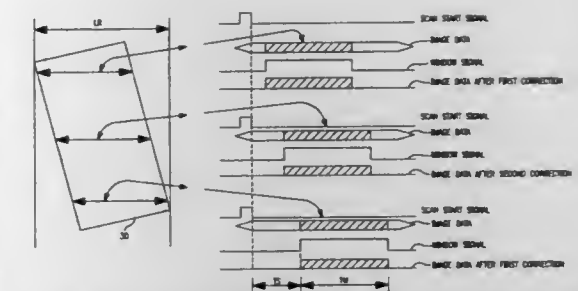
light source means for emitting a light beam in a light path disposed in a case;

deflecting means for deflecting the emitted light beam;

converging means for converging the deflected light beam;

a printing section that receives the converged light beam where an image is formed for printing based on the light beam;

1. An image reading apparatus for obtaining an approximation of a second image signal representing a document scanned in a second direction, using a first image signal obtained by scanning the document along a scanning line in a first direction, comprising:



a scan roller having an axis at both ends thereof, respectively, so as to allow the axis to be rotatably mounted to the roller fixing groove of the slit;

5,805,318

APPARATUS FOR DETERMINING THE EFFECT OF MODAL NOISE ON A COMMUNICATION SYSTEM BY FLEXING AN OPTICAL FIBER

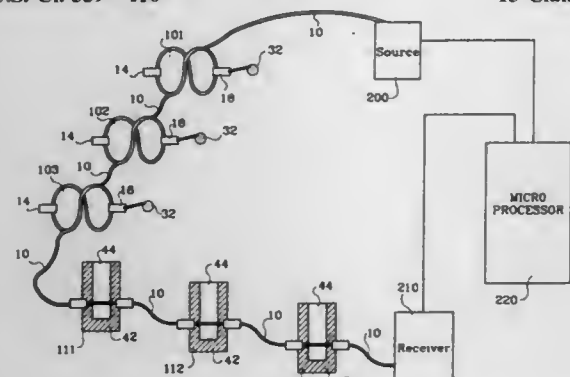
Simon M. Rabinovich, Plao, and David F. Smith, Dallas, both of Tex., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 4, 1996, Ser. No. 743,367

Int. Cl.⁶ H04B 10/08; 10/12

U.S. Cl. 359—110

15 Claims



1. Apparatus for determining the effect of modal noise on a communication system, comprising:
a source of an optical signal;
an optical signal receiver;
a preselected length of optical fiber connected in signal communicating association between said source and said receiver;
means for causing a preselected change in the physical condition of said optical fiber while said optical signal is being transmitted from said source to said receiver; and
means for determining the effect of said preselected change in the physical condition of said optical fiber on said optical signal as said optical signal is transmitted through said optical fiber between said source and said receiver.

5,805,319

CIRCUIT FOR DISCRIMINATING THE PRESENCE OF EXTRAORDINARINESS IN AN OUTPUT SIGNAL

Tomohiro Chuzenji, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

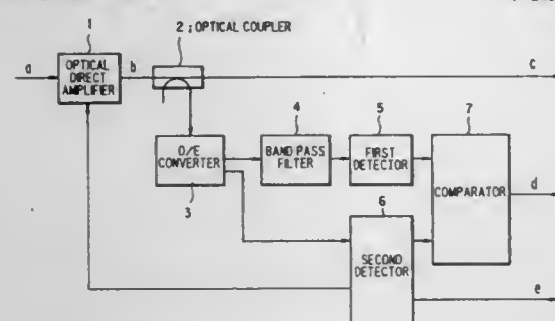
Filed Jan. 14, 1997, Ser. No. 783,024

Claims priority, application Japan, Jan. 19, 1996, 8-025772

Int. Cl.⁶ H04B 10/08

U.S. Cl. 359—110

4 Claims



1. A circuit for discriminating the presence of extraordinariness in an output signal, comprising:
an optical direct amplifier in an optical repeater for amplifying an input optical signal,
an optical/electrical converter applied to a portion of an output signal of said optical direct amplifier,
filter means for extracting a frequency component corresponding to a period of a frame pulse of said output signal of said optical direct amplifier directly from an output signal of said optical/electrical converter, and

means for discriminating a presence of extraordinariness in said output signal of said optical direct amplifier based on a level of said frequency component corresponding to said period of said frame pulse.

5,805,320

CROSS-CONNECT DEVICE

Satoshi Kuroyanagi, Kazuo Hironishi, and Takuji Maeda, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

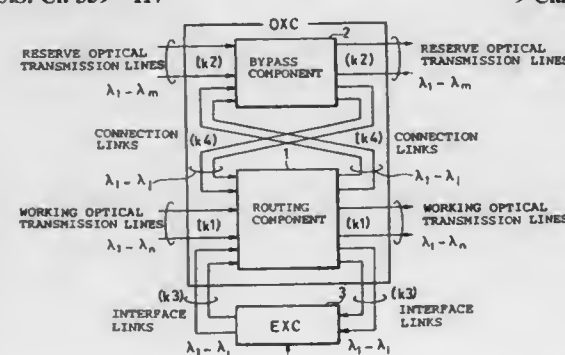
Filed Jun. 5, 1996, Ser. No. 658,739

Claims priority, application Japan, Jul. 5, 1995, 7-169536; Dec. 14, 1995, 7-325415

Int. Cl.⁶ H04J 14/02

U.S. Cl. 359—117

9 Claims



1. An optical cross-connect device connected to reserve optical transmission lines and working optical transmission lines, and used to switch wavelength multiplexed optical signals, comprising:
a bypass component connected to the reserve optical transmission lines and includes at least an optical-space switch;
a routing component connected to the working optical transmission lines and includes at least an optical-space switch; and
wherein said routing component is connected, on the input port, with working optical transmission lines and the connection links to the bypass component, and includes:
first optical couplers for separating the wavelength multiplexed optical signals;
optical filters for filtering according to wavelength the wavelength multiplexed optical signals split by the first optical couplers;
an optical-space switch for switching each optical signal from the first optical filters to the desired output port;
wavelength converters for converting the wavelengths of output signals from the optical-space switch; and
second optical couplers for combining the output optical signals from the wavelength converters to produce the wavelength multiplexed optical signals; and
said bypass component includes:
a first optical-space switch connected to the reserve optical transmission lines on the input port;
a second optical-space switch connected to the reserve optical transmission lines on the output port;
bypass links connected between the output port of the first optical-space switch and the input port of the second optical-space switch; and
connection links, connected between the output port of the first optical-space switch and the input port of the routing component, and between the input port of the second optical-space switch and the output port of the routing component.

5,805,321

CONTROL UNIT FOR OPTICAL MODULATORS PRODUCING MULTIPLEXED OPTICAL OUTPUT SIGNAL

Hiroki Ooi, George Ishikawa, and Hiroshi Nishimoto, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

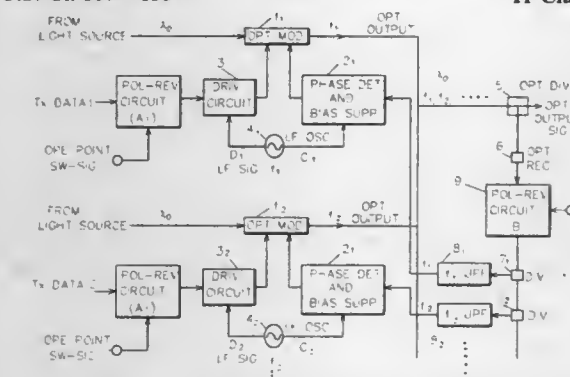
Filed Sep. 11, 1996, Ser. No. 712,375

Claims priority, application Japan, Sep. 11, 1995, 7-232626

Int. Cl.⁶ H04J 14/08; 14/02

U.S. Cl. 359—135

11 Claims



2. A control unit in an optical modulating apparatus including a plurality of optical modulators producing an optical output signal which includes a series of optical pulses, for controlling the apparatus so as to perform pre-chirping thereto by changing optical wavelengths in the optical pulses, said control unit comprising:
a pre-chirping circuit for changing a pre-chirping magnitude of the optical modulators, wherein the optical modulating apparatus is connected with said pre-chirping circuit; and
said pre-chirping circuit including means for keeping the optical output signal produced by the optical modulating apparatus the same as before changing the pre-chirping magnitude of the optical modulators; and
wherein the optically modulating apparatus includes a plurality of optical modulators arranged in a parallel configuration for producing optical outputs respectively at a different time slot from each other with the same wavelength and produces an optical output signal of the apparatus by combining the optical outputs, wherein said pre-chirping change circuit changes the pre-chirping magnitude in all of the optical modulators.

5,805,322

MULTIPLEX OPTICAL COMMUNICATION SYSTEM

Hiroaki Tomofuji, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

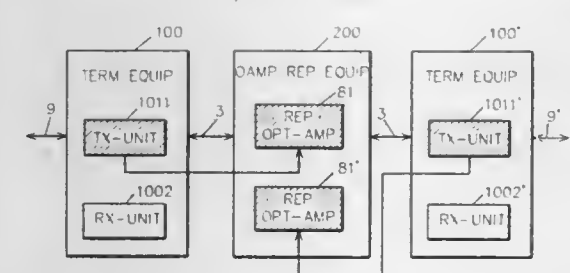
Filed Jan. 17, 1996, Ser. No. 587,390

Claims priority, application Japan, Jan. 19, 1995, 7-006141

Int. Cl.⁶ H04B 10/02

U.S. Cl. 359—177

17 Claims



1. A multiplex optical communication system for transmitting multiplex optical signals including data through an optical transmission line, said multiplex optical communication system comprising:

optical amplifier repeater equipments placed on the optical transmission line, for optically amplifying the multiplex optical signals transmitting through the optical transmission line, said optical amplifier repeater equipment comprising repeater optical amplifier for amplifying the multiplex optical signal transmitted through the optical transmission line; and
optical signal terminating equipments placed at terminals of the optical transmission line, each of said optical signal terminating equipments comprising:
electro-optical signal converters for converting electrical signals fed to said converters in a state of different channels, to converted optical signals having different wavelengths corresponding to the different channels;
an optical signal combiner for combining the converted optical signals to the multiplex optical signal; and
a monitor controller for monitoring output variation of each of the converted optical signals and controlling said repeater optical amplifier so that said repeater optical amplifier produces output in accordance with the output variation.

5,805,323

OPTICAL SCANNING APPARATUS

Junichi Ichikawa, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Japan

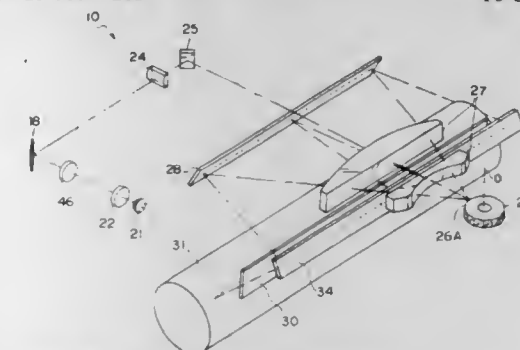
Filed Feb. 20, 1997, Ser. No. 801,412

Claims priority, application Japan, Feb. 21, 1996, 8-033713

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—205

16 Claims



1. An optical scanning apparatus comprising:
a first image formation optical system for shaping a diameter of a light beam emitted from a light source, thereby forming a long linear image extending in the direction corresponding to the direction of a main scan;
deflection means having reflecting surfaces at or near the position of the image formation of said linear image, for deflecting an incident light beam in the direction corresponding to the direction of the main scan at a constant angular velocity;
a light transmissive second image formation optical system for forming the image with the light beam deflected by said deflection means on a surface to be scanned with respect to the direction of the main scan; and
a third image formation optical system for forming the image with the light beam deflected by said deflection means on said surface to be scanned with respect to the direction of an auxiliary scan, having such a relationship that said reflecting surfaces are generally conjugated with said surface to be scanned,
wherein a locational relationship between said first image formation optical system and said deflection means is set so that said light beam can be incident on said deflection means in such a manner that the center of a flux of light of the light beam from said light source forms a predetermined angle relative to an axis perpendicular to a rotating axis of said deflection means, and said third image formation optical system is disposed in such a manner that the distortion of the scanning line formed on the third image formation optical system due to the incidence of the light beam on the deflection means at the predetermined angle can correct the curva-

ture of field in the direction of the auxiliary scan in a width of the scan on said surface to be scanned or the curvature of the conjugating point relative to the reflecting surfaces of said deflection means.

5,805,324

OPTICAL SCANNER

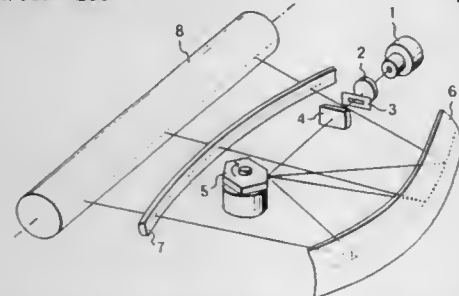
Osamu Endou, Kawasaki, Japan, assignor to Ricoh Company, Inc., Tokyo, Japan

Filed Nov. 20, 1995, Ser. No. 560,572

Claims priority, application Japan, Dec. 6, 1994, 6-302248
Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—208

5 Claims



1. An optical scanner in which light of a peripheral portion of a light beam from a light source is interrupted by an aperture and in which a non-peripheral portion of said light beam is focused and formed as a linear image extending in a main scan-corresponding direction, said scanner comprising:

an optical deflector for deflecting said non-peripheral portion of said light beam at an angular velocity wherein said optical deflector has a deflecting reflecting face in proximity to said linear image in order to provide a deflected light beam;

a reflective image forming element for reflecting said deflected light beam and an elongated lens for converging the reflected deflected light beam as a light spot on a scanned face to thereby perform an optical scanning operation at a constant speed;

wherein said reflective image forming element has a reflecting face with rotation symmetry and provides for convergence of the reflected deflected light beam onto the scanned face in the main scan-corresponding direction and wherein said elongated lens has a first toroidal face as an incident face and a second toroidal base as a light emitting face;

wherein said elongated lens sets the scanned face and a forming position of said linear image to a substantially conjugate relation in a cross-scan corresponding direction in cooperation with said reflecting image forming element; and

wherein said elongate lens provides a conjugate magnification in said conjugate relation of the reflective image forming element and the elongated lens which is set to m_0 with respect to an image height θ of the light spot and said m_0 satisfies the following condition wherein $1 > m_0 > 0.35$ and wherein the conjugate magnification in said conjugate relation of the reflective image forming element and the elongated lens is set to $m(H)$ with respect to an image height H , and wherein m_0 and $m(H)$ satisfy the following condition whereby $m(H)/m_0 < 1.1$.

5,805,325

INERTIALLY STABILIZED MIRROR SYSTEM

Lavern Charles Clune, Huntsville, Ala., assignor to Lockheed Martin Missiles & Space Co., Sunnyvale, Calif.

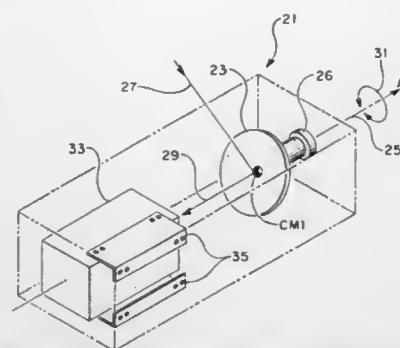
Continuation-in-part of Ser. No. 738,325, Oct. 25, 1996. This application Feb. 6, 1997, Ser. No. 795,681

Int. Cl.⁶ G02B 26/08

U.S. Cl. 359—226

16 Claims

9. Apparatus for using the inherent moment-of-inertia of a mirror mounted on a rotation axis to maintain orientation of the mirror and stabilization of the line-of-sight observed by an optical



instrument mounted on a platform that experiences angular and translational disturbances, said apparatus comprising:

a first mirror mounted for rotation about a first axis of rotation, said mirror being oriented so that the first mirror reflects the incident radiation parallel to the first axis of rotation,

said mirror having its center-of-mass located on the first axis of rotation to prevent introduction of torque on the first mirror due to translational accelerations, and

wherein the inherent moment-of-inertia of the first mirror maintains the orientation of the first mirror so as to result in a stabilized line-of-sight as observed by the optical instrument.

5,805,326

OPTICAL LIMITER STRUCTURE AND METHOD

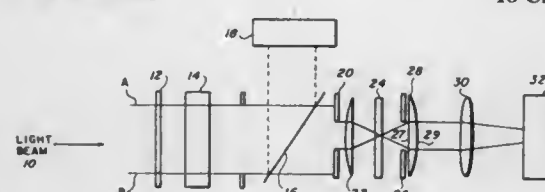
Arthur W. Snow; James S. Shirk, both of Alexandria, Va.; Filbert J. Bartoli, Jr., Upper Marlboro; James R. Lindle, Bowie, both of Md.; Michael E. Boyle, Burke, Va.; Richard G. S. Pong, Silver Spring, Md.; Steven R. Flom, Temple Hills, Md., and Joseph F. Pinto, Laurel, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 6, 1994, Ser. No. 239,068

Int. Cl.⁶ G02F 1/03; G02B 9/00; 5/22

U.S. Cl. 359—241

18 Claims



1. An optical limiter comprising a lens for focusing light to a focal point; a cell disposed at about the focal point of said focusing lens; a heavy metal limiter material and a host therefor contained in said cell; and an aft aperture disposed in back of said cell for stopping light refracted by nonlinear refraction in said limiter material wherein said limiter material is selected from the group consisting of substituted and unsubstituted heavy metal phthalocyanines, heavy metal naphthalocyanines, heavy metal porphyrins, salts of any of the above, and mixtures thereof; and wherein the heavy metal (M) is selected from the group consisting of lead, tin, bismuth, antimony, mercury, indium, tellurium, and mixtures thereof.

5,805,327

RESHAPING DEVICE FOR OPTICAL SHORT PULSES

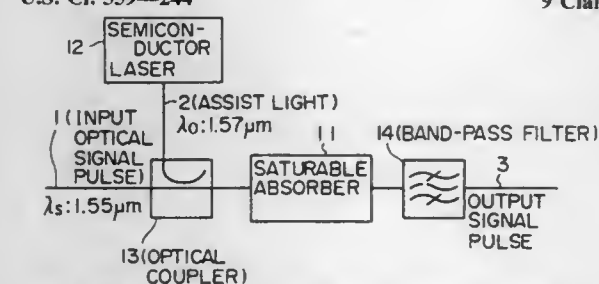
Masashi Usami, Yono; Yuichi Matsushima, Tokorozawa, and Munefumi Tsurusawa, Kodaira, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan
Filed May 21, 1996, Ser. No. 653,662

Claims priority, application Japan, May 24, 1995, 7-148382; Feb. 7, 1996, 8-044074

Int. Cl.⁶ H01S 3/19; 3/10

U.S. Cl. 359—244

9 Claims



1. A reshaping device for optical short pulses, comprising: a semiconductor saturable absorption element; first injection means for injecting first input optical signal pulses of optical short pulses to said saturable absorption element; second injection means for injecting, to said saturable absorption element, second input light of a wavelength longer than that of said first input optical signal pulses to accelerate, by stimulated emission, recombination of excited electrons and holes produced in said saturable absorption element in response to said first input optical signal pulses; and output means for selectively outputting said first input optical signal pulses of optical short pulses reshaped and noise-eliminated from said semiconductor saturable absorption element.

5,805,328

DRIVING CIRCUIT FOR AN OPTICAL SIGNAL MODULATOR

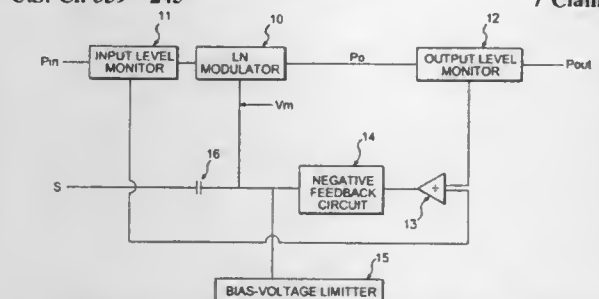
Hideaki Satoh; Kazuo Tanaka, and Yukihiko Ozeki, all of Tokyo, Japan, assignors to Oki Electric Industry Company, Tokyo, Japan

Filed Jun. 25, 1996, Ser. No. 669,964

Claims priority, application Japan, Jun. 27, 1995, 7-160555
Int. Cl.⁶ G02F 1/03

U.S. Cl. 359—245

7 Claims



1. A driving circuit for an optical signal modulator, comprising: an input level monitor for monitoring a level of optical input power; an output level monitor for monitoring a level of optical output power; feedback means, connected to the input level monitor and the output level monitor, for controlling a bias-voltage provided to the optical signal modulator; and driver means for applying a drive signal to the optical signal modulator, wherein an amplitude of the drive signal is suppressed.

5,805,329

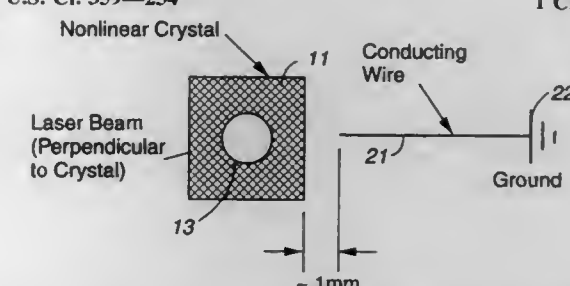
MINIMIZING RADIATION DAMAGE IN NONLINEAR OPTICAL CRYSTALS

D. Wayne Cooke, Santa Fe; Bryan L. Bennett, Los Alamos, and Nigel J. Cockroft, Santa Fe, all of N. Mex., assignors to The Regents of the University of California, Los Alamos, N. Mex.
Filed Apr. 10, 1996, Ser. No. 630,305

Int. Cl.⁶ G02F 1/03; 1/29; H01L 23/02

U.S. Cl. 359—254

1 Claim



1. A method of minimizing electrochromic and photochromic damage in nonlinear crystals caused by a laser beam comprising the steps of:

placing electrically conductive material in close proximity to said nonlinear crystal; grounding said electrically conductive material; and creating a vacuum around said nonlinear crystal and said electrically conductive material.

5,805,330

ELECTRO-OPTIC WINDOW INCORPORATING A DISCRETE PHOTOVOLTAIC DEVICE

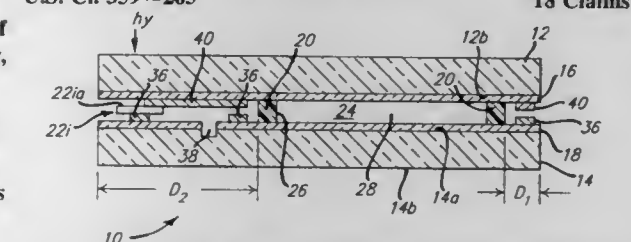
Harlan J. Byker; David J. Cammenga, and David L. Poll, all of Holland, Mich., assignors to Gentex Corporation, Zeeland, Mich.

Filed Mar. 15, 1996, Ser. No. 616,698

Int. Cl.⁶ G02F 1/15

U.S. Cl. 359—265

18 Claims



1. An electro-optic window comprising a self-erasing electro-optic variable transmittance component comprising

(a) front and rear spaced transparent elements, each having front and rear faces, said rear face of said front element and said front face of said rear element sealably bonded together in a spaced-apart relationship to define a chamber therebetween; (b) a first layer of transparent electrically conductive material disposed on said rear face of said front element, and a second layer of a transparent electrically conductive material disposed on said front face of said rear element; and (c) said chamber containing a self-erasing electro-optic reversibly variable transmittance medium in contact with said first and second layers of transparent electrically conductive materials;

where said variable transmittance component has enclosed therein one or more discrete photovoltaic cells for producing a voltage when exposed to radiant energy and further having means for conveying said voltage from said one or more discrete photovoltaic cells to said variable transmittance component to cause variations in the transmittance of light through said window.

5,805,331

ACTUATED MIRROR HAVING AN INCREASED TILTING ANGLE

Hwa-Sun Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

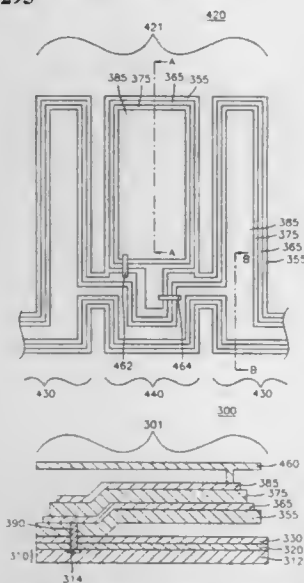
Filed Jun. 27, 1997, Ser. No. 883,132

Claims priority, application Rep. of Korea, Jun. 29, 1996, 96-26157

Int. Cl.⁶ G02B 26/00; 7/182

U.S. Cl. 359—295

8 Claims



1. An array of M×N thin film actuated mirrors, wherein M and N are integers, for use in an optical projection system, the array comprising:

an active matrix including a substrate and an array of M×N connecting terminals;

an array of M×N actuating structures, each of the actuating structures being provided with a pair of side actuators and a center actuator, both ends of each of the side actuators being fixed to the active matrix, each of the actuators including an upper thin film electrode, a thin film electrodisplacive member, a lower thin film electrode and an elastic member, the thin film electrodisplacive member being located between the upper and lower thin film electrodes, the elastic member being located below the lower thin film electrode, the lower thin film electrode of the side actuators being electrically disconnected from that of the center actuator, wherein the lower thin film electrode in each of the side actuators is electrically connected to the connecting terminal through the conduit and is electrically connected to the upper thin film electrode of the center actuator to thereby function as a signal electrode, and the upper thin film electrode in each of the side actuators is electrically connected to a ground and is electrically connected to the lower thin film electrode of the center actuator to thereby function as a common bias electrode; and

an array of M×N thin film mirrors, each of the thin film mirrors being located above each of the actuating structures, and each of thin film mirrors being cantilevered at the distal end of the center actuator in each of the actuating structures.

5,805,332

OPTICAL FIBER AMPLIFIER

Anand Gopinath, Wayzata, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

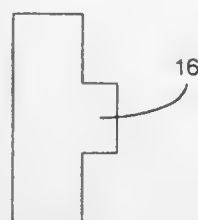
Filed Feb. 18, 1997, Ser. No. 800,543

Int. Cl.⁶ H01S 3/06; G02B 6/00

U.S. Cl. 359—341

12 Claims

1. An optical fiber amplifier, comprising:
an elongated cladding material having a cladding index of refraction; and



an elongated core having a core index of refraction which is higher than the cladding index of refraction, the elongated core including Zirconium dioxide (ZrO₂) doped with a rare earth material comprising praseodymium (Pr) to thereby provide a peak in luminescence at about 1300 nm in wavelength.

5,805,333

PHOTOELECTRIC CONVERSION ELEMENT HAVING AN INFRARED TRANSMISSIVE INDIUM FILM

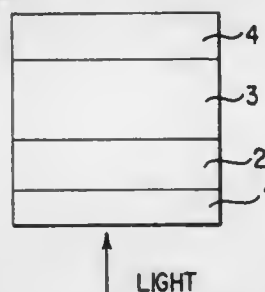
Hiroyuki Tanaka, and Kaoru Torikoshi, both of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 429,700, Apr. 27, 1995, abandoned, which is a division of Ser. No. 271,627, Jul. 7, 1994, abandoned. This application Jul. 29, 1996, Ser. No. 688,196
Claims priority, application Japan, Jun. 24, 1993, HEI 5-152530; Jul. 7, 1993, HEI 5-167855

Int. Cl.⁶ G02B 3/00

U.S. Cl. 359—350

6 Claims



3. An infrared ray transmissive conductive substrate comprising a crystalline substrate at least partially transparent to at least a near infrared region and a transparent electrode that comprises indium-tin-oxide,

wherein said transparent electrode is located on said crystalline substrate and is sufficiently transparent at least to transmit at least 90% of light for all wavelengths in at least a range from 500 nm to 2000 nm.

5,805,334

CATADIOPTRIC PROJECTION SYSTEMS

Tomowaki Takahashi, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed May 19, 1997, Ser. No. 858,560

Claims priority, application Japan, May 20, 1996, 8-149903

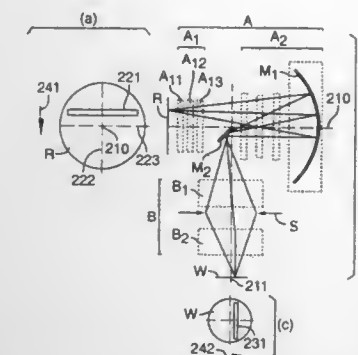
Int. Cl.⁶ G02B 17/08; G03B 27/42

U.S. Cl. 359—364

26 Claims

1. A catadioptric projection system for receiving light from a reticle and projecting a pattern from the reticle onto a substrate, the catadioptric projection system comprising:

a first imaging system that forms an intermediate image of an illuminated region of the reticle, the first imaging system comprising in order from the reticle and along an optical axis of the first imaging system, (a) a single-pass lens group comprising a first negative subgroup, a positive subgroup, and a second negative subgroup, and (b) a double-pass lens group comprising a concave mirror, wherein light from the illuminated region of the reticle passes through the single-pass lens



group and the double-pass lens group, reflects from the concave mirror, and returns through the double-pass optical group;

a first turning mirror placed near the intermediate image that receives the light reflected by the concave mirror and returned through the double-pass optical group; and

a second imaging system that receives the light reflected by the first turning mirror and that re-images the intermediate image to form a final image of the illuminated region of the reticle on the substrate.

5,805,335

OPERATING MICROSCOPE

Takashi Fukaya, Sagami-hara; Koji Yasunaga, Hino; Masahiko Kinukawa, Sagami-hara; Hiroshi Fujiwara, Hachioji; Yoshia Hoshino, Hachioji, and Junichi Nozawa, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Japan

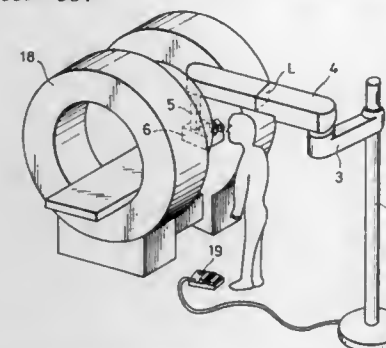
Filed Apr. 14, 1997, Ser. No. 843,190

Claims priority, application Japan, Apr. 17, 1996, 8-095376

Int. Cl.⁶ G02B 21/00; A47F 5/00

U.S. Cl. 359—384

28 Claims



1. An operating microscope comprising:

a base;

a support coupled to the base;

an arm having a proximal end portion rotatably and vertically movably coupled to the support, and a distal end portion, at least the distal end portion being formed of a non-magnetic material;

a microscope portion coupled to the distal end portion of the arm and including a stereoscopic optical system for forming an image of an observed part, the microscope portion being formed of a non-magnetic material;

power means for operating the microscope portion or a part thereof; and

operation instructing means for instructing the power means to operate;

the power means comprising:

a power generating portion for generating a power for operating;

a power output portion, formed of a non-magnetic material, for operating the microscope portion or a part thereby by the power generated by the power generating portion; and power transmitting means for transmitting the power for operating from the power generating portion to the power output

portion, the power transmitting means being formed of a non-magnetic material in the microscope portion and the non-magnetic portion of the arm.

5,805,336

OPTICAL LENS BLANK WITH POLARIZER ALIGNED BETWEEN PLASTIC BIREFRINGENT SHEETS

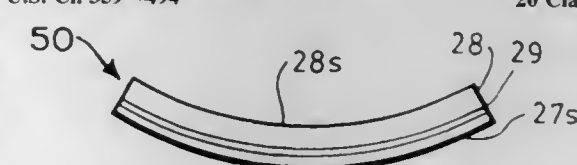
William H. Dalzell, Marshfield, and Igor Loshak, Cambridge, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 5, 1996, Ser. No. 628,781

Int. Cl.⁶ G02B 5/30

U.S. Cl. 359—494

20 Claims



1. A unitary laminar curved composite lens blank for the production of a light-polarizing optical lens, the lens blank comprising in order:

a first light-transmissive birefringent polymeric layer;

a light-polarizing layer;

and a second light-transmissive polymeric layer;

said first light-transmissive birefringent layer defining a convex surface of said lens blank and being a thin layer relative to said second light-transmissive layer;

said second light-transmissive layer defining a concave surface of the lens blank and being substantially thicker than the first light-transmissive layer and having a thickness sufficient to permit grinding of the concave surface thereof for production of optical properties desired in said light-polarizing optical lens;

said convex surface of said unitary laminar curved composite lens blank providing at least substantially the optical properties desired in said light-polarizing optical lens and said concave surface thereof being grindable to a surface providing said light-polarizing optical lens with said desired optical properties;

said light-polarizing layer and at least the first of said first and second light-transmissive layers being aligned such that a principal index of refraction direction of the light-transmissive layer is in substantial parallelism with a light absorption axis of the light-polarizing layer.

5,805,337

LIGHT GATHERING APPARATUS

Kazushi Yoshida, Shizuoka-ken, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha

Division of Ser. No. 47,400, Apr. 19, 1993, abandoned, which is a division of Ser. No. 679,271, Apr. 2, 1991, abandoned.

This application Apr. 27, 1995, Ser. No. 430,156

Claims priority, application Japan, Apr. 5, 1990, 2-91233

Int. Cl.⁶ G02B 5/30; 27/28

U.S. Cl. 359—495

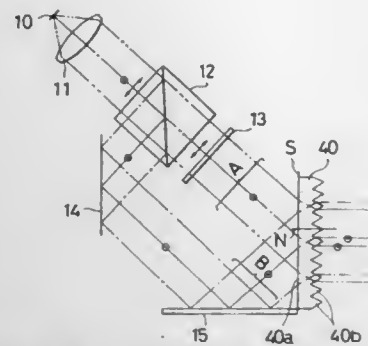
16 Claims

1. A light gathering apparatus comprising:

means for generating at least two fluxes of light, said at least two fluxes of light extending in different directions; and

means for receiving and refracting said at least two fluxes of light in order to form a combined parallel light flux comprising said at least two fluxes of light, after changing the directions of said at least two fluxes of light so that said at least two fluxes of light extend in the same direction, such that a uniform brightness is obtained,

said means for receiving and refracting comprising a flat incident surface upon which said at least two fluxes of light are made incident, and an array of continuous first and second



emission surfaces which are alternately and symmetrically arranged with respect to a bisection of an angle defined by and between said at least two fluxes of light;
wherein said means for receiving and refracting substantially prevents vignetting in said combined parallel light flux by satisfying the following formulae:

$$\theta_1 = 90^\circ - 2\alpha;$$

$$\theta_2 = 90^\circ - \alpha; \text{ and}$$

$$\cos \alpha = \{ [1 + 8(n_1/n_2)^2]^{1/2} \} / [4n_1/n_2];$$

wherein 2α equals an angle defining an intersection between each of said first and second emission surfaces;
wherein θ_1 defines an angle of incidence, of each of said at least two fluxes of light extending in different directions, on each of said first and second emission surfaces;
wherein θ_2 defines an angle of refraction at each of said first and second emission surfaces;
wherein n_1 defines a refractive index of said means for receiving and refracting; and
wherein n_2 defines a refractive index of a medium at said emission surfaces of said means for receiving and refracting.

5,805,338

PILLOWED FLEXIBLE CUBE-CORNER SHEETING AND METHODS OF MANUFACTURE

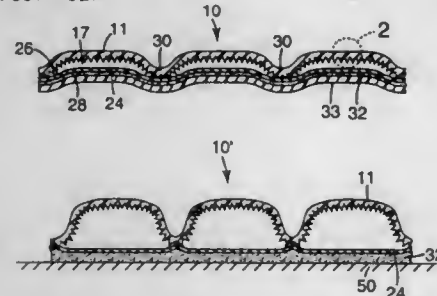
Jeffrey D. Janovec, River Falls, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 10, 1996, Ser. No. 631,856

Int. Cl.⁶ G02B 5/124

U.S. Cl. 359—529

14 Claims



1. A retroreflective sheeting comprising:
 - (a) a microstructured retroreflective member having a body portion and a plurality of cube-corner elements projecting from a first side of said body portion;
 - (b) a sealing member; and
 - (c) a network of intersecting lines bonding said first side of said body portion and said sealing member to each other in a pattern of cells whereby said sheeting is changeable between:
 - (i) a normal state wherein said microstructured member is curved and is substantially parallel to said sealing member; and
 - (ii) a compressed state wherein said microstructured member is arched and said sealing member is substantially flat.

5,805,339

RETROREFLECTIVE STRUCTURE

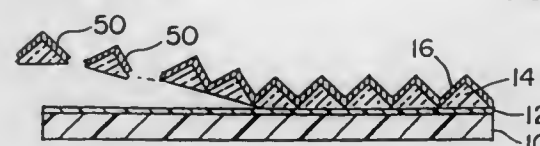
David C. Martin, Berlin; Edward D. Phillips, Oakville, and William P. Rowland, Southington, all of Conn., assignors to Reflexite Corporation, Avon, Conn.

Division of Ser. No. 596,805, Feb. 5, 1996, which is a continuation of Ser. No. 578,973, Dec. 27, 1995, abandoned, which is a continuation-in-part of Ser. No. 88,252, Jul. 7, 1993, Pat. No. 5,637,173, which is a continuation of Ser. No. 18,766, Feb. 17, 1993, abandoned. This application Apr. 7, 1997, Ser. No. 833,594

Int. Cl.⁶ G02B 5/122

U.S. Cl. 359—529

12 Claims



1. A retroreflective structure comprising:
 - a) a substrate;
 - b) a release layer on the substrate;
 - c) an array of solid transparent prisms having a window side and a facet side formed on said substrate with the window side abutting the release layer; and
 - d) a reflective layer formed on the facet side of the prisms, said prisms being detachable from said substrate.

5,805,340

OPTICAL MODULATOR AND SYSTEM HAVING TUNABLE IMAGE ENHANCEMENT

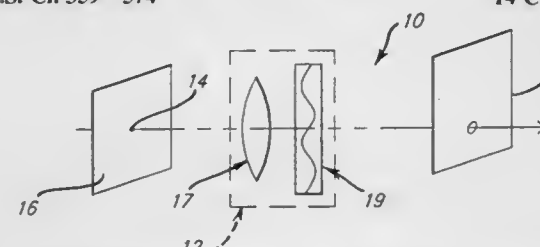
Shawn L. Kelly, 8479 Pine Cove Dr., Commerce Township, Mich. 48382, assignor to Shawn L. Kelly, Commerce Township, (Oakland County), Mich.

Filed Nov. 22, 1996, Ser. No. 754,148

Int. Cl.⁶ G02B 5/18

U.S. Cl. 359—574

14 Claims



1. A method for adjusting a point spread function of an imaging system comprising the steps of:
 - positioning an optical modulator along an optical axis of said imaging system, said optical modulator comprising a first and second optical element each having a lens array comprising alternating convex and concave light modifying structures formed on a surface thereof; and
 - translating the orientation of the second optical element relative to the first optical element so as to controllably split any light passing through said modulator to create a modified point spread function for said imaging system.

5,805,341

HEAD OR FACE MOUNTED IMAGE DISPLAY APPARATUS

Keiichi Kuba, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

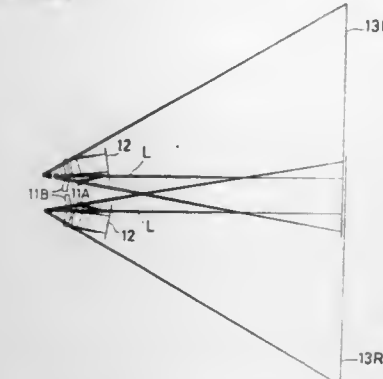
Filed Sep. 19, 1996, Ser. No. 715,797

Claims priority, application Japan, Sep. 20, 1995, 7-241844; Jul. 19, 1996, 8-190645

Int. Cl.⁶ G02B 27/14

U.S. Cl. 359—630

12 Claims



1. A head- or face-mounted image display apparatus comprising:
 - an image display unit; and
 - an optical system for projecting an image displayed by said image display unit into an observer's eyeball,
 wherein said optical system comprises an optical system of infinite dioptr and an optical system of negative power, and wherein a virtual image for an observer's right eye and a virtual image for an observer's left eye overlap each other through at least 30°.

5,805,342

IMAGING SYSTEM WITH MEANS FOR SENSING A FILTERED FLUORESCENT EMISSION

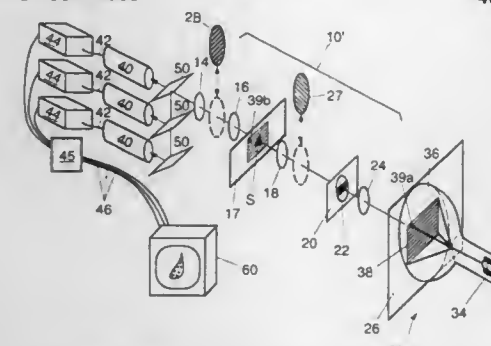
Benjamin T. Gravely, 7001 Buckhead Dr., Raleigh, N.C. 27609

Filed Oct. 30, 1996, Ser. No. 739,971

Int. Cl.⁶ G02B 27/10; H04N 5/30

U.S. Cl. 359—618

40 Claims



1. An imaging system characterized by its ability to produce a diffraction limited output signal in the form of a fluorescent emission from a sample containing fluorescent material, the sample being positioned on a sample plane and comprising:
 - (a) a spot scanner means comprising:
 - means for generating an illuminated spot in the form of an essentially isotropic emitter adapted to scan in a raster pattern, said raster pattern comprising a field having a predetermined number of horizontal lines spaced vertically from each other a predetermined and equal distance, said spot being positioned in an object plane;
 - (b) imaging means for imaging in a diffraction limited manner the object plane on to a sample plane, such that the image of said spot on the sample plane is the smallest spot size as defined by the diffraction limits of said imaging means;

- (c) excitation filter means positioned such that the illuminated spot passes therethrough prior to striking the sample;
 - (d) emission filter means positioned so as to selectively filter the fluorescent emissions emitted from the sample as the result of the filtered scanned spot striking the sample;
 - (e) means for sensing the filtered fluorescent emissions from said sample and for producing a resultant modulated output signal proportional thereto; and
 - (f) wherein said object plane spot size is less than or equal to that which is necessary in order for the imaging means to produce the smallest diffraction limited spot size in the sample plane;
- whereby a diffraction limited output signal representative of the sample plane is produced such that it may be displayed on a display device or output to a digital processing device.

5,805,343

OPTICAL ELEMENT AND A METHOD FOR FORMING THE SAME

Naoto Kozasa; Takahiro Kobayashi; Kenji Suzuki, and Jiro Fujimori, all of Yamanashi, Japan, assignors to Pioneer Electronic Corporation, Tokyo, and Pioneer Video Corporation, Yamanashi, both of Japan

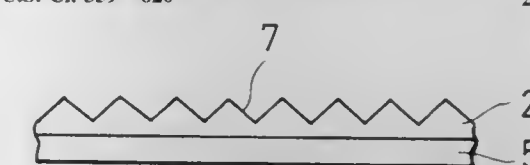
Filed Nov. 26, 1996, Ser. No. 755,821

Claims priority, application Japan, Dec. 1, 1995, 7-338061

Int. Cl.⁶ G02B 27/10

U.S. Cl. 359—620

2 Claims



1. An optical element comprising:
 - a light-transmittable substrate;
 - a light-transmittable dry-light-curing-film layered on the light-transmittable substrate and having an undulant pattern on a surface thereof; and
 said dry-light-curing-film characterized by the following:
 - (a) a viscosity ranging from 3,500 to 400,000 poises at room temperature in the unhardened state, (b) a thickness ranging from 30 to 100 micrometers in the unhardened state,
 - (c) a creep characteristic and a creep recovery characteristic being satisfied with the following inequalities (1) and (2) respectively.

$$0.4 \leq \Delta - \Delta' / \Delta \quad (1)$$

$$0.4 \leq \Delta - \Delta'' / \Delta - \Delta' \quad (2)$$

wherein Δ denotes a thickness of the dry-light-curing-film, $\Delta - \Delta'$ denotes a saturated strain developed in the thickness direction of the dry-light-curing-film disposed between a pair of circular plates to which a pressure of 50,000 dyne/cm² at 80 centigrade degree, $\Delta - \Delta''$ denotes a strain developed in the periphery of one of a pair of circular plates between which the dry-light-curing-film is disposed and adhering them when the one of circular plates is twisted with a force of 5000 dyne at 80 centigrade degree with respect to the other, and $\Delta - \Delta''$ denotes a saturated back strain developed in the periphery of the one of circular plates after release of the force of 5000 dyne.

5,805,344

PROJECTION OPTICAL SYSTEM AND PROJECTION EXPOSURE APPARATUS

Toshihiro Sasaya, Yokohama; Kazuo Ushida, Tokyo; Yutaka Suenaga, Yokohama, all of Japan, and Romeo I. Mercado, Fremont, Calif., assignors to Nikon Corporation, Japan

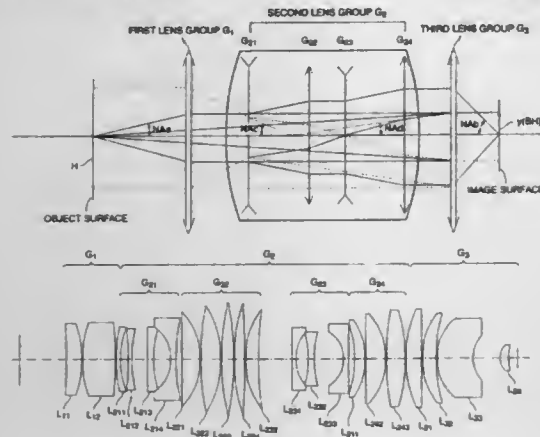
Continuation of Ser. No. 337,647, Nov. 10, 1994, abandoned.

This application Oct. 11, 1996, Ser. No. 729,096

Int. Cl.⁶ G02B 13/04; 13/22

U.S. Cl. 359—649

76 Claims



1. A projection optical system that projects an image of an object in an object surface onto an image surface with a predetermined reduction magnification comprising, in light path order from said object surface:

- a first group of lenses with positive refractive power, said first group including at least two positive lenses;
- a second group of lenses forming an approximately afocal system, said second group including, in light path order from said object surface,
- a first subgroup of lenses with negative refractive power, said first subgroup including at least two negative lenses,
- a second subgroup of lenses with positive refractive power, said second subgroup including at least four positive lenses, and
- a third subgroup of lenses with negative refractive power, said third subgroup including at least two negative lenses; and
- a third group of lenses with positive refractive power, said third group including at least two positive lenses;

wherein:

said projection optical system has an optical axis, said projection optical system has a focal length F, said projection optical system has a projection magnification B, said object surface and said image surface are separated by a distance L,

a ray from said image surface that is parallel to said optical axis and is incident on said projection optical system emerges from said projection optical system along a path and encounters said object surface at a height h from said optical axis, said ray has an extension along said path, which extension crosses said optical axis at a distance e from said object surface,

$$1.8 \leq 1/F(B-L),$$

and

$$1/e \leq 3/1000.$$

5,805,345

IMAGE TRANSMISSION OPTICAL SYSTEM

Toshiyuki Nagaoka, Akigawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

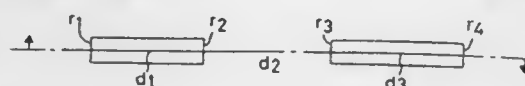
Filed Jul. 12, 1995, Ser. No. 501,321

Claims priority, application Japan, Jul. 12, 1994, 6-160266; Mar. 6, 1995, 7-070389

Int. Cl.⁶ G02B 3/00

U.S. Cl. 359—654

43 Claims



1. An image transmission optical system having a magnification of approximately 1x, and comprising:

at least one radial gradient-index lens element which has a refractive index distribution expressed by the formula (a) shown below, and has positive dispersing powers V_{00} and V_{10} , and satisfies the following condition (1):

$$N(r) = N_{00} + N_{10}r^2 + N_{20}r^4 + \dots \quad (a)$$

$$1/V_{10} < 1/V_{00} \quad (1)$$

wherein the reference symbol r represents a distance as measured from an optical axis in a radial direction, the reference symbol N(r) designates a refractive index of a lens portion at the radial distance r at a standard wavelength, the reference symbol N_{00} denotes a refractive index of a lens portion located on the optical axis, the reference symbols N_{10} and N_{20} represent refractive index distribution coefficients of the second, fourth, . . . orders respectively at the standard wavelength, and the reference symbols V_{00} and V_{10} designate dispersing powers of the radial gradient-index lens element which have values given by the following formulae respectively:

$$V_{00} = (N_{00d} - 1)/(N_{00d} - N_{00c})$$

$$V_{10} = N_{10d}/(N_{10d} - N_{10c})$$

wherein the reference symbols N_{00d} , N_{00c} , and N_{10c} represent refractive indices of the lens portion located on the optical axis for the d-line, F-line and the C-line respectively, and the reference symbols N_{10d} , N_{10c} , and N_{10c} designate refractive index distribution coefficients of the second order for the d-line, F-line and C-line respectively.

5,805,346

FLUID IMMERSION MICROSCOPE OBJECTIVE LENS

Kei Tomimatsu, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

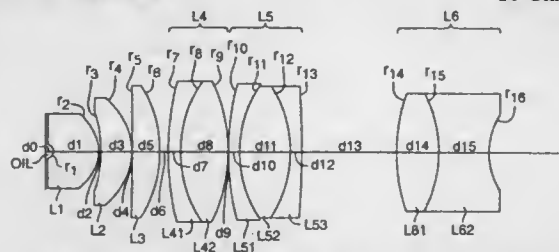
Filed Oct. 28, 1996, Ser. No. 738,847

Claims priority, application Japan, Nov. 1, 1995, 7-285367

Int. Cl.⁶ G02B 21/02

U.S. Cl. 359—656

16 Claims



1. A fluid-immersion microscope objective lens, comprising a most objectwise lens element having a most objectwise lens surface, the most objectwise lens surface having a negative refractive power and contacting an immersion fluid during use, the microscope objective lens satisfying the following Conditional Expression:

$$\ln_0 - n_1 > 0.1$$

wherein n_1 is the refractive index of the most objectwise lens element and n_0 is the refractive index of the immersion fluid.

5,805,347

VARIABLE-MAGNIFICATION TELECENTRIC OPTICAL SYSTEM

Hideo Mizutani, Yokohama; Hiroshi Nishimura, Zushi, and Masashi Tanaka, Yokohama, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

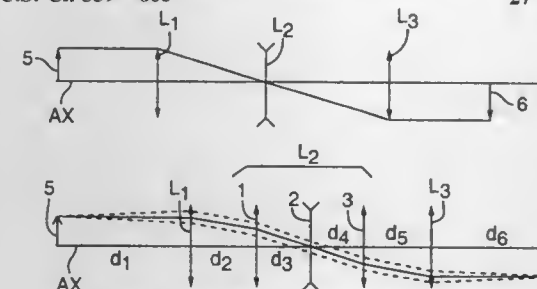
Filed Dec. 27, 1996, Ser. No. 774,914

Claims priority, application Japan, Dec. 27, 1995, 7-352984; Dec. 27, 1995, 7-352985

Int. Cl.⁶ G02B 13/22; 15/14

U.S. Cl. 359—663

27 Claims



1. A telecentric lens system, comprising on an optical axis from an object side to an image side:

- (a) first, second, and third lens groups, the first and third lens groups each having positive refractive power, the second lens group being afocal, and the first, second, and third lens groups each comprising at least one lens;
- (b) the first lens group having a front focal point on the optical axis and the third lens group having a rear focal point on the optical axis, wherein the telecentric lens system is operable to form an image, at the rear focal point, of an object located at the front focal point;
- (c) the lens system being telecentric on both the object and image sides;
- (d) at least one lens in the second lens group being movable along the optical axis for changing a lateral magnification of an object as imaged by the lens system, and the lenses in the first and third lens groups being fixed relative to the object when changing the lateral magnification; and
- (e) the lens system being operable to produce the variable lateral magnification of the object while retaining telecentricity and without causing a change in axial position of the front and rear focal points.

5,805,348

LENS SYSTEM WITH REDUCED SENSITIVITIES AND A METHOD OF MANUFACTURING

Lee R. Estelle, and Barbara J. Kouthoofd, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 12, 1996, Ser. No. 695,461

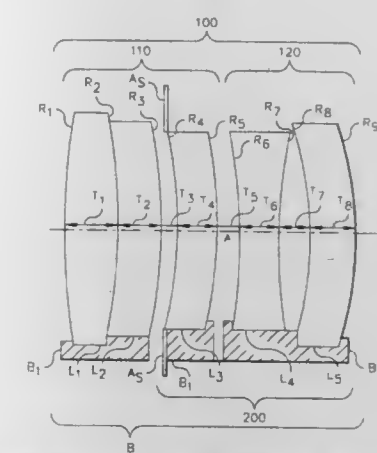
Int. Cl.⁶ G02B 15/15

U.S. Cl. 359—677

14 Claims

1. A lens system having nominal focal length and aberrations, said lens system comprising:

- a plurality of lens components defined by design parameter values and;
- a special airspace distance between two lens components, said lens system being characterized in design such that manufacturing deviations from said design parameter values cause a variation from the nominal focal length and a variation in at least one of the aberrations, both of which have been offset



simultaneously by a single change in said special airspace distance.

5,805,349

RETROFOCUS TYPE LENS

Haruo Sato, Kawaguchi, Japan, assignor to Nikon Corporation, Tokyo, Japan

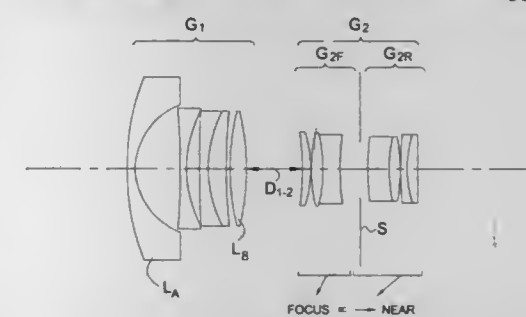
Filed Sep. 27, 1996, Ser. No. 721,195

Claims priority, application Japan, Oct. 13, 1995, 7-292111; Oct. 13, 1995, 7-292112

Int. Cl.⁶ G02B 15/14; 9/00; 13/04

U.S. Cl. 359—682

38 Claims



1. A retrofocus type lens comprising, from an object side: a first lens group G_1 having negative refractive power, said first lens group G_1 having a negative meniscus lens component L_A having a convex surface facing an object side and a positive lens component L_B positioned closer to an image side than said negative meniscus lens component L_A , at least one surface among all of the lens surfaces of said first lens group G_1 being aspheric; a second lens group G_2 having positive refractive power, said second lens group G_2 having, from the object side, a front group G_{2F} having positive refractive power and a rear group G_{2R} having positive refractive power; and wherein focusing from an infinite object point to a near object point is accomplished by moving said front group G_{2F} and said rear group G_{2R} of said second lens group with different moving amounts.

5,805,350

WIDE ZOOM LENS

Chikara Yamamoto, Omiya, Japan, assignor to Fuji Photo Optical Co. Ltd., Omiya, Japan

Filed Jan. 31, 1997, Ser. No. 794,243

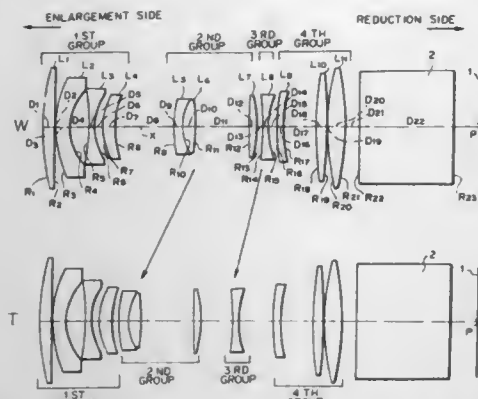
Claims priority, application Japan, Mar. 4, 1996, 8-075158

Int. Cl.⁶ G02B 15/14

U.S. Cl. 359—686

7 Claims

1. A wide angle zoom lens comprising, successively from an enlargement side, a first lens group which is fixed and has a



negative refractive power for focusing; a second lens group having a positive refractive power and a third lens group having a negative refractive power which are moved with a relationship therebetween so as to vary power and correct movement of imaging surface caused by thus varied power; and a fourth lens group which is fixed and has a positive refractive power; wherein the following conditional expressions (1), (2), and (3) are satisfied:

$$-2.0 < F_1/F < -0.9$$

$$0.65 < F_2/F < 1.4$$

$$0.9 < F_4/F < 1.7$$

wherein

F is focal length of the whole lens system at a wide angle end; F_1 is focal length of the first lens group; F_2 is focal length of the second lens group; and F_4 is focal length of the fourth lens group.

5,805,351

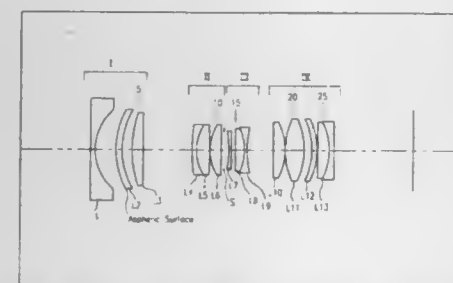
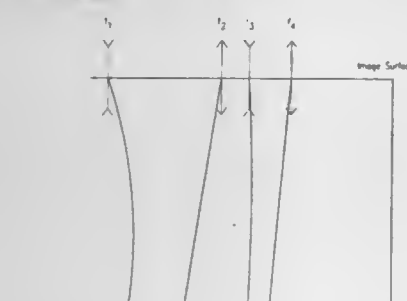
HIGH SPEED WIDE ANGLE ZOOM LENS SYSTEM
Kiyoshi Hayashi, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Mar. 13, 1997, Ser. No. 816,911

Int. Cl.⁶ G02B 15/14; 13/18

U.S. Cl. 359—686

19 Claims



1. A large aperture, wide angle zoom lens system comprising, viewed from the object side, in order of succession, a first group of lenses with negative refractive power; a second group of lenses with positive refractive power;

a third group of lenses with negative refractive power; as well as a fourth group of lenses with a positive refractive power; wherein,

a diaphragm is disposed between said second group of lenses and said fourth group of lenses, and during zooming from a wide side to a tele side in said wide angle zoom lens system, a respective air gap between each of said groups of lenses is changed so as to decrease the air gap between said first group of lenses and said second group of lenses, increase the air gap between said second group of lenses and said third group of lenses, and to decrease the air gap between said third group of lenses and said fourth group of lenses; and

said fourth group of lenses includes, viewed from the object side, in order of succession, at least two positive lens elements, a first negative lens element as well as a positive lens element, and said zoom lens system satisfies the following conditional expressions:

$$0.8 < |f_3/f_4| < 1.0$$

$$1.2 < |f_1| \sqrt{f_w \cdot f_T} < 1.5$$

$$-1.7 < (r_{412} + r_{411})/(r_{412} - r_{411}) < -0.7$$

where,

f_3 : is a composite focal length of the third group of lenses,

f_4 : is a composite focal length of the fourth group of lenses,

f_1 : is a composite focal length of the first group of lenses,

f_w : is a focal length of said zoom lens system on a wide side thereof,

f_T : is a focal length of said zoom lens system on a tele side thereof,

r_{411} : is an objectwise radius of curvature of a positive lens on a most object side of the fourth group of lenses, and

r_{412} : is an imagewise radius of curvature of a positive lens on a most image side of the fourth group of lenses.

5,805,352

ZOOM LENS SYSTEM HAVING TWO LENS UNITS
Kazuteru Kawamura, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 186,338, Jan. 25, 1994, abandoned.

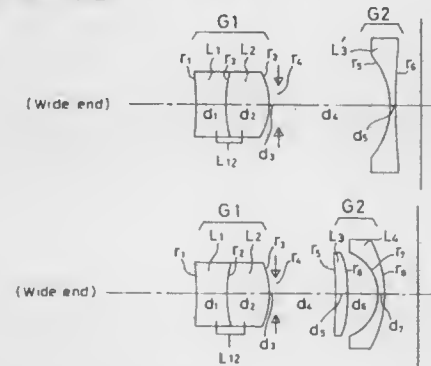
This application May 21, 1997, Ser. No. 861,224

Claims priority, application Japan, Jan. 26, 1993, 5-010754

Int. Cl.⁶ G02B 15/14; 3/02

U.S. Cl. 359—692

14 Claims



1. A variable focal length lens system comprising, in order from an object side thereof:

a first lens unit having positive power, said first lens unit being closest to the object side in said variable focal length lens system, and said first lens unit including:

a cemented doublet comprising a negative lens and a positive lens, said cemented doublet being closest to the object side in said first lens unit, said cemented doublet having at least one aspherical lens surface, and said cemented doublet being concave on an object side, and

a second lens unit having negative power; wherein

a focal length of said variable focal length lens system being varied by changing a spacing between said first lens unit and said second lens unit; and

said variable focal length lens system satisfying the following condition for any focal length position of said variable focal length lens system:

$$0.8 < d_{12} F_{NO} / f_0 < 3.0 \quad (2)$$

where d_{12} is thickness of said cemented doublet in said first lens unit, f_0 is a focal length of said variable focal length lens system, and F_{NO} is an F-number of said variable focal length lens system at said focal length f_0 .

5,805,353

OPTICAL SYSTEM MOVING DEVICE

Kazushige Ichino, and Kiyoshi Tachibana, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 170,428, Dec. 20, 1993, abandoned.

This application Oct. 7, 1996, Ser. No. 726,621

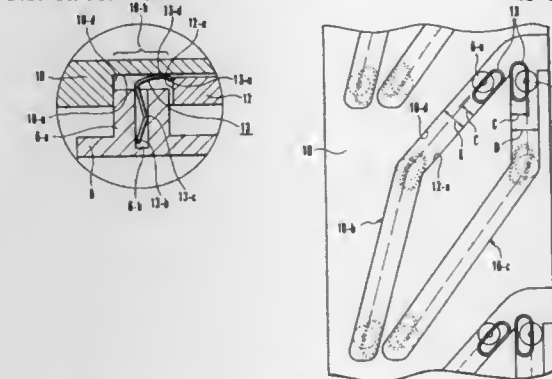
Claims priority, application Japan, Dec. 25, 1992, 4-346716; Dec. 28, 1992, 4-347818

Int. Cl.⁶ G02B 15/14; 7/02

U.S. Cl. 359—699

Int. Cl.⁶ G02B 15/14; 7/02

48 Claims



1. An optical device, comprising:

(A) an optical unit,

(B) a concave cam,

(C) a cam-follower for guiding the optical unit along the concave cam, and

(D) an elastic member for urging the cam-follower to one surface of the concave cam while the elastic member rests against another surface of the concave cam.

5,805,354

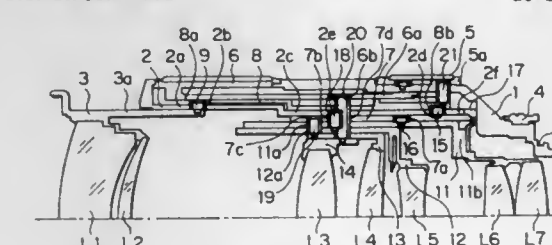
ZOOM LENS BARREL WITH REVERSIBLE TELEPHOTO LENS MOVEMENT
Hideo Kanno, Chiba, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed May 2, 1997, Ser. No. 850,702

Int. Cl.⁶ G02B 15/14

U.S. Cl. 359—701

10 Claims



1. A zoom lens barrel comprising:

a first optical system;

a second optical system;

5,805,355

RESIN LENS

Yasuyuki Natsuno, Tokyo, Japan, assignor to Konica Corporation, Japan

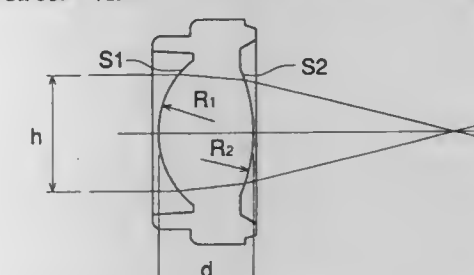
Filed Mar. 21, 1996, Ser. No. 619,427

Claims priority, application Japan, Mar. 29, 1995, 7-071570

Int. Cl.⁶ G02B 3/02

U.S. Cl. 359—719

8 Claims



1. A lens for use in a laser optical system for an optical disk, comprising:

(a) a first non-planar refractive surface facing the optical disk; and

(b) a second non-planar refractive surface opposite to the first surface,

wherein said lens is made of an acrylic resin which has the following characteristics:

$$n \geq 1.5$$

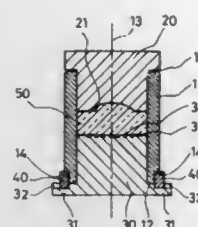
$$0 \leq W \leq 1.5\%$$

wherein n represents a refractive index of the acrylic resin and W represents a percentage of water absorption of the acrylic resin,

and wherein the lens satisfies the following expression:

$$0 \leq (dxh)/R_1 \times R_2 \times W \leq 2$$

wherein d represents an on-axis thickness of the lens, R_1 represents a radius of curvature on an optical axis of the first surface (mm) of the lens, R_2 represents a radius of curvature on the optical axis of the second surface (mm) of the lens, and h represents an effective diameter (mm) on an incident side of the lens, said lens functioning as an objective lens in a laser optical system for an optical disk.



said press dies, and the cross sections comprise a pair of parallel sides and a pair of circular arc sides facing each other.

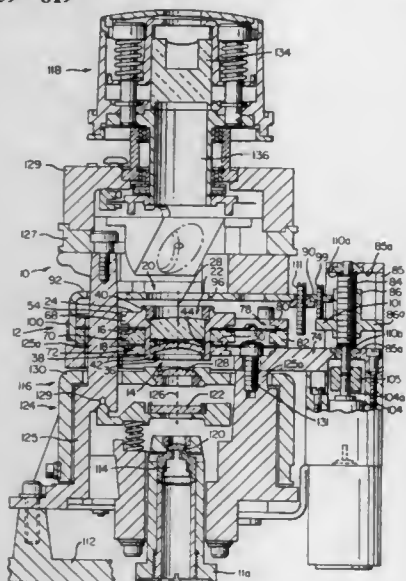
5,805,362

FOCUSING MECHANISM USING A THIN DIAPHRAGM
James Nelson Hayes, Urbana, Ohio, assignor to Spectra Precision, Inc., Dayton, Ohio

Filed Apr. 11, 1997, Ser. No. 834,477
Int. Cl.⁶ G02B 7/02

U.S. Cl. 359—819

33 Claims



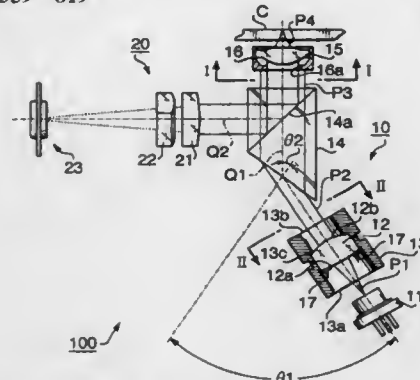
1. A focusing mechanism, comprising:
- a lens element having an outer diameter, an optical axis and a transverse plane;
 - a first diaphragm having a first opening and a second diaphragm having a second opening, said lens element being mounted in said first and second openings of said first and second diaphragms, said first and second diaphragms being flexible in a direction parallel to said optical axis of said lens element and rigid in a direction parallel to said transverse plane of said lens element;
 - a mounting assembly coupled to said first and second diaphragms; and
 - a diaphragm flexing assembly coupled to said mounting assembly for flexing said first and second diaphragms so as to position said lens element in said direction parallel to said optical axis.

5,805,363
COLLIMATING LENS UNIT
Isao Okuda, Toshiyuki Kase, and Hiroshi Nishikawa, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 17, 1997, Ser. No. 895,815
Claims priority, application Japan, Jul. 18, 1996, 8-189178
Int. Cl.⁶ G02B 7/02

U.S. Cl. 359—819

20 Claims



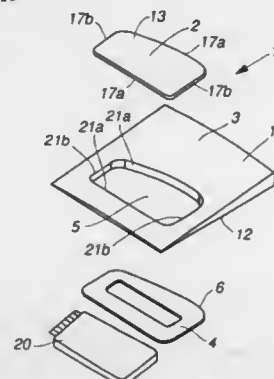
1. A collimating lens unit for use in an optical system, said collimating lens unit comprising:
- a collimating lens which receives a light beam and collimates said light beam into a parallel beam, said optical system defining an effective portion of said light beam collimated by said collimating lens;
 - a lens holder supporting said collimating lens; and
 - a fixing element which fixedly secures said collimating lens in said lens holder, said fixing element acting on said collimating lens outside of an effective area corresponding to said effective portion.

5,805,364
LENS AND HOUSING ASSEMBLY
Ban Hin Ooi, Jalan Mayang Pasir; Firdaus Haji Abdul Munir, Penang, and Yee Thai Foong, Penang, all of Malaysia, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 10, 1997, Ser. No. 963,031
Int. Cl.⁶ G02B 7/02

U.S. Cl. 359—819

11 Claims

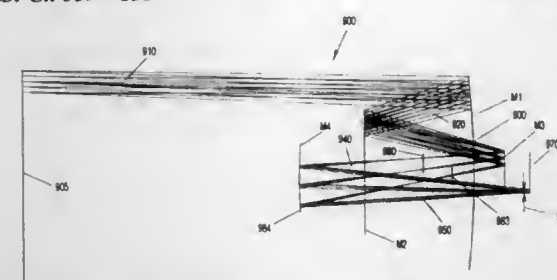


1. An assembly for mounting a lens onto a housing, the assembly comprising:
- a housing having aperture therein providing a passage between a housing outer surface and a housing inner surface;
 - a lens complementarily engaging said aperture, said complementarily engaging preventing said lens from passing through said aperture, said lens having a lens outer surface and lens inner surface; and
 - a seal adhered to both said lens inner surface and said housing inner surface thereby providing a water resistant seal.

5,805,365
RINGFIELD LITHOGRAPHIC CAMERA
William C. Sweatt, Albuquerque, N. Mex., assignor to Sandia Corporation, Albuquerque, N. Mex.
Filed Oct. 12, 1995, Ser. No. 542,411
Int. Cl.⁶ G02B 5/10

U.S. Cl. 359—858

15 Claims



1. An optical system for a projection lithography camera for use with an extreme ultra-violet radiation source, a wafer, and a mask to be imaged on the wafer, comprising:

an optical axis of symmetry;

first, second, third, and fourth aspheric mirrors, each of said first aspheric mirror, said second aspheric mirror, said third aspheric mirror, and said fourth aspheric mirror being supported and substantially aligned about the optical axis of symmetry and cooperating with an arcuate slit of the camera, the arcuate slit having a center and being defined by a width W, and a chord length, L, and formed as a portion of a ringfield that is defined by a radial dimension, R, wherein R spans a distance from said optical axis of symmetry and the center of the arcuate slit;

said optical system being characterized by an optimized radius value for each of said first aspheric mirror, said second aspheric mirror, said third aspheric mirror, and said fourth aspheric mirror, an optimized distance value between each consecutive aspheric mirror, an optimized distance value between the mask and said first aspheric mirror, and an optimized distance value between said fourth aspheric mirror and the wafer for defining the width of the arcuate slit to be at least 1.5 mm;

said first aspheric mirror being disposed to receive radiation from the mask and reflect the radiation to said second aspheric mirror;

said second aspheric mirror being disposed to receive radiation from said first mirror and reflect the radiation to said third aspheric mirror;

said third aspheric mirror being disposed to receive radiation from said second mirror and reflect the radiation to said fourth aspheric mirror;

said fourth aspheric mirror being disposed to receive radiation from said third aspheric mirror and focus it at a reduced image area on the wafer relative to the mask; and

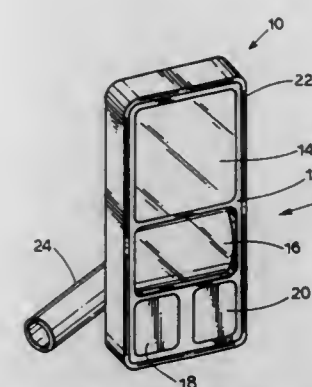
synthetic aperture stop means for producing a telecentric image, said aperture stop means comprising at least two separate partial aperture stops being disposed to intercept the radiation traveling between the third mirror and the surface of the fourth mirror.

5,805,366
REAR VISION MIRROR APPARATUS WITH SIGNALS
Larry McFarland, 976 Downing Dr., Eagle, Id. 83616
Filed Nov. 5, 1996, Ser. No. 740,921
Int. Cl.⁶ G02B 5/08; 7/182; B60Q 1/26; B60R 1/12

U.S. Cl. 359—864

1 Claim

1. A rear view mirror apparatus, comprising:
- a housing having a faceplate and an interior, the faceplate structured to have a plurality of apertures, including an upper aperture, first and second lower apertures and an intermediate aperture positioned between said upper aperture and said lower apertures;

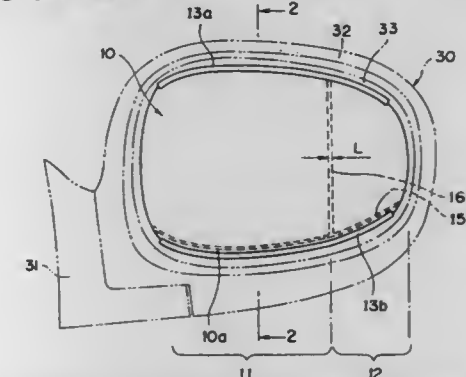


- b. a first mirror positioned to occupy said upper aperture in the faceplate;
- c. a second mirror positioned to occupy the intermediate aperture in the faceplate, the second mirror being convex;
- d. a brake light indicator light positioned to occupy one of the lower apertures in the faceplate;
- e. a turn signal indicator light positioned to occupy the other of said lower apertures in the faceplate;
- f. a rubber seal surrounding the housing;
- g. a support disposed outwardly from the housing, said support being attached to the housing by an adjustable ball and socket joint; and
- h. said support being hollow and said adjustable ball and socket joint being structured to have a duct leading from the interior of the housing to the hollow support.

5,805,367
MULTIFUNCTIONAL REARVIEW MIRROR SYSTEM
Toru Kanazawa, Shizuoka-ken, Japan, assignor to Murakami Kaimeido Co., Ltd., Shizuoka-ken, Japan
Filed Dec. 22, 1995, Ser. No. 577,746
Claims priority, application Japan, Jan. 17, 1995, 7-020902
Int. Cl.⁶ G02B 5/10; 5/08; G02F 1/153

U.S. Cl. 359—868

22 Claims



1. A multifunctional rearview mirror system, comprising a transparent substrate having a main mirror surface area being a convex surface of a certain curvature and a supplemental mirror surface area being a convex surface of a gradually varied curvature; and a transparent electrode thin film, an optoelectronic layer, a light reflecting film also serving as an electrode thin film, and, an insulating sealing element deposited in that order on a rear surface side of said transparent substrate; wherein dividing lines are formed in said transparent electrode thin film so that one part of said dividing lines serves as a boundary line between said main mirror surface area and said supplemental mirror surface area and another part forms a non-boundary line; such that the insulating sealing element is directly deposited in said one part of said dividing lines serving as the boundary line and only the optoelectronic layer is filled in the non-boundary line.

UMI

memory means for storing said first and second position signals, that in a calibration mode of operation, the control signal generator means are adapted to generate the first control signal in response to said first and second tracking signals so as to position the head onto said fifth track, the memory means are adapted to store the first position signal generated by said position detection means, the control signal generator means are further adapted to subsequently generate the second control signal in response to said third and fourth tracking signals so as to position the head onto said sixth track, the memory means being adapted to subsequently store the second position signal generated by said position detection means.

5,805,373

HEAD POSITION ERROR COMPENSATION IN DISK DRIVES

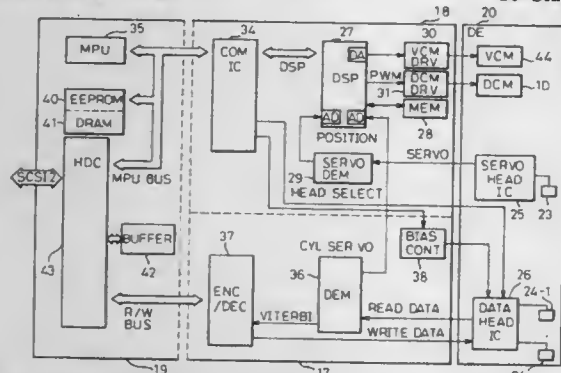
Takeyori Hara; Isamu Tomita; Tatsu Sasamoto; Nobuyuki Suzuki, and Masafumi Sato, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Apr. 14, 1995, Ser. No. 422,150

Claims priority, application Japan, Apr. 14, 1994, 6-075809
Int. Cl.⁶ G11B 5/596

U.S. Cl. 360—77.07

10 Claims



1. A disk drive including at least one head for effecting write/read operation of data to and from at least one recording medium, said medium having a plurality of sectors with an ID portion for writing sector information and a data portion for writing data, the disk drive further including positioning means for positioning said head to a target position of said recording medium, wherein a write element and a read element are disposed on said head with a predetermined distance between them, said disk drive comprising: position error measurement means for measuring an amount of a position error (d1) and the direction of the position error which occurs due to the difference in the position of said write element and a position of said read element when these elements respectively cross a track center;

ID portion write offset decision means for deciding in which direction and with which offset said ID portion should be written when said ID portion is written to said recording medium, in accordance with the position error so measured; and ; and

ID portion offset write control means for offsetting only said ID portion in the same direction as that of the position error and writing said ID portion on the basis of an offset value decided by said ID portion write offset decision means when a format processing is executed by writing said ID portion, wherein, when said ID portion is written by offsetting it, the offset direction of said ID portion is set in the same direction as the direction of said position error of said write element and said read element, and the amount of offset (d2) is set to a half value (d2=d1/2) of said position error (d1) of said write element and said read element.

5,805,374

METHOD AND APPARATUS FOR FAST POSITIONING A HEAD OF A RECORDING DEVICE

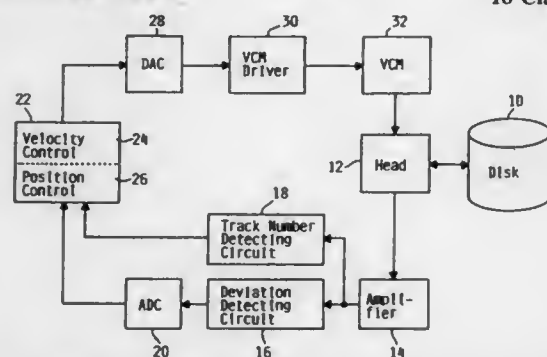
Masashi Kisaka, Yokohama, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 962,445, Oct. 16, 1992, Pat. No. 5,561,568. This application May 22, 1996, Ser. No. 650,250

Int. Cl.⁶ G11B 5/596

U.S. Cl. 360—78.04

18 Claims



1. A method for positioning a head in a recording device wherein said device includes a recording media having a plurality of tracks accessed by said head, a motor for moving said head, and a control system having an input signal value representing a difference between a current position of said head and a target track, and a control signal value for driving said motor wherein said input signal value and said control signal value are state variables, said method comprising the steps of:

switching between a velocity control mode and a position control mode when a predetermined input signal value is reached wherein said position control mode includes a settling mode that does not use an integrator and a track follow mode that uses an integrator;

changing the gain of said control system at a time when said velocity control mode is being switched to said settling mode; and

adding an additional control value to the control system as a feedforward value only when said velocity control mode is being switched to said settling mode wherein said additional control value nullifies a term of an eigenvalue having a maximum absolute value in a state equation of said control system.

5,805,375

WOBBLE MOTOR MICROACTUATOR FOR FINE POSITIONING AND DISK DRIVE INCORPORATING THE MICROACTUATOR

Long-Sheng Fan; Robert Edward Fontana, Jr., both of San Jose, Calif.; Tomotake Furuhashi, Yokohama, Japan; Timothy Clark Reiley, Los Gatos, and Hans Helmut Zappe, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

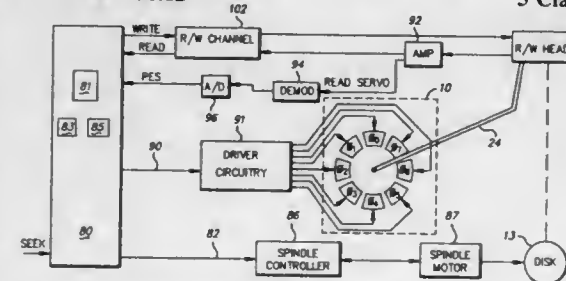
Continuation of Ser. No. 284,334, Aug. 1, 1994, abandoned.

This application Aug. 22, 1996, Ser. No. 703,111

Int. Cl.⁶ G11B 5/596; H02N 1/100

U.S. Cl. 360—78.12

5 Claims



1. A data recording disk drive comprising:

a data disk having a plurality of generally concentric data tracks for the recording of data, the disk having recorded servo position information;

a motor connected to the disk for rotating the disk;

a transducer for reading data from or writing data to the individual data tracks on the disk and for reading servo position information;

a wobble motor actuator comprising a stator having a plurality of circumferentially-spaced stator elements, each of the stator elements having a partial cylindrical surface so that the circumferentially-spaced stator elements define a cylindrical stator surface, and a rotor having a generally cylindrically-shaped rotor surface, the cylindrical stator surface and the rotor surface being spaced apart by an annular gap;

a base for supporting the disk motor and the wobble motor actuator, the base being directly attached to the stator elements and formed of a material having a coefficient of expansion generally the same as the coefficient of expansion of the material used for the stator elements and the rotor;

an arm having one end connected to the rotor and the other end connected to the transducer;

circuitry for generating transducer position error signals in response to servo position information read from the disk by the transducer;

electrical driver circuitry connected to the wobble motor actuator for generating an electrostatic potential between the rotor surface and the stator elements by applying a voltage to each of the stator elements, whereby the cylindrical rotor surface is rolled along the cylindrical stator surface and the attached transducer is moved in a generally arcuate path across the data tracks on the disk; and

a controller responsive to the position error signals and coupled to the driver circuitry for signaling the driver circuitry to move the rotor bidirectionally to cause the attached transducer to access different data tracks on the disk, the controller having an adjustable gain whereby a varying voltage is applied to the stator elements as a function of the data track on which the transducer is located, whereby the transducer motion across the disk and along said arcuate path is a substantially linear function of rotor rotational position.

5,805,376

MULTI-CHANGER VIDEO CASSETTE TAPE RECORDER

Cha Ryong Koo, Songtan; Eui Jeong Kim, and Myun Woo Lee, both of Seoul, all of Rep. of Korea, assignors to LG Electronics, Inc., Seoul, Rep. of Korea

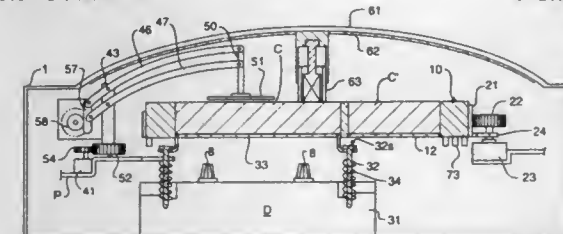
Filed Mar. 13, 1996, Ser. No. 615,511

Claims priority, application Rep. of Korea, Mar. 22, 1995, 6115/1995

Int. Cl.⁶ G11B 15/68

U.S. Cl. 360—92

8 Claims



1. A multi-changer video cassette tape recorder, comprising: a main body of the multi-changer video cassette tape recorder; a deck mechanism provided in the multi-changer video cassette tape recorder; a cassette tape receiving rotation device having a plurality of cassette tape receiving groove sections formed on an upper surface of the cassette tape receiving rotation device for receiving a plurality of cassette tapes therein, the cassette tape receiving groove sections being arranged on a common plane; a cassette tape receiving rotation device having a plurality of cassette tape receiving groove sections formed on an upper

surface of the cassette tape receiving rotation device for receiving a plurality of cassette tapes therein, the cassette tape receiving groove sections being arranged on a common plane and forming a rectangle about a center of the tape cassette receiving rotation device when arranging each of the cassette tape receiving groove sections in its length-wise direction, where each cassette is arranged so that one top side of each cassette abuts the length-wise portion of an adjacent cassette and each of the receiving groove sections is configured to maximize the use of the upper surface of the cassette tape rotation device;

a rotator for rotating the cassette tape rotation device at a predetermined angle for placing one of the cassette tapes on the deck mechanism;

a supporting device for retaining the cassette tape in a proper orientation so that it can be loaded into the deck mechanism upon rotation of the cassette tape by the rotation device; and a placement device for placing a certain cassette tape on the deck mechanism;

wherein the placement device lifts/lowers the cassette to be played to the deck mechanism, and includes;

a solenoid including a plunger coupled to a lower surface of a rotation door;

a pressing device coupled to a distal end of the plunger of the solenoid for placing the cassette in position for playing by the cooperation of the solenoid, the plunger, and the pressing device.

5,805,377

WIRE CARRIER FOR DISK DRIVE

Michael J. Lerdal, Longmont; William J. Bryan, Boulder, and Karl E. Hase, Lyons, all of Colo., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

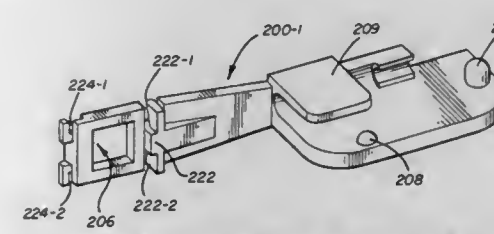
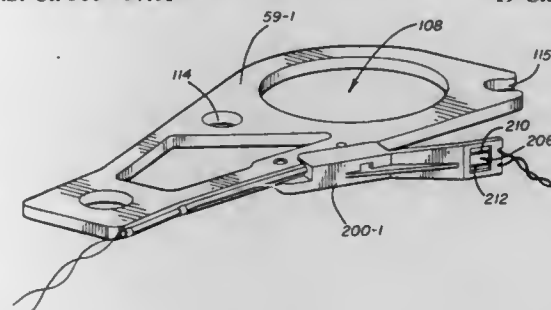
Continuation of Ser. No. 150,858, Nov. 12, 1993, abandoned.

This application May 2, 1996, Ser. No. 643,230

Int. Cl.⁶ G11B 5/48

U.S. Cl. 360—97.01

19 Claims



1. A storage apparatus including an electrical flex circuit, comprising:

an actuator arm securing one read/write head, the read/write head having a first electrical conductor coupled thereto;

a second electrical conductor coupled to a conductive pad of the electrical flex circuit;

a mount member having a first end and a second end, the mount member being rigid between the first end and the second end, the second end of said member including means for securing said first electrical conductor in proximity to the conductive pad of the electrical flex circuit, said first end of said member including a pin having an axis passing therethrough, the pin

and axis engaging a bore in the actuator arm at said first end such that the mount member is rotatable about said axis between a first position wherein said second end is a sufficient distance from the arm such that the flex circuit may pass between the second end and the arm, and a second position wherein said first conductor is adjacent to said conductive pad.

5,805,378

MAGNETIC DISK DRIVE OF A STRUCTURE CAPABLE OF BEING LIGHTENED IN WEIGHT

Makoto Konno; Hisashi Shibata; Hisateru Komatsu; Makoto Takahashi; Akira Shibata; Yoshihito Otomo; Koichi Seno, and Takashi Watanabe, all of Tendo, Japan, assignors to Mitsumi Electric Co., Ltd., Tokyo, Japan

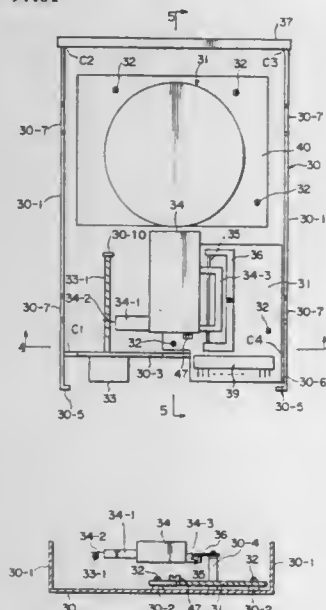
Filed Sep. 25, 1996, Ser. No. 719,797

Claims priority, application Japan, Sep. 26, 1995, 7-247882; Sep. 26, 1995, 7-248055

Int. Cl.⁶ G11B 33/00; 17/04

U.S. Cl. 360—97.01

20 Claims



1. A magnetic disk drive comprising:

- a head carriage for use in holding a magnetic head in a movable manner, said magnetic head being capable of writing data on and reading data from a magnetic disk;
 - a carrier mechanism for carrying the head carriage in a predetermined radial direction relative to the magnetic disk;
 - a disk table on which the magnetic disk is held and rotationally driven;
 - a rotation drive mechanism for driving the disk table;
 - a loading mechanism for loading the magnetic disk inserted through a magnetic disk slot on the disk table and for unloading the magnetic disk on the disk table through the magnetic disk slot;
 - a main printed board having circuit components mounted thereon;
 - a sub-printed board on which the rotation drive mechanism and the disk table are mounted; and
 - a main frame having a main plate and a side plate on both sides of the main plate;
- wherein:
- said sub-printed board is provided on the main plate of the main frame at a position close to the magnetic disk slot;
 - said main printed board is provided on the bottom of the main plate at a position opposite to the magnetic disk slot;
 - said loading mechanism is assembled over the sub-printed board;

said head carriage is disposed on a first supporting member provided on the main plate at a position above the main printed board;

said first supporting member comprises a cut and bent portion of the main plate projected upward through a hole formed in the main printed board; and

said carrier mechanism comprises a guide bar, supported by the first supporting member, for guiding the head carriage in the predetermined radial direction.

5,805,379

HARD DISK RECORDING PLATTER WITH INJECTION-MOLDED LIQUID-CRYSTAL-PLASTIC HUB

Jacques Bordes, Avranches, France, assignor to Nomai S.A., Cedex, France

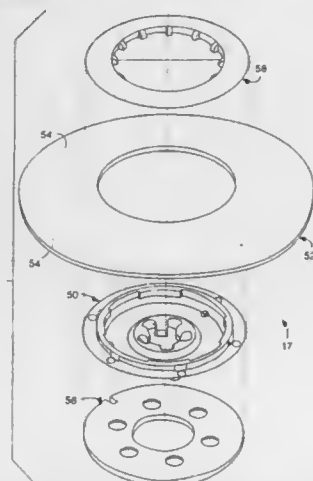
Division of Ser. No. 274,860, Jul. 14, 1994, Pat. No. 5,615,070.

This application Dec. 4, 1996, Ser. No. 759,384

Int. Cl.⁶ G11B 23/03

U.S. Cl. 360—99.12

2 Claims



1. A recording platter (17) for a cartridge disk, comprising:
- a disk (52) with a magnetic coating (54) for the recording of data;
 - an injection-molded plastic hub (50) comprising a liquid crystal plastic material having a twenty-five micrometer molding process accuracy and attached to the disk (52); and
 - a hub top (58) for attaching the disk (52) to the hub (50) and for maintaining a center and axial location of the disk to the hub.

5,805,380

OVERCOAT MAGNETIC HEAD SLIDER HAVING OVERCOAT AND MAGNETIC DISK DEVICE

Yuji Ishihara; Fujio Maeda, and Hiroshi Kawahara, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

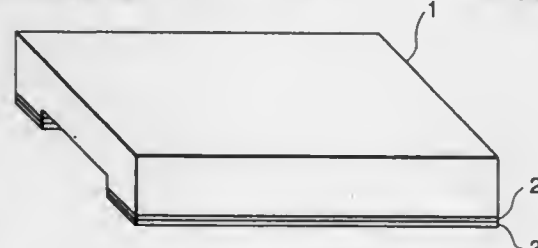
Filed Jan. 31, 1997, Ser. No. 791,550

Claims priority, application Japan, Jan. 31, 1996, 8-015006

Int. Cl.⁶ G11B 5/255

U.S. Cl. 360—103

11 Claims



1. An overcoat for protecting an air bearing surface of a magnetic head slider opposed to a magnetic disk medium; wherein said overcoat comprises:

a silicon layers and

a carbon layer formed on said silicon layer, said carbon layer being opposed to said magnetic disk medium, wherein said silicon layer includes nitrogen component.

5,805,381

HYGROSCOPICALLY BALANCED GIMBAL STRUCTURE

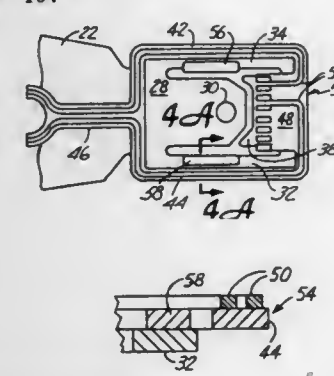
Roger A. Resh, Prior Lake, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Sep. 26, 1996, Ser. No. 721,255

Int. Cl.⁶ G11B 5/48; 33/14

U.S. Cl. 360—104

20 Claims



13. A gimbal, comprising:

- a flexure structure for supporting a slider, the flexure structure including a first material which deforms with changes in environmental humidity conditions; and
- a balancing structure, coupled to the flexure structure, which deforms with changes in environmental humidity conditions, wherein deformation of the balancing structure opposes deformation of the first material.

5,805,382

INTEGRATED CONDUCTOR MAGNETIC RECORDING HEAD AND SUSPENSION HAVING CROSS-OVER INTEGRATED CIRCUITS FOR NOISE REDUCTION

Edward Hin Pong Lee, and Randall George Simmons, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 21, 1996, Ser. No. 668,645

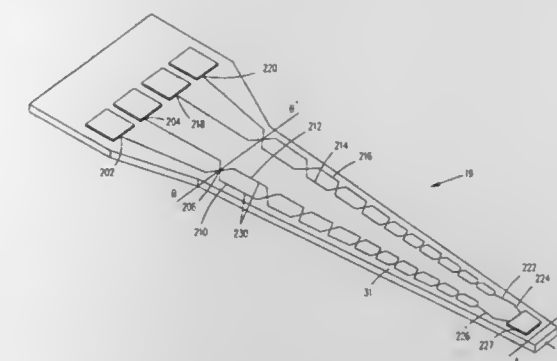
Int. Cl.⁶ G11B 5/48; 5/17; 5/147

U.S. Cl. 360—104

38 Claims

1. A magnetic recording head suspension assembly for a magnetic storage system, comprising:

- a P— silicon wafer;
- a N+ silicon layer, disposed over the P— silicon wafer, the N+ silicon layer and the P— silicon wafer being thermally oxidized to generate a bottom silicon oxide layer opposite the N+ layer side of the wafer and a top silicon oxide layer on the N+ side of the wafer, the N+ silicon being driven into the P— silicon wafer;
- a layer of polysilicon, disposed over the silicon oxide layer over the N+ silicon layer, the polysilicon layer being patterned to define a head structure and a suspension as one piece; and
- at least one pair of conductive traces disposed on the polysilicon, the pair of conductive traces comprising a first conductive trace having at least one straight portion and at least one angled portion extending from said straight portion of the first conductive trace, and a second conductive trace having at least one straight portion and at least one angled portion extending from said straight portion of the second conductive trace, the at least one pair of conductive traces being disposed on the polysilicon such that the angled portion of the first conductive trace crosses the angled portion of the second conductive trace.



- conductive trace, and the straight portion of the first conductive trace is substantially parallel to the straight portion of the second conductive trace,
- wherein the suspension is separated from the wafer by removing the bottom silicon oxide layer by a chemical etchant, and the P— silicon wafer by selective etching.

5,805,383

OPERATION SWITCHING APPARATUS FOR TAPE RECORDER WITH CONTROL CAM PLATE FOR CHANGE OF TAPE FEED MODES

Toshio Yoshimura, Kawasaki, Japan, assignor to Tanashin Denki Co., Ltd., Tokyo, Japan

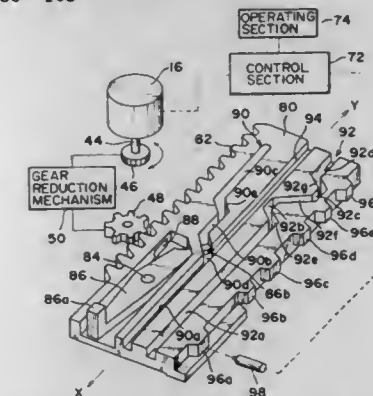
Filed Nov. 26, 1996, Ser. No. 757,082

Claims priority, application Japan, Nov. 30, 1995, 7-336152

Int. Cl.⁶ G11B 5/54

U.S. Cl. 360—105

3 Claims



1. An operation switching apparatus for a tape recorder which includes a magnetic head movable between a play position in which the magnetic head cooperates with a tape for a play operation and a stand-by position retreated from said play position, and a head substrate on which said magnetic head is mounted, said head substrate being reciprocally moved together with said magnetic head, wherein, when the magnetic head is positioned in said play position to carry out the play operation, a play mode in the forward direction and a play mode in the reverse direction are selectively carried out, and wherein, when the magnetic head is positioned in said stand-by position, a high-speed tape feed mode in the forward direction and a high-speed tape feed mode in the reverse direction are selectively carried out, comprising:
- a reversible motor;
 - a control cam plate operated to be reciprocally moved by said motor forward and backward along a predetermined axis;

said control cam plate being provided with a first cam groove and a second cam groove, said second cam groove extending throughout the length of the control cam plate to provide opposed ends that are open at respective edges of the control cam plate;

said head substrate having a first cam follower pin which is kept engaged with said first cam groove of the control cam plate; a play operation direction switching means rockable between a first rocking position corresponding to said play mode in the forward direction and a second rocking position corresponding to said play mode in the reverse direction;

said play operation direction switching means having a second cam follower pin mounted at one end thereof, said second cam follower pin being kept engaged with said second cam groove of the control cam plate;

a high-speed tape feed direction switching means rockable between a first rocking position corresponding to said high-speed tape feed mode in the forward direction and a second rocking position corresponding to said high-speed tape feed mode in the reverse direction;

said high-speed tape direction switching means having two end portions extending in opposite directions, and third and fourth cam follower pins mounted on said two end portions respectively, said third and fourth cam follower pins being able to selectively engage with said second cam groove of the control cam plate through said opposed ends of the second cam groove.

5,805,384

ACTUATOR LATCH ACTIVATED BY HEAD GRAM LOAD FOR HARD DISC DRIVES

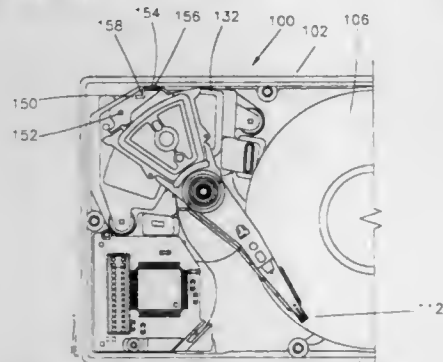
Efim Bronshvach; Ron Fasano, both of Saratoga, and Ming-Goei Sheu, Cupertino, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Jun. 9, 1997, Ser. No. 871,140

Int. Cl.⁶ G11B 5/54; 21/22

U.S. Cl. 360—105

4 Claims



1. In a disc drive including a disc drive housing and a plurality of recording heads carried on a rotary actuator for movement relative to a plurality of discs supported on a spindle motor and wherein the heads begin to fly above the discs when the spindle motor accelerates to a first speed and the heads cease to fly and come into contact with the discs when the spindle motor decelerates to a second speed, a latch mechanism for maintaining the actuator at a park position, the latch mechanism comprising:

first and second actuator contact features integral to and movable with the actuator;

a pivot pin integral to the disc drive housing;

a latch body, rotatable about the pivot pin to a latched position and an unlatched position, and including

first and second latch body contact features, and means for applying a constant force to the latch body which acts to pivot the latch body to its unlatched position,

wherein, when the actuator is moved to the park position, the first actuator contact feature contacts the first latch body contact feature, the movement of the actuator overcomes the constant force and rotates the latch body about the pivot pin to

its latched position, in which position the second latch body contact feature contacts the second actuator contact feature and the actuator is constrained from movement by contact between the first and second actuator contact features and the first and second latch body contact features, and wherein a frictional force between the heads and discs is developed when the spindle motor decelerates below the second speed and the frictional force acts to prevent the constant force from rotating the latch body to its unlatched position.

5,805,385

MAGNETIC DISK DEVICE

Hiroshi Koriyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

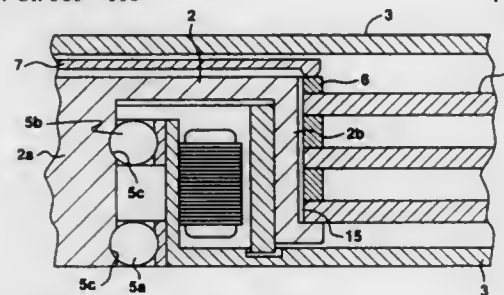
Division of Ser. No. 251,219, May 31, 1994, abandoned. This application Mar. 24, 1995, Ser. No. 409,587

Claims priority, application Japan, May 28, 1993, 5-151087; May 28, 1993, 5-151088

Int. Cl.⁶ G11B 5/55

U.S. Cl. 360—106

4 Claims



1. A magnetic disk device comprising:

a center shaft;

an arm holder including a cylindrical member formed in a center portion thereof and arm members each connected at one end portion thereof to magnetic heads corresponding to respective magnetic disks and at another end portion to an outer peripheral side of said cylindrical member; and

a bearing for rotatably supporting said arm holder around said center shaft, said bearing comprising:

inner race members which are in contact with balls of said bearing; and

a cylindrical support member having grooves formed therein said cylindrical support member being directly in contact with said balls, said cylindrical support member being fixed to said arm holder at both end portions of said cylindrical support member by a clamp ring with a predetermined gap formed between an outer peripheral surface of said cylindrical support member and an inner peripheral surface of said arm holder and being made of a material having a linear expansion coefficient which is substantially similar to that of a material of which said arm holder is made.

5,805,386

DUAL MODE INDEPENDENT SUSPENSION READ/ WRITE HEAD ASSEMBLIES IN A HARD DISK DRIVE

Jeffrey E. Faris, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 24, 1996, Ser. No. 772,842

Int. Cl.⁶ G11B 5/55

U.S. Cl. 360—106

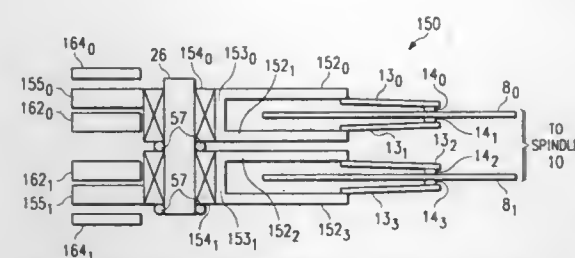
21 Claims

1. An actuator assembly for a hard disk drive having a plurality of disks, comprising:

a pivot pin having a common pivot axis;

a plurality of actuator arms, each rotatable about a common pivot axis independently from another one of the plurality of actuator arms;

a plurality of bearings, each coupled to an associated one of the plurality of actuator arms and disposed about the pivot axis;



a plurality of retaining rings, each coupled to an associated one of the plurality of bearings;

a plurality of read/write heads, each mounted at a distal end of an associated one of the actuator arms, for reading and writing data on surfaces of the plurality of disks; and

a plurality of voice coil motors, each attached to at least one of the plurality of actuator arms, each for controllably rotating its attached actuator arm about the pivot axis.

5,805,387

MECHANISM TO DAMPEN VIBRATION OF A STOP PIN OF A DISC DRIVE ACTUATOR ARM

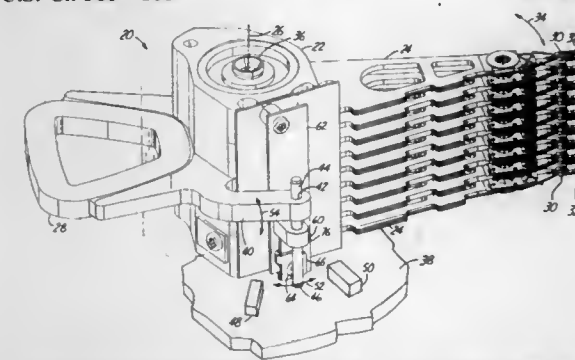
David D. Koester, Chanhassen, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Mar. 27, 1997, Ser. No. 826,278

Int. Cl.⁶ G11B 5/55

U.S. Cl. 360—106

9 Claims



1. An E-block for a magnetic disc drive, the E-block having an actuator arm carrying a slider, the E-block being rotatable in the magnetic disc drive to position the slider over a selected track of a recording disc of the magnetic disc drive, the E-block having a stop pin mounted thereto, characterized by a damping mechanism mounted to the E-block, the stop pin being attached to and in engagement with the damping mechanism so that the damping mechanism dampens vibration in the stop pin.

5,805,388

SWING TYPE STRUCTURE HAVING AN ELONGATED COLUMN AND WIRES POSITIONED ON OPPOSITE SIDES OF THE COLUMN SUCH THAT THE COLUMN IS IN COMPRESSION AS A RESULT OF THE WIRES

Mats Anders Engwall, Hollister, Calif., assignor to Western Digital Corporation, Irvine, Calif.

Filed Feb. 12, 1998, Ser. No. 22,649

Int. Cl.⁶ G11B 5/55; 21/08

U.S. Cl. 360—106

37 Claims

1. A swing type structure for a head stack assembly of a disk drive, the swing type structure comprising:

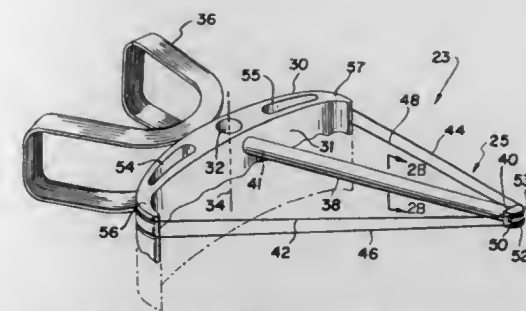
a body portion having a bore defining a longitudinal axis;

a coil portion cantilevered from the body portion; and

an actuator arm structure, the actuator arm structure comprising:

an elongated column cantilevered from the body portion in an opposite direction from the coil portion and having a distal end; and

a pair of wires in tension, each wire positioned on an opposite side of the elongated column and converging on the distal



end such that the elongated column is in compression as a result of the pair of wires.

5,805,389

MAGNETORESISTIVE HEAD

Masamichi Saito; Kiyoshi Satoh, and Fumihito Koike, all of Niigata-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

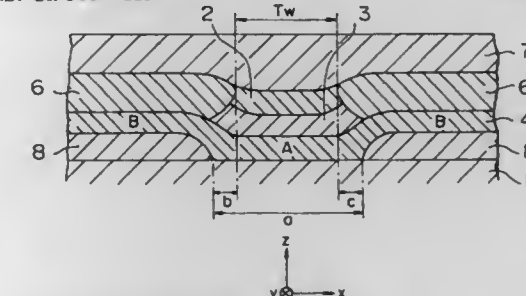
Filed Sep. 17, 1996, Ser. No. 718,061

Claims priority, application Japan, Sep. 21, 1995, 7-243096

Int. Cl.⁶ G11B 5/39

U.S. Cl. 360—113

22 Claims



1. A magnetoresistive head comprising:

a magnetoresistive layer including first and second exchange coupling regions separated by a magnetoresistive functional region;

a non-magnetic layer formed over the magnetoresistive layer;

a soft magnetic layer formed on the nonmagnetic layer; and

an antiferromagnetic layer for applying a longitudinal bias magnetic field in a direction along a recording face of a magnetic recording medium to said magnetoresistive layer;

wherein said antiferromagnetic layer includes first and second portions having an interval therebetween in the track width direction; and

wherein the first and second portions are in direct contact with said first and second exchange coupling regions of said magnetoresistive layer, respectively, such that said first and second portions of said antiferromagnetic layer apply an exchange anisotropic magnetic field to said first and second exchange coupling regions of said magnetoresistive layer, and increase the coercive force of said magnetoresistive layer, thereby forming a longitudinal magnetic field in the magnetoresistive functional region of the magnetoresistive layer.

5,805,390

METHOD OF FABRICATING MAGNETORESISTIVE EFFECT TYPE MAGNETIC HEAD CAPABLE OF PREVENTING ELECTROSTATIC DAMAGE

Tooru Takeura, Kanagawa-ken, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 18, 1996, Ser. No. 718,127

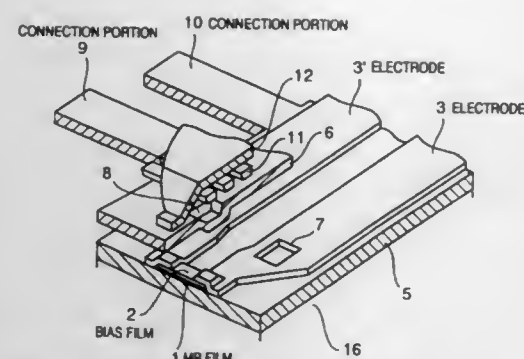
Claims priority, application Japan, Sep. 19, 1995, 7-239941

Int. Cl.⁶ G11B 5/39; H01L 21/28

U.S. Cl. 360—113

6 Claims

1. A method of fabricating a magnetoresistive effect type head comprising the steps of:



- forming a lower shield film layer on a substrate;
- forming a magnetoresistive effect element having a magnetoresistive effect film and a bias film on the lower shield film through a lower gap film and two electrodes for detecting a change of a resistance caused by an external magnetic field variation of the magnetoresistive effect element;
- connecting one of the two electrodes to the lower shield film electrically;
- forming an upper shield film on the lower shield film, the magnetoresistive effect element and the two electrodes, such that the upper shield film is shorter than the lower shield film at a side of a floating surface;
- connecting the other of the two electrodes with the upper shield film electrically;
- forming a recording gap film on the upper shield film;
- forming a coil on the recording gap film through an insulation film;
- forming a recording upper core on the coil at an opposite side of the side of the floating surface through the insulator film such that the recording upper core forms a closed-loop magnetic circuit with the upper shield film;
- forming a protective film on the recording upper core and exposing an end portion of the lower shield film, an end portion of the upper shield film, end portions of the two electrodes and end portions of the coil on the protective film;
- forming a slider block by cutting the substrate forming a plurality of magnetoresistive effect type magnetic head elements formed by previously continuous steps;
- connecting the end portion of the lower shield film with the end portion of the upper shield film of the magnetoresistive effect type magnetic head elements on the slider block by an electrically conductive member;
- cutting a shorting portion of the upper shield film and lower shield film by a lapping process on the floating surface of the slider block and determining a thickness of the magnetoresistive effect film; and
- applying a rail process to the slider block for the floating surface.

5,805,391

WRITE HEAD WITH RECESSED STITCHED YOKE ON A PLANAR PORTION OF AN INSULATION LAYER DEFINING ZERO THROAT HEIGHT

Thomas Young Chang; Mohamad Towfik Krounbi; Edward Hinpong Lee, all of San Jose, and Douglas Johnson Werner, Fremont, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

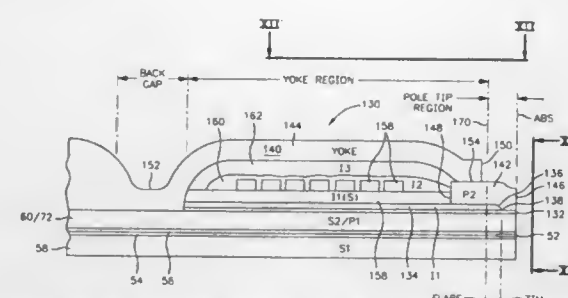
Filed Oct. 28, 1996, Ser. No. 740,354

Int. Cl. G11B 5/39; 5/31; 5/23

U.S. Cl. 360—113

33 Claims

- An inductive write head having a pole tip region located between an air bearing surface (ABS) and a flare point, and a yoke region located between the flare point and a back gap, wherein the back gap is a location recessed from the ABS where first and second pole pieces are magnetically connected and the flare point is where the second pole piece first commences to flare as it extends from the ABS to the back gap, comprising:



- first and second pole piece layers, the second pole piece layer having first and second components;
- the first component extending from an ABS end, which is located at said ABS, to a recessed end, which is located in the yoke region;
- the second component extending from a recessed end, which is spaced from the ABS, toward said back gap;
- the second component interfacing the first component in a stitched region so that the first component defines a pole tip in the pole tip region and the second component defines at least a portion of a yoke in the yoke region;
- an insulation stack located between the first pole piece and the second component and a coil layer embedded in said insulation stack;
- a first insulation layer sandwiched between the first pole piece layer and the first component and extending from a recessed end that is spaced from the ABS, toward the back gap, the recessed end of the first insulation layer causing a first separation of the first component from the first pole piece after the ABS so as to define a zero throat height of the head;
- the first component being sandwiched between the first insulation layer and the second component;
- the recessed end of the first component being located between the recessed end of the first insulation layer and the back gap and the first insulation layer being flat from its recessed end to the recessed end of the first component; and
- the flare point being located on the flat insulation layer between the recessed end of the first insulation layer and the recessed end of the first component.

5,805,392

LAMINATED PLATED POLE PIECES FOR THIN FILM MAGNETIC TRANSDUCERS

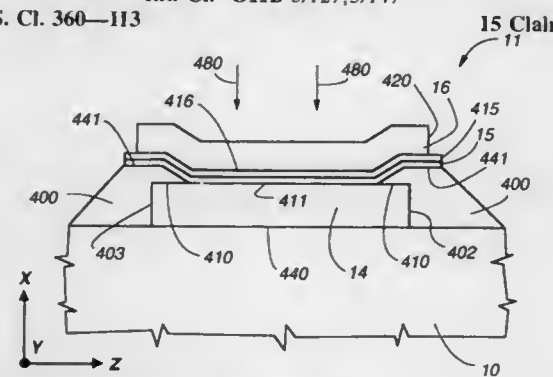
Michael Mallary, Berlin, and Kofi Gyasi, Northborough, both of Mass., assignors to Quantum Corporation, Milpitas, Calif.

Filed Dec. 30, 1996, Ser. No. 777,236

Int. Cl. G11B 5/127; 5/147

U.S. Cl. 360—113

15 Claims



- A data transducing head, comprising:
 - a nonmagnetic and electrically nonconductive substrate member having a first surface;
 - a first pole piece supported by said first surface, said first pole piece having a second surface;
 - a nonmagnetic and electrically nonconductive gap member supported by said second surface, said gap member having a third surface;

- a transducing element within said gap member;
- a second pole piece supported by said third surface;
- at least one of said first and second pole pieces being a laminated thin film pole piece including:
 - a first continuous thin film layer of magnetically permeable metal having a fourth surface and side edges extending from said fourth surface;
 - a continuous, hard baked, photoresist member having:
 - a first portion that completely covers said side edges of said first thin film metal layer and
 - a second portion that completely covers only border portions of said fourth surface that are adjacent to said side edges of said first thin film metal layer, said hard baked photoresist member operating to leave a center portion of said fourth surface uncovered of photoresist;
 - a continuous thin film electrically insulating layer having a portion that completely covers said center portion of said fourth surface; and
 - a second continuous thin film layer of magnetically permeable metal having a portion that coats said portion of said electrically insulating layer.

5,805,393

OVERCURRENT PROTECTION CIRCUIT WITH IMPROVED PTC TRIP ENDURANCE

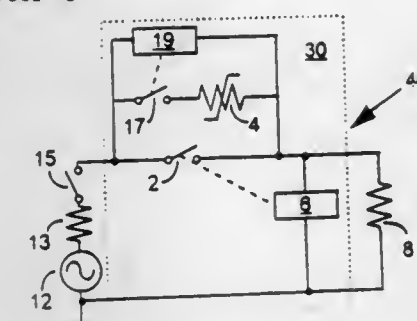
Brian Thomas, San Francisco, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Aug. 29, 1997, Ser. No. 921,393

Int. Cl. H02H 3/00

U.S. Cl. 361—6

7 Claims



- An electrical system which can be connected between an electrical power supply and an electrical load to form an operating circuit, and which when so connected protects the circuit from overcurrents, which system comprises:

- a control element which, in the operating circuit, is connected in parallel with the load; and
- a circuit interruption element and a bypass element which, in the operating circuit, are coupled in parallel, the parallel combination coupled in series between the electrical power supply and the parallel combination of the electrical load and the control element;

wherein

- the circuit interruption element has
 - a closed state which permits the flow of a normal current, I_{NORMAL} , through the circuit interruption element, and
 - an open state which permits the flow of at most a reduced current, substantially less than I_{NORMAL} , through the circuit interruption element;
 - the control element has
 - an on state, when the voltage across the control element is a normal voltage, V_{NORMAL} ;
 - an off state, when the voltage across the control element falls to a value V_{FAULT} or less, and
- is functionally linked to the circuit interruption element so that when the control element is in the on state, the circuit interruption element is in the closed state, and when the control element is in the off state, the circuit interruption element is in the open state; and

5,805,394

OVERVOLTAGE PROTECTION CIRCUIT FOR A GENERATING SYSTEM UTILIZING A FAULT CURRENT SENSING CIRCUIT IN COMBINATION WITH A SHUNTING CIRCUIT

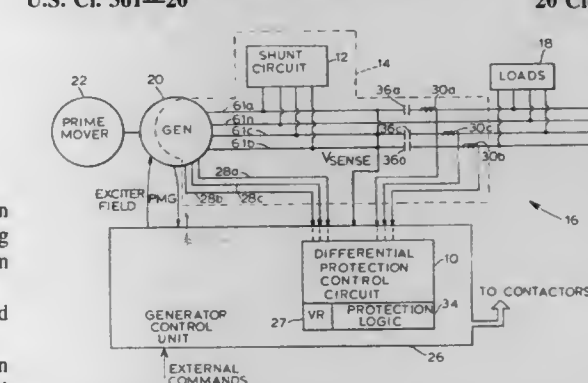
Timothy F. Glennon, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Jun. 17, 1997, Ser. No. 877,171

Int. Cl. H02H 7/06

U.S. Cl. 361—20

20 Claims



- A circuit for protecting a load coupled to a power supply system wherein the system includes a generator coupled by a conductor to the load, first and second differential current protection sensors adapted to sense current magnitudes at first and second boundaries of a differential protection zone and a control circuit responsive to the first and second differential current protection sensors to disable the generator when a differential current condition arises, comprising:

- a controllable switching element coupled at one end to the conductor at a point within the differential protection zone and further coupled at another end to a source of potential; and
- means coupled to the controllable switching element and the generator for rendering the controllable switching element conductive in response to a generator overvoltage condition to connect the generator to the source of potential and thereby limit load voltage and cause a differential current condition to arise.

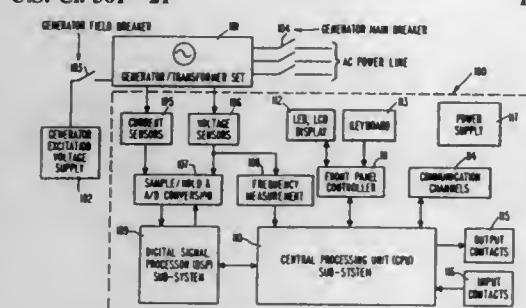
5,805,395
HALF-CYCLE SUMMATION V/HZ RELAY FOR GENERATOR AND TRANSFORMER OVER-EXCITATION PROTECTION

Yi Hu, Cary; David Hart, Raleigh; Damir Novosel, and Robert Smith, both of Cary, all of N.C., assignors to ABB Power T&D Company Inc., Raleigh, N.C.

Filed Dec. 13, 1996, Ser. No. 766,715
Int. Cl.⁶ H02H 7/06

U.S. Cl. 361-21

16 Claims



1. A programmed protective relay system for protecting power equipment, supplied with energy from at least one power line, against overexcitation by generating an overexcitation relay signal and providing said relay signal to a circuit breaker which separates said power equipment from a source of said overexcitation, said system comprising:

- voltage sensing means for sensing voltages of said at least one power line;
- frequency determining means for determining a frequency of a sensed voltage signal of said at least one power line;
- an analog to digital converter which samples said sensed voltage signal at a sampling frequency so as to form a digital voltage signal;
- summing means for summing said digital voltage signal over a half cycle of said sensed voltage signal and dividing the sum by a base ideal sum value at a rated voltage and frequency to obtain a value for a voltage/frequency ratio of said at least one power line; and
- generating means for generating said relay signal when said voltage/frequency ratio exceeds a predetermined value.

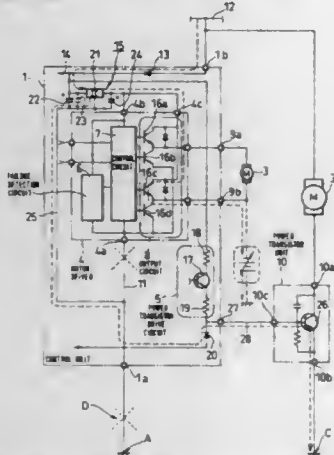
5,805,396
PROTECTION CIRCUIT OF DRIVE SYSTEM FOR MOTOR

Hitoshi Sado, and Hiroyo Saitoh, both of Kobnan-machi, Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed Sep. 20, 1996, Ser. No. 716,872
Claims priority, application Japan, Sep. 25, 1995, 7-270604
Int. Cl.⁶ H02H 3/00

U.S. Cl. 361-42

15 Claims



1. A protection circuit for an electric motor control unit comprising:

- a power supply terminal connectable to an external power source;

- a ground terminal connectable to ground;
- a power unit connection terminal;
- a stabilized power supply circuit comprising, an input electrically connected to said power supply terminal, and a ground electrically connected to said ground terminal; and
- a ground-break avoidance diode comprising, an anode electrically connected to said ground of said stabilized power supply circuit and to said ground terminal, and a cathode electrically connected to said power unit connection terminal.

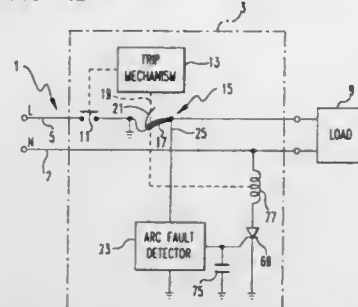
5,805,397
ARCING FAULT DETECTOR WITH MULTIPLE CHANNEL SENSING AND CIRCUIT BREAKER INCORPORATING SAME

Raymond Warren MacKenzie, Pittsburgh, Pa., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 29, 1997, Ser. No. 939,974
Int. Cl.⁶ H02H 3/00

U.S. Cl. 361-42

14 Claims



1. Apparatus for detecting arcing faults in an electric power system subject to power line carrier signals, said apparatus comprising:

- sensing means sensing current in said electric power system and generating a sensed current signal;
- multichannel bandpass filtering means bandpass filtering said sensed current signal with assigned, distinct non-overlapping passbands; and
- output means generating an arcing fault signal only when all channels of said multichannel bandpass filtering means detect a signal in the assigned, distinct non-overlapping passbands simultaneously.

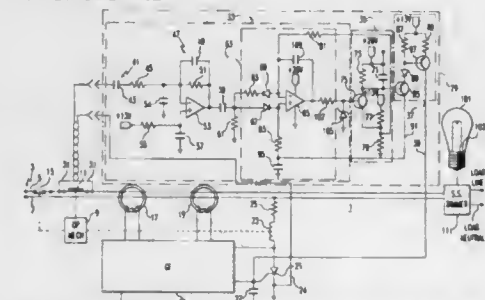
5,805,398
ARC FAULT DETECTOR WITH IMMUNITY TO TUNGSTEN BULB BURNOUT AND CIRCUIT BREAKER INCORPORATING SAME

Thomas Christopher Rae, Irwin, Pa., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 29, 1997, Ser. No. 939,976
Int. Cl.⁶ H02H 3/00

U.S. Cl. 361-42

7 Claims



1. A circuit breaker for interrupting current in an electrical system subject to arc faults generating step increases in current each time an arc is struck and subject to other current pulses of at least a certain high amplitude, said circuit breaker comprising:

- separable contacts which interrupt said current in said electrical system when open; and

trip means comprising pulse generating means generating a pulse a signal containing pulses related in amplitude to said step increases in current each time an arc is struck and containing pulses related in amplitude to said other current pulses, zener diode means limiting amplitude of said pulses in said pulse signal to a selected amplitude which is less than said certain high amplitude of said other current pulses to produce conditioned pulses, means generating a trip signal as a function of a time attenuated accumulation of said conditioned pulses, and means responsive to said trip signal to open said separable contacts.

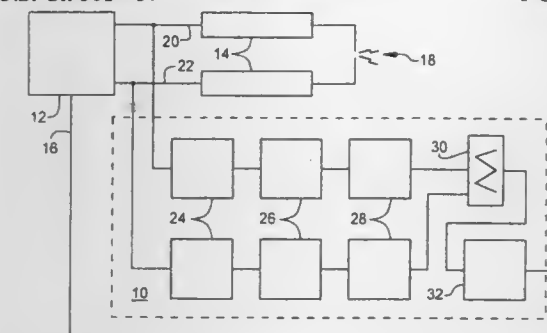
5,805,399
APPARATUS FOR DETECTING LUMINOUS TUBE AND POWER SUPPLY FAULTS WHERE GROUND FAULT CURRENTS MAY BE ABSENT

David R. Pacholok, Sleepy Hollow, Ill., assignor to Everbrite, Inc., Greenfield, Wis.

Filed Sep. 6, 1996, Ser. No. 709,276
Int. Cl.⁶ H02H 9/00

U.S. Cl. 361-57

6 Claims



1. Apparatus for detecting non-ground fault, series arcs in a high frequency luminous tube power supply, the supply having first and second terminal means for connecting a luminous tube load to the high frequency output thereof; the apparatus including wideband ringing means for collecting high frequency energy associated with the pre-plasma formation phase of a high frequency arc; detector means operatively connected to the ringing means for producing a signal representative of the magnitude of the energy collected by the ringing means; transient means for suppressing the output of the detector means for a period less than the pre-plasma phase of a high frequency arc; threshold means operatively associated with the ringing means for generating a power supply shut-down signal in response to the collected high frequency energy exceeding a predetermined level whereby operation of the high frequency power supply may be terminated in response to a non-ground fault, series arc condition characterized by a single, pre-plasma arc formation interval.

5,805,400
AUTO-RECLOSEING DEAD TIME CONTROL APPARATUS AND METHOD THEREOF FOR TRANSMISSION CABLE PROTECTION RELAY SYSTEM

Il-Dong Kim, Taejeon, Rep. of Korea, assignor to Korea Electric Power Corp., Seoul, Rep. of Korea

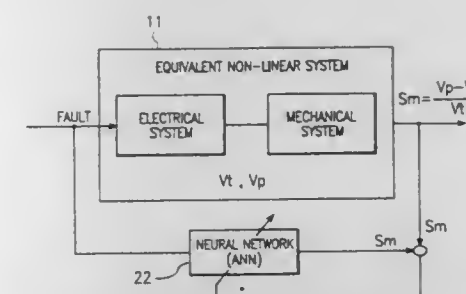
Filed Nov. 18, 1996, Ser. No. 752,178
Claims priority, application Rep. of Korea, May 18, 1996, 96-16772Int. Cl.⁶ H02H 3/00

U.S. Cl. 361-71

8 Claims

1. An auto-reclosing control apparatus in a protective relaying system for a transmission line circuit breaker in a power system, comprising:

- an electronic device to evaluate a state of the power system by on-line assessment of a transient stability margin of the power



system using a set of information measured from a local area around a faulted transmission line; and an auto-reclosing means for a circuit breaker closing automatically with a variable dead time interval after the circuit breaker opens the faulted transmission line in accordance with the stability margin evaluated by the electronic device for transient stability margin evaluation.

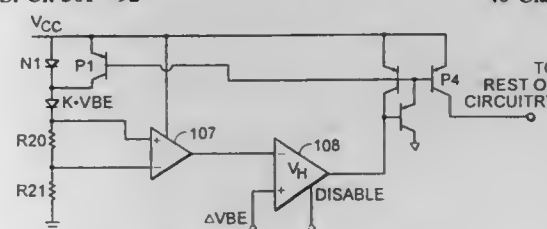
5,805,401
UNDERVOLTAGE LOCKOUT CIRCUIT WITH SLEEP PIN

George E. Schuellein, Narragansett; Arthur R. Theroux, West Warwick; Christopher J. Sanzo, Cranston, all of R.I., and Gedaly Levin, Acton, Mass., assignors to Cherry Semiconductor Corporation, East Greenwich, R.I.

Filed Jul. 17, 1996, Ser. No. 682,144
Int. Cl.⁶ H02H 3/24

U.S. Cl. 361-92

46 Claims



1. An integrated circuit comprising:

- a ramp pin for connection to an external capacitor;
- a comparator connected to receive a voltage from said ramp pin to compare the ramp pin voltage to a control voltage;
- Vcc means for receiving a supply voltage;
- a regulator connected to said Vcc means for generating a regulated voltage;
- a current source, connected to said regulated voltage, for supplying charging current to said ramp pin; and
- a sleep switch, connected to said ramp pin so as to be activated when said ramp pin is below a predetermined voltage threshold, for putting said integrated circuit into a low power consumption sleep mode when said sleep switch is activated by said ramp pin falling below the predetermined voltage threshold.

5,805,402
INTEGRATED INTERIOR TRIM AND ELECTRICAL ASSEMBLY FOR AN AUTOMOTIVE VEHICLE

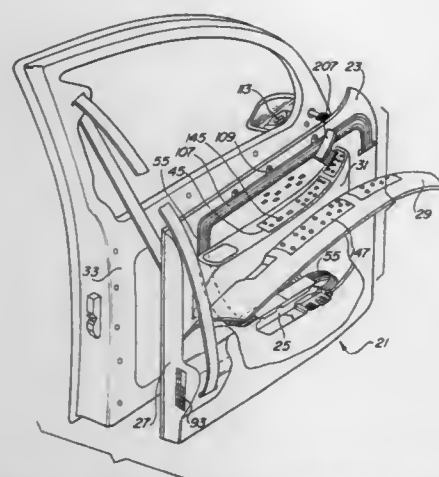
H. Winston Maue, Farmington Hills, and George A. Wooldridge, Warren, both of Mich., assignors to UT Automotive Dearborn, Inc., Dearborn, Mich.

Continuation-in-part of Ser. No. 264,796, Jun. 23, 1994, which is a continuation-in-part of Ser. No. 73,899, Jun. 9, 1993. This application Dec. 8, 1995, Ser. No. 569,684
Int. Cl.⁶ H02H 3/00

U.S. Cl. 361-93

31 Claims

1. An integrated assembly for use in an automotive vehicle comprising:



- an interior trim panel having a substrate and an aesthetic covering material;
- a first occupant operable switch mounted upon said interior trim panel;
- a second occupant operable switch mounted upon said interior trim panel;
- a sheet-like electrically conductive layer having multiple circuit traces electrically connected to said switches, said sheet-like layer being secured to said substrate of said interior trim panel and externally extending from said switches;
- a junction box directly connected to said sheet-like electrically conductive layer; and
- a first electricity activated device receiving electricity through said sheet-like electrically conductive layer.

5,805,403

INTEGRATED CIRCUIT TEMPERATURE MONITORING AND PROTECTION SYSTEM

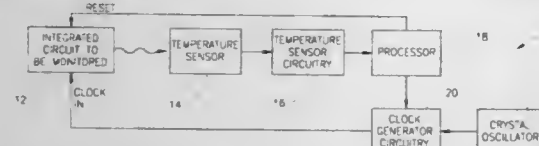
Guy Chemla, Rosh Ha'ayin, Israel, assignor to 3Com Ltd., Tel-Aviv, Israel

Filed Mar. 28, 1996, Ser. No. 620,801

Int. Cl.⁶ H02H 5/04

U.S. Cl. 361—103

12 Claims



1. A system of monitoring the temperature of an integrated circuit, the system comprising:
- a temperature sensor thermally coupled to said integrated circuit;
- temperature sensor circuitry coupled to said temperature sensor;
- said temperature sensor circuitry operative to generate a signal in proportion to the temperature of said integrated circuit;
- a processor coupled to said temperature sensor circuitry; said processor operative to monitor the output of said temperature sensor circuitry; and
- means for holding the integrated circuit in reset, the integrated circuit being held in reset upon the temperature of said integrated circuit exceeding a predetermined threshold level thus protecting said integrated circuit from damage due to an over temperature condition.

**5,805,404
COMMON INSULATING HOUSING FOR ELEMENTS OF VARYING TERMINALS**

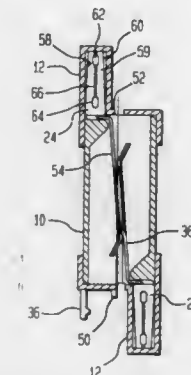
Adam Stuart Kane, Morristown, N.J.; Mark Steven Curtis, Papillion, Nebr., and Thomas Michael Hamilton, Council Bluffs, Iowa, assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 17, 1995, Ser. No. 442,902

Int. Cl.⁶ H02H 1/00

U.S. Cl. 361—111

26 Claims



15. A modular connecting block system used for terminating a plurality of wires, wherein connector modules having connecting terminals on front and rear sides thereof are insertable into a mounting bracket to form a double-sided connecting block, and wherein said modular connecting block system utilizes common insulated housings to accommodate components having varying numbers of terminals, said system comprising:
- a connector module for inclusion of said connecting terminals, said connector module including:
- a common insulated connector module housing for housing a predetermined number of said connecting terminals on a front and rear side thereof, said terminals being disposed in a single row, wherein said connector module housing is insertable into a hinged mounting bracket, and
- a plurality of said connecting terminals disposed on said front and rear sides of said connector module housing, wherein a corresponding front and rear terminal of said connector module are coupled together within said housing by means of a separable normally closed contact, wherein said connector module housing is usable for a variable number of said terminals to be included within said connector module.

5,805,405

POWER SUPPLY CIRCUIT OF AN EXCITATION COIL OF AN ELECTROMAGNET

Karim Benkaroun, Sartrouville; Manuel Lima, Paris, and Alain Gousset, Nanterre, all of France, assignors to Schneider Electric SA, Boulogne Billancourt, France

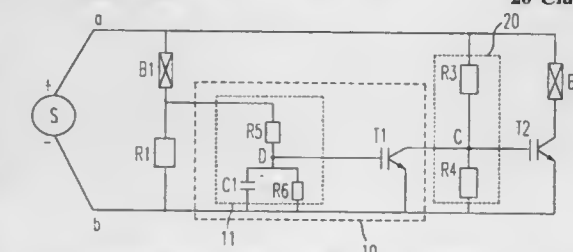
Filed Oct. 10, 1996, Ser. No. 729,284

Claims priority, application France, Oct. 12, 1995, 95 12077

Int. Cl.⁶ H01H 47/04

U.S. Cl. 361—194

20 Claims



1. A power supply circuit, using direct current or rectified alternating current sources having output and return supply lines, for a coil of an electromagnet having at least one primary winding and a secondary winding, comprising:

- a first semiconductor element having a gate and a source drain path and capable of providing or blocking a supply of current to the secondary winding, the source drain path connected between the secondary winding and the return supply line; and
- a switching means connected between the primary winding and the gate of the first semiconductor element, including,
- a second semiconductor element having a gate and a source drain path and capable of keeping the first semiconductor element from conducting when a voltage between the gate of the second semiconductor element and the return supply line reaches a threshold voltage greater than a value corresponding to a start of a closing of the electromagnet, the source drain path of the second semiconductor element connected between the gate of the first semiconductor element and the return supply line, and
- an adaptation circuit connected between the primary winding and the gate of the second semiconductor element, said adaptation circuit estimating a voltage representative of an image of a current circulating in the primary winding and integrating the circulating current to adapt a time required to reach an activation threshold of the second semiconductor element.

5,805,406

DEVICE FOR TREATING HAIR

Kirsten Herlöv Mailand, Bakkegardsvej 311, Humlebæk, Denmark, 3050

PCT No. PCT/DK95/00313, § 371 Date Jan. 21, 1997, § 102(e)

Date Jan. 21, 1997, PCT Pub. No. WO96/03062, PCT Pub. Date Feb. 8, 1996

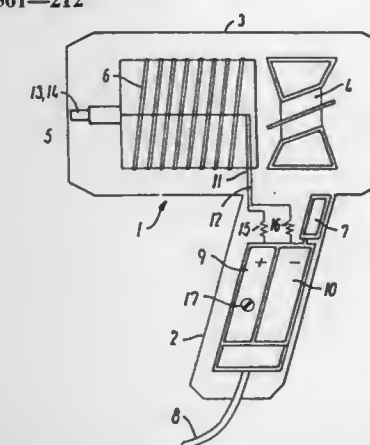
PCT Filed Jul. 20, 1995, Ser. No. 776,103

Claims priority, application Denmark, Jul. 21, 1994, 0867/94

Int. Cl.⁶ H05F 3/06

U.S. Cl. 361—212

10 Claims



1. A device for treating hair, comprising an electrically driven blower for generating an air flow at at least one opening on the device with a view to drying said hair, as well as a unit for emitting ions from one or more emitters positioned in or close to the said opening of the device in a path of said air flow, said unit for emitting ions having at least two emitters which are adapted to emit ions of positive charge and of negative charge, respectively, at the same time.

5,805,407

CHARGE ELIMINATING APPARATUS FOR A MOVING WEB

Kozo Takano; Yasuhisa Tazawa, and Kenji Kojima, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

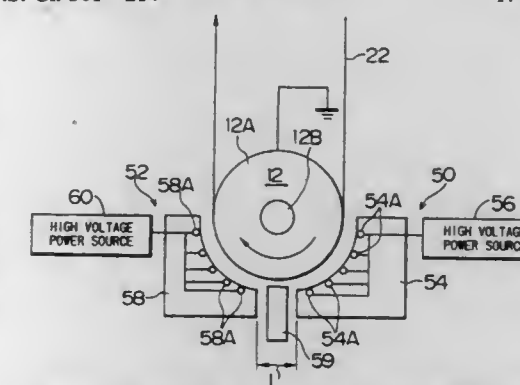
Filed Sep. 5, 1996, Ser. No. 708,611

Claims priority, application Japan, Sep. 7, 1995, 7-230358

Int. Cl.⁶ H05F 3/04

U.S. Cl. 361—214

17 Claims



1. A charge eliminating apparatus for a moving web comprising:
- an electrically grounded, cylindrical backup roller rotatably mounted for supporting the moving web,
- a first voltage applying means having at least three discharge electrodes arranged at uniform intervals with predetermined gaps of about 10 mm relative to the moving web, and
- a second voltage applying means having at least three discharge electrodes arranged at uniform intervals with predetermined gaps of about 10 mm relative to the moving web;
- wherein each said discharge electrode is positioned such that it is parallel to an exterior cylindrical surface of the backup roller;
- wherein the distance between the first voltage applying means and the second voltage applying means is small in the vicinity of said backup roller to prevent the charge potential of the moving web from rising too high.

5,805,408

ELECTROSTATIC CLAMP WITH LIP SEAL FOR CLAMPING SUBSTRATES

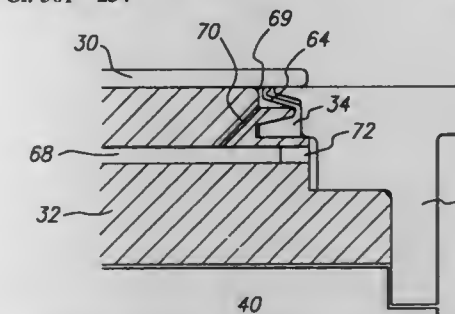
Robert Maraschin, Cupertino; Paul Kevin Shufflebotham, San Jose, and Michael Scott Barnes, San Francisco, all of Calif., assignors to Lam Research Corporation, Fremont, Calif.

Filed Dec. 22, 1995, Ser. No. 577,265

Int. Cl.⁶ H02N 13/00

U.S. Cl. 361—234

32 Claims



1. A clamping apparatus for clamping a substrate in a processing chamber comprising:
- electrostatic clamp to hold the substrate to an upper surface of the electrostatic clamp;
- an edge ring surrounding the electrostatic clamp and having an upper surface which is substantially co-planar with the upper surface of the electrostatic clamp;

a resilient sealing member provided between the electrostatic clamp and the edge ring and arranged to provide a seal between the electrostatic clamp and the substrate, the sealing member including a base portion which forms a seal between the electrostatic clamp and the edge ring and an upper flexible sealing portion which provides a seal between the electrostatic clamp and the substrate; and

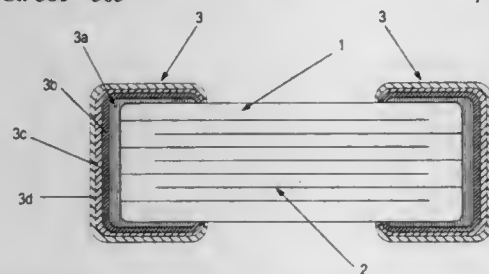
one or more channels in the electrostatic clamp opening into a gap between the resilient sealing member and the electrostatic clamp to supply a cooling gas to a space between the surface of the electrostatic clamp and the substrate, wherein the upper flexible sealing portion is an arm extending inwardly so as to be pressurized by the cooling gas.

5,805,409

MULTI-LAYER ELECTRONIC PART HAVING EXTERNAL ELECTRODES THAT HAVE A THERMOSETTING RESIN AND METAL PARTICLES
Wataru Takahara, Takaya Ishigaki, and Makoto Morita, all of Tokyo, Japan, assignors to TDK Corporation, Tokyo, Japan
Filed Aug. 14, 1996, Ser. No. 689,774
Claims priority, application Japan, Aug. 18, 1995, 7-210835
Int. Cl.⁶ H01G 4/005

U.S. Cl. 361—303

7 Claims



1. A multi-layer electronic part comprising internal electrodes stacked alternately with layers of a dielectric material containing at least 50 wt % of lead in terms of PbO, and external electrodes connected to said internal electrodes,

said external electrodes each comprising a baked electrode layer connected to said internal electrodes; a plating layer having solderability; and a metal particle-containing electrode layer comprising a thermosetting resin and metal particles, provided between said baked electrode layer and said plating layer, said metal particle-containing electrode layer having a thickness of from 5 to 200 μ m.

said metal particle-containing electrode layer being disposed between said baked electrode layer and said plating layer.

5,805,410

MOS CAPACITOR FOR IMPROVING ELECTROSTATIC DURABILITY BY USING OF A TRANSISTOR
Ho-Jin Lee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Nov. 27, 1996, Ser. No. 758,040
Claims priority, application Rep. of Korea, Dec. 8, 1995, 95-47987

Int. Cl.⁶ H01G 4/005

U.S. Cl. 361—303

8 Claims

3. A capacitor, comprising:

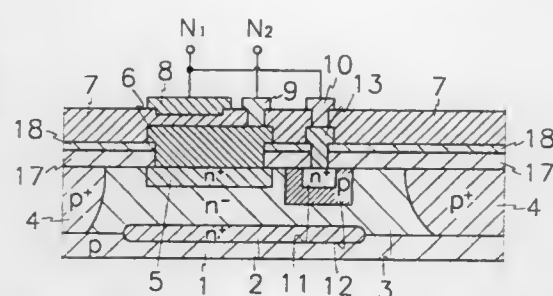
a first diffusion region of a first conductive type formed in a semiconductor layer;

a second diffusion region of a second conductive type, formed in the semiconductor layer and disconnected from the first diffusion region;

a third diffusion region of a first conductive type formed in the second diffusion region;

a first polysilicon layer formed over the first diffusion region;

a second polysilicon layer formed over the third diffusion region and separated from the first polysilicon layer;



a first metal electrode and a second metal electrode respectively formed on the first polysilicon layer and the second polysilicon layer, the first and second metal electrodes being disconnected from each other;

an insulating layer formed over the first polysilicon layer; and a third metal electrode, formed over the insulating layer, disconnected from the first metal electrode and electrically connected to the second metal electrode.

5,805,411

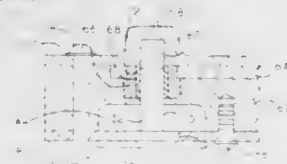
SUPPORT FOR CAPACITOR
W. Kyle Anderson, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Aug. 11, 1993, Ser. No. 105,699

Int. Cl.⁶ H01G 4/228

U.S. Cl. 361—306.1

36 Claims



1. An electrical apparatus, comprising:

an electrical component including a plurality of projections therefrom, the projections providing electrical connections for the electrical component; and

a supporting means including a plurality of apertured means for receiving the plurality of projections and establishing the electrical connections therewith, the plurality of apertured means being arranged to accommodate movement of the plurality of projections during utilization of the electrical component without discontinuity of the electrical connections; wherein the supporting means includes a stabilizing means for maintaining the plurality of apertured means in predetermined spatial relationships relative to one other during movement of the electrical component; and

wherein the electrical component includes a capacitor having first and second pin contacts, wherein the supporting means includes first pin receiving means for receiving the first pin contact of the capacitor and for establishing an electrical connection between the first pin contact and the first pin receiving means and second pin receiving means for receiving the second pin contact of the capacitor and for establishing an electrical connection between the second pin contact and the second pin receiving means, and wherein the first and second

pin receiving means are in corresponding first and second planes which are displaced with respect to one another.

5,805,412

MULTIPLE STACKED DOCKING STATIONS AND PORTABLE COMPUTER
Takashi Yanagisawa, Yokohama; Kazuhiko Maeda, Sagami-hara, and Takatoshi Yokemura, Yamato, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

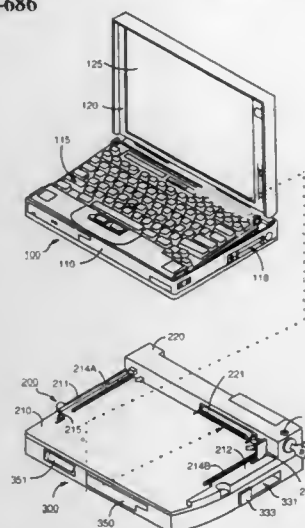
Filed Oct. 31, 1996, Ser. No. 741,586

Claims priority, application Japan, Feb. 20, 1996, 8-031699

Int. Cl.⁶ G06F 1/16; H05K 7/10

U.S. Cl. 361—686

11 Claims



9. A portable computer docking station complex including at least two docking units vertically stacked for connection to and use with a vertically stacked portable computer, comprising:

a first docking unit mechanically coupleable with the portable computer having a first connector for electrically connecting and mechanically coupling with the portable computer in a horizontal direction, and defining a plurality of port signal lines and a plurality of bus signal lines, a plurality of connection ports for respective ones of the plurality of port signal lines, and a second connector electrically connected with the first connector for passing through the first docking unit the plurality of bus signal lines; and

a second docking unit having a third connector housed in a vertically extending projection portion on the second docking unit electrically connected with the second connector of the first docking unit and mechanically coupled with the first docking unit in a horizontal direction to vertically stack the second docking unit with the first docking unit, structure in the second docking unit for retaining a peripheral device connectable to a bus expanded through the third connector, and at least one bus slot for connecting an expansion adaptor card to the bus expanded through the third connector of the second docking unit.

5,805,413

SOLID ELECTROLYTIC CAPACITOR
Yoshio Kurita, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed May 9, 1997, Ser. No. 853,666

Claims priority, application Japan, Sep. 13, 1996, 8-243154

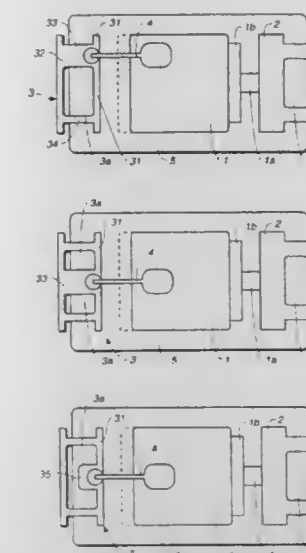
Int. Cl.⁶ H01G 2/16

U.S. Cl. 361—534

12 Claims

1. A solid electrolytic capacitor comprising:

a capacitor element having a first electrode and a second electrode;



a first lead member electrically connected to said first electrode; a second lead member;

a longitudinally extended fuse which electrically connects said second electrode with said second lead member; and

a molded casing containing therein said capacitor element and portions of said first and second lead members connected to said capacitor element;

said second lead member comprising:

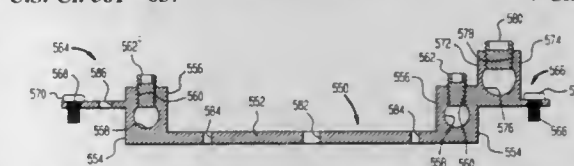
a first transverse part and a second transverse part both extending transversely to said fuse, said first transverse member being disposed closer to said capacitor element than said second transverse member and at least two connector parts connecting said first and second transverse parts and thereby completely surrounding at least one hole through said second lead member, said fuse being bonded to one of said connector parts.

5,805,414

NEUTRAL TIE BAR
Werner Feldhaeuser, Stone Mountain, Ga., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.
Filed Mar. 27, 1996, Ser. No. 622,968
Int. Cl.⁶ H01B 17/06

U.S. Cl. 361—637

7 Claims



4. In a load center having an enclosure, a basepan mounted within the enclosure, at least two neutral bars disposed therein, a neutral tie bar for electrically connecting the neutral bars together, means for mounting the neutral tie bar to the basepan, the neutral tie bar comprising: a unitary member having a central portion and vertically offset laterally extending ends which have apertures for accepting fasteners therein, the apertures being aligned with apertures in the neutral bars for connecting the neutral tie bar thereto, the neutral tie bar having a first elevated member disposed between the center portion and each of said laterally extending ends thereof, the first elevated member forming a cable lug having a horizontally disposed bore for receiving a cable therein, and a second elevated member disposed between the first elevated member and an end portion thereof, the second elevated member forming a neutral cable lug having a horizontally disposed bore for receiving a neutral cable therein.

This exploded perspective view shows the front assembly of the device. Components include: 64 (front bezel), 65 (front faceplate), 66 (internal front frame), 67 (internal front plate), 68 (internal front plate), 69 (internal front plate), 70 (internal front plate), 71 (internal front plate), 72 (internal front plate), 73 (internal front plate), 74 (internal front plate), 75 (internal front plate), 76 (internal front plate), 77 (internal front plate), 78 (internal front plate), 79 (internal front plate), 80 (internal front plate).

1. An apparatus comprising:
a semiconductor substrate having a top side and a bottom side,
said semiconductor substrate having an integrated circuit and
at least one alignment fiducial formed on said top side, said
alignment fiducial being precisely aligned with said integrated
circuit, said semiconductor substrate further comprising a first
set of bond pads on said integrated circuit; and

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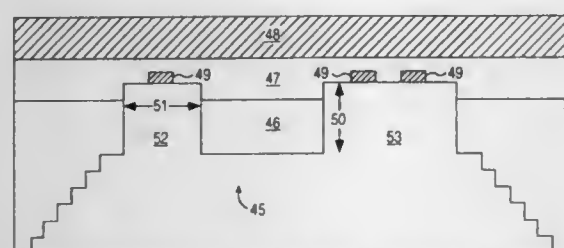
2

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UMI



a second substrate having a second set of bond pads corresponding to said first set of bond pads, said semiconductor substrate coupled to said substrate at a plurality of solder interconnections disposed between said first and second set of bond pads.

5,805,422

SEMICONDUCTOR PACKAGE WITH FLEXIBLE BOARD AND METHOD OF FABRICATING THE SAME

Kenichi Otake, and Manabu Bonkohara, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 531,960, Sep. 21, 1995, abandoned.

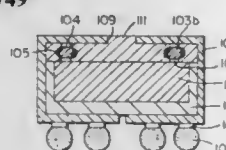
This application Aug. 15, 1997, Ser. No. 912,001

Claims priority, application Japan, Sep. 21, 1994, 6-226416

Int. Cl.⁶ H05K 1/14; 7/02; H01L 23/498

U.S. Cl. 361—749

10 Claims



thereon, and printed pattern boards or circuit cards, the rail assembly being intended for coaction with an earth potential related layer belonging to the circuit board and serving as an outer layer, and also to coact with an earth plane belonging to the magazine, wherein respective circuit boards are intended to coact with mutually parallel rails which are able to coact with the opposing edge-parts of the circuit board, wherein the rails have mutually opposing grooves or channels whose widths are adapted to enable the circuit board to be moved along the rail grooves to a magazine inserted position and to a magazine withdrawn position, or vice versa, the rail assembly comprising a mounting base made of an electrically insulating material, and an electrically conductive contact rail which is held by the mounting base, the contact rail having a U-shaped cross-section formed by a first and a second rail leg and a bottom part of the rail extending between the first and the second rail leg, at least one of the first and the second rail legs being provided with a row of tongues, each tongue of the row of tongues having an outer part forming an electrical tongue contact point, and the bottom part of the rail having a plurality of mutually sequential electrical contact tongues, each contact tongue of the plurality of contact tongues having an outer part forming a contact tongue contact point such that the plurality of contact tongues have a plurality of contact tongue contact points, the contact tongue contact points being adapted to abut electrical contact surfaces belonging to and assigned to the magazine at a chosen contact pressure when fitting the rail assembly into a magazine, so as to obtain an earth potential relationship or connection, each of the tongues extending through slots or recesses in the moving base wherein the tongue contact points on the at least one rail leg are only angularly bent at an uppermost part of the at least one rail leg towards the other one of the first and the second rail leg and the slots or recesses in the mounting base are oriented perpendicular to a sliding direction of the circuit board on the rail assembly.

5,805,430

ZERO FORCE HEAT SINK

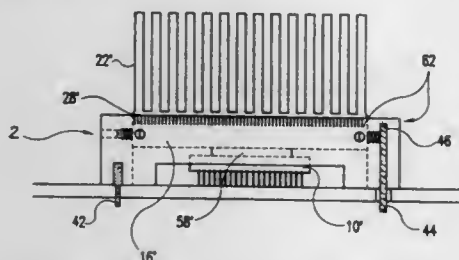
Eugene R. Atwood, Berkshire County, Mass.; Joseph A. Benenati; James J. Dankelman, both of Dutchess County, N.Y.; Horatio Quinones, Wappinger Falls, N.Y.; Karl J. Puttitz, Dutchess County, N.Y., and Eric J. Kastberg, Orange County, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 22, 1996, Ser. No. 687,103

Int. Cl.⁶ H02B 1/01;7/20

U.S. Cl. 361—829

5 Claims



1. A frame for securing a heat sink in thermal contact with a substrate to be cooled, comprising:
 - a top having an aperture therethrough and capable of supporting said heat sink, said top having a first coefficient of thermal expansion;
 - a plurality of mounting members which are either connected to said top or are connectable to said top, each of said mounting members projecting in the same direction from said top when connected to said top, said mounting members having a second coefficient of thermal expansion, and said first coefficient of thermal expansion is not equal to said second coefficient of thermal expansion;
 - means, for connecting each of said mounting members to a support; and

means positioned in said aperture of said top, for connecting a heat sink to said top and maintaining any force applied to said substrate by said heat sink to essentially zero.

5,805,431

SURFACE MOUNTABLE TRANSFORMER

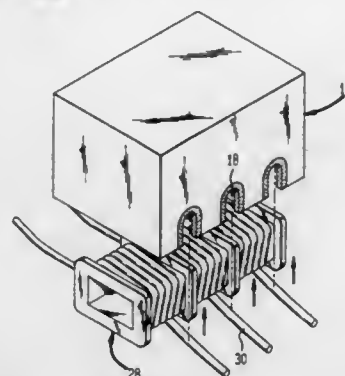
Shankar R. Joshi, Elmont, N.Y., and Meta Rohde, Upper Saddle River, N.J., assignors to Synergy Microwave Corporation, Paterson, N.Y.

Filed Jan. 17, 1996, Ser. No. 588,074

Int. Cl.⁶ H01F 27/30;27/04

U.S. Cl. 361—836

35 Claims



1. A surface mount package comprising:
 - a. a housing having an interior for receiving an electronic component and having a wall, at least said wall being made of a dielectric material, said wall having a bottom edge and an opening at said bottom edge for receiving a lead from a component housed within said housing, said housing having a flat lower edge, said flat lower edge having at least one portion which is plated with a conductive material; and
 - b. at least one electronic component housed within said housing and including a lead, said lead being electrically connected to said conductive material on said flat lower edge of said housing and said connection being made in said opening such that said flat lower edge can rest flush on a substrate, whereby said electronic component can be electrically connected to a circuit or component on such substrate, wherein said wall of said housing includes surface plating.

5,805,432

RESONANT DC-DC CONVERTER CAPABLE OF CONTROLLING BY PULSE WIDTH MODULATION

Toshiyuki Zaltsu, Tokyo, and Tamotsu Ninomiya, Fukuoka, both of Japan, assignors to NEC Corporation, Japan

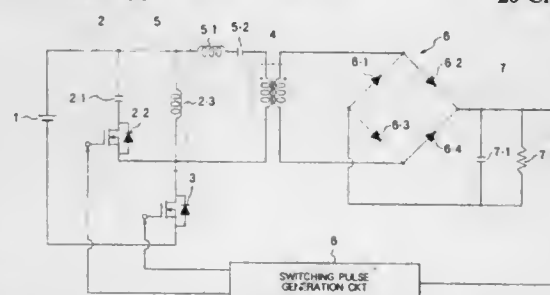
Filed Apr. 25, 1996, Ser. No. 637,368

Claims priority, application Japan, Sep. 26, 1995, 7-247525

Int. Cl.⁶ H02M 3/335

U.S. Cl. 363—16

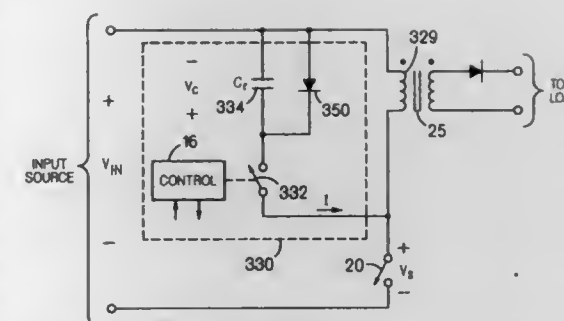
20 Claims



1. A resonant DC-DC converter for converting a d.c. input voltage V_{in} into a predetermined d.c. output voltage and comprising main switching means for switching said d.c. input voltage under control of switching pulses defined by a duty ratio D to

supply an a.c. voltage to a primary side of a transformer, a rectifier circuit connected to a secondary side of said transformer for rectifying an a.c. voltage derived from said secondary side to produce a rectified voltage, and a smoothing circuit connected to said rectifier circuit for smoothing said rectified voltage to produce a smoothed voltage as said predetermined d.c. output voltage, said converter further comprising:

- a full-resonant circuit provided at at least one of said primary and said secondary sides of said transformer; and
- a clamp circuit connected to said main switching means and comprising a first capacitor and an auxiliary switching means serially connected to said first capacitor, said main switching means being supplied with a voltage having an amplitude defined by $V_{in}/(1-D)$, said main and said auxiliary switching means being alternately put into an on state under control of said switching pulses.



sensing the magnetizing current which is flowing in said transformer, and allowing initiation of another converter operating cycle only if the magnetizing current meets a predefined criterion for converter operation.

5,805,433

SMALL OFFLINE POWER SUPPLY

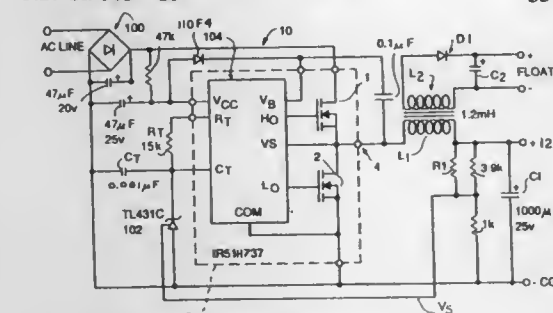
Peter N. Wood, Rolling Hills Estates, Calif., assignor to International Rectifier Corporation, El Segundo, Calif.

Filed Apr. 16, 1997, Ser. No. 842,713

Int. Cl.⁶ H02M 3/337

U.S. Cl. 363—16

33 Claims



1. A power converter circuit, comprising:
 - a DC bus;
 - a half bridge transistor circuit coupled across the DC bus, the half bridge transistor circuit including a high-side transistor and a low-side transistor and producing an output pulse width modulation (PWM) signal therebetween;
 - a self oscillating half bridge driver circuit for producing first and second control PWM signals in response to an external threshold signal, the first control PWM signal coupled to a control terminal of the high-side transistor and the second control PWM signal coupled to a control terminal of the low-side transistor;
 - a low pass filter for receiving the output PWM signal and producing a DC output voltage in response thereto across a pair of output terminals; and
 - a programmable voltage regulating device having an input terminal coupled to the DC output voltage and an output terminal coupled to the external threshold voltage.

5,805,434

CONTROL OF STORED MAGNETIC ENERGY IN POWER CONVERTER TRANSFORMERS

Patrizio Vinciarelli, Boston, and Jay Prager, Tyngsboro, both of Mass., assignors to VLT Corporation, San Antonio, Tex.

Continuation of Ser. No. 373,112, Jan. 17, 1995, abandoned.

This application May 23, 1997, Ser. No. 862,528

Int. Cl.⁶ H02M 3/336;1/12

U.S. Cl. 363—16

46 Claims

1. A method for limiting the slew rate in a switching power converter which includes a transformer and a reset circuit of the kind which non-dissipatively recycles the magnetizing energy stored in a transformer during each of a succession of converter operating cycles, said method comprising

5,805,435

VOLTAGE BOOSTER FOR MEMORY DEVICES

Luigi Pascucci, Sesto San Giovanni, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

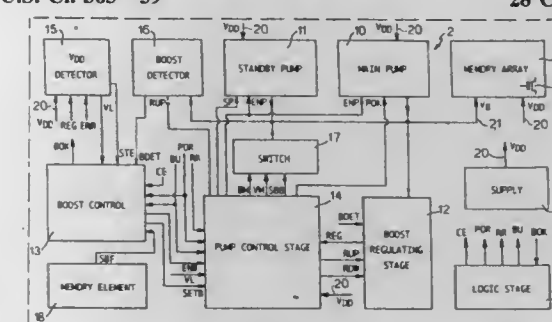
Filed Mar. 27, 1997, Ser. No. 824,958

Claims priority, application European Pat. Off., Mar. 29, 1996, 96830179

Int. Cl.⁶ H02M 3/18

U.S. Cl. 363—59

28 Claims



1. A voltage booster device for a memory device, comprising:
 - a first line at a first reference potential;
 - a second line at a second reference potential;
 - a first voltage booster stage connected to said first and second lines;
 - a supply detecting stage connected to said first line, for generating a first level signal when said first reference potential exceeds a first predetermined level;
 - a boost detecting stage connected to said second line, for generating a second level signal when said second reference potential exceeds a second predetermined level;
 - a regulating stage connected to said second line and connected to said boost detecting stage to receive said second level signal therefrom;
 - a pump control stage connected to receive said first level signal for generating a first activating signal for activating said regulating stage in the absence of said first level signal; and
 - a boost control stage including boost self-activating means receiving a power-on reset signal, said first level signal and said second level signal, and for generating second activating signal; and boost enabling means for generating an enabling signal for said pump control stage and said supply detecting stage in the absence of said power-on reset signal and said first and second level signals and in the presence of said second activating signal;
 - said regulating stage generating a regulating signal in the presence of said second level signal and said first activating signal, and when said second reference potential exceeds a third predetermined level; and

said pump control stage generating a first pump activating signal for said first booster stage in the absence of said first level signal and said regulating signal.

5,805,436
SIMPLIFIED POWER SUPPLY CIRCUIT WITHOUT TRANSFORMER CORE AND WINDINGS

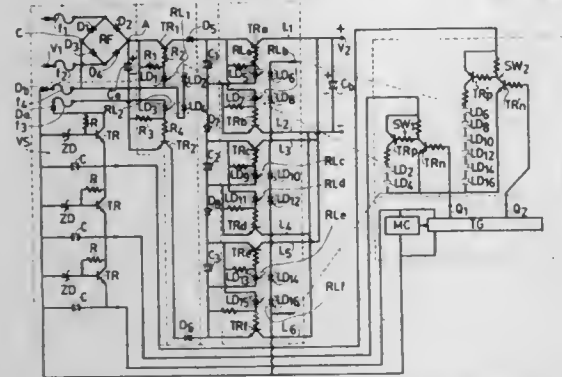
Tieng-fu Lin, P.O. Box 55-846, Taipei, Taiwan

Filed Mar. 24, 1997, Ser. No. 826,069

Int. Cl.⁶ H02M 3/18

U.S. Cl. 363—60

12 Claims



1. A simplified power supply circuit of current amplifier comprising: a primary capacitor connected across an anode and a cathode of a rectifier for rectifying an input voltage of high voltage and low current, a plurality of secondary capacitors connected in series in between a positive pole and a negative pole of the primary capacitor through a positive-pole on-off switch and a negative-pole on-off switch, each of said secondary capacitors having a positive and negative conductor respectively connected to an output positive and negative terminal by an on-off switch circuit, and the secondary capacitors having their output positive and negative terminals connected in parallel for amplifying the input voltage of low current to be an output voltage of high current;

said positive-pole on-off switch being a PNP transistor TR1 having an emitter connected to the positive pole of the primary capacitor Ca, a collector connected to the positive pole of the first secondary capacitor C1 through a forward current diode D5 and a base connected to the negative pole of the primary capacitor Ca through a current limit resistor R2 for providing a negative biasing voltage to the base for conducting the PNP transistor TR1 and a first relay RL1 actuated by a first amplifying switch SW1 as controlled by a timing control circuit including a master clock MC and a timing generator TG; with a cut-off resistor R1 connected between the base of the PNP transistor TR1 and the positive pole of the primary capacitor Ca for providing a cut-off current of the base of the PNP transistor TR1 for turning off the transistor TR1.

5,805,437
POWER ELECTRONIC CIRCUIT ARRANGEMENT HAVING PLURAL POWER CONVERTERS

Horst Grüning, Wettingen, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

Filed Mar. 31, 1997, Ser. No. 831,496

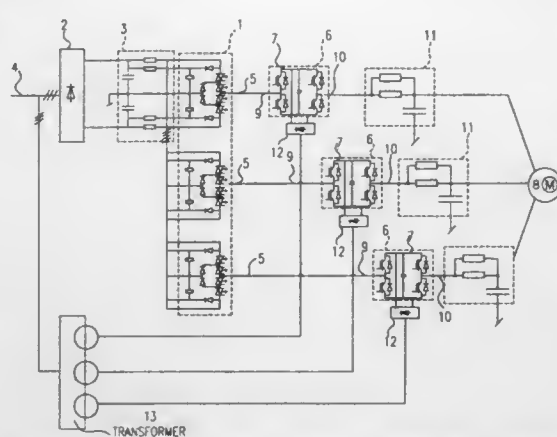
Claims priority, application Germany, Apr. 20, 1996, 196 15 855.9

Int. Cl.⁶ H02M 7/537

U.S. Cl. 363—71

10 Claims

1. A power electronic circuit arrangement, comprising: a first power converter which is connected via a first DC voltage intermediate circuit, having a first intermediate circuit voltage Uz1, and a first rectifier to a power supply system and which has at least one load terminal switchable between a positive first intermediate circuit voltage +Uz1, a negative first intermediate circuit voltage -Uz1 and 0V; and



at least one second power converter which has a second DC voltage intermediate circuit having a second intermediate circuit voltage Uz2 and which is connected to each load terminal of the first power converter and is connected upstream of a load such that at least one of a positive second intermediate circuit voltage +Uz2, a negative second intermediate circuit voltage -Uz2 and 0 V can optionally be added to a voltage value which is switched by the first power converter to the at least one load terminal.

5,805,438
CURRENT CONTROLLED PWM INVERTER FOR DRIVING A MOTOR WITHOUT GAIN ADJUSTMENT

Kazuyuki Takada, Hirakata, and Yoshinori Isomura, Itami, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

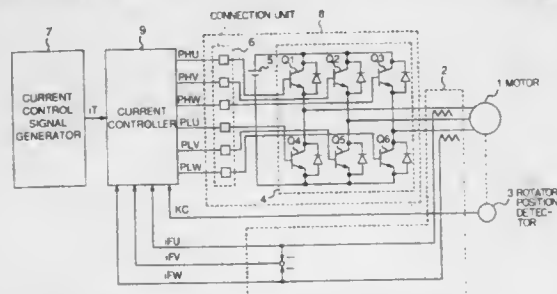
Filed Jan. 27, 1997, Ser. No. 788,338

Claims priority, application Japan, Jan. 31, 1996, 8-014953

Int. Cl.⁶ H02M 7/797

U.S. Cl. 363—98

17 Claims



1. A current-controlled PWM inverter comprising: a motor current detection means for detecting the line current inflowing from each line of a three-phase motor, and outputting a first line current detection result, a second line current detection result, and a third line current detection result; a current control signal for controlling the line current supplied from each line to the three-phase motor; a main circuit power element group comprising plural main circuit switching power elements in a three-phase bridge configuration, each bridge configuration including a current-circulating diode; a direct current primary power supply for supplying power to said power element group; a current comparing means for outputting a LOW current comparison result only when the first line current detection result, second line current detection result, and third line current detection result are all lower than the current control signal, and outputting a HIGH current comparison result in all other cases; a timing signal generator for outputting a refresh timing signal; and

a switching control signal generator to which said current comparison result and refresh timing signal are input for generating the switching control signal that sets the main circuit switching power elements of the main circuit power element group on or off;

wherein the switching control signal generator determines the switching control signal controlling the on or off state of the main circuit switching power elements of the main circuit power element group at the refresh timing and at the timing at which the current comparison result changes from LOW to HIGH.

5,805,439
DC-TO-DC AUTO SWITCH CIRCUIT

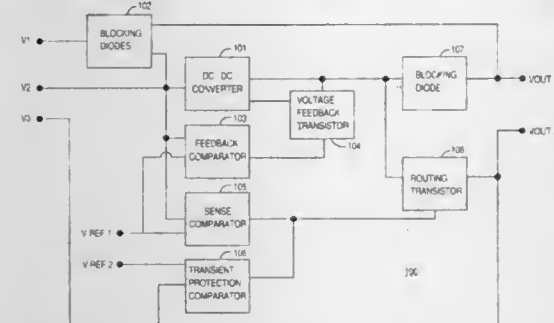
Robert W. Kruppa, Cary, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1997, Ser. No. 831,275

Int. Cl.⁶ H02M 1/10

U.S. Cl. 363—142

17 Claims



1. A circuit comprising: circuitry operable for receiving one or more selected ones of a plurality of possible input voltages; circuitry operable for sensing an input level of said one or more selected ones of a plurality of possible input voltages; a DC-to-DC converter coupled to said receiving circuitry and to said sensing circuitry; and circuitry operable for controlling said DC-to-DC converter to output an output voltage as a function of said input level of said one or more selected ones of a plurality of possible input voltages, wherein said DC-to-DC converter is the only DC-to-DC converter in said circuit, wherein said one or more selected ones of a plurality of possible input voltages includes first, second, and third input voltages, wherein when said input level corresponds to said first input voltage said DC-to-DC converter is controlled by said controlling circuitry to output said output voltage to have an output level equal to said third input voltage, and wherein when said input level corresponds to said second input voltage said DC-to-DC converter is controlled by said controlling circuitry to output said output voltage to have an output level equal to said first input voltage.

5,805,440
POWER SUPPLY UNIT FOR ELECTRONIC DEVICE

Yoshihiro Maeshima, and Naofumi Imai, both of Suwa-gun, Japan, assignors to Chinon Kabushiki Kaisha, Nagano, Japan

Filed Sep. 26, 1996, Ser. No. 721,611

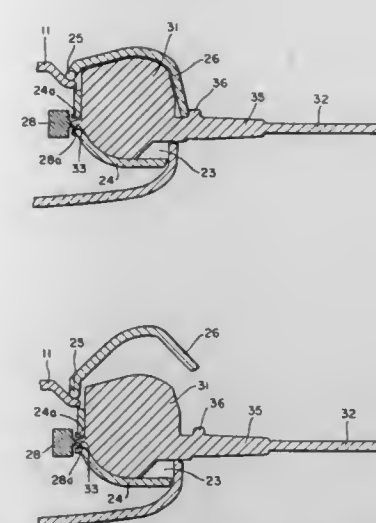
Claims priority, application Japan, Feb. 20, 1996, 8-032008

Int. Cl.⁶ H02M 1/00

U.S. Cl. 363—146

9 Claims

1. A power supply unit for an electronic device having a battery compartment for containing a battery, comprising: a switch; said switch avoiding contact with said battery contained in said battery compartment; and



an adapter plug having a protrusion that contacts with and actuates said switch when said adapter plug is housed in said battery compartment.

5,805,441
EQUIPMENT MANAGEMENT SYSTEM
Yuji Yamashita, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

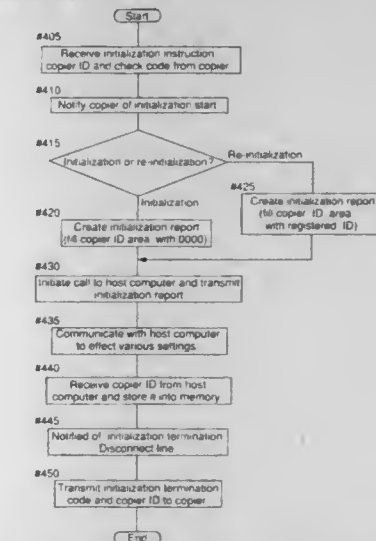
Filed Nov. 27, 1996, Ser. No. 757,573

Claims priority, application Japan, Nov. 29, 1995, 7-310258

Int. Cl.⁶ G05B 15/00

U.S. Cl. 364—130

2 Claims



1. An equipment management system comprising a terminal device that is attached to a managed piece of equipment so as to transmit equipment management data needed for managing that managed piece of equipment and a host computer that is connected to said terminal device by way of a data communication line so as to collectively manage equipment management data related to said terminal device, said host computer setting initial data on said terminal device,

wherein said terminal device comprises:

a first report creating means which, under a condition that initialization has not yet been conducted, creates an initialization report solely based on a check code that is received from said managed piece of equipment during initialization and that identifies the managed piece of equipment; and a second report creating means which, when re-initialization is conducted, creates an initialization report based on at least three factors that are said check code, an ID number identify-

ing said managed piece of equipment, and a condition that initialization has already been conducted, and wherein said host computer comprises:

- a report analyzing means for analyzing a report received from said terminal device;
- an initializing means which searches for an equipment management database based on said check code when an analysis result of said report analyzing means shows that said report does not include an ID number and which initializes said terminal device only when that database has not yet been initialized; and
- a re-initializing means which re-initializes said terminal device when an analysis result of said report analyzing means shows that said report includes an ID number.

5,805,442

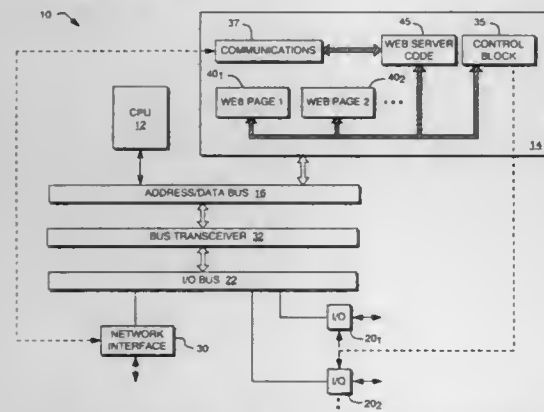
**DISTRIBUTED INTERFACE ARCHITECTURE FOR
PROGRAMMABLE INDUSTRIAL CONTROL SYSTEMS**

Kenneth C. Crater, North Grafton, and Craig E. Goldman,
Natick, both of Mass., assignors to Control Technology Corporation,
Hopkinton, Mass.

Filed May 30, 1996, Ser. No. 655,469
Int. Cl.⁶ G06F 13/14

U.S. Cl. 364—138

22 Claims



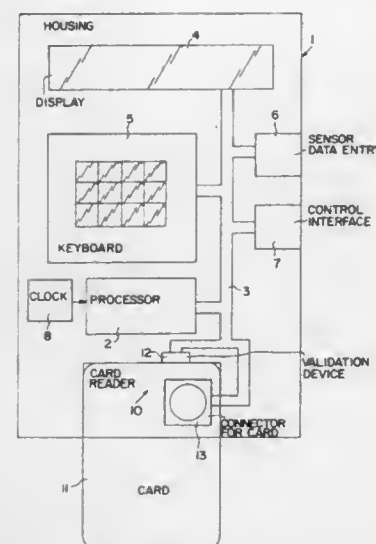
1. A controller capable of interacting with a remotely located computer, the controller comprising:
 - a. means for gathering data relevant to a control function, the data being retrievable by the remotely located computer;
 - b. computer storage means comprising instructions retrievable and executable by the remotely located computer, the instructions being associated with the data and causing the remotely located computer to present the data in a predetermined format.

5,805,443
PROGRAMMABLE CONTROL FOR HEATING
INSTALLATION

Patrick Raffray, Hirel, and Alain Roger, Cuguen, both of France, assignors to Societe Delta - Dore S.A., Combours, France
Continuation of Ser. No. 335,547, Nov. 7, 1994, abandoned.
This application Jan. 17, 1997, Ser. No. 785,701
Claims priority, application France, Nov. 9, 1993, 93 13609
Int. Cl.⁶ G06F 17/00; G05D 23/00

U.S. Cl. 364—140

4 Claims



a plurality of different types of cards,

means responsive to said card reading means in an absence of a card for establishing a first mode of operation deactivating said keyboard and operating said system in response to sensors,

means responsive to a first type of card for causing said card reading means to activate said keyboard means in order to enable a modification of the resident program,

means responsive to a second type of card having thereon a memory containing specific data for deactivating said resident program and operating said heating system according to a program stored in said memory on said second type of card,

means responsive to a third type of card having thereon a memory containing a user identification number and a stored program for modifying said resident program responsive an entry of said user identification number, and

means responsive to a fourth type of card for enabling a user to control said system in response to keying in an identification number.

5,805,444
METHOD AND SYSTEM FOR PROVIDING A
TEMPORAL INTERFACE FOR USE IN IMPLEMENTING
A PROCESS

James M. Seymour, Alpharetta, Ga., assignor to BellSouth Corporation, Atlanta, Ga.

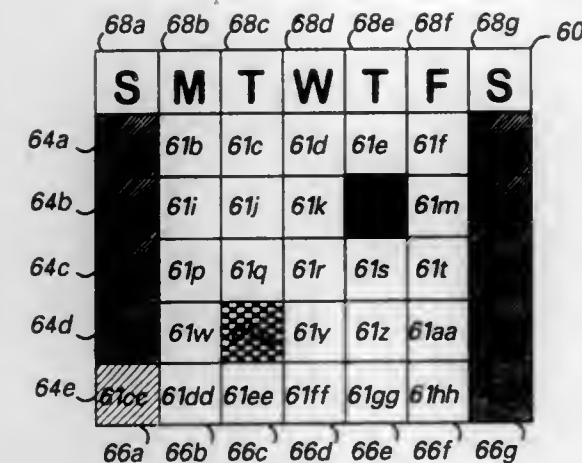
Filed May 22, 1996, Ser. No. 652,732
Int. Cl.⁶ G05B 11/01

U.S. Cl. 364—145

40 Claims

26. In a system including a computer that provides for user input through a graphical user interface, a method for indicating the general schedule of operation of a process over a predetermined period of time, comprising the steps of:

- displaying on said graphical user interface a calendar of days representing said predetermined period of time;
- defining a day class, said day class representing a schedule of operation of said process during a twenty-four hour period;
- assigning each day of said calendar on which said schedule of operation of said process is to be followed to said day class;
- and



depicting each day assigned to said day class differently from other days of said calendar not assigned to said day class.

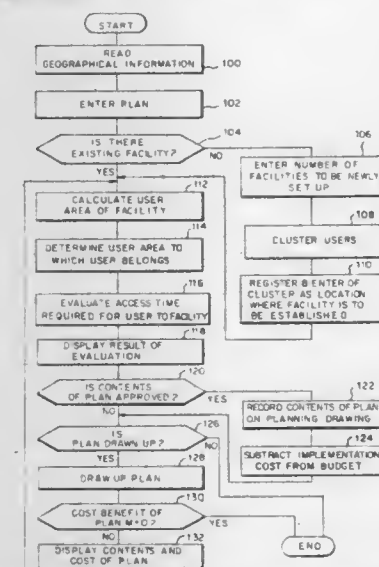
5,805,445

Patent Not Issued For This Number

5,805,446
METHOD FOR FACILITY LOCATION
Tomoko Hatakeyama, Tokyo; Shigeru Kakumoto, Kodaira,
and Takatoshi Kodaira, Musashino, all of Japan, assignors
to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 21, 1995, Ser. No. 517,128
Claims priority, application Japan, Aug. 19, 1994, 6-195117
Int. Cl.⁶ G05B 13/02; G06F 16/00
U.S. Cl. 364—148 26 Claims

26 Claims



1. In an information processing apparatus including a processing device, an input device, an output device and a memory having stored therein geographic information of a region including positional information of existing facilities in said region and positional information of users of said facilities, a method of locating a plurality of facilities in said region such that access times required by said users to access said facilities are within a permissible range, comprising the steps, performed by said information processing apparatus, of:

calculating user areas corresponding to said facilities using said geographic information;

5,805,447

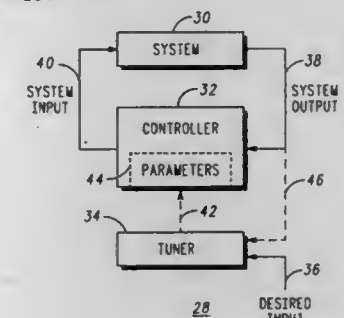
CASCADE TUNING CONTROLLER AND METHOD OF USE THEREFOR

Dan Teng, Wheeling, and Shay-Ping T. Wang, Long Grove,
both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 288,379, Aug. 10, 1994, abandoned.
This application Jun. 24, 1997, Ser. No. 881,433

Int. Cl.⁶ G05B 13/02

U.S. Cl. 364-157

27 Claims



1. In a controller, having a control input, for controlling a system to a desired output, the controlled system having a time dependent system output, the controller generating at least one output based on a polynomial function having an order, a plurality of control coefficients and a corresponding plurality of polynomial terms, a method for tuning the controller, the method comprising:

- calculating a value for each of the plurality of control coefficients by fitting the polynomial function to a plurality of control transfer characteristic data wherein at least one of the polynomial terms includes a controller input raised to a power greater than one to produce an output value greater than the controller input;
- multiplying the values of the control coefficients by a first scaling value;
- computing, over time, an output error signal based on a difference between the time dependent system output and the desired output;
- tuning the first scaling value using a descent-based optimization method to reduce the output error signal; and
- tuning the control coefficients using a descent-based optimization method to reduce the output error signal.

5,805,448

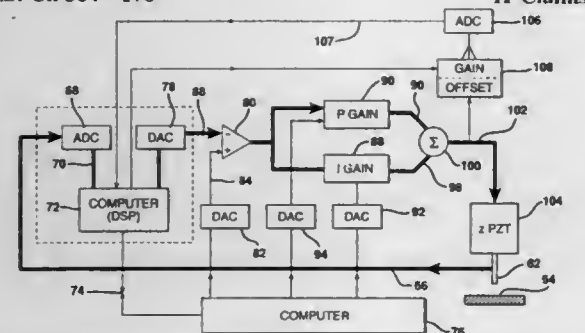
HYBRID CONTROL SYSTEM FOR SCANNING PROBE MICROSCOPES

Stuart M. Lindsay, and Tianwei Jing, both of Tempe, Ariz., assignors to Molecular Imaging Corporation, Phoenix, Ariz. Continuation of Ser. No. 403,239, Mar. 10, 1995, abandoned. This application Feb. 21, 1997, Ser. No. 805,030

Int. Cl.⁶ G01N 23/00; G06F 19/00

U.S. Cl. 364—176

11 Claims



1. A controller for a scanning probe microscope having: (1) a sensor probe tip which is used to generate an analog height signal indicative of the distance between said sensor probe tip and a sample surface under investigation, and (2) a height transducer coupled to said sensor probe for controlling said distance between said sensor probe tip and a sample surface under investigation, said controller comprising:

- a computer for controlling programmable elements of the controller;
- an analog to digital converter having as its input the analog height signal and as its output a digital height signal;
- a programmable digital signal processor under control of said computer for carrying out selected signal processing operations on said digital height signal to form a processed digital height signal;
- a digital to analog converter having as its input said processed digital height signal and as its output a processed analog height signal;
- means for inputting an analog set point signal indicating a desired distance between the sensor probe tip and the sample surface under investigation;
- means for generating an error signal proportional to a difference between said analog set point signal and said processed analog height signal;
- means for integrating said error signal to form an integrated error signal;
- means for adding said integrated error signal to a signal proportional to said error signal to form a transducer control signal;
- means for applying said transducer control signal to the height transducer to control the distance between said sensor probe tip and a sample surface under investigation;
- means for applying a gain and an offset to said transducer signal to form an adjusted transducer signal, said means for applying operating under control of said programmable digital signal processor;
- means for digitizing said adjusted transducer signal to form a digitized adjusted transducer signal; and
- means for applying said digitized adjusted transducer signal to said programmable digital signal processor.

5,805,449

VEHICLE MOTION CONTROL SYSTEM

Ken Ito, Machida, Japan, assignor to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed May 12, 1995, Ser. No. 439,744

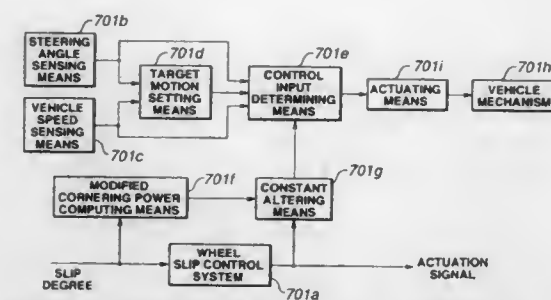
Claims priority, application Japan, Jun. 1, 1994, 6-119772

Int. Cl.⁶ B62D 5/04

U.S. Cl. 364—424.051

34 Claims

1. A vehicle motion control system comprising:



- a wheel slip control system for sensing a wheel slip and controlling a wheel slip degree toward a desired slip degree;
- a steering angle sensing means for sensing a steering input representing a steering angle;
- a vehicle speed sensing means for sensing a vehicle speed;
- a target vehicle motion setting means for receiving a steering input signal representing said steering input and a vehicle speed signal representing said vehicle speed, and determining a desired vehicle motion variable by using a first model which is one of a reference mathematical model representing a desired dynamic characteristic and a vehicle model described by an equation of motion;
- a control input determining means for receiving said steering input, said vehicle speed and said desired motion variable, and determining a control input command to make an actual vehicle motion closer to said desired motion variable by using an inverse vehicle model for an inverse operation of an equation of vehicle motion, said inverse model being determined by vehicle specification data items of a controlled vehicle;
- a modified cornering power determining means for receiving the wheel slip degree detected by said wheel slip control system, and determining a modified value of a cornering power constant which represents a cornering power and which is one of said vehicle specification data items of said controlled vehicle, in accordance with said wheel slip degree;
- a constant altering means for changing said cornering power constant of said control input determining means to said modified value of said cornering power constant in response to an actuation signal of said wheel slip control system; and
- an actuating means for controlling a behavior of said controlled vehicle in accordance with said control input command.

5,805,450

ELECTRONIC IGNITION TIMING CONTROL AND ENGINE MANAGEMENT SYSTEM

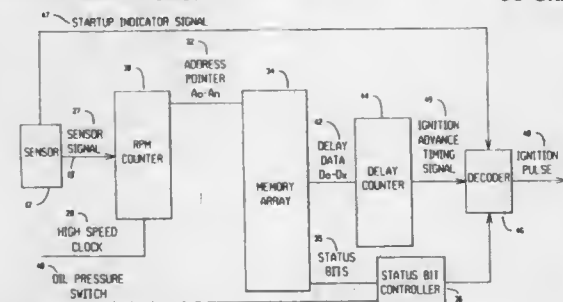
David L. Enlow, Wadsworth; James N. Furukawa, Vernon Hills, both of Ill., and Dale A. Wiegeler, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Feb. 15, 1995, Ser. No. 389,091

Int. Cl.⁶ B60K 41/00

U.S. Cl. 364—431.053

38 Claims



- 1. An electronic ignition and engine management system with anti-lockup and anti-kickback features for use in an internal combustion marine engine of the type which has a crankshaft and an oil pressure lubrication system, the management system comprising: means for measuring the operating speed of the engine and generating an operating speed signal;

- means for generating an ignition advance timing signal from said operating speed signal;
- means for generating a startup indicator signal indicating a rotary position of the engine crankshaft;
- means for initiating a first ignition pulse responsive to said ignition advance timing signal to cause a timer based operation only when said operating speed signal is above a startup mode threshold; and
- means for initiating a second ignition pulse responsive to said ignition startup indicator signal to cause an event based ignition according to the rotary position of said engine crankshaft only when said operating speed signal is not above said startup mode threshold.

5,805,451

ITEM SELECTION AND ITEM LOADING ERROR PROOFING APPARATUS

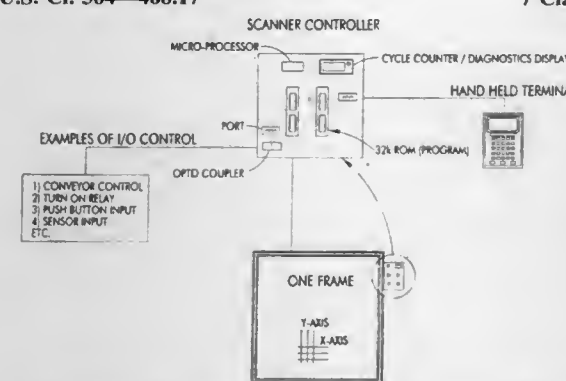
Gary Speas, Little Rock; Kevin Hodges, and Dennis Staggs, both of Russellville, Ark., assignors to Stark Manufacturing, Inc., Russellville, Ark.

Filed Apr. 12, 1996, Ser. No. 631,032

Int. Cl.⁶ G06F 19/00

U.S. Cl. 364—468.17

7 Claims



- 1. Apparatus for sensing completeness of a human operator's selection of components from sources of said components or return of components to said sources in a manufacturing, assembly or like operation, comprising:

- a frame defining a plane for placement between the operator and the sources of said components such that the operator must break said plane to access the sources of said components, said frame having an exterior defined by a first x-axis frame member and a second x-axis frame member spaced apart and oppositely facing the first x-axis frame member, and a first y-axis frame member and a second y-axis frame member spaced apart from and oppositely facing the first y-axis frame member;
- a plurality of light sources disposed on the first x-axis frame member, each such light source for emitting a beam of light substantially parallel to the plane to be received by an opposing sensor disposed on the second x-axis frame member, such that said opposing sensor detects physical interruption of said light beam by the operator when the operator breaks said plane by accessing said source of components;
- wherein each of said light sources and its opposing sensors is assigned to a specific penetration zone representing a segment of said plane such that the interruption of the light beam corresponding to each of said light sources and its opposing sensor occurs when the source behind said penetration zone is accessed by the operator;
- wherein the size of each of said penetration zones is adjustable by changing the number of light sources and opposing sensors assigned to each such penetration zone; and
- PLC means connected to each said sensor for receiving signals therefrom each time one of said light beams is interrupted by the operator's accessing one of said sources, said PLC means further comparing said signals to information recorded in the PLC means as to the correct-

5,805,452

SYSTEM AND METHOD FOR MATERIALS PROCESS CONTROL

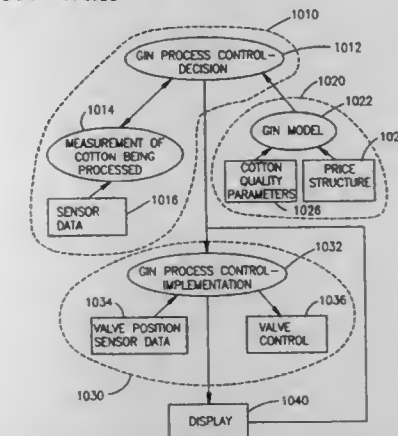
William S. Anthony, Greenville, and Richard K. Byler, Stoneville, both of Miss., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 1, 1996, Ser. No. 691,069

Int. Cl.⁶ G06F 19/00

U.S. Cl. 364—470.13

31 Claims



- 1. A computer program product comprising a computer useable medium having computer program logic recorded thereon for enabling a processor in a computer system to control the processing of cotton through a gin to produce lint, said computer program logic comprising:

- measuring means for enabling the processor to measure sensor data that correspond to color, moisture content, and trash content of the cotton as it enters the gin;
- gin decision matrix generating means for enabling the processor to generate a gin decision matrix that includes optimum process control decisions that maximize net return from the lint as a function of input state of the cotton entering the gin;
- gin process control decision means for enabling the processor to select an optimum process control decision from said gin decision matrix for an input state corresponding to said sensor data, wherein said optimum process control decision corresponds to an optimum gin machine sequence for cotton having said input state corresponding to said sensor data, said optimum gin machine sequence having a first portion and a second portion;
- predicting means for enabling the processor to compute and store predicted values for color, moisture content, and trash content for the cotton after processing through said first portion of said optimum gin machine sequence; and
- gin process control implementation means for enabling the processor to implement said optimum process control decision by routing cotton through said optimum gin machine sequence.

5,805,453

SYSTEM IDENTIFIER FOR PAPER MACHINE

Takashi Sasaki, Tokyo, Japan, assignor to Yokogawa Electric Corporation, Tokyo, Japan

Filed Sep. 23, 1996, Ser. No. 717,867

Claims priority, application Japan, Jul. 12, 1996, 8-183395

Int. Cl.⁶ G06F 19/00; G06G 7/64; 7/66

U.S. Cl. 364—471.02

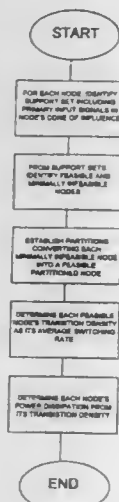
10 Claims

- 1. A system identifier for a paper machine having a plurality of operated ends provided in a direction of a width of a paper and a detected end having a plurality of measuring points located in a

ting utility usage data from said plurality of network interface means to said host computer, said distribution network being implemented within one or more time slots of a time-division multiplexed data stream carried by a high-speed digital bus, said one or more time slots; carrying data in packet form, all network interface means of said distribution network sharing said one or more slots.

5,805,459
METHOD OF MEASURING ACTIVITY IN A DIGITAL CIRCUIT
Bhanu Kapoor, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Apr. 24, 1995, Ser. No. 427,339
Int. Cl.⁶ G06F 15/00; 1/26
U.S. Cl. 364—489

1 Claim



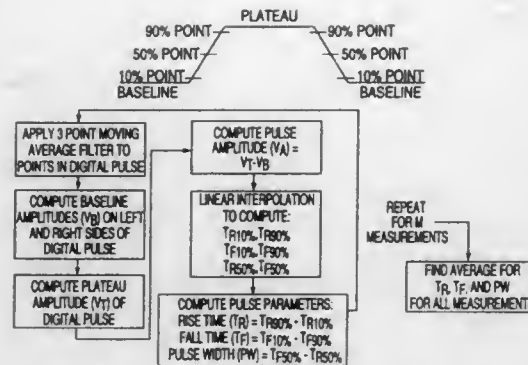
1. A method of measuring power dissipation in a digital circuit of elements connected between a set of nodes, comprising the steps of:

- identifying, for each node a corresponding support set of the node including primary input signals in a cone of influence of the node;
- identifying, in response to the support sets, nodes that are feasible and minimally infeasible;
- establishing around each minimally infeasible node a corresponding partition converting the minimally infeasible node into a feasible partitioned node;
- determining a transition density for each feasible node in response to said establishing step, the transition density being an average switching rate determined at each feasible node; and
- determining a power dissipation at each node in response to the transition density.

5,805,460
METHOD FOR MEASURING RF PULSE RISE TIME, FALL TIME AND PULSE WIDTH
Elliott J. Greene, Union, and Pei-Hwa Lo, Ramsey, both of N.J., assignors to AlliedSignal Inc., Morristown, N.J.
Continuation of Ser. No. 327,076, Oct. 21, 1994, abandoned.
This application Jun. 13, 1997, Ser. No. 874,001
Int. Cl.⁶ G01R 29/02
U.S. Cl. 364—486

4 Claims

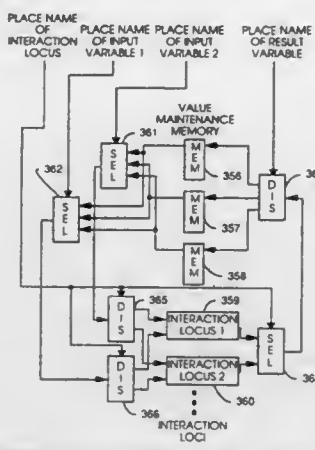
1. A method for measuring pulse characteristics of a pulsed RF signal comprising:
- (a) down converting said pulsed RF signal to an intermediate pulse stream signal having an intermediate frequency;
 - (b) sampling said down converted signal over a selected number of cycles at a selected sampling frequency such that the



- intermediate frequency is greater than 50% of the sampling frequency, but less than the sampling frequency whereby the sampling collects a data set comprising one or two data points per cycle of the intermediate frequency wherein said data set represents a single pulse;
- (c) collecting multiple data sets;
 - (d) collecting within each of said data sets, data points before, during and after each pulse;
 - (e) averaging said data sets to obtain a sample pulse envelope comprising baseline points, a rising edge, a pulse plateau and a falling edge; and
 - (f) calculating one or more of said pulse characteristics consisting of rise time, fall time and pulse width.

5,805,461
METHOD AND SYSTEM FOR PROCESS EXPRESSION AND RESOLUTION
Karl M. Fant, and Scott A. Brandt, both of Minneapolis, Minn., assignors to Theseus Research, Inc., Minneapolis, Minn.
Continuation of Ser. No. 296,809, Aug. 26, 1994, Pat. No. 5,572,732, which is a continuation of Ser. No. 837,641, Feb. 14, 1992, Pat. No. 5,355,496. This application Aug. 14, 1996, Ser. No. 698,237
Int. Cl.⁶ G06F 17/50
U.S. Cl. 364—488

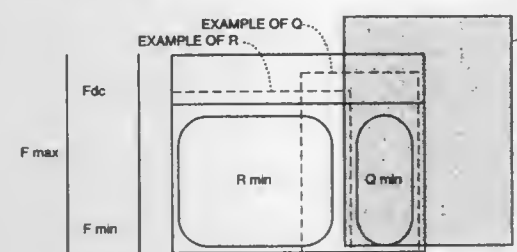
16 Claims



1. A method for process resolution given an active character string and a definition character string, the method comprising the steps of:
- (a) searching the active character string for invocations having validly formed input data names;
 - (b) locating a definition string corresponding to the invocation;
 - (c) copying an association list of the definition string and a phrase of the definition string into the active character string;
 - (d) replacing formalrefs in a phrase of the definition character string with associated actuals from the invocation; and
 - (e) forming a result character string by returning a result to a resultref of the invocation.

5,805,462
AUTOMATIC SYNTHESIS OF INTEGRATED CIRCUITS EMPLOYING BOOLEAN DECOMPOSITION
Frank Poirot, Antibes, France; Ramine Roane, Sunnyvale, Calif., and Gerard Tarroux, Villeneuve Loubet, France, assignors to VLSI Technology, Inc., San Jose, Calif.
Filed Aug. 18, 1995, Ser. No. 516,847
Int. Cl.⁶ G06F 17/50; 17/10
U.S. Cl. 364—490

10 Claims



1. In a method of automatic synthesis of an integrated circuit, comprising the steps, performed by a programmed machine, of storing a Boolean expression which expresses a combinatorial part of the said integrated circuit, factorizing the Boolean expression and mapping the factorized Boolean expression into a representation of said integrated circuit in hardware terms, the improvement wherein said step of factorizing comprises:

- (a) computing a zero-suppressed binary decision diagram (ZBDD) unique to and representing the Boolean expression;
- (b) computing, from said ZBDD, selected candidates divisors of said expression; and
- (c) decomposing said Boolean expression by implicit Boolean division of said expression by said selected candidate divisors, said decomposing comprising computing implicitly a quotient Q by (i) computing maximum and minimum bounds of a remainder R and (ii) computing maximum and minimum bounds of said quotient Q in accordance with said remainder, wherein said maximum and minimum bounds of said remainder R are computed respectively as the maximum bound of a function F and as the product of the minimum bound of the function F within said Boolean expression and the complement of at least one said candidate divisor and wherein said maximum and minimum bounds of said quotient are computed respectively as the product of the minimum bound of said function F and the complement of said remainder and as the sum of the maximum bound of said function and the complement of said remainder.

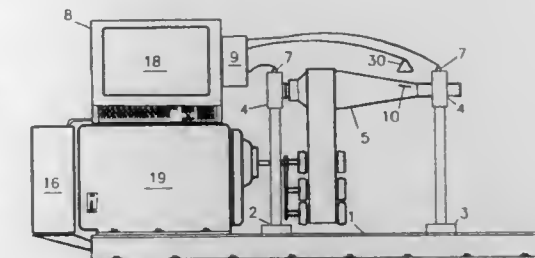
5,805,463

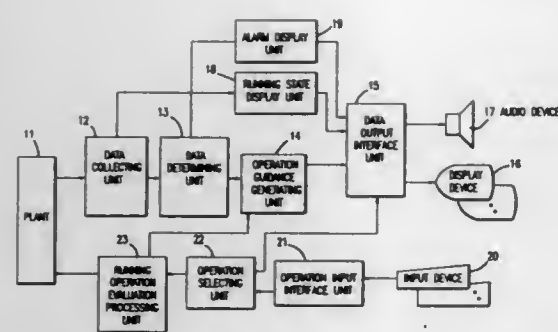
Patent Not Issued For This Number

5,805,464
DYNAMIC BALANCER ELECTRONIC ANGLE FINDER
Wayne B. Cameron, Tonawanda; Roger J. Morella, Jr., East Aurora; Aaron C. Clarke, Lockport, and Daniel J. Pillsbury, N. Tonawanda, all of N.Y., assignors to Dynamics Research Corp., Tonawanda, N.Y.
Filed Jun. 15, 1995, Ser. No. 490,751
Int. Cl.⁶ G01M 1/38
U.S. Cl. 364—508

20 Claims

18. A method of balancing a work piece, including the steps of:
- 1) energizing a motor;
 - 2) coupling the rotational force of said motor to said work piece whereby said work piece is rotated;
 - 3) monitoring the angular velocity of said work piece using an incremental encoder which produces a train of pulses;





an operation selecting unit for outputting operation contents selected by the operator according to said guidance; and an operation evaluation unit for comparing data representing the operation contents outputted by said operation selecting unit as selected by the operator and for evaluating that the operation contents selected by the operator are correct when correspondence is obtained between said data representing the operation contents of said guidance and said data representing the operation contents outputted by said operation selection unit as selected by the operator, and for sending the operation contents selected by the operator as control output when said operation contents are evaluated as correct based on said correspondence.

5,805,466

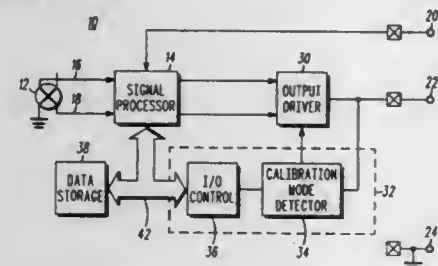
DEVICE AND METHOD FOR CALIBRATING A SIGNAL
William J. Roekner, Carpentersville, and Timothy T. Rueger, Rolling Meadows, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Nov. 27, 1996, Ser. No. 757,178

Int. Cl.⁶ G01N 7/00

U.S. Cl. 364—558

14 Claims



1. An electronic device having at least an output terminal comprising:
a signal processor receiving an input signal requiring calibration;
a data storage device providing calibration data to the signal processor;
a calibration controller allowing the calibration data to be written to the data storage device across at least the output terminal; and
wherein the signal processor produces a calibrated output signal to the output terminal.

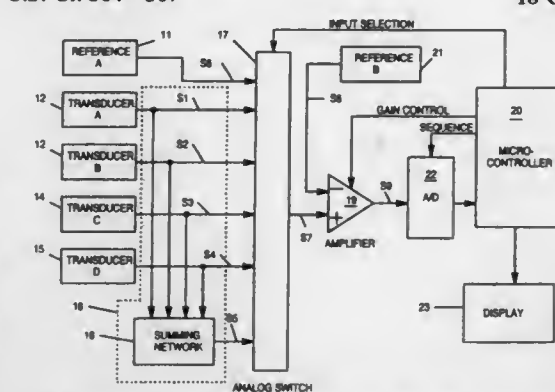
WEIGHT MEASURING METHOD USING A PLURALITY OF SENSORS

James L. Richards, 58 Boning Rd., Fayetteville, Tenn. 37334
Division of Ser. No. 674,343, Jul. 2, 1996, Pat. No. 5,724,267.
This application Jul. 11, 1997, Ser. No. 893,406

Int. Cl.⁶ G01G 9/00

U.S. Cl. 364—567

18 Claims



1. A method of increasing the output rate of a scale system which multiplexes among a plurality of sensors comprising the following steps:

- (1) producing a set of sensor signals from a plurality of load sensors;
- (2) generating an approximate weight estimate signal based at least in part on the sensor signals;
- (3) sampling the approximate weight signal and the sensor signals according to a prescribed sampling sequence wherein the approximate weight signal is sampled more frequently than at least one of the sensor signals;
- (4) converting the sampled signals to digital representations;
- (5) processing the digital representations of the sensor signals and the approximate weight signal together with a system error model to derive a corrected weight value;
- (6) outputting the corrected weight in association with the sampling of the approximate weight signal.

5,805,468

METHOD AND APPARATUS FOR DETERMINING THE LIGHT TRANSIT TIME OVER A MEASUREMENT PATH ARRANGED BETWEEN A MEASURING APPARATUS AND A REFLECTING OBJECT

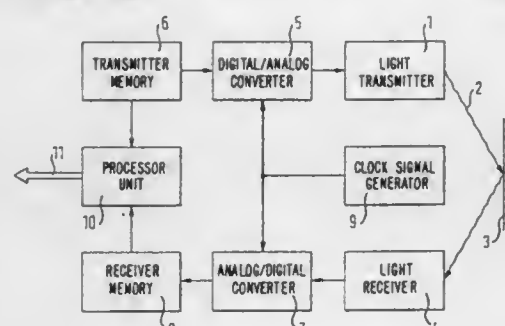
Frank Blöbbaum, Freiburg, Germany, assignor to Erwin Sick GmbH Optik-Elektronik, Waldkirch/Breisgau, Germany
Filed May 7, 1996, Ser. No. 646,422

Claims priority, application Germany, May 9, 1995, 195 17 001.6

Int. Cl.⁶ G04F 10/00; G01C 3/08

U.S. Cl. 364—569

14 Claims



1. A method for determining the light transit time along a measurement path arranged between a measuring apparatus and a reflecting object, wherein a light transmitter contained in the measuring apparatus sends a modulated light signal $s(t)$ along the measurement path, which is received by a light receiver contained

in the measuring apparatus, is converted into a received signal $e(t)$ and is evaluated in the measuring apparatus, wherein

the light signal $s(t)$ to be transmitted is stored in the form of digital values in a transmitter memory; wherein the stored digital values are sequentially read out and supplied to a digital/analog converter acted on by a clock signal and controlling the light transmitter; wherein the received signal $e(t)$ is supplied to an analog/digital converter acted on by the identical clock signal; wherein the values delivered by the analog/digital converter are deposited in a receiver memory; wherein a correlation function $k(t)$ is formed between the signals $s(t)$ and $e(t)$ stored in the transmitter memory and in the receiver memory; wherein a maximum $K_{max}=k(t_{max})$ of the correlation function $k(t)$ is found; and wherein a polynomial $p(t)$ is derived, the spacing of which from the correlation function $k(t)$ in the region of K_{max} is a minimum, and whose maximum $P_{max}=p(t_{max/pol})$ is determined, with $t_{max/pol}$ to the transit time to be determined.

5,805,469

DIGITAL AUDIO SIGNAL PROCESSING APPARATUS AND METHOD FOR ERROR CONCEALMENT

Ichiro Okamoto, Tokyo; Kazuhiko Ozawa; Isao Miyai, both of Kanagawa, and Shinji Nakamura, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

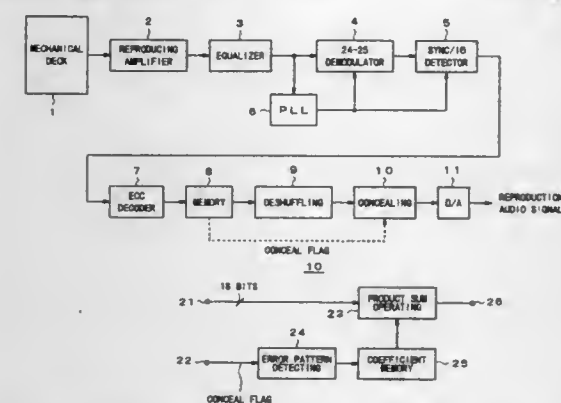
Filed Nov. 21, 1996, Ser. No. 754,676

Claims priority, application Japan, Nov. 30, 1995, 7-335938

Int. Cl.⁶ G06G 7/30

U.S. Cl. 364—577

22 Claims



1. An apparatus for determining an interpolated value for an audio data error sample of a digital audio signal representing a plurality of audio data samples, said apparatus comprising:

- means for detecting an error pattern representing a number of audio data samples including said audio data error sample; and
- means, responsive to the detected error pattern, for selecting an interpolating equation of an n th degree (where $n=1, 2, 3, \dots$) and for obtaining said interpolated value for said audio data error sample on the basis of the selected interpolating equation.

5,805,470

VERIFICATION OF INSTRUCTION AND DATA FETCH RESOURCES IN A FUNCTIONAL MODEL OF A SPECULATIVE OUT-OF-ORDER COMPUTER SYSTEM
Gregory S. Averill, Fort Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

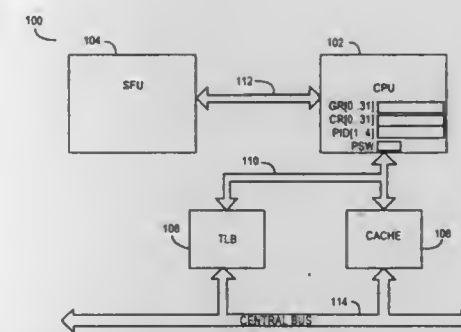
Filed Oct. 10, 1996, Ser. No. 728,468

Int. Cl.⁶ G06F 9/455

U.S. Cl. 364—578

12 Claims

1. A computer-based test system for verifying the correct behavior of instruction and data fetches and the order in which instruction fetch resources and data fetch resources of a computer architecture under test are modified, said computer architecture under



test defined by high-level architectural specifications and speculative and/or out-of-order instruction execution behavior, said test system comprising:

an architectural model, which models said high-level architectural requirements of said computer architecture under test and comprises architectural model instruction fetch resources and architectural model data fetch resources, said architectural model receiving and executing a stream of instructions in natural program order;

a behavioral model which models said high-level architectural requirements of said computer architecture and comprises behavioral model instruction fetch resources and behavioral model data fetch resources which simultaneously receives said stream of instructions in said natural program order and executes said instructions according to said defined speculative and/or out-of-order instruction execution behavior;

an instruction fetch resource event queue in which an instruction fetch resource event having a corresponding timestamp is stored whenever a currently-executing instruction in said behavioral model modifies said behavioral model instruction fetch resources;

a data fetch resource event queue in which a data fetch resource event having a corresponding timestamp is stored whenever a currently-executing data access instruction in said behavioral model modifies said behavioral model data fetch resources, and a synchronizer which matches and verifies changes to said instruction fetch resources and said data fetch resources of said behavioral model with changes to said instruction fetch resources and said data fetch resources of said architectural model;

wherein:

upon detection of a fetch instruction event by said behavioral model, each of said instruction fetch resource events stored in said instruction fetch resource event queue which have a corresponding timestamp earlier than a fetch instruction event timestamp corresponding to said fetch instruction event are applied to said architectural model in timestamp order; and
upon detection of a data access request event by said behavioral model each of said data fetch resource events stored in said data fetch resource event queue which have a corresponding timestamp earlier than a data access request event timestamp corresponding to said data access request event are applied to said architectural model in timestamp order.

5,805,471

DRIVER BOARD APPARATUS HAVING SRAM AND BURN-IN SYSTEM AND METHOD USING HOST COMPUTER

Sergey Yakubov, Fremont; Aljaz M. Khan, Santa Clara; Penikalapati Ravendranath, San Jose; K. Prakash, Fremont; Michael Eliashberg, San Jose, and Major Singh, Sunnyvale, all of Calif., assignors to Pycon, Inc., Santa Clara, Calif.

Continuation of Ser. No. 332,916, Nov. 1, 1994, abandoned.

This application Oct. 15, 1996, Ser. No. 730,964

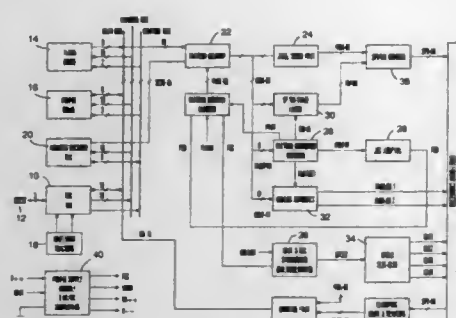
Int. Cl.⁶ G06F 17/00

U.S. Cl. 364—579

12 Claims

1. A driver board for use in burn-in testing of semiconductor devices using test (DUTS) patterns which comprises:

- (a) an input/output module having at least one special pulse channel for output of test patterns to a semiconductor device



under test (DUT) and input to the driver board of data received from the DUT in response to the test pattern, the input/output module communicating with the DUT through an edge connector assembly;

- (b) a memory module comprising (i) at least one SRAM device for storing test pattern data and (ii) a pattern decoder for extracting command data from the test pattern data, for generating a control signal for reset of pattern address and for tristating the special pulse channel;
- (c) a CPU module for communication with a host computer to receive and execute commands and test patterns from the host computer, to write test patterns into the memory module, and to track VDRV;
- (d) a timing module for generating a master clock for all DUTs and to generate the addresses for the memory module;
- (e) a decoding PAL module for decoding addresses from the CPU module to generate semiconductor device select signals to be used by the CPU module; and
- (f) a power supply module for powering the logic and memory devices on the driver board,

wherein the board outputs a test pattern through the input/output module to a DUT, and wherein the input/output module receives data from the DUT which is measured for a correct logic state at each cycle within the data pattern.

5,805,472

TEST HANDLER FOR SEMICONDUCTOR DEVICES

Yoshihito Fukasawa, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

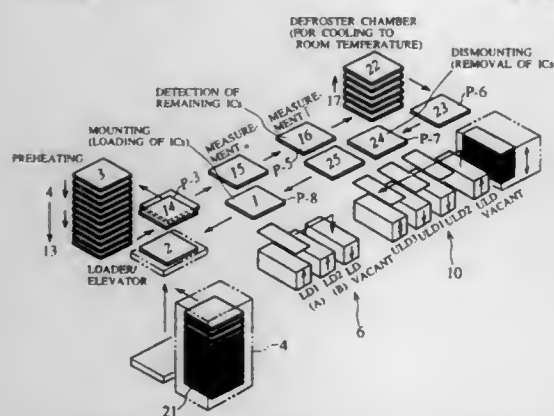
Filed Feb. 24, 1997, Ser. No. 804,917

Claims priority, application Japan, Feb. 27, 1996, 8-040017

Int. Cl.⁶ G06F 7/10; G01R 31/28

U.S. Cl. 364—579

6 Claims



1. A test handler for semiconductor devices operating with steps of loading a plurality of product ICs to be tested on test trays in a loading section, transferring the test trays with the product ICs to a testing section for testing the product ICs and moving the test trays with the tested product ICs to a sorting section for sorting the product ICs according to the test result, the test handler comprising:

test trays provided with respective identification codes specific to them to make them discriminable from any other test trays;

reading means arranged respectively at given control sites on the test tray transfer route in the test handler for reading the identification codes of the test trays passing there; and control means including a control table for storing and controlling the identification codes read by said reading means along with data on the control sites for reading the identification codes of test trays and the product ICs loaded on the test trays carrying the detected identification codes and adapted to display the contents of said control table on a monitor screen, centrally control the data on the individual test trays obtained at the individual control sites and those on the product ICs and control to start the operation of loading a succeeding lot before the completion of the operation of unloading a preceding lot based on said control table in which the identification codes at the individual control sites are stored.

5,805,473

PCMCIA VOLTAGE LOSS DETECTION

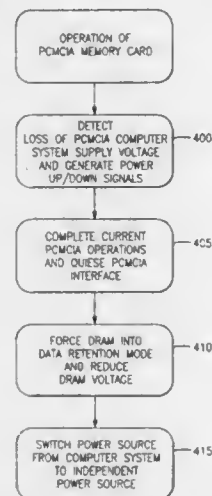
Scott Jeffrey Hadderman, Pleasant Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 30, 1995, Ser. No. 521,498

Int. Cl.⁶ G06F 1/00; G11C 7/00

U.S. Cl. 364—707

7 Claims



1. An apparatus for use with a computer system having a PCMCIA interface, said apparatus removably coupled to said computer system for detecting and reporting a loss in a supply voltage from a PCMCIA power source across said PCMCIA interface to another apparatus capable of operating at a lower voltage level than a normal voltage level for said PCMCIA power source, said apparatus providing a first operating supply voltage to said other apparatus and initiating the provision of an alternate lower operating voltage to said other apparatus from an alternate power source in response to said loss of said supply voltage from said PCMCIA power source, said apparatus comprising:

a rate controller removably coupled to said PCMCIA interface for receiving said supply voltage from said PCMCIA power source across said PCMCIA interface and for providing a controlled reduction of a supplemental supply voltage to a comparator, by storing the supplemental supply voltage and by providing to said comparator successively declining voltage levels of said stored supplemental supply voltage in response to said loss of said supply voltage, said rate controller providing said first operating supply voltage to said other apparatus for a period of time in response to said loss of said supply voltage, said controlled reduction of said supplemental supply voltage extending the period of time during which the first operating supply voltage is provided to said other apparatus in response to said loss of said supply voltage; and

said comparator coupled to said rate controller for receiving and comparing said successively declining voltage levels of said stored supplemental supply voltage from said rate controller to a predetermined reference voltage, and for generating an indication if one of said received successively declining voltage levels from said rate controller is below said predetermined reference voltage said indication signalling the loss of the supply voltage from said PCMCIA power source and initiating a sequence of operations for the provision of the alternate lower operating voltage to said other apparatus from said alternate power source; wherein the extending of the period of time during which the first operating supply voltage is provided to said other apparatus by said rate controller in response to said loss of said supply voltage provides time for the performance of said sequence of operations.

5,805,474

PORTABLE WORK STATION TYPE-DATA COLLECTION SYSTEM HAVING AN IMPROVED HANDGRIP AND AN OPTICAL READER TO BE DIRECTED THEREBY

Arvin D. Danielson, Solon; Darald R. Schultz, Cedar Rapids, both of Iowa; Dennis Silva, San Jose, Calif.; Darrell L. Boatwright, Cedar Rapids, Iowa; Rickey G. Austin, Lisbon, Iowa; Daniel E. Alt, Cedar Rapids, Iowa, and Steve Darren Friend, Felton, Calif., assignors to Norand Corporation, Cedar Rapids, Iowa

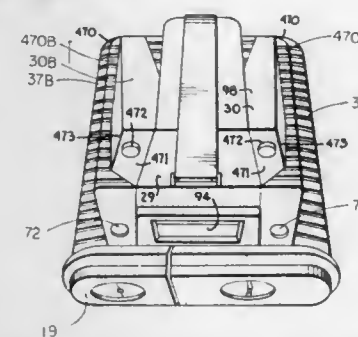
Continuation-in-part of Ser. No. 226,516, Apr. 12, 1994, Pat. No. 5,488,575, Ser. No. 307,950, Sep. 16, 1994, abandoned, and Ser. No. 309,003, Sep. 19, 1994, abandoned, Ser. No. 192,525, Feb. 4, 1994, Pat. No. 5,418,684, and Ser. No. 777,393, Jan. 7, 1992, Pat. No. 5,410,141, which is a continuation-in-part of Ser. No. 364,902, Jun. 8, 1989, abandoned, said Ser. No. 226,516, Ser. No. 307,950, and Ser. No. 309,003, each is a continuation-in-part of Ser. No. 48,873, Apr. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 23,840, Feb. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 728,667, Jul. 11, 1991, abandoned, said Ser. No. 307,950 and Ser. No. 309,003, each is a continuation-in-part of Ser. No. 226,516, said Ser. No. 192,525 is a continuation of Ser. No. 17,049, Feb. 12, 1993, abandoned, which is a continuation of Ser. No. 633,500, Dec. 26, 1990, Pat. No. 5,202,817, which is a continuation-in-part of Ser. No. 626,511, Dec. 12, 1990, abandoned, which is a continuation-in-part of Ser. No. 364,902. This application Feb. 16, 1995, Ser. No. 389,830

Claims priority, application WIPO, Feb. 28, 1994, PCT/US94/02091

Int. Cl.⁶ G06F 1/16

U.S. Cl. 364—708.1

188 Claims



1. A portable data collection terminal system comprising:

- (a) a housing having, in a frontal side thereof, a display screen with a screen area having a boundary area thereabout with an overall width, said display screen including graphic data input means disposed within said screen area;
- (b) an accessory pod, connected to said housing;
- (c) an accessory device of said system associated with said accessory pod;
- (d) a handgrip extension mechanism having a width dimensioned substantially less than the overall width of said boundary area and disposed on said housing, opposite said frontal

side, such that said screen is shielded from accidental contact by a user when holding said handgrip extension mechanism; (e) a handstrap secured to said terminal system so as to, cooperatively with the handgrip extension mechanism, facilitate holding said terminal system; (f) at least one activation switch adapted to activate said accessory device, and arranged for actuation by the hand gripping said handgrip extension mechanism; and (g) wherein said accessory device is an automatic optical reader which is arranged so as to be directed toward indicia to be read by means of the hand gripping said handgrip extension mechanism.

5,805,475

LOAD-STORE UNIT AND METHOD OF LOADING AND STORING SINGLE-PRECISION FLOATING-POINT REGISTERS IN A DOUBLE-PRECISION ARCHITECTURE

Michael Putrino, and Lee E. Eisen, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

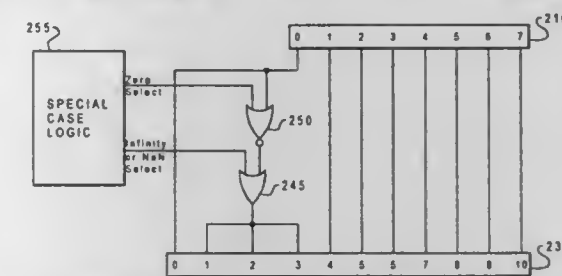
Continuation of Ser. No. 386,979, Feb. 10, 1995, abandoned.

This application Mar. 11, 1997, Ser. No. 816,067

Int. Cl.⁶ G06F 7/00; 7/38

U.S. Cl. 364—715.03

21 Claims



1. A load-store unit for storing and loading from/to single-precision floating-point registers in a double-precision software architecture, wherein a single-precision floating-point number has a sign bit, an exponent having a high-order bit and lower order bits, and a mantissa, the load-store unit comprising:

means for receiving a single-precision floating-point number from a single-precision floating-point register in response to a double-precision store instruction and for concatenating a suffix to the mantissa of the received single-precision floating-point number such that a resulting mantissa having the concatenated suffix is a double-precision floating-point mantissa; Special-Case logic that determines if the single-precision floating-point number is a special case number and generates special case signals indicating said determination; and prefix generation circuitry that generates a prefix as a function of both the high-order bit and the special case signal; and means for concatenating said prefix with said lower order bits to form a double-precision floating-point exponent.

5,805,476

VERY LARGE SCALE INTEGRATED CIRCUIT FOR PERFORMING BIT-SERIAL MATRIX TRANSPOSITION OPERATION

Kyeoun Soo Kim; Soon Hwa Jang, and Soon Hong Kwon, all of Taejeon, Rep. of Korea, assignors to Korea Telecommunications Authority, Seoul, Rep. of Korea

Filed Nov. 1, 1996, Ser. No. 742,342

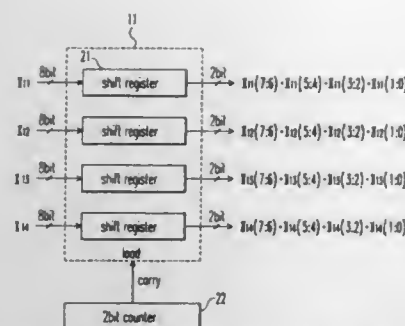
Claims priority, application Rep. of Korea, Nov. 1, 1995, 95-39153

Int. Cl.⁶ G06F 7/00; 17/14

U.S. Cl. 364—715.011

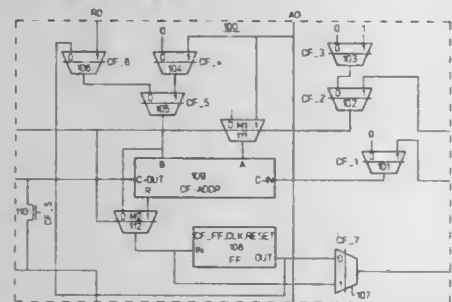
7 Claims

1. A very large scale integrated circuit for performing a bit-serial matrix transposition operation, comprising: input shift register means for inputting N multiplied results of two N×N matrixes in the unit of k bits and outputting them in the unit of k/N bits in response to a load signal;



bit-serial transposition means for selecting k/N -bit data from said input shift register means in response to a switching control signal;
output multiplexer means for selecting k/N -bit data from said bit-serial transposition means in response to the switching control signal; and
output register means for inputting output data from said output multiplexer means in the unit of k/N bits and outputting N data in the unit of k bits.

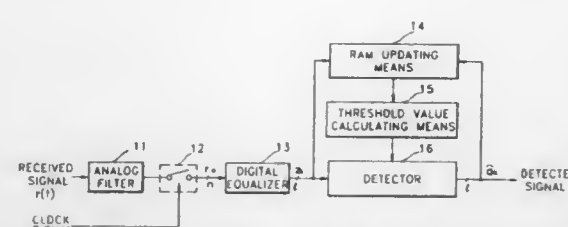
5,805,477
ARITHMETIC CELL FOR FIELD PROGRAMMABLE DEVICES
Frederick A. Perner, Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Sep. 26, 1996, Ser. No. 718,849
Int. Cl.⁶ G06F 7/38; 7/52
U.S. Cl. 364—716.03



1. An arithmetic cell for a programmable device, the cell comprising:
an adder;
a first multiplexer;
a second multiplexer; and
a steering logic configurable to perform a multiplication operation,
wherein the first and second multiplexers cooperate to perform a test on an active bit of a multiplier input to the adder, and if the active bit of the multiplier is a "1", a multiplicand input to the adder is added to a partial product and the resultant partial product is then shifted,
however, if the active bit of the multiplier is a "0", the resultant partial product is shifted without adding.

5,805,478
DATA DETECTION METHOD AND APPARATUS IN DATA STORAGE DEVICE
Yung-soo Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Jun. 14, 1996, Ser. No. 663,745
Claims priority, application Rep. of Korea, Jun. 17, 1995, 95-16156

Int. Cl.⁶ G06F 17/10
U.S. Cl. 364—724.2
1. A data detection method of a data storage device for detecting symbol data \hat{a}_k from an equalization signal z_k when a digital signal r_k is obtained by sampling a signal $r(t)$ which is obtained by



transmitting via a channel or recording on a recording medium) a train of binary symbols a_k where k is an integer, the equalization signal z_k is obtained by equalizing the digital signal r_k , said method comprising the steps of:

- (a) detecting the symbol data \hat{a}_k by selecting one among threshold values $T[a_{k-1}^{k-N}]$ using a previous symbol sequence a_{k-1}^{k-N} and comparing said equalization signal z_k with the selected threshold value;
- (b) updating a value $(1-\mu)G[a_{k-1}^{k-N-1}] + \mu z_{k-1}$, obtained by multiplying a value $G[a_{k-1}^{k-N-1}]$ of a RAM read using data sequence a_{k-1}^{k-N-1} as an address by a first coefficient $1-\mu$ and the equalization signal z_{k-1} by a second coefficient μ , respectively, and adding both multiplied results, to a value $G[a_{k-1}^{k-N-1}]$ of an address a_{k-1}^{k-N-1} of the RAM; and
- (c) from the updated RAM value output from said step (b) and the data sequence a_{k-1}^{k-N} , calculating a threshold value $T[a_{k-1}^{k-N}]$ used in detecting the symbol data \hat{a}_k in said step (a) according to an expression (1) when $a_{k-1} = a_{k-2}$,

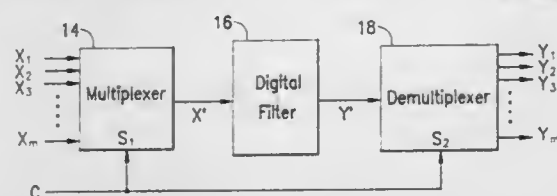
$$T[a_{k-1}^{k-N}] = \frac{G[a_{k-1}, a_{k-1}, b_{k-1}^{k-N}] + G[a_{k-1}, a_{k-1}, b_{k-1}^{k-N}]}{2} \quad (1)$$

otherwise, according to an expression (2),

$$T[a_{k-1}^{k-N}] = \frac{G[a_{k-1}, a_{k-1}, b_{k-1}^{k-N}] + G[a_{k-1}, a_{k-1}, b_{k-1}^{k-N+1}]}{2} \quad (2)$$

wherein "N" is an arbitrary value greater than 1 and symbol height_{k-1} has the inverse value of symbol a_{k-1} .

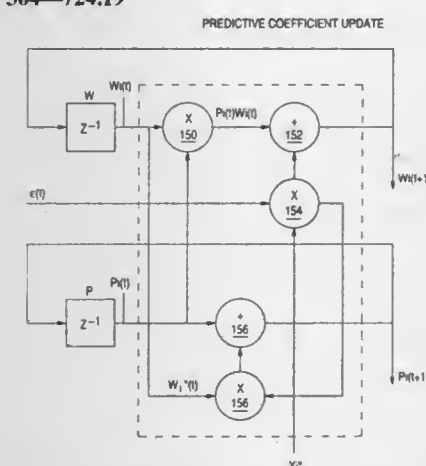
5,805,479
APPARATUS AND METHOD FOR FILTERING DIGITAL SIGNALS
Alex Tang, Hsinchu, Taiwan, assignor to United Microelectronics Corp., Hsinchu, Taiwan
Filed Sep. 25, 1995, Ser. No. 533,531
Int. Cl.⁶ G06F 17/10
U.S. Cl. 364—724.13



1. A digital filter for receiving m input signals and a control signal, and for performing a certain filtering function, wherein m is an integer greater than 1, said digital filter comprising:
a multiplexer receiving said m input signals, for outputting a sample signal selected from said m input signals decided by said control signal;
a multiplexing digital filter receiving said sample signal, for performing said certain filtering function and outputting a filtered sample signal; and
a demultiplexer receiving said filtered sample signal, for outputting said filtered sample signal to one of m terminals of said demultiplexer with respect to said sample signal decided by said control signal, wherein said multiplexing digital filter comprises:
 n pipeline registers serially connected, each pipeline register holding its input signal m delay time;

n feedback multipliers, receiving n output signals of said n pipeline registers and multiplying said n output signals by feedback coefficients;
a first adder, receiving said sample signal and output signals of said n feedback multipliers and outputting an input signal to the first one of said n pipeline registers;
 $n+1$ forward multipliers, receiving input signals of said n pipeline registers and an output signal of the n -th one of said n feedback multipliers, multiplied by forward coefficients, respectively; and
a second adder, receiving output signals of said $n+1$ forward multipliers and outputting said filtered sample signal.

5,805,480
ROTATIONALLY PREDICTIVE ADAPTIVE FILTER
Craig B. Greenberg, Sunnyvale, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Jul. 3, 1997, Ser. No. 887,521
Int. Cl.⁶ G06F 17/00
U.S. Cl. 364—724.19

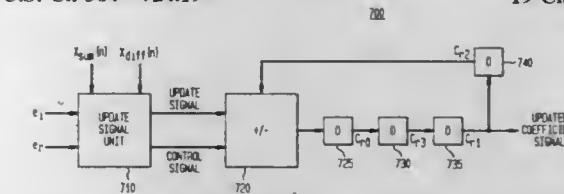


1. A method of iteratively updating the coefficients of an adaptive filter to compensate a received signal for the effects of a time dispersive channel, the method comprising:
storing a first set of adaptive filter coefficients in a storage element;
representing a coefficient update equation for the adaptive filter by the form

$$W_i(t+1) = P_i(t) * W_i(t) + \mu_i e_i^*,$$

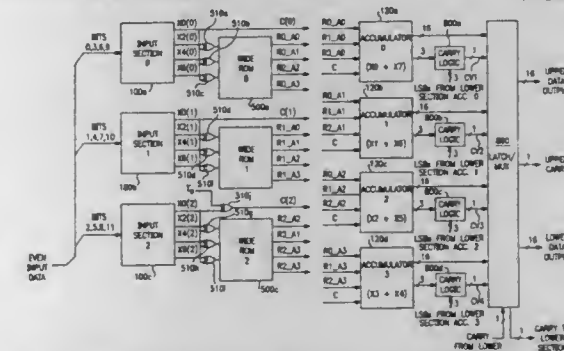
where $W_i(t+1)$ is an updated value of an adaptive filter coefficient, $W_i(t)$ is a current value of the adaptive filter coefficient, $P_i(t)$ is a term having a magnitude substantially equal to one which causes $W_i(t+1)$ to cycle through a set of values, μ_i is a first adaptation constant, e_i is an error term, and X_i^* is the complex conjugate of the i th element of a signal input to the equalizer;
generating a second set of updated adaptive filter coefficients by applying the coefficient update equation, where the first set of coefficients corresponds to the $W_i(t)$ terms of the update equation and the second set of coefficients corresponds to the $W_i(t+1)$ terms of the update equation; and
storing the second set of adaptive filter coefficients in the storage element.

5,805,481
UPDATE BLOCK FOR AN ADAPTIVE EQUALIZER FILTER CONFIGURATION CAPABLE OF PROCESSING COMPLEX-VALUED COEFFICIENT SIGNALS
Kalavai Janardhan Raghunath, Chatham, N.J., assignor to Lucent Technologies, Inc., Murray Hill, N.J.
Filed Dec. 28, 1995, Ser. No. 581,635
Int. Cl.⁶ G06F 17/10
U.S. Cl. 364—724.19



1. An update block for an adaptive equalizer filter configuration comprises:
an update signal unit and an adder unit;
said update signal unit and said adder unit being coupled so as to have the capability to update a coefficient signal for an equalizer filter provided to said adder unit;
said update signal unit being adapted to provide to said adder unit an update signal based, at least in part, on at least one of a first and second externally-derived signal, the first and second externally-derived signals respectively comprising the sum and difference of a real-valued and an imaginary-valued signal component of an input signal sample of said equalizer filter configuration.

5,805,482
INVERSE DISCRETE COSINE TRANSFORM PROCESSOR HAVING OPTIMUM INPUT STRUCTURE
Larry Phillips, Collingswood, N.J., assignor to Matsushita Electric Corporation of America, Secaucus, N.J.
Filed Oct. 20, 1995, Ser. No. 546,471
Int. Cl.⁶ G06F 17/14
U.S. Cl. 364—725.03



9. A distributed arithmetic apparatus for determining an inner product of an $N \times N$ matrix and a $N \times 1$ matrix of N Y -bit parallel data words, the N Y -bit parallel words provided to the distributed arithmetic apparatus in N clock periods, where N and Y are integers, the distributed arithmetic apparatus comprising:
 Y/N input section means for converting N Y -bit parallel data words to Y serial data words each word including N digits, each one of the N digits having Z bits provided in parallel and provided during one clock period, where Z is an integer equivalent to Y/N ; and
 Y/N bit-at-a-time (baat) distributed arithmetic processor means for processing the Y serial data words to form the inner product, the distributed arithmetic processor producing N M -bit parallel data words by a Y/N baat operation, where M is an integer;
wherein the distributed arithmetic apparatus produces the N M -bit parallel data words in N clock periods.

5,805,483

METHOD OF CONVERTING DATA OUTPUTTING SEQUENCE IN INVERSE DCT AND CIRCUIT THEREOF
Dae-yun Shim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

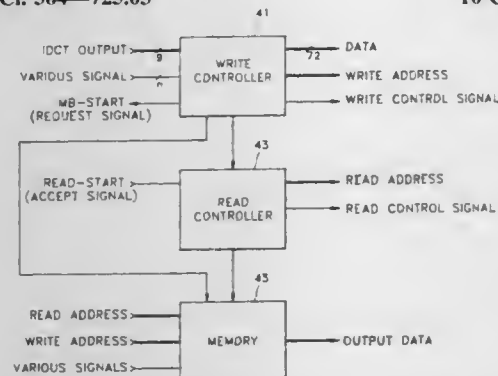
Filed Dec. 29, 1995, Ser. No. 581,225

Claims priority, application Rep. of Korea, Dec. 13, 1995, 1995-49182

Int. Cl. G06F 17/14

U.S. Cl. 364—725.03

10 Claims



1. A data outputting sequence converting method for use with an inverse discrete cosine transform (IDCT) for matching output sequences of IDCT-performed current frame data and restored data of a motion-compensated current frame, said method comprising the steps of:

- a) packing the IDCT-performed data for each pixel in a predetermined unit, and writing the packed data in a memory and generating a read request signal;
- b) generating an accept signal in response to said read request signal and reading said packed data from said memory; and
- c) converting the format of said packed data read from said memory, wherein said steps a)-c) are performed in parallel.

5,805,484

ORTHOGONAL FUNCTION GENERATING CIRCUIT AND ORTHOGONAL FUNCTION GENERATING METHOD
Yasunari Ikeda, Kanagawa; Tamotsu Ikeda, Tokyo, and Takahiro Okada, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

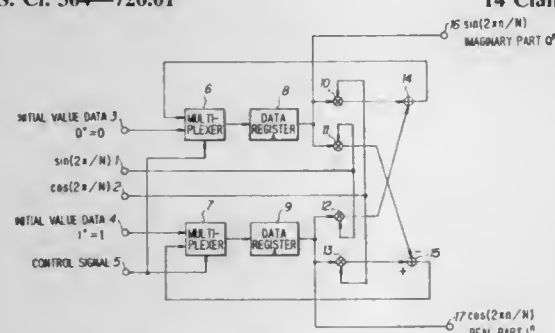
Filed Feb. 29, 1996, Ser. No. 608,611

Claims priority, application Japan, Mar. 10, 1995, 7-050758

Int. Cl. G06F 15/00

U.S. Cl. 364—726.01

14 Claims



1. An orthogonal function generating circuit for generating an orthogonal function used in an orthogonal transformation between time domain digital data and frequency domain digital data for obtaining said time domain digital data from said frequency domain digital data and for obtaining said frequency domain digital data from said time domain digital data, said orthogonal function generating circuit comprising:

- first data holding means for holding first data;
- second data holding means for holding second data;

first multiplying means for multiplying said first data by a first coefficient;

second multiplying means for multiplying said first data by a second coefficient;

third multiplying means for multiplying said second data by said second coefficient;

fourth multiplying means for multiplying said second data by said first coefficient;

adding means for adding an output of said first multiplying means to an output of said third multiplying means and for outputting an addition result, said addition result being fed back to said first data holding means; and

subtracting means for subtracting an output of said second multiplying means from an output of said fourth multiplying means, said subtraction result being fed back to said second data holding means.

5,805,485

ARITHMETIC UNIT AND METHOD FOR FOURIER TRANSFORM
Osamu Ito, Tokyo, and Yasunari Ikeda, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

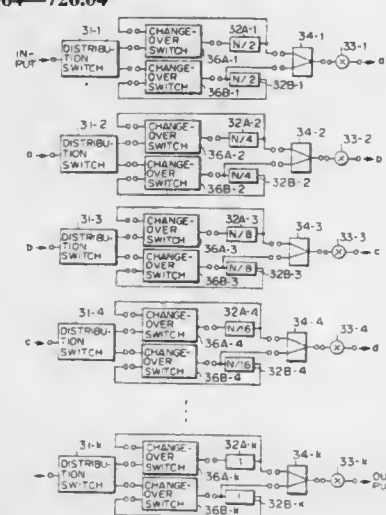
Filed May 15, 1996, Ser. No. 647,763

Claims priority, application Japan, May 25, 1995, 7-126228

Int. Cl. G06F 17/14

U.S. Cl. 364—726.04

14 Claims



1. A Fourier transform arithmetic unit having a plurality of processing stages for performing fast Fourier transform by pipeline processing, each of said plurality of processing stages comprising:

timing control means for dividing input data corresponding to one symbol into a plurality of groups of data forming a plurality of divided groups of data;

delay means for delaying each of said plurality of groups by a predetermined delay time, each of said groups having a same timing;

feedback means for outputting the plurality of divided groups of data a plurality of times, each of said times said plurality of divided groups are output having a same timing; and

butterfly operation means supplied with the plurality of divided groups of data output said plurality of times having the same timing by said feedback means for performing a selected one of a plurality of operations each time the plurality of divided groups of data are output by the feedback means.

5,805,486

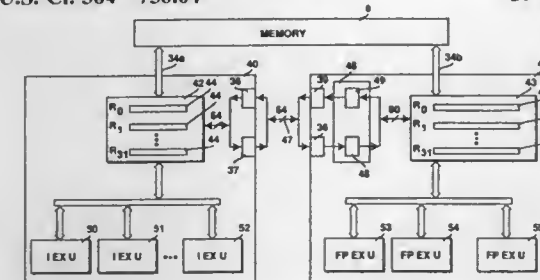
MODERATELY COUPLED FLOATING POINT AND INTEGER UNITS
Harshvardhan Sharangpani, Santa Clara, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Nov. 28, 1995, Ser. No. 563,499

Int. Cl. G06F 7/38

U.S. Cl. 364—736.04

10 Claims



1. A processor for performing integer and floating point calculations comprising:

an integer processing unit including:

an integer register file comprising a plurality of integer registers for storing integer data, each integer register having a first bit length;

first read and write ports coupled to said integer register file;

a floating point processing unit including:

a floating point register file comprising a plurality of floating point registers for storing floating point data, each floating point register having a second bit length, said second bit length being a non-integer multiple of said first bit length, with said non-integer being greater than one;

second read and write ports coupled to said floating point register file;

a bus coupling said first read and write ports with said second read and write ports, said bus being dedicated to data transfer operations between said integer and floating point register files;

an instruction set that includes first, second, third and fourth instructions, execution of said first and second instructions transferring a first floating point word from a first floating point register to first and second integer registers, execution of said third and fourth instructions transferring data from third and fourth integer registers to second and third floating point registers, respectively; and

a switching circuit coupled between said floating point register file and said second read and write ports, said switching circuit controlling the trans-positioning of bits during data transfer between said integer and floating point register files.

5,805,487

METHOD AND SYSTEM FOR FAST DETERMINATION OF STICKY AND GUARD BITS
Timothy Alan Elliott, Christopher Hans Olson, and Michael Putrino, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 12, 1996, Ser. No. 677,843

Int. Cl. G06F 7/48

U.S. Cl. 364—748.05

39 Claims

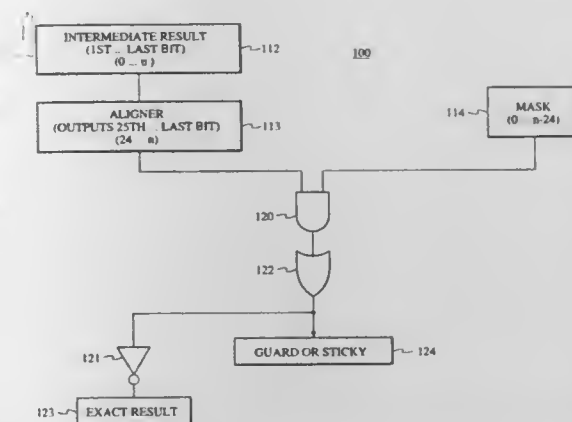
1. A system for fast calculation of a sticky bit comprising:

means for providing an intermediate result of a floating point mathematical operation involving at least a first operand and a second operand;

means for providing a mask indicating a position of a leading one in a mantissa of the intermediate result;

means coupled to the intermediate result providing means for aligning a first bit of the mask to an (n+2)nd bit in the intermediate result, where n is the number of bits in a mantissa of the first or second operand;

means coupled to the mask aligning means and the mask providing means for providing an output, the output further comprising a function of the sticky bit;



wherein the sticky bit is allowed to be calculated substantially simultaneously with normalization.

5,805,488

METHOD AND STRUCTURE FOR DEGROUPING MPEG AUDIO CODES
David E. Galbi, Sunnyvale, Calif., assignor to C-Cube Microsystems Inc., Milpitas, Calif.

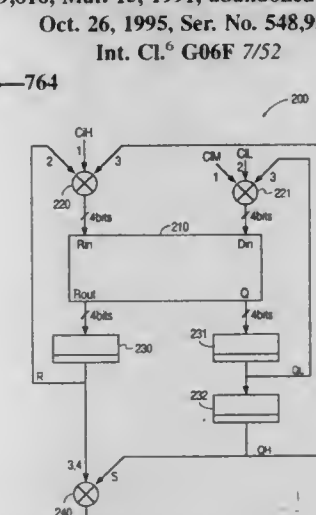
Division of Ser. No. 311,659, Sep. 23, 1994, Pat. No. 5,649,029, which is a continuation-in-part of Ser. No. 288,652, Aug. 10, 1994, abandoned, which is a continuation of Ser. No. 890,732, May 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 669,818, Mar. 15, 1991, abandoned. This application

Oct. 26, 1995, Ser. No. 548,930

Int. Cl. G06F 7/52

U.S. Cl. 364—764

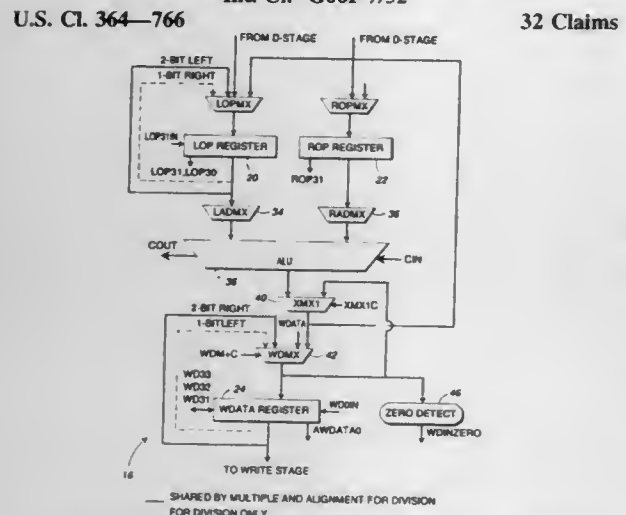
19 Claims



1. A degrouping circuit comprising:

- a first multiplexer;
- a second multiplexer;
- a divider having an input bus operably connected to receive from the first and second multiplexers a signal representing a dividend;
- a first register having an input bus coupled to the divider to receive a signal representing a remainder and an output bus coupled to a first input bus of the first multiplexer;
- a second register having an input bus coupled to the divider to receive a signal representing a quotient and an output bus coupled to an input bus of the second multiplexer;
- a third register having an input bus coupled to the output bus of the second register and an output bus coupled to a second input bus of the first multiplexer; and
- a third multiplexer having a first input bus coupled to the output bus of the first register and a second input bus coupled to the output bus of the third register.

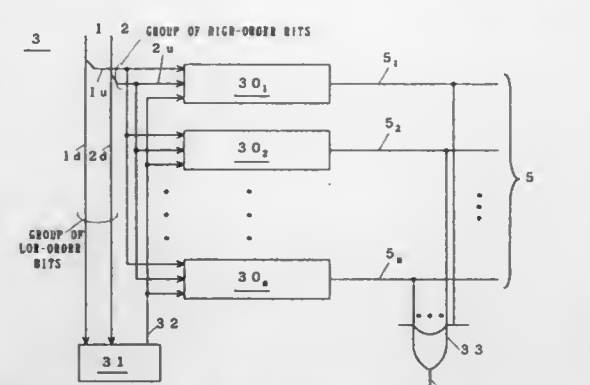
5,805,489
DIGITAL MICROPROCESSOR DEVICE HAVING VARIABLE-DELAY DIVISION HARDWARE
John Susantha Fernando, Coopersburg, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.
Filed May 7, 1996, Ser. No. 646,178
Int. Cl.⁶ G06F 7/52
U.S. Cl. 364-766 32 Claims



1. An apparatus for performing an integer division operation of binary numbers, said apparatus comprising:
a first register for storing a dividend value therein;
a second register for storing a divisor value therein;
a third register for storing a quotient therein, said third register including an n-bit extension at the most significant bits thereof, said third register and said extension defining an extended register, said third register being loadable with a zero value and said extension being presettable to include a given marker value defining a marker;
a digital adder having inputs coupled to said first and second register and having an output coupled to said extended register, said output of said adder being further coupled to said first and second register;
means coupled to said first, second and said extended register for shifting a value stored in said first, second and said extended register, respectively; and
control means coupled to said first, second and extended register, said digital adder and said means for shifting, said control means operable to perform alignment of said divisor in said second register with said dividend in said first register through shifts of said value in said second register, wherein said extended register tracks the shifts of said second register during said alignment performing equal shifts in an opposite direction thereof, and wherein the positioning of said marker subsequent to said alignment is indicative of a number of iterations required to produce a desired quotient or remainder for a given dividend and divisor value.

5,805,490
ASSOCIATIVE MEMORY CIRCUIT AND TLB CIRCUIT
Hirohisa Machida, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 10, 1995, Ser. No. 500,324
Claims priority, application Japan, Feb. 6, 1995, 7-018163
Int. Cl.⁶ G06F 7/50
U.S. Cl. 364-784.01 18 Claims

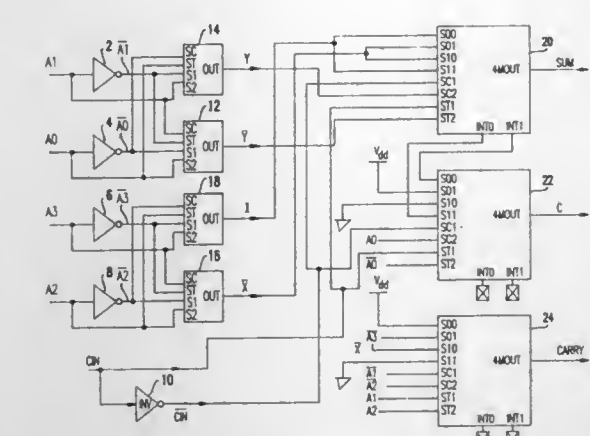
1. An associative memory circuit for performing an addition operation of a first value and a second value, said first value consisting of a first number of first high-order bits and a second number of first low-order bits, said second value consisting of a third number of second high-order bits and said second number of second low-order bits, said third number being less than said first number, and judging whether or not a result of said addition operation coincides with one of plural internally stored comparison



values each having said first number of bits, the associative memory circuit comprising:
(a) an adder for generating a carry signal to indicate whether or not a first result of a first addition operation of said first low-order bits and said second low-order bits generates a carry to be propagated out of said second number of bits;
(b) coincidence judging circuits provided corresponding to said plural internally stored comparison values, each for outputting a coincidence signal to indicate whether or not a second result of a second addition operation of 1) said first high-order bits, 2) said second high-order bits, where said first and second high-order bits are lower-bit aligned, and 3) a logical value of said carry signal applied at a least significant bit thereof, is equivalent to a corresponding one of said plural internally stored comparison values,
wherein each of said coincidence judging circuits comprises
(b-1) a first FAC circuit for outputting a first candidate for said coincidence signal to indicate whether or not said second result of said second addition operation of 1) said first high-order bits, 2) said second high-order bits, and 3) a logical value "0" is equivalent to said corresponding one of said plural internally stored comparison values;
(b-2) a second FAC circuit for outputting a second candidate for said coincidence signal to indicate whether or not said second result of said second addition operation of 1) said first high-order bits, 2) said second high-order bits, and 3) a logical value "1" is equivalent to said corresponding one of said plural internally stored comparison values; and
(b-3) a selection circuit for outputting either said first candidate or said second candidate as said coincidence signal according to said carry signal.

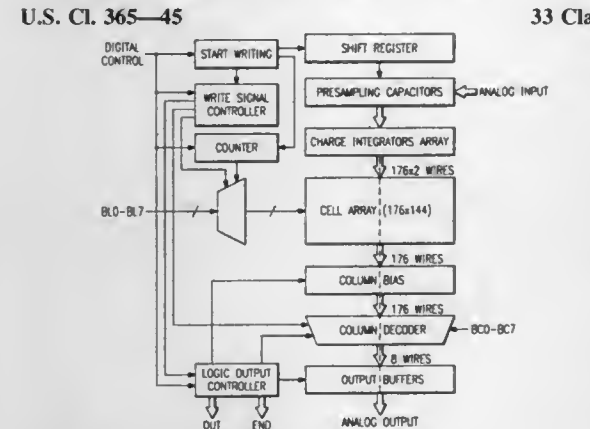
5,805,491
FAST 4-2 CARRY SAVE ADDER USING MULTIPLEXER LOGIC
Roland A. Bechade, Somerville, N.J., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jul. 11, 1997, Ser. No. 893,802
Int. Cl.⁶ G06F 7/50
U.S. Cl. 364-786.03 7 Claims

1. A 4-2 carry-save adder comprising:
a plurality of inverters receiving a first plurality of binary signals and a second plurality of binary signals and generating a corresponding first plurality of inverted binary signals and a second plurality of inverted binary signals, respectively;
a first plurality of at least four 2:1 multiplexers, each selecting between at least two of said first plurality of binary signals and said first plurality of inverted binary signals, so as to output a plurality of at least four first intermediate signals, the selection based a value of said first plurality of binary signals and said first plurality of inverted binary signals;
a second multiplexer for selecting from, and outputting as a first output signal SUM, one from said first intermediate signals, the selection based on at least one of said first intermediate signals and at least one of said second plurality of binary signals said second plurality of inverted binary signals;



means for generating a second plurality intermediate signals based on at least three of said first intermediate signals and at least one of said second plurality of binary signals, where said second plurality are output with a propagation delay substantially less than a predetermined propagation delay of said second multiplexer;
a third multiplexer selecting between, and outputting as a carry signal, designated C, one from a logical 1, a logical 0, and said second intermediate binary signals, based on at least one of said first and second plurality of binary signals; and
a fourth 4:1 multiplexer selecting, and outputting as a carry-out signal, designated CARRY, one from said logical 1, logical 0, and two of said first plurality of inverted binary signals, based on at least two of said first plurality of binary signals.

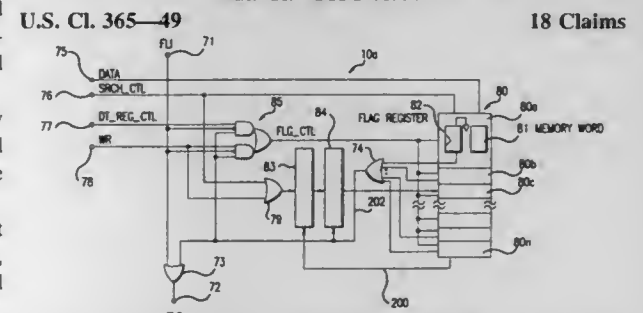
5,805,492
ANALOG MEMORY FOR STORING A QCIF IMAGE OR THE LIKE AS ELECTRIC CHARGE
Danilo Gerna, Montagna; Marco Pasotti, Martino Siccomario, and Stefano Marchese, Pavia, all of Italy, assignors to SGS-Thomson Microelectronics, S.r.l., Agrate Brianza, Italy
Filed Sep. 27, 1996, Ser. No. 722,572
Claims priority, application European Pat. Off., Sep. 27, 1995, 95830397
Int. Cl.⁶ G11C 27/00; 11/24; 11/36
U.S. Cl. 365-45 33 Claims



1. An analog memory, comprising:
an array of memory cells having a predetermined number of rows and columns, each of said cells having a storing capacitor;
two rows of presampling capacitors, each of said rows of presampling capacitors having a number of capacitors equal to said predetermined number of columns of said array of memory cells, each of said rows of presampling capacitors being connected to alternatively pre-sample an input analog signal and transfer in a parallel mode into each of said cells of a

selected row of said array of memory cells the presampled charge stored in said capacitors of one of said rows during a writing phase; and
an integrating stage having an output coupled to one of said columns of said array of memory cells, and an input selectively driven by the presampled charge stored in one of said capacitors of one of said rows of presampling capacitors.

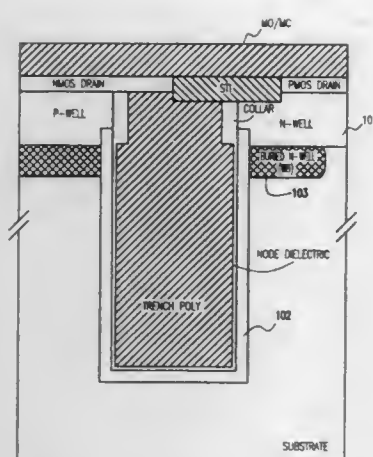
5,805,493
ASSOCIATIVE MEMORY HAVING A DATA REGISTRATION DEVICE
Masahiro Konishi, and Hiroshi Sasama, both of Chiba, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan
Filed Dec. 13, 1995, Ser. No. 571,771
Claims priority, application Japan, Dec. 14, 1994, 6-310639
Int. Cl.⁶ G11C 15/00 18 Claims



8. An associative memory that includes a plurality of associative memory integrated circuits, each of the plurality of associative memory integrated circuits receiving control signals and retrieval data from an external source, each of the plurality of associative memory integrated circuits, comprising:
a plurality of memory words; and
a data registration device coupled to the plurality of memory words, the data registration device storing the retrieval data in one of the plurality of memory words in response to the control signals if a first priority signal is not received from another one of the plurality of associative memory integrated circuits and if the one of the plurality of memory words is in an open state, wherein said data registration device comprises a plurality of open flag registers, each of the plurality of open flag registers storing a state of a corresponding one of the plurality of memory words, the state being one of a registered state and the open state.

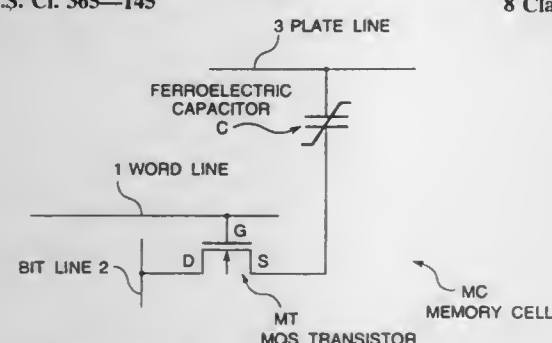
5,805,494
TRENCH CAPACITOR STRUCTURES
Badih El-Kareh, Austin, Tex.; Richard Leo Kleinhenz, Wappingers Falls, and Stanley Everett Schuster, Granite Springs, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 30, 1997, Ser. No. 846,603
Int. Cl.⁶ G11C 11/24 11 Claims

1. A trench capacitor formed in a silicon semiconductor substrate as part of an integrated circuit comprising:
a buried n-well in the substrate;
a trench formed in said substrate and extending through the buried n-well;
a dielectric film formed on an inner surface of the trench;
an inner plate in the form of a polysilicon fill within the trench and connected to a surface n+ film formed during definition of peripheral source/drain contacts of the integrated circuit;
a low resistance contact to said inner plate; and



an n-type out-diffusion from said inner surface into said substrate forming an outer plate and providing a low resistance current path to a reference voltage.

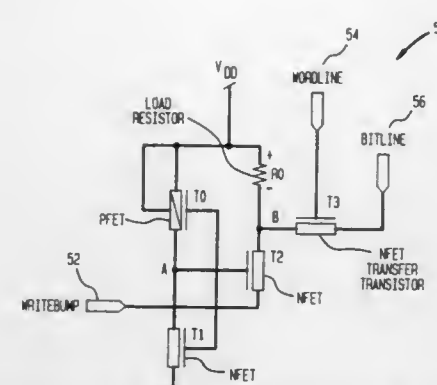
5,805,495
FERROELECTRIC SEMICONDUCTOR MEMORY AND ACCESSING METHOD THEREFOR
Tohru Kimura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Sep. 30, 1996, Ser. No. 723,275
Claims priority, application Japan, Sep. 30, 1995, 7-277203
Int. Cl.⁶ G11C 11/22; 11/24
U.S. Cl. 365—145



1. A semiconductor memory device, comprising:
a memory cell including a memory capacitor having a capacitor dielectric formed of a ferroelectric material, wherein said ferroelectric material includes a ferroelectric component and a dielectric component; and
means coupled to said memory capacitor for storing a first binary data and a second binary data in said memory cell, wherein said first binary data is stored using said dielectric component of said ferroelectric material and said second binary data is stored using said ferroelectric component of said ferroelectric material, so that two bits of data may be stored in said memory cell.

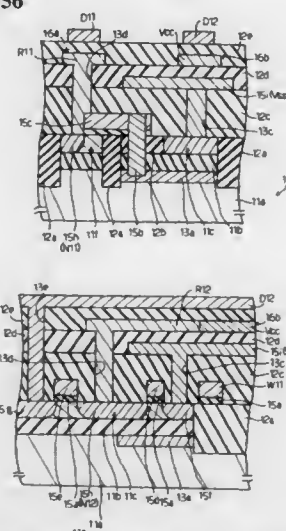
5,805,496
FOUR DEVICE SRAM CELL WITH SINGLE BITLINE
Kevin Arthur Batson, Williston, Vt., and Robert Anthony Ross, Jr., Cedar Park, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 27, 1996, Ser. No. 773,561
Int. Cl.⁶ G11C 11/40
U.S. Cl. 365—154

1. A memory cell comprising:
a static inverter having an input connected to a storage node;
an impedance for connecting the storage node to a voltage supply;



a first transistor having an input connected to an output of said static inverter, said first transistor further for connecting the storage node to write line; and
a second transistor responsive to a wordline access signal for connecting the storage node to a single data bitline, wherein the write line for receiving a one-shot pulse signal generated off of a rising edge of a logical AND of a 'WRITE ENABLE' signal and a decoded 'WORDLINE' signal.

5,805,497
SEMICONDUCTOR STATIC RANDOM ACCESS MEMORY CELL WITH ADDITIONAL CAPACITOR COUPLED TO MEMORY NODES AND PROCESS OF FABRICATION THEREOF
Tetsuya Uchida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Mar. 27, 1997, Ser. No. 827,367
Claims priority, application Japan, Mar. 29, 1996, 8-76098
Int. Cl.⁶ H01L 29/76
U.S. Cl. 365—156



1. A semiconductor static random access memory cell fabricated on a substrate having a first semiconductor layer of a first conductivity type, a first insulating layer formed on said first semiconductor layer and a second semiconductor layer of said first conductivity type formed on said first insulating layer, comprising:
first and second impurity regions formed in said first semiconductor layer, and having a second conductivity type opposite to said first conductivity type so as to form first and second additional capacitors;
a first isolating layer formed in a surface portion of said first semiconductor layer between said first and second impurity regions;
a second isolating layer formed in said second semiconductor layer in such a manner as to be held in contact with said first

insulating layer so as to divide said second semiconductor layer into a first semiconductor sub-layer and a second semiconductor sub-layer;

a first driving transistor including first source and drain regions of said second conductivity type formed in a first portion of said first semiconductor sub-layer, a first gate insulating layer formed on a first channel region between said first source and drain regions and a first gate electrode formed on said first gate insulating layer and held in contact with said first impurity region through a first contact hole formed in said second insulating layer and said first insulating layer;

a first transfer transistor including second source and drain regions formed in a second portion of said first semiconductor sub-layer, a second gate insulating layer formed on a second channel region between said second source and drain regions and a second gate electrode formed on said second gate insulating layer, one of said second source and drain regions being connected to one of said first source and drain regions; a second driving transistor including third source and drain regions of said second conductivity type formed in a first portion of said second semiconductor sub-layer, a third gate insulating layer formed on a third channel region between said third source and drain regions and a third gate electrode formed on said third gate insulating layer and held in contact with said second impurity region through a second contact hole formed in said second insulating layer and said first insulating layer;

a second transfer transistor including fourth source and drain regions formed in a second portion of said second semiconductor sub-layer, a fourth gate insulating layer formed on a fourth channel region between said fourth source and drain regions and a fourth gate electrode formed on said fourth gate insulating layer, one of said fourth source and drain regions being connected to one of said third source and drain regions; a first conductive member connecting said one of said first source and drain regions to said third gate electrode; a second conductive member connecting said one of said third source and drain regions to said first gate electrode;

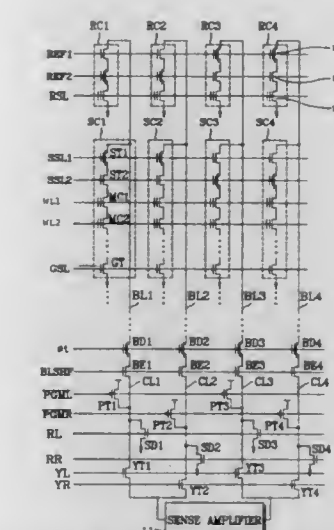
an inter-level insulating structure covering said first driving transistor, said first transfer transistor, said second driving transistor and said second transfer transistor;

a first power supply line formed in said inter-level insulating structure, and connected through resistive elements to said one of said first source and drain regions and said one of said third source and drain regions;

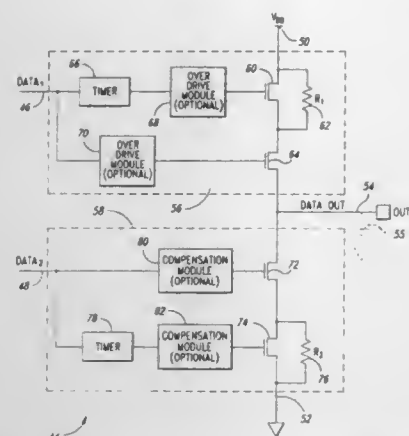
a second power supply line different in potential level from said first power supply line, formed in said inter-level insulating structure, and connected to the other of said first source and drain regions and the other of said third source and drain regions; and
first and second signal lines formed in said inter-level insulating structure, and connected to the other of said second source and drain regions and the other of said fourth source and drain regions.

5,805,498
NONVOLATILE SEMICONDUCTOR MEMORY DEVICE HAVING A SENSE AMPLIFIER COUPLED TO MEMORY CELL STRINGS WITH REDUCED NUMBER OF SELECTION TRANSISTORS
Seung-Keun Lee, and Dong-Gi Lee, both of Seoul, Rep. of Korea, assignors to Samsung Electronics, Co., Ltd., Suwon, Rep. of Korea
Filed Sep. 19, 1996, Ser. No. 715,577
Claims priority, application Rep. of Korea, Sep. 19, 1995, 1995/30742
Int. Cl.⁶ G11C 16/04
U.S. Cl. 365—185.17

2. A semiconductor nonvolatile memory device comprising:
a sense amplifier having first and second inputs;
a first bit line coupled to one or more cell strings;
a second bit line coupled to one or more cell strings;



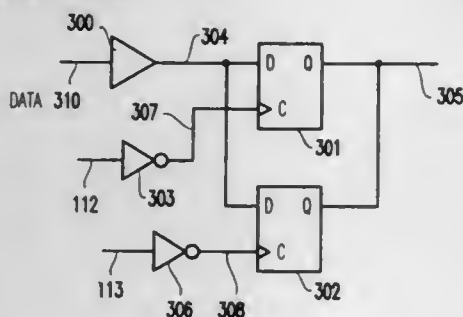
first and second input terminals operable to receive said first and second input signals;



- an output terminal operable to provide said output signal; first and second drive terminals;
- a first stage that is coupled to said first input terminal, said first drive terminal, and said output terminal, said first stage operable to couple a first impedance between said first drive terminal and said output terminal when said first input signal is at said first active level, said first stage operable to reduce the magnitude of said first impedance for a first predetermined time after said first input signal transitions to said first active level; and
- a second stage that is coupled to said second input terminal, said second drive terminal, and said output terminal, said second stage operable to couple a second impedance between said second drive terminal and said output terminal when said second input signal is at said second active level.

5,805,506
SEMICONDUCTOR DEVICE HAVING A LATCH
CIRCUIT FOR LATCHING DATA EXTERNALLY INPUT
Yoshinori Matsui, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

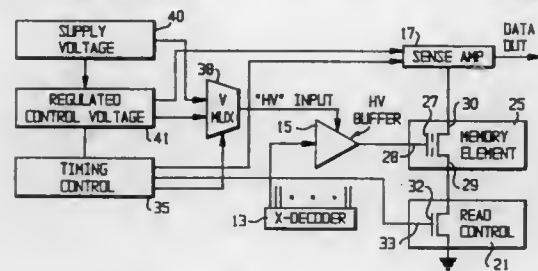
Filed May 16, 1997, Ser. No. 857,828
Claims priority, application Japan, May 22, 1996, 8-126977
Int. Cl.⁶ G11C 7/00
U.S. Cl. 365—189.05 23 Claims



1. A memory system comprising:
- a memory cell array having a plurality of word lines connected to memory cells;
- a latch circuit for receiving and latching a first control signal in response to a first clock signal and for outputting a second control signal; and
- a decoder for selecting one word line among said word lines in response to an address signal when said decoder receives the second control signal,
- wherein said latch circuit comprises:
- a first latch portion for latching the first control signal during a first cycle of the first clock signal; and
- a second latch portion for latching the first control signal during a second cycle of the first clock signal.

5,805,507
VOLTAGE REFERENCE GENERATOR FOR EPROM
MEMORY ARRAY
Richard Hull, Chandler, and Randy L. Yach, Phoenix, both of Ariz., assignors to Microchip Technology Incorporated, Chandler, Ariz.

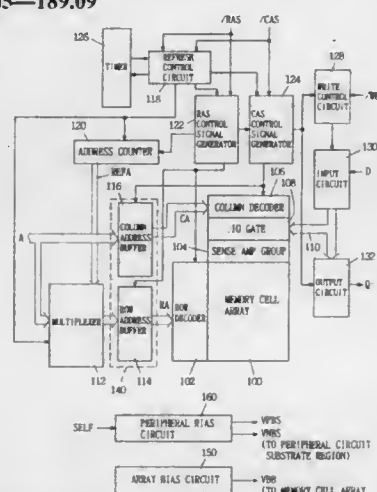
Filed Oct. 1, 1996, Ser. No. 723,924
Int. Cl.⁶ G11C 7/00
U.S. Cl. 365—189.09 9 Claims



8. A microcontroller with an on-chip program memory for storing programs for execution by the microcontroller in response to instructions, to control an aspect of the operation of an external system, a source of supply voltage for the microcontroller, said program memory including an array of rows and columns for storing and reading data and further including an improvement comprising:
- means for activating row and column control from a reference voltage having a level that tracks the level of said supply voltage during a read cycle of the program memory as the level of said supply voltage increases to a predetermined level below the maximum level of the supply voltage, and
- means for clamping row and column control at a voltage level substantially equal to said predetermined level despite increase of said supply voltage beyond said predetermined level during the read cycle.

5,805,508
SEMICONDUCTOR MEMORY DEVICE WITH REDUCED
LEAK CURRENT
Yoshiaki Tobita, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 8, 1997, Ser. No. 780,247
Claims priority, application Japan, Feb. 27, 1996, 8-039632
Int. Cl.⁶ G11C 7/00
U.S. Cl. 365—189.09 14 Claims



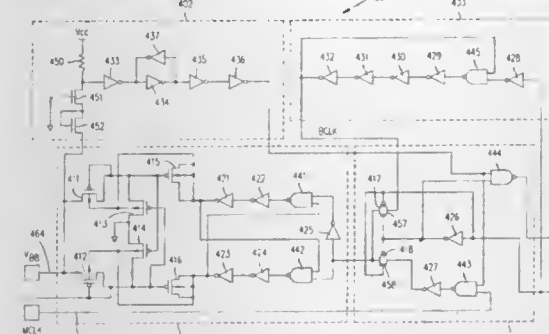
1. A semiconductor memory device comprising:
- a memory cell array including a plurality of memory cells arranged in rows and columns;
- array bias means for supplying a constant bias voltage to a memory substrate region having said memory cell array formed thereat;

a peripheral circuit for driving said memory cell array to a selected state; and

peripheral bias means for supplying a bias voltage to a peripheral substrate region having said peripheral circuit formed thereat, said peripheral bias means including bias control means for rendering the bias voltage supplied by said peripheral bias means during a data holding mode, larger in absolute value than that during a normal mode of operation different than said data holding mode, while said constant bias voltage supplied to said memory substrate region is maintained constant at a common value regardless of mode.

5,805,509
METHOD AND STRUCTURE FOR GENERATING A
BOOSTED WORD LINE VOLTAGE AND BACK BIAS
VOLTAGE FOR A MEMORY ARRAY
Wingyu Leung, Cupertino, and Jeffrey J. Lin, Danville, both of Calif., assignors to Monolithic System Technology, Inc., Sunnyvale, Calif.

Division of Ser. No. 610,108, Feb. 29, 1996, Pat. No. 5,703,827. This application Jul. 10, 1997, Ser. No. 891,124
Int. Cl.⁶ H03K 3/01
U.S. Cl. 365—189.09 4 Claims

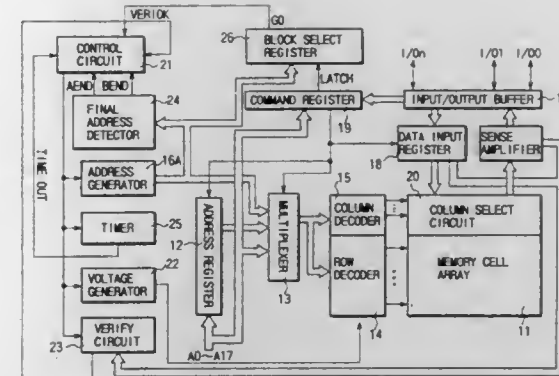


1. A voltage generator which generates a bias voltage for biasing a substrate of a semiconductor circuit, the voltage generator comprising:
- a voltage generation circuit which generates the bias voltage in response to a clock signal;
- a ring oscillator for generating a start-up clock signal; and
- a clock selector circuit for selectively applying the start-up clock signal to the voltage generation circuit during a power-on period and for applying a master clock signal to the voltage generation circuit after the power-on period.

5,805,510
DATA ERASE MECHANISM FOR NONVOLATILE
MEMORY OF BOOT BLOCK TYPE
Tadashi Miyakawa; Hidetoshi Saito, both of Yokohama; Masao Kuriyama, Fujisawa, and Tadayuki Taura, Zushi, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 17, 1997, Ser. No. 953,388
Claims priority, application Japan, Oct. 18, 1996, 8-276179; Feb. 27, 1997, 9-044010
Int. Cl.⁶ G11C 16/04
U.S. Cl. 365—185.11 11 Claims

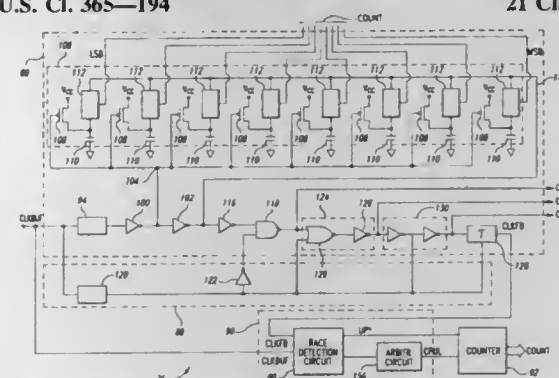
1. A non-volatile memory of a boot block type, comprising:
- a memory cell array constituted by a plurality of equal blocks having the same number of bits, and a plurality of irregular blocks; and
- an address generator for generating, in an erase operation, a block address signal that designates one of said plurality of equal blocks and said plurality of irregular blocks, and row and column address signals that sequentially designate



- memory cells in a select block when said block designated by the block address signal is a select block subjected to "erase", said address generator having
- an equal block address counter,
- a boot block address counter,
- row and column address counters for outputting the row and column address signals,
- a logic circuit which receives an output signal from said equal block address counter and an output signal from said boot block address counter,
- a switching circuit for switching between an output signal from said logic circuit and output signals from said row and column address counters, and
- means for generating, in accordance with a selected block, the block address signal, and the row and column address signals that sequentially designate memory cells in said selected block.

5,805,511
DELAY-LOCKED LOOP WITH BINARY-COUPLED
CAPACITOR
Troy A. Manning, Meridian, Id., assignor to Micron Technology, Inc., Boise, Id.

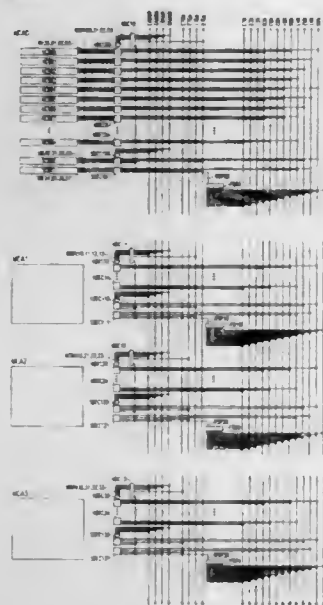
Filed Mar. 5, 1997, Ser. No. 811,918
Int. Cl.⁶ G11C 7/00
U.S. Cl. 365—194 21 Claims



11. A memory device responsive to an input clock signal, comprising:
- a command input terminal;
- a clock input terminal;
- a memory array;
- a buffer amplifier having an amplifier input coupled to the clock input terminal and a buffer output, the buffer amplifier being responsive to the input clock signal at the amplifier input to produce a buffered clock signal having a phase shift relative to the input clock signal;
- a delay-locked loop adapted to produce a plurality of phase shifted signals in response to the buffered clock signal, the delay-locked loop comprising:
- a variable delay circuit having an input terminal coupled to the buffer output, an output terminal, and a control input

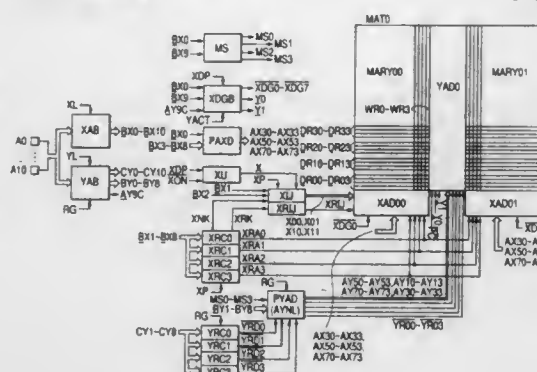
a control circuit having a command input coupled to the command input terminal, a clock input coupled to the output terminal of the delay-locked loop, and a control output coupled to the memory array, the control circuit being configured to control transfers of data into and out of the memory array in response to the delayed output signal.

24 Claims



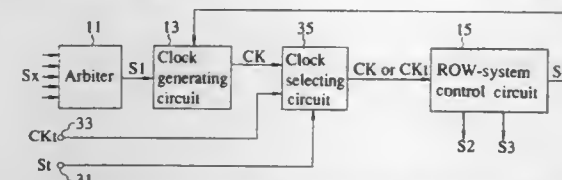
1. A semiconductor memory device comprising:
a memory cell array including a plurality of normal memory cell blocks each having a plurality of normal word lines, and a plurality of redundant memory cell blocks each having a plurality of redundant word lines; and
a redundant memory cell block selection fuse circuit block for replacing plural units of normal memory cells with one or more of said redundant memory cell blocks, each of said units of normal memory cells being controlled by a predetermined number of normal word lines among said normal word lines that control said normal memory cell blocks, the predetermined number being at least one,
wherein the number of said redundant memory cell block selection fuse circuit blocks is less than the number of said units of normal memory cells to be replaced.

8 Claims



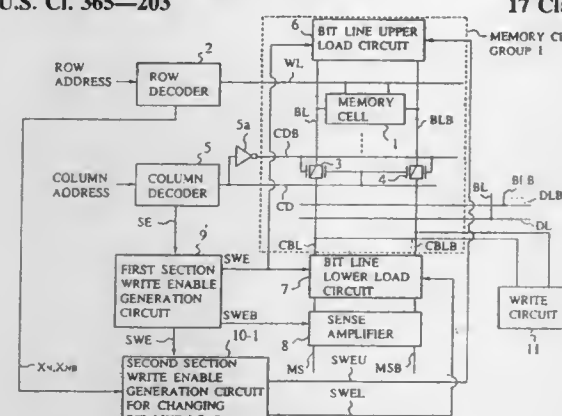
7. A semiconductor memory having a normal operation mode, a first test mode and a second test mode, comprising:
a first external terminal for receiving a row address strobe signal (fheightRAS);
a second external terminal for receiving a column address strobe signal (fheightCAS);
a third external terminal for receiving a write enable signal (fheightWE);
a fourth external terminal coupled to a voltage detection circuit for receiving a voltage; and
means for selecting either the first test mode or the second test mode, comprising:
means for initiating the first test mode by executing a WCBR (fheightWE-fheightCAS before fheightRAS) cycle in which the fheightCAS signal and the fheightWE signal are set to a low level before the fheightRAS signal is set to the low level; and
means for initiating the second test mode in response to said column address strobe signal being at a logic "low" level, said write enable signal being at a logic "low" level and said voltage detection circuit detecting that an absolute value of said voltage is larger than an absolute value of a power supply voltage of said semiconductor memory, when said row address strobe signal changes from a logic "high" level to a logic "low" level.

18 Claims



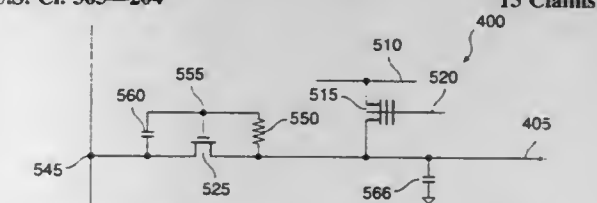
1. A method for performing a specified test on a semi-conductor memory device having a clock generating circuit and a control circuit, said clock generating circuit generating a clock signal in response to an operation request signal and said control circuit generating a reset signal for stopping generation of said clock signal after a predetermined period of time, said control circuit further generating at least one operation control signal for performing a fundamental operation of said memory device in response to said clock signal, said method comprising the steps of:
- inputting a test mode signal to the semiconductor memory device to initiate the specified test;
 - delaying generation of the reset signal for a period of time exceeding the predetermined period of time;
 - carrying out the specified test while said test mode signal is being input; and
 - ending the specified test by terminating input of said test mode signal.

17 Claims

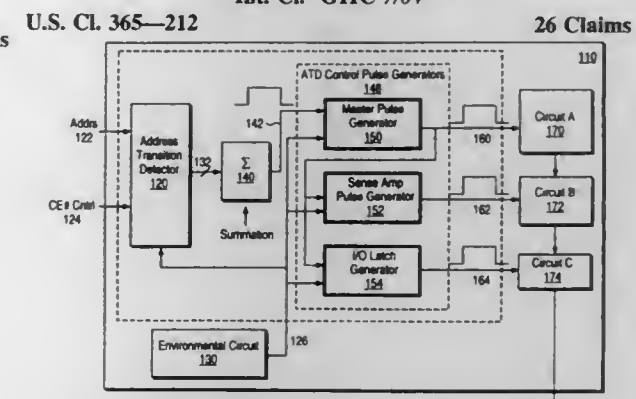


1. A semiconductor memory comprising:
a plurality of memory cells for data storage, connected to bit line pair;
a memory cell selection decoder for selecting the memory cell in the plurality of memory cells corresponding to a bit line direction address;
bit line load means for supplying a voltage potential to the bit line pair; and

U.S. Cl. 365—204



1. A memory cell comprising:
a pull-up means, wherein said pull-up means provides a current to maintain an output node at a logic high voltage when said memory cell is in a logic high state; and
a floating gate memory device, coupled between said output node and a supply voltage, below said logic high voltage, wherein said current is discharged through said floating gate memory device when said memory cell is in a logic low state, said floating gate memory device is subjected to a reduced electric field between a channel and a substrate.

1st. Cl.⁶ G11C 7/04

1. A circuit comprising:
an address transition detector that receives one or more address signals, the address transition detector providing a transition detection signal in response to a transition of at least one of the address signals; and
a pulse generator coupled to receive the transition detection signal from the address transition detector, the pulse generator also receiving an environmental input, the pulse generator providing a control signal having a delay based upon the environmental input.

5,805,518

MEMORY CIRCUIT ACCOMMODATING BOTH SERIAL AND RANDOM ACCESS, A SYNCHRONOUS DRAM DEVICE FOR WRITING DATA, A SYNCHRONOUS DRAM DEVICE FOR READING DATA, A SYNCHRONOUS DATA TRANSFER SYSTEM, A PROCESS OF SYNCHRONOUSLY WRITING DATA TO AN ARRAY ON A DRAM DEVICE

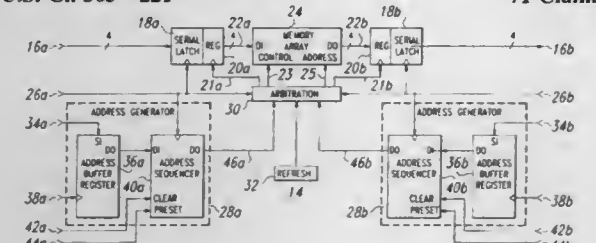
Masashi Hashimoto, Garland; Gene A. Frantz, Missouri City, both of Tex.; John Victor Moravec, Willow Springs, Ill., and Jean-Pierre Dolait, Villeneuve-Lobet, France, assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 362,289, Dec. 22, 1994, Pat. No. 5,636,176, which is a division of Ser. No. 175,478, Dec. 29, 1993, Pat. No. 5,400,288, which is a continuation of Ser. No. 843,780, Feb. 28, 1992, abandoned, which is a division of Ser. No. 512,611, Apr. 20, 1990, Pat. No. 5,093,807, which is a continuation of Ser. No. 137,305, Dec. 23, 1987, abandoned. This application Jun. 7, 1995, Ser. No. 483,618

Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—221

71 Claims



1. A memory circuit for storing and providing streams of data, the memory circuit accommodating both serial access and random access, the memory circuit comprising:

- a random access memory array having an address input and a data port;
- a data buffer having a data port coupled to the memory array data port, the data buffer synchronizing operation of the memory array to the streams of data;
- an address sequencer having a data input and having an output coupled to the memory array address input, the address sequencer generating a sequence of memory addresses to be successively applied to the memory array;
- an address buffer register having an output coupled to the address sequencer data input, the address buffer register supplying a random access address that initializes the sequence of memory addresses generated by the address sequencer;
- wherein the data buffer synchronizes operation of the memory array to the data stream being stored into the memory array, the address sequencer generates memory addresses at which the stored data stream is written into the memory array;
- a second data buffer having a data port coupled to the memory array data port, the second data buffer being for synchronizing operation of the memory array to the data stream being provided by the memory circuit;
- a second address sequencer having an output coupled to the memory array address input and a data input, the second address sequencer generating a sequence of memory address to be applied to the memory array for reading the provided data stream from the memory array; and
- a second address buffer register having an output coupled to the second address sequencer data input, the second address buffer register supplying a random access address that initializes the sequence of memory addresses generated by the second address sequencer.

5,805,519

SEMICONDUCTOR MEMORY DEVICE

Shigeki Tomishima, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 554,505, Nov. 7, 1995, abandoned.

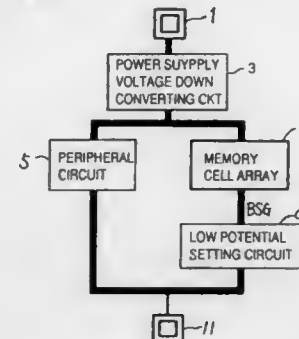
This application Aug. 21, 1996, Ser. No. 701,207

Claims priority, application Japan, Jan. 10, 1995, 7-002208

Int. Cl.⁶ G11C 7/00

U.S. Cl. 365—226

26 Claims



1. A semiconductor memory device, comprising:
- high potential supplying means for supplying a high potential to a first line;
 - low potential supplying means for supplying to a second line a low potential which is higher than a ground potential;
 - an internal circuit connected between said first line and said second line and including a first transistor element;
 - level lowering means connected to said second line in parallel with said low potential supplying means for lowering a level of a potential of said second line to a potential level which is still lower than said low potential; and
 - operation control means for performing control so that said level lowering means is operated for a prescribed time around the time of start of operation of said internal circuit.

5,805,520

INTEGRATED CIRCUIT ADDRESS RECONFIGURABILITY

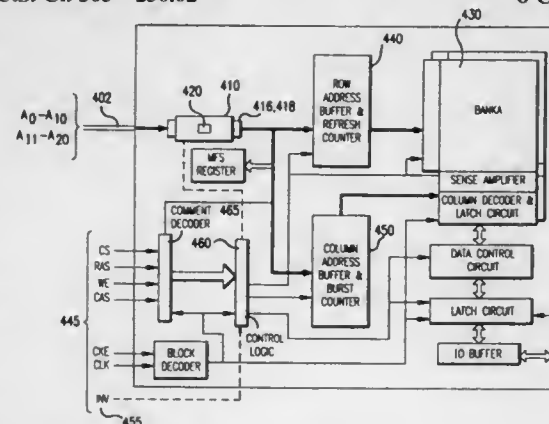
Edward Anglada, Aguadilla, and Hector L. Gonzalez, Areibo, both of Puerto Rico, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 25, 1997, Ser. No. 842,973

Int. Cl.⁶ G11C 8/00; 7/00

U.S. Cl. 365—230.02

8 Claims



1. An integrated circuit, comprising:
- a memory bank having memory locations addressable by row and column,
 - a row address buffer coupled to the memory bank for addressing a row of memory locations,
 - a column address buffer coupled to the memory bank for addressing a column of memory locations,
 - a plurality of column and row address pins,

a plurality of control signals pins, an internal memory bus that distributes addresses to the row and column address buffers, a signal switch through which a plurality of external addresses are connected, a plurality of internal row addresses coupled to the row address buffer, a plurality of internal column addresses coupled to the column address buffer, and a plurality of remap-multiplexers for remapping the external addresses to the internal memory bus, control logic electrically coupled to the signal switch for actuating the remap-multiplexers in response to a control signal, and for actuating the row address and column address buffers to access individual memory bank cells as identified by the internal row address buffers and the internal column address buffers.

5,805,521

DRAM MEMORY SYSTEM

Noritoshi Yamasaki, Kusatsu, and Hisatada Miyatake, Ohtsu, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

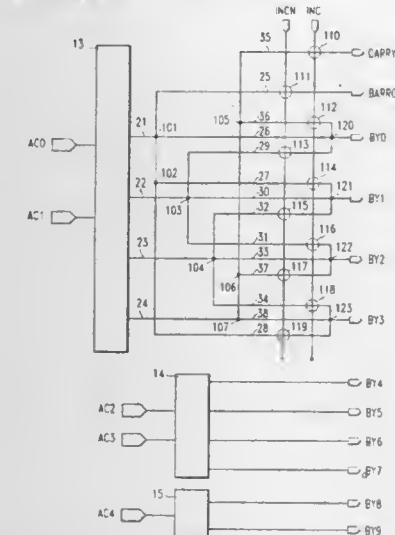
Filed Dec. 26, 1996, Ser. No. 773,150

Claims priority, application Japan, Feb. 5, 1996, 8-018930

Int. Cl.⁶ G11C 8/00

U.S. Cl. 365—230.03

8 Claims



1. A predecoder circuit connected to a decoder circuit, said decoder circuit designating a first address line and a second address line simultaneously in a plurality of address lines divided into a plurality of address blocks which are composed of a predetermined number of said plurality of address lines, said first address line identified by having a large bit string of address bits and said second address line being identified by having a small bit string of said address bits being input to said predecoder circuit, said address blocks being identified by having the largest number of said address bits, said predecoder circuit comprising:
- a plurality of numbered output lines corresponding to a number of said small bit string, said output lines being input to said predecoder circuit;
 - a designating input for selecting between a first address and a second address based on the large or small bit string, said first and second addresses corresponding to said first address line and said second address line, respectively; and
 - a shift-up signal for enabling a shift up to a higher address block when the selection is the large bit string at the time said second address is larger than said first address, which occurs whenever either:
 - (a) said first address is selected as having the large bit string in one of said address blocks, a first output line having the large bit string, a second output line having the small bit string and said shift-up signal are being activated, or

5,805,522

ADDRESS ACCESS PATH CONTROL CIRCUIT

Shunichi Sukegawa, Tsukuba; Koichi Abe, Tokyo; Makoto Saeki, Hamura, and Yukihide Suzuki, Akishima, all of Japan, assignors to Texas Instruments Incorporated, Dallas, Tex.

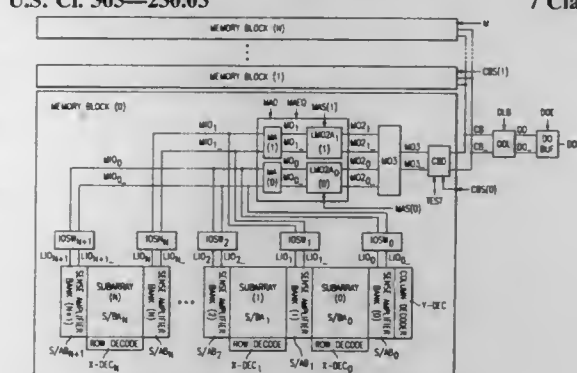
Filed Aug. 30, 1996, Ser. No. 706,373

Claims priority, application Japan, Sep. 1, 1995, 7-225345

Int. Cl.⁶ G11C 8/00; 7/00

U.S. Cl. 365—230.03

7 Claims



1. A semiconductor memory device, comprising:
- a data output driver having a first and a second data input terminal, a data output terminal, and an output enable terminal, the data output driver being operable to output a data signal representative of a stored datum on the data output terminal during a read operation when the first data input terminal is at a first level, the second data input terminal is at a second level, and a signal on the output enable terminal is in an enabling state; the data output driver being further operable to cause the data output terminal to be in a high impedance state when the signal on the output enable terminal is in a disabling state or when the first and second data input terminals are both at the same first level;
 - a first array of memory cells for storing data;
 - a first logic circuit connected to the first array of memory cells for forming a data signal on a first and a second data output terminal;
 - a common-bus connecting the first and second data bus terminals of the first logic circuit to the first and second data input terminals of the data output driver; and
 - wherein the first logic circuit has a control terminal, the first logic circuit being operable to form the same first level on the first and second data bus terminals when a signal on the control terminal is in an equalize state and to form the first level on the first data bus terminal and the second level on the second data bus terminal when the signal on the control terminal is not in the equalize state in response to the stored datum from a first selected cell in the first array of memory cells; whereby the signal on the output enable terminal can be switched from the disabling state to the enabling state while the signal on the control terminal of the first logic circuit is in the equalize state such that the data output terminal of the data output driver remains in a high impedance state while the signal on the control terminal of the first logic circuit is in the equalize state.

5,805,523

BURST COUNTER CIRCUIT AND METHOD OF OPERATION THEREOF

Mark A. Lysinger, Carrollton, Tex., assignor to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

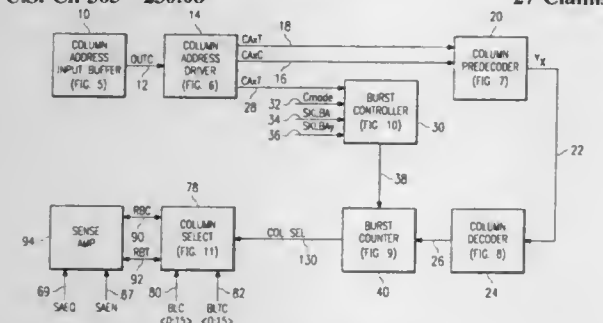
Continuation of Ser. No. 589,023, Jan. 19, 1996, abandoned.

This application Apr. 4, 1997, Ser. No. 825,971

Int. Cl.⁶ G11C 8/00

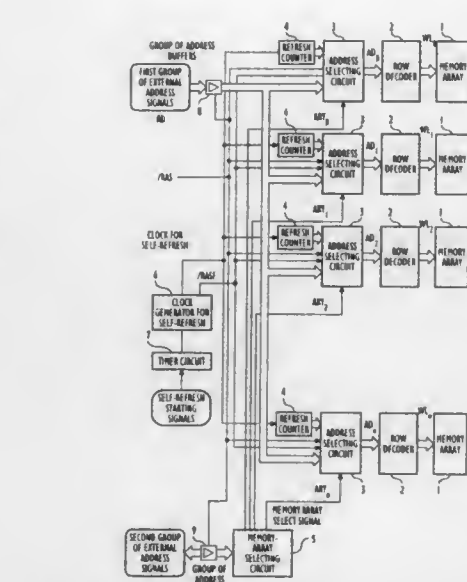
U.S. Cl. 365—230.08

27 Claims



1. A circuit for addressing a plurality of addresses in a memory array from a single address input, comprising:

- an address input buffer for receiving a column address signal;
- a column address decoder circuit coupled to receive the column address signal and output a decoded column address signal;
- a counter circuit coupled to the column address decoder circuit to receive the decoded column address and output a column select signal, the counter circuit including a slave latch circuit for holding a current state of a column select signal; and
- a column select circuit coupled to the counter circuit for selecting the pair of column lines within the memory array under control of the column select signal output by the counter circuit.



wherein data can be sequentially stored in and outputted from the plurality of sub-memory-arrays by the sub-memory-array selecting means.

5,805,525

METHOD AND APPARATUS FOR HYDROACOUSTIC DETECTION AND CHARACTERIZATION OF SUBMERSED AQUATIC VEGETATION

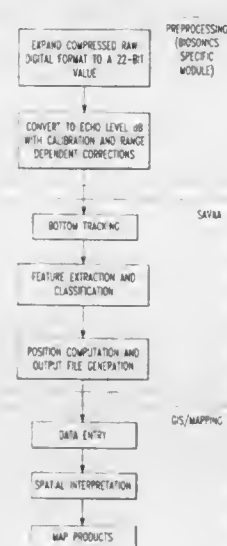
Brace Mayo Sabol, Vicksburg; Richard Lawrence Kasal, Edwards, and Riley Eddie Melton, Jr., Vicksburg, all of Miss., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 11, 1996, Ser. No. 763,340

Int. Cl.⁶ G01S 15/89

U.S. Cl. 367—87

7 Claims



5,805,524

SEMICONDUCTOR MEMORY, MOVING-PICTURE STORING MEMORY, MOVING-PICTURE STORING APPARATUS, MOVING-PICTURE DISPLAYING APPARATUS, STATIC-PICTURE STORING MEMORY, AND ELECTRONIC NOTEBOOK

Hisakazu Kotani, Hyogo; Hironori Akamatsu, and Tsutomu Fujita, both of Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 358,606, Dec. 14, 1994. This application Jan. 30, 1996, Ser. No. 593,851

Claims priority, application Japan, Dec. 15, 1993, 5-315456; Jan. 12, 1994, 6-001480

Int. Cl.⁶ G11C 13/00

U.S. Cl. 365—238

17 Claims

1. A moving-picture storing memory for storing a motion picture in individual sub-memory arrays, comprising:

- a plurality of sub-memory-arrays formed by dividing a memory array into a plurality of sections, each section for storing sequential sets of image data of a motion picture;
- data input/output means for inputting and outputting data to and from each of said sub-memory-arrays; and
- sub-memory-array selecting means for selecting any one of said plurality of sub-memory-arrays.

1. A method of rapidly detecting the presence of submersed aquatic vegetation (SAV) in a waterbody, said method comprising the steps of:

- (a) mounting an echo sounding transducer in a vertically downward orientation at the water's surface on a boat and setting up an electronic positioning system to generate horizontal position reports;
- (b) causing the transducer to generate a rapid series of short hydroacoustic pulses (pings) and then to measure returning echo signals, and simultaneously gathering horizontal position

reports from the electronic positioning system installed in (a) at a less frequent interval than the ping rate;

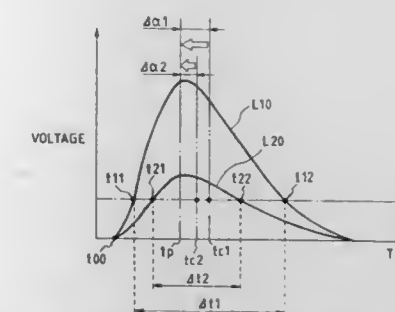
(c) causing the returning echo signal, consisting of a series of digital echo intensity values each corresponding to some small depth increment, along with the horizontal position data generated in (b) to be recorded and stored in digital form thereby generating a series of ping reports between two sequential horizontal position reports wherein said ping reports are calibrated in units of voltage squared which are proportional to echo intensity;

(d) examining the digital echo intensity values within each ping report to determine the exact depth at which the sharpest rise in voltage squared occurs and generating a histogram of these sharpest-rise depths for all pings in the cycle;

(e) examining the histogram of sharpest rise depths to determine the most commonly occurring sharpest rise depth in the cycle, using a 5-element moving sum filter, and comparing this cycle mode depth with that determined from the previous cycle;

(f) if the difference between the current and the previous cycle mode depths determined in (e) is less than a user specified depth difference limit, then the current mode is declared to be the bottom depth for the current cycle and the echo signals immediately above said bottom depth are examined for all pings in the cycle for echo intensity features characteristic of SAV; and

(g) if the depth difference limit is exceeded in (f), then the process is repeated on the incoming digital data until the bottom depth test is successfully completed.



distance calculating means for calculating a distance to the reflection object on the basis of the time difference calculated by the time difference measuring means; and

error correcting means for detecting a time interval during which a signal level of the reception wave remains higher than a predetermined threshold level, and for correcting an error in the calculated distance to the reflection object on the basis of the detected time interval, the error being caused by a difference in intensity of the reception wave.

5,805,528

UNDERWATER DETECTION SYSTEM

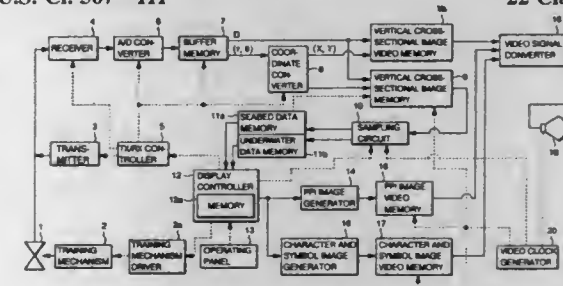
Tokihiko Hamada, Kobe; Yoshinari Yoshida, Takarazuka; Yuzuru Hiraoka, Moriguchi; Genji Mori, Kobe; Hiroyasu Fujimoto, Kobe; Yoshiaki Tominaga, Kobe, and Tatsuo Hayashi, Takarazuka, all of Japan, assignors to Furuno Electric Co., Ltd., Hyogo, Japan

Filed Mar. 5, 1996, Ser. No. 610,941

Int. Cl.⁶ G01S 15/89

U.S. Cl. 367—111

22 Claims



1. An underwater detection system for searching an area, comprising:

- a transducer device for transmitting ultrasonic waves and receiving echoes returned from a vertical cross-sectional area oriented in a selected horizontal direction;
- a transducer training means for successively rotating said transducer in a horizontal plane in steps of a specified angle to train said transducer device to transmit and receive said ultrasonic waves from successive vertical cross-sectional areas oriented in successive selected horizontal directions;
- means for scanning a receiving beam of said transducer device to scan said successive vertical cross-sectional areas when said transducer is oriented at each of said successive selected horizontal directions;
- a memory for storing received echo signals containing information on each vertical cross-sectional area searched by said transducer; and
- an indicator for displaying echo signals stored in said memory so that a plan view of the area of search is presented.

5,805,529

FOLDED SHELL PROJECTOR (FSP)

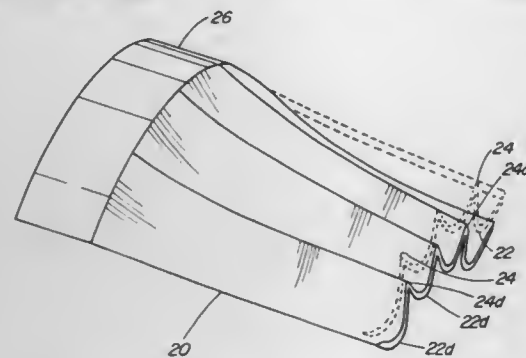
Christopher John A. Purcell, Dartmouth, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence of Her Majesty's Canadian Government, Ottawa, Canada

Filed Sep. 17, 1997, Ser. No. 932,581

Int. Cl.⁶ H01V 7/00

U.S. Cl. 367-163

22 Claims



1. An acoustic projector comprising a pair of spaced apart end plates with an acoustic driver positioned between the end plates, the driver having smaller cross-sectional dimensions than the end plates which have edges secured to an outer one-piece thin walled shell that provides an enclosure for said driver, the thin walled shell having a concavely inwardly bent surface between the end plates and a plurality of axially extending corrugations to provide a predetermined axial compliance and radial-to-axial transformation ratio.

5,805,530

SYSTEM, METHOD, AND DEVICE FOR AUTOMATIC SETTING OF CLOCKS

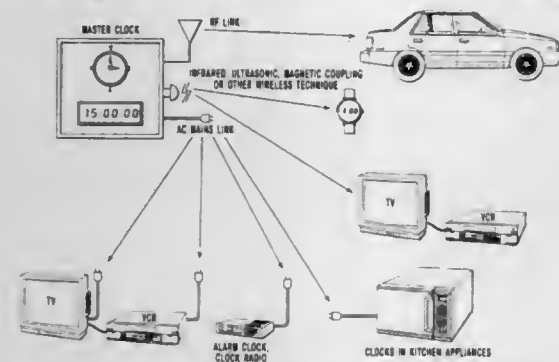
C. Eric Youngberg, 34 E. 1700 North, Mapleton, Utah 84664

Filed Sep. 5, 1996, Ser. No. 708,453

Int. Cl.⁶ G04C 3/00

U.S. Cl. 368-47

14 Claims



1. A system for updating the time of a remote host device, the system comprising:

- a remote host time piece device for maintaining the time of day and having a timebase with a reference from an electronic input;
- a master time piece for obtaining the correct time and for transmitting the correct time to the remote host time piece device;
- means for accepting the transmission of the correct time from the master time piece and for setting the time of day in the remote host time piece device to the correct time transmitted from the master time piece;
- means, remote from the master time piece, for initiating from the master time piece the transmission of the correct time to the remote host time piece device upon the occurrence of an event; and wherein:

the master time piece transmits to the remote host time piece device an accuracy number that is used to determine based upon a selected tolerance whether the transmitted correct time from the master time piece is to be accepted for setting the time of day in the remote host time piece device to the correct time transmitted from the master time piece.

5,805,531

WATCH IN PARTICULAR WRISTWATCH

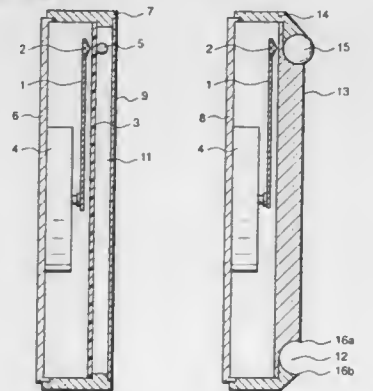
Roy Schäfer, Karlsruhe, Germany, assignor to Erich Lacher Uhrenfabrik GmbH & Co. KG, Pforzheim, Germany

Filed May 20, 1997, Ser. No. 859,355

Int. Cl.⁶ G04B 19/00; 19/06

U.S. Cl. 368-76

10 Claims



1. A watch comprising: at least one guide element; at least one time indicator element; and a dial interposed between said at least one guide element and said at least one time indicator element, said at least one guide element being movable as a function of time and said at least one time indicator element being magnetically coupled to said at least one guide element for movement with said at least one guide element to provide a detectable time indication, wherein said watch further comprises means defining a cage space for maintaining said at least one time indicator element secure against loss, and the magnetic coupling between said at least one time indicator element and said at least one guide element extends over at least a partial area of said cage space.

5,805,532

TIME INTERVAL MEASUREMENT SYSTEM AND METHOD APPLIED THEREIN

Hirokuni Murakami, Kanagawa, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 27, 1997, Ser. No. 917,765

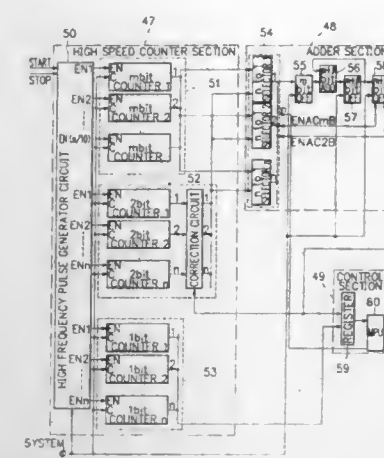
Claims priority, application Japan, Aug. 29, 1996, 8-228932

Int. Cl.⁶ G04F 8/00; 10/00

U.S. Cl. 368-113

22 Claims

1. A time interval measurement system comprising:
- a high speed counter section including:
 - a m-bit counter unit having a plurality of m-bit counters for counting the number of pulses of a clock signal for obtaining an integer part of a time interval between a START signal and a STOP signal inputted to the high speed counter section,
 - a first 1-bit counter unit having a plurality of first 1-bit counters for counting the number of pulses of the clock signal for obtaining a decimal part of the time interval, and
 - a high frequency pulse generator circuit for periodically generating a plurality of delayed signals at intervals of a unit delay time which is shorter than the cycle time of the clock signal, according to the input of the START signal to the high speed counter section, and supplying each of a plurality of counter stop signals according to the delayed signals



to a corresponding m-bit counter in the m-bit counter unit and a corresponding first 1-bit counter in the first 1-bit counter unit;

an adder section for executing addition of counted values of the m-bit counters in the m-bit counter unit and addition of counted values of the first 1-bit counters in the first 1-bit counter unit; and

a control section for controlling the time interval measurement system, obtaining the integer part of the time interval by cutting off a decimal part of the average of the counted values of the m-bit counters using an output of the adder section, obtaining the decimal part of the time interval by cutting off an integer part of the average of the counted values of the first 1-bit counters using an output of the adder section, and obtaining the time interval by adding the integer part of the time interval and the decimal part of the time interval together and multiplying the added value by the cycle time of the clock signal,

wherein the first 1-bit counter unit includes:

- a first correction circuit for executing +1 correction to the counted values of the first 1-bit counters according to detection of involvement with a carry of a sequence of the counted values of the first 1-bit counters; and
- a second correction circuit for executing +2 correction to the counted values of the first 1-bit counters according to detection of involvement with return to an initial value of the sequence of the counted values of the first 1-bit counters.

5,805,533

ELECTROLUMINESCENT DISPLAY FOR A TIMEPIECE

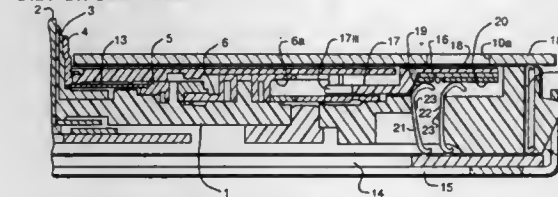
Lyman R. Daigle, Bethlehem; Walter R. Mack, Watertown, and Andrew C. Ledesma, Woodbury, all of Conn., assignors to Timex Corporation, Middlebury, Conn.

Filed Sep. 12, 1996, Ser. No. 712,727

Int. Cl.⁶ G04B 19/32; 19/20

U.S. Cl. 368-226

7 Claims



1. An improved electroluminescent display for a timepiece having a dial with a window therein and having a movement adapted to provide a rotational movement to a ring adapted to be periodically rotated beneath said dial window, said display comprising:
- a drive circuit for an electroluminescent display, including means for selectively actuating the drive circuit,
 - a ring of transparent insulating material having a sequence of indicia on the upper surface thereof, said ring being disposed beneath said dial for rotation by the movement,

at least one electroluminescent lamp disposed on the underside of said ring beneath said indicia, first and second electrodes connected to the electroluminescent lamp and extending continuously around the ring, and a pair of electrically conductive members connected to the drive circuit and arranged to make sliding electrical contact with the first and second electrodes as the ring rotates.

5,805,534

POSITIONALLY CONSISTENT, BALANCED DIGITAL TIME DISPLAYS

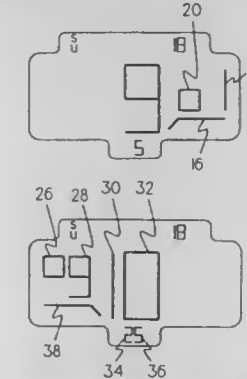
Berj Terzian, Croton-on-Hudson, N.Y., assignor to Equitime, Inc., Croton-on-Hudson, N.Y.

Filed Apr. 22, 1996, Ser. No. 635,604

Int. Cl.⁶ G04C 19/00

U.S. Cl. 368-241

20 Claims



1. In a balanced digital display which displays current hours with elapsed unit minute digits to the right thereof, next hours with remaining unit minute digits to the left thereof, with the current hours and the next hours substantially centrally on the display, the improvement which comprises nonsignificant zero digits displayed in the tens of minutes position between current hours and elapsed unit minutes during the initial nine minutes of a current hour, which nonsignificant zero digits are visually smaller in size than the size of the unit minute digits while the unit minute digits remain visually substantially the same in size.

5,805,535

MOVABLE SHUTTER FOR A WATCH

Jean-Pierre Guyard, Mery sous Montford, and Pierre LaBoue, Emagny, both of France, assignors to Fabrique de montres Delanteau SA, Switzerland

Filed Dec. 9, 1996, Ser. No. 762,437

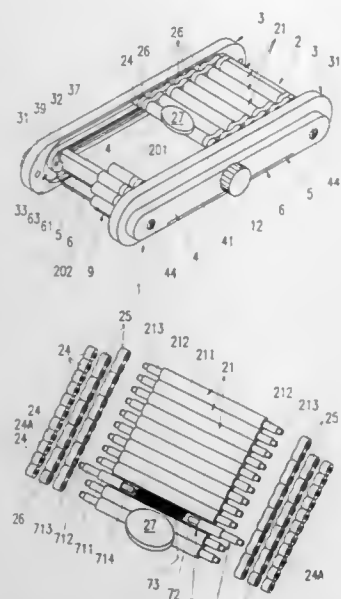
Claims priority, application Switzerland, Dec. 20, 1995, 03621/95

Int. Cl.⁶ G04B 37/00

U.S. Cl. 368-283

9 Claims

5. A movable shutter device for a timepiece, wherein the timepiece has a middle part having a crystal over it and having an underside below the middle part, the shutter device comprising:
- two parallel, lateral supports extending past the middle part of the timepiece, the lateral supports having facing opposed internal surfaces and a respective groove provided in each internal surface;
 - a plurality of shutter axles, each axle having respective opposite end portions received and guided for movement in the grooves in the internal surfaces of the lateral supports, the grooves being oriented for guiding the axles above and past the crystal in the middle part of the timepiece;
 - at each internal surface, two adjacent rows of connecting links on the axles, one row of links being an internal row and toward the other internal row and the other row of links at each internal surface being an external row outward of the internal row, the links of the internal row at each internal



surface being offset with respect to the links of the external row at the internal surface by at least one step, each link of the internal row and each link of the external row each uniting at least two adjacent shutter axes, the grooves being so shaped and the axes being of such number that the shutter is formed by the axes being displaceable above the crystal so as to be able to cover the crystal or leave it partially visible or completely visible;

a stop device positioned for limiting the extent of movement of the shutter axes along the grooves for establishing maximum displacements of the shutter axes;

each of the shutter axes comprises a centrally located cylinder having on each side thereof a connecting axle on which both the internal and external row links are carried and having a bearing axle outward of the connecting axle and which is received in the respective groove in the respective lateral support;

each bearing axle supporting an independent roller within the groove and the roller being comprised of a noble material having a very high hardness and a very high lubricating capacity.

5,805,536

METHOD FOR BANDWIDTH REDUCTION IN WRITEABLE OPTICAL DATA STORAGE APPARATUS
Edward C. Gage, Fairport; Steven C. Dohmeier, Rochester, and Mark V. Hettel, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 7, 1996, Ser. No. 740,348

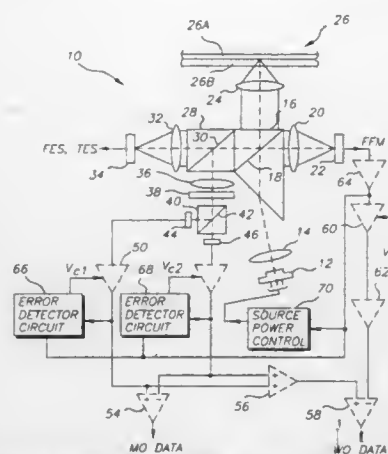
Int. Cl. G11B 11/00

U.S. Cl. 369-13

16 Claims

1. A method for reading data from an optical medium with reduced bandwidth, comprising the steps of:

- (a) producing a gain adjusted front facet monitor signal from a laser light beam;
- (b) producing first and second data signals from data read from the medium;
- (c) producing first and second gain adjusted data signals in response to the gain adjusted front facet monitor signal and first and second data signals, respectively;
- (d) producing a magneto-optic data signal in response to the first and second gain adjusted data signals, the magneto-optic data signal being a function of the difference between the first and second gain adjusted data signals, and producing a combined data signal in response to the first and second gain adjusted data signals, the combined data signal being a function of the sum of the first and second gain adjusted data signals; and



(e) producing a write-once data signal in response to the gain adjusted front facet monitor signal and the combined data signal, the write-once data signal being a function of the difference between the gain adjusted front facet monitor signal and the combined data signal.

5,805,537

INFORMATION RECORD MEDIUM, APPARATUS FOR RECORDING THE SAME AND APPARATUS FOR REPRODUCING THE SAME

Kaoru Yamamoto, Tsurugashima; Tokihiro Takahashi, Tokorozawa; Hidehiro Ishii, Tokorozawa; Hiroshi Nakamura, Tokorozawa; Tadashi Noguchi, Tokorozawa; Takao Sawabe, Tokyo-to, and Junichi Yoshio, Tokorozawa, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

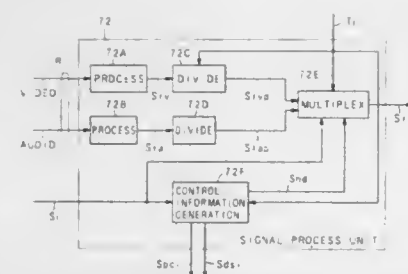
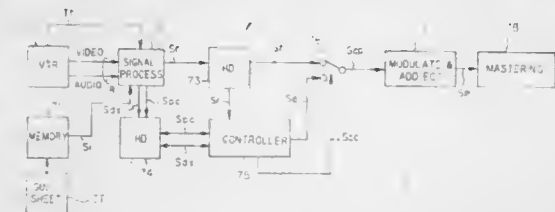
Filed Mar. 17, 1997, Ser. No. 819,861

Claims priority, application Japan, Mar. 18, 1996, 8-061473

Int. Cl. G11B 7/00; G06F 7/24

U.S. Cl. 369-32

9 Claims



1. An information recording apparatus, comprising:

- a signal process means for applying a predetermined signal process to record information to be recorded onto an information record medium to thereby generate processed record information comprising a plurality of information units, which are set in advance;
- a divide means for dividing said processed record information by each record unit, which includes one or more said information units and which is set in advance on the basis of said predetermined signal process;
- a multiplex means for setting a start position of said one or more information units within said each record unit, on the basis of control information inputted from the external to control a reproduction of said record information, generating start posi-

tion information indicating the start position and multiplexing said start position information with said processed record information for said each record unit, to thereby generate multiplexed processed record information; and
a record means for recording said multiplexed processed record information onto said information record medium.

5,805,538

METHOD FOR REPRODUCING MULTIPLE OPTICAL RECORDING MEDIUM WITHOUT INTERRUPTION
Takashi Kamada, Settushi; Masashi Yamaguchi, Oosakashi, and Masaya Miyazaki, Ikedashi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

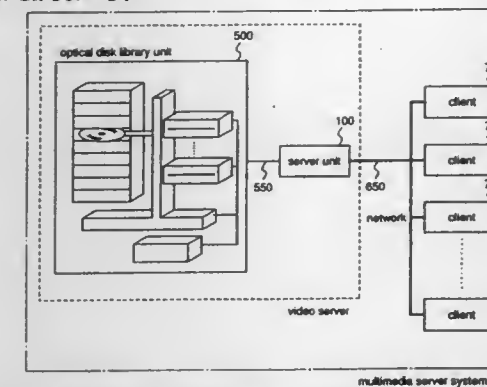
Filed Nov. 14, 1996, Ser. No. 748,657

Claims priority, application Japan, Nov. 17, 1995, 7-299968; Oct. 17, 1996, 8-275013

Int. Cl. G11B 17/22

U.S. Cl. 369-34

4 Claims



1. A method for reproducing multimedia data in response to plural requests for reproduction using an optical disk library unit having at least one optical disk drive, wherein, when a new request for reproduction of multimedia data is given to the optical disk library unit during reproduction of multimedia data recorded over plural optical disks, this new request for reproduction is refused if an optical disk having the multimedia data requested by the new request is the same as one of the plural optical disks having the multimedia data being reproduced.

5,805,539

RECORDING MEDIUM MANAGEMENT METHOD WHERE RECORDING IS CARRIED OUT BY DATA RECORDING UNITS IN ACCORDANCE WITH MANAGEMENT TABLES

Tatsuya Igarashi, Kanagawa, and Katsuyuki Teranishi, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 374,727, Mar. 20, 1995. This application May 12, 1997, Ser. No. 855,815

Claims priority, application Japan, Jun. 14, 1993, 5-141819; Oct. 28, 1993, 5-270099

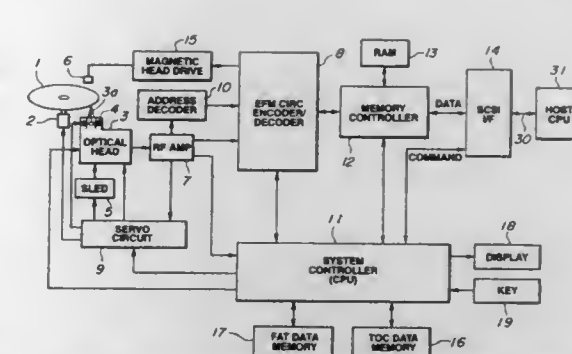
Int. Cl. G11B 7/00

U.S. Cl. 369-47

2 Claims

1. A computer system for recording digital data onto a recording medium, comprising:

- a recording medium on which the digital data is recorded;
- recording means for recording the digital data onto the recording medium;
- wherein management of recording digital data onto the recording medium where recording is carried out in first data recording units is carried out in accordance with a first table, wherein a designated area of the recording medium is caused to undergo management in accordance with the first table to carry out recording in second data recording units with respect to the designated area, and



wherein management of recording digital data onto the recording medium in the designated area, where recording is carried out in second data recording units, is carried out in accordance with a second table; reproducing means for reproducing the first table recorded on the recording medium;

memory means for storing the first table; and control means for detecting an empty area of the recording medium from data of the first table to record data indicating that the empty area is caused to be tracks for digital data in the first table of the recording medium in cooperation with the recording means, and to prepare the second table at the leading portion of the empty area caused to be the tracks for digital data indicating use state of data of the recording medium in cooperation with the recording means, wherein when in an area where recording is carried out by the first data recording units an unrecorded area is insufficient, and the empty area corresponds to an area where recording is carried out by the second data recording units, the empty area is changed to an area on the first table, and wherein when in the area where recording is carried out by the second data recording units an unrecorded area is insufficient, and the empty area corresponds to an area where recording is carried out by the first data recording units, the empty area is changed to an area on the second table.

5,805,540

OPTICAL INFORMATION RECORDING AND/OR REPRODUCING APPARATUS AND METHOD WITH VIBRATION WAVE DRIVING DEVICE OR VIBRATION DRIVEN MOTOR DEVICE

Hiroto Kitai, Tokyo, and Kazuaki Matsumoto, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

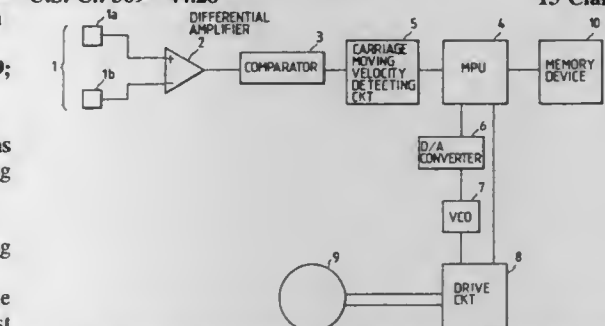
Division of Ser. No. 423,107, Apr. 18, 1995, abandoned. This application May 9, 1997, Ser. No. 853,797

Claims priority, application Japan, Apr. 20, 1994, 6-081659; Apr. 20, 1994, 6-081660

Int. Cl. G11B 7/085

U.S. Cl. 369-44.28

13 Claims



1. An information recording/reproducing apparatus for recording information on and/or reproducing information from a recording medium using a light beam emitted from an optical head, comprising: vibration wave driving means for conducting relative movement between the optical head and the recording medium;

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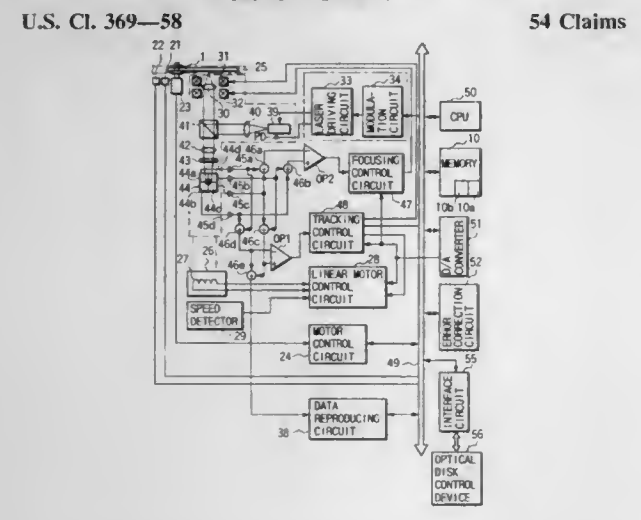
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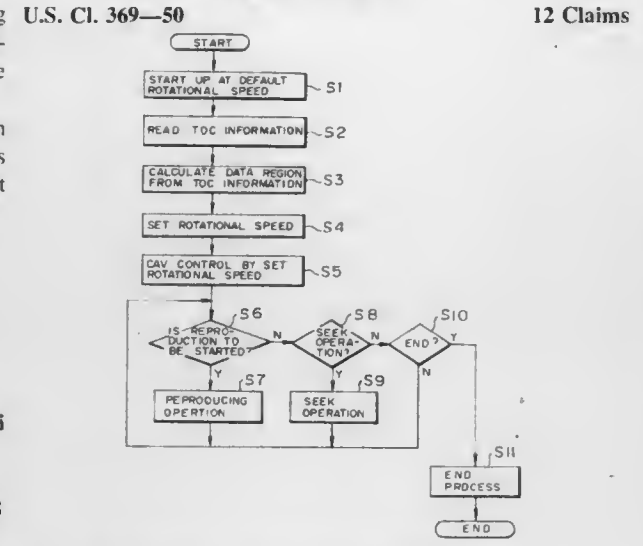
frequency information extracting means for extracting groove frequency information from information extracted by said information reading means;
frequency measuring means for measuring the frequency of the frequency information extracted by said frequency information extracting means;
recording means for performing a recording operation in respect to the disc-like recording medium;
discriminating means for discriminating whether a rotating speed of the disc-like recording medium has reached to suitable rotation velocity or not in accordance with a result of the frequency measuring means; and
control means for controlling a laser power at the linking area in advance for the recording operation if the rotating speed has reached a suitable rotation velocity in accordance with a result of the discriminating means.

5,805,547
OPTICAL DISK DEVICE AND REPLACEMENT PROCESSING METHOD
Mikio Yamamuro, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Mar. 24, 1997, Ser. No. 822,490
Claims priority, application Japan, Mar. 25, 1996, 8-068528
Int. Cl.⁶ G11B 7/00



1. A replacement processing method for an optical disk which has tracks arranged in a concentric or spiral form for data recording and in which a format having a plurality of successive sector areas each having a preset track length and including an address field for recording address data indicating the position on the track and a recording field for recording a recording data is defined, and the recording data recording is effected in units of one block area containing a group of a preset number of sector areas among said plurality of sector areas and including an error correction data recording area in which error correction data items used for reproducing data recorded in said preset number of sector areas are collectively recorded for the group of said preset number of sector areas, comprising the steps of:
successively recording the recording data and error correction data into a plurality of successive block areas on said optical disk; and
skipping over a sector area with defect in units of one sector area and recording the recording data and error correction data into a next sector area in a case where the recording data and error correction data is sequentially recorded into said plurality of sector areas in each of said block areas.

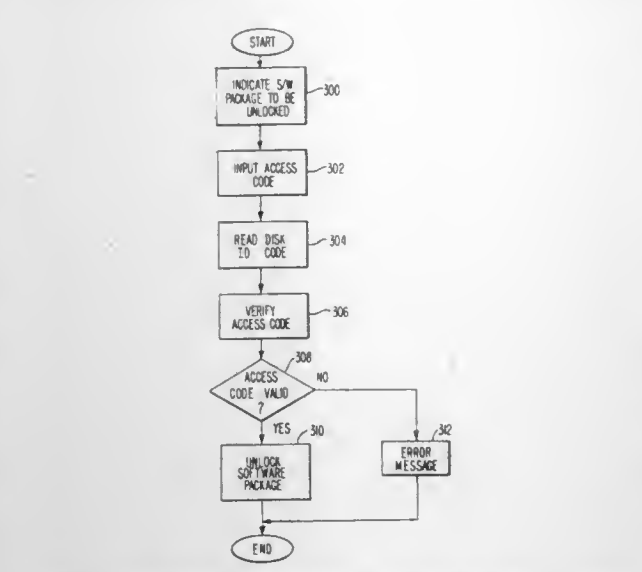
5,805,548
INFORMATION READING APPARATUS
Kanji Ishihara, Shinichi Okada, and Keiji Katata, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Filed Aug. 30, 1996, Ser. No. 697,838
Claims priority, application Japan, Sep. 7, 1995, 7-255668
Int. Cl.⁶ G11B 7/00



1. An information reading apparatus comprising:
means for rotating at a constant angular velocity a disk-shaped recording medium on which information has been recorded at a constant linear velocity;
reading means for reading the recording information of said disk-shaped recording medium and transmitting the read information to an external apparatus through a buffer memory; and
setting means for setting a rotational angular velocity of said disk-shaped recording medium in a manner such that at a predetermined radial position excluding the outermost peripheral portion of an information recording region of said disk-shaped recording medium, a transfer rate when said read information is transferred to said buffer memory is equal to a maximum sustain transfer rate at which said information reading apparatus can perform a reading.

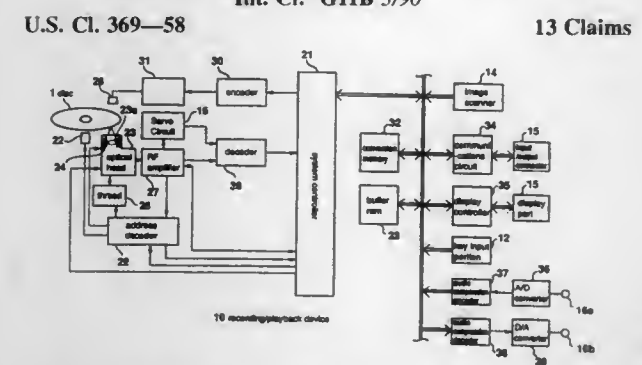
5,805,549
USING DEFECT READ FROM A DISK TO REPRESENT A MACHINE-READABLE CODE
Barry A. Fite; Michael L. Mitchell; Russ A. Kunz, and Clifford R. Brannon, all of Terre Haute, Ind., assignors to Sony Corporation, Tokyo, Japan, and Digital Audio Disc Corporation, Terre Haute, Ind.
Division of Ser. No. 346,423, Nov. 29, 1994, Pat. No. 5,513,169, which is a division of Ser. No. 132,709, Oct. 6, 1993, Pat. No. 5,400,319. This application Apr. 2, 1996, Ser. No. 626,359
Int. Cl.⁶ G11B 27/19

1. A method of reproducing data from an optical information storage disk, comprising the steps of:
reading defects from a predetermined area on said disk, said defects representing a machine-readable code; and



selectively reading and recovering information from another area on said disk as a function of said machine-readable code.

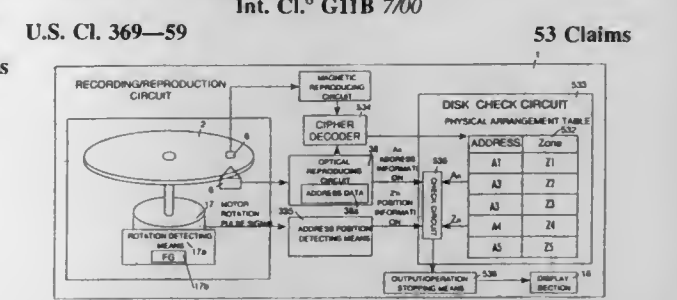
5,805,550
RECORDING MEDIUM CAPABLE OF RECORDING A FIRST DATA-TYPE AND A SECOND DATA-TYPE, PLAYBACK METHOD AND PLAYBACK DEVICE FOR PLAYING-BACK FROM THE RECORDING MEDIUM, AND RECORDING DEVICE FOR RECORDING FIRST-TYPE DATA AND SECOND TYPE DATA ON THE RECORDING MEDIUM
Takashi Ohmori, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Division of Ser. No. 505,749, Jul. 21, 1995, Pat. No. 5,737,290.
This application Jun. 6, 1997, Ser. No. 870,505
Claims priority, application Japan, Jul. 29, 1994, 6-196162
Int. Cl.⁶ G11B 3/90



4. A reproducing device for reproducing data from a recording medium comprising:
a first recordable area for recording first-type data composed of at least one program;
a second recordable area for recording second-type data composed of at least one file;
a third recordable area for recording second-type data composed of at least one file;
a first management area for managing the at least one program of the first recordable area and at least one file of the second recordable area and a defective area on the medium, first management data comprising a corresponding part table indicating data for indicating a part table, the part table manages the start address, end address of part of a program, and link information for indicating next slot address to be linked;
a second management area for managing the at least one file of the second recordable area; and

a third management area for managing at least one file of the third recordable area, the reproducing device comprising:
means for reproducing the first management data of the first management area;
first determining means for determining whether or not a defective area is being managed within the first management data of the first management area reproduced by the reproducing means;
first management means for, when determined by the first determination means that a defective area is being managed, accessing the defective area based on defective area management data;
second determining means for determining whether or not an error exists at the accessed defective area;
third determining means for determining whether or not there is a third management area when there is no error present at the defective area accessed by the second determining means; and
second management means for, when the third determining means determines the existence of a third management area, reproducing contents of the third management area and accessing file data based on reproduced third management data.

5,805,551
METHOD AND APPARATUS FOR PREVENTING ILLEGAL COPY OR ILLEGAL INSTALLATION OF INFORMATION OF OPTICAL RECORDING MEDIUM
Mitsuaki Oshima, Kyoto, and Yoshiho Gotoh, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Division of Ser. No. 423,668, Apr. 18, 1995, which is a continuation-in-part of Ser. No. 281,337, Jul. 27, 1994, Pat. No. 5,473,584. This application Apr. 25, 1997, Ser. No. 845,794
Claims priority, application Japan, Apr. 18, 1994, 6-104879; Nov. 17, 1994, 6-283415; Dec. 28, 1994, 6-327963; Feb. 1, 1995, 7-15318; Feb. 3, 1995, 7-16865
Int. Cl.⁶ G11B 7/00



1. An information reproducing system comprising means (17) for rotationally driving a disc-like optical recording medium (2) wherein information is recorded in the form of pits, an optical head (6) for reading out the recorded information from said optical recording medium, head-moving means (23) for making said optical head movable radially on said optical recording medium, and signal processing means for processing the information read out through said optical head, which system is characterized by including:
first physical information detecting means (743, 38, 665) for detecting, on the basis of information read out through one of said optical head and a magnetic head, first physical feature information (532) which is representative of a physical feature including at least one of a two-dimensional pit arrangement and a pit configuration on said optical recording medium and which is enciphered and recorded at manufacturing of said optical recording medium;
decryption means (534) for deciphering the first physical feature information;
means (17a, 6, 38, 703a) for measuring a physical feature of said optical recording medium to detect second physical feature information;

check means (535) for checking said second physical feature information with said first physical feature information to make a decision as to whether or not both are in a specific relation to each other; and

control means (717, 665) for, when the check means decides that said second physical feature information is not in the specific relation to said first physical feature information, stopping one of an operation of a specific program read out from said optical recording medium, the subsequent reading-out of information from said optical recording medium, and a given process of information, read out from the optical recording medium, the given process being practiced by said signal processing means, characterized in that said decryption means (534) converts a cipher into a plain text including said first physical feature information by using a disclosed key cipher system function (695b, 698b, 735h) for a decryption calculation (698b, 735s).

5,805,552

DISC CARTRIDGE LOADING APPARATUS

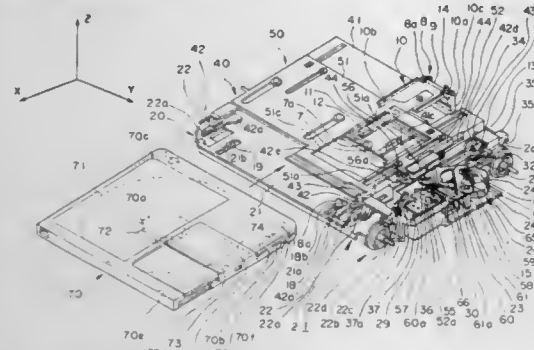
Toshimasa Tozune, Saitama, and Koichi Numata, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation of Ser. No. 350,315, Dec. 2, 1994, abandoned, which is a division of Ser. No. 64,552, May 19, 1993, abandoned. This application Sep. 5, 1996, Ser. No. 707,581

Claims priority, application Japan, May 22, 1992, 4-130252; May 22, 1992, 4-130253; May 22, 1992, 4-130254; Oct. 6, 1992, 4-292138; Oct. 8, 1992, 4-296455

Int. Cl.⁶ G11B 33/02

U.S. Cl. 369—75.2

10 Claims



1. A disc cartridge loading apparatus comprising:
an outer casing having a chassis mounted therein;
a main slider supported so as to be freely slidable on said chassis, the main slider having side members;
a cartridge holder which is supported so as to be freely moved upward and downward between the side members of said main slider, said cartridge holder being adapted to receive a disc cartridge between side portions thereof;

a loading slider which is supported so as to be freely slidable on said cartridge holder and having a hook portion on a side thereof engageable with an engaging groove provided on a corresponding side of said disc cartridge, the loading slider being slidably coupled to the cartridge holder for slidable movement in the forward and rearward directions relative to the cartridge holder;

drive means for selectively moving said disc cartridge inserted into said disc holder and engaged with said hook portion of said loading slider in a loading direction and an unloading direction according to sliding movement of said loading slider;

means for raising and lowering said cartridge holder and said loading slider relative to said main slider according to sliding movement of said main slider;

a plurality of damper mechanisms provided between said disc cartridge loading apparatus and said outer casing such that said loading apparatus is movable in three dimensions relative to said outer casing;

engaging members engageable with corresponding engaging members on said outer casing so as to positionally fix said disc cartridge loading apparatus in said three dimensions during upward movement of said cartridge holder;

a projection is formed at an inner side of at least one side portion of said cartridge holder, the projection being adapted to displace a shutter of said disc cartridge according to loading or unloading of said disc cartridge into said disc cartridge loading apparatus; and

a switch detecting completion of insertion of said disc cartridge and located rearwardly of said projection.

5,805,553

HOLDER DEVICE AND HOLDER MOUNTING METHOD IN HOLDER DEVICE

Shinji Hamakawa, and Kazuhito Kurita, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

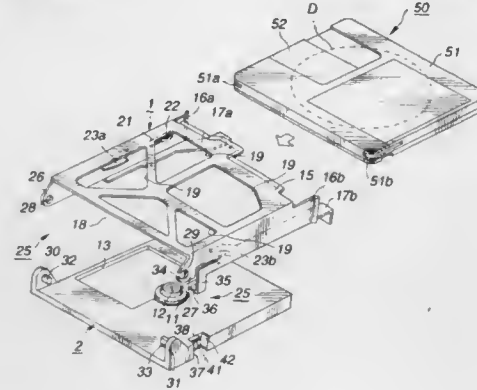
Filed May 5, 1997, Ser. No. 851,144

Claims priority, application Japan, May 13, 1996, 8-117707

Int. Cl.⁶ G11B 33/02

U.S. Cl. 369—75.2

10 Claims



1. A holder apparatus comprising:

a holder for holding a disc cartridge;

a chassis on which said holder is rotatably mounted; and

a supporting mechanism for rotatably supporting said holder relative to said chassis, said supporting mechanism including: first and second shafts mounted on one of said chassis and said holder, and

first and second receiving portions formed on the other of said chassis and said holder, said first receiving portion having a first engagement hole for engaging with said first shaft and said second receiving portion having a second engagement hole for engaging with said second shaft, said second engagement portion having a cut-out formed in continuation to said second engagement hole;

wherein said second shaft has an elliptical cross-section with a width that is smaller than a width of said cut-out and a length that is greater than the width of said cut-out, and wherein said supporting mechanism rotatably mounts said holder on said chassis by engaging said first shaft in said first hole and engaging said second shaft in said second hole via said cut-out.

5,805,554

VERTICAL DISC LOADING DEVICE HAVING A PIVOTAL HOLDER

Toshiaki Suzuki, and Shin Kagami, both of Miyagi-ken, Japan, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

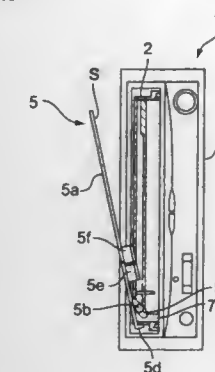
Filed Oct. 11, 1996, Ser. No. 730,020

Claims priority, application Japan, Oct. 31, 1995, 7-282306

Int. Cl.⁶ G11B 17/04

U.S. Cl. 369—77.1

7 Claims



1. A disc loading device including a disc tray having a disc settling part for loading a disc into a device body and for ejecting said disc from said device body wherein said disc is vertically aligned to stand on an edge so that the axis of said disc is perpendicular to the movement of said disc when loaded or ejected from said device body, said loading device comprising:

a holder coupled to said disc tray so that, when said disc tray is ejected in a vertical installation, an upper portion of said holder is open allowing insertion and removal of said disc therefrom while preventing said disc from falling out of said disc tray, and when said disc tray is in a loading position, said holder is closed to securely set said disc in said disc settling part.

5,805,555

MOVABLE INTERNAL PLATFORM FOR A DISK DRIVE

David E. Jones, Layton; Michael R. Lyon, Roy; Richard F. Leavitt, Layton; Carl F. Nicklos, Ogden; Ralph L. Sonderegger, Farmington; Mark S. Thayne, West Point, and Yiping Ma, Layton, all of Utah, assignors to Iomega Corporation, Roy, Utah

Continuation of Ser. No. 398,576, Mar. 3, 1995, which is a continuation-in-part of Ser. No. 324,808, Oct. 18, 1994, and Ser. No. 324,671, Oct. 18, 1994, abandoned. This application

Aug. 19, 1996, Ser. No. 699,471

Int. Cl.⁶ G11B 33/02; 23/03

U.S. Cl. 369—77.2

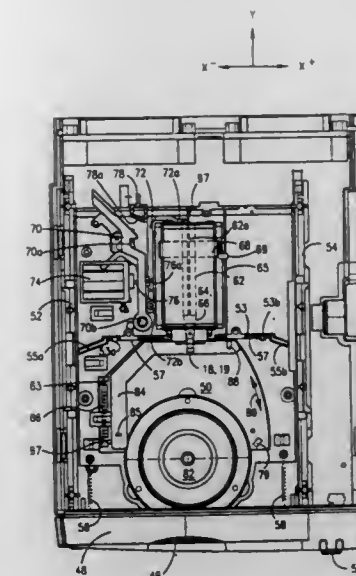
3 Claims

1. A platform for use in a data storage device of the type that receives a removable disk cartridge, said data storage device having a housing, said platform comprising:

a plurality of pins for movably mounting said platform within said data storage device to enable movement of said platform between forward and rearward positions relative to said housing;

a cartridge receiving stop disposed on said platform;

means for mounting, on said platform, an actuator of the type having a head mounted thereon for recording and reading information to and from a recording medium within the disk cartridge; and



means for mounting a spindle motor on said platform for rotating the recording medium within the disk cartridge.

5,805,556

OPTICAL PICKUP APPARATUS HAVING A HOLOGRAPHIC OPTICAL ELEMENT

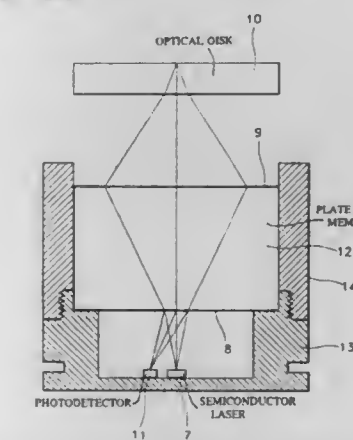
Chul-woo Lee; Jang-hoon Yoo, both of Seoul; Yong-hoon Lee, and Kyung-hwa Rim, both of Kyungki-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 30, 1996, Ser. No. 777,130

Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—103

22 Claims



1. An optical pickup apparatus for optically recording and reproducing information on and from an optical recording medium, in which a beam reflected from the optical recording medium is separated from the optical path of the incident beam, the optical pickup apparatus comprising:

a light source for generating and emitting a light beam;

means for focusing the beam emitted from said light source on the optical recording medium;

a photodetector for detecting an electrical signal by receiving the reflected beam separated from the optical path of the incident beam; and

a holographic optical element for diffracting the beam diverged from said light source to enlarge a diverging angle of the beam.

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5,805,557

OPTICAL PICKUP

Hitoshi Furuhashi, Aki Terajima, Shigeru Takaya, and Masufumi Asada, all of Saitama-ken, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

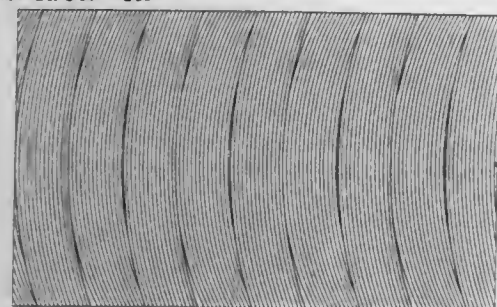
Filed Sep. 11, 1997, Ser. No. 927,198

Claims priority, application Japan, Sep. 13, 1996, 8-243077

Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—109

8 Claims



1. An optical pickup comprising:
 - a light source;
 - an objective lens for converging a beam from the light source onto an optical disc;
 - a diffraction grating for passing a beam returning from the optical disc;
 - a photo-detector for receiving returning beams passing through the diffraction grating;
 - wherein the diffraction grating is divided into two areas, each area including alternatively arranged first diffraction grating pattern and second diffraction grating pattern.

5,805,558

LIGHT SIGNAL DETECTION CIRCUIT WITH DUAL LIGHT DETECTING MEANS AND ARRANGEMENT THEREOF

Motoi Kimura, Kanagawa, Japan, assignor to Sony Corporation, Japan

PCT No. PCT/JP96/00190, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO96/24131, PCT Pub. Date Aug. 8, 1996

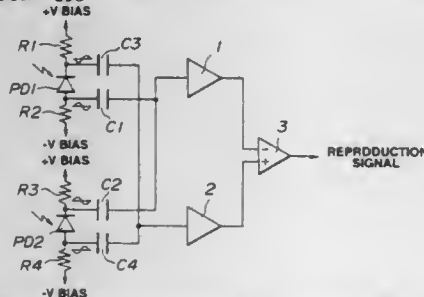
PCT Filed Jan. 31, 1996, Ser. No. 704,721

Claims priority, application Japan, Jan. 31, 1995, 7-014691; Jan. 31, 1995, 7-014692

Int. Cl.⁶ G11B 7/00

U.S. Cl. 369—116

4 Claims



1. A light signal detection circuit for converting optical recording signal recorded on a recording medium into an optical signal extracted therefrom, the light signal detecting circuit comprising:
 - a first and second light detecting means for detecting the light signal;
 - first current/voltage converting means for adding, in terms of current, an output signal from a first terminal side of the first light detecting means and an output signal from a second terminal side of the second light detecting means which outputs an in-phase component with respect to the output signal to convert it into voltage;

second current/voltage converting means for adding, in terms of current, an output signal from a third terminal side of the first light detecting means and an output signal from a fourth terminal side of the second light detecting means which outputs an in-phase component with respect to the output signal; and

differential amplifying means for carrying out differential amplification between output signals from the first and second current/voltage converting means.

5,805,559

OPTICAL RECORDING OR REPRODUCING APPARATUS

Toshiya Murakami, Kanagawa, and Tsukasa Wadamori, Kagoshima, both of Japan, assignors to Sony Corporation, Japan

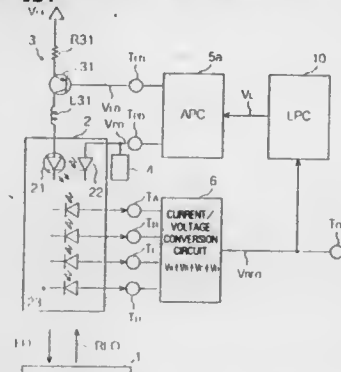
Filed Jul. 17, 1997, Ser. No. 895,897

Claims priority, application Japan, Aug. 22, 1996, 8-221577

Int. Cl.⁶ G11B 7/00; H03G 9/12

U.S. Cl. 369—124

15 Claims



1. An optical recording or reproducing apparatus for performing recording or reproduction of information by emitting a laser beam to an optical recording medium, comprising:
 - a laser beam source for emitting said laser beam of an intensity in response to a signal to be supplied;
 - a signal supplying means for supplying the signal in response to a drive signal to said laser beam source;
 - an optical detecting means for detecting the laser beam emitted from said laser beam source;
 - an RF signal generating means for generating an RF signal of a level in response to the reflected light from said optical recording medium;
 - a reference signal generating means for detecting the light from said laser beam source and generating a reference level;
 - a control signal generating means for detecting the RF signal level generated by said signal generating means and generating a control signal of a level in response to the result of comparison of the detection level and said reference level; and
 - a current control means for generating a signal for controlling the current of said laser beam source in response to the output signal from the control signal generating means.

5,805,560

RECORDING/REPRODUCING APPARATUS AND RECORDING/REPRODUCING METHOD USING PROBE

Ryo Kuroda, Kawasaki; Toshihiko Takeda, Atsugi, and Shunichi Shido, Sagami-hara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1996, Ser. No. 720,974

Claims priority, application Japan, Oct. 16, 1995, 7-293643; Mar. 29, 1996, 8-103985; Oct. 3, 1996, 8-281900

Int. Cl.⁶ G11B 9/00

U.S. Cl. 369—126

65 Claims

1. A recording/reproducing apparatus for performing recording/reproduction by running a probe relative to a recording bit string

5,805,562

DISK PLAYER WITH COMPACT DISK TRANSPORTER

Yuichiro Hisatomi, Tokyo, Japan, assignor to Nakamichi Corporation, Tokyo, Japan

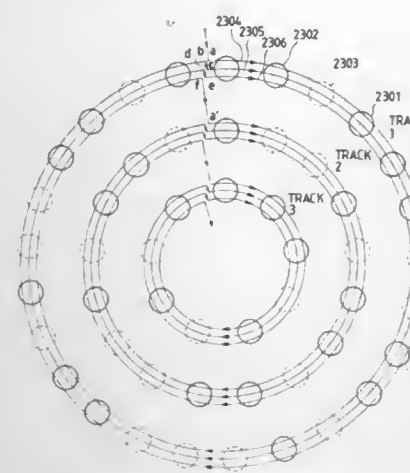
Continuation of Ser. No. 578,379, Dec. 26, 1995, abandoned, which is a continuation of Ser. No. 205,031, Mar. 1, 1994, abandoned. This application Apr. 2, 1997, Ser. No. 832,459

Claims priority, application Japan, Mar. 5, 1993, 5-071180; Mar. 5, 1993, 5-071233

Int. Cl.⁶ G11B 17/04

U.S. Cl. 369—191

15 Claims



on a recording medium and detecting recording bits in said recording bit string, comprising:

- plural recording bit detection means for letting said probe perform plural recording bit detections as taking positions thereof shifted relative to a same recording bit string on the recording medium; and
- recording bit determining means for performing determination of true recording bit, based on the results of said plural recording bit detections.

5,805,561

CARTRIDGE ENGAGEMENT SYSTEM FOR OPTICAL DISK CARTRIDGES HAVING A POSITIONABLE CARRIAGE

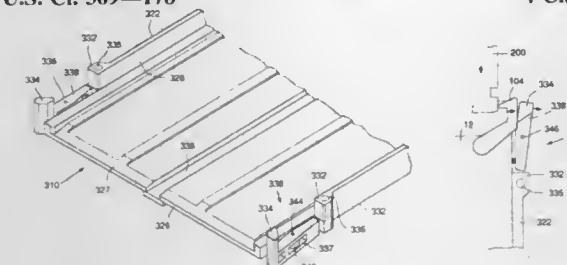
Christopher Anthony Pollard, Monument, Colo., assignor to Sony Corporation, and Sony Electronics, Inc., both of Tokyo, Japan

Continuation-in-part of Ser. No. 456,762, Jun. 1, 1995, abandoned, which is a continuation of Ser. No. 183,688, Jan. 18, 1994, Pat. No. 5,450,391. This application Feb. 6, 1996, Ser. No. 597,221

Int. Cl.⁶ G11B 17/22

U.S. Cl. 369—178

4 Claims



1. An apparatus for moving a cartridge along an axis, and for engaging with a cartridge which has been supplied at a cartridge engagement position, the apparatus comprising:

- a base having a distal end in the vicinity of the cartridge engagement position and an upper surface;
- a carriage disposed above the base which is moveable relative to the base along the axis, the carriage including a gripper arm engageable with the cartridge, so that after the cartridge is engaged with the gripper arm the carriage will move along the axis with the carriage; and
- a camming portion which is supported near the distal end of the base, which extends above the upper surface of the base, and which is moveable between a first position and a second position such that when the carriage is moved toward the distal end of the base, the gripper arm will urge the camming portion from the first position to the second position in order to prevent interfering contact between the gripper arm and the camming portion.

5,805,563

OPTICAL INFORMATION RECORDING MEDIUM ON WHICH A VISIBLE DISPLAY HAVING A STEREOSCOPICALLY VIEW EFFECT AND A DEPTH VIEWING EFFECT CAN BE MADE

Kazuhiko Nakano, Kawasaki, Japan, assignor to Nippon Columbia, Ltd., Tokyo, Japan

Filed Apr. 22, 1997, Ser. No. 847,722

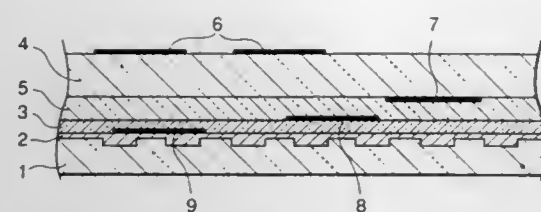
Claims priority, application Japan, Sep. 19, 1996, 8-247666

Int. Cl.⁶ G11B 7/24

U.S. Cl. 369—275.1

8 Claims

1. An optical information recording medium on which a visible display having a stereoscopically viewing effect and a depth-viewing effect can be made comprising:



- a first transparent substrate having an information recording surface covered by a reflection film;
a second transparent substrate having an obverse surface and a back surface opposite said obverse surface;
an adhesive layer bonded to said information recording surface of said first transparent substrate and to said second transparent substrate; and
a print layer provided on said obverse surface of said second transparent substrate and on said back surface of said second transparent substrate.

5,805,564

OPTICAL DISK CAPABLE OF DETECTING ERRORS IN ADDRESS AREA AND CORRECTING ERRORS IN DATA AREA AND RECORDING METHOD AND APPARATUS THEREFOR

Shoei Kobayashi, Kanagawa; Yoichiro Sako, Chiba, and Tamotsu Yamagami, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 29, 1996, Ser. No. 654,599

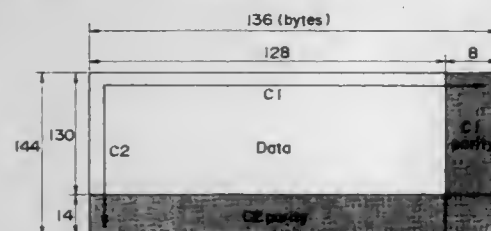
Claims priority, application Japan, Jun. 2, 1995, 7-136329

Int. Cl.⁶ G11B 7/24; H03M 13/00

U.S. Cl. 369—275.3

7 Claims

ECC FORMAT (8 SECTORS)



1. A data recording disk wherein:
a track for recording data is divided into a plurality of sectors;
each sector is composed of a first area for recording addresses and a second area for recording data;
a first code for error detection of said address is completed in said first area; and
a second code for error correction of said data is completed extending over said plurality of sectors of said track.

5,805,565

OPTICAL DISK HAVING WOBBLED INFORMATION SHARED BETWEEN TRACKS

Harukazu Miyamoto; Hiroyuki Minemura, and Hisataka Sugiyama, all of Kodaira, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 13, 1996, Ser. No. 600,730

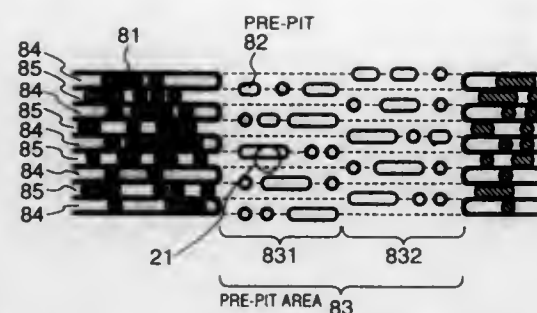
Claims priority, application Japan, Feb. 14, 1995, 7-024949

Int. Cl.⁶ G11B 7/24

U.S. Cl. 369—275.4

31 Claims

1. An optical disk recording medium comprising:
a substrate in the form of a substantially circular disk;
grooves and lands alternately formed on said substrate in a radial direction, said grooves and said lands both serving as recording tracks, said recording tracks being divided into recording units in the circumferential direction, each recording unit having an address area devoid of said groove; and



- first address information and second address information being provided in said address area of each recording unit, said first address information being formed on one side of a center line of one track so as to be shared with an adjacent track adjacent the one side of the center line of said one track, said second address information being formed on an other side of the center line of said one track so as to be shared with an adjacent track adjacent the other side of the center line of said one track, said first address information and said second address information not existing at opposing positions on both sides of the center line of said one track.

5,805,566

DISC CARTRIDGE

Daiki Kobayashi, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

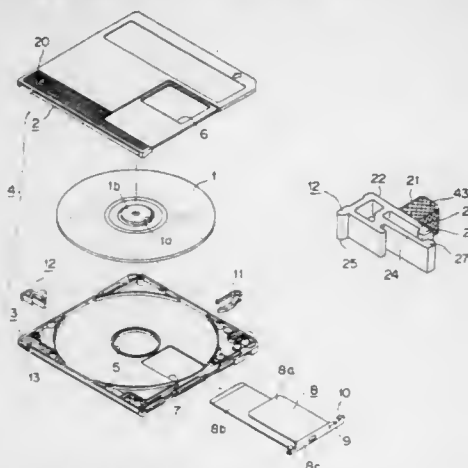
Filed Sep. 20, 1995, Ser. No. 531,079

Claims priority, application Japan, Sep. 27, 1994, 6-231933

Int. Cl.⁶ G11B 23/03; 19/04

U.S. Cl. 369—291

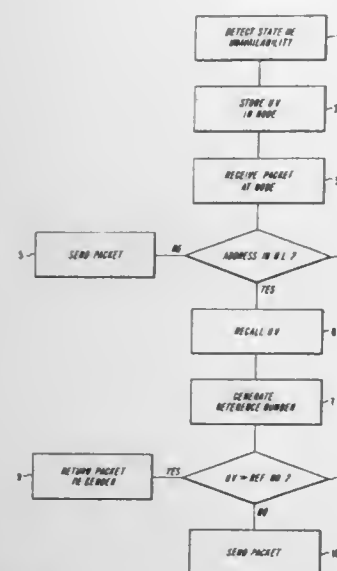
11 Claims



1. A disc cartridge comprising:
a cartridge main body rotatably housing a disc on which information signals are pre-recorded or are to be recorded, said cartridge main body having a recording/reproducing aperture via which at least a portion of said disc is exposed to the outside along the radius of said disc;
a shutter member movably mounted on said cartridge main body for opening/closing said recording/reproducing aperture; and
a mistaken recording inhibiting member, said mistaken recording inhibiting member having a mistaken recording inhibiting portion of a size sufficient to close a mistaken recording detection hole formed in said cartridge main body, an actuating portion for movement between a first position of closing said mistaken recording detection hole by said mistaken recording inhibiting portion and a second position of opening said mistaken recording detection hole, and an indicating portion positioned facing an indicating hole formed in said cartridge main body for visually indicating through the indicating hole the sort of the disc housed within said cartridge main body being either of a magneto-optical disc having a predetermined format for recording and/or reproducing audio

signals or a magneto-optical disc having a predetermined format for recording and/or reproducing data signals, when the mistaken recording inhibiting member is at a predetermined one of the first position or the second position.

5,805,567

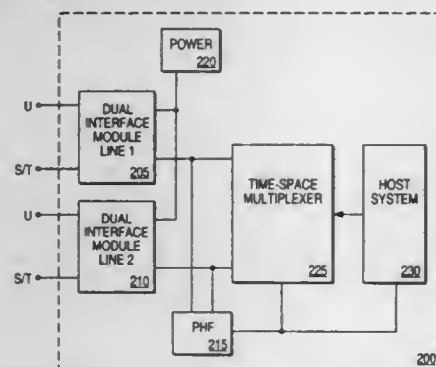


based on the value representing the state of unavailability of the second user.

5,805,570
METHOD OF SIMULATING AN ISDN-BRI CENTRAL OFFICE SWITCH USING A SINGLE MICROCOMPUTER
Gary C. Fields, and James G. Fields, both of Napa, Calif., assignors to Merge Technologies Group, Inc., Napa, Calif.
Filed May 2, 1995, Ser. No. 432,788
Int. Cl.⁶ H04J 3/12

U.S. Cl. 370—241

1 Claim



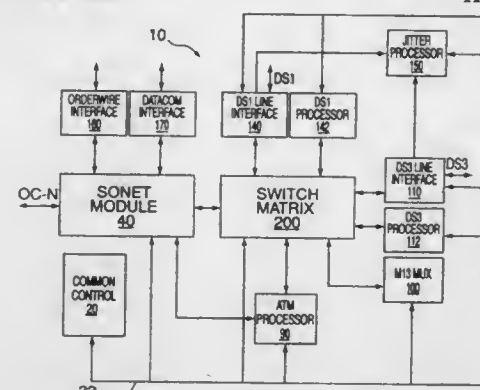
1. A method of generating all relevant in-band call progress tones, said method executed by a single microcomputer in a call progress tone generator circuit having (i) an analog tone generator connected to said single microcomputer, (ii) a compressor-decompressor connected to said tone generator; and (iii) a cut-through logic circuit for routing the output of said tone generator to one of a plurality of temporarily unused digital PCM highways, said method comprising:

- receiving from an external source a command which requests a tone;
- determining proper inputs to said tone generator and said cut-through logic circuit to generate the tone requested by said command;
- sending said proper inputs to said tone generator and said cut-through logic circuit; and
- converting output of said tone generator to a digital signal compatible with at least one of the digital PCM highways.

5,805,571
DYNAMIC COMMUNICATION LINE ANALYZER APPARATUS AND METHOD
Bryan J. Zwan, 406 Saint Andrews Dr., Clearwater, Fla. 34616, and Kenneth T. Myers, 31177 U.S. Hwy. 19 N. #207, Palm Harbor, Fla. 34684
Filed Mar. 19, 1996, Ser. No. 619,847
Int. Cl.⁶ G01R 31/28

U.S. Cl. 370—249

11 Claims

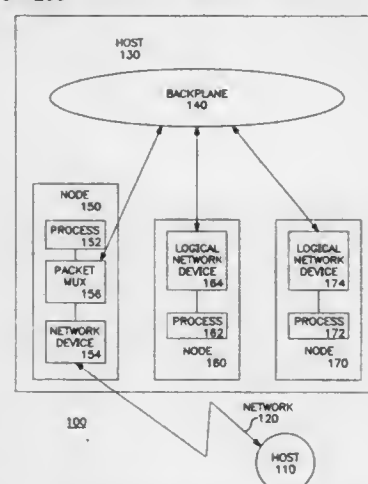


1. A method of testing a communications device comprising: generating a first protocol signal and supplying said first protocol signal to said communications device; receiving a second protocol signal from said communications device containing said first protocol signal embedded therein; extracting said embedded first protocol signal from said second protocol signal; comparing said embedded first protocol signal to the original first protocol signal to determine communications device performance.

5,805,572
SINGLE-SYSTEM IMAGE NETWORK SUBSYSTEM IN A CLUSTERED SYSTEM
Jose M. Bernabeu-Auban, Valencia, Spain; Yousef A. Khalidi, Cupertino, Calif.; Vladimir Matena, Redwood City, Calif., and Kenneth W. Shirriff, Mountain View, Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.
Filed Nov. 22, 1995, Ser. No. 561,791
Int. Cl.⁶ H04L 12/66

U.S. Cl. 370—255

16 Claims



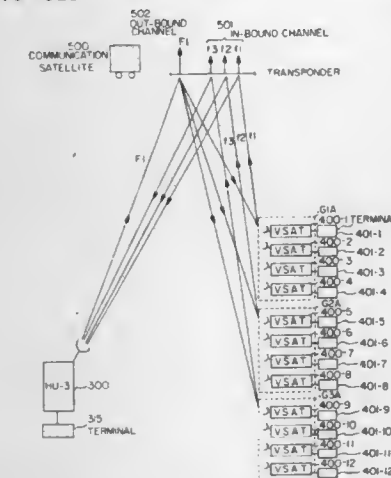
1. A method for maintaining coherency in a network subsystem in a clustered system with a plurality of nodes, at least a first node having an actual network device, said method comprising the steps of:

simulating the actual network device of the first node to generate a logical network device for a second node in said clustered system, said second node lacking an actual network device of its own; and using said logical network device of said first node to allow communication between said first node and a third node.

5,805,573
SATELLITE COMMUNICATION SYSTEM WITH VARIABLE NUMBER OF SATELLITE COMMUNICATION CHANNELS
Kenji Umeda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Aug. 15, 1995, Ser. No. 518,295
Claims priority, application Japan, Aug. 15, 1994, 6-191392
Int. Cl.⁶ H04J 3/14

U.S. Cl. 370—321

18 Claims



3. A satellite communication system comprising a central station and a plurality of remote stations connected to said central station through channels, each of said remote stations adapted to transmit data to only said central station in time-division multiple access through at least one first channel and said central station being adapted to transmit same data to the plurality of said remote stations through at least one second channel;

said central station comprising:

receiving means for obtaining a first data by demodulating a signal from said remote stations;
first monitor means for monitoring an amount of the first data received by said receiving means;
first channel setting means for determining the number of said at least one first channel and frequencies of each of said at least one first channel on the basis of the monitored data amount and outputting a first control data indicative of an information of the determined number and the determined frequencies of said at least one first channel; and
transmitting means for transmitting the first control data to the plurality of said remote stations;

each of said remote stations comprising:
receiving means for obtaining a second data by demodulating a signal transmitted from said central station;
separator means for separating the first control data from the second data;

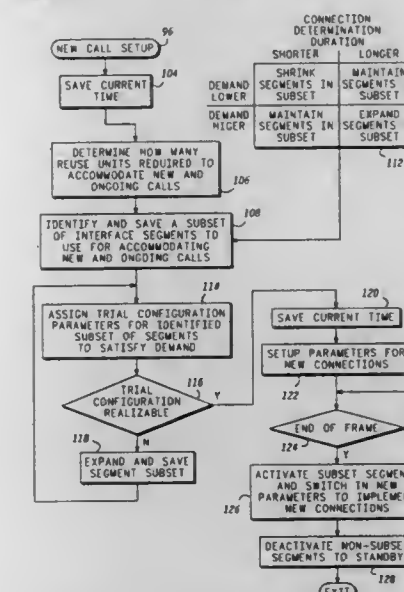
transmitting means for transmitting data from a respective one of at least one first terminal, each remote station being connected to said respective first terminal, to said central station; and

first channel control means for controlling said at least one first channel used by said transmitting means on the basis of the first control data separated by said separator means; wherein said first monitor means comprises counting means for counting the number of collisions of the first data transmitted from each of said remote stations to said central station with other data in the same time slot.

5,805,574
ADAPTIVE SWITCH RESOURCE ALLOCATION IN A SATELLITE COMMUNICATION SYSTEM
Yih Guang Jan, Phoenix; Kadathur Subramanya Natarajan, Mesa, and Kenneth Maynard Peterson, Phoenix, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jul. 28, 1995, Ser. No. 508,807
Int. Cl.⁶ H04J 15/00

U.S. Cl. 370—329

22 Claims



1. A method for operating a communication network switch to match switching resources with call traffic demand, said switch having network ports and user ports, said switch having a controller and said method comprising the steps of:

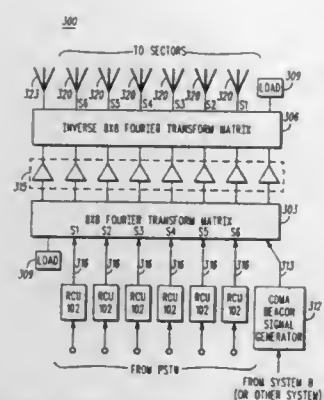
routing ongoing calls between a portion of said network ports and a portion of said user ports so that each ongoing call has a first ongoing connection through said switch;
receiving a request to set-up a new call;
identifying by said controller, in response to said receiving step, a new connection between said network ports and said user ports for said new call;
identifying by said controller, in response to said receiving step, a second ongoing connection between said network ports and said user ports for each of said ongoing calls, wherein a portion of said second ongoing connections differs from said first connections; and
implementing said second ongoing connections for said ongoing calls and said new connection for said new call, said ongoing calls remaining uninterrupted during the implementing step.

5,805,575
APPARATUS AND METHOD FOR PROVIDING A BEACON SIGNAL IN A WIRELESS COMMUNICATION SYSTEM
Ralph A. Kamin, Jr., Bedford, Tex., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Aug. 19, 1996, Ser. No. 697,107
Int. Cl.⁶ H04J 13/00

U.S. Cl. 370—335

18 Claims

1. An apparatus for providing a beacon signal in a wireless communication system, the apparatus comprising:
a beacon signal generator for providing the beacon signal;
a hybrid matrix having as an input the beacon signal and at least one traffic signal, the hybrid matrix having a plurality of output signals;
a plurality of amplifiers having as inputs the corresponding plurality of output signals from the hybrid matrix and having as an output a plurality of amplified output signals; and



an inverse hybrid matrix, having as inputs the plurality of amplified output signals and outputting the traffic signal and the beacon signal to a mobile station.

5,805,576

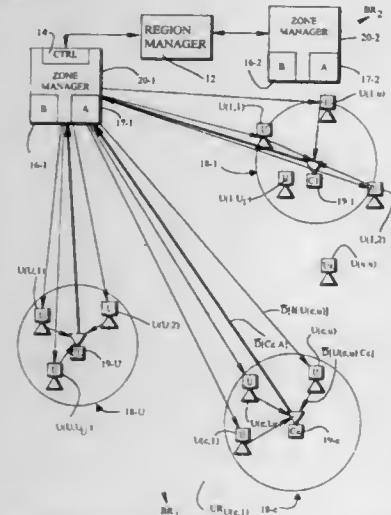
METHOD AND APPARATUS FOR TDMA WIRELESS COMMUNICATION EMPLOYING COLLECTOR ARRAYS FOR RANGE EXTENSION

William Spencer Worley, III, Half Moon Bay; David Amundson Howard, Mountain View; Karen Evelyn Coates, San Jose, and John Andrew Vastano, Palo Alto, all of Calif., assignors to Cellular Telecom, Ltd., Mountain View, Calif. Continuation-in-part of Ser. No. 544,913, Oct. 18, 1995. This application Apr. 19, 1996, Ser. No. 634,141

Int. Cl.⁶ H04J 3/16

U.S. Cl. 370—337

62 Claims



1. A communication system having a plurality of forward channel communications and a plurality of corresponding reverse channel communications comprising:

- a plurality of users in a broadcaster zone,
- each of said users including user receiver means for receiving different user forward channel signals and including user transmitter means for broadcasting user reverse channel signals in a different user reverse channel,
- said plurality of users providing a plurality of different user reverse channel signals that collectively constitute composite signals,
- a plurality of collector means distributed in proximity to said broadcaster zone at spaced-apart locations, each of said collector means including,
- collector receiver means for receiving said composite signals, including said user reverse channel signals, and
- collector forwarding means for forwarding said user reverse channel signals as collector reverse channel signals,
- zone manager means including,

control means for selecting two or more of said plurality of users to form a user group and for selecting two or more of said plurality of collector means to form a collector group, broadcaster means including a broadcaster transmitter for broadcasting said plurality of user forward channel signals over a broadcaster range to said user group in said broadcaster zone,

aggregator means for receiving said plurality of collector reverse channel signals from said two or more of said plurality of collector means in said collector group.

5,805,577

ERICA: EXPLICIT RATE INDICATION FOR CONGESTION AVOIDANCE IN ATM NETWORKS

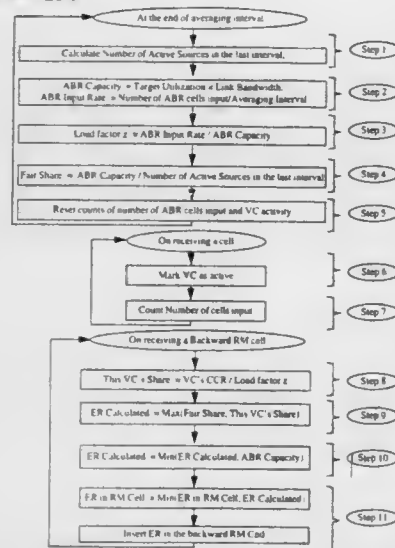
Raj Jain, 4591 Lanercost Way, Upper Arlington, Ohio 43220; Rohit Goyal, 1170 Chambers Rd. Apt. 4C, Columbus, Ohio 43212; Shiv Kalyanaraman, Dept. of CIS, Ohio State University, Columbus, Ohio 43210-1277; Ram Viswanathan, 14557 36th St., NE, Apt. J11, Bellevue, Wash. 98007, and Sonia Fahmy, 101 Curl Dr. Apt. 772, Columbus, Ohio 43210

Filed Jul. 19, 1996, Ser. No. 683,871

Int. Cl.⁶ H04Q 11/04

U.S. Cl. 370—234

36 Claims



1. A method utilizing successive averaging intervals of fixed time duration adaptable for use in a network having at least one source and at least one destination between which data is transferred through a data link via a switch, the method comprising steps of:

- determining a number of active sources at an end of each averaging interval;
- determining an available bit rate capacity based on a product of a target utilization of the data link and an available bandwidth for the data link;
- measuring an input rate of the data at the switch based on a total number of available bit rate cells input and counted from each of the at least one source and a last averaging interval;
- determining an overload factor based on the input rate and the available bit rate capacity;
- determining a fair share allocation of capacity based on the available bit rate capacity and the number of active sources in the last averaging interval;
- resetting the available bit rate cell input count and a virtual channel activity;
- upon receipt of a cell on a virtual channel, marking the respective virtual channel as active;
- upon receipt of the cell, incrementing the count of the total number of cells input;

if the received cell is a backward control cell, determining a virtual channel share allocation for each of the at least one source based on a respective first transmission rate and the overload factor;

selecting a second transmission rate for each of the at least one source by selecting a maximum of the fair share allocation and the respective virtual channel allocation;

selecting an explicit rate for each of the at least one source by selecting the minimum of the respective second transmission rate and the available bit rate capacity; and,

selectively adjusting the respective first transmission rate of each of the at least one source to the respective explicit transmission rate based on a minimum of the respective first transmission rate and the respective explicit transmission rate.

5,805,578

AUTOMATIC RECONFIGURATION OF MULTIPOINT COMMUNICATION CHANNELS

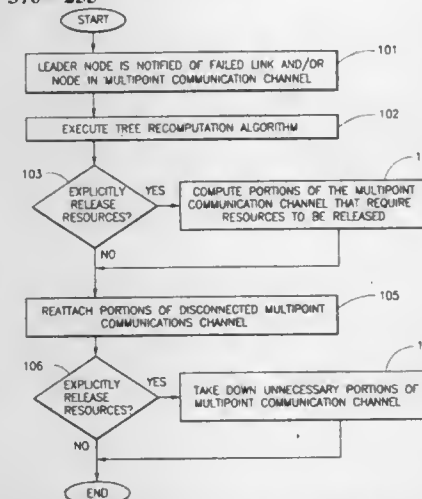
Paul Alan Stirpe, Port Washington; Dinesh Chandra Verma, Ossining, both of N.Y.; Stephen Joseph Nadas, Raleigh, N.C.; Manish Gupta, Croton-on-Hudson, N.Y., and Elizabeth A. Hervatic, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 12, 1996, Ser. No. 614,421

Int. Cl.⁶ H04L 12/44

U.S. Cl. 370—255

12 Claims



1. In a communication network having a plurality of connected nodes, and a multi-point communication channel, logically represented by a tree comprising a root node from which messages are transmitted along path toward leaf nodes of the tree, interconnecting at least selected ones of said nodes, one of said selected nodes being a leader, where said leader is the root node of said tree logically representing said multipoint communication channel, a method of reconfiguring said multipoint communication channel when one or more of said selected nodes becomes disconnected from said multipoint communication channel, resulting in said multipoint communication channel being partitioned into a parent subtree and one or more disconnected subtrees, where said parent subtree comprises said leader and where each disconnected subtree contains a subtree root node, said method comprising:

- a) selecting and establishing a path between a node of said parent subtree and the subtree root node of each disconnected subtree not containing said leader; and
 - b) when no path exists between said parent subtree and a subtree root node of any said disconnected subtree, removing said subtree root node to partition said disconnected subtree into additional disconnected subtrees, and repeating steps (a) through (b),
- whereby all paths selected in step (a), all disconnected subtrees to which a path was successfully selected and established in step (a) and the parent subtree containing the leader, form a reconfigured tree of said multipoint communication channel.

5,805,579

SYMBOL SWITCHING OF CDMA CHANNELS

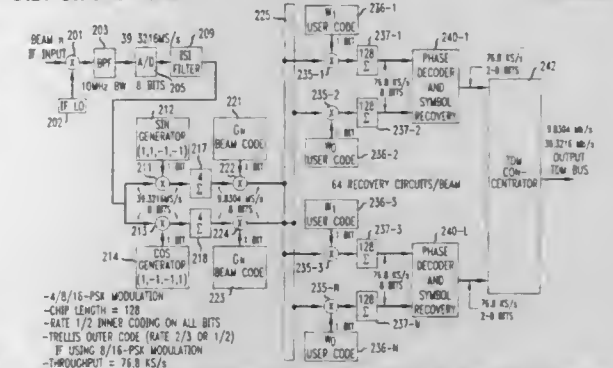
Richard Henry Erving, Piscataway; Diakoumis Parissis Gerakoulis, Dover, and Robert Raymond Miller, II, Morris, all of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed May 6, 1996, Ser. No. 643,720

Int. Cl.⁶ H04J 1/300

U.S. Cl. 370—320

11 Claims



4. A method of switching user channels in the sky from an uplink incoming modulated beam to an output downlink modulated beam, comprising the steps of:

- generating symbols which represent information in each user channel;
- switching symbols of each uplink user channel to a downlink beam, b using CDMA codes of individual channels, to a downlink beam having a destination in common with a predetermined destination of the user channel.

5,805,580

CELL SWITCHING NETWORK

Leo Albert Albertine Vercauteren, Gent, and Johan André De Vriendt, Drongen, both of Belgium, assignors to Alcatel N.V., Netherlands

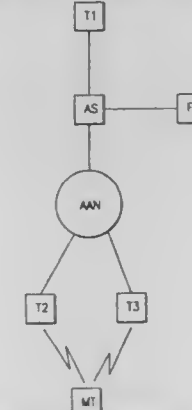
Filed Feb. 6, 1996, Ser. No. 597,620

Claims priority, application European Pat. Off., Feb. 6, 1995, 95200286

Int. Cl.⁶ H04Q 7/24; H04L 12/56; H04B 7/26

U.S. Cl. 370—331

2 Claims



1. A cell switching network including a cell switch (AS) coupled to at least a first, a second and a third terminal (T1, T2, T3), said first terminal being adapted to exchange information with said second terminal, a predetermined part of said information being indicative of said information exchange with said second terminal, characterized in that said cell switching network further includes a function unit (FU) also coupled to said cell switch, said information being exchanged via said function unit, said function unit processing said information and modifying said predetermined part of said information when the quality of the information between the cell switch (AS) and the second terminal (T2) worsens to a predetermined level wherein said modifying said predetermined part of said information causes said predetermined part to become indicative of information exchange between said function unit and

shared lower speed upstream data channels, each of the shared lower speed upstream data channels having a unique upstream channel identifier, a method for controlling access to the shared lower speed upstream data channels comprising the steps of:

- selecting one of the tributary devices to be polled;
- selecting one of the shared lower speed upstream data channels for transmission by the selected tributary device; and
- sending from the control station to the selected tributary device a poll message including the unique upstream channel identifier corresponding to the selected shared lower speed upstream data channel.

5,805,587

CALL NOTIFICATION FEATURE FOR A TELEPHONE LINE CONNECTED TO THE INTERNET

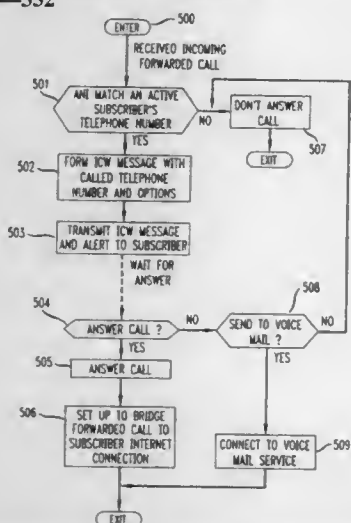
John H. Norris, Highlands, and Thomas Leonard Russell, Jr., Colts Neck, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Nov. 27, 1995, Ser. No. 562,678

Int. Cl.⁶ H04L 12/28; H04M 3/42; 11/00; 1/64

U.S. Cl. 370—352

24 Claims



1. A method of processing a telephone call from a calling station to a called station that is busy as a result of having established a connection to a data network via an access server, said method comprising the steps of

- receiving said call at a telephone switch and, responsive to said called station being busy, forwarding said call to said access server,
- responsive to receiving said call at said access server, sending a data message to said called station via said connection to said data network to alert a subscriber at said called station to the receipt of said call, and
- connecting said calling station to said called station via said connection to said data network so that a caller at said calling station may communicate with said subscriber at said called station.

5,805,588

CIRCUIT EMULATING EXCHANGE USING MICRO CELLS

Lars-Göran Petersen, Tumba, Sweden, assignor to Telefonaktiebolaget LM Ericson, Stockholm, Sweden

Filed Jun. 2, 1995, Ser. No. 459,127

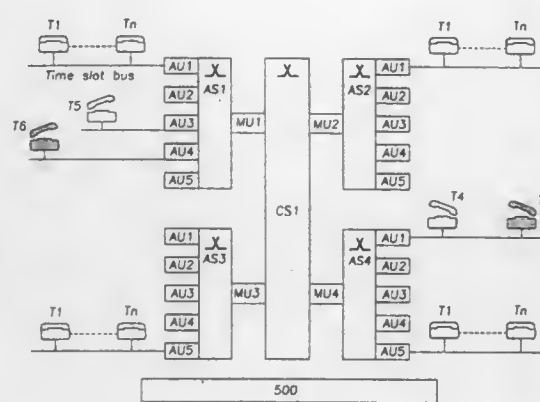
Claims priority, application Sweden, Jun. 13, 1994, 9402051

Int. Cl.⁶ H04L 12/56

U.S. Cl. 370—356

25 Claims

1. A method for switching synchronous transfer mode cells in a circuit emulated ATM switch, each one of said cells being deliv-



ered to the ATM switch on a frame oriented basis and each one of said cells comprising a header and a payload, said header comprising files, made up by bits, storing details about the cell, said payload carrying user data, wherein said method comprises the step of selecting, in said ATM switch, the size of said cell among a set of cell sizes, wherein the cells are transferred from their origin to their destination using a layered protocol model comprising, in order from the lowest layer to the highest, a physical route layer relating to a physical medium in which said cells are transported, a virtual path layer, a virtual channel layer and a circuit connection layer, the cell at the physical route layer comprising a physical route protocol control information part and a user data part, the cell at the virtual path layer comprising a virtual path protocol data unit which in turn is divided into a virtual path protocol control information part and a user data part, the cell at the virtual channel layer comprising a virtual channel protocol data unit which in turn is divided into a virtual channel protocol control information part and a user data part, the virtual path protocol data unit being the user data part at the physical route layer, the virtual channel protocol data unit being the user data part at the virtual path layer and the cell at the circuit connection layer comprising said time slots, which form the user data part at virtual path layer said cells being transferred along virtual paths formed at each of said physical route, virtual path, and virtual channel layers.

5,805,589

CENTRAL SHARED QUEUE BASED TIME MULTIPLEXED PACKET SWITCH WITH DEADLOCK AVOIDANCE

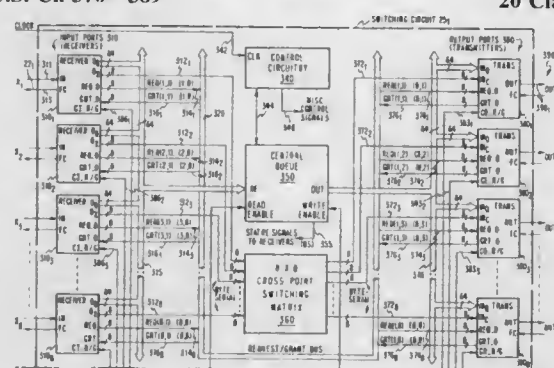
Peter Heiner Hochschild, New York, and Monty Montague Denneau, Brewster, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 424,824, Apr. 19, 1995, Pat. No. 5,546,391, which is a continuation of Ser. No. 27,906, Mar. 4, 1993, abandoned. This application Mar. 4, 1996, Ser. No. 608,017

Int. Cl.⁶ H04L 12/28

U.S. Cl. 370—389

20 Claims



1. Apparatus for a packet switch, said apparatus comprising:

a predefined positive integer m of separate receivers for receiving a message having predefined message portions, each of said receiver means being connected to a corresponding one of said input ports;

- a predefined positive integer n of separate transmitters for obtaining said message portions from said receivers;
- a classifier for classifying each of said message portions as either a critical message portion or a noncritical message portion on a predefined classification basis;
- a queue made up of a number of storage locations, said queue connected to each of said m receivers and said n transmitters, each storage location for storing one of said message portions emanating from one of said receivers and destined to one of said transmitters, said queue having dedicated storage locations and shared storage locations wherein each of said shared storage locations store noncritical message portions destined for any one of said transmitters and each of said dedicated storage locations only stores critical message portions destined for only a particular one of said transmitters and no other transmitters;

a queue arbiter for granting priority of access to particular ones of said transmitters as designated by said critical message portions stored in said dedicated storage locations, said priority of access being over noncritical message portions stored in said shared storage locations;

- a by-pass switch having m inputs, each input connected to a respective one of said m receivers, and n outputs, each output connected to a respective one of said n transmitters, said by-pass switch for by-passing message portions from said receivers to said transmitters around said queue, said by-pass switch having a lower latency than said queue; and
- a selector in each of said receivers responsive to each of said transmitters, for selectively applying a given one of said message portions to either said by-pass switch or said queue for subsequent application therethrough to a designated one of said transmitters, wherein the given one message portion is applied to said by-pass switch if output contention does not then exist for the designated transmitter, otherwise the given one message portion is stored within said queue.

5,805,590

SWITCHING DEVICE FOR DIGITAL DATA NETWORKS AND ASYNCHRONOUS TRANSFER MODE

André Gillard, Sugiez, and Rainer Fehr, Hofstetten, both of Switzerland, assignors to Ascom Tech AG, Gesellschaft Fur Industrielle Forschung & Technologien-Der Ascom, Bern, Switzerland

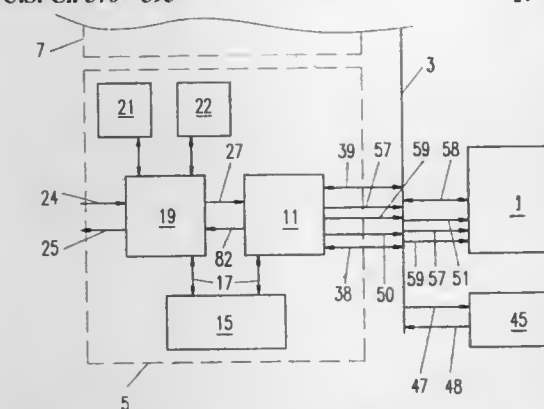
Filed Jul. 11, 1995, Ser. No. 500,592

Claims priority, application Switzerland, Jul. 12, 1994, 02 221/94-6

Int. Cl.⁶ H04Q 11/04

U.S. Cl. 370—395

17 Claims



1. A switching device for digital data networks in which the transfer of data takes place in the form of digital data cells each comprising a data part and a control part, said control part com-

prising an address part, and said switching device having at least two inputs and two outputs, said switching device comprising:

- a memory having a buffer area allocated for each of said inputs, the buffer area including storage cells in each of which at least one data cell is capable of being stored, each input being capable of storing data cells in the respective allocated buffer area, and each output being capable of accessing any data cell stored in any buffer area in the memory.

wherein the connection between said memory and said inputs and outputs is established by a synchronous bus, the data transfer on said synchronous bus being controlled by a bus clock, and

wherein said data transfer on said synchronous bus is effected in bus cycles, each bus cycle being divided into at least as many time slices as the total number of inputs and outputs, and each time slice being fixedly allocated to a respective input and output.

5,805,591

SUBSCRIBER NETWORK INTERFACE

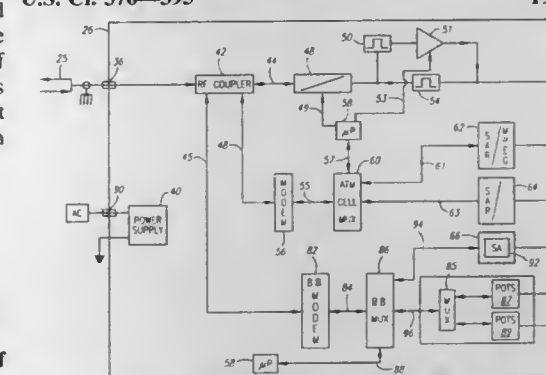
Marwan Naboulsi, Pleasanton; Ashok Kumar, Fremont; Mohamed Mostafa, Menlo Park; Jihad Ghaibeh, Redwood City; Amir Helweh, and Rajesh Kumar, both of Fremont, all of Calif., assignors to Ericsson Raynet, Menlo Park, Calif.

Filed Feb. 28, 1996, Ser. No. 608,436

Int. Cl.⁶ H04H 1/08

U.S. Cl. 370—395

19 Claims



1. A subscriber network interface for receiving and transmitting multiple subscriber service signals, comprising:

- a plurality of independently controlled subscriber service modules, each subscriber service module comprising ATM cell segmentation and reassembly ("SAR") circuitry configured for disassembling incoming ATM cells into a respective incoming subscriber service signal and for assembling outgoing ATM cells from a respective outgoing subscriber service signal, at least one subscriber service module comprising circuit emulation circuitry for supporting telecommunication services;

a first modem configured for demodulating an incoming RF signal carrying incoming ATM cell traffic and for RF modulating outgoing ATM cell traffic; and

an ATM cell-mux connected to said first modem, said ATM cell-mux including

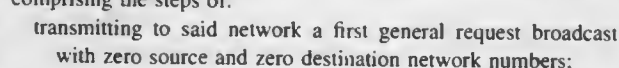
- a de-multiplexor circuit configured for receiving a continuous stream of incoming ATM cells communicated from said first modem, and for distributing said incoming ATM cells to one or more of said subscriber service modules, and
- a multiplexor circuit configured for receiving individual outgoing ATM cells communicated from one or more of said subscriber service modules, and for transmitting a continuous stream of outgoing ATM cells to said first modem.

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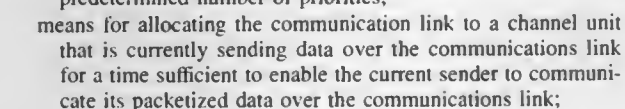
8 Claims



9 Claims



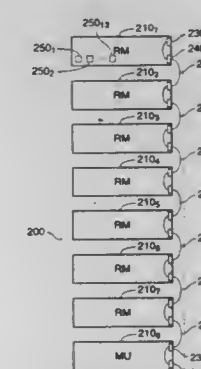
37 Claims



means for determining a next sender of packetized data over the communications link based on said fairness signal, the determining means being distributed over the plurality of channel units so that each channel unit independently determines whether it is selected to be the next sender; and

means for allocating the communication link to the next sender of packetized data after said current sender has finished sending its packetized data.

U.S. Cl. 370-445



appending after each said packet at each source port or each said repeater module a management information footer comprising a select number of information units; conveying each said packet with said management information footer on said single bus; and reading, at said management module, said management information from said single bus.

5,805,597

METHOD AND APPARATUS FOR PROVIDING LOW POWER BASIC TELEPHONY TYPE SERVICE OVER A TWISTED PAIR ETHERNET PHYSICAL LAYER

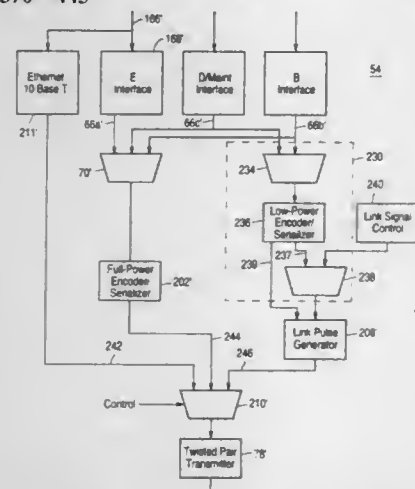
Brian Edem, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jun. 4, 1996, Ser. No. 660,334

Int. Cl.⁶ H04L 12/413

U.S. Cl. 370-445

31 Claims



1. A method of providing a low power digital communication protocol between first and second communication endpoints over an ethernet physical layer, said method comprising the steps of: generating digital data at said first endpoint, said digital data comprising a plurality of bit groups representing a communication signal at an instant in time, each of said bit groups comprising a plurality of bits; periodically organizing each of said bit groups into a serial bit stream; periodically converting each of said organized bit groups into a repeating frame template, said frame template comprising a bit slot corresponding to each bit of said organized bit group, in which each bit of said organized bit group is represented by the presence or absence of an ethernet link pulse in said corresponding bit slot; and periodically transmitting said frame template from said first endpoint to said second endpoint.

5,805,598

END STATION PORT

Mark Kenneth Loney, Herts, Great Britain, assignor to Mads Networks Limited, United Kingdom

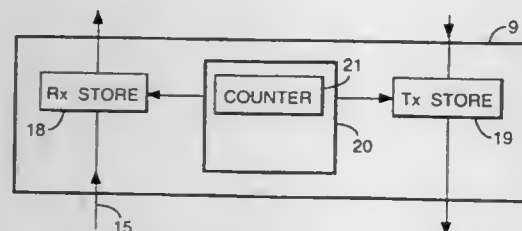
Filed Aug. 27, 1996, Ser. No. 703,531

Claims priority, application United Kingdom, Aug. 29, 1995, 9517619

Int. Cl.⁶ H04J 3/16; H04L 12/417; 12/42

U.S. Cl. 370-452

12 Claims



1. An end station port for connection to a token passing communication system which operates under a communication protocol and which connects a number of end station ports and in which said communications protocol under which the system operates permits more than one data frame to be transmitted by an end station within a predetermined token holding time comprises a

frame assembly system for preparing a data frame, having a length not exceeding a predetermined maximum size, for transmission; a control system for controlling the passage of data to and from said end station port for transmission on to and receipt from said communication system, wherein said control system causes a frame prepared by said frame assembly system to be transmitted when the token is held by said end station port, and wherein said control system includes a monitor for determining whether, following transmission of a current frame, there is sufficient time remaining to transmit another frame of said predetermined maximum size before said predetermined token holding time has expired.

5,805,599

ADAPTIVE CHANNEL ALLOCATION SYSTEM FOR COMMUNICATION NETWORK

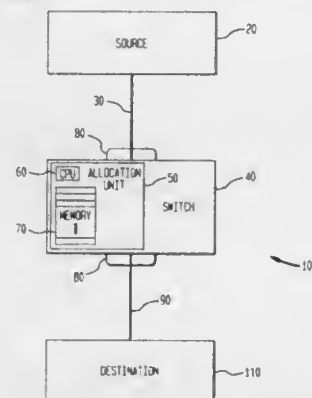
Partho Pratim Mishra, Murray Hill, and Kadangode K. Ramakrishnan, Berkeley Heights, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Dec. 4, 1996, Ser. No. 760,174

Int. Cl.⁶ H04J 1/02

U.S. Cl. 370-468

12 Claims



1. A channel allocation system for allocating communication resources to a source making a resource request, comprising: a switch, operatively connected to the source through a communication link; a channel allocation unit provided in the switch, the channel allocation unit monitoring the resource request transmitted by the source to the switch, the channel allocation unit replacing the resource allocation contained in the resource request with a revised resource allocation, the revised resource allocation being a function of a reduction factor computed by the channel allocation unit according to an exponential function of the resource allocation, and a current sample of resource usage by the source.

5,805,600

MECHANISM FOR PROVIDING FULL UTILIZATION OF HIGH DATA RATE SERIAL COMMUNICATION LINK CONVEYING DATA SOURCED FROM DATA TERMINAL EQUIPMENT AND COMPRESSED BY HIGH COMPRESSION RATIO DATA COMPRESSION-PROTOCOL ENGINE

W. Stuart Venters, and Kevin W. Schneider, both of Huntsville, Ala., assignors to Adtran, Inc., Huntsville, Ala.

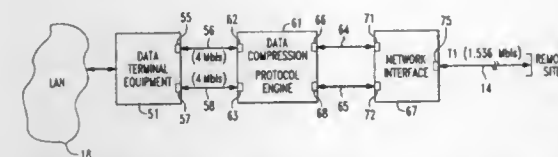
Filed Mar. 6, 1996, Ser. No. 611,644

Int. Cl.⁶ H04J 3/18

U.S. Cl. 370-477

24 Claims

1. A method of interfacing digital data signals supplied by digital terminal equipment with a serial digital communication link operating at a data transmission rate less than a first clock rate at which said digital terminal equipment can be clocked, comprising the steps of:



(a) porting digital data signals from said digital terminal equipment as a plurality of digital data streams, each of which is clocked at said first clock rate;

(b) coupling said plurality of digital data streams to a plurality of input data ports of a data compression-protocol engine, which is operative to compress said digital data streams coupled thereto into a plurality of compressed digital data streams, each having a data rate less than said first clock rate; and

(c) coupling said plurality of compressed digital data streams provided by said data compression-protocol engine over data paths that are clocked at a second clock rate, less than said data rate, to a network interface, which is operative to time division multiplex said plurality of compressed digital data streams onto said serial digital communication link as a time division multiplexed compressed data stream having said data rate.

5,805,601

SYSTEM FOR CONTROLLING SIGNAL TRANSFER BETWEEN A PLURALITY OF DEVICES

Shinichi Takeda; Hiroya Egoshi, and Yoshinobu Matsukawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

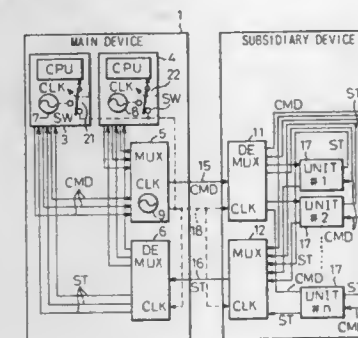
Filed Mar. 27, 1996, Ser. No. 624,790

Claims priority, application Japan, Mar. 27, 1995, 7-067385

Int. Cl.⁶ H04J 3/06

U.S. Cl. 370-505

6 Claims



1. A system for controlling signal transfer between a plurality of devices, for controlling the transfer of signals between a main device having at least a control system processor and a monitor system processor packaged therein and a subsidiary device having a plurality of units packaged therein, including:

a multiplexer section on the main device side for multiplexing the signals from said control system processor and said monitor system processor of said main device;

a demultiplexer section on the subsidiary device side for demultiplexing a multiplex signal from said multiplexer section on the main device side and distributing it to said units of said subsidiary device;

a multiplexer section on the subsidiary side for multiplexing the signal from said units of said subsidiary device; and

a demultiplexer section on the main device side for demultiplexing the multiplex signal from said multiplexer section on the subsidiary device side and distributing it to said control system processor and said monitor system processor of said main device, wherein:

said multiplexer section on the main device side includes a clock generator for multiplexing, and executes bit-stuffing and multiplexing corresponding to the difference between the phase of a clock signal from said clock generator and the phases of clock signals from clock generators of said control system processor and said monitor system processor, and said demultiplexer section on the subsidiary side includes a phase sync oscillator for generating a clock signal in phase synchronism with the multiplex signal from said multiplexer section on the main side, demultiplexes a multiplex signal multiplexed by bit-stuffing and multiplexing from said multiplexer section on the main device side, by bit-stuffing synchronization, and distributes it to said units.

5,805,602

NETWORK MONITORING SYSTEM FOR CELL DELAY VARIATION

Leo Cloutier, Bethesda; David C. Curtis; Kathleen P. Curtis, both of Crofton; David D. DeNunzio, Ellicott City, all of Md.; William P. Reed, Haddonfield, N.J., and Robert A. Wolak, Audubon, Pa., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

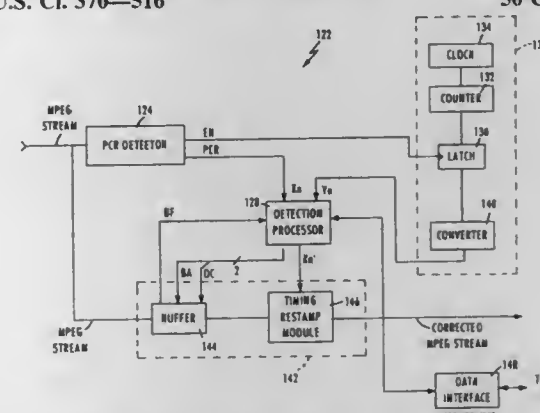
Continuation of Ser. No. 651,297, May 22, 1996, which is a continuation-in-part of Ser. No. 616,037, Mar. 14, 1996, which is a continuation-in-part of Ser. No. 533,501, Sep. 25, 1995.

This application Oct. 1, 1996, Ser. No. 725,653

Int. Cl.⁶ H04J 3/06

U.S. Cl. 370-516

50 Claims



1. An apparatus for minimizing jitter caused during transmission of a data packet stream, comprising:

a time stamp detector detecting time stamp values within said data packet stream, each time stamp value representing an expected arrival time of a corresponding data packet stream segment;

a timing circuit, responsive to a clock signal, for determining an actual arrival time for each said corresponding data packet stream segment;

a detecting circuit detecting jitter in each data packet stream segment by executing a correlation of the corresponding expected arrival time and the corresponding actual arrival time with an accumulation of expected and actual arrival times of previously-received data packet stream segments; and

a data packet stream correction circuit outputting said data packet stream as a corrected data packet stream having time stamp values adjusted in response to said correlation.

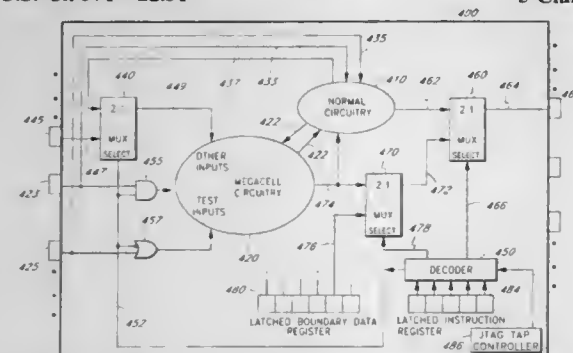
UMI

wherein:

- in normal operation, the one or more normal clocks are used to clock the one or more function blocks;
- in a first test operation, the test clock is used as a scan clock to scan test data in and/or out of the integrated circuit;
- in a second test operation, the test clock is used to provide one or more clocks for clocking one or more of the function blocks; and

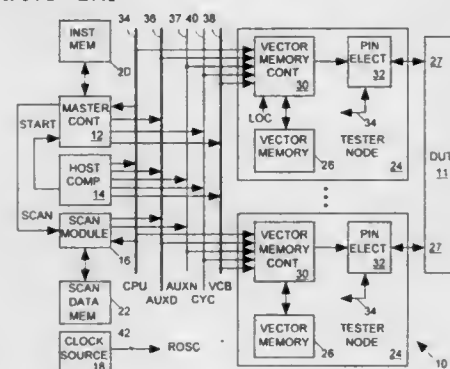
at least one gate interposed between at least one of said input/output pins of said integrated circuit and at least one selected test input of said megacell, said at least one gate controlled by a megacell test signal from said JTAG instruction register to communicate a signal on said at least one of said input/output pins to said at least one selected test input of said megacell when said megacell test signal is active and to force said at least one selected test input of said megacell to a predetermined inactive state when said megacell test signal is not active.

5 Claims



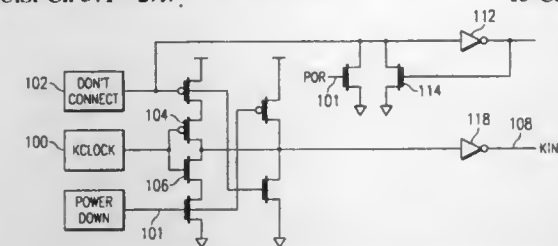
- a JTAG instruction register which stores instruction bits, selected ones of said instruction bits provided to said selection inputs of said selection circuitry to control which of said first inputs, said second inputs and said third inputs of said selection circuitry are routed to said outputs of said selection circuitry, said instruction bits controlled in said normal operational mode to select said first inputs to route the outputs of said custom designed logic circuitry to said output of said selection circuitry, said instruction bits controlled in a JTAG boundary scan test operational mode to select said second inputs to route said outputs from said boundary scan data register to said outputs of said selection circuitry, and said instruction bits controlled in a megacell test mode to select

12 Claims



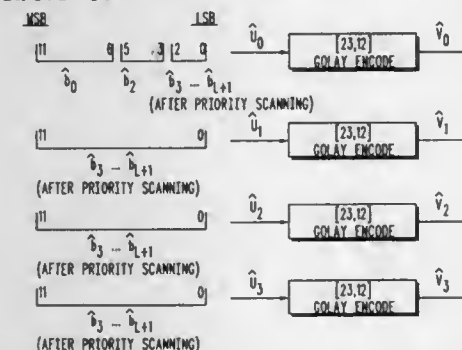
- a plurality of bus interface means connected to said bus, each bus interface means corresponding to a separate one of said memories, each bus interface means receiving said virtual channel assignment data, said virtual channel selection data and said data sequences conveyed on said bus, wherein said virtual channel assignment data assigns each bus interface means to one of a plurality of virtual channels, wherein said virtual channel selection data designates one of said virtual channels as an activated virtual channel, and wherein each bus interface means stores any data sequence transmitted in its corresponding memory only when said bus interface means is assigned to the activated virtual channel.

15 Claims



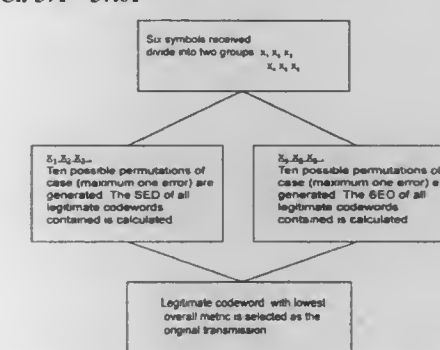
- connecting a data input signal to a data input of the logic circuit; connecting a toggle signal to an input of the logic circuit; and at a state transition of the test clock signal, using the data input signal and the toggle signal to determine the state of an output signal.

2 Claims



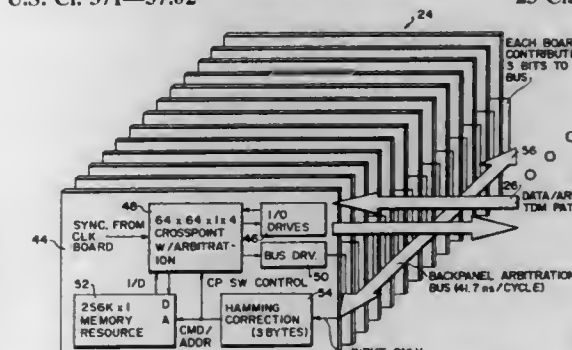
1. A radio communication system including a repeater arranged to receive signals from an inbound repeater link, thereby forming received signals, the repeater being further arranged to forward the received signals to an at least one subscriber via an outbound radio frequency path, the received signals including packets with correctable errors, the received signals further including packets with uncorrectable errors, the inbound repeater link including error correcting means for correcting the correctable errors, the inbound repeater link further including first error mitigating means for mitigating the uncorrectable errors by means of an improved multi-band excitation ("IMBE") process,

7 Claims



- (a) dividing the received symbols into a number of blocks per codeword; and
- (b) decoding each block separately and simultaneously with regard to a maximum of one error present in each block; the solution of the decoder being the legitimate codeword with the lowest overall metric distance (SED) from the received transmission.

23 Claims



- a crosspoint switch fabric having a plurality of inputs and a plurality of outputs, said crosspoint switch fabric including control means for directing data from one of said plurality of

inputs to a particular output of said plurality of outputs, said data including a plurality of data bits and a plurality of check bits; and

said crosspoint switch fabric including error correction means for applying an error correction scheme to said plurality of data bits and said plurality of check bits, said error correction means being effective to identify an erroneous bit and invert said erroneous bit in order to form corrected data.

5,805,615

METHOD AND APPARATUS FOR ENCODING CERTAIN DOUBLE-ERROR CORRECTING AND TRIPLE-ERROR DETECTING CODES

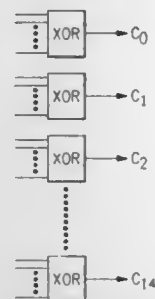
Chin-Long Chen, Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 29, 1996, Ser. No. 705,371

Int. Cl.⁶ H03M 13/00

U.S. Cl. 371—37.6

2 Claims



1. An electrical circuit for encoding input digital electrical signals representing binary data so as to produce output digital electrical check bit signals which satisfy linear constraint conditions which are determined by a parity check matrix H of the form

$$H = \begin{pmatrix} 1 & \beta & \beta & \beta & \beta & \beta & \beta & \beta \\ 0 & \gamma & H_0 & R^0 H_0 & R^2 H_0 & R^4 H_0 & R^6 H_0 & R^8 H_0 \\ 0 & \gamma & H_1 & R^0 H_1 & R^2 H_1 & R^4 H_1 & R^6 H_1 & R^8 H_1 \end{pmatrix}$$

wherein β is row vector (000100101001), γ is column vector (000000)^T, H_0 is binary matrix

$$H_0 = \begin{pmatrix} 1 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 0 & 1 & 0 & 1 \end{pmatrix}$$

and H_1 is binary matrix

$$H_1 = \begin{pmatrix} 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 \end{pmatrix}$$

and wherein R is a permutation matrix which cyclically shifts one row at a time.

5,805,616 CIRCUIT OF CALCULATING ERRATA LOCATOR AND EVALUATOR POLYNOMIAL, CALCULATING METHOD THEREOF AND REED-SOLOMON DECODER USING THE SAME

Young-uk Oh, Incheon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

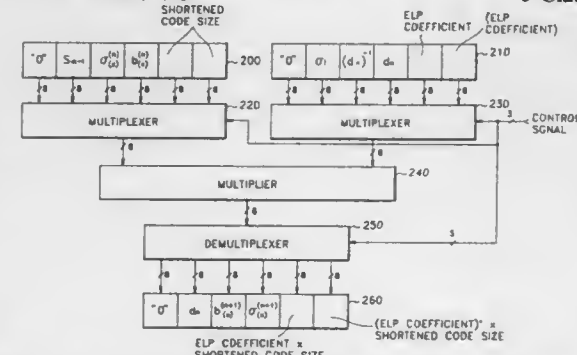
Filed Mar. 20, 1996, Ser. No. 552,551

Claims priority, application Rep. of Korea, Nov. 10, 1994, 94-294418

Int. Cl.⁶ H03M 13/00

U.S. Cl. 371—37.11

5 Claims



1. A circuit for calculating an ELP and an EEP comprising: first storage means for storing a syndrome value, coefficient values of the ELP, a discrepancy value and a shortened code size; second storage means for storing the coefficient values of the ELP, the reciprocal value of the discrepancy, the discrepancy value, the coefficient values of the ELP and the values obtained by differentiating the coefficient values of the ELP; first selecting means for selectively outputting the values stored in said first storage means in response to control signals; second selecting means for selectively outputting the values stored in said second storage means in response to the control signals; multiplying means for multiplying the values selected by the first and second selecting means; third selecting means for selectively outputting the resultant values multiplied by said multiplying means in response to the control signals; and third storage means for storing the resultant values selectively output by said third selecting means.

5,805,617

APPARATUS FOR COMPUTING ERROR CORRECTION SYNDROMES

Yong-Hee Im, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Nov. 25, 1996, Ser. No. 755,580

Claims priority, application Rep. of Korea, Feb. 28, 1996, 96-5130; Feb. 28, 1996, 96-5132; Feb. 29, 1996, 96-5445; Feb. 29, 1996, 96-5446; Feb. 29, 1996, 96-5447

Int. Cl.⁶ H03M 13/00

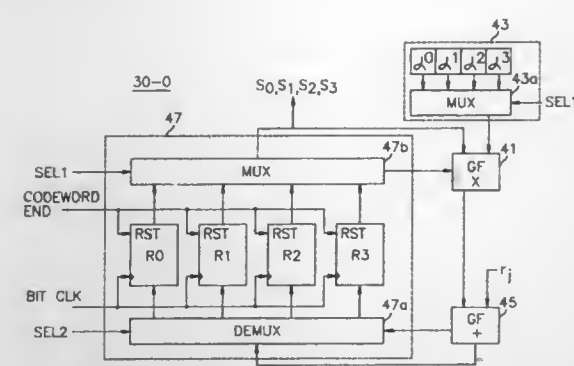
U.S. Cl. 371—37.12

20 Claims

1. An apparatus, for use in a Reed-Solomon decoder which decodes a codeword containing N received symbols, N being a positive integer, for calculating syndromes S_i 's iteratively in N iterations, according to:

$$S_i = [r_{N-1} \alpha^i + r_{N-2} \alpha^{2i} + \dots + r_1 \alpha^{(N-1)i} + r_0]$$

wherein i is an integer ranging from 0 to 2T-1, T being a predetermined number, r_{N-j} represents a jth received symbol which is fed in synchronization with a symbol clock, j being 1 to N, and α^i denotes an ith root of a code generating polynomial, the apparatus comprising L syndrome calculating cells each of which provides K syndromes, each of K and L being a positive integer not larger than 2T, each syndrome calculating cell including:



storage means containing a first set of K memory means, wherein the storage means sequentially provides contents of the first set of K memory means during each iteration and is initialized to 0 prior to a first iteration; first input means for sequentially providing K consecutive roots of the code generating polynomial during each iteration; a multiplier of a finite field GF(2^m) for sequentially multiplying the K roots of the code generating polynomial provided from the first input means with the contents of the first set of K memory means provided from the storage means, to thereby provide K multiplication results during each iteration; and an adder on the finite field GF(2^m) for adding the jth received symbol r_{N-j} to each of the K multiplication results during each iteration, to thereby provide the K intermediate values to the storage means during a (j+1)th iteration, j being 1 to (N-1), or provide the K syndromes to the storage means during an Nth iteration.

5,805,618

REPRODUCING APPARATUS FOR REPRODUCING VIDEO INFORMATION RECORDED TOGETHER WITH ERROR CORRECTION CODES

Tetsuya Shimizu, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

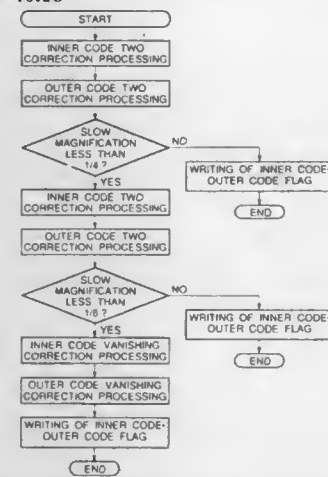
Filed May 14, 1993, Ser. No. 61,316

Claims priority, application Japan, May 18, 1992, 4-125035

Int. Cl.⁶ G11B 20/18

U.S. Cl. 371—40.16

7 Claims



1. A reproducing apparatus for reproducing video information recorded together with error correction check codes on a recording medium, said apparatus comprising: storage means for storing reproduced video information; error calculation and correction means for calculating conditions of errors by using the error correction check codes and correcting errors in video information stored in said storage means according to the calculated conditions; selection means for selecting a mode of said apparatus among a plurality of modes which include a normal reproduction mode and a slow reproduction mode; and

changing means for changing an operation of said error correction means in accordance with the mode selected by said selection means, wherein a number of error calculation and correction processes executed by said error calculation and correction means in the slow reproduction mode without re-storing the same video information into said storage means is greater than that in the normal reproduction mode.

5,805,619

METHOD AND APPARATUS FOR SAMPLED-DATA PARTIAL-RESPONSE SIGNAL TIMING ERROR DETECTOR HAVING ZERO SELF-NOISE

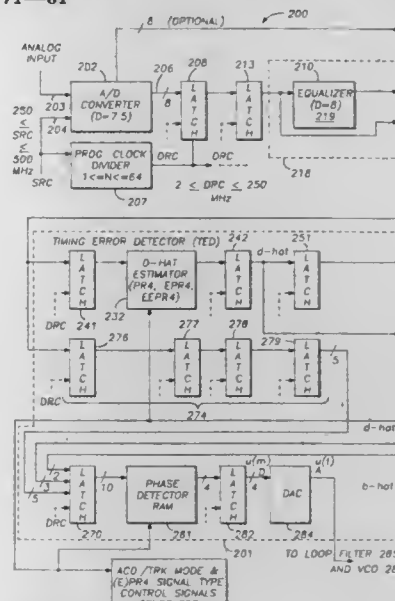
Floyd Martin Gardner, Palo Alto, and Dennis Allen Saxby, Ben Lomond, both of Calif., assignors to Swan Magnetics, Inc., San Jose, Calif.

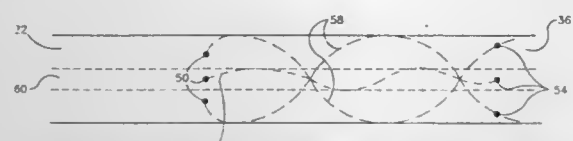
Filed Feb. 16, 1996, Ser. No. 602,218

Int. Cl.⁶ H04L 25/497; G11B 27/19

U.S. Cl. 371—61

25 Claims





a wiggler for receiving and undulating said electron beam, said electron beam having at any one time a distribution of outer electrons and central electrons and said wiggler converting part of the energy of said electron beam into electromagnetic radiation; and

a source of conditioning electromagnetic radiation which is injected into said wiggler primarily into said outer electrons thereby causing said outer electrons to accelerate to condition said outer electrons such that said outer electrons and said central electrons exit and wiggler in substantially the same transverse plane thereby increasing the amount of electromagnetic energy radiated by said electron distribution.

5,805,621

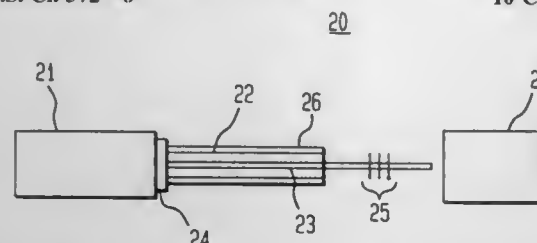
FIBER MULTIMODE LASER WITH REDUCED NOISE
Stephen Gregory Grubb, Fremont, Calif.; Clifford Headley, North Plainfield, N.J.; Martin Heinrich Muendel, Cambridge, Mass.; Janet Renee Pedrazzani, Summit, N.J.; Bennett H. Rockney, Westford, Mass., and Thomas A. Strasser, Chatham, N.J., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Nov. 12, 1996, Ser. No. 747,946

Int. Cl.⁶ H01S 3/10

U.S. Cl. 372—6

10 Claims



1. In a rare earth-doped fiber multimode laser subject to inter-modal beat noise comprising a length of optical fiber having a cladding and a rare-earth doped core, an input reflective coupler and an output coupler defining an optical cavity including said fiber, and a source of pumping energy, the improvement wherein: said output coupler comprises a grating having a reflective spectrum with bandwidth in excess of 0.22 nm for reducing said intermodal beat noise by at least 3 dB.

5,805,622

APPARATUS FOR THE GENERATION OF LASER PULSES IN THE US-TIME RANGE
Ralf Brinkmann, Lübeck, Germany, assignor to Medizinisches Laserzentrum Lübeck GmbH, Lübeck, Germany
Continuation of Ser. No. 377,222, Jan. 24, 1995, abandoned.
This application Apr. 8, 1997, Ser. No. 827,711
Claims priority, application Germany, Jan. 24, 1994, 44 01 917.3

Int. Cl.⁶ H01S 3/10

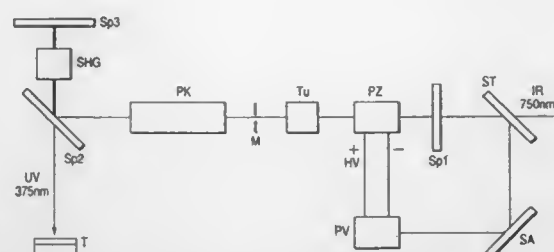
U.S. Cl. 372—9

22 Claims

1. An apparatus for the generation of laser pulses with pulse durations in a range of μ -seconds, comprising:

a Q-switched solid state laser having a Q-switch and end mirrors defining resonator cavity for generation of a laser beam, wherein at least one mirror of said end mirrors is a dielectric mirror through which at least laser pulses of a laser beam are transmitted therethrough;

a pulse prolongation unit receiving at least a fraction of said laser pulses of said laser beam from said laser, and using a photoelectric device for converting said at least a fraction of



said laser pulses into electrical control signals, said pulse prolongation unit having an intra-cavity optical element provided within said resonator cavity, for receiving and using said electrical control signals to prolong said laser pulses produced from said resonator cavity of said laser; and

an intra-cavity nonlinear crystal provided within said resonator cavity for having said laser beam propagate therethrough to prolong said laser pulses and to generate a second harmonic laser wavelength;

whereby said pulse prolongation unit and said intra-cavity nonlinear crystal both contribute to prolongation of a said pulse to thereby produce pulse durations in a range of μ -seconds.

5,805,623

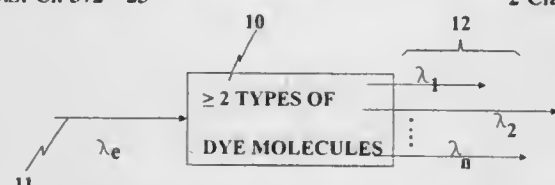
SOLID-STATE DYE LASER UTILIZING MULTIPLE DYES IN SINGLE HOST

Richard Utano; Suresh Chandra, both of Springfield; Toomas H. Allik, Alexandria, all of Va., and Timothy R. Robinson, Seattle, Wash., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 589,908, Jan. 23, 1996, abandoned. This application May 22, 1997, Ser. No. 861,488

Int. Cl.⁶ H01S 3/10

U.S. Cl. 372—23

2 Claims



1. A technique for achieving multiple output wavelength laser emission from a single solid-state dye laser media, said single solid-state laser media containing multiple dyes having predetermined dye concentration ratios, said technique comprising:

doping a dye medium with multiple dyes having predetermined dye concentration ratios into an optical solid-state host;

incorporating said optical solid-state host within a cavity means of a laser oscillator;

applying pump energy to said optical solid-state host to excite a minimum of at least one of the dyes to effect laser output from said laser oscillator whereby additional dye to dye interactions within the solid-state host are excited to produce multiple laser emissions of simultaneous multi-spectral outputs proportional to said predetermined dye concentration ratios.

5,805,624

LONG-WAVELENGTH INFRA-RED VERTICAL CAVITY SURFACE-EMITTING LASER ON A GALLIUM ARSENIDE SUBSTRATE

Long Yang, Union City, and Danny E. Mars, Los Altos, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 30, 1996, Ser. No. 688,338

Int. Cl.⁶ H01S 3/19;3/08

U.S. Cl. 372—45

12 Claims

1. A vertical cavity surface emitting laser (VCSEL), comprising: a substrate consisting essentially of GaAs;

5,805,626

SINGLE-CRYSTAL LITHIUM TETRABORATE AND METHOD MAKING THE SAME, OPTICAL CONVERTING METHOD AND CONVERTER DEVICE USING THE SINGLE-CRYSTAL LITHIUM TETRABORATE, AND OPTICAL APPARATUS USING THE OPTICAL CONVERTER DEVICE

Ryuichi Komatsu; Tamotsu Sugawara, and Masakuni Takahashi, all of Saitama, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

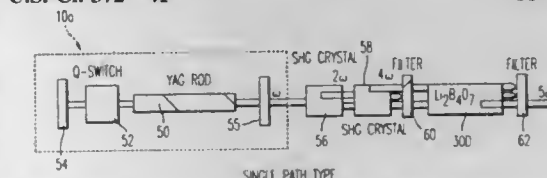
Filed Sep. 20, 1996, Ser. No. 710,714

Claims priority, application Japan, Sep. 20, 1995, 7-242120; Jan. 19, 1996, 8-007794; Jan. 19, 1996, 8-007795; Jan. 19, 1996, 8-007796; Jan. 19, 1996, 8-007797; Jan. 19, 1996, 8-007798; Jan. 23, 1996, 8-009615; Feb. 14, 1996, 8-026588; Jun. 26, 1996, 8-165515

Int. Cl.⁶ G02F 1/39; H01S 3/109

U.S. Cl. 372—41

55 Claims



38. A short wavelength solid-state laser apparatus for processing comprising:

a first light source which emits a first coherent light beam having a first wavelength;

a second light source which emits a second coherent light beam having a wavelength one-half or one-fourth of the wavelength of the first coherent light beam from the first light source; and

an optical wavelength converter which receives two kinds of coherent light beams having different wavelengths from said first and second light sources to a light incident face of a single-crystal lithium tetraborate ($\text{Li}_2\text{B}_4\text{O}_7$), which is cut at a predetermined plane to an optical axis in order to satisfy a predetermined phase matching angle, and for emitting a light beam having a wavelength of the sum frequency generation of the two coherent light beams;

wherein said first light source emits the first coherent light beam at a predetermined energy for processing for a predetermined time; and

said wavelength converter emits a light beam having a wavelength one-third or one-fifth of the wavelength of said first coherent light beam.

5,805,625

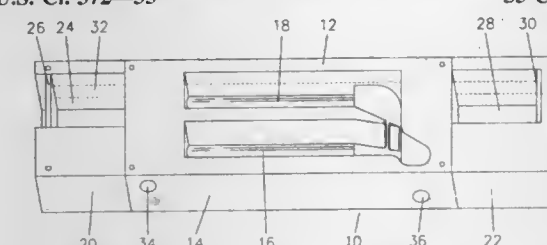
LASER

Walter Langner, Ferdinand-Maria Strasse 20, D-82319 Starnberg, and Wolfgang Deutscher, Munich, both of Germany, assignors to Walter Langner, Starnberg, Germany
Continuation-in-part of Ser. No. 194,745, Feb. 9, 1994, abandoned. This application Sep. 26, 1995, Ser. No. 533,874

Int. Cl.⁶ H01S 3/04

U.S. Cl. 372—35

33 Claims



1. An improved laser suitable for operation in a power range above 0.5 watts, comprising:

a laser housing which comprises a compact housing block formed with at least first and second recesses and with cooling fluid channels which debouch into the first recess;

a laser crystal mounted in the first recess of the laser housing;

a light emitting pumping source mounted in the first recess of the laser housing for pumping the laser crystal, and

a beam modifying component mounted in the second recess of the laser housing and formed with a conduit connected to the cooling fluid channels for supplying cooling fluid to cool the beam modifying component.

5,805,627

LASER DIODE AND OPTICAL COMMUNICATIONS SYSTEM USING SUCH LASER DIODE

Shinichi Kubota, and Haruhisa Soda, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan
Filed Oct. 23, 1995, Ser. No. 546,895

Claims priority, application Japan, Feb. 7, 1995, 7-019037
Int. Cl.⁶ H01S 3/19;3/00

U.S. Cl. 372—46

9 Claims

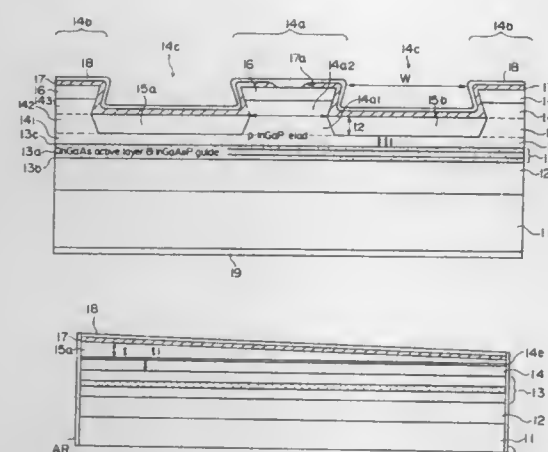
1. A laser diode comprising:

a semiconductor substrate extending axially from a first end face to a second end face and having a first conductivity;

a first clad layer formed on said semiconductor substrate layer, extending axially from a third end face that corresponds to said first end face to a fourth end face that corresponds to said second end face, and having said first conductivity;

an active layer formed on said first clad layer, extending axially from a fifth end face that corresponds to said third end face to a sixth end face that corresponds to said fourth end face, and producing a light beam according to stimulated emission;

a second clad layer formed on said active layer, extending axially from a seventh end face that corresponds to said fifth end face to an eighth end face that corresponds to said sixth end face, and having a second conductivity different from said first conductivity;



a ridge region formed on said second clad layer so as to project upward, extending axially from a ninth end face that corresponds to said seventh end face to a tenth end face that corresponds to said eighth end face, and having said second conductivity;

a first electrode electrically connected to said semiconductor substrate and injecting carriers having a first polarity into said active layer;

a second electrode electrically connected to said ridge region and injecting carriers having a second and inverse polarity to said active layer via said ridge region; and

a pair of embedded regions provided on either side of said ridge region on said second clad layer to a thickness not exceeding a height of said ridge region, each of said embedded regions extending axially from an eleventh end face that corresponds to said ninth end face to a twelfth end face that corresponds to said tenth end face and having a first thickness at said eleventh end face and a second thickness substantially smaller than said first thickness at said twelfth end face, so as to confine a current in said second clad layer.

5,805,628

SEMICONDUCTOR LASER

Shoichi Karakida; Norio Hayafuji; Tatsuya Kimura; Motoharu Miyashita; Hirotaka Kizuki, and Takashi Nishimura, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

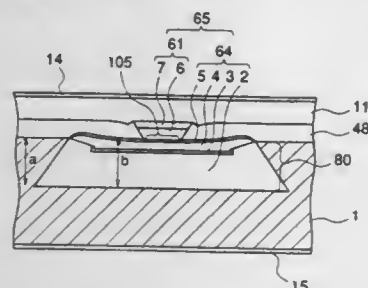
Filed Oct. 23, 1996, Ser. No. 735,637

Claims priority, application Japan, Jun. 19, 1996, 8-157875

Int. Cl.⁶ H01S 3/19

U.S. Cl. 372-46

11 Claims



1. A semiconductor laser device comprising:

a semiconductor substrate of a first conductivity type having a groove at a surface;

opposed light emitting facets;

a double heterojunction structure including an optical waveguide that extends between the facets and comprises a light emitting region and a lens region, the lens region being disposed between the light emitting region and one of the facets, and comprising a plurality of AlGaAs series compound semiconductor layers, the double heterojunction structure comprising:

a lower part comprising a lower cladding layer of the first conductivity type, an active layer, and a first upper cladding layer of a second conductivity type, opposite the first conductivity type, the lower cladding layer, the active layer, and at least part of the first upper cladding layer being disposed within the groove; and

an upper part narrower than the lower part, located on the lower part, and including a second upper cladding layer of the second conductivity type; and

a current blocking structure disposed on the lower part of the double heterojunction structure at both sides of the upper part of the double heterojunction structure and on the semiconductor substrate outside the groove and comprising AlGaAs series compound semiconductor materials.

5,805,629

SEMICONDUCTOR LASER

Masayoshi Takemi; Tatsuya Kimura; Daisuke Suzuki; Tetsuo Shiba, and Kimitaka Shibata, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

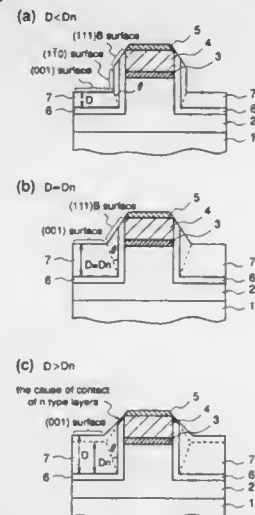
Filed Nov. 12, 1996, Ser. No. 747,050

Claims priority, application Japan, Dec. 28, 1995, 7-343248; Mar. 19, 1996, 8-062413

Int. Cl.⁶ H01S 3/19

U.S. Cl. 372-46

7 Claims



1. A semiconductor device including:

a p type InP substrate with a {001} surface;

a mesa structure formed by dry etching, including a stripe-shaped region extending along a <110> direction, of epitaxial semiconductor layers disposed on the p type InP substrate, the mesa structure having (110) side surfaces at opposite sides and a height H_m ; and

epitaxial mesa burying layers including a p type InP burying layer on the (110) side surfaces of the mesa structure and on the (001) surface at an upper surface of the epitaxial semiconductor layers at opposite sides of the mesa structure, the p type InP burying layer having a thickness D_p , an n type InP epitaxial burying layer on side and upper surfaces of the p type InP burying layer, wherein an angle formed between a (111)B surface and the (001) surface is θ_{111} , growth rates of the n type InP burying layer on the (110) side surfaces and on the (001) surface are, respectively, $R_p(110)$ and $R_p(001)$ an angle θ is determined by $\tan \theta = R_p(110)/R_p(001)$ and a critical thickness D_n of the n type InP burying layer on the (001) surface when the n type InP burying layer is not disposed on the (111)B surface of the p type InP burying layer is

$$D_n = \frac{H_m - D_p \cdot (1 + \tan \theta_{111})}{1 + \tan \theta \cdot \tan \theta_{111}} = \frac{H_m - (1 + \sqrt{2}) D_p}{1 + \sqrt{2} \tan \theta}$$

the n type InP burying layer on the (001) surface having a thickness $D \leq D_n$.

5,805,630

OPTOELECTRONIC SEMICONDUCTOR DEVICE WITH AN ARRAY OF SEMICONDUCTOR DIODE LASERS AND METHOD OF MANUFACTURING SUCH A DEVICE

Adriaan Valster; Carolus J. Van Der Poel, and Jeroen J. L. Horikx, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

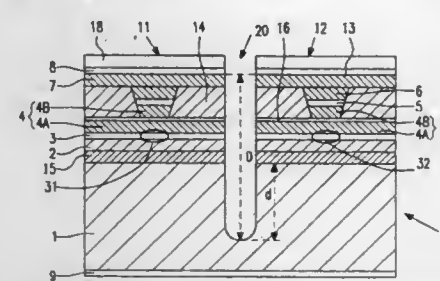
Filed Jul. 11, 1994, Ser. No. 273,528

Claims priority, application Belgium, Jul. 12, 1993, 0930017

Int. Cl.⁶ H01S 3/18

U.S. Cl. 372-50

20 Claims



1. An optoelectronic semiconductor device comprising an array of at least a first and a second semiconductor diode laser and with a semiconductor body which comprises a semiconductor substrate of a first conductivity type on which a semiconductor layer structure is situated which comprises at least in that order: a first cladding layer of the first conductivity type, an active layer in which a first and a second active region of the first and the second laser, respectively, are present, and a second cladding layer of a second conductivity type opposed to the first, the first and the second cladding layer being provided with means for electrical connection of the first and the second laser which are mutually separated by a groove which extends from the surface of the semiconductor body down into the substrate, characterized in that: the groove defines an empty void, has a depth (D), is situated within the substrate for a major portion (d) of its depth (D) and in that the major portion (d) of the groove situated within the substrate is at most approximately 40 μ m deep.

5,805,631

BLUE, GREEN, ORANGE, AND RED UPCONVERSION LASER

Ping Xie, San Jose, Calif., and Timothy R. Gosnell, Sante Fe, N. Mex., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 302,558, Sep. 8, 1994, abandoned. This application Jul. 26, 1996, Ser. No. 686,831

Int. Cl.⁶ H01S 3/14

U.S. Cl. 372-68

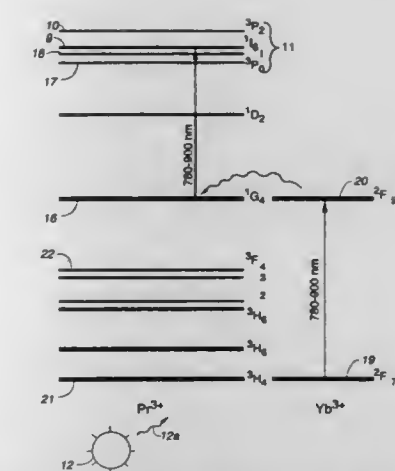
24 Claims

1. A laser for producing visible output at multiple wavelengths including the wavelengths of blue, green, orange and red visible light comprising:

a substrate doped with Pr^{3+} ions to a concentration of less than 0.5 wt% and greater than 0.05 wt%, and Yb^{3+} ions to a concentration of greater than 0.5 wt%, and having a proximal end and a distal end; and

reflectance means in optical communication with said proximal end and said distal end of said substrate for providing optical feedback;

light pump means in optical communication with said proximal end of said substrate for producing an excitation beam and pumping said Pr^{3+} ions and said Yb^{3+} ions at a wavelength lying between 780 nm and 900 nm, said excitation beam exciting populations of said Yb^{3+} ions which thereafter transfer energy to populations of said Pr^{3+} ions which are indepen-



dently excited by said excitation beam to an energy level from which said populations of said Pr^{3+} ions and said populations of said Yb^{3+} ions participate in a photon avalanche process which increases said populations of said Pr^{3+} ions at said energy level, said populations of said Pr^{3+} ions lasing at said multiple wavelengths of blue, green, orange and red visible light; and

tuning element means in optical communication with said multiple wavelengths of blue, green, orange and red visible light for selecting one or more of said multiple wavelengths of blue, green, orange and red visible light for output.

5,805,632

BIT RATE DOUBLER FOR SERIAL DATA TRANSMISSION OR STORAGE

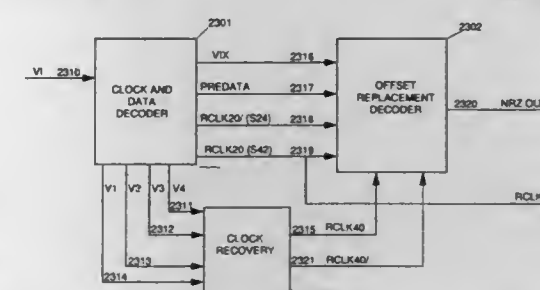
Geary L. Leger, Fremont, Calif., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Nov. 19, 1992, Ser. No. 979,573

Int. Cl.⁶ H04B 1/66

U.S. Cl. 375-122

24 Claims



11. An apparatus for decoding a non-return-to-zero (NRZ) data stream from a serial signal, comprising:

clock recovery means, responsive to said serial signal, to generate a recovered clock, said recovered clock having a period one half bit in duration indicating the timing of transitions within said serial signal;

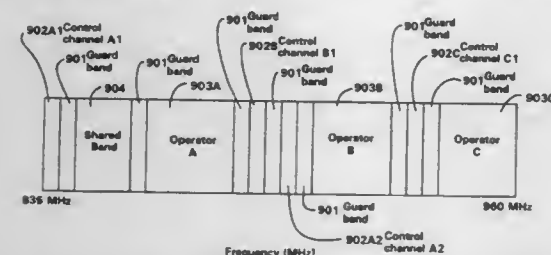
pre-decoder means to generate a preliminary decoded data stream responsive to said serial signal and to said recovered clock;

offset replacement decoder means coupled to said clock recovery means and said pre-decoder means, responsive to said preliminary decoded data stream, said serial signal, and said recovered clock, to generate said NRZ data stream from said preliminary decoded data stream by detecting predetermined substituted transition patterns within said serial signal by detecting a predetermined sequential number of half bit periods with no transition and, when detected, correcting said preliminary decoded data stream to produce said NRZ data stream.

5,805,633
METHOD AND APPARATUS FOR FREQUENCY PLANNING IN A MULTI-SYSTEM CELLULAR COMMUNICATION NETWORK
Jan Uddenfeldt, Hässelby, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
Filed Sep. 6, 1995, Ser. No. 524,346
Int. Cl.⁶ H04B 1/713

U.S. Cl. 375—202

41 Claims



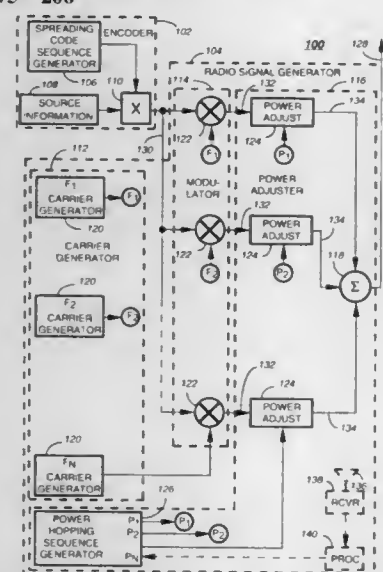
17. In a cellular radio communication network comprising a plurality of systems each providing service within a common geographic area, and operating within a frequency range comprising a plurality of frequency bands, a method of allocating frequency bands to said systems, said method comprising the steps of: assigning one or more first frequency bands to each of said systems, wherein said first frequency bands are used exclusively for control channels within the systems to which each is assigned; and allocating one or more second frequency bands to said systems on a shared basis, wherein said second frequency bands are used for traffic channels within the system to which each is currently allocated.

5,805,634
METHOD AND APPARATUS FOR TRANSMITTING AND RECEIVING INFORMATION AS A POWER HOPPED DIRECT SEQUENCE SPREAD SPECTRUM SIGNAL
Terence Edward Sumner, Azle, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 26, 1996, Ser. No. 756,630
Int. Cl.⁶ H04B 1/707

U.S. Cl. 375—206

22 Claims



1. A method for transmitting information as a power hopped direct sequence spread spectrum (PHDSSS) signal, the method comprising the steps of: encoding the information with a predetermined spreading sequence to produce a direct sequence spread spectrum (DSSS) signal; and

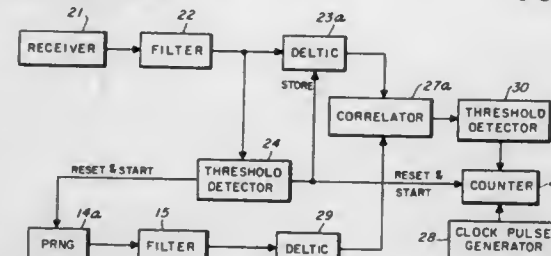
generating a plurality of simultaneous radio signals operating on a plurality of frequency slots and modulated by the DSSS signal, wherein output power of individual ones of the plurality of simultaneous radio signals is adjusted periodically according to a predetermined power hopping sequence.

5,805,635
SECURE COMMUNICATION SYSTEM
Daniel E. Andrews, Jr.; William E. Klund, and Robert D. Isaak, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 17, 1964, Ser. No. 352,687
Int. Cl.⁶ H04B 1/69

U.S. Cl. 375—209

6 Claims



1. A secure communication system comprising: a first cyclical pseudo-random noise generator comprising determinable variable starting point means and an output; transmitting means for transmitting said pseudo-random noise generator output; receiving means for receiving said transmitting means transmissions, said receiving means having an output; recycling storage means for storing said receiving means output; a second cyclical pseudo-random noise generator identical to said first pseudo-random noise generator having an output and a reset input, said receiving means output connected to said reset input; a correlator having a first input connected to said storage means and a second input connected to said second pseudo-random noise generator output and an output from said correlator; and timing means connected to said receiving means output and said correlator output for measuring time elapsed between any output of said receiver and said correlator.

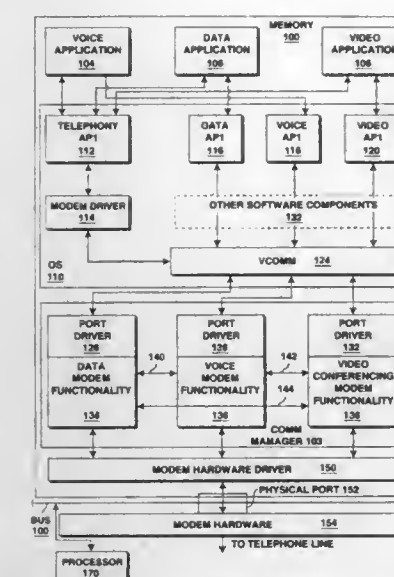
5,805,636
METHOD AND APPARATUS FOR SIMULTANEOUS VOICE, DATA, AND VIDEO COMMUNICATION IN A COMPUTER SYSTEM
Vijay Rao, Portland, and Ramanan Ganesan, Hillsboro, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Oct. 1, 1996, Ser. No. 724,209
Int. Cl.⁶ G06F 13/00; H04M 11/06

U.S. Cl. 375—222

14 Claims

1. In a computer system comprising a processor and an operating system, a modem comprising: a physical communication port to couple the computer system to a phone line; a memory coupled to the processor, the memory comprising a first software component to be executed by the processor, and dedicated to providing data inputs to the physical communication port; a second software component to be executed by the processor, and dedicated to providing voice inputs to the physical communication port; and the first and second software components being different software components, and the two software components cooper-



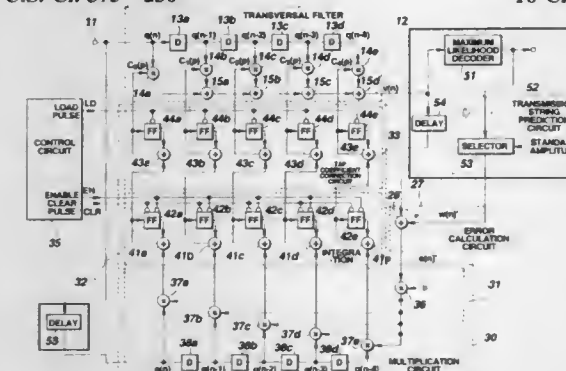
ating with each other to enable simultaneous voice and data communication through the physical communication port.

5,805,637
AUTOMATIC EQUALIZER AND DIGITAL SIGNAL REPRODUCING APPARATUS CARRYING THE SAME
Hisato Hirosaka, Tokyo, and Akio Tanaka, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 25, 1996, Ser. No. 719,624
Claims priority, application Japan, Sep. 29, 1995, 7-254259; Sep. 29, 1995, 7-276891

Int. Cl.⁶ H03H 7/30; G06F 17/10; G11B 5/035
U.S. Cl. 375—230

16 Claims



1. An automatic equalization apparatus comprising: filter means for convolving an input digital signal with a plurality of coefficients fed thereto; transmission string prediction means including a maximum likelihood decoder for performing maximum likelihood decoding on an output signal of said filter means based on pre-set threshold values for producing a multi-level signal, and selection means for selecting an amplitude level from said multi-level signal and for predicting values of an original input signal; error calculation means for calculating a prediction error based on said amplitude level selected by said selection means of said prediction means; and coefficient generating means for generating said plurality of coefficients fed to said filter means based on results of calculations by said error calculation means, wherein said coefficient generating means includes: first multiplication means for multiplying said prediction error from said error calculation means with a pre-set constant,

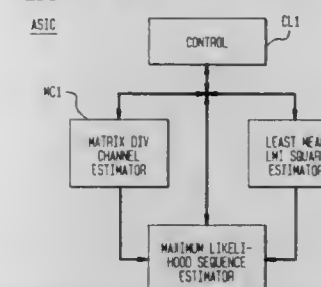
second multiplication means for multiplying said input digital signal with a result of multiplication by said first multiplication means; integration means for integrating an output of said second multiplication means, and coefficient correction means for correcting said plurality of coefficients fed to said filter means based on an integrated value output from said integration means.

5,805,638
SYSTEMS AND METHODS OF DIGITAL WIRELESS COMMUNICATION USING EQUALIZATION
William J. Liew, Matawan, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 4, 1995, Ser. No. 566,771
Int. Cl.⁶ H03H 7/30; H04L 27/06

U.S. Cl. 375—231

22 Claims



1. A cellular transmitting and receiving station for communicating with another station that transmits a plurality of training symbols, comprising: a transceiver section; an impairment-equalizing signal processor coupled to said transceiver section and having a memory containing stored training symbols corresponding to the training symbols transmitted by the other station; said signal processor including an impairment-sensing matrix division channel estimating arrangement responsive to said stored training symbols and to received training symbols performing channel estimation, and an impairment-effect-minimizing maximum likelihood sequence estimating arrangement.

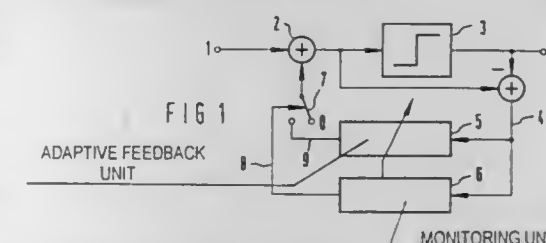
5,805,639
ADAPTIVE NETWORK
Reiner Tonch, München; Lajos Gazsi, Düsseldorf, both of Germany, and Ferenc Leeb, Villach, Austria, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 28, 1995, Ser. No. 535,714
Claims priority, application Germany, Sep. 28, 1994, 44 34 723.5

Int. Cl.⁶ H03H 7/30; 7/40

U.S. Cl. 375—232

5 Claims



1. An adaptive network, comprising: a summation node for receiving an input signal and delivering an output signal; a decision unit including a decision circuit receiving the output signal of said summation node as an input signal and said decision unit having an output for delivering an output signal

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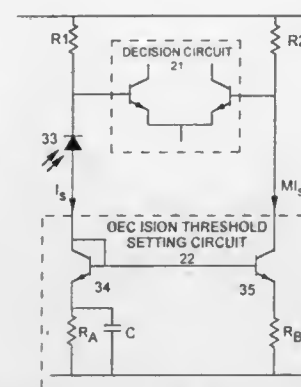
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being a differential signal between the input and output signals of said decision circuit;
an adaptive feedback branch receiving the output signal of said decision unit and having status variables, coefficients and an output;
a changeover switch unit coupling the output of said adaptive feedback branch to said summation node; and
a monitoring unit for monitoring an error magnitude of the output signal of said decision unit, said monitoring unit triggering said changeover switch unit in a next clock cycle if a first signal value having an amplitude exceeding a certain threshold values appears, for causing said summation node to be acted upon by a digital zero signal, for setting said status variables of said adaptive feedback branch to zero and for freezing said coefficients of said adaptive feedback branch.



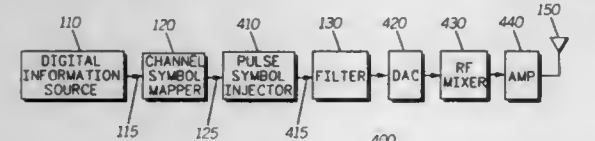
sion thresholds, whereby to adjust each decision threshold to a level corresponding to a predetermined fraction of said current.

5,805,640

METHOD AND APPARATUS FOR CONDITIONING MODULATED SIGNALS FOR DIGITAL COMMUNICATIONS

Robert J. O'Dea, Ft. Lauderdale, and David L. Muri, Sunrise, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Apr. 4, 1996, Ser. No. 627,535
Int. Cl.⁶ H04K 1/02

U.S. Cl. 375—296



1. A method for conditioning a digitally modulated signal, comprising the steps of:
mapping a digital information stream onto a symbol constellation to generate a sequence of channel symbols;
processing the sequence of channel symbols to provide a conditioned signal having a signal envelope that avoids signal envelope magnitudes below a minima threshold, including the steps of:
determining symbol interval minimum values for a signal envelope of a representative signal for the sequence of channel symbols when processed through a spectral shaping filter; and
generating the conditioned signal by adjusting the signal envelope of the representative signal by inserting an adjustment pulse between first and second channel symbols of the sequence of channel symbols to increase a particular symbol interval minimum value, when the particular symbol interval minimum value is below the minima threshold.

5,805,641

THRESHOLD SETTING DEVICE

Bipinchandra Lalbhai Patel, Harlow, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada
Filed Oct. 6, 1995, Ser. No. 540,051
Claims priority, application United Kingdom, Oct. 7, 1994, 9420269

Int. Cl.⁶ H04L 25/06; 25/10

U.S. Cl. 375—317

7 Claims

1. A decision threshold setting circuit which receives an input digital signal and sets one or more decision thresholds for decoding the input digital signal, the circuit including means for generating a current corresponding to a time-average level of the input digital signal and means for mirroring said current to generate the deci-

5,805,642

METHOD FOR DETECTING DIFFERENTLY ENCODED SIGNAL SEQUENCES USING A RECURSIVELY COMPUTED REFERENCE SIGNAL

Ruey-Yi Wei, 7E., No. 91, La. 71, Chiang Nan St., Nei Hu Chum, Taipei, and Mao-Chao Lin, 2F., No. 94-1, Hsiu-Liang Rd., Sec. 1, Yung-Ho, Taipei Hsien, both of Taiwan
Filed Dec. 20, 1996, Ser. No. 771,266
Int. Cl.⁶ H04L 27/38; 27/22

U.S. Cl. 375—340

14 Claims



1. A method for detecting the received signal sequences of a communication system transmitting a differentially encoded MPSK signal sequence, which results in an output for an (n+1)-th detection operation given by $\Delta\phi_{n+1}$ that is determined by the steps of calculating a signal reference $r_{n,ref}$ which is recursively generated and is a function of $r_{n-1,ref}, r_{n-2,ref}, \dots, r_{n-v,ref}, e^{j\Delta\phi_{n-1}}, \dots, e^{j\Delta\phi_{n-v}}, r_{n-1}, \dots, r_{n-\zeta}$, and then choosing $\Delta\phi_{n+1}$ as the $\Delta\phi_{n+1}$ value that maximizes $\text{Re}\{r_{n+1}^* r_{n,ref} \exp(-j\Delta\phi_{n+1})\}$, wherein $r_n, r_{n-1}, \dots, r_{n-\zeta}$ are the received signal samples and v, μ and ζ are nonnegative integers, $v \geq 2$.

5,805,643

DIVERSITY RECEIVER SYSTEM USED IN DIGITAL COMMUNICATION

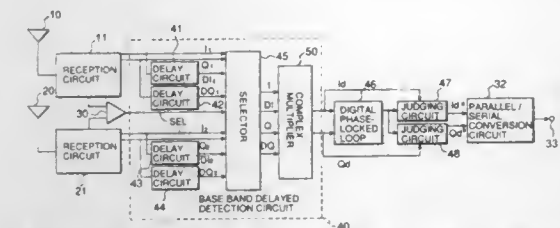
Keiko Seki, Sumida-ku, and Koji Ogura, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Tokyo, Japan
Continuation of Ser. No. 201,176, Feb. 24, 1994, abandoned.
This application Mar. 10, 1997, Ser. No. 814,152
Claims priority, application Japan, Feb. 26, 1993, 5-038023

Int. Cl.⁶ H04B 17/02; 7/10

U.S. Cl. 375—34.7

10 Claims

1. A diversity receiver system for digital communication having a plurality of antennas for outputting demodulation data of a received signal selected from reception signals of the plurality of antennas, the diversity receiver system comprising:



a plurality of reception circuits each of which is connected to corresponding one of said plurality of antennas and each of which outputs a modulation signal generated from the received signal supplied through said antenna;
comparison means for directing one of said modulation signals, which are each outputted from one of the reception circuits, to be used as selected modulation signal;
a selector receiving said plurality of modulation signal output by each of said reception circuits, a selector outputting one of the modulated signal as said selected modulation signal in accordance with the direction of said comparison means; and
a digital phase locked loop coupled to the selector, the digital phase locked loop using said detection signal supplied from said a selector to generate an internal clock, wherein the internal clock generated by the digital phase locked loop is used in demodulating the detection signal.

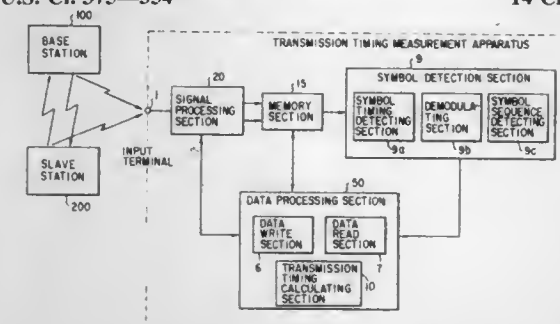
5,805,644

TRANSMISSION TIMING MEASURING APPARATUS
Chihiro Tagawa, Isekar, Japan, assignor to Anritsu Corporation, Tokyo, Japan
PCT No. PCT/JP95/00928, § 371 Date Jan. 24, 1996, § 102(e)
Date Jan. 24, 1996, PCT Pub. No. WO95/33315, PCT Pub. Date Dec. 7, 1995

PCT Filed May 16, 1995, Ser. No. 591,615
Claims priority, application Japan, May 31, 1994, 6-141186
Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—354

14 Claims



1. A transmission timing measuring apparatus comprising:
a signal processing section for receiving a first channel signal having a predetermined carrier frequency, transmitted from a first station, and containing first symbol sequence data, and a second channel signal having a carrier frequency different from that of the first channel signal, transmitted from a second station in response to the first channel signal, and containing second symbol sequence data, said signal processing section separating the first and second channel signals from each other, converting the signals into first and second digital data, and outputting the data;
a memory section for storing the first and second digital data output from said signal processing section in a state to allow write/read access thereto;
data write means for writing the first and second digital data in said memory section to specify a write start time of each data; data read means for reading out the first and second digital data, which are written in said memory section by said data write means, from said memory section; and
transmission timing calculating means for demodulating the first and second digital data read out from said memory section by said data read means; detecting the first and second symbol

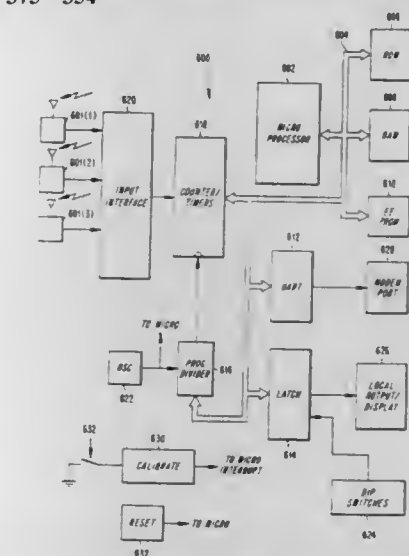
sequence data, and calculating a transmission timing as a time difference between the first and second channel signals on the basis of the detected first and second symbol sequence data and the write start time, of each of the first and second digital data, which is specified by said data write means.

5,805,645

CONTROL CHANNEL SYNCHRONIZATION BETWEEN DBC AND CELLULAR NETWORKS

Thomas A. Przelomiec, and Thomas A. Brown, both of Lynchburg, Va., assignors to Ericsson Inc., Research Triangle Park, N.C.
Continuation-in-part of Ser. No. 906,438, Jun. 30, 1992, abandoned. This application Mar. 27, 1996, Ser. No. 622,631
Int. Cl.⁶ H04L 7/00; H04Q 7/20; 7/00; H04B 7/00
U.S. Cl. 375—354

17 Claims



1. A system for synchronizing the control channel of a downbanded Cellular network with the control channel of a conventional Cellular network, comprising:
at least one downbanded Cellular switching center for processing control channel information at a first timing, and for generating first timing information which reflects said first timing;
at least one standard Cellular switching center for processing control channel information at a second timing, and for generating second timing information which reflects said second timing; and
a monitor for receiving said first timing information and said second timing information, and for comparing said first timing information with said second timing information to produce a comparison result, and for providing an error signal when the comparison result exceeds a prescribed threshold indicating that the at least one downbanded Cellular switching center is unsynchronized with said standard Cellular switching center.

5,805,646

SYNCHRONIZATION METHOD, AND ASSOCIATED CIRCUITRY, FOR IMPROVED SYNCHRONIZATION OF A RECEIVER WITH A TRANSMITTER USING EARLY-LATE TESTING DURING COARSE SYNCHRONIZATION
Eric Yi-Pin Wang, Cary, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

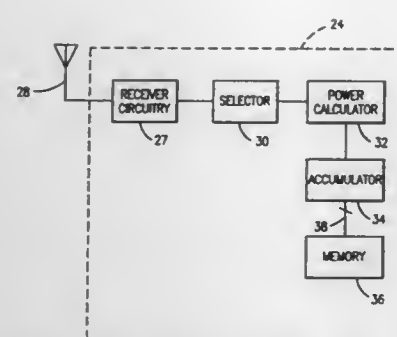
Filed Oct. 8, 1996, Ser. No. 727,370

Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—354

30 Claims

1. A method for coarse synchronization of a receiver with a transmitter using an early-late test, the receiver and the transmitter



coupled together by way of a communication channel, said method comprising the steps of:

- transmitting, from the transmitter, a control signal upon the communication channel, the control signal being divided into a succession of consecutive multiframe, each of said multiframe comprising a multiplicity of discrete frames therein, and each of said multiframe comprising at least one high-power synchronization signal therein;
- detecting, at the receiver, the control signal transmitting during said step of transmitting;
- selecting at least one given portion of the detected control signal, said selection of said at least one given portion by said receiver being a coarse selection of the transmitted control signal independent of the boundaries of the multiframe;
- calculating the energy accumulated within said at least one given portion;
- selecting at least one previous portion and at least one later portion of said detected control signal, said at least one previous and later portions being respectively displaced prior to and subsequent from said at least one given portion within said detected control signal;
- calculating the energies accumulated with said at least one previous and later portions; and
- comparing the energy accumulated within said at least one given portion with that of both said at least one previous and said at least one later portions, respectively, whereby said comparison is used to determine a multiframe boundary, thereby coarsely synchronizing said receiver with the transmitter and the control signal transmitted therefrom.

5,805,647

METHOD FOR DETECTING THE BEGINNING OF TIME MESSAGES

Gerhard Schäfer, Weinsberg, and Bernd Memmler, Rosengarten-Rieden, both of Germany, assignors to Temic Telefunken Microelectronic GmbH, Heilbronn, Germany
Filed Apr. 12, 1996, Ser. No. 635,244

Claims priority, application Germany, Apr. 13, 1995, 195 14 031.1

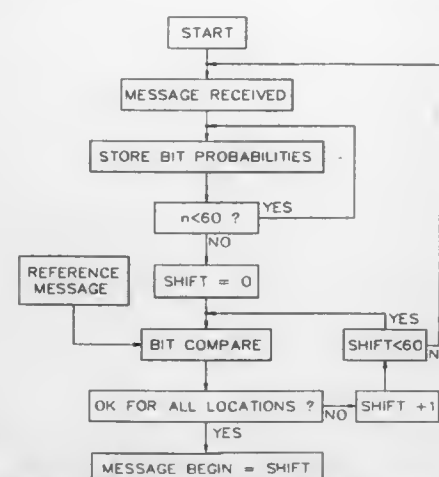
Int. Cl.⁶ H04L 7/00

U.S. Cl. 375—366

9 Claims

1. A method for detecting the beginning of time messages in the signal received from a time-signal transmitter, where the signal of the time-signal transmitter consists of a series of blanking intervals on a carrier signal in the seconds clock cycle in which blanking intervals of different length cause different information units to be created (ZERO pulse, ONE pulse, frame pulse) and a time message comprises the information units transmitted over a period of one minute, and has areas/sectors with defined, constant information units located at fixed points and areas/sectors with variable contents that code the time information wherein

- a reference message is stored in a first area of memory that contains the defined, constant information units located at fixed areas/sectors;
- a number of successive information units corresponding to the length of a time message are stored in a second area of memory;



the contents of the first area of memory are compared unit for unit with the second area of memory;

if an error occurs, the reference message in the first area of memory is shifted by one unit with respect to the received information units and subsequently compared again until no error is found;

when agreement is established, the number of shifts is used to determine the beginning of the received time message.

5,805,648

METHOD AND APPARATUS FOR PERFORMING SEARCH ACQUISITION IN A CDMA COMMUNICATION SYSTEM

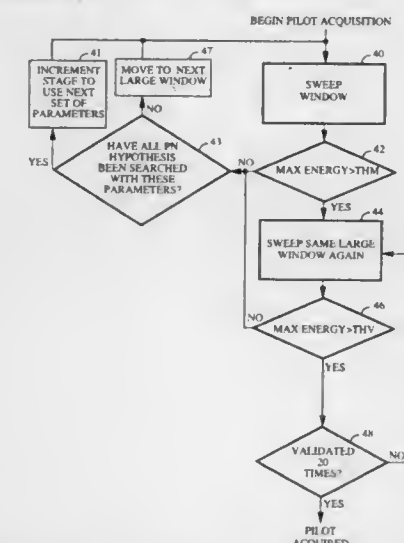
Todd R. Sutton, San Diego, Calif., assignor to Qualcomm Incorporated, San Diego, Calif.

Filed Jul. 31, 1995, Ser. No. 509,721

Int. Cl.⁶ H04L 7/00; H04K 1/00

U.S. Cl. 375—367

12 Claims



1. A method for determining a synchronized PN sequence, comprising the steps of:

- demodulating a received signal by a first plurality of PN sequences of a first set of windows of PN sequences determined in accordance with a first window parameter format to provide a first set of demodulation metrics;
- analyzing said first set of demodulation metrics to determine whether said synchronized PN sequence is of said first plurality of PN sequences; and
- demodulating said received signal by a second plurality of PN sequences of a second set of windows of PN sequences determined in accordance with a second window parameter format to provide a second set of demodulation metrics;

wherein said first window parameter format further comprises a number of passes for verification.

5,805,649

PHASE-LOCK LOOP CIRCUIT WITH FUZZY CONTROL

Federico Travaglia, Milano; Maria Grazia La Rosa, and Guido Giarrizzo, both of Catania, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, and Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, both of Italy

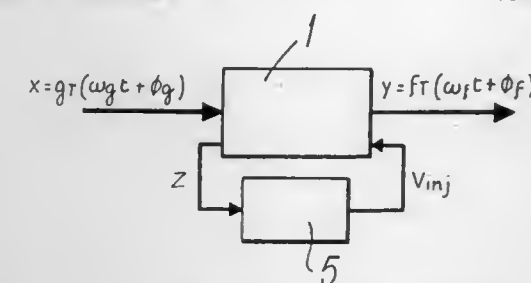
Filed Jun. 30, 1995, Ser. No. 497,455

Claims priority, application European Pat. Off., Jul. 1, 1994, 94830326

Int. Cl.⁶ H03D 3/24

U.S. Cl. 375—376

35 Claims



1. A phase-lock circuit with fuzzy control, comprising: a phase comparator that receives first and second input signals, the first input signal being an input signal to the phase-locked loop, and that provides a phase difference signal that represents a difference in phase between the first and second input signals;
- a low-pass filter, coupled to the output of the phase comparator, to provide a filtered signal;
- a voltage-controlled oscillator, having an input that receives the filtered signal and having an output that provides the second input signal; and
- fuzzy control means, coupled to the phase comparator to receive the phase difference signal, to provide a fuzzy control output signal that is coupled to the input of the voltage-controlled oscillator to further drive the voltage-controlled oscillator.

5,805,650

CIRCUIT FOR DATA TRANSMISSION IN ASYNCHRONOUS MODE WITH A FREE RECEPTION FREQUENCY LOCKED ON THE TRANSMISSION FREQUENCY

Didier Belot, Rives, and Laurent Dugoujon, Saint Hilaire du Touvet, both of France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

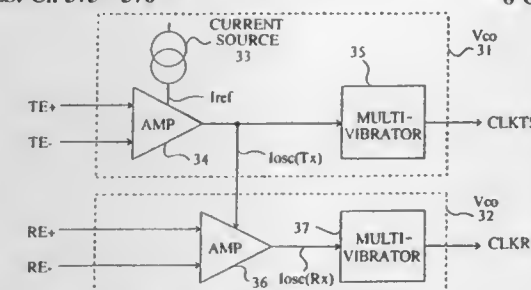
Filed Nov. 7, 1995, Ser. No. 551,818

Claims priority, application France, Nov. 9, 1994, 94 13786

Int. Cl.⁶ H03D 3/24

U.S. Cl. 375—376

8 Claims



1. A circuit for transmitting data in an asynchronous transfer mode comprising two phase-locked loops associated with a transmission unit and a reception unit, respectively, each phase-locked

loop being provided with a voltage-controlled oscillator formed by an astable multivibrator, wherein a reference current which fixes the free running frequency of the astable multivibrator associated with the reception unit corresponds to a frequency adjustment current of the astable multivibrator associated with the transmission unit, each voltage-controlled oscillator comprising a differential amplifier connected as a voltage-to-current converter, the differential amplifier receiving two voltages being proportional to the phase error of the phase-locked loop with which the differential amplifier is associated and providing a frequency adjustment current to the astable multivibrator which the differential amplifier is associated.

5,805,651

DEVICE FOR MEASURING AT LEAST ONE PHYSICAL PARAMETER INSIDE THE CORE OF A NUCLEAR REACTOR

Jacques Malmasson, Evry, France, assignor to Framatome, Courbevoie, France

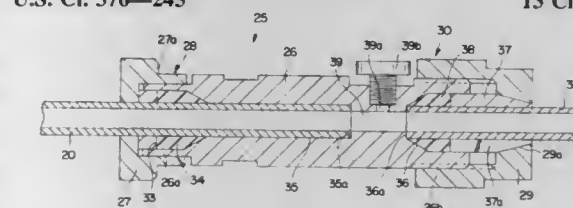
Filed Jul. 1, 1996, Ser. No. 674,263

Claims priority, application France, Jun. 30, 1995, 95 07938

Int. Cl.⁶ G21C 17/10

U.S. Cl. 376—245

13 Claims



1. Device for measuring at least one physical parameter inside the core of a nuclear reactor, including a measurement conduit (20, 20') of elongate shape, a conduit (5, 19) for guiding the measurement conduit (20, 20') between a measurement room (3) and the nuclear reactor core arranged inside a vessel (18), a means (18) for leaktight passage of the measurement conduit (20, 20') at one end of the guide conduit (5, 19), located in the measurement room (3), and an element (31, 31') constituting an extension of the measurement conduit (20, 20'), characterized in that it includes an element (25, 25') for connecting an end part of the measurement conduit (20, 20') to the extension element (31, 31'), including a body consisting of a tubular sleeve (26, 26') comprising, along its axis, a first bore (35, 35') for receiving the end part of the measurement conduit (20, 20') having an entirely smooth cylindrical surface, extending between a first axial end of the sleeve (26, 26') and a shoulder (35a, 35'a) inside the sleeve (26, 26'), a second bore (36, 36') for receiving the smooth cylindrical extension element extending to the second axial end of the sleeve (26, 26'), a first removable means (28, 28') for fastening and leaktight passage of the measurement conduit (20, 20') at the first end of the sleeve (26, 26') for ensuring leaktight passage of the measurement conduit (20, 20') into the first bore (35, 35') of the sleeve (26, 26'), and a second removable means (30, 30') for fastening and leaktight passage of the smooth cylindrical extension element at the second end of the sleeve (26, 26') for ensuring leaktight passage of the smooth cylindrical extension element into the second bore (36, 36') of the sleeve (26, 26').

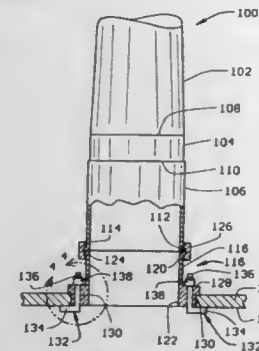
5,805,652

APPARATUS AND METHODS FOR REPLACING JET PUMP DIFFUSERS IN A NUCLEAR REACTOR
Thomas Edward Gleason, Monte Sereno; Gerald Alan Deaver, and Barry Hal Koepke, both of San Jose, all of Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 19, 1996, Ser. No. 684,680
Int. Cl.⁶ G21C 15/25

U.S. Cl. 376—260

20 Claims



16. A method for securing an adapter to a shroud support plate of a nuclear reactor, the shroud support plate having at least one opening extending therethrough, the adapter including a substantially cylindrical main body portion having a first end and a second end, a V-flange at the first end of the main body portion, and an engagement flange at the second end of the main body portion, the engagement flange having a plurality of bores extending there-through, a plurality of L-bolts extending through respective bores in the engagement flange, each L-bolt comprising an L-section and a threaded section, respective nuts threadedly engaged to the threaded sections of the L-bolts, the L-sections of the bolts configured to contact a lower surface of the shroud support plate, said method comprising the steps of:

- at least partially inserting the adapter into the opening in the shroud support plate; and
- tightening the respective L-bolt nuts so that the L-sections of the respective L-bolts firmly contact the lower surface of the shroud support plate.

5,805,653

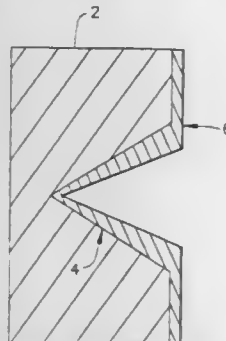
NOBLE METAL DOPING OR COATING OF CRACK INTERIOR FOR STRESS CORROSION CRACKING PROTECTION OF METALS

Samson Hettiarachchi, Menlo Park; Robert Lee Cowan, II, Livermore; Thomas Pompilio Diaz, San Martin, and Gary Paul Wozadlo, Los Gatos, all of Calif., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 209,572, Mar. 10, 1994, Pat. No. 5,600,691. This application Oct. 10, 1996, Ser. No. 729,020
Int. Cl.⁶ G21C 9/00

U.S. Cl. 376—305

4 Claims



1. A metal component not created with a noble end having a crack on a surface thereof, said crack having an oxidized interior surface in which atoms of a noble metal are incorporated, said

noble metal having the property of decreasing the electrochemical chemical potential of said metal component surface when incorporated in said oxidized surface, said noble metal being present in an amount such that when said metal component surface is immersed in high-temperature water, the electrochemical chemical potential inside said crack is less than the critical potential to protect against intergranular stress corrosion cracking.

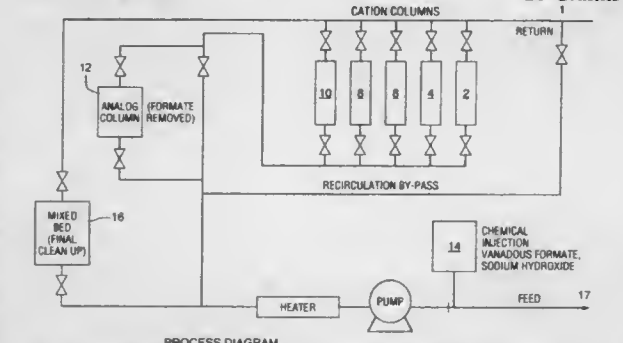
5,805,654

REGENERATIVE LOMI DECONTAMINATION PROCESS
Christopher J. Wood, 1656 Fordham Way, Mountain View, Calif. 94040; David Bradbury, Pencot, Tresham, Wotton-under-Edge, Glos GL12 7RW, and George Richard Elder, Courtlea, Northwood Green, Westbury-on-Severn, Glos. GL14 1ND, both of United Kingdom

Filed Apr. 8, 1997, Ser. No. 826,835
Int. Cl.⁶ G21F 9/28

U.S. Cl. 376—313

10 Claims



6. A regenerative method for decontaminating surfaces of a nuclear plant cooling system having contaminated material, comprising the steps of:

- a) providing a plurality of cation exchange columns connected in parallel in a decontamination circuit wherein each column contains cation exchange resin;
- b) introducing a Low Oxidation-state Metal Ion (LOMI) decontamination chemical solution containing picolinic acid to the decontamination circuit;
- c) exposing the contaminated material to the LOMI decontamination chemical solution;
- d) exposing the LOMI decontamination chemical solution containing the contaminated material to the plurality of cation exchange columns for a time period sufficient to bind both the contaminated material and the picolinic acid to the cation exchange resin and for a time period sufficient to subsequently release the picolinic acid from the cation exchange resin, whereby only the contaminated material remains bound to the cation exchange resin; and
- e) injecting vanadous formate to the regenerated decontamination chemical solution for enhancing the overall solubility of contamination material to the decontamination chemical solution,

whereby the LOMI decontamination chemical solution is utilized in a regenerative manner.

5,805,655

PROTECTIVE COATING TO REDUCE STRESS CORROSION CRACKING IN ZIRCONIUM ALLOY SHEATHING

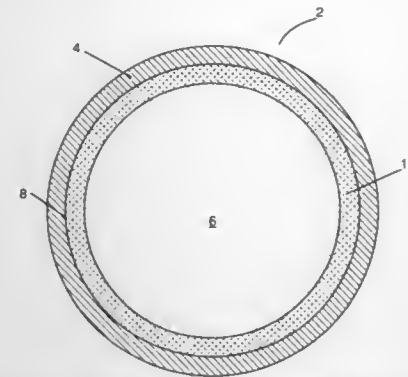
Paul Ka-Hang Chan, Mississauga, Canada, assignor to Atomic Energy of Canada Limited, Canada

Filed Apr. 10, 1997, Ser. No. 838,801
Int. Cl.⁶ G21C 3/20

U.S. Cl. 376—415

22 Claims

12. A nuclear reactor fuel element comprising a nuclear fuel material, a zirconium alloy sheath containing said fuel material, and a coating for reducing stress corrosion cracking sintered on the



inside surface of said sheath, said coating comprising a colloidal suspension in alcohol of graphite and ZrO₂ with a binder of ethyl cellulose.

5,805,656

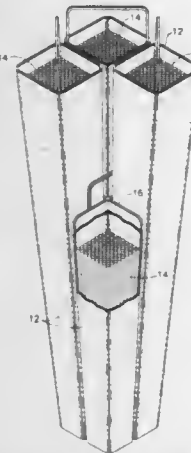
FUEL CHANNEL AND FABRICATION METHOD THEREFOR

Ronald B. Adamson, Alameda, Calif., assignor to General Electric Company, Schenectady, N.Y.

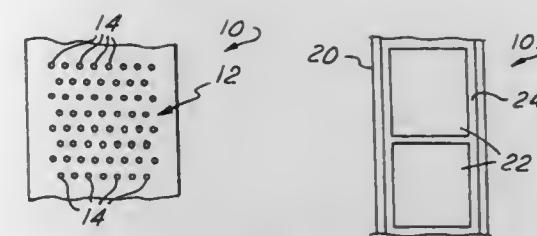
Filed Apr. 8, 1996, Ser. No. 629,209
Int. Cl.⁶ G21C 3/07

U.S. Cl. 376—416

20 Claims



1. A nuclear reactor component having an inner core and at least one cladding layer metallurgically bonded to the inner core, the inner core and the cladding layer being formed from first and second alloys having different compositions, the first alloy being characterized by a reduced propensity for irradiation growth as compared to the second alloy, the second alloy being characterized by enhanced corrosion resistance as compared to the first alloy, wherein the inner core and the cladding layer are combined such that the irradiation resistance and the corrosion resistance of the nuclear reactor component are effected by the first alloy and the second alloy, respectively.



ported in said fuel cell in a mutually spaced apart array and oriented with the longitudinal axes of said fuel rods generally parallel to one another for circulation of said coolant fluid around and about said rods in said fuel cells, and nuclear fuel comprising nuclear fuel material, such as uranium, contained within each of said fuel rods; the improvement in combination therewith comprising nanophase structural supporting material for said nuclear fuel, such nanophase material being selected, constructed, and arranged to contain and support said fuel in the associated fuel rod, to provide structural integrity and self-supporting capability of said fuel rods in their array orientation in said fuel cell, and to be non-reactive with said coolant fluid.

5,805,658

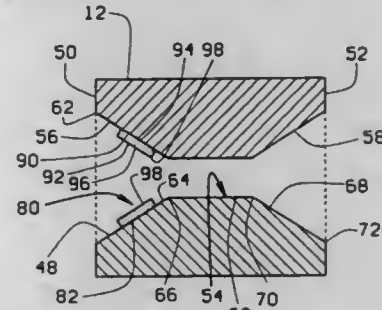
METHODS AND APPARATUS FOR DETECTING GANTRY INTERFERENCE IN A COMPUTED TOMOGRAPHY SYSTEM

Russell Wayne Hum, Waukesha; Thomas Robert Murray, Delafied, and Christopher J. Falkner, Waukesha, all of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 31, 1996, Ser. No. 774,575
Int. Cl.⁶ H05G 1/54

U.S. Cl. 378—4

15 Claims



1. An interference detection assembly for a computed tomography system, the system including a gantry and a patient table, the gantry including a first end, a second end, and a gantry bore extending between the first end and the second end, the gantry bore including a frusto-conical leading surface, said assembly comprising at least one capacitive plate secured to the leading surface of the gantry bore.

5,805,659

METHOD AND APPARATUS FOR SPIRAL SCAN REGION OF INTEREST IMAGING

Kwok C. Tam, Edison, N.J., assignor to Siemens Corporate Research, Inc., Princeton, N.J.

Filed Sep. 30, 1996, Ser. No. 724,697
Int. Cl.⁶ A61B 6/03

U.S. Cl. 378—15

17 Claims

1. A scanning and data acquisition method for three-dimensional computerized tomographic imaging of a region of interest of an object which is smaller than the object itself and having upper and lower boundaries which are completely within a field of view of an imaging system and radially centered on a predetermined axis, the method comprising the steps of:

applying cone beam energy from a cone beam source to at least a portion of the object;

5,805,657

NUCLEAR FUEL ELEMENTS MADE FROM NANOPHASE MATERIALS

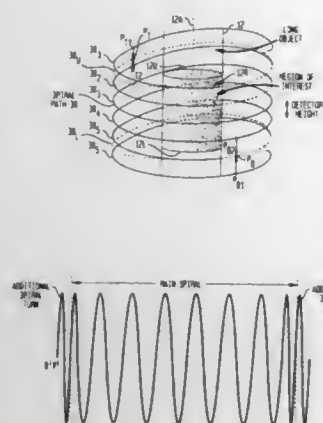
Norman B. Heubeck, Schenectady, N.Y., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 28, 1997, Ser. No. 900,718
Int. Cl.⁶ G21C 3/07

U.S. Cl. 376—457

27 Claims

1. In a nuclear reactor core, of the type for use in a nuclear reactor system having a plurality of reactor fuel cells in a reactor vessel containing a coolant fluid for flow therethrough, said reactor fuel cells each comprising a plurality of elongated fuel rods sup-



defining a source scanning trajectory as a path traversed by the source;

using the cone beam source and an area detector with at least the source movably positioned relative to the object, for scanning about the region of interest of the object;

specifying a source scanning trajectory for completely obtaining Radon data for accurately reconstructing a 3D CT image of the region of interest of the object as comprising only a spiral scan defining a plurality of spaced stages on a predetermined geometric surface surrounding the region of interest, such that each plane passing through the region of interest intersects the scanning trajectory in at least one point, the area detector having a predetermined dimension extending sufficiently along a direction generally parallel to the predetermined axis to span at least two consecutive stages having the largest spacing therebetween;

scanning at a plurality of positions along the source scan trajectory to obtain cone beam projection data corresponding to respective portions of the region of interest; and

processing the cone beam projection data corresponding to energy which passed through the object, to provide a data set which can be reconstructed into an image of the region of interest of the object.

5,805,660

METHOD AND DEVICE FOR CARRYING OUT DETECTION OF AT LEAST ONE NON-VISIBLE OBJECT CONTAINING A GIVEN MATERIAL

Didier Perion; Serge Maitrejean, both of Paris, and Dietmar Sundermann, Orsay, all of France, assignors to Europ Scan S.A., Rungis Cedex, France

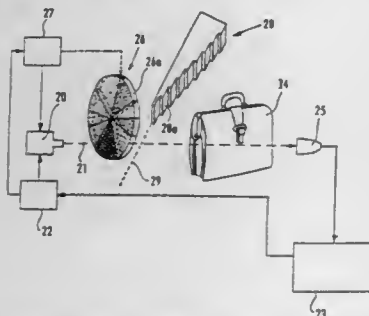
PCT No. PCT/FR94/00878, § 371 Date Jul. 16, 1996, § 102(e) Date Jul. 16, 1996, PCT Pub. No. WO95/04292, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 13, 1994, Ser. No. 596,117

Claims priority, application France, Jul. 30, 1993, 93 09414 Int. Cl.⁶ G01V 5/00

U.S. Cl. 378—53

9 Claims



I. A method for detecting the presence of at least one specific material contained in an object, said material evincing a characteristic photo-ionization threshold, wherein:
the object is irradiated by a collimated x-ray beam within an energy range containing said photo-ionization threshold.

the transmitted beam having passed through said object is detected,

characterized in that
a continuous function representing the x-ray attenuation or transmission in terms of energy is determined,

a search is made for the existence of a characteristic inflection point on the curve representing said continuous function of attenuation or transmission in the vicinity of the energy corresponding to said photo-ionization threshold of said material.

5,805,661

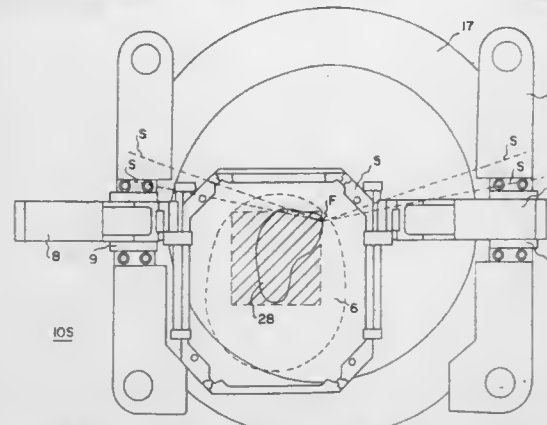
POSITIONING DEVICE AND METHOD FOR RADIATION TREATMENT

Dan Leksell, Stockholm, and Börje Nilsson, Upsala, both of Sweden, assignors to Elekta Instrument AB, Sweden
Division of Ser. No. 596,870, Feb. 13, 1996, Pat. No. 5,629,967, which is a division of Ser. No. 255,667, Jun. 9, 1994, Pat. No. 5,528,651. This application Jan. 8, 1997, Ser. No. 780,201

Int. Cl.⁶ A61N 5/16

U.S. Cl. 378—65

7 Claims



I. A method of treating a patient with radiation, comprising:
determining the position of a focus point with respect to a radiation unit;

immobilizing a portion of said patient with respect to a frame;
supporting said patient with respect to a base of said radiation unit with said frame;

coupling said frame to a suspension system;
fixing a position of said frame by said suspension system with respect to said radiation unit to determine the position of said patient; and

automatically moving said frame by said suspension system with respect to said focus point to expose said patient to radiation from said radiation unit.

5,805,662

USING DEFLECTED PENETRATING RADIATION TO IMAGE AN OBJECT'S INTERNAL STRUCTURE

Alexey V. Kurbatov, Moscow, Russian Federation, and Pavel I. Lazarev, Menlo Park, Calif., assignors to Quanta Vision, Inc., Santa Clara County, Calif.

Filed Dec. 7, 1995, Ser. No. 569,031

Claims priority, application Russian Federation, Dec. 8, 1994, 94043357

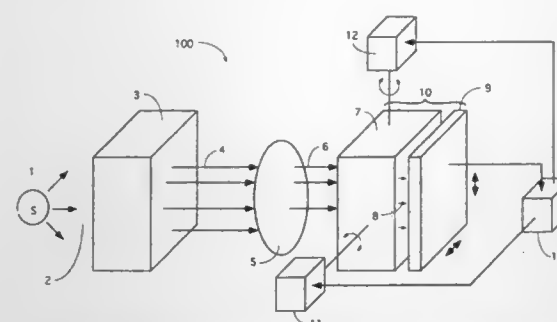
Int. Cl.⁶ G01N 23/201

U.S. Cl. 378—87

17 Claims

I. A method for investigating the internal structure of an object, the method comprising:

restricting an angular divergence of a beam of penetrating radiation which has a maximum intensity propagating along a first axis, wherein restricting the angular divergence comprises restricting the beam so that the beam has a maximum local angle of divergence in a first plane and a minimum local angle



of divergence in a second plane and the maximum local angle of divergence is less than 10 times the minimum local angle of divergence;

transmitting the beam through the object; and
using a direction-selective detector to register a portion of the radiation which exits the object, wherein the direction-selective detector has a directivity pattern centered along a second axis that is at a non-zero angle with an undeflected path of the beam, the directivity pattern having a width that does not exceed twice the minimum local angle of divergence.

5,805,663

RADIATION IMAGING METHOD AND SYSTEM

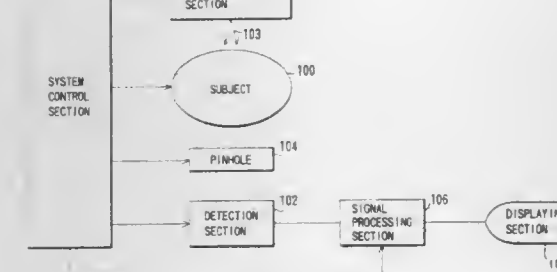
Toshiro Mihara, Tokyo, Japan, assignor to Futec, Inc., Kagawa-Ken, Japan

Filed May 8, 1997, Ser. No. 853,317

Int. Cl.⁶ A61B 6/06

U.S. Cl. 378—98.2

12 Claims



I. An X-ray imaging system for an object comprising:
a convergence type X-ray generating unit for producing X-rays having an X-ray bundle so that it converges onto a given location;
an X-ray sensor unit opposed to the X-ray generating unit with the object interposed therebetween;
a pinhole member placed between the object and the X-ray sensor unit; and
a signal processing unit for processing an output signal of the X-ray sensor unit.

5,805,664

IMAGER CONTROL SYSTEM WITH CONTACT DETECTOR

Walter Whipple, III, Amsterdam, and Vivek Venugopal Badami, Niskayuna, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

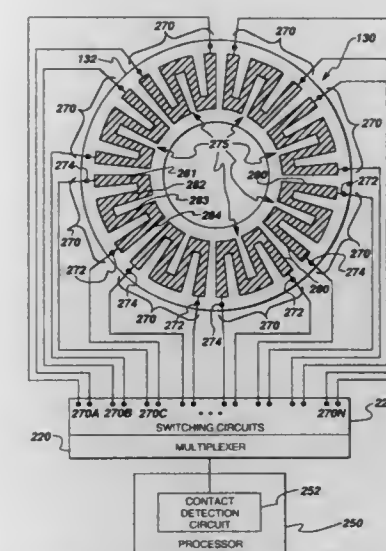
Filed Oct. 2, 1995, Ser. No. 537,580

Int. Cl.⁶ H05G 1/08

U.S. Cl. 378—117

9 Claims

I. A ranging system for positioning a movable arm having an imaging system component disposed thereon with respect to a subject, the ranging system having subject contact detection capability and comprising:



a collar assembly disposed around at least a portion of said imaging system component disposed towards a subject region;

a plurality of sensor elements disposed in a sensing pattern in said collar assembly, each sensor element comprising a plurality of segments of elastomeric electrodes electrically coupled together in series;

a processing unit further comprising a multiplexer, said multiplexer being coupled to each of said sensor elements to selectively electrically couple said sensor elements in one of a plurality of contact localization sensing arrangements, each of said contact localization sensing arrangements comprising at least one of said sensor elements, said processing unit being coupled to said sensor elements via said multiplexer so as to generate a subject contact signal in correspondence with an electrical signal passing from respective sensor element elastomeric electrodes, said electrical signal varying in correspondence with changes in the electrical resistance of said elastomeric electrodes resulting from deformation of said elastomeric electrodes in said sensor elements, said contact signal further providing contact location in said sensing pattern around said collar assembly.

5,805,665

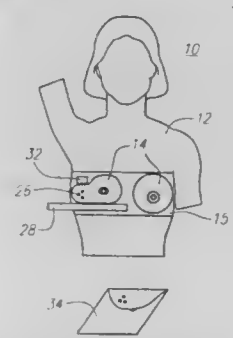
ANTHROPOMORPHIC MAMMOGRAPHY PHANTOMS

Robert S. Nelson, 2922 Uphur St., San Diego, Calif. 92106, and Reuven D. Zach, 1039 N. Harper Ave., #8, Los Angeles, Calif. 90046

Continuation-in-part of Ser. No. 470,353, Jun. 5, 1995. This application Jun. 12, 1996, Ser. No. 667,923
Int. Cl.⁶ G01D 18/00

U.S. Cl. 378—207

17 Claims



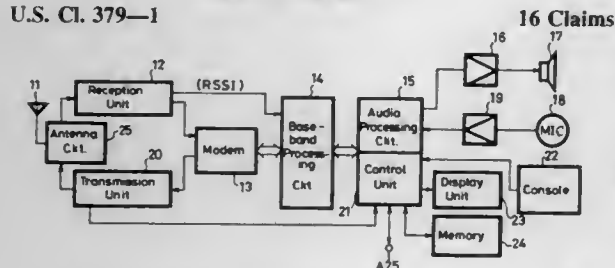
I. An apparatus for mammography training and mammographic system calibration, said apparatus having anthropomorphic features and comprising at least one breast simulator comprising a material having human breast-like mechanical and x-ray radio-

graphic imaging properties making the simulator suitable for at least one of mammography training and mammographic system calibration, wherein the breast simulator has a core comprising at least one of powdered, liquid, and solid material and a cover.

5,805,666
METHOD OF AND APPARATUS FOR DIAGNOSING PERSONAL COMMUNICATION SYSTEM
Seijiro Ishizuka; Hidetoshi Inoue, both of Tokyo, and Morihiko Hayashi, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 23, 1996, Ser. No. 604,791
Claims priority, application Japan, Feb. 28, 1995, 7-041058; Feb. 28, 1995, 7-041059; Feb. 28, 1995, 7-041062; Apr. 28, 1995, 7-105998

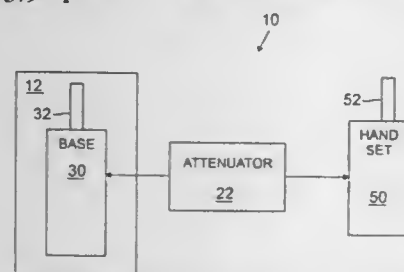
Int. Cl.⁶ H04M 1/24
U.S. Cl. 379—1



11. A communication terminal for communicating with a base station comprising:
transmitting and/or receiving means for communicating with the base station;
control means for controlling a communication of said transmitting and/or receiving means and for determining whether the operational status of said communication terminal is normal or abnormal; and
memory means for storing a data log relating to an operational status of said communication terminal in accordance with the determination by said control means, wherein said memory means includes means for storing said data log when said control means determines that an abnormal condition has occurred; output means for transmitting said data log stored in said memory means to another apparatus; and wherein said communication terminal further includes display means for displaying diagnostic results sent by said another apparatus.

5,805,667
APPARATUS FOR RANGE-TESTING CORDLESS COMMUNICATION DEVICES AND METHOD OF OPERATION THEREOF
Luis M. Alvarez, and Raimondo P. Sessegio, both of Shreveport, La., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jan. 2, 1997, Ser. No. 775,912
Int. Cl.⁶ H04M 1/24; H04B 17/00
U.S. Cl. 379—1



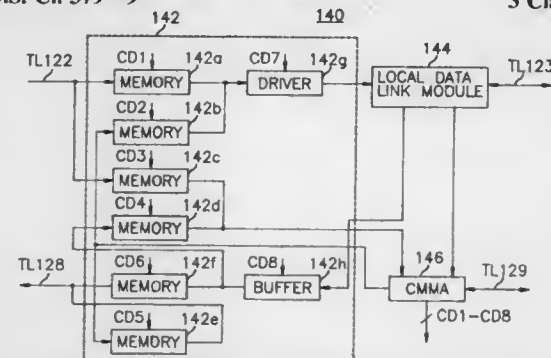
8. A method of range-testing a cordless communication device, said device having a first portion adapted to communicate with a second portion via a signal carried on a wireless channel, said signal subject to attenuation as a function of a distance separating said first and second portions, said method comprising the steps of:

containing said first portion in an anechoic chamber, said anechoic chamber substantially electromagnetically isolating said first portion from said second portion;
carrying said signal on a wire between said first and second portions, one end of said wire locateable within said anechoic chamber proximate said first portion and an opposite end of said wire locateable proximate said second portion; and
changing an amplitude of said signal by a selectable quantity with a signal modification circuit associated with said wire, said signal modification circuit simulating said distance between said first and second portions thereby to allow said cordless communication device to be range-tested without varying said distance.

5,805,668
ELECTRONIC SWITCHING SYSTEM FOR TESTING THE STATUS OF SUBSCRIBER COMPONENTS CONTAINED THEREIN
Jae-Peoung Kim, Incheon, Rep. of Korea, assignor to Daewoo Telecom, Ltd., Incheon, Rep. of Korea

Filed May 31, 1996, Ser. No. 656,534
Claims priority, application Rep. of Korea, May 31, 1995, 95-14376

Int. Cl.⁶ H04M 1/24
U.S. Cl. 379—9

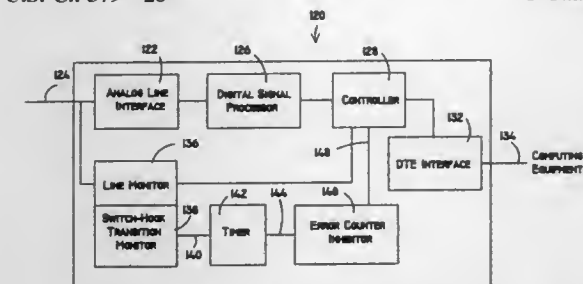


1. An improved electronic switching system (ESS) for connecting a sending subscriber and its corresponding receiving subscriber among a plural number of subscribers, which comprises:
first interfacing means connected to the sending subscriber for converting analog subscriber information transmitted from the sending subscriber via a first subscriber line to digital subscriber information to provide it to a first transmission line;
second interfacing means connected to the corresponding receiving subscriber for reconvert the digital subscriber information on the first transmission line to the original analog subscriber information to transmit the same to the corresponding receiving subscriber via a second subscriber line;
switching means coupled between the first and the second interfacing means for switching the digital subscriber information on the first transmission line to the second interfacing means, wherein said switching means is operated by utilizing a time division switching unit having a time slot interchanging unit and a space division switching unit, said time slot interchanging unit having first memory for interfacing the digital subscriber information from the first interfacing means to the space division switching unit; second memory for interfacing test-pattern data from a testing means to the space division switching unit; third memory for interfacing the test-pattern data from the first interfacing means to the testing means; fourth memory for interfacing the test-pattern data from the space division switching unit to the testing means; and fifth memory for interfacing the test-pattern data from the testing means to the first interfacing means; and
testing means connected to the switching means, if the remaining components within the system excepting the first and the second subscriber interfacing units are all normal, for testing the status of each of a set of subscriber components to provide information representing the status thereof wherein the set of

subscriber components is the first and the second subscriber interfacing means, and the first and the second subscriber lines.

5,805,669
RATE ADAPTATIVE SUBSCRIBER LINE ("RADSL") MODEM AND METHOD OF OPERATION
Thomas Jeffrey Bingel, Belleair Beach, and Mahendra Manibhai Patel, Brandon, both of Fla., assignors to Paradyne Corporation, Largo, Fla.

Filed Jan. 15, 1997, Ser. No. 784,172
Int. Cl.⁶ H04M 1/24; 11/00; H04B 3/46
U.S. Cl. 379—28



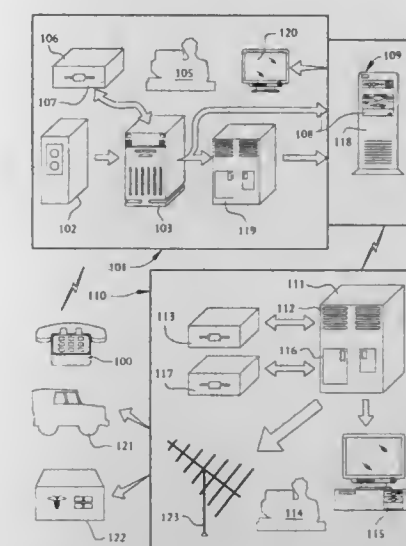
8. An improved method for operating a Rate Adaptive Digital Subscriber Loop ("RADSL") modem for use in a prewired customer premises, comprising error detecting means for identifying errors, an error counter for counting errors, and parameter adapting means for modifying the operating parameters of the RADSL modem based upon the errors which have been counted by said error counter, the improvement comprising:

- monitoring the line for hook-switch transitions by any piece of Public Switched Telephone Network ("PSTN") equipment at the customer premises; and
- inhibiting the counting of line errors and inhibiting the updating of an adaptive equalizer for a predetermined time following the detection of a hook-switch transition of a piece of PSTN equipment, whereby burst errors associated with a piece of PSTN equipment experiencing hook-switch will be disregarded by the adaptive equalizer.

5,805,670
PRIVATE NOTIFICATION SYSTEM FOR COMMUNICATING 9-1-1 INFORMATION
Robert M. Pons, and Jay T. Snider, both of Wynnewood, Pa., assignors to Life Safety Solutions, Inc., King of Prussia, Pa.

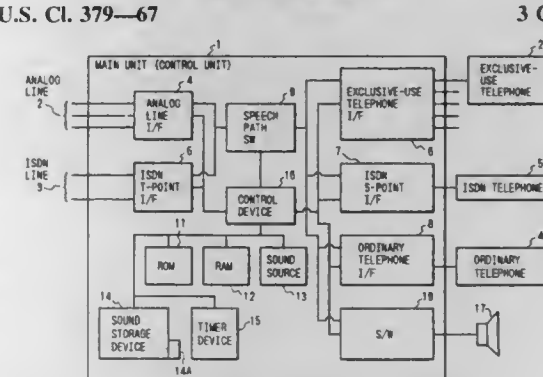
Filed Mar. 19, 1996, Ser. No. 620,726
Int. Cl.⁶ H04M 11/04
U.S. Cl. 379—45

1. A private notification system for communicating 911 information to preselected recipients by a subscriber to the system comprising:
(a) a public safety answering point notification bridge separate from a 911 trunk and operating in conjunction with a public safety answering point having an E-911 controller, said PSAP notification bridge in communication with the public safety answering point and which obtains the identifying information from the E-911 controller of the public safety answering point receiving the 911 call;
(b) a communications bridge in communication with said public safety answering point notification bridge and receiving identifying information from at least one of an ANI and ALI database respecting a person placing a 911 call from the public safety answering point notification bridge;
(c) a private command control center in communication with said communications bridge, said private command control center having a plurality of dispatch workstations, dispatch software, and a notification database access point, said private



command control center receiving the identifying information from said communications bridge; and
(d) a notification database separate from said ANI and ALI databases accessible by said command control center through the notification database access point, the database including data corresponding to at least one subscriber, the database being accessible by the dispatch software to provide subscriber data corresponding to the identifying information to said private command control center through the notification database access point.

5,805,671
AUDIO MESSAGE SERVICE APPARATUS
Masatomo Ohuchi, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 161,745, Dec. 2, 1993, abandoned.
This application May 24, 1996, Ser. No. 664,029
Claims priority, application Japan, Dec. 4, 1992, 4-350838
Int. Cl.⁶ H04M 1/64
U.S. Cl. 379—67

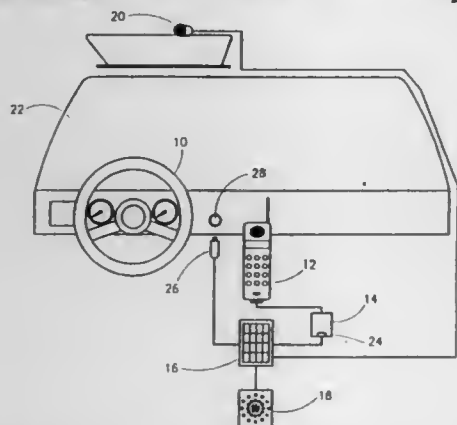


1. An audio message service apparatus comprising:
first input means for inputting an audio message;
memory means for storing the audio message inputted by said first input means;
transmitting means for transmitting the audio message stored in said memory means;
second input means for inputting a transmission time to transmit the audio message by said transmitting means, the transmission time being different from an input time when the audio message is inputted by said first input means; and
display means for displaying a charge which will be required for a transmission by said transmitting means at the transmission time inputted from the second input means, during the input of the audio message by said first input means.

```

graph TD
    2202{UP RECV'WAY INCOMPLETE, NO. OF SETS, DURATION REQUIRES FACSIMILE CALLS?} -- Yes --> 2204((K1))
    2202 -- No --> 2206[START LISTEN TIME, F1]
    2206 --> 2208{LISTEN DURATION NOT?}
    2208 -- Yes --> 2210[NUMBER HAS RECEIVED STATE]
    2208 -- No --> 2212[LISTEN TIME OUT]
    2212 --> 2214[NO. C. FLAGS]
    2214 --> 2216{START TIME > 40 S?}
    2216 -- Yes --> 2218[NO. C. FLAGS]
    2216 -- No --> 2220[NOT FAC CALLER]
    2218 --> 2222((F1))
    2220 --> 2224[NOT FAC CALLER]
  
```

U.S. Cl. 379—67 15 Claims



- a speech signal input for receiving voice commands and conversation signals;
- a voice recognition unit connectable to said speech signal input for recognizing trained command words within said voice commands; and
- a processing unit connectable to said voice recognition unit and connectable to said data adaptor for providing standard telephone signals to said data adaptor corresponding to a telephone number when said voice recognition unit recognizes a trained command word associated with said telephone number.

U.S. Cl. 379—93.01 29 Claims

receiving the incoming call from a caller wherein the step of receiving the incoming call includes the steps of:
determining the number called associated with the incoming call;

5,805,674
SECURITY ARRANGEMENT AND METHOD FOR
CONTROLLING ACCESS TO A PROTECTED SYSTEM
Victor C. Anderson, Jr., 3525 Quimby St., San Diego, Calif.
92106
Continuation-in-part of Ser. No. 378,393, Jan. 26, 1995, aban-
doned. This application Mar. 8, 1996, Ser. No. 612,679
Int. Cl.⁶ H04M 1/66

U.S. Cl. 379-93.03 9 Claims

determining a given set of verification information to be input by the system user corresponding to a given level of said security level information, said given set of verification information corresponding to a certain subset of said authentication information, wherein said given set of verification information is adjusted according to the given level of said security level information for a given attempted use of the system;

Continuation-in-part of Ser. No. 378,393, Jan. 26, 1995, abandoned. This application Mar. 8, 1996, Ser. No. 612,679
Int. Cl.⁶ H04M 1/66

U.S. Cl. 379-93.03 9 Claims

1. A method for controlling access to a protected system by a user utilizing a calling unit to provide call information, comprising:
determining if the user is an authorized user associated with the calling unit to reduce substantially the ability of a non-authorized user to gain access to the protected system,
storing subscriber information relating to said authorized user to facilitate verifying that the user is said authorized user, said subscriber information including authentication information and security level information associated with said authorized user;
detecting an indicator of potential fraudulent activity;
adjusting said security level information in response to the detection of said potential fraudulent activity indicator for indicating that a higher probability of fraudulent activity exists;

determining a given set of verification information to be input by the system user corresponding to a given level of said security level information, said given set of verification information corresponding to a certain subset of said authentication information, wherein said given set of verification information is adjusted according to the given level of said security level information for a given attempted use of the system;

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graph TD
    142{IS NUMBER CALLED CALL BLOCKED?} -- YES --> 140[SET SECURITY LEVEL TO MAXIMUM FOR CALL]
    142 -- NO --> 150{IS NUMBER CALLED SUSPECTED FRAUD RECIPIENT?}
    150 -- YES --> 140
    150 -- NO --> 154[REQUEST SPOKEN PASSWORD]
    154 --> 158{IS AMBIENT NOISE LEVEL BELOW LOWER THRESHOLD?}
    158 -- YES --> 160[STOP RECORDING DISCARD AMBIENT NOISE SAMPLE]
    158 -- NO --> 160
    160 --> 164{IS AMBIENT NOISE LEVEL ABOVE UPPER THRESHOLD?}
    164 -- YES --> 166[STOP RECORDING DISCARD AMBIENT NOISE SAMPLE]
    164 -- NO --> 168{IS AMBIENT NOISE LEVEL WITHIN STABILITY THRESHOLD?}
    168 -- YES --> 170[REQUEST CALLER TO CALL AGAIN OR REDUCE NOISE]
    168 -- NO --> 172[STOP RECORDING DISCARD AMBIENT NOISE SAMPLE]
    170 --> 172
    172 --> 174[DECREASE SENSITIVITY & INCREASE SECURITY]
    174 --> 176[USE CURRENT SECURITY LEVEL]
    176 --> 180{IS PHONE ON PASSWORD OR CREDENTIAL SECURITY?}
    180 -- YES --> 178[SET SECURITY TO MAXIMUM]
    180 -- NO --> 182{IS COVER/SLIP SWITCH SET TO YES?}
    182 -- YES --> 184[INCREASE SECURITY TO MAXIMUM]
    182 -- NO --> 186{DOES A SPATIAL ANOMALY EXIST?}
    186 -- YES --> 188[INCREASE SECURITY BY 2 LEVELS]
    186 -- NO --> 190[ ]
    178 --> 192[SET DURATION FOR 3 WEEKS]
    184 --> 192
    188 --> 194[SET DURATION FOR 2 WEEKS]
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comparing a user generated set of verification information received from the user with said certain subset of authentication information to verify that the user attempting to use the system is said authorized user, wherein access to the system by the user attempting to use the system is enabled when said user generated set of verification information corresponds substantially with said certain subset of authentication information;

adjusting said security level information to reflect the maximum probability that fraudulent activity is present when the connection status of said calling unit indicates that it is being used concurrently by another user to access the protected system;

requesting said another user to input another given set of verification information; and

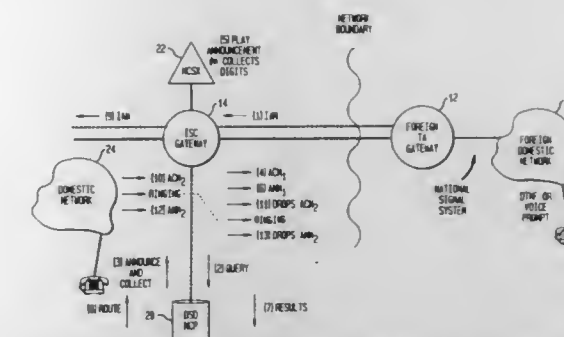
disconnecting said another user when said another user generated set of verification information does not correspond to said certain subset of authentication information.

Continuation of Ser. No. 300,298, Sep. 2, 1994, abandoned.
This application Aug. 8, 1997, Ser. No. 908,775
Int. Cl.⁶ H04M 11/00

U.S. Cl. 379—93.14 32 Claims

17. A method for facilitating a two-way voice path on a call from an originating location through an originating network and a destination network to a called destination using pre-answer interaction to permit user-network interaction where the voice path is blocked at the interface between the originating network and the destination network, comprising the steps of:

- receiving an initial address from an originating network having system protocols;

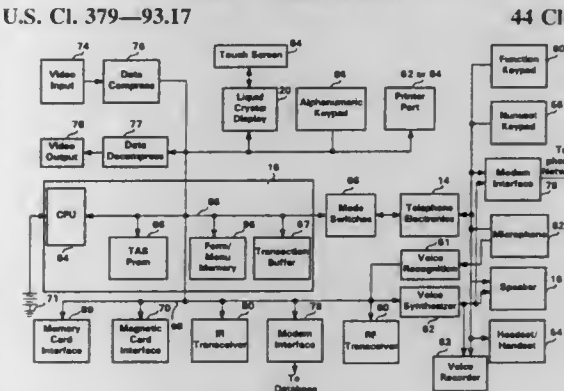


5,805,676
TELEPHONE/TRANSACTION ENTRY DEVICE AND
SYSTEM FOR ENTERING TRANSACTION DATA INTO
DATABASES

Filed May 19, 1995, Ser. No. 446,546

Int. Cl.⁶ H04M 11/00

U.S. Cl. 379—93.17 44 Claims



- a data input device;
- a display;

a data transaction terminal including a microprocessor, a form memory which stores a plurality of menus and forms for presentation to a user, and a form driven operating system which controls a process implemented by said microprocessor to present to said display for each process at least one form stored in said form memory as data streams, said at least one form being selected by said user from one of said menus using said data input device, said one menu providing said user with an option of selecting at least one of said at least one form, another menu, and an updating process, each form eliciting data input of a desired transaction type into said data input device by said user and including at least one prompt customized to said desired transaction type, wherein said process implemented by said microprocessor is changed by changing said at least one form, and wherein when said user selects said updating process from said menu, data streams are downloaded to said form memory to update said menus and forms in accordance with said desired transaction type, said data transaction terminal further including means for formatting at least said data input by said user in response to said at least one prompt into a data transaction for transmission to said remote database; and

a database server associated with said remote database which receives said data transaction, creates from said data transaction, depending on said desired transaction type, at least one additional data transaction containing data for a particular

record in said remote database, and stores said at least one additional data transaction in said particular record.

5,805,677

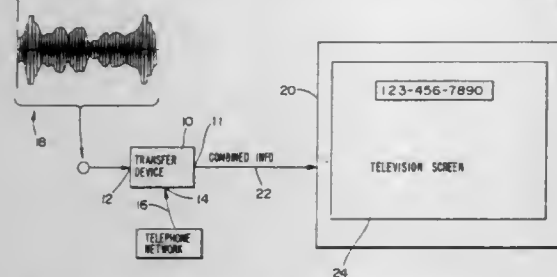
APPARATUS FOR FACILITATING THE DISPLAY OF INFORMATION RELATING TO THE ORIGIN OF A THIRD SOURCE CALLER

Thomas Ferry, and Jann Wilson, both of St. Louis, Mo., assignors to SBC Technology Resources, Inc., Austin, Tex.
Continuation-in-part of Ser. No. 728,341, Jul. 11, 1991. This application Jul. 10, 1992, Ser. No. 911,471

Int. Cl.⁶ H04M 11/00

U.S. Cl. 379-93.35

8 Claims



1. An apparatus for transferring caller information to a television for display on a screen of said television, said apparatus comprising:

- detecting means for detecting the presence of a communication present on an incoming telecommunication line;
- decoding means for decoding information present on the telecommunication line to produce caller information related to the communication;
- transfer means for causing said caller information to be converted to a television signal suitable for display on said screen of said television;
- means for establishing a communication path between a caller and a receiver, wherein said detecting means comprises means for detecting the presence of a communication request present on said incoming telecommunication line which is originating from a third source separate from the caller and receiver, said third source comprising a telephone, said caller information including information relating to the origin of the third source;
- means for temporarily disconnecting said telecommunication line from said receiver;
- means for simulating an off hook condition on said telecommunication line; and
- means for receiving said caller information from said telecommunication line.

5,805,678

CORDLESS SUBUNIT FACSIMILE SYSTEM

Teiji Okamoto, Fujisawa; Selji Tanaka, Katsuta; Shinya Imanishi; Toru Tanaka, both of Fujisawa; Tetsuo Shinagawa, Odawara, and Yumiko Watanabe, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 20, 1993, Ser. No. 138,119

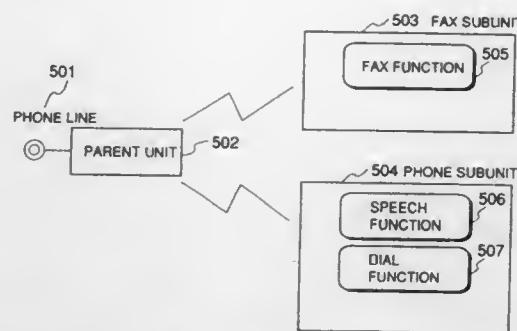
Claims priority, application Japan, Oct. 21, 1992, 4-282728; Jun. 17, 1993, 5-146373; Jul. 23, 1993, 5-182368

Int. Cl.⁶ H04M 11/00

U.S. Cl. 379-100.01

14 Claims

14. A cordless facsimile system comprising:
- a parent unit adapted to be connected to a telephone line, and including means for detecting a call signal from the telephone line;
 - a plurality of telephone subunits, each including first radio communication means for directly connecting said telephone



subunit by radio to said parent unit, means for producing a ring-up tone, and means providing a speech communication function; and

at least one facsimile subunit, including second radio communication means which operate independently of any first radio communication means, for directly connecting said facsimile subunit by radio to said parent unit, and means providing a facsimile communication function;

said parent unit further including third radio communication means, separate and independent from said first and second radio communication means, and having an input and an output, and line connection means for connecting said input and output of said third radio communication means to the telephone line.

5,805,679

COMMUNICATION DEVICE WITH AUTOMATIC SIGNAL DISCRIMINATION AND METHOD THEREFOR

Kazuhiro Kuwabara, Handa, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi-Ken, Japan

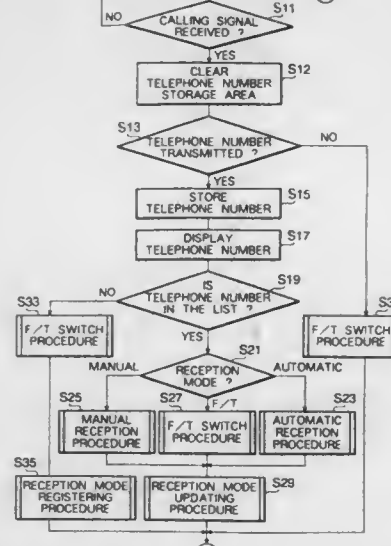
Filed Mar. 28, 1996, Ser. No. 623,415

Claims priority, application Japan, Mar. 30, 1995, 7-073222

Int. Cl.⁶ H04M 11/00

U.S. Cl. 379-100.15

20 Claims



1. A method for determining one of a plurality of signal reception procedures to be used in a communicating device, said communicating device being capable of receiving identifying data signal which identifies a calling station, and communication signal including facsimile transmission signal and/or telephone transmission signal, said communicating device storing data identifying a plurality of calling stations and corresponding signal reception procedures to be executed for receiving signal transmitted from respective calling stations, said method comprising steps of:
- receiving said identifying data;

selecting one of signal reception procedures to be used for receiving communication signal transmitted from said calling station based on said identifying data signal;

starting said selected signal reception procedure;

examining whether said signal reception procedure selected corresponds to said communication signal transmitted from said calling station;

determining another signal receiving procedure based on said communication signal transmitted from said calling station if said selected signal reception procedure does not correspond to said communication signal;

storing data identifying said calling station and said another signal receiving procedure if said selected signal reception procedure does not correspond to said communication signal and said determining step determines said another signal reception procedure.

5,805,680

METHOD AND APPARATUS FOR TELEPHONE CALL SUB-BILLING

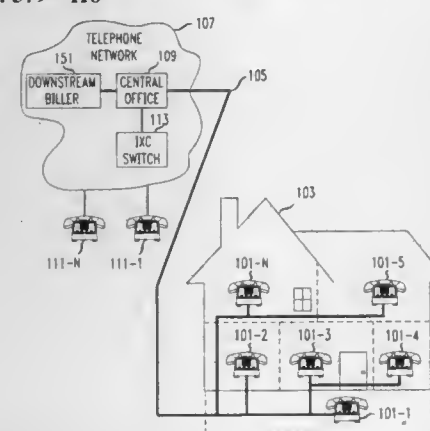
Arno Allan Penzias, Chatham, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Jan. 2, 1996, Ser. No. 582,006

Int. Cl.⁶ H04M 15/00

U.S. Cl. 379-118

6 Claims



1. A method for use by a telecommunications service provider, said method comprising the steps of:

- determining when a telecommunications call was made from one of a plurality of extension station sets (the calling set), where
 - a) said plurality of extension station sets are directly connected to an analog line emanating from an office and served by a single telephone number,
 - b) from the office, the connection of each of said extension station sets presents nominally the same impedance on said analog line to said office, and
 - c) the step of determining includes a step of receiving at said office an identifying signal that originates at said calling set from no user action other than placing said calling set in an off hook condition; and
- rendering a bill for said telephone number which includes charges for calls made from said extension station sets, said telecommunications call being identified in said bill as having been made from said calling set.

SYSTEMS AND METHODS FOR ESTIMATING A BLOCKING PROBABILITY

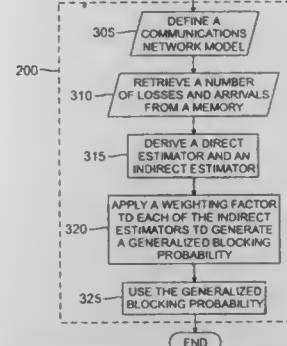
Rayadurgam Srikant, Urbana, Ill., and Ward Whitt, Basking Ridge, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Oct. 17, 1996, Ser. No. 732,961

Int. Cl.⁶ H04M 15/00

U.S. Cl. 379-133

21 Claims



6. A method of operation of a modeling system for estimating a blocking probability associated with at least a portion of a model of a network, said blocking probability representing a likelihood that a transmitted signal will arrive at said at least said portion of said model of said network, said method of operation comprising the steps of:

- retrieving from a memory a number of losses and arrivals occurring with respect to said at least said portion of said model of said network during a period of time;
- deriving a direct estimator that is a function of said retrieved number of losses and arrivals and an indirect estimator that is a function of an offered load with respect to said at least said portion of said model of said network during said period of time; and
- applying a weighting factor to said direct and indirect estimators to derive said blocking probability, said weighting factor minimizing variance of combined estimates.

5,805,682

METHOD FOR DELIVERING CALL RELATED INFORMATION TO A VIDEO DISPLAY

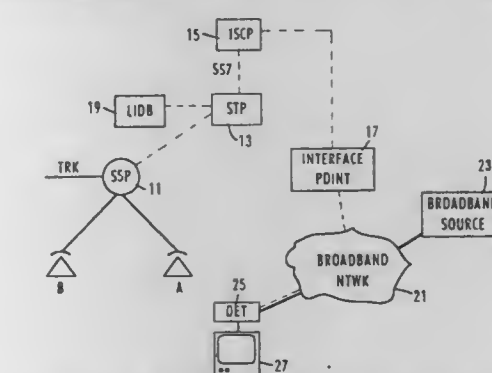
Eric A. Voit, Baltimore; Larry W. Sours, Crofton; Lance S. Liptak, Laytonsville, all of Md., and Kenneth E. DePaul, Wake Forest, N.C., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Filed Nov. 30, 1995, Ser. No. 564,964

Int. Cl.⁶ H04M 1/56; 15/06

U.S. Cl. 379-142

19 Claims



1. A method for handling an incoming narrowband communication to a narrowband terminal at customer premises, which premises include broadband video equipment having a video display in an integrated communication system, which includes:

a narrowband network for narrowband communications between calling and called narrowband terminals, said narrowband network having at least one signal switching point (SSP) for detecting a narrowband call from a calling narrowband terminal to said narrowband terminal as a called narrowband terminal, and a calling number corresponding to said calling narrowband terminal;

a broadband network connected to said broadband video equipment having a video display;

a services control point (SCP), integrated with said narrowband network and said broadband network and operative to perform network service logic programs for routing narrowband communications in said narrowband network;

said method comprising the steps of:

detecting in said signal switching point (SSP) the incoming narrowband call from said calling narrowband terminal for said called narrowband terminal;

sending a first query to the SCP;

in response to said first query initiating a second query to said broadband video network to determine whether said customer is receiving a video event;

if said customer is receiving a video event, displaying calling party information on said video display; and processing said incoming narrowband call.

5,805,683

SYSTEM AND METHOD FOR ROUTING GROUND-TO-AIR TELEPHONE CALLS

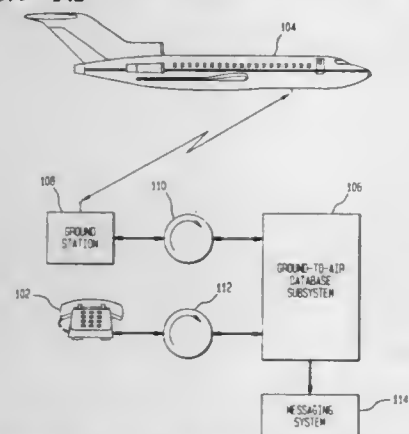
Edward Charles Berberich, Jr., Green Brook, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Apr. 17, 1996, Ser. No. 633,640

Int. Cl.⁶ H04M 1/56; 1/506

U.S. Cl. 379—142

24 Claims



1. A method for routing a call that is made by a calling party located on the ground, and directed to a subscriber located aboard an aircraft, comprising the steps of:

- storing one or more ground-to-air forwarding parameters in a database, wherein one of said ground-to-air forwarding parameters is a Ground-to-Air User PIN;
- accessing said database when said calling party on the ground places a call to said subscriber aboard the aircraft;
- receiving a PIN entry from said calling party;
- comparing said PIN entry to said Ground-to-Air User PIN to determine if there is a match; and
- when there is a match, routing the call to said subscriber according to said ground-to-air forwarding parameters, without requiring the calling party to hang up and wait for a return call from the subscriber.

5,805,684
COMMUNICATION TERMINAL DEVICE
Ryota Hirose; Kazuhiro Tanaka, and Tsuneyuki Koikeda, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

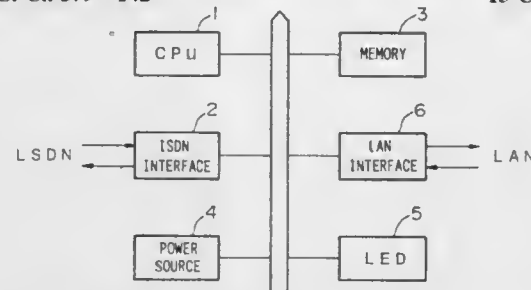
Filed Jun. 28, 1996, Ser. No. 671,680

Claims priority, application Japan, Jun. 30, 1995, 7-166340

Int. Cl.⁶ H04M 1/56; 1/00; H04L 12/16

U.S. Cl. 379—142

13 Claims



1. A communication terminal device comprising:
storing means for storing one calling identification number and at least one called identification number with respect to each communication companion; and
control means for, during a communication sending-event, reading out a calling identification number, corresponding to a desired communication companion, from the storing means to call up the desired communication companion, and during a communication-receiving event, the control means identifies a communication companion based on a calling party number, which is provided through a network, and a called identification number from the at least one called identification number stored in the storing means, so that the control means performs communication control in response to the called identification number for the identified communication companion.

5,805,685

THREE WAY CALL DETECTION BY COUNTING SIGNAL CHARACTERISTICS

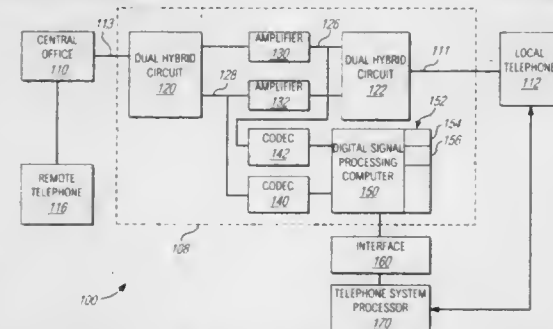
John D. McFarlen, Arlington, Tex., assignor to Gateway Technologies, Inc., Carrollton, Tex.

Filed Nov. 15, 1995, Ser. No. 558,155

Int. Cl.⁶ H04M 1/24; 3/20

U.S. Cl. 379—189

11 Claims



1. A method for sampling audio signals from a telephone line to detect three way call attempts, the method comprising the steps of: sampling audio signals on the telephone line at a selected sampling rate; incrementing high, low or no-signal counters according to an amplitude measured for each sampled signal; monitoring the high, low, and no-signal counters for a reset condition; testing the high, low, and no signal counters for a reference condition when a sum of the high, low, and no signal counters reaches a preselected value; and setting a flag when the reference condition is detected and the reset condition is not detected.

5,805,686

TELEPHONE FRAUD DETECTION SYSTEM

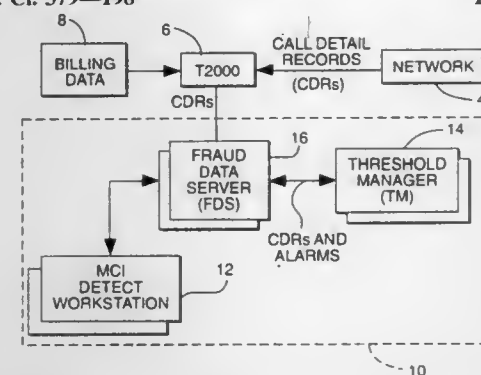
Jens L. Moller; Matthew L. Galetti, both of Colorado Springs; Terrill J. Curtis, Pueblo West, all of Colo., and Trung Mai, Farmingdale, N.J., assignors to MCI Corporation, Washington, D.C.

Filed Dec. 22, 1995, Ser. No. 577,888

Int. Cl.⁶ H04M 3/00

U.S. Cl. 379—198

11 Claims



1. A fraud detection system for telephone PBX calls in a telephone network generating call detail records for the PBX calls, the system comprising:

a fraud data server for buffering the call detail records;

a threshold manager connected to an output of the fraud data server for keeping numerical counts of call data in predetermined fields of the call detail records, multiplying the numerical counts by predetermined risk factors to obtain risk-adjusted counts, detecting risk adjusted counts exceeding preselected threshold values, and generating an alarm in response thereto;

means connecting an output of the threshold manager to an input of the fraud data server for buffering the alarm incident to respective call detail records; and

a computer workstation connected to the fraud data server for receiving packets of call detail records relating to alarm data, in a filtered preselected format, the workstation including a monitor for displaying the alarm data on a graphical interface.

5,805,687

SUBSCRIBER EQUIPMENT MUTING METHOD AND APPARATUS

David Jeffrey Westergaard, and Aaron James Bobick, both of Calgary, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Sep. 30, 1996, Ser. No. 723,321

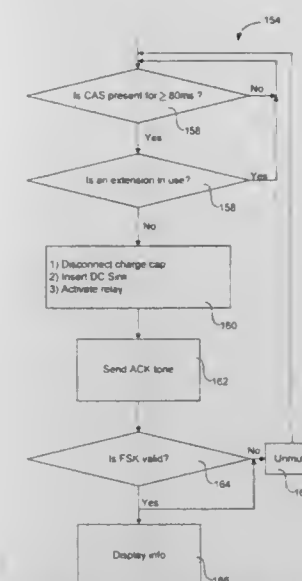
Int. Cl.⁶ H04M 1/64; 3/20; 3/22

U.S. Cl. 379—215

12 Claims

1. An apparatus for muting communications subscriber equipment connected to a communications line, the apparatus including:

- a monitoring circuit for monitoring electrical conditions of said communications line, when said subscriber equipment is connected to said communication line;
- a disconnection circuit for disconnecting said subscriber equipment from said communication line;
- a termination circuit for terminating said communications line with a dummy termination when said subscriber equipment is disconnected, such that, said communications line appears to be terminated by said subscriber equipment;
- a power supply circuit for providing to said subscriber equipment said communications line electrical conditions as determined by said monitoring circuit prior to disconnecting said subscriber equipment from said communications line, when



said subscriber equipment is disconnected from said communications line.

5,805,688

AUTOMATED SYSTEM AND METHOD FOR CALL HANDLING

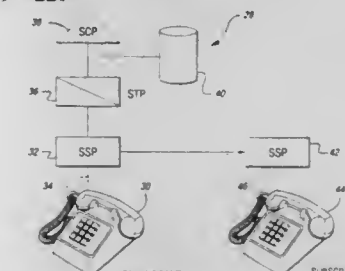
Donald E. Gillespie; Gregory W. Bruening, both of Boulder, and Madhav V. Apte, Longmont, all of Colo., assignors to U.S. West Advanced Technologies, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 41,733, Apr. 1, 1993, abandoned. This application Oct. 10, 1995, Ser. No. 541,713

Int. Cl.⁶ H04M 3/42

U.S. Cl. 379—220

16 Claims



1. For use in a local exchange of an Advanced Intelligent Network (AIN) having a plurality of subscribers, each assigned a common non-access code group calling number, an automated system for handling a call made by a user to the common non-access code group calling number without user prompting, the system comprising:

- a signal generator integrated with the AIN for generating a call handling request signal representing selected parameters of the call, including a user calling number;
- a storage device integrated with the AIN and in communication with the signal generation means for storing (a) a plurality of user calling numbers and corresponding user location data, and (b) a unique subscriber destination number for each of the

plurality of subscribers and corresponding unique subscriber location data, said unique subscriber destination numbers corresponding to said common non-access code group calling number; and

a processor integrated with the AIN and in communication with the storage device for processing the call handling request signal to select the unique subscriber destination number to route the call to, the processor operative to determine the user calling number from the call handling request signal, and to determine the corresponding user location data, wherein said processor compares the user location data to the subscriber location data to select the unique subscriber destination number and routes the call to the unique subscriber destination number selected.

5,805,689

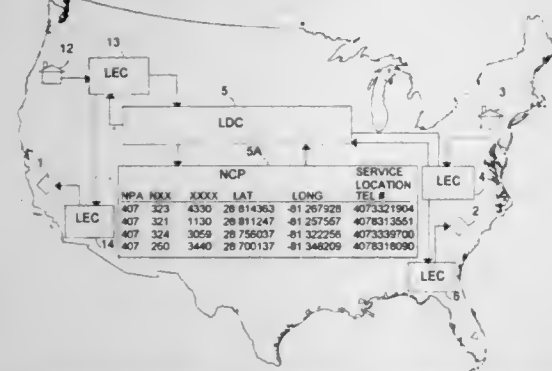
GEOGRAPHICALLY MAPPED TELEPHONE ROUTING METHOD AND SYSTEM

Daniel E. Neville, Orlando, Fla., assignor to 800 Adept, Inc., Altamonte Springs, Fla.

Division of Ser. No. 623,051, Mar. 28, 1996, Pat. No. 5,588,048, which is a continuation of Ser. No. 389,547, Feb. 15, 1995, abandoned, which is a continuation of Ser. No. 922,793, Jul. 31, 1992, abandoned. This application Sep. 5, 1996, Ser. No. 709,475
Int. Cl.⁶ H04M 3/42

U.S. Cl. 379—220

6 Claims



1. In a telephone system, a method of constructing a database wherein said database is used by a telephone service provider for direct routing a telephone call from a first party who dials one of an 800-type, 900-type or other special access code telephone number assigned to a second party, who has determined specific locations to receive calls originating from within pre-determined geographic areas, thereby allowing the first party to reach one of a plurality of locations of the second party based on geographic location of the first party from within one of a plurality of geographic areas, said method comprising the steps of:

- assigning individual latitude and longitude coordinates to each telephone number of all potential first parties;
- defining the boundaries of one or more geographic areas which can be of any size and shape according to pre-determined criteria;
- assigning to the telephone number of each potential first party a telephone number of a specific location of the second party that will receive calls originating from within a geographic area of each first party;
- determining in which geographic area a potential call might originate for each potential first party in the area encompassed by all geographic areas; and
- assigning the specific location of the second party to all potential first parties within the boundaries of each geographic area.

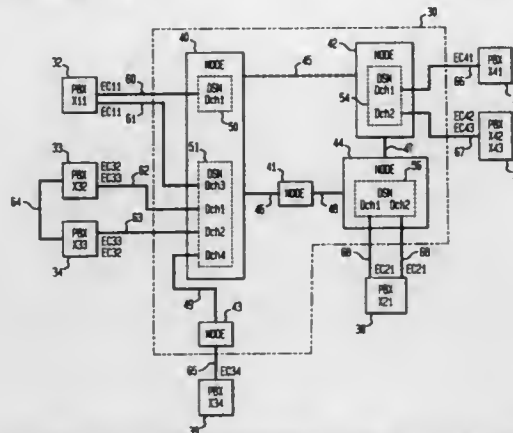
5,805,690 METHOD OF DISTRIBUTED CALL CONTROL IN A DISTRIBUTED TRANSIT PBX SYSTEM

Richard Koepper, Tomkins Cove, N.Y., and Adoor V. Balasubramanian, Wayne, N.J., assignors to Timeplex, Inc., Woodcliff Lake, N.J.

Filed Oct. 7, 1996, Ser. No. 726,633
Int. Cl.⁶ H04M 7/00; 3/00; H04L 12/28

U.S. Cl. 379—220

21 Claims



1. A method of providing Distributed Call Control in a Distributed Transit Private Branch Exchange (PBX) that serves a plurality of remotely located M PBXs comprising a plurality of N nodes located remotely from each other and forming a wide area network, with each node being coupled to predetermined ones of the other nodes via separate links so that each node is able to communicate with all other nodes, and a plurality of X D-channel Server Modules (DSMs) located in predetermined ones of the plurality of N nodes with each DSM coupled to at least one associated PBX of the plurality of remotely located M PBXs via at least one D channel, the method comprising the steps of:

- receiving a call establishment request comprising an Exchange Code (EC) for a destination PBX via a D channel of an associated PBX interface;
- determining at the DSM if the EC received in step (a) is serviced by any of the PBXs coupled to the same DSM, and routing the call to the associated called PBX;
- determining in the DSM if the EC received in step (a) is handled by a remote DSM when the EC is not serviced by any of the PBXs coupled to the same DSM, and routing the call to the remote DSM; and
- finding, in the remote DSM, the PBX interface associated with the EC and routing the call to that PBX to complete the call.

5,805,691

SYSTEM AND METHOD FOR SAFELY AND EFFICIENTLY REDIRECTING A TELEPHONE CALL

Ranga R. Dendi, Plano, Tex., assignor to MCI Corporation, Washington, D.C.

Filed May 28, 1996, Ser. No. 654,178

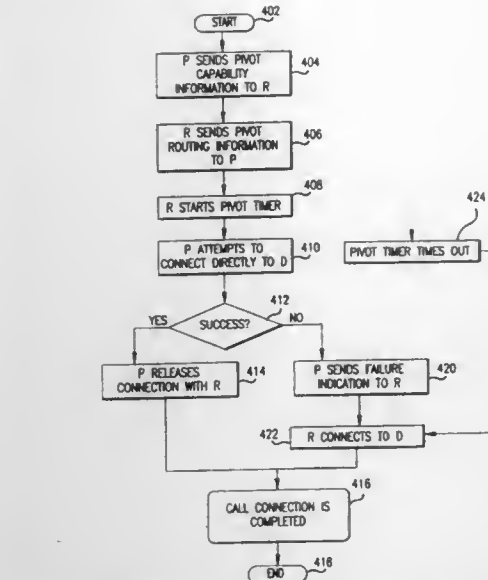
Int. Cl.⁶ H04M 7/00; H04J 1/16; 3/14

U.S. Cl. 379—221

12 Claims

1. In a communications network, a system for efficiently routing communications from an originating user terminal to a terminating user terminal, comprising:

- a destination node to be connected to the terminating user terminal;
- a pivot node, connected to the originating user terminal, for attempting to establish a direct connection to said destination node;
- a release node, connected to said pivot node and having a possible connection to said destination node, for establishing a direct connection to said destination node if said pivot node is unsuccessful in establishing said direct connection to said destination node; and



means for releasing the connection between said pivot node and said release node if said destination node and said pivot node can be connected directly.

5,805,692

PRIVATE AUTOMATIC BRANCH EXCHANGE (PABX) SYSTEM WITH TRANSPARENT COMPUTER SUPPORTED TELECOMMUNICATIONS APPLICATIONS (CSTA) FUNCTIONALITY

Cornelis A. M. Oerlemans, Maarssen, and Richard J. Sitters, Hilversum, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 601,894, Feb. 15, 1996, abandoned.

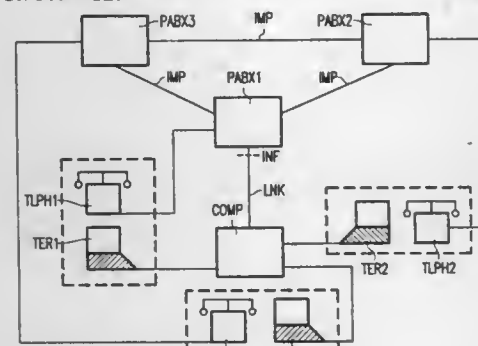
This application May 14, 1997, Ser. No. 856,025

Claims priority, application European Pat. Off., Feb. 28, 1995, 95200490

Int. Cl.⁶ H04M 7/00; 3/42; 3/00

U.S. Cl. 379—225

14 Claims



1. A telecommunication system comprising

- a data processing means from any exchanges (COMP);
- a first telecommunication exchange (PABX1) coupled to the data processing means (COMP);
- at least a second telecommunication exchange (PABX2) coupled to the first telecommunication exchange (PABX1), which second telecommunication exchange (PABX2) comprises

- monitoring means (MO2) for acquiring state information about the state of extensions (TLPH2) that can be connected to the second telecommunication exchange (PABX2), the state information being for use by the data processing means (COMP); and
- routing means (IF2, RT2) for routing the state information to the data processing means via the first telecommunication exchange (PABX1).

so that the entire system has CSTA functionality, and so that the division between the first and second exchanges is transparent from the point of view of the CSTA functionality, the term "CSTA" herein being an abbreviation for Computer Supported Telecommunications Application.

5,805,693

MONITOR-CONTROLLING DEVICE

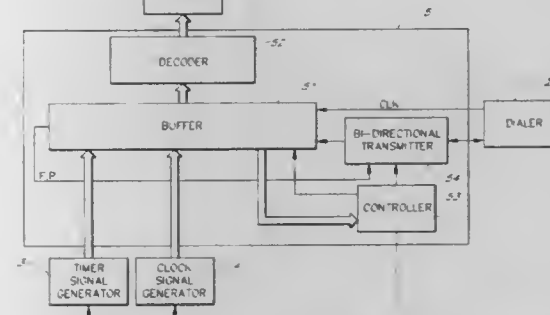
Chern-Jsair Chang, and Rong-Tyan Wu, both of Hsinchu, Taiwan, assignors to Holtek Microelectronics, Inc., Hsinchu, Taiwan

Filed Jul. 9, 1996, Ser. No. 677,107

Int. Cl.⁶ H04M 1/00

U.S. Cl. 379—352

20 Claims



1. A monitor-controlling device, adapted to be used for a system having a monitor and a first circuit, comprising:

- a buffer for storing data from said system;
- a decoder electrically connected to said buffer for receiving and decoding said data;
- a bi-directional transmitter electrically connected to said buffer for providing said buffer with a path to transmit said data to said first circuit; and
- a controlling circuit electrically connected to said bi-directional transmitter for controlling said path on or off.

5,805,694

REDIALING METHOD BY EDITING TELEPHONE NUMBER IN TELEPHONE TERMINAL EQUIPMENT

Su-Suck Kim, Gumi, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

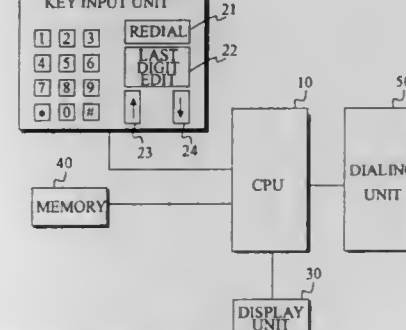
Filed Oct. 8, 1996, Ser. No. 727,155

Claims priority, application Rep. of Korea, Oct. 11, 1995, 34858/1995

Int. Cl.⁶ H04M 1/272

U.S. Cl. 379—354

14 Claims



9. A telephone system, comprising:

- a key input unit having a plurality of keys including numeric keys, a redial key and a last digit edit key for enabling a user to provide key inputs;

- generating a random integer m ;
- computing a point P_1 on an elliptic curve;
- computing an integer u using m and P_1 .

5,805,704

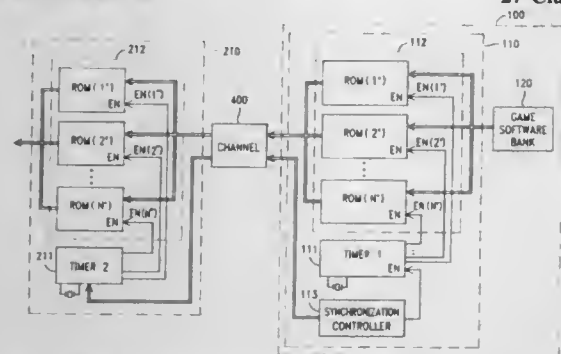
METHOD AND APPARATUS FOR PROTECTING
BROADCAST SOFTWARE AGAINST UNAUTHORIZED
RECEPTION ON A SOFTWARE BROADCASTING
SYSTEMShih-Pin Hsu, Tai-Nan, Taiwan, assignor to United Microelec-
tronics Corp., Hsin-Chu, Taiwan

Filed Dec. 15, 1995, Ser. No. 573,961

Int. Cl.⁶ H04L 9/00

U.S. Cl. 380—48

27 Claims



1. A method for use on a broadcasting system transmitting digital information from a transmitting site to a receiving site for purpose of protecting transmitted digital information against unauthorized reception after a prescribed period of authorized reception expires, said method comprising the following steps of:

- (1) encoding the digital information by using one of a plurality of encoding methods, each of the encoding methods being enabled by a first time base;
- (2) transmitting the encoded digital information via a channel to the receiving site;
- (3) receiving the encoded digital information at the receiving site; and
- (4) decoding the received digital information by using one of a plurality of decoding methods, each the decoding methods being enabled by a second time base, the first time base and the second time base being initially synchronized but having different clock rates to cause the first time base and the second time base to become out of synchronization after said prescribed period, decoded output of each the decoding methods being correct if the second time base is substantially synchronized with the first time base, and the decoded output of each the decoding methods being incorrect if the second time base is out of synchronization with the first time base.

5,805,705

SYNCHRONIZATION OF ENCRYPTION/DECRYPTION
KEYS IN A DATA COMMUNICATION NETWORKJames P. Gray, Chapel Hill; Ralf O. Onvural, and Mohammad
Peyravian, both of Cary, all of N.C., assignors to Interna-
tional Business Machines Corporation, Armonk, N.Y.

Filed Jan. 29, 1996, Ser. No. 592,931

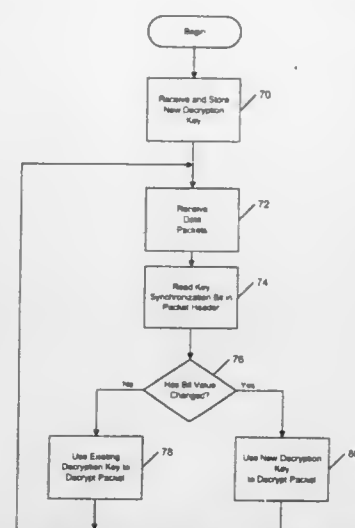
Int. Cl.⁶ H04L 9/12

U.S. Cl. 380—48

16 Claims

13. For use in a system including one or more source nodes for encrypting information using an encryption key, an interposed data communication network through which data packets including the encrypted information are transmitted, each of said data packets including a header and a data payload portion, and one or more destination nodes for decrypting received data packets using a decryption key, a key-synchronizing system for maintaining synchronization between the encryption key used at a source node to encrypt a data packet and the decryption key used at the destination node in decrypting the same data packet after transmission through the network, said key-synchronizing system comprising:

at the destination node, means for storing at least one decryption key;



at the source node, means for writing a predetermined binary value into one or more predetermined bit positions in the header portion of a data packet to be decrypted using said decryption key;

at the destination node, means monitoring the header portion of each received data packet for the presence of said predetermined binary value in the predetermined bit positions; and
at the destination node, means for retrieving said decryption key from storage and activating said key for each received data packet in which the predetermined binary value is detected.

5,805,706

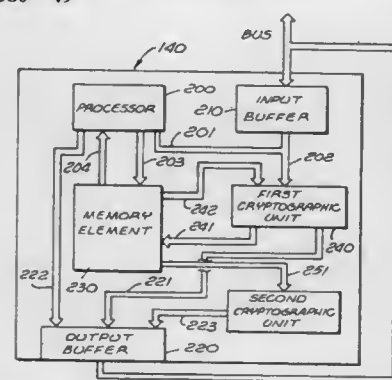
APPARATUS AND METHOD FOR RE-ENCRYPTING
DATA WITHOUT UNSECURED EXPOSURE OF ITS NON-
ENCRYPTED FORMATDerek L. Davis, Phoenix, Ariz., assignor to Intel Corporation,
Santa Clara, Calif.

Filed Apr. 17, 1996, Ser. No. 633,581

Int. Cl.⁶ H04L 9/00

U.S. Cl. 380—49

19 Claims



1. A cryptographic device comprising:

an integrated circuit package;

a decryption unit that uses a first cryptographic algorithm to decrypt input information having a first encrypted format into information having a non-encrypted format, the decryption unit contained within the integrated circuit package; and
an encryption unit coupled to said decryption unit and contained in the integrated circuit package, said encryption unit using a second cryptographic algorithm to re-encrypts said information having the non-encrypted format into output information having a second encrypted format.

5,805,707

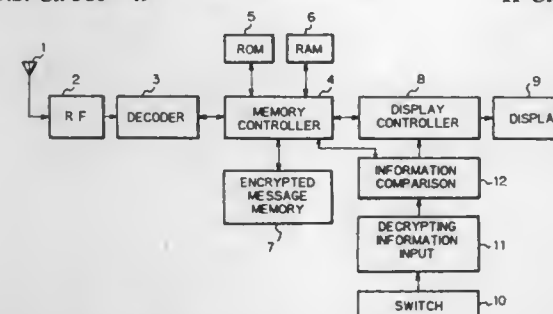
RADIO PAGER WITH A DISPLAY CONTROL
CAPABILITYYasushi Nakano, Shizuoka, Japan, assignor to NEC Corpora-
tion, Tokyo, Japan

Filed Jul. 25, 1996, Ser. No. 685,825

Claims priority, application Japan, Jul. 27, 1995, 7-191332;
Aug. 24, 1995, 7-215550Int. Cl.⁶ H04K 1/00

U.S. Cl. 380—49

11 Claims



1. A radio pager comprising:

receiving means for receiving a paging signal sent from a caller;
storing means for storing a message included in the paging signal;

first decision means for determining whether or not encrypting information for inhibiting the message from being displayed is attached to the paging signal;

display means for displaying the message; and

second decision means for determining whether or not the message with the encrypting information should be displayed, wherein said storing means comprises a first storage area for storing the message with the encrypting information, and a second storage area for storing the message without the encrypting information.

5,805,708

SPEAKER SYSTEM FOR COMPUTER

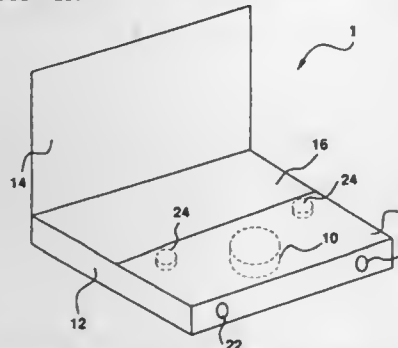
Tommyca Freadman, 16 Glen Dr., Goshen, N.Y. 10924

Filed Oct. 22, 1996, Ser. No. 735,088

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—159

20 Claims



1. A speaker system for a computer including a computer case having a top wall, a bottom wall and side walls connecting the top wall and the bottom wall, the speaker system comprising:

at least one speaker disposed within the computer case;

a support located within the computer case for supporting the at least one speaker such that the speaker is spaced from the top and bottom walls of the computer case, the support including a first opening located above a front surface of the at least one speaker so as to receive front waves from the front surface and a second opening located below a back surface of the at least one speaker so as to receive back waves from the back surface;

at least two sound emitting ports disposed on an exterior surface of the computer case; and

at least two sound transmitting paths each disposed within the computer case and connected to the at least one speaker via one of the first and second openings of the support and

connected to a respective one of the at least two sound emitting ports for receiving sound waves generated by the at least one speaker via the first and second holes in the support and transmitting the sound waves to a respective one of the at least two sound emitting ports via the at least two sound transmitting paths.

5,805,709

DESKTOP MICROPHONE BASE

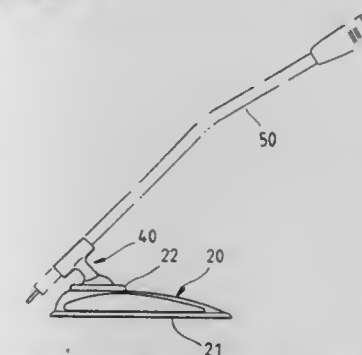
I-Chang Liou, 3F, No. 1-62, Lane 81, Yuan Dong St., Long Jing
Hsian, Taichung Hsien, Taiwan

Filed Apr. 25, 1997, Ser. No. 840,659

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—169

8 Claims



1. A desktop microphone base comprising:

a base body provided with a receptacle, said receptacle having in an inner wall thereof a plurality of retaining portions separated equidistantly; and

a pivoting member having a pivoting portion engageable with said receptacle such that said pivoting portion is held securely by said retaining portions of said receptacle, and further that said pivoting portion can be rotated inside said receptacle, said pivoting member further having a neck extending therefrom such that said neck is provided at a free end thereof with a means for holding adjustably a microphone;

wherein said base body is provided in a protuberance thereof with a slot between the base body and each of said plurality of retaining portions and furrows extending between said base body and each of said plurality of retaining portions from two opposite ends of each said slot towards a bottom wall of said receptacle for a predetermined length.

5,805,710

METHOD AND SYSTEM FOR ADAPTIVELY
RECOGNIZING CURSIVE ADDRESSES ON MAIL
PIECESJoseph T. Higgins, Owego, and Timothy J. Schaeve, Bingham-
ton, both of N.Y., assignors to Lockheed Martin Corpora-
tion, Bethesda, Md.

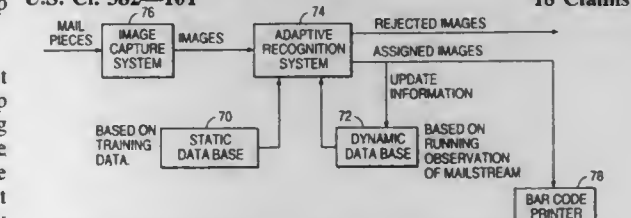
Division of Ser. No. 421,579, Apr. 12, 1995, Pat. No. 5,754,671.

This application Jun. 24, 1997, Ser. No. 909,437

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—101

18 Claims



1. An optical character recognition system for adaptively recognizing cursive addresses on mail pieces, comprising:

an image capturing means for capturing an image of an address printed on a mail piece within a stream of mail pieces;

a static data base for storing static information, wherein said static information is collected via offline training;

a dynamic data base for storing dynamic information, wherein said dynamic information is updated on a realtime basis when each mail piece is received from said stream of mail pieces; and
an adaptive recognition means, coupled to said image capturing means, for determining whether or not said captured image is recognizable based on information provided by said static data base and said dynamic data base.

5,805,711

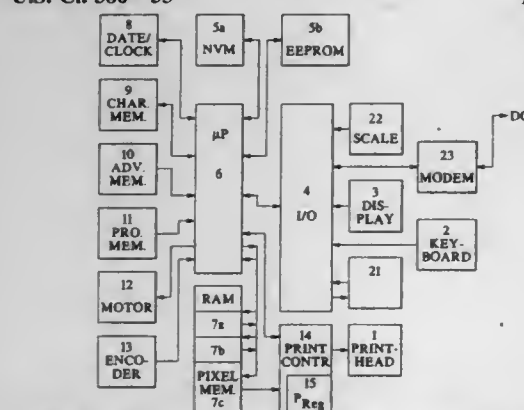
METHOD OF IMPROVING THE SECURITY OF POSTAGE METER MACHINES

Harald Windel; Frank Reisinger; Claus Freytag; Ralf Kubatzki; Marcus Hansel; Stephan Günther; Enno Bischoff; Andreas Wagner; Olav A. Zarges; Arndt Berthold, and Peter Rieckhoff, all of Berlin, Germany, assignors to Francotyp-Postalia AG & Co., Birkenwerder, Germany
Continuation-in-part of Ser. No. 346,909, Nov. 30, 1994, Pat. No. 5,671,146. This application Sep. 8, 1995, Ser. No. 525,923
Claims priority, application Germany, Dec. 21, 1993, 43 44 476.8

Int. Cl. 6 H04L 9/00

U.S. Cl. 380—55

18 Claims



10. A method for securing data and program code in an electronic postage meter machine against manipulation, said electronic postage meter machine having a microprocessor in a control unit for implementing steps of a start and initialization routine upon turn-on of the postage meter machine and for thereafter implementing a system routine including a communication mode with a data central remote from said postage meter machine and a franking mode including an accounting and printing routine in which a franking amount is printed on a postal item and a debiting of the franking amount is made, followed by a branch back to a beginning of said system routine, said method comprising the steps of:
providing an OTP (one time programmable) processor as said microprocessor in said control unit and providing a storage medium accessible by said OTP processor in said postage meter machine;

storing memory contents which may be valid or invalid, in said storage medium, said memory contents including at least one of data and a program code;
conducting a start security check in said OTP processor, upon said turn-on of said postage meter machine, in said start and initialization routine before conducting said system routine, and in said start security check forming an MAC (message authentication code) over at least a portion of the contents of said storage medium and using said MAC to determine the validity or invalidity of said contents of said storage medium over which said MAC is formed, using an MAC check sum sequence;

said OTP processor transferring said postage meter machine into the system routine given validity of said memory contents and transferring the postage meter machine into a first mode and preventing franking by said postage meter machine in said first mode given invalidity of said memory contents;
upon transfer into said system routine, said OTP processor calling current data and checking said current data with at least one decision criterion and, if said decision criterion is satisfied, causing said postage meter machine to enter into a

second mode wherein a warning is displayed at said postage meter machine with a request for initiating a communication with said data central; and
said OTP processor causing said postage meter machine to enter into at least one further mode and said OTP processor conducting at least one further security check in said at least further mode.

5,805,712

APPARATUS AND METHOD FOR PROVIDING SECURED COMMUNICATIONS

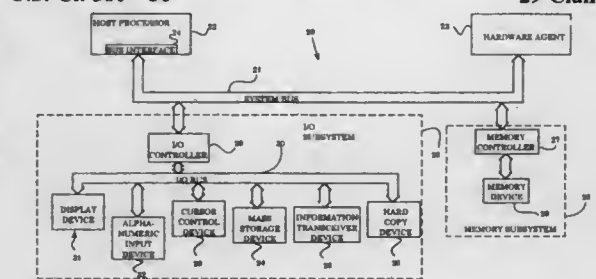
Derek L. Davis, Phoenix, Ariz., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 251,486, May 31, 1994, Pat. No. 5,539,828. This application Dec. 29, 1995, Ser. No. 578,177

Int. Cl. 6 H04L 9/00

U.S. Cl. 380—50

29 Claims



9. A system comprising:
memory means for storing program instructions;
host processing means for executing said program instructions;
bus means for coupling said host processing means and said memory means; and
semiconductor means, coupled to said bus means, for internally decrypting input information and encrypting output information, said semiconductor means including:
processing means for processing said input and output information within said semiconductor means,
first storage means for storing a uniquely designated key pair and at least one digital certificate used for decrypting said input information and encrypting said output information, said first storage means being coupled to said processing means,
second storage means for temporarily storing at least said input and output information, and
generating means for generating values used to produce at least one key internally within the semiconductor means.

5,805,713

SOLID STATE CIRCUIT FOR EMULATING PUSH-PULL TUBE AMPLIFIER

Eric K. Pritchard, Rte. 1, Box 536, Berkeley Springs, W. Va. 25411

Continuation-in-part of Ser. No. 394,303, Feb. 24, 1995, which is a continuation-in-part of Ser. No. 202,369, Feb. 25, 1994, which is a continuation-in-part of Ser. No. 914,596, Jul. 20, 1992, Pat. No. 5,434,536. This application Dec. 10, 1996, Ser. No. 761,964

Int. Cl. 6 H03G 3/00

U.S. Cl. 381—61

34 Claims

1. A solid state audio amplifier for emulating the grid conduction of a push-pull vacuum tube amplifier, said solid state amplifier having an input and an output and comprising:

an input circuit responsive to said input for producing a P signal and a N signal;
a P coupling capacitor for coupling said P signal to a P grid conduction emulation means and to a P circuit which includes a P non-linear means for producing crossover;
an N coupling capacitor for coupling said N signal to an N grid conduction emulation means and to an N circuit which includes an N non-linear means for producing crossover; and

5,805,715

METHOD AND APPARATUS FOR COMPENSATING MULTI-RESOLUTION LINEAR DISTORTION

Won-woo Rhee, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

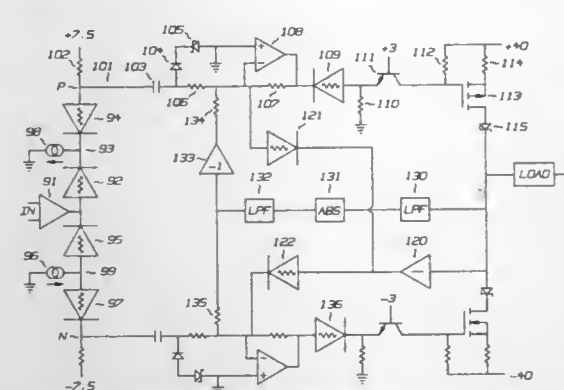
Filed Jun. 29, 1994, Ser. No. 267,498

Claims priority, application Rep. of Korea, Jun. 29, 1993, 1993 11992

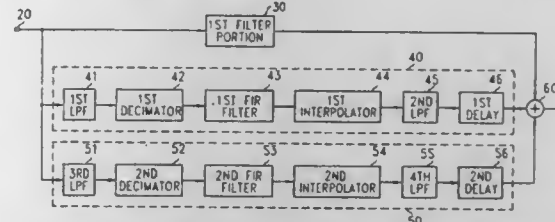
Int. Cl. 6 H04B 1/12

U.S. Cl. 381—98

26 Claims



a transformerless connection means for connecting the outputs of said P circuit and said N circuit to said output.



high pass filter means coupled between the inverting input and ground for determining the lower end of the frequency band processed by said each operational amplifier means, and

low pass filter means coupled between the output and the inverting input for determining the upper end of the frequency band processed by said each operational amplifier means,

at least one additional operational amplifier means for processing and selectively amplifying a frequency band of the audio signal, which is higher than the frequency bands processed by the plurality of operational amplifier means, to produce an output signal, said additional operational amplifier means including an inverting input, a non-inverting input for receiving the audio signal, an output, high pass filter means coupled between the inverting input and ground, and resistance means coupled between the output and the inverting input, and means coupled to the outputs of each operational amplifier means for combining the output signals thereof to produce a resultant signal.

5,805,717

LIGHT SENSITIVE SWITCH WITH MICROPHONE

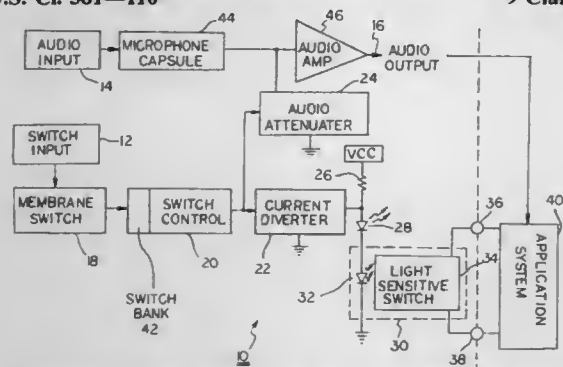
Stephen E. Mills, Elkhart, Ind., assignor to Crown International, Inc., Elkhart, Ind.

Filed Dec. 29, 1995, Ser. No. 580,881

Int. Cl.⁶ H03G 3/20

U.S. Cl. 381—110

9 Claims



1. Method of controlling a subsystem associated with a microphone in response to activation of a light sensitive switch, said method comprising the steps of:

activating said microphone by operating a switch connected thereto;

activating a light source in response to said operating of said switch and

disabling an audio attenuator in response to said activation of said microphone thereby allowing an audio input present at said microphone to be amplified for output by disabling a current divider connected to said light source in response to activation of said microphone thereby activating said light source.

5,805,718

CLOTHING AMOUNT MEASURING APPARATUS AND METHOD USING IMAGE PROCESSING

Ryo Inoshiri, Akira Yoshida, both of Nara-ken, and Ziquan Hong, Tokyo-to, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 6, 1995, Ser. No. 539,761

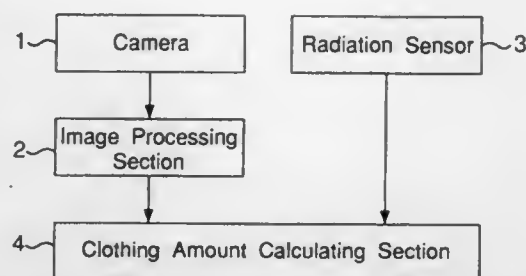
Claims priority, application Japan, Oct. 7, 1994, 6-243904

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—111

20 Claims

1. A clothing amount measuring apparatus for measuring an amount of clothes on a human body in a non-contact manner, comprising:



an image pickup section for capturing a subject in a real space; a radiation sensor for detecting a radiation heat quantity from the real space;

an image processing section for processing an image captured by the image pickup section, and upon recognizing that the subject is a human body, detecting a position and an area of the human body in the image; and

a clothing amount calculating section for calculating a thermal resistance value of the clothes on the subject as a clothing amount when the subject is a human body based on an output from the image processing section and an output from the radiation sensor.

5,805,719

TOKENLESS IDENTIFICATION OF INDIVIDUALS

David Ferrin Pare, Jr.; Ned Hoffman, and Jonathan Alexander Lee, all of Berkeley, Calif., assignors to SmartTouch, Berkeley, Calif.

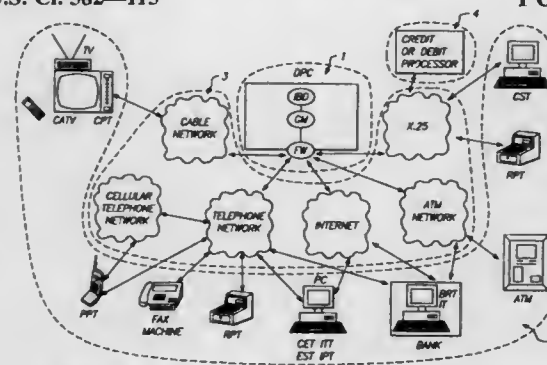
Continuation-in-part of Ser. No. 442,895, May 17, 1995, Pat. No. 5,613,012, which is a continuation-in-part of Ser. No. 345,523, Nov. 28, 1994, Pat. No. 5,615,277. This application

Mar. 18, 1997, Ser. No. 820,008

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—115

1 Claim



1. A tokenless method for rapid search of previously stored biometric samples from individuals using at least two biometric baskets, at least one biometric basket containing at least two algorithmically unique biometric samples from different individuals, each biometric basket containing less than the total number of samples registered with the system, and each biometric basket being identified by a personal identification code, the method comprising:

a. a storage step further comprising:

- gathering a biometric sample from an individual;
- selecting a personal identification code that indexes a biometric basket;
- locating the biometric basket identified by the personal identification code;
- comparing the biometric sample gathered from said individual, with all previously stored biometric samples in the biometric basket, to make sure that the biometric sample gathered from the individual is algorithmically unique from all biometric samples currently stored in said biometric basket for producing a successful or failed uniqueness result; and

- upon return of a successful uniqueness result, storing of the entered biometric sample gathered from said individual in the selected biometric basket; and
- a bid step further comprising:
 - entering a bid personal identification code by a candidate individual;
 - entering a bid biometric sample by said candidate individual; and
- a comparison step further comprising:
 - locating the biometric basket that is identified by the bid personal identification code entered by said candidate individual; and
 - comparison of the bid biometric sample from said candidate individual with all of the biometric samples stored in the identified biometric basket for producing either a successful or failed identification result.

5,805,720

FACIAL IMAGE PROCESSING SYSTEM

Nobumasa Suenaga, and Kenji Ogawa, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

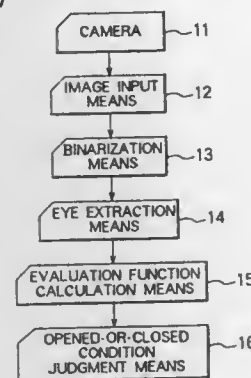
Filed Mar. 11, 1996, Ser. No. 612,815

Claims priority, application Japan, Jul. 28, 1995, 7-193647

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—117

32 Claims



1. A facial image processing system comprising:

- camera for taking a facial image;
- image input means for inputting a video signal sent from the camera;
- binarization means for binarizing the facial image inputted from the image input means;
- eye extraction means for extracting an eye presence area, which includes an eye, from the binarized facial image;
- evaluation function calculation means for calculating a shape function representing a shape feature of the eye from the eye presence area and for calculating an evaluation function according to the shape function; and
- open-or-closed condition judgment means for judging according to the evaluation function whether the eye is open or closed; wherein the evaluation function calculation means obtains a first-order shape function on the basis of the binary image of the eye presence area and calculates a second-order shape function according to the first-order shape function and further calculates an evaluation function according to the second-order shape function.

5,805,721

METHOD AND APPARATUS FOR CONTRAST ENHANCEMENT

Pieter Paul Vuylsteke, Mortsel, and Emile Paul Schoeters, Lier, both of Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium

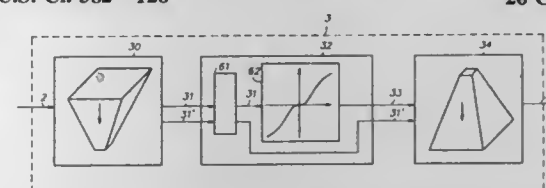
Continuation of Ser. No. 421,408, Apr. 13, 1995, abandoned, which is a continuation of Ser. No. 924,095, Aug. 3, 1992, Pat. No. 5,467,404. This application Jun. 6, 1996, Ser. No. 659,417

Claims priority, application European Pat. Off., Aug. 14, 1991, 91202079

Int. Cl.⁶ G06K 9/40

U.S. Cl. 382—128

26 Claims



1. A method of generating an enhanced visual image of an original image that is represented by an array of pixel values comprising the steps of:

- applying said array of pixel values representing an original image to a signal processor to perform the steps of:
 - decomposing said original image into a sequence of multiple detail images at successively lower resolution levels and a residual image at a still lower resolution level, wherein (i) each detail image represents an amount of local variation of pixel values within said original image at the resolution level of detail image and (ii) resolution refers to spatial extent of said variations and (iii) wherein a residual image is an approximation of said original image with omission of all variations comprised in said detail images, said decomposition being performed so that each pixel value in said original image is equal to the sum of the corresponding pixel value of said residual image and the corresponding pixel values of each of said detail images, said residual and detail images being brought into register with the original image by interpolation if their number of pixels is not equal to the number of pixels of the original image, and so that
 - the mean of all pixel values in every detail image is zero
 - the spatial frequency of every detail image is limited to a specific frequency band;
 - every detail image corresponds to a different spatial frequency band, in such a way that the entire spatial frequency domain is covered by the spatial frequency bands associated with all said detail images considered with the decomposition;
 - each spatial frequency band associated with one of said detail images may partially overlap the neighboring bands without being fully included;
 - the number of pixels within detail image is at least the number of pixels required by the Nyquist sampling criterion;
 - at least two of said spatial frequency bands are considered in the course of said decomposition;

modifying pixel values of said detail images to yield pixel values of a set of modified detail images according to at least one non-linear monotonically increasing odd modifying function with a slope that gradually decreases with increasing argument valued, and

computing a processed image representation by applying a reconstruction algorithm to the residual image and to the set modified detail images, the reconstruction algorithm being such that (1) if it were applied to the residual image and the detail images without modification, then said original image would be obtained; (2) each pixel value of said processed image representation is computed as the sum of the corresponding pixel values in each of the modified detail images incremented by the corresponding pixel value in the residual image, said residual and detail images being brought into register with the original image by the interpolation if the number of pixels is not identical; and

- utilizing the processed image representation to control the generation of density values that form the enhanced image.

5,805,722
METHOD AND APPARATUS FOR LOCATING,
INSPECTING, AND PLACING LARGE LEADED
DEVICES

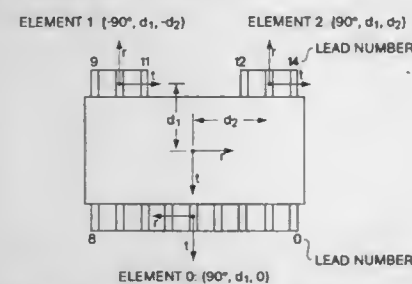
Christopher P. Cullen, Ipswich, and Antonie J. Engel, Bolton,
both of Mass., assignors to Cognex Corporation, Natick,
Mass.

Continuation of Ser. No. 155,742, Nov. 22, 1993, abandoned.
This application Oct. 2, 1996, Ser. No. 726,402

Int. Cl.⁶ G06K 9/00

U.S. Cl. 382—146

14 Claims



1. In a machine vision system capable of capturing an optical image of a leaded part and digitizing said optical image as a two-dimensional image, a method for locating, inspecting, and placing leaded devices, comprising:

- estimating an approximate location of a set of leads by locating at least one edge for a lead of a lead set by applying a region of interest window to said image containing a group of leads; projecting a two-dimensional image into a one-dimensional image; plotting edge values; applying an edge filter to locate each edge that may constitute a tip or a base; scoring the results of the filtering; selecting from the scoring of the filtering the positions that meet the expected values for a tip edge or a base edge;
- computing the center and angle of a lead scan search rectangle within which leads in said set of leads must be located by computing two points at either end of a lead set and calculating the average of the points and the angle of a line connecting them;
- scanning said lead scan search rectangle to locate lead edges and compile a list of edges by covering the search rectangle with a series of stepped calipers, each of said calipers aligned in a non-rotated manner with said image's axis and applied in such a way as to guarantee that each lead edge will appear in at least one caliper window and then projecting edge positions along the axis of said lead scan search rectangle, locating projected positions of two edges from different stepped calipers within a specified threshold of each other and selecting the edge with the stronger contrast to compile a single edge list;
- extracting lead positions;
- updating a part location estimate; and
- repeating steps a) through e) for each lead set to find all leads and lead centerlines.

5,805,723
IMAGE PROCESSING APPARATUS WITH MEANS FOR
ADJUSTING IMAGE DATA FOR DIVIDED AREAS

Yoko Fujiwara, Tokyo, Japan, assignor to Minolta Co., Ltd.,
Osaka, Japan

Filed Feb. 26, 1996, Ser. No. 607,348

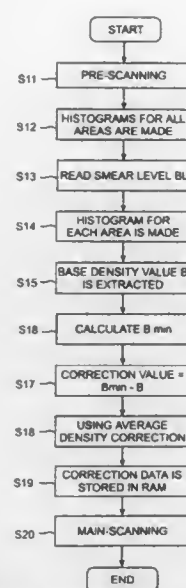
Claims priority, application Japan, Feb. 28, 1995, 7-040415

Int. Cl.⁶ G06K 9/46; 9/40

U.S. Cl. 382—172

15 Claims

1. An image processing apparatus comprising:
a reading means for reading an original image and for generating image data;
an area dividing means for dividing an area of said original image into divided areas having plural pixels;



- a base density extracting means which extracts a base density for each area divided by said area dividing means;
- a selection means for selecting one optional base density from among all of said base densities extracted by said base density extracting means; and
- a control means for adjusting image data for each divided area so as to correspond each of said extracted base densities to said one optional base density selected by said selection means.

5,805,724
METHOD AND SYSTEM FOR HYBRID ERROR
DIFFUSION PROCESSING OF IMAGE INFORMATION
USING DYNAMIC SCREENS BASED ON BRIGHTNESS/
DARKNESS SETTINGS

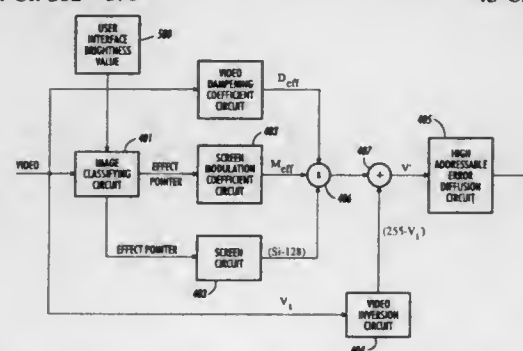
David J. Metcalfe, Marion; Roger L. Triplett, Penfield; John T. Newell, Fairport, and Xiao-fan Feng, Webster, all of N.Y.,
assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 24, 1996, Ser. No. 719,097

Int. Cl.⁶ H04N 1/405; G06K 9/38; G06T 5/00

U.S. Cl. 382—176

43 Claims



15. A system for reducing a number of levels in a multi-level grey scale pixel value representing a pixel and diffusing an error generated from reducing the number of levels, comprising:
means for generating a brightness/darkness setting value;
image segmentation means for generating an effect pointer based on an image type of a multi-level grey scale pixel to be processed and a window of pixels surrounding the multi-level grey scale pixel and the generated brightness/darkness setting value;
screen means for selecting, from a plurality of screens, a screen according to the effect pointer and generating a screen value from the selected screen dependent upon a position of the pixel to be processed;

modifying means for generating a screened multi-level grey scale pixel value utilizing the screen value;
threshold means for reducing the number of levels in the screened multi-level grey scale pixel value; and
error means for generating an error value as a result of the reduction process by said threshold means and diffusing the error value to multi-level grey scale pixel values of adjacent pixels.

38. A system for screening a multi-level grey scale pixel value representing a pixel, comprising:
means for generating a brightness/darkness setting value;
image segmentation means for generating an effect pointer based on an image type of a multi-level grey scale pixel to be processed and the generated brightness/darkness setting value;
screen means for selecting, from a plurality of screens, a screen according to the effect pointer, and for generating a screen value from the selected screen dependent upon a position of the pixel to be processed; and
modifying means for generating a screened multi-level grey scale pixel value utilizing the screen value.

5,805,725

HANDWRITING INPUT APPARATUS

Haruhiko Sakata, Tokyo, and Kimiyoshi Yoshida, Kanagawa,
both of Japan, assignors to Sony Corporation, Japan

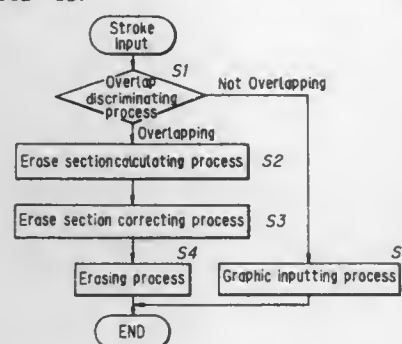
Continuation of Ser. No. 371,881, Jan. 12, 1995. This application Aug. 7, 1997, Ser. No. 908,409

Claims priority, application Japan, Jan. 28, 1994, 6-008350

Int. Cl.⁶ G06K 9/00; 9/46; 9/66; G06F 15/00

U.S. Cl. 382—187

20 Claims



1. A handwriting input apparatus for processing handwritten input, comprising:
input means for making a handwritten input;
a processor for processing said handwritten input, said processor representing said handwritten input using one or more of three primitive figures; said three primitive figures being a circle, a straight line segment, and a curving line segment;
display means, associated with said input means, for displaying said one or more primitive figures indicative of said handwritten input; and
discriminating means for defining a proximity area around each primitive figure displayed by said display means and for discriminating whether a predetermined amount of a subsequent handwritten input is within the proximity area of one or more displayed primitive figures;
wherein said one or more displayed primitive figures having a proximity area in which a predetermined amount of said subsequent handwritten input is made, as determined by said discriminating means, is entirely erased.

5,805,726

PIEZOELECTRIC FULL-RANGE LOUDSPEAKER

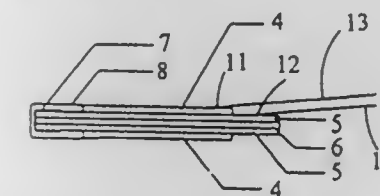
Chih-Ming Yang, and Jyi-Tyan Yeh, both of Hsinchu, Taiwan,
assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Aug. 11, 1995, Ser. No. 514,289

Int. Cl.⁶ H04R 25/00

U.S. Cl. 381—190

16 Claims



1. A piezoelectric electroacoustic device comprising:
(a) at least first and second metal plates that are spaced apart;
(b) at least one damping disc sandwiched between said first and second metal plates;
(c) at least one piezoelectric plate affixed to said first metal plate on the opposite side of the damping disc;
(d) said metal plate has a circular shape with a diameter ranging from about 20 mm to about 90 mm; and
(e) said damping plate has a thickness from about 20 μm to about 100 μm.

5,805,727

IMAGE RECOGNITION METHOD AND APPARATUS

Hiroyuki Nakano, Otsu, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

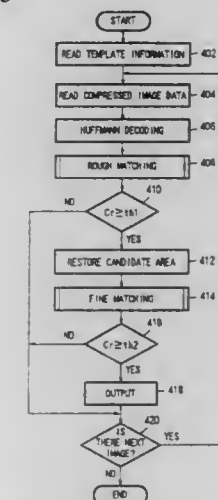
Filed Dec. 5, 1995, Ser. No. 567,221

Claims priority, application Japan, Dec. 5, 1995, 6-301042

Int. Cl.⁶ G06K 9/46; 9/66; 9/36

U.S. Cl. 382—495

10 Claims



sequentially extracting DC components for a plurality of partial areas from said compressed image data, said partial areas corresponding in size to said non-compressed image;
computing a rough matching value indicative of the degree of matching between said non-compressed image and said compressed image based on said DC components of said partial areas and the average intensity of said blocks in said non-compressed image;
determining a candidate area based on said rough matching value and restoring compressed image data corresponding to said candidate area to obtain candidate image data;
computing a fine matching value indicative of the degree of matching between said candidate image and said non-compressed image based on the image data for said candidate image and the image data for said non-compressed image; and
determining based on said fine matching value whether or not said non-compressed image matches said compressed image.

5,805,728

EDGE LINE MEASURING METHOD

Nobumichi Munesada, Moriguchi; Yoshio Kanata, Nara; Michitaro Horiuchi, Hamakita, and Hiroki Hoshiyama, Hamamatsu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

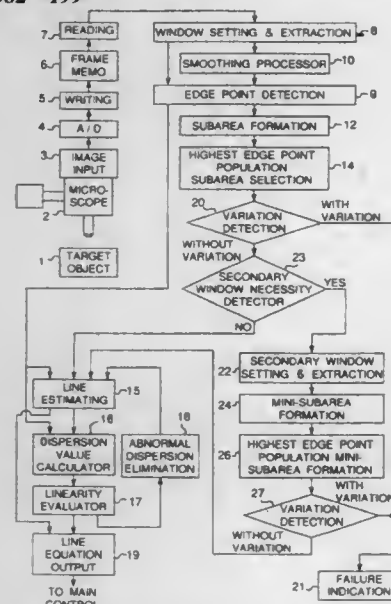
Filed Aug. 21, 1995, Ser. No. 518,601

Claims priority, application Japan, Aug. 22, 1994, 6-196827

Int. Cl.⁶ G06K 9/46; 9/66; 9/48; 9/36

U.S. Cl. 382—199

8 Claims



1. An edge line measuring method for detecting an edge line, comprising:

- setting a primary window covering an area containing the edge line;
- extracting specific image data by scanning the area inside said primary window at a specific interval in a direction crossing the edge line;
- detecting a change in brightness in the extracted specific image data in the scanning direction and obtaining coordinates of brightness change points as edge points of the edge line;
- forming a plurality of subareas by dividing the area inside said primary window into rectangular blocks at a predetermined pitch such that each of said plurality of subareas is capable of containing the edge line;
- selecting a highest edge point population subarea from said plurality of subareas, wherein said highest edge point population subarea is a subarea, among said plurality of subareas, which contains the greatest number of edge points; and

(f) estimating an edge line from the coordinates of the edge points in said highest edge point population subarea.

5,805,729

PROCEDURE AND EQUIPMENT FOR PRODUCTION OF LINE DATA

Arthur Wischnik, München; Erik Speidel, Hanau, and Ernst Nalepa, Rüsselsheim, all of Germany, assignors to EDS Electronic Data Systems Fertigungsindustrie, Rüsselsheim, Germany

PCT No. PCT/EP93/02301, § 371 Date Mar. 3, 1995, § 102(e) Date Mar. 3, 1995, PCT Pub. No. WO94/06089, PCT Pub. Date Mar. 17, 1994

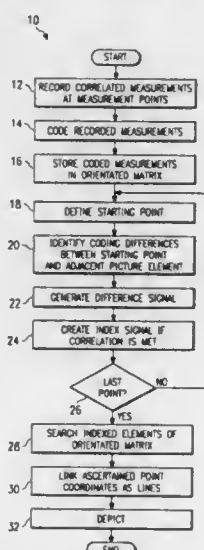
PCT Filed Aug. 26, 1993, Ser. No. 393,008

Claims priority, application Germany, Sep. 4, 1992, 4229 647.1

Int. Cl.⁶ G06K 9/46

U.S. Cl. 382—204

22 Claims



1. A process for the production of line data, comprising the steps of: obtaining correlated measurements of an object at measurement points in a first stage by means of a measurement recorder; measurement coding of the measurements recorded in the first stage being carried out in a second stage at measurement points storing the coded measurements in an orientated matrix, with allocation of a measurement point to an element of the orientated matrix depending upon geometric point coordinates represented by said measurement point, wherein only a partial area of the orientated matrix is involved in the production of line data; from an element of this orientated matrix functioning as a starting point identifying coding differences between the coding allocated to the starting point and the coding of any comparison element of the orientated matrix lying within a defined environment around the starting point in a third stage; generating a difference signal (GD) representing each coding difference being deduced; analyzing this difference signal (GD) to find whether the coding difference of these two elements of the orientated matrix meets a predefined correlation, in which case an index signal (IS) is generated, by which this comparison element is given an index and where the partial step sequence specified by the partial steps in the third stage are constantly repeated, with an element of the orientated matrix indexed in the previous partial step sequences being used as the starting point of a fresh partial step sequence carrying out a search run in a fourth stage through the indexed elements of the orientated matrix and the geometric point coordinates of the object measured represented by these elements are ascertained; and joining in lines and depicting in a fifth stage the point coordinates thus ascertained.

5,805,730

METHOD FOR TRAINING AN ADAPTIVE STATISTICAL CLASSIFIER WITH IMPROVED LEARNING OF DIFFICULT SAMPLES

Larry S. Yaeger, Los Gatos, and Richard F. Lyon, Los Altos, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Aug. 8, 1995, Ser. No. 512,296

Int. Cl.⁶ G06K 9/62; 9/74; 9/00; 9/72

U.S. Cl. 382—228

5 Claims

PATTERN	TYPE	PROB. OF USAGE		ERROR FACTOR	
		CORRECT/INCORRECT	LABEL CLASS/OTHER		
cl	POSITIVE	0.5	1.0	1.0	0.1
o	POSITIVE	0.5	1.0	1.0	0.1
g	POSITIVE	0.5	1.0	1.0	0.1
c	NEGATIVE	0.18		0.3	
clo	NEGATIVE	0.18		0.3	
l	NEGATIVE	0.18		0.3	
lo	NEGATIVE	0.18		0.3	
og	NEGATIVE	0.18		0.3	

1. A method for training a statistical classifier to estimate the probability that an input pattern is associated with a predetermined class, comprising the steps of:

defining a set of training patterns, each of which is labeled as belonging to a respective one of a plurality of predetermined classes;

assigning a probability of usage factor to said training patterns from said set for input to the classifier;

selecting individual training patterns;

selectively processing the selected training patterns in the classifier, or skipping the selected patterns, in accordance with said probability of usage factor which is based upon whether the samples have been properly classified previously;

detecting whether the classifier produces an output value which correctly identifies the class to which a processed pattern belongs; and

modifying the probability of usage factor for correctly identified patterns to be different from a probability of usage factor assigned to incorrectly identified patterns.

5,805,731

ADAPTIVE STATISTICAL CLASSIFIER WHICH PROVIDES RELIABLE ESTIMATES OR OUTPUT CLASSES HAVING LOW PROBABILITIES

Larry S. Yaeger, Los Gatos, and Richard F. Lyon, Los Altos, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Aug. 8, 1995, Ser. No. 512,328

Int. Cl.⁶ G06K 9/62; 9/74; 9/68; 9/70

U.S. Cl. 382—228

3 Claims

PATTERN	TYPE	PROB. OF USAGE		ERROR FACTOR	
		CORRECT/INCORRECT	LABEL CLASS/OTHER		
cl	POSITIVE	0.5	1.0	1.0	0.1
o	POSITIVE	0.5	1.0	1.0	0.1
g	POSITIVE	0.5	1.0	1.0	0.1
c	NEGATIVE	0.18		0.3	
clo	NEGATIVE	0.18		0.3	
l	NEGATIVE	0.18		0.3	
lo	NEGATIVE	0.18		0.3	
og	NEGATIVE	0.18		0.3	

1. A method for training a statistical classifier, comprising the following steps:

selecting a training sample from a collection of training samples, each such training sample being associated with a label class from a predetermined set of distinct classes;

providing data pertaining to said training sample as an input signal to the classifier;

processing said data within the classifier in accordance with weight values to produce a plurality of output signals which respectively correspond to different classes in said predetermined set of distinct classes;

providing a plurality of target signals which respectively correspond to different classes in said predetermined set of distinct classes, wherein the target signal corresponding to said label class is assigned a first predetermined signal value, and the others of said target signals are assigned a second predetermined signal value;

determining error signals corresponding to each of said distinct classes, based on differences between said output signals and said target signals;

multiplying said error signal which corresponds to said label class by a factor β , where $\beta > 1$; and

adjusting said weight values in accordance with said modified error signals.

5,805,732

Patent Not Issued For This Number

5,805,733

METHOD AND SYSTEM FOR DETECTING SCENES AND SUMMARIZING VIDEO SEQUENCES

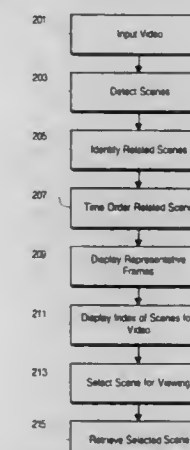
Katherine Wang, San Jose, and James Normile, Woodside, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Dec. 12, 1994, Ser. No. 354,367

Int. Cl.⁶ G06K 9/36; 9/46; 15/00; G06F 15/00

U.S. Cl. 382—232

24 Claims



1. A method of summarizing a temporally ordered plurality of scenes in a video sequence including a plurality of frames, comprising the steps of:

detecting at least one scene in the plurality of frames, each scene including at least one related frame by:

determining for each frame at least one global measurement; and

determining a scene change between a pair of successive frames from a difference between the global measurements of each frame in the pair of frames, a Chi-squared value on a color histogram of each frame in the pair of frames, and a normalized motion compensated pixel difference between the frames;

determining at least one set of related scenes;

determining a representative frame for each set of related scenes; and

1. A method for encoding a sampled signal, consisting essentially of:
 - applying a lapping window operator to blocks of signal samples of length greater than N to produce length- N transform vectors; and
 - applying a nonscalar vector quantizer to encode the length- N transform vectors, whereby the encoded signal is produced.

5,805,740

**BAR-CODE FIELD DETECTING APPARATUS
PERFORMING DIFFERENTIAL PROCESS AND BAR-
CODE READING APPARATUS**

Nobuaki Takagi, Yokohama; Seietsu Nara, Miura, and
Yoshikatu Nakamura, Yokosuka, all of Japan, assignors to
Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 515,043, Aug. 14, 1995, abandoned.

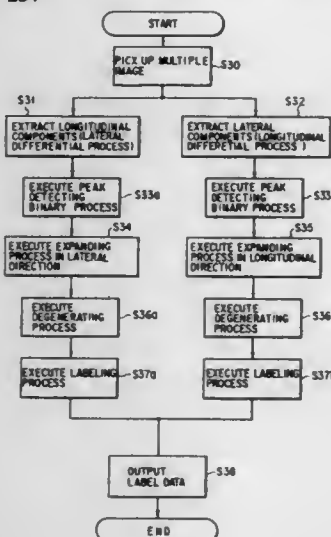
This application Nov. 10, 1997, Ser. No. 966,710

Claims priority, application Japan, Sep. 28, 1994, 6-232713

Int. Cl.⁶ G06K 9/42; 9/44; 9/36; 9/34

U.S. Cl. 382—257

8 Claims



1. A bar-code field detecting apparatus comprising:
receiving means for receiving image data including a bar code;
first differential means for differentiating, in a first direction, the image data received by the receiving means so as to output a first differential image;
second differential means for differentiating, in a second direction perpendicular to the first direction, the image data received by the receiving means so as to output a second differential image;
first binary processing means for converting the first differential image to a first binary image by detecting a peak of the first differential image;
second binary processing means for converting the second differential image to a second binary image by detecting a peak of the second differential image;
first expanding means for expanding the first binary image in a direction perpendicular to the first binary image so as to transform the bar-code to a first black pixel rectangular field;
second expanding means for expanding the second binary image in a direction perpendicular to the second binary image so as to transform the bar-code to a second black pixel rectangular field;
first degenerating means for degenerating the first black pixel rectangular field by a predetermined amount so as to output a third black pixel rectangular field;
second degenerating means for degenerating the second black pixel rectangular field by a predetermined amount so as to output a fourth black pixel rectangular field; and
means for detecting a position of the bar code based on the image data degenerated by the first and second degenerating means.

5,805,741

**IMAGE PROCESSING METHOD AND SYSTEM USING
HARMONIC DISTORTION**

Koichiro Shinohara, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

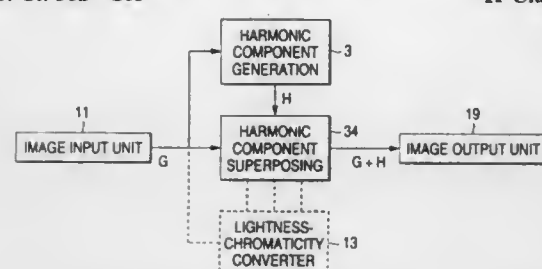
Filed Apr. 19, 1995, Ser. No. 423,950

Claims priority, application Japan, May 31, 1994, 6-118794

Int. Cl.⁶ H04N 1/409

U.S. Cl. 382—263

11 Claims



1. An image processing system for converting a color image signal through an image input into an image signal applicable to an image output unit, said system comprising:
harmonic component generating means for generating a harmonic component of the color image signal input through said image input unit, said harmonic component generating means including a discrete Laplacian filter and look-up tables for generating the harmonic component; and
harmonic component superposing means for superposing the harmonic component, in response to a level of the color image signal, on the image signal.

5,805,742

**OBJECT DETECTION SYSTEM WITH MINIMUM-
SPANNING GRADIENT FILTER FOR SCENE CLUTTER
SUPPRESSION**

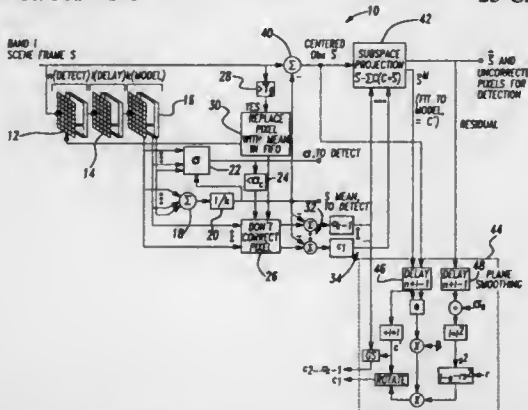
Stephen J. Whitsitt, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Aug. 16, 1995, Ser. No. 624,304

Int. Cl.⁶ G06K 9/40; 9/00

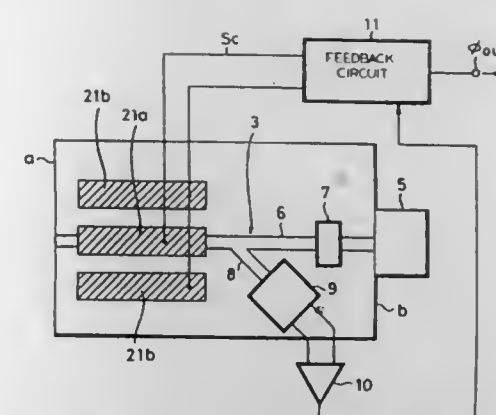
U.S. Cl. 382—275

25 Claims



1. A clutter suppression system for suppressing clutter in an object detection system, said object detection system sensing a scene to determine if an object of interest is present, said clutter suppression system comprising:
frame generation means for generating a series of frames of data where the frames of data represent images of the scene in which clutter is to be suppressed;
model storage means for storing model frames of the scene based on the series of frames of data, wherein the model frames of the scene are constructed when the object of interest does not exist in the scene;
clutter subspace means for generating a clutter subspace of the scene at a predetermined time from the model frames; that defines substantially all of the clutter in the scene; and

subspace projection means for generating frames of data of the scene in which substantially all of the clutter has been removed, said subspace projection means being responsive to the series of frames of data and the clutter subspace from the clutter subspace means, said subspace projection means measuring the clutter subspace and removing the clutter from the frames of data to generate substantially clutter free frames of data to be detected for the presence of the object, said subspace projection means being capable of removing clutter from the frames of data both prior to and later than the predetermined time the clutter subspace is generated by the clutter subspace means.



5,805,743

**OPTICAL DEFLECTOR AND SCANNING OPTICAL
SYSTEM PROVIDED WITH THE OPTICAL DEFLECTOR**
Tsuyoshi Iwamoto, Kyoto, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

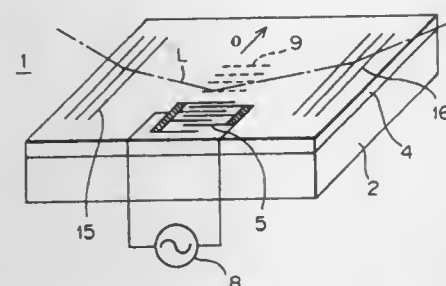
Filed Oct. 29, 1996, Ser. No. 739,697

Claims priority, application Japan, Oct. 30, 1995, 7-281957;
Oct. 4, 1996, 8-264911

Int. Cl.⁶ G02B 6/10

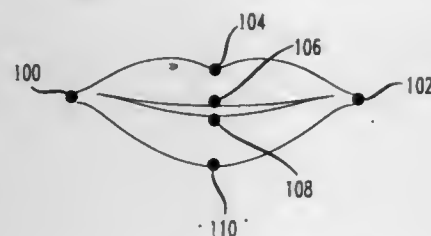
U.S. Cl. 385—7

14 Claims



5,805,745
METHOD FOR LOCATING A SUBJECT'S LIPS IN A FACIAL IMAGE
 Hans Peter Graf, Lincroft, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.
 Filed Jun. 26, 1995, Ser. No. 494,900
 Int. Cl.⁶ G06K 9/36; 9/00; 9/62; 9/56
 U.S. Cl. 382—291

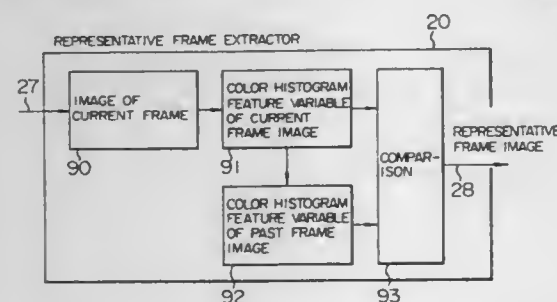
6 Claims



1. A method for locating a subject's lips in a image, comprising the steps of:
 bandpass filtering the image to produce a bandpass filtered image;
 morphologically processing the bandpass filtered image to produce an enhanced image by convolving the bandpass filtered image with a rectangular shape;
 thresholding the enhanced image to form a binary image having a plurality of connected components; and
 using a classifier to identify at least one connected component corresponding to the subject's mouth;
 determining an intensity profile along a vertical strip across the image of the subject's mouth;
 determining an intensity variation of the intensity profile; and
 comparing the intensity profile to a plurality of stored intensity profiles to locate an edge of at least one of the lips if the intensity variation is below a first threshold, and comparing the intensity profile to a second threshold to locate the edge of at least one of the lips if the intensity variation is above the first threshold.

5,805,746
VIDEO RETRIEVAL METHOD AND APPARATUS
 Takafumi Miyatake, Hachioji; Shigeo Sumino, Chofu; Katsumi Taniguchi, Hachioji; Akio Nagasaka, Kokubunji; Mitsuru Ikezawa, Kodaria, and Hirotsada Ueda, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Oct. 17, 1994, Ser. No. 323,866
 Claims priority, application Japan, Oct. 20, 1993, 5-262102
 Int. Cl.⁶ G06K 9/54
 U.S. Cl. 382—305

2 Claims

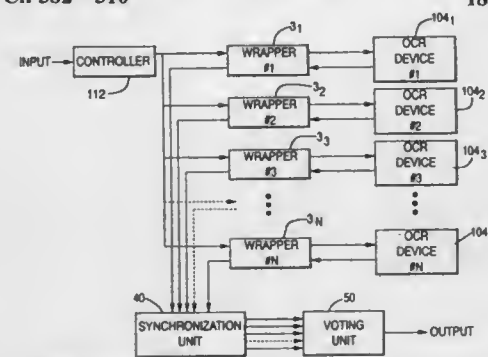


1. A video retrieval method comprising the steps of:
 dividing a representative frame image specified by a user into a plurality of portions, calculating a feature on the basis of average values of color elements RGB for each of said portions, encoding said features, and registering first code strings corresponding to a plurality of representative frame images beforehand;
 inputting a target video;

extracting a representative frame image from said video signal; dividing said extracted representative frame image into a plurality of portions, calculating a feature on the basis of average values of color elements RGB for each of said portions, encoding said features, and deriving a second code string corresponding to a plurality of representative frame images; and matching said first code strings with said second code string to conduct video retrieval.

5,805,747
APPARATUS AND METHOD FOR OCR CHARACTER AND CONFIDENCE DETERMINATION USING MULTIPLE OCR DEVICES
 Roger B. Bradford, Reston, Va., assignor to Science Applications International Corporation, San Diego, Calif.
 Continuation of Ser. No. 317,802, Oct. 4, 1994, abandoned.
 This application Jan. 13, 1997, Ser. No. 782,081
 Int. Cl.⁶ G06K 9/03
 U.S. Cl. 382—310

18 Claims

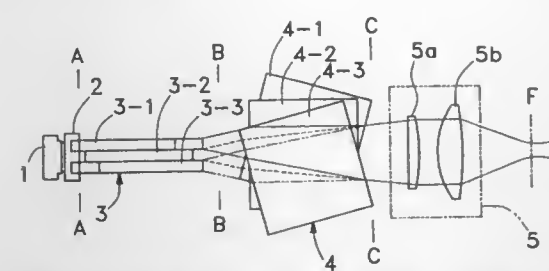


1. A character recognition (CR) system for recognizing characters within a digital page image, comprising:
 an input interface connected to receive said digital page image;
 a plurality of CR devices, each connected to receive said digital page image from said input interface, each of said CR devices converting a portion of said digital page image into output data signals indicating a character at said portion wherein the characters indicated in said output data signals constitute one or more candidate characters for said portion; and
 a voting unit coupled to receive said output data signals from each of said plurality of CR devices, said voting unit assigning an attribute for each indicated character as a function of the indicated character and the CR device indicating said indicated character,
 wherein, for each candidate character, said voting unit keeps a running tally of attributes for those of said plurality of CR devices which indicate said candidate character to arrive at a final tally, representing a composite attribute for said candidate character, when attributes for all of said plurality of CR devices which indicate said candidate character are accounted for in said running tally, and
 wherein said voting unit selects a recognized character from one of the candidate characters based on the composite attributes of the candidate characters and produces a combined data signal representing said recognized character.

5,805,748
LASER BEAM SHAPING SYSTEM
 Takao Izawa, Yokohama, Japan, assignor to Showa Optronic Co., Ltd., Japan
 Filed Apr. 23, 1997, Ser. No. 838,942
 Claims priority, application Japan, Dec. 27, 1996, 8-350727
 Int. Cl.⁶ G02B 6/26
 U.S. Cl. 385—15

15 Claims

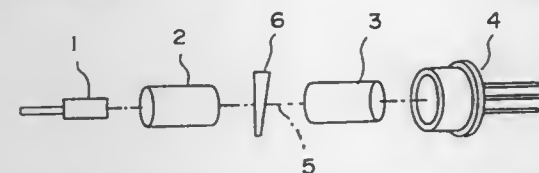
1. A laser beam shaping system, comprising:



- a laser source having an emitting surface, said emitting surface being substantially more elongated in a first direction than in a second direction which is perpendicular to said first direction;
- a beam deflecting beam guide including a plurality of beam guide members for dividing a laser beam leaving said laser source into a plurality of beam sections arranged along said first direction, and deflecting said beam sections in said second direction to different degrees; and
- a beam converging beam guide including a plurality of beam guide members for individually receiving said beam sections leaving said beam deflecting beam guide, and converging said beam sections with respect to said first direction so as to align said beam sections substantially along a line in parallel with said second direction.

5,805,749
HIGHLY STABLE PHOTORECEIVER
 Yoshinori Sato, Tokyo, Japan, assignor to Ando Electric Co., Ltd., Tokyo, Japan
 Filed Mar. 13, 1997, Ser. No. 816,834
 Claims priority, application Japan, Mar. 25, 1996, 8-094929
 Int. Cl.⁶ G02B 6/32
 U.S. Cl. 385—34

9 Claims

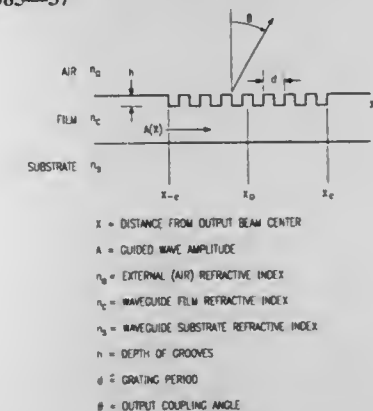


6. A photoreceiver for receiving and measuring optical power, said photoreceiver comprising:
 an optical fiber defining an optical axis of said photoreceiver;
 a light receiving device having a light receiving surface disposed thereon;
 a first lens for collimating light rays emitted by said optical fiber and having an optical axis and flat entrance and exit surfaces parallel to one another and perpendicular to the optical axis of said first lens;
 a second lens disposed to focus collimated light rays received from said first lens onto said light receiving surface, said second lens having an optical axis and flat entrance and exit surfaces parallel to one another and perpendicular to the optical axis of said second lens;
 said entrance and exit surfaces of said second lens being disposed in a non-parallel relationship with said entrance and exit surfaces of said first lens to suppress interference caused by reflection of light rays emitted by said optical fiber back to said optical fiber;
 said first and second lenses being disposed such that their corresponding optical axes are inclined with respect to the optical axis of said photoreceiver, the optical axes of said first and second lenses lying in a common plane with the optical axis of said photoreceiver; and
 a wedge-shaped plate disposed between said first and second lenses, said wedge-shaped plate having a flat surface adjacent and facing said first lens and disposed perpendicular to the

common plane including the optical axes of said photoreceiver and said first and second lenses to suppress polarization dependence.

5,805,750
OPTICAL WAVEFRONT CORRECTION FOR VARIABLE GROOVE DEPTH GRATING WAVEGUIDE COUPLERS
 Allen Keith Bates, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed Feb. 21, 1997, Ser. No. 804,458
 Int. Cl.⁶ G02B 6/34
 U.S. Cl. 385—37

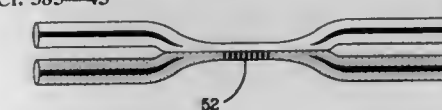
12 Claims



1. A bidirectional optical waveguide coupler device coupling into and out of an optical waveguide comprising:
 a variable groove depth grating coupler located on a surface of said optical waveguide which couples the guided optical wave traveling in said optical waveguide to a coupled external wave, said coupler having a plurality of grooves of variable depth and resultant variable effective refractive index, wherein said coupler grooves are provided at a variable grating period which offsets effects on wavefront quality of said variable effective refractive index, whereby the wavefront for said coupled optical wave is corrected against aberration.

5,805,751
WAVELENGTH SELECTIVE OPTICAL COUPLERS
 Anthony S. Kewitsch, Hacienda Heights; George A. Rakuljic, Santa Monica, and Amnon Yariv, San Marino, all of Calif., assignors to Arroyo Optics, Inc., Santa Monica, Calif.
 Filed Aug. 26, 1996, Ser. No. 703,357
 Int. Cl.⁶ G02B 6/26
 U.S. Cl. 385—43

68 Claims

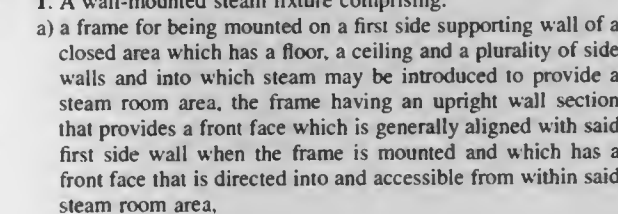


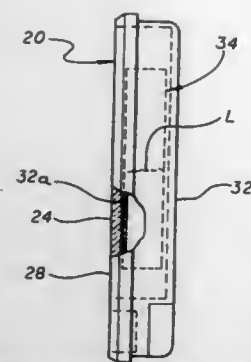
1. An optical fiber coupler comprising:
 (a) a length of first optical fiber,
 (b) a length of second optical fiber including a core and a photosensitive cladding,
 (c) said lengths of first and second optical fibers being tapered to a central region having a length of reduced cross-sectional area, the fibers being longitudinally fused along the length of reduced area to form an interaction region, said interaction region including a diffraction grating, the period of said diffraction grating being chosen to couple a propagating mode of said first optical fiber to a propagating mode of said second optical fiber.

UMI

58 Claims

1. An apparatus which attenuates a spectral beam propagating in a first direction and having wavelength components spatially separated in a second direction perpendicular to the first direction, the apparatus comprising:





- b) a mirror mounted on said upright wall section of the frame, the mirror having a front surface directed into and exposed to the steam room area and a rear surface facing the opposite direction;
- c) a steam generating unit supported on the frame, and
- d) a steam line connected to the steam generating unit for directing steam from the mounted steam generating unit into the steam room area;
- e) the steam generating unit including a closed boiler that is disposed adjacent to the rear surface of the mirror so as to radiate heat to said rear surface and thereby limit fogging of the front surface of the mirror by the steam in the steam room area when the fixture is mounted.

5,805,766

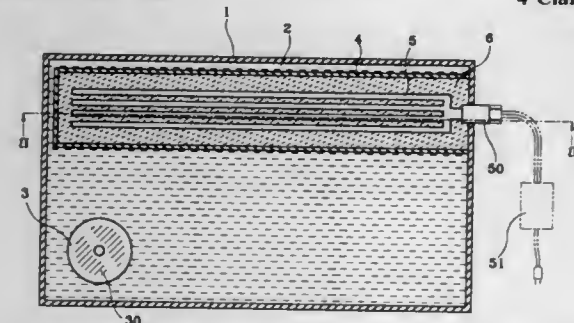
HEAT RELEASING BAG WITH SODIUM ACETATE SOLUTION AND ELECTRIC HEATING ELEMENT PRODUCING INFRARED RADIATION
Chi-Tu Wang, No. 1, Alley 6, Lane 244, Hsin Shu Rd., Hsin-chuang City, Taipei Hsien, Taiwan

Filed Jul. 7, 1996, Ser. No. 660,449

Int. Cl.⁶ F24J 1/00

U.S. Cl. 392—343

4 Claims



1. A heat releasing chemical bag comprising: a flexible, water-tight bag; a flexible, electrically insulative container mounted in said water-tight bag; sodium acetate solution contained in said flexible, water-tight bag; at least one triggering element respectively mounted in said water-tight bag and immersed in said sodium acetate solution, and adapted for bending by hand to vibrate said sodium acetate solution, causing said sodium acetate solution to crystallize and to release heat during its crystallization; an electric heating element mounted in said electrically insulative container and controlled to heat crystallized sodium acetate, causing said sodium acetate crystals to be reduced to liquid state; wherein a ceramic paste is contained in said electrically insulative container and completely surrounds said electric heating element and adapted for producing far-infrared rays when said electric heating element is electrically connected to a source of electric power.

5,805,767

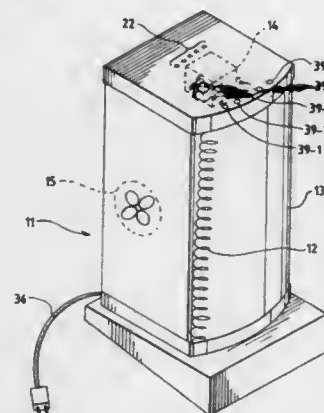
ELECTRONICALLY-CONTROLLED HEATER
Gary Jouas, 19203 N. 39th Way, Phoenix, Ariz. 85024; Guy Deluca, 14232 N. 43rd St., Phoenix, Ariz. 85032; Phillip G. Tassicker, Box 125 Export Park, Adelaide Airport SA. 5950, Australia, and Herbert K. Streich, 10453 N. 118th Pl., Scottsdale, Ariz. 85253

Filed Jan. 16, 1996, Ser. No. 585,098

Int. Cl.⁶ F24H 3/00

U.S. Cl. 392—373

36 Claims



24. A heater comprising:
a portable housing;
heating element within the portable housing to heat living and other habitation spaces; and,
at least one safety means selected from the group consisting of
(i) motion detection means for determining whether motion is taking place near the heater, and for deenergizing the heating means in response to such motion; (ii) first temperature sensing element for determining an internal temperature of the heater, and for deenergizing the heating element in response to an abnormal condition manifested when the rate at which the internal temperature of the heater rises faster than a predetermined rate; (iii) second temperature sensing means for determining an internal temperature of the heater, and for deenergizing the heating element in response to an abnormal condition manifested when the internal temperature of the heater exceeds a predetermined upper limit temperature for safe operation of the heater; and, (iv) third temperature sensing means for determining an internal temperature of the heater, fourth temperature sensing means for determining the ambient temperature of the space in which the heater is located, and a comparison means for determining the difference between the internal temperature of the heater and the ambient temperature, and for deenergizing the heating element in response to an abnormal condition manifested when this difference exceeds a predetermined amount.

5,805,768

AROMA THERAPY DIFFUSER
Gary Schwartz, Van Nuys, Calif., and Caleb Chung, Boise, Id., assignors to Bunny Moon Enterprises, Van Nuys, Calif.

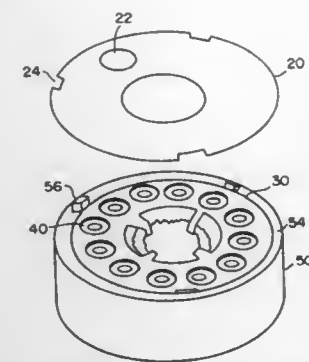
Filed Jul. 8, 1996, Ser. No. 676,823

Int. Cl.⁶ F24F 6/00

U.S. Cl. 392—390

9 Claims

1. An apparatus for diffusing aromatic materials, comprising:
a housing;
a tray having a plurality of receptacles for retaining aromatic materials, disposed along a periphery of the tray, the tray being detachably coupled to the housing;
a means for heating the aromatic material within one of the plurality of receptacles of the tray, the heating means being disposed within the housing, and having an activated state and a deactivated state;



- a means for rotating the tray disposed within the housing and engageably connected to the tray so as to align said one receptacle with the heating means;
- a lid, disposed above the tray, having an opening through which the aroma released by the aromatic material in said one receptacle emanates when said one receptacle is aligned with the heating means; and
- a means for sealing the plurality of receptacles except for said one receptacle of the tray, so that the aromatic materials do not evaporate.

5,805,769

ADJUSTABLE ELLIPSOIDAL REFLECTOR FOR FOOD APPARATUS

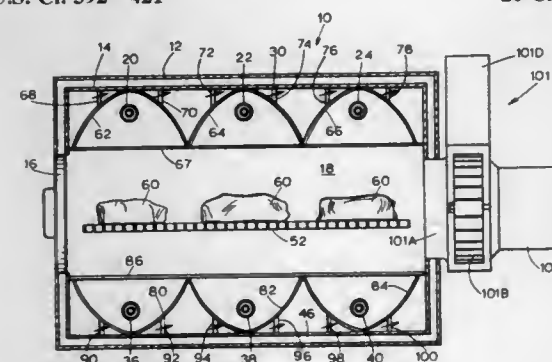
Edward R. Cook, Cedar Rapids, Iowa; Irl W. Smith, Concord, Mass., and Joseph R. Adamski, Cedar Rapids, Iowa, assignors to Amana Company, L.P., Amana, Iowa

Filed Mar. 21, 1996, Ser. No. 619,415

Int. Cl.⁶ F21V 7/00

U.S. Cl. 392—421

20 Claims



10. A food cooking apparatus for cooking food by the use of light energy comprising:
a light emitting device arranged to emit light energy;
a reflector arranged to reflect light energy emitted by the light emitting device and to direct the reflected light energy to the food; and,
a support arranged to support the light emitting device and the reflector relative to one another so that, when the light emitting device and the reflector have a first relative position, light energy is concentrated over the food so as to impart grill lines to the food, and so that, when the light emitting device and the reflector have a second relative position, light energy is distributed generally evenly over the food so as to generally uniformly heat the food.

5,805,770

SIGNAL ENCODING APPARATUS, SIGNAL DECODING APPARATUS, RECORDING MEDIUM, AND SIGNAL ENCODING METHOD

Kyoya Tsutsui, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP94/01863, § 371 Date Jun. 14, 1995, § 102(e)

Date Jun. 14, 1995, PCT Pub. No. WO95/12920, PCT Pub.

Date May 11, 1995

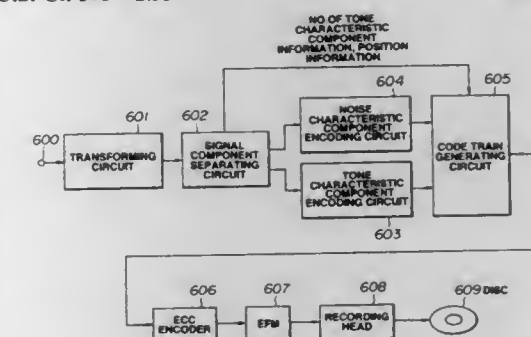
PCT Filed Nov. 4, 1994, Ser. No. 448,531

Claims priority, application Japan, Nov. 4, 1993, 5-275218

Int. Cl.⁶ G10L 3/02

U.S. Cl. 395—2.33

22 Claims



1. A signal encoding apparatus adapted for encoding an input signal,
the apparatus comprising:
transforming means for transforming the input signal into frequency components;
separating means for separating an output of the transforming means into a first signal consisting of tone characteristic components and a second signal consisting of other components;
first encoding means for normalizing and quantizing the first signal to encode the first signal; and
second encoding means for normalizing and quantizing the second signal to encode the second signal,
wherein normalization coefficients for normalizing the first signal are set to an interval finer than that of normalization coefficients for normalizing the second signal.

5,805,771

AUTOMATIC LANGUAGE IDENTIFICATION METHOD AND SYSTEM

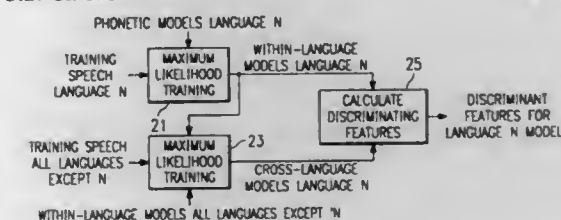
Yeshwant K. Muthusamy, Plano; Lorin P. Netsch, Allen; Perigaram K. Rajasekaran, Richardson, and Barbara J. Wheatley, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 22, 1994, Ser. No. 263,964

Int. Cl.⁶ G01L 9/00

U.S. Cl. 395—2.41

16 Claims



1. A method of automatically identifying a language among a plurality of languages comprising the steps of:
forming models for each of the phonetic elements of the speech in each individual language to be identified;
after models for a language are created, training the models using a speech corpus containing samples of speech from that language to form within-language models;
training models for each language using the speech corpora and models for said plurality of languages except the language

used to create the original within-language models to form cross-language models;
determining acoustical features for each state of each model to optimally discriminate within-language acoustic distribution from cross-language distribution; and
identifying a language from input speech based on said acoustical features.

5,805,772

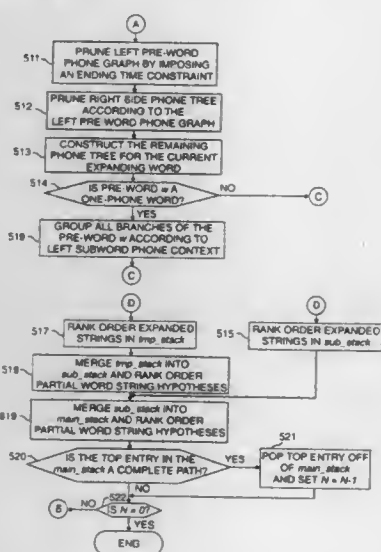
SYSTEMS, METHODS AND ARTICLES OF MANUFACTURE FOR PERFORMING HIGH RESOLUTION N-BEST STRING HYPOTHESIZATION
Wu Chou, Berkeley Heights; Bing-Hwang Juang, Warren; Chin-Hui Lee, New Providence, all of N.J., and Tatsuo Matsuo, Tokyo, Japan, assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 30, 1994, Ser. No. 366,843

Int. Cl.⁶ G10L 9/00

U.S. Cl. 395—2.64

35 Claims



1. A speech recognition system comprising:
means for receiving an input signal representing a speech utterance;
means for storing a plurality of recognition models having allophonic specifications wherein ones of said plurality of recognition models include one or more inter-word context dependent models and one or more language models; and
means for processing said input signal utilizing ones of said plurality of recognition models to generate one or more string hypotheses of said input signal, said processing means including:
means for producing a forward partial path map according to the allophonic specifications of at least one inter-word context dependent model and at least one language model; and
means for traversing said forward partial path map in the backward direction as a function of said allophonic specifications to generate said one or more string hypotheses.

5,805,773
FUZZY REASONING METHOD AND SYSTEM
Naohisa Kometani; Koichi Ueno, both of Yokohama, and Koji Echigo, Shinminato, all of Japan, assignors to Hitachi Ltd., and Hitachi Software Engineering Co. Ltd., both of Tokyo, Japan

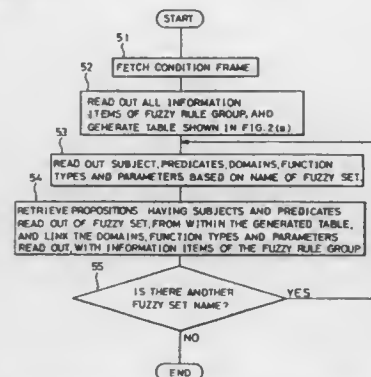
Filed Nov. 22, 1991, Ser. No. 796,310

Claims priority, application Japan, Nov. 28, 1990, 2-322722

Int. Cl.⁶ G06G 7/00

U.S. Cl. 395—3

6 Claims



1. A fuzzy reasoning method for executing a fuzzy reasoning in a fuzzy reasoning application, comprising the steps of:
preparing a fuzzy rule group, and also preparing a plurality of fuzzy sets which correspond to said fuzzy rule group, for said fuzzy reasoning application, each of the fuzzy sets including a plurality of membership functions;
dynamically selecting at least one of said fuzzy sets at the time of execution of the fuzzy reasoning in response to information existing at that time,
combining the selected fuzzy set with said fuzzy rule group, and
executing said fuzzy reasoning by using the combined fuzzy rule group and fuzzy set.

5,805,774

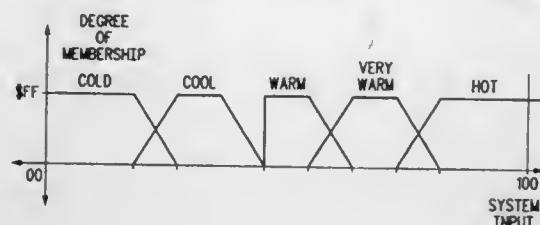
CIRCUIT AND METHOD FOR DETERMINING MEMBERSHIP IN A SET DURING A FUZZY LOGIC OPERATION

J. Greg Viot, Austin, and James M. Sibigroth, Round Rock, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill. Continuation of Ser. No. 357,468, Dec. 16, 1994, Pat. No. 5,697,289. This application May 9, 1997, Ser. No. 853,660

Int. Cl.⁶ G06G 7/00

U.S. Cl. 395—3

6 Claims



1. A data processing system for performing a fuzzy logic operation, the fuzzy logic operation determining membership of an input point in a predetermined membership set including a plurality of membership functions defined by a plurality of boundary values, said data processing system comprising:
means for assigning and storing a zero value to represent an infinite slope boundary of one of the plurality of membership functions; and
means for outputting a saturation value as a degree of membership when the input point corresponds to the infinite slope boundary of one of the plurality of membership functions.

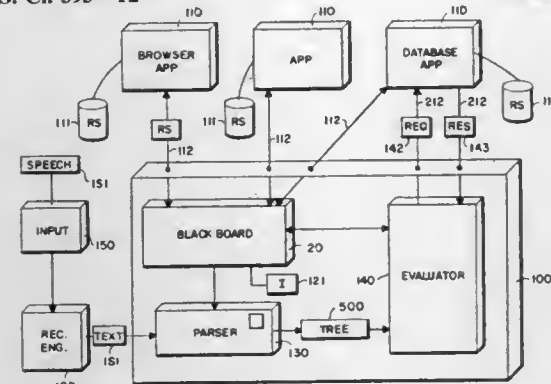
5,805,775
APPLICATION USER INTERFACE
Brian Scott Eberman, Somerville, and Oren David Glickman, Brookline, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Feb. 2, 1996, Ser. No. 596,531

Int. Cl.⁶ G06F 17/00

U.S. Cl. 395—12

16 Claims



15. A computer implemented method for interacting with a plurality of applications of a computer system using natural language text provided by an input device, comprising the steps of:
registering a plurality of rules on a blackboard, each rule identified with a particular application, each rule including a left-hand side symbol and a right-hand side string which is a translation of the symbol and a unique identifier for each particular application;
parsing a natural language input text string by applying the registered rules to generate an evaluation tree expressed in the form of an interpretive language; and
interpreting the evaluation tree;
transmitting the request to a specific one of the applications associated with the specific one of the rules in response to said unique identifier associated with each particular application.

5,805,776

DEVICE FOR AUTOMATIC GENERATION OF A KNOWLEDGE BASE FOR A DIAGNOSTIC EXPERT SYSTEM

Ernst-Werner Juengst, and Klaus Dieter Meyer-Gramann, both of Berlin, Germany, assignors to Daimler Benz Aktiengesellschaft, Stuttgart, Germany
PCT No. PCT/EP94/00420, § 371 Date Aug. 17, 1995, § 102(e) Date Aug. 17, 1995, PCT Pub. No. WO94/19739, PCT Pub. Date Sep. 1, 1994

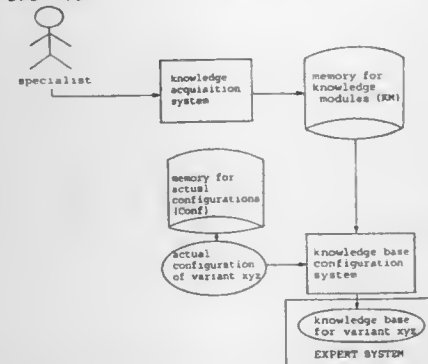
PCT Filed Feb. 14, 1994, Ser. No. 513,888

Claims priority, application Germany, Feb. 17, 1993, 43 05 522.2

Int. Cl.⁶ G06F 15/18

U.S. Cl. 395—75

19 Claims



1. A device for building the knowledge base of an expert system, which diagnoses a technical system comprised of modules, the device comprising:

computer (Kb-builder) having reading access to a first memory (KM) and to a second memory (Conf) as well as having at least intermittent writing access to a third memory (Kb), and information about the technical system, about its malfunctions and about its diagnosis, the information being stored in the first memory (KM), the information comprising:
for the type to which the technical system belongs, a knowledge module, which contains all necessary information about the internal design of a technical system of this type as well as information, when needed, about the malfunctions, remedies, and tests in a technical system of this type, and
for each type of module, which occurs at least once in the technical system, a respective knowledge module, which contains all necessary information about the internal design of a module of this type as well as information, when needed, about the malfunctions, remedies, tests, and results in a module of this type,
wherein in the knowledge module for the type to which the technical system belongs, information is contained as to which roles, that is, which subfunctions must be filled by an assignment of a module, that is, which subfunctions must received an assignment of a module, so that the technical system can fulfill its standard function,
wherein for each type of composite modules that occur in a technical system of the type, information is contained in the knowledge module for this module type as to which roles must be filled in a module of this module type so that the module can fulfill its standard function,
wherein for each role in the technical system and each role in each composite module in the technical system, information is available as to which module fills the role in the technical system or in the composite module,
wherein the configuration of the technical system is stored in the second memory (Conf), and
wherein in the third memory (Kb),
a knowledge module for the technical system is created as a copy of the knowledge module for the type to which the technical system belongs,
for each module in the technical system, a separate knowledge module is contained as a copy of the knowledge module for the type to which the module belongs, and
wherein each thus-formed knowledge module for a module corresponding to the role that the module plays in the composite module in the technical system is combined with the thus-formed knowledge module for the composite module or for the technical system.

5,805,777

EXTENDED PRINTER CONTROL INTERFACE

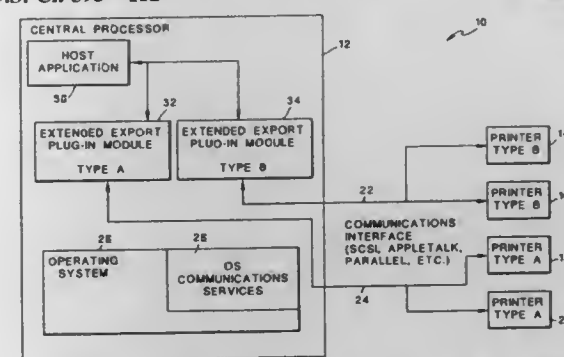
Daniel William Kuchta, Brockport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 31, 1996, Ser. No. 656,616

Int. Cl.⁶ G06F 15/00

U.S. Cl. 395—112

3 Claims



1. An improved printer control interface, for use with a computer printing system of the type having a central processor, an operating system software module in the central processor running on the operating system software, a printer connected to the central processor, and a plug in software module in communication with the host applica-

- d) determining coordinates of said point in said eye coordinate system from coordinates of said point in said three dimensional world coordinate system; and
- e) determining final texture coordinates of said point from a depth coordinate of said point's coordinates in said eye coordinate system and from said point's intermediate texture coordinates;
- f) wherein said final texture coordinates are used to obtain pixel shading values for shading a pixel on a screen of said display system, said pixel corresponding to said point of said geometric primitive; and
- g) wherein said final texture coordinates are used to obtain pixel shading values from said texture map.

5,805,783

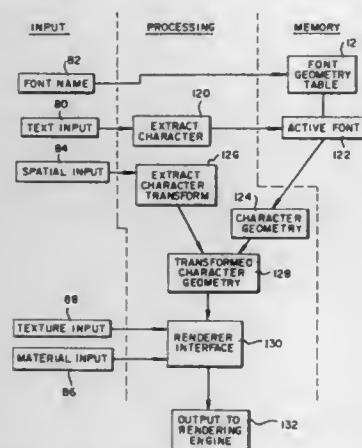
METHOD AND APPARATUS FOR CREATING STORING AND PRODUCING THREE-DIMENSIONAL FONT CHARACTERS AND PERFORMING THREE-DIMENSIONAL TYPESETTING

Richard N. Ellison, and Lawrence A. Ray, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y. Continuation of Ser. No. 884,969, May 15, 1992, abandoned. This application Mar. 10, 1995, Ser. No. 402,461

Int. Cl.⁶ G06F 17/21

U.S. Cl. 395—168

18 Claims



1. A method of typesetting a three dimensional image comprising a plurality of text characters, the method comprising the steps of:

- user selecting a plurality of characters as an input;
- retrieving a three-dimensional set representation of one of the characters from a stored set of three-dimensional set representations of the characters each having a dimension in each of three orthogonal directions and defining all points of the character;
- then identifying another one of the plurality of characters in the input and retrieving a three-dimensional set representation of the other one from the stored set;
- positioning in three dimensions, each of the retrieved three-dimensional characters in relation to one another using previously input line spacing, kerning, relative character orientation and character size information;
- converting the three-dimensional set representations into a view of the plurality of characters; and
- creating on a media an image with the view.

5,805,784 COMPUTER STORY GENERATION SYSTEM AND METHOD USING NETWORK OF RE-USABLE SUBSTORIES

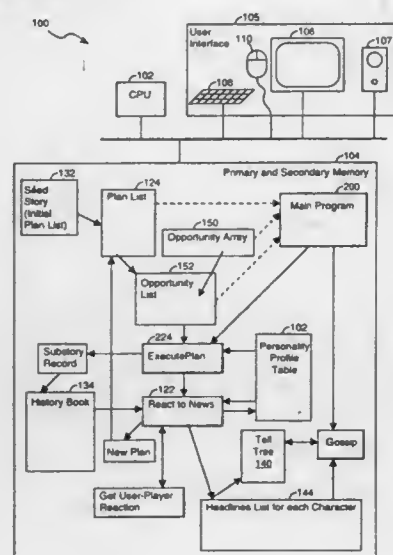
Christopher C. Crawford, 5251 Sierra Rd., San Jose, Calif. 95132

Continuation of Ser. No. 313,989, Sep. 28, 1994, Pat. No. 5,604,855. This application Dec. 30, 1996, Ser. No. 774,511

Int. Cl.⁶ G06T 13/00

U.S. Cl. 395—173

11 Claims



1. A method of generating a sequence of images representing a dynamically generated story line, comprising:

- establishing a set of characters;
 - defining a set of re-usable substories, a multiplicity of the substories representing an action by a subject comprising a selectable one of the characters where the action is performed with respect to at least one object comprising at least a selectable one of the characters; for each substory, establishing a set of possible reaction substories comprising a subset of the set of re-usable substories;
 - establishing a plan list for storing plans indicating ones of the substories to be performed;
 - storing in the plan list an initial set of plans, each of the stored plans representing a substory to be performed;
 - executing ones of the substories represented by the plans stored in the plan list;
 - establishing a physical position for each of the characters and updating the characters' physical positions during the executing step;
 - establishing a current time and advancing the current time during the executing step;
 - generating, in reaction to each executed substory, additional plans to perform additional ones of the substories wherein the additional substories comprise selected ones of the set of possible reaction substories for the executed substory; and
 - storing the generated plans in the plan list; the plan list at times storing a multiplicity of the generated plans;
- the generating plans step including receiving, in reaction to at least a subset of the executed substories, input from an end user and selecting at least a subset of the additional substories in accordance with the end user input;
- the plan generating step including assigning each generated plan an earliest execution time and a set of associated characters including a subject and an object, wherein the subject and object are each a specified one of the characters;

each stored plan in the plan list including the assigned earliest execution time, subject and object, such that at various times at least a subset of the plans in the plan list have respective earliest execution times that are later than the current time; at least a subset of the generated plans comprising deferred plans, where each deferred plan's execution is deferred because its earliest execution time is later than the current time and/or its associated characters are not physically proximate each other;

the executing step including selecting for execution one plan from those of the stored plans in the plan list whose associated earliest execution time is at least as early as the current time and that meet opportunity availability criteria, the opportunity availability criteria including a requirement that the characters associated with the one plan have physical positions that are proximate to one another; wherein the generated plans are executed in a different order than those generated plans are added to the plan list by the generated plans storing step.

5,805,785

METHOD FOR MONITORING AND RECOVERY OF SUBSYSTEMS IN A DISTRIBUTED/CLUSTERED SYSTEM

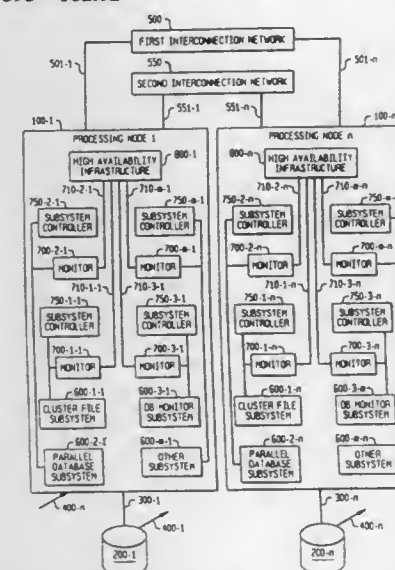
Daniel Manuel Dias, Mahopac; Richard Pervin King, Thornwood, and Avraham Leff, Spring Valley, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 27, 1996, Ser. No. 606,765

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—182.02

12 Claims



1. A method for monitoring and recovery of subsystems in a distributed computer system comprising the steps of:

- executing a distributed software subsystem on the distributed system, said software subsystem not being self-recoverable from failure events;
- providing user-defined monitors for the software subsystem, each of the user-defined monitors including a set of user defined events to be detected; and
- responsive to an occurrence of one of the events, performing recovery actions coordinated among the nodes of the distributed computer system as controlled by a user specified recovery program.

5,805,786 RECOVERY OF A NAME SERVER MANAGING MEMBERSHIP OF A DOMAIN OF PROCESSORS IN A DISTRIBUTED COMPUTING ENVIRONMENT

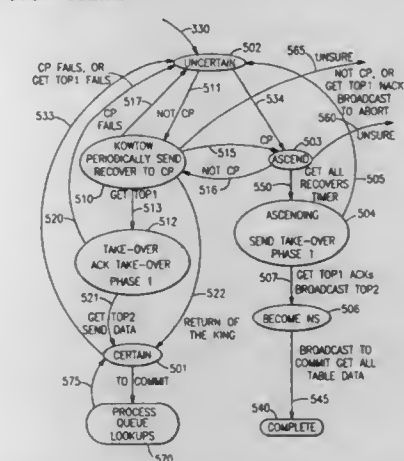
Peter Richard Badovinatz, Kingston; Tushar Deepak Chandra, Elmsford; Orville Theodore Kirby, Pleasant Valley, and John Arthur Pershing, Jr., Buchanan, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 23, 1996, Ser. No. 684,247

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—182.02

6 Claims



1. A method for the recovery of a name server managing membership of a domain of processors in a distributed computing environment, the method comprising the steps of:

detecting the failure of the name server node;

consulting a membership list of nodes in the domain to determine the crown prince (CP) node who is next in line to become the name server;

periodically sending recover messages from all of the other available nodes in the domain to the CP node;

responsive to receiving all of said recover messages from all the other available nodes in the domain by said CP node, performing a two phase takeover whereby the CP node becomes the name server for managing said processors in said domain.

5,805,787 DISK BASED DISK CACHE INTERFACING SYSTEM AND METHOD

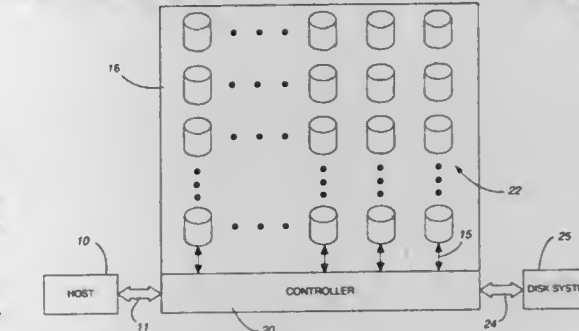
William A. Brant, Boulder, and Michael Edward Nielson, Broomfield, both of Colo., assignors to EMC Corporation, Hopkinton, Mass.

Filed Dec. 29, 1995, Ser. No. 578,161

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—182.04

17 Claims



1. Apparatus for interfacing between a host data processing device and a subsystem for storing large quantities of data comprising:

a controller coupled for exchanging data and commands with the host and with the subsystem;

UMI

1. A stand-alone, non-computer-controlled test device for testing a remote terminal which is connectible to a command-response data bus, comprising:
- a single-purpose electrical waveform generator for generating a coded electrical waveform which is representative of a command sequence which includes an address of a remote terminal under test;

an electrical-to-optical converter responsive to said coded electrical waveform for producing a first coded optical waveform corresponding to said coded electrical waveform;
a first optical transmission line having a first end coupled to said coded optical waveform and a second end coupled to an optical input of the remote terminal under test, wherein the remote terminal under test is responsive to said coded optical waveform for producing an optical output indicative of the operational status of the remote terminal under test;
an optical-to-electrical converter responsive to said optical output for producing an output electrical waveform; and,
an indication device responsive to said output electrical waveform for producing an indication of the operational status of the remote terminal under test;
wherein the test device and the remote terminal under test are both disconnected from the command-response data bus; and, wherein said coded electrical waveform comprises an emulation of a transmit command waveform normally generated by a bus controller in accordance with a prescribed protocol.

5,805,794

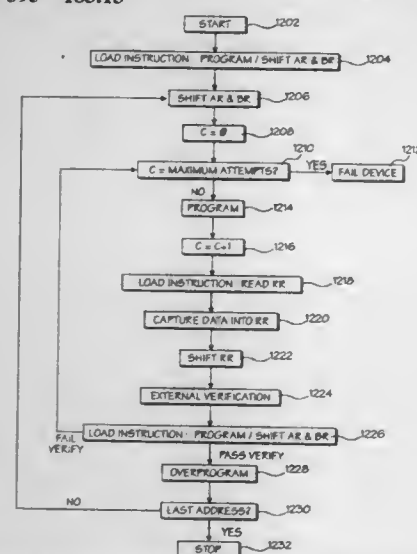
CPLD SERIAL PROGRAMMING WITH EXTRA READ REGISTER

Christopher W. Jones, and David L. Johnson, both of Pleasanton, Calif., assignors to Cypress Semiconductor Corp., San Jose, Calif.

Filed Mar. 28, 1996, Ser. No. 625,541

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.13



1. A method for programming an integrated circuit device comprising:

instructing in a first instructing step requiring Z clock cycles said integrated circuit device in one instruction to load program data, load address information and program said program data into a memory location having an address defined by said address information;

loading said program data into a first data storage element in X clock cycles and said address information into an address storage element in Y clock cycles;

programming in a first programming step said program data into said memory location;

instructing in a second instructing step requiring Z clock cycles said integrated circuit device to read verify data from said memory location; and

capturing said verify data into a second data storage element.

5,805,795
METHOD AND COMPUTER PROGRAM PRODUCT FOR GENERATING A COMPUTER PROGRAM PRODUCT TEST THAT INCLUDES AN OPTIMIZED SET OF COMPUTER PROGRAM PRODUCT TEST CASES, AND METHOD FOR SELECTING SAME

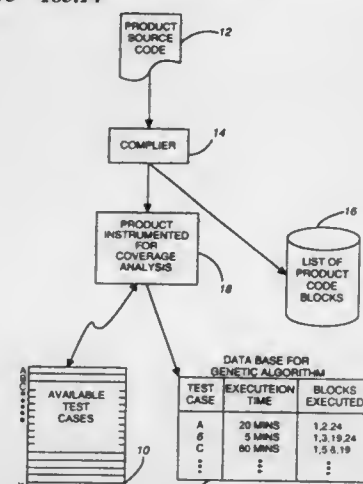
Thomas G. Whitten, Colorado Springs, Colo., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jan. 5, 1996, Ser. No. 583,713

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.14

3 Claims



1. A method for selecting a set of test cases for testing a software program having a number of possible code blocks that may be exercised during execution of the program, the method comprising the steps of:

identifying the code blocks that may be exercised during execution of the program; and

executing a genetic algorithm to determine a set of test cases that exercises a maximum number of the identified code blocks in a minimum amount of time, said executing step further comprising:

providing a population representation of each test case; randomly selecting a subset of said population representation; determining a fitness value for each subset, said fitness value corresponding to an execution time of the test case and an amount of the code blocks covered by the test case; totaling the fitness values calculated by said determining step; and

deciding if said subset should be included in another population representation for calculating another fitness value until a desired overall fitness value is achieved.

5,805,796

SYSTEM ARCHITECTURE FOR IMPLEMENTING MODULAR DIAGNOSTICS

Richard W. Finch, and Roderick W. Stone, both of Austin, Tex., assignors to Dell USA, LP, Austin, Tex.

Filed Mar. 27, 1996, Ser. No. 622,771

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—183.16

23 Claims

1. A diagnostic system operating on a processor the diagnostic system comprising:

a base class operating on the processor the base class being a generic class that serves as a template for other classes;

a plurality of physical devices coupled to the processor;

a plurality of device classes derived from the base class, a device class of the plurality of device classes having a device class characteristic definition distinguishing the device class from other device classes; and

5,805,797

FAIL-SAFE EVENT DRIVEN TRANSACTION PROCESSING SYSTEM AND METHOD

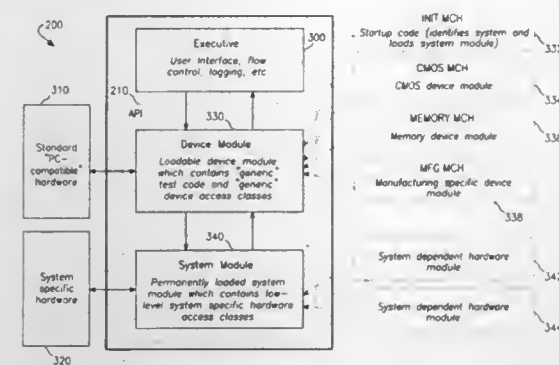
Kevin A. Kearns, Ringwood, N.J.; Teresa R. Jahanian, Ann Arbor, Mich., and Raymond E. Jeffery, Warwick, N.Y., assignors to Electronic Data Systems Corporation, Plano, Tex.

Filed Oct. 29, 1996, Ser. No. 741,149

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—185.01

19 Claims



a plurality of diagnostic device objects, a diagnostic device object of the plurality of diagnostic device objects being derived from a base class and having an encapsulated device characteristic definition corresponding to physical characteristics of the physical device so that the diagnostic device object is associated with the device via a device class associated with the diagnostic device object of the plurality of device classes, the plurality of diagnostic device objects respectively corresponding one-to-one to the plurality of physical devices.

5,805,797

CONTROLLER HAVING A FAIL SAFE FUNCTION, AUTOMATIC TRAIN CONTROLLER AND SYSTEM USING THE SAME

Hiroshi Sato, Hitachinaka; Nobuyasu Kanekawa, Hitachi; Makoto Nohmi, Hitachinaka, and Korefumi Tashiro, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

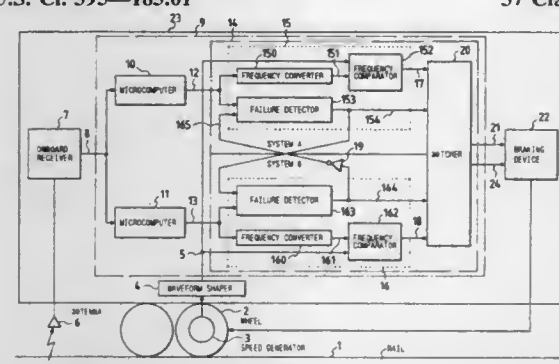
Filed Dec. 28, 1995, Ser. No. 580,336

Claims priority, application Japan, Dec. 28, 1994, 6-326645; Jul. 20, 1995, 7-183803

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—185.01

37 Claims



1. A controller comprising

a plurality of processors to which input signals are applied for outputting output signals obtained by executing a plurality of operations on said input signals, including a first processor among said plurality of processors which supplies an output signal to an input of one of a plurality of second processors and at least one other processor among said plurality of second processors which supplies an output signal to said first processor, and

means for inverting the polarity of said output signal of said one other processor among said plurality of second processors being supplied as an input signal to said first processor.

5,805,799

DATA INTEGRITY AND CROSS-CHECK CODE WITH LOGICAL BLOCK ADDRESS

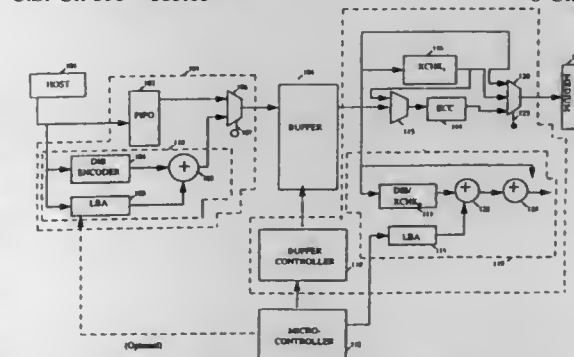
Lisa Fredrickson, Ojai; Clifford Gold, Fremont, and Stanley M. Chang, Irvine, all of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Filed Dec. 1, 1995, Ser. No. 566,361

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—185.05

6 Claims



1. A method of verifying a logical block address of a data block transmitted over a data path comprising the steps of:

- (a) encoding the data block at a first point in the data path in accordance with a data integrity code to generate a first redundant symbol associated with the data block;
- (b) incorporating a first logical block address of the data block into said first redundant symbol to generate a first data integrity block symbol;
- (c) appending said first data integrity block symbol to the data block;
- (d) transmitting the data block with said appended first data integrity block symbol to a second point in the data path;
- (e) encoding the data block received at said second point in the data path according to said same data integrity code to generate a second redundant symbol associated with the data block;
- (f) incorporating a second logical block address into said second redundant symbol to generate a second data integrity block symbol, said second logical block address being the same as said first logical block address in the absence of a logical block address error; and
- (g) comparing said first data integrity block symbol to said second data integrity block symbol to verify the logical block address of the data block after transmission over the data path, wherein the inclusion of the logical block address in the data integrity block symbol at plural points in the data path enables debugging of system software and overall data transfer reliability enhancement.

5,805,800

APPARATUS AND METHOD FOR CONTROLLING STORAGE MEDIUM USING SECURITY CAPABILITIES
Seigo Kotani; Keiichi Murakami; Shinichi Yoshimoto; Kouichi Kanamoto; Tatsuro Masuda; Makoto Yoshioka; and Masao Fujiwara, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

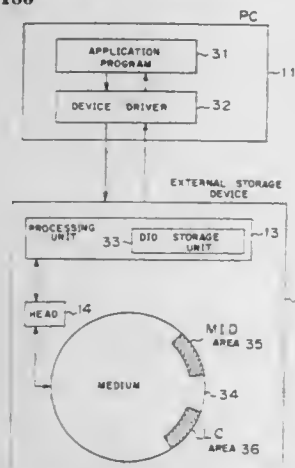
Filed Oct. 21, 1996, Ser. No. 734,261

Claims priority, application Japan, Nov. 7, 1995, 7-288931; Nov. 7, 1995, 7-288932

Int. Cl.⁶ G06F 11/60

U.S. Cl. 395—186

10 Claims



1. An apparatus which controls a removable storage medium for use in combination with the storage medium and operates as external storage device for processing data stored on the storage medium, comprising:

- reading means for reading a medium identifier and a license code stored on the storage medium; and
- processing means for generating a judge code using the medium identifier, comparing the judge code with the license code, and determining whether or not the external storage device is allowed to access the storage medium, wherein said processing means determines access by generating a predetermined code using the medium identifier and comparing the predetermined code with the license code when the judge code does not match the license code, and by replacing the license code in the storage medium with the judge code and comparing the

replaced license code with the judge code when the predetermined code matches the license code.

5,805,801

SYSTEM AND METHOD FOR DETECTING AND PREVENTING SECURITY

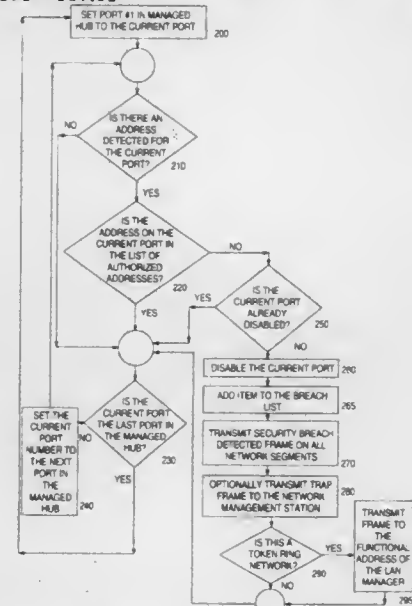
Malcolm H. Holloway, Durham, and Thomas Joseph Prorock, Raleigh, both of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 9, 1997, Ser. No. 780,804

Int. Cl.⁶ G06F 11/00

U.S. Cl. 395—187.01

59 Claims



1. A method for providing security against intrusion in a computer network having a plurality of managed devices, said method comprising the steps of:

- discovering by a first managed device each of said plurality of managed devices that are enabled to provide network security;
- detecting an unauthorized address on a first port of said first managed device and disabling said first port;
- setting a filter at each of said plurality of managed devices to prevent frames having the unauthorized address from being forwarded through said computer network; and
- reenabling said first port after said filtering step has been completed.

5,805,802

MODULE FOR THE PROTECTION OF SOFTWARE
Philipp Wilhelm Marx, Vohburger Str. 68, 85104 Pförring-Wackerstein, Germany

Filed Jun. 14, 1995, Ser. No. 490,330

Claims priority, application Germany, Dec. 15, 1994, 9420092 U

Int. Cl.⁶ G06F 11/00; G04H 9/00; H04K 1/00

U.S. Cl. 395—188.01

14 Claims

1. A module for the protection of software in a computer network, the network having a plurality of workstations coupled to a network server which provides controlled access to the software by the workstations, the module comprising:
- a microprocessor for implementing an access control to the software by any of the plurality of workstations, said microprocessor being connectable via a parallel interface, particularly via a printer interface, with the network server,
- a programmable storage, being addressable by means of said microprocessor, in which a user limit code Xlimit is stored, and

5,805,804

METHOD AND APPARATUS FOR SCALABLE, HIGH BANDWIDTH STORAGE RETRIEVAL AND TRANSPORTATION OF MULTIMEDIA DATA ON A NETWORK

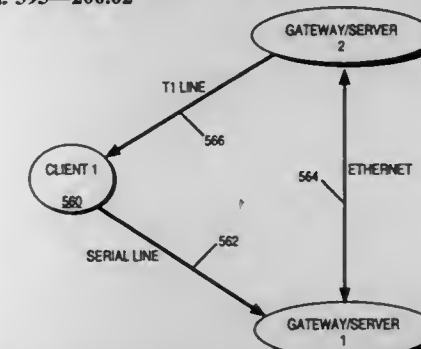
Andrew Laursen, San Mateo; Jeffrey C. Olkin, Sunnyvale; Mark A. Porter, Woodside; Farzad Nazem, Redwood City; William Bailey, Palo Alto, and Mark Moore, Foster City, all of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Continuation of Ser. No. 343,762, Nov. 21, 1994, abandoned. This application Mar. 12, 1997, Ser. No. 816,207

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.02

14 Claims



a device for processing said user limit code Xlimit and an actual user number under a processing software, said device being arranged in said module and being addressable by means of said microprocessor.

5,805,803

SECURE WEB TUNNEL

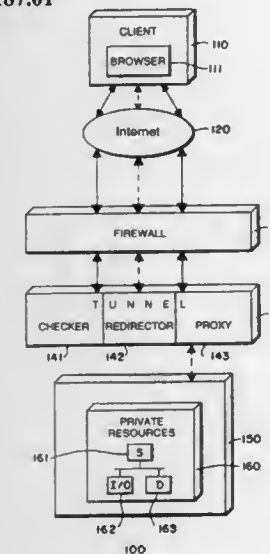
Andrew D. Birrell, Los Altos; Edward P. Wobber, Menlo Park; Martin Abadi, and Raymond P. Stata, both of Palo Alto, all of Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed May 13, 1997, Ser. No. 855,025

Int. Cl.⁶ G06F 13/14

U.S. Cl. 395—187.01

19 Claims



1. A computer implemented method for accessing a resource (of an intranet using a client computer connected to a public network, comprising the steps of:

- receiving in a tunnel of a network firewall a request for a resource of an intranet in a first public message over the public network from a client computer;
- sending, from the tunnel to the client computer, a redirect to a proxy server request in a second public message;
- receiving, from the client computer in the proxy server, a token and the request for the resource in a first secure message over the public network; and
- forwarding, from the proxy server, the request for the resource to the intranet if the token is valid.

5,805,805

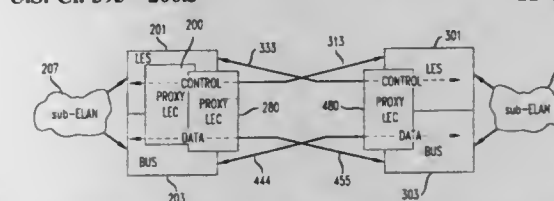
SYMMETRIC METHOD AND APPARATUS FOR INTERCONNECTING EMULATED LANS
Seyhan Civanlar, Middletown, and Vikram R. Saksena, Freehold, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Aug. 4, 1995, Ser. No. 511,430

Int. Cl.⁶ G06F 13/14; H04L 12/46

U.S. Cl. 395—200.5

22 Claims



1. Apparatus for connecting a first and second sub-emulated local area network (sub-ELAN), said first sub-ELAN including a first local area network (LAN) emulation server (LES) and said second sub-ELAN including a second LES, the apparatus comprising:

- first means for connecting said first LES to said second LES as a proxy-LEC in said second sub-ELAN so that said first LES receives information from said second sub-ELAN as a member of said second sub-ELAN; and
- second means for connecting said second LES to said first LES as a proxy-LEC in said first sub-ELAN so that said second LES receives information from said first sub-ELAN as a member of said first sub-ELAN.

5,805,806

METHOD AND APPARATUS FOR PROVIDING INTERACTIVE NETWORKING BETWEEN TELEVISIONS AND PERSONAL COMPUTERS

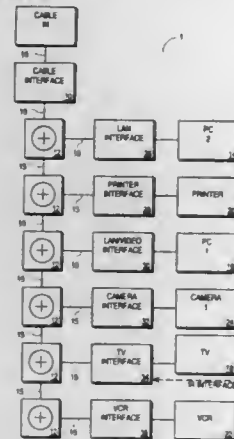
Kelly M. McArthur, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 18, 1995, Ser. No. 574,401

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.8

12 Claims



1. A personal computer system comprising a processor, a memory, an interface device for coupling the personal computer system to a network capable of supporting baseband data and video, and first connection means for interconnecting the processor, the memory, and the interface device, the interface device including:

second connection means for coupling the interface device to the network;

filter means for separating the baseband data from the video; tuner means for demodulating video received from the network, including television signals originating from outside the network and video generated within the network, the tuner means further for outputting the demodulated video to the first connection means, wherein the television signals are allocated to a plurality of television channels;

video output means for outputting local video to the network, wherein the video output means is programmable by the processor to assign the local video to any of a plurality of local video channels separate from the television channels; and

transceiver means for outputting baseband data to the network and for receiving and providing to the first connection means baseband data received from the network.

5,805,807

MULTILEVEL DATA COMMUNICATION SYSTEM INCLUDING LOCAL AND HOST SYSTEMS

George E. Hanson; Arvin D. Danielson; Steven H. Salvay; Steven E. Koenck; Alan G. Bunte; Phillip Miller; Ronald L. Mahany; Guy J. West, and Keith K. Cargin, all of Cedar Rapids, Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Continuation of Ser. No. 876,629, Apr. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 854,115, Mar. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 558,895, Jul. 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 529,353, May 25, 1990, abandoned. This application May 23, 1995, Ser. No. 448,237

Int. Cl.⁶ H04K 1/00

U.S. Cl. 395—200.09

15 Claims

1. A data communication system comprising:

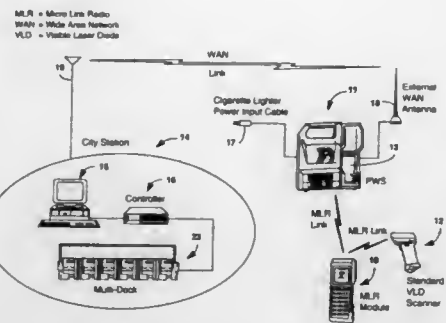
(i) a plurality of remote, mobile data systems comprising:

(a) a battery powered terminal;

(ii) a battery powered code reader;

(iii) a battery powered printer;

(iv) each of the battery powered terminal, code reader and printer having a wireless transceiver, and wherein communication occurs via lower power transmissions between the



portable terminal and the code reader, and between the portable terminal and the printer; and

(v) a dock that engagingly receives the battery powered terminal;

(b) a local wireless transceiver; and

(c) a local host computer system communicatively coupled to the local wireless transceiver, wherein communication occurs between the battery powered printers in the plurality of remote, mobile data systems and the host computer system via higher power transmissions through the local wireless transceiver.

5,805,808

REAL TIME PARSER FOR DATA PACKETS IN A COMMUNICATIONS NETWORK

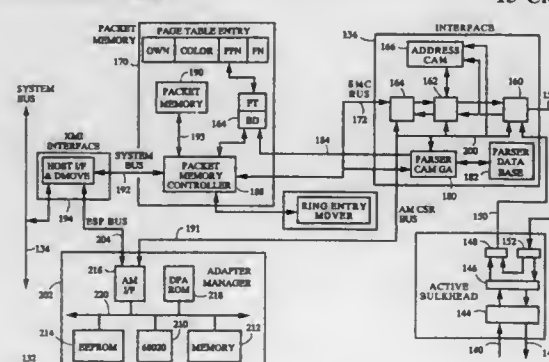
Santosh K. Hasani, Nashua, N.H.; Satish L. Rege, Groton, and Mark F. Kempf, Stow, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 365,993, Dec. 29, 1994, abandoned, which is a continuation of Ser. No. 814,997, Dec. 27, 1991, abandoned. This application Apr. 9, 1997, Ser. No. 838,678

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.2

13 Claims



1. A parser for use in a station on a computer network, said station receiving a first packet from the computer network, said first packet being a stream of bits, said bits arranged in a plurality of fields of said first packet, said parser for interpreting said bits of said first packet, comprising:

a station memory;

a set of logic circuits implemented in a computer chip;

a memory interacting with said computer chip, said memory providing first data to said set of logic circuits;

means for reading said bits from said plurality of fields of said first packet into said set of logic circuits, said bits providing second data to said set of logic circuits;

means, responsive to said first data and said second data, to create a forwarding vector to be used by said logic circuits to

determine a destination for the first packet and to forward said packet to the station if the packet has a destination address which matches a host destination address and to discard said packet if said destination address does not match said host destination address, wherein the station either forwards or discards the packet without reading the entire packet into said station memory.

5,805,809

INSTALLABLE PERFORMANCE ACCELERATOR FOR MAINTAINING A LOCAL CACHE STORING DATA RESIDING ON A SERVER COMPUTER

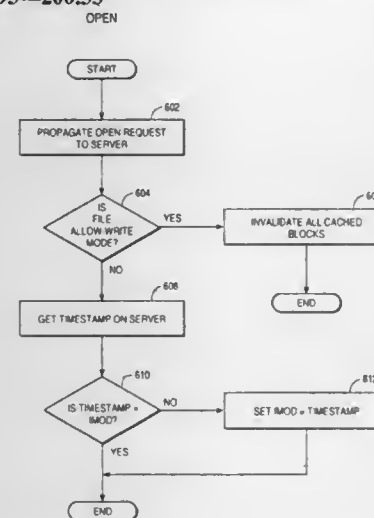
Jagdeep Singh, Cupertino; Boen T. Thio, Escondido; Chandrashekar W. Bhide, and Wayne R. Gray, both of Sunnyvale, all of Calif., assignors to Shiva Corporation, Bedford, Mass.

Filed Apr. 26, 1995, Ser. No. 427,966

Int. Cl.⁶ G06F 13/00; 15/16

U.S. Cl. 395—200.33

15 Claims



1. In a computer network providing a distributed file system, the computer network including a server computer and a client computer where files stored on the server computer are accessible by the client computer via a network link, a method of accelerating performance of the client computer comprising the steps of:

an application operating on the client computer issuing a system call to retrieve data stored on the server computer;

an accelerator subsystem on the client computer trapping the system call on the client computer before the system call is sent over the network link;

the accelerator subsystem determining if the system call is capable of being serviced locally utilizing a cache on the client computer that stores data from the server computer, the accelerator subsystem being separate from an operating system of the client computer;

validating the data in the cache on the client computer, wherein the validating step includes comparing a timestamp of the data to a timestamp of a file containing the data;

servicing the system call on the client computer if the system call is serviceable locally; and

sending the system call to the server computer if the system call is not serviceable locally.

5,805,810

APPARATUS FOR, AND METHODS OF, PROVIDING FOR THE GENERATION, TO A RECEIVING STATION NEAR THE ADDRESS OF A RECIPIENT, OF ELECTRONIC MAIL INTENDED BY A SENDER TO BE DELIVERED TO THE RECIPIENT AND FOR THE CONVERSION OF THE ELECTRONIC MAIL TO POSTAL MAIL

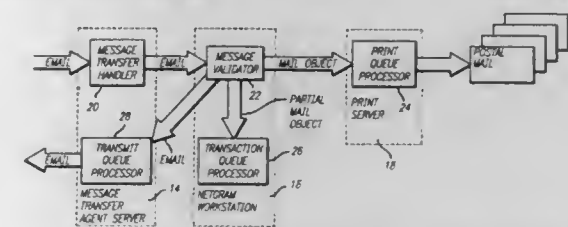
Robert L. Maxwell, 4608 Dolphin Cay La., St. Petersburg, Fla. 33711

Filed Apr. 27, 1995, Ser. No. 432,430

Int. Cl.⁶ G06F 17/00

U.S. Cl. 395—200.36

102 Claims



1. A method of generating mail objects from email messages performed by a computer system at a first station with at least one database containing identifiers for senders of email messages, identifiers for corresponding recipients of mail objects, and address information for both the senders and recipients, the method comprising the steps of:

receiving at the first station from a sender an email message intended by the sender to be delivered by postal mail to a recipient;

locating in a database at the first station the identifier for the sender and the identifier for the recipient specified in the email message;

sending the email to a second station near the address of the recipient; and

generating at the second station a mail object from the email message using the address information identified in the database at the first station for the sender and for the recipient.

5,805,811

DYNAMIC ELECTRONIC MAIL FACILITY FOR APPLICATIONS EXECUTING IN AN INTEGRATED OPERATING ENVIRONMENT

John M. Pratt, Atkinson, N.H., and Garry W. Sager, Ashburnham, Mass., assignors to Wang Laboratories, Inc., Billerica, Mass.

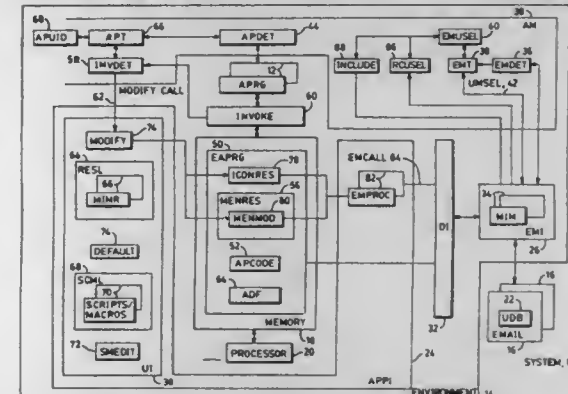
Continuation of Ser. No. 223,933, Apr. 13, 1994, abandoned.

This application Mar. 6, 1996, Ser. No. 611,957

Int. Cl.⁶ G06F 13/14

U.S. Cl. 395—200.36

18 Claims



1. In a computer system including a plurality of permanently resident application programs having a corresponding plurality of application user interfaces, a memory and processor for storing and executing executable copies of the application programs, and an integrated operating environment and connected to a plurality of electronic mail systems, an electronic mail facility for dynamically

adding a direct electronic mail capability to selected ones of the applications programs not previously having a direct electronic mail capability, comprising:

- a plurality of electronic mail modules, each electronic mail module corresponding to an electronic mail system and providing a driver and interface for communication with the corresponding electronic mail system,
- an administrative module, including
 - a mail system manager for selecting and enabling a current one of the electronic mail modules,
 - an application program manager for automatically detecting an invocation of an application program by a user for execution of the application program and automatically generating an invocation output indicating the invocation and identity of the invoked application program that is to be automatically provided with an electronic mail capability by the electronic mail facility wherein the electronic mail capability is a new functionality to the invoked application program,
- a mail facility user interface, including
 - a plurality of user interface modifiers, each including a user interface representation of an electronic mail operation and an electronic mail procedure,
 - the mail facility user interface being automatically responsive to an invocation output of the application program manager for automatically modifying one of the corresponding application user interfaces of an executable copy of the invoked application program to include the user interface representation of an electronic mail operation, wherein
 - the executable copy of an application program having a modified user interface is responsive to a user invocation of an electronic mail operation for automatically invoking a corresponding electronic mail procedure, and
 - a data interface responsive to an electronic mail procedure for communicating data from the application program to a current mail interface module.

5,805,812

COMMUNICATION SYSTEM FOR THE REMOTE CONTROL OF EQUIPMENT

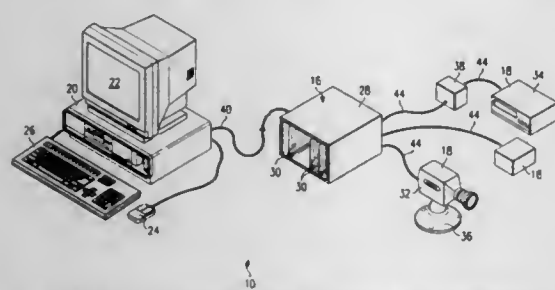
Nathan S. Fish, Plano; Andrew J. Berner, Irving, and Sarah V. Denney, Allen, all of Tex., assignors to Electronic Data Systems Corporation, Plano, Tex.

Filed May 15, 1996, Ser. No. 647,552

Int. Cl.⁶ G06F 17/00

U.S. Cl. 395—200.38

19 Claims



1. A method of communicating between a programmable computer and a central controller for remote control of plural equipment devices, comprising the steps of:

- developing a program segment and storing the program segment on memory associated with the central controller, the program segment for supporting a desired control operation for each of the plural equipment devices, the program segment operable to interpret variable parameters;
- developing and sending from the programmable computer to the central controller a command with a device number, channel number, and variable parameters representative of the desired control operation on the plural remote-controlled equipment devices;

accepting and loading the command with device number, channel number, and variable parameters into memory of the central controller; and

performing the desired control operation on at least one of the plural equipment devices at the direction of the central controller using the program segment by interpreting the variable parameters.

5,805,813

SYSTEM FOR VISUAL MONITORING OF OPERATIONAL INDICATORS IN AN ELECTRIC POWER SYSTEM

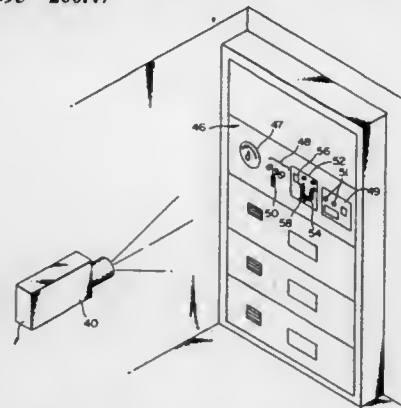
Edmund O. Schweitzer, III, Pullman, Wash., assignor to Schweitzer Engineering Laboratories, Inc., Pullman, Wash.

Filed Jul. 26, 1996, Ser. No. 688,816

Int. Cl.⁶ G08B 29/00

U.S. Cl. 395—200.47

27 Claims



1. A system for visually monitoring the state of various operational indicators present in an electric power control or monitoring environment, including a substation, comprising:

- means for obtaining an image of the status of a plurality of operational indicators in said electric power control or monitoring environment, wherein said image-obtaining means is positioned in a control house portion of the substation, aimed at indoor targets which include said operational indicators;
- means for processing the image so as to enhance recognition of the status of the operational indicators; and
- means for comparing the resulting processed image against a preselected standard to determine the state of the operational indicators.

5,805,814

VIDEO GAME SYSTEM

Yoichiro Tsuda, and Kazuhiro Watanabe, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Continuation of Ser. No. 516,332, Aug. 17, 1995, abandoned.

This application Aug. 14, 1997, Ser. No. 911,184

Claims priority, application Japan, Sep. 5, 1994, 6-235995

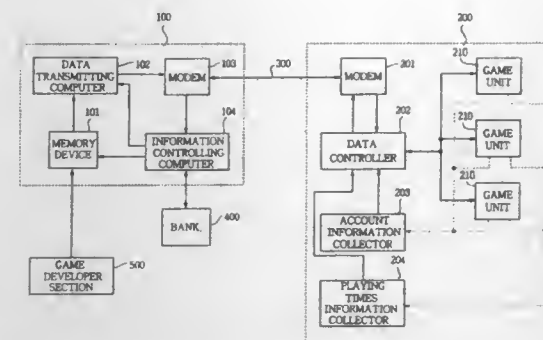
Int. Cl.⁶ A63B 71/06

U.S. Cl. 395—200.47

5 Claims

1. A video game system having a host and a terminal device connected to the host through a transmission line and having a plurality of game units comprising:

- a first memory provided in the host wherein a plurality of video game programs are stored;
- transmitting means for deriving a video game program from the first memory and for transmitting the program to the terminal device;
- a second memory provided in the terminal device for storing the video game programs transmitted from the host;
- a display provided on each of the game units for displaying the video game program stored in the second memory;



operating means for operating the game unit;

a third memory for storing information on playing condition of each of the video game programs; and

determining means, provided in the host, for determining a video game program stored in the second memory is to be replaced by another video game program stored in the first memory in accordance with the information stored in the third memory, and based upon the determination for instructing the transmitting means to transmit the another video game program stored in the first memory to the terminal to automatically replace the video game program stored in the second memory, wherein said transmitting means transmits the another video game program to the terminal device.

5,805,815

METHOD AND APPARATUS FOR PROVIDING INTERIM DATA DISPLAYS WHILE AWAITING RETRIEVAL OF LINKED INFORMATION

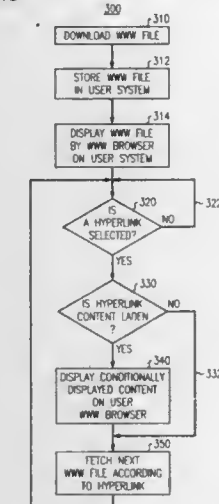
William Colyer Hill, Montville, N.J., assignor to AT&T Corp., Middletown, N.J.

Filed Dec. 18, 1995, Ser. No. 574,476

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.48

39 Claims



1. A method for providing a WWW page that uses the downloading time between a current WWW page and a next WWW page, comprising the steps of:

- fetching conditionally displayed data associated with hypertext link-embeddable content;
- embedding the conditionally displayed data within a hypertext link from the current WWW page to a next WWW page to provide a content laden hypertext link;
- transmitting the current WWW page to a user so that the current WWW page is displayed in a first window in a user's WWW browser;
- whereby upon selection by the user of a hypertext link, the user's browser determines whether the selected hypertext link is content laden, and if the selected hypertext link is content laden, the user's browser displays the conditionally displayed

data in said first window in place of said current WWW page, and requests the next WWW page.

5,805,816

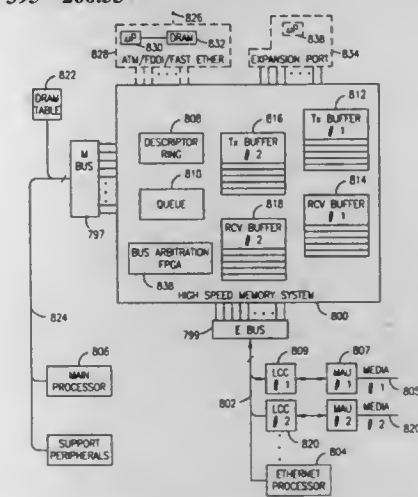
NETWORK PACKET SWITCH USING SHARED MEMORY FOR REPEATING AND BRIDGING PACKETS AT MEDIA RATE

Jose J. Picazo, Jr., San Jose; Paul Kakul Lee, Union City, and Robert P. Zager, San Jose, all of Calif., assignors to Compaq Computer Corp., Houston, Tex.

Division of Ser. No. 694,491, Aug. 7, 1996, which is a continuation of Ser. No. 498,116, Jul. 5, 1995, which is a continuation-in-part of Ser. No. 881,931, May 12, 1992, Pat. No. 5,432,907. This application Jan. 28, 1997, Ser. No. 788,429

Int. Cl.⁶ G06F 13/00

6 Claims



1. A packet switching apparatus, comprising:

- a first shared memory having at least first and second ports;
- a plurality of media access units, each for coupling to a local area network segment;
- a plurality of local area network controller circuits, each coupled to a media access unit, each media access unit for coupling to a network media coupled to one or more machines;
- a first microprocessor coupled to said first port and coupled to each said local area network controller circuit by a first bus;
- a second microprocessor coupled to said second port by a second bus;
- a second memory coupled to said second bus for storing bridging and routing information;

and wherein said first microprocessor is programmed to set up a receive buffer in said first shared memory which is large enough to store data packets received by all said plurality of local area network controller circuits and is programmed to set up in said first shared memory a transmit buffer for each said local area network controller chip, and is programmed to allocate a portion of said first shared memory as a queue for said second microprocessor and a portion of said first shared memory to store descriptor data, said descriptor data having a portion thereof devoted to each said local area network controller circuit, the portion of said descriptor data devoted to each said local area network controller circuit having at least a receive portion, and wherein said local area network controller circuits include means for writing status data to said receive portion which indicates when a packet has been successfully received, and wherein said first microprocessor is programmed to monitor said status data, and when said status data indicates that a packet has been successfully received, for writing a pointer to said packet into said queue for said second microprocessor, and wherein each said packet has addressing information;

and wherein said second microprocessor is programmed to monitor said queue, and when a pointer to a packet is found in said queue, to use said pointer to access said packet and

examine the addressing information therein to determine if the packet needs to be bridged or routed for transmission out on a different media that the media on which it arrived using said bridging and routing data stored in said second memory, and if said packet is addressed to a destination machine other than the machine which originated said packet, said second micro-processor is programmed to write a pointer to said packet in the transmit buffer dedicated to the local area network controller coupled by a network segment to the destination machine for said packet.

5,805,817

METHOD AND DEVICE FOR SETTING TERMINAL STATE AND ASSIGNING ID NUMBER FOR CONCENTRATOR

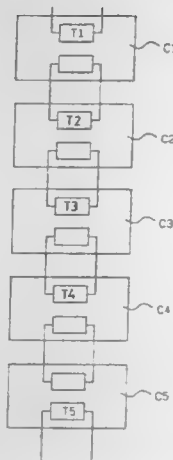
Ji-Hsiang Yu, and Wen-Hsung Huang, both of Hsinchu, Taiwan, assignors to Accton Technology Corporation, Hsinchu, Taiwan

Continuation-in-part of Ser. No. 353,831, Dec. 12, 1994, abandoned. This application Mar. 13, 1996, Ser. No. 614,734

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.54

28 Claims



1. A method for setting a terminal state for a concentrator in a network including a plurality of said concentrators each of which has two I/O ports comprising the steps of:

- automatically setting the terminal state for one of said two I/O ports of said concentrator when said concentrator detects there is no electric signal passing through one of said I/O ports;
- causing said two I/O ports of each of said plurality of concentrators including a master one into a mutually open state;
- sequentially assigning distinctive ID numbers respectively for said concentrators from said master one to adjacent ones, and simultaneously causing said two I/O ports of one of said concentrators which has been assigned with one of said ID numbers into a mutually connecting state; and
- reiteratively executing step (c) until all of said plurality of concentrators have been assigned with said ID numbers respectively.

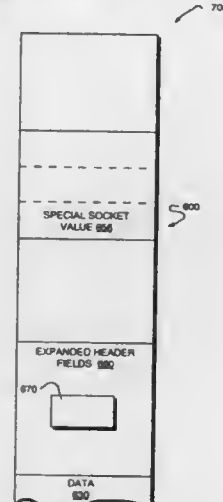
5,805,818 SYSTEM FOR ACKNOWLEDGING AVAILABILITY OF NEIGHBOR NODE USING DATA PACKET CONTAINING DATA THAT IS ORDINARILY FORWARDED TO NEIGHBOR NODE

Radia J. Perlman, Acton, Mass., and Neal D. Castagnoli, Morgan Hill, Calif., assignors to Novell, Inc., Orem, Utah
Filed Sep. 11, 1996, Ser. No. 712,476

Int. Cl.⁶ G06F 15/173

U.S. Cl. 395—200.54

15 Claims



1. Apparatus for quickly and efficiently requesting affirmation from a neighboring node coupled to a communication link of a network that the neighbor is available and connected to that link, the apparatus comprising:

- a source node coupled to the communication link;
- a data packet forwarded by the source node over a network path encompassing the neighboring node, the data packet containing data of a type that is ordinarily forwarded to the neighboring node in connection with data communication and distinguishable from a control message; and
- control information stored in the data packet, the control information instructing the neighboring node to acknowledge receipt of the data packet to thereby affirm availability of the neighboring node without use of the control message.

5,805,819

METHOD AND APPARATUS FOR GENERATING A DISPLAY BASED ON LOGICAL GROUPINGS OF NETWORK ENTITIES

Jeffrey A. Chin, Belmont; Frank S. Lee, Santa Clara; Leon Y. K. Leong, Palo Alto, and Serene H. Fan, San Jose, all of Calif., assignors to Bay Networks, Inc., Santa Clara, Calif.

Continuation of Ser. No. 427,574, Apr. 24, 1995, abandoned.

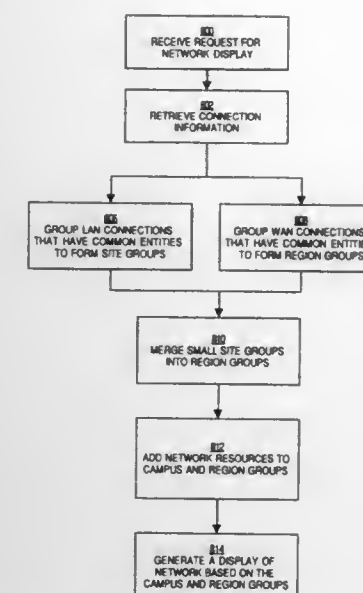
This application Sep. 16, 1997, Ser. No. 931,587

Int. Cl.⁶ H04L 12/24

U.S. Cl. 395—200.54

24 Claims

- A computer-implemented method for grouping a network entity of a network system into one of a plurality of logical groups, wherein said network entity is connected to other network entities by at least a first connection, the method comprising the steps of:
 - determining whether said first connection is a LAN connection or a WAN connection;
 - if said first connection is a LAN connection, then determining whether a further LAN connection is connected to said network entity;
 - if a further LAN connection is not connected to said network entity, then assigning only said first connection to a predetermined site group;
 - if a further LAN connection is connected to said network entity, then assigning both said first connection and said further connection to said predetermined site group;



assigning said network entity to one of said plurality of logical groups according to said predetermined site group of said first connection; and
generating on a display device a plurality of visual indicators, said plurality of visual indicators including a single visual indicator for said one of said plurality of logical groups.

5,805,820

METHOD AND APPARATUS FOR RESTRICTING ACCESS TO PRIVATE INFORMATION IN DOMAIN NAME SYSTEMS BY REDIRECTING QUERY REQUESTS

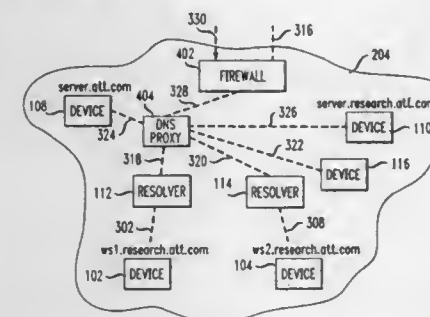
Steven Michael Bellovin, Westfield, and William Roberts Cheswick, Bernardsville, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Jul. 15, 1996, Ser. No. 679,466

Int. Cl.⁶ G06F 15/163

U.S. Cl. 395—200.55

20 Claims



1. A subsystem in a domain name system that restricts access to private information of a first domain, the first domain being coupled to a second domain, the subsystem comprising:

- a first device of the first domain; and
- a switching device coupled to the first device, the switching device receiving a communication from the first device of the first domain being directed to a device of the second domain, the communication including a first request for the private information of the first domain, the switching device redirecting the first request for the private information to a second device in the first domain.

5,805,821

VIDEO OPTIMIZED MEDIA STREAMER USER INTERFACE EMPLOYING NON-BLOCKING SWITCHING TO ACHIEVE ISOCHRONOUS DATA TRANSFERS

Ashok Raj Saxena, and Pong-Sheng Wang, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

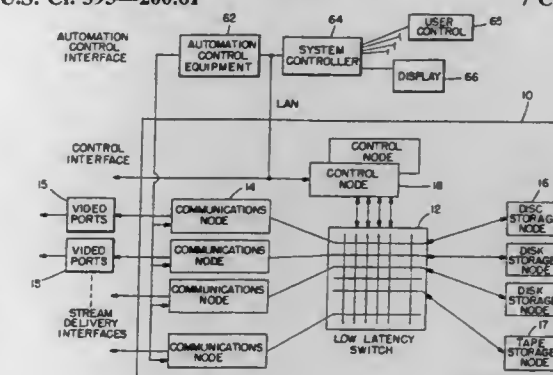
Continuation of Ser. No. 303,190, Sep. 8, 1994, abandoned.

This application Aug. 5, 1997, Ser. No. 906,567

Int. Cl.⁶ H01J 13/00

U.S. Cl. 395—200.61

7 Claims



- A media streamer, comprising:
 - at least one control node;
 - a user interface having an output coupled to said at least one control node;
 - at least one storage node for storing a digital representation of at least one video presentation;
 - a plurality of communication nodes each having an input port for receiving a digital representation of at least one video presentation therefrom, each of said plurality of communication nodes further having a plurality of output ports, individual ones of said plurality of output ports outputting a digital representation as an isochronous data stream to a consumer of the digital representation; and
 - a low latency circuit switch, connected between said at least one storage node and input ports of said plurality of communication nodes, coupled to said at least one control node, for electrically connecting one or more input ports to said at least one storage node to enable a digital representation stored thereat to be passed in a non-blocking, non-buffered manner to said one or more input ports; wherein
- said user interface includes means for specifying commands for execution; wherein
- said at least one control node is responsive to individual ones of said commands for controlling at least one of said at least one storage node and at least one of said plurality of communication nodes, in cooperation with said low latency circuit switch, so as to execute a function associated with individual ones of said commands; wherein
- certain of said commands are video cassette recorder-like commands and another of said commands is a Batch command; and wherein
- said at least one control node responds to said Batch command by accessing a user-specified stored list that is comprised of at least two or more of said video cassette recorder-like commands, and for causing, upon direction from a user, a sequential execution of all commands that comprise the accessed stored list.

5,805,822

CHANNEL INTERFACE WITH DATA SEGMENTATION
AND RE-SEGMENTATION

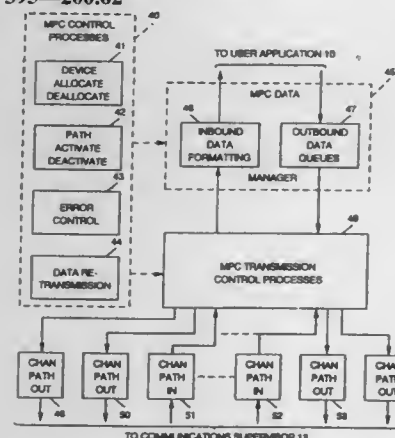
Lynn Douglas Long, Chapel Hill; Louis Frank Menditto, Raleigh; Masashi Edward Miyake, Chapel Hill; Arthur James Stagg, Raleigh, and Raymond Edward Ward, Durham, all of N.C., assignors to International Business Machine Corp., Armonk, N.Y.

Continuation of Ser. No. 596,878, Jan. 11, 1996, abandoned, which is a continuation of Ser. No. 252,019, Jun. 1, 1994, abandoned. This application Dec. 23, 1996, Ser. No. 772,478

Int. Cl.⁶ G06F 15/177

U.S. Cl. 395—200.62

12 Claims



12. A local device for sending data to a remote device in blocks over one or more data channels partitioned into a plurality of subchannels, each subchannel being capable of handling blocks of a preassigned size which may be different from the sizes preassigned to others of the subchannels, each of the blocks having space for application data and a header containing a segment number field and a sub-segment number field, said local device comprising

- means for partitioning the application data into data units which when appended to headers form said blocks,
- means for assigning each block to a subchannel for transmission, each block having a size appropriate to the subchannel to which it is assigned,
- means for storing a unique segment number in the segment number field of each block representing the order of the block in the application data,
- means for detecting a failed subchannel during transmission of the blocks,
- means for re-segmenting a failed block being transmitted over the failed subchannel into sub-segments, each having the same format as a block, appropriate for transmission over one or more of the remaining subchannels of lesser preassigned size than the failed subchannel,
- means for storing the segment number from the failed block in the segment number field of each of the sub-segments,
- means for storing a unique sub-segment number representing the order of the sub-segment in the failed block in the sub-segment field of each of the sub-segments, and
- means for transmitting the sub-segments over the respective assigned subchannels.

5,805,823

SYSTEM AND METHOD FOR OPTIMAL MULTIPLEXED
MESSAGE AGGREGATION BETWEEN CLIENT
APPLICATIONS IN CLIENT-SERVER NETWORKS

Greg Seitz, San Jose, Calif., assignor to Wayfarer Communications, Inc., Mountain View, Calif.

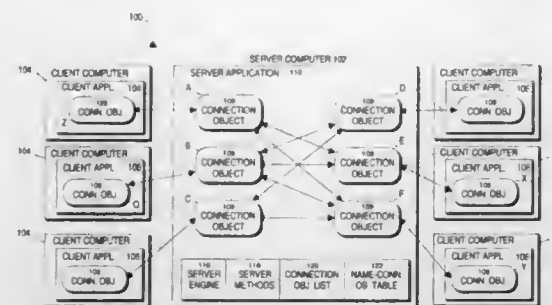
Filed Jan. 30, 1996, Ser. No. 593,901

Int. Cl.⁶ G06F 13/42

U.S. Cl. 395—200.66

11 Claims

1. A computer system, comprising:



at least two first client computers, each first client computer including at least one first client application, each first client application including a single physical connection to a server application in a server computer, the connection to the server application transferring network packets between the first client computer and the server computer, each client application adapted to transmit individual messages to the server application, each message having a variable amount of message data, and to aggregate selected messages for one or more other client applications into a single network packet as the messages are available, and sending each network packet to the server application;

a second client computer including a second client application with a single physical connection to the server application, the connection to the server for transferring network packets between the second client computer and the server computer; at least two of the first client applications each separately creating and sending a network packet containing at least one message for the second client application and at least one message for a different client application to the server application;

the server computer including:

- a binding table associated with each specific client application, each binding table storing a plurality of bindings, each binding associating the specific client application to a physical connection to another client application; and
- the server application, the server application receiving the network packets from the at least two first client applications, extracting from each received network packet the at least one message for the second client application, identifying a binding in the binding table of each first client application to determine the physical connection to the second client application, and placing the extracted messages for the second client application in a message queue communicatively coupled to the selected physical connection to the second client application.

5,805,824

METHOD OF PROPAGATING DATA THROUGH A
DISTRIBUTED INFORMATION SYSTEM

Frank Michael Kappe, Graz, Austria, assignor to Hyper-G Software Forschungs-und Entwicklungsgesellschaft m.b.H., Austria

Filed Feb. 28, 1996, Ser. No. 608,302

Int. Cl.⁶ G06F 17/00

U.S. Cl. 395—200.72

20 Claims

1. In a computer implemented distributed information system, a method of propagating data through a plurality of servers, comprising the steps of:

- i) each of the servers individually maintaining an ordered list of the servers in the distributed information system;
- ii) each of the servers individually maintaining a database containing address data for locating remote data stored remotely which is referenced by local data stored locally at each of the servers;
- iii) each of the servers individually maintaining a list of data reflecting changes to the local data and remote data;
- iv) selecting a priority value (p) with which to transmit the list of data wherein the priority is a real number greater than or equal to 1;

5,805,826

METHOD FOR TRANSMITTING COMPRESSED VIDEO
DATA AND APPARATUS FOR PERFORMING THE SAME
In Kim; Yang-Hun Choi; Dong-Soo Chol, and Sung-Min Her,
all of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

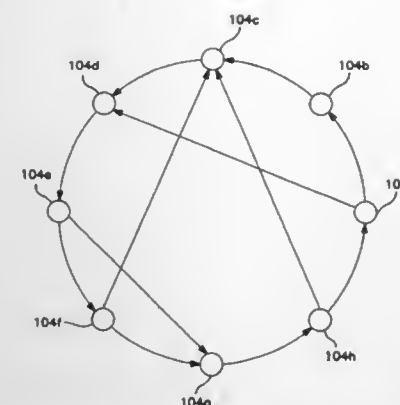
Filed Dec. 18, 1995, Ser. No. 574,345

Claims priority, application Rep. of Korea, Dec. 19, 1994, 35074/1994

Int. Cl.⁶ G06F 13/42

U.S. Cl. 395—200.77

18 Claims



- v) on a predetermined clock cycle, each of the servers transmitting their respective list of data to at least one server selected from the ordered list according to the priority value;
- vi) each of the servers deleting their respective list of data once acknowledgement of the transmission is received from the at least one server;
- vii) each of the at least one server receiving their respective list of data and updating their database and their local data with the received list of data, and appending their list of data with the received list of data;
- viii) repeating steps v) through viii), wherein in step v), when $p=1$ each of the servers transmit their respective lists to a server located adjacent to each of servers on the ordered list and when p is an integer number greater than one, each of the servers transmit their respective lists to the adjacent server and to $p-1$ other servers selected at random from the ordered list.

5,805,825

METHOD FOR SEMI-RELIABLE, UNIDIRECTIONAL
BROADCAST INFORMATION SERVICES

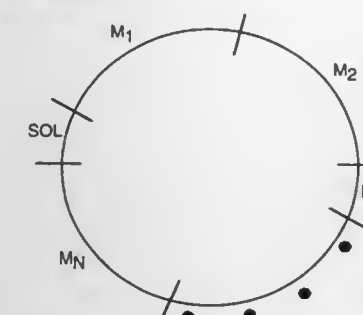
Gunner D. Danneels, Beaverton; Katherine Cox, Hillsboro; Robert M. Odell, Tigard; Robert A. Schlesinger, Hillsboro; Leora J. Gregory, Forest Grove, and Ketan R. Sampat, Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jul. 26, 1995, Ser. No. 506,773

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—200.73

18 Claims



1. A method of providing asymmetric communications between a server and at least one client comprising the steps of:

- (a) generating at least a first message in a server application;
- (b) establishing parameters including a message priority, a message start time and a message available time for each message generated;
- (c) passing the message to a sender;
- (d) constructing a revolving data carousel for holding a plurality of messages;
- (e) transmitting each message on the carousel to a receiver on each revolution of the data carousel; and
- (f) removing each message from the carousel.

1. An apparatus for transmitting compressed video data to a data decompression unit of a video system comprising a central processing unit, said data decompression unit for video data decompression, and a main system bus for video data communication, said apparatus comprising:

- a data interface unit coupled to receive said compressed video data from an external source for generating a first control signal in response to receipt of said compressed video data, identifying a data bus different from said main system bus used for transmitting said compressed video data to said data decompression unit and then generating a hold permission signal in response to receipt of a hold request signal, and providing output of said compressed video data in response to receipt of an address control signal;

said data decompression unit for generating a data request signal to request input of said compressed video data from said data interface unit via said data bus, and for decompressing said compressed video data to generate a motion picture in response to receipt of a data permission signal;

- a data connection unit disposed between said data interface unit and said data decompression unit, for generating said hold request signal in response to receipt of a second control signal and said data request signal, generating said address control signal to control transmission of said compressed video data to said data decompression unit for video data decompression in response to receipt of said hold permission signal, and generating a transmission state signal indicating that transmission of said compressed video data to said data decompression unit is complete, said data connection unit being cleared in response to receipt of a third control signal; and

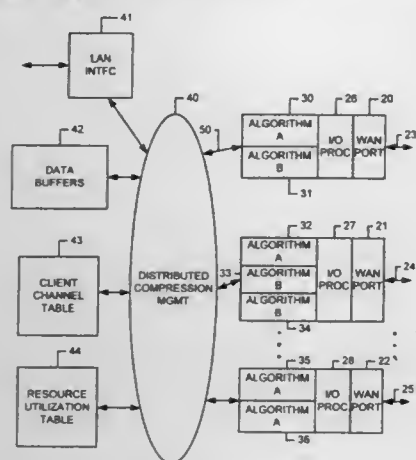
said central processing unit for generating said second control signal in response to receipt of said first control signal, and generating said third control signal in response to receipt of said transmission state signal.

5,805,827
DISTRIBUTED SIGNAL PROCESSING FOR DATA CHANNELS MAINTAINING CHANNEL BANDWIDTH
Wing Cheong Chau, Los Altos, and Dar-Ren Leu, San Jose, Calif., assignors to 3Com Corporation, Santa Clara, Calif.

Filed Mar. 4, 1996, Ser. No. 610,706
Int. Cl.⁶ H04L 12/46

U.S. Cl. 395—200.77

42 Claims



26. A communication server, comprising:
a plurality of input/output ports;
a plurality of processors, coupled to corresponding input/output ports in the plurality of input/output ports, processors in the plurality of processors including respective signal processing resources to provide encoding and decoding service to multi-packet sessions on data channels having channel bandwidths, and including resources for managing data channels through corresponding input/output ports, detecting requirements for encoding or decoding services in the managed data channels and supplying requests for detected requirements; and
data channel management resources in at least one processor in the plurality of processors, responsive to requests for detected requirements for encoding and decoding services, which routes sessions on data channels for which said services are requested at about the channel bandwidths of the sessions to processors in the plurality of processors having available signal processing resources.

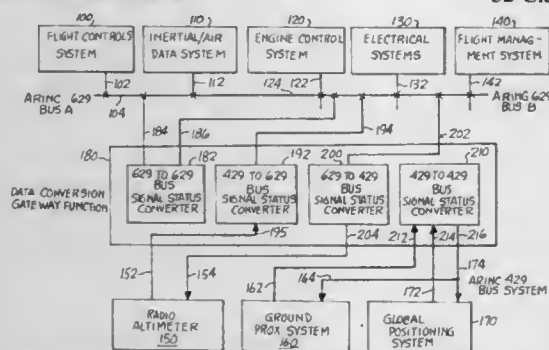
5,805,828
METHOD AND APPARATUS FOR AN AVIONICS SYSTEM UTILIZING BOTH ARINC 429 AND ARINC 629 COMPLIANT SYSTEMS

Stephen Y. Lee, Seattle; Jeffrey K. Drake, Kent; Greg J. Sherwin, Renton, and Derek E. Deloe, Auburn, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Sep. 17, 1996, Ser. No. 710,448
Int. Cl.⁶ G06F 13/00; 13/38

U.S. Cl. 395—200.79

32 Claims



1. An aircraft avionics system utilizing Aeronautical Radio, Inc. (ARINC) standard equipment comprising:

an ARINC 429 compliant data bus;
at least one ARINC 429 compliant avionics system coupled to said ARINC 429 bus;
an ARINC 629 compliant data bus;
at least one ARINC 629 compliant avionics system coupled to said ARINC 629 data bus; and
a data conversion gateway function (DCGF) system including logic means for converting a signal produced by said ARINC 429 compliant avionics system on said ARINC 429 data bus for transmission over said ARINC 629 data bus to said ARINC 629 compliant avionics system.

5,805,829
PROCESS FOR RUNNING APPLETS OVER NON-IP NETWORKS

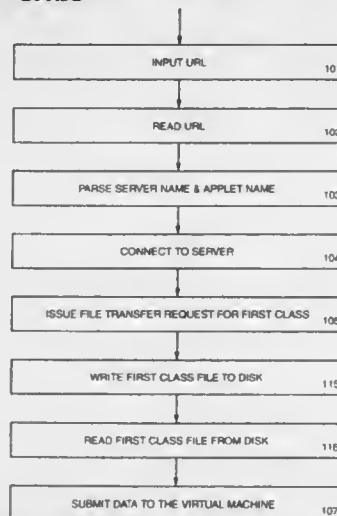
Geoffrey Alexander Cohen, Durham; David Louis Kaminsky, Chapel Hill; Richard Adam King, Cary, and Matthew Raymond MacKinnon, Durham, all of N.C., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 1, 1996, Ser. No. 724,450

Int. Cl.⁶ H01D 13/00

U.S. Cl. 395—200.32

4 Claims



3. A computer workstation comprising:
a non-IP connection to a computer network;
means for allowing a user to input a name for an applet to be invoked across said non-IP network;
means for parsing said name to identify an applet name and a server name;
means for establishing a non-IP connection to said server parsed from said name if said server is not said computer workstation;
means for issuing a file transfer request to said server for a first class file of said applet parsed from said name;
means for receiving said first class file at said workstation from said server;
means for executing said applet from said workstation across said non-IP network;
means for processing a 'class fault' indicating said applet requires additional class files from said server;
means for re-establishing a non-IP connection to said server;
means for issuing a file transfer request to said server for said additional class files; and
means for receiving said additional class files from said server at said workstation.

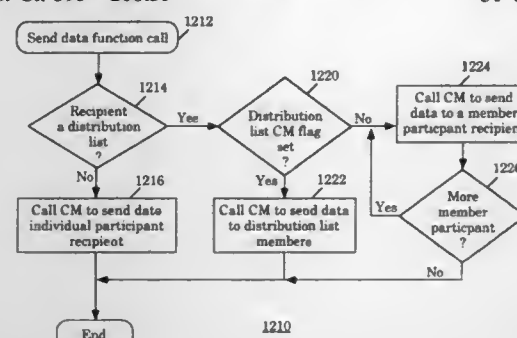
5,805,830
METHOD AND APPARATUS FOR MANAGING COMMUNICATIONS WITH SELECTIVE SUBSETS OF CONFERENCE PARTICIPANTS

Ken Reese, Portland, and Lewis Rothrock, Beaverton, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.
Continuation of Ser. No. 315,940, Sep. 30, 1994, abandoned.
This application Aug. 13, 1997, Ser. No. 910,805

Int. Cl.⁶ G06F 13/14; 15/177

U.S. Cl. 395—200.35

31 Claims



1. A computer system for use as a communication end-point, the computer system comprising:
a) an execution unit for executing programs; and
b) a storage unit storing a first communication manager to be executed by the execution unit during operation, the first communication manager being equipped with
b.1.1) logic for maintaining a first plurality of communication distribution lists, each of the first communication distribution lists being uniquely identifiable and having at least one list member, each list member being a remote recipient of communications or a distribution list identifier, the first communication manager having sharability constraints to ensure sharability of the first plurality of communication distribution lists among a plurality of communication applications, and
b.1.2) logic for performing physical layer services for communicating with other communication end-point computer systems including logic for sending a communication to all remote recipients who are unshared or nested members of one of the first communication distribution lists, on behalf of an application being executed by the execution unit, upon so instructed with instructions which, for recipient information, merely supply the unique identification information of a particular one of the first communication distribution lists.

5,805,831
ELECTRONIC CASH REGISTER SYSTEM ALLOCATING SALE ITEMS IN DESIGNATED CHIT BILLS OR RECEIPT FILES

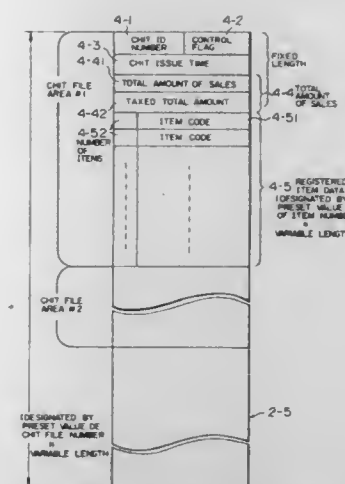
Seiji Fuyama, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 12, 1993, Ser. No. 105,914
Claims priority, application Japan, Aug. 19, 1992, 4-219895
Int. Cl.⁶ G06F 153/00

U.S. Cl. 395—216

6 Claims

1. An electronic cash register system, comprising:
chit file issuing key means for receiving a user command to open a first chit file and to assign an identification number to the first chit file;
item key means for receiving a user command to register items of articles on sale;
transaction end key means for receiving a user command to calculate a total amount of the items registered and to complete a transaction involving the items;
numerical key means for receiving a user input of numerical values concerning the transaction;
operation control means, responsive to operations of the chit file issuing key means, the item key means, the transaction and key means and the numerical key means, for opening the first



chit file, registering the items, calculating, the total amount and completing the transaction;
mode switch means for selectively designating operation modes of said operation control means;
memory means for storing said first chit file, input data of names of the items, unit prices of the items and total amount of the transaction, said memory means comprising means for performing data transfer with said operation control means; and
output means for delivering output data of said operation control means to at least one of a display means and a printer means;
said operation control means comprising:
structural factor setting means, responsive to a setting of said operation control means to a presetting mode by said mode switch means, for setting a number of said items for registration in said first chit file and a number of further chit files to be generated, in addition to said first chit file, which can be disposed of by said electronic cash register system as structural factors which determine a structure of said first chit file and of said further chit files;
chit file generating means, responsive to setting of said operation control means to a registration mode designated by said mode switch means, for securing in said memory means an area for the first chit file of the structure determined by said structural factors in response to actuation of said chit file issuing key means while allotting automatically the identification number to said first chit file by using serial number counter means;
item registering means for registering said items in said first chit file by manipulating said item key means; and
totalization means responsive to actuation of said transaction end key means for calculating the total amount of the items registered in said first chit file and outputting the total amount to said output means while clearing the first chit file from said memory means.

5,805,832
SYSTEM FOR PARAMETRIC TEXT TO TEXT LANGUAGE TRANSLATION

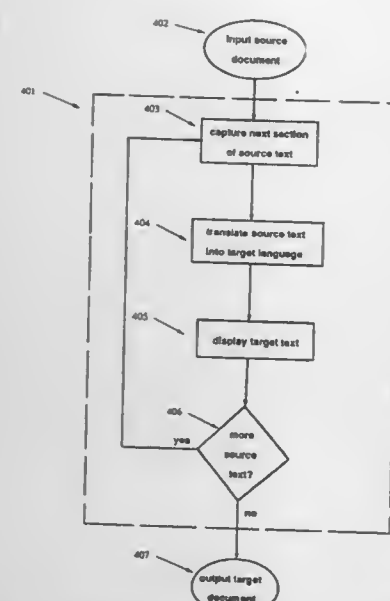
Peter Fitzhugh Brown, New York; John Cocke, Bedford; Stephen Andrew Della Pietra, Pearl River; Vincent Joseph Della Pietra, Blauvelt; Frederick Jelinek, Briarcliff Manor; Jennifer Ceil Lai, Garrison, and Robert Leroy Mercer, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 736,278, Jul. 25, 1991, Pat. No. 5,477,451. This application Jun. 2, 1995, Ser. No. 459,454
Int. Cl.⁶ G06F 17/28

U.S. Cl. 395—752

24 Claims

1. A text-to-text language translation system, comprising:
a computer processor;
a memory having stored therein a plurality of models, wherein said models are used in text-to-text translation, said plurality of models including:
a parametric translation model for generating a modeled translation probability, wherein said parametric translation



model is generated with reference to a translation model source training text and a translation model target training text, said parametric translation model including a first specification of parameters, and

a parametric language model for generating a modeled probability, wherein said parametric language model is generated with reference to a language model training text, said parametric language model including a second specification of parameters; and

means for performing text-to-text language translation using said parametric translation model and said parametric language model.

5,805,833

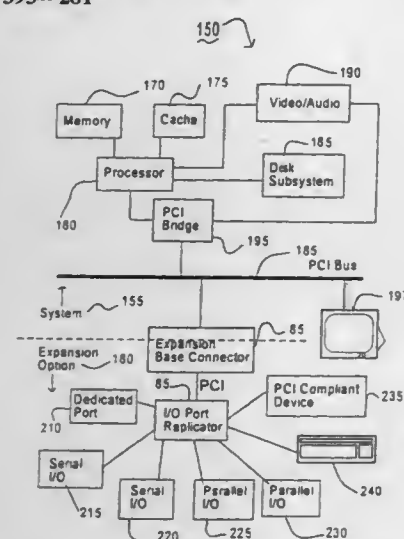
METHOD AND APPARATUS FOR REPLICATING PERIPHERAL DEVICE PORTS IN AN EXPANSION UNIT

Gary J. Verdun, Belton, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 16, 1996, Ser. No. 587,163
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—281

19 Claims



1. An expansion base for coupling to a portable computer, comprising:

a connector for mating with a corresponding coupling in said portable computer, said corresponding coupling in said portable computer being connected to a PCI bus in said portable computer;

a port replicator coupled to said connector in said expansion base;

at least one peripheral device coupled to said port replicator; and said expansion base providing signal pathways between said connector and said port replicator to facilitate said portable computer polling said at least one peripheral device, updating the portable computer system BIOS to reflect the supported communications protocols, and reenumerating the expansion signal bus according to the supported communications protocols.

5,805,834

HOT RECONFIGURABLE PARALLEL BUS BRIDGING CIRCUIT

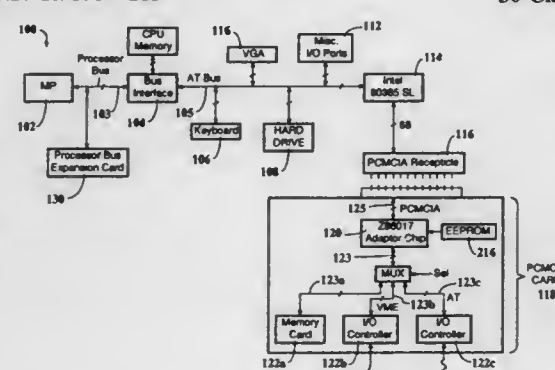
David E. McKinley, San Jose, and Steven Pope, Los Gatos, both of Calif., assignors to Zilog, Inc., Campbell, Calif.

Continuation of Ser. No. 220,161, Mar. 30, 1994, abandoned.
This application Aug. 1, 1996, Ser. No. 691,218

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—283

50 Claims



26. For use in a computer system having a CPU, a first parallel bus, and a receptacle for connecting said system to a plurality of other parallel busses, wherein a communication protocol of the first bus is not directly compatible with a communication protocol of at least one of the other busses, an insertable, reprogrammable adaptor circuit connectable to said receptacle and said other parallel busses for transparently interfacing the first bus with any one of the plurality of other busses, said adaptor circuit comprising:

a hot reprogrammable bridging circuit responsive to configuration programming information for interfacing the first bus with any one of the other busses, wherein said bridging circuit includes means for performing protocol conversion between said first bus and said one other bus;

a memory storage device located on said adaptor circuit for storing said configuration programming information used to configure said bridging circuit;

programming means located on said adaptor circuit for applying said configuration programming information to configure said bridging circuit to interface the first bus with said one other bus; and

bus identification means located on said adaptor circuit and in communication with said programming means for automatically identifying the communication protocol of said first bus, and for automatically causing said programming means to use at least a first portion of said configuration programming information to configure said bridging circuit to communicate with said first bus using said first bus communication protocol;

said bus identification means further including secondary means responsive to a request from said first bus to communicate with one of the plurality of other busses for automatically identifying the communication protocol of said other bus; and

for automatically causing said programming means to use at least a second portion of said configuration programming information to configure said bridging circuit to communicate with said other bus using the communication protocol of said other bus, wherein said bridging circuit is thereby configured to interface said first bus with said other bus, wherein the one of the other plurality of parallel bus systems is of a different type than another of the other plurality of parallel bus systems.

5,805,835

PARALLEL ARCHITECTURE COMPUTER SYSTEM AND METHOD

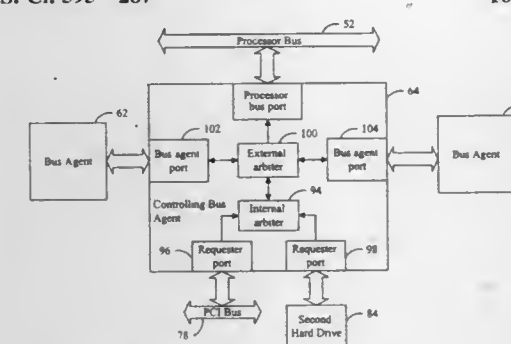
Joe Jeddeloh, Minneapolis, Minn., and Dean A. Klein, Eagle, Id., assignors to Micron Electronics, Inc., Nampa, Id.

Filed Jul. 15, 1996, Ser. No. 679,834

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—287

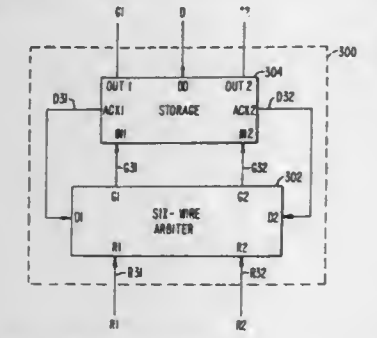
16 Claims



VOL 1214
ISS 2
SE 8
1998
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5,805,838
FAST ARBITER WITH DECISION STORAGE
Ivan E. Sutherland, Santa Monica, and Lee S. Tavrow, Sunnyvale, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.
Filed May 31, 1996, Ser. No. 655,999
Int. Cl.⁶ H01J 13/00

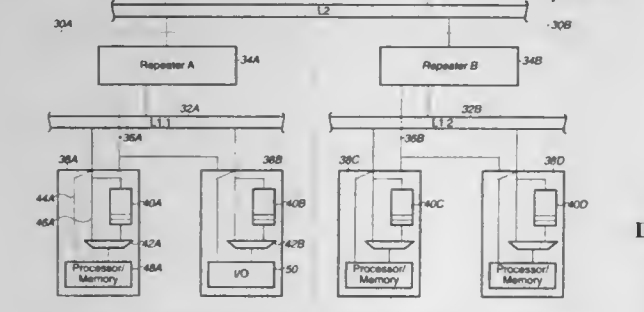
U.S. Cl. 395—292 9 Claims



1. A late-done arbiter comprising:
a decision making device having first and second request input terminals respectively coupled to first and second request input terminals of the late-done arbiter, first and second grant output terminals and first and second done input terminals; and
a decision storage device including:
first and second input terminals respectively coupled to the first and second grant output terminals of the decision making device,
first and second acknowledge output terminals coupled to the first and second done input terminals of the decision making device,
first and second output terminals respectively coupled to first and second grant terminals of the late-done arbiter, and
a done input terminal coupled to a done input terminal of the late-done arbiter,
wherein, the decision storage device stores a first decision output of the decision making device allowing the late-done arbiter to asynchronously initiate a subsequent arbitration before receipt of a done signal.

5,805,839
EFFICIENT TECHNIQUE FOR IMPLEMENTING BROADCASTS ON A SYSTEM OF HIERARCHICAL BUSES
Ashok Singhal, Redwood City, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Jul. 2, 1996, Ser. No. 675,362
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—292 21 Claims

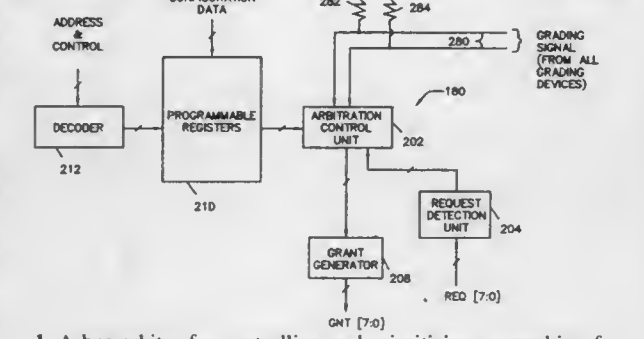


1. A node in a multiprocessor computer system, comprising:
a repeater that receives incoming transactions and transmits outgoing transactions, wherein said outgoing transactions originate in said node and said incoming transactions do not originate in said node;
a bus; and

a first bus device, wherein said first bus device is coupled to said repeater by said bus, and wherein said first bus device includes a first incoming queue and a first processor element, wherein said first incoming queue is configured to receive said outgoing transactions;
wherein said first processor element is configured to receive said incoming transactions from said repeater bypassing said first incoming queue, and wherein said first processor element is configured to receive said outgoing transactions from said first incoming queue, not from said repeater.

5,805,840
BUS ARBITER EMPLOYING A TRANSACTION GRADING MECHANISM TO DYNAMICALLY VARY ARBITRATION PRIORITY
Drew J. Dutton, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Mar. 26, 1996, Ser. No. 621,959
Int. Cl.⁶ G06F 13/26; 13/18; 13/34; 13/366

U.S. Cl. 395—296 14 Claims



1. A bus arbiter for controlling and prioritizing ownership of a bus comprising:
a request detection unit for detecting a plurality of bus request signals corresponding to designated bus masters;
a grant generator for generating a plurality of bus grant signals; and
an arbitration control unit coupled said request detection unit and to said grant generator, wherein said arbitration control unit is configured to process contending bus requests received by said request detection unit;
wherein said arbitration control unit is further configured to adjust a level of arbitration priority given to a designated peripheral device depending upon a grading signal generated by said designated peripheral following a bus transaction effectuated by said designated peripheral;
wherein said bus arbiter further includes a grading signal bus coupled to said arbitration control unit, wherein said grading signal bus is configured to convey grading signals from different peripheral devices; and
wherein said arbitration control unit is configured to sample said grading signal bus a predetermined time after ownership of said bus by said designated peripheral is terminated.

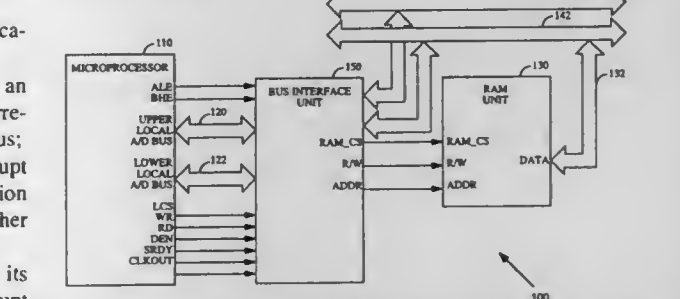
5,805,841
SYMMETRIC PARALLEL MULTI-PROCESSING BUS ARCHITECTURE
Dean A. Klein, Lake City, Minn., assignor to Micron Electronics, Inc., Nampa, Id.
Continuation of Ser. No. 374,894, Jan. 19, 1995, abandoned, which is a continuation of Ser. No. 735,259, Jul. 24, 1991, abandoned. This application Nov. 27, 1996, Ser. No. 758,059
Int. Cl.⁶ G06F 13/24

U.S. Cl. 395—299 8 Claims

1. A digital data processing system comprising:
a. a communication bus having a plurality of common interrupt lines;

5,805,843
MICROPROCESSOR BUS INTERFACE UNIT FOR INTERFACING AN N-BIT MICROPROCESSOR BUS TO AN M-BIT MEMORY DEVICE
Jeffrey B. Gehlhaar, San Diego, Calif., assignor to QUALCOMM Incorporated, San Diego, Calif.
Filed Feb. 1, 1996, Ser. No. 595,318
Int. Cl.⁶ G06F 13/28

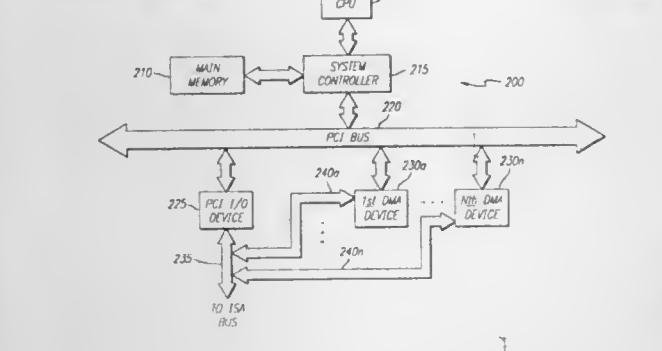
U.S. Cl. 395—309 12 Claims



1. In a system including a microprocessor including a local microprocessor bus, a memory unit, and a system bus coupled to said memory unit, a microprocessor bus interface unit comprising:
a bus control unit including:
an address latch for latching selected parts of N-bit memory addresses impressed upon said local microprocessor bus by said microprocessor, said selected parts of said N-bit memory addresses comprising M-bit memory addresses identifying M-bit memory locations within said memory unit;
a bus interface for transferring data associated with said M-bit memory locations between said system bus and said local microprocessor bus during microprocessor memory access cycles of said microprocessor;
a programmable wait state generator for controlling duration of said microprocessor memory access cycles; and
means for transferring data from said system bus to said local microprocessor bus during ones of said microprocessor memory access cycles corresponding to microprocessor read cycles, wherein said selected parts of said N-bit memory addresses latched during N-bit ones of said microprocessor read cycles correspond to a sequential pair of said M-bit memory locations.

5,805,842
APPARATUS, SYSTEM AND METHOD FOR SUPPORTING DMA TRANSFERS ON A MULTIPLEXED BUS
Ravi Nagaraj; Aniruddha Kunda, both of Hillsboro, and James Akiyama, Beaverton, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.
Filed Sep. 26, 1995, Ser. No. 534,187
Int. Cl.⁶ G06F 13/00

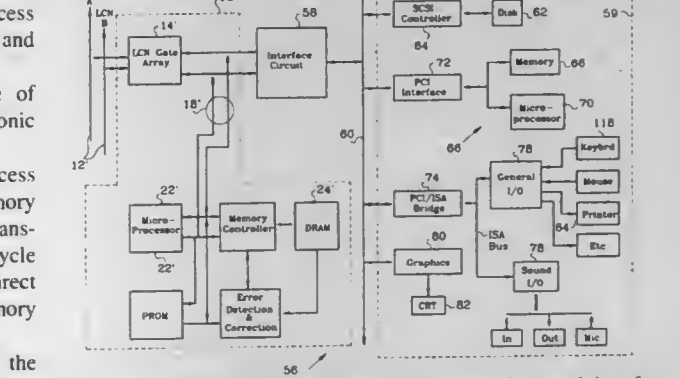
U.S. Cl. 395—306 28 Claims



1. An apparatus configured to support a direct memory access transfer on a multiplexed bus between a main memory element and an electronic device, the apparatus comprising:
a plurality of direct memory access controllers capable of receiving a direct memory access request from the electronic device coupled to the multiplexed bus;
a state machine coupled to the plurality of direct memory access controllers, the state machine coordinating the direct memory access transfer by separating the direct memory access transfer into at least a memory cycle and an input/output cycle upon detecting that at least one of the plurality of direct memory access controllers has received the direct memory access request; and
an internal storage element coupled to the state machine, the internal storage element collecting data during the direct memory access transfer.

5,805,844
CONTROL CIRCUIT FOR AN INTERFACE BETWEEN A PCI BUS AND A MODULE BUS
Jay W. Gustin, 6226 E. Joan de Arc, Scottsdale, Maricopa County, Ariz. 85254, and Michael L. Hodge, 4044 E. Cascade Dr., Cave Creek, Maricopa County, Ariz. 85331
Filed Oct. 7, 1996, Ser. No. 727,725
Int. Cl.⁶ G06F 13/12

U.S. Cl. 395—309 14 Claims



1. A control circuit for an interface circuit of a module of a distributed process control system, said module including a kernel

submodule, a peripheral submodule, and an interface circuit, the interface circuit including an input data multiplexer, and interface registers; the kernel submodule having memory means, producing control and interrupt signals, and communicating with the interface circuit via a module BUS having a structure and a protocol, the peripheral submodule producing control and interrupt signals and communicating with the interface circuit via a second BUS having a structure and a protocol incompatible with that of the module bus; said control circuit comprising:

- A) arbiter state machine (ARSM) means for producing ARSM control signals, module BUS state machine (MBSM) means for producing MBSM control signals, second BUS target state machine means for producing SBSM control signals, and address decode logic (ADL) means for producing ADL control signals;
- B) said ARSM means producing ARSM control signals in response to MBSM control signals, SBSM control signals, ADL control signals, control signals from the kernel submodule, and control signals from the peripheral submodule; said ARSM control signals determining when the kernel submodule has access to one of the interface registers, or when the peripheral submodule has access to one of the interface registers or to the memory means of the kernel submodule;
- C) the MBSM means producing MBSM control signals in response to ARSM control signals, SBSM control signals, and control signals from the kernel submodule; said MBSM control signals enabling the kernel submodule to read from or write into one of the interface registers of the interface circuit when the kernel submodule has access thereto, or enabling the peripheral submodule to read from or write into one of the interface registers or to read from or write into the memory means of the kernel submodule when the peripheral submodule has access to the interface registers or access to the memory means of the kernel submodule; said MBSM control signals controlling the timing of such accesses, and said MBSM control signals also controlling interrupts generated by the peripheral submodule;
- D) the second BUS state machine means producing SBSM control signals in response to ARSM control signals, MBSM control signals, and control signals from the peripheral submodule; said SBSM control signals enabling the peripheral submodule to read from or write into one of the interface registers of the interface circuit or to read from or write into the memory means of the kernel submodule and when so to do; and
- E) the ADL means producing ADL control signals in response to address signals from the kernel submodule or the peripheral submodule being transmitted to the address decode logic through the input address multiplexer, said ADL control signals identifying the interface registers of the interface circuit or the memory means of the kernel submodule into which data signals are to be read from or to be written into by the submodule having access thereto.

5,805,845

METHOD FOR LOADING MEMORY WITH PROGRAM AND DATA INFORMATION FROM PC MEMORY ACROSS A BRIDGING BUS

Dale E. Gulick, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 21, 1996, Ser. No. 731,852

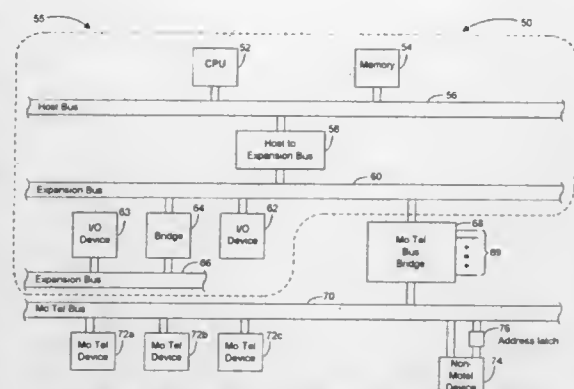
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—309

20 Claims

1. A method for transferring data between a device and a bus bridge in a computer system, the computer system comprising a first bus, the bus bridge for coupling to the first bus and for interfacing to a second bus, a second bus coupled to the bus bridge, and a plurality of peripheral devices connected to the second bus, the method comprising:

- activating a source port in the bus bridge to configure the source port in the bus bridge for a transfer;
- the bus bridge receiving memory address and transfer size information from the first bus, wherein the receiving memory address and transfer size information includes storing the memory address and transfer size information in a register of the source port, wherein the memory address and transfer size



information is indicative of a location and amount of data to be transmitted to a target peripheral device;

the bus bridge transmitting one or more command messages to a destination port of the target peripheral device, wherein the one or more command messages includes an address of the destination port and the memory address and transfer size information received from the first bus, wherein the transmitting is performed in response to storing the memory address and transfer size information in a buffer in the bus bridge;

the target peripheral device receiving the one or more command messages and executing an interrupt in response thereto;

the target peripheral device activating a data port in response to the executing an interrupt;

the source port in the bus bridge receiving data from the first bus into a buffer in the source port;

the source port in the bus bridge transferring one or more address/data pairs across the second bus to the data port of the peripheral device in response to the source port receiving the data into the buffer;

wherein the one or more address/data pairs each includes an address of the data port in the target peripheral device and the data received from the first bus.

5,805,846

SYSTEM AND METHOD FOR DYNAMICALLY SHARING AN APPLICATION PROGRAM AMONG A PLURALITY OF CONFERENCE DEVICES WHILE MAINTAINING STATE

Amane Nakajima, Machida; Makoto Kobayashi, and Fumio Ando, both of Kawasaki, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 371,915, Jan. 12, 1995, abandoned.

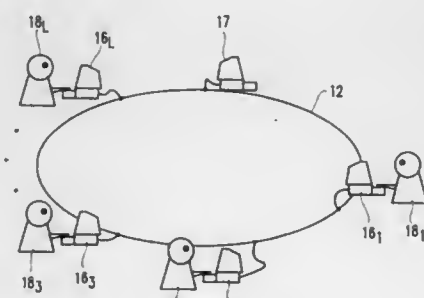
This application Nov. 21, 1996, Ser. No. 754,518

Claims priority, application Japan, Feb. 14, 1994, 6-017269

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—330

5 Claims



1. In a conference system including a plurality of conference devices with at least one requesting conference device executing an application program to be used in a conference, a method for dynamically sharing the application program among the plurality of conference devices while maintaining a same state of the application program at each of the plurality of conference devices, said method comprising the steps of:

communicating a request to share the application program from said requesting conference device executing the application program to other ones of said conference devices enrolled in the conference;

storing a current state of the application program in the requesting conference device;

loading the application program by said other ones of said conference devices enrolled in the conference;

communicating the current state from the requesting conference device to said other ones of said conference devices enrolled in said conference; and

processing the application program by said other ones of said conference devices enrolled in said conference to acquire a state equal to the current state.

5,805,847

Patent Not Issued For This Number

5,805,848

Patent Not Issued For This Number

5,805,849

DATA PROCESSING SYSTEM AND METHOD FOR USING AN UNIQUE IDENTIFIER TO MAINTAIN AN AGE RELATIONSHIP BETWEEN EXECUTING INSTRUCTIONS

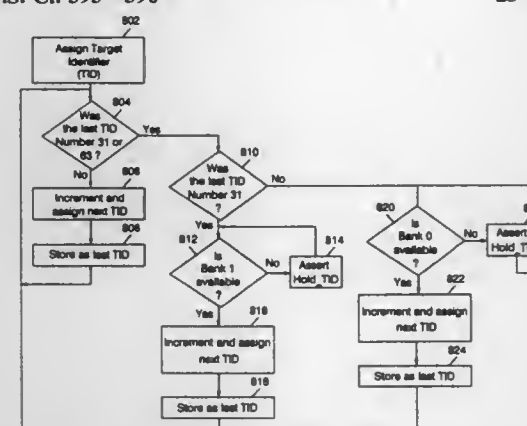
Paul Joseph Jordan; Brian R. Konigsburg; Hung Qui Le, and Steven Wayne White, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1997, Ser. No. 829,592

Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—390

23 Claims



1. A data processing system, comprising:

an input means for receiving a plurality of instructions;

a memory for storing a plurality of control values corresponding to each of a plurality of target identification values, wherein the memory comprises a first bank and a second bank;

a target identification circuit for generating the plurality of target identification values and successively assigning each of the plurality of target identification values to a corresponding one of the plurality of instructions, wherein the target identification circuit selectively reassigns a first portion of the plurality of target identification values corresponding to a first portion of the plurality of control values in the first bank when each of the plurality of target identification values corresponding to the plurality of control values in the first bank and the second bank has been assigned and wherein the plurality of target identification values is a finite number; and

bank bit generation means for generating a bank bit to indicate when the first portion of the plurality of target identification values is available to be reassigned.

5,805,850

VERY LONG INSTRUCTION WORD (VLIW) COMPUTER HAVING EFFICIENT INSTRUCTION CODE FORMAT

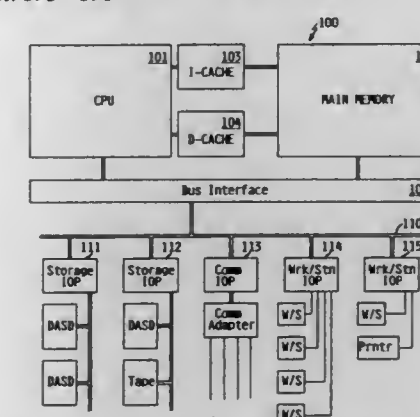
David Arnold Luick, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 30, 1997, Ser. No. 790,839

Int. Cl.⁶ G06F 9/30

U.S. Cl. 395—391

15 Claims



1. A processing apparatus for digital computing, comprising:

an instruction register for storing an instruction containing a plurality of parcels, said instruction register storing said plurality of parcels at pre-defined positions;

an instruction sequencer;

a plurality of data registers;

a plurality of arithmetic logic units, each arithmetic logic unit corresponding to a respective one of said plurality of parcels; instruction decode logic for decoding digital data contained within each parcel to determine the operation to be performed by the respective arithmetic logic unit corresponding to the parcel,

wherein, for at least some of said parcels, said instruction decode logic combines at least one bit of digital data not contained in the parcel with the digital data contained in the parcel to determine the operation to be performed, said digital data not contained in the parcel being derived from the pre-defined position of the parcel.

5,805,851

SYSTEM FOR DETERMINING DATA DEPENDENCIES AMONG INTRA-BUNDLE INSTRUCTIONS QUEUED AND PRIOR INSTRUCTIONS IN THE QUEUE

Jonathan P. Lotz, Fort Collins, Colo., assignor to Hewlett-Packard Co., Palo Alto, Calif.

Filed Jun. 13, 1996, Ser. No. 662,577

Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—392

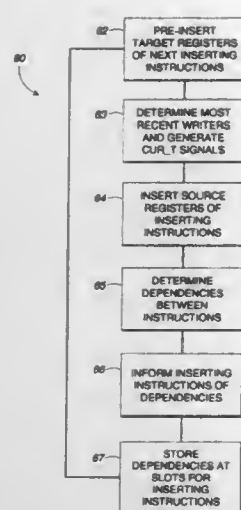
9 Claims

1. A method for determining intra-bundle dependencies in a superscalar machine which simultaneously receives first and second inserting instructions into first and second slots in an instruction queue, respectively, comprising the steps of:

inserting, into said first and second slots and also into a plurality of other slots in the instruction queue, first and second target register numbers of said first and second inserting instructions, respectively;

determining which slots in said instruction queue hold a most recent writer of each target register in said queue based on said first and second target register numbers;

inserting a first source register of said first inserting instruction and a second source register of said second inserting instruction



into said first and second slots and also into said plurality of other slots in said queue;

comparing, at each of said first and second slots and at said plurality of other slots, said first source register number and second source register number with target register numbers for instructions in said first and second and in said plurality of other slots;

supplying said first slot with a first slot priority number corresponding to the slot holding the most recent writer of said first source register and supplying said second slot with a second slot priority number corresponding to the slot holding the most recent writer of said second source register; and storing the first slot priority number at said first slot and the second slot priority number at said second slot.

5,805,852

PARALLEL PROCESSOR PERFORMING BYPASS CONTROL BY GRASPING PORTIONS IN WHICH INSTRUCTIONS EXIST

Chikako Nakanishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

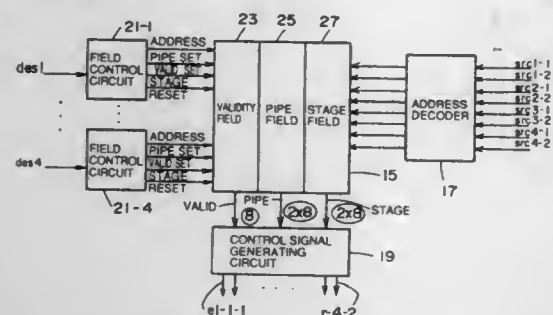
Filed Nov. 7, 1996, Ser. No. 745,134

Claims priority, application Japan, May 13, 1996, 8-117962

Int. Cl. G06F 15/16

U.S. Cl. 395—394

17 Claims



1. A parallel processor having a register file for storing therein a processing result of an instruction according to a destination address of the instruction, and processing in parallel a plurality of said instructions included in one basic instruction, said parallel processor comprising:

a plurality of functional units each processing a corresponding one of said instructions, each of said functional units having a plurality of processing stages for pipelining said corresponding one of successively input said instructions;

bypass means for selectively supplying a plurality of said processing results existing in a plurality of said processing stages

in said plurality of functional units to a plurality of initial ones of said processing stages in said plurality of functional units; and

bypass control means using a plurality of entries corresponding to a plurality of addresses of said register file for controlling, by grasping in which one of said functional units and in which one of said processing stages said instruction having said destination address corresponding to said entry exists, said bypass means such that when said destination address of said instruction existing in any of said plurality of processing stages of said plurality of functional units matches with a source address of said instruction to be processed at said initial processing stage of said functional unit, said processing result of said instruction having said matching destination address is supplied from said processing stage in which said instruction having said matching destination address exists to said initial processing stage at which said instruction having said matching source address is to be processed,

when said bypass control means grasps said instruction having a certain destination address and when a new said instruction having a same one as said certain destination address is input to any of said plurality of functional units, said bypass control means grasping the newly input said instruction by said entry corresponding to said certain destination address.

5,805,853

SUPERSCALAR MICROPROCESSOR INCLUDING FLAG OPERAND RENAMING AND FORWARDING APPARATUS

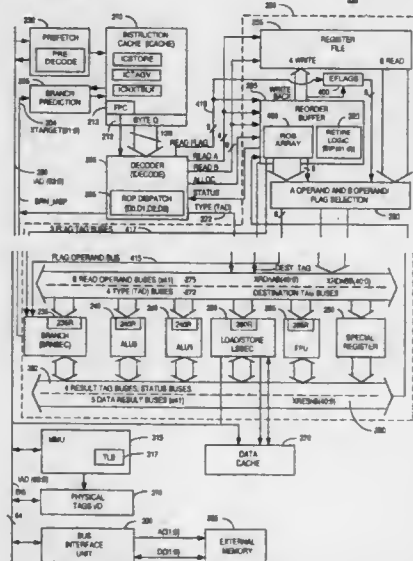
Scott A. White; David S. Christie, and Michael D. Goddard, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 252,029, Jun. 1, 1994, Pat. No. 5,632,023. This application Feb. 10, 1997, Ser. No. 799,064

Int. Cl. G06F 9/30

U.S. Cl. 395—394

3 Claims



1. A processor comprising:

a processor core including an integer execution unit and a floating point execution unit, the integer execution unit generating integer results and the floating point execution unit generating floating point results;

a reorder buffer coupled to the processor core and storing a speculative state of the processor;

a register file coupled to the reorder buffer and storing a real state of the processor;

the reorder buffer including a reorder buffer array having a plurality of storage locations including an integer result portion storing a speculative integer result and a flag result portion storing speculative flag information associated with the integer result, the flag result portion and the integer result

portion being concatenated to form a floating point storage location accommodating storage of floating point results which are wider than the integer results; and a real flags register coupled to the reorder buffer and storing flag information that is retired from the reorder buffer.

5,805,854

SYSTEM AND PROCESS FOR MEMORY COLUMN ADDRESS ORGANIZATION IN A COMPUTER SYSTEM

Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

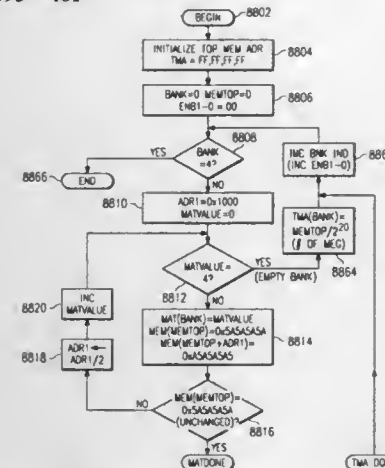
Division of Ser. No. 404,702, Mar. 15, 1995, This application

Jun. 7, 1995, Ser. No. 482,057

Int. Cl. G06F 12/00; G11C 8/00

U.S. Cl. 395—401

15 Claims



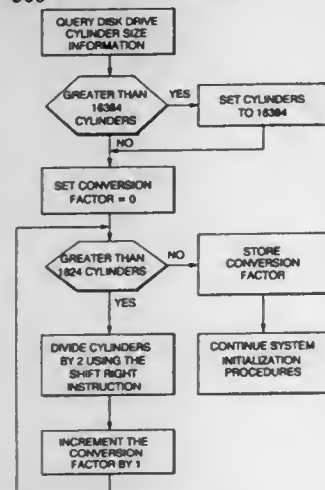
a temperature control circuit having a first temperature control circuit terminal coupled to the second electric heater terminal and a second temperature control circuit terminal; and
a relay having a first relay terminal coupled to the second terminal of said temperature control circuit and a second relay terminal coupled to the supplemental heater control terminal of the supplemental heating system, said relay for receiving control signals through the supplemental heater control terminal and in response thereto for providing an activation sign which allows said electric heater to draw power through the supplemental heater power supply terminal.

5,805,857
DASD CAPACITY IN EXCESS OF 528 MEGABYTES
APPARATUS AND METHOD FOR PERSONAL
COMPUTERS

Daniel James Colegrove, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 7, 1994, Ser. No. 224,846
Int. Cl.⁶ G06F 9/00; 13/12

U.S. Cl. 395—500

63 Claims



1. A computer system comprising:

- a rotating media direct access storage device (DASD) for receiving, storing and delivering digital data, said DASD having a first predetermined number of cylinders and a second predetermined number of heads, each of said cylinders being divided into a third predetermined number of sectors and said heads exchanging digital data with said sectors of said cylinders;
- said DASD having the location of digital data therein defined using cylinder-head-sector storage address data,
- said cylinders and said heads and said sectors together defining storage capacity for said device in excess of five hundred twenty eight million four hundred eighty two thousand three hundred four bytes of digital data,
- a microprocessor for processing digital data, said microprocessor controlling the exchange of digital data with said DASD using cylinder-head-sector storage address data, and
- a control program accessible to said microprocessor for controlling the flow of digital data to and from said DASD, said microprocessor accessing said control program and loading said control program and operating under the control of said control program,
- said control program functioning with said microprocessor and said DASD
- for interrogating said DASD as to said first predetermined number of cylinders,
- for determining that said first predetermined number of cylinders exceeds one thousand twenty four,
- for repeatedly dividing said first predetermined number by two until the quotient is less than one thousand twenty four while registering the number (N) of times such dividing is repeated,

for establishing a first reference frame for cylinder-head-sector data, said first reference frame having a range of up to one thousand twenty four cylinders and a range of up to two hundred fifty six heads,

for establishing a second reference frame for cylinder-head-sector data, said second reference frame having a range of more than one thousand twenty four cylinders and a range of up to said second predetermined number of heads, and

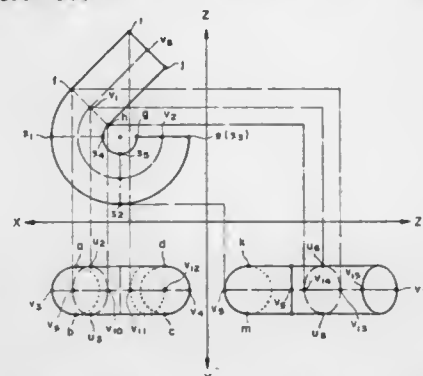
for translating storage address digital data exchanged between said first and second reference frames to enable the exchange of data with the full storage capacity of said DASD, said translating being accomplished using the number (N) of times dividing of said first predetermined number by two was repeated.

5,805,858
APPARATUS AND METHOD OF AUTOMATICALLY
CREATING SUPPLEMENTAL SEGMENT IN TWO-
DIMENSIONAL DRAWINGS, AND CAD/CAM SYSTEM
HAVING FUNCTION OF AUTOMATICALLY CREATING
SUPPLEMENTAL SEGMENT IN TWO-DIMENSIONAL
DRAWINGS

Hiroshi Kumamoto, Osaka, and Koki Imai, Takatsuki, both of Japan, assignors to Omron Corporation, Kyoto, Japan
Filed Apr. 26, 1995, Ser. No. 429,178
Claims priority, application Japan, Apr. 28, 1994, 6-111719
Int. Cl.⁶ G06T 17/40

U.S. Cl. 395—500

22 Claims



1. An apparatus for automatically creating a supplemental segment in two-dimensional drawings, comprising:

- drawing data storing means for storing two-dimensional drawing data concerning at least three views depicted based on orthogonal projection;
- knowledge storing means for storing knowledge for recognizing a three-dimensional model restored on the basis of said two-dimensional drawing data;
- recognizing means for applying the knowledge stored in said knowledge storing means to the two-dimensional drawing data stored in said drawing data storing means, to recognize the three-dimensional model restored on the basis of the two-dimensional drawing data;
- supplemental segment area determining means for determining an area where the supplemental segment is to be created in the two-dimensional drawings on the basis of the three-dimensional model recognized by said recognizing means;
- end point determining means for determining at least two end points of the supplemental segment to be created in the area determined by said supplemental segment area determining means; and
- supplemental segment creating means for creating the supplemental segment connecting the end points determined by said end point determining means.

5,805,859
DIGITAL SIMULATOR CIRCUIT MODIFIER, NETWORK,
AND METHOD

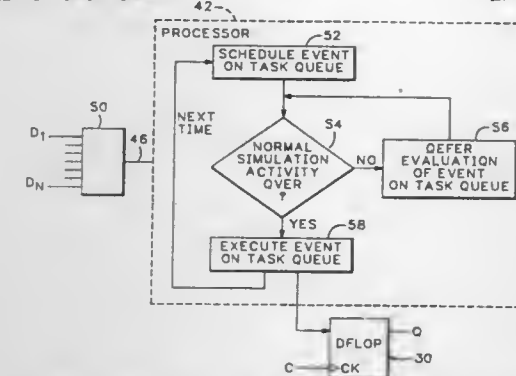
David J. Giramma; Thomas E. Roth, both of Portland; Oliver W. Kozber, Beaverton; Michael G. Robinson, Portland, and David K. Johnson, Aloha, all of Oreg., assignors to Synopsys, Inc., Mountain View, Calif.

Filed Jun. 7, 1995, Ser. No. 477,149

Int. Cl.⁶ G06F 9/455; 17/50

U.S. Cl. 395—500

29 Claims



7. For use with a digital logic simulator, a network for providing consistent evaluation of input pin changes comprising:

- at least one sequential logic element model having plural inputs and at least two input pins to which such inputs are connected; and
- a processor operatively coupled between at least one of the inputs and one of the input pins of the logic element model for scheduling and executing defined events which are characterized, at least in part, by an input change, and further wherein representative data of such defined events are provided to said logic element model at the input pin to which the processor is coupled, at a defined later time, after other events that are different from the defined events and that are related to input changes at the input pin to which the processor is not coupled have been evaluated by the simulator, said processor effectively adding a 0-delay element between the at least one of the inputs and the one of the input pins of the logic element model thereby to ensure consistent simulation.

5,805,860
METHODS, DATA STRUCTURES AND APPARATUS FOR
TRAVERSING A HIERARCHICAL NETLIST

Darrell R. Parham, Sunnyvale, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 5, 1995, Ser. No. 498,531

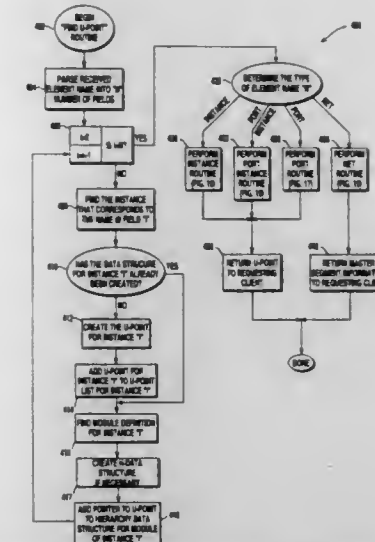
Int. Cl.⁶ G06F 17/30

U.S. Cl. 395—500

42 Claims

1. A hierarchical netlist stored in a computer readable medium, the hierarchical netlist being arranged to represent an electronic device having a multiplicity of device elements, the hierarchical netlist representing the electronic device through hierarchical elements, each hierarchical element corresponding to one or more unique occurrences of separate but identical device elements, the hierarchical element types including a) port, b) port instance, c) net segment, and d) instance, wherein hierarchical elements of type instance include instantiations of gates that correspond to associated device elements, and instantiations of modules that each correspond to an associated logic block of device elements represented as a plurality of hierarchical elements, the hierarchical netlist including:

- a module data structure including a first module and a list identifying each instance of the first module present in the hierarchical netlist; and
- a hierarchical point data structure that represents a first hierarchical element in the hierarchical netlist, the first hierarchical point data structure being arranged to identify a selected device element represented in the first module, the hierarchi-



cal point data structure being capable of identifying a plurality of unique occurrences of separate but identical device elements that are represented by the first hierarchical element, the hierarchical point data structure including:

- a type field for indicating the type of the first hierarchical element;
- a parent module pointer field for indirecting to the first hierarchical element's parent module;
- an element pointer field for indirecting to the first hierarchical element in the hierarchical netlist;
- a unique point list for use in identifying the plurality of unique occurrences; and
- a bottom level flag for indicating whether the first hierarchical element is at a bottom of a traversable hierarchy of the hierarchical netlist.

5,805,861
METHOD OF STABILIZING COMPONENT AND NET
NAMES OF INTEGRATED CIRCUITS IN ELECTRONIC
DESIGN AUTOMATION SYSTEMS

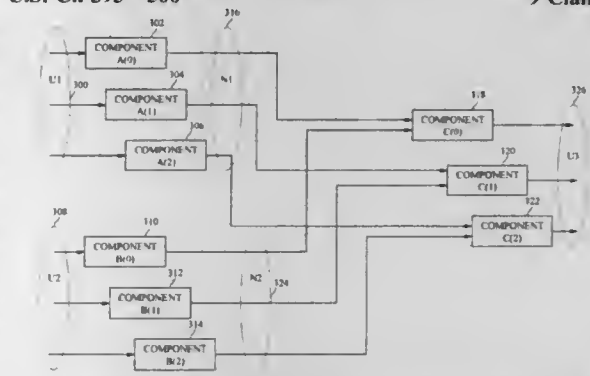
Douglas J. Gilbert, Anoka; James E. Rezek, Mounds View, both of Minn.; Harold E. Reindel, Essex Junction, Vt., and Allen B. A. Tabbert, Bloomington, Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Aug. 29, 1995, Ser. No. 524,017

Int. Cl.⁶ H02L 21/70

U.S. Cl. 395—500

9 Claims



1. In a system used by a logic designer for designing a circuit, the system including a computerized database for storing a detailed description of the circuit design, the detailed description including names for components and nets of the circuit, a method of stabilizing component and net names from a previous detailed description of the circuit design version to a current detailed description of the circuit design version comprising the steps of

- (a) partitioning the previous detailed description of the circuit design version into a first plurality of groups of logic design, each of said first plurality of groups including a section of the previous detailed description of the circuit design version defined by a path from at least one logic designer-defined previous net to at least one logic designer-defined base net affecting said logic designer-defined previous net;
- (b) partitioning the current detailed description of the circuit design version into a second plurality of groups of logic design, each of said second plurality of groups including a section of the current detailed description of the circuit design version defined by a path from at least one logic designer-defined current net to at least one logic designer-defined base net affecting said logic designer-defined current net;
- (c) selecting a first group from said first plurality of groups and a second group from said second plurality of groups;
- (d) transferring the component and net names of said first selected group to said second selected group when said first selected group and said second selected group have an identical logical structure;
- (e) performing the following steps when said first selected group and said second selected group do not have identical logical structure:
- (e1) transferring the component and net names from said first selected group to said second selected group for all subsections of said first selected group which have an identical logical structure to corresponding subsections of said second selected group; and
- (e2) assigning new component and net names for those subsections of said second selected group that do not exist in said first selected group; and
- (f) repeating steps (c) through (e) for said first plurality and said second plurality of groups.

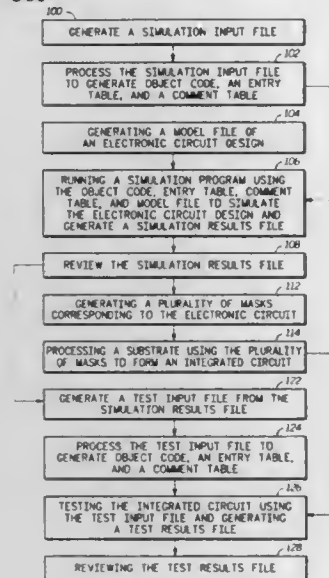
5,805,862

METHOD OF FORMING AN INTEGRATED CIRCUIT
 Marlan L. Winter, Kenneth P. Tumin, and Steven P. Lindquist, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 16, 1995, Ser. No. 558,518
 Int. Cl.⁶ G06F 15/00

U.S. Cl. 395—500

13 Claims



1. A method of forming an integrated circuit comprising the steps of:
- simulating an electronic circuit design including steps of:
- generating simulation input file including source code;
- processing the simulation input file to generate object code, an entry, and an input comment line;

generating a model file that represents the electronic circuit design; and

running a simulation program using a first machine, wherein: the simulation program uses the object code, the entry, the input comment line, and the model file;

a simulation results file is generated by capturing an output comment line and a plurality of test vectors;

the output comment line corresponds to the input comment line;

the output comment line has an associated test vector;

the output comment line is placed adjacent to its associated test vector by using the entry; and

a portion of the plurality of test vectors does not have an associated output comment line; and

generating a plurality of masks corresponding to the electronic circuit design after the step of simulating; and

processing a substrate using the plurality of masks to form the integrated circuit.

5,805,863

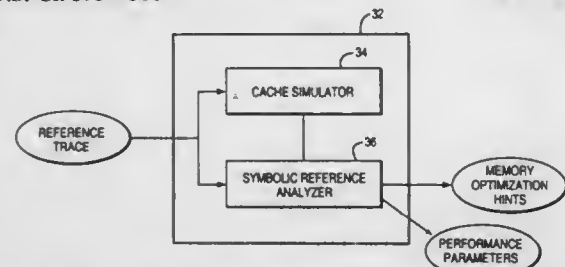
MEMORY PATTERN ANALYSIS TOOL FOR USE IN OPTIMIZING COMPUTER PROGRAM CODE

Po-hua Chang, Saratoga, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 27, 1995, Ser. No. 579,418
 Int. Cl.⁶ G06F 15/18

U.S. Cl. 395—500

38 Claims



1. A method of facilitating optimization of computer program code, the method comprising the steps of:
- applying performance data relating to execution of the program code to a plurality of sets of conditions, each set of conditions corresponding to one of a plurality of optimization techniques, to determine whether each set of conditions is satisfied; and
- for each set of conditions that is satisfied, generating an output identifying the corresponding optimization technique, said generating being independent of performance of said corresponding optimization technique.

5,805,864

VIRTUAL INTEGRATED CARTRIDGE LOADER FOR VIRTUAL TAPE STORAGE SYSTEM

Wayne Charles Carlson, James Arthur Fisher, and Jonathan Wayne Peake, all of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 10, 1996, Ser. No. 707,891
 Int. Cl.⁶ G06F 12/06; 12/08

U.S. Cl. 395—500

56 Claims

1. In a data storage system that provides an interface between a host and a data storage device ("DSD"), said interface emulating a virtual cartridge data storage library in communicating with the host, said virtual cartridge data storage library including a plurality of virtual cartridges, a method for virtually pre-loading virtual cartridges comprising the steps of:
- maintaining an available cartridge database containing a list of virtual cartridges, each virtual cartridge identified in the available cartridge database by a virtual cartridge identifier;
- maintaining an active cartridge map cross-referencing each item of data stored on the DSD with one of the virtual cartridges;

5,805,866

ALIGNMENT METHOD

Nobutaka Magome, and Shinji Mizutani, both of Kawasaki, Japan, assignors to Nikon Corporation, Japan

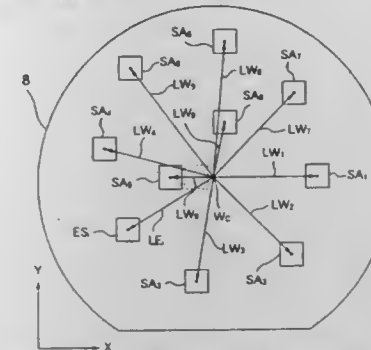
Continuation of Ser. No. 385,420, Feb. 8, 1995, abandoned.
 This application Mar. 24, 1997, Ser. No. 826,064

Claims priority, application Japan, Feb. 10, 1994, 6-016115;
 Feb. 10, 1994, 6-016116

Int. Cl.⁶ G06F 9/455

U.S. Cl. 395—500

34 Claims



- selecting a virtual cartridge identifier from the available database;
- entering the selected virtual cartridge identifier in a pre-load map;
- receiving from a host a scratch mount request; and
- satisfying the scratch mount request by performing steps comprising:
- choosing one of the cartridge identifiers from the pre-load map; and
- removing the chosen virtual cartridge identifier from the pre-load map.

5,805,865

SEMICONDUCTOR DEVICE

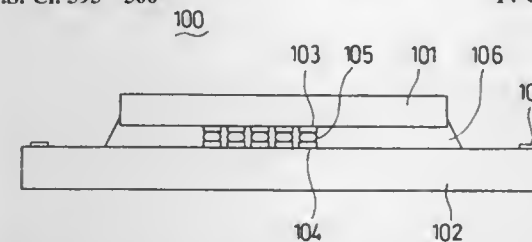
Tadaaki Mimura; Takayuki Yoshida; Ichiro Yamane, all of Osaka; Takio Yamashita; Toshio Matsuki, both of Kyoto; Yoshiaki Kasuga, Shiga, and Hiroaki Fujimoto, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 26, 1996, Ser. No. 721,390
 Claims priority, application Japan, Sep. 28, 1995, 7-251152;
 May 10, 1996, 8-116138

Int. Cl.⁶ H01L 27/00; G06F 13/00

U.S. Cl. 395—500

14 Claims



1. A semiconductor device comprising:
- a first semiconductor chip formed with a first functional element; and
- a second semiconductor chip formed with a second functional element, wherein
- said first and second semiconductor chips are disposed with respective functional surfaces formed with said first and second functional elements being opposed to each other,
- first electrode pads of said first semiconductor chip are electrically connected to second electrode pads of said second semiconductor chip with bumps interposed therebetween, and
- each of said first electrode pads is formed between two interconnecting wires on an uppermost one of plural interconnection layers composing circuitry of said first functional element.

5,805,867

MULTI-PROCESSOR SIMULATION APPARATUS AND METHOD

Masako Kodaira, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 418,582, Apr. 6, 1995, abandoned.
 This application May 27, 1997, Ser. No. 863,557

Claims priority, application Japan, Apr. 6, 1994, 6-068648
 Int. Cl.⁶ G06F 9/00

U.S. Cl. 395—500

23 Claims

1. A simulation apparatus for simulating a multi-processor system having a plurality of processors connected to each other and operated at the same time, said simulation apparatus comprising:
- simulator preparation means, arranged in a single information processing apparatus having a single processor, for preparing a plurality of software simulators, each of which operates independently of others, to simulate, at the same time, both a communication processing which each of the plurality of processors conducts with others of the plurality of processors and an internal processing which each of the plurality of processors conducts, the internal processing not depending upon said communication processing and said communication processing being simulated between each of the plurality of software simulators and another without communicating between two of the plurality of processors; and
- identification information addition means for causing each of the plurality of software simulators prepared by said simulator preparation means to hold identification information relating

receiving a data signal and a clock signal from the memory, the buffer for coupling the data signal to the master device.

5,805,874

METHOD AND APPARATUS FOR PERFORMING A VECTOR SKIP INSTRUCTION IN A DATA PROCESSOR
Michael G. Gallup; L. Rodney Goke, and Melvin Bell, all of Austin, Tex., assignors to Motorola Inc., Schumberg, Ill.
Division of Ser. No. 40,779, Mar. 31, 1993. This application
Apr. 18, 1995, Ser. No. 425,961
Int. Cl.⁶ G06F 15/80

U.S. Cl. 395—563

14 Claims

INSTRUCTION	SYNTAX	OPERATION
REPEAT	REPEAT #N, SREGa	REPEAT THE NEXT #N INSTRUCTIONS SREG NUMBER OF TIMES. THE SREG REGISTER CONTAINS AND USED AS THE LOOP COUNT FOR THE REPEAT INSTRUCTION. THE REPEAT INSTRUCTION DOES NOT MODIFY THE CONTENTS OF SREG. UPON EXECUTION OF THE REPEAT INSTRUCTION THE CONTENTS OF SREG ARE TRANSFERRED TO THE LOOP REGISTER. THE CONTENTS OF SREG IS INTERPRETED AS AN UNSIGNED VALUE. IF THE VALUE IS ZERO THE REPEAT INSTRUCTION WILL CAUSE THE NEXT INSTRUCTION TO BE SKIPPED. #N - SREG IS LIMITED TO THE 6 REGISTERS.
REPEATL	REPEATL #N, SREGa	REPEAT THE NEXT #N INSTRUCTIONS SREG NUMBER OF TIMES WITH AN IMPLICIT VECTOR AT THE END OF EACH ITERATION. THE CONTENTS OF SREG ARE USED AS THE LOOP AS THEY ARE FOR THE REPEAT INSTRUCTION. #N - SREG IS LIMITED TO THE 6 REGISTERS.
RETURN	RETURN	RETURN FROM SUBROUTINE. PLACE THE TOP TWO BYTES ON THE STACK (POINTED TO BY SP) INTO THE PC REGISTER.
RTE	RTE	RETURN FROM EXCEPTION. RETURN TO THE INSTRUCTION FOLLOWING THE INSTRUCTION THAT CAUSED THE EXCEPTION. NOTE THAT FROM EXCEPTION CAUSED WHILE THE PC IS IN A DONE OR HALT STATE, THE PC RETURNS TO THAT STATE UNTIL THE R/S LINE TOGGLES.
SKIPD	SKIPD SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa AND SREGb ARE EQUAL.
SKIPGE	SKIPGE SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa IS GREATER THAN OR EQUAL TO SREGb.
SKIPGT	SKIPGT SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa IS GREATER THAN SREGb.
SKIPLE	SKIPLE SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa IS LESSER THAN OR EQUAL TO SREGb.
SKIPLE	SKIPLE SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa IS LESSER THAN SREGb.
SKIPNE	SKIPNE SREGa, SREGb	SKIP THE NEXT INSTRUCTION IF SREGa AND SREGb ARE NOT EQUAL.
SKIPNV	SKIPNV	SKIP THE NEXT INSTRUCTION IF THE OVERFLOW BIT IS CLEAR.
SKIPNV1	SKIPNV1	SKIP THE NEXT INSTRUCTION IF ANY OF THE VECTOR BITS IN THE VECTOR REGISTER ARE CLEAR.
SKIPV	SKIPV	SKIP THE NEXT INSTRUCTION IF THE OVERFLOW BIT IS SET.

1. A method for executing an instruction in a data processor, comprising the steps of:
receiving the instruction;
decoding the instruction to provide a plurality of control signals;
providing a plurality of processing elements and a plurality of enable bits, each of the plurality of enable bits corresponding to an associated one of the plurality of processing elements, each of the plurality of enable bits having a first value if its associated one of the plurality of processing elements is in a first state, and having a second value if its associated one of the plurality of processing elements is in a second state;
accessing the plurality of enable bits in response to the plurality of control signals;
determining if any of the plurality of enable bits have the first value; and
causing all of the plurality of processing elements to skip execution of a next instruction if any of the plurality of enable bits in any of the plurality of processing elements have the first value.

5,805,875

VECTOR PROCESSING SYSTEM WITH MULTI-OPERATION, RUN-TIME CONFIGURABLE PIPELINES
Krste Asanovic, Berkeley, Calif., assignor to International Computer Science Institute, Berkeley, Calif.

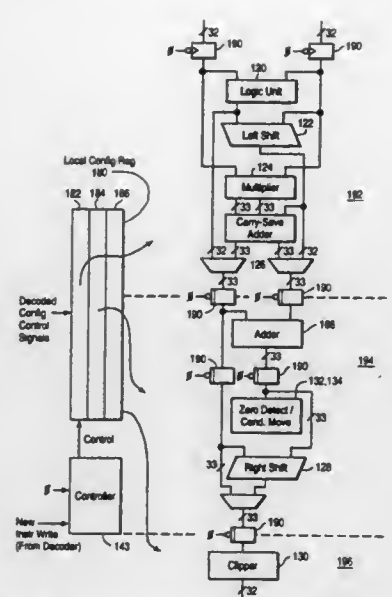
Filed Sep. 13, 1996, Ser. No. 713,748

Int. Cl.⁶ G06F 9/30

U.S. Cl. 395—563

9 Claims

1. A data processor, comprising:
a vector processor unit for performing specified data processing operations, in parallel, on multiple data units;
a multiplicity of registers, each suitable for storing data values as well as pipeline configuration control values;
the vector processor unit including a dynamically configurable set of parallel pipelines, each pipeline having a plurality of



data processing elements for sequentially processing a respective data unit in accordance with the pipeline configuration control values stored in a specified one of the registers; wherein the data processing elements in each pipeline are configured in a plurality of functional sectors separated by gates that are enabled at corresponding system clock phases; an instruction decoder for decoding instructions to be executed by the data processor; each instruction in a subset of the instructions including a configuration register specification field that specifies any one of the registers; the instruction decoder, when decoding any instruction in the subset, utilizing the configuration register specification field in the instruction to determine which of the registers stores the pipeline configuration control values to control operation of the set of parallel pipelines during execution of that instruction; and a local register, associated with the vector processor unit, that stores a plurality of sets of the pipeline configuration control values associated with successive instructions to be executed by the vector processor unit; wherein the local register is configured to simultaneously apply a plurality of the sets of pipeline configuration values in the local register to corresponding different functional sectors of the pipelines in the vector processor unit.

5,805,876

METHOD AND SYSTEM FOR REDUCING AVERAGE BRANCH RESOLUTION TIME AND EFFECTIVE MISPREDICTION PENALTY IN A PROCESSOR

Pradip Bose, Yorktown Heights, N.Y.; Kin Shing Chan, Austin, Tex.; Hung Qui Le, Austin, Tex., and Robert Eric Wasmuth, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 30, 1996, Ser. No. 723,171

Int. Cl.⁶ G06F 9/38

U.S. Cl. 395—581

30 Claims

1. In a processor, a method comprising the steps of:
scanning an instruction buffer for a conditional branch instruction, wherein resolution of said conditional branch instruction is dependent upon a value in a condition register;
generating a target address associated with said conditional branch instruction;

5,805,877

METHOD AND APPARATUS FOR GENERATING BRANCH PREDICTIONS FOR MULTIPLE BRANCH INSTRUCTIONS INDEXED BY A SINGLE INSTRUCTION POINTER

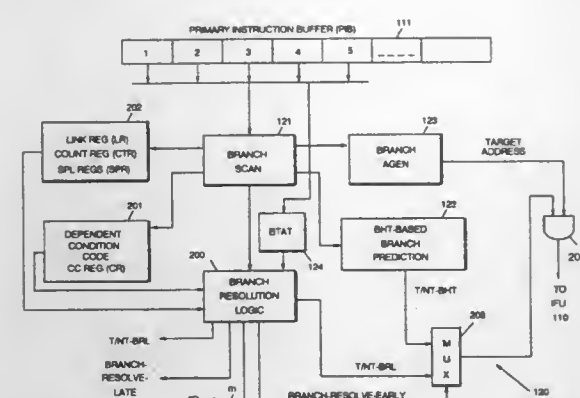
Monis Rahman, San Jose; Tse-Yu Yeh, Milpitas; Mircea Poplingher, Campbell; Carl C. Scafi, Sunnyvale, and Ashish Choubal, Santa Clara, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jan. 31, 1997, Ser. No. 792,115

Int. Cl.⁶ G06F 9/40

U.S. Cl. 395—586

33 Claims



predicting an outcome of said conditional branch instruction;
and
inhibiting branch prediction-directed transmission of said target address to an instruction fetch unit when said conditional branch instruction is resolvable previous to execution of said conditional branch instruction.

5,805,877

DATA PROCESSOR WITH BRANCH TARGET ADDRESS CACHE AND METHOD OF OPERATION

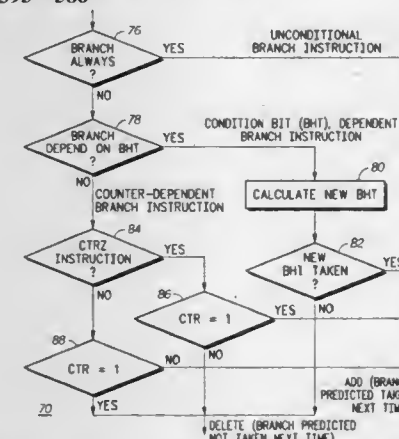
Bryan P. Black; Marvin A. Denman, Jr., and Seungyoon Peter Song, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 23, 1996, Ser. No. 718,027

Int. Cl.⁶ G06F 9/32

U.S. Cl. 395—586

14 Claims



1. A data processor with a branch target address cache, the data processor comprising:
a branch target address cache storing a plurality of sets, each one of the plurality of sets comprising a fetch address and a target address, the branch target address cache outputting a target address of a selected one of the plurality of sets if the fetch address of the selected one of the plurality of sets is logically equivalent to a first subset of an input address;
a branch unit coupled to the branch target address cache, the branch unit generating an execution fetch address responsive to a received instruction and to a value of a condition precedent at a first time, the received instruction stored in a memory location identified by the input address, the branch unit storing the execution fetch address and a subset of the input address in the branch target address cache if a predicted value of the condition precedent at a subsequent time to the first time is logically equivalent to a predetermined value.

5,805,879

IN A PIPELINED PROCESSOR, SETTING A SEGMENT ACCESS INDICATOR DURING EXECUTION STAGE USING EXCEPTION HANDLING

Mark W. Herven, Dallas, Tex., and Raul A. Garibay, Jr., Los Altos, Calif., assignors to Cyrix Corporation, Richardson, Tex.

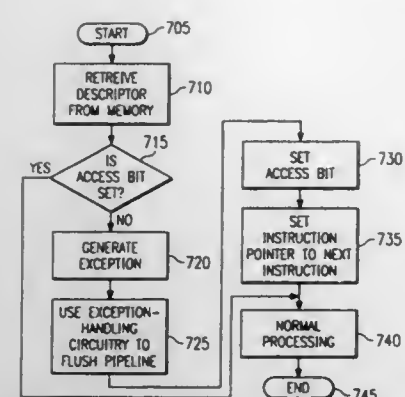
Filed Feb. 23, 1996, Ser. No. 604,788

Int. Cl.⁶ G06F 9/34; 9/38

U.S. Cl. 395—591

12 Claims

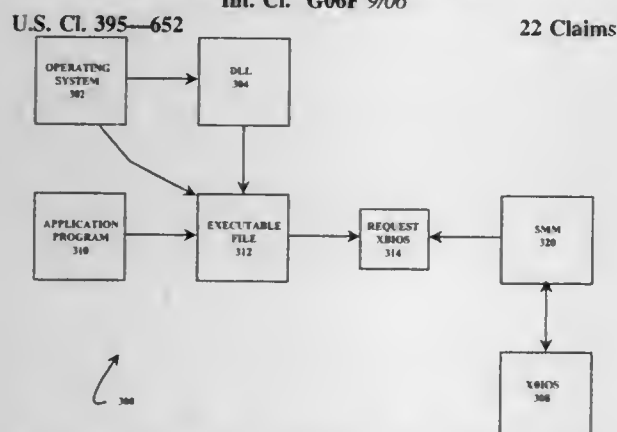
1. In a pipelined processor having at least one execution pipeline with at least an ID processing stage for decoding instructions, and AC processing stage for calculating memory addresses for memory reference instructions including segment descriptor load instructions, and an EX processing stage for executing instructions including segment descriptor load instructions, where the processor executes a segment descriptor load instruction to load a segment descriptor from a system memory external to the processor, the segment descriptor including information describing a memory segment in the system memory including a segment access indicator that when set indicates that the memory segment has been accessed, a circuit to control setting the segment access indicator in



response to execution of a segment descriptor load instruction in the EX processing stage, comprising:

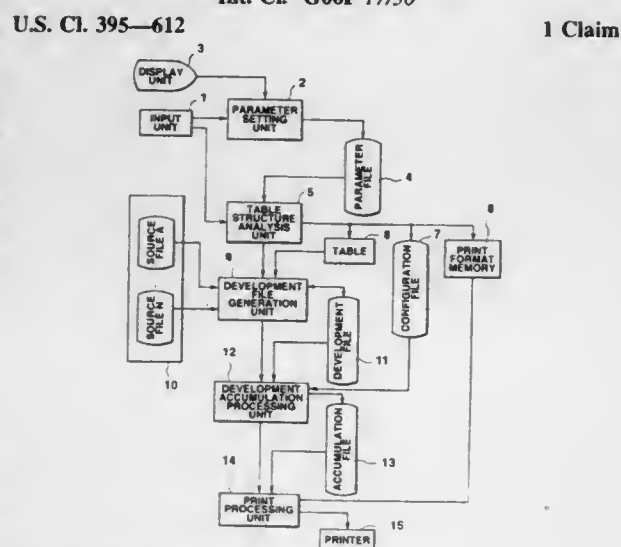
- instruction decode and issue circuitry in the ID processing stage that decodes a segment descriptor load instruction and issues it to the AC processing stage without checking the status of the segment descriptor indicator;
- the AC processing stage being responsive to the segment descriptor load instruction to calculate a memory address used to load the segment descriptor, and then issue the segment descriptor load instruction to the EX processing stage;
- exception generating circuitry that checks the status of the segment access indicator when the segment descriptor load instruction is in the EX processing stage, and generates an exception when said segment access indicator is not set; and
- exception handling circuitry, invoked by said processor in response to generation of said exception, to (i) flush said execution pipeline of instructions following the segment load instruction, (ii) set said segment access indicator and (iii) provide an address pointer for an address corresponding to a specified location within said memory segment.

5,805,880
OPERATING SYSTEM INDEPENDENT METHOD FOR AVOIDING OPERATING SYSTEM SECURITY FOR OPERATIONS PERFORMED BY ESSENTIAL UTILITIES
John J. Pearce, and Craig S. Jones, both of Austin, Tex., assignors to Dell USA, LP, Round Rock, Tex.
Filed Jan. 26, 1996, Ser. No. 592,501
Int. Cl.⁶ G06F 9/06



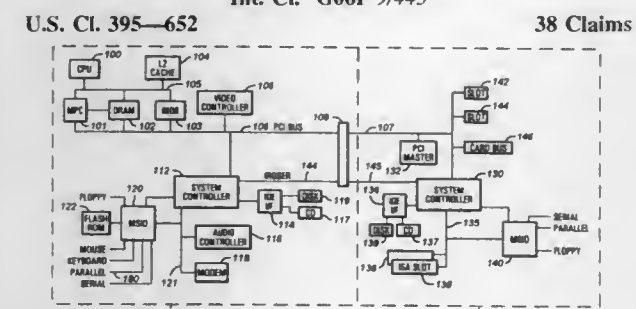
- A utility operating on a computer system having a processor operating under an operating system and a storage, the operating system including software limiting access to the storage, the utility comprising:
 - a coprocessor coupled to the storage and operative independent of the operating system for accessing the storage;
 - a software interface coupled to the coprocessor and executing on the processor to control input and output operations on the processor; and
 - a utility routine executing on the processor and including a program code operative via the software interface for activating the coprocessor to access the storage and receiving a response from the coprocessor.

5,805,881
METHOD AND APPARATUS FOR GENERATING ARBITRARY OUTPUT RECORDS IN RESPONSE TO OUTPUT DESIGNATION OF RECORDS
Hiroyoshi Kiuchi, Hachioji; Tosio Touhara, Oume, and Masaaki Fukumura, Iruma, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 145,695, Oct. 29, 1993, abandoned.
This application Dec. 18, 1995, Ser. No. 579,022
Claims priority, application Japan, Nov. 4, 1992, 4-317999; Feb. 26, 1993, 5-061343; Jul. 2, 1993, 5-188633
Int. Cl.⁶ G06F 17/30



- A data processing apparatus comprising:
 - file storage means for storing files each having a plurality of records, each of said records including a plurality of items;
 - first designation means for designating, on a first displayed array, (i) title of a plurality of output records to be output, (ii) an arrangement order of said plurality of output records, and (iii) files and items stored in said file storage means, so as to obtain an accounting form in which data stored in said file storage means is used;
 - second designation means for designating, on a second displayed array, (i) a plurality of output items contained in each of said plurality of output records designated by the first designation means, (ii) an arrangement order thereof, and (iii) definitions of calculations regarding item data of files designated by the first designation means so as to obtain data of each output item;
 - readout means for reading out designated item data from the files designated by the first designation means;
 - calculation means for calculating item data read out by said readout means, on the basis of the definitions of calculations designated by the second designation means; and
 - output means for outputting an accounting form for each output record designated by the first designation means by assigning values obtained by said calculation means to each output item designated by the second designation means.

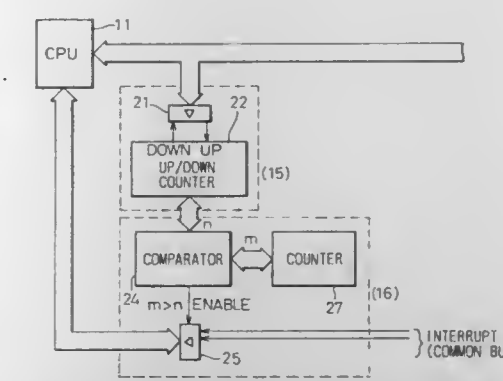
5,805,882
COMPUTER SYSTEM AND METHOD FOR REPLACING OBSOLETE OR CORRUPT BOOT CODE CONTAINED WITHIN REPROGRAMMABLE MEMORY WITH NEW BOOT CODE SUPPLIED FROM AN EXTERNAL SOURCE THROUGH A DATA PORT
Patrick R. Cooper, Houston; David J. DeLisle, Spring, and Hung Q. Le, Katy, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.
Filed Jul. 19, 1996, Ser. No. 684,413
Int. Cl.⁶ G06F 9/445



- A computer system, comprising:
 - a processor;
 - a system memory coupled to said processor;
 - an expansion bus coupled to said processor;
 - a disk drive coupled to said processor for storing data and providing data, said disk drive coupled to said expansion bus;
 - a data port coupled to said expansion bus;
 - a reprogrammable memory coupled to said expansion bus, said reprogrammable memory storing a boot code for execution by said processor upon power up of the computer system;
 - a microcontroller coupled to said expansion bus, to said reprogrammable memory, and to said data port, said microcontroller initially having access to said reprogrammable memory, said microcontroller selectively communicating with a host computer over said data port; and
 - an integrity checker to check the integrity of said boot code in said reprogrammable memory and to indicate whether the integrity of said boot code has been compromised, wherein if the integrity of said boot code has been compromised upon power up, said microcontroller receives data from said data port and stores said data in said reprogrammable memory as said boot code.

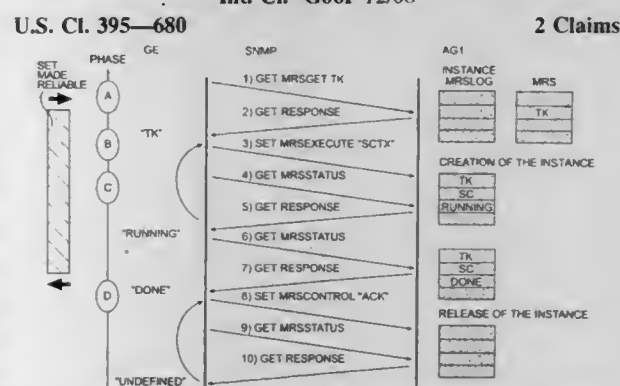
5,805,883
INTERRUPT PROCESS DISTRIBUTING SYSTEM
Hiroyuki Saitoh, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Continuation of Ser. No. 300,942, Sep. 6, 1994, abandoned.
This application Mar. 11, 1997, Ser. No. 815,071
Claims priority, application Japan, Mar. 8, 1994, 6-036660
Int. Cl.⁶ G06F 15/16; 13/24

- An interrupt process distributing system provided in a central processing unit (CPU) board in a loose-coupled type multiprocessor system having a plurality of CPU boards and one input/output (I/O) board which are interconnected through a common bus, a mediation bus and an interrupt bus, said interrupt process distributing system comprising:
 - a CPU executing an interrupt request;
 - a queue counter, connected to the CPU through an internal bus, for counting interrupt requests which are sent from the common bus to the CPU and accumulated therein as queued interrupt requests; and
 - an interrupt transfer control means, connected to the CPU and the queue counter through the internal bus, for receiving the interrupt requests from the interrupt bus and limiting a number of received interrupt requests to be sent to the CPU in accordance with the number of queued interrupt requests.

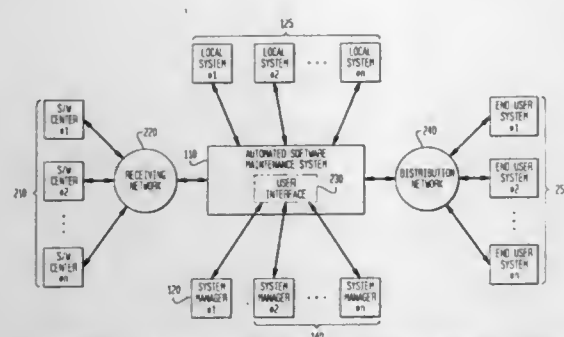


ber of received interrupt requests to be sent to the CPU in accordance with the number of queued interrupt requests.

5,805,884
PROCESS FOR MONITORING EXECUTION OF A COMMAND SCRIPT
Gérard Sitbon, Vitry; Didier Champeval, Plaisir, and Daniel Gobert, Chilly Mazarin, all of France, assignors to Bull, S.A., Louveciennes, France
Filed Apr. 10, 1996, Ser. No. 630,462
Claims priority, application France, May 12, 1995, 95 05637
Int. Cl.⁶ G06F 12/08



- A process for monitoring an acknowledgement of a request for execution of a command script (script) through a protocol which is not guaranteed in a connectionless mode, in an information system (SI) having a plurality of heterogeneous platforms (PL, PLC1, and PLC2), a network (RE) for linking said platform and supporting said protocol, one of said platforms being a command platform (PL), having a manager (GE), the other of said platforms comprising agents (AG1, and AG2,) for executing commands, said process comprising the following steps:
 - A) sending a request (Get mrsGetTK) for an identification ticket using a command of the "get" type, from the manager (GE), to the agent (AG1) of the platform (PLC1) in charge of executing the command request and returning from the agent (AG1) (GetResponse) an identification ticket (TK) to the manager;
 - B) sending the request to execute the command (Set mrsExecute "cmd Tk") from the manager to the agent using a command of the "set" type, for which said ticket is a parameter, then verifying validity of the identification ticket by the agent and creating by said agent an instance for the execution of the command, which the agent associates with the identification ticket (TK), and
 - C) confirming by the manager proper reception of the request by scanning said instance (Get mrsStatus) by means of the agent and, using the identification ticket, monitoring the progress of the execution of the request.



a computer usable medium having computer readable program code means embodied therein for causing a computer to manage the maintenance of computer software, said computer readable program code means comprising:

- computer readable program code means for receiving a software maintenance module;
- computer readable program code means for verifying the validity of said software maintenance module;
- computer readable program code means for scanning said software maintenance module to determine whether said software maintenance module requires testing;
- computer readable program code means for constructing a maintenance job for said software maintenance module; and
- computer readable program code means for distributing said software maintenance module to an end user.

5,805,892

METHOD OF AND APPARATUS FOR DEBUGGING MULTITASK PROGRAMS

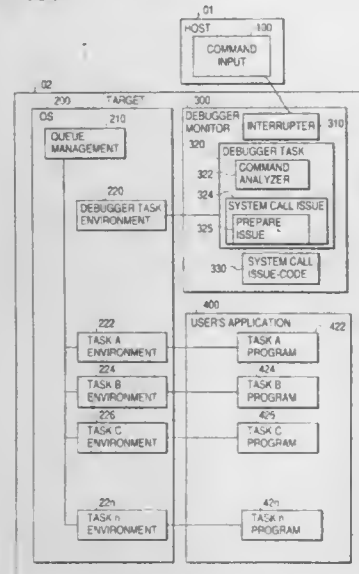
Takashi Nakajima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 13, 1995, Ser. No. 527,587

Claims priority, application Japan, Sep. 26, 1994, 6-229310
Int. Cl.⁶ G06F 11/30; 9/455

U.S. Cl. 395—704

5 Claims



1. An apparatus for debugging multitask programs having a host for receiving user commands including a debugging command, and a target having a plurality of user application programs, a debugger monitor including a debugger task, and a real-time operating system including queue managing means for arranging the user application programs and the debugger monitor as a plurality of

tasks in a queue with priority, and concurrently executing the tasks in an event-driven manner according to execution environment information of the tasks, said apparatus comprising:

input command interpreting means for interpreting a command inputted from the host and detecting a command inputted to the debugger monitor as designating a task to be debugged;

system call issuance coder for storing system call issuing means for issuing a system call from a task designated by the command detected by said input command interpreting means;

address converting means for converting a next execution address of the execution environment information of the task designated by said command;

execution environment information saving means for temporarily saving information containing the next execution address, prior to being converted, in the execution environment information of the designated task to be debugged, and data of said command; and

system call issuing means in the debugger task for starting the task to be debugged from the debugger monitor with the command interpreted by said input command interpreting means, and issuing a system call for putting the debugger monitor into a wait state.

5,805,893

ASSEMBLY LANGUAGE PROGRAM CONVERTER

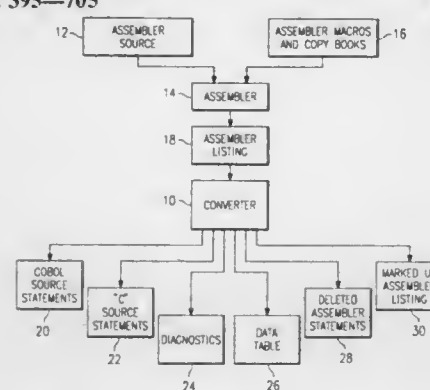
Robert C. Sproul, Murphy, and John A. Wedel, Plano, both of Tex., assignors to Electronic Data Systems Corporation

Filed Mar. 1, 1996, Ser. No. 609,692

Int. Cl.⁶ G06F 3/00; 9/06; 9/22

U.S. Cl. 395—705

42 Claims



1. A computer-implemented method for converting an assembler listing into a high-level language computer program, comprising the steps of:

reading and storing said assembler listing in an array in memory;

logically tracing said assembler listing, determining which lines are logically reachable, and accordingly marking reachable lines;

grouping said lines into at least one section in said assembler listing;

determining an hierarchy of said sections caused by perform instructions in said assembler listing and accordingly labeling each section; and

converting lines of said assembler listing into a source program in said high-level language and storing in said memory.

5,805,894

METHOD INSIDE AN OPTIMIZING COMPILER FOR ANALYZING ASSERTIONS AND REDIRECTING CONTROL FLOW IN PROGRAMS

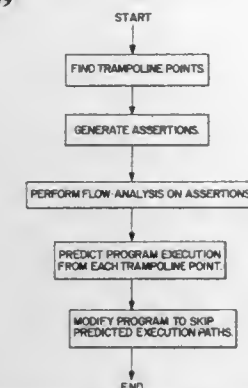
Arch D. Robison, Champaign, Ill., assignor to Kuck & Associates, Inc., Champaign, Ill.

Continuation-in-part of Ser. No. 388,271, Feb. 13, 1995, which is a continuation-in-part of Ser. No. 490,130, Jun. 14, 1995, Pat. No. 5,710,927. This application Mar. 6, 1996, Ser. No. 611,739

Int. Cl.⁶ G06F 9/45

U.S. Cl. 395—709

7 Claims



1. A method operable within an optimizing compiler for redirecting control flow of a program, comprising the steps of:

(a) finding points in said program where control flow merges and subsequently branches, said points being known as trampoline points;

(b) inspecting said program to generate a set of assertions;

(c) performing flow analysis on said assertions;

(d) for each trampoline point found, predicting program execution from said trampoline point by

(i) examining successive actions after said trampoline point;

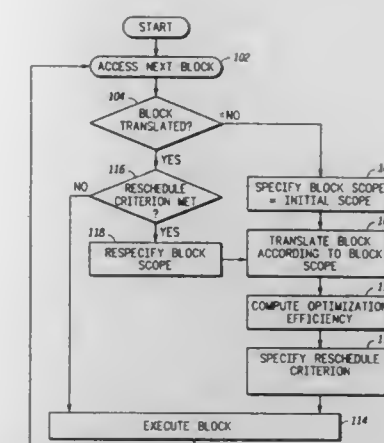
(ii) using the flow analysis of said assertions to predict the result of each branching action; and

(iii) incrementally extending said flow analysis to account for the effect of each side-effecting action along the predicted path until an unpredictable branch is encountered; and

(e) modifying said program when execution of one or more branches is predicted after a trampoline point such that program execution

(i) jumps from said trampoline point to a predicted point; and

(ii) produces side effects equivalent to those that would have occurred if said jump were not inserted.



before translating the next block in step (d) and specifying a reschedule criterion in step (e); and

g) repeating steps (a) through (f) as a loop.

5,805,896

SYSTEM FOR WRITING MAIN MEMORY ADDRESS OF OBJECT TO SECONDARY STORAGE WHEN STORING OBJECT AND READING MAIN MEMORY ADDRESS OF OBJECT WHEN RETRIEVING OBJECT FROM SECONDARY STORAGE

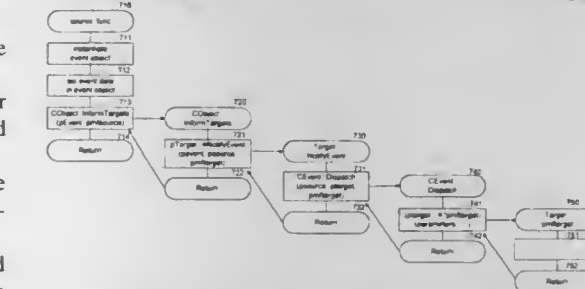
Henry W. Burgess, Woodinville, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 478,500, Jun. 7, 1995, abandoned, which is a division of Ser. No. 153,362, Nov. 16, 1993. This application Nov. 25, 1996, Ser. No. 756,540

Int. Cl.⁶ G06F 12/08; 15/82

U.S. Cl. 395—710

7 Claims



1. A method in a computer system of persistently storing objects implementing the behavior of a visual program in secondary storage, the computer system having a central processing unit and a main memory, the main memory having memory locations, each memory location having a memory address, each object being an instance of a class and having a memory address that uniquely identifies the object, the method including the steps of:

when storing the visual program in secondary storage,

storing in secondary storage the memory address of each object; and

for each object, storing in secondary storage an internal state of the object and the memory address of each target object to which the object is connected; and

when retrieving the visual program from secondary storage,

retrieving from secondary storage the memory address of each object;

for each object,

instantiating an object of the retrieved class within the main memory, the instantiated object having a new memory address; and

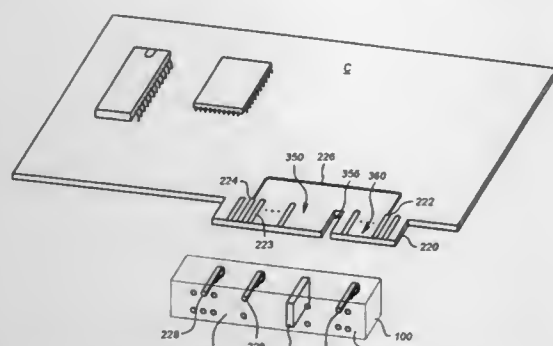
mapping the retrieved memory address to the new memory address for the instantiated object; and

for each instantiated object,

retrieving from secondary storage the internal state and the memory address of the target objects to which the object is connected;

1. An apparatus for protecting a computer system which has a power supply from damage during start-up as a result of incorrect circuit card insertions, said apparatus comprising:

UMI



a circuit card having at least two card edge segments on an edge thereof;
said card edge segments being spaced from each other;
said card edge segments being of different widths;
each said card edge segment having a conductive electrical finger thereon;
said electrical fingers being electrically connected to each other;
a card slot for receiving said circuit card, said card slot having a pair of connector contacts adapted to engage and make electrical contacts with said electrical fingers when said circuit card is properly seated in said card slot;
a power inhibit circuit for inhibiting operation of the computer power supply; and
an insertion detector for detecting the seating status of said card in said card slot, said insertion detector activating said power inhibit circuit unless said card is properly inserted to protect the computer system against damage.

5,805,904

POWER CONTROL CIRCUIT OF AT LEAST ONE COMPUTER EXPANSION SLOT

Sung-Ho Jung, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

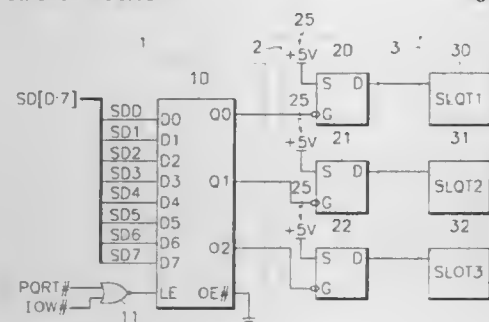
Filed Jul. 5, 1996, Ser. No. 677,369

Claims priority, application Rep. of Korea, Jul. 7, 1995, 95-19942

Int. Cl.⁶ G06F 1/26

U.S. Cl. 395—750.01

6 Claims



1. A power control circuit for controlling power provided to expansion slots for a computer system comprising:
a power source;
a plurality of expansion slots, attached to the computer system; and
latching means for receiving and storing data from the computer system and outputting a plurality of control signals corresponding to the data received, each of the plurality of control signals indicating a power-off state or a power-on state for a corresponding expansion slot of the plurality of expansion slots;
a power controller, connected between the power source and the plurality of expansion slots and controlled by the plurality of control signals.

wherein the power controller connects a chosen expansion slot of the plurality of expansion slots to the power source when a corresponding control signal of the plurality of control signals indicates a power-on state, and disconnects the chosen expansion slot of the plurality of expansion slots from the power source when the corresponding control signal of the plurality of control signals indicates a power-off state.

5,805,905

METHOD AND APPARATUS FOR ARBITRATING REQUESTS AT TWO OR MORE LEVELS OF PRIORITY USING A SINGLE REQUEST LINE

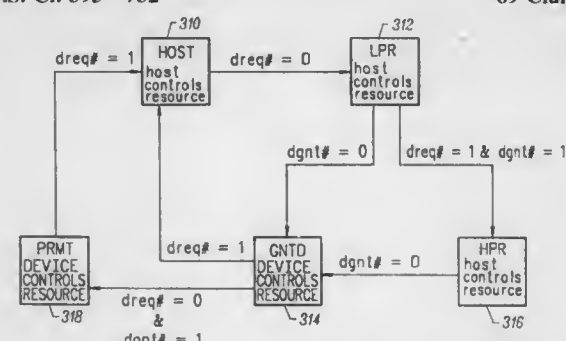
Sukalpa Biswas, Sunnyvale; Dipankar Bhattacharya, Santa Clara, and Mark Williams, San Jose, all of Calif., assignors to OPTI Inc., Milpitas, Calif.

Filed Sep. 6, 1995, Ser. No. 524,224

Int. Cl.⁶ G06F 13/14

U.S. Cl. 395—732

69 Claims



42. Arbitration apparatus for use with a shared resource, a host device and an additional device, said host device requiring control of said resource with at least low and high levels of necessity at different times, said arbitration apparatus comprising a central arbiter having a device request signal line and a device grant signal line both coupled to said additional device, said central arbiter further comprising circuitry which:

asserts a device grant signal on said device grant signal line in response to said central arbiter detecting said device request signal line at a first predetermined logic level while said host device does not require control of said resource;

if said host device does require control of said resource when said central arbiter first detects said device request signal line at said first predetermined logic level, asserts said device grant signal in response to said host device no longer requiring control of said resource;

if said host device does require control of said resource when said central arbiter first detects said device request signal line at said first predetermined logic level, asserts said device grant signal in response to said central arbiter thereafter first detecting said same device request signal line at a second predetermined logic level while said host device's requirement for control of said resource has said low level of necessity; and

if said host device does require control of said resource when said central arbiter first detects said device request signal line at said first predetermined logic level, and further requires said resource with said high level of necessity when said central arbiter thereafter first detects said same device request signal line at said second predetermined logic level, asserts said device grant signal in response to said host no longer requiring said resource with said high level of necessity.

5,805,906

METHOD AND APPARATUS FOR WRITING INFORMATION TO REGISTERS IN A DATA PROCESSING SYSTEM USING A NUMBER OF REGISTERS FOR PROCESSING INSTRUCTIONS

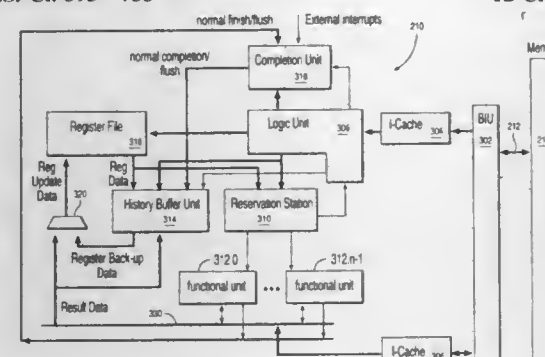
Hoichi Cheong; Hung Qui Le, and Paul Joseph Jordan, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1996, Ser. No. 729,308

Int. Cl.⁶ G06F 9/46

U.S. Cl. 395—733

12 Claims



1. In a data processing system using a number of registers for processing instructions and having at least one port for accessing the registers, a method for writing information to the registers, the method comprising:

- repeatedly accessing the at least one port for writing successive results from at least one functional unit to the registers;
- storing, in a storage element, certain of the results for restoring to the registers;
- accessing the at least one port, in response to an interruption, for restoring at least one of the stored results to at least one of the registers from the storage element, wherein one access, i), which is one of the accesses for writing at least one of the results to the at least one of the registers from the at least one functional unit, and another access, ii), which is the access for restoring at least one of the stored results to at least one of the registers, compete for concurrent access to the at least one port; and
- arbitrating between the competing accesses to the at least one port, which includes comparing the at least one stored result from the storage element with the at least one result from the at least one functional unit.

5,805,907

SYSTEM AND METHOD FOR REDUCING POWER CONSUMPTION IN AN ELECTRONIC CIRCUIT

Albert John Loper, Cedar Park, and Soumya Mallick, Austin, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

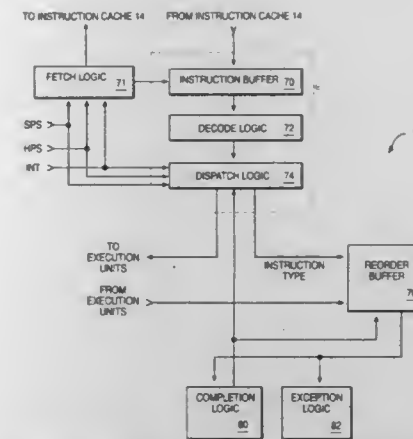
Filed Oct. 4, 1996, Ser. No. 726,370

Int. Cl.⁶ G06F 1/32

U.S. Cl. 395—750.01

12 Claims

1. A method, comprising:
operating dispatch unit of a data processor at a first clock rate;
selecting between a first and a second power mode for said dispatch unit responsive to a power control signal, wherein:
while operating said dispatch unit in a first power mode, dispatching up to N number of instructions per cycle of the dispatch unit at said first clock rate to execution unit for execution, wherein N is an integer number and N>1; and
while operating said dispatch unit in a second power mode, dispatching up to M number of instructions per cycle of the



dispatch unit at said first clock rate to said execution unit for execution, wherein M is an integer number and 0<M<N.

5,805,908

Patent Not Issued For This Number

5,805,909

MICROPROCESSORS OR MICROCONTROLLER UTILIZING FLL CLOCK HAVING A REDUCED POWER STATE

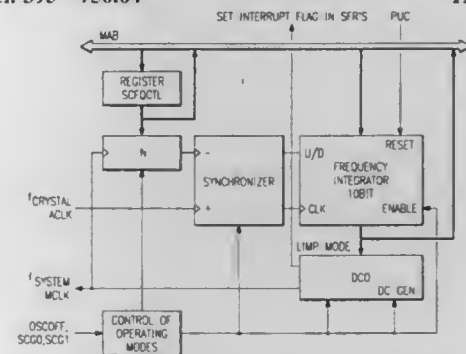
Horst Diewald, Freising, Germany, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 3, 1995, Ser. No. 510,808

Int. Cl.⁶ G06F 1/32; 1/04

U.S. Cl. 395—750.04

11 Claims



1. A microprocessor or micro-controller formed as a single integrated circuit comprising:

- a plurality of similarly addressed modules at least one of said modules being an analog module or an analog interface module;
- a clock circuit including a Frequency Locked Loop (FLL) circuit for clocking said microprocessor or micro-controller, said FLL circuit having two states, one of said states having a frequency lock loop active and the other of said states having said frequency lock loop inactive; and
- a register under control of said microprocessor or micro-controller for controlling the state of said frequency lock loop.

5,805,910

COMPUTER HIBERNATION SYSTEM FOR TRANSMITTING DATA AND COMMAND WORDS BETWEEN HOST AND CONTROLLER

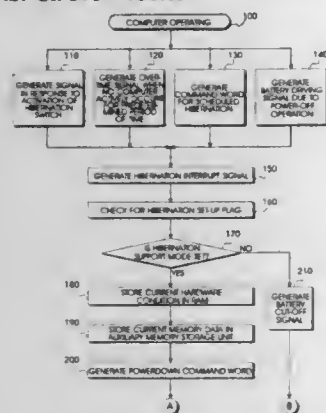
Chang-bo Lee; Shung-hyun Cho, both of Kyungki-do, and Noh-byung Park, Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea
Filed Mar. 25, 1996, Ser. No. 621,948

Claims priority, application Rep. of Korea, Mar. 28, 1995, 95-6759; Dec. 20, 1995, 95-52853

Int. Cl.⁶ G06F 1/26; 1/32

U.S. Cl. 395—750.05

12 Claims



I. A computer system, comprising:
a host unit;

a power management system;

a data backup power supply;

a switching mode power supply for supplying operating power to the computer system;

an auxiliary memory storage unit; and

a memory, wherein:

said power management system generates a hibernation signal when one of a hibernation switch is manually activated by a user, an event is not generated from peripheral devices of said computer system for a predetermined time period, a command word is generated by said host unit to perform a scheduled hibernation, and a battery driving signal is output from said data backup power supply due to a power-off operation;

said host unit stores a working environment and data in said auxiliary memory storage unit in response to said hibernation signal, and outputs a powerdown command word so that said power management system cuts off a supply of power to said computer system by outputting one of a main power cut-off signal and a battery power cut-off signal; and said host unit retrieves said working environment and data, identifies a source requesting a wake-up operation, and performs a corresponding operation, when said power management system resumes said supply of power to said computer system; and

wherein said power management system comprises:

a WAKE-UP source interface unit for outputting a WAKE-UP signal to wake up said computer system while said supply of power to said computer system is cut off;

a controller for outputting said hibernation signal when one of said hibernation switch is manually activated by the user, said event is not generated from said peripheral devices of said computer system for said predetermined time period, said command word is generated to perform said scheduled hibernation, and said battery driving signal is output from said data backup power supply due to said power-off operation, said controller cutting off said supply of power to said computer system by outputting one of said main power

cut-off signal and said battery power cut-off signal in response to said powerdown command word, and resuming said supply of power to said computer system by outputting a power supply signal in response to one of said WAKE-UP signal, activation of said hibernation switch and passage of a designated time period while said supply of power to said computer system is cut off; and

an interface unit for transmitting data for controlling hibernation process of the computer system according to the command word transmitted between said controller and said host unit.

5,805,911

WORD PREDICTION SYSTEM

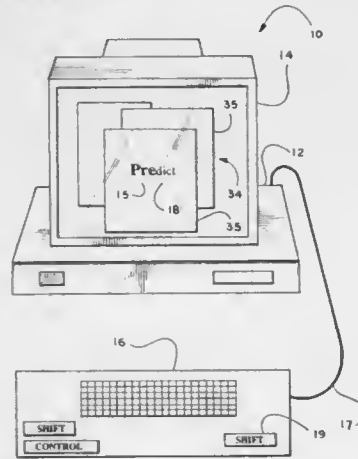
John W. Miller, Kirkland, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Feb. 1, 1995, Ser. No. 382,074

Int. Cl.⁶ G06F 15/00

U.S. Cl. 395—796

22 Claims



I. In a computer system, a computer-implemented method for predicting text for presentation on a display monitor, comprising the steps of:

receiving input text from a text input device;

providing said input text to a text prediction system within said computer system,

said text prediction system comprising:

a first text prediction module for predicting text based on a first text prediction method, and

a second text prediction module for predicting text based on a second text prediction method;

analyzing said input text by said first text prediction method of said first text prediction module and providing a first output text prediction from said first text prediction module to said text prediction system;

analyzing said input text by said second text prediction method of said second text prediction module and providing a second output text prediction from said second text prediction module to said text prediction system, said second output text prediction capable of being contradictory when compared to said first output text prediction;

in response to receiving said first and second output text predictions, determining which of said output text predictions to display; and

displaying said output text prediction, from said step of determining, to said display monitor.

5,805,912

MICROPROCESSOR ARRANGED TO SYNCHRONOUSLY ACCESS AN EXTERNAL MEMORY OPERATING AT A SLOWER RATE THAN THE MICROPROCESSOR

William M. Johnson, and David B. Witt, both of Austin, Tex., assignors to Advanced Micro Devices, Austin, Tex.

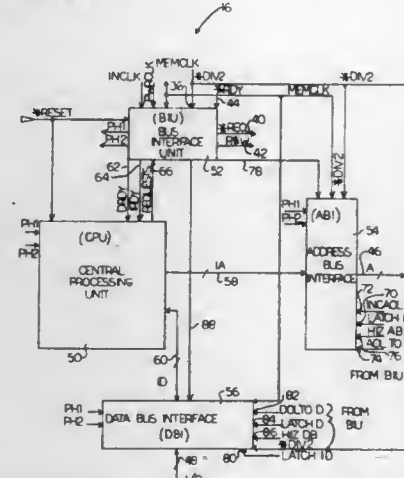
Continuation of Ser. No. 663,314, Mar. 1, 1991, abandoned.

This application Sep. 1, 1993, Ser. No. 115,981

Int. Cl.⁶ G06F 1/04

U.S. Cl. 395—800

63 Claims



I. A microprocessor having a processing rate for use with an external memory having an accessing rate, the microprocessor having at least one mode of operation wherein said processing rate is greater than said accessing rate, the microprocessor operating at said processing rate while directly and synchronously loading data from and storing data in said external memory at said accessing rate when the microprocessor is operating in said at least one mode, said microprocessor including:

an internal clock for driving said microprocessor at said processing rate at a second frequency;

memory access control means for loading data from and storing data in said external memory at said accessing rate at a first frequency while the microprocessor is operating in either a first mode wherein said processing rate is greater than said accessing rate or a second mode wherein said processing rate equals said accessing rate;

a rate control input for receiving a rate control signal having a first level indicative of said second frequency being equal to a first frequency or a second level indicative of said second frequency being greater than said first frequency; and said memory access control means being coupled to said rate control input and being responsive to said rate control signal and a memory clock providing memory clock pulses for causing the microprocessor to access said external memory in synchronism with said memory clock when said rate control signal is at said first level and said second frequency equals said first frequency and for causing the microprocessor to access said external memory in synchronism with said memory clock when said rate control signal is at said second level and said second frequency is greater than said first frequency.

5,805,913

ARITHMETIC LOGIC UNIT WITH CONDITIONAL REGISTER SOURCE SELECTION

Karl M. Gutttag, Missouri City, Tex., and Keith Balmer, Bedford, England, assignors to Texas Instruments Incorporated, Dallas, Tex.

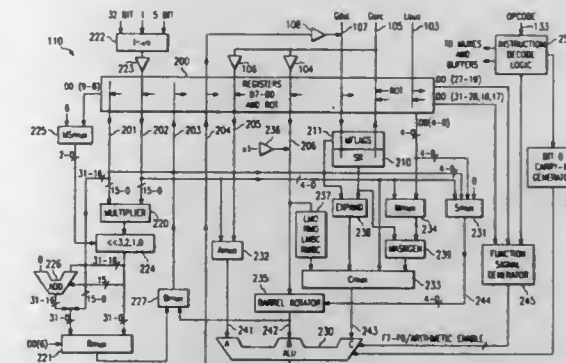
Filed Nov. 30, 1993, Ser. No. 159,344

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—800

102 Claims

53. An data processing system comprising:
an data system bus transferring data and addresses;



a system memory connected to said data system bus, said system memory storing data and transferring data via said data system bus;

an data processor circuit connected to said data system bus, said data processor circuit including

a plurality of distinct data registers, each data register having a predetermined number N bits,

a status register storing at least one status bit,

an arithmetic logic unit having first and second inputs and an output coupled to said plurality of data registers, said arithmetic logic forming at said output a selected combination of data received at said first and second inputs, and

an instruction decode logic connected to said plurality of data registers, said status register and said arithmetic logic unit, said instruction decode logic controlling said plurality of data registers, said status register and said arithmetic logic unit in response to a received register pair conditional source instruction to

supply data stored in a first register to said first input of said arithmetic logic unit if a status bit selected from said at least one status bit has a first digital state and a register pair conditional source selection bit of said received instruction has a third digital state,

supply data stored in a second register associated with said first register to said first input of said arithmetic logic unit if said selected status bit has a second digital state opposite to said first digital state and said register pair conditional source selection bit of said received instruction has said third digital state,

supply data stored in said first register to said first input of said arithmetic logic unit if said register pair conditional source selection bit of said received instruction has a fourth digital state opposite to said third digital state, supply data stored in a third register to said second input of said arithmetic logic unit, and

store the output of said arithmetic logic unit in a specified destination register.

5,805,914

DATA PIPELINE SYSTEM AND DATA ENCODING METHOD

Adrian Philip Wise, Bristol; Martin William Sotharan, Dursley; William Philip Robbins, Cam; Anthony Peter John Claydon, Bath; Kevin James Boyd, Bristol, and Helen Rosemary Finch, Wotton-Under-Edge, all of United Kingdom, assignors to Discovision Associates, Irvine, Calif.

Division of Ser. No. 400,397, Mar. 7, 1995, which is a continuation of Ser. No. 82,291, Jun. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 382,958, Feb. 2, 1995. This application Jun. 7, 1995, Ser. No. 479,279

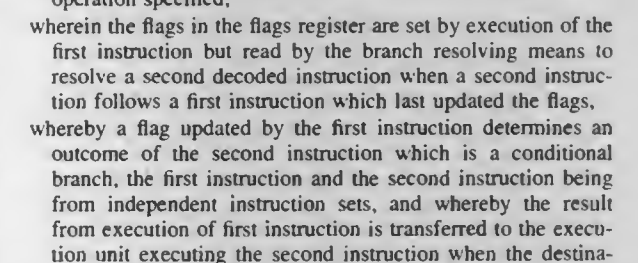
Int. Cl.⁶ G06F 15/00

U.S. Cl. 395—800

9 Claims

I. In a video decoding system having an input, an output and a pipeline comprising a plurality of sequential processing stages between the input and the output, comprising:

two-wire interfaces interconnecting stages of said pipeline for conveyance of variable length tokens along said pipeline; said



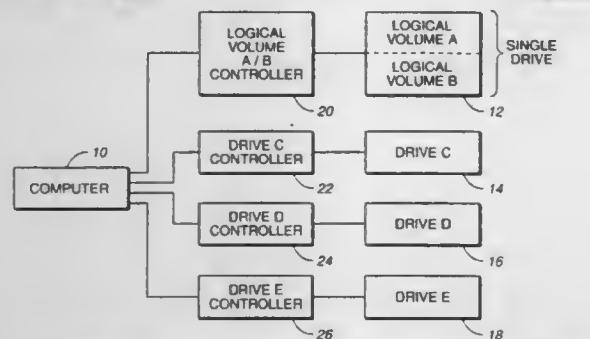
tion register specified in the first instruction is the same register as the source register specified in the second instruction.

5,805,919
METHOD AND SYSTEM FOR INTERLEAVING THE DISTRIBUTION OF DATA SEGMENTS FROM DIFFERENT LOGICAL VOLUMES ON A SINGLE PHYSICAL DRIVE

Michael H. Anderson, Westlake Village, Calif., assignor to Micropolis Corporation, Chatsworth, Calif.
Filed Oct. 5, 1995, Ser. No. 538,981
Int. Cl.⁶ G06F 12/00

U.S. Cl. 395—821

7 Claims



1. A data storage system including at least one physical drive having a single disk for the storage of computer readable information generated by a computer, comprising:

a disk drive controller coupled between at least one physical drive and the computer for causing the at least one physical drive to be accessible as a plurality of logical volumes by the computer;

said disk drive controller responsive to the computer for the storage and retrieval of the computer readable information from said plurality of logical volumes at specified volume addresses, wherein said plurality of logical volumes include at least two logical volumes, each volume having a controller assigned physical zone on the single disk containing a plurality of data storage segments for storing the computer readable information, each data storage segment being identified by a specific physical disk address;

said disk drive controller including an address converter for converting each specified volume address of a data storage segment to a specific physical disk address to access the requested computer readable information on the single disk; and

said disk drive controller further including first volume mapping means for assigning at least some of the data storage segments in one of the physical zones with at least some of the data storage segments in the other one of the physical zones;

said disk drive controller further including second volume mapping means for assigning at least some of the data storage segments in the other one of the physical zones with at least some of the data storage segments in the one of the physical zones to effect data storage segment interleaving so that alternating volume access requests generated by the computer do not cause substantial time delays due to the retrieval of the computer readable information from the physical zones assigned by said controller;

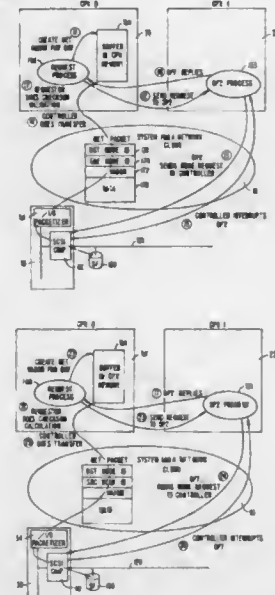
wherein said address converter causes the specified address of each data storage segment in the:

first logical volume to be mapped to the physical address on the disk equal to the specified address times two; and in the second logical volume to be mapped to the physical address on the disk equal to twice the specified address, minus the total number of interleaved cylinders on the physical drive, plus one.

5,805,920
DIRECT BULK DATA TRANSFERS
Todd W. Sprengle, Sunnyvale; Srinivasa D. Murthy, and Anil Khatri, both of San Jose, all of Calif., assignors to Tandem Computers Incorporated, Cupertino, Calif.
Filed Nov. 13, 1995, Ser. No. 556,618
Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—821

26 Claims



1. In a data processing system for transferring data in which a plurality of central processing units (CPUs) and at least one storage unit are interconnected by a network, said CPUs including a request CPU having a request process, access to said storage unit being controlled by one of said CPUs, a method of direct transfer of data between said storage unit and said request CPU, comprising the steps of:

- a) the request process creating a virtual memory address indicative of a memory buffer of said request CPU;
- b) the request process sending to said one of said CPUs said virtual memory address and a storage unit access request;
- c) the one of said CPUs sending to said storage unit: a work request including said virtual memory address;
- d) responding to said work request; and
- e) interfacing directly with said request CPU for the transfer of data between the storage unit and said memory buffer.

2. The method of direct transfer of data between said storage unit and said request CPU of claim 1, wherein said direct transfer of data allows said request CPU to read data from said storage unit into said by buffer at said virtual memory address.

5,805,921
ENHANCED INTEGRATED DEVICE ELECTRONICS (EIDE) INTERFACE FOR CONTROLLING COMMUNICATION BETWEEN CPU AND NINE STORAGE DRIVES INCLUDING TAPE DRIVE, CD-ROM DRIVE, AND SEVEN HARD DISK DRIVES

Dan Kikinis, Saratoga, and Pascal Dornier, Sunnyvale, both of Calif., assignors to Elonex I. P. Holdings Ltd., London, United Kingdom

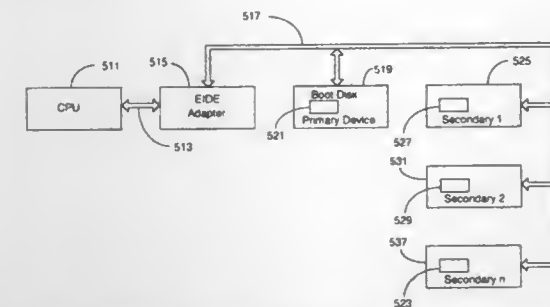
Continuation of Ser. No. 33,839, Mar. 19, 1993, abandoned.
This application Jul. 11, 1995, Ser. No. 595,678

Int. Cl.⁶ G06F 15/02

U.S. Cl. 395—822

2 Claims

1. An Enhanced Integrated Device Electronic (EIDE) interface system for managing data communication between a CPU and nine connected digital mass storage drives according to an enhanced IDE (EIDE) communications protocol, the nine drives including one tape storage drive, one CD-ROM drive, and seven IDE magnetic hard-disk drives, the system comprising:



Control circuitry connected to the CPU for storing and performing control routines; and
nine connectors, each connected to the control circuitry and to individual ones of said connected digital mass storage drives; said control circuitry configured for selecting one of the hard-disk drives as a primary drive according to standard IDE protocol, and for selecting each of the remaining digital mass storage drives individually as secondary drives differentiated by a unit select number comprising three digital bits, wherein each storage drive equipped with a microcontroller to translate between the EIDE protocol and the protocol of the drive, and to store a unit select number.

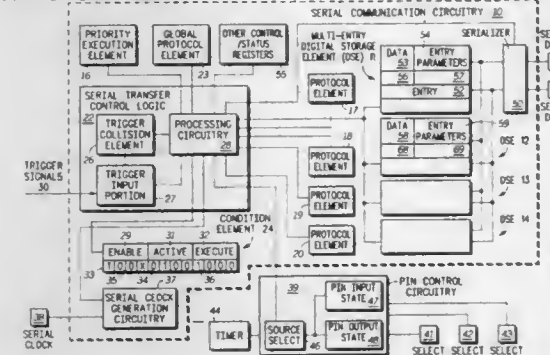
5,805,922
QUEUED SERIAL PERIPHERAL INTERFACE HAVING MULTIPLE QUEUES FOR USE IN A DATA PROCESSING SYSTEM

Yah Bin Sim; Carl D. Wiseman; Tushar Patel, all of Austin, Tex.; Rudolf Bettelheim, Buda, Tex.; Louis Rodriguez, Jr., Fort Worth, Tex.; Rolfe M. Fisher, Trenton, Mich.; John R. Scollard, Lake Orion, Mich.; and Clare C. Leiby, III, Southfield, Mich., assignors to Motorola, Inc., Schaumburg, Ill., and Ford Motor Company, Dearborn, Mich.

Filed May 2, 1994, Ser. No. 237,437

U.S. Cl. 395—825

24 Claims



1. A serial communication processor, comprising:
a plurality of multi-entry digital storage elements, wherein each entry of each multi-entry digital storage element of the plurality of multi-entry digital storage elements includes a data portion and an entry parameter portion, and wherein the data portion includes a receive data portion and a transmit data portion;
a global protocol element that stores global parameters for the plurality of multi-entry digital storage elements;
a plurality of protocol circuits, wherein a corresponding protocol circuit of the plurality of protocol circuits stores parameters for a corresponding multi-entry digital storage element of the plurality of multi-entry digital storage elements; and
serial transfer control logic, coupled to the plurality of multi-entry digital storage elements, to the global protocol element, and to the plurality of protocol circuits, wherein the serial transfer control logic selects one of the plurality of multi-entry digital storage elements and the corresponding protocol circuit of the one of the plurality of multi-entry digital storage elements and executes a serial data transfer with the one of

the plurality of multi-entry digital storage elements based on the parameters stored in the corresponding protocol circuit, the global parameters, and entry parameters stored in the entry parameter portion.

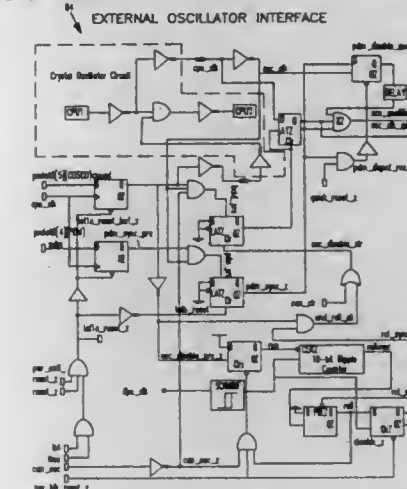
5,805,923
CONFIGURABLE POWER MANAGEMENT SYSTEM HAVING A CLOCK STABILIZATION FILTER THAT CAN BE ENABLED OR BYPASSED DEPENDING UPON WHETHER A CRYSTAL OR CAN OSCILLATOR IS USED
Michael John Shay, Arlington, Tex., assignor to Sony Corporation, Tokyo, Japan

Filed May 26, 1995, Ser. No. 451,206

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—828

33 Claims



1. An apparatus including a power management system oscillator interface, the power management system oscillator interface comprising:

- an input interface circuit for interfacing with an external oscillator used as a source of oscillations;
- a clock stabilization filter for masking out spurious crystal frequencies in the oscillations during start-up of the apparatus following an enabling of a feedback loop, the clock stabilization filter having circuitry which provides that the oscillations will start with a rising transition after filtering;
- a bypassing circuit for enabling the clock stabilization filter when the external oscillator is a crystal oscillator and for bypassing the clock stabilization filter when the external oscillator is a can oscillator; and
- a masking circuit which masks the oscillations from the apparatus, the masking circuit having circuitry which disables the clock masking after a falling edge of the oscillations and starts back up with a rising transition of the oscillations.

5,805,924
METHOD AND APPARATUS FOR CONFIGURING FABRICS WITHIN A FIBRE CHANNEL SYSTEM
Bent Stoevase, 20 Carlton Street, Apt. 1224, Toronto, Ontario, Canada, M5B 2H5

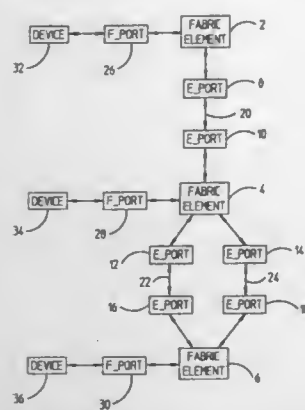
Filed Nov. 8, 1994, Ser. No. 336,396

Int. Cl.⁶ H01J 3/00

U.S. Cl. 395—831

23 Claims

23. A method for configuring a system including a plurality of interconnected components that are interconnected according to a fabric topology, each component supporting service parameters used in communicating with other components in the system, the plurality of components including at least two components whose corresponding service parameters differ, the method comprising the steps of:



- A. determining which components support service parameters that are compatible for communicating across the system; and determining which components support at least a first set of service parameters that are compatible, the first set defining service parameters that are compatible for every component in a single fabric;
- B. identifying groups of components that have compatible service parameters, the identification of groups of components having compatible service parameters establishing the configuration of the system, and identifying groups of components supporting compatible first sets of parameters, each group identifying a separate fabric;
- C. determining whether the service parameters supported by every component in at least one group are identical;
- D. when the service parameters for every component in the at least one group are not identical, modifying the service parameters for at least one component in the at least one group so that the service parameters supported by every component in the at least one group are identical; wherein steps A-D include the steps of:
- E. exchanging information frames between each pair of components that are adjacent each other in the system, adjacent components being directly coupled via a data link, the information frame exchanged between each pair of adjacent components specifying the service parameters of the components forming the pair;
- F. comparing each component's service parameters with those of its adjacent components to determine whether they are compatible; and
- G. when the service parameters for a pair of adjacent components are compatible but not identical, modifying the service parameters for at least one of the components forming the pair so that the service parameters for the components forming the pair are identical; wherein when the service parameters are modified in step G for any component, steps A-D further include the steps of:
- H. identifying the components whose service parameters were modified as modified components;
- I. exchanging information frames between each pair of components that are adjacent each other in the system and including at least one modified component, the information frames exchanged between each pair of adjacent components specifying the service parameters of the components forming the pair;
- J. comparing the service parameters of each modified component with those of its adjacent components to determine whether they are compatible;
- K. when the service parameters for a pair of adjacent components that includes a modified component are compatible but not identical, modifying the service parameters for at least one of the components forming the pair so that the service parameters for the components forming the pair are identical; and
- L. when the service parameters are modified in step K for any component, identifying only those components whose service parameters were modified in step K as modified components and returning to step I; wherein the components are interconnected according to a fabric topology, and wherein:

step B includes identifying groups of components supporting compatible first sets of parameters, each group identifying a separate fabric; and

steps E-L include transferring information frames between adjacent components that are in separate fabrics.

5,805,925

APPARATUS AND METHOD FOR CONTROLLING AND VARYING MULTIPLE DATA RATES AMONG MULTIPLE COMMUNICATIONS DEVICES IN A COMMUNICATIONS SYSTEM

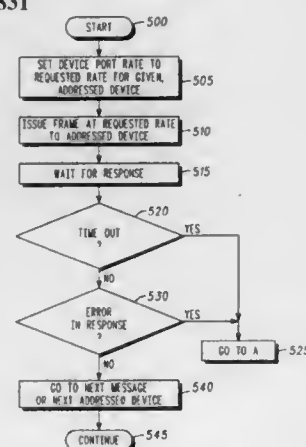
Steven R. Blackwell, Huntsville; Richard A. Gautreaux, II, Cullman, and Douglas D. Reed, Meridianville, all of Ala., assignors to Motorola Inc., Schaumburg, Ill.

Filed Dec. 13, 1995, Ser. No. 572,203

Int. Cl.⁶ G06F 3/00

U.S. Cl. 395—831

14 Claims



1. An apparatus for controlling and varying a plurality of data rates among a plurality of data communications devices in a data communications system, the plurality of data communications devices coupled to a common management bus and to a common address bus, the apparatus comprising:
- a random access memory; and
- a processor coupled to the random access memory, the processor further coupleable to the common management bus and to the common address bus, the processor responsive through a set of program instructions to transmit an identification request on the common management bus at a default data rate to an addressed data communications device, the processor further responsive to receive at the default data rate a response to the identification request from the addressed data communications device, the processor further responsive to determine a requested data rate from the response and to store in the random access memory the requested data rate correlated with an address location of the addressed data communications device, and the processor further responsive to transfer data to and from the addressed data communications device at the requested data rate on the common management bus;
- wherein the processor is further responsive to determine validity of data received from each of the plurality of data communications devices; to retransmit an identification request at the default rate to a data communications device when the processor has determined that data received from the data communications device was invalid; and to revise and store in the random access memory the default data rate correlated with the address location of the data communications device when the processor has determined that data previously received from the data communications device was invalid.

5,805,926 SYSTEM FOR CONTROLLER MAINTAINS TABLE SHOWING ACTUATORS AND SENSORS AND ACCORDINGLY ASSIGNING ADDRESSES AND ADDS TO TABLE IF ACTUATORS AND SENSORS WERE ADDED DURING SAME TIME

Maurice Gilbert Le Van Suu, Romainville, France, assignor to SGS-Thomson Microelectronics, S.A., Gentilly, France

Filed May 30, 1995, Ser. No. 456,099

Claims priority, application France, May 31, 1994, 94 06635

Int. Cl.⁶ G06F 13/00

U.S. Cl. 395—836

18 Claims

ADDRESS	CONTENT
0 0001 0000 0001	10001 HEATERS OF GROUP A
0 0001 0000 0010	11010
0 0001 0000 0011	10011
0 0001 0000 0100	00000
0 0001 0100 0001	10100 HEATERS OF GROUP B
0 0001 0100 0010	10110
0 0001 0100 0011	10101
0 0001 0100 0100	10111
0 0001 0100 0101	00000
0 0001 1000 0001	10010 HEATERS OF GROUP C
0 0001 1000 0010	11000
0 0001 1000 0011	11001
0 0001 1000 0100	00000
1 0001 0010 0001	11100 SENSORS OF GROUP A
1 0001 0010 0010	00000
1 0001 0100 0001	01100 SENSORS OF GROUP B
1 0001 0100 0010	01101
1 0001 0100 0011	00000
1 0001 1000 0001	01110 SENSORS OF GROUP C
1 0001 1000 0010	00000

1. A method for controlling a plurality of electrical installations of one or more types connected to a common data path, each including means for decoding a signal transmitted over this common data path to it by a single controller, comprising the steps of: transmitting, from each controlled installation to the single controller, an identification data frame, containing an installation type identifier code;
- receiving of the identification data frame by the controller;
- decoding of the identification data frame by the controller;
- controlling of the installation by the single controller according to a set of instructions held in an instruction memory of the single controller and corresponding to the type of installation identified by the installation type identification code;
- organizing electrical installations of a same type into groups;
- transmitting a group identifier code within a frame of data in either direction between each installation and the single controller;
- decoding of said group identifier code by the single controller;
- controlling of the installation by the single controller according to a subset of instructions corresponding to the group of installations within the type of installation, stored within the instruction memory of the single controller;
- wherein said controller assigns a same group identifier code to all installations which are added within a specified time frame.

5,805,927

DIRECT MEMORY ACCESS CHANNEL ARCHITECTURE AND METHOD FOR RECEPTION OF NETWORK INFORMATION

Michael J. Bowes, Cupertino, and Brian A. Childers, Santa Clara, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

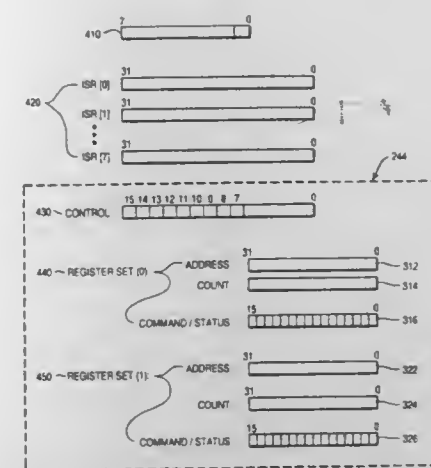
Continuation of Ser. No. 610,672, Mar. 4, 1996, abandoned, which is a continuation of Ser. No. 189,131, Jan. 28, 1994, abandoned. This application Ser. No. 610,672, Mar. 4, 1996, abandoned.

Int. Cl.⁶ G06F 13/10

U.S. Cl. 395—843

17 Claims

1. A method for transferring packets of data from an input/output (I/O) device to a main memory of a computer system with a direct memory access (DMA) controller, wherein the computer system



includes a first bus and a second bus coupled to the DMA controller, and wherein the DMA controller includes a buffer and at least one register set which includes an address register, the method comprising the steps of:

- establishing at least one buffer in said main memory, wherein each of said at least one buffer in said main memory comprises at least one segment, and wherein each of said at least one segment corresponds to one of said packets of data;
- determining a first packet of said packets of data;
- initially setting a number of most significant bits of said address register equal to corresponding most significant bits of an address of a first memory location of said corresponding segment in said main memory;
- initially setting a next higher least significant bit over a number of least significant bits of said address register to one;
- transferring a portion of said first packet from said I/O device to said buffer in said DMA controller via said second bus;
- transferring said portion of said first packet from said buffer in said DMA controller to a location of said corresponding segment in said main memory, via said first bus, wherein said location is indicated by an address stored in said address register, wherein said number of least significant bits of said address register are hardwired to zero, and wherein a number of memory locations corresponding to addresses represented by said number of least significant bits is equal in size to said portion of said first packet;
- incrementing said address register by an amount equal in size to said portion of said first packet after transferring each said portion of said first packet from said buffer in said DMA controller to said corresponding segment in said main memory;
- repeating said transferring said portion steps and said incrementing said address register step until said first packet is completely transferred to said corresponding segment in said main memory;
- transferring status data from a status register of said I/O device to said buffer in said DMA controller in response to a final portion of said first packet being transferred to said corresponding segment;
- resetting said number of most significant bits of said address register equal to said corresponding most significant bits of said address of said first memory location of said corresponding segment in said main memory, in response to transferring said final portion of said first packet;
- resetting said next higher least significant bit over said number of least significant bits of said address register to zero, wherein an address of a beginning location of said corresponding segment is indicated by said address stored in said address register;
- transferring said status data from said buffer in said DMA controller to said beginning location of said corresponding segment;
- incrementing said address register by an amount equal in size to said portion of said first packet after transferring said status data from said buffer in said DMA controller to said beginning location of said corresponding segment;

UMI

1. An apparatus for transmitting data, comprising:
pre-compression data holding means for holding pre-compression data;
data compressing means for compressing the pre-compression data held by the pre-compression data holding means;
compressed data holding means for holding compressed data from the data compressing means;
decision means for determining data to be transmitted, based on data lengths of the pre-compression data and the compressed data and a preset condition; and
data transmitting means for transmitting either one of the pre-compression data held by the pre-compression data holding means and the compressed data held by the compressed data holding means, based upon decision results from the decision means, wherein the decision means carries out a decision process based on an actual compression ratio of the data length of the pre-compression data to the data length of the compressed data and a preset compression ratio outputs decision results indicating the data to be transmitted as the com-

- a viewfinder system whose magnification is changeable in accordance with a varied focal length of the taking lens, the viewfinder system having an optical axis;
- a sensor having a number of sensing elements which are arrayed in a line and each receive light to generate an electrical signal in accordance with an intensity of the received light, the sensing elements being defined with a plurality of particular sensing areas corresponding to a plurality of varied focal lengths of the taking lens;
- a selector which selects the particular sensing area which corresponds to the focal length of the taking lens;
- a distance measuring optical system which introduces light from the object to the sensing elements of the sensor, and having an optical axis different from the optical axis of the viewfinder system;
- a first distance data generator which is operable to generate distance data based on electrical signals generated in the sensing elements within the selected sensing area;
- a second distance data generator which is operable to generate distance data based on electrical signals generated in the sensing elements within a sensing area other than the selected sensing area;
- a discriminator which discriminates whether or not the first distance data generator is operable to generate distance data based on the electrical signals from the sensing elements within the selected sensing area; and
- a controller which allows the first distance data generator to generate distance data while suspending the second distance data generator when the first distance data generator is discriminated to be operable, and allows the second distance data generator to generate distance data when the first distance data generator is discriminated to be inoperable.

5,805,940

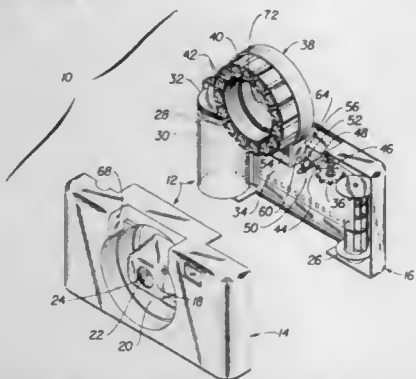
COMPACT CAMERA WITH FLIP-UP MULTI-LAMP FLASH WHEEL

Joel S. Lawther, East Rochester, N.Y., and Ralph M. Lyon, Marshfield, Wis., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 14, 1997, Ser. No. 892,901
Int. Cl.⁶ G03B 15/03

U.S. Cl. 396—178

7 Claims



1. A compact camera comprising a camera body, a multi-lamp flash unit supported for movement relative to said camera body to advance respective flash lamps successively to a flash illumination position for illuminating a subject being photographed, and a drive assembly actuated in engagement with said flash unit to move the flash unit to advance said flash lamps to the flash illumination position in coordination with film movement to advance respective unexposed film sections successively to an exposure position in said camera body, is characterized in that:

said flash unit is supported for movement to a folded position collapsed to said camera body for compactness and to an unfolded position extended from the camera body to be used; and

said drive assembly remains in engagement with said flash unit during movement of the flash unit between its folded and extended positions.

5,805,941

CAMERA HAVING FOCUS DETECTING OPTICAL SYSTEM

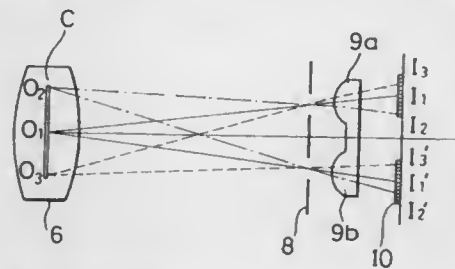
Noriyuki Iyama, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 630,450

Claims priority, application Japan, Apr. 11, 1995, 7-085619
Int. Cl.⁶ G01J 1/20; G03B 13/36

U.S. Cl. 396—274

16 Claims



1. A camera comprising:

- a photographic lens;
- a quick-return mirror constructed and arranged to split a path of rays from said photographic lens into a photographic path and a finder path;
- an image erecting member disposed in said finder path for erecting an image;
- an eyepiece for observing the image erected by said image erecting member;
- a light receiving surface means disposed on an image surface formed in said photographic path by said photographic lens;
- a submirror joined to said quick-return mirror and arranged such that the rays coming from said photographic lens and incident on said submirror are reflected downward to form a focus detection path; and
- a focus detecting optical system disposed in the focus detection path, a preset image plane being formed in said focus detection path,
- said focus detecting optical system including:
- a condenser lens;
- a reimaging optical system for re-forming an image formed by said photographic lens on the preset image plane, the re-formed image being used for focus detection; and
- an array of photoelectric converting elements arranged to receive the re-formed image formed by said reimaging optical system;
- said light receiving surface means being constructed such that a maximum effective vertical length (X) thereof used for a photograph is determined to satisfy the condition:

$$14.60 \text{ mm} \leq X \leq 17.85 \text{ mm}$$

to thereby allow said camera to be small in height; and

an aspect ratio (AR) of said light receiving surface means satisfying the condition:

$$0.4 < AR < 0.63$$

where the aspect ratio (AR) of said light receiving surface means is defined as

$$AR = X/Y$$

where (Y) is a maximum effective horizontal length of said light receiving surface for a photograph.

5,805,942

HORIZONTAL HEAD ASSEMBLY AND SUSPENSION METHOD FOR MAGNETICALLY COATED FILM RECORDING

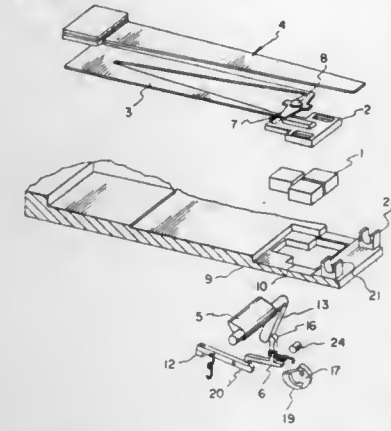
George W. Brock, La Jolla; Sheldon W. Hower, and Jeremiah F. Connolly, both of San Diego, all of Calif., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 30, 1997, Ser. No. 903,402

Int. Cl.⁶ G03B 17/24

U.S. Cl. 396—319

4 Claims



1. In a photographic system which uses magnetically coated film, an assembly comprising:

- a platen for holding magnetically coated film in a film plane;
- a magnetic head array including first and second thin film heads located side-by-side and a third thin film head located fore or aft said first and second heads, said first, second and third heads having centers and forming an equilateral triangle of their centers;
- a head mounting spring which is fixed at one end to said platen and which has a free end for mounting said magnetic head array adjacent to magnetically coated film transported through said film plane wherein said mounting spring allows pitch and roll movement of the magnetic head array; and
- a loading spring for biasing said magnetic head array into contact with said magnetically coated film so that said heads make a three point contact with said magnetically coated film which is at the center of gravity of said three head magnetic head array.

5,805,943

FILM AUTO-LOADING DEVICE OF A CAMERA

Hiroshi Terada, Mitaka, and Hiroaki Furuya, Hachioji, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

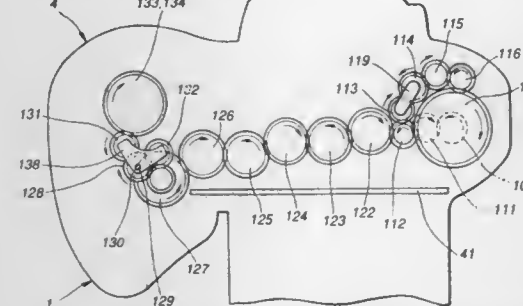
Filed Apr. 10, 1997, Ser. No. 831,676

Claims priority, application Japan, Apr. 19, 1996, 8-098577

Int. Cl.⁶ G03B 1/00

U.S. Cl. 396—411

5 Claims



1. A film loading device of a camera using a film cartridge in which a rolled film including a tip portion thereof is fully contained within a cartridge housing, comprising:

a film loading motor;

a film winding gear train for reducing an output speed of said motor according to a first reduction ratio;

a film take-up spool driven by said film winding gear train;

a film forwarding gear train for reducing an output speed of said motor according to a second reduction ratio;

a member driven by said film forwarding gear train for forwarding film from said film cartridge to said take-up spool;

a clutch for releasing transfer of a driving force of said motor to said film forwarding gear train; and

wherein a relationship between the reduction ratio of said film winding gear train and the reduction ratio of said film forwarding gear train is set as follows:

$$(iAL/iW) \times Rs = \gamma$$

$$\gamma \geq 13.6$$

where

iAL: the reduction ratio of said film forwarding gear train;

iW: the reduction ratio of said film winding gear train;

Rs: a radius (mm) of said film take-up spool.

5,805,944

ALTERNATIVE CAMERA CARRY-STRAP AND LENS CAP

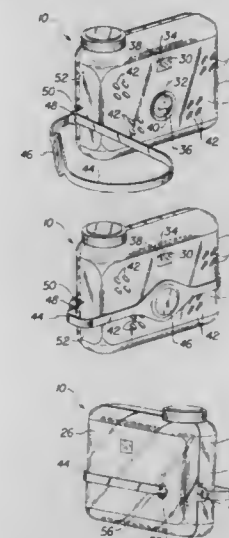
David Barclay, Bergen, and James G. Rydelek, Henrietta, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 13, 1997, Ser. No. 816,372

Int. Cl.⁶ G03B 29/00

U.S. Cl. 396—422

3 Claims



1. A camera comprising a taking lens, and a carry-strap and associated lens cap attached to said camera, is characterized in that:

said carry-strap is configured to be looped around said camera in order to position said lens cap over said taking lens and, alternatively, to be extended as a closed loop from the camera, with the lens cap not over the taking lens, in order to serve as a wrist or neck strap; and

engageable means secures said carry-strap looped around said camera and, alternatively as said closed loop extended from the camera.

5,805,945

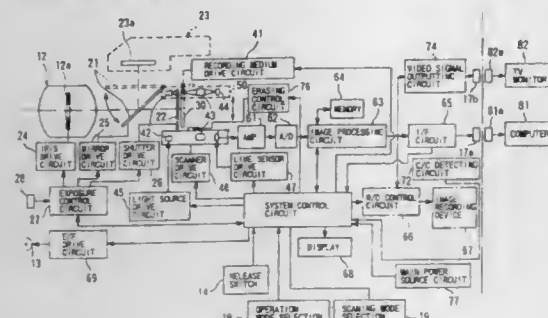
**ELECTRONIC STILL VIDEO CAMERA HAVING
ELECTRO-DEVELOPING RECORDING MEDIUM**
Harumi Aoki, Tokyo, Japan, assignor to Asahi Kogaku Kogyo
Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 22, 1995, Ser. No. 577,153

Claims priority, application Japan, Dec. 22, 1994, 6-335972;
Dec. 22, 1994, 6-335973; Dec. 22, 1994, 6-335976Int. Cl.⁶ G03B 17/48

U.S. Cl. 396—429

12 Claims



1. An electronic still video camera having an electro-developing recording medium, comprising:

a photographing mechanism that forms an optical image on said electro-developing recording medium to record and develop said optical image therein;

an image-sensing mechanism that optically senses and obtains image data from said recorded optical image of said electro-developing recording medium;

an image data storage mechanism that stores said image data sensed from said recorded optical image of said electro-developing recording medium;

an operation-mode selection mechanism that selects one of a first operation-mode, a second operation-mode, and a third operation-mode; and

an operation-commanding mechanism that executes an operation in a mode selected by said operation-mode selection mechanism,

wherein:

when said first operation-mode is selected by said operation-mode selection mechanism, an operation executed by said operation-commanding mechanism includes an execution of a formation of said optical image on said electro-developing recording medium;

when said second operation-mode is selected by said operation-mode selection mechanism, an operation executed by said operation-commanding means includes an execution of said formation of said optical image on said electro-developing recording medium, an execution of said sensing of said image data from said recorded optical image of said electro-developing recording medium, and an execution of said storage of said sensed image data in said image-data storage mechanism, said executions of said second operation-mode being sequentially carried out; and

when said third operation-mode is selected by said operation-mode selection mechanism, an operation executed by said operation-commanding mechanism includes an execution of said sensing of said image data from said recorded optical image of said electro-developing recording medium.

5,805,946

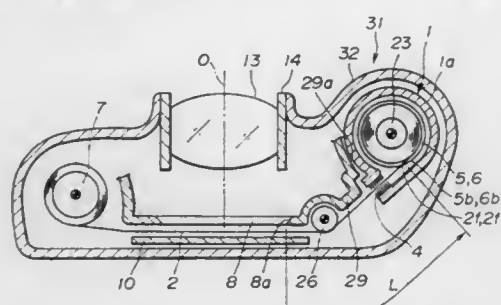
**CAMERA HAVING AN IMAGE FRAME AND A
CARTRIDGE CHAMBER SEPARATED BY A DISTANCE
TO PREVENT FILM SUBJECTED TO FORCES IN A
WIDTH DIRECTION FROM DEGRADING A FOCUS OF
AN IMAGE ON THE FILM**
Yasuo Asakura, Hachioji, Japan, assignor to Olympus Optical
Co., Ltd., Tokyo, Japan

Filed May 28, 1996, Ser. No. 654,183

Claims priority, application Japan, Jun. 1, 1995, 7-134881
Int. Cl.⁶ G03B 17/00

U.S. Cl. 396—440

6 Claims



1. A camera using a photographic film cartridge arranged such that when a photographic film accommodated in a cartridge main body is fed out when the cartridge is loaded into a cartridge chamber of the camera, longitudinal edges of the film are pressed toward one another by forces acting in a film width direction substantially at a given position in the cartridge, wherein the cartridge chamber is spaced from a position of a near end of a photographing opening of said camera to provide a separation distance between said given position and said photographing opening so that portions of the photographic film at said given position and subjected to said forces are located within an interval between adjacent photographing frames of images formed on the film fed out of the cartridge so that said given position of said film edges are displaced from said photographing opening when a portion of a film for forming a next image frame and which is adjacent to said given position is aligned with said photographing opening.

5,805,947

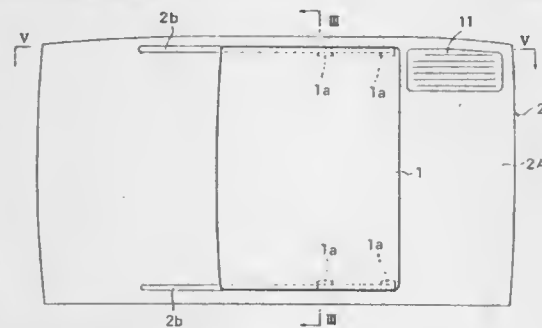
CAMERA PROVIDED WITH A SLIDING COVER
Hidenori Miyamoto, Urayasu; Masao Owashi, Yokohama;
Masaaki Yanagisawa, Chigasaki, and Shoko Ryuen,
Ichikawa, all of Japan, assignors to Nikon Corporation,
Tokyo, Japan

Filed Dec. 5, 1996, Ser. No. 760,961

Claims priority, application Japan, Dec. 8, 1995, 7-320496;
Dec. 8, 1995, 7-320497; Dec. 8, 1995, 7-320498Int. Cl.⁶ G03B 17/00

U.S. Cl. 396—448

17 Claims



1. A camera comprising:
a camera main body;
a taking lens provided at said camera main body; and
a sliding cover that is capable of sliding between a closed position, at which said sliding cover covers a front surface of

said taking lens, and an open position, at which said sliding cover withdraws from said front surface of said taking lens, along a front surface of said camera main body, wherein:

said camera main body is provided with an outer cover, having an opening, and an inner cover, positioned inside said outer cover;

said inner cover is provided with a portion which is exposed through said opening to expose said taking lens when said sliding cover is at said open position, and a guide groove formed extending in a sliding direction of said sliding cover; and

said sliding cover is provided with a through portion that passes through said outer cover and a guide projection formed at said through portion that is slidably engaged in said guide groove in order to guide a sliding movement of said sliding cover.

means for restoring said swing plate back to its original position when said moving shaft slides upwards along said axis.

5,805,949

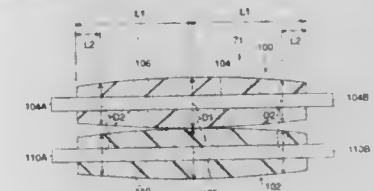
**PHOTOSENSITIVE MATERIAL PROCESSING
APPARATUS**
Ryoei Nozawa; Kazuyuki Kagawa; Koji Tashiro, and
Kazuyuki Akiyama, all of Kanagawa, Japan, assignors to
Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 29, 1996, Ser. No. 687,911

Claims priority, application Japan, Jul. 31, 1995, 7-195112
Int. Cl.⁶ G03D 3/08

U.S. Cl. 396—612

16 Claims



1. A photosensitive material processing apparatus in which a pair of rollers is disposed downstream and outside of a washing processing section, each roller of the pair having a rotating shaft and a water absorbing layer on the shaft, urged in the directions in which the rollers approach each other, wherein the thickness of said water absorbing surface layer of at least one roller of said rollers gradually decreases toward end portions of said at least one roller.

5,805,948

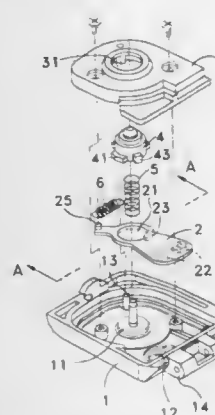
**FILM-CHAMBER COVER OF AN ADVANCED PHOTO
SYSTEM (APS) CAMERA**
Yao-Man Chen, Taipei, Taiwan, assignor to Quark Opto-
Electronics Inc., China

Filed Jul. 28, 1997, Ser. No. 901,794

Int. Cl.⁶ G03B 17/02

U.S. Cl. 396—535

11 Claims



1. A film-chamber cover of an advanced photo system (APS) camera for indicating whether a film cassette is loaded within a film chamber of the APS camera or not, said film-chamber cover comprising:

a bottom cover furnished with a viewing window thereon;

a swing plate defining a first end and a second end thereof, said swing plate being pivotally connected with said bottom cover at a position between said first and second ends thereof and being flush with said bottom cover, said second end of said swing plate having at least a symbol located at a position aligned with said window of said bottom cover;

an upper cover fixedly mounted upon said bottom cover, said upper cover being furnished with a hole defining an inner surface and an axis thereof;

a moving shaft defining an outer surface thereon, said moving shaft being mounted between said upper and bottom covers having said outer surface of said moving shaft slidably coupled within said hole of said upper cover;

a resilient member coupled with said moving shaft for providing a force pushing said moving shaft upwards;

a guiding mechanism located between said moving shaft and said upper cover for guiding the moving shaft to slide along a direction coincident with said axis of said hole of said upper cover and preventing said moving shaft from rotating about said axis;

a swing mechanism located between said moving shaft and said swing plate for performing a swinging movement of the swing plate when the moving shaft slides downwards along said axis; and

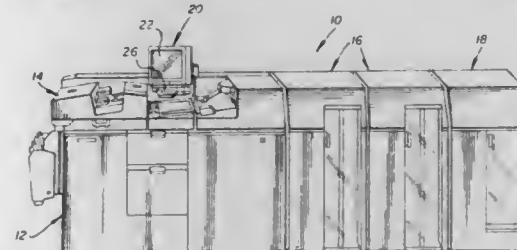
**5,805,950
AUTOMATIC IDENTIFICATION OF ACCESSORIES IN A
REPRODUCTION APPARATUS**
Laureano L. Inglese, Rochester, N.Y., and Jochen H. Graeber,
Muehlhausen, Germany, assignors to Eastman Kodak Com-
pany, Rochester, N.Y.

Filed Dec. 20, 1996, Ser. No. 771,744

Int. Cl.⁶ G03G 15/00; 21/00

U.S. Cl. 399—1

12 Claims



1. In a reproduction apparatus embodying a marking engine including a logic and control unit for controlling the operation of said reproduction apparatus and at least one accessory, such as a sorter, binder, stacker, folder, or the like, associated in a series with said marking engine, a communication system for automatic iden-

tification of accessories associated with said marking engine, said communication system comprising:

- a processor associated respectively with each accessory, said processor including means for providing an identification of its associated accessory;
- a communication bus interconnected between said logic and control unit of said marking engine and said processors of each respective accessory; and
- a timing circuit, responsive upon power up of said marking engine and associated accessories, for automatically electrically linking said processors of each respective accessory, in sequential order, to said logic and control unit of said marking engine to relay accessory identification provided by said respective processors, in such sequential order to said logic and control unit, whereby said logic and control unit receives an indication of which particular accessories are associated with said marking engine and in what order.

5,805,951

IMAGE FORMING APPARATUS DETECTING USEFUL LIFE OF AN IMAGE BEARING MEMBER

Junichi Kato, Toride; Satoru Inami, Kashiwa; Jun Suzuki, Numazu, and Atsutoshi Ando, Kashiwa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

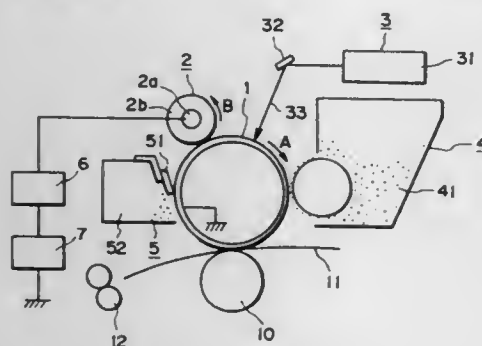
Filed Jan. 23, 1996, Ser. No. 590,438

Claims priority, application Japan, Jan. 23, 1995, 7-008361

Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—26

14 Claims



1. An image forming apparatus, comprising:
an image bearing member;

- a charging member contactable to said image bearing member for charging said image bearing member at a charging position, said charging member being supplied with a voltage;
- a discharging member for electrically discharging said image bearing member, said discharging member discharging a first region of said image bearing member corresponding to a central portion of said charging member in a longitudinal direction of said charging member, and a second region of said image bearing member corresponding to an end portion of said charging member in the longitudinal direction of the charging member;

detecting means for detecting a current flowing through said charging member when said charging member is supplied with a predetermined voltage and the first region having been discharged by said discharging member passes through said charging position, and when said charging member is supplied with the predetermined voltage and the second region having been discharged by said discharging member passes through said charging position.

5,805,952

IMAGING MATERIAL DETECTION IN A MAGNETIC WINDOW CLEANING DISPENSING CONTAINER

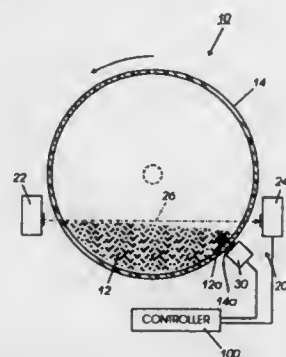
Douglas W. Buch, Webster; Gene S. Serafine, Henrietta; Rhonda L. Staudt, Webster; Timothy G. Struczewski, Rochester, and Jack E. Van Duser, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 6, 1997, Ser. No. 795,748

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—27

2 Claims



1. In a reproduction apparatus imaging material dispensing system with an imaging material dispensing container from which at least partially magnetically attractable consumable imaging material is dispensed for said reproduction apparatus, with an imaging material level sensing system for sensing when there is an insufficient quantity of said imaging material remaining in said imaging material dispensing container, and wherein said imaging material dispensing container is a generally cylindrical tubular container which is rotatably driven for said dispensing, the improvement wherein:

- a magnetic brush cleaning system is provided for internally cleaning said imaging material from the inside of said imaging material dispensing container,
- wherein said magnetic brush cleaning system comprises a stationary magnet mounted outside of and adjacent to said imaging material dispensing container to form a magnetic cleaning brush inside of said imaging material dispensing container by magnetically attracting said magnetically attractable consumable imaging material to said interior of said imaging material dispensing container to clean said interior of said imaging material dispensing container with said magnetic cleaning brush as said imaging material dispensing container is so rotatably driven;
- wherein said stationary magnet corresponds in length to the length of said cylindrical imaging material dispensing container.

5,805,953

METHOD AND APPARATUS FOR INDICATING TIME FOR EXCHANGING TONER RECOVERY CONTAINER OF ELECTROGRAPHIC APPARATUS

Toru Kikuchi, Hitachinaka; Shuho Yokokawa, Mito; Satoshi Aita; Isao Watanabe, both of Hitachinaka, and Hidenori Takayasu, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 7, 1996, Ser. No. 745,051

Claims priority, application Japan, Nov. 17, 1995, 7-299691

Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—43

5 Claims

1. A method of indicating when it is time to exchange a toner recovery container in an electrophotographic apparatus having a toner supply driving unit for transferring toner to a toner hopper unit, a toner supply switch for performing driving/stopping operation of said toner supply driving unit and a toner recovery container for recovering residual toner removed from a surface of a photosensitive body, the method comprising the steps of:

5,805,955

IMAGE FORMING APPARATUS AND METHOD WITH DIVISIONAL IMAGE FORMING PROVISIONS

Minoru Aoki, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

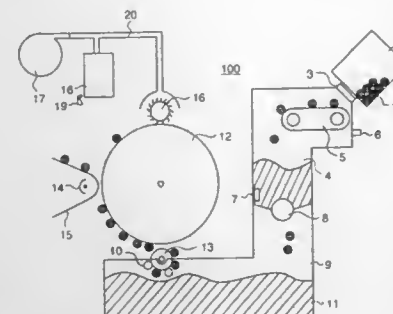
Filed Oct. 28, 1996, Ser. No. 738,696

Claims priority, application Japan, Oct. 27, 1995, 7-280386

Int. Cl.⁶ G03G 15/041; 21/00

U.S. Cl. 399—45

17 Claims



monitoring an accumulated period of time of driving operation of said toner supply driving unit from a time when said toner recovery container is exchanged, and indicating a need for exchanging said toner recovery container at a time when said toner supply switch is operated after said accumulated period of time of driving operation exceeds a preset value.

5,805,954

IMAGE FORMING APPARATUS THAT DETECTS ENVIRONMENTAL CONDITIONS

Sadao Takahashi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

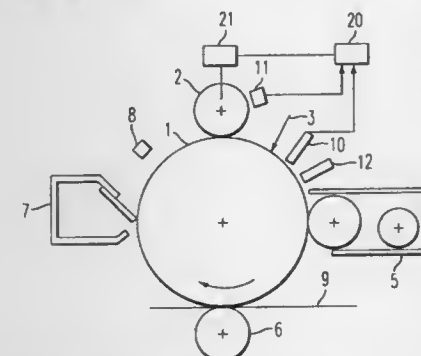
Filed Mar. 29, 1996, Ser. No. 625,529

Claims priority, application Japan, Mar. 30, 1995, 7-074282; Mar. 21, 1996, 8-064580

Int. Cl.⁶ G03G 15/00; 15/02

U.S. Cl. 399—44

10 Claims



1. An image forming apparatus comprising:
contact-to-charge means for charging an image carrier by coming in contact with said image carrier;
reference voltage applying means for applying a reference voltage to said contact-to-charge means;
potential detection means for detecting a charge potential of said image carrier;
environmental condition detection means for detecting environmental conditions which have an effect on a charge potential of said contact-to-charge means; and
control means for controlling said reference voltage applying means on the basis of a detection result obtained by said potential detection means and a detection result obtained by said environmental condition detection means;
said control means comprising reference voltage correction means for correcting the reference voltage of said reference voltage applying means so that the charge potential of said image carrier is brought to a target potential level, and timing setting means for setting an execution timing of said reference voltage correction means.

5,805,956

ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS CAPABLE OF SETTING IMAGE FORMING CONDITIONS AND METHOD FOR SETTING IMAGE FORMING CONDITIONS IN AN ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

Atsushi Kawai, Aichi-Ken, and Tetsuya Sakai, Toyokawa, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 25, 1996, Ser. No. 669,922

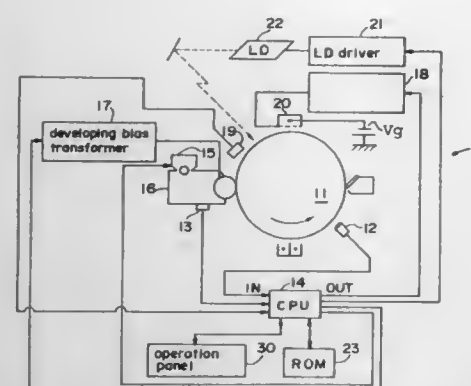
Claims priority, application Japan, Jun. 30, 1995, 7-165259

Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—46

29 Claims

1. An image forming apparatus of the electrophotographic type for forming images by a reverse developing method, said image forming apparatus comprising:
an electrostatic latent image carrying member;
charging means for charging the surface of said carrying member to a predetermined potential;
charging voltage application means for applying a charging voltage to said charging means, said charging voltage being variable in a range defined by an upper limit value;



exposure means for forming an electrostatic latent image by optically exposing the surface of said carrying member charged by said charging means to reduce a potential of an image region;

a developing device for accommodating a developer including toner and carrier, and for forming a toner image on the surface of said carrying member by developing said electrostatic latent image with toner;

potential detecting means for detecting a surface potential of said carrying member charged by said charging means;

toner detecting means for detecting an amount of toner adhered to a background region of the carrying member by developing; and

control means for repeatedly executing charge voltage control which includes:

first judgement for judging whether an adhered toner amount detected by said toner detecting means is in excess of a standard amount;

second judgement for judging whether the surface potential of said carrying member detected by said potential detecting means is less than a target value; and

adjustment for increasing the charging voltage so as to attain said target value for the surface potential of the carrying member when both of the first and second judgement show positive.

5,805,957

IMAGE FORMING APPARATUS

Hideaki Kodama, and Eiji Nakane, both of Okazaki, Japan, assignors to Minolta Co., Ltd., Osaka, Japan

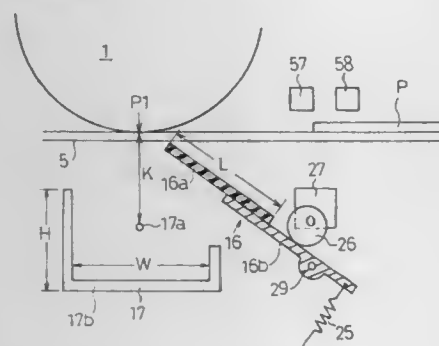
Filed Jan. 8, 1997, Ser. No. 780,267

Claims priority, application Japan, Jan. 10, 1996, 8-002053

Int. Cl.⁶ G03G 15/16

U.S. Cl. 399—66

9 Claims



1. An image forming apparatus, comprising:
an image bearing member;
a moving member holding a transfer material;
a pressing member for pressing the moving member to the image bearing member, the pressing member being capable of changing a pressing force;

a detector for recognizing a leading edge position of the transfer material conveyed by the moving member toward a transfer section; and

a pressing force adjusting mechanism for decreasing a pressing force of the pressing member when a leading edge of the transfer material passes through the transfer section.

5,805,958

SEAL BEARING ASSEMBLY FOR A DEVELOPMENT SYSTEM

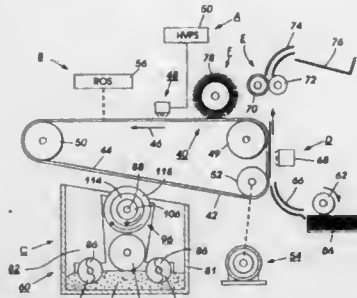
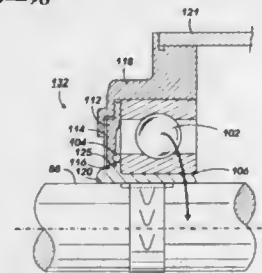
Duane H. Fisk, Whitesville, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 27, 1996, Ser. No. 622,274

Int. Cl.⁶ G03G 21/00

U.S. Cl. 399—98

18 Claims



1. A system for sealing a member rotating about an axis of a support, comprising:

a seal assembly

a cutter, in contacted with said seal assembly, for cutting a portion of the seal assembly to seal said seal assembly about the member; and

a bearing assembly, enclosed by said seal assembly, rotatably supporting said member.

5,805,959

PROCESS UNIT

Hiroyuki Hazama; Hiroyuki Hamakawa; Masaru Watanabe; Takashi Terada; Hiroyuki Ogawa, and Masanobu Maeshima, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed May 20, 1997, Ser. No. 859,369

Claims priority, application Japan, May 31, 1996, 8-137306

Int. Cl.⁶ G03G 21/16

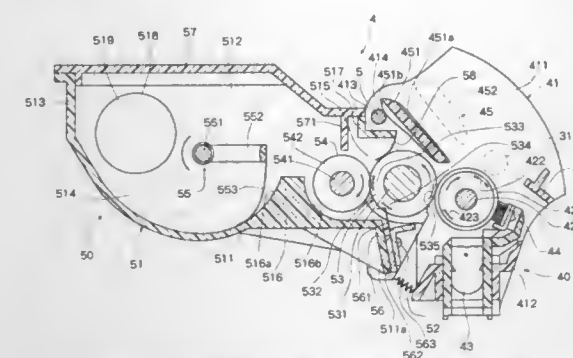
U.S. Cl. 399—111

1 Claim

1. A process unit detachably mounted on an image forming machine, said process unit including a photoconductor unit having a photoconductor drum on which surface a latent electrostatic image is formed;

a developing unit having a development housing accommodating a developer, and a developing roller disposed in said development housing;

support shaft means for supporting said developing unit pivotally relative to said photoconductor unit; said developing roller being disposed such that its surface is pressed against a surface of said photoconductor drum in a developing zone, thereby to supply in said developing zone said developer to



said latent electrostatic image formed on said surface of said photoconductor drum; wherein

said photoconductor drum and said developing roller are rotationally driven such that their respective surfaces move from below to above in said developing zone; and

a spring means wherein said spring means is interposed between said developing unit and said photoconductor unit to impart a turning moment about the support shaft means to said developing unit so that said developing roller is urged toward said photoconductor drum.

a peripheral speed of said developing roller is set to be higher than a peripheral speed of said photoconductor drum, and when viewed in a direction of an axis of said developing roller, said support shaft means is disposed in a region located on a side opposite to said photoconductor drum with respect to a straight line which is parallel to a tangent passing through a nip between said developing roller and said photoconductor drum, and which passes through a shaft center of said developing roller, said region being above a straight line passing through said shaft center of said developing roller and a shaft center of said photoconductor drum.

5,805,960

IMAGE FORMING APPARATUS WHICH APPLIES OSCILLATING VOLTAGE TO DEVELOPER CARRYING MEMBER

Hiroyuki Suzuki, Yokohama; Masahiro Itoh, Odawara; Ken-ichi Waki, Kawasaki, and Ryo Inoue, Musashino, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

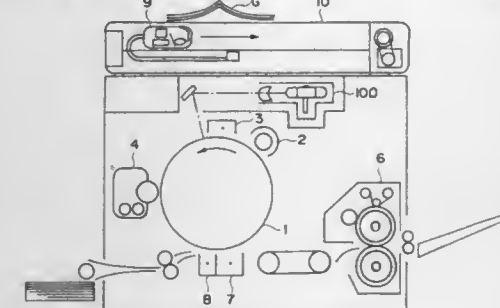
Filed Jun. 9, 1995, Ser. No. 489,171

Claims priority, application Japan, Jun. 9, 1994, 6-127837; Feb. 21, 1995, 7-032394

Int. Cl.⁶ G03G 15/22; 15/24

U.S. Cl. 399—149

20 Claims



1. An image forming apparatus comprising:
an electrostatic image bearing member for bearing an electrostatic image developed by toner;
transfer means for transferring a toner image from said image bearing member onto a transfer material;
electrostatic image forming means for forming an electrostatic image on said electrostatic image bearing member from which residual toner after image transfer operation of transfer means is not removed;

developing and cleaning means for developing the electrostatic image with toner and collecting residual toner from said image bearing member after image transfer, wherein said developing and cleaning means including a developer carrying member, faced to said image bearing member, for carrying developer containing toner, and voltage applying means for applying to said developer carrying member an oscillating voltage of a predetermined frequency; wherein said voltage satisfies:

$$\frac{11V_{pp} - 2V_{back}}{16V_f} < \frac{d^2}{10Q} \text{ and } V_{pp}/d > 2 \times 10^6 \text{ (V/m)}$$

and wherein:

V_{pp} [V]: a peak-to-peak voltage of the oscillating voltage

V_f [Hz]: a frequency of the oscillating voltage

V_{back} [V]: a potential difference between a surface potential of said electrostatic image bearing member and DC component of the oscillating voltage

Q [c/kg]: an average amount of toner charge

d [m]: a shortest distance between said electrostatic image bearing member and said developer carrying member.

5,805,961

CHARGING MEMBER HAVING BRISTLESS, PROCESS CARTRIDGE, AND ELECTROPHOTOGRAPHIC APPARATUS EMPLOYING SUCH A CHARGING MEMBER

Kiyoshi Mizoe, Kawasaki; Shuichi Aita; Fumihiro Arahira, both of Yokohama, and Yoshifumi Hano, Inagi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

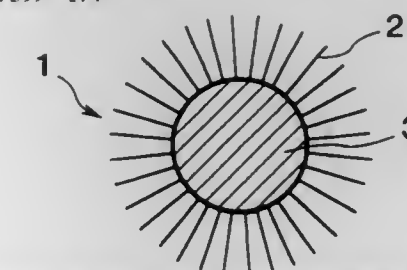
Filed Mar. 29, 1996, Ser. No. 625,034

Claims priority, application Japan, Mar. 30, 1995, 7-072834; Jul. 31, 1995, 7-194515

Int. Cl.⁶ G03G 15/02

U.S. Cl. 399—174

26 Claims



1. A charging member, which electrically charges an object to be charged by being placed in contact with the object to be charged and by being applied with a voltage, said charging member comprising:

an electroconductive base; and

contact brush bristles that come into contact with the object to be charged, said contact brush bristles including at least one of etching fibers and divided fibers obtained from a conjugate fiber.

5,805,962

AUXILIARY CHARGING DEVICE OF ELECTROPHOTOGRAPHY PRINTING APPARATUS

Chang-Kyung Ko, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Feb. 18, 1997, Ser. No. 802,205

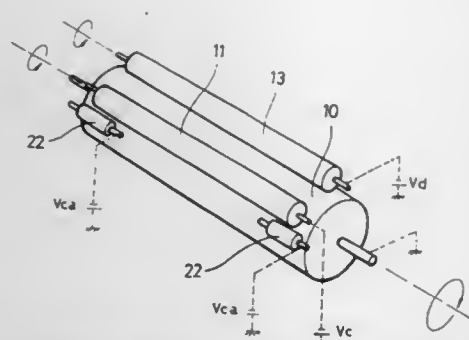
Claims priority, application Rep. of Korea, Feb. 17, 1996, 1996-2529

Int. Cl.⁶ G03G 15/02

U.S. Cl. 399—174

20 Claims

1. An image forming apparatus, comprising:
a photosensitive drum;



- a main charging unit extending in a lengthwise direction of the photosensitive drum, for applying a predetermined charging voltage to uniformly charge a surface of said photosensitive drum during a charging operation;
- a first auxiliary charging device separated and spaced apart from the main charging unit, and positioned to make contact with a first end of said photosensitive drum, for applying a predetermined auxiliary charging voltage exhibiting a voltage level substantially the same as said predetermined charging voltage to charge the first end of said photosensitive drum during said charging operation; and
- a second auxiliary charging device separated and spaced apart from the main charging unit, and positioned to make contact with a second end of said photosensitive drum, for applying said predetermined auxiliary charging voltage to charge the second end of said photosensitive drum during said charging operation.

5,805,963

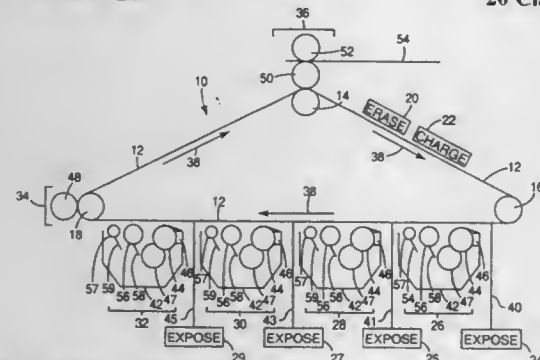
APPARATUS AND METHOD FOR REMOVING DEVELOPER LIQUID FROM AN IMAGING SUBSTRATE
 Brian P. Teschendorf; W. Blake Kolb, both of St. Paul, and Thomas M. Milbourn, Mahtomedi, all of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 536,521, Sep. 29, 1995, abandoned.
 This application Jun. 16, 1997, Ser. No. 876,828

Int. Cl.⁶ G03G 15/10

U.S. Cl. 399—249

20 Claims



9. An imaging system comprising:
 an imaging substrate;
 means for moving the imaging substrate in a first direction;
 means for forming a latent electrostatic image on an imaging region of the imaging substrate;
 a development device;
 means for engaging the development device in proximity with the imaging substrate;
 a squeegee roller;
 means for loading the squeegee roller against the imaging substrate, the squeegee roller being driven by the imaging substrate in the first direction, wherein the development device applies developer liquid to the imaging region of the imaging substrate, thereby developing the latent electrostatic image.

and wherein the squeegee roller removes from the imaging region of the imaging substrate a first excess volume of the developer liquid;

means for terminating application of developer liquid by the development device upon movement of a nonimaging region of the imaging substrate past the development device, wherein the termination of application of the developer liquid by the development device leaves on the imaging substrate a second excess volume of the developer liquid;

means for driving the squeegee roller in a second direction opposite to the first direction upon movement of the nonimaging region of the imaging substrate past the squeegee roller, the squeegee roller substantially removing from the imaging substrate the second excess volume of the developer liquid; and

means for transferring the developer liquid remaining on the imaging region of the imaging substrate to an output imaging substrate, thereby forming a visible representation of an image.

5,805,964

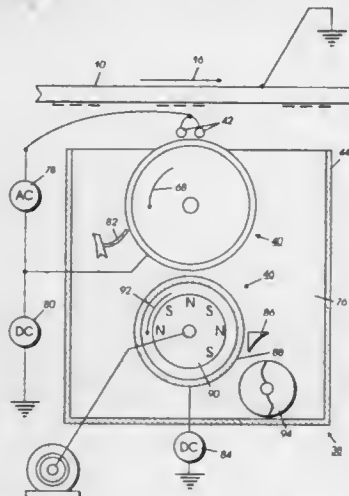
INORGANIC COATED DEVELOPMENT ELECTRODES AND METHODS THEREOF

Santokh S. Badesha; Arnold W. Henry, both of Pittsford; George J. Heeks; J. Stephen Kittelberger, both of Rochester; John G. VanDusen, Walworth; Suresh K. Ahuja, Webster; Merlin E. Scharfe, Penfield; Richard L. Schank, Pittsford, and Mark J. Hirsch, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 29, 1997, Ser. No. 841,234
 Int. Cl.⁶ G03G 15/06

U.S. Cl. 399—266

20 Claims



1. An apparatus for developing a latent image recorded on a surface, comprising:
 wire supports;
 a donor member spaced from the surface and being adapted to transport toner to a region opposed from the surface;
 an electrode member positioned in the space between the surface and the donor member, the electrode member being closely spaced from the donor member and being electrically biased to detach toner from the donor member thereby enabling the formation of a toner cloud in the space between the electrode member and the surface with detached toner from the toner cloud developing the latent image, wherein opposed end regions of the electrode member are attached to wire supports adapted to support the opposed end regions of said electrode member; and
 a low surface energy inorganic material coating on at least a portion of nonattached regions of said electrode member.

5,805,965

DEVELOPING DEVICE FOR AN IMAGE FORMING APPARATUS HAVING DEVELOPER DISTRIBUTION FEATURES

Kiyonori Tsuda, Tokyo; Seiji Oka, Yokohama; Hajime Oyama, Ichikawa, and Yasushi Akiba, Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

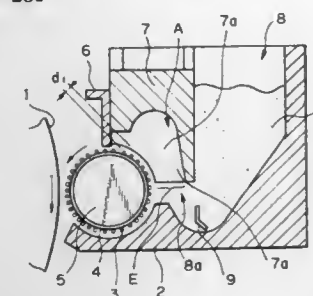
Filed Nov. 13, 1996, Ser. No. 747,760

Claims priority, application Japan, Nov. 14, 1995, 7-295079; Nov. 20, 1995, 7-326507; Nov. 20, 1995, 7-326516; Dec. 21, 1995, 7-349819; Feb. 29, 1996, 8-071492; Oct. 15, 1996, 8-294349; Oct. 22, 1996, 8-279527

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—281

41 Claims



1. A developing device comprising:
 a developer carrier for conveying a developer consisting essentially of toner and magnetic particles deposited thereon;
 magnetic field generating means disposed in said developer carrier and for exposing said developer carrier to a magnetic field;
 a regulating member for regulating an amount of the developer deposited on said developer carrier;
 a developer storing member separated by a space from said developer carrier, said space receiving a portion of the developer removed by said regulating member;
 a toner storing section adjoining said space from an upstream side with respect to a direction in which said developer carrier conveys the developer toward said space, and formed with an opening facing said developing carrier for toner replenishment; and
 a spread preventing member for preventing the portion of developer removed by said regulating member from spreading outward in an axial direction of said developer carrier.

5,805,966

DEVELOPER LAYER FORMING DEVICE HAVING A BLADE PRESSED AGAINST A DEVELOPING ROLLER AT AN EDGE PORTION

Masanori Yamada, Ikoma, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

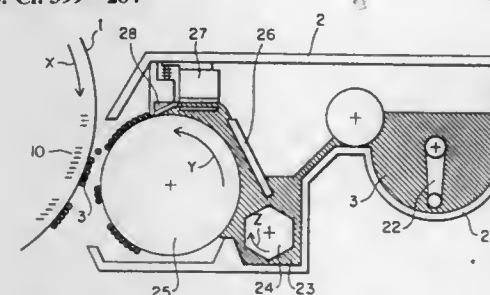
Filed May 20, 1997, Ser. No. 859,511

Claims priority, application Japan, May 21, 1996, 8-125670

Int. Cl.⁶ G03G 15/08

U.S. Cl. 399—284

9 Claims



1. A developer layer forming device comprising:
 a photoreceptor drum;

a developing roller arranged opposite to said photoreceptor drum such that said developing roller is in contact with or adjacent to said photoreceptor drum, and supporting a non-magnetic developer; and

a blade arranged opposite to said developing roller and also arranged such that an edge of said blade is vertically pressed against and thus in contact with a surface of said developing roller at a nip portion.

5,805,967

SINGLE-PASS, MULTICOLOR ELECTROSTATOGRAPHIC PRINTER WITH INTERMEDIATE TRANSFER MEMBER

Jan Julien Irma De Bock, Beveren; Etienne Marie De Cock, Edegen, and Daniel Frans Maria Van De Velde, Kontich, all of Belgium, assignors to Xeikon N.V., Mortsel, Belgium

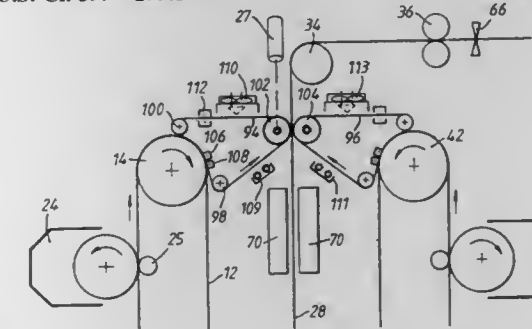
Filed Nov. 25, 1996, Ser. No. 756,117

Claims priority, application European Pat. Off., Nov. 24, 1995, 95308508

Int. Cl.⁶ G03G 15/01; 15/16; 15/20

U.S. Cl. 399—299.1

8 Claims



1. A single-pass, multi-color electrostatographic printer comprising:
 a transfer member;
 drive means for moving the transfer member along a continuous path;
 electrostatic deposition means for simultaneously depositing a plurality of toner images of different colors in powder form in register with each other on the transfer member to form a charged multiple toner image thereon; and
 substrate feed means for feeding substrate along a substrate path into contact with the transfer member, whereby the multiple toner image is transferred to at least one face of the substrate;
 heating means for heating the multiple toner image on the transfer member in advance of the transfer of the multiple toner image to the substrate; and
 cooling means for cooling the transfer member following the transfer of the multiple toner image therefrom to the substrate to a temperature below the glass transition temperature T_g of the toner, prior to the deposition of further toner images on the transfer member.

5,805,968

CERAMIC ROLLERS

Dilip K. Chatterjee, Rochester; Jiann-Hsing Chen, Fairport, and Tonya D. Binga, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

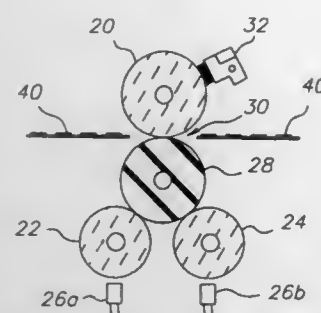
Filed Mar. 21, 1997, Ser. No. 822,163

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—324

9 Claims

1. A fuser for fixing particulate imaging material to a receiver sheet, comprising:
 (a) two rollers which engage each other at a fixing nip, wherein pressure is used in fixing the particulate imaging material to the receiver sheet;



- (b) at least one of the fusing rollers having a surface formed from zirconia ceramic or its composites which has a hardness greater than 12 GPa and toughness greater than 6 MPa $\sqrt{\text{mm}}$; and
- (c) an offset preventing oil which reacts with the zirconia ceramic or its composites to prevent offset of the particulate imaging material.

5,805,969

ELECTROSTATOGRAPHIC PRINTER FOR IMPARTING A MODIFIED FINISH TO A TONER IMAGE

Johan Denise Gustave Elsermans, Antwerp; Wim Jacques Josephine Michielsens, Wommelgem, and Jean Alois Rachel Norbert Van Daele, Bonheiden, all of Belgium, assignors to Xeikon N.V., Mortsel, Belgium

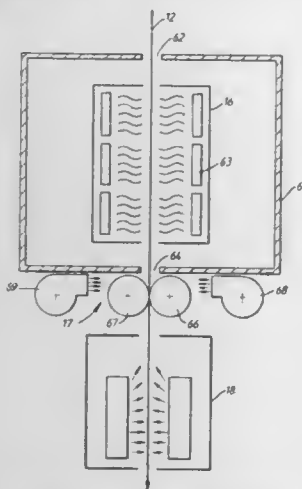
Filed Aug. 6, 1996, Ser. No. 692,724

Claims priority, application European Pat. Off., Aug. 10, 1995, 95305580; United Kingdom, Apr. 26, 1996, 9608761

Int. Cl.⁶ G03G 15/20

U.S. Cl. 399—341

16 Claims



1. An electrostatographic printer comprising:
- means for feeding a web of receiving material along a web path;
- a toner image forming device for forming a toner image, with toner having a glass transition temperature, on at least a first face of said receiving material as it is fed along said web path;
- fixing means for fixing said toner image onto said receiving material;
- at least one finishing element positioned immediately downstream of said fixing means, to contact said first face of said receiving material while a contacting surface of said toner image is at a temperature above said glass transition temperature to impart a modified finish to said toner image; and
- cooling means for cooling said finishing element.

5,805,970

DOCUMENT SIZE DETECTING DEVICE USING A PLURALITY OF THRESHOLDS

Toru Kasamatsu, Toyokawa, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

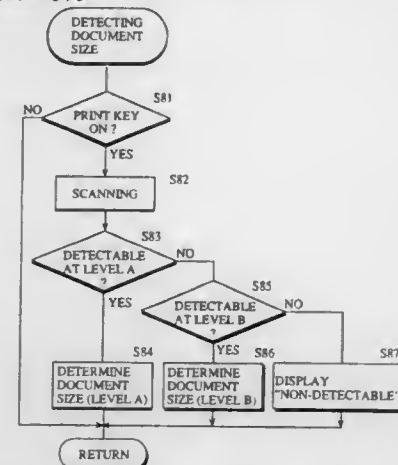
Continuation of Ser. No. 420,440, Apr. 10, 1995, abandoned, which is a continuation of Ser. No. 102,628, Aug. 5, 1993, abandoned. This application Aug. 12, 1996, Ser. No. 689,770

Claims priority, application Japan, Aug. 7, 1992, 4-211860

Int. Cl.⁶ G03G 15/00

U.S. Cl. 399—376

9 Claims



1. A document size detecting device employed in an image forming apparatus for detecting a size of a document placed on a document table and covered over with a document cover based on an amount of light reflected from a document area, comprising:
- a photosensor which detects an amount of light reflected from a predetermined location of an area covered with the document cover;
- a first detector which detects a kind of the document;
- a second detector which detects whether the document is within said predetermined location by comparing an output value from said photosensor with a first threshold;
- a third detector which detects whether the document is within said predetermined location by comparing an output value from said photosensor with a second threshold different from said first threshold; and
- a controller which selects one of said second detector and said third detector based on a kind of the document detected by said first detector and which judges a size of the document based on a detection result of said selected detector.

5,805,971

METHOD OF PRODUCING THREE-DIMENSIONAL FORMS

Jun Akedo, Tsukuba, Japan, assignor to Agency of Industrial Science & Technology, Ministry of International Trade & Industry, Tokyo, Japan

Filed Sep. 12, 1995, Ser. No. 527,331

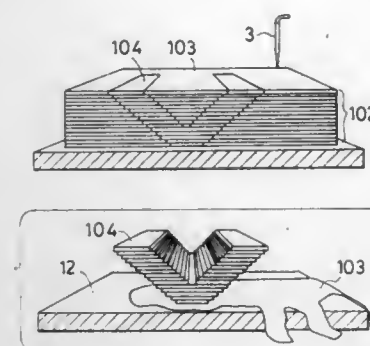
Claims priority, application Japan, Sep. 13, 1994, 6-244672

Int. Cl.⁶ B22F 7/04; 7/02

U.S. Cl. 419—6

8 Claims

1. A method of producing a three-dimensional form, comprising the steps of: repeatedly depositing on a base surface a plurality of layers each of said layers comprising first particles having first properties and second particles having second properties which are different from said first properties by spraying from at least one nozzle a gas including the first and second particles at a flow velocity of 300 m/s or more to transform kinetic energy of the first and second particles into thermal energy that bonds the first and



second particles to the base surface and build up a three-dimensional object by accumulated deposition layers, each of said accumulated deposition layers having different properties in a two-dimensional plane; and

utilizing the different properties in the accumulated deposition layers to remove part of the three-dimensional object to produce a desired three-dimensional form.

5,805,972

METHOD AND APPARATUS FOR SEPARATING ISOTOPES

Goro Miyamoto, Kanagawa-ken; Yoshio Murakami; Seiji Hiroki, both of Ibaraki, and Kenji Katsuki, Kanagawa-ken, all of Japan, assignors to Japan Atomic Energy Research Institute, and Kabushiki Kaisha Toshiba, both of Kanagawa-ken, Japan

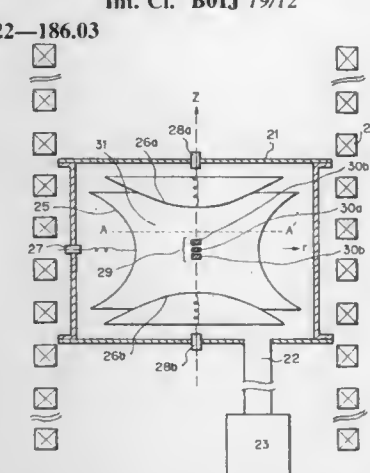
Division of Ser. No. 607,467, Feb. 27, 1996, Pat. No. 5,653,854. This application Feb. 28, 1997, Ser. No. 808,642

Claims priority, application Japan, Feb. 28, 1995, 7-040607

Int. Cl.⁶ B01J 19/12

U.S. Cl. 422—186.03

1 Claim



1. An apparatus for isotope separation that comprises a vacuum vessel, a plasma generator located substantially in the center of said vacuum vessel, an electrode bounded by a hyperboloid of one sheet, a pair of electrodes bounded by a hyperboloid of two sheets, said electrodes being located within said vacuum vessel in such a way as to surround said plasma generator, a means for supplying said electrodes with a fixed voltage and a pulsating voltage to generate an alternating electric field, and magnetic field generating means located outside said vacuum vessel for generating a magnetic field parallel to the z-axis superimposed upon the electric field.

5,805,973

COATED ARTICLES AND METHOD FOR THE PREVENTION OF FUEL THERMAL DEGRADATION DEPOSITS

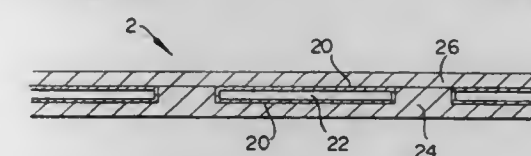
George A. Coffinberry, West Chester, Ohio, and John F. Ackerman, Cheyenne, Wyo., assignors to General Electric Company, Cincinnati, Ohio

Continuation of Ser. No. 592,244, Jan. 26, 1996, abandoned, which is a continuation of Ser. No. 125,964, Sep. 23, 1993, abandoned, which is a continuation-in-part of Ser. No. 6,104, Jan. 15, 1993, abandoned, which is a continuation-in-part of Ser. No. 949,593, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 673,924, Mar. 25, 1991, abandoned. This application Mar. 12, 1997, Ser. No. 816,129

Int. Cl.⁶ F02B 75/08; 77/02; C10G 9/16; C23C 16/40

U.S. Cl. 428—551

21 Claims



14. An article of manufacture for contact with hot hydrocarbon fluid at a temperature above about 300° F. and having an iron-, nickel-, or chromium-containing metal surface in which the metal surface is free of a formed metal oxide and has thereon an applied smooth, continuous, dense, non-reactive, non-catalytic and thermally stable diffusion barrier coating consisting of a metal oxide, amorphous glass or mixtures thereof, which substantially prevents diffusion of metal atoms and the hydrocarbons fluid through the diffusion barrier coating.

5,805,974

METHOD AND APPARATUS FOR SYNCHRONIZING COMMERCIAL ADVERTISEMENTS ACROSS MULTIPLE COMMUNICATION CHANNELS

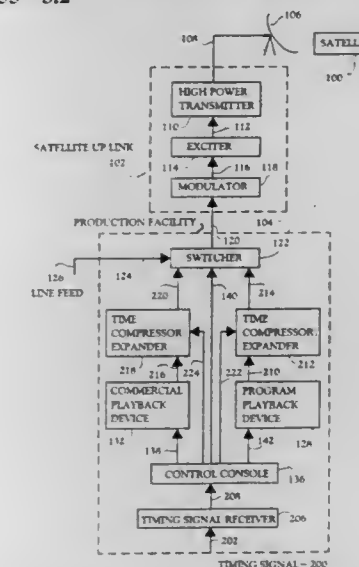
Kenneth C. Hite, 3 Center Knolls, Bronxville, N.Y. 10708; Walter S. Ciciora, 45 Hulls Farm Rd., Southport, Conn. 06490-1027; Tom Alison, 280 Barrataria Dr., St. Augustine, Fla. 32086, and Robert G. Beauregard, 66 E. Parkway, Apt. 1 J, Scarsdale, N.Y. 10583

Filed Aug. 8, 1995, Ser. No. 512,542

Int. Cl.⁶ H04H 1/00; H04N 7/10

U.S. Cl. 455—3.2

28 Claims



1. A TV commercial control system for the synchronization of a commercial across multiple channels including means for relatively precise commercial reception for viewing at a TV receiver whereby a commercial is simultaneously aired with sufficient pre-

cision to appear substantially simultaneously to the viewer of the TV receiver despite changing channels;
a command center for controlling commercial delivery to the TV receiver for the synchronization of the commercial across multiple channels.

5,805,975
SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM
James A. Green, Sr., Rte. 4, Box 402, Tallahassee, Fla. 32304, and Austin S. Coker, Jr., P.O. Box 10257, Tallahassee, Fla. 32302

Continuation-in-part of Ser. No. 394,234, Feb. 22, 1995, abandoned. This application Apr. 9, 1997, Ser. No. 838,677

Int. Cl.⁶ H04H 1/00; H04B 7/185
U.S. Cl. 455—3.2 6 Claims



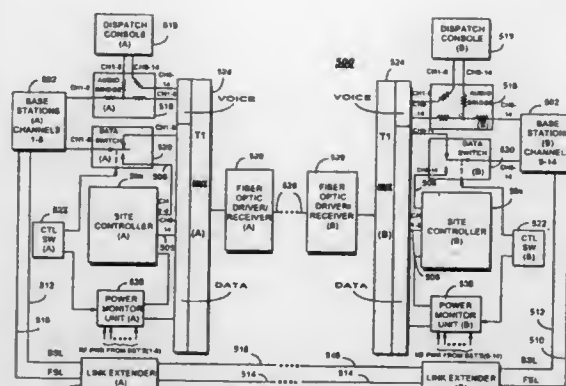
1. A satellite broadcasting system comprising:
a satellite dish coupled to a low-noise block converter;
said low-noise block converter is coupled to a first means of converting vertical polarization signals and horizontal polarization signals or left-hand circular polarization signals and right-hand circular polarization signals from a satellite and transmitting simultaneously via a single coaxial cable for enabling two different frequencies and polarities to be transmitted simultaneously via said single coaxial cable;
a second means is coupled to said first means;
said second means converts said vertical polarization signals and said horizontal polarization signals or said left-hand circular polarization signals and said right-hand circular polarization signals from said first means to its original received frequency and polarity from said satellite dish;
a satellite receiver is coupled to said second means; and
a source is coupled to said satellite receiver.

5,805,976
SINGLE SITE, SPLIT LOCATION TRUNKED RADIO COMMUNICATIONS SYSTEM
John S. Frichtel, Lynchburg; Robert O. Canada, III, Bedford, and Kennard N. Gwin, Lynchburg, all of Va., assignors to Ericsson Inc., Research Triangle Park, N.C.
Division of Ser. No. 340,345, Nov. 14, 1994, Pat. No. 5,752,198. This application Sep. 18, 1996, Ser. No. 715,397
Int. Cl.⁶ H04B 3/36; 7/00

U.S. Cl. 455—8 13 Claims

1. A trunked RF communications repeater system providing an RF control channel and plural trunked RF working channels for temporary assignment in response to control signals passed over the RF control channel, comprising:

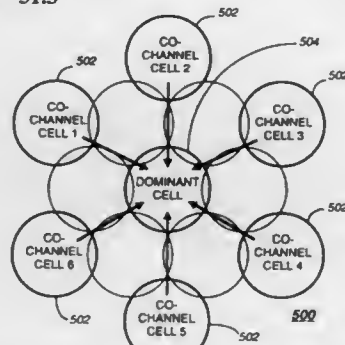
- a first repeater architecture located in a first, split-site location and including:
plural first base station transceivers, each first base station transceiver corresponding to an RF communications channel, and



- a first site controller, connectable to each of the first base station transceivers, for assigning base station transceivers to radios requesting an RF communications channel; and
- a second repeater architecture located in a second, split-site location remote from the first, split-site location and including:
plural second base station transceivers, each second base station transceiver corresponding to an RF communications channel, and
a second site controller, connectable to each of the second base station transceivers, for assigning base station transceivers to radios requesting an RF communications channel; and
- a communications link linking the first and second repeater architectures,
wherein the first and second repeater architectures are capable of functioning in a first mode as a single site with one of the first and second site controllers assigning both first and second base station transceivers to radios requesting an RF communications channel during which time the other of the first and second site controllers does not assign base station transceivers to radios requesting an RF communications channel, and
wherein the first and second repeater architectures are capable of functioning in a second, failsoft mode in which the first and second base station transceivers are assigned to radios requesting an RF communications channel using control signals passed between the first and second repeater architectures when the first and second site controllers fail or are absent.

5,805,977
METHOD AND APPARATUS FOR CONTROLLING TRANSMISSIONS IN A TWO-WAY SELECTIVE CALL COMMUNICATION SYSTEM
Thomas Casey Hill, Wellington; Thomas V. D'Amico, Boca Raton, and Robert John Schwendeman, Pompano Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Apr. 1, 1996, Ser. No. 617,699
Int. Cl.⁶ H04Q 7/12; 7/08; 7/36

U.S. Cl. 455—31.3 15 Claims

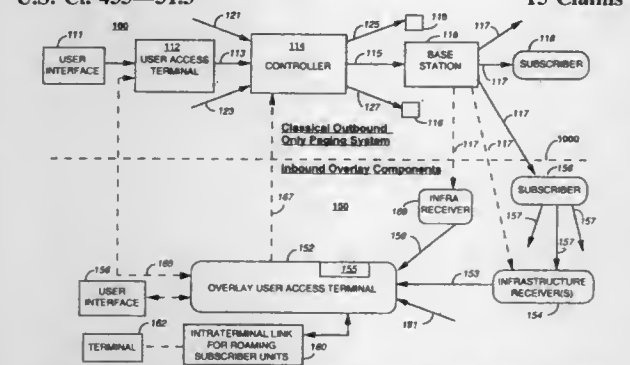


1. A method in a two-way selective call communication system for controlling transmissions in a dominant cell of a plurality of cells utilizing a common radio frequency for sending messages, the

dominant cell carrying significantly greater traffic than any other cell of the plurality of cells, the method comprising the steps of:
grouping, into a first time period, the transmissions of non-dominant cell messages which interfere with the transmissions of dominant cell messages;
determining a subset of the dominant cell messages that require a higher signal-to-interference ratio than available in the dominant cell during the first time period; and
transmitting the subset during a second time period different from the first time period.

5,805,978
METHOD AND APPARATUS FOR OVERLAYING AN INBOUND CHANNEL ON AN OUTBOUND SYSTEM
Slim Souissi, Fort Worth; Casey Hill, Trophy Club, and Jeroen P. Dorenbosch, Paradise, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Oct. 15, 1996, Ser. No. 732,567
Int. Cl.⁶ H04Q 7/00

U.S. Cl. 455—31.3 15 Claims

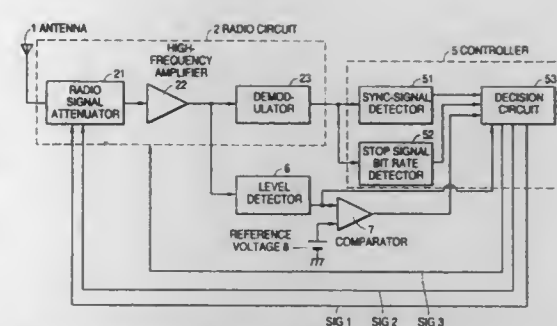


12. A selective call transceiver unit using an inbound channel overlay on an outbound selective call system for creating a two-way selective call system, the selective call transceiver unit comprising:

- a receiver for receiving a message having an address directed to an addressable by the receiver, the address pointing to a vector;
a decoder for decoding a pointer within the vector that points to a control information portion within an outbound message portion and for decoding the control information portion within the outbound message portion to determine how an inbound channel should operate for the selective call transceiver unit, wherein the control information portion comprises a two-way Block Information Word, wherein the two-way Block Information Word comprises information selected from a group of modulation schemes, coding schemes, power levels, boundary information between scheduled and unscheduled slotted transmissions, a maximum number of unscheduled slotted retries allowed by the selective call transceiver unit, reverse channel speeds, a randomization interval for unscheduled slotted transmissions, an unscheduled slotted transmission time out period, and slot assignment; and
a transmitter for transmitting information in accordance with the control information portion.

5,805,979
CONTROL APPARATUS AND CONTROL METHOD FOR ATTENUATING RADIO SIGNAL
Mafumi Miyashita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Dec. 29, 1995, Ser. No. 581,173
Claims priority, application Japan, Dec. 30, 1994, 6-340428
Int. Cl.⁶ H04B 7/00; H04Q 3/02; 9/14
U.S. Cl. 455—38.2 19 Claims

1. A control unit for attenuating a radio signal received by a radio apparatus comprising:



- reception means for receiving a radio signal;
electric-field detection means for detecting an electric field intensity of said radio signal;
attenuation means for attenuating said radio signal;
first judgment means for judging whether the electric field intensity is high;
second judgment means for judging whether a synchronizing signal is included in said radio signal;
third judgment means for judging whether said radio signal is a signal which should be received by said radio apparatus when said first judgment means decides that the electric field intensity of said radio signal is high and said second judgment means decides that said synchronizing signal is not included in said radio signal; and
attenuation control means for turning off said attenuation means when said first judgment means decides that said electric field intensity is low, and for turning off said attenuation means when said second judgment means decides that said synchronizing signal is included in said radio signal and said first judgment means decides that said electric field intensity is high, and for turning off said attenuation means when said third judgment means decides that said radio signal is not a signal which should be received by said radio apparatus, and for turning on said attenuation means when said third judgment means decides that said radio signal is a signal which should be received by said radio apparatus.

5,805,980
COMMUNICATION RECEIVER FOR CONTROLLING A RECEIVE OPERATION IN RESPONSE TO A CONTROL VALUE
Ronald Hugh Evoy, West Palm Beach; David Jeffery Hayes, Lake Worth; Von Alan Mock, and Matthew Joseph Stanislawski, both of Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 523,669, Sep. 5, 1995, abandoned.
This application Aug. 28, 1997, Ser. No. 976,131
Int. Cl.⁶ H04Q 7/00; H04J 15/00

U.S. Cl. 455—38.3 16 Claims

1. A method of determining a response to a control value periodically transmitted by a communication system in at least one code word of a frame of data of a communication protocol, the control value for controlling a receive operation of a receiver operating in the communication system, the method comprising in the receiver the steps of:

- accepting and storing earlier data from an earlier transmission of the frame of data;
receiving current data from a current transmission of the frame of data;
thereafter comparing the earlier data and the current data;
detecting errors in the at least one code word of the current data; and
selecting from (a) performing the receive operation in accordance with a current control value received in the current data and (b) performing the receive operation in accordance with an alternative control value, in response to the comparison, wherein the control value is transmitted along with additional information having a predictable sequence from one frame of data to a next frame of data, and

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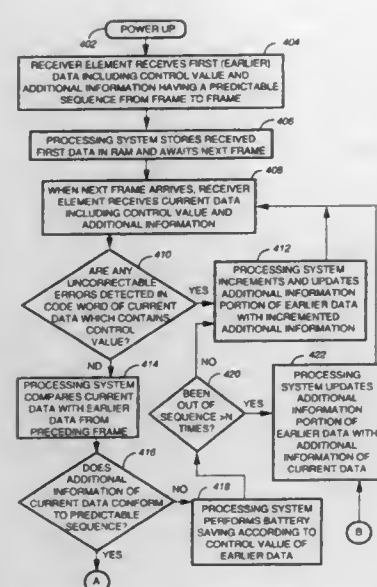
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wherein the receiving step comprises the step of receiving the control value and the additional information, and wherein the comparing step comprises the step of comparing current additional information received in the current data with earlier additional information received and stored with the earlier data, and wherein the selecting step comprises the step of performing the receive operation in accordance with the control value received in the current data, in response to no uncorrectable errors being detected in said step of detecting errors, and the comparison indicating that the current additional information conforms to the predictable sequence.

5,805,981

COMMUNICATION TERMINAL AND COMMUNICATION SYSTEM WITH IMAGE DISPLAY AND IMAGE STORAGE SECTION

Naoaki Sugio, Fussa; Morihiko Hayakawa, Tachikawa; Kazuyoshi Maehara, Fussa; Oh Takahashi, Tanashi; Katsuya Sakamaki, Tachikawa; Hiroyuki Nakamura, Akishima, and Shouichi Nagatomo, Fussa, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1995, Ser. No. 457,093

Claims priority, application Japan, Jun. 6, 1994, 6-123754; Jun. 7, 1994, 6-125047; Jun. 10, 1994, 6-129320; Jun. 10, 1994, 6-129369; Jun. 21, 1994, 6-139080; Jun. 21, 1994, 6-139081; Jun. 21, 1994, 6-139083; Jul. 14, 1994, 6-162367; Jan. 31, 1995, 7-014250

Int. Cl. H04Q 7/14

U.S. Cl. 455—38.4

18 Claims

KEYWORD	CODE SEQUENCE	PORTRAIT CODE	DISPLAY
1ST GROUP (JOY)			
ENJOY	1039030050		
LIKE	57292410		
LOVE	27300710	22	25
LA	3008		
AGREED	162748101019		
PLAY	66371880		
ANGRY	1630274880		
PLEASE	462948491019		
2ND GROUP (ANGER)			
REJECT	481020101840	32	28
DESPISE	181049204440		
TRouble	504020417370		
HATE	28164010		
3RD GROUP (PITY)			
LONELY	373028103750		
SORRY	603044480		
MISS	26294849	30	27
CANCEL	181639181087		
CHANGE	18281028710		
LATE	37164010		
4TH GROUP (COMFORT)			
CALL	18163727		
TIME	28292910		
FUN	291638		
GO	2730	33	21
MOVING	383448202922		
NIGHT	3928272940		

1. A communication terminal comprising:
a receiving section (11 to 13 and 15) for receiving an image designating code;
a display (24) for displaying an image;

an image storage section (19, 20 and 25) for storing a plurality of images; and
display control means (14) for reading an image corresponding to said image designating code, received by said receiving section (11 to 13 and 15), from said image storage section (19, 20 and 25), and displaying said image on said display (24), wherein said image storage section (19, 20 and 25) stores said plurality of images corresponding to the same image designating codes and image selection data for designating which image in said plurality of images is to be displayed in response to the same image designating codes; and wherein said display control means (14) reads said image designating code and said image from said image storage section in accordance with said image selection data to be displayed on said display (24).

5,805,982

METHOD AND APPARATUS FOR MEASURING IDLE CHANNEL QUALITY IN AN RF FREQUENCY SHARING ENVIRONMENT

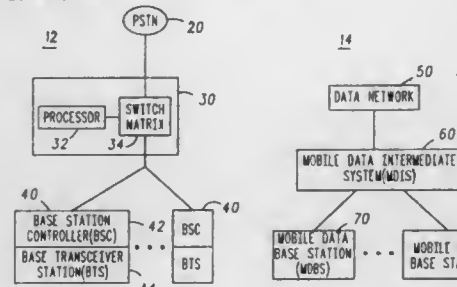
Thomas G. Hulsebosch, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 28, 1995, Ser. No. 508,657

Int. Cl. H04B 17/00

U.S. Cl. 455—62

8 Claims



1. A method of measuring idle channel quality in an RF frequency sharing environment the system comprising a first and a second communication system each capable of using common radio frequency channels, the method being performed by the first system and comprising the steps of:
performing a first signal quality measurement of a channel in the first RF system;
comparing the first signal quality measurement to a threshold;
keying the channel when the first signal quality measurement exceeds the threshold causing the second communication system to cease transmitting on the channel; and
performing a second signal quality measurement of the channel after the step of keying.

5,805,983

SYSTEM AND METHOD FOR EQUALIZING THE DELAY TIME FOR TRANSMISSION PATHS IN A DISTRIBUTED ANTENNA NETWORK

Arun Naidu, Raleigh, and Jacque Huffman, Cary, both of N.C., assignors to Ericsson Inc., Research Triangle Park, N.C.

Filed Jul. 18, 1996, Ser. No. 683,382

Int. Cl. H04B 17/00

U.S. Cl. 455—67.6

14 Claims

1. A communication system for automatically equalizing time delay in a distributed antenna network, comprising:
a plurality of remote antenna units;
a central unit connected to said remote antenna units by transmission lines, each connection between said central unit and one of said remote antenna units forming a separate transmission path having an associated delay time;
a plurality of delay detectors for determining the associated delay time of said separate transmission paths for each of said remote antenna units;

5,805,985

UNIVERSAL ADAPTER KIT FOR MINI MICROPHONE

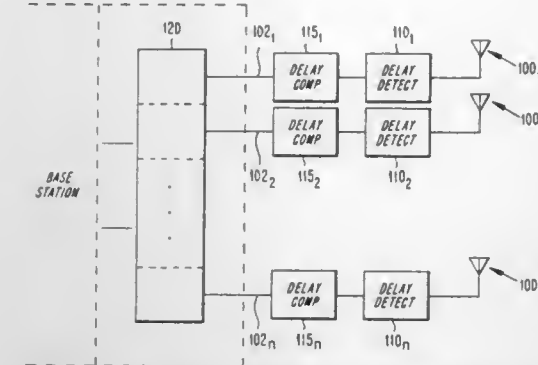
William S. Reisinger, 2078 Spring St., York, Pa. 17404, and Wren A. Clegg, 103 Meals Dr., Carlisle, Pa. 17013

Filed Jun. 23, 1995, Ser. No. 494,240

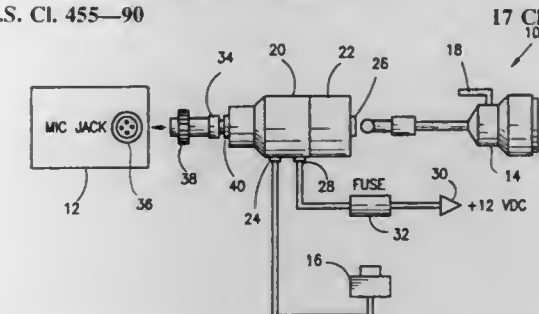
Int. Cl. H04B 1/38

U.S. Cl. 455—90

17 Claims



a delay compensator for adjusting the associated delay time for each of said remote antenna units in response to said delay detectors so that all of the associated delay times are substantially equalized;
a pulse generator for sending a predetermined pulse pattern to a loopback mechanism for each of said remote antenna units; via said transmission lines and
a timer for counting the time taken to transmit said predetermined pulse pattern on an uplink path of said loopback mechanism for each of said remote antenna units.



1. A universal adapter kit for a two-way radio having a microphone jack permitting a user to access the two-way radio with a variety of microphones and keying switches without modifying the two-way radio, microphone or keying switch, comprising:
a universal keying adapter including a radio plug for attachment to the microphone jack of the two-way radio;
a microphone connected to the keying adapter, the microphone being selectively securable to a support structure;
a keying switch connected to the keying adapter;
wherein the keying adapter includes circuit means for matching impedance of the microphone and impedance of the keying switch with an impedance of a wide variety of two-way radios to permit the microphone and the keying switch to be used with a selected two-way radio without modifying the two-way radio or the circuitry means of the universal adapter kit.

5,805,984

METHOD AND APPARATUS FOR ELIMINATING FREQUENCY MISMATCH BETWEEN A TRANSMITTER AND A RECEIVER

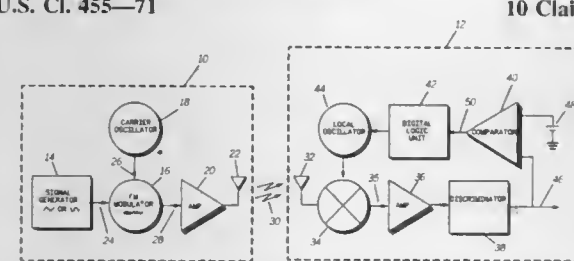
Wayne A. Tangen, Buford, Ga., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 5, 1996, Ser. No. 610,916

Int. Cl. H04B 7/26

U.S. Cl. 455—71

10 Claims



1. A method of eliminating frequency mismatch between a transmitter and a receiver, said transmitter transmitting a modulated mismatch correction signal, said method comprising:
receiving said modulated mismatch correction signal in said receiver;
mixing said modulated mismatch correction signal with a local oscillator frequency thereby providing a mixed mismatch correction signal;
demodulating said mixed mismatch correction signal using a discriminator having a nominal output voltage, thereby providing a demodulated mismatch correction signal;
comparing said demodulated mismatch correction signal with said nominal discriminator output voltage, thereby providing a pulse train having a duty cycle; and
adjusting said local oscillator frequency until said duty cycle of said pulse train is 50%.

5,805,986

HIGH-FREQUENCY STEP ATTENUATOR SUITABLE FOR TRANSMISSION CIRCUIT

Nishiki Mizusawa, and Tsutomu Sato, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

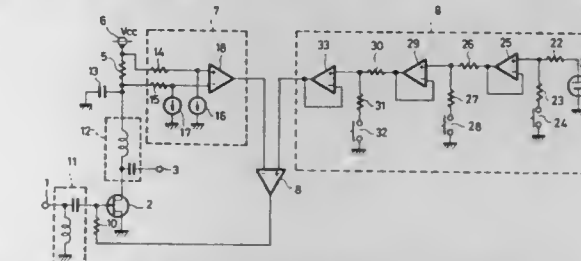
Filed Jun. 7, 1996, Ser. No. 661,407

Claims priority, application Japan, Jun. 16, 1995, 7-150482

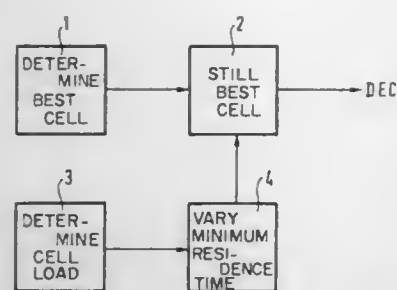
Int. Cl. H01Q 11/12; H04B 1/04

U.S. Cl. 455—126

3 Claims



1. A high-frequency signal step attenuator comprising:
an amplifying circuit including a transistor element with one of a base and a gate connected to an input terminal to which a high-frequency input signal is supplied, wherein said amplifying circuit supplies an amplified output signal of said high-frequency input signal to an output terminal;
a current detector for detecting a current flowing through one of a current path of a collector-emitter and a current path of a drain-source of said transistor element to generate an output voltage corresponding to said current;
a voltage setter for selectively generating output voltages of different levels and producing a selected output voltage; and
a comparator for comparing said output voltage of said current detector with said selected output voltage of said voltage setter and for producing a compared result, and supplying an output signal of said compared result as a feedback signal to one of said base and said gate of said transistor element, wherein said voltage setter includes:



it is necessary to execute a command to change cell level when the mobile station is served by a lower level cell contained in a higher level cell or, if the mobile station is served by a higher level cell having a lower level cell, when it is determined that the lower level cell is the best cell; means for determining the load of said higher level cell; and means for varying said threshold in accordance with said load.

5,805,994

METHOD FOR TRANSMIT POWER CONTROL IN A COMMUNICATION SYSTEM

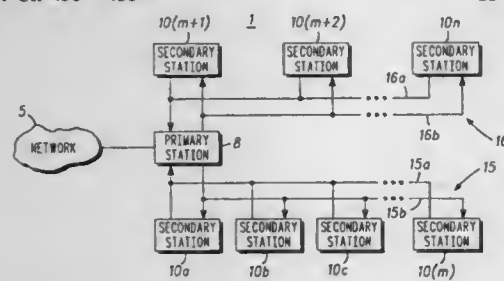
John A. Perreault, Hopkinton; David R. Flanagan, Framingham, and Katherine A. Unger, Wrentham, all of Mass., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 3, 1996, Ser. No. 624,346

Int. Cl.⁶ H04Q 7/20; H04B 7/00

U.S. Cl. 455—435

11 Claims



1. A method for setting a transmit power level by a secondary station in a communication system, the secondary station coupled to a primary station by way of a shared channel, the transmit power level falling between a predetermined minimum transmit power level and a predetermined maximum transmit power level, inclusive, the method comprising the steps of:

receiving a first invitation for several of the secondary stations including the secondary station to contend for access to the shared channel;

transmitting a first response at a first transmit power level; receiving a second invitation for the secondary station to contend for access to the shared channel;

determining whether the second invitation indicates that a first invalid message was received on the shared channel;

transmitting second response at the first transmit power level if the second invitation indicates that the first invalid message was received on the shared channel;

receiving a third invitation for the secondary station to contend for access to the shared channel;

determining whether the third invitation indicates that a second invalid message was received on the shared channel; and

if the third invitation indicates that the second invalid message was received on the shared channel, transmitting a third response at a second transmit power level different from the first transmit power level.

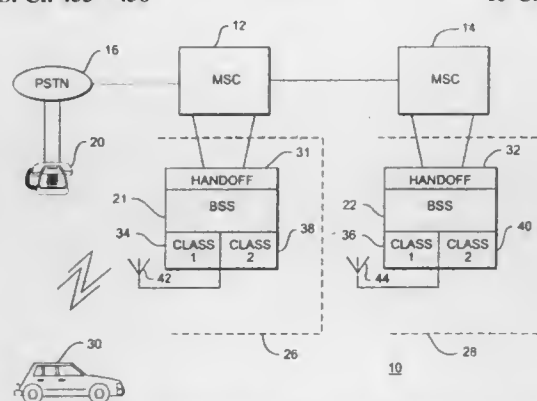
**5,805,995
CHANNEL RESERVATION AND POWER CONTROL FOR IMPROVED HANDOFF PERFORMANCE**
Hua Jiang; Jim Xu, both of Plano, Tex., and Sirin Tekinkay, Mahwah, N.J., assignors to Northern Telecom Limited, Montreal, Canada

Filed Oct. 28, 1996, Ser. No. 739,012

Int. Cl.⁶ H04Q 7/00

U.S. Cl. 455—436

13 Claims



1. A method of handing off on-going communication from a serving cell to a target cell of a cellular telecommunication network, said method comprising:

generating a first plurality of communication channels having a first power level at a base station of each of the serving and target cells;

generating a second plurality of communication channels having a second power level higher than the first power level at the base station of each of the serving and target cells;

generating a handoff request at either the base station of the serving cell or the mobile unit during an on-going communication over one of the first plurality of communication channels of the serving cell in response to a decrease in the quality of reception of one of the first plurality of communication channels;

switching the on-going communication to one of the second plurality of communication channels in the serving cell having the second power level in response to the handoff request; and

switching the on-going communication from said one of the second plurality of communication channels of the serving cell to one of the first plurality of communication channels of the target cell.

5,805,996

BASE STATION WITH ANTENNA COVERAGE DIRECTED INTO NEIGHBORING CELLS BASED ON TRAFFIC LOAD

Mikko Salmela, Masala, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

Continuation of Ser. No. 244,753, Aug. 11, 1994, abandoned.

This application Nov. 14, 1996, Ser. No. 748,724

Claims priority, application Finland, Dec. 13, 1991, 915886

Int. Cl.⁶ H04Q 7/30

U.S. Cl. 455—453

14 Claims

1. A cellular radio system, comprising: a plurality of mobile radio stations roaming in a space served by the system;

a plurality of base stations, each comprising:

at least one radio transmitter;

at least one radio receiver;

an antenna arrangement including at least one antenna operationally associated with at least one of said at least one transmitter and receiver; and

at least one radio channel allocated to said base station for establishing a radio connection with those of said mobile radio stations which are disposed within a radio coverage of the base station;

5,805,998

CORDLESS TELEPHONE APPARATUS

Yoshisuke Kodama, Fukuoka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

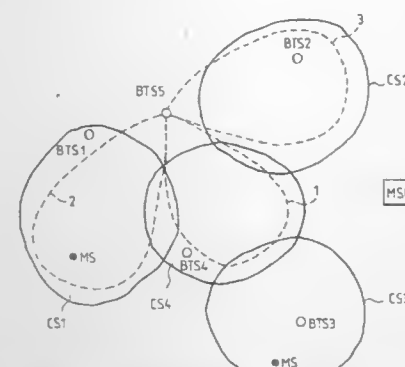
Filed Jul. 5, 1995, Ser. No. 498,479

Claims priority, application Japan, Jul. 20, 1994, 6-167940

Int. Cl.⁶ H04Q 7/18

U.S. Cl. 455—462

12 Claims



at least some of said base stations each having a respective fixed coverage area determined by said antenna arrangement;

at least one said antenna of at least one of said base stations being a directional antenna; and the respective said antenna arrangement including drive means for effectively spatially, orientationally redirecting the radiation pattern produced by the respective at least one said directional antenna in use to at least partially overlap at least a neighboring one of said fixed coverage areas, for providing an additional capacity of at least one radio channel for mobile radio stations within said at least one of said fixed coverage areas, for temporal variations in regional radio traffic load in said system.

5,805,997

SYSTEM FOR SENDING CONTROL SIGNALS FROM A SUBSCRIBER STATION TO A NETWORK CONTROLLER USING CELLULAR DIGITAL PACKET DATA (CDPD) COMMUNICATION

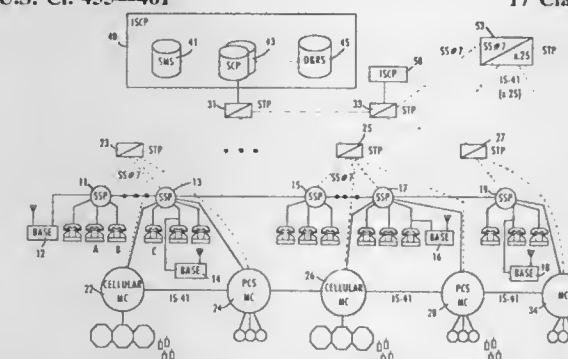
Robert D. Farris, Sterling, Va., assignor to Bell Atlantic Network Services, Inc., Arlington, Va.

Filed Jan. 26, 1996, Ser. No. 592,441

Int. Cl.⁶ H04Q 7/20; 7/22

U.S. Cl. 455—461

17 Claims



1. A combined landline and wireless communication system comprising:

(a) a landline Advanced Intelligent Network (AIN) system including switching entities, a control entity and a Common Channel Interoffice Signalling (CCIS) system connecting said switching entities and said control entity;

(b) a Cellular Digital Packet Data (CDPD) system arranged for communication with wireless subscriber units, and having a plurality of Mobile Data Base Stations (MDBS) and at least one CDPD controller; and

(c) an interface between said AIN system and said CDPD system for enabling communication of service control information from one of the wireless subscriber units to the AIN control entity.

5,805,999

CORDLESS PHONE SYSTEM AND A METHOD FOR ESTIMATING LOCATION OF A CORDLESS PHONE IN SAID CORDLESS PHONE SYSTEM

Akira Inoue, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 13, 1996, Ser. No. 600,597

Claims priority, application Japan, Feb. 15, 1995, 7-049294

Int. Cl.⁶ H04Q 7/00

U.S. Cl. 455—462

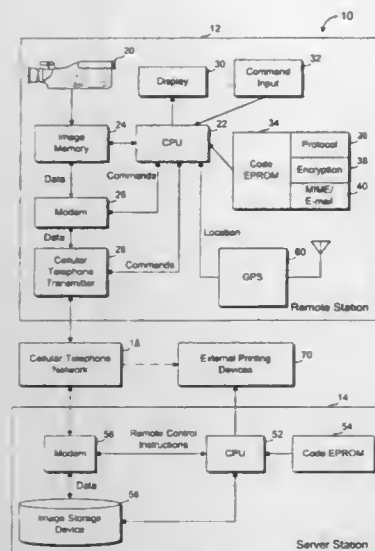
8 Claims

1. A cordless phone system comprising: an exchange office;

a plurality of base stations connected with said exchange office, each of said base stations having means for transmitting a base station signal having a base station identification code identifying the transmitting base station; and

at least one cordless phone for radio-communication with said base stations, said cordless phone having:

detection means for receiving a plurality of said base station signals and detecting a reception level of each of said plurality;



a receiving station coupled to the cellular telephone transmitter by a cellular network to receive image data; means, at the receiving station, for image processing; means for resetting the camera memory to be reused for subsequent images once an image is transmitted to the receiving station; a return link for sending commands from the receiving station to the CPU, wherein the commands are directions for obtaining further images as needed by the means for image processing; and an image storage device coupled to the receiving station to store images received by the receiving station.

5,806,006

METHOD OF CONTROLLING POWER OUTPUT BY A PRIMARY POWER SOURCE SO AS TO CONSERVE POWER IN AN ELECTRONIC COMMUNICATION DEVICE

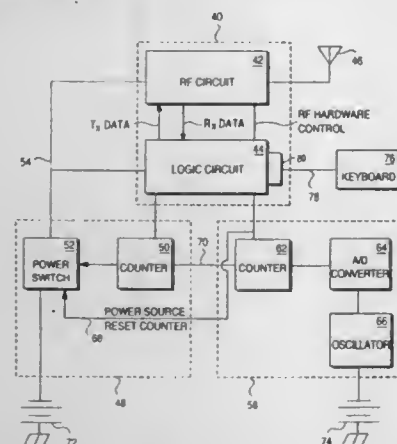
Gilbert M. Dinkins, Herndon, Va., assignor to Eon Corporation, Herndon, Va.

Filed Dec. 2, 1994, Ser. No. 349,488

Int. Cl.⁶ H04B 1/38

U.S. Cl. 455—574

5 Claims



1. A system for reducing electrical power consumption by a portable electronic communication device comprising: modem circuit means for receiving messages and for transmitting messages from a portable electronic communication device; a base station communicatively coupled to said modem circuit means;

power source control/switch means coupled to said modem circuit means for delivering power to said modem circuit means of said portable electronic communication device; logic circuit means coupled to said power source control/switch means for controlling said power source control/switch means to selectively deliver power to said modem circuit means of said portable electronic communication device during a first time interval and to withhold power from said modem circuit means of said portable electronic communication device during a second time interval, wherein a duration of said first and second time intervals is determined by said base station, and wherein said duration of said first and second time intervals determined by said base station takes precedence over a duration of said first and second time intervals determined by a user of said portable electronic communication device, and low power control clock/counter means coupled to said logic circuit means for measuring said first and second time intervals.

5,806,007

ACTIVITY CONTROL FOR A MOBILE STATION IN A WIRELESS COMMUNICATION SYSTEM

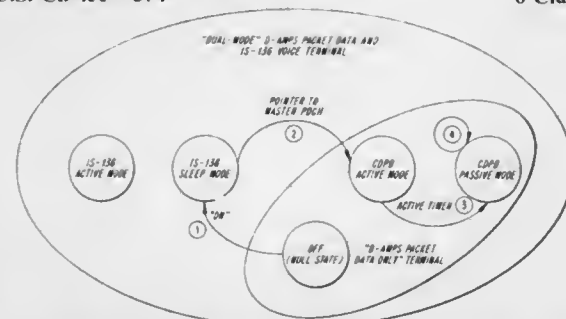
Alex Krister Raith, Durham, N.C.; Lars Bilström, Solna, Sweden; John Diachina, Garner; Raymond C. Henry, Wake Forrest, both of N.C., and Karl-Erik Andersson, Stockholm, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Oct. 18, 1995, Ser. No. 544,838

Int. Cl.⁶ H04B 1/38

U.S. Cl. 455—574

6 Claims



1. A method for controlling readiness levels including an awake mode and a sleep mode of a mobile station in a wireless communication system, comprising the steps of:

- changing the readiness level in which the mobile station is operating from a first readiness level to a second readiness level in response to the expiration of at least one timer having a period which is variable substantially independent of communication system operation requirements; and
- determining, at the system, the readiness level of the mobile station, wherein the mobile station reads substantially all time slots for a first predetermined time during said awake mode and the mobile station reads assigned paging slots during said sleep mode.

5,806,008

SAFETY SYSTEM FOR VEHICLES

Kunihiro Takeuchi, Gumma-ken, Japan, assignor to Airbag Systems Company Ltd., Gumma-ken, Japan

Filed Jul. 13, 1995, Ser. No. 501,866

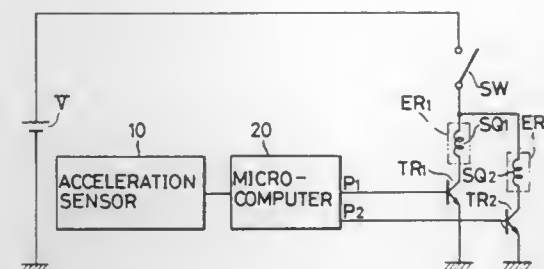
Claims priority, application Japan, Jul. 21, 1994, 6-190889

Int. Cl.⁶ G06F 7/70; B60R 21/32; B60L 3/00

U.S. Cl. 701—45

6 Claims

1. A safety system for vehicles for actuating a plurality of safety devices including first and second safety devices, said system comprising:



- first and second activators for said first and second safety devices connected in parallel relation to each other and connected to a common power source;
- first and second switching elements connected in series to said first and second activators, respectively;
- an acceleration sensor for detecting an acceleration acting on a vehicle; and
- a control device for judging whether or not the vehicle has collided based on an acceleration signal from said acceleration sensor, said control device controlling said first and second switching elements in regular, periodic cycles when a vehicle-collision judgment is made;
- wherein each said regular, periodic cycle includes a first and second time period, wherein during said first time period said first switching element is turned on to supply electric current to said first activator and said second switching element is turned off, and during said second time period said first switching element is turned off and said second switching element is turned on to supply electric current to said second activator; and
- wherein said control device controls said first and second switching elements in a first and second stage in response to the collision judgement such that during said first stage said first time period of each said regular, periodic cycle is longer than said second time period, and during said second stage said second time period of each said regular, periodic cycle is longer than said first time period to activate said first safety device and, after a time delay, activate said second safety device.

5,806,009

SHIFT CONTROL APPARATUS AND METHOD FOR AUTOMATIC TRANSMISSION OF VEHICLE

Masanobu Horiguchi, Atsugi, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan

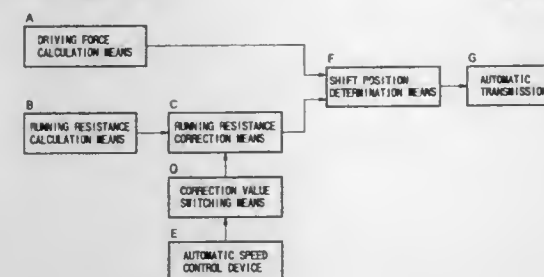
Filed Jul. 3, 1996, Ser. No. 676,604

Claims priority, application Japan, Jul. 5, 1995, 7-169857

Int. Cl.⁶ G06G 7/70; F16H 59/48

U.S. Cl. 701—58

14 Claims



1. A shift control apparatus for an automatic transmission in a vehicle provided with an automatic speed control device for controlling an engine output so that the actual vehicle speed coincides with a target vehicle speed, comprising

- a driving force calculation means for calculating a vehicle driving force,
- a running resistance calculation means for calculating a vehicle running resistance,

a running resistance correction means for adding to a correction value corresponding a surplus driving force to the calculated vehicle running resistance

a correction value switching means for selectively switching the correction value to one of different values in accordance with whether the automatic speed control device is operative or inoperative, and

a shift position determination means for determining a shift position based on the running resistance corrected by the running resistance correction means and the driving force.

5,806,010

KINETIC CHARACTERISTIC CONTROL SYSTEM FOR VEHICLE

Mamoru Sawada, Yokkaichi, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

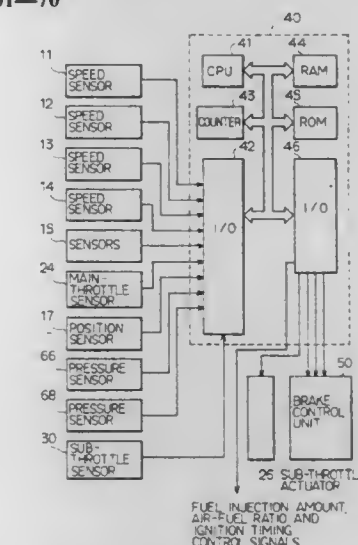
Filed Sep. 14, 1995, Ser. No. 528,147

Claims priority, application Japan, Sep. 20, 1994, 6-225038

Int. Cl.⁶ G06G 7/76; G06F 7/70

U.S. Cl. 701—70

13 Claims



1. A kinetic characteristic control system for a vehicle having a wheel cylinder to impart a braking torque to a wheel and a pump for discharging a brake fluid of a high pressure to said wheel cylinder, comprising:

braking system control means for, by performing changeover control between supply of said brake fluid to said wheel cylinder from said pump and discharge of said brake fluid from said wheel cylinder, controlling said braking torque imparted to said wheel;

driving system control means for controlling a driving torque imparted to said wheel;

braking system control performance decrease state detecting means for detecting a state of decrease in a braking system control performance due to an increase in the viscous resistance of said brake fluid or a decrease in the discharge capacity of said pump; and

driving system control correcting means for correcting control of the driving torque performed by said driving system control means in correspondence with the state of decrease in said braking system control performance.

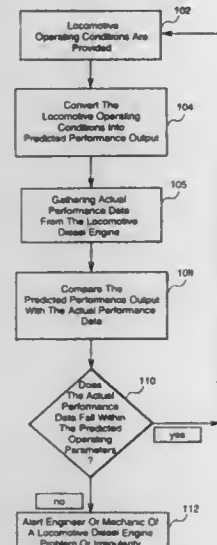
5,806,011
METHOD AND APPARATUS FOR PERFORMANCE
BASED ASSESSMENT OF LOCOMOTIVE DIESEL
ENGINES

Steven Hector Azzaro, Schenectady; Warren Frank Bessler, and Christopher Edward Wolfe, both of Niskayuna, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1995, Ser. No. 566,745
Int. Cl.⁶ G06F 17/40; F01P 7/12

U.S. Cl. 701—99

3 Claims



1. A locomotive control system for performance assessment of a locomotive engine, said control system comprising:

- a controller; and
 - a plurality of temperature sensors coupled to said controller disposed proximal to said locomotive engine to generate signals representing actual temperature data;
- wherein said controller is provided with current ambient temperature, current altitude and current payload information and utilizing said information calculates predicted temperature data for said locomotive engine;
- wherein said controller compares said predicted temperatures for said locomotive engine based upon said current ambient temperature, said current altitude and said current payload with said actual temperature data from said temperature sensors to monitor any substantial deviation therefrom.

5,806,012
FUEL METERING CONTROL SYSTEM FOR INTERNAL
COMBUSTION ENGINE

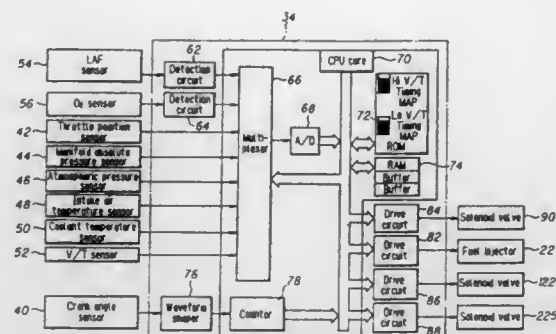
Hidetaka Maki; Shusuke Akazaki; Yusuke Hasegawa; Isao Komoriya; Yoichi Nishimura, and Toshiaki Hirota, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 580,685
Claims priority, application Japan, Dec. 30, 1994, 6-340030
Int. Cl.⁶ G06G 7/70; F02M 51/00

U.S. Cl. 701—104

31 Claims

1. A system for controlling fuel metering for an internal combustion engine having a plurality of cylinders, comprising:
- a first air/fuel ratio sensor installed at an exhaust system of the engine for detecting a first air/fuel ratio of the engine;
 - engine operating condition detecting means for detecting engine operating conditions at least including engine speed and engine load;
 - fuel injection quantity determining means for determining a quantity of fuel injection for individual cylinders at least based on the detected engine operating conditions;
 - a first feedback correcting means for determining a first feedback correction coefficient to correct the quantity of fuel



injection such that the detected first air/fuel ratio detected by said first air/fuel ratio sensor is brought to a desired air/fuel ratio;

- a second feedback correcting means for determining a second feedback correction coefficient to correct the quantity of fuel injection for individual cylinders such that air/fuel ratios of the individual cylinders obtained based on the detected first air/fuel ratio detected by said first air/fuel ratio sensor are brought to a desired value;
- a catalytic converter installed downstream of said first air/fuel ratio sensor;
- a second air/fuel ratio sensor installed downstream of said catalytic converter for detecting a second air/fuel ratio of the engine;
- desired air/fuel ratio correcting means for correcting the desired air/fuel ratio in response to the second air/fuel ratio detected by said second air/fuel ratio sensor;
- output fuel injection quantity determining means for correcting the quantity of fuel injection based upon the first and second feedback correction coefficients such that the detected first air/fuel ratio is brought to the corrected desired air/fuel ratio wherein an output quantity of fuel injection is determined; and
- a fuel injector for injecting fuel in the individual cylinders of the engine based upon the output quantity of fuel injection.

5,806,013
CONTROL OF ENGINE FUEL DELIVERY USING AN
ARTIFICIAL NEURAL NETWORK IN PARALLEL WITH
A FEED-FORWARD CONTROLLER

Perry M. Paielli, Brighton, Mich., assignor to Echlin, Inc., Branford, Conn.

Filed Aug. 29, 1997, Ser. No. 920,808
Int. Cl.⁶ F12D 41/00

U.S. Cl. 701—106

25 Claims

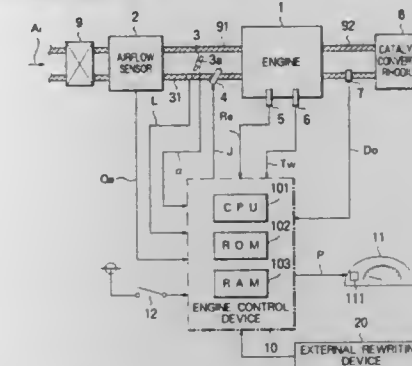
1. A system for controlling operation of an engine that has at least one mechanism responsive to electronic control signals for affecting engine operation and at least one sensor for supplying electrical sensor signals as a function of engine operating conditions, said system comprising:
- a feed-forward control unit including means responsive to said sensor signals for supplying a basic electronic control signal for said mechanism;
 - a neural network connected in parallel with said feed-forward control unit, said neural network including means for receiving said sensor signals, means for multiplying said sensor signals by weighting factors, means for combining said sensor signals multiplied by said weighting factors to provide a network output signal, means for comparing one of said sensor signals to a preset value, and means for modifying said weighting factors as a function of said sensor signals so as to drive toward zero any error between said one sensor signal and said preset value, and

5,806,015
AUTOMOTIVE CONTROLLER
Yasuhiro Kimoto, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 12, 1997, Ser. No. 967,892
Claims priority, application Japan, Jul. 22, 1997, 9-195978
Int. Cl.⁶ F02O 41/00

U.S. Cl. 701—115

5 Claims



means for providing said control signals to said mechanism as a combined function of said basic control signal and said network output signal.

5,806,014
COMBUSTION CONTROL OF AN INTERNAL
COMBUSTION ENGINE PROXIMATE AN EXTINCTION
LIMIT

Donald J. Remboski, Dearborn; Steven L. Plee, Brighton; Marvin L. Lynch, Detroit, and Michael A. McClish, Northville, all of Mich., assignors to Motorola Inc., Schaumburg, Ill.

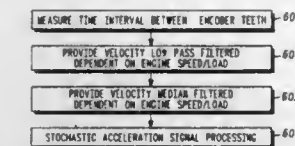
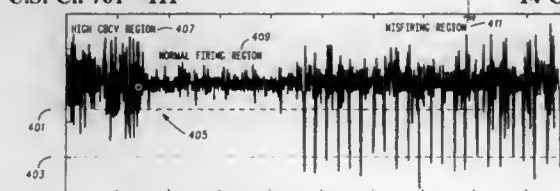
Continuation of Ser. No. 432,345, May 1, 1995, abandoned.

This application Nov. 12, 1997, Ser. No. 967,116

Int. Cl.⁶ G01M 15/00; G06F 15/00

U.S. Cl. 701—111

14 Claims



1. A method of combustion control for an internal combustion engine proximate an extinction limit comprising the steps of:
- measuring crankshaft acceleration behavior of the internal combustion engine, and providing a raw acceleration signal dependent thereon;
 - establishing a sub-misfire amplitude threshold;
 - establishing a misfire amplitude threshold; and
 - analyzing behavior of the raw acceleration signal bounded between the sub-misfire and misfire amplitude thresholds and providing the combustion variability signal dependent thereon; and
- controlling fueling operation of the internal combustion engine dependent on the combustion variability signal.

5,806,016
METHOD FOR DETERMINING THE COURSE OF A
MACHINE

Daniel E. Henderson, Washington, and Karl W. Kleimenhagen, Peoria, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Mar. 28, 1996, Ser. No. 623,236
Int. Cl.⁶ G01C 21/20

U.S. Cl. 701—207

11 Claims

1. A method for determining the heading of a machine with respect to the course of the machine, comprising:
- determining an initial course of the machine;
 - determining an initial heading of the machine and responsively setting a direction status;
 - determining a current course of the machine; and
 - comparing said initial course and current course of the machine and responsively updating said direction status.

5,806,017
ELECTRONIC AUTOROUTING NAVIGATION SYSTEM
FOR VISUALLY IMPAIRED PERSONS

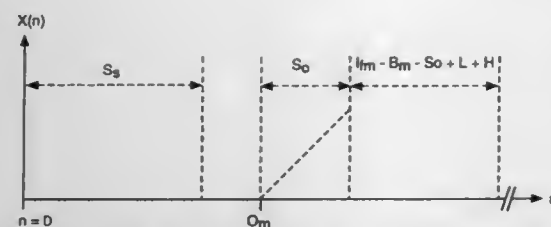
Michael B. Hancock, Galveston, Tex., assignor to Board of Regents The University of Texas System, Austin, Tex.

Filed Aug. 19, 1996, Ser. No. 699,580
Int. Cl.⁶ G01C 21/00; G06F 16/500

U.S. Cl. 701—209

15 Claims

14. A method of automatically routing at least one visually impaired person to a target location, comprising the steps of:



sentations to form an output stream of signal representations, the communication receiver comprising:

an antenna for intercepting a radio signal comprising the input stream;

a receiver element coupled to the antenna for demodulating the radio signal to derive the input stream;

a processing system coupled to the receiver element for processing the input stream to form the output stream; and

a user interface coupled to the processing system for conveying the output stream to a user,

wherein the processing system is programmed to:

make a determination of an output block of S_o signal representations from the output stream for use in overlapping signal representations from the output block with S_o contiguous signal representations of the input stream, the S_o contiguous signal representations beginning with a predetermined signal representation; and

perform an overlap of the S_o signal representations of the output block with the S_o contiguous signal representations to form the output stream.

5,806,024

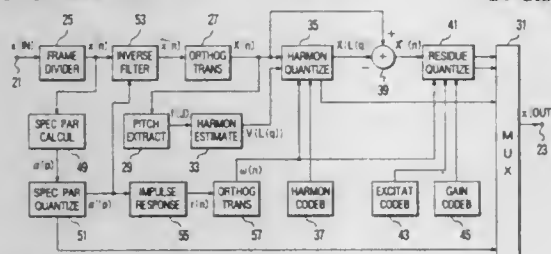
CODING OF A SPEECH OR MUSIC SIGNAL WITH QUANTIZATION OF HARMONICS COMPONENTS SPECIFICALLY AND THEN RESIDUE COMPONENTS
Kazunori Ozawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 23, 1996, Ser. No. 773,523

Claims priority, application Japan, Dec. 23, 1995, 7-350138
Int. Cl.⁶ G10L 9/00

U.S. Cl. 704—222

24 Claims



1. A signal encoding method comprising the steps of:

calculating an orthogonal transform of an input signal to produce orthogonal transform coefficients of said orthogonal transform;

extracting a pitch frequency from said input signal;

estimating harmonics locations on said orthogonal transform coefficients by using said pitch frequency to produce harmonics coefficients at said harmonics locations;

quantizing said harmonics coefficients jointly as a representative coefficient into a harmonics code vector representative of a quantized harmonics coefficient; and

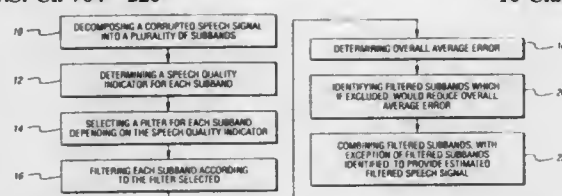
quantizing residue coefficients into residue code vectors and gain code vectors, said residue coefficients being given by removing said quantized representative coefficient from said orthogonal transform coefficients;

whereby said input signal is encoded into an output signal comprising a pitch interval of said pitch frequency and indexes indicative of said harmonics code vector, said residue code vectors, and said gain code vectors.

METHOD AND SYSTEM FOR ADAPTIVE FILTERING OF SPEECH SIGNALS USING SIGNAL-TO-NOISE RATIO TO CHOOSE SUBBAND FILTER BANK
Marvin L. Vis, Longmont, Colo., and Aruna Bayya, Irvine, Calif., assignors to U S West, Inc., Englewood, Colo.
Filed Aug. 7, 1996, Ser. No. 695,097
Int. Cl.⁶ G10L 3/02

U.S. Cl. 704—226

16 Claims



1. A method for adaptively filtering a speech signal, the method comprising:

decomposing the speech signal into a plurality of subbands;

determining a speech quality indicator for each subband;

selecting one of a plurality of filters for each subband, wherein the filter selected depends on the speech quality indicator determined for the subband;

filtering each subband according to the filter selected;

determining an overall average error for a filtered speech signal comprising the filtered subbands;

identifying at least one filtered subband which, if excluded from the filtered speech signal, would reduce the overall average error determined; and

combining, with the exception of the at least one filtered subband identified, the filtered subbands to provide an estimated filtered speech signal.

5,806,026

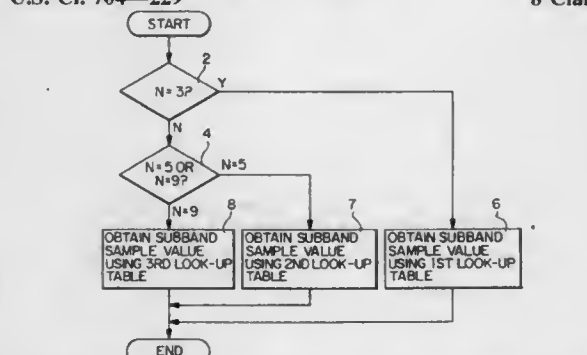
DEGROUPING METHOD FOR AN MPEG 1 AUDIO DECODER
Hee-Su Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Nov. 27, 1996, Ser. No. 757,817

Claims priority, application Rep. of Korea, Dec. 29, 1995, 1995-65742
Int. Cl.⁶ G10L 5/00

U.S. Cl. 704—229

8 Claims



1. A degrouping method for a Motion Picture Experts Group 1 (MPEG 1) audio decoder for degrouping three consecutive subband samples (X, Y and Z) compressed into one codeword (C) by a step number (N), said method comprising the steps of:

receiving a signal which contains the codeword;

performing a first determining step of determining whether the value of said step number (N) is 3;

performing a second determining step of determining whether the value of said step number (N) is 5 if the value of said step number (N) is determined not to be 3 in said first determining step;

performing a third determining step of determining whether the value of said step number (N) is 9 if the value of said step number (N) is determined not to be 5 in said second determining step;

performing a first sample value searching step of searching corresponding values of said subband samples from a first look-up table in a sequence of Z, Y and X, if the value of said step number (N) is determined to be 3 in said first determining step;

performing a second sample value searching step of searching corresponding values of said subband samples from a second look-up table in the sequence of Z, Y and X, if the value of said step number (N) is determined to be 5 in said second determining step;

performing a third sample value searching step of searching corresponding values of said subband samples from a third look-up table in the sequence of Z, Y and X, if the value of said step number (N) is determined to be 9 in said third determining step; and

generating an audio signal using said values of subband samples;

wherein said first, second and third look-up tables contain respective values of said subband samples corresponding to said codeword value.

5,806,027

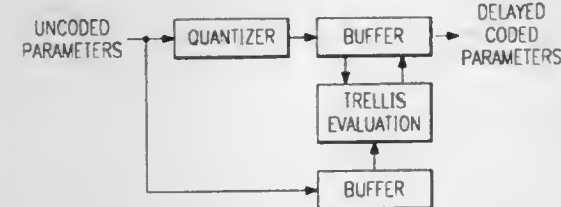
VARIABLE FRAMERATE PARAMETER ENCODING
E. Bryan George, Plano; Alan V. McCree, Dallas, and Vishu R. Viswanathan, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 19, 1996, Ser. No. 724,268

Int. Cl.⁶ G10L 9/00

U.S. Cl. 704—230

2 Claims



1. An encoder for encoding vocoder parameters comprising:

a quantizer responsive to uncoded vocoder parameters of each frame to produce a quantized set of parameters for each frame;

a buffer responsive to said uncoded vocoder parameters for storing said uncoded vocoder parameters that are not quantized;

a buffer/interpolator coupled to said quantizer;

a trellis evaluator coupled to said buffer and said buffer/interpolator and responsive to said uncoded vocoder parameters that are not quantized and said uncoded vocoder parameters that are quantized for dynamically evaluating a set of hypotheses over time with perceptually weighted distance metric to produce a set of interpolation breakpoints; and

said buffer/interpolator coupled to said evaluator for buffering said uncoded vocoder parameters without quantization and buffering and interpolating said uncoded vocoder parameters with quantization to produce a bit stream corresponding to delayed interpolated vocoder parameters with quantization.

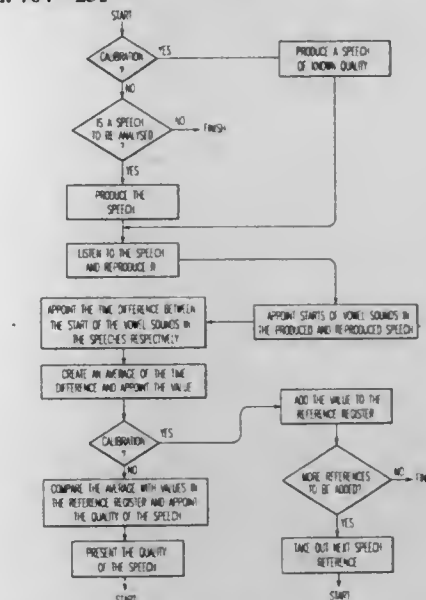
METHOD AND DEVICE FOR RATING OF SPEECH QUALITY BY CALCULATING TIME DELAYS FROM ONSET OF VOWEL SOUNDS
Bertil Lyberg, Vagnharad, Sweden, assignor to Telia AB, Farsta, Sweden

Filed Feb. 14, 1996, Ser. No. 601,508

Claims priority, application Sweden, Feb. 14, 1995, 9500520
Int. Cl.⁶ G10L 5/06

U.S. Cl. 704—231

9 Claims



1. A method for determining speech quality, comprising the steps of:

providing a first speech;

providing a second speech, wherein said second speech is a reproduction of said first speech; and

determining time differences between corresponding starts of each vowel sound of each word in said first and second speech, wherein said time differences are a measure of a match of said first speech and said second speech and providing an output of said time differences.

5,806,029

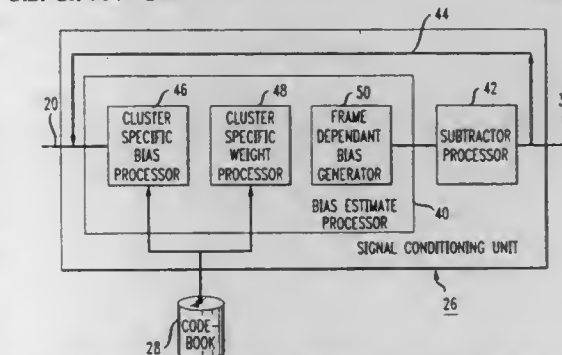
SIGNAL CONDITIONED MINIMUM ERROR RATE TRAINING FOR CONTINUOUS SPEECH RECOGNITION
Eric Rolfe Buhrke, Clarendon Hills, Ill.; Wu Chou, Berkeley Heights, and Mazin G. Rahim, Manalapan, both of N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Sep. 15, 1995, Ser. No. 528,821

Int. Cl.⁶ G10L 5/00

U.S. Cl. 704—244

7 Claims



1. A method of signal conditioning for removing an unknown signal bias in a speech signal in a speech recognition system storing a set of recognition models, comprising the following steps:

- (A) generating a feature signal which characterizes features of the speech signal, the feature signal comprising one or more frames of feature vectors;
- (B) storing the feature signal in memory;
- (C) constructing a codebook comprising one or more clusters based on the set of recognition models;
- (D) calculating a cluster-specific bias for each of the clusters of the codebook;
- (E) calculating a cluster-specific weight for each of the clusters of the codebook;
- (F) generating a frame-dependent weighted bias signal for each frame of the feature signal;
- (G) subtracting the frame-dependent weighted bias signal for each frame of the feature signal from each frame of the feature signal to generate a conditioned feature signal; and
- (H) storing the conditioned feature signal in memory to replace the feature signal.

5,806,030

LOW COMPLEXITY, HIGH ACCURACY CLUSTERING METHOD FOR SPEECH RECOGNIZER

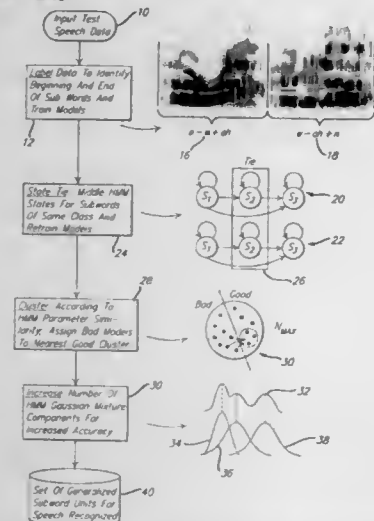
Jean-Claude Junqua, 146 Santa Ana Ave., Santa Barbara, Calif. 93111

Filed May 6, 1996, Ser. No. 642,767

Int. Cl.⁶ G10L 5/00

U.S. Cl. 704—245

10 Claims



1. A clustering method for processing speech training data to generate a set of low complexity statistical models for use in automated speech recognition, comprising:
- segmenting the training data into labeled subword units;
- generating Hidden Markov Models to represent said subword units;
- selecting a desired number of models to be between a predetermined minimum and a predetermined maximum by adjusting a threshold on the number of examples per model;
- training said models with said segmented training data to generate:
- (a) a first plurality of populated models based on instances of training data above a said threshold, and
- (b) a second plurality of populated models based on instances of training data below a said threshold;
- merging each model of said second plurality with the closest neighbor of the models of said first plurality to form a set of new models and retraining the new models.

METHOD AND RECOGNIZER FOR RECOGNIZING TONAL ACOUSTIC SOUND SIGNALS

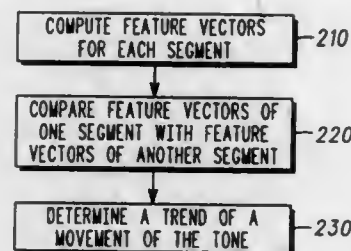
Adam B. Fineberg, Saratoga, Calif., assignor to Motorola, Schaumburg, Ill.

Filed Apr. 25, 1996, Ser. No. 637,960

Int. Cl.⁶ G10L 9/00

U.S. Cl. 704—254

22 Claims



1. A method of processing speech for recognition comprising:
- sampling a tonal sound signal;
- computing feature vectors for a number of segments of a sampled tonal sound signal wherein the feature vectors contain information describing a tonal trend of the sampled tonal sound signal;
- comparing the feature vectors of a first of the number of segments with the feature vectors of a second of the number of segments to determine a trend of a movement of a tone of the sampled tonal sound signal; and
- using the trend as an input to a recognizer to determine a word or part of a word of the sampled tonal sound signal.

5,806,032

COMPILATION OF WEIGHTED FINITE-STATE TRANSDUCCERS FROM DECISION TREES

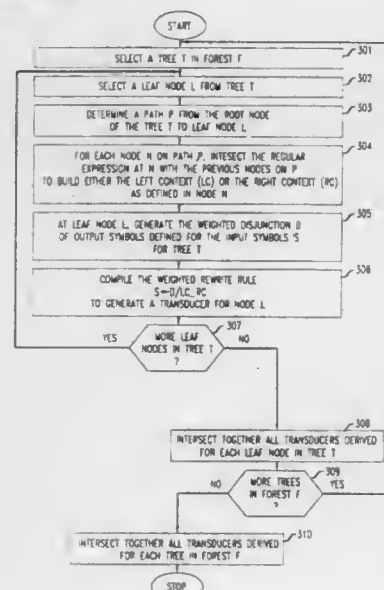
Richard William Sproat, Berkeley Heights, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 14, 1996, Ser. No. 663,767

Int. Cl.⁶ G10L 9/00

U.S. Cl. 704—255

30 Claims



1. An automated method for synthesizing speech sounds based on a finite-state representation of linguistic data generated based on one or more decision tree models of said linguistic data, each of the one or more decision tree models comprising one or more terminal nodes thereof, the method comprising the steps of:

- generating one or more weighted rewrite rules based on one or more of the terminal nodes of the one or more decision tree models;
- generating one or more weighted finite-state transducers based on one or more of the one or more weighted rewrite rules; and
- synthesizing one or more of said speech sounds based on said one or more weighted finite-state transducers.

5,806,033

SYLLABLE DURATION AND PITCH VARIATION TO DETERMINE ACCENTS AND STRESSES FOR SPEECH RECOGNITION

Bertil Lyberg, Vagnharad, Sweden, assignor to Telia AB, Farsta, Sweden

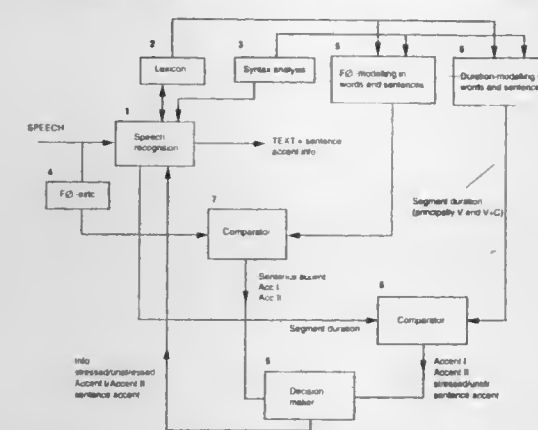
Filed Jun. 17, 1996, Ser. No. 665,728

Claims priority, application Sweden, Jun. 16, 1995, 9502202

Int. Cl.⁶ G10L 5/00

U.S. Cl. 704—255

24 Claims



1. Method for speech-to-text-conversion by extracting a fundamental tone from speech, and creating a model of the speech from the speech, comprising the steps of:
- obtaining from the model a duration reproduction in words and sentences;
- comparing the duration reproduction with a segment duration in the speech;
- deciding from the comparison which type of accent exists, and
- producing a text with sentence accent information from results of the deciding step.

5,806,034

SPEAKER INDEPENDENT SPEECH RECOGNITION METHOD UTILIZING MULTIPLE TRAINING ITERATIONS

Joe A. Naylor, William Y. Huang, and Lawrence G. Bahler, all of San Diego, Calif., assignors to ITT Corporation, New York, N.Y.

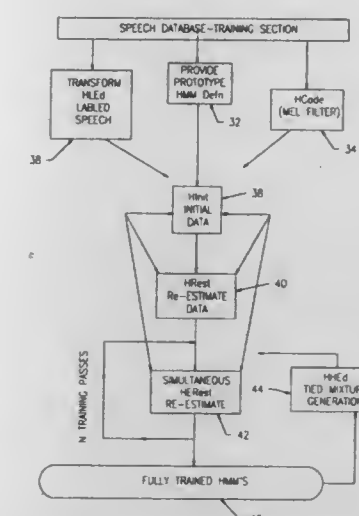
Filed Aug. 2, 1995, Ser. No. 510,321

Int. Cl.⁶ G10L 9/06

U.S. Cl. 704—256

9 Claims

1. A method for recognizing spoken utterances of a speaker, comprising the steps of:
- providing a database of labeled speech data;
- providing a prototype of a Hidden Markov Model (HMM) definition to define the characteristics of the HMM;
- parameterizing speech utterances according to one of linear prediction parameters or Mel-scale filter bank parameters;
- selecting a frame period of approximately 20 msec and a window duration of substantially 25 msec for accommodating said parameters;
- generating HMMs and decoding to specified speech utterances by causing said speaker to utter predefined training speech utterances for each said HMM.



- statistically computing said generated HMMs with said prototype HMM to provide a set of fully trained HMMs for each utterance indicative of said speaker;
- using said trained HMMs for recognizing a speaker by computing Laplacian distances for utterances of said speaker during said selected frame period; and
- iteratively decoding node transitions corresponding to said spoken utterances during said selected frame period to determine which predefined utterance is present.

5,806,035

TRAFFIC INFORMATION APPARATUS SYNTHESIZING VOICE MESSAGES BY INTERPRETING SPOKEN ELEMENT CODE TYPE IDENTIFIERS AND CODES IN MESSAGE REPRESENTATION

Donald Zeegers, Waalre, Netherlands, and Jean-Louis Zorer, Coulombs, France, assignors to U.S. Philips Corporation, New York, N.Y.

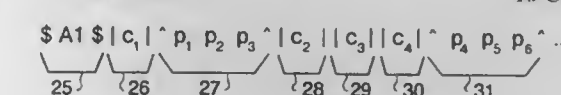
Filed Apr. 24, 1996, Ser. No. 637,249

Claims priority, application France, May 17, 1995, 95 05863

Int. Cl.⁶ G10L 5/02; G08B 3/10

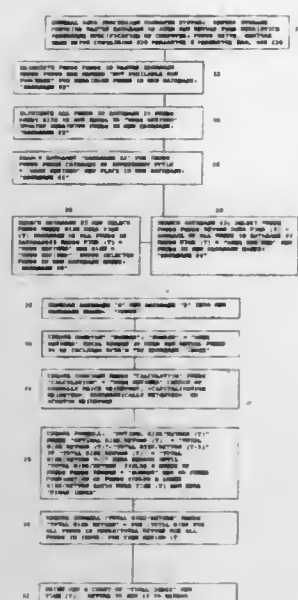
U.S. Cl. 704—258

16 Claims



1. A traffic information apparatus, comprising:
- a speech synthesizer for generating spoken messages in the form of analog audio signals;
- a memory for storing a data element representing a spoken message element corresponding to each of a multiplicity of different codes of a first type and for storing a data element representing a spoken message element corresponding to each of a multiplicity of different codes of a second type, each said code of the first type corresponding to a phonetic element of a word and each said code of the second type corresponding to a sequence of one or more complete words;
- a microcontroller for receiving a group of the codes representing a complete spoken message and for interpreting the received codes so as to locate and fetch the data elements in the memory that correspond to the received codes;
- the microcontroller preceding each fetched data element corresponding to a code of the first type with a predetermined first type recognition character and preceding each fetched data element corresponding to a code of the second type with a predetermined second type recognition character different from the first type recognition character and sending the fetched data elements and preceding type recognition characters to the speech synthesizer;

h. means for performing administrative procedures for said bank owned life insurance plan of said financial organization.



mined period of time, so that the financial product can be traded as a security the price of which can be determined in real time on the basis of information about a plurality of securities, comprising the steps of:

- directing a computer processor to select from said plurality of securities a selected portfolio of securities based upon a particular performance criteria for the securities so selected which meets a predefined benchmark performance, including:
 - providing a database of information on securities available for trading;
 - electronically processing information in said provided database to identify securities, the asset size of which is above a predetermined threshold; and
 - electronically searching the identified securities to select a subset of N securities, the performance criteria of which is superior to the performance criteria of all identified securities;
- receiving information on each of said plurality of securities in an electronic data format;
- storing at least the received information on each security in the selected portfolio in a computer memory;
- electronically processing said stored information to determine in real time the price of the financial product on the basis of a user-defined method of weighing the select subset of N securities; and
- outputting an indication of the determined in real time price of the financial product in humanly readable format.

5,806,049

DATA PROCESSING SYSTEM FOR GLOBAL ASSESSMENT OF INVESTMENT OPPORTUNITY AND COST

Christopher R. Petruzzi, 800 E. Ocean Blvd. Suite 1101, Long Beach, Calif. 90802

Continuation of Ser. No. 436,803, May 2, 1995, abandoned, which is a continuation of Ser. No. 50,802, Apr. 21, 1993, abandoned. This application Sep. 30, 1996, Ser. No. 893,579

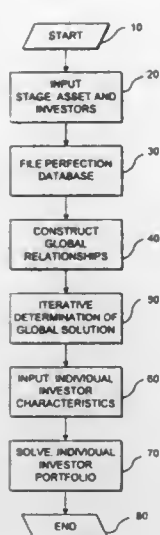
Int. Cl.⁶ G06F 17/30

U.S. Cl. 705—36

7 Claims

1. In combination in a data processing system for determining an optimum matrix of investments for a select individual portfolio, said system comprising:

- means for storing in accessible memory a database on available investment assets and characteristics of said assets relevant to investment therein, said characteristics including current ownership of said assets, anticipated changes in the quantity available of each asset, and anticipated variations in the return of each asset;



- means for storing in accessible memory a database on a population of investors, further categorized by groups having similar investment criteria, wherein said population of investors are further delineated by attributes comprising tax rates, cost of brokerage, cash flow requirements and aversion to variation in portfolio returns, said database including current portfolios of said investors, anticipated changes in the net worth of each investor group and anticipated changes in the attributes of each of said investors;
- data processing means for establishing a matrix of relationships describing a relative incremental disutility to each of said investors of said characteristics associated with each of said investment assets, said data processing means comprising linear programming which accepts inputs of said characteristics of each asset group and attributes of each investor group, said linear programming capable of computing risk statistics of the current portfolios and recommended changed portfolios of each investor group based on the inputted characteristics and attributes, said linear programming further determining said matrix of relationships forming a global solution minimizing global disutility of all investor groups; and
- said data processing means further establishing an optimized individual portfolio based on select investor criteria and said matrix of relationships.

5,806,050

ELECTRONIC TRANSACTION TERMINAL FOR VOCALIZATION OF TRANSACTIONAL DATA

Phil Shinn, Santa Monica, Calif.; Richard Hartheimer, Morris Plains, N.J.; Edward Howorka, Greenbrook, N.J., and Chris Klepka, Parsippany, N.J., assignors to EBS Dealing Resources, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 76,317, Jun. 11, 1993, abandoned, which is a continuation-in-part of Ser. No. 830,408, Feb. 3, 1992, Pat. No. 5,375,055. This application Nov. 12, 1993, Ser. No. 226,511

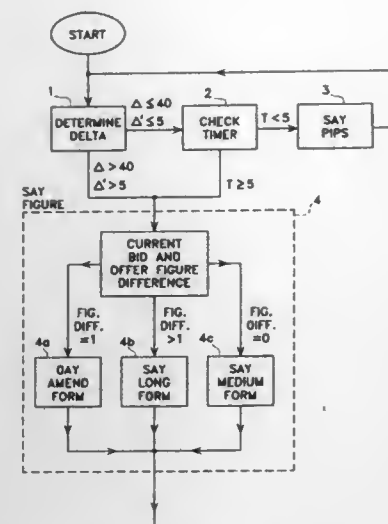
Int. Cl.⁶ G06F 17/60

U.S. Cl. 705—37

33 Claims

30. In an electronic trading system for executing transactions relating to a specified commodity and having a plurality of trader terminals for inputting price and quantity data from traders willing to buy and/or sell that commodity, at least some of the prices including respective bid and offer components separated by a respective spread, an improved workstation for audibly announcing transactional data to an associated trader, the workstation comprising:

- a first message queue for private information specific to transactions initiated by a particular trader or trading floor, including



whether a maker's bid or offer is dealable, bettered or acted on and whether a taker's response has been accepted or missed;

- a second message queue for public information concerning other transactions in which the particular trader or trading floor is eligible to participate, including an indication of the best dealable price currently available that particular trader or trading floor, and if the current price is worse than a previously announced price, an indication as to whether the previously announced price was dealt on or was withdrawn;

an audio output buffer for containing a current message to be vocalized;

first priority means responsive to an empty condition of the output buffer for transferring information from the first message queue to the output buffer; and

second priority means responsive to an empty condition of both the output buffer and the first message queue for transferring information from the second message queue to the output buffer.

5,806,051

ANALOG PROCESSOR OF ANTECEDENT PARTS OF FUZZY LOGIC RULES

Dario Bruno, Palermo; Biagio Giacalone, Trapani, and Nicolò Manaresi, Bologna, all of Italy, assignors to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy

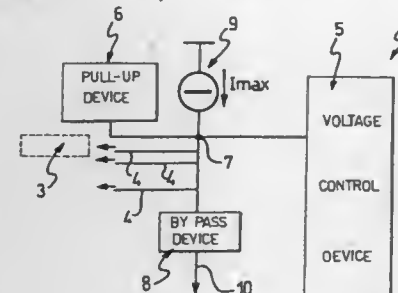
Filed Oct. 31, 1995, Ser. No. 550,871

Claims priority, application European Pat. Off., Oct. 31, 1994, 94830517

Int. Cl.⁶ G06G 7/00

U.S. Cl. 706—3

29 Claims



1. An analog processor of antecedent parts of a fuzzy logic rule, comprising:

- a plurality of analog generators of membership functions with each analog generator having an input for receiving an input value, each performing a fuzzy operation of an assignment type on the input variable and generating at the output a complemented value of an assigned value corresponding to a

degree of truth of the assignment, the outputs of the plurality of analog generators being connected together to form a common node;

a current generator connect to the common node;

a voltage control device directly connected to the common node; and

a one-way element connected to the common node and generating at its output a degree of overall truth of the antecedent parts of the fuzzy logic rule.

5,806,052

FUZZY HIERARCHICAL CONTROLLER FOR A TURBOSHAFT ENGINE

Piero Patrone Bonissone; Kenneth Hsin-Chao Chiang; Mark Edward Dausch, and James Baldwin Comly, all of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

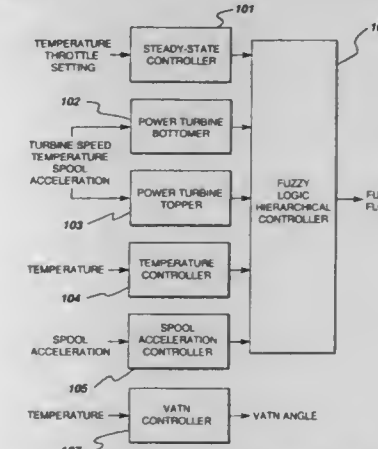
Continuation of Ser. No. 909,290, Jul. 6, 1992, abandoned.

This application Feb. 7, 1994, Ser. No. 192,939

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—4

9 Claims



1. A control system for controlling a turboshaft or an aircraft engine comprising:

- a plurality of fuzzy proportional-integral low-level controllers adapted to receive engine signals, each of said fuzzy proportional-integral low-level controllers operable to output a control variable value that is based upon said received engine signals; and

- a fuzzy logic hierarchical controller connected to said plurality of fuzzy proportional-integral low-level controllers to receive each of said control variable values, said fuzzy logic hierarchical controller being adapted to generate a single output value for each control variable which is used for controlling said aircraft engine, the single output value is an aggregation of said control variable values received from said plurality of fuzzy proportional-integral low-level controllers, wherein the aggregation is a weighted sum of said control values.

5,806,053

METHOD FOR TRAINING A NEURAL NETWORK WITH THE NON-DETERMINISTIC BEHAVIOR OF A TECHNICAL SYSTEM

Volker Tresp, and Reimar Hofmann, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Aug. 30, 1996, Ser. No. 705,834

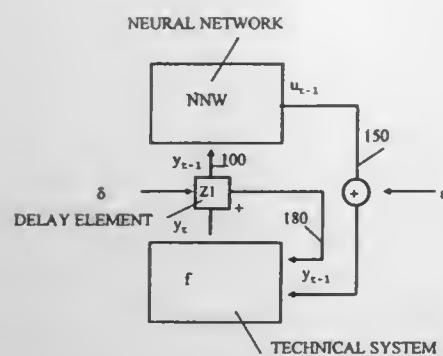
Claims priority, application Germany, Aug. 30, 1995, 195 31 967.2

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—23

7 Claims

1. A method for training a computerized neural network with a non-deterministic behavior of a technical system, said computer-



ized neural network having neurons with respective weightings associated therewith, comprising the steps of:

- emitting a signal representing at least one manipulated variable from the neural network to the technical system and thereby generating, in said technical system, at least one controlled variable from the manipulated variable supplied from the computerized neural network, and supplying said controlled variable to the computerized neural network as an input quantity;
- superimposing the manipulated variable with a noise signal representing noise having a known noise distribution before supplying said manipulated variable to the technical system;
- producing further signals as inputs to said computerized neural network and setting weightings for said further signals serving inputs to the computerized neural network as a reaction to the controlled variable modified by the superimposed noise depending on a cost function which identifies whether a change in the weighting for a neuron set according to a training procedure has effected an improvement of the controlled variable relative to a reference behavior of the technical system and promoting weighting settings by the cost function which effect such an improvement.

5,806,054

NEURON MOSFET MODULE STRUCTURE FOR BINARY LOGIC CIRCUITS

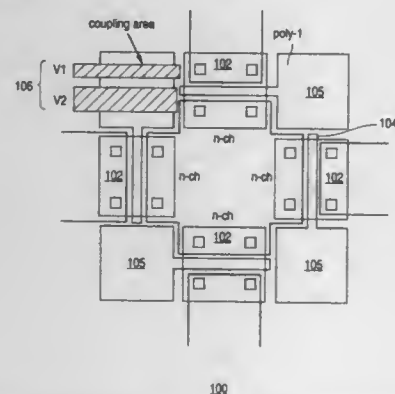
Albert Bergemont, and Min-hwa Chi, both of Palo Alto, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Feb. 14, 1997, Ser. No. 799,247

Int. Cl.⁶ H03K 19/23

U.S. Cl. 706—33

15 Claims



1. A neuron MOSFET module for use in constructing binary logic circuits, comprising:

a plurality of neuron MOSFET transistors formed on a common substrate and arranged into a symmetric shape to form a tile for covering a surface area, each neuron MOSFET having an associated floating gate positioned over a channel region formed between a source region and a drain region;

a plurality of coupling regions, each coupling region arranged adjacent to one of the MOSFET transistors, the coupling regions being selectively interconnected with the floating gate of the respective adjacent transistor and with others of the coupling regions; and
a signal input region electrically coupled to one of the plurality of coupling regions.

5,806,055

SOLID STATE BALLAST SYSTEM FOR METAL HALIDE LIGHTING USING FUZZY LOGIC CONTROL

Kenneth L. Zinda, Jr., 2588 Princeton Rd., Cleveland Heights, Ohio 44118

Filed Dec. 19, 1996, Ser. No. 770,136

Int. Cl.⁶ G06F 15/18; H05B 41/00

U.S. Cl. 706—45

28 Claims



1. An apparatus for controlling a high intensity discharge lamp, said apparatus comprising:

generating means adapted for generating a fuzzy logic transfer function for controlling the operation of an associated lamp; sensing means for sensing a lamp current and providing a signal indicative of lamp current; timing means for measuring lamp operation time, including means for generating a real time signal indicative thereof; and control means adapted for applying the fuzzy logic transfer function to control the operation of the associated lamp, the control means including means adapted for providing a control signal in response to both of the signal from the sensing means and the signal from the timing means in accordance with the fuzzy logic transfer function.

5,806,056

EXPERT SYSTEM AND METHOD EMPLOYING HIERARCHICAL KNOWLEDGE BASE, AND INTERACTIVE MULTIMEDIA/HYPERMEDIA APPLICATIONS

Amir Hekmatpour, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 235,301, Apr. 29, 1994, Pat. No. 5,644,686.

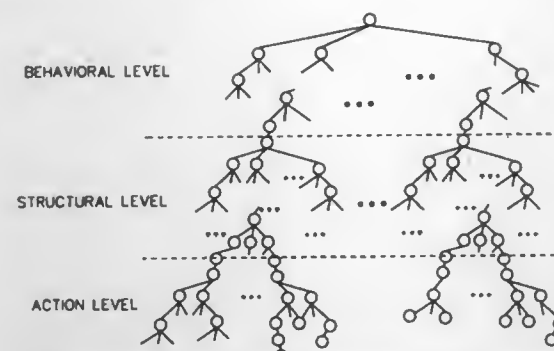
This application Dec. 27, 1996, Ser. No. 774,243

Int. Cl.⁶ G06F 15/18

U.S. Cl. 706—50

1 Claim

1. An inferential processing method for an expert system having a knowledge base with a hierarchical decomposition of three levels, an uppermost level comprising a behavioral knowledge level, a middle level comprising a structural knowledge level, and a lowermost level comprising an action level, said processing method comprising the steps of:



- inference processing within said behavioral knowledge level based upon entropy values associated with nodes within said behavioral knowledge level;
- subsequent to said step (a), inference processing within said structural knowledge level with reference to entropy values associated with nodes within said structural knowledge level; and
- subsequent to said step (b), inference processing within said action level using entropy values associated with nodes within said action knowledge level.

5,806,057

SYSTEM FOR MANAGING DATABASE OF COMMUNICATION RECIPIENTS

Michael Gormley, Washington, D.C.; Kevin Potter, Vienna, Va., and Jennifer Kelly, Washington, D.C., assignors to Optima Direct, Inc., Vienna, Va.

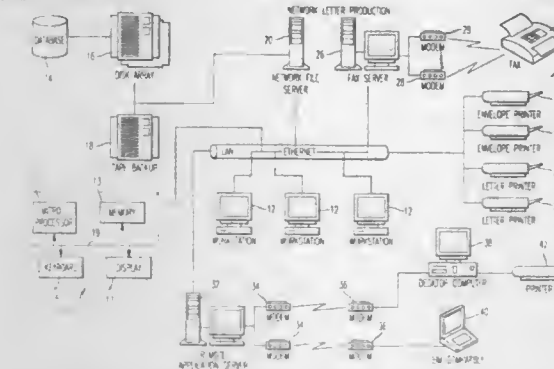
Continuation of Ser. No. 343,976, Nov. 18, 1994, Pat. No. 5,628,004, and a continuation-in-part of Ser. No. 334,127,

Nov. 4, 1994, abandoned. This application May 14, 1996, Ser. No. 645,585

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—1

19 Claims



1. A database management system for storing and manipulating data relating to recipients of a communication from one or more different contact persons, comprising:

a memory device for storing data records relating to said recipients; and
a data processing device configured to organize data records relating to said recipients and to store said records in said memory device, said records each comprising a recipient field for entering the name of one of said recipients, a title field for entering the title of said recipient, and a salutation field for entering the name of at least one of said contact persons and a personal salutation for each of said contact persons entered therein, said data processing device being programmed to automatically generate a communication having one of said personal salutations corresponding to said contact person sending said communication, and a default salutation derived from said title field when said contact person is other than one of said contact persons entered in said salutation field.

5,806,058 INDEX MANAGING METHOD IN DATABASE MANAGING SYSTEM

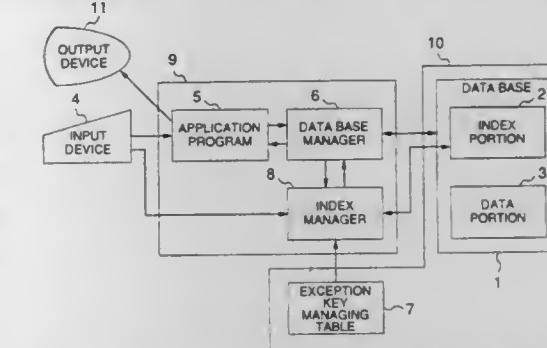
Yasuharu Mori, Yokohama, and Nobuo Kawamura, Sagami-hara, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 24, 1996, Ser. No. 668,684

Claims priority, application Japan, Jun. 26, 1995, 7-159116

Int. Cl.⁶ G06F 7/00

U.S. Cl. 707—2

17 Claims



1. In a database managing system having a database for storing a plurality of data records, data processing being conducted by using an index including a plurality of index records, each of said index records being created by associating an index key value with a storage location of at least one data record in said database relating to said index key value, an index managing method executed by a processor, comprising the steps of:

- in response to a processing request on a certain data record, checking on a number of associated data records belonging to an index record relating to said data record requested to be processed, on the basis of an index key value defined in said data record requested to be processed;
- comparing said number of associated data records with a predetermined upper limit number; and
- in response to arrival of said number of associated data records at said upper limit number, accessing said data record requested to be processed stored in said database without using said storage location in said database stored in said relating index record.

5,806,059

DATABASE MANAGEMENT SYSTEM AND METHOD FOR QUERY PROCESS FOR THE SAME

Masashi Tsuchida, Sagami-hara; Yukio Nakano, Yokohama; Nobuo Kawamura, Sagami-hara; Kazuyoshi Negishi, Yokohama, and Shunichi Torii, Musashino, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 180,674, Jan. 13, 1994, abandoned.

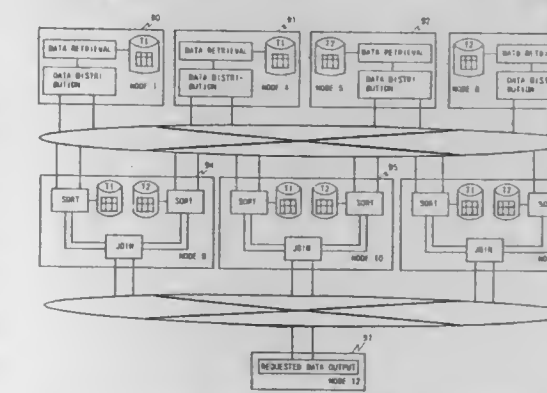
This application Mar. 4, 1997, Ser. No. 810,527

Claims priority, application Japan, Jan. 20, 1993, 5-007804

Int. Cl.⁶ G06F 17/30; 15/16

U.S. Cl. 707—2

16 Claims



1. A parallel database management system comprising:

at least one distribution node having storage means for distributing and storing a database to be queried and distribution means for retrieving information from said storage means and distributing the retrieved information to other nodes;

a plurality of join nodes each having its own first private storage means, sorting means for sorting information distributed from said distribution node, merge means for merging said plurality of sorted information, if any, and join means for joining a query on the basis of said merged information, using said first private storage means;

a decision management node having its own second private storage means, analysis means for receiving a query, analyzing said query, and generating a query processing procedure using said second private storage means, and decision means for deciding (i) the distribution node on the basis of the query analysis by said analysis means and calculating an expected processing time in said decided distribution node, and (ii) the join node on the basis of said processing time for performing the execution process;

an output node having output means of outputting the result for the query obtained from said join node; and

a network for transferring data between said nodes, wherein said plurality of nodes process independently and said join nodes input the information distributed from said distribution node successively and process each inputted information.

5,806,060

INTERACTIVE DATA ANALYSIS EMPLOYING A KNOWLEDGE BASE

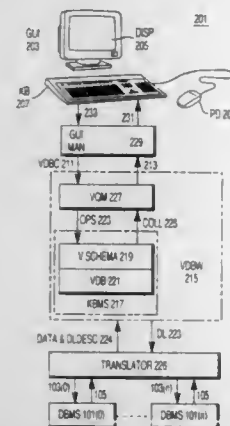
Alexander Tiberiu Borgida, Highland Park; Ronald Jay Brachman, Westfield; Thomas Kirk, Warren; Peter Gilman Selfridge, Cranford, and Loren Gilbert Terveen, Basking Ridge, all of N.J., assignors to NCR Corporation, Dayton, Ohio

Continuation of Ser. No. 972,785, Nov. 6, 1992, Pat. No. 5,659,724. This application Apr. 23, 1997, Ser. No. 839,048

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—3

6 Claims



1. In an information retrieval system, a method for organizing a body of information comprising:

establishing a knowledge base containing said body of information, said knowledge base including descriptions of individuals and of concepts to which the individuals belong, the descriptions being classified into a generalization ordering; responding to a query specifying a collection of the individuals by making a collection specification which is one of the descriptions and which specifies the collection of individuals; and

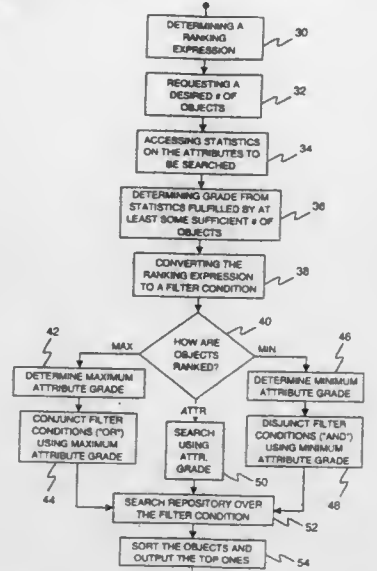
receiving the collection specification and classifying the collection specification into the generalization ordering.

5,806,061
METHOD FOR COST-BASED OPTIMIZATION OVER MULTIMEDIA REPOSITORIES
Surajit Chaudhuri, Redmond, Wash., and Luis Gravano, Mountain View, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 20, 1997, Ser. No. 859,556
Int. Cl.⁶ G06F 17/00

U.S. Cl. 707—3

18 Claims



1. A method for optimizing a search over a multimedia database including a plurality of objects having at least two different searchable attributes, said method comprising:

optimizing a given filter condition, said filter condition containing a plurality of subconditions;

accessing statistics from a database based on a cost to process a particular subcondition;

choosing a subcondition to process based on the cost information;

sending a query on the chosen subcondition to retrieve all of the objects that satisfy the subcondition from the multimedia database;

evaluating the other subconditions on the retrieved objects; and translating a ranking expression into a filter condition, and handling the processing of the ranking expression as the processing of the filter condition followed by a simple is ordering step.

5,806,062

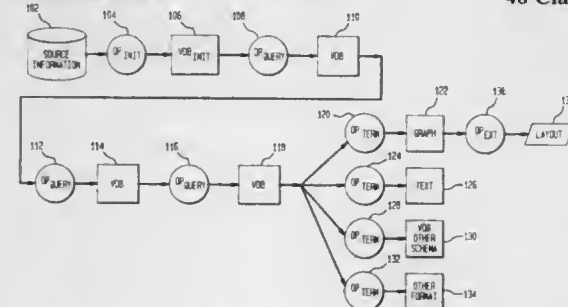
DATA ANALYSIS SYSTEM USING VIRTUAL DATABASES
Yih-Fann Robin Chen, Bridgewater; Glenn Stephen Fowler, Scotch Plains; Eleftherios Koutsofios, Chatham, and Ryan S. Wallach, East Brunswick, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Oct. 17, 1995, Ser. No. 544,346

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—4

46 Claims



12. An apparatus for processing source information comprising:

an initial operator for receiving said source information in an external format, for processing said source information, and for outputting a first virtual database having a first schema; at least one query operator for receiving from said initial operator the first virtual database having the first schema, for processing information in said virtual database received from said initial operator, and for outputting a second virtual database having the same schema as said first virtual database received from said initial operator; and

a terminal operator for receiving the second virtual database from said query operator, for processing information in said second virtual database received from said query operator, and for outputting information reflecting said processing in an external format.

5,806,063

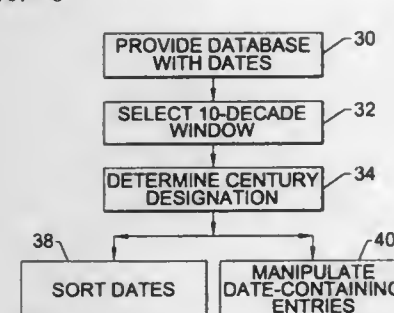
DATE FORMATTING AND SORTING FOR DATES SPANNING THE TURN OF THE CENTURY
Bruce Dickens, Irvine, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Oct. 3, 1996, Ser. No. 725,574

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—6

15 Claims



1. A method of processing symbolic representations of dates stored in a database, comprising the steps of providing a database with symbolic representations of dates stored therein according to a format wherein M_1M_2 is the numerical month designator, D_1D_2 is the numerical day designator, and Y_1Y_2 is the numerical year designator, all of the symbolic representations of dates falling within a 10-decade period of time;

selecting a 10-decade window with a Y_1Y_2 value for the first decade of the window, Y_1Y_2 being no later than the earliest Y_1Y_2 year designator in the database;

determining a century designator C_1C_2 for each symbolic representation of a date in the database, C_1C_2 having a first value if Y_1Y_2 is less than Y_1Y_2 and having a second value if Y_1Y_2 is equal to or greater than Y_1Y_2 ; and

reformatting the symbolic representation of the date with the values C_1C_2 , Y_1Y_2 , M_1M_2 , and D_1D_2 to facilitate further processing of the dates.

5,806,064

METHOD FOR MULTI-FIELD ORDERING OF DATA BASE RECORDS WITH SEQUENCE VARIABLES
Alberto Ortegon Garza, 2977 Erich Dr., Willoughby Hills, Ohio 44092

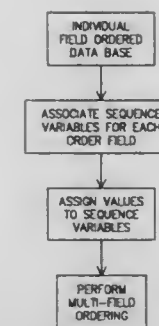
Filed Nov. 21, 1995, Ser. No. 561,258

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—7

27 Claims

1. A method for multi-field ordering of a plurality of records in a data base, said records including a plurality of fields, each field having a value, and each field value for fields in said multi-field ordering having a known individual order, said method comprising:



associating with each record a sequence variable for each multi-field ordering field, at least one of said sequence variables having a shorter length than the corresponding multi-field ordering field;

assigning a sequence value to each sequence variable indicating the individual order for each field value of said multi-field ordering; and

performing said multi-field ordering on the basis of said sequence.

5,806,065

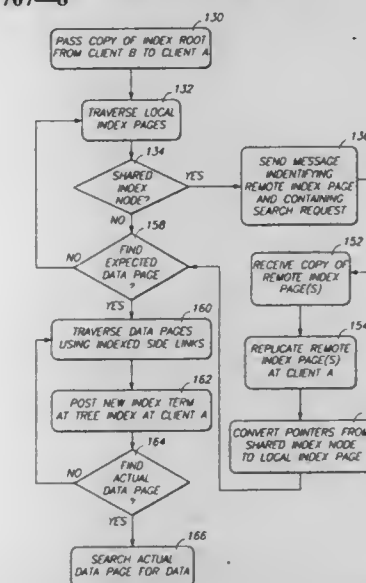
DATA SYSTEM WITH DISTRIBUTED TREE INDEXES AND METHOD FOR MAINTAINING THE INDEXES
David B. Lomet, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed May 6, 1996, Ser. No. 642,764

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—8

22 Claims



1. In a data management computing system having data organized according to a tree index structure and supporting access to that data from multiple processing units through a distributed tree index architecture where at least a portion of the tree index is provided at the multiple processing units, a computer-implemented method for maintaining the tree indexes at the multiple processing units comprising the following steps:

accessing the data from the processing units using their corresponding tree indexes;

during said access by one of the processing units, changing a storage location of a particular search space; and

updating the tree index at said one processing unit without updating the tree indexes at others of the processing units.

5,806,066

METHOD OF INTEGRATING SCHEMAS OF DISTRIBUTED HETEROGENEOUS DATABASES

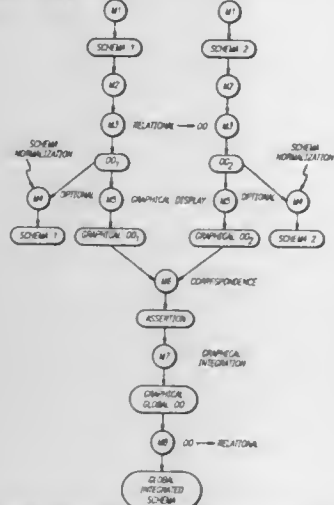
Forouzan Golshani, Paradise Valley; Oris D. Friesen, and Thomas H. Howell, both of Scottsdale, all of Ariz., assignors to Bull HN Information Systems Inc., Billerica, Mass.

Filed Mar. 26, 1996, Ser. No. 624,726

Int. Cl.⁶ G06F 17/00

U.S. Cl. 707—100

12 Claims



1. In a distributed database system (DDBS) having at least two independent database systems (DBSs) with each DBS including in addition to its database, a database management system (DBMS), and a system catalogue which includes a schema of the database, a representation of the structure of the database defining the kinds of data stored in the database but excluding the actual data; the DDBS including a distributed data access (DDA) software module which provides a communication capability between the DDBS and the independent DBSs; the method of producing a global schema including desired objects and associated attributes from the schemas of the two independent DBSs, the improvements comprising the following steps:

- obtaining the schema of each of said independent DBSs;
- identifying primary keys, foreign keys and data dependencies of the schemas of each of the two independent DBSs;
- converting the schemas of each of the two independent DBSs to schemas in object-oriented form;
- normalizing each of the object-oriented forms of the schemas produced in step c;
- defining equivalence of objects of the two normalized schemas produced in step d;
- integrating the two object-oriented schemas to produce a global object-oriented schema;
- converting the global object-oriented schema of step f to produce a global schema in a relational form;
- developing SQL commands for realizing the global schema within the DDA as a virtual database system satisfying all the requirements outlined in step g for accessing data from the independent database systems.

5,806,067

METHOD AND APPARATUS FOR DATA PROCESSING WITH CONVERSION OF AMBIGUOUS DATA STRUCTURES

William E. Connor, Stony Brook, N.Y., assignor to Catch/21 Enterprises, Inc., Hauppauge, N.Y.

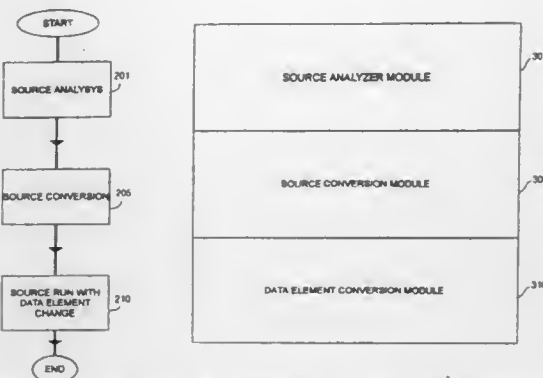
Filed Oct. 21, 1996, Ser. No. 735,397

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—100

4 Claims

1. A method of data processing in a system having data structures that include ambiguous elements of a predetermined format, comprising the steps of:



analyzing source code of the system to identify processing steps of the data processing that process the data structures including ambiguous elements of the predetermined format; generating an instruction code module including a first set of instructions which converts each ambiguous element to be inputted to an identified processing step of the data processing to a corresponding unambiguous element having the same predetermined format and a second set of instructions which converts an unambiguous element produced by an identified processing step of the data processing to a corresponding ambiguous element;

inserting a call to the instruction code module in an inputting portion of each identified processing step of the data processing to obtain the corresponding unambiguous element for each ambiguous element for processing in the identified processing step of the data processing; and

inserting a call to the instruction code module in an outputting portion of each identified processing step of the data processing to obtain the corresponding ambiguous element for each unambiguous element produced by the identified processing step of the data processing for outputting in the identified processing step of the data processing.

5,806,068

DOCUMENT DATA PROCESSOR FOR AN OBJECT-ORIENTED KNOWLEDGE MANAGEMENT SYSTEM CONTAINING A PERSONAL DATABASE IN COMMUNICATION WITH A PACKET PROCESSOR

Venson M. Shaw, and Steven M. Shaw, both of III Reldyes Ave., Leonia, N.J. 07605

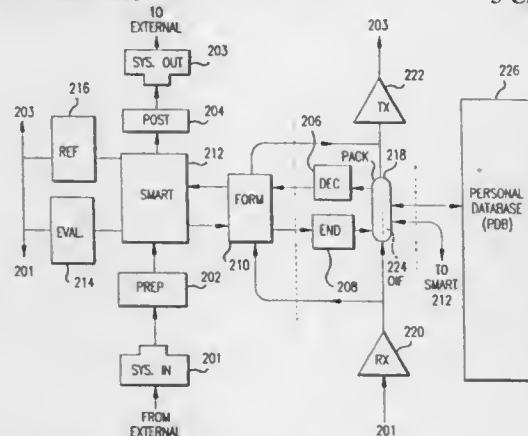
Division of Ser. No. 763,451, Sep. 20, 1991, abandoned, and a division of Ser. No. 43,625, Apr. 5, 1993, Pat. No. 5,600,844.

This application Dec. 13, 1996, Ser. No. 766,280

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—103

3 Claims



1. A document data processor for an object-oriented knowledge management system comprising: personal database for storing, updating and retrieving personal knowledge content;

packet processor in communication with said personal database, said packet processor including an object interface for receiving said personal knowledge content from an external user, an application programming interface and/or a coprocessor, said packet processor further including a means for establishing a behavioral model of said personal knowledge content, including a class-net list organized at a sequence of class-descriptors with associated pointers to a prior source descriptor and to a next hierarchical descriptor of said personal knowledge content, said packet processor further including a means for stack operation of said personal database including a single or plurality of a class-library for storing said class descriptors and said pointers, said packet processor further including an object correlator for performing correlation in said database, said packet processor further including a means for assigning each class-library element to a unique object-identifier, said packet processor further provided with a means for selecting the appropriate set of object-identifiers in said personal database.

5,806,069

METHOD AND SYSTEM OF MANAGING CONSTRUCTION-RELATED INFORMATION AND PRODUCTION-RELATED INFORMATION

Harumichi Wakiyama, Toyota; Tadashi Naito, Nagoya; Masato Ohtomo, and Tomohisa Kumagai, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

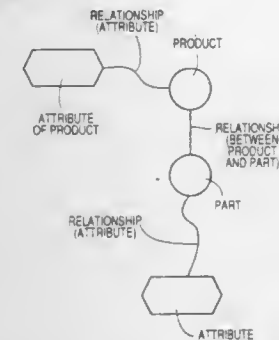
Filed Jan. 23, 1997, Ser. No. 786,339

Claims priority, application Japan, Jan. 29, 1996, 8-012677; Jan. 20, 1997, 9-007553

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—102

10 Claims



1. A method of totally managing a plurality of sets of construction-related information and a plurality of sets of production-related information, each of said plurality of sets of construction-related information relating a constructional relationship between a corresponding one of a plurality of products to be produced and a plurality of parts which constitute said each product, while said plurality of sets of production-related information relating production of said products, respectively, said method comprising the steps of:

- determining each of said plurality of sets of construction-related information and said plurality of sets of production-related information as a corresponding one of a plurality of subjects which can be similarly processed;
- extracting at least one relationship of each of said plurality of subjects with the other of said subjects;
- classifying said plurality of subjects into a plurality of classes on the basis of the extracted at least one relationship of said each subject;
- generating subject substance data indicative of a substance of said each subject and relationship substance data indicative of a substance of said at least one relationship of said each subject;
- storing, for said each subject, a set of subject data incorporating a plurality of sets of element data in relation to each other, in a product information memory, said plurality of element data

including said subject substance data and said relationship substance data of said each subject; and retrieving said set of subject data for at least one of said plurality of subjects from said product information memory, and outputting the retrieved set of subject data.

5,806,070

DEVICE AND METHOD FOR CONTROLLING SOLID-STATE MEMORY SYSTEM

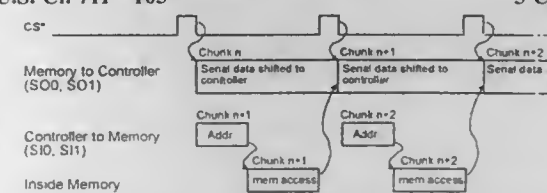
Robert D. Norman, San Jose; Karl M. J. Lofgren, Newport Beach; Jeffrey Donald Stai, Placentia; Anil Gupta, Irvine, and Sanjay Mehrotra, Milpitas, all of Calif., assignors to SanDisk Corporation, Sunnyvale, and Western Digital Corporation, Irvine, both of Calif.

Continuation of Ser. No. 396,488, Mar. 19, 1995, abandoned, which is a division of Ser. No. 736,733, Jul. 26, 1991, Pat. No. 5,430,859. This application Sep. 16, 1997, Ser. No. 931,193

Int. Cl.⁶ G06F 12/00

U.S. Cl. 711—103

3 Claims



1. In a memory system having at least one flash EEPROM device in communication with a controller, a method of communicating between said flash EEPROM device and the controller, comprising the steps of:

- coupling said flash EEPROM device and the controller serially;
- sending from the controller to said flash EEPROM device a current address for a current chunk of data to be read;
- accessing in parallel the current chunk of data from said flash EEPROM device using the current address;
- converting the current chunk of data from parallel to serial format and shifting out said current chunk of data serially to the controller;
- sending from the controller to said flash EEPROM device a next address for a next of data to be read and accessing the next chunk of data from said flash EEPROM device using the next address while the current chunk of data is being shifted out from the device to the controller; and
- repeating all the above steps after the current chunk has been shifted out of the flash EEPROM device, until all chunks to be read have been shifted out of the flash EEPROM device.

5,806,071

PROCESS AND SYSTEM FOR CONFIGURING INFORMATION FOR PRESENTATION AT AN INTERACTIVE ELECTRONIC DEVICE

Steve Balderrama, Boulder; Larry Salmen, and Jerry Schneider, both of Ft. Collins, all of Colo., assignors to Info America, Inc., Fort Collins, Colo.

Filed Aug. 21, 1995, Ser. No. 518,118

Int. Cl.⁶ H04Q 9/00

U.S. Cl. 707—104

22 Claims

1. A process for configuring electronic information for presentation at an interactive electronic device with which an item may be ordered, comprising the steps of:

- providing an original template presentation created at a first location to include a plurality of template items;
- providing a database to include a plurality of local database items; and

1. A computer-implemented method for peer-to-peer data replication comprising the steps of:
- performing a first modification to a first data value in a first computer and a second modification to a second data value in a second computer, said first and second data values being consistent prior to said first and second modifications;
 - generating first modification information in said first computer that is indicative of said first modification and second modification information in said second computer that is indicative of said second modification;
 - communicating said first modification information from said first computer to said second computer in response to performing the first modification;
 - communicating said second modification information from said second computer to said first computer in response to performing said second modification; and
 - modifying during a first time interval said first data value in said first computer and said second data value in said second computer based on said second modification information and said first modification information, respectively, to restore consistency between said first and second data values, said first and second computers being operational throughout said first time interval.

5,806,076

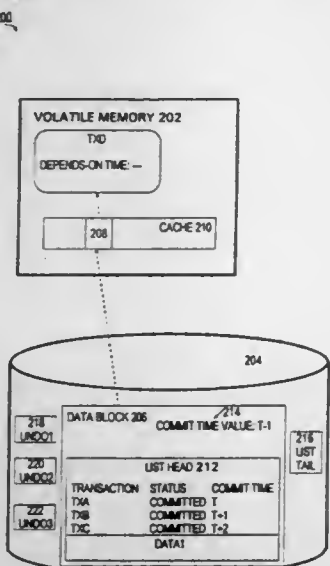
TRACKING DEPENDENCIES BETWEEN
TRANSACTIONS IN A DATABASEGary C. Ngai, Saratoga; Roger J. Bamford, Woodside, and
Garret Swart, Palo Alto, all of Calif., assignors to Oracle
Corporation, Redwood Shores, Calif.

Filed Oct. 29, 1996, Ser. No. 740,544

Int. Cl.⁶ G06F 17/30

U.S. Cl. 707—203

17 Claims



1. A method for tracking dependencies between transactions, the method comprising the steps of:

- storing data that indicates which transactions have updated a data item, said data including commit times for those transactions that have committed after updating the data item;
- storing a depends-on time associated with an active transaction;
- accessing a version of the data item in response to executing said active transaction;
- reading said data to determine a time value that represents a time that is at least as recent as a commit time of a committed transaction that most recently updated said version of the data item;
- updating the depends-on time associated with the active transaction to said time value if said time value represents a time more recent than said depends-on time; and
- approximating a determination of whether said active transaction depends on another transaction based on a comparison between a commit time for said other transaction and the depends-on time associated with the active transaction.

5,806,077

HYPERTEXT DISPLAY SYSTEM

Alan J. Wecker, Haifa, Israel, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1993, Ser. No. 4,016

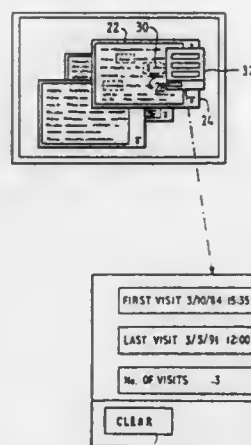
Int. Cl.⁶ G06T 1/00

U.S. Cl. 707—501

6 Claims

1. A method of providing hypertext link services within a data processing system having a display, said method comprising the data processing implemented steps of:

- displaying a hypertext document within said display;
- graphically displaying at least one hypertext link indicator within said hypertext document, said hypertext link indicator indicating an existence of an additional unit of information;
- graphically displaying in association with said at least one hypertext link indicator within said hypertext document a marker indicating a previous display of said additional unit of information;



selectively displaying said additional unit of information within said display in response to a selection of said hypertext link indicator by a user of said data processing system; and selectively displaying utilization data indicating a date and time of a first utilization by said user with respect to said additional unit of information within an information window within said display in response to a selection of said marker by a user of said data processing system, wherein said utilization data may be visually accessed by a user without display of said additional unit of information.

5,806,078

VERSION MANAGEMENT SYSTEM

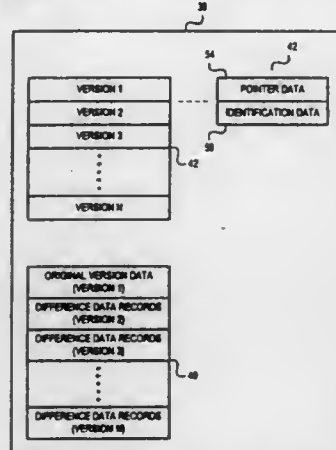
Richard A. Hug, and Leon Presser, both of Santa Barbara, Calif., assignors to Softool Corporation, Goleta, Calif.

Filed Jun. 9, 1994, Ser. No. 257,816

Int. Cl.⁶ G06F 15/00

U.S. Cl. 707—511

29 Claims



1. A version management system for storing and retrieving user-selectable versions of a document maintained in a computer which has a displayer, comprising:

- a user interface;
- document processing software executable by the computer for driving said displayer to generate a display representing at least a portion of the document;
- a first version control file for storing an original version of the document and at least one set of variable-sized delta-formatted data records representing differences between two user-selectable versions of the document;
- a second version control file comprising at least one set of pointers for selecting a set of said delta-formatted records from said first version control file; said set of pointers corresponding to a user-selectable version of the document; and
- a version management processor for fetching and processing said delta-formatted difference data to regenerate said user-

selectable version of the document and supplying said regenerated user-selectable version of a document to said document processing software in accordance with selection by the user.

5,806,079

SYSTEM, METHOD, AND COMPUTER PROGRAM
PRODUCT FOR USING INTELLIGENT NOTES TO
ORGANIZE, LINK, AND MANIPULATE DISPARATE
DATA OBJECTS

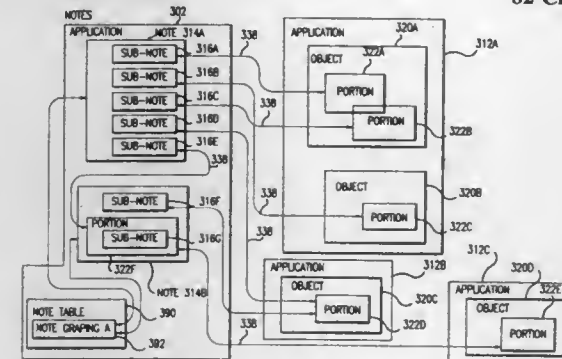
Kevin G. Rivette; Irving S. Rappaport, both of Palo Alto; Adam Jackson, Sunnyvale, all of Calif.; Don Ahn, San Antonio, Tex.; Michael P. Florio, Atherton, and Deborah Kurata, Pleasanton, both of Calif., assignors to Smartpatents, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 423,676, Apr. 18, 1995, Pat. No. 5,623,679, which is a continuation-in-part of Ser. No. 341,129, Nov. 18, 1994, which is a continuation-in-part of Ser. No. 155,752, Nov. 19, 1993, Pat. No. 5,623,681. This application Apr. 17, 1996, Ser. No. 632,801

Int. Cl.⁶ G06F 17/00

U.S. Cl. 707—512

82 Claims



69. A method of organizing data, comprising the steps of:
- (1) enabling a user to place an application in an annotation mode;
 - (2) enabling a user to select a portion of a data object associated with said application;
 - (3) automatically creating, responsive to steps (1) and (2), a sub-note in a note; and
 - (4) automatically linking, responsive to step (3), said sub-note to said selected portion.

5,806,080

SYSTEM AND METHOD FOR IMPLEMENTING CANVAS
OBJECTS ON WINDOWING COMPUTER SYSTEMS

Lance Jeffrey Purple; Leigh Allen Williamson, both of Austin, Tex., and Ching-Yun Yang, Saratoga, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 14, 1996, Ser. No. 665,175

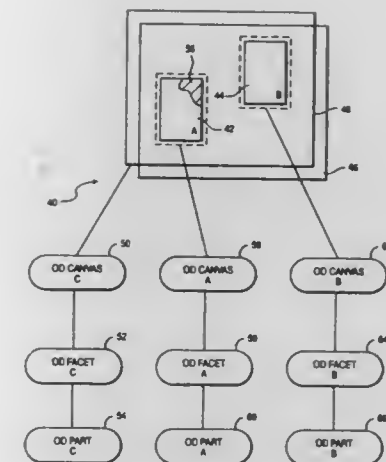
Int. Cl.⁶ G06F 17/22

U.S. Cl. 707—515

26 Claims

1. A method for implementing compound documents in a graphical user interface-based computer system defining a screen area, comprising:

- detecting a request for a part;
- defining spatial characteristics of said part comprising a portion of said screened area;
- creating a facet corresponding to said characteristics wherein said step of creating a facet comprises:
- creating a canvas object; and
- wherein said step of creating with said facet is performed with said canvas object;
- detecting a request for a next part;
- defining spatial characteristics of said next part comprising a next portion of said screen area;



creating a next facet corresponding to said step characteristics of said next part wherein said step of creating said next facet comprises:

- creating a next canvas object; and wherein said step of creating said next facet is performed with said next canvas object; and
- creating said part corresponding to said facet.

5,806,081

METHOD AND SYSTEM FOR EMBEDDING A DEVICE
PROFILE INTO A DOCUMENT AND EXTRACTING A
DEVICE PROFILE FROM A DOCUMENT IN A COLOR
MANAGEMENT SYSTEM

Iue-Na Steve Swen; Michael D. Stokes, both of Cupertino, Calif., and Thomas E. Mohr, Portland, Oreg., assignors to Apple Computer Inc., Cupertino, Calif.

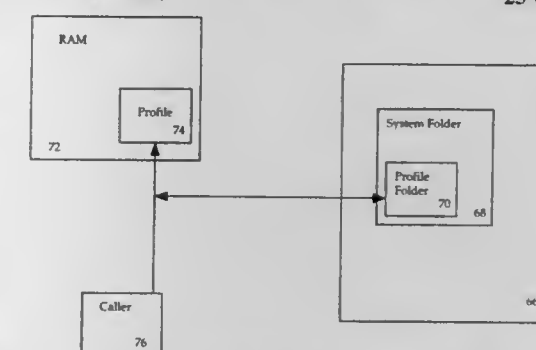
Continuation of Ser. No. 270,512, Jul. 1, 1994, abandoned.

This application Feb. 16, 1996, Ser. No. 604,208

Int. Cl.⁶ G06F 3/14; H04N 1/46

U.S. Cl. 707—528

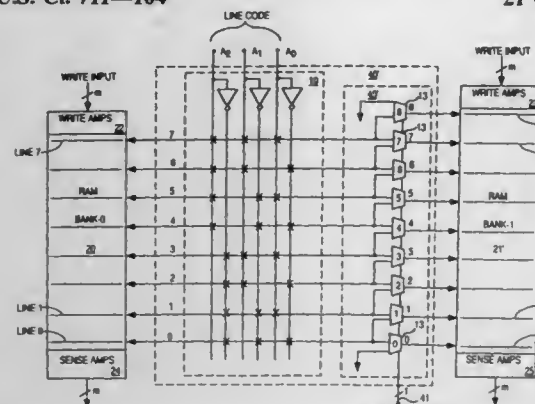
25 Claims



2. In a color management system having a default color matching method, a client, and at least one device profile which may specify a preferred color matching method, wherein additional color matching methods other than the default color matching method may be added to or deleted from the color management system, a method for dispatching a color matching method to flatten a device profile, comprising the steps of:

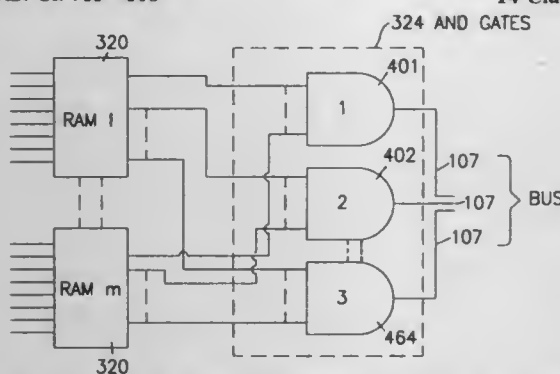
- determining whether or not a preferred color matching method is included within the color management system;
- if the preferred color matching method is included in the color management system, determining whether or not the preferred color matching method can flatten the device profile;
- if the preferred color matching method can flatten the device profile, dispatching the preferred color matching method to flatten the device profile; and
- if the preferred color matching method is not included in the color management system, or the preferred color matching method can not flatten the device profile, dispatching the default color matching method to flatten the device profile.

5,806,082
WRAP-AROUND MECHANISM FOR MEMORY SPLIT-WORDLINE READ
Jeng-Jye Shaw, Palo Alto, Calif., assignor to Intel Corporation, Santa Clara, Calif.
Continuation of Ser. No. 212,136, Mar. 11, 1994, Pat. No. 5,574,880. This application Aug. 13, 1996, Ser. No. 698,055
Int. Cl.⁶ G06F 12/06; G11C 11/407
U.S. Cl. 711—104 21 Claims



1. An apparatus to provide access to at least two storage devices, comprising:
a decoding circuit having N output lines; and
a split-line circuit, coupled to the decoding circuit, the split-line circuit comprising (N+1) select circuits, the (N+1) select circuits each having an input coupled to at least one of the N output lines, the (N+1) select circuits each having an output coupled to a first of said at least two storage devices to access data stored therein.

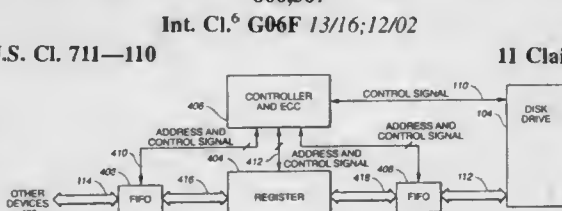
5,806,083
APPARATUS AND METHOD FOR AN IMPROVED CONTENT ADDRESSABLE MEMORY USING A RANDOM ACCESS MEMORY TO GENERATE MATCH INFORMATION
Ron Edgar, Raymond, N.H., assignor to Digital Equipment Corporation, Maynard, Mass.
Continuation of Ser. No. 203,177, Feb. 28, 1994, Pat. No. 5,440,709, which is a continuation of Ser. No. 546,414, Jun. 29, 1990, Pat. No. 5,317,708. This application May 1, 1995, Ser. No. 431,561
Int. Cl.⁶ G06F 12/00
U.S. Cl. 711—108 14 Claims



1. A method of operating a RAM to function as a content addressable memory comprising the steps of:
storing a data entry indicating match information for a portion of one of a plurality of data entities in each of a plurality of data storage locations of the RAM, each of the data storage locations having a unique address;
inputting a portion of a preselected one of the plurality of data entities as an address for one of the data storage locations to access the data entry stored in a corresponding one of the data

storage locations, the data entry including match information corresponding to the portion of the preselected one of the plurality of data entities; and
serially inputting to the RAM, as addresses, preselected slices of the portion of the preselected one of the plurality of data entities, one slice per preselected time period.

5,806,084
SPACE SAVING METHOD AND FLOOR PLAN FOR FABRICATING AN INTEGRATED CIRCUIT COMPRISING A HIGH DENSITY BUFFER MEMORY
Chong Ming Lin, Sunnyvale, and Raymond J. Werner, San Jose, both of Calif., assignors to Seiko Epson Corporation, Tokyo, Japan
Continuation of Ser. No. 357,166, Dec. 13, 1994, Pat. No. 5,630,091, which is a continuation of Ser. No. 867,637, Apr. 13, 1992, abandoned. This application Feb. 14, 1997, Ser. No. 800,507
Int. Cl.⁶ G06F 13/16; 12/02
U.S. Cl. 711—110 11 Claims

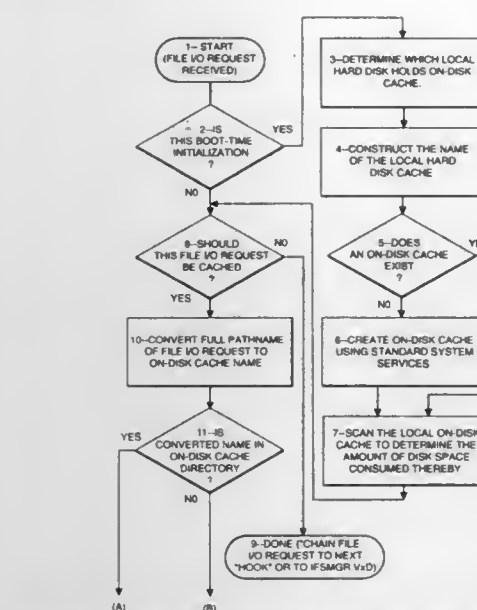


1. An integrated circuit comprising a high density buffer memory comprising:
a first memory stage for storing and retrieving data in a first-in first out manner;
a second memory stage responsive to said first memory stage, having a plurality of register rows for storing data on a row basis such that each memory store operation operates to store data in one of said register rows, and each memory read operation operates to retrieve data from one of said register rows, wherein each register row comprises a shift register;
a third memory stage responsive to said second memory stage, for storing and retrieving data in a first-in first out manner; and
a controller, responsive to said first memory stage, said second memory stage, and said third memory stage, having control logic means for providing control and address signals to said first memory stage, said second memory stage, and said third memory stage.

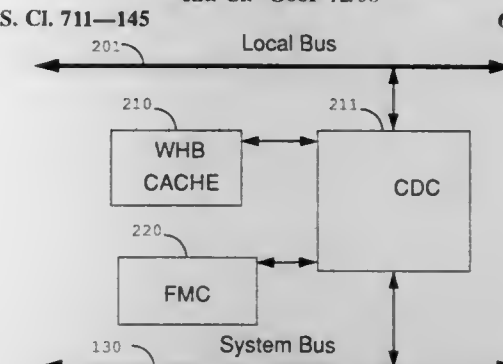
5,806,085
METHOD FOR NON-VOLATILE CACHING OF NETWORK AND CD-ROM FILE ACCESSES USING A CACHE DIRECTORY, POINTERS, FILE NAME CONVERSION, A LOCAL HARD DISK, AND SEPARATE SMALL DATABASE
Brian Berliner, Colorado Springs, Colo., assignor to Sun Microsystems, Inc., Mountain View, Calif.
Filed May 1, 1996, Ser. No. 640,527
Int. Cl.⁶ G06F 12/00
U.S. Cl. 711—113 20 Claims

1. A method for caching, on a hard disk drive controlled by a computer system, file data stored on a mass storage device having an access speed slower than that of the hard disk drive, said method being responsive to file input/output (I/O) requests made by an operating system loaded on the computer system, said method comprising the steps of:

5,806,086
MULTIPROCESSOR MEMORY CONTROLLING SYSTEM ASSOCIATING A WRITE HISTORY BIT (WHB) WITH ONE OR MORE MEMORY LOCATIONS IN CONTROLLING AND REDUCING INVALIDATION CYCLES OVER THE SYSTEM BUS
Jeffrey S. Kimmel, Chapel Hill, N.C., and Roy Clark, Hopkinton, Mass., assignors to Data General Corporation, Westboro, Mass.
Filed Jun. 11, 1996, Ser. No. 661,578
Int. Cl.⁶ G06F 12/08
U.S. Cl. 711—145 6 Claims



converting a full path name of a file on the mass-storage device which contains data related to a received file I/O request to a file name which corresponds to a file name within a cache directory on the designated drive;
determining whether or not the converted name resides in a cache directory on the disk drive;
if the converted name does not reside in the directory, then creating a cache directory if none exists, writing the converted name to the cache directory, and creating, for a file associated with the converted name, a mini-database which identifies and points to mass-storage device file data within the cache;
processing the mini-database associated with the on-disk cache name file to determine which portions of the mass-storage device file are resident in the cache;
determining whether or not mass-storage device file data associated with the received I/O request is in the cache;
if the data associated with the received file I/O request is not in the cache, then reading the data from the mass-storage device and writing it to the cache and updating the mini-database; and
resolving the received file I/O request with data in the cache.



1. A memory control system for use with a plurality of microprocessors, said system comprising:
(a) a system bus for transmitting addresses, instructions and data;
(b) a plurality of nodes each one of said nodes being connected to said system bus and comprising:
(i) one or more microprocessors each one of said microprocessors capable of issuing READ SHARED, READ EXCLUSIVE and WRITE requests;
(ii) a memory having multiple addressable locations for storing said instructions and said data;
(iii) a plurality of write history bits (WHBs) each one of said WHB being associated with one or more locations in said memory;
(iv) a local bus connected to said microprocessors and said memory; and
(v) a cache and directory controller (CDC), connected to said local bus, said system bus and said WHBs, wherein said CDC transmits a READ EXCLUSIVE request on said system bus when said CDC receives a READ SHARED request which cannot be satisfied within the node and the WHB associated therewith is in the set state.

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397,835

KERCHIEF WITH QUICK RELEASE AT CONVOLUTED CENTERPIECE

Elisabeth Inspector, 65 W. Lakeshore Dr., Rockaway, N.J. 07866

Filed Jan. 27, 1997, Ser. No. 65,380

Term of patent 14 years

LOC (6) Cl. 02 - 05

U.S. Cl. D2—500



397,837

ZIPPERED GLOVE

Michael Redwood, Somerset, and Rosey Andrews, Pickering, both of Great Britain, assignors to Acushnet Company, Fairhaven, Mass.

Filed Jul. 24, 1997, Ser. No. 73,928

Term of patent 14 years

LOC (6) Cl. 02 - 06

U.S. Cl. D2—614



397,838

MATERNITY MUSIC BELT

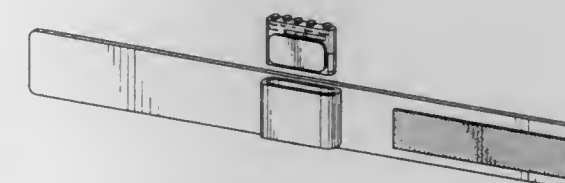
Don Waggoner, and Lisa Waggoner, both of 1717 15 St., Bremerton, Wash. 98337

Filed Mar. 3, 1997, Ser. No. 67,691

Term of patent 14 years

LOC (6) Cl. 02 - 07

U.S. Cl. D2—629



397,836

KERCHIEF WITH QUICK FASTENING LOOP

Elisabeth Inspector, 65 W. Lakeshore Dr., Rockaway, N.J. 07866

Filed Jun. 30, 1997, Ser. No. 73,113

Term of patent 14 years

LOC (6) Cl. 02 - 05

U.S. Cl. D2—501



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PROTECTIVE CAP

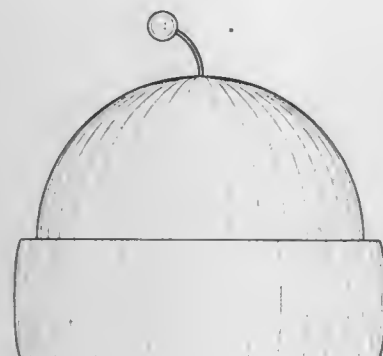
Nicholas Lettieri, 423 31st St., McKeesport, Pa. 15132

Filed Jul. 31, 1997, Ser. No. 74,489

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2—889



397,841

SHOE UPPER

Jon R. Munns, Portland, Oreg., assignor to adidas, AG, Germany

Filed May 24, 1996, Ser. No. 54,887

Claims priority, application Germany, Nov. 27, 1995, M9509627.2

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—902



397,840

HAT STRAP

Gregory A. Slocum, 4251 Adam Rd., Simi Valley, Calif. 93063

Filed May 12, 1997, Ser. No. 70,589

Term of patent 14 years

LOC (6) Cl. 02 - 03

U.S. Cl. D2—891



397,842

WINTER WEATHER FOOTWEAR

Ivan Davidowitz, Kingston; Michael Sproul, Mountaintop, both of Pa., and Rosemary Wright, Hinckley, England, assignors to Columbia Footwear Corporation, Hazelton, Pa. Division of Ser. No. 31,576, Nov. 17, 1994, Pat. No. Des. 377,259. This application Nov. 1, 1996, Ser. No. 61,865

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—910



397,843

SHOELACE-MOUNTED CONTAINER

Matthew C. LeRoy, 10020 Casanes Ave., Downey, Calif. 90240

Filed Feb. 3, 1997, Ser. No. 66,085

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—946



397,845

PORTION OF A SHOE SOLE

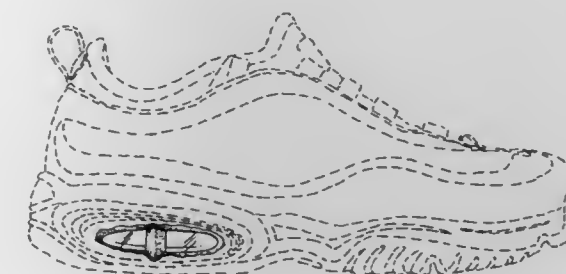
William J. Cass, Hillsboro, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Oct. 27, 1997, Ser. No. 78,940

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—947



397,844

ELEMENT OF A MIDSOLE

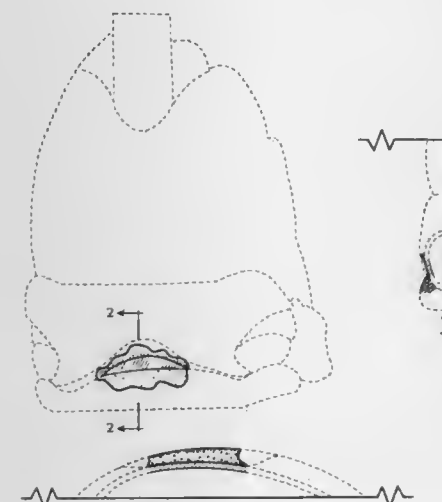
Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 28, 1997, Ser. No. 71,341

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—947



397,846

PORTION OF A SHOE SOLE

Sergio G. Lozano, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jan. 26, 1998, Ser. No. 82,549

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—947



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PORTION OF A SHOE SOLE

Peter A. Hudson, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jan. 30, 1998, Ser. No. 82,775

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—947



397,849

SHOE SOLE

Shigeyuki Mitsui, and Takashi Koushima, both of Kobe, Japan, assignors to ASICS Corporation, Japan

Filed Jul. 26, 1996, Ser. No. 57,504

Claims priority, application Japan, Apr. 5, 1996, 8-9701

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—954



397,848

PORTION OF A SHOE SOLE

Eric P. Avar, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jan. 26, 1998, Ser. No. 83,242

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,850

SHOE SOLE

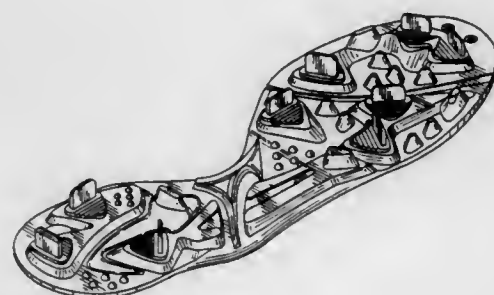
Junko Harada; Shinichi Saito; Seichi Goto, and Yasunori Kaneko, all of Osaka, Japan, assignors to Mizuno Corporation, Osaka, Japan

Filed Sep. 23, 1997, Ser. No. 76,828

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—959



397,851

SHOE OUTSOLE

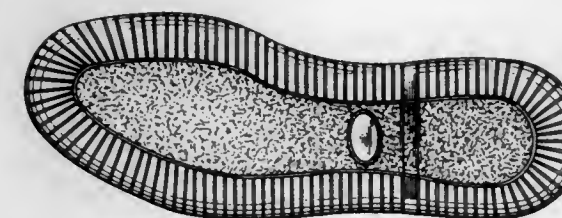
Robert Y. Greenberg, Manhattan Beach, Calif., assignor to Skechers, U.S.A., Inc., Manhattan Beach, Calif.

Filed Jan. 29, 1997, Ser. No. 65,562

Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—960



397,853

CONFIGURATION OF SHOE UPPER

Tinker Linn Hatfield, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Dec. 30, 1997, Ser. No. 81,306

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,852

SIDE ELEMENT OF A SHOE UPPER

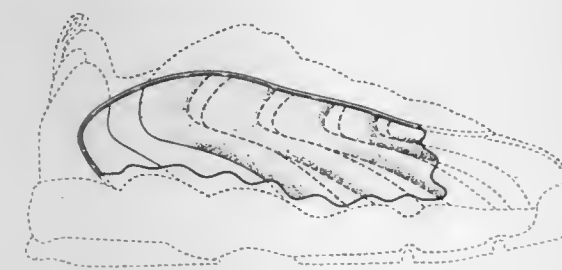
Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed May 28, 1997, Ser. No. 71,374

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,854

SIDE ELEMENT OF A SHOE UPPER

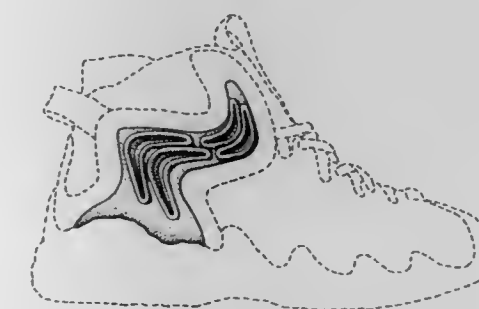
Robert McCourt, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Jan. 12, 1998, Ser. No. 81,980

Term of patent 14 years

LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



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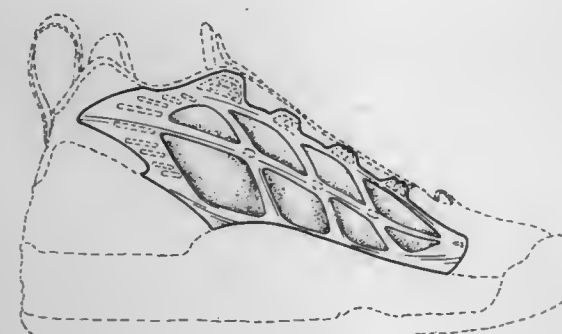
397,855

ELEMENT OF A SHOE UPPER

Richard D. Clarke, Portland, Oreg., assignor to Nike, Inc.,
Beaverton, Oreg.

Filed Jan. 26, 1998, Ser. No. 82,550
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



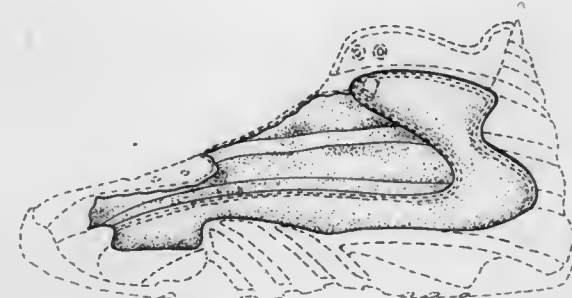
397,857

PORTION OF A SHOE UPPER

Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc.,
Beaverton, Oreg.

Filed Feb. 27, 1998, Ser. No. 84,285
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,858

LACING SYSTEM FOR AN ARTICLE OF FOOTWEAR

William J. Cass, Hillsboro, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Mar. 19, 1998, Ser. No. 85,254
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972

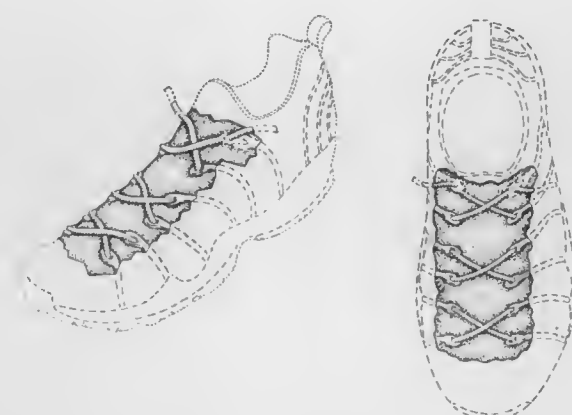
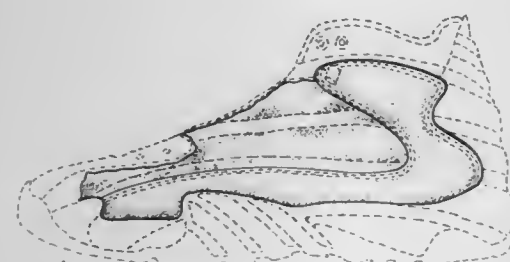
397,856

PORTION OF SHOE UPPER

Wilson W. Smith, III, Beaverton, Oreg., assignor to Nike, Inc.,
Beaverton, Oreg.

Filed Feb. 27, 1998, Ser. No. 84,283
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,859

PORTION OF A SHOE UPPER

William J. Cass, Hillsboro, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Mar. 19, 1998, Ser. No. 85,255
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



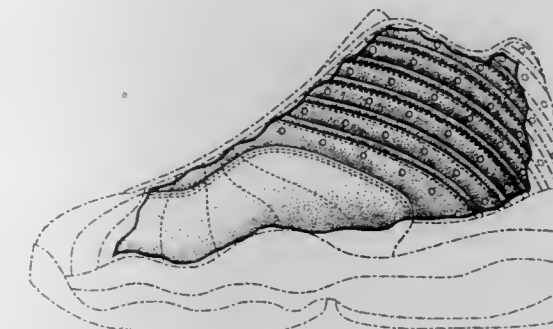
397,861

PORTION OF A SHOE UPPER

Tracy L. Teague, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Apr. 23, 1998, Ser. No. 86,925
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,862

TONGUE FOR A BOOT

Frederic Aird, Ville Mont-Royal; Michel Laferriere, St-Jean; Neil Wensley, Westmount; Craig Ryan, Montreal, and Hubert Gagnon, St. Augustine, all of Canada, assignors to Sport Maska Inc., Quebec, Canada

Filed Nov. 22, 1996, Ser. No. 62,746
Term of patent 14 years
LOC (6) Cl. 02 - 04

U.S. Cl. D2—975

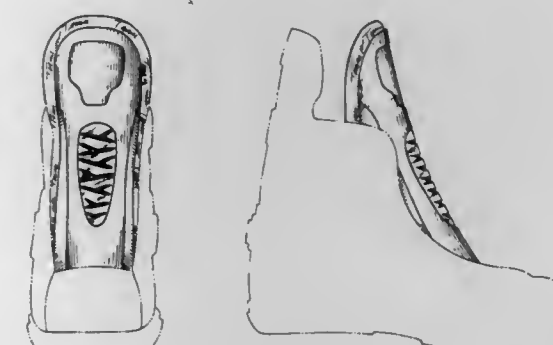
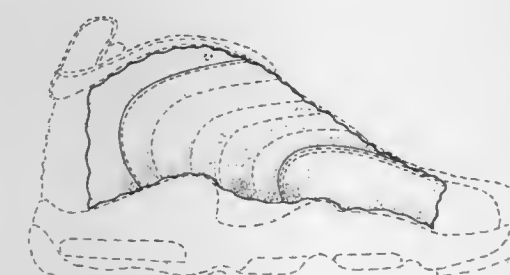
397,860

PORTION OF A SHOE UPPER

Eric Avar, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.

Filed Apr. 22, 1998, Ser. No. 86,890
Term of patent 14 years
LOC (6) Cl. 02 - 99

U.S. Cl. D2—972



397,863

SPORTS AIR SOCK

Peter Van De Steeg, Vermont South, Australia, assignor to Cheetah Marketing Pty., Ltd., Australia
Filed Feb. 21, 1997, Ser. No. 66,807

Claims priority, application Australia, Oct. 16, 1996, 3569/96
Term of patent 14 years

LOC (6) Cl. 02 - 04

U.S. Cl. D2—987



397,865

EARPHONES BOX

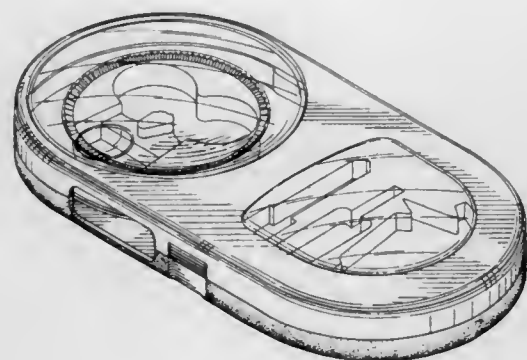
Teng-Ko Lin, No. 423, Pao Tai Road, Chien Chen District, Kaohsiung, Taiwan

Filed Oct. 3, 1997, Ser. No. 77,629

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—203



397,864

COMBINED STORAGE BOX AND SEWING TABLE FOR SEWING MACHINE

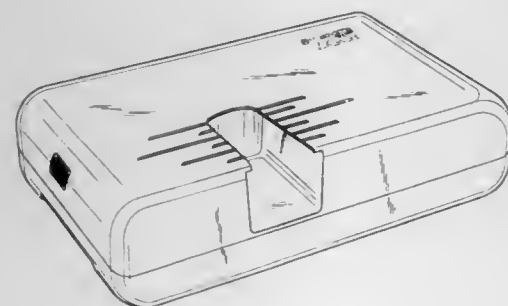
Jan Eshjörn Svantesson, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed May 22, 1996, Ser. No. 54,787

Claims priority, application Sweden, Nov. 23, 1995, 952208
Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—20



397,866

MAGNETIC KEY SAFE

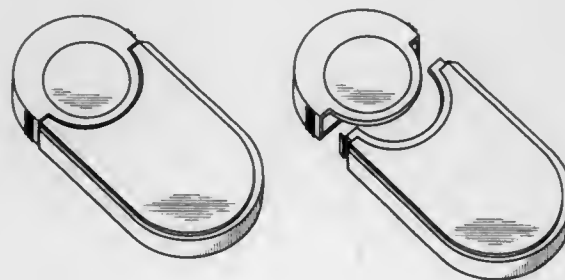
Jerome J. Hartmann, Carlisle, and Thomas R. Steinhagen, West Des Moines, both of Iowa, assignors to Cobbs Manufacturing Co., Des Moines, Iowa

Filed Oct. 30, 1997, Ser. No. 78,621

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—212



397,867

SOFT BABY CARRIER

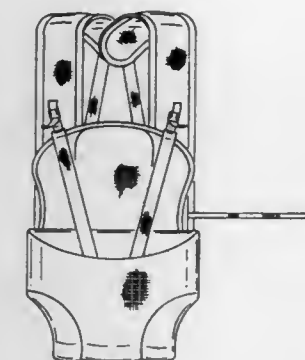
Paul F. Fair, Denver, and Cindy Nelson, Longmont, both of Colo., assignors to Lisco, Inc., Tampa, Fla.

Filed Sep. 26, 1997, Ser. No. 77,079

Term of patent 14 years

LOC (6) Cl. 03 - 99

U.S. Cl. D3—213



397,869

MULTI-FOLD CASING

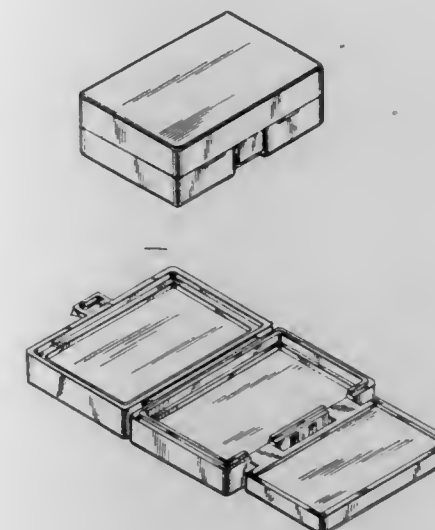
Kanwar A. Minhas, Plainview, N.Y., assignor to Great Neck Saw Manufacturers, Inc., Mineola, N.Y.

Filed Oct. 31, 1996, Ser. No. 61,818

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—294



397,868

TOOLBOX

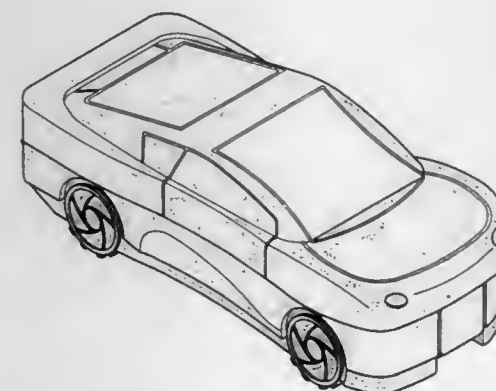
Li-Hua Huang, No. 67 Yu-Chiun Road, Wu-Fong Hsiang, Taichung Hsien, Taiwan

Filed Apr. 11, 1997, Ser. No. 69,170

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—271



397,870

CARRYING CASE

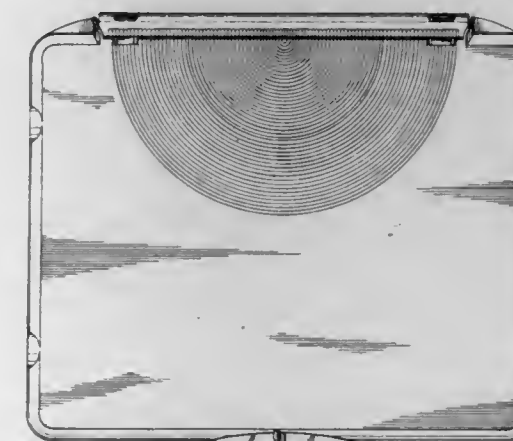
Koen De Winter, Beaconfield, Canada, assignor to Innovations PI 4 Inc., Vaudreuil, Canada

Filed Jan. 13, 1997, Ser. No. 64,872

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—294



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BAG FOR BOTTLES

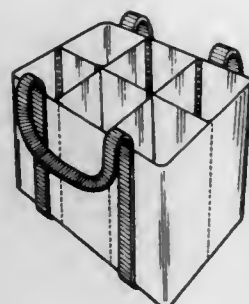
Djamal Bellehchilli, 21 rue du Depart, 75014 Paris, France

Filed Dec. 27, 1996, Ser. No. 64,298

Term of patent 14 years

LOC (6) Cl. 03 - 01

U.S. Cl. D3—303



397,873

TOOTHBRUSH APPARATUS

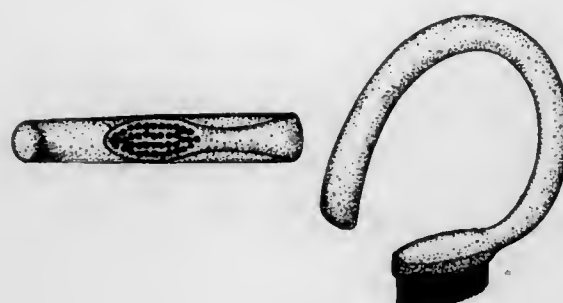
Frank A. Lecce, 28 Buckingham La., West Hartford, Conn. 06117

Filed Oct. 14, 1997, Ser. No. 77,829

Term of patent 14 years

LOC (6) Cl. 04 - 02

U.S. Cl. D4—110



397,872

TOOTHBRUSH

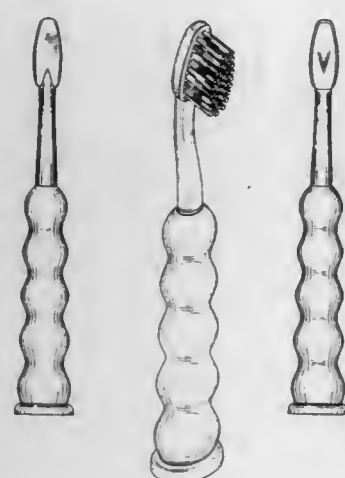
Robert Moskovich, East Brunswick, N.J.; Eyal Eliav, New York, N.Y.; Eric Chan, New York, N.Y.; Jeffrey Miller, New York, N.Y., and Yoon Ho Choi, New York, N.Y., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Apr. 7, 1997, Ser. No. 68,430

Term of patent 14 years

LOC (6) Cl. 04 - 02

U.S. Cl. D4—104



397,874

COVERING FABRIC FOR PAINTING ROLLERS

Hansgerd Lölgen, Grefrath, Germany, assignor to Girmes GmbH, Germany

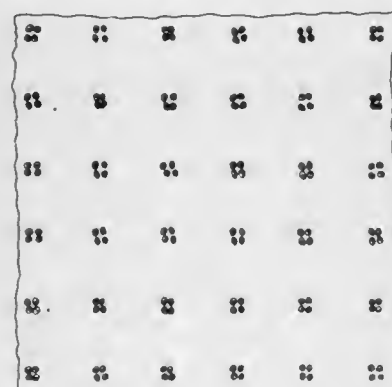
Filed Oct. 29, 1996, Ser. No. 61,712

Claims priority, application WIPO, Apr. 29, 1996, DM/036273

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D4—122



397,875

PET HAIR CARPET RAKE APPARATUS

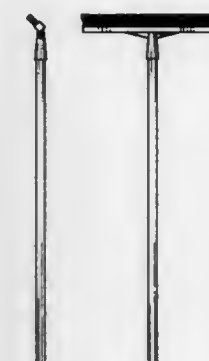
Michael W. Barrett, P.O. Box 253, Bristol, Vt. 05443

Filed Sep. 19, 1997, Ser. No. 76,786

Term of patent 14 years

LOC (6) Cl. 04 - 01

U.S. Cl. D4—132



397,877

WALL-MOUNTED DISPLAY FOR TICKET STUBS

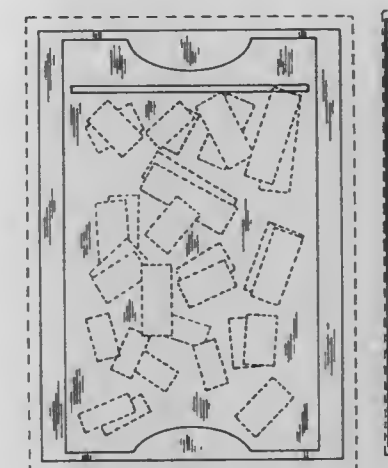
Katherine Kilpatrick, P.O. Box 424, Goldston, N.C. 27252

Filed Nov. 29, 1996, Ser. No. 63,173

Term of patent 14 years

LOC (6) Cl. 06 - 07

U.S. Cl. D6—303



397,876

PHOTO/PICTURE FRAME

Chi Fai Tsui, Hong Kong, Hong Kong, assignor to Magnum Industries Limited, Kowloon, Hong Kong

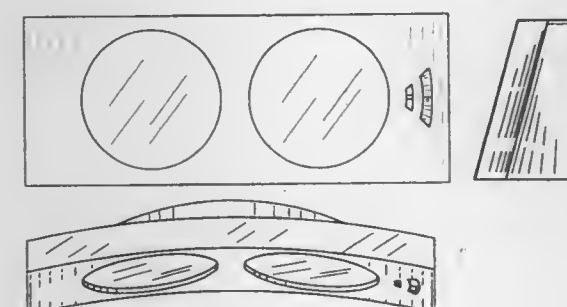
Filed Mar. 17, 1997, Ser. No. 68,027

Claims priority, application Hong Kong, Oct. 3, 1996, 2059823

Term of patent 14 years

LOC (6) Cl. 06 - 07

U.S. Cl. D6—301



397,878

CUSHION SEAT FOR CHILDREN

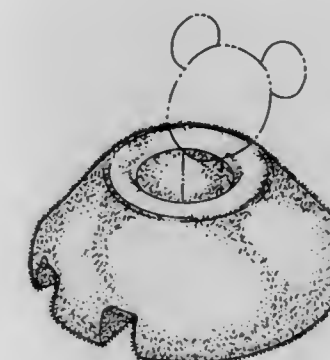
Karen L. Sadler, 3108 W. Glenholly, Anaheim, Calif. 92804

Filed Jul. 18, 1997, Ser. No. 75,157

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—333



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OFFICIAL GAZETTE

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OTTOMAN

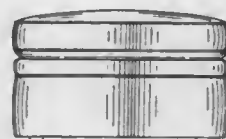
John Hutton, New York, N.Y., assignor to Donghia Furniture Co., Ltd., New York, N.Y.

Filed Jan. 10, 1997, Ser. No. 64,776

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—349

397,881
MASTER BED FRAME

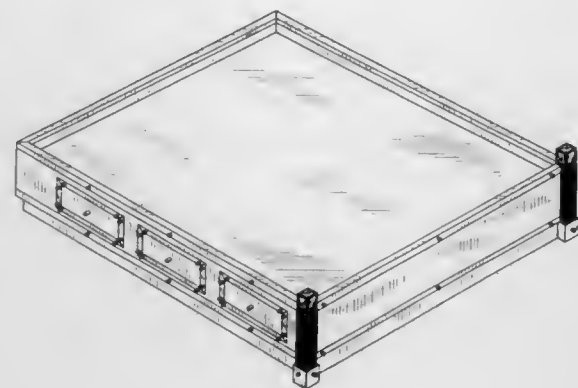
Alinur Velidedeoglu, 641 E. 51st St. #49 B, New York, N.Y. 10022, and Haluk Velidedeoglu, 13-11 Fairclough Pl., Fair Lawn, N.J. 07410

Filed Oct. 6, 1997, Ser. No. 78,160

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—384

397,880
STACKABLE CHAIR

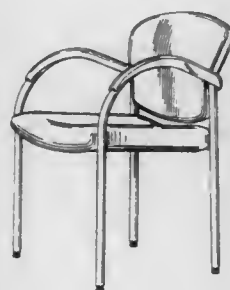
Gregory Mark Saul, Charlotte, N.C., assignor to Allsteel Inc., Aurora, Ill.

Filed Jun. 2, 1997, Ser. No. 71,724

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—380

397,882
COLLAPSIBLE BABY BED

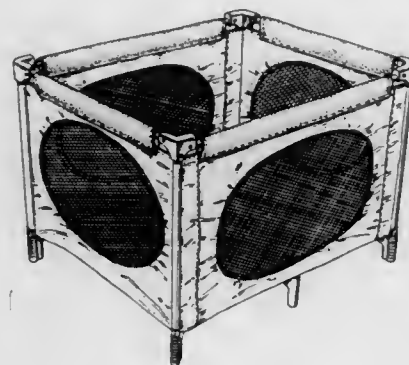
Sung-Tsun Wu, 8F-1, No. 249, Chung Ching Road, Pan Chiao City, Taipei Hsien, Taiwan

Filed Apr. 1, 1997, Ser. No. 69,678

Term of patent 14 years

LOC (6) Cl. 06 - 01

U.S. Cl. D6—391



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2303

397,883
MULTIMEDIA STACKER RACK

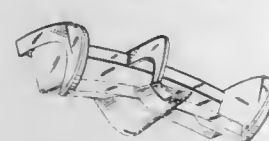
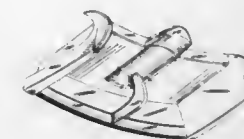
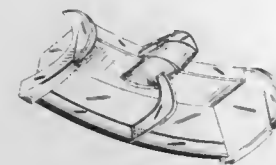
Steven A. Gelpman, San Jose; Christopher G. Palmer, and Peter J. Palmer, both of Saratoga, all of Calif., assignors to Creative Point, Inc., Fremont, Calif.

Filed Oct. 3, 1997, Ser. No. 77,511

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—407

397,885
DISPLAY CASE FOR PHOTOGRAPHS AND CARDS
RESEMBLING A BASEBALL BAT

Guy Reed, 7105 Glen Echo Pl., Louisville, Ky. 40258

Filed Oct. 15, 1997, Ser. No. 77,788

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—434

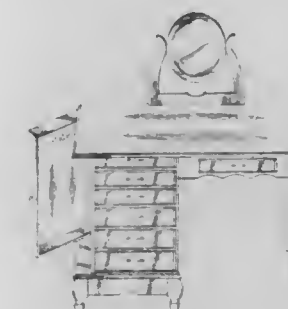
397,886
VANITY WITH JEWELRY STORAGE
Lawrence Powell, Culver City, Calif., assignor to L. Powell Co., Inc., Culver City, Calif.

Filed Apr. 3, 1997, Ser. No. 69,348

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—444

397,884
TELEPHONE ENCLOSURE

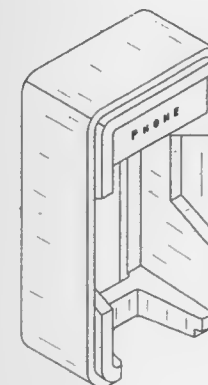
Michael John Banach, 1 White Oaks Dr., Corning, N.Y. 14830

Filed Dec. 5, 1996, Ser. No. 65,676

Term of patent 14 years

LOC (6) Cl. 25 - 03

U.S. Cl. D6—421



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,887

DISPLAY STAND

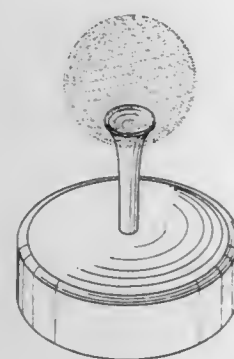
Randy L. Hawkersmith, 204 N. Washington St., Tullahoma, Tenn. 37388

Filed Oct. 10, 1996, Ser. No. 60,905

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—457



397,889

CHAIR ARM REST

William S. Stumpf, Waterloo, Canada, assignor to Northfield Metal Products Ltd., Waterloo, Canada

Filed Jul. 16, 1997, Ser. No. 73,727

Term of patent 14 years

LOC (6) Cl. 06 - 06

U.S. Cl. D6—501



397,888

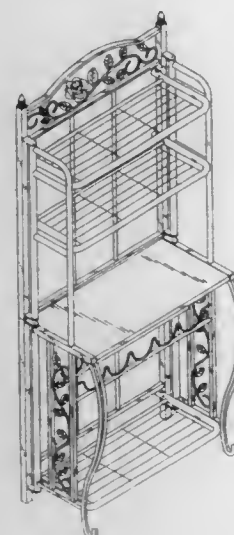
ARTICLE ORGANIZING SHELF

Shih-Chin Teng, No. 58, Sec. 1, Shenlin Road, Taya Hsiang, Taichung Hsien, Taiwan

Filed Oct. 18, 1995, Ser. No. 45,371

Term of patent 14 years

U.S. Cl. D6—464



397,890

SPORTS SOCK STORAGE AND DISPENSING UNIT

Victor M Kraft, 3260 Bank Rd., Kamloops, BC, Canada, V2B 7A1

Filed Apr. 24, 1997, Ser. No. 69,906

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D6—515



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

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397,891

TOILET TISSUE COVER

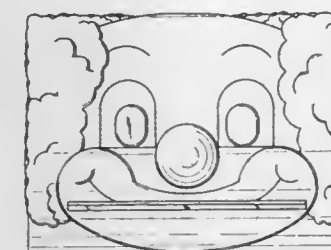
Robert D. Thompson, 526 Calle Capistrano, San Marcos, Calif. 92069-8300

Filed Aug. 21, 1997, Ser. No. 75,569

Term of patent 14 years

LOC (6) Cl. 06 - 02

U.S. Cl. D6—523



397,893

BABY DIAPER CHANGING STATION

John A. Helmsderfer, 2151 Luray Ave., Cincinnati, Ohio 45206

Continuation-in-part of Ser. No. 61,345, Oct. 22, 1996, Pat.

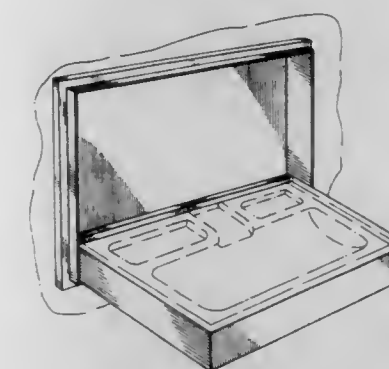
No. Des. 391,794, and a continuation of Ser. No. 730,373, Oct.

15, 1996. This application Dec. 4, 1997, Ser. No. 80,557

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D6—555



397,892

WALL-MOUNTED FOLDING BICYCLE RACK

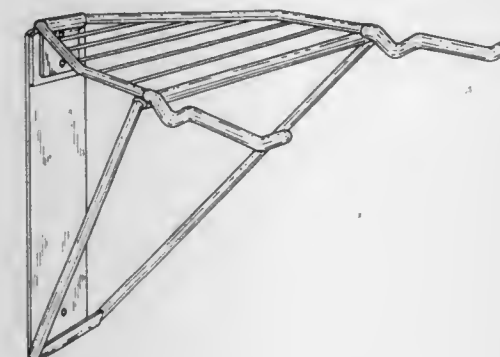
Kevin B. Shaha, Laclede, Id., assignor to Racor, Inc., Sandpoint, Id.

Filed Sep. 26, 1997, Ser. No. 77,419

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D6—552



397,894

DOLL DISPLAY CASE

Patti C. Ballone, 6071 S. Oyama Dr., Tucson, Ariz. 85746

Filed Jun. 17, 1996, Ser. No. 55,932

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—559



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,895

BATHROOM CABINET

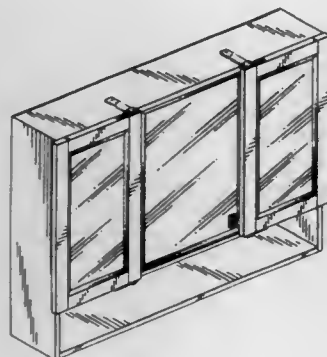
Joe Chen, 30 Bedminster Rd., Randolph, N.J. 07869

Filed Sep. 5, 1997, Ser. No. 76,238

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—561



397,897

GOLF BALL DISPLAY RACK

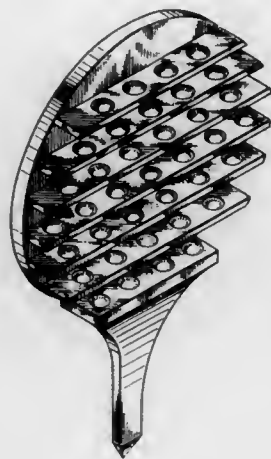
Ronald W. Tipton, 4837 St. Claude, New Orleans, La. 70117

Filed May 5, 1997, Ser. No. 70,281

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—571



397,898

SPICE RACK

Andrea Walters-Dowding, Dresden, Ohio, and Durward L. Staten, Mountain View, Ark., assignors to The Longaberger Company, Newark, Ohio

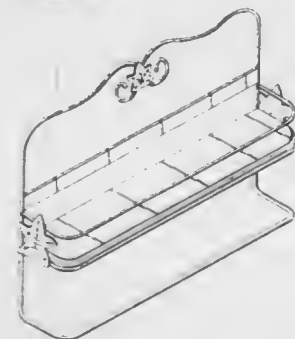
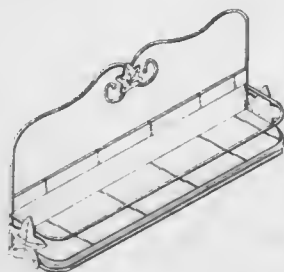
Continuation-in-part of Ser. No. 69,526, Apr. 24, 1997, which is a continuation-in-part of Ser. No. 69,271, Mar. 24, 1997.

This application Jul. 28, 1997, Ser. No. 75,904

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—574



397,896

BATHROOM CABINET

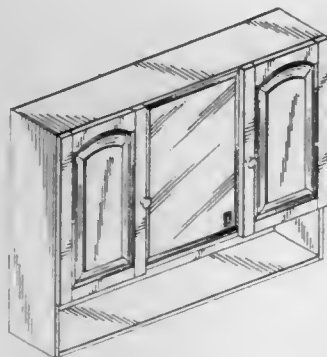
Joe Chen, 30 Bedminster Rd., Randolph, N.J. 07869

Filed Sep. 5, 1997, Ser. No. 76,245

Term of patent 14 years

LOC (6) Cl. 06 - 04

U.S. Cl. D6—561



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2307

397,899

SHOWER CURTAIN

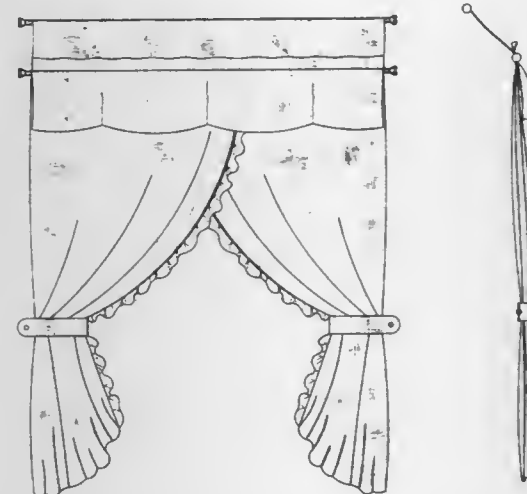
Mabel Velazquez-Crespo, P.O. Box 343070, Florida City, Fla. 10009 Sharon Williams, 1300 S. Farmview Dr., #D34, Dover, Del. 19904

Filed Nov. 30, 1995, Ser. No. 47,262

Term of patent 14 years

LOC (6) Cl. 06 - 10

U.S. Cl. D6—578



397,901

PILLOW

Filed Oct. 31, 1997, Ser. No. 78,800

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—599



397,900

ANIMAL PILLOW WITH POUCH

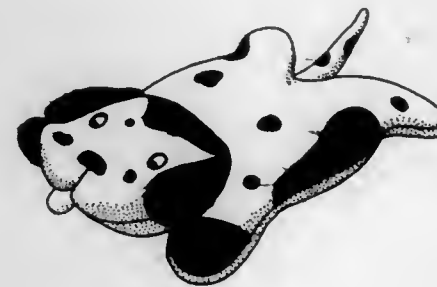
Milt Besen, 275 E. 10th Ave., Hialeah, Fla. 33010

Filed Jul. 1, 1997, Ser. No. 73,138

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—598



397,902

ACTIVITY PILLOW

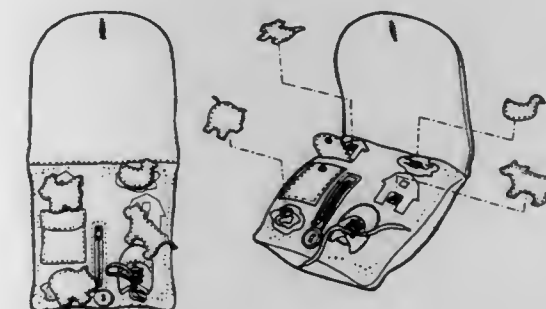
Nathan S. Knorrek, 1311 3rd St. Box 683, Orion, Ill. 61273

Filed Oct. 9, 1997, Ser. No. 77,834

Term of patent 14 years

LOC (6) Cl. 06 - 09

U.S. Cl. D6—601



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397,903

DOUBLE COLUMN STORAGE TOWER

Shahriar Dardashti, c/o Atlantic Representations, Inc., P.O.
Box 2399, Santa Fe Springs, Calif. 90670
Division of Ser. No. 56,860, Jul. 10, 1996, Pat. No. Des.
387,942. This application Jun. 18, 1997, Ser. No. 72,475
Term of patent 14 years

U.S. Cl. D6—630



397,905

THERMOS BOTTLE-CUP FOR USE IN MOTOR VEHICLES

Chia-Chang Hsu, Tainan, Taiwan, assignor to Asdak International, Anaheim, Calif.
Filed Oct. 23, 1997, Ser. No. 78,286
Term of patent 14 years
LOC (6) Cl. 07 - 01

U.S. Cl. D7—317

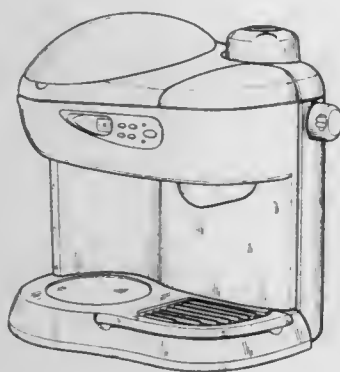


397,904

DRIP COFFEE MAKER

Giuseppe De' Longhi, Treviso, Italy, assignor to De'Longhi S.p.A., Treviso, Italy
Filed May 9, 1997, Ser. No. 70,509
Term of patent 14 years
LOC (6) Cl. 07 - 01

U.S. Cl. D7—309

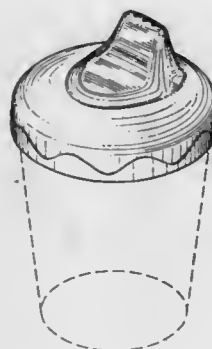


397,906

DRINKING CUP TOP

Jerald E. Briggs, Hanover Park, Ill.; Rebecca J. Bachman, Fremont, and Paul D. Hurley, Holland, both of Mich., assignors to Gerber Products Company, Fremont, Mich.
Filed Oct. 14, 1997, Ser. No. 77,961
Term of patent 14 years
LOC (6) Cl. 07 - 99

U.S. Cl. D7—392.1

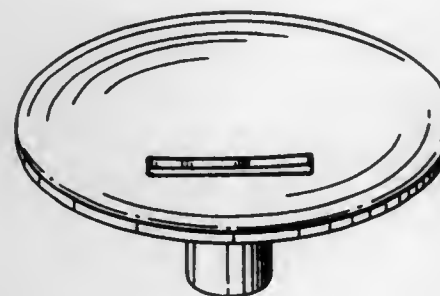


397,907

KNOB FOR A COOKWARE LID

Paul Dodane, B.P. 10, 25490 Fesch-Le-Chatel, France
Filed Sep. 4, 1996, Ser. No. 59,174
Claims priority, application France, Mar. 4, 1996, 961459
Term of patent 14 years
LOC (6) Cl. 07 - 02

U.S. Cl. D7—393

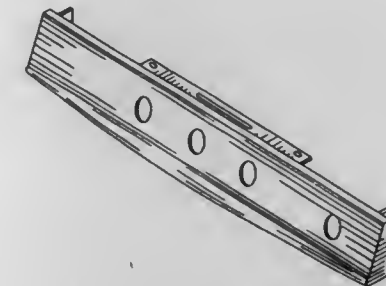


397,909

RANGE CONTROL PANEL

Walter M. Ashcraft, Schaumburg, Ill.; David Steele, Beloit, Wis.; Kenneth R. Parker, and Jonathan P. Van Dore, both of Minneapolis, Minn., assignors to Atwood Industries, Inc., Rockford, Ill.
Filed Mar. 19, 1997, Ser. No. 68,040
Term of patent 14 years
LOC (6) Cl. 07 - 02

U.S. Cl. D7—405



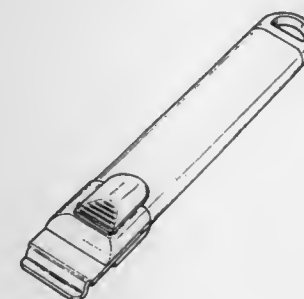
397,908

REMOVABLE HANDLE

Paul Dodane, Fesch-Le-Chatel, France, assignor to DJA Cristel, France
Filed Jun. 17, 1997, Ser. No. 72,338
Claims priority, application WIPO, Dec. 18, 1996, DM/038559

Term of patent 14 years
LOC (6) Cl. 07 - 02

U.S. Cl. D7—395



397,910

SET OF GAS TUBES FOR GAS BARBEQUE GRILLS

Armand J. Murphy, Salem, Ala., assignor to W. C. Bradley Company, Columbus, Ga.
Filed Jun. 18, 1997, Ser. No. 72,478
Term of patent 14 years
LOC (6) Cl. 07 - 02

U.S. Cl. D7—407



397,911

COMBINED BEVERAGE AND SNACK HOLDER

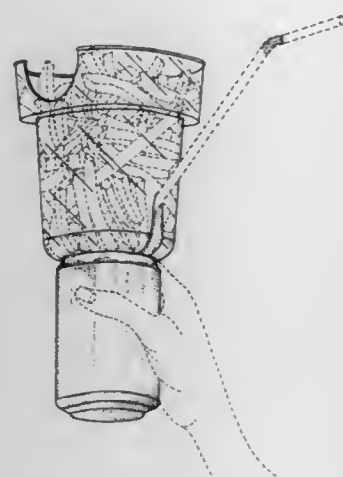
Herbert Waldmann, 460 E. 79th St., New York, N.Y. 10021

Filed Nov. 17, 1997, Ser. No. 79,435

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—507



397,913

ICE BALL DISPENSER

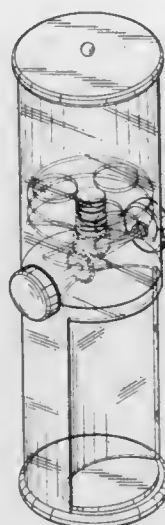
Rachid Miliani, Kimwiede 363, 1353 Er Almere, Netherlands

Filed Mar. 14, 1997, Ser. No. 67,822

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—589



397,912

BEVERAGE MUG

John G. Goessling, Jr., County of St. Louis, Mo., assignor to Quick Point, Inc., Fenton, Mo.

Filed May 23, 1997, Ser. No. 71,206

Term of patent 14 years

LOC (6) Cl. 07 - 01

U.S. Cl. D7—536



397,914

PIZZA CONTAINER

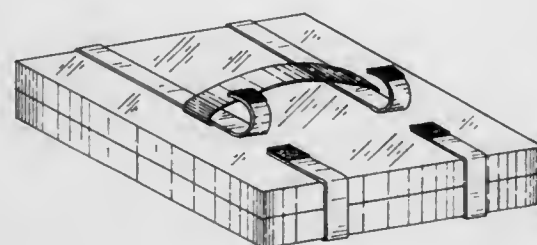
A. B. Cooper, Jr., 117 E. Fort Macon Blvd. #4, Atlantic Beach, N.C. 28512

Filed Nov. 13, 1997, Ser. No. 79,421

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—607



397,915

ADAPTABLE BEVERAGE HOLDER

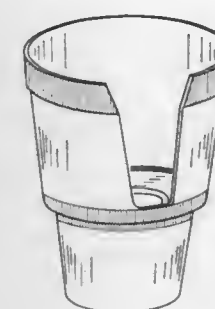
Patrick J. McNaughton, 2550 Medicine Ridge Rd., Minneapolis, Minn. 55441

Filed Jul. 22, 1997, Ser. No. 75,481

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—619



397,917

SPOON

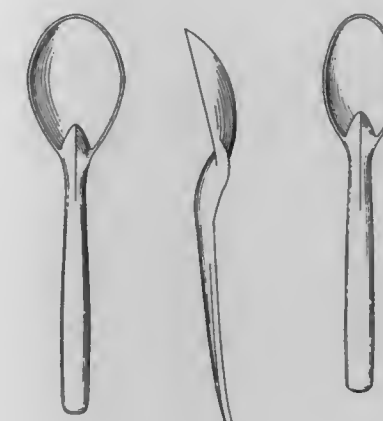
Hubert Gagnon, 308, rue du Grand-Hunier, Saint-Augustin-de-Desmaures, Quebec, Canada, G3A 2J1, and Aldo Balatti, 382, rue du Cantonier, Saint-Augustin-de-Desmaures, Quebec, Canada, G3A 1N4

Division of Ser. No. 52,939, Apr. 10, 1996, Pat. No. Des. 385,159. This application Dec. 9, 1996, Ser. No. 63,421

Term of patent 14 years

LOC (6) Cl. 07 - 03

U.S. Cl. D7—653



397,918

CORN BUTTERING TOOL

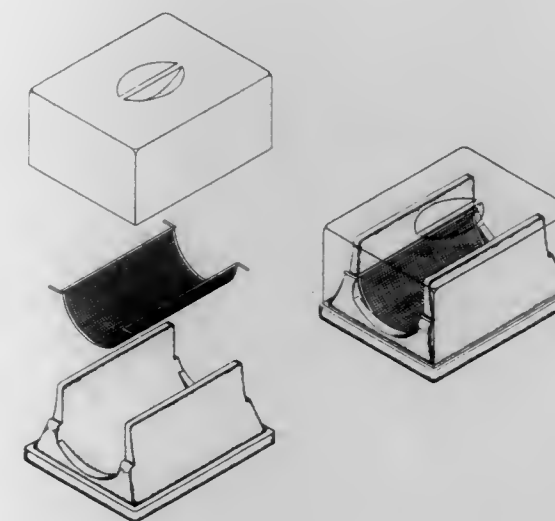
Zoran Martinovic, 120 Wooster St., Apt. #P, New Haven, Conn. 06511

Filed Aug. 26, 1997, Ser. No. 75,825

Term of patent 14 years

LOC (6) Cl. 07 - 04

U.S. Cl. D7—670



397,916

CUTLERY BLOCK WITH SPICE JAR OPENINGS

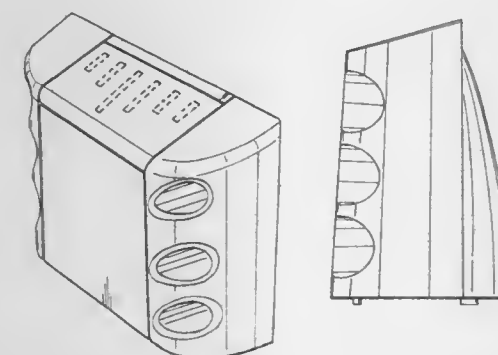
Bruce E. Ancona, New York, and Jose Suero, Jr., Astoria, both of N.Y., assignors to Ekco Housewares, Inc., Franklin Park, Ill.

Filed Aug. 11, 1997, Ser. No. 77,028

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D7—638



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GRATING MILL

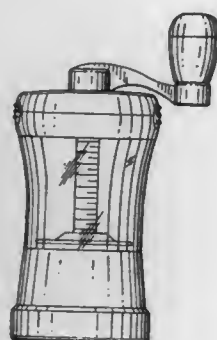
Terance Chi Ping Chiu, Hong Kong, Hong Kong, assignor to Carsten Joergensen, Kriens, Switzerland, assignor to P1-Design
Forexim (H.K.) Limited, Kowloon, Hong Kong
AG, Triengen, Switzerland

Filed Sep. 18, 1996, Ser. No. 59,933

Term of patent 14 years

LOC (6) Cl. 07 - 04

U.S. Cl. D7—679



397,921

POTATO PEELER

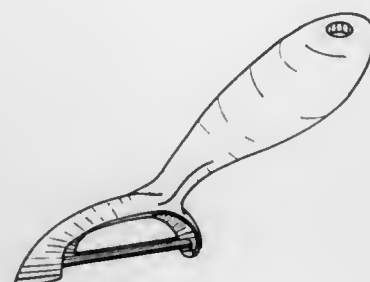
Carsten Joergensen, Kriens, Switzerland, assignor to P1-Design
AG, Triengen, Switzerland

Filed Jun. 30, 1997, Ser. No. 75,724

Term of patent 14 years

LOC (6) Cl. 07 - 06

U.S. Cl. D7—695



397,922

FOIL CUTTER

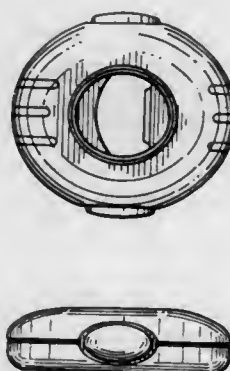
Leslie Alexander Gort-Barten, London, England, assignor to
Dualit Limited, London, England

Filed Aug. 15, 1997, Ser. No. 75,034

Term of patent 14 years

LOC (6) Cl. 07 - 99

U.S. Cl. D8—41



397,920

PADDLE SCRAPER

Stig Lillelund, Gentofte; Jakob Heiberg, Charlottenlund, and
Hanne Dalsgaard Jeppesen, Holte, all of Denmark, assignors
to Dart Industries Inc., Orlando, Fla.

Filed Jul. 14, 1997, Ser. No. 73,484

Term of patent 14 years

LOC (6) Cl. 07 - 02

U.S. Cl. D7—688



397,923

SCISSOR BLADE YOKE FOR POWER SHEARS

Raymond J. Herrmann, Westlake, and Arthur W. Zimmerman,
Bay Village, both of Ohio, assignors to Bettcher Industries,
Inc., Birmingham, Ohio

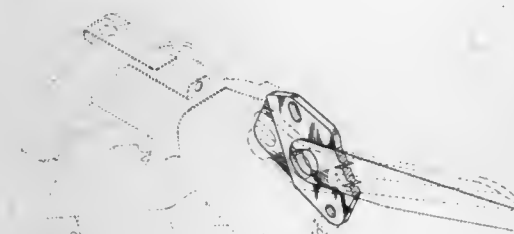
Division of Ser. No. 445,344, May 19, 1995, and a
continuation-in-part of Ser. No. 330,183, Oct. 27, 1994, aban-
doned, which is a division of Ser. No. 132,526, Oct. 6, 1993,
Pat. No. 5,375,330. This application Dec. 12, 1995, Ser. No.

47,777

Term of patent 14 years

LOC (6) Cl. 08 - 03

U.S. Cl. D8—70



397,925

LOCK

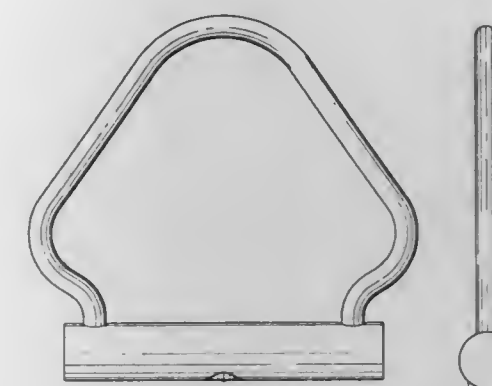
Richard H. Byrd, Jr., 101 Townsend St., Suite 333, San Fran-
cisco, Calif. 94107

Filed Jun. 16, 1995, Ser. No. 40,407

Term of patent 14 years

LOC (6) Cl. 08 - 07

U.S. Cl. D8—334



397,924

DRILL HOLDER

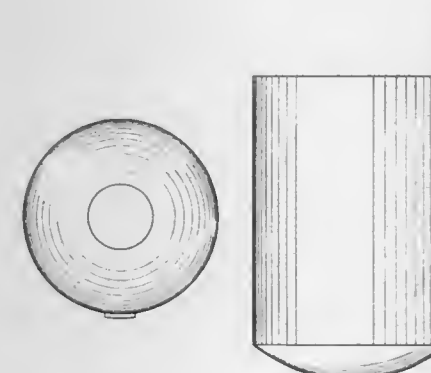
Donald G. Galchutt, Jr., 1021 Meadowbend Dr., Cedar Hill,
Tex. 75104

Filed Aug. 7, 1997, Ser. No. 74,432

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—71



397,926

WALL MOUNTABLE BRACKET

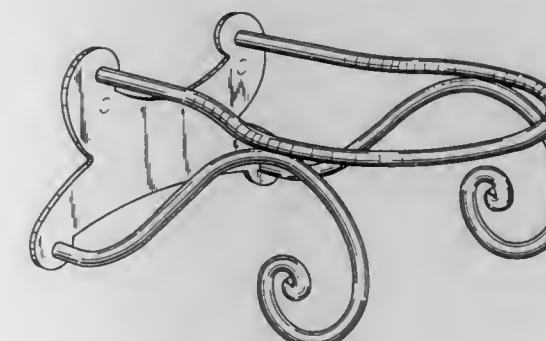
Anna-Pia K. Formgren, Sheboygan, Wis., assignor to Kohler
Co., Kohler, Wis.

Filed Apr. 3, 1997, Ser. No. 69,903

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—363



397,927

PICTURE HANGER

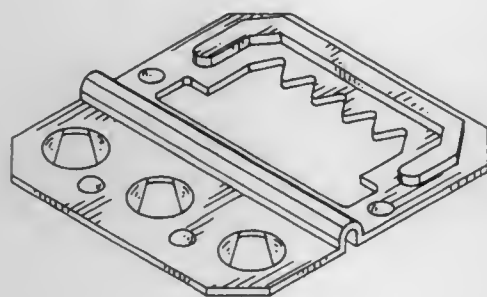
Armand E. Roy, Attleboro, Mass., assignor to Craft, Inc.,
South Attleboro, Mass.

Filed May 30, 1997, Ser. No. 71,535

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—373



397,929

STRIPS OF PLASTIC FASTENING CLIPS FOR THE
FASTENING OF ELECTRICAL WIRES, TUBES AND THE
LIKELars Stridh, Sala, Sweden, assignor to Plasa Fastteknik AB,
Sala, Sweden

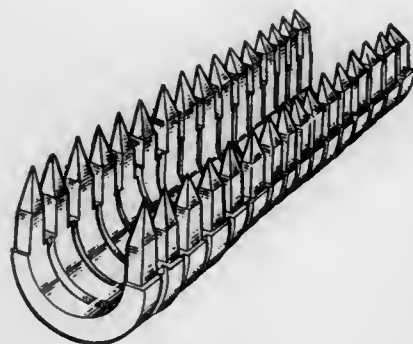
Filed Dec. 9, 1996, Ser. No. 63,475

Claims priority, application Sweden, Jun. 7, 1996, 96-1296

Term of patent 14 years

LOC (6) Cl. 08 - 08

U.S. Cl. D8—390



397,928

CURVED SHOWER CURTAIN ROD

Dick A. Wise, Kingwood, Tex., assignor to Sean Moore, Hous-
ton, Tex.

Filed Oct. 31, 1996, Ser. No. 61,821

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D8—376



397,930

BELLOWS CONTAINER

Masayosi Mazda, No. 70, 3 Chome Ohno-Cho, Kakamihara,
Japan

Continuation-in-part of Ser. No. 25,816, Jun. 30, 1994, Pat.

No. Des. 372,667. This application Aug. 13, 1996, Ser. No.

58,603

Claims priority, application Japan, Apr. 26, 1994, 6-12316

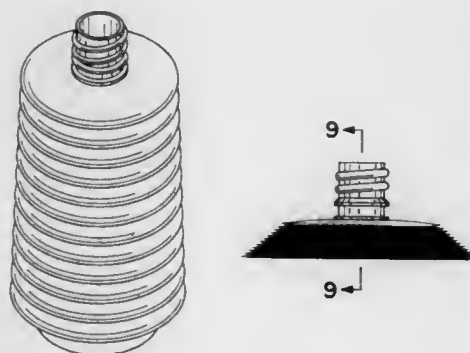
The portion of the term of this patent subsequent to Aug. 13,

2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—301



397,931

BELLOWS CONTAINER

Masayosi Mazda, No. 70, 3 Chome Ohno-Cho Kakamihara,
Gifu 504, Japan

Continuation-in-part of Ser. No. 25,444, Jun. 30, 1994, Pat.

No. Des. 372,669. This application Aug. 13, 1996, Ser. No.

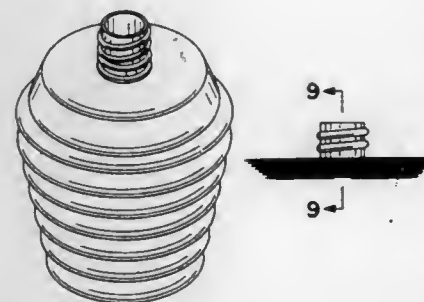
58,604

Claims priority, application Japan, May 10, 1994, 6-13335

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—301



397,932

BELLOWS CONTAINER

Masayosi Mazda, No. 70, 3 Chome Ohno-Cho, Kakamihara,
Japan

Continuation-in-part of Ser. No. 25,816, Jun. 30, 1994, Pat.

No. Des. 372,667. This application Aug. 13, 1996, Ser. No.

58,605

Claims priority, application Japan, Apr. 26, 1994, 6-12316

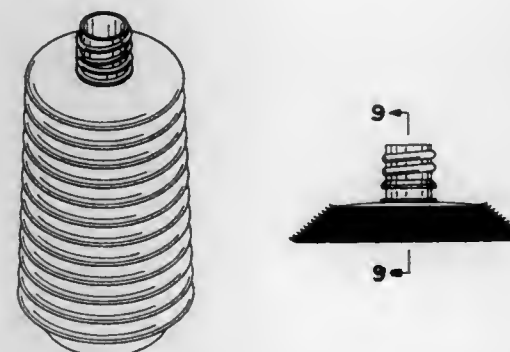
The portion of the term of this patent subsequent to Aug. 13,

2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—301



397,933

BELLOWS CONTAINER

Masayosi Mazda, No. 70, 3 Chome Ohno-Cho, Kakamihara,
Japan

Continuation-in-part of Ser. No. 25,444, Jun. 30, 1994, Pat.

No. Des. 372,669. This application Aug. 13, 1996, Ser. No.

58,638

Claims priority, application Japan, May 10, 1994, 6-13335

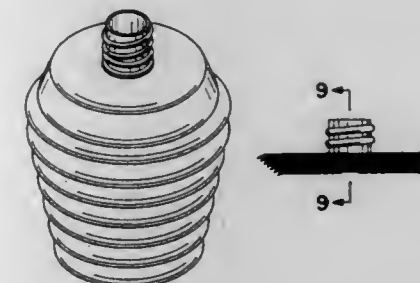
The portion of the term of this patent subsequent to Aug. 13,

2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - 01

U.S. Cl. D9—301



397,934

SAW BLADE CASE

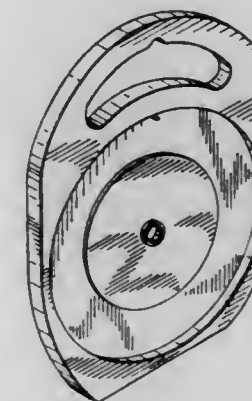
Stefano Giulianelli, Mondolfo, Italy, assignor to CMT Utensili
S.r.l., Chiusa di Ginestreto, Italy

Filed Sep. 17, 1997, Ser. No. 76,818

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—415



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397,935
FOLDED BOX BLANK WITH REMOVABLY ATTACHED
LID BLANK

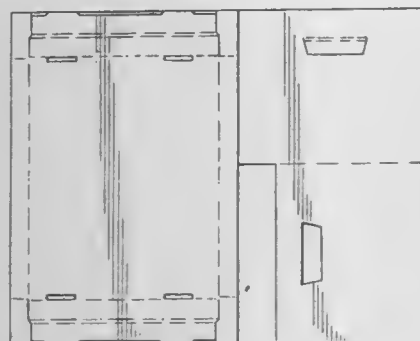
John E. Herbst, Bolingbrook, and Joseph J. Benes, Arlington Heights, both of Ill., assignors to Fellowes Manufacturing Company, Itasca, Ill.

Filed Oct. 7, 1997, Ser. No. 77,679

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—433



397,937
DISPENSER HEAD AND COLLAR

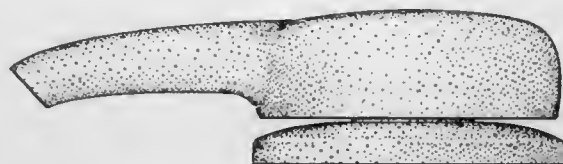
Ronald Wadsworth, Cambria, Calif., assignor to Calmar Inc., City of Industry, Calif.

Filed Jun. 17, 1997, Ser. No. 73,329

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—448



397,936
CAN COVER

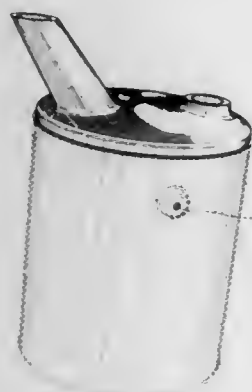
Michael E. Richard, and Terrence J. Richard, both of P.O. Box 475 Shediac, New Brunswick, Canada, E0A 3G0

Filed Oct. 8, 1997, Ser. No. 77,647

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—447



397,938
COVER

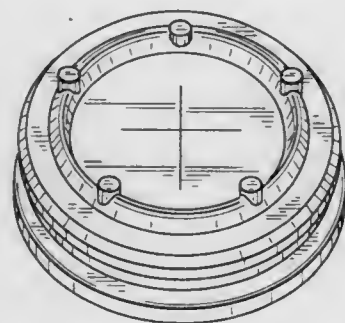
Hugh William Graham, Gurnee; Steve Herchenbach, Gray-slake; Linas P. Laurusonis, Gurnee, all of Ill.; Scott G. Safar, Pleasant Prairie, Wis., and David H. Satchell, Libertyville, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed May 22, 1997, Ser. No. 71,163

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—454



397,939
BOTTLE CAP

Rolf Hering, Dörfleser Anger 21, D-96317 Kronach, Germany Division of Ser. No. 62,566, Nov. 18, 1996, abandoned. This application Jun. 2, 1997, Ser. No. 71,555

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—454



397,940
BOTTLE HOLDER

Gordgi Safarian, Phoenix, Ariz., assignor to Bendal Enterprises Inc., Glendale, Ariz.

Filed Mar. 19, 1997, Ser. No. 68,036

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—455



397,941
COMBINED BOTTLE AND CAP

Edward Lanth, State College, Pa., assignor to AquaPenn Spring Water Company, Milesburg, Pa.

Filed May 9, 1997, Ser. No. 70,515

The portion of the term of this patent subsequent to Feb. 24, 2012, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—502



397,942
WATER CONTAINER

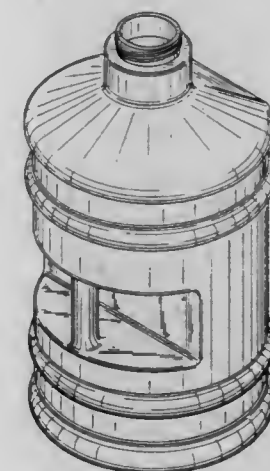
Richard W. Lewis, McKeessville, Pa., assignor to Pure-Fill Corporation, Modesto, Calif.

Filed Sep. 28, 1995, Ser. No. 44,641

Term of patent 14 years

LOC (6) Cl. 09 - 07

U.S. Cl. D9—531



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397,943

TRAVEL ALARM CLOCK

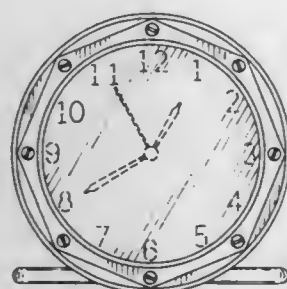
Frederick N. Levinger, Providence, R.I., assignor to Colibri Corporation, Providence, R.I.

Filed Oct. 2, 1997, Ser. No. 77,336

Term of patent 14 years

LOC (6) Cl. 10 - 01

U.S. Cl. D10—18



397,945

WATCH CASE

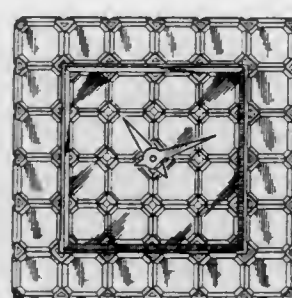
Fawaz Gruosi, Prangins, Switzerland, assignor to de Grisogono S.A., Geneva, Switzerland

Filed Oct. 24, 1997, Ser. No. 78,455

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—39



397,946

PLUMB-LEVEL

Guy E. Craft, 112 Industry La., Uniontown, Pa. 15401

Filed Oct. 17, 1997, Ser. No. 77,980

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—62



397,944

WRISTWATCH

Giovanni Bulgari, Rome, Italy, assignor to Gianni Bulgari S.p.A., Rome, Italy

Filed Aug. 8, 1997, Ser. No. 75,207

Claims priority, application Hague Agreement, Apr. 8, 1997, DMA/003677

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—39



397,947

GLOBAL POSITIONING SYSTEM RECEIVER WITH OFFSET SHAPE

Dale Akeley, Yarmouth, Me.; Terry Dawson, Costa Mesa, and Thomas Arnold, Aliso Viejo, both of Calif., assignors to DeLorme Publishing Co., Yarmouth, Me.

Filed Sep. 24, 1997, Ser. No. 76,875

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—65



397,949

TAPE MEASURE WITH PENCIL SHARPENING DEVICE

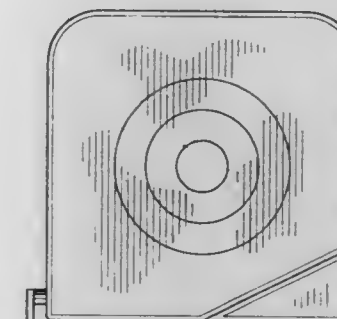
Adrian P. Azzopardi, R.R. #1, Georgetown, Ontario, Canada, L7G 4S4

Filed Sep. 30, 1997, Ser. No. 77,339

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—72



397,948

DRILL LEVEL ATTACHMENT

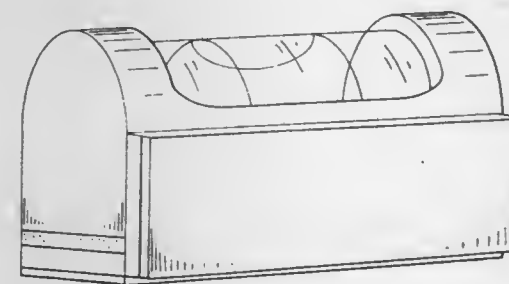
Max Bowen, 3063 Madeira Ave., Costa Mesa, Calif. 92626

Filed Oct. 31, 1997, Ser. No. 78,821

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—69



397,950

TAPE MEASURE HOUSING

William Cecil Blackman, Raleigh; Michael Joseph Bobay, Holly Springs; Edgar Thomas Gilliam, Franklinton, and John Bradley Moody, Raleigh, all of N.C., assignors to Cooper Industries Inc., Houston, Tex.

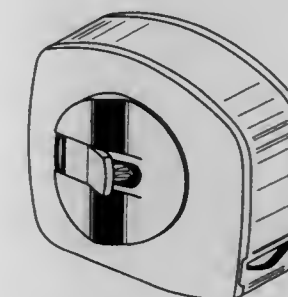
Division of Ser. No. 906,034, Aug. 5, 1997. This application

Oct. 14, 1997, Ser. No. 77,920

Term of patent 14 years

LOC (6) Cl. 10 - 04

U.S. Cl. D10—72



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,951

FRONT FACE OF A WATCH/CLOCK DIAL

Qin Gang, 63 Grays Inn Rd., London WC1X 8TL, United Kingdom

Filed Apr. 22, 1996, Ser. No. 53,444

Claims priority, application United Kingdom, Oct. 24, 1995, 2051367; Dec. 20, 1995, 2052891

Term of patent 14 years

LOC (6) Cl. 10 - 01

U.S. Cl. D10—122



397,953

BRACELET

Kea Chee Tong, Singapore, Singapore, assignor to Vehonia International Pte Ltd., Singapore, Singapore

Filed Nov. 27, 1996, Ser. No. 63,135

Claims priority, application United Kingdom, May 31, 1996, 2056657

Term of patent 14 years

LOC (6) Cl. 11 - 01

U.S. Cl. D11—6



397,952

PORTION OF A WATCH HOUSING

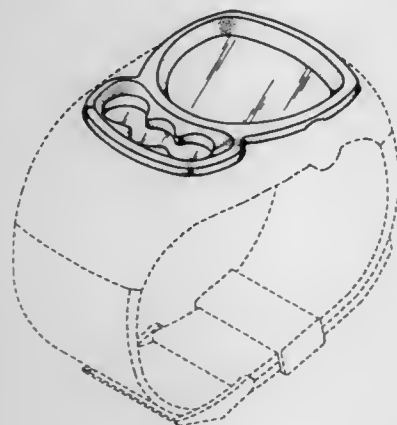
Robert M. Bruce, San Francisco; Brett C. Lovelady, Saratoga, and Kyle N. Swen, Campbell, all of Calif., assignors to NIKE, Inc., Beaverton, Oreg.

Filed Dec. 8, 1997, Ser. No. 79,639

Term of patent 14 years

LOC (6) Cl. 10 - 02

U.S. Cl. D10—128



397,954

GEMSTONE

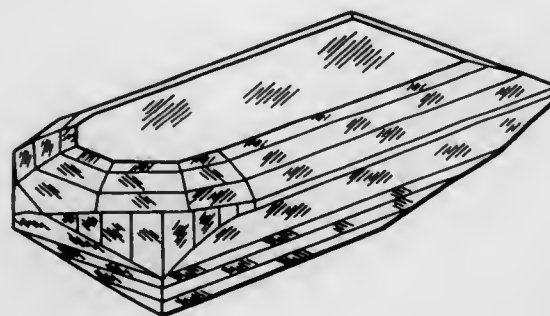
Betzalel Ambar, 15824 Woodvale Rd., Encino, Calif. 91436

Filed Apr. 10, 1997, Ser. No. 68,924

Term of patent 14 years

LOC (6) Cl. 11 - 01

U.S. Cl. D11—90



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2321

397,955

TURKEY DECORATION

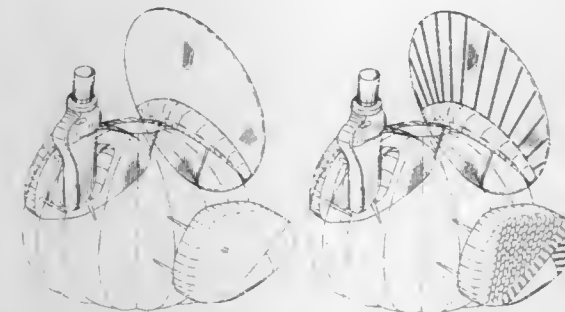
Cheryl Ann Schmidt, 544 12th Ave., New Brighton, Pa. 15066

Filed Jun. 18, 1997, Ser. No. 72,482

Term of patent 14 years

LOC (6) Cl. 11 - 05

U.S. Cl. D11—121



397,957

SANTA CLAUS ORNAMENT

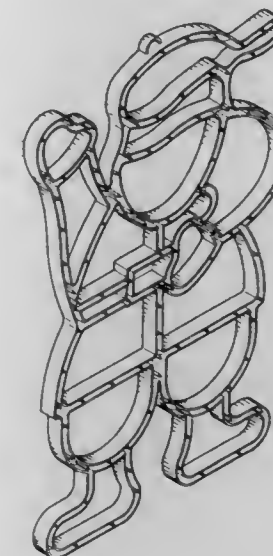
Wei-Min Lee, 3F, No. 216, Tun Hua S. Rd., Sec. 2, Taipei, Taiwan

Filed Aug. 17, 1997, Ser. No. 75,306

Term of patent 14 years

LOC (6) Cl. 11 - 05

U.S. Cl. D11—121



397,956

TREE ORNAMENT

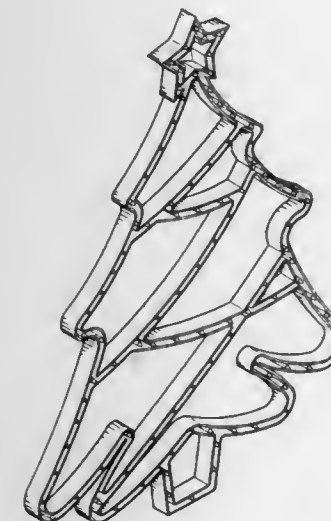
Wei-Min Lee, 3F, No. 216, Tun Hua S. Rd., Sec. 2, Taipei, Taiwan

Filed Aug. 17, 1997, Ser. No. 75,305

Term of patent 14 years

LOC (6) Cl. 11 - 05

U.S. Cl. D11—121



397,958

WATERFALL PLANTER

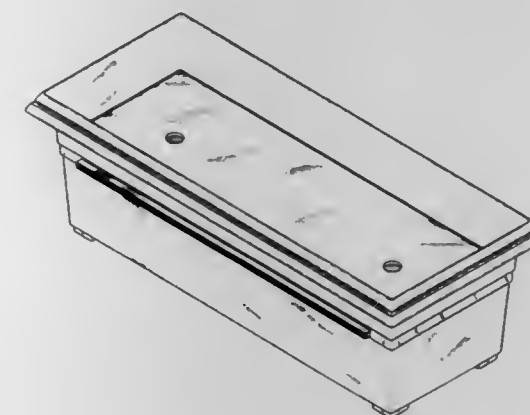
Douglas Ruthenberg, 10453 Tillery Rd., Spring Hill, Fla. 34608

Filed May 29, 1997, Ser. No. 71,398

Term of patent 14 years

LOC (6) Cl. 11 - 02

U.S. Cl. D11—156



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,959

SLIDE FASTENER SLIDER

Ichiro Terasaki, Uozu; Hisashi Yoneshima, Shimoniikawa-gun, and Koji Yamagishi, Namerikawa, all of Japan, assignors to YKK Corporation, Tokyo, Japan

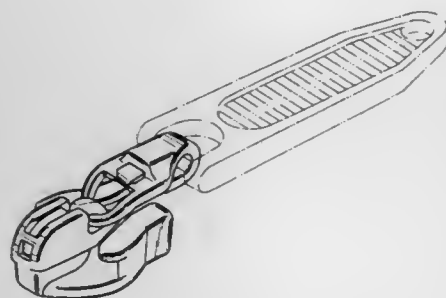
Filed Sep. 12, 1997, Ser. No. 76,539

Claims priority, application Japan, Mar. 13, 1997, 9-7281

Term of patent 14 years

LOC (6) Cl. 02 - 07

U.S. Cl. D11—221



397,961

AUTOMOBILE BODY

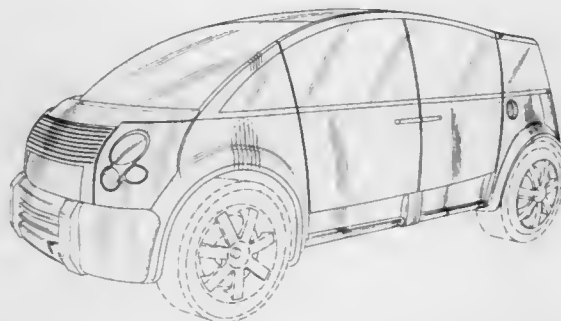
J. Carroll Mays, Woodland Hills, Calif.; Carolyn Lantz, Scottsdale, Ariz.; Laurens van den Acker, Ventura, and David Morris, Thousand Oaks, both of Calif., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed May 16, 1997, Ser. No. 71,047

Term of patent 14 years

LOC (6) Cl. 12 - 08

U.S. Cl. D12—91



397,960

INTERCHANGEABLE BUTTON

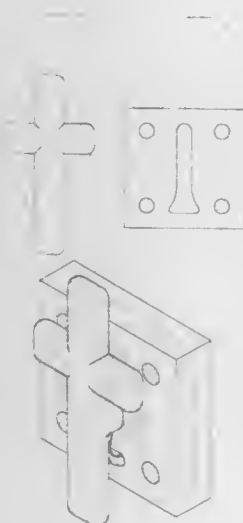
Danny R. Brown, 10459 Artesia BL 50C, Bellflower, Calif. 90706

Filed Aug. 29, 1997, Ser. No. 76,023

Term of patent 14 years

LOC (6) Cl. 02 - 07

U.S. Cl. D11—222



397,962

AUTOMOBILE

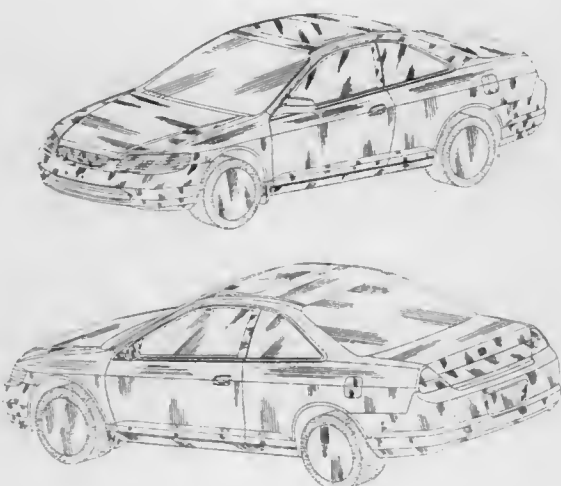
Don Herner, Rancho Palos Verdes; Eric Schumaker, and William Yex, both of Redondo Beach, all of Calif., assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 23, 1997, Ser. No. 69,018

Term of patent 14 years

LOC (6) Cl. 12 - 08

U.S. Cl. D12—92



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2323

397,963

VEHICLE ROOF PANEL SECTION INTERIOR SURFACE

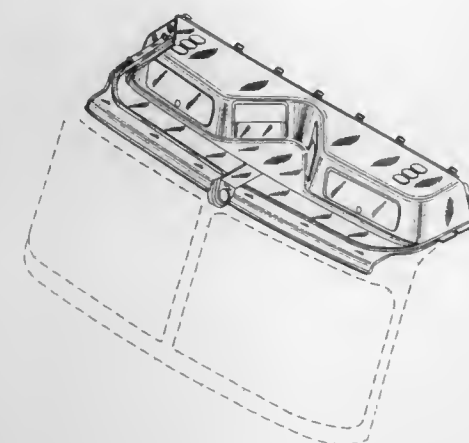
Mark S. Hurayt, Aloha, and Christopher J. Jory, Portland, both of Oreg., assignors to Freightliner Corporation, Portland, Oreg.

Filed Apr. 9, 1996, Ser. No. 52,803

Term of patent 14 years

LOC (6) Cl. 12 - 08

U.S. Cl. D12—96



397,965

BICYCLE STABLE BAR SEAT ATTACHMENT KIT

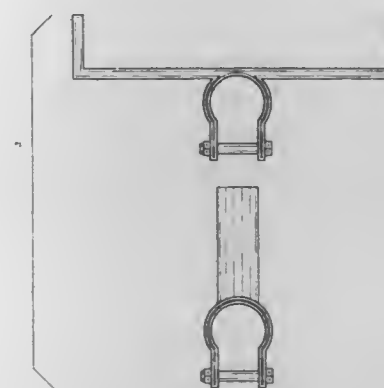
Chuck Ebeyer, 507 Terrehaute, Houma, La. 70864

Filed May 2, 1997, Ser. No. 70,229

Term of patent 14 years

LOC (6) Cl. 12 - 11

U.S. Cl. D12—114



397,964

TRICYCLE

Mamie J. Bratton, 1333 Lakedell Dr., Charlotte, N.C. 28215

Filed Sep. 4, 1997, Ser. No. 75,802

Term of patent 14 years

LOC (6) Cl. 12 - 10

U.S. Cl. D12—108



397,966

SPROCKET WHEEL

Wen-Yao Chang, Changhua, Taiwan, assignor to Chuhn Chuan Corporation, Changhua, Taiwan

Filed Sep. 19, 1997, Ser. No. 76,777

Claims priority, application Taiwan, Apr. 11, 1997, 86302907

Term of patent 14 years

LOC (6) Cl. 12 - 11

U.S. Cl. D12—123



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,967

**POWER UNIT FOR ELECTRIC POWER ASSISTED
VEHICLE**

Hironori Nakayama, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

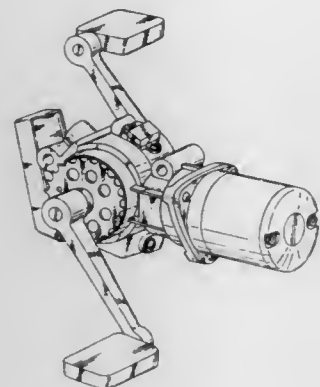
Filed Apr. 21, 1997, Ser. No. 69,495

Claims priority, application Japan, Dec. 2, 1996, 8-36702

Term of patent 14 years

LOC (6) Cl. 12 - 11

U.S. Cl. D12—124



397,969

AUTOMOBILE TIRE

Hidehiko Hino, Amagasaki, Japan, assignor to Sumitomo Rubber Industries, Ltd., Kobe, Japan

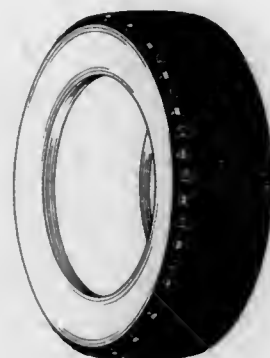
Filed May 19, 1997, Ser. No. 70,780

Claims priority, application Japan, Nov. 21, 1996, 8-35602

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—146



397,970

TIRE TREAD

Phuoc Thuan Le, Attert, and Michel Pierre Charles Robert, Fauvillers, both of Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 7, 1997, Ser. No. 67,265

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147

397,968

FRONT CALIPER COVER WITH GROOVES

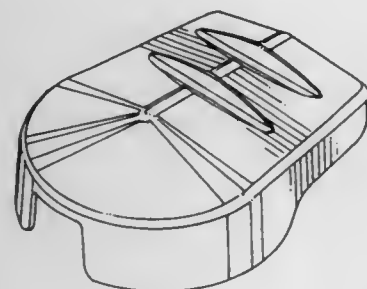
Alwin J. Stahel, New Brighton, Minn., assignor to KuryAkyn Holdings, Inc., Stillwater, Minn.

Filed Aug. 21, 1997, Ser. No. 75,740

Term of patent 14 years

LOC (6) Cl. 12 - 11

U.S. Cl. D12—126



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2325

397,971

AUTOMOBILE TIRE

Hitoshi Horie, Hiratsuka; Hiroshi Tokizaki, Tokyo, and Sadakazu Takei, Hiratsuka, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

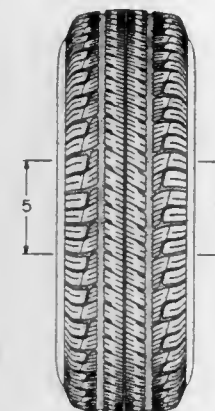
Filed Mar. 24, 1997, Ser. No. 69,073

Claims priority, application Japan, Sep. 25, 1996, 8-28403

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,973

AUTOMOBILE TIRE

Hisaya Morishita, and Junichi Otani, both of Kanagawa-ken, Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

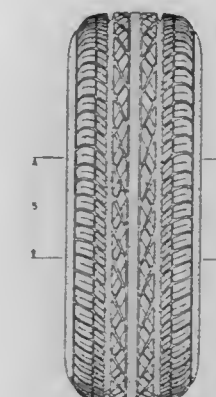
Filed Jun. 3, 1997, Ser. No. 71,597

Claims priority, application Japan, Dec. 19, 1996, 8-38304

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,972

AUTOMOBILE TIRE

Masashi Wakatsuki, Kanagawa-ken, and Hiroshi Tokizaki, Tokyo, both of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

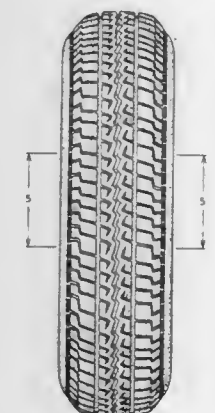
Filed Apr. 29, 1997, Ser. No. 69,564

Claims priority, application Japan, Oct. 31, 1996, 8-32610

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,974

AUTOMOBILE TIRE

Hisaya Morishita; Tetsuya Kuze, both of Kanagawa-ken; Hiroshi Tokizaki, and Izumi Kuramochi, both of Tokyo, all of Japan, assignors to The Yokohama Rubber Co., Ltd., Tokyo, Japan

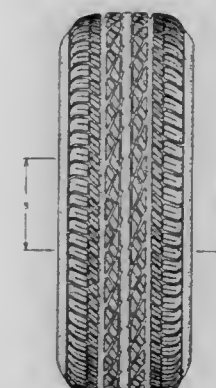
Filed Jun. 3, 1997, Ser. No. 71,598

Claims priority, application Japan, Dec. 19, 1996, 8-38303

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



VOL

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397,975

AUTOMOBILE TIRE

Yasuo Himuro, Tokyo, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

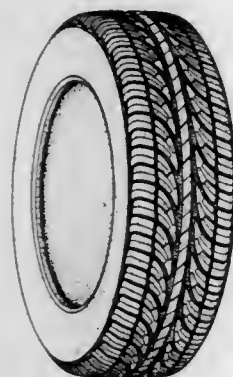
Filed Jun. 20, 1997, Ser. No. 72,638

Claims priority, application Japan, Dec. 24, 1996, 8-38611

Term of patent 14 years

LOC (6) Cl. 12 - 15

U.S. Cl. D12—147



397,977

TRUCK LOWER CONSOLE EXTERIOR SURFACE

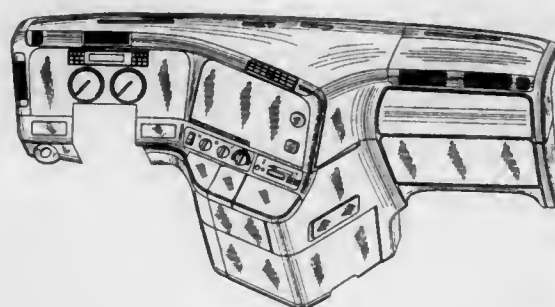
Ferdinand F. Hellhake, Beaverton; Joachim Paschke, Portland, and Mark S. Hurayt, Aloha, all of Oreg., assignors to Freightliner Corporation, Portland, Oreg.

Filed Jul. 1, 1996, Ser. No. 56,560

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—192



397,978

PICKUP TAILGATE

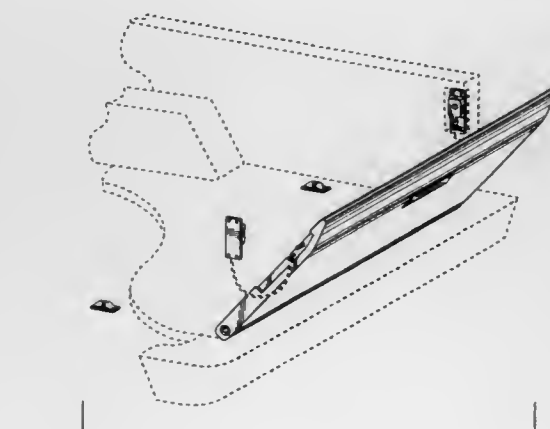
Jay Helgeson, and Eric Helgeson, both of 14 Currie Court, S.E., Medicine Hat, AB, Canada, T1B1R8

Filed Sep. 10, 1996, Ser. No. 59,405

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—196



397,976

REARVIEW MIRROR

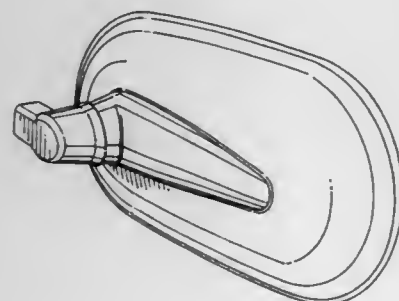
David Otto, Dresser, Wis., assignor to Polaris Industries Inc., Osceola, Wis.

Filed Oct. 8, 1997, Ser. No. 77,655

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—187



397,979

VEHICLE STEP COVERING AND SHOE CLEANING DEVICE

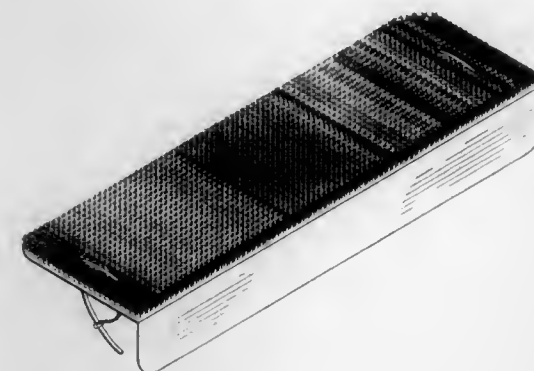
Joseph A. Graneto, III, 2214 Riding Spur, St. Louis, Mo. 63146

Filed Aug. 5, 1996, Ser. No. 57,943

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—203



397,981

VEHICLE-WHEEL FRONT FACE

Murray S. Cullen, Irvine, Calif., assignor to Mobile Hi-Tech Wheels, Torrance, Calif.

Filed Aug. 4, 1997, Ser. No. 74,918

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—209



397,982

GOLF CART WHEEL

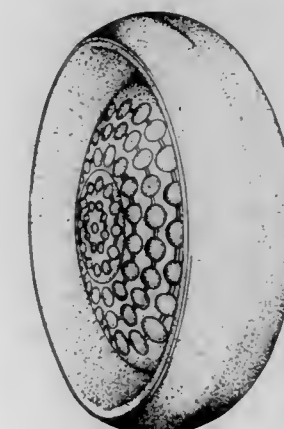
Fang-Li Wu, Tainan Hsien, Taiwan, assignor to Sports World Enterprise Co., Ltd., Tainan Hsien, Taiwan

Filed Mar. 11, 1997, Ser. No. 67,784

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—212



397,980

RUNNING BOARD

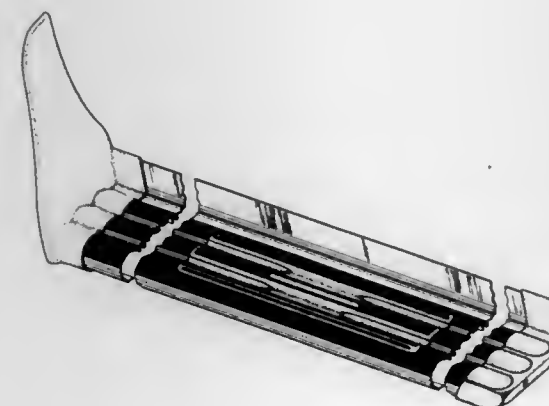
Scott P. Thompson, Longmont, Colo., assignor to DFM Corporation, Longmont, Colo.

Filed Sep. 30, 1997, Ser. No. 77,249

Term of patent 14 years

LOC (6) Cl. 12 - 16

U.S. Cl. D12—203



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

397,983

WHEEL CHOCK MOUNTING PLATE

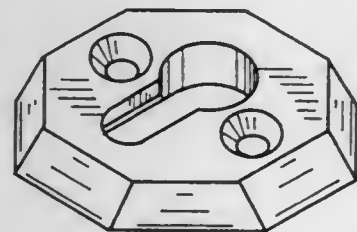
Wayne Pingel, and Donna Pingel, both of Adams, Wis., assignors to Pingel Enterprise, Inc., Adams, Wis.

Filed Mar. 4, 1997, Ser. No. 66,591

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—217



397,985

WHEEL CHOCK MOUNTING PLATE

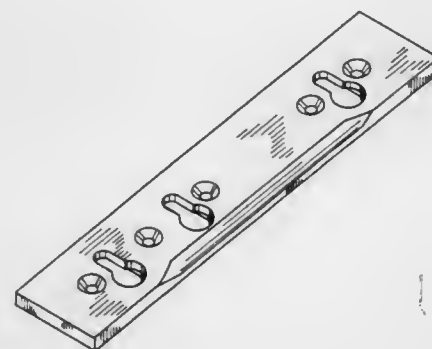
Wayne Pingel, and Donna Pingel, both of Adams, Wis., assignors to Pingel Enterprise, Inc., Adams, Wis.

Filed Jun. 30, 1997, Ser. No. 73,162

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—217



397,984

WHEEL CHOCK MOUNTING PLATE

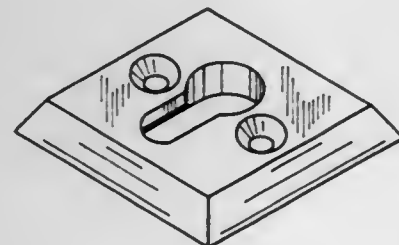
Wayne Pingel, and Donna Pingel, both of Adams, Wis., assignors to Pingel Enterprise, Inc., Adams, Wis.

Filed Mar. 4, 1997, Ser. No. 66,592

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—217



397,986

CLEAT FOR A WHEEL CHOCK

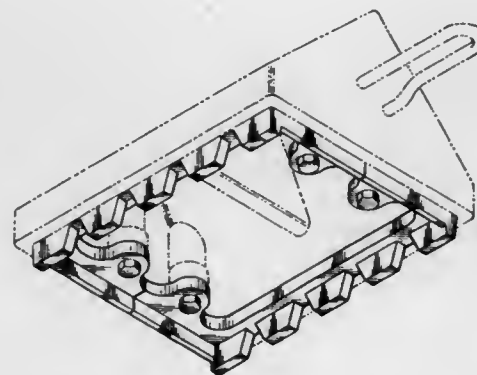
Stephen K. Henry, 3815 Northbrook Dr. C-21, Boulder, Colo. 80302

Filed Oct. 30, 1997, Ser. No. 78,687

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—217



397,987

AGRICULTURAL CHEMICAL APPLICATION VESSEL

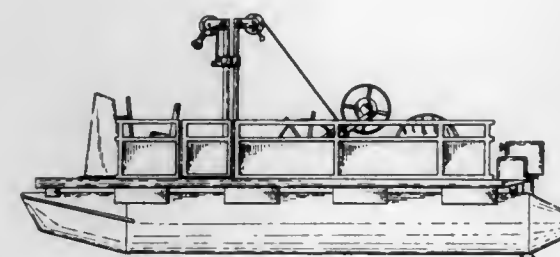
James F. Anderson, 3941 24th St. SE., Ruskin, Fla. 33570

Filed Jun. 30, 1997, Ser. No. 72,787

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—306



397,989

AIRCRAFT HAVING RAISED AND REARWARD POSITIONED COCKPIT

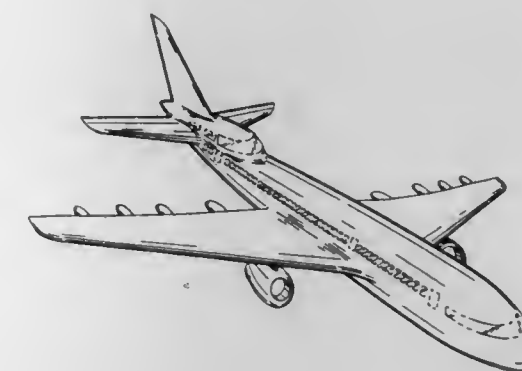
Sabah Naser Al-Sabah, P.B. 36777, Al Ras, 24758, Kuwait

Filed Mar. 18, 1997, Ser. No. 67,948

Term of patent 14 years

LOC (6) Cl. 12 - 07

U.S. Cl. D12—319



397,990

ROOF PLATE WITH SOLAR BATTERY

Tadashi Fukuhara, Fukaya; Katsuji Mukai, Kumagaya; Kimi-toshi Fukae, Nara; Yuji Inoue, Nara, and Masahiro Mori, Nara, all of Japan, assignors to Canon Kabushiki Kaisha, and Sanko Metal Industrial Co., Ltd., both of Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 44,647

Claims priority, application Japan, Mar. 31, 1995, 7-8897

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—102

397,988
BOAT

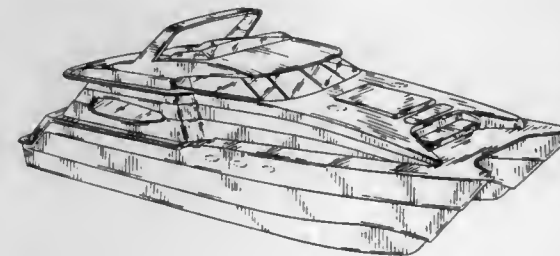
Benedict A. Brooks, N8765 CO. VV, Berlin, Wis. 54923; Robert F. Hargrave, and William L. Brooks, both of Berlin, Wis., assignors to Benedict A. Brooks, Berlin, Wis.

Filed Sep. 15, 1997, Ser. No. 76,645

Term of patent 14 years

LOC (6) Cl. 12 - 06

U.S. Cl. D12—315



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BATTERY PACK

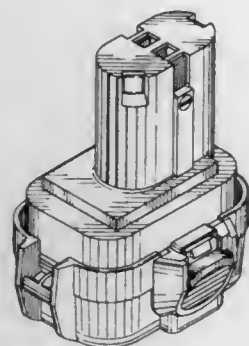
Takahide Kawakami; Norio Isoqai, and Youichi Kato, all of Anjo, Japan, assignors to Makita Corporation, Aichi-ken, Japan

Filed Sep. 4, 1996, Ser. No. 59,145

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—103



397,993

COVER FOR DOOR LOCK ELECTRONICS AND BATTERY

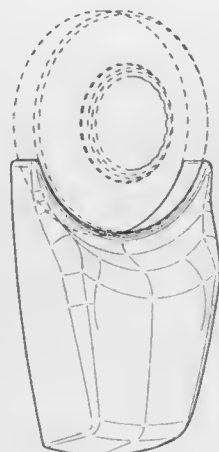
Eduardo J. Jimenez, Thornton, Colo., assignor to Schlage Lock Company, San Francisco, Calif.

Filed Jul. 26, 1996, Ser. No. 57,542

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—119



397,992

ELECTRIC MOTOR

Kyoichi Shimomura, Setagun, and Junichi Takasaki, Kiryu, both of Japan, assignors to Mitsuba Corporation, Kiryu, Japan

Filed Oct. 21, 1996, Ser. No. 61,318

Claims priority, application Japan, Apr. 26, 1996, 8-12561

Term of patent 14 years

LOC (6) Cl. 13 - 02

U.S. Cl. D13—112



397,994

VEHICLE STARTER CABLE

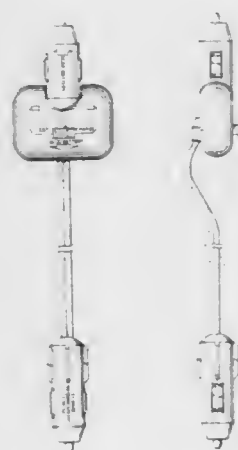
Rami Ben-Moshe, Canoga Park, Calif., assignor to Sun-Mate Corporation, Canoga Park, Calif.

Filed Aug. 25, 1997, Ser. No. 75,687

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—144



397,995

WEATHERPROOF ELECTRICAL ENCLOSURE

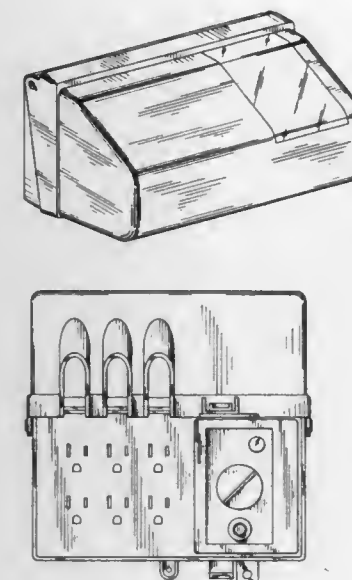
Donald F. Lamar, Fort Wayne, Ind.; Spencer L. Mackay, Agoura Hills, and Richard F. M. Conroy, Simi Valley, both of Calif., assignors to Lamar Sales, Inc., Fort Wayne, Ind.

Filed May 14, 1997, Ser. No. 71,111

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—156



397,997

ELECTRONIC DATA PROCESSING EQUIPMENT CABINET

Vincent Cozzolino, New Paltz, and Gerard Francis Muenkel, Highland, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 31, 1996, Ser. No. 61,839

The portion of the term of this patent subsequent to Jun. 4, 2010, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—102



397,998

CLOSABLE DISPLAY DEVICE

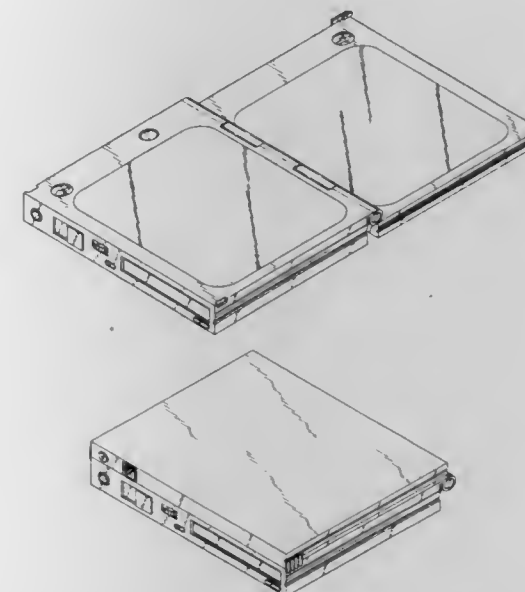
Stanley Ambroe, P.O. Box 274, Dunlo, Pa. 15930

Filed Sep. 29, 1997, Ser. No. 77,186

Term of patent 14 years

LOC (6) Cl. 14 - 02

U.S. Cl. D14—113



397,996

REMOTE CONTROL WITH CHARGER

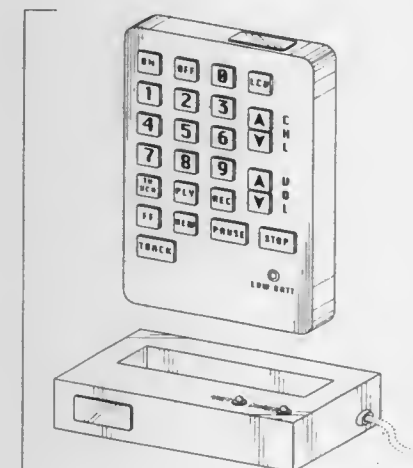
Michael A. Smith, 7 Dayton St., Westerly, R.I. 02891

Filed Sep. 30, 1996, Ser. No. 60,469

Term of patent 14 years

LOC (6) Cl. 13 - 03

U.S. Cl. D13—168



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OFFICIAL GAZETTE

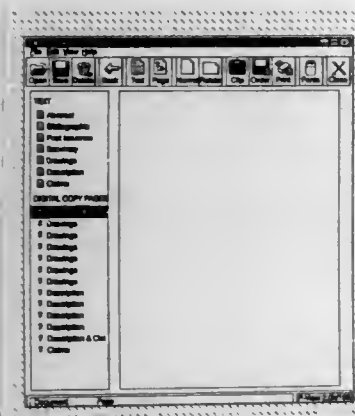
SEPTEMBER 8, 1998

397,999

DISPLAY SCREEN WITH COMPUTER DIALOG BOX
David J. Kovanen, Browns Point, and James Shields, Seattle,
both of Wash., assignors to Innovator Corporation, Browns
Point, Wash.

Filed Oct. 22, 1996, Ser. No. 61,336
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114.2



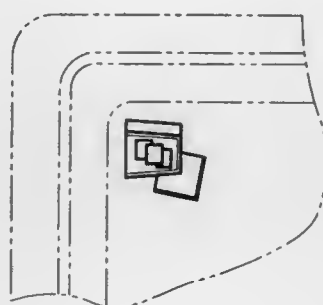
398,001

PORTION OF A COMPUTER SCREEN WITH A
COMPUTER ICON IMAGE

Dale R. Bohnert; Martin A. Kenner, and Cindy L. Munson, all
of P.O. Box 33427, St. Paul, Minn. 55133-3427

Filed Feb. 14, 1996, Ser. No. 50,290
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114.3



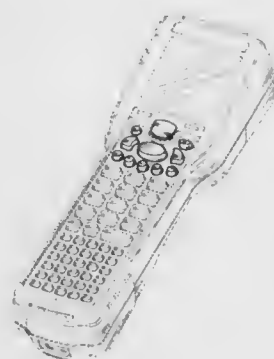
398,002

PUSH-BUTTON CONFIGURATION FOR A HAND-HELD
COMPUTER

Debbie Chacon, Seattle; Dan Blase, Everett, and James R.
Stewart, Woodinville, all of Wash., assignors to Intermec
Corporation, Everett, Wash.

Filed Oct. 23, 1996, Ser. No. 61,403
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—115



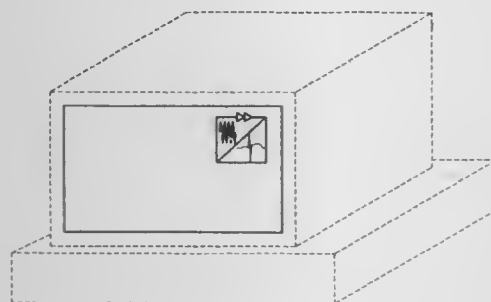
398,000

DISPLAY SCREEN WITH AN ICON

Armando M. Cappa, Reseda; Jeffrey D. Konopka, Northridge,
and Warren R. Heer, La Palma, all of Calif., assignors to
Pacesetter, Inc., Sylmar, Calif.

Filed Jan. 24, 1996, Ser. No. 49,410
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—114.3



U.S. PATENT AND TRADEMARK OFFICE

SEPTEMBER 8, 1998

2333

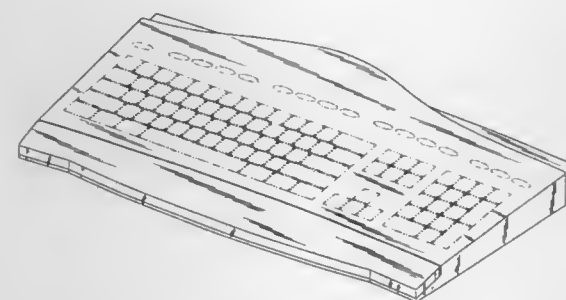
398,003

PORTABLE CONTROL PANEL FOR A VIDEO/GRAPHICS
WORKSTATION

Gerald A. Dingman, Rancho Cordova; James Dudley, Sacra-
mento; Stephen Andrew Hartford; Daniel A. Kaye, both of
Folsom; Joseph Paul Montgomery, Orangevale, and Michael
Richard Young Moore, Rancho Cordova, all of Calif., assign-
ors to Play Industries, Inc., Rancho Cordova, Calif.

Filed Nov. 6, 1996, Ser. No. 62,036
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—115



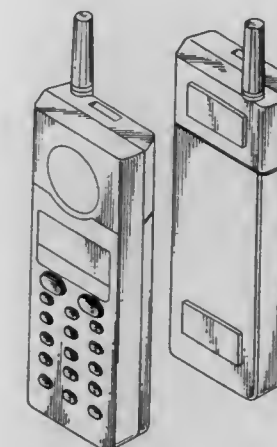
398,005

CELLULAR TELEPHONE

Chun-Sheng Lee, 3F, No. 31, Alley 452, Da-Yeh Rd., Bei-Tou
Area, Taipei, Taiwan

Filed Oct. 17, 1997, Ser. No. 78,847
Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—138



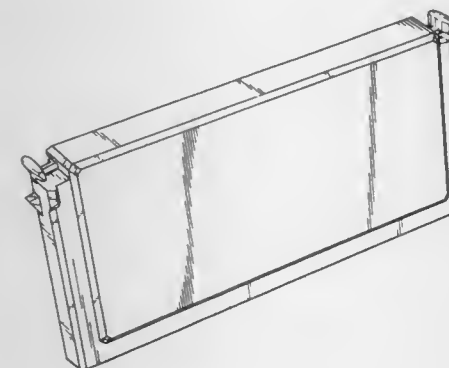
398,004

PROCESSOR CARD ASSEMBLY

Thomas S. Klinker, San Francisco, Calif., assignor to Intel
Corporation, Santa Clara, Calif.

Filed Oct. 29, 1996, Ser. No. 61,739
Term of patent 14 years
LOC (6) Cl. 14 - 02

U.S. Cl. D14—117



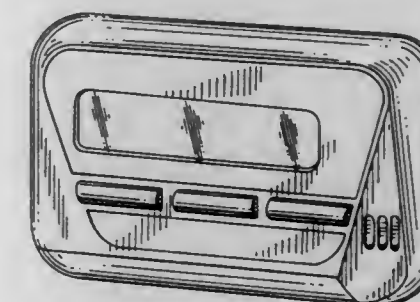
398,006

PAGER WITH FRONT DISPLAY

Tetsu Kataoka, Washington Township, N.J., and James Wicks,
San Francisco, Calif., assignors to Sony Corporation of
America, New York, N.Y.

Filed Feb. 28, 1997, Ser. No. 67,118
Term of patent 14 years
LOC (6) Cl. 14 - 03

U.S. Cl. D14—191



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

398,007

WIDE RANGE SPEAKER UNIT

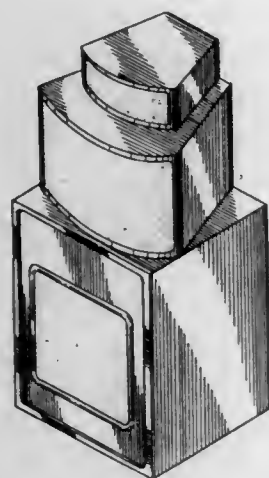
Gladstone Wilson, and Richard L. Clark, both of 1925 7th Ave.
House II #7-D, New York, N.Y. 10026

Filed Nov. 15, 1993, Ser. No. 15,316

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—214



398,008

SPEAKER BOX

Yasuki Yamakawa, and Kiyoshi Mitani, both of Kanagawa,
Japan, assignors to Matsushita Electric Industrial Co., Ltd.,
Japan

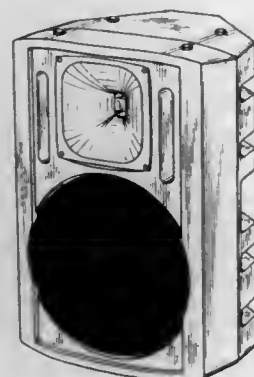
Filed Nov. 7, 1997, Ser. No. 79,041

Claims priority, application Japan, Jun. 12, 1997, 957847

Term of patent 14 years

LOC (6) Cl. 14 - 01

U.S. Cl. D14—215



398,009

PUSHBUTTON REMOTE CONTROL

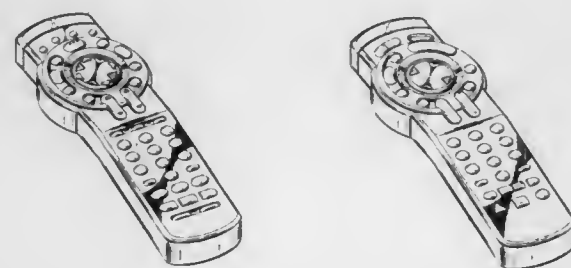
Jeffrey R. Huppertz, Glen Ellyn, Ill.; Sheldon A. Borkin,
Saratoga, Calif.; Robert K. Myers, Santa Cruz, Calif.; Dou-
glas Patton, Irvine, Calif.; Brandt J. Thompson, Newport
Coast, Calif., and Anna Marie Wichansky, Palo Alto, Calif.,
assignors to Scientific-Atlanta, Inc., Norcross, Ga.

Filed Mar. 30, 1995, Ser. No. 36,927

Term of patent 14 years

LOC (6) Cl. 14 - 03

U.S. Cl. D14—218



398,010

INTERNAL COMBUSTION ENGINE

Isao Yoshida, Urawa, and Masahiro Anzai, Sakado, both of
Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha,
Tokyo, Japan

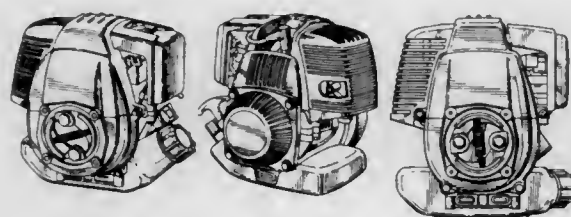
Filed May 13, 1997, Ser. No. 70,653

Claims priority, application Japan, Nov. 13, 1996, 8-34288;
Jan. 13, 1997, 9-653

Term of patent 14 years

LOC (6) Cl. 15 - 01

U.S. Cl. D15—1



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2335

398,011

AIR COMPRESSOR

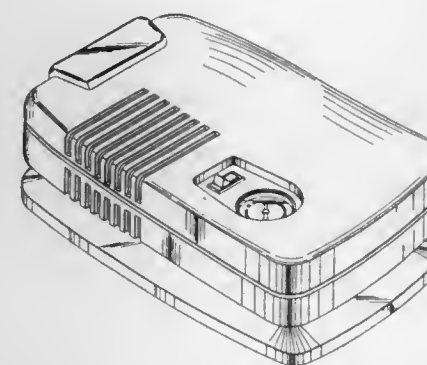
Min-Hsieng Wang, Tainan Hsien, Taiwan, assignor to Coido
Corporation, Tainan Hsien, Taiwan

Filed Sep. 3, 1997, Ser. No. 75,597

Term of patent 14 years

LOC (6) Cl. 15 - 02

U.S. Cl. D15—9



398,013

MODULE FOR A MULTIPURPOSE UTILITY STATION
FOR USE AT E.G. A PETROL STATION, PROVIDING E.G.
SUPPLIES OF AIR, OIL, SCREEN WASHER FLUID,
COOLANT AS WELL AS WASHING FACILITIESStein Alvern, Houston, Tex., and Oyvind Alvern, Hjeltestad,
Norway, assignors to Alvern-Norway A/S, Oslo, Norway
Division of Ser. No. 61,104, Oct. 16, 1996. This application

Nov. 4, 1997, Ser. No. 78,741

Claims priority, application Norway, Apr. 24, 1996, D960272

Term of patent 14 years

LOC (6) Cl. 15 - 02

U.S. Cl. D15—9.1



398,012

MODULE FOR A MULTIPURPOSE UTILITY STATION
FOR USE AT E.G. A PETROL STATION, PROVIDING E.G.
SUPPLIES OF AIR, OIL, SCREEN WASHER FLUID,
COOLANT AS WELL AS WASHING FACILITIESStein Alvern, Houston, Tex., and Oyvind Alvern, Hjeltestad,
Norway, assignors to Alvern-Norway A/S, Oslo, Norway
Division of Ser. No. 61,104, Oct. 16, 1996. This application

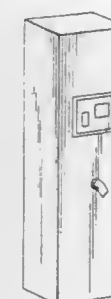
Nov. 4, 1997, Ser. No. 78,740

Claims priority, application Norway, Apr. 24, 1996, D960272

Term of patent 14 years

LOC (6) Cl. 15 - 02

U.S. Cl. D15—9.1



398,014

LAWN MOWER

Gregor Wolf, Betzdorf, Germany, assignor to Wolf-Gerate
GmbH, Germany

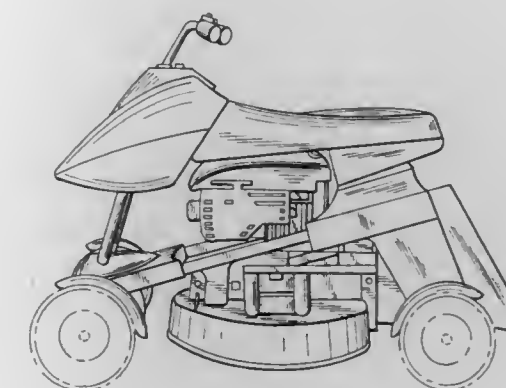
Filed Jan. 9, 1997, Ser. No. 64,707

Claims priority, application Germany, Jul. 9, 1996,
M9605868.4

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15—15



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

398,015

FLAIL

Roger Frauet, Sarreguemines, France, assignor to Deere & Company, Moline, Ill.

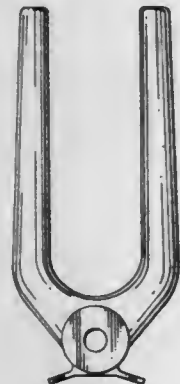
Filed Apr. 4, 1996, Ser. No. 53,276

Claims priority, application France, Oct. 11, 1995, DMA/003094

Term of patent 14 years

LOC (6) Cl. 15 - 03

U.S. Cl. D15—28



398,017

GELATIN CAPSULE PRODUCING MACHINE

Reiner Wurst, Auenwald, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 23, 1996, Ser. No. 64,146

Claims priority, application Germany, Jun. 21, 1996, M9605183.3

Term of patent 14 years

LOC (6) Cl. 15 - 99

U.S. Cl. D15—145



398,016

SOLDERING STATION

Werner Neef, Stuttgart, Germany, assignor to Cooper Tools GmbH, Besigheim, Germany

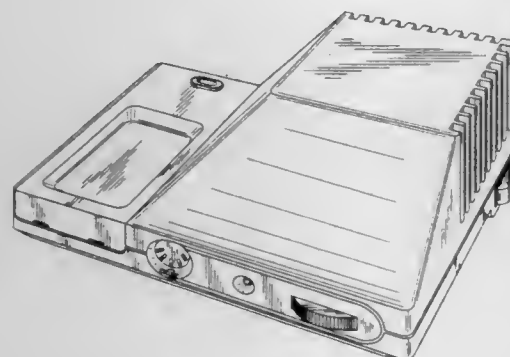
Filed Jul. 9, 1997, Ser. No. 73,470

Claims priority, application Germany, Jan. 28, 1997, M 97 00 951.2

Term of patent 14 years

LOC (6) Cl. 15 - 09

U.S. Cl. D15—144.2



398,018

CAMERA FOR USE WITH A COMPUTER

Cheol-Ho Lee, Incheon, Rep. of Korea, assignor to Daewoo Telecom, Ltd., Rep. of Korea

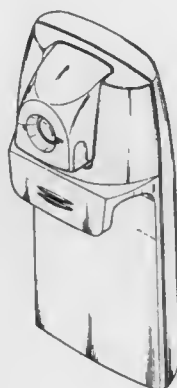
Filed Aug. 4, 1997, Ser. No. 75,594

Claims priority, application Rep. of Korea, Feb. 25, 1997, 973119

Term of patent 14 years

LOC (6) Cl. 16 - 01

U.S. Cl. D16—202



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2337

398,019

VIDEO PROJECTOR

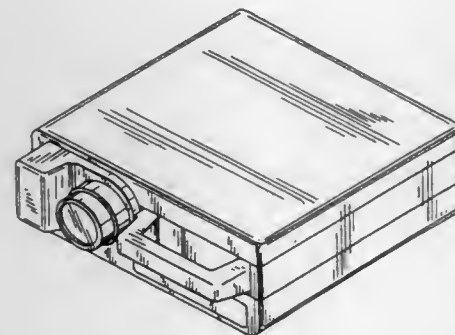
Mitsuhiro Uehara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 10, 1996, Ser. No. 53,513

Term of patent 14 years

LOC (6) Cl. 16 - 02

U.S. Cl. D16—231



398,021

SPORT GLASSES

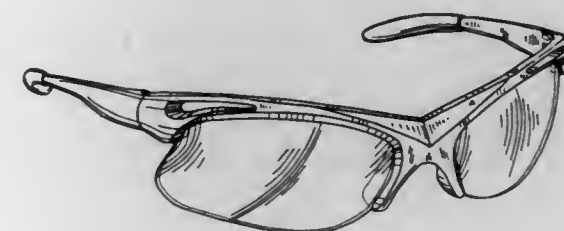
Maurice Bollé, Oyonnax, France, assignor to Etablissements Bolle S.N.C., Oyonnax, France

Filed Oct. 3, 1997, Ser. No. 77,454

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—315



398,022

EYEGLASSES

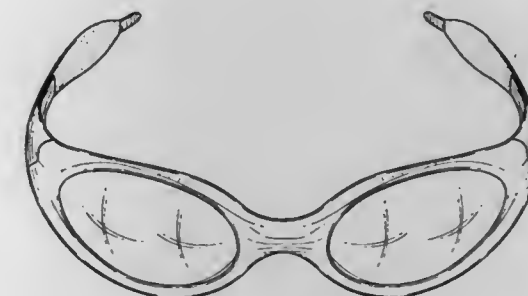
James H. Jannard, Eastsound, Wash.; Peter Yee, Irvine, and Malcolm Neal Houston, Foothill Ranch, both of Calif., assignors to Oakley, Inc., Foothill Ranch, Calif.

Division of Ser. No. 55,505, Jun. 6, 1996, Pat. No. Des. 385,291. This application Aug. 12, 1997, Ser. No. 75,388

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—326



398,020

SPECTACLES

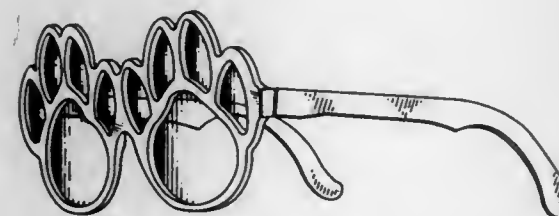
Ronald B. Hall, P.O. Box 37, Lexington, S.C. 29072

Filed Oct. 11, 1994, Ser. No. 29,567

Term of patent 14 years

LOC (6) Cl. 16 - 06

U.S. Cl. D16—306



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SEPTEMBER 8, 1998

398,023

TONER CARTRIDGE

Mitsuharu Okada, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

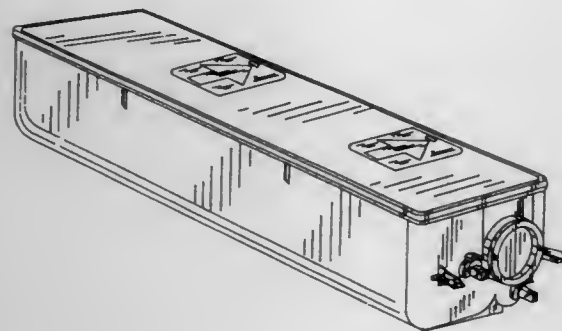
Filed Dec. 2, 1996, Ser. No. 62,901

Claims priority, application Japan, May 31, 1996, 8-16115

Term of patent 14 years

LOC (6) Cl. 16 - 03

U.S. Cl. D18—43



398,025

WRITING INSTRUMENT

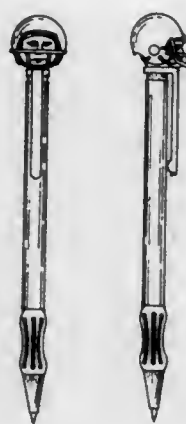
Stanley Earl Hackler, P.O. Box #308, Decatur, Tenn. 37322

Filed Mar. 20, 1997, Ser. No. 68,550

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—42



398,024

PEN

Lisa Deborah Frank, 65 N. Camino Espaniol, Tuscon, Ariz. 85719

Filed Feb. 20, 1997, Ser. No. 67,011

Term of patent 14 years

LOC (6) Cl. 19 - 06

U.S. Cl. D19—42



398,026

CASKET DISPLAY

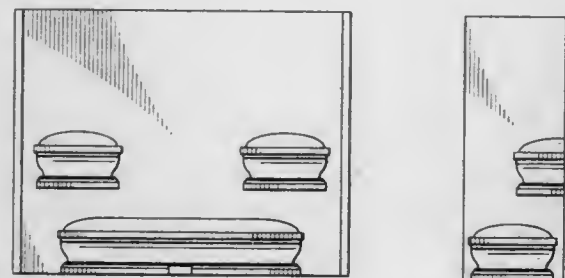
Dennis J. Riga, New Albany, Ohio, assignor to The York Group, Inc., Houston, Tex.

Filed Jan. 24, 1997, Ser. No. 65,345

Term of patent 14 years

LOC (6) Cl. 99 - 00

U.S. Cl. D20—29



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2339

398,027

CASKET DISPLAY

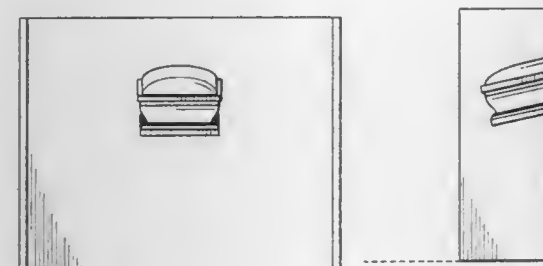
Dennis J. Riga, New Albany, Ohio, assignor to The York Group, Inc., Houston, Tex.

Filed Jan. 23, 1997, Ser. No. 65,475

Term of patent 14 years

LOC (6) Cl. 99 - 00

U.S. Cl. D20—29



398,029

SHELF BACKPLANE

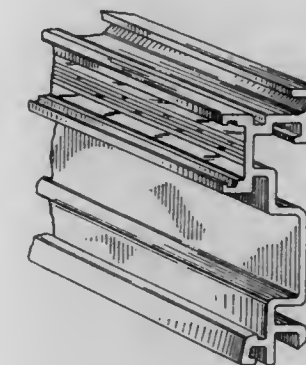
S. Douglas Falls, Oakbrook Terrace, Ill.; Ernest J. Dale, Waterford, Va.; Richard Buehler, Arnold, and Norman Wildberger, Glenn Dale, both of Md., assignors to Intelledge Corporation, Lombard, Ill.

Filed Jul. 31, 1996, Ser. No. 57,778

Term of patent 14 years

LOC (6) Cl. 20 - 02

U.S. Cl. D20—44



398,028

VEHICLE LOCATION DEVICE

Susan M. Bennett, Chimney Cottage, Chequers Lane, Gressenhall, Norfolk, England, NR20-4EU

Filed Nov. 13, 1997, Ser. No. 79,403

Term of patent 14 years

LOC (6) Cl. 20 - 02

U.S. Cl. D20—41



398,030

LASER GAME

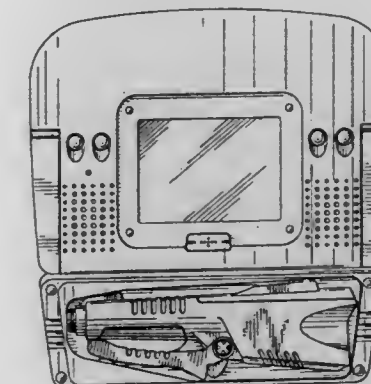
Kam Fai Wong, Kowloon, Hong Kong, assignor to Tiger Electronics, Inc., Vernon Hills, Ill.

Filed Jan. 16, 1996, Ser. No. 48,957

Term of patent 14 years

LOC (6) Cl. 21 - 01

U.S. Cl. D21—13



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398,031

GAMES MACHINE

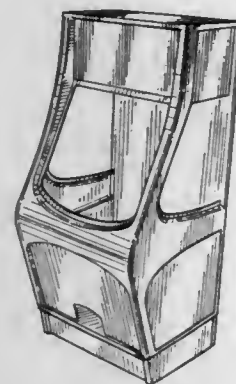
Stephen Vincent Campbell, Herne Bay, and Gordon James Crompton, Kent, both of England, assignors to Cromptons Leisure Machines Limited, Kent, England

Filed Oct. 23, 1997, Ser. No. 78,571

Claims priority, application United Kingdom, Apr. 23, 1997, 2065179

Term of patent 14 years
LOC (6) Cl. 21 - 01

U.S. Cl. D21—13



398,033

TOY MOBILE

Tabitha Toy, 3604 Oakridge Drive, Nanaimo, B.C., Canada, V9T 1M4

Filed Feb. 28, 1997, Ser. No. 67,144

Term of patent 14 years
LOC (6) Cl. 21 - 01

U.S. Cl. D21—62



398,032

CONTROLLER FOR VIDEO GAME MACHINE

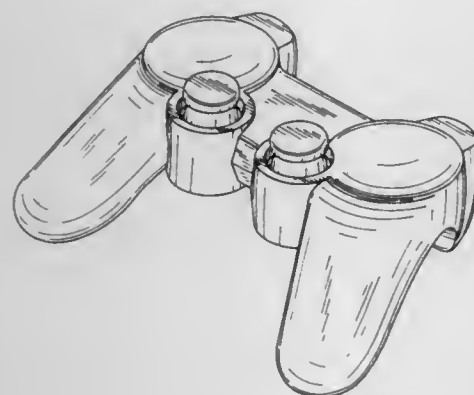
Teiyu Goto, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 42,706, Jun. 16, 1995, Pat. No. Des. 382,603, which is a continuation-in-part of Ser. No. 30,017, Oct. 3, 1994, abandoned. This application Mar. 2, 1997, Ser. No. 69,891

Claims priority, application Japan, Oct. 11, 1996, 8-30240

Term of patent 14 years
LOC (6) Cl. 21 - 01

U.S. Cl. D21—48



398,034

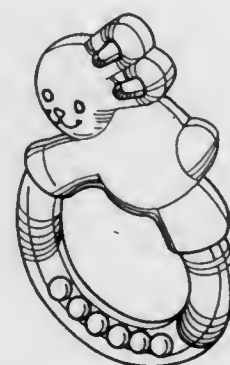
DECORATIVE HAND HELD TOY

Wong Chung Lun, Kowloon Bay, Hong Kong, assignor to Futtong Industries, Ltd., Mongkok, Hong Kong

Division of Ser. No. 42,587, Aug. 14, 1995. This application Oct. 16, 1996, Ser. No. 61,123

Term of patent 14 years

U.S. Cl. D21—65



398,035

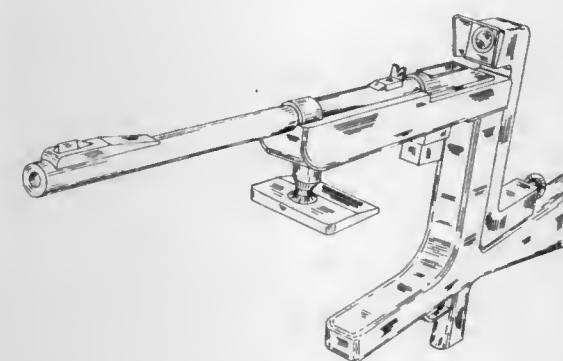
USER PROTECTED AND UNOBSERVED TACTICAL ASSAULT RIFLE

Charles F. Rowe, P.O. Box 230364, Encinitas, Calif. 92023

Filed Apr. 29, 1996, Ser. No. 53,728

Term of patent 14 years
LOC (6) Cl. 22 - 01

U.S. Cl. D22—103



398,037

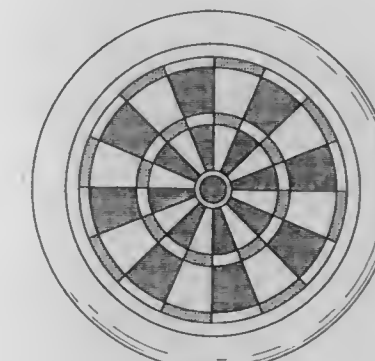
BIODEGRADABLE DISINFECTANT AND DEODORANT DISPERSING DEVICE

Gary James Drewes, 9 Collins Rd., Glen Cove, N.Y. 11542

Filed Dec. 30, 1996, Ser. No. 64,358

Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—208



398,036

SPINNER FISHING LURE

Greg Berryman, P.O. Box 812, Kasilof, Ak. 99610

Filed Jun. 14, 1996, Ser. No. 55,890

Term of patent 14 years
LOC (6) Cl. 22 - 05

U.S. Cl. D22—129



398,038

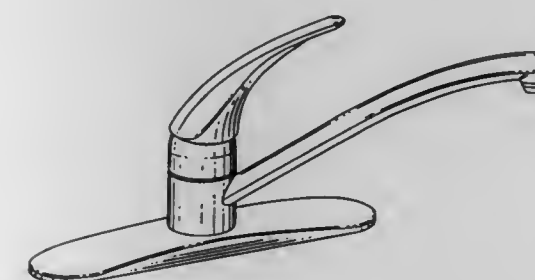
FAUCET

Mark E. Donahue, Richmond Heights; Carolyn J. Duffield, Elyria; Vance M. Johnson, Amherst; James J. McElroy, Westlake, and Nagib Nasr, Parma Heights, all of Ohio, assignors to Moen Incorporated, North Olmsted, Ohio

Filed Dec. 9, 1996, Ser. No. 63,512

Term of patent 14 years
LOC (6) Cl. 23 - 01

U.S. Cl. D23—241



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398,039

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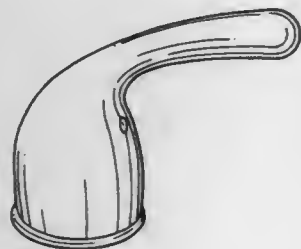
Chen-Fa Ku, Tantz, Taiwan, assignor to Globe-Union Industrial Corporation, Tantz, Taiwan

Filed Jun. 4, 1996, Ser. No. 55,428

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—252



398,041

TOILET SEAT LIFT

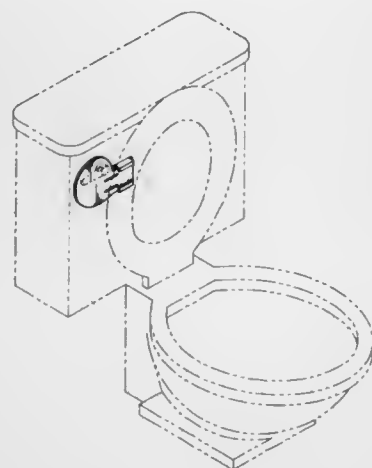
Jeffery Kitt, 3514 32nd St., San Diego, Calif. 92104

Filed Oct. 14, 1997, Ser. No. 77,960

Term of patent 14 years

LOC (6) Cl. 23 - 02

U.S. Cl. D23—311



398,040

FAUCET HANDLE

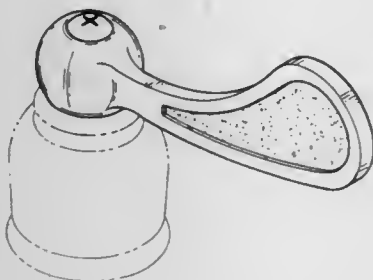
Hsi-Chia Ko, Changhua Hsien, Taiwan, assignor to Chuog Cheng Faucet Co., Ltd., Changhua Hsien, Taiwan

Filed Nov. 5, 1997, Ser. No. 78,977

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—252



398,042

WATER HEATER

Carl Thweatt, South Haven, Mich., assignor to Sherwood-Templeton Coal Company, Inc., Indianapolis, Ind.

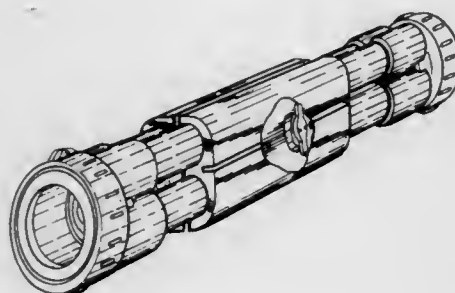
Division of Ser. No. 54,401, May 14, 1996. This application

Apr. 21, 1997, Ser. No. 69,497

Term of patent 14 years

LOC (6) Cl. 23 - 03

U.S. Cl. D23—314



398,043

PORTABLE HUMIDIFIER

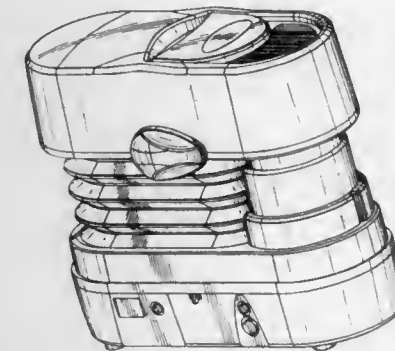
Kenneth Ritscher, Watertown, and Walter Birdsall, Shrewsbury, both of Mass., assignors to Honeywell Consumer Products, Inc., Southborough, Mass.

Filed Nov. 5, 1996, Ser. No. 61,999

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—356



398,044

AIR CLEANER

Rudolf Gutmann, Kanalstrasse 14, D-75417 Mühlacker, Germany

Filed Oct. 2, 1995, Ser. No. 46,559

Claims priority, application Germany, Apr. 1, 1995, M9502791.2

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—364



398,045

AIR CLEANER

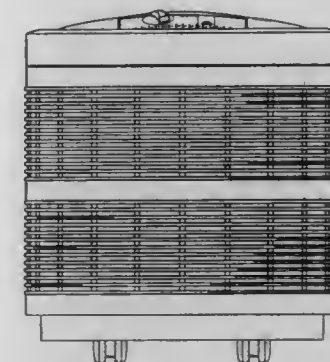
Rodney Jane, Westboro, Mass.; Robert Senn, Hagerstown, Md.; Stephen Gatchell, Warwick, R.I.; Andrew Parker, Framingham; Eddie Irani, Marlborough, both of Mass.; Scott Osiecki, Skaneateles, N.Y.; Robert Marvin, Farmington, and Richard O'Grady, Southington, both of Conn., assignors to Honeywell Consumer Products, Inc., Southborough, Mass.

Filed Nov. 7, 1996, Ser. No. 62,078

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—364



398,046

COMBINED FILTER ELEMENT AND FRAME THEREFOR

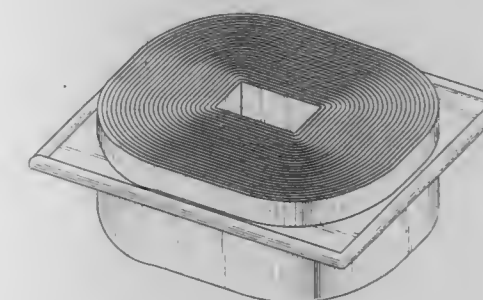
Gary R. Gillingham, Prior Lake; Bernard A. Matthys; Joseph C. Tokar, both of Apple Valley, and Daniel T. Risch, Burnsville, all of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Filed Apr. 26, 1996, Ser. No. 53,682

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—365



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398,047

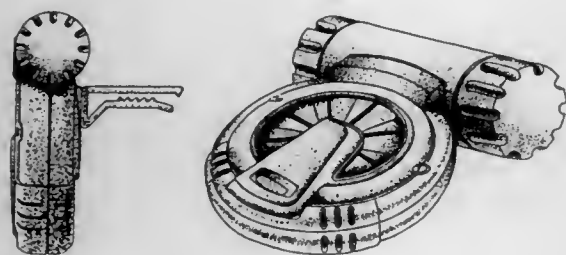
**BOX FOR FRAGRANCE USED IN FRONT OF AN AIR
CONDITIONER**Wen Jye Chen, No. 19, Lane 753, Kang Ning St., Shih Jyy,
Taipei Hsien, Taiwan

Filed Jul. 2, 1997, Ser. No. 73,083

Term of patent 14 years

LOC (6) Cl. 23 - 04

U.S. Cl. D23—366



398,049

DUCT FOR A TOILET BOWL VENTILATION SYSTEM

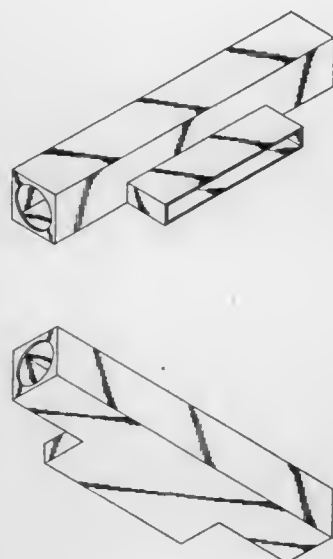
Jerry F. Willis, 10918 Francoise, Houston, Tex. 77042

Division of Ser. No. 51,509, Mar. 12, 1996. This application
Dec. 30, 1996, Ser. No. 64,374

Term of patent 14 years

LOC (6) Cl. 23 - 99

U.S. Cl. D23—393



398,048

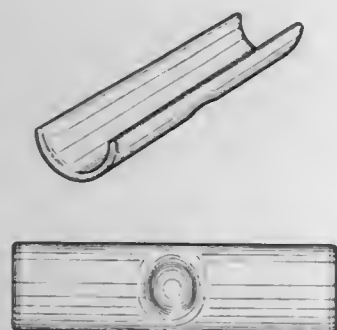
**INSULATION SADDLE FOR PROTECTING PIPE
INSULATION**Bruce W. Casady, North Pole, Ak.; Gerald T. Parks, Jr.,
Seattle, Wash., and Jerry L. Freel, Fairbanks, Ak., assignors
to AT & S, Inc., Fairbanks, Ak.

Filed May 1, 1996, Ser. No. 53,892

Term of patent 14 years

LOC (6) Cl. 23 - 01

U.S. Cl. D23—386



398,050

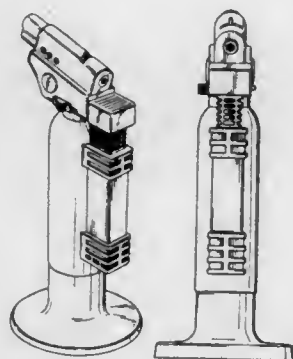
GAS BURNERMichinori Yoshinaga, Tokyo, Japan, assignor to Yoshinaga
Corporation, Japan

Filed Aug. 20, 1996, Ser. No. 58,663

Term of patent 14 years

LOC (6) Cl. 23 - 03

U.S. Cl. D23—415



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

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398,051

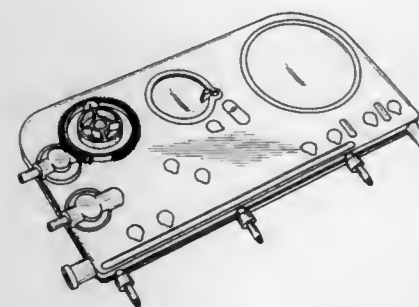
**DISPOSABLE CASSETTE FOR A BEDSIDE PHARMACY
SYSTEM**Richard Lanigan, Concord, N.H.; Charles M. Grinnell, Gro-
ton, Mass.; Kevin Grant, Manchester, and Marc A. Mandro,
Bow, both of N.H., assignors to DEKA Products Limited
Partnership, Manchester, N.H.

Filed Aug. 22, 1997, Ser. No. 75,746

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—108



398,053

IV PUMP

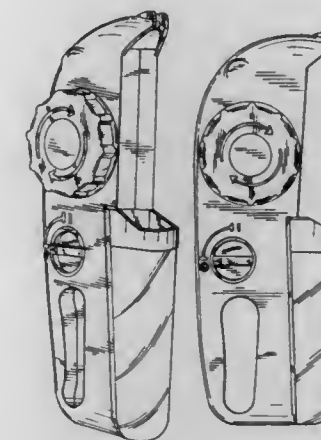
Andrew I. Sealfon, 24 Carpenter Rd., Chester, N.Y. 10918

Filed Mar. 24, 1997, Ser. No. 68,582

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—111



398,054

INFUSION BAG

Arne Eek, Trosa, Sweden, assignor to Astra AB, Sweden

Filed Oct. 2, 1996, Ser. No. 60,617

Claims priority, application Sweden, Apr. 4, 1996, 96-0786

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—118

398,052

**COMBINED MEDICAL ASPIRATOR TUBE AND MIRROR
ASSEMBLY**

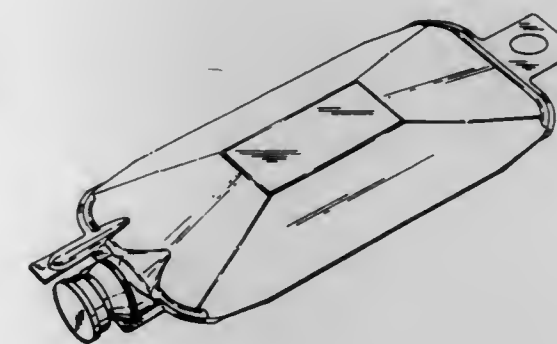
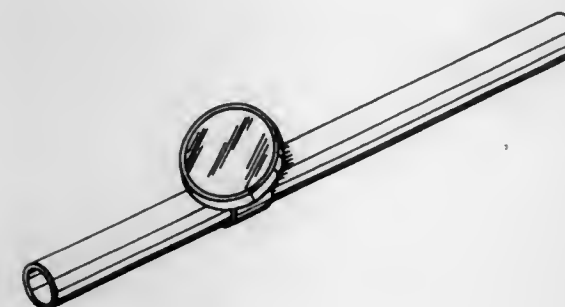
Susan A. Thomas, 2354 Fieldstone Cir., Fairborn, Ohio 45324

Filed Jul. 22, 1996, Ser. No. 57,285

Term of patent 14 years

LOC (6) Cl. 24 - 02

U.S. Cl. D24—111



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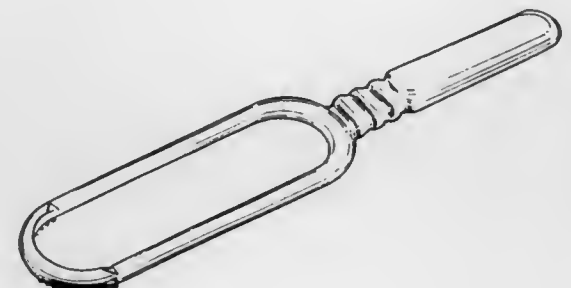
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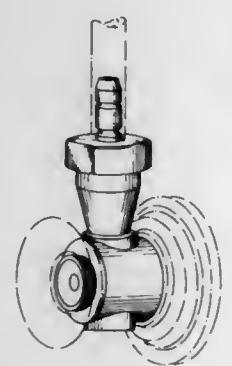
398,055
COMBINED SANITARY NAPKIN AND PANTY
Eartha L. Burden, 70 Henne Rd., Bernville, Pa. 19506
Filed Sep. 18, 1997, Ser. No. 76,713
Term of patent 14 years
LOC (6) Cl. 24 - 04
U.S. Cl. D24—126



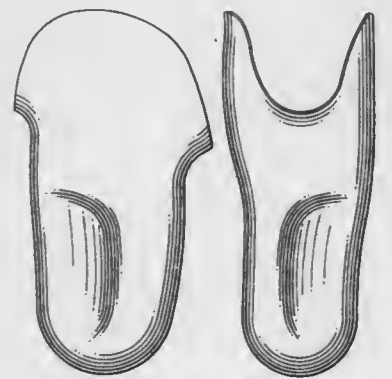
398,057
DEVICE FOR CLEANING A TONGUE
Olav Mølster, Boks 503, N-6901 Fløro, Norway
Filed Jun. 18, 1997, Ser. No. 72,464
Term of patent 14 years
LOC (6) Cl. 24 - 02
U.S. Cl. D24—147



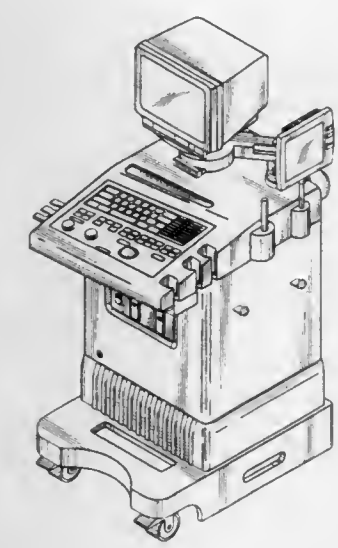
398,056
STETHOSCOPE DRUM
Richard Rashman, Los Angeles, Calif., assignor to Prestige Medical Corporation, Northridge, Calif.
Filed Aug. 14, 1997, Ser. No. 75,366
Term of patent 14 years
LOC (6) Cl. 24 - 02
U.S. Cl. D24—134



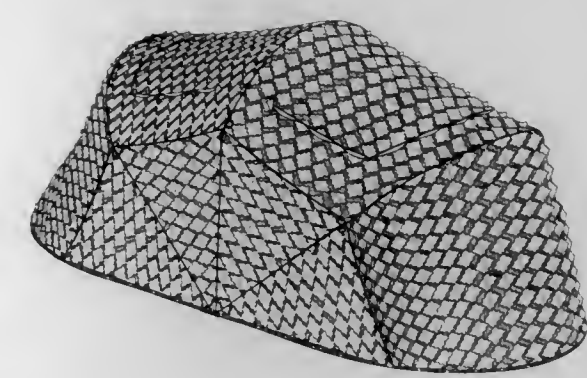
398,058
PROSTHETIC BRACE
Milo S. Collier, 6009 NW. 289th St., Ridgefield, Wash. 98642
Filed Jun. 27, 1997, Ser. No. 72,991
Term of patent 14 years
LOC (6) Cl. 24 - 03
U.S. Cl. D24—155



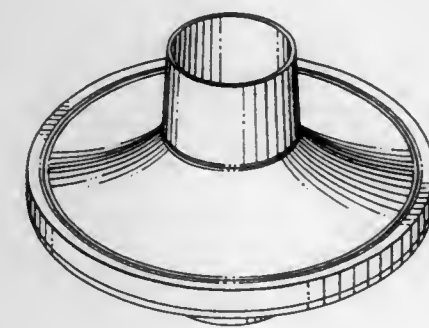
398,059
ULTRASONIC DIAGNOSTIC UNIT FOR MEDICAL PURPOSES
Kee-Chan Kwak, Inchun, Rep. of Korea, assignor to Medison Co., Ltd., Kangwon-do, Rep. of Korea
Filed Mar. 17, 1997, Ser. No. 68,727
Claims priority, application Rep. of Korea, Sep. 17, 1996, 96 19802
Term of patent 14 years
LOC (6) Cl. 24 - 01
U.S. Cl. D24—160



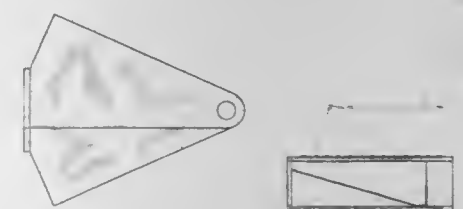
398,061
Patent Not Issued For This Number
398,062
CONCEALMENT SHELTER
Larry Lockhart, Stearns, Ky., assignor to Shelter Pro, LLC, Whitley City, Ky.
Filed Jul. 15, 1996, Ser. No. 57,054
Term of patent 14 years
LOC (6) Cl. 25 - 03
U.S. Cl. D25—16



398,060
PULMONARY FILTER
Daniel G. Brown, P.O. Box 1495, San Clemente, Calif. 92674
Filed Mar. 13, 1997, Ser. No. 67,873
Term of patent 14 years
LOC (6) Cl. 24 - 04
U.S. Cl. D24—164



398,063
STEP UNIT FOR A SPIRAL STAIRCASE
Anthony M. Kline, 3107 Bluehaven Hill, Brenham, Tex. 77833
Filed Oct. 22, 1997, Ser. No. 78,165
Term of patent 14 years
LOC (6) Cl. 25 - 04
U.S. Cl. D25—69



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OFFICIAL GAZETTE

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398,064

CROSSARM FOR VINEYARD SUPPORT

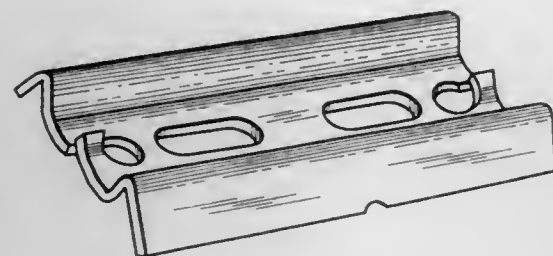
Leon W. Pierce, Jr., 962 GoldenOak Way, Stockton, Calif. 95209

Filed Apr. 23, 1997, Ser. No. 69,771

Term of patent 14 years

LOC (6) Cl. 25 - 01

U.S. Cl. D25—134



398,066

LIGHT REFLECTIVE DEVICE

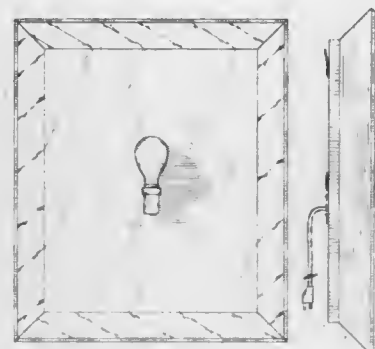
James C. Noel, 108 Front St., Fallen Timber, Pa. 16639-6207

Filed Aug. 29, 1997, Ser. No. 76,157

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—56



398,065

VEHICLE TURN SIGNAL

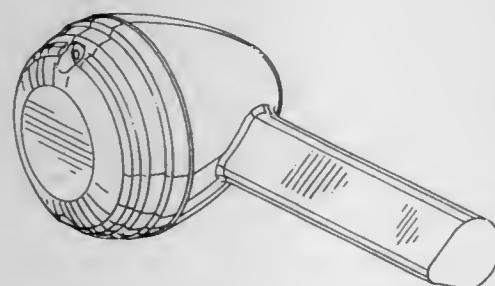
David Otto, Dresser, Wis., assignor to Polaris Industries Inc., Osceola, Wis.

Filed Oct. 8, 1997, Ser. No. 77,658

Term of patent 14 years

LOC (6) Cl. 26 - 06

U.S. Cl. D26—28



398,067

PART OF A CHANDELIER

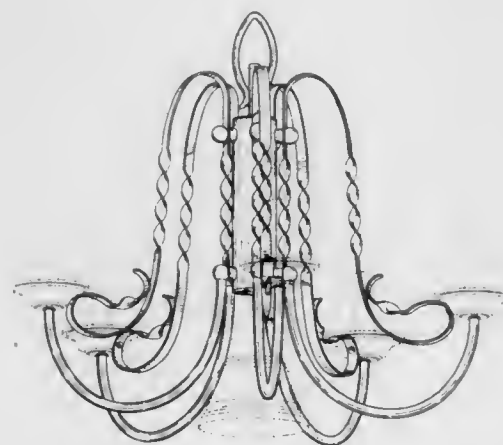
Libbe A. Milicia, North Royalton, Ohio, assignor to The L. D. Kichler Co., Cleveland, Ohio

Filed Oct. 30, 1997, Ser. No. 78,896

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—81



398,068

LIGHTING FIXTURE

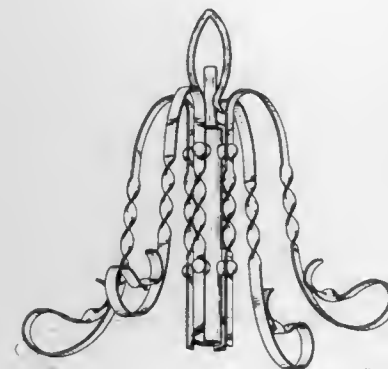
Libbe A. Milicia, North Royalton, Ohio, assignor to The L. D. Kichler Co., Cleveland, Ohio

Filed Oct. 30, 1997, Ser. No. 78,897

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—81



398,069

CHANDELIER

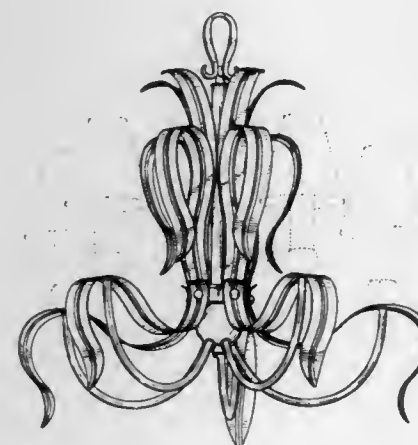
Richard Hammar, Mentor, Ohio, assignor to The L. D. Kichler Co., Cleveland, Ohio

Filed Nov. 5, 1997, Ser. No. 78,926

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—81



398,070

LIGHTING FIXTURE

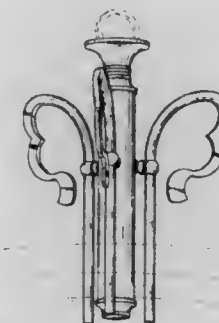
Kevin von Kluck, Hudson, Ohio, assignor to The L. D. Kichler Co., Cleveland, Ohio

Filed Oct. 30, 1997, Ser. No. 78,898

Term of patent 14 years

LOC (6) Cl. 26 - 05

U.S. Cl. D26—84



398,071

CIGAR HUMIDIFIER

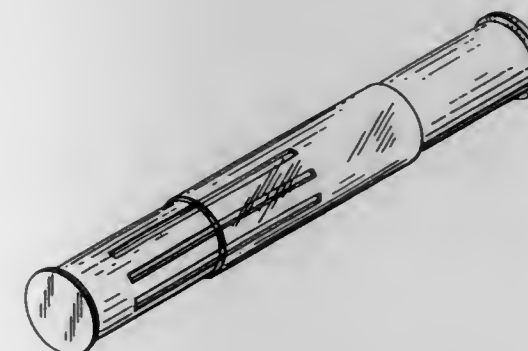
David R. Perkins, Manchester, Mass., assignor to Glass Dimensions, Inc., Essex, Mass.

Filed Jul. 21, 1997, Ser. No. 73,909

Term of patent 14 years

LOC (6) Cl. 27 - 06

U.S. Cl. D27—186



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398,072

CIGAR CUTTER

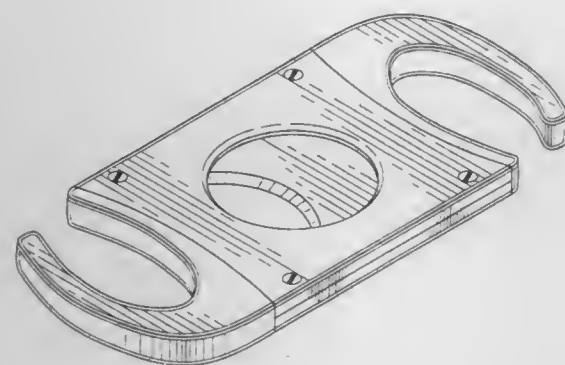
Julie Anne Singletary, Los Angeles, Calif., assignor to Dees Creations, Inc., Burbank, Calif.

Filed Jul. 12, 1997, Ser. No. 73,640

Term of patent 14 years

LOC (6) Cl. 27 - 99

U.S. Cl. D27—195



398,074

HAIR DRYER

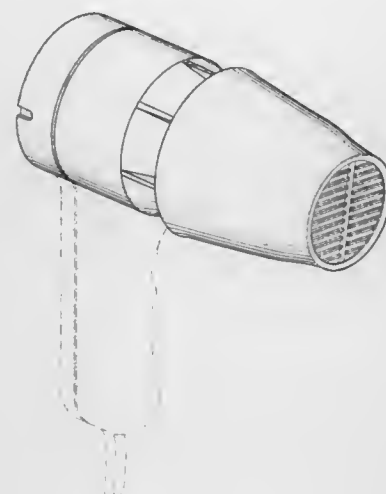
Daniel M. Nosenchuck, Mercerville, N.J., assignor to Soundesign, L.L.C., Mercerville, N.J.

Filed Sep. 19, 1997, Ser. No. 76,781

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—18



398,073

HAIR DRYER WITH TEMPERATURE SENSOR

Albart Johannes Kip, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

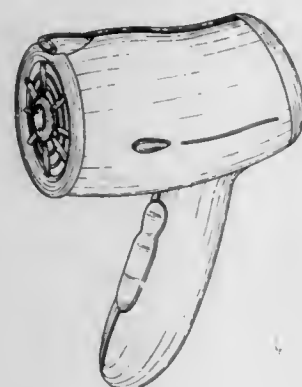
Filed Jul. 21, 1997, Ser. No. 73,912

Claims priority, application Hague Agreement, Feb. 12, 1997, DMA/003591

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—13



398,075

PORTABLE SHAMPOO AND SCALP TREATMENT UNIT

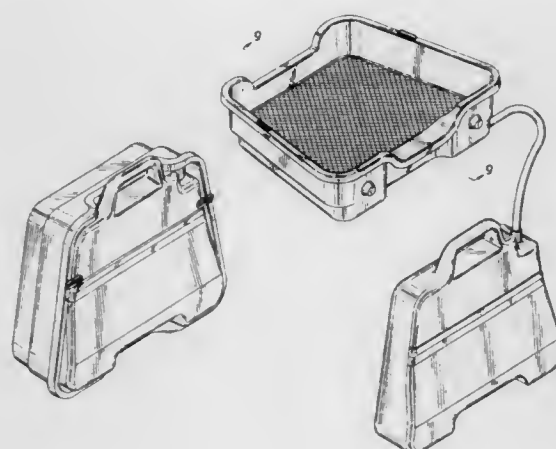
Jeffery G. Book, and Veronica Book, both of 537 Georgetown St., Beaumont, Tex. 77707

Filed Aug. 18, 1997, Ser. No. 75,315

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—20



398,076

COMBINATION PICK AND FLOSSING DEVICE

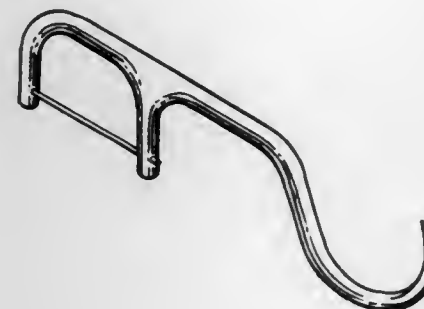
Berry Hafkin, Thiells, N.Y., assignor to Majestic Drug Company, Inc., Bronx, N.Y.

Filed Oct. 15, 1997, Ser. No. 78,654

Term of patent 14 years

LOC (6) Cl. 24 - 99

U.S. Cl. D28—64



398,078

COSMETIC ORGANIZER

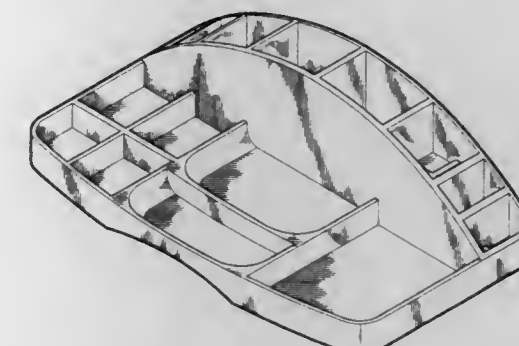
Junior Julian Hsu, 3633 Palm Canyon, Northbrook, Ill. 60062

Filed Jan. 9, 1997, Ser. No. 64,708

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—73



398,079

COMPACT CASE

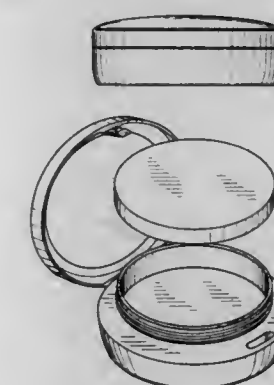
Carol Lea Denison, Greenwich, Conn., assignor to Revlon Consumer Products Corporation, New York, N.Y.

Filed May 19, 1997, Ser. No. 71,042

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—82



398,077

FLOSSING DEVICE

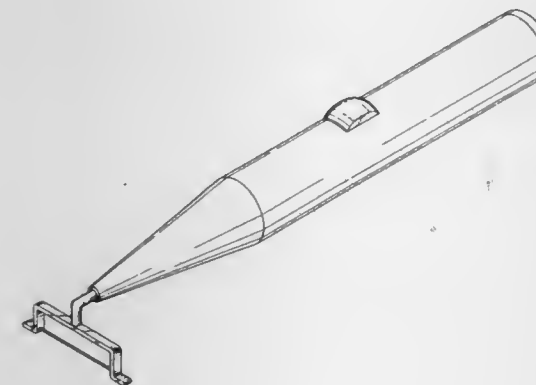
Dan E. Young, 9471 S. County Rd. 900 West, Brazil, Ind. 47834

Filed Dec. 2, 1997, Ser. No. 80,286

Term of patent 14 years

LOC (6) Cl. 28 - 03

U.S. Cl. D28—64



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OFFICIAL GAZETTE

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398,080

CHILD RESTRAINT

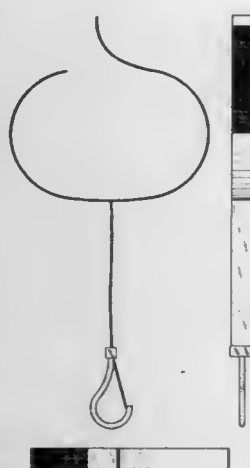
Joseph Nealon, 39 Orange St., Abington, Mass. 02351

Filed Jul. 3, 1997, Ser. No. 73,189

Term of patent 14 years

LOC (6) Cl. 09 - 03

U.S. Cl. D29—100



398,082

ANIMAL CARRIER

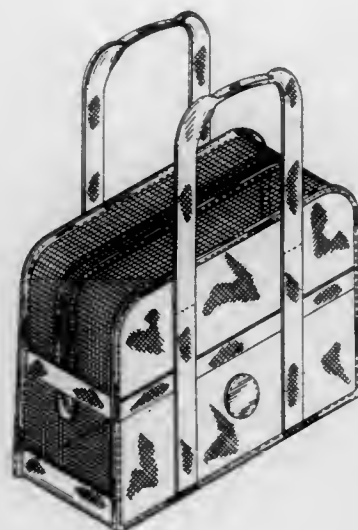
Gayle Martz, New York, N.Y., assignor to Gayle Martz, Inc., New York, N.Y.

Filed Jun. 2, 1997, Ser. No. 71,563

Term of patent 14 years

LOC (6) Cl. 30 - 02

U.S. Cl. D30—109



398,081

PAIR OF PROTECTIVE GLOVES

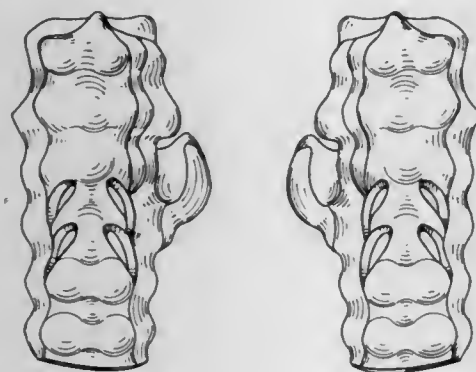
John Bogdanski, Norwich, Conn., assignor to Bogs Ltd., Taftville, Conn.

Filed Sep. 13, 1996, Ser. No. 59,742

Term of patent 14 years

LOC (6) Cl. 29 - 02

U.S. Cl. D29—113



398,083

ANIMAL CARRIER

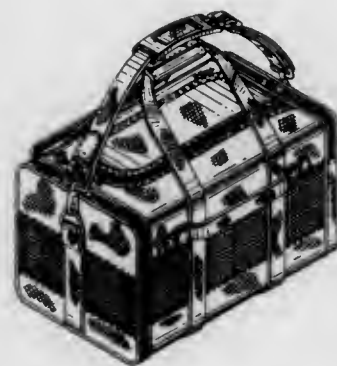
Gayle Martz, New York, N.Y., assignor to Gayle Martz, Inc., New York, N.Y.

Filed Jun. 2, 1997, Ser. No. 71,564

Term of patent 14 years

LOC (6) Cl. 30 - 02

U.S. Cl. D30—109



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2353

398,084

ROUND BALE FEEDER

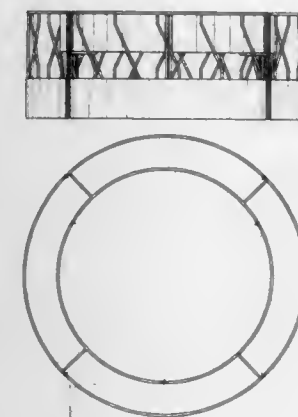
Michael Gene Hartl, F 1402 CO RD P, Stratford, Wis. 54484

Filed Mar. 20, 1997, Ser. No. 68,216

Term of patent 14 years

LOC (6) Cl. 30 - 07

U.S. Cl. D30—121



398,086

GLOVE FOR GROOMING AND SHAMPOOING PETS

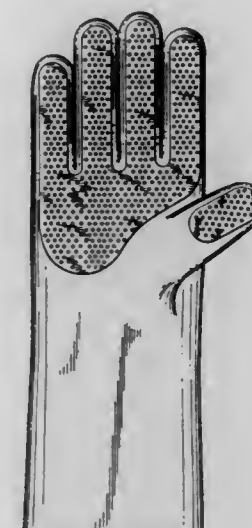
Ines M. Ferdenzi, 125 W. 16th St., Apt. 156, New York, N.Y. 10011

Filed May 5, 1995, Ser. No. 38,421

Term of patent 14 years

LOC (6) Cl. 30 - 99

U.S. Cl. D30—158



398,085

LEASH ANCHOR

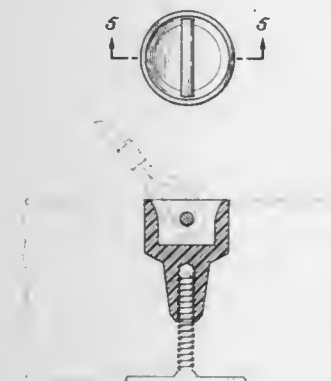
Richard Gallo, San Clemente, Calif., assignor to Pro Plug, Inc., San Clemente, Calif.

Filed Feb. 11, 1997, Ser. No. 66,327

Term of patent 14 years

LOC (6) Cl. 30 - 09

U.S. Cl. D30—154



398,087

COMBINED CAT SCRATCHING RAMP AND BED

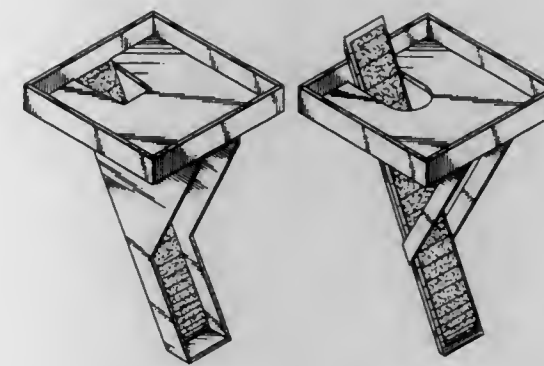
Burton Pritzker, and Renée Walker Pritzker, both of 8501 Bowling Green Dr., Austin, Tex. 78757

Filed Jul. 29, 1996, Ser. No. 57,590

Term of patent 14 years

LOC (6) Cl. 30 - 99

U.S. Cl. D30—160



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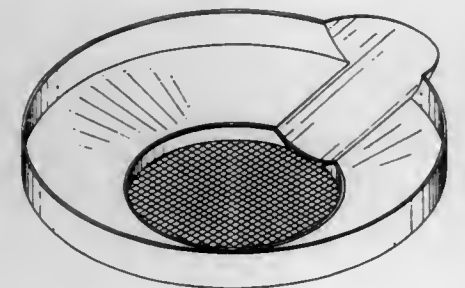
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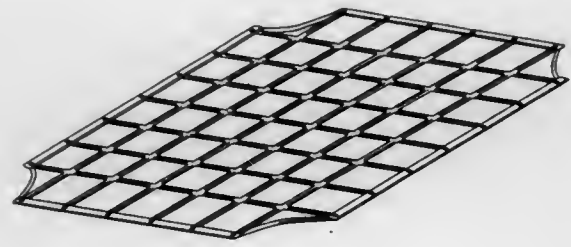
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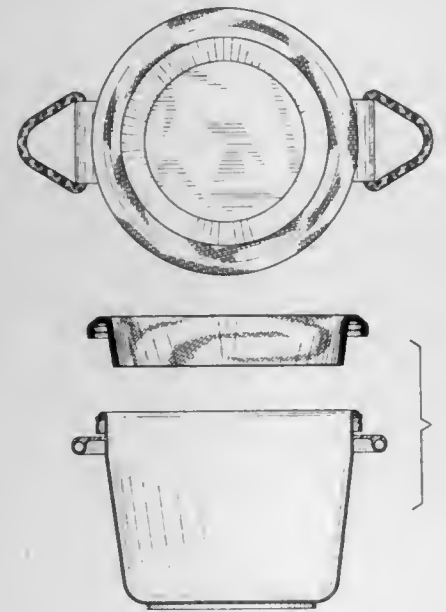
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CAT LITTER TRANSFER SIEVE
Keith A. Angier, 5308 - 189th Ave. NE., Redmond, Wash. 98052
Filed May 20, 1997, Ser. No. 71,496
Term of patent 14 years
LOC (6) Cl. 30 - 99
U.S. Cl. D30—161



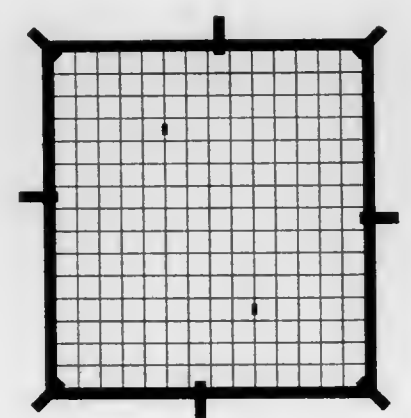
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DISHWASHER NET
Carl R. Busby, Sr., P.O. Box 920540, Houston, Tex. 77292
Filed Jun. 4, 1996, Ser. No. 55,366
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—3



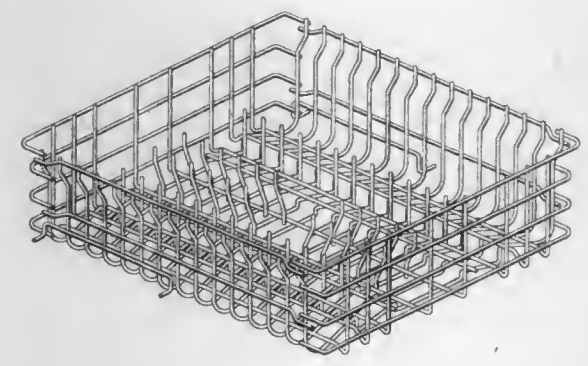
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CAT BOX
Janie Reed, 9572 Heisey Rd., Mercersburg, Pa. 17236
Filed Aug. 14, 1997, Ser. No. 75,095
Term of patent 14 years
LOC (6) Cl. 30 - 99
U.S. Cl. D30—161



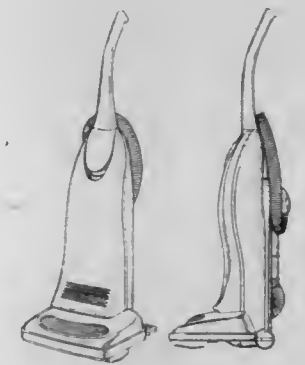
398,091
FLEXIBLE NET FOR DISHWASHER CONTENTS
Janet Badgett; Ron Badgett, both of Lakewood; Michelle Hogan, and Bruce Hogan, both of Brighton, all of Colo., assignors to House Wize, LLC, Lakewood, Colo.
Filed Jul. 19, 1996, Ser. No. 57,222
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—3



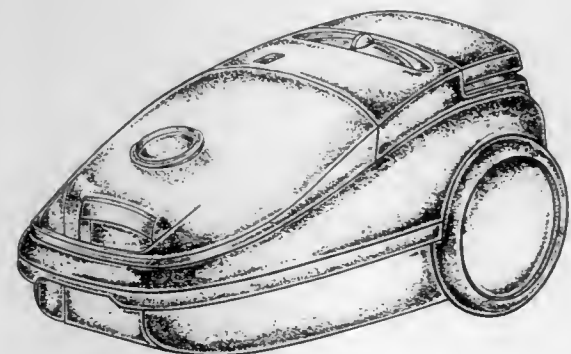
398,092
DISHWASHER RACK
Robert W. Good, Kinston, N.C., assignor to White Consolidated Industries, Inc., Cleveland, Ohio
Division of Ser. No. 50,933, Feb. 29, 1996. This application
Aug. 30, 1996, Ser. No. 59,015
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—3



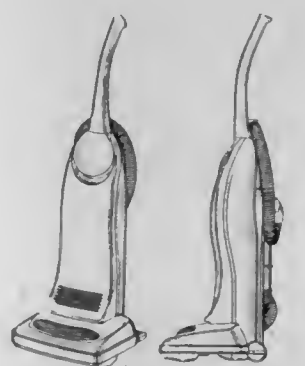
398,094
ELECTRIC VACUUM CLEANER
Takashi Sato, and Kazuhiko Yamagiwa, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Dec. 30, 1996, Ser. No. 64,343
Claims priority, application Japan, Jul. 11, 1996, 8-20926
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—22



398,093
VACUUM CLEANER
Mie Fujima, Osaka-fu, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 12, 1997, Ser. No. 67,903
Claims priority, application Japan, Sep. 12, 1996, 8-27505
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—21



398,095
ELECTRIC VACUUM CLEANER
Takashi Sato; Kazuhiko Yamagiwa, both of Osaka, and Naoki Hatakenaka, Hyogo, all of Japan, assignors to Matsushita Electric Industrial Co Ltd., Osaka, Japan
Filed Dec. 30, 1996, Ser. No. 64,380
Claims priority, application Japan, Jul. 11, 1996, 8-20927
Term of patent 14 years
LOC (6) Cl. 15 - 05
U.S. Cl. D32—22



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VACUUM CLEANER

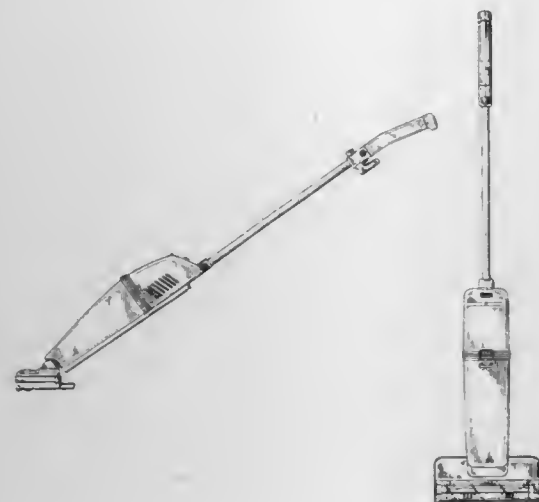
Paul Gildersleeve, Lutherville, Md., assignor to The Hoover Company, North Canton, Ohio

Filed Jan. 3, 1997, Ser. No. 64,529

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—22



398,098

UPRIGHT VACUUM CLEANER

David E. Mehaffey, Danville, Ky., and Ty S. Rarick, Houston, Tex., assignors to Matsushita Home Appliance Corporation of America, Danville, Ky.

Filed Jun. 16, 1997, Ser. No. 72,397

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—22



398,097

UPRIGHT VACUUM CLEANER

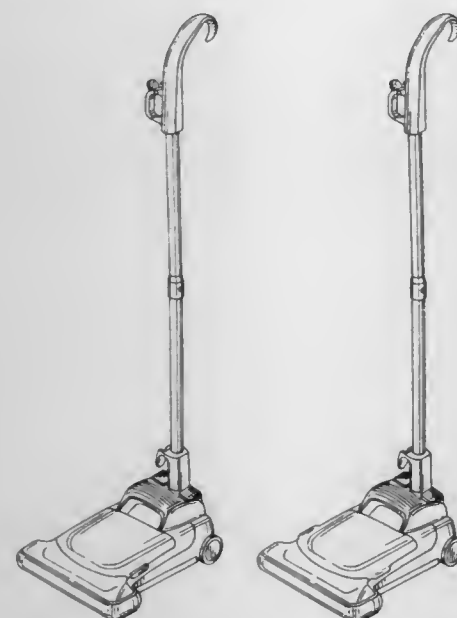
John S. Murphy, Brook Park; Robert Matousek, Lakewood; Richard C. Farone, Wickliffe; David M. Brickner, Willoughby; Jeffrey M. Kalman, Cleveland; Craig M. Saunders, Rocky River, and Michael F. Wright, Stow, all of Ohio, assignors to Royal Appliance Mfg. Co., Cleveland, Ohio

Filed Jan. 10, 1997, Ser. No. 64,809

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—22



398,099

VACUUM CLEANER

Sing Kwok Leung, 14th Floor, Silver Tech Tower, 26 Cheung Lee Street, Chai Wan, Hong Kong

Filed Oct. 10, 1997, Ser. No. 77,886

Claims priority, application United Kingdom, Apr. 11, 1997, 2064891

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—22



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2357

398,100

CARPET EXTRACTOR

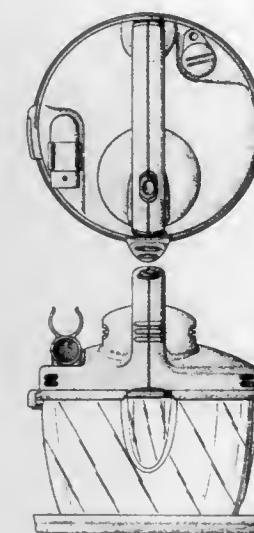
Ronald J. Stephens, Rittman; Douglas C. Barker, North Canton; Darwin S. Crouser, Canton; Darwin T. McKnight, Louisville, and Edgar A. Maurer, Canton, all of Ohio, assignors to The Hoover Company, North Canton, Ohio

Filed May 6, 1996, Ser. No. 54,100

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—23



398,102

APPLIANCE CONTROL PANEL

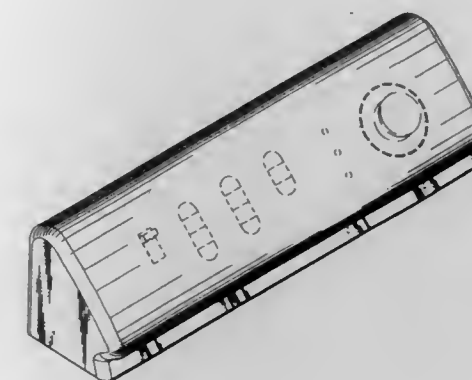
Stephen D. Schober, Newton, Iowa, assignor to Maytag Corporation, Newton, Iowa

Filed Jun. 26, 1997, Ser. No. 72,946

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—25



398,101

PIPE-MOUNTABLE VALVE FOR FLUID VACUUM CLEANING SYSTEM

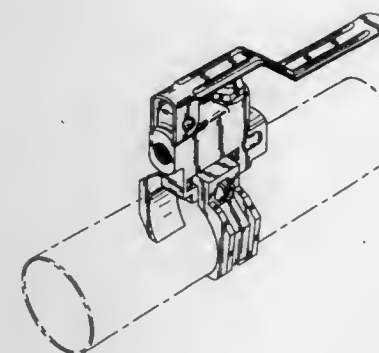
Renold R. Passien, Klamath Falls, Oreg., assignor to Production Metal Forming, Inc., Klamath Falls, Oreg.

Filed Mar. 14, 1996, Ser. No. 51,610

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—25



398,103

LAUNDRY STATUS DISPLAY APPARATUS

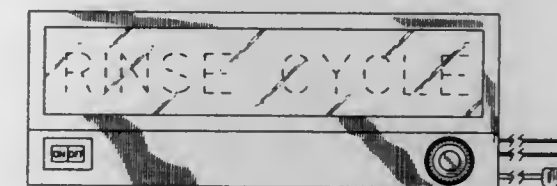
John H. Brown, 2718 N. Brompton Dr., Pearland, Tex. 77584

Filed Jan. 30, 1997, Ser. No. 65,602

Term of patent 14 years

LOC (6) Cl. 15 - 05

U.S. Cl. D32—28



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OFFICIAL GAZETTE

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398,104

GARBAGE DISPOSAL PLUNGER

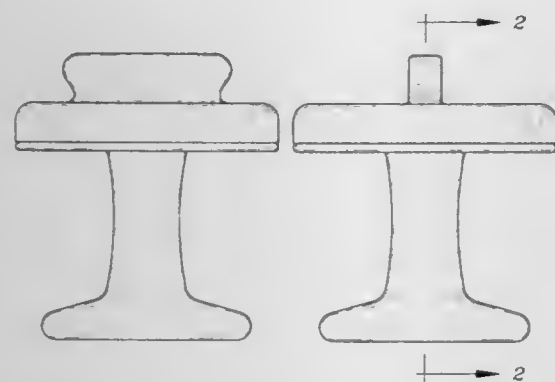
James Raines, 3105 Robinwood Dr., Salt Lake City, Utah 84118

Filed Jul. 3, 1997, Ser. No. 73,194

Term of patent 14 years

LOC (6) Cl. 08 - 99

U.S. Cl. D32—35



398,106

AWNING CLEANING TOOL

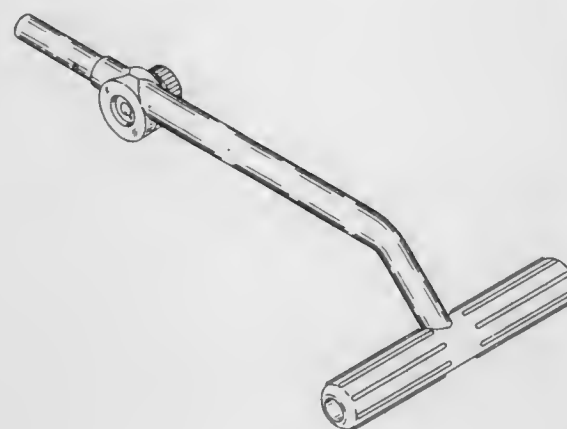
Paul F. Diehl, 832 S. Boulevard St., Tampa, Fla. 33606; Frederick E. Diehl, 470 NE. 121st St., Biscayne Park, Fla. 33161; Heidi A. Diehl, 509 NE. 121st St., North Miami, Fla. 33161, and Paul Diehl, Sr., 3109 Santiago St., Tampa, Fla. 33629

Filed Nov. 7, 1997, Ser. No. 79,087

Term of patent 14 years

LOC (6) Cl. 12 - 05

U.S. Cl. D32—35



398,105

AWNING CLEANING TOOL

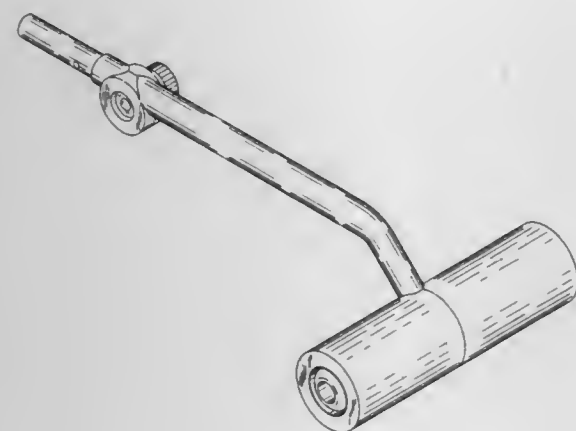
Paul F. Diehl, 832 S. Boulevard St., Tampa, Fla. 33606; Heidi A. Diehl, 509 NE. 121st St., North Miami; Frederick E. Diehl, 470 NE. 121st St., Biscayne Park, both of Fla. 33161, and Paul Diehl, Sr., 3109 Santiago St., Tampa, Fla. 33629

Filed Nov. 7, 1997, Ser. No. 79,071

Term of patent 14 years

LOC (6) Cl. 12 - 05

U.S. Cl. D32—35



398,107

WALL-MOUNTED CLOTHES HAMPER

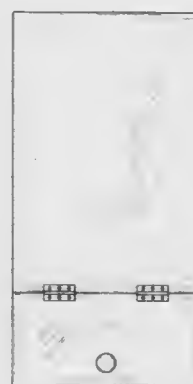
Thomas R. Ratcliff, P.O. Box 151, Dunreith, Ind. 47337

Filed Aug. 19, 1997, Ser. No. 75,156

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D32—37



398,108

HAMPER

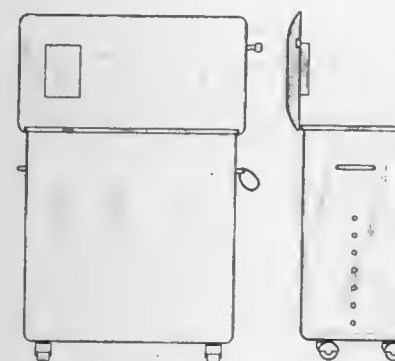
Miguel Diaz, P.O. Box 173, Quakertown, Pa. 18951

Filed Aug. 21, 1997, Ser. No. 75,564

Term of patent 14 years

LOC (6) Cl. 07 - 07

U.S. Cl. D32—37



398,110

GRILL CLEANER

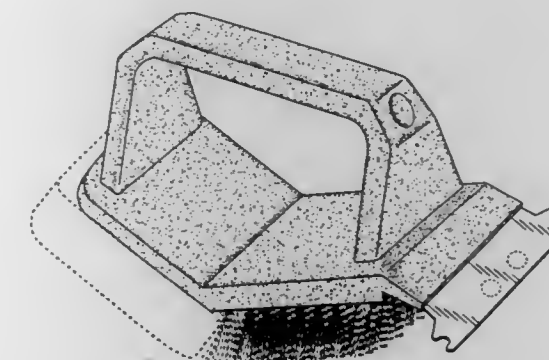
Marc Zemel, Old Bethpage, N.Y., assignor to Mr. Bar-B-Q, Inc., Old Bethpage, N.Y.

Filed Aug. 22, 1997, Ser. No. 75,756

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D32—42



398,109

SWEAT SQUEEGEE

Jeremy Tesoriero, 1835 S. Beverly Glen Apt. C, Los Angeles, Calif. 90025, assignor to Jeremy Tesoriero, Los Angeles, Calif.

Filed Oct. 14, 1997, Ser. No. 77,792

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D32—41



398,111

SCRAPER TO REMOVE FOOD FROM A PLATE

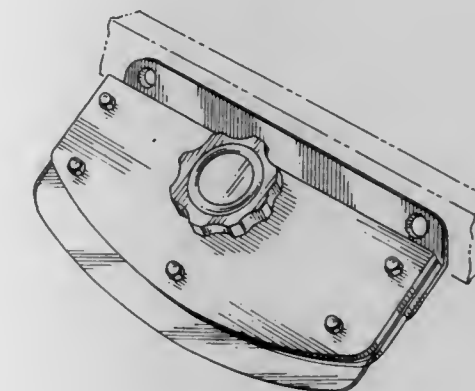
Robert S. Avrans, 133 Chaucer Ct., Willowbrook, Ill. 60521

Filed Sep. 23, 1997, Ser. No. 76,830

Term of patent 14 years

LOC (6) Cl. 08 - 05

U.S. Cl. D32—46



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

398,112

COMBINED BOOT BRUSH AND DOOR STOPPER

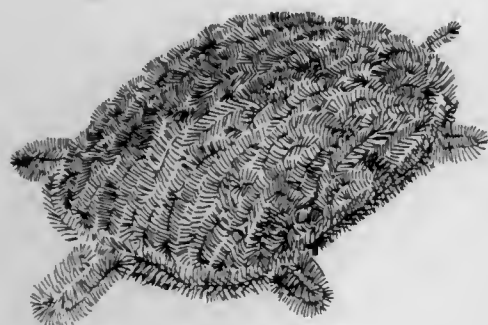
Hilarian Chrisan Salinda Mendis, Mahabage, Sri Lanka, Ralph T. Jordan, 5117 14th Ave. South, Gulfport, Fla. 33707
assignor to Rileys Limited, Mahabage, Sri Lanka

Filed Oct. 23, 1997, Ser. No. 78,257

Term of patent 14 years

LOC (6) Cl. 08 - 99

U.S. Cl. D32—47



398,114

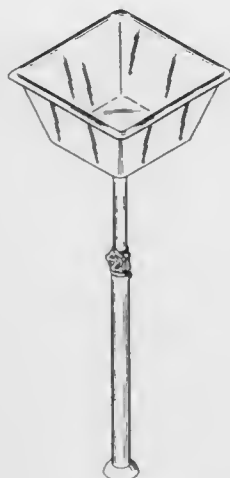
DUST CATCHER

Ralph T. Jordan, 5117 14th Ave. South, Gulfport, Fla. 33707
Filed Apr. 2, 1997, Ser. No. 69,466

Term of patent 14 years

LOC (6) Cl. 07 - 05

U.S. Cl. D32—74



398,115

DUST PAN

Harold Footer, Newton, and Robert Cann, Amherst, both of
Mass., assignors to Easy Day Manufacturing Company, Hol-
liston, Mass.

Continuation of Ser. No. 50,747, Feb. 26, 1996, abandoned.

This application Jun. 19, 1997, Ser. No. 75,479

Term of patent 14 years

LOC (6) Cl. 09 - 05

U.S. Cl. D32—74

398,113

POLISHING PAD HOLDER

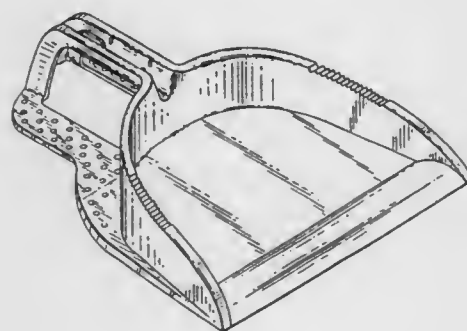
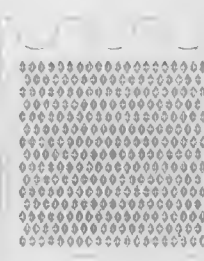
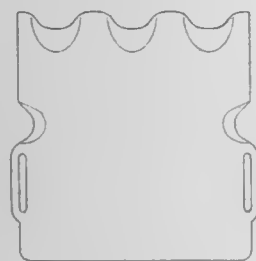
Kenneth J. Tiberg, 55 Sandstone Rise NW., Calgary, AB,
Canada, T3K-2W7, and Milad N. Dagher, #55-1155 Laleou-
ridge Drive, NE, Calgary, AB, Canada, T381E5

Filed Jan. 15, 1997, Ser. No. 64,955

Term of patent 14 years

LOC (6) Cl. 04 - 01

U.S. Cl. D32—52



SEPTEMBER 8, 1998

U.S. PATENT AND TRADEMARK OFFICE

2361

398,116

ENVIRONMENTAL WASTE BASKET

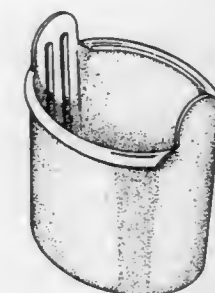
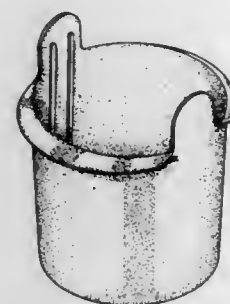
Dennis J. Malone, and Yen B. Nguyen, both of 575 Anton Blvd., Patrick Douglas, Wooster, Ohio, assignor to Rubbermaid
#300, Costa Mesa, Calif. 92626

Filed Jan. 22, 1997, Ser. No. 65,478

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—1



398,118

WASTEBASKET

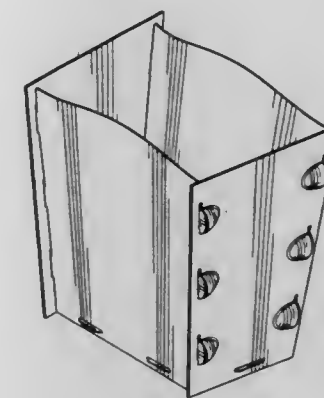
Patrick Douglas, Wooster, Ohio, assignor to Rubbermaid
Incorporated, Wooster, Ohio

Filed Dec. 15, 1997, Ser. No. 80,744

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—1



398,119

PORTABLE SPITTOON

David L. Corbin, 309 San Luis Way, Novato, Calif. 94945, and
Kenneth Tarlow, 94 Birch Ave., Corte Madera, Calif. 94925

Filed Feb. 28, 1997, Ser. No. 67,324

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—2

398,117

TRASH CAN WITH AIR VENTS

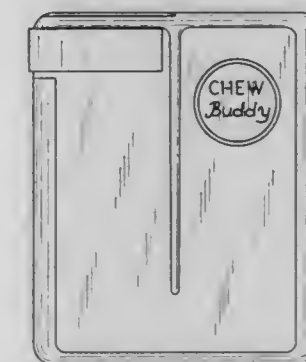
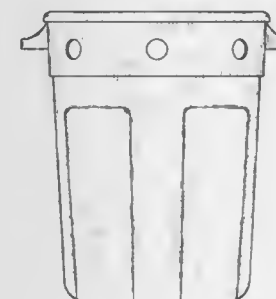
Steve Giba, 8213 Bevan St., San Gabriel, Calif. 91775

Filed Jul. 10, 1997, Ser. No. 73,443

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—1



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OFFICIAL GAZETTE

SEPTEMBER 8, 1998

398,120

ROLL OUT TRASH CART

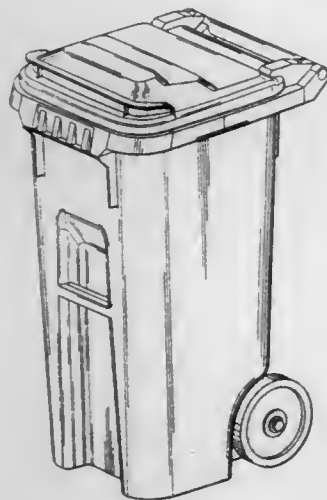
James B. Rehrig, Rancho Palos Verdes, Calif.; William P. Apps, Alpharetta, Ga., and Roger S. Hsu, Torrance, Calif., assignors to Rehrig Pacific Company, Los Angeles, Calif.

Filed Sep. 19, 1997, Ser. No. 76,968

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—5



398,122

REFUSE CONTAINER

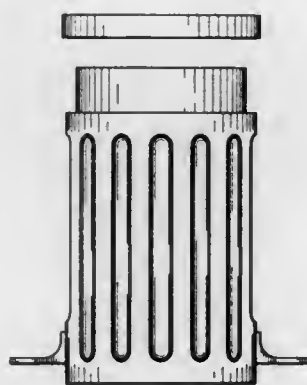
Diane M. Presock, and Eugene C. Krysmalski, both of Rd 1 Box 355, Rices Landing, Pa. 15357

Filed Aug. 29, 1997, Ser. No. 76,160

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—9



398,123

MOBILE WORKSTATION

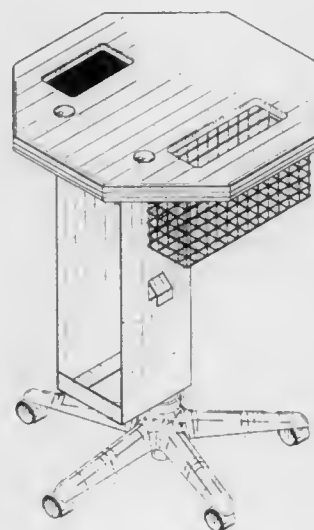
John J. Dell, Upper St. Clair, and H. Mark Hall, Pittsburgh, both of Pa., assignors to Sculptor Developmental Technologies, Inc., Pittsburgh, Pa.

Filed Sep. 12, 1996, Ser. No. 59,553

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—19



398,121

BAG HOLDER

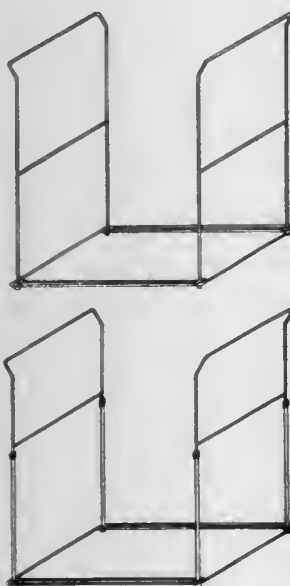
Victor Wai Park Siu, 5304 Christopher Court, Burnaby, British Columbia, Canada, V5H 2K2

Filed Dec. 22, 1997, Ser. No. 80,946

Term of patent 14 years

LOC (6) Cl. 09 - 09

U.S. Cl. D34—6



U.S. PATENT AND TRADEMARK OFFICE

2363

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398,124

MECHANICAL CREEPER

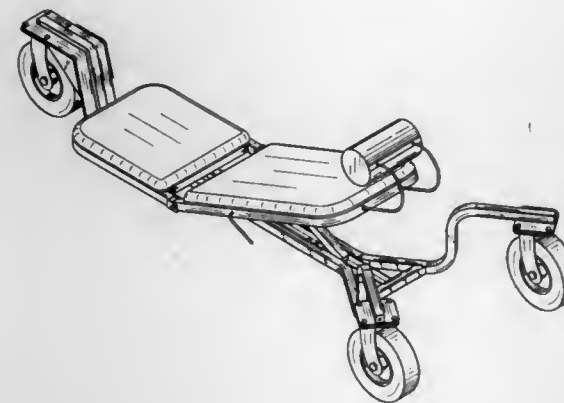
Jeff L. Schultz, R.R. 2 Box 125 B, and Johnie L. Schultz, R.R. 2, Box 134, both of Ewing, Mo. 63440

Filed Oct. 9, 1997, Ser. No. 77,835

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—23



398,126

MANIPULATING APPARATUS FOR A CONVEYOR

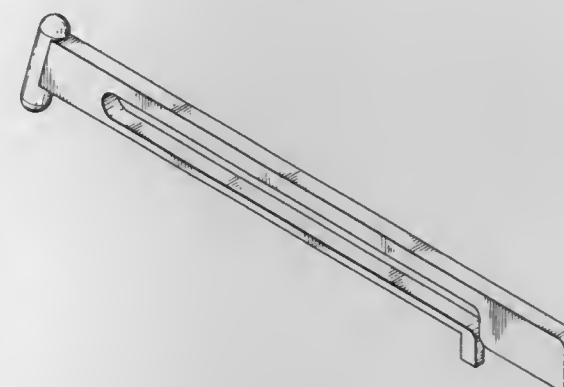
James C. Hagan, 5425 Chatelaine Cir., Reno, Nev. 89511

Filed Jul. 9, 1997, Ser. No. 73,473

Term of patent 14 years

LOC (6) Cl. 12 - 05

U.S. Cl. D34—29



398,125

LUGGAGE HANDLE AND WHEEL ASSEMBLY

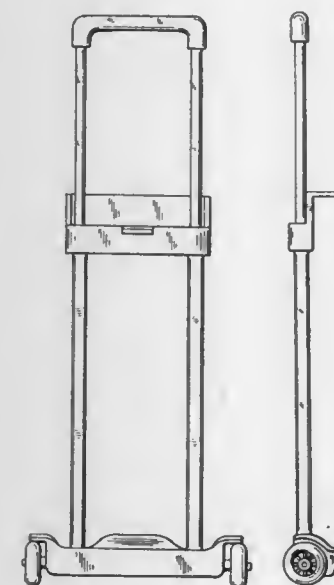
Richard J. Rekuc, Pattenburg; James O'Shea, Annandale, both of N.J.; Steven J. Gible, Allentown, Pa., and Carmen Cook, Asbury, N.J., assignors to Royalox International, Inc., Phillipsburg, N.J.

Filed May 19, 1997, Ser. No. 70,990

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—26



398,127

EDGE SUPPORTED SUPERMARKET CART CUPHOLDER

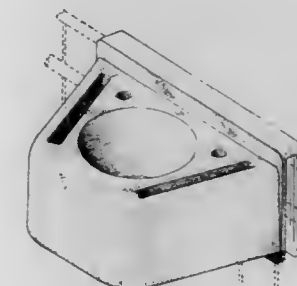
Peter W. A. Bergin, Hopkins, and Bruce D. Clark, Orono, both of Minn., assignors to MTS Northwest Sound, Inc., Minneapolis, Minn.

Filed Jul. 1, 1997, Ser. No. 73,136

Term of patent 14 years

LOC (6) Cl. 12 - 02

U.S. Cl. D34—27



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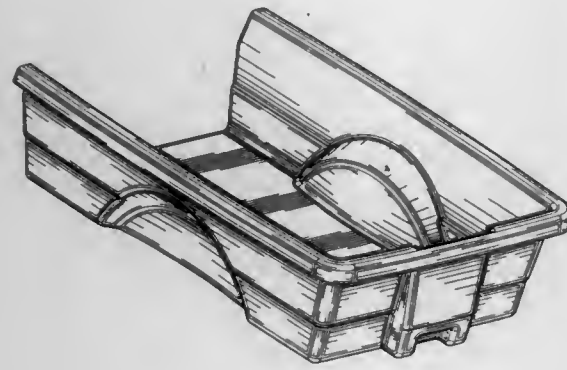
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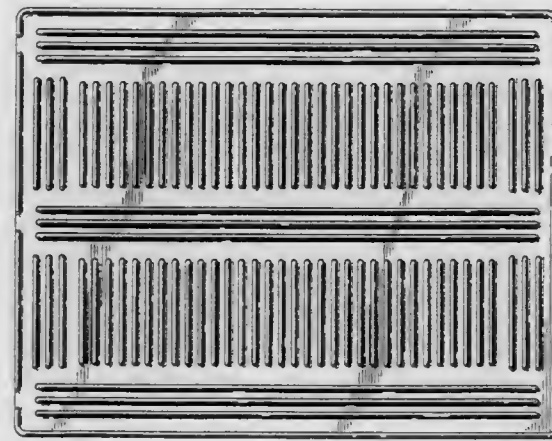
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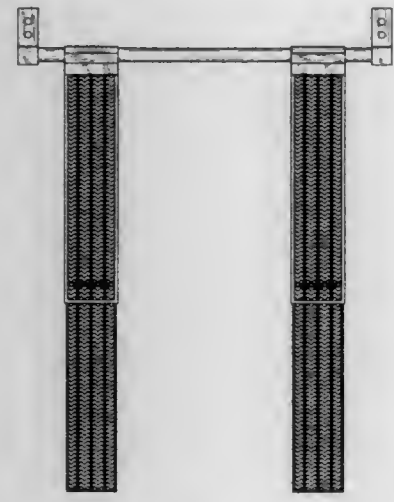
398,128
CART BODY
Glen A. Laivins; Kenneth T. Laivins, both of Reynoldsburg, and Jon Mandell, North Canton, all of Ohio, assignors to Rubbermaid Incorporated, Wooster, Ohio
Filed Jul. 24, 1997, Ser. No. 74,093
Term of patent 14 years
LOC (6) Cl. 12 - 02
U.S. Cl. D34—27



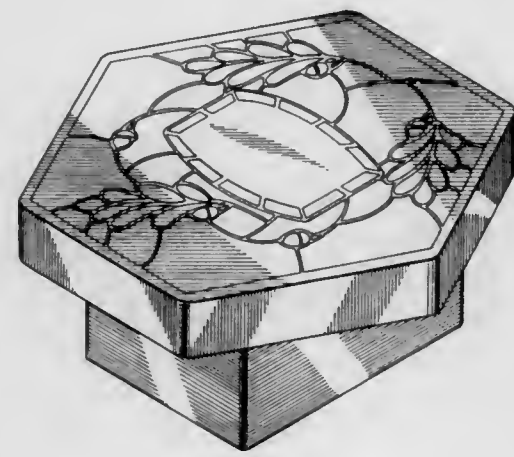
398,130
PALLET
Omero Noferi, San Giovanni Valdarno, Italy, assignor to Pirelli Coordinamento Pneumatici, S.p.A., Milan, Italy
Filed Jun. 28, 1996, Ser. No. 57,737
Claims priority, application Hague Agreement, Dec. 28, 1995, DM/035043
Term of patent 14 years
LOC (6) Cl. 09 - 08
U.S. Cl. D34—38



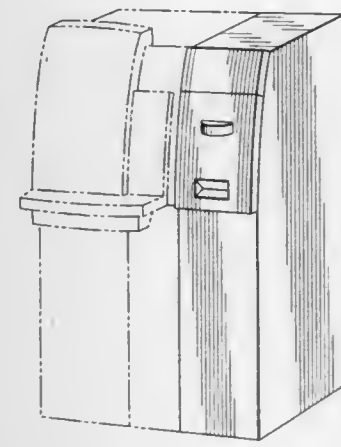
398,129
ADJUSTABLE WIDTH TRUCK RAMP
Michael Sacks, and Leann Sacks, both of 9715 Long Swamp Rd., Mertztown, Pa. 19539
Filed Jul. 3, 1997, Ser. No. 73,182
Term of patent 14 years
LOC (6) Cl. 12 - 05
U.S. Cl. D34—32



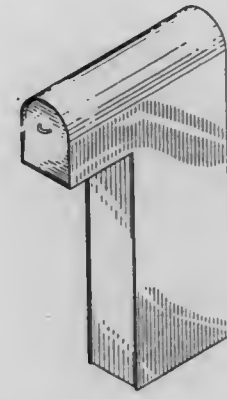
398,131
Patent Not Issued For This Number
398,132
COMBINATION LAWN ORNAMENT AND CREMATION CONTAINER
Mark H. Thesken, Cincinnati, Ohio, assignor to Batesville Casket Company, Inc., Batesville, Ind.
Filed Feb. 10, 1997, Ser. No. 66,286
Term of patent 14 years
LOC (6) Cl. 25 - 03
U.S. Cl. D99—19



398,133
PERIPHERAL CABINET FOR NCR 587X TERMINALS
Timothy P. Johnson, Centerville, Ohio, assignor to NCR Corporation, Dayton, Ohio
Filed Apr. 21, 1997, Ser. No. 69,981
Term of patent 14 years
LOC (6) Cl. 14 - 02
U.S. Cl. D99—28



398,134
MAILBOX
Gary L. Taylor, 715 S. Upas St., Escondido, Calif. 92925
Filed Jul. 24, 1997, Ser. No. 73,921
Term of patent 14 years
LOC (6) Cl. 99 - 00
U.S. Cl. D99—29



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LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 8th DAY OF SEPTEMBER, 1998

NOTE— Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A-Line Products Corporation: *See—*
Laura, Alger E.; Easton, Ronald J.; Frisch, Kurt C.; and Xiao, Han X., 5,804,640, Cl. 524-507.000.
- AAF International: *See—*
Gunter, L. Alan; O'Connell, Keiron P.; and Matis, George, 5,803,954, Cl. 95-268.000.
- Aasjord, Per Martin; Nerland, Audun Helge; and Knappskog, Dag Harald, to Akzo Nobel N. V. Oil-based and water-based adjuvant mixture. 5,804,199, Cl. 424-261.100.
- AB Durgo: *See—*
Andersson, Lars, 5,803,112, Cl. 137-217.000.
- Abadi, Martin: *See—*
Birrell, Andrew D.; Wobber, Edward P.; Abadi, Martin; and Stata, Raymond P., 5,805,803, Cl. 395-187.010.
- ABB Air Preheater, Inc.: *See—*
Brophy, Mark E.; Geyer, Thomas G.; and Snider, Rex R., 5,803,157, Cl. 165-9.000.
- Harder, William F.; and Rhodes, Robin B., 5,803,158, Cl. 165-10.000.
- ABB Daimler-Benz Transportation (North America) Inc.: *See—*
Ackerman, Joseph R.; Karg, Kenneth A.; and Patel, Angela C., 5,803,411, Cl. 246-169.00R.
- Abb Power T&D Company Inc.: *See—*
Brubaker, Michael A.; and Frimpong, George K., 5,804,974, Cl. 324-553.000.
- Hu, Yi; Hart, David; Novosel, Damir; and Smith, Robert, 5,805,395, Cl. 361-21.000.
- ABB Research Ltd.: *See—*
Eroglu, Adnan; Polifke, Wolfgang; and Senior, Peter, 5,803,602, Cl. 366-337.000.
- Harris, Christopher, 5,804,483, Cl. 438-268.000.
- Konstantinov, Andrei; and Janzen, Erik, 5,804,482, Cl. 438-268.000.
- Abbott Laboratories: *See—*
Fesik, Stephen W.; and Hajduk, Philip J., 5,804,390, Cl. 435-7.100.
- ABC Dispensing Technologies: *See—*
Cutting, Robert A.; Gemmell, Gregory R.; and Green, Thomas S., 5,803,320, Cl. 222-641.000.
- Abdel-Rahman, Mahmoud F., to Hewlett-Packard Company. Method and apparatus for optimizing the sensitivity and linearity of an electron capture detector. 5,804,828, Cl. 250-381.000.
- Abe, Fumio; Hashimoto, Shigeharu; and Ogawa, Masato, to NGK Insulators, Ltd. Exhaust gas purification system and exhaust gas purification method. 5,802,845, Cl. 60-274.000.
- Abe, Hideaki, to NEC Corporation. Image forming apparatus capable of producing a pseudo half-tone image by using dither patterns. 5,805,305, Cl. 358-457.000.
- Abe, Koichi: *See—*
Sukegawa, Shunichi; Abe, Koichi; Saeki, Makoto; and Suzuki, Yukihide, 5,805,522, Cl. 365-230.030.
- Abe, Naoto: *See—*
Inaba, Hiroo; Suzuki, Masaki; Abe, Naoto; Kitahara, Toshiyuki; Matsubaguchi, Satoshi; and Takano, Hiroaki, 5,804,283, Cl. 428-141.000.
- Abe, Nobuaki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Image signal compressing device. 5,805,737, Cl. 382-246.000.
- Abe, Shingo: *See—*
Ishii, Yorishige; Inui, Tetsuya; Matoba, Hirotugu; Hirata, Susumu; Kimura, Masaharu; Horinaka, Hajime; Abe, Shingo; and Onda, Hiroshi, 5,804,083, Cl. 216-2.000.
- Abe, Shunichi; and Hasebe, Mitsuo, to Ricoh Company, Ltd. Color image forming apparatus separately correcting each color component image. 5,805,314, Cl. 358-518.000.
- Abe, Toshiki, to Matsushita Electric Industrial Co., Ltd. Apparatus and method for mounting tape carrier package onto liquid crystal display. 5,803,341, Cl. 228-102.000.
- Abel, Gretchen J.: *See—*
Nowakowski, Anthony J.; and Abel, Gretchen J., 5,803,261, Cl. 206-466.000.
- Aberegg, Dale: *See—*
Rick, Bradley G.; Pippel, Bradley J.; and Aberegg, Dale, 5,803,940, Cl. 55-490.000.
- ABIC Ltd.: *See—*
Gutter, Bezalel, 5,804,195, Cl. 424-202.100.
- Ables, Billy D.: *See—*
Merritt, Gordon D.; and Ables, Billy D., 5,805,426, Cl. 361-769.000.
- Abou-Gharbia, Magid: *See—*
Schwartz, Arthur G.; Williams, John R.; Abou-Gharbia, Magid; Swern, Ann R.; and Lewbart, Marvin Louis, 5,804,576, Cl. 514-177.000.
- ABT, Inc.: *See—*
Gunter, Charles E., 5,803,662, Cl. 405-119.000.
- Abuto, Frank Paul; Diamond, Andrew Edward; Levy, Ruth Lisa; and Smith, Stephen Clark, to Kimberly-Clark Worldwide, Inc. Slit elastic fibrous nonwoven laminates and process for forming. 5,804,021, Cl. 156-252.000.
- Accatino, Luciano; and Bertin, Giorgio, to Csel-Centro Studi E Laboratori Telecomunicazioni S.p.A. Multi-mode cavity for waveguide filters, including an elliptical waveguide segment. 5,805,035, Cl. 333-208.000.
- Acetron Technology Corporation: *See—*
Yu, Ji-Hsiang; and Huang, Wen-Hsung, 5,805,817, Cl. 395-200.540.
- Achelpohl, Fritz, to Windmüller & Hölscher. Palleting device for palleting stacks of flat objects. 5,803,706, Cl. 414-794.400.
- Achelpohl, Fritz; Feldkamper, Richard; Kampschulte, Andreas; and Köhn, Uwe, to Windmüller & Hölscher. Apparatus for attaching leaves of plastic film material to laid flat workpieces. 5,804,029, Cl. 156-497.000.
- Acker, Dominique; and Richter, Thomas, to TRW Occupant Restraint Systems GmbH. Gas bag lateral impact protective device. 5,803,485, Cl. 280-728.200.
- Ackerman, John F.: *See—*
Coffinberry, George A.; and Ackerman, John F., 5,805,973, Cl. 428-551.000.
- Ackerman, Joseph R.; Karg, Kenneth A.; and Patel, Angela C., to ABB Daimler-Benz Transportation (North America) Inc. Method and apparatus for initializing an automated train control system. 5,803,411, Cl. 246-169.00R.
- Ackermans, Paul A. J.: *See—*
Barmiento, Maarten; Bijker, Gerrit; Einerhand, Robert E. F.; Ackermans, Paul A. J.; Elkhuisen, Jan P.; and Netten, Adriaan, 5,802,749, Cl. 38-82.000.
- Acland, Gregory: *See—*
Aguirre, Gustavo; Acland, Gregory; and Ray, Kunal, 5,804,388, Cl. 435-6.000.
- ACS Industries, Inc.: *See—*
Campbell, Daniel R., Jr.; Belt, Richard; and Fox, Roy L., 5,805,752, Cl. 385-51.000.
- Actel Corporation: *See—*
El Ayat, Khaled; Chan, King W.; and Speers, Theodore M., 5,804,960, Cl. 324-158.100.
- Hawley, Frank W.; McCollum, John L.; Go, Ying; and Eltoukhy, Abdelshafy, 5,804,500, Cl. 435-600.000.
- Activ Protection Systems S.L.: *See—*
Espada-Velasco, Jerónima, 5,802,890, Cl. 70-57.100.
- Actuelle Tricot I Boras AB: *See—*
Nordin, Rudolf, 5,804,274, Cl. 428-89.000.
- Acushnet Company: *See—*
Gobush, William; Pelletier, Diane; and Days, Charles, 5,803,823, Cl. 473-223.000.
- ADAC Laboratories: *See—*
Ryals, Carl J.; Wong, Stanley H.; Goldberg, Edward M.; and Hudson, Robert C., 5,803,914, Cl. 600-407.000.
- Adachi, Tomohiko: *See—*
Doi, Ayumu; Uemura, Hiroki; Yamamoto, Yasunori; Adachi, Tomohiko; and Yoshioka, Tooru, 5,805,103, Cl. 342-70.000.
- Adamisin, David Wayne; Cierpial, Philip Damian; and Kach, Raymond Alan, to Ford Global Technologies, Inc. Air intake slide throttle for an internal combustion engine. 5,803,045, Cl. 123-336.000.
- Adams, Gary Wayne: *See—*
McDonald, Wallace John; Humphreys, Kevin James; Humphreys, Reginald Duncan; Kopecky, Karl Rudolph; and Adams, Gary Wayne, 5,804,067, Cl. 210-222.000.
- Adams, Jonathan Patrick: *See—*
Martin, Wallace Anthony; Adams, Jonathan Patrick; Andersen, Finn Thrige; Beaton, Stephen Robert; Christensen, Svend; Jensen, Allan G.; Kindt-Larsen, Ture; Lust, Victor; Walker, Craig William; and Wang, Daniel Tsu-Fang, 5,804,107, Cl. 264-1.360.
- Adams, Robert D. Line connector lock. 5,803,509, Cl. 285-114.000.
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- Arament Systems and Procedures, Inc.: *See—*
- Parsons, Kevin L., 5,802,888, Cl. 70-16.000.
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- Gonzalez-Rivera, Ani, 5,803,258, Cl. 206-454.000.
- Ares, Jeffrey J.: *See—*
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- Argersinger, Philip B.; and Walsh, Robert J., to Flex-Hose Company, Inc. Flexible pipe loop, 5,803,506, Cl. 285-14.000.
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- Wasson, Jim; Miller, Steve; Wright, Peter; and Bernstein, Daniel M., 5,803,105, Cl. 137-1.000.
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- Arnold, L. Taylor. Rapid securing bicycle lock. 5,802,889, Cl. 70-18.000.
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- Aronson, Michael Paul: *See—*
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- Arter, James: *See—*
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- Ozawa, Naohiro; Otsuka, Yasuo; Asada, Akihiko; Honda, Toyota; Shirashi, Mikio; Kojima, Yasuyuki; Tanizoe, Toshio; Minoda, Hiroshi; and Shimizu, Akira, 5,805,312, Cl. 358-503.000.
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Fischer, Stephen A.; Devore, David I.; Arora, Kartar S.; Heucher, Reimar; Wiggins, Michael S.; Boudreaux, Chase J.; and Heinrich, Dwight D., 5,804,682, Cl. 528-310.000.
Heudecker, Gerhard, to Kronos AG Hermann Kronseder Maschinenfabrik. Process and device for the processing of containers, 5,802,812, Cl. 53-431.000.
Heuer, Horst: See—
Schmidt, Friedrich Georg; and Heuer, Horst, 5,804,658, Cl. 525-168.000.

Heule, Ulf H. Deburring tool for deburring the edges of boreholes. 5,803,679, Cl. 408-211.000.
Hewett, Paul, to International Business Machines Corporation. Solder paste deposition. 5,804,248, Cl. 427-96.000.
Hewlett-Packard Company: See—
Abdel-Rahman, Mahmoud F., 5,804,828, Cl. 250-381.000.
Anglada, Edward; and Gonzalez, Hector L., 5,805,520, Cl. 365-230.020.
Averill, Gregory S., 5,805,470, Cl. 364-578.000.
Berger, Terry A., 5,804,701, Cl. 73-23.420.
Bingham, Jeffrey Glen; Beckett, Carl David; and Sunada, Craig Daniel, 5,803,631, Cl. 400-624.000.
Chaudhuri, Surajit; and Gravano, Luis, 5,806,061, Cl. 707-3.000.
Field, Leslie A.; and Barth, Phillip W., 5,804,314, Cl. 428-402.000.
Gonzales, Curtis Paul; and McAllister, Jeffrey S., 5,803,389, Cl. 242-348.100.
Kaltenbach, Patrick; Swedberg, Sally A.; Witt, Klaus E.; Bek, Fritz; and Mittelstadt, Laurie S., 5,804,022, Cl. 156-257.000.
Lotz, Jonathan P., 5,805,851, Cl. 395-392.000.
McIntyre, C. Kevin; Mauzey, John F.; and Heim, Mark R., 5,805,781, Cl. 395-117.000.
Perner, Frederick A., 5,805,477, Cl. 364-716.030.
Phillips, Wayne G., 5,805,311, Cl. 358-500.000.
Ramchandran, Padmanabhan, 5,805,174, Cl. 345-501.000.
Tran, Tuan A.; and Helot, Jacques H., 5,805,415, Cl. 361-681.000.
Yanagimoto, Yoshiyuki, 5,805,092, Cl. 341-123.000.
Yang, Long; and Mars, Danny E., 5,805,624, Cl. 372-45.000.
Hexacomb Corporation: See—
Jaegers, Robert E.; Carder, Rueben C.; Woodward, William B. Jr.; and Reed, Robert R., 5,804,030, Cl. 156-510.000.
Heyer, Frank: See—
Ketting, Michael; Humbek, Holger; Slowak, Thorsten; Heyer, Frank; Becker, Harald; Stauch, Matthias; Fröhner, Frank; and Holzapfel, Heiko, 5,803,558, Cl. 305-136.000.
Heyer, Harald; Burchardt, Udo; and Ernst, Rainer, to Drägerwerk AG. Chemical oxygen generator. 5,804,146, Cl. 422-126.000.
Heyer, Steven A.: See—
Thorp, Clarkson S.; Tran, Thai Q.; Ludwig, Gary R.; and Heyer, Steven A., 5,802,778, Cl. 52-36.200.
Heyer, Thomas J. D.; and Wandmacher, Robert A., to Minnesota Mining and Manufacturing Company. Epithalhydrin electrical stress controlling material. 5,804,630, Cl. 524-436.000.
Hi-Shear Fasteners Europe Limited: See—
Oni, Olusola Olumide Akindele; Gale, Richard Mark; and Batchelor, John Stephen, 5,803,924, Cl. 606-54.000.
Hiben, Bradley M.: See—
Newberg, Donald G.; Hiben, Bradley M.; and LoGalbo, Robert D., 5,805,612, Cl. 371-30.000.
Hibi, Masahiko: See—
Karin, Michael; Hibi, Masahiko; and Lin, Anning, 5,804,399, Cl. 435-15.000.
Hibino, Hideo: See—
Yokonuma, Norikazu; Kazami, Kazuyuki; Hibino, Hideo; and Okutsu, Hisashi, 5,805,206, Cl. 348-96.000.
Hickman, Lucille. Kayak exercise simulator. 5,803,876, Cl. 482-72.000.
Hicks, George Timothy: See—
Yates, James Wallace; and Hicks, George Timothy, 5,802,877, Cl. 66-21.000.
Hidano, Koichi: See—
Yamazaki, Kazumi; Wakashiro, Teruo; Hidano, Koichi; Hara, Takeshi; and Nakajima, Takeaki, 5,803,054, Cl. 123-519.000.
Hieda, Shigeru: See—
Takahashi, Hisamitsu; Tsuruoka, Yoshihisa; Miyauchi, Toshio; and Hieda, Shigeru, 5,804,917, Cl. 313-504.000.
Hieda, Shinichi; Kurokawa, Masahiro; Higuchi, Yasushi; and Kawahara, Shojiro, to Mitsubishi Gas Chemical Company, Inc. Process for preparing polymer. 5,804,676, Cl. 526-65.000.
Hielkema, Jerry D.: See—
Petrou, Anton A.; Scott, Craig H.; Warner, Stephen B.; and Hielkema, Jerry D., 5,803,404, Cl. 244-129.500.
Higaki, Kanji: See—
Matsuyama, Akito; Higaki, Kanji; and Hayasaka, Hiroe, 5,803,663, Cl. 405-128.000.
Higasa, Hirotaka, to Kabushiki Kaisha Kawai Gakki Seisakusho. Apparatus for adjusting sound volume of grand piano. 5,804,745, Cl. 84-182.000.
Higgins, Joseph T.; and Schaeve, Timothy J., to Lockheed Martin Corporation. Method and system for adaptively recognizing cursive addresses on mail pieces. 5,805,710, Cl. 382-101.000.
Higgins, Matthew T.: See—
Vertanen, Mark W.; Riley, David D.; and Higgins, Matthew T., 5,803,115, Cl. 137-493.900.
High Point Accessories, Inc.: See—
Lewis, Stuart A., 5,803,306, Cl. 220-662.000.
Higham, John D.; and Godlewski, Peter P., to Omnicell Technologies, Inc. Device and method for providing access to items to be dispensed. 5,805,456, Cl. 364-479.060.
Highbridge, Douglas: See—
Litman, Eugene; Pomer, Steven; White, Barry D.; and Highbridge, Douglas, 5,803,585, Cl. 362-147.000.
Hightower, Floyd. Adjustable sling for rifles, shotguns or the like. 5,802,756, Cl. 42-85.000.
Higuchi, Hiroko: See—

Inoue, Kazushige; Takatsuna, Toru; Mori, Yukihiko; Nakagawa, Etsuro; and Higuchi, Hiroko, 5,804,347, Cl. 430-110.000.
Higuchi, Kazuyoshi: See—
Yada, Yukihiko; and Higuchi, Kazuyoshi, 5,804,118, Cl. 264-167.000.
Higuchi, Yasushi: See—
Hieda, Shinichi; Kurokawa, Masahiro; Higuchi, Yasushi; and Kawahara, Shojiro, 5,804,676, Cl. 526-65.000.
Hilborn, Jons Gunnar: See—
Hedrick, Jeffrey Curtis; Hedrick, James Lupton; Hilborn, Jons Gunnar; Liao, Yun-Hsin; Miller, Robert Dennis; and Shih, Da-Yuan, 5,804,607, Cl. 521-64.000.
Hilevitz, Gabriel: See—
Barkat, Allan; Hilevitz, Gabriel; Alon, Ram; and Apelstein, Natan, 5,805,672, Cl. 379-67.000.
Hill, Casey: See—
Souissi, Slim; Hill, Casey; and Dorenbosch, Jheroen P., 5,805,978, Cl. 455-31.300.
Hill, Charles T.: See—
Nehmsmann, Louis J.; Alderfer, George E.; and Hill, Charles T., 5,804,293, Cl. 428-307.300.
Hill, Leonard N.: See—
Sweetser, William H.; and Hill, Leonard N., 5,804,151, Cl. 423-58.000.
Hill, Mary Ann; Bingert, John F.; Bingert, Sherri A.; and Thoma, Dan J., to University of California, The Regents of The. Hydrostatic extrusion of CU-AG melt spun ribbon. 5,802,708, Cl. 29-825.000.
Hill-Rom, Inc.: See—
Corbin, Scott M.; Mosier, Jeffrey A.; Wilson, Robert W.; and Miller, John D., 5,802,636, Cl. 5-425.000.
Fennand, Robert J.; Thomas, Marc M.; Alvord, Lincoln J.; Smith, Stephen D.; Roe, Steven N.; O'Connor, Richard W.; Gilmarin, William A.; Loh, William; Fish, William R.; Salzedo, Jonathan; Neder, Charles W.; Grass, Wesley E.; Looper, John E.; Miller, Dean T.; and Oakley, Celina, 5,802,640, Cl. 5-617.000.
Stolpmann, James R.; Ferdon, Gary W.; and Dalton, Roger D., 5,802,646, Cl. 5-740.000.
Hill, Thomas Casey; D'Amico, Thomas V.; and Schwendeman, Robert John, to Motorola, Inc. Method and apparatus for controlling transmissions in a two-way selective call communication system. 5,805,977, Cl. 455-31.300.
Hill, William Colyer, to AT&T Corp. Method and apparatus for providing interim data displays while awaiting of linked information. 5,805,815, Cl. 395-200.480.
Hill, Wolfgang. Multi-phase electric machine with joined conductor lanes. 5,804,902, Cl. 310-179.000.
Hillstrom, Keith Allen: See—
McGuire, Mickey Richard; Matthews, Lon Howard; and Hillstrom, Keith Allen, 5,804,716, Cl. 73-198.000.
Himmelfright, Richard S.: See—
Katsen, Boris Joseph; Himmelfright, Richard S.; Schwartz, Nate R.; and Stewart, Barbara Jones, 5,803,958, Cl. 106-31.650.
Hinden, Jean M.: See—
Vaccaro, Anthony J.; Gregg, Janet S.; Gibbons, Daniel W.; Brannan, James R.; Pohto, Gerald R.; and Hinden, Jean M., 5,804,053, Cl. 205-138.000.
Hindman, Larry E.: See—
Jones, Brent R.; Cooper, Brently L.; Karambelas, Randy C.; Hindman, Larry E.; Rousseau, Gerard H.; Crawford, Clark W.; and Rise, James D., 5,805,191, Cl. 347-103.000.
Hine, Derek; Hine, Roger; Selvik, Eric; Lorell, Kenneth; and Marical, Jeffrey, to Hine Design Inc. Transport apparatus for semiconductor wafers. 5,803,979, Cl. 134-2.000.
Hine Design Inc.: See—
Hine, Derek; Hine, Roger; Selvik, Eric; Lorell, Kenneth; and Marical, Jeffrey, 5,803,979, Cl. 134-2.000.
Hine, Roger: See—
Hine, Derek; Hine, Roger; Selvik, Eric; Lorell, Kenneth; and Marical, Jeffrey, 5,803,979, Cl. 134-2.000.
Hinojosa, Jesus Coronado: See—
Coronado, Eduardo Quintanilla; and Hinojosa, Jesus Coronado, 5,803,129, Cl. 138-125.000.
Hirai, Toshiyuki: See—
Ohnishi, Noriaki; Hirai, Toshiyuki; Yamada, Nobuaki; Kozaki, Shiuchi; Coates, David; Brown, Emma Jane; Rieger, Bernhard; and Tanaka, Yukio, 5,804,609, Cl. 522-74.000.
Hiraiwa, Yoshiko: See—
Ishitoya, Katsunori; Kato, Hiroyuki; Ishihara, Yukio; Kuze, Kazunori; Hiraiwa, Yoshiko; and Horiba, Makoto, 5,804,292, Cl. 428-304.400.
Hirano, Akihiko: See—
Takashi, Terumi; Satoh, Naoki; Hirano, Akihiko; Saiki, Eisaku; Hosino, Masakazu; and Shimokawa, Ryushi, 5,805,024, Cl. 331-17.000.
Hirano, Seiko: See—
Moriya, Mika; Matsui, Hiroshi; Yokozeki, Kenzo; Hirano, Seiko; Hayakawa, Atsushi; Izui, Masako; and Sugimoto, Masakazu, 5,804,414, Cl. 435-69.100.
Hiraoka, Hidetaka: See—
Kanno, Toshitake; Iwahashi, Jun; Sahara, Eiichi; Hiraoka, Hidetaka; Morinaka, Mayuki; Sugie, Tsuneharu; and Kubota, Yasushi, 5,804,006, Cl. 148-511.000.
Hiraoka, Noriyoshi, to Sanshin Kogyo Kabushiki Kaisha. Latch for outboard motor protective cowling. 5,803,777, Cl. 440-77.000.
Hiraoka, Yuzuru: See—

Hamada, Tokihiko; Yoshida, Yoshinari; Hiraoka, Yuzuru; Mori, Genji; Fujimoto, Hiroyasu; Tominaga, Yoshiki; and Hayashi, Tatsuo, 5,805,528, Cl. 367-111.000.
Hirata, Shoichi: See—
Sugiyama, Kazuo; Hirata, Shoichi; and Nakamura, Yasushi, 5,805,078, Cl. 340-825.520.
Hirata, Susumu: See—
Ishii, Yorishige; Inui, Tetsuya; Matoba, Hirotugu; Hirata, Susumu; Kimura, Masaharu; Horinaka, Hajime; Abe, Shingo; and Onda, Hiroshi, 5,804,083, Cl. 216-2.000.
Hiro, Masakazu: See—
Kohno, Takefumi; Hiro, Masakazu; Soda, Yoshio; and Ishii, Mitsuhiro, 5,803,210, Cl. 188-73.100.
Hiroki & Co., Ltd.: See—
Sato, Hiroki; Sato, Katsuko; Sato, Masayuki; and Sakurayama, Yasuko, 5,802,777, Cl. 52-12.000.
Hiroki, Seiji: See—
Miyamoto, Goro; Murakami, Yoshio; Hiroki, Seiji; and Katsuki, Kenji, 5,805,972, Cl. 422-186.030.
Hironishi, Kazuo: See—
Kuroyanagi, Satoshi; Hironishi, Kazuo; and Maeda, Takuji, 5,805,320, Cl. 359-117.000.
Hirosaka, Hisato; and Tanaka, Akio, to Sony Corporation. Automatic equalizer and digital signal reproducing apparatus carrying the same. 5,805,637, Cl. 375-230.000.
Hirosawa, Yukihisa: See—
Tsukagoshi, Isao; Matsuoka, Hiroshi; Hirotsawa, Yukihisa; Mikami, Yoshikatsu; and Dokochi, Hisashi, 5,804,882, Cl. 257-783.000.
Hirose Electronic System Co., Ltd.: See—
Fukatsu, Kunio; Matsuoka, Nobuhiko; and Aoyagi, Shigeo, 5,804,804, Cl. 235-379.000.
Hirose, Ryota; Tanaka, Kazuhiro; and Koikeda, Tsuneyuki, to Yamaha Corporation. Communication terminal device. 5,805,684, Cl. 379-142.000.
Hiroshige, Kunie: See—
Ishii, Hiroshi; Takesue, Kunihiko; and Hiroshige, Kunie, 5,804,517, Cl. 442-361.000.
Hirota, Koji. Cork cap for use with a cork to plug the mouth of a bottle. 5,803,285, Cl. 215-296.000.
Hirota, Toshiaki: See—
Maki, Hidetaka; Akazaki, Shusuke; Hasegawa, Yusuke; Komoriya, Isao; Nishimura, Yoichi; and Hirota, Toshiaki, 5,806,012, Cl. 701-104.000.
Hirsch, Mark J.: See—
Badesha, Santokh S.; Henry, Arnold W.; Heeks, George J.; Kittelberger, J. Stephen; VanDusen, John G.; Ahuja, Suresh K.; Scharfe, Merlin E.; Schank, Richard L.; and Hirsch, Mark J., 5,805,964, Cl. 399-266.000.
Hirt, Peter: See—
Singer, Edward H.; Moorman, Charles J.; and Hirt, Peter, 5,803,338, Cl. 277-8.000.
Hisatomi, Yuichiro, to Nakamichi Corporation. Disk player with compact disk transporter. 5,805,562, Cl. 369-191.000.
Hishikawa, Tetsuyuki, to NEC Corporation. Method and apparatus adapting a data surface servo method in which the servo information is in the form of a gray code and servo zone sector numbers. 5,805,368, Cl. 360-51.000.
Hitachi America, Ltd.: See—
Boyce, Jill MacDonald; Fuhrer, Jack Selig; Henderson, John Goodchilde Norie; Lane, Frank Anton; and Plotnick, Michael Allen, 5,805,762, Cl. 386-68.000.
Hitachi Chemical Company, Ltd.: See—
Tsukagoshi, Isao; Matsuoka, Hiroshi; Hirotsawa, Yukihisa; Mikami, Yoshikatsu; and Dokochi, Hisashi, 5,804,882, Cl. 257-783.000.
Hitachi Device Engineering Co., Ltd.: See—
Hasegawa, Kaoru; Toriyama, Yoshio; Kobayashi, Naoto; Yaita, Katsuhiko; Kondo, Hiromori; Suzuki, Masahiko; and Imajo, Yoshihiro, 5,805,249, Cl. 349-59.000.
Hitachi, Ltd.: See—
Aoki, Hideo; Murata, Jun; Tadaki, Yoshitaka; Sekiguchi, Toshihiro; Kawakita, Keizo; Hayakawa, Takashi; Matsunaga, Katsutoshi; Saitoh, Kazuhiko; Nishimura, Michio; Ohtsuka, Minoru; Yuhara, Katsu; Tanaka, Michio; Ezaki, Yuji; Kaeriyama, Toshiyuki; and Cho, SongSu, 5,804,479, Cl. 438-253.000.
Daimon, Goro; Takeda, Yasuhide; Nogami, Tadahiko; Kawamoto, Hideo; Maeda, Hiroshi; Sadou, Kouichi; and Sadamura, Hiroyoshi, 5,804,787, Cl. 218-84.000.
Hasegawa, Kaoru; Toriyama, Yoshio; Kobayashi, Naoto; Yaita, Katsuhiko; Kondo, Hiromori; Suzuki, Masahiko; and Imajo, Yoshihiro, 5,805,249, Cl. 349-59.000.
Hatakeyama, Tomoko; Kakumoto, Shigeru; and Kodaira, Takatoshi, 5,805,446, Cl. 364-148.000.
Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; and Yoshida, Kazumi, 5,804,142, Cl. 422-70.000.
Kanai, Saburo; Kawasaki, Yoshinori; Ichihara, Kazuaki; Watanabe, Seichi; Nawata, Makoto; Furuse, Muneko; and Kaji, Tetsunori, 5,804,033, Cl. 156-643.100.
Kikuchi, Toru; Yokokawa, Shuho; Aita, Satoshi; Watanabe, Isao; and Takayasu, Hidenori, 5,805,953, Cl. 399-43.000.
Kitamura, Wahei; Murakami, Gen; and Nishi, Kunihiko, 5,803,246, Cl. 206-204.000.
Kobayashi, Hideo; Mori, Mutsuhiro; Yasuda, Yasumichi; and Nakano, Yasunori, 5,804,868, Cl. 257-630.000.

Kobayashi, Shiro; and Kawaguchi, Masami, 5,802,714, Cl. 29-852.000.
Kometani, Naohisa; Ueno, Koichi; and Echigo, Koji, 5,805,773, Cl. 395-3.000.
Kurihara, Nobuo; Kimura, Hiroshi; Takaku, Yutaka; and Ishii, Toshio, 5,802,843, Cl. 60-274.000.
Maki, Atsushi; Koizumi, Hideaki; Kawaguchi, Fumio; Yamashita, Yui-chi; and Ito, Yoshitoshi, 5,803,909, Cl. 600-310.000.
Miyamoto, Harukazu; Minemura, Hiroyuki; and Sugiyama, Hisataka, 5,805,565, Cl. 369-275.400.
Miyano, Ichiro; Serizawa, Koji; Tanaka, Hiroyuki; Shinoda, Tadao; and Sakaguchi, Suguru, 5,804,872, Cl. 257-668.000.
Miyatake, Takafumi; Sumino, Shigeo; Taniguchi, Katsumi; Nagasaka, Akio; Ikezawa, Mitsuru; and Ueda, Hirotada, 5,805,746, Cl. 382-305.000.
Mori, Yasuharu; and Kawamura, Nobuo, 5,806,058, Cl. 707-2.000.
Nakagawa, Tsuyoshi; Neko, Yasushi; Sakamoto, Naoyuki; Ohashi, Shigeo; Ohmura, Yoshito; Iwama, Yukio; Nakajima, Tadakatsu; Kondo, Yoshihiro; Iwai, Susumu; and Matsushima, Hitoshi, 5,805,417, Cl. 361-687.000.
Nishizawa, Akihito; Imaide, Takuya; Kinugasa, Toshiro; Iguchi, Takuya; and Koshio, Kazuhiro, 5,805,214, Cl. 348-231.000.
Nota, Tadashi; Yoshioka, Masaichiro; Nagai, Seiji; Tanaka, Shunji; and Kinoshita, Toshiyuki, 5,805,790, Cl. 395-182.080.
Ogino, Masanori, 5,803,566, Cl. 353-60.000.
Oh-e, Masahito; Aratani, Sukenazu; Matsuyama, Shigeru; Asuma, Hiroaki; and Kinugawa, Kiyoshige, 5,805,678, Cl. 379-100.010.
Ozawa, Naohiro; Otsuka, Yasuo; Asada, Akihiko; Honda, Toyota; Shiraishi, Mikio; Kojima, Yasuyuki; Tanizoe, Toshio; Minoda, Hiroshi; and Shimizu, Akira, 5,805,312, Cl. 358-503.000.
Sato, Hiroshi; Kanekawa, Nobuyasu; Nohmi, Makoto; and Tashiro, Korefumi, 5,805,797, Cl. 395-185.010.
Seki, Hiroyuki; Kobayashi, Nobuhisa; and Bekki, Keisuke, 5,805,134, Cl. 345-117.000.
Shikazono, Naoki; Itoh, Masaaki; Uchida, Mari; and Fukushima, Toshihiko, 5,803,165, Cl. 165-184.000.
Suganuma, Yuzi; Matsuoka, Shigeru; Kamio, Keiji; Kashiwa, Yoshihiro; Nogami, Seizi; Saito, Kouichi; Yamazaki, Isao; Kigoshi, Hidechika; Aoyama, Naofumi; Watanabe, Toru; and Nozaki, Yoshihiro, 5,805,125, Cl. 345-87.000.
Takahashi, Yasushi; Iwai, Hidetoshi; Oguchi, Satoshi; Nakamura, Hisashi; Uchiyama, Hiroyuki; Takekuma, Toshitugu; Sakomura, Shigetoshi; Miyazawa, Kazuyuki; Ishihara, Masamichi; Hori, Ryochi; Kizaki, Takeshi; Koyama, Yoshihisa; Ii, Haruo; Muranaka, Masaya; Aoyagi, Hidetomo; and Matsuura, Hiromi, 5,805,513, Cl. 365-201.000.
Takashi, Terumi; Satoh, Naoki; Hirano, Akihiko; Saiki, Eisaku; Hosino, Masakazu; and Shimokawa, Ryushi, 5,805,024, Cl. 331-17.000.
Takeura, Tooru, 5,805,390, Cl. 360-113.000.
Tsuchida, Masashi; Nakano, Yukio; Kawamura, Nobuo; Negishi, Kazuyoshi; and Torii, Shunichi, 5,806,059, Cl. 707-2.000.
Verhaeghe, Donald J.; Kraus, William F.; and Yasu, Yoshihiko, 5,804,996, Cl. 327-77.000.
Hitachi Micro Systems, Inc.: See—
Roy, Richard Stephen, 5,805,873, Cl. 395-557.000.
Hitachi Microcomputer System Ltd.: See—
Takashi, Terumi; Satoh, Naoki; Hirano, Akihiko; Saiki, Eisaku; Hosino, Masakazu; and Shimokawa, Ryushi, 5,805,024, Cl. 331-17.000.
Hitachi Software Engineering Co., Ltd.: See—
Kometani, Naohisa; Ueno, Koichi; and Echigo, Koji, 5,805,773, Cl. 395-3.000.
Hitachi VLSI Engineering Corp.: See—
Takahashi, Yasushi; Iwai, Hidetoshi; Oguchi, Satoshi; Nakamura, Hisashi; Uchiyama, Hiroyuki; Takekuma, Toshitugu; Sakomura, Shigetoshi; Miyazawa, Kazuyuki; Ishihara, Masamichi; Hori, Ryochi; Kizaki, Takeshi; Koyama, Yoshihisa; Ii, Haruo; Muranaka, Masaya; Aoyagi, Hidetomo; and Matsuura, Hiromi, 5,805,513, Cl. 365-201.000.
Hiuchcock, Sherry. Total environment decorating aid. 5,803,739, Cl. 434-78.000.
Hite, Kenneth C.; Ciciora, Walter S.; Alison, Tom; and Beauregard, Robert G. Method and apparatus for synchronizing commercial advertisements across multiple communication channels. 5,805,974, Cl. 455-3.200.
Hiue, Hisaaki: See—
Yamaguchi, Sataro; Takita, Kiyoshi; Itoh, Ikuro; Hiue, Hisaaki; and Nose, Shinichi, 5,802,855, Cl. 62-3.200.
Ho, Naven C.: See—
Smither, Miles A.; and Ho, Naven C., 5,805,195, Cl. 347-211.000.
Ho, Shu-Kuang; Agudelo, William; Wang, Yaun-Kong; and Mainemer, Carlos I. Communications device with remote device identifier recognition and transmission in accordance with the recognized identifier. 5,805,298, Cl. 358-402.000.
Ho, Yang Yeh: See—
Yi, Chiu Jen; Chen, Cheng Tsu; Shen, Huang Lung; and Ho, Yang Yeh, 5,804,106, Cl. 264-1.100.
Ho, Yu-Chun: See—
Yang, Fu-Liang; Jeng, Erik S.; Ho, Yu-Chun; Liu, Bin; and Koh, Chao-Ming, 5,804,489, Cl. 438-396.000.
Hoang, Loc Gia; and Haynes, Brian, to Cooper Cameron Corporation. Shearing gate valve. 5,803,431, Cl. 251-327.000.

Hoashi, Yoshiaki; and Shirai, Noriaki, to Denso Corporation. Method and apparatus for measuring distance. 5,805,527, Cl. 367-99.000.
Höbel, Peter: See—
Bravo, Ernesto; and Höbel, Peter, 5,803,644, Cl. 403-185.000.
Hoch, Ann: See—
Fredrickson, Linda L.; and Hoch, Ann, 5,803,594, Cl. 362-351.000.
Hochschild, Peter Heiner; and Denneau, Monty Montague, to International Business Machines Corporation. Central shared queue based time multiplexed packet switch with deadlock avoidance. 5,805,589, Cl. 370-389.000.
Hodge, James D.; Huang, Qiang; and Applegate, David S., to Illinois Superconductor. Magnetically activated switch using a high temperature superconductor component. 5,805,036, Cl. 335-216.000.
Hodge, Michael L.: See—
Gustin, Jay W.; and Hodge, Michael L., 5,805,844, Cl. 395-309.000.
Hodges, C. Douglas: See—
Leach, Paul; Williams, Antony S.; Jung, Edward; Hodges, C. Douglas; Koppola, Srinivasa R.; MacKichan, Barry B.; and Wittenberg, Craig, 5,805,885, Cl. 395-683.000.
Hodges, Charles H.: See—
Massey, Douglas H.; and Hodges, Charles H., 5,802,650, Cl. 14-71.300.
Hodges, Chris J. M.: See—
Proctor, John J.; Richardson, Craig H.; Hodges, Chris J. M.; Truong, Kwan K.; and Smith, David L., 5,805,228, Cl. 348-422.000.
Hodges, Kevin: See—
Speas, Gary; Hodges, Kevin; and Staggs, Dennis, 5,805,451, Cl. 364-468.170.
Hodgson, James A. Power trowel handle mounted controls. 5,803,657, Cl. 404-112.000.
Hoechst Aktiengesellschaft: See—
Budt, Karl-Heinz; Stowasser, Bernd; Peyman, Anuschirwan; Knolle, Jochen; Winkler, Irvin; and Berscheid, Hans Gerd, 5,804,559, Cl. 514-17.000.
Hoechst Trevira GmbH & Co KG: See—
Disselbeck, Dieter; Brüning, Hans-Joachim; Jahn, Bernhard; and Bender, Klaus, 5,804,025, Cl. 156-274.400.
Hoechst Trevira GmbH & Co. KG: See—
Lorenz, Jürgen; and Vischer, Axel, 5,804,303, Cl. 428-357.000.
Hoensch, Klaus; Helget, Rudolf; and Hurler, Walter. Bodied vehicle. 5,803,698, Cl. 414-495.000.
Hoenig, Stephen M.: See—
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Reinehr, Paul-Werner; Dieterich, Günter; Schulte, Hans-Werner; Piel, Karlheinz; and Fenger, Dirk, 5,803,212, Cl. 188-372.000.
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- Hovde, David Christian; Kane, Daniel J.; and Silver, Joel A., to Southwest Sciences Incorporated. Process for reducing interfering signals in optical measurements of water vapor, 5,804,702, Cl. 73-24.040.
- Howard, Ally D.: *See—*
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- Howard, David Amundson: *See—*
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- Howard, Henry Edward, to Praxair Technology, Inc. Cryogenic rectification system with dual feed air turboexpansion, 5,802,873, Cl. 62-646.000.
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- Howell, Donald W.; and Howell, Vera Z. Spicy hot corn and method of making, 5,804,244, Cl. 426-618.000.
- Howell, Meredith L.: *See—*
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- Howell, Thomas H.: *See—*
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- Howell, Wayne John: *See—*
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- Hriscu, Isosif J.; and Winslow, Donald W., to Halliburton Energy Services. Well treatment fluid placement tool and methods, 5,803,177, Cl. 166-305.100.
- Hsia, Jen-Chang. Compositions and methods utilizing nitroxides in combination with biocompatible macromolecules, 5,804,561, Cl. 514-21.000.
- Hsieh, Chi-Li. Pen with light-emitting means, 5,803,583, Cl. 362-118.000.
- Hsu, Ching-Hsiang; and Liang, Mong-Song, to Taiwan Semiconductor Manufacturing, Ltd. Body contacted SOI MOSFET, 5,804,858, Cl. 257-347.000.
- Hsu, Chuan-Ding Arthur, to Cypress Semiconductor Corp. Clock frequency synthesis using delay-locked loop, 5,805,003, Cl. 327-270.000.
- Hsu, Fan-yi, to Anko Electronic Co., Ltd. Joystick direction control means, 5,805,141, Cl. 345-161.000.
- Hsu, Jerry; and Jehng, Wesley, to United Microelectronics Corporation. Apparatus and method for scanning a key matrix, 5,805,085, Cl. 341-26.000.
- Hsu, Nick. Staple Remover, 5,803,435, Cl. 254-28.000.
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- Hu, Can B.; Ma, Minh T.; Nguyen, Than; Rhee, Richard; and Myers, Keith, to Baxter International Inc. Method and apparatus for soddling microvessel cells onto a synthetic vascular graft, 5,804,366, Cl. 435-1.100.
- Hu, Charles C., to Watt Stopper, The. Zero crossing circuit for a relay, 5,804,991, Cl. 326-162.000.
- Hu, Chu Lin; Chung, Chin-Chuan; Sang, Albert; and Wei, Kuo-Tunt, to United Microelectronics Corp. Un-interruptible power supply apparatus for diffusion furnace, 5,804,889, Cl. 307-64.000.
- Hu, Yi; Hart, David; Novosel, Damir; and Smith, Robert, to ABB Power T&D Company Inc. Half-cycle summation V/Hz relay for generator and transformer over-excitation protection, 5,805,395, Cl. 361-21.000.
- Hu, Zhenze: *See—*
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- Hua, Xu Xian. Combined grinding machine for providing an internal spline, 5,803,794, Cl. 451-24.000.
- Huang, Ben. Slip-on golf club grip, 5,803,828, Cl. 473-300.000.
- Huang, Chen-tan. Double-acting hydraulic cylinder for use in an exercising apparatus, 5,803,879, Cl. 482-112.000.
- Huang, Jian-Cheng; Simpson, Floyd D.; and Li, Xiaojun, to Motorola, Inc. MBE synthesizer utilizing a nonlinear voice processor for very low bit rate voice messaging, 5,806,038, Cl. 704-268.000.
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- Huang, Qiang: *See—*
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Koo, Cha Ryong; Kim, Eui Jeong; and Lee, Myun Woo, 5,805,376, Cl. 360-92.000.

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Kim, Jae-Peoung, to Daewoo Telecom, Ltd. Electronic switching system for testing the status of subscriber components contained therein. 5,805,668, Cl. 379-9.000.

Kim, Jae-Sin, to Samsung Electronics Co., Ltd. Spin basket for a washing machine. 5,802,886, Cl. 68-142.000.

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Kim, Jun Ki, to LG Semicon Co., Ltd. Method for forming a wiring metal layer in a semiconductor device. 5,804,501, Cl. 438-627.000.

Kim, Jung-Man; Lee, Bong-Jae; Lee, Jeong-Yeoul; Han, Sang-Hwan; and Lee, Kwang-Ho, to Vilac Company Ltd. Process for preparing an instant rice nectar. 5,804,232, Cl. 426-18.000.

Kim, Kang Hyung: *See—*

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Kim, Keum-Mo, to Daewoo Electronics Co., Ltd. Pinch roller type tape drive assembly. 5,803,336, Cl. 226-194.000.

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Kim, Su-Suck, to Samsung Electronics Co., Ltd. Redialing method by editing telephone number in telephone terminal equipment. 5,805,694, Cl. 379-354.000.

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Kim, Yung-soo, to Samsung Electronics Co., Ltd. Data detection method and apparatus in data storage device. 5,805,478, Cl. 364-724.200.

Kimata, Akinori: *See—*

Kondo, Masayoshi; Oda, Zenichi; Okumura, Michio; and Kimata, Akinori, 5,803,147, Cl. 160-168.10V.

Kimberly-Clark Worldwide, Inc.: *See—*

Abuto, Frank Paul; Diamond, Andrew Edward; Levy, Ruth Lisa; and Smith, Stephen Clark, 5,804,021, Cl. 156-252.000.

Cohen, Bernard; Jameson, Lee Kirby; and Gipson, Lamar Heath, 5,803,106, Cl. 137-13.000.

Gilman, Thomas Harry, 5,803,920, Cl. 604-378.000.

Sedlock, Ernest P., Jr.; and Coggeshall, Robert M., 5,803,373, Cl. 242-596.800.

Kimmel, Jeffrey S.; and Clark, Roy, to Data General Corporation. Multiprocessor memory controlling system associating a write history bit (WHB) with one or more memory locations in controlling and reducing invalidation cycles over the system bus. 5,806,086, Cl. 711-145.000.

Kimmig, Karl-Ludwig; Meinhard, Rolf; and Fallert, Irene, to LuK Lamellen und Kupplungsbau GmbH. Friction clutch. 5,803,224, Cl. 192-70.250.

Kimoto, Yasuhiro, to Mitsubishi Denki Kabushiki Kaisha. Automotive controller. 5,806,015, Cl. 701-115.000.

Kimura, Eisuke: *See—*

Yano, Toru; Kimura, Eisuke; Hayashi, Masanori; Tatara, Yusuke; Yokoyama, Toshio; and Kinoshita, Kenichiro, 5,803,048, Cl. 123-443.000.

Kimura Foundry Co., Ltd.: *See—*

Kanno, Toshitake; Iwahashi, Jun; Sahara, Eiichi; Hiraoka, Hidetaka; Morinaka, Mayuki; Sugie, Tsuneharu; and Kubota, Yasushi, 5,804,006, Cl. 148-511.000.

Kimura, Hiroshi: *See—*

Kunihara, Nobuo; Kimura, Hiroshi; Takaku, Yutaka; and Ishii, Toshio, 5,802,843, Cl. 60-274.000.

Kimura, Kenji; and Samizo, Motohiko, to Sumitomo Chemical Company, Limited. Polymeric composition. 5,804,621, Cl. 524-99.000.

Kimura, Kiyoshi, to Kabushiki Kaisha Ogura. Hydraulic machine having an improved air bag. 5,802,850, Cl. 60-479.000.

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Miyoshi, Naoto; Suzuki, Hiromasa; Ogawa, Osamu; Kimura, Mareo; Kawai, Yuzo; Yokota, Koji; Takahashi, Naoki; and Tanaka, Toshiyuki, 5,804,152, Cl. 423-213.500.

Kimura, Masaharu: *See—*

Ishii, Yorishige; Inui, Tetsuya; Matoba, Hirotosugu; Hirata, Susumu; Kimura, Masaharu; Horinaka, Hajime; Abe, Shingo; and Onda, Hiroshi, 5,804,083, Cl. 216-2.000.

Kimura, Motoi, to Sony Corporation. Light signal detection circuit with dual light detecting means and arrangement thereof. 5,805,558, Cl. 369-116.000.

Kimura, Taizou: *See—*

Yamai, Hiroyuki; Ooyama, Kazunobu; and Kimura, Taizou, 5,804,939, Cl. 318-439.000.

Kimura, Tatsuya: *See—*

Karakida, Shoichi; Hayafuji, Norio; Kimura, Tatsuya; Miyashita, Motoharu; Kizuki, Hirotaka; and Nishimura, Takashi, 5,805,628, Cl. 372-46.000.

Takemi, Masayoshi; Kimura, Tatsuya; Suzuki, Daisuke; Shiba, Tetsuo; and Shibata, Kimitaka, 5,805,629, Cl. 372-46.000.

Kimura, Tohru, to NEC Corporation. Ferroelectric semiconductor memory and accessing method therefor. 5,805,495, Cl. 365-145.000.

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Martin, Wallace Anthony; Adams, Jonathan Patrick; Andersen, Finn Thirge; Beaton, Stephen Robert; Christensen, Svend; Jensen, Allan G.; Kindt-Larsen, Ture; Lust, Victor; Walker, Craig William; and Wang, Daniel Tsu-Fang, 5,804,107, Cl. 264-1.360.

Kinetic Concepts, Inc.: *See—*

Vrzalik, John H., 5,802,645, Cl. 5-710.000.

King, Henry L.: *See—*

Lennon, George E.; Hall, Jerry S.; Merritt, Kevin R.; and King, Henry L., 5,804,284, Cl. 428-156.000.

King, Larry A.: *See—*

Danz, George Edward; King, Larry A.; and Fogg, John K., 5,805,020, Cl. 330-10.000.

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Cohen, Geoffrey Alexander; Kaminsky, David Louis; King, Richard Adam; and MacKinnon, Matthew Raymond, 5,805,829, Cl. 395-200.320.

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Dias, Daniel Manuel; King, Richard Pervin; and Leff, Avraham, 5,805,785, Cl. 395-182.020.

King, Te Piao, to Rockefeller University. The. Immunomodulatory peptides of vespid antigen 5. 5,804,201, Cl. 424-275.100.

Kingery, Chris: *See—*

Krumweide, Gary C.; Marks, John; Kingery, Chris; Richer, John; and Converse, William, 5,803,402, Cl. 244-117.00R.

Kingston, Samuel C.; Giallorenzi, Thomas R.; Sylvester, Randal R.; Matolak, David W.; and Smith, Patrick J., to L-3 Communications Corporation. Multi-user acquisition procedure for point-to-multipoint synchronous CDMA systems. 5,805,584, Cl. 370-342.000.

Kinthead, George B.; Worrel, Vernon J.; Bjorge, Scott; and Donner, Matthew A., to Turfco Manufacturing Incorporated. Seeder apparatus for dispensing seed with or without top dressing. 5,802,994, Cl. 111-11.000.

Kinoshita, Kenichiro: *See—*

Yano, Toru; Kimura, Eisuke; Hayashi, Masanori; Tatara, Yusuke; Yokoyama, Toshio; and Kinoshita, Kenichiro, 5,803,048, Cl. 123-443.000.

Kinoshita, Toshiyuki: *See—*

Nota, Tadashi; Yoshioka, Masaichiro; Nagai, Seiji; Tanaka, Shunji; and Kinoshita, Toshiyuki, 5,805,790, Cl. 395-182.080.

Kinrot, Opher: *See—*

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Kinugasa, Toshiro: *See—*

Nishizawa, Akihito; Imaide, Takuya; Kinugasa, Toshiro; Iguchi, Takuya; and Koshio, Kazuhiro, 5,805,214, Cl. 348-231.000.

Kinugawa, Kiyoshige: *See—*

Oh-e, Masahito; Aratani, Sukekazu; Matsuyama, Shigeru; Asuma, Hiroaki; and Kinugawa, Kiyoshige, 5,805,247, Cl. 349-42.000.

Kinukawa, Masahiko: *See—*

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Kinyosha Co., Ltd.: *See—*

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Kipper, Juergen: *See—*

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Kirby, Orvalle Theodore: *See—*

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Kirin Beer Kabushiki Kaisha: *See—*

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Kiritani, Norihiko: *See—*

Iwasaki, Yasukazu; Kiritani, Norihiko; Mitamura, Makiko; Noguchi, Takatoshi; and Uchiyama, Makoto, 5,804,090, Cl. 216-99.000.

Kirk, Thomas: *See—*

Borgida, Alexander Tiberiu; Brachman, Ronald Jay; Kirk, Thomas; Selfridge, Peter Gilman; and Terveen, Loren Gilbert, 5,806,060, Cl. 707-3.000.

Kiron, Kenneth; and Bander, Kevin S., to Mopex, Inc. Open end mutual fund securitization process. 5,806,048, Cl. 705-36.000.

Kirschbaum, Alan R.; and Petersen, Christopher L., to Carl Zeiss, Inc. Refractively corrected, wavelength selective, transparent occluder for a non-tested eye for visual field testing. 5,805,271, Cl. 351-224.000.

Kirschner, Jonathan; and Handren, Frederick R., to Coca-Cola Company, The. Apparatus for crushing containers. 5,802,968, Cl. 100-233.000.

Kirson, Lyle E.: *See—*

Phelps, Robert W.; Kirson, Lyle E.; and Swank, Kenneth M., 5,803,064, Cl. 128-203.120.

Kirsten, Thomas: *See—*

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Kisaka, Masashi, to International Business Machines Corporation. Method and apparatus for fast positioning a head of a recording device. 5,805,374, Cl. 360-78.040.

Kishi, Tadashi; Xu, Xinmin; and Sawayama, Nobuteru, to Yokogawa Engineering Service Corporation. Corrosion inspection plate, measurement for corrosive environment and case for the corrosion inspection plate. 5,804,140, Cl. 422-53.000.

Kishi, Takayuki: *See—*

Saito, Yasuo; Kishi, Takayuki; and Demachi, Miyuki, 5,805,058, Cl. 340-436.000.

Kishi, Yasuhiro: *See—*

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Kishita, Hiroshi: *See—*

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Kishore, Ganesh Murthy: *See—*

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Kistler, Bernd: *See—*

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Kita, Tatsuya: *See—*

Kawai, Satoru; Hamashima, Mitsuhiro; and Kita, Tatsuya, 5,805,780, Cl. 395-117.000.

Kitagawa, Junichi: *See—*

Harada, Yasuhiro; Mori, Shinichiro; Hasegawa, Kayo; Kitagawa, Junichi; Inoue, Yoichiro; Kai, Eiichi; Sekine, Shinichi; Fukawa, Yuuzou; Shirane, Takashi; and Hamauji, Kazuhiro, 5,804,267, Cl. 428-35.700.

Kitagawa, Kazumi; and Takaoka, Kazuhiro, to Ishida Co., Ltd. Case packer. 5,802,803, Cl. 53-54.000.

Kitagawa, Koichiro: *See—*

Tajima, Hisao; Kitagawa, Koichiro; and Ohno, Hiroyuki, 5,804,411, Cl. 435-69.100.

Kitagawa, Yoshihisa, to Nikon Corporation. Vibration reduction apparatus. 5,805,937, Cl. 396-55.000.

Kitahara, Toshiyuki: *See—*

Inaba, Hiroo; Suzuki, Masaki; Abe, Naoto; Kitahara, Toshiyuki; Matsubaguchi, Satoshi; and Takano, Hiroaki, 5,804,283, Cl. 428-141.000.

Kitai, Hiroto; and Matsumoto, Kazuaki, to Canon Kabushiki Kaisha. Optical information recording and/or reproducing apparatus and method with vibration wave driving device or vibration driven motor device. 5,805,540, Cl. 369-44.280.

Kitami, Tetsu: *See—*

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- Klein, Sinisia: *See—*
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Kleinhenz, Richard Leo: *See—*
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Klemm, Volker; Schlieper, Dittmar; Schmitt, Urban; and Wiedmann, Michael, to Boehringer Mannheim GmbH. Elimination of rheumatoid factor interference using anti-FD antibodies. 5,804,391, Cl. 435-7.100.
Klepka, Chris: *See—*
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Kline, Ellis L., to Molecular Rx, Inc. Method and composition for treatment of disorders involving immunological dysfunction. 5,804,188, Cl. 424-184.100.
Kline, Keith M., to Akron Steel Fabricators Co., Inc. Adjustable cutting roll assembly for severing pieces of material and method for adjusting same. 5,802,941, Cl. 83-344.000.
Klingenberg, Bodo. Computer controlled method of operating a swimming pool filtration system. 5,804,080, Cl. 210-739.000.
Klingmann, Rolf: *See—*
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Klockenkemper, Jerome J.; Judge, Dennis M.; and Moore, Charles Douglas, to Inland Paperboard and Packaging, Inc. Automated fabrication of corrugated paper products moisture removal. 5,802,736, Cl. 34-484.000.
Klocker, Otto: *See—*
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Klomhaus, Jaime L.; and Barton, Richard J., to Huron Plastics Group, Inc. Method of making plastic part having parting line free O-ring groove for fluid outlet. 5,804,123, Cl. 264-318.000.
Klun, Thomas P.: *See—*
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Klund, William E.: *See—*
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Kluth, Erhard Lothar, to Sensor Dynamics Ltd. Apparatus for sensor installations in wells. 5,804,713, Cl. 73-152.010.
KMC Chain Industrial Co., Ltd.: *See—*
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Kmiciek-Lawrynowicz, Grazyna E.: *See—*
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Knab, Manfred: *See—*
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Knapp, David Joseph: *See—*
Amos, Dennis Ray; Beedon, Kent Wixon; Driver, Timothy Lee; Knapp, David Joseph; and Conklin, Delbert Eugene, 5,803,978, Cl. 134-1.000.
Knapp, Donald Lee, to United States of America, National Security Agency. Electrical connector that minimizes bent pins. 5,803,771, Cl. 439-682.000.
Knapp, Doug. Method and apparatus for treating contaminated water. 5,804,432, Cl. 435-243.000.
Knapp, Robert C.: *See—*
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Sargent, Bruce Jeremy; Johnston, David Norman; and Crew, Andrew Philip Austin, 5,804,586, Cl. 514-307.000.
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Knop, Reinhard, to Jagenberg Papiertechnik GmbH. Device for two-sided coating of a web of material. 5,803,969, Cl. 118-227.000.
Knowlton, Christopher M.; O'Hara, Robert J.; and Strickland, Timothy A., to Widsor Industries, Inc. Floor cleaning apparatus with two brooms. 5,802,665, Cl. 15-340.400.
Knowlton, Dennis J.; and Green, Edward R., to Particle Measuring Systems. Noise reduction utilizing signal multiplication. 5,805,281, Cl. 356-336.000.
Knuth, Manfred; and Horstkotte, Rainer, to Schneider Automation GmbH. Monitoring circuit for a supply voltage. 5,804,995, Cl. 327-74.000.
Knutson, Eric J. Dental dam support and method of use. 5,803,734, Cl. 433-136.000.
Ko, Chang-Kyung, to Samsung Electronics Co., Ltd. Auxiliary charging device of electrophotography printing apparatus. 5,805,962, Cl. 399-174.000.
Ko, Chin-Sung. Protecting structure of control members of a folded umbrella. 5,803,102, Cl. 135-24.000.
Kobayashi, Akira: *See—*
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Kobayashi, Akiyoshi; and Ishibashi, Junya, to Toshiba Machine Co., Ltd. Extrusion method for removing volatile contents from solid state resin materials and apparatus therefor. 5,804,111, Cl. 264-40.500.
Kobayashi, Daihei: *See—*
Ota, Hiroaki; Kobayashi, Daihei; Yanobe, Takeshi; Sakamoto, Fujio; and Hayashi, Yuji, 5,804,149, Cl. 422-174.000.
Kobayashi, Daiki, to Sony Corporation. Disc cartridge. 5,805,566, Cl. 369-291.000.
Kobayashi, Hideo; Mori, Mutsuhiro; Yasuda, Yasumichi; and Nakano, Yasunori, to Hitachi, Ltd. Semiconductor device having planar junction. 5,804,868, Cl. 257-630.000.
Kobayashi, Hideyuki: *See—*
Furuya, Yoji; Sugiura, Kenichiro; Sugino, Toshio; Kobayashi, Hideyuki; Murayama, Michihei; Kadota, Shigehiro; Teraichi, Hiro; Inoue, Naoshi; and Yasuda, Masanao, 5,805,297, Cl. 358-400.000.
Kobayashi, Hisamine; and Izuhara, Katsuhiro, to Tipton Corp. Vibratory finishing machine having a helical and tubular container. 5,803,800, Cl. 451-326.000.
Kobayashi, Hitoshi: *See—*
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Kobayashi, Katsuyuki: *See—*
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Kobayashi, Makoto: *See—*
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Kobayashi, Masahiko: *See—*
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Kobayashi, Masato: *See—*
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Kobayashi, Nagatoshi; Tomioka, Sadayuki; Aoki, Shigetoshi; and Ando, Hirohito, to Dainippon Ink and Chemicals, Inc. Disazo pigment composition and printing ink. 5,803,962, Cl. 106-496.000.
Kobayashi, Naoto: *See—*
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Kobayashi, Satoru: *See—*
Nonaka, Jun; Shimizu, Shuichi; and Kobayashi, Satoru, 5,805,198, Cl. 347-244.000.
Kobayashi, Shiro; and Kawaguchi, Masami, to Hitachi, Ltd. Method of finishing a printed wiring board with a soft etching solution and a preserving treatment or a solder-leveling treatment. 5,802,714, Cl. 29-852.000.
Kobayashi, Shoji; Sako, Yoichiro; and Yamagami, Tamotsu, to Sony Corporation. Optical disk capable of detecting errors in address area and correcting errors in data area and recording method and apparatus therefor. 5,805,564, Cl. 369-275.300.
Kobayashi, Takahiro: *See—*
Kozasa, Naoto; Kobayashi, Takahiro; Suzuki, Kenji; and Fujimori, Jiro, 5,805,343, Cl. 359-620.000.
Kobayashi, Tomomi: *See—*
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Kobayashi, Toshio: *See—*
Matsuo, Minoru; Kobayashi, Toshio; and Jibiki, Yuichi, 5,804,794, Cl. 219-216.000.
Kobayashi, Toshiaki; and Netsu, Yoshiaki, to Dai Nippon Printing Co., Ltd. Decorative sheet and method for producing the same. 5,804,285, Cl. 428-172.000.
Kobayashi, Yoshio: *See—*
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Kobe Steel USA Inc.: *See—*
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- Kuijk, Karel Elbert: *See—*
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- Lambert, Russell E.: *See—*
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- Lamicq, Anne: *See—*
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Murakami, Tooru; Morimoto, Keizun; Yanada, Isamu; and Tsujimoto, Masanobu, 5,803,957, Cl. 106-1.130.
- Morimoto, Yukio: See—
Sakuta, Shinichi; Mori, Genji; Sasakura, Toyoki; and Morimoto, Yukio, 5,803,099, Cl. 134-56.00R.
- Morin, Carl Frederick: See—
Kennard, Jeffrey Lee; Morin, Carl Frederick; and Samant, Kalika Ranjan, 5,804,008, Cl. 156-72.000.
- Morinaga, Kenji; Akimoto, Yuji; Shimizu, Fumiyuki; Iwasaki, Mineto; and Shindo, Naoto, to Sec Inc. Crystallized glass for substrate of information-recording disk, 5,804,520, Cl. 501-4.000.
- Morinaga Milk Industry Co., Ltd.: See—
Tomita, Mamoru; Shimamura, Seichi; Kawase, Kouzo; Fukuwatari, Yasuo; Takase, Mitsunori; Bellamy, Wayne Robert; Yamauchi, Koji; Wakabayashi, Hiroyuki; and Tokida, Yukiko, 5,804,555, Cl. 514-12.000.
- Morinaka, Mayuki: See—
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- Morino, Tomio: See—
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- Morisson, Richard; and Vorenkamp, Pieter, to U.S. Philips Corporation. A/D converter with interpolation, 5,805,096, Cl. 341-155.000.
- Morita, Makoto: See—
Takahara, Wataru; Ishigaki, Takaya; and Morita, Makoto, 5,805,409, Cl. 361-303.000.
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- Morita, Toshiaki: See—
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- Morita, Yoshinori; Nishikawa, Hiroshi; Haneda, Yutaka; Ohtani, Satoru; and Doi, Kenji, to Mitsui Petrochemical Industries, Ltd. Process for gas phase polymerization of olefin, 5,804,678, Cl. 526-80.000.
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Imazumi, Shoji; Nabeshima, Takayuki; and Moriya, Shigeru, 5,805,303, Cl. 358-433.000.
- Moriya, Yoshihito, to Toyota Jidosha Kabushiki Kaisha. Hydraulic actuator in an internal combustion engine, 5,803,031, Cl. 123-90.170.
- Moriya, Yukihisa: See—
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- Moriyama, Kenichi: See—
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- Morley, Steven A., to Qualcomm Incorporated. Two-feed full duplex transmitter/receiver for ultra small-aperture satellite communications terminal, 5,805,116, Cl. 343-779.000.
- Morren, Karin Marie-Louise Renee: See—
De Craene, Luc Ives Jaak; Dupont, Martine Jeanne; De Keyser, Noel Raymond Maurice; Morren, Karin Marie-Louise Renee; and Van Westrenen, Jeroen, 5,804,663, Cl. 525-314.000.
- Morris, John: See—
Cain, Paul Alfred; Cramp, Susan Mary; Lambert, Claude; Wallis, Derek Ian; Yarwood, Thomas David; Little, Gillian Mary; Morris, John; Musil, Tibor; Pettit, Simon Neil; and Smith, Philip Henry Gaunt, 5,804,532, Cl. 504-309.000.
- Morris, Michael T.: See—
Chen, Yih-Jen D.; Heath, Gregory F.; Gilbert, Ronald E.; Sheth, Vijay J.; and Morris, Michael T., 5,802,918, Cl. 74-416.000.
- Morris, R. Curtis, Jr.; and Sebastian, Anthony, to University of California, The Regents of the Potassium salts for treatment of hypertension, 5,804,204, Cl. 424-439.000.
- Morris, Richard B.: See—
Illes, Gregory; Skala, Kenneth L.; Morris, Richard B.; and Champoux, Duane A., 5,805,610, Cl. 371-27.100.
- Morris, Robert Leonard: See—
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- Morrison, Donald A.: See—
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- Morrow, Lawrence Robert; Miranda, Nellie R.; Martir, Wilson Kirkpatrick; and Aghazeynali, Hossein, to Texaco Inc. Method of removing water soluble organics from oil process water, 5,804,078, Cl. 210-708.000.
- Morse, Randall K.: See—
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- Mortelmans, Rudi: See—
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- Morton International Inc.: See—
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- Rink, Karl K.; Smith, Bradley W.; Green, David J.; Ravenberg, Michael J.; Moore, Walter A.; Pierotti, L. John; Lang, Gregory J.; and Miller, Harry W., 5,803,492, Cl. 280-737.000.
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- Mosel Vitelic, Inc.: See—
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- Lo, Yung Tsun; Yi, Guan Jun; Lin, Chi Hen; and Jih, Jyh Ming, 5,804,091, Cl. 216-100.000.
- Mosely, Roderick Craig: See—
Sawada, Susumu; Anan, Junichi; Kakutani, Yoshitaka; Wada, Hironori; Yanagawa, Fumihiko; and Mosely, Roderick Craig, 5,804,046, Cl. 204-298.110.
- Moser, Alfio; and Soriani, Claudio, to Soriani & Moser. Amusement ride, 5,803,816, Cl. 472-46.000.
- Moser, Daniel J., to EDO Corporation, Fiber Science Division. Method of forming reusable seamless mandrels for the fabrication of hollow wound vessels, 5,804,010, Cl. 156-155.000.
- Moser, Gregory C.; Smith, Jerry R.; and Horton, William R., Jr., to Cosco, Inc. Spindle guide, 5,803,645, Cl. 403-243.000.
- Moser, Martin: See—
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- Moser, Michael Anthony: See—
Fontana, Robert E.; Berberich, James W.; Moser, Michael Anthony; Munce, Archibald Currie, Jr.; Ruiz, Oscar J.; Snyder, Clinton David; Yeack-Scranton, C. E., deceased, 5,802,701, Cl. 29-603.140.
- Moskowitz, Charles M.: See—
Kremenchugsky, Vladimir; Falk, Steven M.; Taylor, Jeffrey A.; Moskowitz, Charles M.; and Hardesty, Steven L., 5,803,915, Cl. 600-549.000.
- Mossberg, Björn E. F. Method and kit for conducting an auction, 5,803,500, Cl. 283-67.000.
- Mosser, Mark F.; and Eddinger, Kevin B., to Sermatech International, Inc. Environmentally friendly coating compositions, bonding solution, and coated parts, 5,803,990, Cl. 148-261.000.
- Mostafa, Mohamed: See—
Naboulsi, Marwan; Kumar, Ashok; Mostafa, Mohamed; Ghaibeh, Jihad; Helweh, Amir; and Kumar, Rajesh, 5,805,591, Cl. 370-395.000.
- Moster, Jeffrey A.: See—
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- Mostrom, Michael A.: See—
Kwan, Thomas J. T.; and Mostrom, Michael A., 5,805,025, Cl. 331-79.000.
- Motakef, Ardeshir. Rotary engine, 5,803,041, Cl. 123-225.000.
- Mote, L. Randall, Jr., to Samsung Electronics Co., Ltd. Method and apparatus for testing a megacell in an ASIC using JTAG, 5,805,609, Cl. 371-22.310.
- Motion, William C.: See—
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- Motoda, Kimio: See—
Tateyama, Kiyohisa; Motoda, Kimio; Sekiguchi, Kenji; and Omori, Tsutae, 5,803,970, Cl. 118-319.000.
- Moton, Gia T.: See—
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- Moton, James M.; Moton, Shelia H.; and Moton, Gia T. Musical hop scotch game kit, 5,803,835, Cl. 473-414.000.
- Moton, Shelia H.: See—
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- Motor Coach Industries Ltd.: See—
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- Motorola: See—
Fineberg, Adam B., 5,806,031, Cl. 704-254.000.
- Motorola Corporation: See—
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- Motorola, Inc.: See—
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- Black, Bryan P.; Denman, Marvin A., Jr.; and Song, Seungyeon Peter, 5,805,877, Cl. 395-586.000.

- Blackwell, Steven R.; Gautreaux, Richard A., II; and Reed, Douglas D., 5,805,925, Cl. 395-831.000.
- Breternitz, Mauricio, Jr.; and Smith, Roger Alan, 5,805,895, Cl. 395-709.000.
- Burgan, John M.; Carr, Jonathon D.; and Sanchez, Carlos A., 5,805,121, Cl. 345-51.000.
- Evoy, Ronald Hugh; Hayes, David Jeffery; Mock, Von Alan; and Stanislawski, Matthew Joseph, 5,805,980, Cl. 455-38.300.
- Gallup, Michael G.; Goke, L. Rodney; and Bell, Meltin, 5,805,874, Cl. 395-563.000.
- Hadizad, Peyman; Salih, Ali; Bender, John Robert; and Moran, John David, 5,804,869, Cl. 257-632.000.
- Hill, Thomas Casey; D'Amico, Thomas V.; and Schwendeman, Robert John, 5,805,977, Cl. 455-31.300.
- Huang, Jian-Cheng; Simpson, Floyd D.; and Li, Xiaojun, 5,806,038, Cl. 704-268.000.
- Hulsebosch, Thomas G., 5,805,982, Cl. 455-62.000.
- Humphreys, Scott Robert; Barrett, Raymond Louis, Jr.; and Case, Lawrence Loren, 5,805,095, Cl. 341-144.000.
- Jan, Yih Guang; Natarajan, Kadathur Subramanya; and Peterson, Kenneth Maynard, 5,805,574, Cl. 370-329.000.
- Kamin, Ralph A., Jr., 5,805,575, Cl. 370-335.000.
- Liu, Chung-Chiun; Wang, Xiaodong; and Hughes, Henry G., 5,804,462, Cl. 438-53.000.
- Mallick, Soumya; Putrino, Michael; and Jessani, Romesh Mangho, 5,805,916, Cl. 395-800.230.
- Newberg, Donald G.; Hiben, Bradley M.; and LoGalbo, Robert D., 5,805,612, Cl. 371-30.000.
- Nilsson, Thomas; Song, John; and Howard, Emmett, 5,804,909, Cl. 313-309.000.
- O'Dea, Robert J.; and Muri, David L., 5,805,640, Cl. 375-296.000.
- Ooi, Ban Hin; Munir, Firdaus Haji Abdul; and Foong, Yee Thai, 5,805,364, Cl. 359-819.000.
- Perreault, John A.; Joshi, Abhay; Kabatepe, Mete; Lloyd, Lawrence W.; and Schroeder, Stephen, 5,805,586, Cl. 370-346.000.
- Perreault, John A.; Flanagan, David R.; and Unger, Katherine A., 5,805,994, Cl. 455-435.000.
- Remboski, Donald J.; Pice, Steven L.; Lynch, Marvin L.; and McClish, Michael A., 5,806,014, Cl. 701-111.000.
- Roekner, William J.; and Rueger, Timothy T., 5,805,466, Cl. 364-558.000.
- Satyamurti, Sunil, 5,806,023, Cl. 704-211.000.
- Schellinger, Michael J., 5,805,992, Cl. 455-411.000.
- Shi, Song Q.; and Gorsuch, Cynthia A., 5,804,322, Cl. 428-690.000.
- Shieh, Jhy-Jer; and Tang, Dandas Kenneth, 5,804,985, Cl. 326-39.000.
- Sim, Yeh Bin; Wiseman, Carl D.; Patel, Tushar; Bettelheim, Rudolf; Rodriguez, Louis, Jr.; Fisher, Rolfe M.; Scollard, John R.; and Leiby, Clare C., III, 5,805,922, Cl. 395-825.000.
- Souissi, Slim; Hill, Casey; and Dorenbosch, Jeroen P., 5,805,978, Cl. 455-31.300.
- Summer, Terence Edward, 5,805,634, Cl. 375-206.000.
- Tangen, Wayne A., 5,805,984, Cl. 455-71.000.
- Tehrani, Saied N.; Durlam, Mark; and Goronkin, Herbert, 5,804,458, Cl. 438-3.000.
- Teng, Dan; and Wang, Shay-Ping T., 5,805,447, Cl. 364-157.000.
- Tsui, Mung Lam; and Lau, Kin Keung, 5,804,958, Cl. 323-313.000.
- Viot, J. Greg; and Sibigroth, James M., 5,805,774, Cl. 395-3.000.
- Wennekers, Peter, 5,804,849, Cl. 257-280.000.
- Wiatrowski, David; and Mills, David, 5,806,002, Cl. 455-512.000.
- Wille, Steven Lewis; and Gamota, Daniel Roman, 5,804,881, Cl. 257-780.000.
- Winter, Marlan L.; Tumin, Kenneth P.; and Lindquist, Steven P., 5,805,862, Cl. 395-500.000.
- Moulin, Dominique: See—
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- Mouri, Naotake: See—
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- Mouri, Naotake: See—
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- Mouri, Yasushi; and Kohno, Yoshikuni, to Mitsubishi Heavy Industries, Ltd. Damping device for a rotating machine, 5,803,708, Cl. 415-104.000.
- Mower, Norman R.; Fosca, Raymond E.; and Rojas, J. Luis, to Ameron International Corporation. Epoxy-polysiloxane polymer composition, 5,804,616, Cl. 523-421.000.
- Moy, Jerry, to Minnesota Mining and Manufacturing Company. Microcapsules with reduced shell wall permeability, 5,804,298, Cl. 428-327.000.
- MPC Products, Inc.: See—
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- Mrenna, Stephen A.: See—
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- MTD Products Inc.: See—
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- MTD Products Inc.: See—
Geib, Richard Carter; and Schosler, Frank, 5,804,726, Cl. 73-593.000.
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- Mueller, Bernd: See—
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- Mueller, Frank: See—
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- Mueller, Klaus: See—
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- Mueller, Rand W.; Pizzuti, Robert J.; Fishman, Graham; Cullimore, Jay N.; Lemense, Thomas; Girard, Hilton W.; Cohrs, Mark; Santavica, Joseph; Scott, Todd; Stouffer, Peter J.; Rupert, David; and Gillespie, John, to Code-Alarm, Inc. Vehicle security system, 5,805,056, Cl. 340-426.000.
- Mueller, Tobias; Rodi, Anton; Mueller, Klaus; and Leonhardt, Holger, to Heidelberg Druckmaschinen Aktiengesellschaft. Device for register adjustment on a sheet-fed printing press, 5,802,973, Cl. 101-183.000.
- Muellers, Brian T.: See—
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- Muendel, Martin Heinrich: See—
Grubb, Stephen Gregory; Headley, Clifford; Muendel, Martin Heinrich; Pedrazzani, Janet Renee; Rockney, Bennett H.; and Strasser, Thomas A., 5,805,621, Cl. 372-6.000.
- Muggetti, Lorena: See—
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- Mukai, Mikio, to Sony Corporation. Field effect transistor having multiple date electrodes surrounding the channel region, 5,804,848, Cl. 257-270.000.
- Mukawa, Tatsuhiko, to Fuji Jukogyo Kabushiki Kaisha. Plastic hollow member, 5,804,268, Cl. 428-36.400.
- Muller BEM: See—
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- Müller, Jan-Hermann: See—
Hansemann, Heinrich; Laupichler, Herbert; Müller, Jan-Hermann; Politt, Joachim-Christian; Schmitz, Günter; and Schröter, Holger, 5,805,052, Cl. 340-310.010.
- Müller, Manfred; and Gerke, Dieter, to Krone Aktiengesellschaft. Termination device for telecommunication and data transmission applications, 5,803,772, Cl. 439-716.000.
- Müller, Otmar M.: See—
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- Muller, Pascale Francine Jeanne: See—
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- Müller, Uwe Richard; and Lane, David J., to Vysis, Inc. Devices and methods for detecting multiple analytes in samples, 5,804,384, Cl. 435-6.000.
- Müller, Walter: See—
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- Mulligan, Daniel P.: See—
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- Mulligan, David Dwight; and Salyers, James Ernest, to Westvaco Corporation. Debarking and chipping folded whole-trees, 5,803,142, Cl. 144-369.000.
- Mulligan, James C.: See—
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- Mullins, Christopher M.; Ray, Thomas J.; and McDonough, John P., to Sensomatic Electronics Corporation. Automatic video cable compensation system, 5,805,202, Cl. 348-6.000.
- Mullins, Michael J.; Smith, Barry S.; and Vanderlinden, Roy E., to Philip Morris Incorporated. Vision inspection system for double stacked packs, 5,803,702, Cl. 414-788.700.
- Multisorb Technologies, Inc.: See—
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- Munce, Archibald Currie, Jr.: See—
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- Munesada, Nobumichi; Kanata, Yoshio; Horiuchi, Michitaro; and Hoshiyama, Hiroki, to Matsushita Electric Industrial Co., Ltd. Edge line measuring method, 5,805,728, Cl. 382-199.000.
- Munini, Dino, to Microstamp Srl. Cap for bottles having resiliently biased seal member, 5,803,288, Cl. 215-342.000.
- Munir, Firdaus Haji Abdul: See—
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- Munk, Edmund; and Huber, Helmut, to Werzalit AG & Co. Guides for transporting pallets and device for manufacturing the same, 5,802,985, Cl. 108-51.110.

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Murad, Howard. Pharmaceutical compositions and methods for improving wrinkles and other skin conditions. 5,804,594, Cl. 514-474.000.
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Murata, Jun: *See—*
Aoki, Hideo; Murata, Jun; Tadaki, Yoshitaka; Sekiguchi, Toshihiro; Kawakita, Keizo; Hayakawa, Takashi; Matsunaga, Katsutoshi; Saitoh, Kazuhiko; Nishimura, Michio; Ohtsuka, Minoru; Yuhara, Katsuo; Tanaka, Michio; Ezaki, Yuji; Kaeriyama, Toshiyuki; and Cho, SongSu, 5,804,479, Cl. 438-253.000.
Murata Kikai Kabushiki Kaisha: *See—*
Imamura, Yuji, 5,802,831, Cl. 57-261.000.
Shiwaku, Tamotsu, 5,803,278, Cl. 212-274.000.
Murata Manufacturing Co., Ltd.: *See—*
Kadota, Michio; and Mizoguchi, Naoki, 5,802,685, Cl. 29-25.350.
Kato, Akira, 5,805,028, Cl. 331-116.00R.
Kawahara, Toshinori, 5,804,132, Cl. 264-671.000.
Kuroda, Yuji; and Tanbo, Yoshiaki, 5,805,026, Cl. 331-96.000.
Sakaki, Hidehiko; Yokoi, Yasushi; and Monden, Koji, 5,804,474, Cl. 438-167.000.
Tanaka, Hiroaki, 5,802,688, Cl. 29-25.420.
Murayama, Michihei: *See—*
Furuya, Yoji; Sugiyama, Kenichiro; Sugino, Toshio; Kobayashi, Hideyuki; Murayama, Michihei; Kadota, Shigehiro; Teraichi, Hiroo; Inoue, Naoshi; and Yasuda, Masanao, 5,805,297, Cl. 358-400.000.
Murdy, Dwight. Instrument case and alarm. 5,805,066, Cl. 340-568.000.
Murgel, Leonardo P.: *See—*
Benson, Clark K.; Caridis, Andrew A.; Giles, Donald B.; Brown, Daniel E.; Padilla, James A.; Leary, Thomas F.; and Murgel, Leonardo P., 5,802,959, Cl. 99-355.000.
Muri, David L.: *See—*
O'Dea, Robert J.; and Muri, David L., 5,805,640, Cl. 375-296.000.

Murkett, Stephen; and Bayer, Juergen, to Dr. Ing. h.c.F. Porsche AG. Passenger car with a transparent top assembly. 5,803,534, Cl. 296-215.000.
Murofushi, Yasuyuki: *See—*
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Muroki, Kenichi: *See—*
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Murphy, Alan E.: *See—*
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Murphy, David V.: *See—*
Armington, Steven E.; Ratzel, Richard O.; Lencoski, Michael J.; Simmons, James A.; and Murphy, David V., 5,803,893, Cl. 493-477.000.
Murphy, Nicholas, to 3DLabs Inc. Ltd. Graphics subsystem with fast clear capability. 5,805,868, Cl. 395-502.000.
Murr, Robert; Foerstl, Bernhard; Roehrl, Thomas; and Zimmer, Herbert, to Siemens Aktiengesellschaft. Anti-theft system for a motor vehicle. 5,804,888, Cl. 307-10.200.
Murrah, Judith; and Lanzaro, Michael, to Symbol Technologies, Inc. Scan-ahead system for processing merchandise at a checkout register. 5,804,807, Cl. 235-383.000.
Murray, Joseph A. Gutter trap assemblage. 5,802,776, Cl. 52-12.000.
Murray, Thomas Robert: *See—*
Hum, Russell Wayne; Murray, Thomas Robert; and Falkner, Christopher J., 5,805,658, Cl. 378-4.000.
Murthy, Srinivasa D.: *See—*
Sprenkle, Todd W.; Murthy, Srinivasa D.; and Khatri, Anil, 5,805,920, Cl. 395-821.000.
Musch, Rüdiger: *See—*
Schubart, Rüdiger; and Musch, Rüdiger, 5,804,668, Cl. 525-331.100.
Musha, Toru; Yoshizawa, Akihiko; Imabayashi, Hiroyuki; and Miyajima, Hiroshi. Optical pick-up head and integrated type optical unit for use in optical pick-up head. 5,804,814, Cl. 250-201.500.
Musikant, Barry; Deutsch, Allan S.; and Cohen, Brett I., to Essential Dental Systems, Inc. Slotted tap and lentulo drill for dental post system. 5,803,732, Cl. 433-102.000.
Musil, Joseph E.: *See—*
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Musil, Tibor: *See—*
Cain, Paul Alfred; Cramp, Susan Mary; Lambert, Claude; Wallis, Derek Ian; Yarwood, Thomas David; Little, Gillian Mary; Morris, John; Musil, Tibor; Pettit, Simon Neil; and Smith, Philip Henry Gaunt, 5,804,532, Cl. 504-309.000.
Musso, Anthony J. Multi-port distribution axle. 5,803,366, Cl. 239-251.000.
Mustata, Eduardo J. Neck and chest scarf. 5,802,618, Cl. 2-207.000.
Muthusamy, Yeshwant K.; Netsch, Lorin P.; Rajasekaran, Perigaram K.; and Wheatley, Barbara J., to Texas Instruments Incorporated. Automatic language identification method and system. 5,805,771, Cl. 395-2.410.
Mychajlowski, Walter: *See—*
Ong, Beng S.; Kmiecik-Lawrynowicz, Grazyna E.; Patel, Raj D.; Mychajlowski, Walter; Sanders, David J.; and Ng, T. Hwee, 5,804,349, Cl. 430-110.000.
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Myers, Keith: *See—*
Hu, Can B.; Ma, Minh T.; Nguyen, Than; Rhee, Richard; and Myers, Keith, 5,804,366, Cl. 435-1.100.
Myers, Kenneth T.: *See—*
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Myers, Paula J. Stylus mount for a computer mouse. 5,805,143, Cl. 345-163.000.
Myers, Warren R. Vacuum adherent face mask. 5,803,076, Cl. 128-205.250.
Myers, William Desmond, Jr.; and Green, Robert R. Perforating gun connection and method of connecting for live well deployment. 5,803,175, Cl. 166-297.000.
Myles, Gary M. Piston spiral lock removal tool and method. 5,802,694, Cl. 29-426.600.
N.V. Bekact S.A.: *See—*
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Nabco Ltd.: *See—*
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Nabeshima, Takayuki: *See—*
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Nabet, Hervé: *See—*
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Naboulsi, Marwan; Kumar, Ashok; Mostafa, Mohamed; Ghaibeh, Jihad; Helweh, Amir; and Kumar, Rajesh, to Raynet, Ericsson. Subscriber network interface. 5,805,591, Cl. 370-395.000.
Nachtkamp, Klaus; Wilmes, Oswald; Arning, Eberhard; and Roschu, Rolf, to Bayer Aktiengesellschaft. Aqueous polyurethane-ureas, a process for their production and their use in coating compositions. 5,804,647, Cl. 524-591.000.
NACO, Inc.: *See—*

Weber, Hans B., 5,802,982, Cl. 105-187.000.
Nadas, Stephen Joseph: *See—*
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Nafis, Christopher Allen: *See—*
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Nagai, Seiji: *See—*
Nota, Tadashi; Yoshioka, Masaichiro; Nagai, Seiji; Tanaka, Shunji; and Kinoshita, Toshiyuki, 5,805,790, Cl. 395-182.080.
Nagamori, Seishi; Hasumura, Satoshi; Kawada, Masaaki; Matsuura, Tomokazu; Mizutani, Satoru; and Yoshida, Hitoshi, to Kirin Beer Kabushiki Kaisha. Human hepatoma-derived cell line FLC-4 and method for producing useful polymers by culturing the cell line. 5,804,441, Cl. 435-370.000.
Nagano, Naoki; Kawamura, Harumi; and Shima, Hisato, to Sony Corporation. Apparatus for connecting electric appliances. 5,805,073, Cl. 340-825.070.
Nagano, Toshihiko: *See—*
Akimoto, Masami; Ogawa, Shizuo; and Nagano, Toshihiko, 5,803,932, Cl. 29-25.010.
Nagaoka, Toshiyuki, to Olympus Optical Co., Ltd. Image transmission optical system. 5,805,345, Cl. 359-654.000.
Nagaraj, Ravi; Kunda, Aniruddha; and Akiyama, James, to Intel Corporation. Apparatus, system and method for supporting DMA transfers on a multiplexed bus. 5,805,842, Cl. 395-306.000.
Nagasaka, Akio: *See—*
Miyatake, Takafumi; Sumino, Shigeo; Taniguchi, Katsumi; Nagasaka, Akio; Ikezawa, Mitsuru; and Ueda, Hirotada, 5,805,746, Cl. 382-305.000.
Nagasaka, Ryo; Kohno, Yasushi; Konishi, Masaaki; Kondo, Minoru; and Nakashima, Katsumi, to Denso Corporation. Airflow meter having an inverted u-shape bypass passage. 5,804,718, Cl. 73-202.000.
Nagase, Kiyohide: *See—*
Sasajima, Kouji; Nagase, Kiyohide; and Kuribayashi, Takashi, 5,804,937, Cl. 318-259.000.
Nagata, Hideo, to NEC Corporation. Synthetic aperture radar and target image production method. 5,805,099, Cl. 342-25.000.
Nagata, Ryohei: *See—*
Karube, Isao; Clark, Susan Anne; and Nagata, Ryohei, 5,804,047, Cl. 204-403.000.
Nagata, Toshiyuki; Yoshida, Hiroyuki; Niuya, Takayuki; and Ogata, Yoshihiro, to Texas Instruments Incorporated. Method of forming a trench-type semiconductor memory device. 5,804,478, Cl. 438-243.000.
Nagata, Yoshihiro: *See—*
Miyazaki, Masamichi; and Nagata, Yoshihiro, 5,802,766, Cl. 49-29.000.
Nagatomo, Shouichi: *See—*
Sugio, Naoaki; Hayakawa, Morihiko; Machara, Kazuyoshi; Takahashi, Oh; Sakamaki, Katsuya; Nakamura, Hiroyuki; and Nagatomo, Shouichi, 5,805,981, Cl. 455-38.400.
Nagel, Andreas: *See—*
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Nagel, Steven J.: *See—*
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Nagle, Thomas E.: *See—*
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Nagoya Screw Mfg. Co., Ltd.: *See—*
Ikeda, Hayato; Michiyuki, Hiromi; Yokoi, Masanobu; Ueda, Yasunori; Nakagawa, Masato; and Naoi, Manabu, 5,802,954, Cl. 92-71.000.
Nahmias, Marco; Schrafft, Robert; and Joseph, Christa, to Pirelli Coordinamento Pneumatici S.p.A. Process for producing a vulcanizable rubber composition with silica-based reinforcing filler. 5,804,636, Cl. 524-492.000.
Naidu, Arun; and Huffman, Jacque, to Ericsson Inc. System and method for equalizing the delay time for transmission paths in a distributed antenna network. 5,805,983, Cl. 455-67.600.
Nair, Haridasan K.: *See—*
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Naito, Tadashi: *See—*
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Naito, Yoshitaka: *See—*
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Nakabayashi, Hidekazu: *See—*
Tamaoki, Taiki; and Nakabayashi, Hidekazu, 5,804,407, Cl. 435-69.100.
Nakae, Makoto: *See—*
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Nakafutami, Yasunobu; Saito, Akira; and Sugiyama, Tsuyoshi, to Asahi Kasei Kabushiki Kaisha. Hydrogenerated rubber composition. 5,804,644, Cl. 524-572.000.
Nakagawa, Akira; Kazui, Kimihiko; Morimatsu, Eiichi; and Shimizu, Takahiro, to Fujitsu Limited. Video coding apparatus. 5,805,222, Cl. 348-401.000.
Nakagawa, Etsuro: *See—*
Inoue, Kazushige; Takatsuna, Toru; Mori, Yukihiko; Nakagawa, Etsuro; and Higuchi, Hiroko, 5,804,347, Cl. 430-110.000.

Nakagawa, Itaru; Fahlgren, David Karl; Uetsuki, Kazuhiro; and Nishio, Kazutoyo, to Tabuchi Electric Company of America. Shunt core transformer with a second secondary coil comprised of a ferrous material. 5,804,959, Cl. 323-355.000.
Nakagawa, Katsumi: *See—*
Arao, Kozo; Nakagawa, Katsumi; Kondo, Takaharu; and Iwasaki, Yukiko, 5,804,466, Cl. 438-95.000.
Nakagawa, Kazuhiko: *See—*
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Nakagawa, Kazuya: *See—*
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Nakagawa, Masato: *See—*
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Nakagawa, Masayuki: *See—*
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Nakagawa, Tsuyoshi; Neko, Yasushi; Sakamoto, Naoyuki; Ohashi, Shigeo; Ohmura, Yoshito; Iwama, Yukiko; Nakajima, Tadakatsu; Kondo, Yoshihiro; Iwai, Susumu; and Matsushima, Hitoshi, to Hitachi, Ltd. Heat dissipation structure in a portable computer including a heat dissipation block extending from a heat dissipation plate through a first circuit board to a CPU on a second circuit board. 5,805,417, Cl. 361-687.000.
Nakagawa, Yoshitomo, to Seiko Instruments Inc. Plasma ion source mass analyzer. 5,804,821, Cl. 250-288.000.
Nakahara, Toshikazu. Bicycle aerobar bag. 5,803,328, Cl. 224-420.000.
Nakai, Chikahiro; and Koinuma, Hiroyuki, to Kabushiki Kaisha Toshiba. Semiconductor memory device. 5,805,512, Cl. 365-200.000.
Nakai, Koji: *See—*
Akao, Mutsuo; Osanai, Hiroyuki; Kawamura, Makoto; and Nakai, Koji, 5,804,020, Cl. 156-251.000.
Nakajima, Amane; Kobayashi, Makoto; and Ando, Fumio, to International Business Machines Corporation. System and method for dynamically sharing an application program among a plurality of conference devices while maintaining state. 5,805,846, Cl. 395-330.000.
Nakajima, Hisashi; and Yoshioka, Haruhiko, to Tokyo Electron Limited; and Tokyo Electron Yamanashi Limited. Probe apparatus with tilt correction mechanisms. 5,804,983, Cl. 324-758.000.
Nakajima, Kazuhiro; and Kotaki, Yasuo, to Canon Kabushiki Kaisha. Chambered liquid container with absorbing material and recording head and apparatus using same. 5,805,188, Cl. 347-87.000.
Nakajima, Nobuyuki; Endou, Mitsuru; and Umeno, Takashi, to Mitsubishi Pencil Kabushiki Kaisha. Applicator. 5,803,640, Cl. 401-174.000.
Nakajima, Norio, to Nakajima Steel Pipe Co., Ltd. Manufacturing method for angled steel pipes. 5,802,903, Cl. 72-224.000.
Nakajima Steel Pipe Co., Ltd.: *See—*
Nakajima, Norio, 5,802,903, Cl. 72-224.000.
Nakajima, Tadakatsu: *See—*
Nakagawa, Tsuyoshi; Neko, Yasushi; Sakamoto, Naoyuki; Ohashi, Shigeo; Ohmura, Yoshito; Iwama, Yukiko; Nakajima, Tadakatsu; Kondo, Yoshihiro; Iwai, Susumu; and Matsushima, Hitoshi, 5,805,417, Cl. 361-687.000.
Nakajima, Takashi, to NEC Corporation. Method of and apparatus for debugging multitask programs. 5,805,892, Cl. 395-704.000.
Nakajima, Takeaki: *See—*
Yamazaki, Kazumi; Wakashiro, Teruo; Hidano, Koichi; Hara, Takeshi; and Nakajima, Takeaki, 5,803,054, Cl. 123-519.000.
Nakamae, Yasushi: *See—*
Yamana, Masayuki; Nakamae, Yasushi; Sakashita, Hirotoshi; and Kashiwagi, Masato, 5,804,674, Cl. 525-477.000.
Nakamaru, Noboru; Suzuki, Shinji; Katsu, Toshiyuki; Kikuchi, Akira; Iizuka, Tatsushi; and Sakamoto, Masaharu, to Pioneer Electronic Corporation. Midi standards recorded information reproducing device with repetitive reproduction capacity. 5,805,545, Cl. 369-48.000.
Nakamichi Corporation: *See—*
Hisatomi, Yuichiro, 5,805,562, Cl. 369-191.000.
Nakamori, Toshinori; Koyama, Yoshiteru; Ueyama, Hiroyuki; and Morita, Toshiaki, to Shima Seiki Manufacturing, Ltd. Needle selection device of flat knitting machine. 5,802,878, Cl. 66-64.000.
Nakamura, Atsushi; and Yamagishi, Hisashi, to Bridgestone Sports Co., Ltd. Solid golf ball. 5,803,832, Cl. 473-377.000.
Nakamura, Atsushi; and Yamagishi, Hisashi, to Bridgestone Sports Co., Ltd. Two-piece solid golf ball. 5,803,833, Cl. 473-377.000.
Nakamura, Hiroshi: *See—*
Yamamoto, Kaoru; Takahashi, Tokihiro; Ishii, Hidehiro; Nakamura, Hiroshi; Noguchi, Tadashi; Sawabe, Takao; and Yoshio, Junichi, 5,805,537, Cl. 369-32.000.
Nakamura, Hiroyuki: *See—*
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Nakamura, Hisashi: *See—*
Takahashi, Yasushi; Iwai, Hidetoshi; Oguchi, Satoshi; Nakamura, Hisashi; Uchiyama, Hiroyuki; Takekuma, Toshitugu; Sakomura, Shigetoshi; Miyazawa, Kazuyuki; Ishihara, Masamichi; Hori, Ryoichi; Kizaki, Takeshi; Koyama, Yoshihisa; Ii, Haruo; Muranaka, Masaya; Aoyagi, Hidetomo; and Matsuura, Hiromi, 5,805,513, Cl. 365-201.000.
Nakamura, Kensuke: *See—*

Tada, Naosumi; Nakamura, Kensuke; Yakubo, Kazushige; and Ohtaka, Yoshiyuki, 5,803,854, Cl. 474-213.000.
Nakamura, Kiyokazu: See—
Umetsu, Hideyuki; Nakamura, Kiyokazu; Inoue, Toshio; Sakai, Miki; and Kurematsu, Toshio, 5,804,634, Cl. 524-466.000.
Nakamura, Shinichi: See—
Hasegawa, Tadashi; Tabata, Yoshimitsu; Kushida, Shigemi; and Nakamura, Shinichi, 5,804,230, Cl. 425-557.000.
Nakamura, Shinji: See—
Okamoto, Ichiro; Ozawa, Kazuhiko; Miyai, Isao; and Nakamura, Shinji, 5,805,469, Cl. 364-577.000.
Nakamura, Shinya: See—
Kono, Katsumi; Nakamura, Shinya; and Honda, Atsushi, 5,803,868, Cl. 477-168.000.
Nakamura, Tamotsu, to Showa Corporation. Power tilt cylinder device. 5,802,953, Cl. 91-422.000.
Nakamura, Tomio: See—
Watanabe, Keiji; Yoneda, Yasuhiro; Maruyama, Takashi; Yano, Keiko; Nakamura, Tomio; Shimizu, Shigeru; Saitoh, Takashi; Namiki, Takahisa; Yano, Ei; Igarashi, Miwa; and Kuramitsu, Yoko, 5,804,354, Cl. 430-325.000.
Nakamura, Yasushi: See—
Sugiyama, Kazuo; Hirata, Shoichi; and Nakamura, Yasushi, 5,805,078, Cl. 340-825.520.
Nakamura, Yoshikazu: See—
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Nakane, Eiji: See—
Kodama, Hideaki; and Nakane, Eiji, 5,805,957, Cl. 399-66.000.
Nakanishi, Chikako, to Mitsubishi Denki Kabushiki Kaisha. Parallel processor performing bypass control by grasping portions in which instructions exist. 5,805,852, Cl. 395-394.000.
Nakanishi, Kenzo; Arakawa, Hiroaki; Yasuda, Minoru; and Sugaya, Toyooki, to Konica Corporation. Apparatus for recording a color image on a color photographic material based on three color component image signals separated from the color image. 5,805,196, Cl. 347-230.000.
Nakanishi, Yasuaki, to Sony Corporation. Protection-type display device. 5,803,567, Cl. 353-74.000.
Nakano, Etsuo: See—
Matsumoto, Seiji; Nakano, Etsuo; and Satoh, Suwao, 5,803,900, Cl. 600-181.000.
Nakano, Hiroki, to International Business Machines Corporation. Image recognition method and apparatus. 5,805,727, Cl. 382-495.000.
Nakano, Kazuhiko, to Nippon Columbia, Ltd. Optical information recording medium on which a visible display having a stereoscopically view effect and a depth viewing effect can be made. 5,805,563, Cl. 369-275.100.
Nakano, Osamu: See—
Kaimoto, Takashi; Nakano, Osamu; Saito, Masanori; and Ikenaga, Koichi, 5,804,797, Cl. 219-505.000.
Nakano, Satoshi; Miyazuchi, Teiichi; Yamasaki, Takeshi; and Sasaki, Satoshi, to Sony Corporation. Magneto-optical pickup device having phase compensating circuitry. 5,805,744, Cl. 385-14.000.
Nakano, Tatsuo, to Bridgestone Corporation. Pneumatic tire with circumferential belt layer/inclined belt layer laminate. 5,804,002, Cl. 152-527.000.
Nakano, Yasunori: See—
Kobayashi, Hideo; Mori, Mutsuhiro; Yasuda, Yasumichi; and Nakano, Yasunori, 5,804,868, Cl. 257-630.000.
Nakano, Yasushi, to NEC Corporation. Radio pager with a display control capability. 5,805,707, Cl. 380-49.000.
Nakano, Yukio: See—
Tsuchida, Masashi; Nakano, Yukio; Kawamura, Nobuo; Negishi, Kazuyoshi; and Torii, Shunichi, 5,806,059, Cl. 707-2.000.
Nakaseko, Shinya: See—
Kawahara, Toshimi; Nakaseko, Shinya; Osawa, Mitsunada; Taniguchi, Shinichiro; Osumi, Mayumi; Ishiguro, Hiroyuki; Katoh, Yoshitugu; and Kasai, Junichi, 5,804,467, Cl. 438-112.000.
Nakashima, Katsumi: See—
Nagasaka, Ryo; Kohno, Yasushi; Konishi, Masaaki; Kondo, Minoru; and Nakashima, Katsumi, 5,804,718, Cl. 73-202.000.
Nakata, Toshihiro; and Suzuki, Norio, to Shin-Etsu Polymer Co., Ltd. Push button switch covering member of silicone rubber with protective coating and method for the preparation thereof. 5,804,299, Cl. 428-334.000.
Nakatani, Yoshihiro; and Kawahara, Norihiro, to Canon Kabushiki Kaisha. Image processing apparatus with a function of superimposing a binary image on another image. 5,805,237, Cl. 348-589.000.
Nakayama, Toru: See—
Koyanagi, Satoru; Ikegami, Katsuhiko; Tamura, Yukio; Nakayama, Toru; and Ozawa, Yuji, 5,803,376, Cl. 241-36.000.
Nakayama, Yuko: See—
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Nakayoshi, Kazumi: See—
Mine, Katsutoshi; Mitani, Osamu; Nakayoshi, Kazumi; and Tazawa, Rikako, 5,804,631, Cl. 524-440.000.
Nakazato, Kazuyuki; and Fukudome, Hideki, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Heat-fusible filling reinforcement and reinforced closed-section structural member making use of the same. 5,804,608, Cl. 521-135.000.
Nakazawa, Kazushi: See—
Mitani, Kiyoshi; Katayama, Masatake; and Nakazawa, Kazushi, 5,804,494, Cl. 438-455.000.

Nalepa, Ernst: See—
Wischnik, Arthur; Speidel, Erik; and Nalepa, Ernst, 5,805,729, Cl. 382-204.000.
Namhata, Sarada: See—
Van Nuffel, Claude T. E.; Pham, Hoang T.; Namhata, Sarada; and Eiffel, Jürgen, 5,804,673, Cl. 525-469.000.
Namiki, Takahisa: See—
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- Sweatt, William C., to Sandia Corporation. Ringfield lithographic camera, 5,805,365, Cl. 359-858.000.
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- Takagi, Norio, to Teijin Limited. Process for producing biaxially oriented polyester film as a base film for a photographic film, 5,804,119, Cl. 264-169.000.
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- Takahashi, Tomowaki, to Nikon Corporation. Catadioptric projection systems. 5,805,334, Cl. 359-364.000.
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- Takaku, Yutaka: See—
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- Negishi, Osamu; and Ozawa, Tetsuo, 5,804,170, Cl. 424-65.000.
- Takasaka, Toshiharu: See—
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Yang, Danny D., to Eastman Kodak Company. Method for fabricating stable magnetoresistive sensors. 5,804,250, Cl. 427-130.000.
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Watanabe, Keiji; Yoneda, Yasuhiro; Maruyama, Takashi; Yano, Keiko; Nakamura, Tomio; Shimizu, Shigeru; Saitoh, Takashi; Namiki, Takahisa; Yano, Ei; Igarashi, Miwa; and Kuramitsu, Yoko, 5,804,354, Cl. 430-325,000.

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Kawabata, Yuji; Yano, Tetsuya; Touge, Yoshiyuki; Kozaki, Shinya; Imamura, Takeshi; Iio, Masatoshi; Suzuki, Michio; and Senshu, Yuni, 5,803,664, Cl. 405-128,000.

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Yanobe, Takeshi: See—
Ota, Hiroaki; Kobayashi, Daihei; Yanobe, Takeshi; Sakamoto, Fujio; and Hayashi, Yuji, 5,804,149, Cl. 422-174,000.

Yarborough, Merrill A.; and Lambert, Russell E., to Peregrine Industries, Inc. Heat transfer system. 5,802,864, Cl. 62-238,600.

Yarita, Katsuhiko: See—
Hasegawa, Kaoru; Toriyama, Yoshio; Kobayashi, Naoto; Yarita, Katsuhiko; Kondo, Hironori; Suzuki, Masahiko; and Imajo, Yoshihiro, 5,805,249, Cl. 349-59,000.

Yariv, Amnon: See—
Kewitsch, Anthony S.; Rakulic, George A.; and Yariv, Amnon, 5,805,751, Cl. 385-43,000.

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Yavitz, Edward Q., 5,803,075, Cl. 128-206,250.

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Verhaeghe, Donald J.; Kraus, William F.; and Yasu, Yoshihiko, 5,804,996, Cl. 327-77,000.

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Kurita, Yutaka; Muragishi, Yasushi; and Yasuda, Hitoshi, 5,804,733, Cl. 73-664,000.

Yasuda, Masanao: See—
Furuya, Yoji; Sugitara, Kenichiro; Sugino, Toshio; Kobayashi, Hideyuki; Murayama, Michihei; Kadota, Shigehiro; Teraichi, Hiroo; Inoue, Naoshi; and Yasuda, Masanao, 5,805,297, Cl. 358-400,000.

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Nakanishi, Kenzo; Arakawa, Hiroaki; Yasuda, Minoru; and Sugaya, Toyooki, 5,805,196, Cl. 347-230,000.

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Yasukawa, Sadahiko: See—
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Fukaya, Takashi; Yasunaga, Koji; Kinukawa, Masahiko; Fujiwara, Hiroshi; Hoshino, Yoshia; and Nozawa, Junichi, 5,805,335, Cl. 359-384,000.

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Yasutake, Taizo, to ITU Research, Inc. Touch sensitive input control device. 5,805,137, Cl. 345-156,000.

Yates, Ashley John: See—
Santora, Arthur C., II; Karpf, David B.; Polvino, William J.; Shapiro, Deborah Ruth; Thompson, Desmond E.; and Yates, Ashley John, 5,804,570, Cl. 514-108,000.

Yates, James W.: See—
Yates, James Wallace; and Hicks, George Timothy, 5,802,877, Cl. 66-21,000.

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Yates, James Wallace; and Hicks, George Timothy, 5,802,877, Cl. 66-21,000.

Yavitz, Edward Q., to Yaru LLC. Surgical mask with adhesive strip to improve breathing. 5,803,075, Cl. 128-206,250.

Yazaki Corporation: See—
Fukuda, Eiji, 5,803,753, Cl. 439-79,000.

Furuya, Yoshinobu, 5,803,655, Cl. 403-398,000.

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Kameyama, Isao, 5,803,758, Cl. 439-248,000.

Kashiyama, Motohisa; and Suzuki, Toshifumi, 5,803,773, Cl. 439-752,000.

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Totsuka, Mitsuhiro; and Hanazaki, Hisashi, 5,802,703, Cl. 29-623,000.

Yazawa, Mika; Yonekawa, Tomohiro; Hattori, Yutaka; Ito, Nobue; and Hattori, Tadashi, to Nippondenso Co., Ltd. Electroluminescent device having a light reflecting film only at allocations corresponding to light emitting regions. 5,804,918, Cl. 313-506,000.

Yeack-Scranton, C. E., deceased (by Robert A. Scranton, spouse and trustee of the Scranton trust): See—

Fontana, Robert E.; Berberich, James W.; Moser, Michael Anthony; Munce, Archibald Currie, Jr.; Ruiz, Oscar J.; Snyder, Clinton David; Yeack-Scranton, C. E., deceased, 5,802,701, Cl. 29-603,140.

Yeaglin, William E. Snow and ice remover for vehicle roofs. 5,802,654, Cl. 15-97,300.

Yeda Research and Development Co. Ltd.: See—

Prior, Yehiam; Kinrot, Opher; and Averbukh, Eliyahu, 5,805,282, Cl. 356-345,000.

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Yang, Chih-Ming; and Yeh, Jyi-Tyan, 5,805,726, Cl. 381-190,000.

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Yen, Jung-Chuan. Computer typing learning device. 5,803,744, Cl. 434-227,000.

Yepez, Omar, to Westfield Trading Corporation. Non poisoning fuel cell and method. 5,804,325, Cl. 429-13,000.

Yeung, Shu-Ki. Fluid operated tilting bowl toilet. 5,802,627, Cl. 4-313,000.

Yi, Chiu Jen; Chen, Cheng Tsu; Shen, Huang Lung; and Ho, Yang Yeh, to Chen, Cheng Tsu; and Ho, Yang Yeh. Manufacturing method for UV-screening photochromism eye glasses. 5,804,106, Cl. 264-1,100.

Yi, Guan Jiun: See—

Lo, Yung Tsun; Yi, Guan Jiun; Lin, Chi Hen; and Jih, Jyh Ming, 5,804,091, Cl. 216-100,000.

Yiannikouras, George Petros: See—

Hebeisen, Paul; Heinze-Krauss, Ingrid; Richter, Hans; Runtz, Valeri; Stalder, Henri; Weiss, Urs; and Yiannikouras, George Petros, 5,804,577, Cl. 514-202,000.

Yin, Rong, to SGS-Thomson Microelectronics, Inc. Low current crystal oscillator with fast start-up time. 5,805,027, Cl. 331-116,000.

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Matsuda, Yoshio; Kato, Hidenobu; and Ikeguchi, Yoshito, 5,802,883, Cl. 66-193,000.

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Shimizu, Mitsuharu; and Yoda, Toshihisa, 5,804,422, Cl. 438-125,000.

Yoham, Stephen. In-line skate with collapsible wheel assembly. 5,803,469, Cl. 280-11,270.

Yokajty, Joseph; Stanzone, Matthew; and Watkins, Joseph A., to Eastman Kodak Company. Two roller film scroller and method. 5,805,935, Cl. 396-6,000.

Yokemura, Taketoshi: See—

Yanagisawa, Takashi; Maeda, Kazuhiko; and Yokemura, Taketoshi, 5,805,412, Cl. 361-686,000.

Yokogawa Electric Corporation: See—

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Kishi, Tadashi; Xu, Xinmin; and Sawayama, Nobuteru, 5,804,140, Cl. 422-53,000.

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Ikeda, Hayato; Michiyuki, Hiromi; Yokoi, Masanobu; Ueda, Yasunori; Nakagawa, Masato; and Naoi, Manabu, 5,802,954, Cl. 92-71,000.

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Yokonuma, Norikazu; Kazami, Kazuyuki; Hibino, Hideo; and Okutsu, Hisashi, to Nikon Corporation. Film image processing apparatus. 5,805,206, Cl. 348-96,000.

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Miyoshi, Naoto; Suzuki, Hiromasa; Ogawa, Osamu; Kimura, Mareo; Kawai, Yuzo; Yokota, Koji; Takahashi, Naoki; and Tanaka, Toshiyuki, 5,804,152, Cl. 423-213,500.

Yokota, Tomoyoshi, to Kyocera Corporation. Radio base station for offset phase transmission. 5,806,001, Cl. 455-507,000.

Yokota, Yasunori, to Nippon Thompson Co., Ltd. Roller and cage assembly. 5,803,620, Cl. 384-580,000.

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Tsuda, Nobuhiko; Iwakiri, Ryuzi; Yonei, Yasushi; Imoto, Katsuhiko; Shimizu, Yoshiki; Araki, Takayuki; and Kondo, Masahiro, 5,804,650, Cl. 524-805,000.

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Yazawa, Mika; Yonekawa, Tomohiro; Hattori, Yutaka; Ito, Nobue; and Hattori, Tadashi, 5,804,918, Cl. 313-506,000.

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Yoo, Jang-hoon: See—

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Yoo, Jin-ho, to Hyundai Motor Company. Control system for reducing the stopping distance in an abrupt operation and a method thereof. 5,803,864, Cl. 477-119,000.

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Park, No-yeol; Jang, Seong-man; Jang, Gun-hee; and Yoon, Jin-yook, 5,804,904, Cl. 310-261,000.

Yoon, Jung Kee, to LG Electronics, Inc. Method and system for manufacturing semiconductor device. 5,803,965, Cl. 117-4,000.

Yorkey, David. Security system. 5,805,064, Cl. 340-550,000.

Yoseloff, Mark L., to Shuffle Master, Inc. Method of playing a multi-decked poker type game. 5,803,809, Cl. 463-13,000.

Yoshida, Akira: See—

Inoshiri, Ryo; Yoshida, Akira; and Hong, Ziquan, 5,805,718, Cl. 382-111,000.

Yoshida, Hiroyuki; Nakayama, Yuko; and Yamamoto, Rieko, to Fujitsu Limited. Diagnostic apparatus having a symptom evaluation processing function to improve cause hypothesis. 5,805,160, Cl. 345-339,000.

Yoshida, Hiroyuki: See—

Nagata, Toshiyuki; Yoshida, Hiroyuki; Niuya, Takayuki; and Ogata, Yoshihiro, 5,804,478, Cl. 438-243,000.

Yoshida, Hitoshi: See—

Nagamori, Seishi; Hasumura, Satoshi; Kawada, Masaaki; Matsuura, Tomokazu; Mizutani, Satoru; and Yoshida, Hitoshi, 5,804,441, Cl. 435-370,000.

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Ito, Masahito; Miura, Junkichi; Fujii, Yoshio; Satake, Hiroshi; and Yoshida, Kasumi, 5,804,142, Cl. 422-70,000.

Yoshida, Kazuhiko; Goto, Tatsuhiro; Wakita, Akira; Kawasaki, Toshio; Hasegawa, Toyofumi; Takeshita, Hideo; and Suwa, Toshiaki, to NTN Corporation. Outer ring for high strength constant velocity joint and production process for same. 5,803,993, Cl. 148-320,000.

Yoshida, Kazushi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Light gathering apparatus. 5,805,337, Cl. 359-495,000.

Yoshida, Kazuya: See—

Eguchi, Hiroshi; and Yoshida, Kazuya, 5,804,530, Cl. 503-227,000.

Yoshida, Kimiyoshi: See—

Sakata, Haruhiko; and Yoshida, Kimiyoshi, 5,805,725, Cl. 382-187,000.

Yoshida, Naoto; Shibata, Hiroshi; Matsuda, Mitsuhide; and Takasu, Takuma, to Matsushita Electric Industrial Co., Ltd. Ink jet head. 5,805,186, Cl. 347-61,000.

Yoshida, Takayuki: See—

Mimura, Tadaaki; Yoshida, Takayuki; Yamane, Ichiro; Yamashita, Takio; Matsuki, Toshio; Kasuga, Yoshiaki; and Fujimoto, Hiroaki, 5,805,865, Cl. 395-500,000.

Yoshida, Yoshinari: See—

Hamada, Tokihiko; Yoshida, Yoshinari; Hiraoka, Yuzuru; Mori, Genzi; Fujimoto, Hiroyasu; Tominaga, Yoshiki; and Hayashi, Tatsuo, 5,805,528, Cl. 367-111,000.

Yoshihara, Yuji; Kawase, Hiroyuki; Sakaguchi, Yuichi; Shimizu, Kouichi; and Suzuki, Hiromasa, to Toyota Jidosha Kabushiki Kaisha. Valve performance controller for internal combustion engine. 5,803,029, Cl. 123-90,160.

Yoshimi, Kazuyori: See—

Kawamura, Syukiti; Itamura, Sumio; and Yoshimi, Kazuyori, 5,804,270, Cl. 428-36,920.

Yoshimoto, Shinichi: See—

Kotani, Seigo; Murakami, Keiichi; Yoshimoto, Shinichi; Kanamoto, Kouichi; Masuda, Tatsuro; Yoshioka, Makoto; and Fujiwara, Masao, 5,805,800, Cl. 395-186,000.

Yoshimura, Toshio, to Tanashin Denki Co., Ltd. Operation switching apparatus for tape recorder with control cam plate for change of tape feed modes. 5,805,383, Cl. 360-105,000.

Yoshimura, Yuichiro: See—

Tokioka, Masaki; Tanaka, Atsushi; Yoshimura, Yuichiro; Yanagisawa, Ryozo; Kobayashi, Katsuyuki; and Sato, Hajime, 5,805,147, Cl. 345-173,000.

Yoshino, Hiroki: See—

Miyatake, Nobuo; Yoshino, Hiroki; and Hosoi, Hideki, 5,804,655, Cl. 525-69,000.

Yoshino, Hitoshi: See—

Tomioka, Hiroshi; Miura, Kyo; Yoshino, Hitoshi; and Kondo, Yuji, 5,804,320, Cl. 428-478,200.

Yoshio, Junichi: See—

Yamamoto, Kaoru; Takahashi, Tokihiko; Ishii, Hidehiro; Nakamura, Hiroshi; Noguchi, Tadashi; Sawabe, Takao; and Yoshio, Junichi, 5,805,537, Cl. 369-32,000.

Yoshioka, Haruhiko: See—

Nakajima, Hisashi; and Yoshioka, Haruhiko, 5,804,983, Cl. 324-758,000.

Yoshioka, Makoto: See—

Kotani, Seigo; Murakami, Keiichi; Yoshimoto, Shinichi; Kanamoto, Kouichi; Masuda, Tatsuro; Yoshioka, Makoto; and Fujiwara, Masao, 5,805,800, Cl. 395-186,000.

Yoshioka, Masaichiro: See—

Nota, Tadashi; Yoshioka, Masaichiro; Nagai, Seiji; Tanaka, Shunji; and Kinoshita, Toshiyuki, 5,805,790, Cl. 395-182,080.

Yoshioka, Tohru: See—

Doi, Ayumu; Uemura, Hiroki; Yamamoto, Yasunori; Adachi, Tomohiko; and Yoshioka, Tohru, 5,805,103, Cl. 342-70,000.

Yoshizawa, Akihiko: See—

Musha, Toru; Yoshizawa, Akihiko; Imabayashi, Hiroyuki; and Miyajima, Hiroshi, 5,804,814, Cl. 250-201,500.

Yother, Janet L.: See—

Briles, David E.; and Yother, Janet L., 5,804,193, Cl. 424-197,110.

Youare Electronics Co.: See—

Lee, Keum Sik, 5,804,916, Cl. 313-497,000.

Young, Daniel Guy: See—

Cahill, Joseph James; Williams, Robert Russell; and Young, Daniel Guy, 5,804,998, Cl. 327-108,000.

Young, Gary. Sound producing baseball bat. 5,803,840, Cl. 473-457,000.

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- Yun, Jung-Bong; Seo, Gee-Il; and Kim, Hee-Jun. to Samsung Electronics Co., Ltd. Charger assembly for a wafer carrying apparatus. 5,803,697, Cl. 414-417.000.
- Yung, Henry Tin-Hang, to Texas Instruments Incorporated. Current-integrating successive-approximation analog-to-digital converter. 5,805,097, Cl. 341-161.000.
- Yungtay Engineering Co., Ltd.: See—
- Chen, Ching-Mau; Lin, Tzu-Yuan; Wu, Chin-Chang; Chang, Liao-Chia; Chang, Hsin-San; and Chuang, Wen-Wei, 5,804,778, Cl. 187-248.000.
- Yuyama Mfg. Co., Ltd.: See—
- Yuyama, Shoji; Yasunaga, Itsuo; and Koike, Naoki, 5,803,309, Cl. 221-82.000.
- Yuyama, Shoji; Yasunaga, Itsuo; and Koike, Naoki, to Yuyama Mfg. Co., Ltd. Tablet feeder. 5,803,309, Cl. 221-82.000.
- Zabler, Erich: See—
- Benz, Gerhard; Laermer, Franz; Schilp, Andrea; Zabler, Erich; Schirmer, Jürgen; and Uhler, Werner, 5,804,457, Cl. 437-228.SEN.
- Zach, Reuven D.: See—
- Nelson, Robert S.; and Zach, Reuven D., 5,805,665, Cl. 378-207.000.
- Zager, Robert P.: See—
- Picazo, Jose J., Jr.; Lee, Paul Kakul; and Zager, Robert P., 5,805,816, Cl. 395-200.530.
- Zah, Chung-en: See—
- Amersfoort, Martin; and Zah, Chung-en, 5,805,755, Cl. 385-131.000.
- Zaitzu, Toshiyuki; and Ninomiya, Tamotsu, to NEC Corporation. Resonant DC-DC converter capable of controlling by pulse width modulation. 5,805,432, Cl. 363-16.000.
- Zakarian, Arthur, to Olympia Industrial Inc. Tool display device. 5,803,253, Cl. 206-349.000.
- Zaki, Kawthar Abdelhamid, to University of Maryland. High performance dual mode microwave filter with cavity and conducting or superconducting loading element. 5,804,534, Cl. 505-210.000.
- Zambrano, Raffaele; and Fallico, Giuseppe, to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno. Process for manufacturing a high-frequency bipolar transistor structure. 5,804,486, Cl. 438-309.000.
- Zamm, Joseph W.: See—
- Hong, Richard; and Zamm, Joseph W., 5,803,850, Cl. 474-135.000.
- Zammit, Theodore J.: See—
- Mazurek, Niel; Zammit, Theodore J.; and Maloney, Thomas C., 5,805,117, Cl. 345-1.000.
- Zamudio-Tena, Jose F.: See—
- Cherukuri, Subraman R.; Yang, Robert K.; Bowles, Cecil A.; Zamudio-Tena, Jose F.; and Bhowmik, Santi R., 5,804,247, Cl. 426-660.000.
- Zander, Edward Holmes: See—
- Barnhard, Jeffrey Charles; Meredith, Brian Michael; and Zander, Edward Holmes, 5,803,950, Cl. 95-8.000.
- Zapatinas, Andreas: See—
- Skrzypek, Uwe; and Zapatinas, Andreas, 5,803,530, Cl. 296-180.100.
- Zappe, Hans Helmut: See—
- Fan, Long-Sheng; Fontana, Robert Edward, Jr.; Furuhashi, Tomotake; Reiley, Timothy Clark; and Zappe, Hans Helmut, 5,805,375, Cl. 360-78.120.
- Zarembo, Peter J.: See—
- Schwarz, Werner; Graessle, Josef; and Zarembo, Peter J., 5,805,065, Cl. 340-551.000.
- Zarges, Olav A.: See—
- Windel, Harald; Reisinger, Frank; Freytag, Claus; Kubatzki, Ralf; Hansel, Marcus; Günther, Stephan; Bischoff, Enno; Wagner, Andreas; Zarges, Olav A.; Berthold, Arndt; and Rieckhoff, Peter, 5,805,711, Cl. 380-55.000.
- Zaro, Marvin. Protective closure. 5,803,126, Cl. 138-89.000.
- Zaviska, Dalibor: See—
- Weis, Helmut; Fischer, Klaus-Diether; Volz, Peter; Zaviska, Dalibor; Linhoff, Paul; and Kaiser, Ralf, 5,803,556, Cl. 303-119.200.
- Zdrojowski, Ronald J.; and Estes, Mark, to Respironics Inc. Breathing gas delivery method and apparatus. 5,803,065, Cl. 128-204.230.
- Zechner, Karl. Buckle folding machine. 5,803,890, Cl. 493-419.000.
- Zeegers, Donald; and Zorer, Jean-Louis, to U.S. Philips Corporation. Traffic information apparatus synthesizing voice messages by interpreting spoken element code type identifiers and codes in message representation. 5,806,035, Cl. 704-258.000.
- Zejda, Jaroslav; and Kempf, Stefan, to Balzers und Leybold Deutschland Holding AG. Apparatus for gripping a flat substrate. 5,803,521, Cl. 294-97.000.
- Zell, Karl; Seibold, Jürgen; and Seidel, Peter, to Siemens Aktiengesellschaft. Plug-type connector for backplane wirings. 5,803,768, Cl. 439-608.000.
- Zeneca Limited: See—
- Haddleton, David Mark; Padget, John Christopher; and Overbeek, Gerardus Cornelis, 5,804,632, Cl. 524-458.000.
- Zeneca Resins BV: See—
- Haddleton, David Mark; Padget, John Christopher; and Overbeek, Gerardus Cornelis, 5,804,632, Cl. 524-458.000.
- Zeria Pharmaceuticals: See—
- Ishibashi, Sadami; Hamaya, Tadao; Imai, Tadashi; and Iijima, Masao, 5,804,174, Cl. 424-76.900.
- Zerrweck, Frank: See—
- Holzappel, Bernhard; Meyer, Michael; and Zerrweck, Frank, 5,804,887, Cl. 307-10.100.
- Zervas, Harry: See—
- Hascotes, Byron; and Zervas, Harry, 5,802,745, Cl. 37-234.000.
- Zixel Corporation: See—
- Sado, Hitoshi; and Saitoh, Hiroyo, 5,805,396, Cl. 361-42.000.
- Zhang, Mengruo: See—
- Hogge, Steven Darryl; Zhang, Mengruo; Straker, Gary; Gratzinger, Paul G.; and Wisner, Duane, 5,802,709, Cl. 29-827.000.
- Zhang, Tao: See—
- Inoue, Akihisa; Masumoto, Tsuyoshi; Zhang, Tao; and Shinohara, Yoshiyuki, 5,803,996, Cl. 148-672.000.
- Zhang, Yong Fang, to Synrad, Inc. Graded refractive index optical waveguide using a fluid medium. 5,805,754, Cl. 385-125.000.
- Zhen, Yong Su: See—
- Cheng, Shu Jun; Wang, De Chang; Zhen, Yong Su; Nishino, Hoyoku; and Hara, Yukihiko, 5,804,567, Cl. 514-49.000.
- Zheng, Hua; and Wright, Jeffrey P., to Micron Technology, Inc. Circuit and method for converting a pair of input signals into a level-limited output signal. 5,805,505, Cl. 365-189.050.
- Zhou, Chengdong; Taylor, E. Jennings; Renz, Robert P.; Stortz, Eric C.; and Sun, Jenny J., to Faraday Technology, Inc. Method of removing metal salts from solution by electrolysis an electrode closely associated with an ion exchange resin. 5,804,057, Cl. 205-702.000.
- Zierhut, Clarence D.: See—
- Jimenez, Dennis V.; Zierhut, Clarence D.; and Harrison, Jerry W., 5,803,272, Cl. 211-48.000.
- Ziessel, Raymond: See—
- Orillon, Marc; Chardon-Noblat, Sylvie; Colomb-Dunand Sauthier, Marie Noëlle; Deronzier, Alain; Ziessel, Raymond; and Zsoldos, Daniela, 5,804,045, Cl. 204-280.000.
- Zietek, Edward. Self-draining pool cover. 5,802,629, Cl. 4-498.000.
- Zilog, Inc.: See—
- McKinley, David E.; and Pope, Steven, 5,805,834, Cl. 395-283.000.
- Zimmer, Herbert: See—
- Murr, Robert; Foerstl, Bernhard; Roehrl, Thomas; and Zimmer, Herbert, 5,804,888, Cl. 307-10.200.
- Zimmerman, James D.: See—
- Chen, Chungte W.; Zimmerman, James D.; and Ansley, David A., 5,803,570, Cl. 353-122.000.
- Zimmerman, Thomas A.: See—
- Wedell, Mark Taylor; Bilson, Edward Bernard; Zimmerman, Thomas A.; and Ellis, Glenn A., III, 5,803,590, Cl. 362-226.000.
- Zinda, Kenneth L., Jr. Solid state ballast system for metal halide lighting using fuzzy logic control. 5,806,055, Cl. 706-45.000.
- Zinke, Horst; Wehner, Wolfgang; Kuhn, Karl Josef; Borzatta, Valerio; and Rytz, Gerhard, to Ciba Specialty Chemicals Corporation. Monomeric N-piperidinylmelamines as stabilizers for chlorine-containing polymers. 5,804,622, Cl. 524-100.000.
- Zlatic, Douglas: See—
- Andrisin, John J., III; Hayes, David D.; Lenox, G. Stewart; Quinlan, Robert L.; and Zlatic, Douglas, 5,802,948, Cl. 83-862.000.
- Zoltaszek, Zenon. Rotary driven linear actuator. 5,802,691, Cl. 29-243.526.
- Zorer, Jean-Louis: See—
- Zeegers, Donald; and Zorer, Jean-Louis, 5,806,035, Cl. 704-258.000.
- Zsoldos, Daniela: See—
- Orillon, Marc; Chardon-Noblat, Sylvie; Colomb-Dunand Sauthier, Marie Noëlle; Deronzier, Alain; Ziessel, Raymond; and Zsoldos, Daniela, 5,804,045, Cl. 204-280.000.
- Zuberec, Sarah E.: See—
- Blum, Jeffrey R.; and Zuberec, Sarah E., 5,805,164, Cl. 345-347.000.
- Zuccarini, John J., to Plasco Corporation. Process for casting a plastic die. 5,802,696, Cl. 29-468.000.
- Zucchinali, Alberto: See—
- Serafini, Enrico; Zucchinali, Alberto; Marani, Fabrizio; and Martino, Massimiliano, 5,805,760, Cl. 385-147.000.
- Zuffetti, Gianfranco. Telescopic mount for temporary walls. 5,803,653, Cl. 403-363.000.
- Zugibe, Kevin, to Hudson Technologies, Inc. Apparatus for recovering and analyzing volatile refrigerants. 5,802,859, Cl. 62-125.000.
- Zung, Jonathan B.: See—
- Allen, Douglas John; Buzon, Richard A.; Deninno, Michael P.; Watson, Harry Austin, Jr.; and Zung, Jonathan B., 5,804,562, Cl. 514-26.000.
- Zutavern, Fred J.: See—
- Loubriel, Guillermo M.; Baca, Albert G.; and Zutavern, Fred J., 5,804,815, Cl. 250-214.100.
- Zwack, Robert R.: See—
- Boyd, Donald W.; Zwack, Robert R.; Kollah, Raphael O.; and McColium, Gregory J., 5,804,051, Cl. 204-501.000.
- Zwan, Bryan J.; and Myers, Kenneth T. Dynamic communication line analyzer apparatus and method. 5,805,571, Cl. 370-249.000.
- Zwittig, Eberhard: See—
- Karbach, Thomas; Pfender, Conrad; and Zwittig, Eberhard, 5,803,162, Cl. 165-109.100.
- Zykan, Blair J., to Laser Technology, Inc. Laser based speed and accident reconstruction measuring apparatus and method. 5,806,020, Cl. 702-159.000.
- 1-O-X Corporation: See—
- Kozak, Edward J.; Bailey, James L.; and Quinley, John W., 5,803,745, Cl. 434-236.000.
- 3 Com Corporation: See—
- Kranzler, David A.; Tang, Wen-Tsung; and Ibe, Edwin, 5,805,596, Cl. 370-445.000.
- 3429342 Canada Ltée: See—
- Lamont, Bernard; and Rozon, David, 5,802,790, Cl. 52-288.100.
- 3Com Corporation: See—

- Chau, Wing Cheong; and Leu, Dar-Ren, 5,805,827, Cl. 395-200.770.
- 3Com Ltd.: See—
- Chemla, Guy, 5,805,403, Cl. 361-103.000.
- 3Dlabs Inc. Ltd.: See—
- Murphy, Nicholas, 5,805,868, Cl. 395-502.000.
- 800 Adept, Inc.: See—
- Neville, Daniel E., 5,805,689, Cl. 379-220.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 8th DAY OF SEPTEMBER, 1998

NOTE— Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- Asano, Seiji: *See—*
Ishii, Toshio; Kaneyasu, Masayoshi; and Asano, Seiji, RE. 35,887, Cl. 60-274.000.
Ellison, Thomas M.; and Keith, Brian M., to Rexam Industries Corp. Injection molded plastic article with integral weatherable pigmented film surface. RE. 35,894, Cl. 428-46.000.
Hitachi, Ltd.: *See—*
Ishii, Toshio; Kaneyasu, Masayoshi; and Asano, Seiji, RE. 35,887, Cl. 60-274.000.
Ishii, Toshio; Kaneyasu, Masayoshi; and Asano, Seiji, to Hitachi, Ltd. Conversion efficiency measuring apparatus of catalyst used for exhaust gas purification of internal combustion engine and the method of the same. RE. 35,887, Cl. 60-274.000.
Jamaluddin, Abul K. M.; and Nazarko, Taras W., to Noranda Inc. Process for increasing near-wellbore permeability of porous formations. RE. 35,891, Cl. 166-302.000.
Kaneyasu, Masayoshi: *See—*
Ishii, Toshio; Kaneyasu, Masayoshi; and Asano, Seiji, RE. 35,887, Cl. 60-274.000.
Keith, Brian M.: *See—*
Ellison, Thomas M.; and Keith, Brian M., RE. 35,894, Cl. 428-46.000.
Long Manufacturing Ltd.: *See—*
So, Allan K., RE. 35,890, Cl. 165-109.100.
Nazarko, Taras W.: *See—*
Jamaluddin, Abul K. M.; and Nazarko, Taras W., RE. 35,891, Cl. 166-302.000.
Noranda Inc.: *See—*
Jamaluddin, Abul K. M.; and Nazarko, Taras W., RE. 35,891, Cl. 166-302.000.
Rexam Industries Corp.: *See—*
Ellison, Thomas M.; and Keith, Brian M., RE. 35,894, Cl. 428-46.000.
So, Allan K., to Long Manufacturing Ltd. Optimized offset strip fin for use in compact heat exchangers. RE. 35,890, Cl. 165-109.100.
Valentine Enterprises, Inc.: *See—*
Valentine, William K.; and Valentine, William, RE. 35,893, Cl. 424-489.000.
Valentine, William: *See—*
Valentine, William K.; and Valentine, William, RE. 35,893, Cl. 424-489.000.
Valentine, William K.; and Valentine, William, to Valentine Enterprises, Inc. Defoaming composition. RE. 35,893, Cl. 424-489.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

- Allied-Signal Inc.: *See—*
Danowski, Daniel R.; Kesavan, Sunil K.; Martin, James W.; and Pereira, James S., B1 164,879, Cl. 361-215.000.
Applied Elastomers, Inc.: *See—*
Chen, John Y., B1 334,646, Cl. 524-474.000.
Chen, John Y., to Applied Elastomers, Inc. Thermoplastic elastomer gelatinous articles. B1 334,646, Cl. 524-474.000.
Chesley F. Carlson Co.: *See—*
Klukow, Roger, B1 031,938, Cl. 72-387.000.
Danowski, Daniel R.; Kesavan, Sunil K.; Martin, James W.; and Pereira, James S., to Allied-Signal Inc. Electrostatically dissipative fuel filter. B1 164,879, Cl. 361-215.000.
Gustafsson, Jan-Gunnar; Hedman, Per; Pernemalm, Per-Åke; and Lönngrén, Jörgen, to Pharmacia Biotech AB. Process and means for down stream processing. B1 522,993, Cl. 210-635.000.
Hedman, Per: *See—*
Gustafsson, Jan-Gunnar; Hedman, Per; Pernemalm, Per-Åke; and Lönngrén, Jörgen, B1 522,993, Cl. 210-635.000.
Kesavan, Sunil K.: *See—*
Danowski, Daniel R.; Kesavan, Sunil K.; Martin, James W.; and Pereira, James S., B1 164,879, Cl. 361-215.000.
Klukow, Roger, to Chesley F. Carlson Co. Web bending fixture. B1 031,938, Cl. 72-387.000.
Lönngrén, Jörgen: *See—*
Gustafsson, Jan-Gunnar; Hedman, Per; Pernemalm, Per-Åke; and Lönngrén, Jörgen, B1 522,993, Cl. 210-635.000.
Martin, James W.: *See—*
Danowski, Daniel R.; Kesavan, Sunil K.; Martin, James W.; and Pereira, James S., B1 164,879, Cl. 361-215.000.
Pereira, James S.: *See—*
Danowski, Daniel R.; Kesavan, Sunil K.; Martin, James W.; and Pereira, James S., B1 164,879, Cl. 361-215.000.
Pernemalm, Per-Åke: *See—*
Gustafsson, Jan-Gunnar; Hedman, Per; Pernemalm, Per-Åke; and Lönngrén, Jörgen, B1 522,993, Cl. 210-635.000.
Pharmacia Biotech AB: *See—*
Gustafsson, Jan-Gunnar; Hedman, Per; Pernemalm, Per-Åke; and Lönngrén, Jörgen, B1 522,993, Cl. 210-635.000.

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- Ahbbott Laboratories: *See—*
Graham, Hugh William; Herchenbach, Steve; Laurusonis, Linas P.; Safar, Scott G.; and Satchell, David H., 397,938, Cl. D9-454.000.
Acker, Laurens van den: *See—*
Mays, J. Carroll; Lantz, Carolyn; Acker, Laurens van den; and Morris, David, 397,961, Cl. D12-91.000.
Acushnet Company: *See—*
Redwood, Michael; and Andrews, Rosey, 397,837, Cl. D2-614.000.
adidas, AG: *See—*
Munns, Jon R., 397,841, Cl. D2-902.000.
Aird, Frederic; Laferriere, Michel; Wensley, Neil; Ryan, Craig; and Gagnon, Hubert, to Sport Maska Inc. Tongue for a boot. 397,862, Cl. D2-975.000.
Akeley, Dale; Dawson, Terry; and Arnold, Thomas, to DeLorme Publishing Co. Global positioning system receiver with offset shape. 397,947, Cl. D10-65.000.
Aktiebolaget Electrolux: *See—*
Svantesson, Jan Esbjörn, 397,864, Cl. D3-20.000.
Allsteel Inc.: *See—*
Saul, Gregory Mark, 397,880, Cl. D6-380.000.
Al-Sabah, Sabah Naser. Aircraft having raised and rearward positioned cockpit. 397,989, Cl. D12-319.000.
Aluminum Company of America: *See—*
Mays, J. Carroll; Lantz, Carolyn; Acker, Laurens van den; and Morris, David, 397,961, Cl. D12-91.000.
Alvern-Norway A/S: *See—*
Alvern, Stein; and Alvern, Oyvind, 398,012, Cl. D15-9.100.
Alvern, Stein; and Alvern, Oyvind, 398,013, Cl. D15-9.100.
Alvern, Oyvind: *See—*
Alvern, Stein; and Alvern, Oyvind, 398,012, Cl. D15-9.100.
Alvern, Stein; and Alvern, Oyvind, 398,013, Cl. D15-9.100.
Alvern, Stein; and Alvern, Oyvind, to Alvern-Norway A/S. Module for a multipurpose utility station for use at e.g. a petrol station, providing e.g. supplies of air, oil, screen washer fluid, coolant as well as washing facilities. 398,012, Cl. D15-9.100.
Alvern, Stein; and Alvern, Oyvind, to Alvern-Norway A/S. Module for a multipurpose utility station for use at e.g. a petrol station, providing e.g. supplies of air, oil, screen washer fluid, coolant as well as washing facilities. 398,013, Cl. D15-9.100.
Ambar, Betzalel. Gemstone. 397,954, Cl. D11-90.000.

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- Ambroe, Stanley. Closable display device. 397,998, Cl. D14-113.000.
Ancona, Bruce E.; and Suero, Jose, Jr., to Ekko Housewares, Inc. Cutlery block with spice jar openings. 397,916, Cl. D7-638.000.
Anderson, James F. Agricultural chemical application vessel. 397,987, Cl. D12-306.000.
Andrews, Rosey: *See—*
Redwood, Michael; and Andrews, Rosey, 397,837, Cl. D2-614.000.
Angier, Keith A. Cat litter transfer sieve. 398,088, Cl. D30-161.000.
Anzai, Masahiro: *See—*
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Apps, William P.: *See—*
Rehrig, James B.; Apps, William P.; and Hsu, Roger S., 398,120, Cl. D34-5.000.
AquaPenn Spring Water Company: *See—*
Lauth, Edward, 397,941, Cl. D9-502.000.
Arnold, Thomas: *See—*
Akeley, Dale; Dawson, Terry; and Arnold, Thomas, 397,947, Cl. D10-65.000.
Asdak International: *See—*
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Ashcraft, Walter M.; Steele, David; Parker, Kenneth R.; and Van Dore, Jonathan P., to Atwood Industries, Inc. Range control panel. 397,909, Cl. D7-405.000.
ASICS Corporation: *See—*
Mitsui, Shigeyuki; and Koushima, Takashi, 397,849, Cl. D2-954.000.
Astra AB: *See—*
Eck, Arne, 398,054, Cl. D24-118.000.
AT & S, Inc.: *See—*
Casady, Bruce W.; Parks, Gerald T., Jr.; and Freil, Jerry L., 398,048, Cl. D23-386.000.
Atwood Industries, Inc.: *See—*
Ashcraft, Walter M.; Steele, David; Parker, Kenneth R.; and Van Dore, Jonathan P., 397,909, Cl. D7-405.000.
Avar, Eric, to Nike, Inc. Portion of a shoe upper. 397,860, Cl. D2-972.000.
Avar, Eric P., to Nike, Inc. Portion of a shoe sole. 397,848, Cl. D2-972.000.
Avrans, Robert S. Scraper to remove food from a plate. 398,111, Cl. D32-46.000.
Azzopardi, Adrian P. Tape measure with pencil sharpening device. 397,949, Cl. D10-72.000.
Bachman, Rebecca J.: *See—*
Briggs, Jerald E.; Bachman, Rebecca J.; and Hurley, Paul D., 397,906, Cl. D7-392.100.
Badgett, Janet; Badgett, Ron; Hogan, Michelle; and Hogan, Bruce, to House Wize, LLC. Flexible net for dishwasher contents. 398,091, Cl. D32-3.000.
Badgett, Ron: *See—*
Badgett, Janet; Badgett, Ron; Hogan, Michelle; and Hogan, Bruce, 398,091, Cl. D32-3.000.
Balatti, Aldo: *See—*
Gagnon, Hubert; and Balatti, Aldo, 397,917, Cl. D7-653.000.
Ballone, Patti C. Doll display case. 397,894, Cl. D6-559.000.
Banach, Michael John. Telephone enclosure. 397,884, Cl. D6-421.000.
Barker, Douglas C.: *See—*
Stephens, Ronald J.; Barker, Douglas C.; Crouser, Darwin S.; McKnight, Darwin T.; and Maurer, Edgar A., 398,100, Cl. D32-23.000.
Barrett, Michael W. Pet hair carpet rake apparatus. 397,875, Cl. D4-132.000.
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Verwer, Aad, 10,599, Cl. Plt.-87.800.
Halka, Chester J., Jr., to J. Frank Schmidt & Son Co. Linden tree 'Halka'. 10,589, Cl. Plt.-53.400.
Heims, Dan M., to Terra-Nova Nurseries, Inc. Pulmonaria plant named 'Berries and Cream'. 10,597, Cl. Plt.-68.100.
J. Frank Schmidt & Son Co.: *See—*
Cole, Robert B., 10,590, Cl. Plt.-53.600.
Halka, Chester J., Jr., 10,589, Cl. Plt.-53.400.
Janssen, Cees, to FA. Gebr. Janssen. Dracaena plant named 'Riki'. 10,600, Cl. Plt.-88.110.
Kanno, Masao, to Sakata Seed America, Inc. Osteospermum plant named 'Highside'. 10,595, Cl. Plt.-68.100.
Kanno, Masao, to Sakata Seed America, Inc. Osteospermum plant named 'Brightside'. 10,596, Cl. Plt.-68.100.
Kramer, Kurt. Heather plant named 'Amethyst'. 10,591, Cl. Plt.-54.100.
Kramer, Kurt. Heather plant named 'Alicia'. 10,592, Cl. Plt.-54.100.
Sakata Seed America, Inc.: *See—*
Kanno, Masao, 10,595, Cl. Plt.-68.100.
Kanno, Masao, 10,596, Cl. Plt.-68.100.
Terra-Nova Nurseries, Inc.: *See—*
Heims, Dan M., 10,597, Cl. Plt.-68.100.
Verwer, Aad, to Gebr. Verwer. Dahlia plant named 'Gallery Pablo'. 10,599, Cl. Plt.-87.800.
Yoder Brothers, Inc.: *See—*
Bergman, Wendy R., 10,593, Cl. Plt.-67.800.
Bergman, Wendy R., 10,594, Cl. Plt.-67.800.

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170	5,802,972	CLASS 123	518	5,804,031	429	5,803,201	CLASS 206
183	5,802,973	25 D	5,803,102	555	5,804,032	6	5,803,244
226	5,802,974	41.01	5,803,103	555	5,804,033	69	5,803,245
375	5,802,975	41.15	5,803,104	555	5,804,034	204	5,803,246
424	5,802,976	41.86	CLASS 137	CLASS 160	152	5,804,774	5,803,247
483	5,802,977	48 R	5,803,105	38	200	5,804,775	5,803,248
484	5,802,978	65 BA	5,803,106	90	207	5,804,776	5,803,249
491	5,802,979	98 E	5,803,107	135	229	5,804,777	5,803,250
		90.16	5,803,108	168 I V			5,803,251
288	5,804,758	5,803,031	5,803,109	176.1 R	141	5,803,203	5,803,252
439	5,804,759	5,803,032	5,803,110	5,803,149	148	5,803,204	5,803,253
		5,803,033	5,803,111	5,803,150	153	5,803,205	5,803,254
		5,803,034	5,803,112	CLASS 162	CLASS 182		5,803,255
72.2	5,802,980	5,803,035	5,803,113	5,804,035	208	5,803,206	5,803,256
176	5,802,981	5,803,036	5,803,114	5,804,036	248	5,803,207	5,803,257
187	5,802,982	5,803,037	5,803,115	5,804,037	316	5,804,779	5,803,258
355	5,802,983	5,803,039	5,803,116	CLASS 164	CLASS 188		5,803,259
404	5,802,984	5,803,040	5,803,117	5,803,151	24.12	5,803,207	5,803,260
		5,803,041	5,803,118	5,803,152	32	5,803,208	5,803,261
1.05	5,803,956	5,803,042	5,803,119	5,803,153	65.2	5,803,209	5,803,262
1.13	5,803,957	5,803,043	5,803,120	5,803,154	73.1	5,803,210	5,803,263
31.65	5,803,958	5,803,044	5,803,121	5,803,155	173	5,803,211	5,803,264
31.75	5,803,959	5,803,045	5,803,122	5,803,156	372	5,803,212	5,803,265
287.18	5,803,961	5,803,046	5,803,123	CLASS 165	378	5,803,213	5,803,266
496	5,803,962	5,803,047	5,803,124	5,803,157			5,803,267
677	5,803,963	5,803,048	5,803,125	9	5,803,158	CLASS 190	5,804,055
711	5,803,960	5,803,049	5,803,126	10	5,803,159	115	5,804,056
724	5,803,964	5,803,050	5,803,127	41	5,803,160	CLASS 191	5,804,057
757	5,804,175	5,803,051	5,803,128	104.21	5,803,161	2	5,804,058
		5,803,052	5,803,129	RE. 35.890	5,803,162	CLASS 192	5,804,059
51.11	5,802,985	5,803,053	5,803,130	109.1	5,803,163	12.4	5,804,060
57.14	5,802,986	5,803,054	5,803,131	172	5,803,164	5,803,216	5,804,061
108	5,802,987	5,803,055	5,803,132	184	5,803,165	3.31	5,804,062
147	5,802,988	5,803,056	CLASS 139	203	5,803,166	4 C	5,804,063
153.1	5,802,989	5,803,057	5,803,133	65.1	5,803,167	21.5	5,804,064
157.1	5,802,990	5,803,058	5,803,134	77.2	5,803,168	58.7	5,804,065
		5,803,059	5,803,135	84.1	5,803,169	70.2	5,804,066
				242.3	5,803,170	70.25	5,804,067
19	5,802,991	5,803,060	CLASS 141	245	5,803,171	5,803,224	5,804,068
		5,803,061	5,803,136	285	5,803,172	CLASS 194	5,804,069
341	5,802,992	5,803,062	5,803,137	291	5,803,173	206	5,804,070
345	5,802,993	5,803,063	5,803,138	292	5,803,174	350	5,803,227
		5,803,064	5,803,139	297	5,803,175	4 C	5,803,218
		5,803,065	5,803,140	298	5,803,176	58.7	5,803,219
		5,803,066		302	5,803,177	70.2	5,803,220
11	5,802,994	5,803,067	CLASS 144	306.1	5,803,178	70.25	5,803,221
52	5,802,995	5,803,068	5,803,141	370	5,803,179	78.2	5,803,222
118	5,802,996	5,803,069	5,803,142	306.1	5,803,179	84.3	5,803,223
170	5,802,997	5,803,070	5,803,143	370	5,803,180	85.2	5,803,224
		5,803,071		16	5,803,181	CLASS 172	5,803,225
49	5,802,998	5,803,072	CLASS 148	15.1	5,804,761	5 A	5,804,780
67	5,802,999	5,803,073	5,803,148	48	5,804,763	6 A	5,804,781
99	5,803,000	5,803,074	5,803,149	53	5,804,764	43.01	5,803,237
102.5	5,803,001	5,803,075	5,803,150	65 R	5,804,765	61.27	5,804,782
291	5,803,002	5,803,076	5,803,151	74 R	5,804,766	61.45 R	5,804,783
475.01	5,803,003	5,803,077	5,803,152	117 F	5,804,767	61.54	5,804,784
		5,803,078	5,803,153	136 F	5,804,768	87.01	5,804,785
44	5,803,003	5,803,079	CLASS 149	138 F	5,804,769	88.1	5,804,786
56	5,803,004	5,803,080	5,804,760	255	5,804,771	184	5,803,276
123	5,803,005	5,803,081	5,803,154	356 C	5,804,772	188	5,803,277
172	5,803,006	5,803,082	CLASS 152	21	5,803,184	CLASS 200	5,804,780
296	5,803,007	5,803,083	5,803,155	45	5,803,185	5 A	5,804,781
312	5,803,008	5,803,084	5,803,156	50	5,803,186	43.01	5,803,237
343	5,803,009	5,803,085	5,803,157	57	5,803,187	61.27	5,804,782
344	5,803,010	5,803,086	5,803,158	92	5,803,188	61.45 R	5,804,783
345	5,803,011	5,803,087	5,803,159	113	5,803,189	61.54	5,804,784
		5,803,088	5,803,160	170	5,803,190	87.01	5,804,785
235	5,803,012	5,803,089	5,803,161	296	5,803,192	88.1	5,804,786
328	5,803,013	5,803,090	5,803,162	325.1	5,803,193	184	5,803,276
		5,803,091	5,803,163	325.2	5,803,194	188	5,803,277
4	5,803,965	5,803,092	5,803,164	385	5,803,195	CLASS 201	5,804,787
102	5,803,967	5,803,093	5,803,165	431	5,803,196	39	5,804,038
		5,803,094	5,803,166	CLASS 175		CLASS 203	5,804,039
52	5,803,968	5,803,095	5,803,167	21	5,803,184	49	5,804,040
227	5,803,969	5,803,096	5,803,168	45	5,803,185	57	5,804,041
319	5,803,970	5,803,097	5,803,169	50	5,803,186	5,804,042	5,804,042
500	5,803,971	5,803,098	5,803,170	57	5,803,187	192.12	5,804,043
712	5,803,972	5,803,099	5,803,171	92	5,803,188	192.2	5,804,044
723 ER	5,803,973	5,803,100	5,803,172	113	5,803,189	224 R	5,804,045
723 MF	5,803,974	5,803,101	5,803,173	170	5,803,190	253	5,804,046
723 MW	5,803,975	5,803,102	5,803,174	296	5,803,192	258.1	5,804,047
726	5,803,976	5,803,103	5,803,175	325.1	5,803,193	259	5,804,048
728	5,803,977	5,803,104	5,803,176	385	5,803,194	403	5,804,049
		5,803,105	5,803,177	431	5,803,195	5,804,047	5,804,048
6.5	5,803,014	5,803,106	5,803,178	CLASS 177		5,804,048	5,804,049
14.02	5,803,015	5,803,107	5,803,179	116	5,804,772	418	5,804,050
161	5,803,016	5,803,108	5,803,180	CLASS 178		501	5,804,051
461	5,803,018	5,803,109	5,803,181	19	5,804,773	CLASS 205	5,804,052
799	5,803,019	5,803,110	5,803,182	69.21	5,803,193	96	5,804,053
		5,803,111	5,803,183	248	5,803,194	138	5,804,054
7 R	5,803,020	5,803,112	5,803,184	348	5,803,195	239	5,804,055
4	5,803,021	5,803,113	5,803,185	348	5,803,196	334	5,804,056
166 C	5,803,022	5,803,114	5,803,186	348	5,803,197	661	5,804,057
		5,803,115	5,803,187	348	5,803,198	702	5,804,058
		5,803,116	5,803,188	348	5,803,199	702	5,804,059
		5,803,117	5,803,189	348	5,803,200	702	5,804,060
		5,803,118	5,803,190	348	5,803,201	702	5,804,061
		5,803,119	5,803,191	348	5,803,202	702	5,804,062
		5,803,120	5,803,192	348	5,803,203	702	5,804,063
		5,803,121	5,803,193	348	5,803,204	702	5,804,064
		5,803,122	5,803,194	348	5,803,205	702	5,804,065
		5,803,123	5,803,195	348	5,803,206	702	5,804,066
		5,803,124	5,803,196	348	5,803,207	702	5,804,067
		5,803,125	5,803,197	348	5,803,208	702	5,804,068
		5,803,126	5,803,198	348	5,803,209	702	5,804,069
		5,803,127	5,803,199	348	5,803,210	702	5,804,070
		5,803,128	5,803,200	348	5,803,211	702	5,804,071
		5,803,129	5,803,201	348	5,803,212	702	5,804,072
		5,803,130	5,803,202	348	5,803,213	702	5,804,073
		5,803,131	5,803,203	348	5,803,214	702	5,804,074
		5,803,132	5,803,204	348	5,803,215	702	5,804,075
		5,803,133	5,803,205	348	5,803,216	702	5,804,076
		5,803,134	5,803,206	348	5,803,217	702	5,804,077
		5,803,135	5,803,207	348	5,803,218	702	5,804,078
		5,803,136	5,803,208	348	5,803,219	702	5,804,079
		5,803,137	5,803,209	348	5,803,220	702	5,804,080
		5,803,138	5,803,210	348	5,803,221	702	5,804,081
		5,803,139	5,803,211	348	5,803,222	702	5,804,082
		5,803,140	5,803,212</				

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786	5,803,701	275.1	5,804,201	297.4	5,804,306	159	5,803,743	45	5,804,461	CLASS 446	
788.7	5,803,702	401	5,804,202	304.4	5,804,292	227	5,803,744	53	5,804,462	126	5,803,782
793.4	5,803,704		5,804,203	307.3	5,804,293	236	5,803,745	67	5,804,463	128	5,803,783
793.9	5,803,705		5,804,205	315.5	5,804,294	267	5,803,746	79	5,804,465	176	5,803,784
794.4	5,803,706		5,804,206	323	5,804,295	307 A	5,803,747	95	5,804,466	207	5,803,785
			5,804,207	326	5,804,296	317	5,803,748	109	5,804,464	227	5,803,786
			5,804,208	327	5,804,297			112	5,804,467	268	5,803,787
53.1	5,803,707	434	5,804,209		5,804,298		CLASS 435	122	5,804,468	391	5,803,788
104	5,803,708		5,804,211	334	5,804,299	1.1	5,804,366	123	5,804,469	455	5,803,789
182.1	5,803,709		5,804,212	335	5,804,300	4	5,804,367	125	5,804,470	470	5,803,790
			5,804,213	336	5,804,301		5,804,368	141	5,804,471	475	5,803,791
248	5,803,710	439	5,804,214	337	5,804,302	5	5,804,370	154	5,804,472		
			5,804,215	343	5,804,304		5,804,371	158	5,804,473	86	5,803,792
			5,804,216	364	5,804,304		5,804,372	166	5,804,474		
36	5,803,711	450	5,804,217	373	5,804,307	6	5,804,373	167	5,804,474		
45	5,803,712	488	5,804,218	375	5,804,308		5,804,374	172	5,804,475	CLASS 451	
68	5,803,713	489	RE. 35,893	376	5,804,309		5,804,375	202	5,804,476	5	5,803,793
269	5,803,714	641	5,804,219	378	5,804,310		5,804,376	210	5,804,477	24	5,803,794
295	5,803,715	719	5,804,219	391	5,804,313		5,804,378	243	5,804,478	35	5,803,795
310	5,803,716	936.1	5,804,163	391	5,804,312		5,804,379	253	5,804,479	168	5,803,796
312	5,803,717			402	5,804,314		5,804,380	255	5,804,480	182	5,803,797
372	5,803,718		CLASS 425		5,804,315		5,804,381	258	5,804,481	269	5,803,798
407	5,803,719	52	5,804,220	408	5,804,316		5,804,382	268	5,804,482	288	5,803,799
420	5,803,720	72.1	5,804,221	410	5,804,317		5,804,383		5,804,483	326	5,803,800
423.14	5,803,721	113	5,804,222	421	5,804,318		5,804,384	278	5,804,484		
		130	5,804,223	441	5,804,319		5,804,386	299	5,804,485	CLASS 452	
		150	5,804,224	478.2	5,804,320		5,804,387	309	5,804,486	35	5,803,801
55.2	5,803,723	363	5,804,225	55	5,805,973	7.1	5,804,388	319	5,804,487	160	5,803,802
55.5	5,803,722	436 RM	5,804,226	623	5,804,321		5,804,389	396	5,804,488		
		525	5,804,227	690	5,804,322		5,804,390	424	5,804,489	CLASS 454	
6	5,805,971	549	5,804,228	700	5,804,323		5,804,391	426	5,804,490	184	5,803,803
		557	5,804,229	701	5,804,324	7.2	5,804,392	439	5,804,491	256	5,803,804
64	5,804,137	570	5,804,230			7.23	5,804,396	440	5,804,493	364	5,803,805
402	5,804,138		5,804,231		CLASS 429	7.4	5,804,394	455	5,804,494	365	5,803,806
				13	5,804,325		5,804,395	459	5,804,495	CLASS 455	
27	5,804,139	18	5,804,322	27	5,804,326	14	5,804,402	520	5,804,496	3.2	5,805,974
53	5,804,140	19	5,804,323	32	5,804,327	15	5,804,399	529	5,804,497		5,805,975
63	5,804,141	99	5,804,324	34	5,804,328		5,804,400	624	5,804,499	8	5,805,976
70	5,804,142	104	5,804,325	48	5,804,329	25	5,804,401	629	5,804,498	31.3	5,805,977
73	5,804,143	106	5,804,326	99	5,804,330	26	5,804,403	627	5,804,501		5,805,978
77	5,804,144	131	5,804,327	100	5,804,332	28	5,804,404	628	5,804,502	38.2	5,805,979
100	5,804,145	244	5,804,328	128	5,804,333	32	5,804,406	637	5,804,504	38.3	5,805,980
101	5,804,146	302	5,804,329	218	5,804,334	69.1	5,804,407	643	5,804,505	38.4	5,805,981
100	5,804,145	410	5,804,240		5,804,335		5,804,408	649	5,804,506	62	5,805,982
126	5,804,146	415	5,804,241				5,804,409	662	5,804,507	67.6	5,805,983
171	5,804,147	549	5,804,242	5	5,804,336		5,804,410	693	5,804,513	90	5,805,984
174	5,804,148	552	5,804,243		5,804,337		5,804,411	697	5,804,514	71	5,805,985
	5,804,149	618	5,804,244		5,804,338		5,804,412	700	5,804,515	126	5,805,986
186.03	5,805,972	643	5,804,245		5,804,339		5,804,413	745	5,804,516	326	5,805,987
		656	5,804,246		5,804,340		5,804,414	778	5,804,517	343	5,805,988
23	5,804,150	660	5,804,247		5,804,341		5,804,415	790	5,804,509		5,805,989
58	5,804,151			12	5,804,342		5,804,416			406	5,805,991
213.5	5,804,152		5,804,248	19	5,804,343		5,804,417			411	5,805,992
239.2	5,804,153	96	5,804,249	59	5,804,344		5,804,418			422	5,805,993
242.1	5,804,154	99	5,804,250		5,804,345		5,804,419	17	5,803,750	422	5,805,994
338	5,804,155	130	5,804,251		5,804,346	69.6	5,804,420	19	5,803,751	435	5,805,995
439	5,804,156	250	5,804,252	78	5,804,347		5,804,421	71	5,803,752	436	5,805,996
		377	5,804,253	79	5,804,348		5,804,422	107	5,803,753	453	5,805,997
1.69	5,804,157	386	5,804,254		5,804,349	138	5,804,423	170	5,803,754	461	5,805,998
		389.8	5,804,255		5,804,350	173	5,804,424	180	5,803,755	462	5,805,999
9.1	5,804,158	530	5,804,256		5,804,351	199	5,804,425	118	5,803,756		5,805,999
		558	5,804,257	111	5,804,352		5,804,426	248	5,803,757	466	5,806,000
9.364	5,804,160	562	5,804,258	270.15	5,804,353	212	5,804,427	288	5,803,758	467	5,806,001
9.42	5,804,161	577	5,804,259		5,804,354	228	5,804,428	310	5,803,759	512	5,806,002
9.51	5,804,162			325	5,804,355	235.1	5,804,430	274	5,803,760	522	5,806,003
44	5,804,163		5,804,260	346	5,804,356		5,804,431	326	5,803,761	566	5,806,004
47	5,804,164	15	5,804,261	359	5,804,357	243	5,804,432	364	5,803,762	574	5,806,005
59	5,804,165	17	5,804,262	438	5,804,358	252.3	5,804,433	501	5,803,763		5,806,007
61	5,804,166	25	5,804,263	465	5,804,359	262.5	5,804,434	567	5,803,764	CLASS 460	
65	5,804,167	31	5,804,264	506	5,804,360	282	5,804,435		5,803,765	69	5,803,807
70.1	5,804,168	34.7	5,804,265	535	5,804,361	287.1	5,804,436	587	5,803,766		5,803,807
		35.2	5,804,266	567	5,804,362	320.1	5,804,437	608	5,803,767	CLASS 463	
76.9	5,804,169		5,804,267		5,804,363	339.1	5,804,438	620	5,803,768	11	5,803,808
78.9	5,804,170		5,804,268	569	5,804,364	370.1	5,804,439	682	5,803,769	13	5,803,809
85.1	5,804,171		5,804,269	617	5,804,365	372.1	5,804,440	716	5,803,770	36	5,803,810
93.2	5,804,172	35.7	5,804,270			374	5,804,441	752	5,803,771	CLASS 464	
93.45	5,804,173	36.4	5,804,271		5,804,366		5,804,442			46	5,803,811
93.7	5,804,174	36.7	5,804,272		5,804,367		5,804,443			58	5,803,812
94.1	5,804,175	36.91	5,804,273		5,804,368		5,804,444			111	5,803,813
94.6	5,804,176	36.92	5,804,274		5,804,369		5,804,445				5,803,814
94.61	5,804,177	40.1	5,804,275		5,804,370		5,804,446			CLASS 472	
		46	5,804,276		5,804,371		5,804,447			44	5,803,815
117	5,804,178	86	5,804,277		5,804,372		5,804,448			118	5,803,817
134.1	5,804,179	86	5,804,278		5,804,373		5,804,449				5,803,818
184.1	5,804,180	105	5,804,279		5,804,374		5,804,450			CLASS 473	
185.1	5,804,181	112	5,804,280		5,804,375		5,804,451			65	5,803,819
190.1	5,804,182	116	5,804,281		5,804,376		5,804,452			173	5,803,820
193.1	5,804,183	124	5,804,282		5,804,377		5,804,453			205	5,803,821
195.1	5,804,184	137	5,804,283		5,804,378					216	5,803,822
197.11	5,804,185	141	<								

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501 397,889	397,931	397,973	28 398,015	147 398,057	23 398,100
515 397,890	397,932	397,974	144.2 398,016	155 398,058	25 398,101
523 397,891	397,933	397,975	145 398,017	160 398,059	398,102
552 397,892	415 397,934	187 397,976	202 398,018	164 398,060	28 398,103
555 397,893	433 397,935	192 397,977	231 398,019	16 398,062	35 398,104
559 397,894	447 397,936	196 397,978	306 398,020	69 398,063	398,105
561 397,895	448 397,937	203 397,979	315 398,021	134 398,064	398,106
397,896	454 397,938	397,980	326 398,022	28 398,065	398,107
571 397,897	397,939	209 397,981	43 398,023	56 398,066	398,108
574 397,898	455 397,940	212 397,982	42 398,024	81 398,067	398,109
578 397,899	502 397,941	217 397,983	398,025	398,068	42 398,110
598 397,900	531 397,942	397,984	29 398,026	398,069	46 398,111
599 397,901	18 397,943	397,985	41 398,027	84 398,070	47 398,112
601 397,902	39 397,944	397,986	44 398,028	186 398,071	52 398,113
630 397,903	397,945	306 397,987	44 398,029	195 398,072	74 398,114
309 397,904	62 397,946	315 397,988	13 398,030	13 398,073	398,115
317 397,905	65 397,947	319 397,989	398,031	18 398,074	398,116
392.1 397,906	69 397,948	102 397,990	48 398,032	20 398,075	398,117
393 397,907	72 397,949	103 397,991	62 398,033	64 398,076	398,118
395 397,908	397,950	112 397,992	65 398,034	398,077	2 398,119
405 397,909	122 397,951	119 397,993	103 398,035	73 398,078	5 398,120
407 397,910	128 397,952	144 397,994	129 398,036	82 398,079	6 398,121
507 397,911	6 397,953	156 397,995	208 398,037	100 398,080	9 398,122
536 397,912	90 397,954	168 397,996	241 398,038	113 398,081	19 398,123
589 397,913	121 397,955	102 397,997	252 398,039	109 398,082	23 398,124
607 397,914	397,956	113 397,998	398,040	398,083	26 398,125
619 397,915	397,957	114.2 397,999	311 398,041	121 398,084	27 398,127
638 397,916	156 397,958	114.3 398,000	314 398,042	154 398,085	29 398,128
653 397,917	221 397,959	398,001	356 398,043	158 398,086	32 398,129
670 397,918	222 397,960	115 398,002	364 398,044	160 398,087	38 398,130
679 397,919	91 397,961	398,003	398,045	161 398,088	19 398,132
688 397,920	92 397,962	117 398,004	365 398,046	398,089	28 398,133
695 397,921	96 397,963	138 398,005	366 398,047	3 398,090	29 398,134
41 397,922	108 397,964	191 398,006	386 398,048	398,091	
70 397,923	114 397,965	214 398,007	393 398,049	398,092	
71 397,924	123 397,966	215 398,008	415 398,050	21 398,093	
334 397,925	124 397,967	218 398,009	108 398,051	22 398,094	
363 397,926	126 397,968	1 398,010	111 398,052	398,095	
373 397,927	146 397,969	9 398,011	398,053	398,096	
376 397,928	147 397,970	9.1 398,012	118 398,054	398,097	
390 397,929	397,971	398,013	126 398,055	398,098	
301 397,930	397,972	15 398,014	134 398,056	398,099	

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P—	53.4	10,589	54.1	10,591	67.8	10,593	68.1	10,595	10,597	87.8	10,599
	53.6	10,590		10,592		10,594		10,596	10,598	88.11	10,600

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PATENTS

01 :	5,803,159	5,802,642	5,803,326	5,803,822	5,804,376	5,804,873
	5,803,366	5,802,699	5,803,360	5,803,824	5,804,380	5,804,880
	5,804,164	5,802,700	5,803,365	5,803,825	5,804,383	5,804,885
	5,804,193	5,802,701	5,803,377	5,803,828	5,804,386	5,804,891
	5,805,325	5,802,709	5,803,402	5,803,830	5,804,387	5,804,926
	5,805,600	5,802,720	5,803,406	5,803,870	5,804,396	5,804,938
	5,805,925	5,802,730	5,803,407	5,803,882	5,804,399	5,804,950
04 :	5,802,616	5,802,733	5,803,409	5,803,889	5,804,404	5,804,951
	5,802,707	5,802,758	5,803,422	5,803,901	5,804,405	5,804,959
	5,802,724	5,802,823	5,803,424	5,803,904	5,804,412	5,804,960
	5,802,918	5,802,842	5,803,451	5,803,913	5,804,419	5,804,966
	5,803,213	5,802,856	5,803,455	5,803,914	5,804,420	5,804,970
	5,803,233	5,802,863	5,803,458	5,803,917	5,804,436	5,804,977
	5,803,390	5,802,865	5,803,460	5,803,919	5,804,440	5,804,986
	5,803,494	5,802,911	5,803,461	5,803,925	5,804,448	5,804,990
	5,803,819	5,802,921	5,803,471	5,803,926	5,804,452	5,804,991
	5,803,826	5,802,933	5,803,476	5,803,946	5,804,470	5,805,002
	5,804,151	5,802,934	5,803,477	5,803,977	5,804,477	5,805,003
	5,804,322	5,802,959	5,803,480	5,803,979	5,804,487	5,805,005
	5,804,458	5,802,961	5,803,501	5,803,982	5,804,500	5,805,006
	5,804,771	5,802,971	5,803,507	5,804,004	5,804,502	5,805,007
	5,804,849	5,802,979	5,803,522	5,804,012	5,804,507	5,805,008
	5,804,869	5,803,008	5,803,523	5,804,022	5,804,552	5,805,030
	5,804,909	5,803,071	5,803,526	5,804,048	5,804,553	5,805,031
	5,804,944	5,803,073	5,803,570	5,804,066	5,804,557	5,805,039
	5,804,985	5,803,092	5,803,572	5,804,101	5,804,558	5,805,106
	5,805,100	5,803,105	5,803,586	5,804,109	5,804,560	5,805,108
	5,805,111	5,803,107	5,803,588	5,804,139	5,804,561	5,805,110
	5,805,211	5,803,114	5,803,593	5,804,162	5,804,566	5,805,116
	5,805,448	5,803,117	5,803,594	5,804,165	5,804,568	5,805,126
	5,805,507	5,803,119	5,803,599	5,804,168	5,804,585	5,805,133
	5,805,574	5,803,127	5,803,615	5,804,185	5,804,594	5,805,136
	5,805,706	5,803,139	5,803,630	5,804,187	5,804,604	5,805,137
	5,805,712	5,803,140	5,803,632	5,804,191	5,804,616	5,805,140
	5,805,750	5,803,151	5,803,657	5,804,203	5,804,695	5,805,145
	5,805,767	5,803,178	5,803,667	5,804,204	5,804,710	5,805,146
	5,805,844	5,803,193	5,803,686	5,804,214	5,804,727	5,805,148
	5,805,864	5,803,199	5,803,687	5,804,228	5,804,728	5,805,153
	5,806,066	5,803,204	5,803,688	5,804,249	5,804,744	5,805,155
	5,802,996	5,803,206	5,803,711	5,804,250	5,804,767	5,805,161
05 :	5,803,658	5,803,209	5,803,712	5,804,259	5,804,795	5,805,163
	5,804,211	5,803,227	5,803,734	5,804,306	5,804,812	5,805,167
	5,805,083	5,803,234	5,803,738	5,804,314	5,804,823	5,805,174
	5,805,451	5,803,253	5,803,739	5,804,331	5,804,826	5,805,175
06 :	5,802,613	5,803,264	5,803,770	5,804,340	5,804,833	5,805,204
	5,802,617	5,803,297	5,803,784	5,804,366	5,804,836	5,805,238
	5,802,620	5,803,300	5,803,799	5,804,367	5,804,847	5,805,235
	5,802,630	5,803,305	5,803,808	5,804,372	5,804,856	5,805,238
	5,802,640	5,803,317	5,803,810	5,804,375	5,804,867	5,805,245

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5,805,261	5,805,920	5,805,290	5,805,582	5,802,851	5,803,077
5,805,271	5,805,921	5,805,339	5,805,984	5,802,852	5,803,089
5,805,277	5,805,927	5,805,533	5,806,044	5,802,860	5,803,205
5,805,284	5,805,930	5,805,701	5,802,913	5,802,898	5,803,207
5,805,344	5,805,942	5,805,897	5,803,750	5,802,912	5,803,388
5,805,375	5,806,005	5,806,018	5,803,389	5,803,413	5,803,413
5,805,382	5,806,030	5,802,767	5,803,473	5,803,439	5,803,439
5,805,384	5,806,031	5,804,008	5,803,797	5,803,012	5,803,452
5,805,388	5,806,034	5,804,011	5,804,336	5,803,104	5,803,511
5,805,391	5,806,036	5,804,166	5,804,506	5,803,303	5,803,520
5,805,393	5,806,040	5,804,304	5,804,838	5,803,343	5,803,528
5,805,408	5,806,049	5,804,701	5,804,855	5,803,344	5,803,604
5,805,416	5,806,050	5,804,832	5,804,876	5,803,629	5,803,629
5,805,420	5,806,054	5,806,057	5,804,910	5,803,645	5,803,693
5,805,421	5,806,063	5,802,628	5,805,009	5,803,681	5,803,755
5,805,427	5,806,070	5,802,632	5,805,366	5,803,694	5,803,823
5,805,433	5,806,074	5,802,657	5,805,505	5,803,805	5,803,831
5,805,455	5,806,075	5,802,662	5,805,511	5,803,869	5,803,875
5,805,456	5,806,076	5,802,750	5,805,781	5,804,172	5,803,958
5,805,458	5,806,078	5,802,751	5,805,931	5,804,231	5,803,968
5,805,462	5,806,079	5,802,760	5,802,922	5,804,294	5,804,049
5,805,471	5,806,081	5,802,862	5,802,639	5,804,061	5,804,061
5,805,477	5,806,082	5,802,864	5,802,664	5,804,432	5,804,085
5,805,480	5,806,084	5,802,982	5,802,672	5,804,542	5,803,987
5,805,486	B1 334,646	5,803,022	5,802,705	5,804,543	5,804,178
5,805,488	5,802,748	5,803,039	5,802,710	5,804,661	5,804,196
5,805,499	5,802,763	5,803,043	5,802,726	5,804,737	5,804,218
5,805,501	5,802,793	5,803,074	5,802,735	5,804,308	5,804,308
5,805,502	5,802,857	5,803,083	5,802,775	5,805,040	5,804,382
5,805,503	5,803,064	5,803,144	5,802,809	5,805,549	5,804,416
5,805,509	5,803,067	5,803,314	5,802,810	5,805,717	5,804,427
5,805,516	5,803,180	5,803,354	5,802,813	5,802,678	5,804,592
5,805,517	5,803,283	5,803,423	5,802,846	5,802,931	5,804,633
5,805,570	5,803,347	5,803,469	5,802,870	5,803,115	5,804,656
5,805,572	5,803,384	5,803,510	5,802,992	5,803,118	5,804,684
5,805,576	5,803,416	5,803,539	5,802,995	5,803,380	5,804,717
5,805,583	5,803,550	5,803,548	5,802,997	5,803,992	5,804,724
5,805,591	5,803,551	5,803,611	5,803,016	5,804,426	5,804,957
5,805,595	5,803,752	5,803,660	5,803,025	5,804,694	5,804,969
5,805,596	5,803,815	5,803,710	5,803,075	5,804,696	5,805,062
5,805,597	5,803,912	5,803,733	5,803,109	5,804,805	5,805,082
5,805,607	5,803,961	5,803,780	5,803,149	5,805,094	5,805,094
5,805,608	5,804,054	5,803,788	5,803,261	5,805,769	5,805,200
5,805,609	5,804,065	5,803,790	5,803,340	5,805,807	5,805,275
5,805,610	5,804,104	5,803,806	5,803,357	5,802,611	5,805,278
5,805,619	5,804,197	5,803,922	5,803,378	5,803,015	5,805,298
5,805,621	5,804,200	5,803,923	5,803,404	5,803,279	5,805,336
5,805,624	5,804,683	5,804,024	5,803,420	5,803,727	5,805,392
5,805,631	5,804,760	5,804,068	5,803,447	5,803,910	5,805,430
5,805,632	5,804,996	5,804,107	5,803,462	5,803,939	5,805,434
5,805,635	5,805,142	5,804,145	5,803,465	5,804,746	5,805,442
5,805,648	5,805,154	5,804,176	5,803,536	5,806,043	5,805,586
5,805,652	5,805,281	5,804,239	5,803,748	5,802,690	5,805,722
5,805,653	5,805,311	5,804,263	5,803,765	5,802,947	5,805,739
5,805,654	5,805,377	5,804,272	5,803,774	5,803,030	5,805,755
5,805,656	5,805,470	5,804,318	5,803,798	5,803,563	5,805,818
5,805,662	5,805,561	5,804,460	5,803,803	5,803,577	5,805,856
5,805,665	5,805,686	5,804,729	5,803,807	5,803,677	5,805,872
5,805,673	5,805,688	5,804,799	5,803,827	5,803,924	5,805,890
5,805,674	5,805,787	5,804,846	5,803,842	5,804,114	5,805,994
5,805,703	5,805,795	5,804,982	5,803,863	5,804,753	5,806,014
5,805,719	5,805,851	5,805,095	5,803,876	5,802,692	5,806,033
5,805,730	5,805,903	5,805,121	5,803,888	5,802,826	5,806,055
5,805,731	5,806,020	5,805,260	5,803,894	5,802,677	5,806,077
5,805,733	5,806,025	5,805,317	5,803,920	5,803,519	5,806,096
5,805,735	5,806,071	5,805,571	5,803,963	5,803,745	5,806,227
5,805,742	5,806,085	5,805,640	5,803,985	5,803,787	5,806,770
5,805,751	5,802,808	5,805,669	5,804,030	5,803,840	5,806,778
5,805,765	5,802,957	5,805,689	5,804,062	5,804,443	5,806,789
5,805,768	5,802,980	5,805,810	5,804,079	5,805,667	5,806,824
5,805,782	5,803,021	5,805,975	5,804,226	5,803,010	5,806,844
5,805,784	5,803,183	5,805,977	5,804,236	5,803,841	5,806,848
5,805,791	5,803,247	5,805,980	5,804,273	5,802,713	5,806,882
5,805,794	5,803,251	5,806,023	5,804,384	5,802,791	5,806,915
5,805,799	5,803,352	5,806,038	5,804,390	5,802,796	5,806,919
5,805,803	5,803,393	RE 35,893	5,804,395	5,802,943	5,806,983
5,805,804	5,803,678	5,802,667	5,804,551	5,802,928	5,806,983
5,805,809	5,803,713	5,802,817	5,804,575	5,803,004	5,806,983
5,805,816	5,803,743	5,802,893	5,804,613	5,803,771	5,806,994
5,805,819	5,803,789	5,802,968	5,804,831	5,803,896	5,807,049
5,805,821	5,803,809	5,803,088	5,804,886	5,803,915	5,807,077
5,805,823	5,803,821	5,803,106	5,805,036	5,804,400	5,807,077
5,805,827	5,803,839	5,803,260	5,805,037	5,804,475	5,807,077
5,805,834	5,803,902	5,803,270	5,805,057	5,804,534	5,807,077
5,805,838	5,803,945	5,803,312	5,805,280	5,804,602	5,807,077
5,805,839	5,803,971	5,803,345	5,805,394	5,804,772	5,807,121
5,805,843	5,804,554	5,803,373	5,805,399	5,804,922	5,807,156
5,805,860	5,804,562	5,803,571	5,805,411	5,804,967	5,807,218
5,805,863	5,804,579	5,803,782	5,805,447	5,805,068	5,807,222
5,805,869	5,804,581	5,803,792	5,805,450	5,805,098	5,807,290
5,805,871	5,804,685	5,803,877	5,805,466	5,805,266	5,807,324
5,805,873	5,804,686	5,803,884	5,805,612	5,805,454	5,807,353
5,805,875	5,804,688	5,803,943	5,805,681	5,805,602	5,807,353
5,805,878	5,804,730	5,804,021	5,805,682	5,805,682	5,807,353
5,805,887	5,804,765	5,804,316	5,805,682	5,805,752	5,807,353
5,805,889	5,804,774	5,804,919	5,805,682	5,805,753	5,807,353
5,805,891	5,804,779	5,805,042	5,805,682	5,805,753	5,807,353
5,805,899	5,804,786	5,805,217	5,805,682	5,805,753	5,807,353
5,805,901	5,804,802	5,805,264	5,805,682	5,805,753	5,807,353
5,805,902	5,804,831	5,805,270	5,805,682	5,805,753	5,807,353
5,805,905	5,805,041	5,805,291	5,805,682	5,805,753	5,807,353
5,805,918	5,805,080	5,805,414	5,805,682	5,805,753	5,807,353
5,805,919	5,805,124	5,805,444	5,805,682	5,805,753	5,807,353

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

PI 181

5,803,524	5,805,835	5,804,183	5,803,124	5,805,589	5,803,287
5,803,525	5,805,837	5,804,235	5,803,126	5,805,594	5,803,289
5,803,529	5,805,841	5,804,237	5,803,157	5,805,615	5,803,320
5,803,532	5,805,850	5,804,247	5,803,158	5,805,657	5,803,338
5,803,537	5,805,857	5,804,325	5,803,241	5,805,664	5,803,372
5,803,549	5,805,861	5,804,329	5,803,245	5,805,690	5,803,410
5,803,553	5,805,898	5,804,353	5,803,258	5,805,708	5,803,417
5,803,562	5,805,963	5,804,373	5,803,274	5,805,710	5,803,470
5,803,579	B1 031,938	5,804,379	5,803,306	5,805,724	5,803,486
5,803,587	5,803,785	5,804,519	5,803,307	5,805,734	5,803,505
5,803,649	5,804,082	5,804,537	5,803,350	5,805,777	5,803,601
5,803,683	5,804,715	5,804,540	5,803,392	5,805,783	5,803,603
5,803,699	5,805,452	5,804,570	5,803,394	5,805,785	5,803,716
5,803,740	5,805,525	5,804,574	5,803,398	5,805,786	5,803,820
5,803,742	5,802,669	5,804,577	5,803,428	5,805,789	5,803,847
5,803,759	5,802,839	5,804,578	5,803,467	5,805,832	5,803,893
5,803,763	5,803,062	5,804,596	5,803,497	5,805,876	5,803,898
5,803,796	5,803,081	5,804,607	5,803,506	5,805,900	5,803,942
5,803,850	5,803,108	5,804,667	5,803,561	5,805,915	5,803,986
5,803,855	5,803,198	5,804,690	5,803,564	5,805,935	5,804,036
5,803,858	5,803,327	5,804,698	5,803,565	5,805,940	5,804,055
5,803,859	5,803,440	5,804,776	5,803,585	5,805,944	5,804,057
5,803,940	5,803,560	5,804,783	5,803,628	5,805,950	5,804,173
5,803,944	5,803,673	5,804,842	5,803,639	5,805,952	5,804,219
5,803,987	5,803,786	5,804,890	5,803,656	5,805,958	5,804,227
5,804,018	5,803,791	5,804,935	5,803,659	5,805,964	5,804,234
5,804,023	5,804,157	5,804,965	5,803,701	5,805,968	5,804,266
5,804,103	5,804,222	5,804,975	5,803,707	5,805,974	5,804,281
5,804,110	5,804,271	5,805,011	5,803,737	5,806,011	5,804,301
5,804,123	5,804,276	5,805,034	5,803,754	5,806,021	5,804,418
5,804,147	5,804,278	5,805,044	5,803,852	5,806,048	5,804,462
5,804,215	5,804,279	5,805,051	5,803,891	5,806,052	5,804,538
5,804,244	5,804,425	5,805,067	5,803,950	5,806,067	5,804,539
5,804,262	5,804,437	5,805,073	5,803,960	RE 35,894	5,804,547
5,804,265	5,804,545	5,805,256	5,804,001	5,802,607	5,804,548
5,804,298	5,804,598	5,805,276	5,804,042	5,802,649	5,804,587
5,804,305	5,804,706	5,805,288	5,804,063	5,802,665	5,804,635
5,804,401	5,805,066	5,805,404	5,804,095	5,802,693	5,804,666
5,804,431	5,805,171	5,805,460	5,804,100	5,802,782	5,804,697
5,804,431	5,805,677	5,805,481	5,804,130	5,802,809	5,804,726
5,804,640	5,805,793	5,805,482	5,804,131	5,802,988	5,804,792
5,804,703	5,802,723	5,805,491	5,804,143	5,803,063	5,804,894
5,804,711	5,803,248	5,805,567	5,804,189	5,803,136	5,804,968
5,804,732	5,803,332	5,805,579	5,804,201	5,803,281	5,805,138
5,804,748	5,803,024	5,805,585	5,804,205	5,803,466	5,805,269
5,804,763	5,803,145	5,805,587	5,804,206	5,803,662	5,805,279
5,804,782	5,803,885	5,805,593	5,804,243	5,803,669	5,805,326
5,804,963	5,804,692	5,805,599	5,804,280	5,803,736	5,805,577
5,804,994	5,805,285	5,805,614	5,804,341	5,803,903	5,805,779
5,805,056	5,803,094	5,805,638	5,804,342	5,803,931	5,805,973
5,805,061	5,803,200	5,805,659	5,804,348	5,803,952	5,806,055
5,805,074	5,803,244	5,805,675	5,804,349	5,803,967	5,806,064
5,805,081	5,803,453	5,805,680	5,804,352	5,804,019	5,802,680
5,805,119	5,803,648	5,805,683	5,804,356	5,804,115	5,803,177
5,805,143	5,803,661	5,805,696	5,804,360	5,804,291	5,804,038
5,805,330	5,805,033	5,805,745	5,804,363	5,804,297	5,804,059
5,805,340	5,805,079	5,805,755	5,804,365	5,804,532	5,804,060
5,805,402	5,802,676	5,805,762	5,804,374	5,804,693	5,804,392
5,805,423	5,803,319	5,805,772	5,804,381	5,804,741	5,804,434
5,805,457	5,803,438	5,805,798	5,804,388	5,804,780	5,804,709
5,806,013	5,803,959	5,805,805	5,804,446	5,804,930	5,804,971
5,806,014	5,804,016	5,805,815	5,804,453	5,804,949	5,802,739
5,806,046	5,804,092	5,805,820	5,804,465	5,804,954	5,802,740
5,802,612	5,804,121	5,805,991	5,804,490	5,804,974	5,803,143
5,802,729	5,804,461	5,806,022	5,804,499	5,805,020	5,803,192
5,802,781	5,804,511	5,806,032	5,804,525	5,805,157	5,803,379
5,802,994	5,804,721	5,806,047	5,804,531	5,805,158	5,803,382
5,803,086	5,804,761	5,806,060	5,804,549	5,805,159	5,803,627
5,803,163	5,804,762	5,806,062	5,804,563	5,805,166	5,803,838
5,803,185	5,804,926	5,806,068	5,804,572	5,805,342	5,804,251
5,803,189	5,805,051	5,802,708	5,804,624	5,805,395	5,804,903
5,803,215	5,805,115	5,802,937	5,804,633	5,805,439	5,805,156
5,803,269	5,805,283	5,803,322	5,804,707	5,805,646	5,805,191
5,803,275	5,805,808	5,803,666	5,804,757	5,805,705	5,805,233
5,803,296	5,805,811	5,804,084	5,804,788	5,805,801	5,805,415
5,803,468	5,806,083	5,804,702	5,804,807	5,805,822	5,805,636
5,803,485	5,806,608	5,804,815	5,804,809	5,805,829	5,805,700
5,803,836	5,802,610	5,804,850	5,804,810	5,805,983	5,805,806
5,803,881	5,802,631	5,805,025	5,804,818	5,806,007	5,805,825
5,803,928	5,802,656	5,805,329	5,804,844	5,806,086	5,805,830
5,803,941	5,802,702	5,805,365	5,804,845	5,805,457	5,805,842
5,804,017	5,802,776	5,802,614	5,804,911	5,802,647	5,805,859
5,804,156	5,802,858	5,802,629	5,804,920	5,802,694	5,805,886
5,804,213	5,803,014	5,802,637	5,804,936	5,802,762	5,802,615
5,804,233	5,802,082	5,802,648	5,804,985	5,802,773	5,802,616
5,804,295	5,803,122	5,802,652	5,805,054	5,802,779	5,802,654
5,804,595	5,803,292	5,802,681	5,805,088	5,802,795	5,802,774
5,804,610	5,803,293	5,802,698	5,805,118	5,802,895	5,802,800
5,804,620	5,803,321	5,802,711	5,805,122	5,802,907	5,802,801
5,804,625	5,803,355	5,802,755	5,805,179	5,802,941	5,802,825
5,804,691	5,803,509	5,802,764	5,805,197	5,802,948	5,802,871
5,804,803	5,803,540	5,802,822	5,805,202	5,802,966	5,802,892
5,804,825	5,803,581	5,802,859	5,805,208	5,802,974	5,802,955
5,804,998	5,803,605	5,802,868	5,805,213	5,802,991	5,802,963
5,805,063	5,803,690	5,802,872	5,805,289	5,803,003	5,802,981
5,805,065	5,803,692	5,802,873	5,805,292	5,803,041	5,802,986
5,805,086	5,803,732	5,802,875	5,805,348	5,803,060	5,803,069
5,805,089	5,803,817	5,802,914	5,805,431	5,803,100	5,803,110
5,805,183	5,803,844	5,802,960	5,805,464	5,803,161	5,803,194
5,805,332	5,803,845	5,802,969	5,805,473	5,803,203	5,803,201
5,803,381	5,803,874	5,802,977	5,805,534	5,803,235	5,803,257
5,805,387	5,804,041	5,803,066	5,805,536	5,803,243	5,803,273
5,805,461	5,804,155	5,803,084	5,805,578	5,803,268	5,803,293

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PI 182

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

5,803,331	5,803,978	5,803,726	5,805,459	5,805,555	5,803,955
5,803,385	5,804,188	5,803,730	5,805,475	5,805,584	5,804,242
5,803,411	5,804,260	5,803,735	5,805,487	5,805,716	5,804,310
5,803,414	5,804,286	5,803,779	5,805,494	5,806,045	5,804,584
5,803,478	5,804,512	5,803,871	5,805,518	5,804,136	5,804,716
5,803,498	5,804,659	5,803,880	5,805,523	5,804,459	5,804,722
5,803,499	5,804,743	5,803,906	5,805,575	5,804,464	5,804,725
5,803,518	5,802,746	5,803,964	5,805,606	5,804,503	5,804,891
5,803,559	5,802,715	5,803,966	5,805,611	5,804,853	5,804,979
5,803,592	5,802,783	5,803,980	5,805,634	5,805,496	5,805,164
5,803,647	5,802,876	5,804,053	5,805,685	5,805,929	5,805,165
5,803,704	5,803,141	5,804,078	5,805,691	5,806,056	5,805,170
5,803,725	5,803,313	5,804,081	5,805,702	5,802,877	5,805,754
5,803,769	5,803,484	5,804,093	5,805,771	5,802,987	5,805,763
5,803,837	5,803,590	5,804,112	5,805,774	5,803,052	5,805,813
5,803,897	5,803,983	5,804,133	5,805,792	5,803,068	5,805,828
5,803,976	5,803,994	5,804,138	5,805,796	5,803,087	5,805,885
5,803,981	5,804,005	5,804,190	5,805,812	5,803,101	5,805,896
5,803,984	5,804,284	5,804,424	5,805,833	5,803,142	5,805,911
5,803,990	5,804,323	5,804,433	5,805,836	5,803,249	5,806,061
5,804,051	5,804,617	5,804,445	5,805,840	5,803,702	5,806,065
5,804,126	5,804,626	5,804,463	5,805,845	5,803,835	5,803,076
5,804,141	5,804,773	5,804,472	5,805,849	5,804,015	5,803,187
5,804,180	5,804,801	5,804,496	5,805,853	5,804,108	5,803,266
5,804,254	5,805,257	5,804,497	5,805,854	5,804,321	5,804,648
5,804,293	5,805,467	5,804,508	5,805,855	5,804,421	5,805,713
5,804,313	5,802,619	5,804,524	5,805,862	5,804,768	5,802,650
5,804,406	5,802,644	5,804,535	5,805,870	5,804,829	5,802,651
5,804,413	5,802,645	5,804,618	5,805,874	5,805,043	5,802,675
5,804,571	5,802,679	5,804,630	5,805,877	5,805,172	5,802,725
5,804,576	5,802,756	5,804,657	5,805,879	5,805,241	5,802,728
5,804,627	5,802,956	5,804,660	5,805,880	5,805,267	5,802,761
5,804,652	5,802,984	5,804,673	5,805,882	5,805,316	5,802,807
5,804,671	5,802,993	5,804,675	5,805,893	5,805,326	5,802,888
5,804,682	5,803,059	5,804,820	5,805,895	5,805,620	5,802,942
5,804,736	5,803,085	5,804,860	5,805,906	5,805,623	5,803,035
5,804,764	5,803,093	5,804,861	5,805,907	5,805,645	5,803,153
5,804,828	5,803,123	5,804,870	5,805,912	5,805,747	5,803,304
5,804,907	5,803,125	5,804,875	5,805,913	5,805,976	5,803,474
5,804,948	5,803,128	5,804,877	5,805,916	5,805,997	5,803,502
5,805,038	5,803,167	5,804,943	5,805,922	5,806,006	5,803,512
5,805,075	5,803,169	5,804,952	5,805,923	5,802,623	5,803,544
5,805,117	5,803,170	5,804,981	5,805,978	5,802,661	5,803,676
5,805,203	5,803,173	5,805,001	5,805,988	5,802,722	5,803,703
5,805,242	5,803,175	5,805,013	5,805,995	5,802,732	5,803,811
5,805,397	5,803,176	5,805,014	5,806,017	5,802,741	5,804,210
5,805,398	5,803,179	5,805,016	5,806,027	5,802,780	5,804,264
5,805,489	5,803,186	5,805,021	5,806,080	5,802,811	5,804,327
5,805,526	5,803,196	5,805,027	5,802,695	5,803,017	5,804,439
5,805,670	5,803,237	5,805,064	5,802,704	5,803,019	5,804,569
5,805,676	5,803,272	5,805,097	5,802,719	5,803,070	5,804,712
5,805,985	5,803,298	5,805,144	5,803,483	5,803,174	5,804,999
5,804,307	5,803,299	5,805,173	5,803,492	5,803,342	5,805,046
5,804,612	5,803,333	5,805,195	5,803,495	5,803,346	5,805,338
5,804,740	5,803,405	5,805,205	5,803,531	5,803,425	5,805,418
5,804,769	5,803,408	5,805,236	5,803,778	5,803,481	5,805,658
5,804,955	5,803,431	5,805,318	5,803,843	5,803,513	5,805,788
5,805,193	5,803,500	5,805,386	5,803,905	5,803,596	5,803,239
5,805,401	5,803,508	5,805,419	5,803,908	5,803,624	
B1 164,879	5,803,568	5,805,424	5,804,010	5,803,631	
5,802,646	5,803,654	5,805,425	5,804,163	5,803,635	
5,803,002	5,803,672	5,805,426	5,804,756	5,803,665	
5,803,391	5,803,720	5,805,428	5,805,530	5,803,927	

DESIGN PATENTS

01 : 397,910	398,060	397,909	398,127	397,880	397,854
02 : 398,036	398,064	397,935	397,912	397,914	397,855
398,048	398,072	397,938	397,979	397,950	397,856
04 : 397,894	398,085	398,009	398,124	397,964	397,857
397,940	398,109	398,029	398,126	398,092	397,858
398,024	398,116	398,078	398,051	397,893	397,859
06 : 397,840	398,117	398,111	397,835	397,898	397,860
397,843	398,119	397,995	397,836	397,923	397,861
397,851	398,120	398,077	397,872	398,026	397,963
397,878	398,134	398,107	397,895	398,027	397,977
397,883	397,867	397,866	397,896	398,038	398,101
397,886	397,980	398,102	398,006	398,052	397,839
397,891	397,986	397,885	398,074	398,067	397,842
397,903	397,993	398,062	398,125	398,068	397,941
397,925	398,091	398,098	397,869	398,069	397,942
397,937	397,873	397,897	397,879	398,070	397,946
397,948	397,918	397,965	397,881	398,097	397,955
397,952	398,079	397,947	397,884	398,100	397,998
397,954	398,081	398,096	397,911	398,118	398,055
397,960	397,901	397,927	397,916	398,128	398,066
397,961	397,899	398,043	397,997	398,132	398,089
397,962	397,900	398,045	398,007	398,133	398,108
397,981	397,958	398,071	398,037	397,841	398,122
397,994	397,987	398,080	398,053	397,844	398,123
398,000	398,105	398,115	398,076	397,845	398,129
398,003	398,106	398,042	398,082	397,846	397,943
398,004	398,114	397,915	398,083	397,847	397,996
398,035	397,892	397,968	398,086	397,848	398,020
398,041	397,902	398,001	398,110	397,852	397,887
398,056	397,906	398,046	397,877	397,853	398,025

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48 : 397,924	398,063	49 : 398,104	398,022	397,983	398,084
397,928	398,075	50 : 397,875	398,058	397,984	
398,012	398,087	53 : 397,838	398,088	397,985	
398,013	398,090	397,999	397,926	397,988	
398,049	398,103	398,002	397,976	398,065	

PLANT PATENTS

12 : 10,593	10,594	34 : 10,589	39 : 10,590	41 : 10,597	
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